

Did mandatory disclosure requirements enhance stock prices?

The Value of Knowing

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Since the passage of the Securities Act of 1933 and the Securities Exchange Act of 1934, the federal government has actively regulated U.S. equity markets. The centerpiece of those efforts is the mandated disclosure of financial information.

Previous research provides mixed evidence on the impact of mandatory disclosure. Theoretical models suggest that those laws can be beneficial when the costs of writing or enforcing private contracts that bind managers to maximize shareholder value are sufficiently high. Although the first empirical evaluations of mandatory disclosure laws were published four decades ago, the extensive subsequent literature has failed to reach a consensus. The absence of convincing evidence has led some legal scholars to recommend significant modification or repeal of the statutes that regulate U.S. securities markets, including the mandatory disclosure requirements.

This article presents new evidence on the impacts of mandatory disclosure laws by analyzing the effect of the 1964 Securities Acts Amendments on stock returns and operating performance of firms newly affected by this legislation. With the exception of the Sarbanes-Oxley Act of 2002, the 1964 Amendments are the last major mandatory disclosure regulations applied to U.S. equity markets. They extended the disclosure

requirements that have applied to firms traded on exchanges, such as the New York Stock Exchange (NYSE) and the American Stock Exchange (AMEX), since 1934 to firms traded “over-the-counter” (OTC) that exceeded asset and shareholder floors.

Specifically, covered OTC firms were required to: (1) register with the Securities and Exchange Commission; (2) provide regular updates on their financial position, such as audited balance sheets and income statements; (3) issue detailed proxy statements to shareholders; and (4) report on insider holdings and trades. Some OTC firms were already fulfilling requirements (1) and (2) and only had to begin complying with (3) and (4), while others had to begin complying with all four provisions.

We compare the stock returns and operating performance of affected OTC firms with NYSE and AMEX firms. We also contrast those outcomes among OTC firms that are differentially affected by the 1964 Amendments. We consider the period between January 1, 1963 and November 15, 1965 (Period 1), when the amendments were proposed and passed into legislation and firms registered with the SEC, and the period from November 15, 1965 to the end of 1966 (Period 2), when no new information about the law was revealed.

During Period 1, OTC firms that were newly required to begin complying with all four forms of mandatory disclosure had statistically significant positive abnormal excess returns ranging between 11.5 and 22.1 percent, relative to matched NYSE and AMEX firms. The estimates imply that the 1964 Amendments created \$3.2 to \$6.2 billion (in 2005 dollars) of value for shareholders of the OTC firms in our sample.

Overall, the results suggest that the benefits of the 1964 Amendments as measured by stock returns substantially outweighed the cost of complying with the law. This implies that

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the affected firms were not managed to maximize shareholder value prior to 1964. We cannot determine whether this was because managers made negative net present value “empire building” acquisitions, lavished excessive salaries or perks on themselves, engaged in insider trading that reduced the liquidity of the firm’s shares, or some other mechanism. Regardless of the exact channel, our findings are consistent with the notion that mandatory disclosure laws can cause managers to focus on improving shareholder value. This finding is a nec-

a competitive return even though diversion occurs.

In this setting, consider the introduction of a regulatory policy that increases the expected penalties for diversion, either by increasing the probability of detection or raising the penalty. This policy will reduce the equilibrium level of diversion and, in turn, affect insiders’ total payoff and firms’ share prices.

Consider firms that sold shares to the public before the policy was in force. The introduction of the policy causes a one-time increase in the value of those firms. However, after this

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essary condition for a positive welfare effect, but it is not sufficient because we cannot rule out the possibility that managers lost an amount equal to that gained by shareholders.

THEORETICAL PERSPECTIVES

For decades, some economists (led by the late Nobel Prize winner George Stigler) have argued that additional legislation in the securities market is not nearly as efficient as private contracts combined with the possibility of litigation. In this framework, if firms do not provide information about their inner workings, then the value that shareholders place on the information must not be high enough to offset the costs of provision. Lawsuits are a costly way to obtain information from a company, however, and an unregulated market could suffer from a free rider problem if no individual shareholder has a sufficient stake in the company to pursue litigation on his or her own.

An alternative view was offered in a 2002 paper by Andrei Shleifer and Daniel Wolfenzon. They derive a model of financial markets where private contracts cannot set the expected penalties for diversion high enough to deter it completely. The term “diversion” should be interpreted broadly to include any activity that does not maximize shareholder value.

Shleifer and Wolfenzon’s model considers an entrepreneur who needs outside funding to bring her ideas to market. In exchange for those investments, she promises the outside shareholders a fraction of the future cash flow. The entrepreneur retains control of the firm, but she cannot credibly commit to zero diversion before paying out dividends.

The price that outside shareholders will pay for a given fraction of shares depends on their expectation of the degree of diversion, which depends on the magnitude of the contracting problem. Outsiders invest contingent upon an expected return at least as great as on alternative investments. In equilibrium, entrepreneurs divert firm resources and outside shareholders receive the market return on their investment. The key insight is that stock returns do not depend on the level of diversion, but stock prices do; they must be low enough to still provide

jump in the stock price, the expected return to holding shares in the firm will again equal that of other firms with similar risk.

The increased stock price does not necessarily indicate an increase in welfare. Social welfare is unaffected when the abnormal returns are due solely to a transfer of a fixed set of resources from one party (the entrepreneur) to another (outside investors). However, when diversion is costly (e.g., if the total cost of a lavish office exceeds the entrepreneur’s private valuation), the reduced diversion will generate welfare improvements.

