Influence of Regulatory Regime and Firm Size on Reporting of Discontinued Operations

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Abstract

We examine the effect of the implementation of SFAS No. 144 in 2002, on reporting of discontinued operations. We test two competing hypotheses. First, the signaling hypothesis, when managers have more discretion over reporting choices, marginally weaker performing firms are more likely to report discontinued operations to signal improved future prospects. Second, the concealing hypothesis, where marginally weaker performing companies avoid public reports to hide poor past investments. Announcements of discontinuations increase dramatically after 2002, mostly driven by an upsurge of reports by large companies. For large companies, historical operating performance before announcing a discontinuation is stronger and operating costs (cost-of-goods-sold and selling, general administrative expenditure) are lower after 2002, supporting the signaling hypothesis. But, for small firms, historical performance after 2002 is considerably weaker, confirming the concealing hypothesis. Our results provide convincing evidence that the precision and complexity of the definition of discontinued operations significantly alters managers' reporting behavior.

1. Introduction

In the last fifteen years accounting regulators have twice changed the definition of a discontinued operation, and there has been considerable debate among practitioners about the appropriate treatment of this item. In this study, we examine two important issues. First, does the degree of precision in an accounting rule effect reporting behavior of the firms that publicly report discontinuations? Second, are the differences in reporting choices between the two regulatory regimes influenced by firm size, which captures different information environments? For example, large firms are usually followed by numerous analysts who provide additional information on corporate performance (Gebhardt, Lee, and Swaminathan 2001). This makes it easier for these firms to send positive signals to markets. Our results should interest regulators and practitioners in the on-going debate over the interpretation of the scope of the definition of discontinued operations, and whether it provides adequate and useful information to outsiders. More broadly, what is the ideal standard to balance between precision and complexity? Nelson (2003) notes that

in this discussion of accounting standards, it is important to curb opportunistic managerial behavior without adding undue complexity.

Around the turn-of-the-last-century, the business world was rocked by numerous major scandals. Accounting regulators responded by issuing new guidance on many matters to improve the quality of financial reporting. In this environment, SFAS No. 144, was implemented in 2002 to broaden the scope of the definition, mandating that the disposal of a "component of an entity" (rather than the segment of a business) would qualify as a discontinued operation. In the earlier standard, APB opinion No. 30, there is no precise criterion provided for reports of discontinued operations. For example, in the case of closing a plant, the amount reported under discounted operations is left to the firm's discretion because the write-off is covered by paragraph 26 of APB 30, as well as FAS 5 (Bunsis 1997). When FAS 5 was applied, it was reported as loss contingencies. But, after the implementation of SFAS 144, losses are recognized when incurred, consistent with SFAS 121. FASB believed that the more precise definition would provide investors with a more faithful representation of the actions taken and produce more consistent information of greater value. However, many preparers argued that the new treatment resulted in over-reporting of disposals as discontinued operations, reducing the usefulness of this information (FASB 2013). Recently, this led to the issuance of Accounting Standards Update No. 2014-08 to, again, narrow the scope of the definition.[1]

Earlier research provides some clear evidence on the extent of managerial discretion in reporting under the two regulatory regimes. These studies show that managers lost some of their leeway to indulge in classification shifting between discontinued operations and core earnings under SFAS No. 144. Barua, Lin, Sbaraglia (2010) find that there is less classification shifting using operating expenses after the enactment of the new standard, and Curtis, McVay and Wolfe (2014) show that after 2002, earnings from continuing operations became more persistent, indicating that under the narrower (earlier) definition some firms were shifting non-recurring items into core earnings.

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[1] The statute was promulgated on April 10, 2014, and is entitled "Reporting Discontinued Operations and Disclosures of Disposals of Components of an Entity."

We add a different element to this prior research. We assume that managers had wider discretion to decide which activities represent unusual and infrequent occurrences under the earlier standard, APB Opinion No. 30.[2] The broader but more precise definition in SFAS No. 144 mandates that many more disposals are reported as discontinued operations and are brought to investors' attention, limiting the leeway managers had to book items at their convenience. We assess historical corporate performance before and after the regulatory change, to infer what types of firms would use the opportunity to signal future prospects, or conceal past mistakes by reporting disposal decisions in a very public fashion on the income statement.

