

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

Christian Leuz, Alexander Triantis, and Tracy Wang<sup>1</sup>

First Version: June 2004

This Version: November 2004

<sup>1</sup>Christian Leuz is at University of Pennsylvania's Wharton School. Alexander Triantis and Tracy Wang are at University of Maryland's Robert H. Smith School of Business. We thank Utpal Bhattacharya, Brian Bushee, Rachel Hayes, Soeren Hvidkjaer, D. Scott Lee, Paul Mahoney, Bill Tyson, and seminar participants at University of Virginia, University of Washington and Warwick Business School for their helpful comments.

## **ABSTRACT**

We examine a large sample of public companies that choose to “go dark”, i.e., cease filing with the SEC by deregistering their securities, but continue to trade in the OTC market. This decision implies a substantial decrease in disclosure and investor protection. Approximately 200 companies went dark in 2003 alone, raising concerns that recent U.S. securities regulation is behind the trend. We document a large negative abnormal return at the announcement and filing of deregistration, which is more pronounced for firms that deregistered after the passage of the Sarbanes-Oxley Act. While the market’s reaction does not preclude cost savings as a motivating factor for deregistrations, it suggests that shareholders infer negative information about the firm’s future prospects from the going-dark decision, and/or view the decision as principally serving insiders’ interests. Our analyses provide evidence that is consistent with deregistrations being triggered by negative changes in firms’ prospects, but that also lends credence to concerns that deregistrations have less benign motivations when governance structures are weak and agency problems are present. While going private also leads to suspension of SEC reporting, we delineate several distinctions between firms that go dark and those that go private.

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” (see McKay, 2003 and Frigo and Litman, 2004). In 2003 alone, 198 U.S. companies deregistered their common stock for reasons other than a merger, acquisition, liquidation, registration withdrawal, 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 recommends that the SEC amend Rule 12g5-1 of the Securities Exchange Act of 1934 (which was added in 1965 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>1</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”.

---

<sup>1</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.

This study is the first to analyze a large sample of SEC deregistrations where firms effectively “go dark”. Our sample allows us to explore the effects of a significant and voluntary decrease in the commitment to disclosure. These deregistrations are also a rare opportunity to study substantial changes in investor protection for U.S. firms. We identify a comprehensive sample of close to 400 firms that went dark between 1998 and 2003, and document important economic consequences of deregistration, including price and liquidity effects. In addition, by using a probit analysis to compare going-dark firms to those that could deregister but chose to continue reporting, we are able to shed light on the rationales underlying the decision to go dark.

In press releases announcing the decision to deregister the firm’s stock, managers typically cite the high costs of reporting as the key motivation for going dark. We find that smaller and distressed firms, for which reporting costs may be particularly burdensome, are more likely to go dark. We also document that firms that have fewer growth opportunities and lower trading volume are more prone to deregister, indicating that many of our sample firms rationally trade off the costs and benefits of reporting in their decision to deregister. However, on average, there is a large negative market reaction of approximately -10% to firms’ decisions to go dark. The abnormal return at the announcement date is particularly negative for smaller firms, and for firms that deregistered after the passage of the Sarbanes-Oxley Act, where the cost savings rationale should be even more pertinent.

There are two plausible explanations for the market’s negative reaction to deregistration. The first is predicated on the notion that there is substantial information asymmetry about changes in firms’ growth opportunities. As managers’ reporting choices likely reflect the firm’s future growth opportunities and external financing needs, the decision to deregister could reveal to investors that growth opportunities have deteriorated. In this case, the market reaction to a deregistration announcement is likely to be negative, even if deregistering does in fact save reporting costs. That is, managers merely accelerate the revelation of negative news and in doing so act in shareholders’ best interests. While testing this asymmetric information

hypothesis is difficult, we do find results that are consistent with the notion that the market views the going dark decision as revealing negative information about firms' growth prospects and future profitability.

An alternative explanation for the negative market reaction to deregistration is that outside shareholders view the going dark decision as being only in insiders' best interests. At the very least, controlling insiders may not be internalizing the loss of stock liquidity when deciding to go dark, given that managers may view their holdings as being relatively illiquid regardless of whether the firm continues to report or not. Outside shareholders may be even more skeptical, viewing deregistration as a mechanism for management to hide poor performance that might otherwise lead to their dismissal, to protect themselves from legal liability (especially post Sarbanes-Oxley), or to make it easier for them to extract private benefits of control (including compensation and perks). By looking at proxies for earnings management, free cash flow, and ownership concentration, we provide some evidence supporting the hypothesis that deregistrations are more common when corporate governance is weak and agency problems are likely to be present.

Our study also draws some clear distinctions between going-dark deregistrations and two related events, namely delisting and going private. While a company's stock will be delisted following deregistration if it is not already traded in the over-the-counter market, deregistration and delisting are different issues, with separate consequences. Delistings tied to voluntary deregistration decisions are implicitly voluntary. Other studies that examine the effect of delistings, including recent studies by Macey, O'Hara, and Pompillo (2004) and Angel, Harris, Panchapagesan, and Werner (2004), focus on involuntary (regulatory) delistings. Thus, our sample of delistings is unique.<sup>2</sup> Moreover, we separate the market reactions to deregistration and delisting and find a significantly negative impact attributable to each event.

---

<sup>2</sup>In a concurrent paper, Marosi and Massoud (2004) analyze a sample of 42 firms that voluntarily deregister and delist from major exchanges.

In practice, firms that deregister to go dark are often casually viewed as having gone private. Going dark and going private both remove the obligation to provide information to public investors. However, there are important distinctions between these actions, the most notable being that going-dark firms continue trading after the date of deregistration. To contrast going-dark and going-private firms, we study a parallel sample of firms that went private during the 1998-2003 period (see also Engel, Hayes and Wang, 2004). Interestingly, while the number of going-dark firms has surged following the passage of Sarbanes-Oxley, the incidence of going-private transactions has not significantly increased recently. We find that companies that go dark tend to have smaller size, lower recent stock return, lower free cash flow, fewer growth opportunities, and fewer institutional owners than firms that go private. We also document a large positive difference between going private and going dark event window returns. Taken together, our evidence suggests that going private is primarily driven by motivations other than the costs of reporting, and that going dark and going private are distinct corporate decisions.

Our results are consistent with claims that firms respond to Sarbanes-Oxley by exercising their option to exit the SEC reporting system. While the reduced disclosure may be an unintended consequence of the new regulation, firms that go dark are generally small, and often distressed, and thus the overall impact on the informational efficiency of the market is likely to be limited. Placing further restrictions on the ability of such firms to exit SEC reporting (for instance, using the number of beneficial owners rather than holders of record) may increase shareholder protection in many instances, but has the detrimental effect of imposing additional expected costs on firms that consider going public. An alternative to restricting exit is to decrease firms' incentives to deregister through more scaleable versions of governance and reporting regulations that better match costs with firm size. Managers seeking to avoid the market's scrutiny would no longer be able to pool together with those deregistering purely to reduce reporting costs.

The next section details the deregistration process from a legal and procedural perspective. In Section II, we discuss the costs and benefits associated with both going-dark and going-

private decisions, review the relevant literature, and present our research design. Section III describes our sample selection and presents some descriptive statistics. Section IV documents our findings. Section V provides concluding remarks.

## **I. The Deregistration Process**

Under the Securities Exchange Act and the SEC's 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 holders of record, or fewer than 500 holders of record 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. Rule 12g5-1 under the Securities Exchange Act defines "holder of record" for purposes of Sections 12(g) and 15(d) of the Securities Exchange Act in such a way that a group of beneficial owners are counted as a single holder of record if their shares are held in street name by a single financial institution.<sup>3</sup>

The company deregisters a class of securities by filing Form 15, a simple one-page form that requires the company to report how many holders of record there are for the class of securities, and to indicate the provision(s) of the 1934 Act under Rules 12g-4, 12h-3, or 15d-6 that were relied upon to suspend the duty to file reports. If a company deregisters all of its securities, its duty to file any reports under Section 13(a) of the 1934 Act (which include Forms 10-K, 10-Q and 8-K) is effectively suspended, and the company is no longer subject to the Sarbanes-Oxley Act and the SEC rules promulgated thereunder. Going dark thus not only

---

<sup>3</sup>In contrast, Rule 12g3-2, which applies to the deregistration of foreign companies' securities, looks through to beneficial owners, counting the number of separate accounts for which brokers, dealers, or banks hold the securities. Foreign firms that have realized little benefit from cross-listing in the US now feel trapped in the SEC reporting system, particularly post-SOX, given that it is extremely difficult for these firms to satisfy the deregistration requirements of having fewer than 300 (or 500) beneficial owners (see Ascarelli, 2004). A group of eleven European corporate associations wrote to the SEC in July 2004 seeking to change Rule 12g3-2, proposing that companies should qualify for deregistration if less than 5 percent of the company's trading volume were in the United States. The SEC is currently considering this alternative criterion for deregistration, as well as rules based on market capitalization or the percent of shares held in the United States.

drastically diminishes the amount of financial information provided to outside shareholders, it also alters the protection available to these investors.