REGULATION BEFORE 1964

Prior to 1933, there was little federal regulation of securities markets. The 1933 Securities Act and the 1934 Securities Exchange Act created four mandatory disclosure requirements that applied to some, but not all, existing firms. Here, we describe those disclosure requirements and detail which categories of firms were required to comply with each of them:

(1) Registration Firms listed on exchanges (such as the NYSE or AMEX) and OTC firms that issued securities of sufficient market value after May 1936 were required to register those securities with the SEC. The registration statements had to contain detailed financial information at the time of registration, including: balance sheet and profit and loss statements from the previous three years; the terms and position of each class of outstanding securities; the organization, financial structure, and nature of the business; and the identity and remuneration of directors, officers, and shareholders with more than a 10 percent stake.

(2) Periodic Reporting Firms listed on exchanges (such as the NYSE or AMEX) and OTC firms that issued securities of sufficient market value after May 1936 were required to file annual reports (Form 10-K) and semi-annual reports (Form 9-K) with the SEC. They were also required to report material events as they occurred (Form 8-K).

(3) **Proxy Statements** Firms listed on exchanges were required to provide proxy statements in advance of shareholder meetings or votes. Those statements must contain information on the qualifications of directors and nominees for directors, executive compensation, and transactions between the company and its officers or directors. All OTC firms were exempted from this requirement.

(4) **Insider Trading** Firms listed on exchanges were required to report the identities of officers, directors, and large shareholders. They also had to report those individuals' holdings of any equity security of the company and provide monthly statements of any changes. Firms could recover any profits that an insider realized from the purchase and sale of the firm's stock in any period of less than six months. All OTC firms were exempted from this requirement.

Thus, the 1933 and 1934 acts created a system of regulation that imposed different requirements on firms, based on where their shares were traded and whether they had made substantial public offerings after 1936.

To summarize, all listed firms were subject to all four disclosure requirements, OTC firms that had made substantial public offerings since 1936 were subject to requirements (1) and (2) above, and OTC firms that had not made a public offering since 1936 were free from all disclosure requirements no matter their size or how widely distributed their securities.

RESEARCH DESIGN

The 1964 Securities Acts Amendments required that any OTC firm with at least 750 shareholders and \$1 million of assets as of the last day of its first fiscal year to end after July 1, 1964 (or any year after that) must register with the SEC within 120 days of the end of the fiscal year and begin to comply with the other three types of disclosure. The compliance date for firms that met the asset test and had between 500 and 750 shareholders was the last day of its first fiscal year to end after July 1, 1966. (Based on 1961 asset and shareholder data, roughly 32 percent of OTC firms exceeded both the asset and shareholder floors.) OTC firms with fewer than 500 shareholders and/or

\$1 million in assets were unaffected by the 1964 Amendments.

The structure and timing of the 1964 Securities Acts Amendments provide a compelling setting to evaluate the impacts of mandatory disclosure laws on stock returns. This section explains how we exploit the structure of the legislation to create multiple groups of OTC firms that were likely to be affected by the legislation to varying degrees and compare them to NYSE and AMEX firms that were unaffected. It also explains how the legislation provides a natural way to divide 1963–1966 into two periods to examine the law's effects and perform validation exercises of our approach.

FIRM VARIATION We use pre-legislation characteristics of OTC firms to assign them to one of four OTC groups. Those assignments are based on two categories. First, each OTC firm is labeled either “high compliance probability” or “low compliance probability.” We assume that firms have a high probability of compliance if their measured assets in 1962 exceeded \$1 million and they had 500 or more shareholders or their measured assets exceeded \$5 million but shareholder data were unavailable. All other firms are placed in the “low compliance probability” category.

We place each OTC firm into either a “high diversion reduction” or “low diversion reduction” group depending on whether the firm was engaged in periodic reporting under the 1934 legislation by the end of 1962. Firms that were not filing annual reports with the SEC by the end of 1962 faced the possibility of four new types of disclosure. In contrast, firms that were filing with the SEC by 1962 were potentially subject to just two new forms of disclosure.

The interaction of those two categorizations divides the OTC firms into four groups. The first OTC group consists of firms that are in the “high compliance probability” and “high diversion reduction” groups. Henceforth, they are referred to as the 0-4 group. The first number indicates the number of forms of disclosure with which the firm was required to comply prior to the 1964 Amendments, while the second number indicates the number of forms of disclosure with which we expect the firm to have complied after the 1964 Amendments were in force.

We use this same naming convention to denote the other groups. For example, the second group consists of firms that by 1963 were above the 1964 Amendments' size cutoffs and filing annual reports with the SEC. Those firms are in the “high compliance probability” and “low diversion reduction” groups. They are labeled 2-4. The other two are the 0-0 and 2-2 groups. Table 1 summarizes how we assigned OTC firms to the four groups.

If the mandatory disclosure requirements were valued by outside shareholders, then we expect the four OTC groups' treatment effects to differ. In particular, our prediction is that the 0-4s' treatment effect will be the largest, because those firms have a relatively high probability of compliance and, conditional on compliance, will have a relatively large change in the amount of information they must disclose. By analogous reasoning, we expect the 2-2s' treatment effect to be the smallest. Their expected probability of compli-

TABLE 1

Assignment of OTC Firms into Four Groups

Divisions created by the 1964 Securities Acts Amendments

| OTC Group | Diversion Reduction Was there periodic reporting by 1962? | Compliance Probability Did the stock exceed shareholder and asset floors by 1962? |
|-----------|--|--|
| 0-4 | No → High Diversion Reduction | Yes → High Compliance Probability |
| 2-4 | Yes → Low Diversion Reduction | Yes → High Compliance Probability |
| 0-0 | No → High Diversion Reduction | No → Low Compliance Probability |
| 2-2 | Yes → Low Diversion Reduction | No → Low Compliance Probability |

ance is relatively low and, among compliers, the change in disclosure requirements is relatively small.