In a preliminary investigation, we show that announcements of discontinued operations increase dramatically after the implementation of SFAS No. 144 in 2002, mostly driven by an upsurge of reports by very large firms. Prior to the regulatory reform, managers at large companies probably did not consider many divestitures of significant size or importance to report them as discontinued operations, but the new standard required them to book these disposals as discontinuations. Hence, the increase in reports of discontinued operations may have merely been a matter of a manager's interpretation. But, we cannot ignore the possibility of systematic reporting behavior based on corporate characteristics. We especially focus on firm size because disposals are often admissions of past mistakes, which managers of large companies probably would like to receive little attention. Therefore, we also examine whether managers at these large corporations may have used their available discretion under the older regulatory regime, to avoid reporting many disposals in a public fashion on the income statement as discontinued operations. However, discontinued operations require board approval, so there are some internal controls on raw opportunism by managers.

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[2] Under APB 30 (Reporting the Results of Operations—Reporting the Effects of Disposal of a Segment of a Business, and Extraordinary, Unusual and Infrequently Occurring Events and Transactions), the disposal component is a segment of a business "…to enhance the usefulness of the income statement (a) the results of continuing operations of an entity should be reported separately from the operations of a segment of the business which has been or will be discontinued and (b) the gain or loss from disposal of a segment should be reported in conjunction with the operations of the segment and not as an extraordinary item…" (Discussion 5; 1973), and there is no precise criterion to guide a disclosure treatment, except for the gain or loss from disposal of a segment and material events and transactions are either unusual or occur infrequently.

We presume that actual economic decisions to dispose of operating unit are not fundamentally driven by the accounting regulation. We can only observe the entities that report discontinued operations, so we assume that any changes in announcements of discontinued operations are fundamentally reporting choices. Then, we can infer the difference by the change in the characteristics of the marginal types of firms that enter the reporting sample between the two regulatory regimes.

We develop two competing hypotheses about whether the regulatory changes may have influenced the choice of how to book asset dispositions. First, in the signaling hypothesis, we propose that when managers have more discretion over reporting choices, marginally weaker performing firms will be more likely to publicly report a discontinued operation to signal their improved future prospects to markets. If this proposition holds, the portion of stronger performing entities in the sample of discontinuations will increase after 2002 as SFAS No. 144 mandates more reporting by these firms. Second, is the concealing hypothesis, where marginally weaker performing companies want to avoid making poor past investment choices public by reporting discontinued operations. In this case, after the regulatory change, the portion of weak firms in the sample will increase. Thus, the two hypotheses would result in completely opposite sorts of firm behavior, therefore we can clearly distinguish one from the other. We specify two logistic (logit) regression models, employing different samples, to assess how the historical performance of reporting firms is altered by the regulatory regime.

In a preliminary analysis, we confirm earlier findings that firms that announce discontinue operations have weak historical operating performance, are widely diversified, and face tight financial constraints. But, we observe sharp differences between the historical performance of the reporting companies before and after the regulatory change, though there is not clear evidence in favor of either of our two competing hypotheses.

However, when we separate the sample of discontinuing firms by size, we find strikingly different behavior between large and small companies before and after the regulatory change. Significantly more large firms announce discontinued operations after 2002. The overall results show that

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average historical operating performance for the large companies that announce a discontinued operation improves after the regulatory change. In particular, after 2002 the large reporting entities have much lower operating costs, such as cost-of-goods-sold and selling, general and administrative expenses. These findings support the signaling hypothesis. On the other hand, in the sample of small companies, historical operating performance after 2002 is considerably weaker than before. This is consistent with the concealing hypothesis, where the managers of weak performing small firms use their discretion to avoid making public announcements of poor past investment choices prior to 2002.