A company that is interested in deregistering its securities in order to go dark, but has more than 300 record holders, can 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 offers to repurchase its shares pursuant to particular SEC rules. Although 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 outside 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.

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. 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 under the Securities Act of 1933 or is required to be updated pursuant to Section 10(a)(3) of the Act.<sup>4</sup> The company must also not have any contractual obligations (such as registration rights granted to investors or vendors), or restrictions in its certificate of incorporation (or bylaws), that require the company to continue filing reports with the SEC.

---

<sup>4</sup>A two year restriction applies to firms with fewer than 500 shareholders and less than \$10 Million in assets. See Rule 12h-3 of the Securities Exchange Act of 1934.

Before filing to deregister its common stock, a company may first have to apply to delist its stock from an exchange. The exact process depends on where the company's stock is traded, and in turn what Section(s) of the Securities 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 Securities 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 under the Securities 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 unlisted companies that have more than 500 equity holders of record and \$10 Million in assets at the end of the previous calendar year, are required to register those equity securities with the SEC. 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 Securities 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 1933 Act. Companies that terminate their registration under Section 12 will thus become subject to a filing requirement under Section 15(d), but this obligation can be suspended under Rule 12h-3 (the company simply needs to check an additional box on Form 15).

If the company's stock has been quoted on a major exchange, on Nasdaq or on 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 with a web portal for quote dissemination (see Bushee and Leuz, 2004). 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>5</sup> Once the deregistration is approved, all reporting requirements of the SEC are formally suspended as long as the company's holders of record remain below the threshold of 300 (or 500).<sup>6</sup>

## **II. Literature Review, Hypotheses and Research Design**

### **A. The Benefits and Costs of Going Dark**

The most often cited benefit of going dark, as reported in press releases, 8Ks and 13E-3 filings, is the cost saving from suspending SEC reporting. Periodic reporting to the SEC consumes considerable internal resources and requires 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, improvements to internal control systems, higher D&O insurance premiums, and other compliance expenses.<sup>7</sup> Some press releases also point to certain indirect cost savings from deregistration. For instance, companies are able to avoid disclosing information that may be

---

<sup>5</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>6</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.

<sup>7</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, 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

of value to their competitors.<sup>8</sup> Furthermore, management can focus its attention on the company's strategy and operations, rather than on managing short-term shareholder expectations.<sup>9</sup>

The costs associated with going dark are numerous. A company that goes dark destroys the bonding it created when it began its presumably long-term commitment to SEC reporting (Coffee, 1999). Various studies have documented the significant value increase that is attributable to bonding, most notably in the context of US listings of foreign firms' shares (see Doidge, Karolyi, and Stulz, 2003 and Karolyi, 2004). Thus, removing this bonding is likely to have a substantial negative impact on the firm's value.

The loss of transparency that results from going dark dramatically increases the asymmetry in information between insiders and outsiders. Easley and O'Hara (2004) and Wang (1993) argue that uninformed traders require a higher premium for holding stocks where there is greater private information, and Easley, Hvidkjaer, and O'Hara (2002) provide empirical evidence that stocks with higher probabilities of information-based trading indeed have higher average rates of return. The investor base may also shrink as access to information becomes severely limited, and as various restrictions on who can recommend, hold, and margin stocks become relevant for these stocks. As Merton (1987) and Basak and Cuoco (1998) argue, a smaller, and thus less diversified, base of investors will in turn require a higher risk premium. Furthermore, Barry and Brown (1984), and Coles, Loewenstein, and Suay (1995) show that as investors become less confident in their estimates of the stock return distribution of the stock, expected returns should increase.

Relatedly, 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

---

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>8</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, Panetta, and Zingales (1998), Roell (1996) and Lehn and Poulsen (1989). More generally, proprietary costs are discussed in the disclosure literature, e.g., Healy and Palepu (2001).

<sup>9</sup>This argument is discussed in Frigo and Litman (2004) and Jensen (2002). Graham, Harvey, and Rajgopal (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.

be delisted as a result of going dark, a loss of liquidity is to be expected based on empirical evidence provided in Macey, O'Hara, and Pompillo (2004), Angel, Harris, Panchapagesan, and Werner (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, liquidity is still likely to decline as a result of the reduced commitment to disclosure (Leuz and Verrecchia, 2000). Amihud and Mendelson (1986) argue that traders require higher returns to compensate for lower liquidity, and Amihud and Mendelson (1986), Brennan and Subrahmanyam (1996), and Eleswarapu (1997) present empirical evidence supporting this hypothesis. Thus, the expected liquidity loss should further drive up the cost of equity, and hence is another key factor when deciding whether to go dark.

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 (Rajan (1992) develops this argument of competition in sourcing capital as a rationale for going public). Taken together with an increase in the company's cost of equity, the resulting higher cost of capital reduces the market's valuation of the company, and may result in the company foregoing profitable investments, particularly if they require external financing or using stock as a currency for potential acquisitions. 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.

Revealed preference suggests that the costs of being dark outweigh the benefits of suspending SEC reporting for most public companies. However, positive shocks to the benefits, or negative shocks to the costs, of going dark can tip the balance in favor of going dark, much in the same way as shocks to financing needs or other factors can trigger a private firm to go public (e.g., Roell, 1996) or to cross-list (Doidge et al., 2003). Positive shocks to the benefits

of going dark may include a change in regulation, such as the passage of the Sarbanes-Oxley Act, that greatly increases the costs of being a reporting company. On a firm-specific level, the company's profitability may decrease significantly, making the cost of reporting an increasingly higher proportion of income, potentially driving the company further into distress if it is already sustaining losses. Regarding the indirect costs associated with deregistration, if a company's shareholder base has decreased (for instance if analysts no longer cover the stock, or if there is little institutional ownership) and if liquidity has already dried up substantially, then the downside associated with going dark may be somewhat limited. These motivations for going dark are those most frequently cited by management in press releases. In deciding to go dark, management may also have taken into account that their company's growth opportunities, and thus need for external financing, have decreased. Though this decision input is unlikely to be shared with the public, investors may consider this possibility when reassessing the company's value.

Investors may also suspect that, in deciding whether to go dark, management considered factors that are of concern only to insiders of the firm. For instance, by going dark, controlling insiders can hide activities that increase their private benefits more easily, including loans on favorable terms, generous compensation packages, or special deals with companies in which the insiders hold stakes. Thus, going dark increases the expected value of these private benefits, and reduces the expected costs associated with preventing detection and suffering the consequences should these activities be uncovered. Even for those firms that generate little cash to directly or indirectly expropriate, management may be concerned about keeping their jobs, and a dark environment might better protect them.<sup>10</sup> Insiders also assess the costs of going dark quite differently than do outside shareholders. There is no loss of transparency, and while liquidity decreases following the deregistration, insiders that have a significant ownership stake in the company perceive their holdings to be rather illiquid in any case.

---

<sup>10</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, Helmantel, and Sarig (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.

The extent to which the insiders' perspective on the going dark decision overshadows the outside shareholders' perspective will be influenced by the strength of the firm's corporate governance. The presence of outside directors and large outside blockholders such as institutions may ensure that shareholders' interests are more fairly represented in the decision of whether to go dark. The outside shareholders' interests will also be better protected if the company has more than 300 holders of record (or 500 for smaller firms), since the transaction that needs to be executed to bring down the holders of record below the maximum threshold will involve shareholder input: a reverse split requires majority shareholder approval; a tender offer gives each shareholder the option to sell his or her shares back to the company.

## **B. Going Private vs. Going Dark**

Companies that go dark are often viewed as becoming "quasi-private" in the sense that, as with companies that go private, there is no longer a requirement to provide information to the SEC, and in turn to the market at large. If going private and going dark decisions were purely motivated by the direct and indirect cost savings from suspending SEC reporting, then these actions would be interchangeable except for the fact that shares of dark firms continue to be publicly quoted, and at least occasionally traded, whereas there is no public trading of the equity of private firms. This distinction is important to firms that wish to preserve some liquidity in their stock.

Evidence from past studies of going private transactions indicate that the motivations for going private go beyond the cost savings from avoiding the reporting requirements. Specifically, going private transactions are often initiated by affiliated parties who believe the company is inefficiently managed, underleveraged, or undervalued by the market.<sup>11</sup> These trans-

---

<sup>11</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 free cash flow agency hypothesis of Jensen (1986). Kaplan (1989a) and Lichtenberg and Siegel (1990) also show that accounting profits increase significantly following going private transactions. Kaplan (1989b) finds that tax savings from higher interest tax shields can be an additional and significant source of value in going-private transactions. The frequently mentioned asymmet-

actions involve restructuring the company, with concentrated ownership in the hands of management and private equity investors, and often a high level of debt. Given the necessity of raising new capital, and the legal complexities that are involved, such transactions are worthwhile only if the company has significant potential that can be more fully realized under highly incentivized management, and if the size of the firm can produce efficiency and tax benefits that outweigh the costs associated with the transaction.<sup>12</sup>

Firms for which the costs of reporting exceed the benefits, but that are not sufficiently attractive for affiliated parties to orchestrate a going private transaction, are thus likely to go dark. Thus, relative to companies that go private, we expect that going dark firms might be smaller, more highly leveraged, and perhaps have substantially poorer operating performance for reasons other than being poorly governed.