We predict that the 2-4s' and 0-0s' treatment effects are between the 0-4s' and 2-2s' effects. The ordering of the treatment effect for the 2-4s relative to that of the 0-0s is ambiguous. Firms in the 2-4 group have a high probability of complying with two new disclosure requirements, while firms in the 0-0 group have a low probability of complying with four new requirements.

We also create groups of NYSE and AMEX firms and use them to mitigate the possibility of confounding the effects of the 1964 Amendments with shocks to stock returns common to OTC and NYSE/AMEX firms. Those groups of firms are labeled 4-4 and are constructed so that the distributions of the underlying firms' market capitalizations and the ratio of book value of equity to market capitalizations are similar to the distributions in the corresponding OTC group.

TIME VARIATION From January 1, 1963 through November 15, 1965, the 1964 Amendments were initially proposed and passed into legislation, and we learned which individual firms registered under the 1964 Amendments with the Securities and Exchange Commission. We assume that the full impact of the 1964 Amendments on stock returns occurred in this 149-week period. Data from this period are used to test the null hypotheses that the OTC groups had zero abnormal excess returns relative to their corresponding size and book-to-market matched NYSE/AMEX (4-4) groups. A failure to reject the null would suggest that the disclosure requirements did not produce information that was valued by outside shareholders (after accounting for compliance costs).

Period 2 runs from November 15, 1965 through the end of 1966. During those 58 weeks, virtually no new information about the law or which firms would comply with its requirements was revealed and thus no abnormal returns should occur. If excess returns for affected OTC groups also existed in this period, our research design and any findings from Period 1 would be suspect.

DATA AND SUMMARY STATISTICS

We use the Center for Research in Security Prices (CRSP) database to calculate returns of NYSE and AMEX firms for the 1963–1966 period. We restrict the sample to those firms present in the first week of January 1963. A corresponding electronic dataset of OTC firms did not exist for the period we study; OTC firms are not available in CRSP until December 1972.

We therefore created the equivalent of the CRSP database for 1,196 OTC securities for the 1963–1966 period. The sample is comprised of securities that appeared in the January 7, 1963 issue of *Barron's* and were potentially affected by the 1964 Amendments. We also use data from 1,915 NYSE and AMEX firms available in CRSP.

Table 2 provides a few summary statistics. The 0-4 group has 240 firms in the beginning of 1963. This group is considerably smaller than the 2-4 group, which initially has 738 firms

TABLE 2

1962 Firm Characteristics by Mandatory Disclosure Groups

| | 0-4 | 2-4 | 0-0 | 2-2 | 4-4 |
|------------------------------|--------|--------|-------|-------|---------|
| NUMBER OF FIRMS | | | | | |
| Week 1 (1963) | 240 | 738 | 124 | 94 | 1,915 |
| Week 52 (1966) | 186 | 610 | 67 | 63 | 1,668 |
| Survival Rate (%) | 77.5 | 82.7 | 54.0 | 67.0 | 87.1 |
| MARKET CAPITALIZATION | | | | | |
| Non-missing | 237 | 734 | 23 | 39 | 1,915 |
| Mean | \$44.6 | \$26.5 | \$4.4 | \$2.5 | \$189.1 |
| Median | \$9.1 | \$10.4 | \$1.9 | \$2.3 | \$28.5 |

NOTE: All dollar figures are in millions of 1963 dollars.

because many 1963 OTC firms had made a public offering in the previous 27 years. The samples of 0-0 and 2-2 firms are substantially smaller because *Barron's* selected the largest and most actively traded OTC firms for inclusion in their stock tables.

Survival rates vary across the different groups. The rates are roughly comparable among the 0-4, 2-4, and 4-4 groups and are even closer after matching on total market capitalization. This similarity in survival rates suggests that the OTC groups' attrition rates are due to genuine attrition, not insufficient data collection efforts on our part. The 0-0 and 2-2 groups have lower survival rates because the 1964 Amendments' size cutoffs ensure that they are comprised of small firms. Those groups' small starting size and high attrition rates make meaningful inference about the groups difficult.

The mean (median) market capitalization in 1963 dollars for the 0-4 and 2-4 groups are \$44.6 million (\$9.1 million) and \$26.5 million (\$10.4 million), respectively. The total market capitalizations of those two groups in 2005 dollars are \$66 billion and \$122 billion, respectively. This information is available for a small fraction of the 0-0 and 2-2 firms.

RESULTS

This section presents four tests of the impacts of the mandatory disclosure requirements.

TEST #1: WERE FIRMS REWARDED FOR COMPLIANCE? The analysis begins with a firm-level event study of the effect of the announcement that OTC firms were officially in compliance with the 1964 Amendments' new mandatory disclosure requirements on stock returns. We obtained the precise dates that the SEC announced that pre-legislation, non-filing firms had fulfilled the registration requirement and pre-legislation filers had fulfilled the proxy and insider holdings/trades requirements for the first time. Those official filing dates were collected from the daily issues of the *SEC News Digest*, which as a matter of policy published them 60 days after the SEC received the filings. Henceforth, we refer to those firms as "new filers" and the dates of the announcement in the *SEC News Digest* as the "filing dates."

We use those filing dates as the basis of a firm-level event study of the effect of choosing to become a new filer. Roughly two-thirds of 0-4 and 2-4 firms chose to comply in this period. Importantly, the filing dates were determined by firms' fiscal year ends and varied from firm to firm. Thus, any estimated effect will not be confounded by shocks that affect all OTC firm returns.

Specifically, we estimate regressions during the 64-week period between August 24, 1964 (when the legislation was signed into law) and November 15, 1965 (the last compliance date for most firms). The dependent variable is a firm's weekly return minus that week's average return for the firms in the size and book-to-market cell of NYSE/AMEX to which the OTC firm would have belonged had it been listed on NYSE or AMEX at the beginning of 1963. The regression equation controls for the difference between market and risk-free returns, the size and book-to-market factors, and a momentum factor.

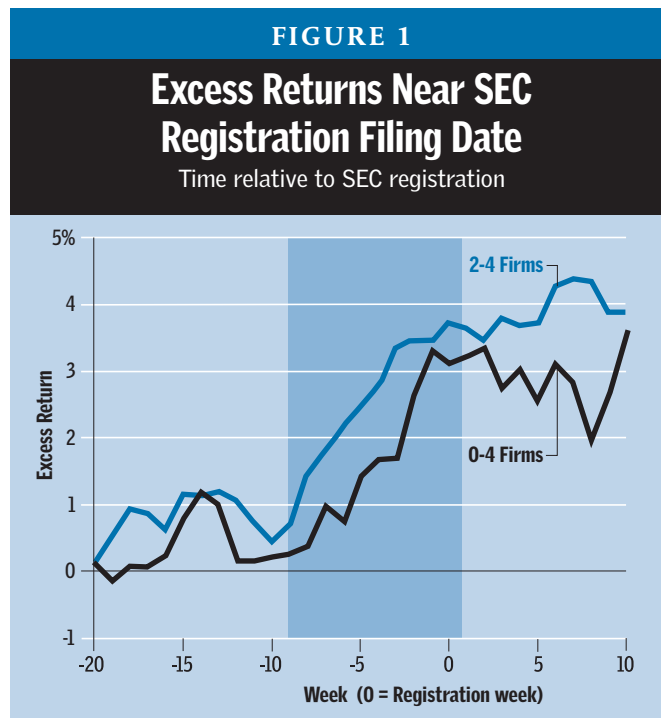
We add an indicator variable that equals 1 during the event window and its associated coefficient is the focus of the regressions. Because of uncertainty surrounding the exact date that the market learned that a firm had become a new filer, we define the event window as the period from eight weeks prior to the SEC filing date through one week subsequent to the date. The event window is extended one week beyond the filing date to allow the information to disseminate. Thus, the parameter on the event window indicator tests for abnormal excess returns in the 10-week period when news of a firm's decision to file became known to the market. This model is estimated with data from the 64-week period from August 24, 1964 through November 15, 1964.

On average, the 145 0-4 and 417 2-4 filers had abnormal excess returns of approximately 3.5 percent in the narrow period when news that they had filed was released to the market. Statistical analyses confirm this finding and show that the excess returns are statistically significant.

Figure 1 presents the 0-4 and 2-4 results graphically. The relatively flat 0-4 and 2-4 lines between Week -20 and Week -9 suggest no abnormal excess returns during those weeks. During the event window, the cumulative abnormal excess return lines turn upward dramatically. Then the lines are flat from Week 1 through Week 10, which is after news that those firms were new filers had become public.

Figure 1 provides strong evidence that the market rewarded firms that complied with the mandatory disclosure requirements specified by the 1964 Amendments. However, because of the forward-looking nature of asset markets, it is possible that OTC firms had abnormal excess returns in the period that the legislation was debated and ultimately passed. To estimate the full effect of the 1964 Amendments on stock returns, the next section tests for abnormal excess returns among the OTC groups over the entire Period 1.

TEST #2: PERIOD 1 ABNORMAL EXCESS RETURNS? We estimate the above regression again, this time focusing on the mean abnormal excess weekly return (α) for the different OTC groups over their matched NYSE/AMEX group of firms during the full Period 1. This estimated mean abnormal



excess weekly return and its estimated standard error from six different versions of this regression are reported in columns 1–6 of Table 3. In the first five columns, the 4-4 groups are constructed, as described above, so that the distributions of the underlying firms' market capitalizations and ratio of book-to-market are similar to the distribution of those variables in the corresponding OTC groups. In Column 6, we use an industry-matched 4-4 group as the comparison but do not do any size or book-to-market matching because of sample size issues.

The table also explores the sensitivity of the results to alternative portfolio construction rules and sets of controls. In all columns except 4 and 5, we assume that investors in our constructed portfolios rebalance their holdings every week to keep them equally weighted across all securities. Column 4 reports the results from a buy-and-hold strategy with equal initial weighting. In Column 5, the portfolios are based on a value-weighted buy-and-hold strategy. In Column 1, the estimates are unadjusted for any factors, while the Column 2 estimate is adjusted for the market excess return, which is the canonical Capital Asset Pricing Model (CAPM). In the remaining columns, we add controls for the three other standard factors.

For the 0-4 group, the five adjusted models in columns 2 through 6 imply cumulative returns ranging between 11.5 percent and 22.1 percent. Two of the five models estimated are significant at the one percent level, another at the four percent level, and the last two at the 11 percent level. In a separate analysis reported in the full paper, we found that the majority of the 0-4s' positive abnormal excess returns occurred during the period when the law was debated and signed into law (i.e., January 1, 1963 through August 24, 1964).