If we also consider these decisions from the perspective of insiders, low quality managers may have little incentive to initiate, or to help facilitate, a transaction that might in the end lead to their dismissal. Thus, even if the firm is an attractive going private target, managers who wish to entrench themselves will choose to go dark. By making their firm less visible and transparent, these managers may even reduce the likelihood of becoming a future target, though if the company's share price drops as a result of going dark, the company may become a more attractive going private candidate. The balance between the control of a firm's insiders on the one hand, and the influence of outside blockholders on the other, may thus affect the propensity of a company to go dark as opposed to go private. It is interesting to note that many firms execute a complex transaction such as a reverse-split or a tender offer to get their holders of record below 300, but yet do not go fully private. It is possible that the additional complexity and capital required to take the firm private are quite substantial. However, man-

---

ric information hypothesis, namely that affiliated shareholders may initiate going-private transactions when they view the shares as undervalued by the market, is examined by Lee (1992), who finds no support for it.

<sup>12</sup>Going private transactions require compliance with more stringent SEC regulations and face an increased risk of shareholder litigation, since the interests of management often conflict with those of outside shareholders. Allegations of breach of fiduciary duty frequently arise, and safeguards such as appraisals and an independent board committee to represent outside shareholders are often put in place to minimize the litigation risk.

agerial entrenchment, private benefits, or more generally agency conflicts, could also explain this phenomenon.

Finally, our arguments suggest that a company's going dark decision should be less favorably received by the market than if it were to go private, because shareholders likely infer that either the firm is not an attractive target for a going-private transaction, or that management tries to keep the firm out of the hands of new equity blockholders who might be able to increase the value of the firm.

### **C. Research Design**

Our discussion above suggests two main perspectives for why firms go dark. Faced with a deterioration of growth opportunities, managers may seek to maximize long-term shareholder value by saving on the direct and indirect costs of SEC reporting when these costs exceed the benefits of registration. In contrast, the decision may reflect insiders' desire to protect their private benefits. We design tests that help us understand whether either, or both, of these rationales explain why firms go dark, and generally to document various economic consequences of going dark.

We first focus on deregistration-induced changes in price and liquidity because market-based measures are likely to capture the net effects of deregistrations. We conduct an event study analysis to determine the market's reaction to firms going dark. We examine whether the market's response depends on measures of the costs of reporting, such as firm size and whether the deregistration filing occurred before or after the passage of the Sarbanes-Oxley Act. We also study the effect of key firm characteristics prior to deregistration, including whether the firm's stock was already traded in the Pink Sheets, whether a 13E-3 transaction was required to meet the criteria to deregister, and whether the company had filed for bankruptcy protection. We separate the effects of deregistration and delisting by conducting a pooled time-series regression with dummies for different event dates. We also measure changes in liquidity in the

year before versus the year after deregistration, and again 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.

A probit analysis is used to identify the characteristics of going-dark firms that differentiate them 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, including firm size, leverage, past return, volume, growth opportunities, and variables such as blockholders, institutional ownership, free cash flow, and accounting quality that can shed light on whether firms that go dark are those that are more likely to be subject to agency problems. We also use these variables to examine the key differences between going-dark and going-private firms.

### **III. Sample Selection and Descriptive Statistics**

#### **A. Going Dark Sample**

Form 15 filings are available from LiveEdgar on a five-year rolling basis. Our data 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 is liquidated; it withdraws a security registration; it goes private; or, it can and wants to be exempt from the duty to report to the SEC. The last category of Form 15 are the “going–dark” firms in our study. These firms no longer report to the SEC after filing Form 15, but they continue to have their common equity publicly traded. In addition to using information available on LiveEdgar (in particular 8K filings), we check the webpages of Pink Sheets, Yahoo Finance, and OTC-Portal, as well as deletion codes in Compustat and CRSP to ensure that all firms categorized as going-dark continued trading after the Form 15 filing and that there were no other securities of the firm registered that would have required the firm to continue reporting.<sup>13</sup> During 1998 to 2003, 380 companies filed to go dark. We used Compustat, CRSP, Compact Disclosure and Datastream to extract stock prices, volume and corporate financial and ownership information. Price data was available for 287 firms in our sample (at least on and after the filing date), and financial information was obtained for 332 companies.

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>14</sup> In order to properly measure the stock market reaction to firms’ Form 15 filings, we search for announcements of the deregistrations in companies’ 8K filings, and in Lexis-Nexis and Bloomberg. We are able to identify announcements for 189 of the firms in our going–dark sample, as well as what we categorize as “contingent announcements” for another 30 firms that are indications (in 8K or Schedule 13E-3 filings) that a deregistration will take place under particular contingencies, such as the successful execution of a transaction to bring down

---

<sup>13</sup>We check whether any financial information for these companies is posted at PinkSheets.com. Financials are available for only 11 firms in our sample. For a subsample of 50 randomly selected companies in our sample, financial statements appear on corporate websites for only six of these companies (and three of these are unaudited statements) subsequent to the deregistration. It thus appears that little reliable financial information is provided by the companies in our going-dark sample.

<sup>14</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.

the holders of record below the maximum threshold for deregistration. 49 companies in our going-dark sample file a Schedule 13E-3 prior to a Form 15.

## **B. 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. 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 an estimate of their beneficial holders, which is an upper bound on the number of record holders. Thus, there are some firms that should be in our sample but are excluded given incorrect reporting in their 10K. We exclude firms that have become reporting companies during the fiscal year 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.<sup>15</sup> Our control sample consists of 2182 firms.<sup>16</sup>

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>15</sup>We also exclude firms with 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 asset size and other firm characteristics change dramatically in years in which a transaction takes place, yielding extreme outliers whose economic interpretation can be misleading.

<sup>16</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 7380 firm-year observations in our probit analysis associated with the control sample.

## C. 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. 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. 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.”

The first step of our sample construction thus involves using LiveEdgar to identify companies that file a Schedule 13E-3 followed by a Form 15, indicating apparent completion of the going-private transaction culminating in deregistration of the stock. DeAngelo, DeAngelo, and Rice (1984) and Engel, Hayes, and Wang (2004) also follow the SEC’s definition of going-private based on Rule 13e-3. However, our sample selection process is unique in two respects. First, we recognize that there are cases where companies file Schedule 13E-3s 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. There are 49 such firms that 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 10 such going-private firms that file Form 15 yet do not need to file Schedule 13E-3. Using this selection process, we construct a sample of 406 going-private firms. Price data is available for 267 of these firms for at least the day of and the

days after the filing date (and for 312 firms for at least the day of and the day before the filing date). Financial information is available for 358 of the firms in our going-private sample.

## **D. Descriptive Statistics**

Univariate statistics describing our going-dark, going-private and control samples are shown in Tables 1, 2 and 3. Panel A of Table I 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. 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>17</sup>

Panel B of Table I describes the trading history of dark firms after their date of deregistration, based on information from webpages of Yahoo Finance, Pink Sheets, and OTC-Portal, as well as from Datastream. The last trading date was not available for 32 of our 380 firms. The table shows that most dark firms trade for many years after filing their deregistration. For instance, 283 of the 380 going-dark firms were still traded after June 30, 2004. Another 34 companies appear to have their stock quoted in the OTC markets as of August 31, 2004, but did not trade during the June 30 to August 2004 period, and thus some of these may effectively be no longer traded. We identify 32 companies that ceased trading altogether at some point after deregistration: 9 were acquired, 3 went private, 9 were liquidated, 6 underwent a bankruptcy reorganization, and 5 were deleted because of inactive trading. Thus, very few of

---

<sup>17</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.

the firms that go dark soon die off. Also, going dark does not appear to be an intermediate step towards becoming fully private.

Table II 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.

Some key characteristics of the firms in our going-dark sample are compared against those of the going-private and control samples in Table III. 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 provided in the table description.

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 value of equity. They seem to have underperformed relative to the control sample firms as measured by past-year stock return. They have higher leverage, and appear to face a recent increase in short term debt. Growth opportunities, as measured by R&D intensity, are small for going-dark firms. In contrast, free cash flow for going-dark firms is larger than for the control sample. Institutional ownership is much lower for the going-dark firms, perhaps given that these are smaller companies, while block holdings are about the same.

Going-private firms are much larger companies, and have significantly higher recent market returns than going-dark firms. However, note from Panel A of Table I 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. Finally, going-private firms have significantly higher block and institutional ownership.

## IV. Results

### A. 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, aligning our sample in event time based on three possible events: the Form 15 filing; the earlier of the deregistration announcement or the filing; and the earliest of the contingent or final announcement or the filing.<sup>18</sup> These alternative event dates provide some robustness checks.