The 0-4s' unadjusted estimate in Column 1 is not statistically significant at conventional levels. It is evident that the validity

of ascribing the difference in returns between the 0-4 group and its matched 4-4 group to the 1964 Amendments therefore rests on the validity of the standard model for stock returns. This contrasts with the findings from the event study, which do not hinge on whether we control for the four factors.

For the 2-4 group, the adjusted models imply a cumulative abnormal excess return of between 1.9 and 8.4 percent, but none of the results differ statistically from zero at the 10 percent level. Overall, the 2-4s' findings provide modest support for the view that investors valued the introduction of proxy and insider trading disclosure requirements for firms that were already registered with the SEC and filing periodic reports. The imprecision of those estimates, however, tempers the strength of any conclusions.

Because of space constraints, the results for the 0-0 and 2-2 groups are not reported in the table, but we summarize them here. All of the estimated abnormal excess weekly returns for the groups are negative and are thus smaller than the 0-4 and 2-4 groups' estimated abnormal excess returns. Because of the small sample sizes for those groups, the 0-0s' and 2-2s' standard errors are generally more than twice as large as in the first two panels. This imprecision is evidenced by the fact that only three of the 12 estimates have an associated t-statistic greater than one and none exceeds 1.3. We conclude that the 1964 Amendments did not have a statistically meaningful effect on those groups' returns in Period 1.

Overall, the Period 1 results suggest that the mandatory disclosure requirements introduced by the 1964 Amendments increased market participants' valuations of the 0-4 firms by between 11.5 and 22.1 percent relative to their matched NYSE/AMEX comparison group. There is little evidence that the 1964 Amendments affected the stock returns of the other OTC groups in this period.

TEST #3: PERIOD 2 ABNORMAL EXCESS RETURNS? Period 2 begins after the law has passed and the vast majority of complying firms have begun to file with the SEC. Consequently, our expectation is that the OTC groups will have no abnormal excess returns in this period. A rejection of this null hypothesis would raise the possibility that our research design or the four-factor model is invalid here.

We performed analyses similar to those in Table 3, but using data from Period 2. We found little evidence of abnormal excess returns for any of the OTC groups and none of the estimates would be judged to be statistically different from zero at the 10 percent level. Overall, the findings from this 58-week period support the validity of our approach and lend credibility to the hypothesis that the estimated effects in Period 1 are due to the 1964 Amendments.

TEST #4: OPERATING PERFORMANCE Our hypothesis is that mandatory disclosure laws bind managers to focus more on maximizing shareholder value. The evidence of positive abnormal excess returns for the 0-4 group in this period is consistent with this hypothesis but fails to shed light on exactly why market participants were willing to pay more for an ownership stake. This section explores one possibility by testing whether OTC firms experienced improvements in operating performance relative to 4-4 firms between 1962 and 1966.

We estimated two firm-level operating performance regressions for each of two dependent variables: net income (profit) growth from 1962 to 1966 normalized by 1962 market capitalization, and sales growth from 1962 to 1966 normalized by 1962 sales. Both net income and sales growth are considered important measures of operating performance, although net income is more closely related to stock returns. The regressions were first run only for firms for which comparable 1966

information was available and then on the complete data set with missing growth information assigned based on the 10th or 50th percentile of firms in the group according to an assignment rule.

Controlling for initial asset size and industry, the 0-4 firms' change in net income relative to initial market value was about 0.030–0.038 larger than the 4-4s'. The mean change for 4-4 firms is 0.086, so the 0-4s' increase in this measure of income growth was 35–44 percent larger than the 4-4s'. This result is statistically significant. The 2-4 firms' point estimates

TABLE 3

Average Abnormal Weekly Returns

January 1963–November 15, 1965 (Period 1)

| | (1) | (2) | (3) | (4) | (5) | (6) |
|-------------------------|-------------------|------------------|------------------|------------------|------------------|------------------|
| | (0-4) - (4-4) | | | | | |
| 0-4 OTC Group | 0.053 (0.048) | 0.078 (0.048) | 0.097 (0.046) | 0.129 (0.048) | 0.083 (0.048) | 0.149 (0.047) |
| R-squared | — | 0.028 | 0.191 | 0.195 | 0.213 | 0.160 |
| | (2-4) - (4-4) | | | | | |
| 2-4 OTC Group | -0.010 (0.045) | 0.013 (0.043) | 0.024 (0.040) | 0.057 (0.043) | 0.035 (0.048) | 0.056 (0.039) |
| R-squared | — | 0.026 | 0.133 | 0.120 | 0.166 | 0.079 |
| Factor Model | None | CAPM | 4F | 4F | 4F | 4F |
| Buy and Hold | No | No | No | Yes | Yes | No |
| Value Weighted | No | No | No | No | Yes | No |
| Industry Matched | No | No | No | No | No | Yes |

NOTES: The dependent variable is the relevant OTC group's weekly return minus the weekly return of the matched 4-4 group. In the "Factor Model" row, "CAPM" indicates that the regression controls for the return on the market. "4F" indicates controls for the market, size, book-to-market, and momentum factors.

are roughly a third as large as the 0-4s' and would not be judged to be statistically significant by conventional criteria.

The sales growth results, again controlling for initial asset size and industry, indicate that 0-4 firms' total sales increased by a statistically significant 84–109 percent more than the unaffected 4-4 firms. The 2-4 firms had smaller relative increases in sales growth (16–17 percent) and the estimates border on statistical significance at the five percent level. The mean sales growth of 4-4 firms, by contrast, was roughly 70 percent, so the 0-4 firms' sales increases are quite large.