In Table IV, we report cumulative returns for 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 to account for relatively low liquidity of these stocks. For the [0,1] window, we report the raw cumulative return, and also calculate cumulative abnormal returns using a simple market adjusted return based on the equally-weighted CRSP market index, and using the corresponding size decile portfolio returns. Both the market and size adjusted returns are very close to the raw returns (for all three event windows), and further refinements of the abnormal returns calculation (e.g. adjusting for the beta of each stock) yield negligible differences in the CAR computations. Given the low capitalization of the firms in our sample, cumulative returns are calculated based on a buy and hold strategy (see MacKinlay, 1977 and Blume and Stambaugh, 1983). The t-statistics reported are based on Brown and Warner (1985) standard errors. Since some of the stocks in our sample have very low prices which yield extreme return observations on both tails, we set prices below

---

<sup>18</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.

\$.001 to missing and mildly truncate the top and bottom 0.5% tail of the return distribution. We follow a similar procedure in our time-series regressions reported below.

The event window returns are highly significant and economically large. For the event that captures the earliest of the contingent announcement, deregistration announcement and filing dates, the cumulative abnormal return (using the size adjustment) is -8.9% for the [0,1] window, -10.9% during the [0,2] window, and -12.8% over the [-5,5] window. Moreover, the vast majority of the size-adjusted CARs were negative for the event period, demonstrating that our findings are not driven by a few extreme observations.

The highly negative event window returns indicate that shareholders do not react favorably to deregistration. As discussed in our hypothesis development, one explanation is that outside shareholders believe that the decision to deregister is only in the best interests of controlling insiders, who focus on protecting their benefits of control, and do not internalize all the costs imposed on outside shareholders. An alternative explanation is that the decision to deregister is triggered by a change in the cost-benefit tradeoff to reporting, such as a decrease in the firm's growth opportunities, and that this change in the underlying fundamentals of the company comes as news to the market. If insiders believe that this information would be revealed through their continuing disclosure, they may decide to save on the costs of reporting even if investors 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 IV. Firms going dark after the passage of SOX suffer a significantly larger negative price drop than firms going dark prior to SOX. Judging from the higher incidence of going dark deregistrations following the passage of SOX, coupled together with a seemingly benign explanation given 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>19</sup>

---

<sup>19</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 fact that we find exactly the opposite relation casts some doubt on the simple cost savings explanation and is consistent with the notion that the market views managers as seeking refuge in a “lights-out” environment given the more stringent post-SOX reporting requirements.

We observe that firms with lower stock price (below the \$1 threshold) are more negatively impacted by going dark. 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 firms with lower stock price - a proxy for firm size - to benefit more from deregistering given that the cost savings are proportionately higher for such firms.<sup>20</sup> A possible explanation for the larger negative price impact for smaller firms is that there is greater information asymmetry for smaller firms, and thus more revelation at the event dates about the firm’s diminished future opportunities and profitability. Also, since some firms that have low stock price may soon face an involuntary delisting into the Pink Sheets, a deregistration may signal to the market that, based on its assessment of its future prospects, the firm views itself as a likely target for delisting, and may as well delist on its own terms. In contrast, the deregistration decisions of larger firms may be viewed as more discretionary, and thus may not convey as much of a negative signal regarding the firm’s financial health.

To examine whether the market reacts differently if the deregistering company is already in distress, we look at the effect of two distress-related variables: the stock return during the last fiscal year prior to deregistration (versus the median for the entire going-dark sample), and whether or not the firm has filed for bankruptcy protection prior to deregistering. There is no significant difference in event returns between the groups of stronger and weaker firms sorted by either of these criteria. This finding alleviates the concern that our event returns primarily capture news about financial distress or future bankruptcy.

---

the post-SOX price reaction should be less negative, which makes our finding of more negative returns even more striking.

<sup>20</sup>Using two subsamples of firms sorted on market value of equity, we found an almost identical result.

We also separately examine those firms that first perform a transaction to decrease their holders of record below 300 before deregistering. Given that these transactions often provide outside shareholders with some protection since they require shareholder consent or tendering of shares, one might expect that the announcement of a Schedule 13E-3 filing would not be perceived as negatively by the market as in the complementary cases where no such filing needs to be made prior to deregistering. Indeed, looking at the event that captures the earliest of the contingent announcement (often a 13E-3 announcement or filing), the deregistration announcement, and the Form 15 filing, we find that the subsample of firms that file Schedule 13E-3 do not experience a significant price decrease at the event date, creating a significant difference between the returns of the two subsamples. This differential price reaction provides some support for the notion that concerns about expropriation and shareholder protection are partly responsible for the negative deregistration returns.

Finally, to separate deregistration and delisting effects, we examine whether the 78 firms already trading in the Pink Sheets prior to going dark react differently to deregistration than the 207 firms in our sample that trade outside the Pink Sheets. If delisting and a subsequent loss of liquidity were the only concerns about going dark, we would expect that firms already trading in the Pink Sheets would not be penalized by the market to the same extent as would firms trading outside the Pink Sheets. Instead, we find that the price drop for both sets of firms are not significantly different from each other, indicating that the market is reacting to much more than a forthcoming delisting to the Pink Sheets when it learns that a company will deregister its shares.

Next, we conduct a set of pooled cross-sectional time-series regressions to address concerns that deregistration and delisting occur within the same event time window for several firms, and that other contemporaneous events might also obscure the true price impact of deregistration.<sup>21</sup> This analysis attempts to further isolate the price effects associated with go-

---

<sup>21</sup>This issue arises in Marosi and Massoud (2004). They study only firms that trade on major exchanges prior to going dark and hence have to simultaneously delist. Thus, they cannot separate out the effects of deregistration and delisting.

ing dark. In Panel A of Table V, we set *Dereg.* equal to one for the day of, and the day after, the earlier of the filing and announcement date of deregistration. The coefficient for *Dereg.* in the first regression captures the average daily price effect in this two-day window, which is comparable in magnitude to the cumulative event returns reported in Table IV. We report t-statistics based on Newey and West (1987) corrected standard errors using up to 5 lags to account for pooling, potential serial correlation in daily returns, and heteroscedasticity. We also check whether our inferences are affected by clustering of event days in calendar time. In untabulated regressions, we find that the significance levels are very similar and the inferences are unchanged if we cluster standard errors by calendar date.

Controls for delisting and other variables are introduced in the subsequent regressions in Panel A. *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.<sup>22</sup> To control for a potential price pressure effect on the event window returns, we set *Price-reversal[i,j]* equal to one if the return over the  $[i, j]$  window has the opposite sign of the return over the  $[0,1]$  window. To control for a contemporaneous bankruptcy announcement effect, *Bankruptcy* is set equal to one on the day of, and the day after, the company files for bankruptcy. The results shown for Models 2-5 indicate that these controls capture interesting and plausible price reactions, such as a separate delisting effect, which is particularly large when firms delist to the Pink Sheets.<sup>23</sup> More importantly, however, the average daily price impact of deregistration is very similar to that in Model 1, even with these additional controls in place. Thus, our event return results do not appear to be driven by other contemporaneous events, such as delisting or bankruptcy filings.

---

<sup>22</sup>In unreported regressions, we have also separately analyzed cases where delisting occurs before versus after the deregistration filing date, and we find very similar results to those reported in Panel A of Table V.

<sup>23</sup>The price reversal variables are not significant, indicating that price pressure is an unlikely explanation for the large negative deregistration event returns. The fact that the CARs over the  $[-5,5]$  window in Table IV are even larger than those over the  $[0,1]$  window is also consistent with this finding.

In Panel B, we separately identify price effects on the announcement and filing dates of deregistration. All regressions control for the daily returns to the corresponding size decile portfolio for each firm in our sample. The results indicate that there is a price reaction on the filing date as well as on both contingent and final announcement dates. These results reflect the fact that some firms do not announce their deregistration in 8K filings or press releases, and consequently the market reacts at the filing date.

Since going dark and going private decisions may both be driven in part by a decline in the net benefits of SEC reporting to the firm, it is useful to also document the stock market's reaction to firms' going-private decisions during the same time period as for our going-dark sample. In Table VI, we show the cumulative returns around a compound event date which is the earliest of the first Schedule 13E-3 filing date, the announcement date (if there is one), and the Form 15 filing date. The cumulative returns across all event windows (and using either raw, market- or size-adjusted returns) are significantly positive, particularly so in the post-SOX period. Engel, Hayes, and Wang (2004) and Lehn and Poulsen (1989) (among other going-private studies) also find significantly positive returns, which reflect that shares are typically bought out at a premium in going-private transactions.<sup>24</sup> The decisions to go dark or to go private are clearly viewed very differently by the market. Some of the negative news that investors infer when a company goes dark may well be relative to the hope that the firm would go private. That is, the company may have tried and failed to go private, and this bad news is conveyed to the market when the firm goes dark. Outside shareholders may also be disappointed by the going dark decision if they believe that controlling insiders were reluctant to go private because it would hinder their ability to extract private benefits, consistent with our agency hypothesis for going dark.

---

<sup>24</sup>In unreported tests, we find that for the subsample of firms that have announcements, the cumulative return in the [0,1] window is approximately 14%.