Overall, the results provide evidence that as quickly as one year after most firms' compliance deadlines, the operating performance of 0-4 (and, to a lesser degree, 2-4) firms had improved, relative to 4-4 firms. Our findings are consistent with the hypothesis that the mandatory disclosure requirements caused managers to focus on shareholder value.

INTERPRETATION

Based on the varied evidence presented in this paper, we conclude that investors valued the mandatory disclosure requirements imposed on 0-4 firms by the 1964 Amendments. We now try to put the numbers in some context. The estimates of the cumulative abnormal excess returns in Period 1 for the 0-4 firms ranged from 11.5 to 22.1 percent. Those results imply that the 1964 Amendments created \$0.5 billion to \$1.0 billion (1963 dollars) or \$3.2 billion to \$6.2 billion (2005 dollars) of value for stockholders.

Those numbers understate the total increase in market capitalization associated with the legislation because our sample

only includes a quarter of the nearly 900 firms that filed with the SEC for the first time after passage of the 1964 Amendments (although it probably has many of the largest ones). As the conceptual framework highlighted, our numbers are an upper bound on the welfare gain associated with the mandatory disclosure regulations because at least part of the gain in market capitalization reflects a transfer of insiders' resources to outside shareholders.

In light of the magnitude of the increases in market capitalization, it is natural to wonder why shareholders had not previously organized to attempt to capture the \$3.2–\$6.2 billion by forcing insiders to move the companies to the NYSE or AMEX. There are several possible reasons. First, it is likely that some of the 0-4 firms did not meet the listing requirements for the NYSE or AMEX (at the start of 1963, 48 percent of OTC firms in group 0-4 had market capitalizations below the 25th percentile of the market capitalization of exchange-traded firms). Second, insiders may have owned more than half of the shares, making it impossible for outside shareholders to force a move to the NYSE or AMEX. Third, it is probable that the \$3.2–\$6.2 billion figure overstates the resources that could be captured by shareholders. It is likely that at least part of this figure reflects a transfer from insiders via reduced diversion and/or increased effort. To make this effective transfer, it seems reasonable to assume that insiders would have required increased compensation. Fourth, the coordination of efforts to induce a firm to move to the NYSE or AMEX has the features of a classic public goods problem because the activist shareholder(s) cannot capture the full benefits of their efforts.

CONCLUSION

We analyzed the last major imposition of mandatory disclosure requirements in U.S. equity markets. The 1964 Securities Acts Amendments extended several disclosure requirements to large firms traded over-the-counter that had applied to listed firms since 1934. We presented four pieces of evidence that investors valued the new disclosure requirements.

The results are consistent with the hypothesis that mandatory disclosure laws can cause managers to focus more narrowly on the maximization of shareholder value. The precise benefits to the American economy are unknown, however, because we cannot determine how much of shareholders' gains were a transfer from insiders of the same companies. If diversion of firm resources by managers entails some waste (rather than just transferring the resources from one group to another), then our study implies that mandatory disclosure can lead to net benefits to the economy.

Our results have several policy implications. First, some legal scholars have called for the significant modification or repeal of the mandatory disclosure requirements studied here. Our analysis suggests that such a weakening of federal oversight is unlikely to be beneficial for U.S. equity markets.

Second, the disclosure requirements studied here are less stringent than those specified in the recent Sarbanes-Oxley Act, so the results are not directly informative about the effects of that legislation. Thus, our study fails to indicate whether

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some of the recent corporate scandals would have been averted if Sarbanes-Oxley had been on the books. However, it does suggest that those scandals might have been worse if the 1964 Amendments had not been in place.

Third, the study may be most relevant for the regulators who oversee the numerous developed- and developing-country equity markets where the disclosures outlined in the 1964 Amendments are not mandatory. Specifically, the results indicate that the introduction of regulations that mandate such disclosures is unlikely to be harmful and, in fact, is likely to be beneficial in those markets. **R**

A COMMENT ON GREENSTONE, OYER, AND VISSING-JØRGENSEN

Why Did the 1964 Act Raise Securities Prices?

BY EDMUND KITCH

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In 1964, Congress extended the coverage of the Securities and Exchange Act of 1934 to include much of the over-the-counter (OTC) market. This change has long awaited an event study to discern the impact of the expanded coverage on the previously uncovered securities. The preceding article by Michael Greenstone, Paul Oyer, and Annette Vissing-Jørgensen offers an elegant event study that reveals that the effect of the regulation was to significantly increase the market price of the newly regulated securities.

Previous event studies had focused on the passage of the original securities laws in 1933 and 1934, but their results were inconclusive. They suffered from a lack of an obvious comparison group for the newly regulated securities—all securities were unregulated before the event, and almost all securities were regulated after the event. In 1964, on the other hand, it is possible to compare the newly regulated securities to securities regulated both before and after the 1964 changes.

WHY THE HIGHER PRICES?

Why did the statute and the implementing regulation cause the newly regulated securities to trade at higher prices? The authors offer an answer to this question that draws on an earlier published model by Andrei Schleifer and Daniel Wofenzon. Their model indicates that a market that provides better protection of

outside shareholders as against managers or controlling shareholders leads to a more valuable stock market. Greenstone, Oyer, and Vissing-Jørgensen present the results of their event study as evidence supporting the Schleifer-Wofenzon model, but Greenstone and his coauthors do not attempt to explain how the legislation achieves its result. They argue, however, that regulation that reduces diversion by managers or controlling shareholders will increase the share of the firm value captured by the outside shareholders. The increased value, in turn, is reflected in share price. Greenstone, Oyer, and Vissing-Jørgensen assume that the legislation reduces diversion.