## B. The Effects of Going Dark on Liquidity

The effect of deregistration on liquidity is reported in Table VII. 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>25</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 economically 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 (in Model 4) 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 hold regardless of whether the stock changes trading venue or not. 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. The results (not reported here) are consistent with those in Table VII. Liquidity drops significantly as a result of deregistration, even after controlling for delisting. In Panel B of Table VII, we report that measuring liquidity by the percentage of days in which trading occurred during the periods before and after deregistration, which may be a better measure of liquidity for the stocks in our sample, leads to similar results as using turnover.<sup>26</sup>

---

<sup>25</sup>The top 0.5% of the volume data has been truncated.

<sup>26</sup>In unreported tests, we find similar results when using median turnover rather than mean turnover, and also if we use (the log of) share and dollar volume. When using dollar volume, we also control for stock price performance as a robustness check, and find that the results are unchanged, other than  $\text{Log}(MV)$  becoming insignificant in some of the regressions.

Deregistration thus clearly leads to a significant loss in liquidity, which has been one of the key concerns of institutional and other investors (see Nelson, 2003). The negative stock market reaction to going dark likely reflects in part the anticipated drop in liquidity. This again brings us back to our study's main question of why firms go dark if stock price and liquidity consequences are so severe. We further explore this question in the next section.

### **C. Probit Analysis of the Going Dark Decision**

Table VIII reports results of probit regressions that identify characteristics associated with firms that go dark, relative to the control sample 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.

Panel A of Table VIII shows that going-dark firms are significantly smaller than firms that choose to continue reporting despite the fact that both satisfy the threshold rule for deregistration.<sup>27</sup> Going-dark firms also appear to have weaker recent stock performance, significantly higher leverage, and fewer growth opportunities (as measured by R&D intensity) compared to the control sample firms. These findings are consistent with the disclosure literature, which shows that size, leverage, performance and financing needs due to growth opportunities are major determinants of firms' disclosure decisions (e.g., Healy and Palepu, 2001). Our analysis shows that these determinants also apply to significant decreases in the commitment to disclosure.

To further address our two explanations for the market's negative reaction to going dark, we examine the effects of variables that are likely to be of specific relevance for the going dark decision. Distressed firms in particular would be least able to deal with the economic

---

<sup>27</sup>We use Log(Assets) in the main regressions to measure size because MV and Return likely capture similar effects and sample firms differ considerably in terms of their capital structure. However, in unreported regressions, we find consistent results using Log(MV).

burden of reporting.<sup>28</sup> Indeed, we find (in Model 2) that going-dark firms have on average higher increases in the short-term component of debt, which may be due to a distress-triggered acceleration in debt repayments. Given the negative going-dark returns reported earlier, shareholders may be looking beyond the advertised benefits of reporting cost savings to see a level of distress even greater than what they had previously anticipated.

As discussed in Section II, the firms' controlling insiders may also have ulterior motives to go dark, which may dominate other considerations, in particular if the company has weak governance. To explore this agency hypothesis, we examine the effect of several financial and ownership variables. First, we introduce a proxy for accounting quality to see whether managers that take their firms dark also have engaged in earnings management. We find that the magnitude of accruals relative to the firm's operating cash flow is indeed significantly higher for firms that go dark. Using a similar proxy, Leuz, Nanda, and Wysocki (2003) find that earnings management and private control benefits to insiders are related. Thus, our evidence lends some support to claims that insiders in going dark firms are seeking to hide poor performance and to protect private control benefits.

We also find that free cash flow is positively related to going dark. Extending the standard agency view of free cash flow, managers seeking to misuse free cash flow would have a stronger incentive to go dark the higher the level of this cash flow. The redirection of free cash flow towards private control benefits is more likely when the firm has few profitable growth opportunities in which to invest. Using R&D intensity as a proxy of growth opportunities, we find a negative coefficient for the interaction between free cash flow and R&D intensity, supporting the agency story for those firms with high free cash flow and low growth options. In addition, we examine whether the presence of higher free cash flow is more positively asso-

---

<sup>28</sup>Distressed firms may also experience a sharp decline in the benefits to being a reporting firm. In unreported regressions, we find that the change in a company's equity trading volume over the last fiscal year is negatively related to going dark. A decline in capital market activity, which represents a decreasing benefit from liquid secondary market trading for the firm's securities, appears to be a key factor in the going dark decision, consistent with statements made by companies in their press releases. We also report in Panel A of Table VIII that, as expected, going dark firms have a low level of institutional ownership, which is consistent with diminished capital market benefits from reporting.

ciated with going dark when the firm's corporate governance is weak. Using the percentage of block holdings to proxy for the strength of corporate governance, we find that the interaction between free cash flow and blockholders is indeed negatively related to going dark.<sup>29</sup> Both of these findings support the notion that, at least for a subset of firms, going dark is associated with agency problems.

The probit analysis in Panel B indicates that there are several systematic differences between firms that choose to go dark and those that go private. Going-dark firms are significantly smaller than going-private firms. As mentioned earlier, there 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. The past return of going-dark firms is also much lower than that of the going-private firms. To the extent that this poor performance is driven by firm-specific problems which are hard to resolve simply by restructuring the company and providing stronger incentives to management, then these firms may simply not be as attractive candidates as the going-private firms. In contrast, firms that may have substantial free cash flow, but are not employing it efficiently, might be taken private as a mechanism to improve efficiency. Consistent with the earlier literature on going-private transactions, we do find that going-private firms have high free cash flow, significantly higher than that of the going-dark firms. Interestingly, we also find that going dark companies tend to have poorer accounting quality. Managers may be deciding to make the company dark in order to hide poor performance, rather than participating in a going private transaction to work towards better performance. These findings generally point to going-dark firms being more troubled, and are consistent with the announcement return differential between going-dark and going-private firms.

Finally, we find that a 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

---

<sup>29</sup>On its own, the level of concentrated ownership measured by blockholders has a positive coefficient in the regression, which may reflect that sufficient concentration of ownership is required in order to increase the likelihood that the going dark decision gets board approval.

transaction, or continuing to invest in the restructured firm, will be preferable to holding on to illiquid stock of a dark firm, and they may be able to influence the firm's decision to go private rather than go dark.<sup>30</sup>

## V. Conclusions

In this study, we find that the market has a strong negative reaction to companies' going dark decisions. This result begs the question of why firms go dark. We examine two possible explanations. The first is predicated on information asymmetry between the controlling insiders and the outside shareholders. While insiders may fairly assess that shareholders would be better off if the firm suspends SEC reporting, the decision to go dark reveals information to outside shareholders about insiders' updated assessments of the net benefits from reporting. Specifically, shareholders may infer that the company's future growth prospects have decreased. They may even view the decision to go dark as a sign of distress if they conclude that the firm can no longer afford the costs associated with continued reporting.

Our probit results indicate that, relative to the population of firms that could choose to go dark, those that do go dark are smaller firms that have poorer recent stock market performance, higher leverage, increases in short-term leverage, and lower growth opportunities. For poorly performing or distressed firms, the substantial cost savings from suspending reporting may indeed exceed the rather low benefits of continued reporting, supporting the claims in companies' press releases that the decision to go dark is consistent with value maximization. However, it is intriguing that the market's reaction to going dark is more negative for smaller firms. Since the costs of reporting would be proportionately higher for these firms, the market's reaction should be more favorable. It may be that size proxies for the level of information

---

<sup>30</sup>While not reported in the table, we find 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 Schedule 13E-3 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.

asymmetry, and thus the positive association between size and return would be consistent with our asymmetric information story.

A second explanation for the negative market response to going dark is that controlling insiders may be using the veil of deregistration in order to protect their private control benefits and decrease their legal risk, in particular in the post-SOX regulatory environment. We find that firms that go dark tend to have lower accounting quality and higher free cash flow than our control sample firms. Furthermore, we find that firms with high free cash flow and low growth opportunities or low blockholdings are particularly likely to go dark, indicating that agency problems could explain the negative market reaction for some firms, particularly when corporate governance is weak. The fact that there is a significantly less pronounced reaction to deregistration when investors are better protected by a Schedule 13E-3 transaction further indicates that agency problems are at the root of some going dark transactions.

We also find that stronger performing firms appear to go private rather than go dark, and that the market's reaction to firms going private is significantly positive throughout our sample period, but particularly so post-SOX. In light of this evidence, a firm's decision to go dark may be particularly disappointing to shareholders if they view going dark and going private as alternative mechanisms to suspend SEC reporting.

While the Sarbanes-Oxley Act does not 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. It is interesting that the market's reaction to going-dark decisions becomes significantly more negative following the passage of Sarbanes-Oxley, despite the fact that the higher costs imposed by SOX should make the case for going dark more compelling to outside shareholders. Since SOX has made it more difficult for insiders to shield their private control benefits and has increased their potential legal exposure, perhaps more insiders find it in their interest to go dark, using the guise of the high cost of SOX. In sum, we interpret our findings as suggesting that many firms go dark as a response to bad news about future

prospects, but at least for a subset of firms deregistration seems to be driven by less benign motivations.

## References

- Amihud, Y., and H. Mendelson, 1986, Asset pricing and the bid-ask spread, *Journal of Financial Economics* 17, 223–249.
- Angel, J., J. Harris, V. Panchapagesan, and I. Werner, 2004, From pink slips to Pink Sheets: Market quality around delisting from Nasdaq, *Ohio State University Working Paper*.
- Ascarelli, S., 2004, Citing Sarbanes, foreign companies flee U.S. exchanges, *Wall Street Journal* September 20, C1.
- Barry, C., and S. Brown, 1984, Differential information and the small firm effect, *Journal of Financial Economics* 13, 283–294.
- Basak, S., and D. Cuoco, 1998, An equilibrium model with restricted stock market participation, *Review of Financial Studies* 11, 309–341.
- Benninga, S., M. Helmantel, and O. Sarig, 2004, The timing of initial public offerings, *Journal of Financial Economics*.
- Blume, M., and R. Stambaugh, 1983, Biases in computed returns: An application to the size effect, *Journal of Financial Economics* 12, 387–404.
- Boehmer, E., and A. Ljungqvist, 2004, On the decision to go public: Evidence from privately-held firms, *NYU Working Paper*.
- Brennan, M., and A. Subrahmanyam, 1996, Market microstructure and asset pricing: On the compensation for illiquidity in stock returns, *Journal of Financial Economics* 41, 441–464.
- Brown, S., and J. Warner, 1985, Daily stock returns: The case of event studies, *Journal of Financial Economics* 14, 3–32.
- Bushee, B., and C. Leuz, 2004, Economic consequences of SEC disclosure regulation, *Journal of Accounting and Economics* forthcoming.

- Campbell, J., 1996, Understanding risk and return, *Journal of Political Economy* 104, 298–345.
- Campbell, T., 1979, Optimal investment financing decisions and the value of confidentiality, *Journal of Financial and Quantitative Analysis* 14, 913–924.
- Coffee, J., 1999, The future as history: The prospects for global convergence in corporate governance and its implications, *Northwestern University Law Review* 93, 641–708.
- Coles, J., U. Loewenstein, and J. Suay, 1995, On equilibrium pricing under parameter uncertainty, *Journal of Financial and Quantitative Analysis* 30, 347–364.
- DeAngelo, H., L. DeAngelo, and E. Rice, 1984, Going private: Minority freezeouts and stockholder wealth, *Journal of Law and Economics* 27, 367–401.
- Doidge, C., G.A. Karolyi, and R. Stulz, 2003, Why are foreign firms listed in the U.S. worth more?, *Ohio State University Working Paper*.
- Easley, D., S. Hvidkjaer, and M. O’Hara, 2002, Is information risk a determinant of asset returns?, *Journal of Finance* 57, 2185–2221.
- Easley, D., and M. O’Hara, 2004, Information and the cost of capital, *Journal of Finance* 59.
- Eleswarapu, V.R., 1997, Cost of transacting and expected returns in the Nasdaq market, *Journal of Finance* 52, 2113–2127.
- Engel, E., R. Hayes, and X. Wang, 2004, The Sarbanes-Oxley Act and firms’ going-private decisions, *University of Chicago Working Paper*.
- Frigo, M., and J. Litman, 2004, Give my regrets to Wall Street, *Harvard Business Review* February, 43–51.
- Goldstein, L., 2002, File No. S7-40-02, *Letter to SEC*.

- Graham, J., C. Harvey, and S. Rajgopal, 2004, The economic implications of corporate financial reporting, *Duke University Working Paper*.
- Healy, P., and K. Palepu, 2001, Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature, *Journal of Accounting and Economics* 31, 405–440.
- Jensen, M., 1986, The agency costs of free cash flow: Corporate finance and takeovers, *American Economic Review* 76.
- Jensen, M., 2002, Just say no to Wall Street, *Journal of Applied Corporate Finance* 14, 41–46.
- Kaplan, S., 1989a, The effects of management buyouts on operating performance and value, *Journal of Financial Economics* 24, 217–254.
- Kaplan, S., 1989b, Management buyouts: Evidence of taxes as a source of value, *Journal of Finance* 44, 611–632.
- Karolyi, A., 2004, The world of cross-listings and cross-listings of the world: Challenging conventional wisdom, *Ohio State University Working Paper*.
- Lee, D. S., 1992, Management buyout proposals and inside information, *Journal of Finance* 47, 1061–1079.
- Lehn, K., and A. Poulsen, 1989, Free cash flow and stockholder gains in going private transactions, *Journal of Finance* 44, 771–787.
- Leuz, C., D. Nanda, and P. Wysocki, 2003, Earnings management and investor protection: An international comparison, *Journal of Financial Economics* 69, 505–527.
- Leuz, C., and R. Verrecchia, 2000, The economic consequences of increased disclosure, *Journal of Accounting Research* 38, 91–124.
- Lichtenberg, F., and D. Siegel, 1990, The effect of leveraged buyouts on productivity and related aspects of firm behavior, *Journal of Financial Economics* 27, 165–194.

- Macey, J., M. O'Hara, and D. Pompillo, 2004, Down and out in the stock market: The law and finance of the delisting process, *Cornell University Working Paper*.
- MacKinlay, A., 1997, Event studies in economics and finance, *Journal of Economic Literature* 35, 13–39.
- Marosi, A., and N. Massoud, 2004, Why do firms go dark?, *University of Alberta Working Paper*.
- McKay, P., 2003, Though their stock is publicly held, companies adopt a private mentality, *Wall Street Journal* July 28, C1.
- Merton, R., 1987, A simple model of capital market equilibrium with incomplete information, *Journal of Finance* 42, 483–510.
- Nelson, S., 2003, Petition for Commission action to require Exchange Act registration of over-the-counter equity securities, July 3.
- Newey, W., and K. West, 1987, A simple positive semi-definite heteroskedasticity and autocorrelation consistent covariance matrix, *Econometrica* 55, 703–708.
- Nyberg, A., 2003, Sticker shock: The true cost of Sarbanes-Oxley compliance, *CFO* September, 51–62.
- Pagano, M., F. Panetta, and L. Zingales, 1998, Why do companies go public? An empirical analysis, *Journal of Finance* 53, 27–64.
- Rajan, R., 1992, Insiders and outsiders: The choice between informed and arm's-length debt, *Journal of Finance* 47, 1367–1400.
- Roell, A., 1996, The decision to go public: An overview, *European Economic Review* 40, 1071–1081.
- Wang, J., 1993, A model of intertemporal asset prices under asymmetric information, *Review of Economic Studies* 60, 249–282.

Yosha, O., 1995, Information disclosure costs and the choice of financing source, *Journal of Financial Intermediation* 4, 3–20.

**Table I: Timing of Deregistration Filings and Subsequent Trading**

**Panel A: Time Trend of Deregistration Filings**

This panel reports the yearly frequency of going-dark and going-private Form 15 filings. Going-dark firms subsequently trade on the OTC markets, while going-private firms do not. The penultimate column shows the number of firms for which we have daily price data on and after the Form 15 filing date. The last column shows the number of firms for which we have annual financial data at the fiscal year end before deregistration.

Year	1998	1999	2000	2001	2002	2003	1996-2003	Daily Price	Financial
Going-Dark	28	30	14	43	67	198	380	287	332
Going-Private	27	60	83	91	70	75	406	267	358

**Panel B: Trading After Going-Dark Deregistrations**

This panel presents trading information for going-dark firms after deregistration. We use the webpages of Pink Sheets, Yahoo Finance, and the OTC-portal, and daily price and volume data from Datastream and CRSP to identify the last available trading date for our going-dark firms (Last Trade indicates firms for which this information was available). Active Firms are those that appear to be quoted for trading in an OTC market as of 8/31/2004, based on information in the webpages or in Datastream.

Year	Total # of Firms	Last Trade # of Firms	# of Firms With Last Trade After							Active Firms	
			12/31/98	12/31/99	12/31/00	12/31/01	12/31/02	12/31/03	6/30/04	# of Firms	# of Firms
1998	28	23	23	23	22	22	22	22	20	19	23
1999	30	25	25	25	25	23	21	21	17	15	19
2000	14	14	14	14	14	14	14	14	12	12	13
2001	43	41	41	41	41	41	39	33	33	30	35
2002	67	67	67	67	67	67	67	59	59	53	60
2003	198	178	178	178	178	178	178	167	167	154	167
Total	380	348	348	348	348	348	348	308	308	283	317

**Table II: 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.

Industry Segments	Going-Dark	Going-Private
Agriculture (100-900)	0	3
Mining (1000-1400)	3	8
Construction (1520-1731)	9	6
Food & Tobacco (2000-2111)	1	12
Fabrics & Textile Products (2200-2390)	4	10
Wood & Furniture (2400-2590)	2	6
Paper & Printing (2600-2790)	9	10
Chemicals (2800-2990)	12	13
Materials & Related Products (3011-3490)	14	11
Industry Manufacturing (3510-3569, 3578-3590, 3711-3873)	26	26
Computer-related Hardware (3570-3577)	8	6
Electronics (3600-3695)	15	6
Miscellaneous Manufacturing (3910-3990)	10	6
Transportation (4011-4731)	5	7
Telecommunications (4812-4899)	6	9
Utilities (4900-4991)	1	6
Wholesales (5000-5190)	21	27
Retails (5200-5990)	25	31
Financial Services (6021-6799)	66	65
Services (7000-7361, 7380-7997, 8111-8744)	43	47
Software & Programming (7370-7377)	41	31
Healthcare Services (8000-8093)	8	9
Others (8880-9995)	3	3
Total	332	358