There is an alternative explanation for the result that can be found in the legal literature: The 1934 Act and the 1964 Amendments reduce the cost of buying securities, and that savings translates into higher prices. The cost of buying a security has two principal elements: the cost of analyzing its value to determine whether the price is attractive, and the cost of finding and closing a transaction to buy the security. The theory is that the legislation reduces the cost of the first by centralizing the provision of much of the relevant information with the issuer, the lowest-cost provider. This lowers the cost of buying a security, and thus increases the amount buyers are willing to pay. This explanation was put forth by Ronald Gilson and Reinier Kraakman in 1984 (see “MOME in Hindsight,” Winter 2004–2005) and is widely repeated in the legal literature on securities regulation.

The Greenstone, Oyer, and Vissing-Jørgensen event study was not structured to answer the causation question. However, it is suggestive of an answer to this question. They study two groups of OTC firms, comparing each to a group of similar firms that were fully subject to the Exchange Act before the 1964 Amendments. The first of the test groups (which they call the 0-4 group) contained firms that were not subject to the Exchange Act at all prior to 1964. The second test group (which they call the 2-4 group) contained firms that were required to file financial disclosure statements in accordance with the 1934 Act before 1964, and after 1964 had to comply in addition with the proxy and short-swing profit rules. That is, the second group of companies simply added the proxy rules and the short-swing profit rules.

The difference between the groups is suggestive on the causation question because the financial statements are consistent with the “reduced cost of buying” explanation. The proxy rules and short-swing profit rules are concerned with areas that are the traditional concern of diversion control: capture of firm value through conflicts of interest and insider market trading. Greenstone, Oyer, and Vissing-Jørgensen get their most striking results when they compare the 0-4 group with the matched market group. When they compare the 2-4 group with the matched market group, their results are not statistically significant and the results, if any, are substantially less. This suggests to me that the reduced cost of purchasing explanation is a plausible candidate, based on their results.

WHY NOT OPT IN?

A second question that the Greenstone, Oyer, and Vissing-Jørgensen event study suggests is why did the 0-4 group of firms choose not to become subject to the 1934 Act before 1964? If

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they made themselves subject to the act (as they could have done, either by listing on an exchange or making a public offering of securities for \$2 million or more), this study suggests that they would have increased the value of their publicly traded shares. As Greenstone, Oyer, and Vissing-Jørgensen state, “Overall, the results suggest that the benefits of the 1964 Amendments substantially outweighed the cost of complying with this law as measured by stock returns. This implies that the affected firms were not managed to maximize shareholder value prior to 1964.” Why?

Greenstone, Oyer, and Vissing-Jørgensen use the diversion story to provide an explanation. By processes such as empire-building acquisitions, excessive compensation and perks, or insider trading, the managers or controlling shareholders were able to capture a disproportionate share of firm value. They had a good deal, and they were not about to give it up by making the firm subject to any requirement of the 1934 Act.

But there are other possible explanations. Putting aside the possibility that the OTC companies simply made a mistake and thus remained behind in the OTC market, other explanations include:

EXPENSE The 1964 Amendments reduced the cost of entering the Exchange Act regulation. Prior to 1964, the OTC firms that were not subject to the 1934 Act had two ways to obtain coverage of the regulation: First, they could make a public offering of a security in excess of \$2 million. If they did so, they were thereafter required to file annual and quarterly reports, including audited financial statements, just like companies subject to the Exchange Act. If an issuer did not need the capital or had less expensive sources of capital, the expenses of the public offering would have to be born by the company. The alternative way to enter the regulation was to list on an exchange, which would have made the company subject to all provisions of the 1934 Act. But then the company had to incur the cost of exchange fees and requirements. The 1964 Amendments made it possible for the companies to be regulated without incurring either of those expenses. Thus, the 1964 Amendments may have made the benefits of the regulation available at lower cost, and the higher net benefits were reflected in stock prices.

LONG-TERM STRATEGY Another explanation is that the issuers were controlled by a block of controlling shareholders who planned to hold their shares for some significant future period of time. Given their long-term investment horizon, they had no wish to sell their shares. Thus, the enhanced share price in the trading market that would be produced by the 1934 Securities Exchange Act had no value for them. From their point of view, it would simply be a waste of company resources to comply with the act. They wanted minority shareholders to invest with a similar holding period in mind, and to suffer a cost if they insisted on terminating their investment early. In this scenario, the controlling shareholders do not divert value from the company. They simply operate the company in a way that maximizes value for themselves and other long-term investors, but not for the shareholders that sell “early.” When they are ready to sell, then they will prepare the market for their shares

(and the shares of the minority investors) by causing the issuer to comply with the securities acts. In this scenario, the minority shareholders enjoyed a windfall when the rules of the game were changed in the middle of the investment period by the intervention of Congress in 1964.

FUTURE REGULATION?

Finally, the study considers possible improvements of the securities laws. The fact that the 1934 Act has positive effects does not mean that there might be alternatives with even larger positive net benefits. This brief article does not allow mention of all of the proposals that have been made over the years. However, it is important to note that the most prominent proposal of recent years, put forth by Roberta Romano, is not a proposal to abolish the securities laws; it is a proposal to make compliance with the securities laws optional rather than mandatory. If, as the event study suggests, compliance increases the value of a company, firms will choose to comply. But if it turns out that the regulation does not, issuers will be able—with the consent of their shareholders—to drop out of the regulation. The regulation may have been value enhancing in 1964—indeed, may have always been value enhancing—but that does not mean that at some point Congress and the regulators will not make choices that are value destructive. Making the regulation optional puts the regulatory system into competition with the unregulated market and creates an incentive for the regulators to ensure that their decisions are value enhancing.