**Table III: Financial and Ownership Characteristics of Firms**

This table presents summary statistics describing characteristics of the going-dark sample, the control sample, and the going-private sample. Every firm in the control sample has holders of record below 300 (or 500 if the firm's assets were below \$10 million at the end of the three previous fiscal years). All variables are measured as of firms' last fiscal year available prior to going dark or private (and as of the fiscal year in which control firms are included in the sample). The table shows the median and mean (in parentheses) of each characteristic variable. *Assets* is the total book value of assets of the firm. *Market Value* is the company's equity market capitalization. *Past-year Return* is the return to the company's common stock over the last fiscal year.  $\Delta(\text{Volume})$  is percentage change in the number of shares traded over the last fiscal year. *R&D Intensity* is R&D expenditures over assets. *Leverage* is the ratio of long-term debt to assets.  $\Delta(\text{ST Debt})$  is the change in short-term debt (current portion of long-term debt over total assets) during the last fiscal year. *Free Cash Flow* is operating income before depreciation net of income tax, interest expense and dividend payment. *Scaled Accruals* is three-year median accruals (change in non-cash current assets minus change in current liabilities (excluding short-term debt) minus depreciation), scaled by operating cash flow. *Holdings of Record* is the number of holders of record reported by the company in their 10K. *Block* is the percentage ownership of shareholders who own at least 5% of outstanding equity. *Institution* is the percentage ownership of institutional owners. 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, and 10%, respectively.

	Going-Dark	N	Control Sample	N	Wilcoxon z	Going-Private	N	Wilcoxon z
<i>Financials</i>								
Assets (\$M)	13.94 (155.78)	332	46.95 (316.19)	7380	-7.98**	105.63 (805.92)	358	-12.36**
Market Val (\$M)	3.36 (16.52)	305	44.24 (258.55)	7300	-18.77**	42.16 (357.17)	325	-14.62**
Past-year Return	-0.40 (-0.08)	286	-0.07 (0.38)	7085	-7.92**	-0.13 (0.06)	316	-5.75**
$\Delta$ (Volume)	-0.22 (0.36)	252	0.06 (0.75)	6983	-5.66**	-0.11 (0.03)	309	-1.25
R&D Intensity	0.00 (0.05)	325	0.00 (0.08)	7305	-6.86**	0.00 (0.03)	358	1.15
Leverage	0.05 (0.18)	301	0.03 (0.17)	7302	1.44	0.12 (0.22)	342	-3.05**
ST Debt	0.01 (0.08)	304	0.00 (0.04)	7337	3.68**	0.00 (0.04)	346	2.33*
$\Delta$ (ST Debt)	0.00 (0.02)	297	0.00 (0.01)	7086	2.53*	0.00 (0.01)	344	2.15*
Free Cash Flow	-0.08 (-0.27)	291	0.01 (-0.33)	6505	-5.80**	0.04 (-0.02)	307	-9.69**
Scaled Accruals	0.89 (1.47)	289	0.59 (1.23)	6562	4.22**	0.76 (1.52) <sup>†</sup>	306	0.58
<i>Ownership</i>								
Holders of Record	304 (737)	292	154 (166)	7380	12.94**	700 (291480)	339	-6.67**
Block (%)	47.52 (46.46)	264	46.95 (46.80)	5537	-0.33	58.89 (54.66)	311	-3.17**
Institution (%)	0.82 (6.93)	255	18.77 (28.28)	5508	-13.65**	12.77 (21.35)	308	-9.03**

**Table IV: Market Reaction to Going Dark****Panel A: Full Sample Event Returns**

This panel reports cumulative returns around three different event dates and over three different event windows. In addition to Raw cumulative returns, we report Size-adjusted and Market-adjusted cumulative abnormal returns. Filing Date denotes the date of the Form 15 filing. Min(Ann., Filing) denotes the earlier between the deregistration announcement date and the Form 15 filing date. Min(Ann., Ann.-C, Filing) denotes the earliest of the the deregistration announcement date, the contingent announcement date, and the Form 15 filing date. All the 380 firms in the going-dark sample have Form 15 filing dates. 189 firms have final deregistration announcement dates, and 30 firms have contingent deregistration announcements. The number of observations used to compute mean cumulative returns is shown in the second-last column. The number of size-adjusted cumulative abnormal returns that are negative for the [-5,5] event window is shown in the last column. The Brown-Warner t-statistics for two-sided tests are presented in parentheses. \*\*, \*, and † indicate significance levels at 1, 5, 10%, respectively.

	Raw	Market-Adj.	Size-Adjusted	N	# of Negative	
	[0,1]	[0,1]	[0,1]	[0,2]	[-5,5]	
Filing Date	-0.064 (-6.98)**	-0.065 (-7.21)**	-0.066 (-7.37)**	-0.093 (-7.70)**	-0.121 (-2.69)**	286 201
Min (Ann., Filing)	-0.085 (-8.46)**	-0.087 (-8.69)**	-0.087 (-8.65)**	-0.114 (-8.94)**	-0.123 (-2.73)**	287 200
Min (Ann., Ann.-C, Filing)	-0.087 (-8.55)**	-0.088 (-8.76)**	-0.089 (-8.87)**	-0.109 (-8.57)**	-0.128 (-2.85)**	285 200

(Table IV continued)

### Panel B: Sub-sample Event Returns

This panel reports event window returns for various subsamples. CRs (CARs) are the cumulative (abnormal) returns during the [0,1] window surrounding the earlier of the filing, announcement or contingent announcement dates for deregistration. The Post-SOX subsample includes all firms that deregistered after 7/31/2002. Price is the firm's average stock price during event days [-33,-3]. Return is the one-year return over event window [-253, -3], and Median denotes the median Return for all going-dark firms in our sample. The dummy variable Bankruptcy equals one if the firm filed for bankruptcy protection prior to the event date, and zero otherwise. The dummy variable 13E-3 equals one if the firm filed a Schedule 13E-3, and zero otherwise. 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, 10%, respectively.

	# of Firms	CR (raw)	CAR (size-adjusted)
Pre-SOX	81	-0.040 (-3.96)**	-0.039 (-3.90)**
Post-SOX	204	-0.106 (-10.43)**	-0.109 (-10.89)**
Difference		0.066 (2.61)**	0.070 (2.81)**
Price≤\$1	195	-0.104 (-10.17)**	-0.105 (-10.40)**
Price>\$1	90	-0.050 (-5.09)**	-0.054 (-5.58)**
Difference		-0.054 (-2.14)*	-0.051 (-2.02)*
Return≤Median	138	-0.103 (-10.53)**	-0.105 (-10.71)**
Return>Median	137	-0.077 (-6.86)**	-0.080 (-7.08)**
Difference		-0.026 (-0.98)	-0.025 (-0.96)
Bankruptcy=0	246	-0.091 (-8.91)**	-0.093 (-9.26)**
Bankruptcy=1	39	-0.061 (-6.13)**	-0.062 (-6.22)**
Difference		-0.030 (-0.63)	-0.031 (-0.68)
13E-3=0	250	-0.099 (-9.77)**	-0.101 (-10.07)**
13E-3=1	35	-0.002 (-1.00)	-0.007 (-0.58)
Difference		-0.097 (-2.98)**	-0.094 (-2.87)**
Pink=0	207	-0.092 (-8.79)**	-0.095 (-9.17)**
Pink=1	78	-0.075 (-8.23)**	-0.076 (-8.43)**
Difference		-0.017 (-0.66)	-0.019 (-0.72)

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

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

This panel reports the results from pooled cross-sectional time-series regressions of firms' daily returns on deregistration, delisting and other dummy variables. For each firm in our sample, Dereg.=1 for the day, and the day after, the earlier of a company's Form 15 filing date and the 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 OTC and Delist to BB are similarly defined for delisting to Pink Sheets and to OTC Bulletin Board, respectively. Price-reversal[i,j]=1 if there is a reversal in price during the [i,j] window relative to the price change in the [0,1] window. Bankruptcy is set equal to one on the day of, and the day after, the company files for bankruptcy. t-statistics are based on Newey-West corrected standard errors using up to 5 lags. \*\*, \*, † indicate significance levels at 1, 5, 10%, respectively.