In recent years, a consensus has emerged that event studies show that issuers can increase their firm value by moving their state of incorporation to Delaware. No one that I know of has ever suggested that, because of those findings, Congress should require that all public companies, or indeed any group of public companies, incorporate in Delaware. The state remains an optional choice that many, but not all, companies use. And Delaware knows that firms can choose to move out of state, a fact that incentivizes Diamond State politicians, judges, and lawyers to make sure that changes in state law are well advised. Why does Congress have to require that issuers comply with the securities acts if, as the Greenstone, Oyer, and Vissing-Jørgensen study suggests, it is in the interest of the issuers to comply? **R**

READINGS

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Data Supports Mandatory Disclosure

BY MICHAEL GREENSTONE, PAUL OYER,
AND ANNETTE VISSING-JØRGENSEN

Edmond Kitch has provided a thoughtful commentary on our article in this issue and the full version of our study published in the May 2006 *Quarterly Journal of Economics*.

Before we respond to his specific comments, we note that Prof. Kitch has not challenged our study's finding that the 1964 Amendments created value for shareholders by leading to higher share prices of the newly regulated firms. Nor does he question the result that the newly regulated firms' profits and sales increased after the law went into force.

Instead, Professor Kitch's commentary focuses on what channel led to the increase in share prices. He also suggests that it is possible to design regulations even more beneficial than the ones specified in the 1964 Amendments.

In our study, we suggest that mandatory disclosure regulations limit opportunities for diversion by managers or insiders. In his commentary, Prof. Kitch suggests two alternative channels of wealth creation. First, Kitch argues that the value of the 1964 Amendments (and the securities acts in general) may simply be to reduce investors' costs of gathering information. The finding that affected firms' operating performance improved after the legislation went into force implies that it is unlikely that this is the entire story.

Furthermore, this explanation fits our definition of diversion as any activity that does not maximize shareholder value. That is, if insiders could have lowered the cost of gathering information in a way that would have increased the firm's value, but they chose not to, then they were diverting value away from other shareholders. For holders of the firm's equity, the effect is to depress the stock price and in that sense it is similar to the purchase of unnecessary corporate jets.

Second, Professor Kitch suggests that the 1964 Amendments may have created value by reducing the costs of entering the SEC mandatory disclosure system. The issuance of securities can be expensive and it is possible that the costs of joining an exchange were prohibitive for many firms. More to the point, this explanation is not rejected by the data and could be an important complement to our proposed mechanism of reduced diversion by insiders.

Professor Kitch suggests one mechanism through which the 1964 Amendments could raise stock prices of affected

firms, yet be value irrelevant or possibly even value destroying for long-term shareholders. The idea seems to be that non-disclosure keeps share prices artificially low, thereby making it costly to sell shares. This in turn induces decisionmaking that maximizes share prices in the long run.

We see a logical problem with this argument. If long-horizon shareholders were able to prevent compliance with the securities acts pre-1964, this suggests that they owned the majority of the (voting) shares. In that case, why would they not have sufficient power to out-vote short-sighted shareholders on other company issues, even if the firm were to comply with the 1964 Amendments? Furthermore, we are unaware of any empirical support for this story.

In his final remarks, Professor Kitch lends his support to the recent proposal by Roberta Romano and others to make compliance with the disclosure regulations voluntary. There surely is heterogeneity in costs and benefits of regulation across firms. Thus, it is possible that compliance with the regulations is a negative for some subgroups of firms.

On the other hand, it does not seem farfetched to suppose that company insiders, who benefit from diversion, will try to manipulate the compliance decision in companies where compliance would add value for shareholders (by manipulating the information provided to shareholders about the costs and benefits of compliance). Furthermore, disperse shareholders will face free-rider problems in coordinating their efforts to uncover the true costs and benefits and to mobilize enough votes to force compliance in cases where it is deemed beneficial. An additional problem with voluntary compliance is that in the presence of information externalities, voluntary compliance can lead to inefficient (too little) information provision. Anat Admati and Paul Pfleiderer, in a 2000 *Review of Financial Studies* article, formalize this insight in a setting where firms' values are correlated and the disclosures by one firm are used by investors in valuing other firms.

In summary, it is ambiguous as to which theoretical behavior will dominate and, in turn, whether voluntary compliance would be beneficial for shareholders of most of the companies that would choose to opt out of the mandatory disclosure regime.

In the face of our finding that the imposition of mandatory disclosure regulations led to a substantial increase in the value of the average shareholder's holdings of affected firms, we think the burden of proof lies with advocates of change. Specifically, the advocates of change must do two things: First, before looking at the data, they must identify the subset of firms whose shareholders likely would have been better off from not complying with the 1964 Amendments (or the securities acts more generally). For example, it might be reasonable to expect that the costs outweigh the benefits for small firms. Second, they must demonstrate empirically that the introduction of mandatory disclosure requirements reduced the value of those firms. (Alternatively, they could find an example of deregulation and test whether shareholders of firms who stopped complying with previously mandatory disclosure requirements gained as a result of the decision to stop complying).

Our bottom line is that the data, not theoretical reasoning, must be the ultimate arbiter of the optimal form of disclosure regulations. **R**