	Model 1	Model 2	Model 3	Model 4	Model 5
Size Portfolio	0.382 (7.10)**	0.386 (7.18)**	0.385 (7.17)**	0.386 (7.18)**	0.386 (7.19)**
Dereg.	-0.042 (-5.26)**	-0.040 (-4.94)**	-0.040 (-4.98)**	-0.040 (-4.92)**	-0.039 (-4.85)**
Delist		-0.035 (-2.77)**		-0.036 (-2.84)**	-0.034 (-2.73)**
Delist to OTC			-0.065 (-3.13)**		
Delist to BB			-0.027 (-1.84)†		
Price-reversal [3,5]				0.008 (1.23)	
Price-reversal [6,10]				0.000 (0.07)	
Bankruptcy					-0.085 (-3.25)**
Constant	0.006 (11.98)**	0.006 (12.32)**	0.006 (12.33)**	0.006 (12.08)**	0.006 (12.42)**
<i>Model Specification:</i>					
F-stat	37.60	28.49	22.66	17.24	23.64
# of obs.	82221	82221	82221	82221	82221

(Table V continued)

**Panel B: Deregistration Filing Effect vs. Announcement Effect**

The panel separates the market's response to the deregistration filing from that to the deregistration announcement. Size Portfolio is the daily return to the corresponding size decile portfolio for each firm. 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. File=1 for the Form 15 filing date and the day after. Final Ann.=1 for the final deregistration announcement date and the day after. Final&Ann.-C=1 for the final and contingent deregistration announcement dates and the day after each of these announcement dates. First 13E-3=1 for the first Schedule 13E-3 filing date and the day after. No Ann. means that only those firms for which there was no deregistration announcement are included in the regression. \*\*, \*, † indicate significance levels at 1, 5, 10%, respectively.

	Model 1	Model 2	Model 3	Model 4 (No Ann.)
Size Portfolio	0.386 (7.19)**	0.387 (7.20)**	0.387 (7.20)**	0.368 (4.21)**
Delist	-0.032 (-2.52)*	-0.032 (-2.52)*	-0.032 (-2.50)*	-0.028 (-1.23)
File	-0.023 (-3.07)**	-0.023 (-3.16)**	-0.022 (-2.97)**	-0.029 (-3.54)**
Final Ann.	-0.042 (-2.89)**			
Final&Cont. Ann.		-0.043 (-3.13)**	-0.048 (-3.24)**	
First 13E-3			0.030 (1.69)†	
Constant	0.006 (12.33)**	0.006 (12.36)**	0.006 (12.32)**	0.007 (8.68)**
<i>Model Specification:</i>				
F-stat	23.37	23.54	18.98	10.54
# of obs.	8221	8221	8221	36760

**Table VI: Market Reaction to Going Private**

This table reports Raw, Market-adjusted and Size-adjusted cumulative returns around the earliest of the first Schedule 13E-3 filing date, the going-private announcement date, and the Form 15 filing date. 396 firms in the going-private sample filed Schedule 13E-3, 107 firms had going-private announcement dates, and 406 firms filed Form 15. Post-SOX includes all going-private transactions for which the Form 15 filing date fell in the period beginning 8/1/2002. The number of observations used to compute mean cumulative returns is shown in the second-last column. The number of size-adjusted cumulative abnormal returns that are positive for the [-5,5] event window is shown in the last column. The last row analyzes the difference between pre- vs. post-SOX cumulative returns. The Brown-Warner t-statistics for two-sided tests are presented in parentheses. \*\*, \*, † indicate significance levels at 1, 5, 10%, respectively.

	Raw	Market-Adj.	Size-Adjusted	N	# of Positive	
	[0,1]	[0,1]	[0,2]		[-5,5]	
Min(13E-3, Ann., Filing)	0.054 (10.18)**	0.051 (9.79)**	0.051 (8.07)**	266	0.079 (7.36)**	159
Pre-SOX	0.031 (6.43)**	0.028 (6.00)**	0.028 (5.01)**	207	0.063 (6.06)**	122
Post-SOX	0.138 (23.53)**	0.134 (23.28)**	0.132 (18.95)**	59	0.135 (11.94)**	37
Difference	-0.107 (-1.93)†	-0.106 (-1.94)†	-0.104 (-1.87)†		-0.072 (-1.39)	

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

This table reports the effect of deregistrations 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, 10% levels, respectively.

**Panel A: Average Turnover**

	Model 1	Model 2	Model 3	Model 4
Dereg.	-0.069 (-4.74)**	-0.062 (-4.92)**	-0.061 (-4.84)**	-0.066 (-4.38)**
Log(MV)		0.005 (1.17)	0.005 (1.17)	0.007 (1.37)
St.Dev.			-0.001 (-2.55)*	-0.001 (-2.34)*
Pink Sheets				0.001 (0.03)
Dereg.*Pink Sheets				0.021 (0.59)
Constant	0.137 (10.64)**	0.131 (11.54)**	0.131 (11.54)**	0.131 (9.51)**
<i>Model Specification:</i>				
F-stat.	22.51	12.34	12.60	7.60
R-squared	0.04	0.04	0.05	0.05
# of obs.	528	528	528	526

**Panel B: Percentage of Days Traded**

	Model 1	Model 2	Model 3	Model 4
Dereg.	-0.176 (-7.62)**	-0.146 (-6.02)**	-0.146 (-5.98)**	-0.152 (-5.47)**
Log(MV)		0.021 (4.04)**	0.021 (3.38)**	0.021 (3.81)**
St.Dev.			0.0004 (0.15)	0.0004 (0.17)
Pink Sheets				-0.017 (-0.45)
Dereg.*Pink Sheets				0.024 (0.46)
Constant	0.481 (27.69)**	0.459 (26.08)**	0.459 (26.08)**	0.463 (22.62)**
<i>Model Specification:</i>				
F-stat.	58.06	38.96	25.93	15.02
R – squared	0.10	0.12	0.12	0.12
# of obs.	532	529	529	527

**Table VIII: 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 III. 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. \*\*, \*, † indicate significance at the 1, 5, and 10% levels, respectively.

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

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Log(Assets)	-0.07 (-7.43)**	-0.08 (-8.28)**	-0.05 (-5.08)**	-0.12 (-8.71)**	-0.13 (-9.04)**	-0.05 (-2.21)*	-0.07 (-2.57)*
Leverage	0.20 (1.91)†	0.19 (1.76)†	0.24 (2.20)*	0.24 (2.18)*	0.24 (2.12)*	0.29 (2.44)*	0.28 (2.22)*
Log(Return)	-0.17 (-5.89)**	-0.16 (-5.38)**	-0.17 (-5.68)**	-0.20 (-6.14)**	-0.21 (-6.50)**	-0.21 (-6.10)**	-0.24 (-6.40)**
R&D	-0.78 (-2.44)*	-0.83 (-2.47)*	-0.56 (-1.76)†	-0.50 (-1.51)	-1.00 (-2.69)**	-0.82 (-2.16)*	-0.67 (-1.72)†
Δ(ST Debt)		0.58 (1.96)*					
Accruals			0.22 (5.89)**				
FCF				0.23 (3.80)**	0.36 (5.03)**		0.16 (1.49)
FCF*R&D					-0.55 (-4.52)**		
Block						0.28 (2.42)*	0.26 (2.09)*
FCF*Block							-0.27 (-1.79)†
Institution							-1.75 (-5.07)**
Constant	-1.28 (-7.29)**	-1.14 (-6.32)**	-1.58 (-8.20)**	-0.76 (-3.51)**	-0.65 (-2.99)**	-1.67 (-6.42)**	-1.31 (-4.18)**
<i>Model Specification:</i>							
$\chi^2(d.f.)$	300 (22)	334 (23)	319 (23)	299 (23)	303 (24)	250 (23)	251.46 (26)
# of obs.	7318	7086	6818	6488	6488	5606	5051

(Table VIII continued)

Panel B: Going Dark vs. Going Private

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Log(Assets)	-0.37 (-8.31)**	-0.38 (-8.24)**	-0.38 (-7.69)**	-0.33 (-6.97)**	-0.33 (-6.81)**	-0.30 (-5.96)**	-0.26 (-4.76)**
Leverage	0.26 (1.07)	0.29 (1.11)	0.47 (1.76) <sup>†</sup>	0.22 (0.86)	0.22 (0.85)	0.45 (1.71) <sup>†</sup>	0.45 (1.60)
Log(Return)	-0.25 (-3.42)**	-0.23 (-3.10)**	-0.22 (-2.88)**	-0.21 (-2.68)**	-0.19 (-2.38)*	-0.28 (-3.53)**	-0.26 (-3.05)**
R&D	-1.00 (-1.77) <sup>†</sup>	-1.00 (-1.71) <sup>†</sup>	-0.56 (-1.76) <sup>†</sup>	-2.06 (-2.94)**	-0.99 (-1.36)	-0.87 (-1.38)	-1.57 (-2.24)*
Δ(ST Debt)		1.12 (1.76) <sup>†</sup>					
Accruals			0.14 (1.97)*				
FCF				-0.74 (-2.03)*	-1.17 (-2.71)**		-0.09 (-0.21)
FCF*R&D					1.82 (2.34)*		
Block						-0.22 (-1.06)	-0.32 (-1.46)
FCF*Block							-1.27 (-1.85) <sup>†</sup>
Institution						-0.94 (-2.15)*	-0.70 (-1.52)
Constant	3.43 (6.35)**	3.51(6.41)**	3.30 (5.70)**	3.06 (5.45)**	3.00 (5.30)**	2.77 (4.43)**	2.62 (3.97)**
<i>Model Specification:</i>							
$\chi^2(d.f.)$	147 (22)	149 (23)	135 (23)	138 (23)	146 (24)	156 (23)	148 (26)
# of obs.	580	574	513	543	543	553	480