Prior studies show that corporate size is an important control variable for firm valuation. Larger companies have heavier analyst following, and analysts can play an important information intermediary role to reduce return volatility (Gebhardt, Lee, and Swaminathan 2001; Frankel, Kothari and Weber 2002). Lim (2001) suggests that the richness of a company's information environment is positively associated with firm size. Moreover, size is often used as a proxy for political costs (Smith and Watts 1992), because large firms are scrutinized more than small entities. DeFond and Jiambalvo (1991) predict that they are less likely to overstate earnings. But, classification shifting is difficult to detect. Therefore, announcements of discontinued operations can be effective signals to capital markets of positive information about the future. That is, large but weak performing firms might have incentives to send positive signals to the market. Francis, Hanna, and Vincent (1996) also show that the amount written-off increases with firm size. Under the older regulatory environment, managers of marginally stronger large firms might have avoided reporting disposals as discontinued operations because there was little need for them to send signals to the markets.

We cannot definitively demonstrate whether the observed differences in the historical characteristics of firms reporting discontinued operations before and after 2002 are the result of intentional systematic behavior or of unintentional differences in managers' interpretation of the accounting rule. However, it is clear that there was a concerted lobbying effort to reverse the broader definition of the item, which eventually lead to the enactment of Accounting Standards Update No. 2014-

08. This is also part of the joint FASB/IASB convergence project, to move toward international accounting standards (IFRS). This statute returns to a narrower definition of a discontinued, closer in-spirit to the treatment in-place before 2002, and it allows more managerial judgement to determine whether a disposal represents a strategic shift. It is possible that the regulators may have over-reacted to the strident public outcry over a series of major accounting scandals at the turn-of-the-last-century, and that the broader definition under SFAS No. 144 may have reduced the usefulness of accounting information. Because more minor routine divestitures are reported as discontinued operations, which reduces the clarity of signals to markets. However, public announcements of disposals also reveal earlier misguided investment activities, often due to managerial overconfidence (John and Ofek 1995; Comment and Jarrell 1995; Lord and Saito 2017). These admissions of prior errors provide useful information to investors about the size and strategic importance of managerial disposal or exit decisions.

We contribute to the prior research on discontinued operations in several ways. Barua, Lin, Sbaraglia (2010) show that the enactment of SFAS No. 144 improved the quality of accounting earnings by reducing classification shifting, and Curtis, McVay and Wolfe (2014) find that the broader scope of the definition in the new standard improves the quality of earnings from continuing operations by increasing persistence. However, they did not show what types of firms exercise discretion in reporting before and after the regulatory change. Our work extends these studies by showing that the implementation of SFAS No. 144 resulted in two different reporting behaviors for disposal decisions by companies of different sizes. We show that after 2002 marginally better performing large firms tend to book more disposals as discontinued operations, and for small companies, marginal weaker entities report them. This finding is consistent with rational behavior by managers, where large firms can send positive signals to the market by making disposals. But it is more difficult for managers of small companies to send such signals and hence, they have stronger incentives to conceal disposal decisions. Therefore, failure to control for firm size muddles the results because of the very different reporting behavior of the two groups.

Adut, Holder and Robin (2016) argue that regulators have focused on increasing the information content of accounting figures following the enactment of the Sarbanes Oxley Act of 2002, and the pronouncements implemented during this period might be influenced by the tensions they face. The rules enacted at this time tend to be more precise on reporting specific items to curb managerial opportunism. Our findings add further evidence that the broader tighter rules enacted in 2002 restrict managers' ability to use discretions to opportunistically report discontinued operations.

We also contribute to the literature on reporting behavior and accounting standards. Nelson (2003) discusses the degree of precision of accounting rules and their influence on managerial incentives to evaluate accounting standards. He notes that "few archival studies examine whether decision makers alter their behavior depending on the precision and complexity of relevant accounting standards." (2003: p. 92) We show a clear change in reporting behaviors depending upon the degree of the precision and complexity of accounting standards. The earlier pronouncement, APB No. 30, defined discontinued operations as the disposal of a segment of a business, which is rather vague. SFAS No. 144 is more precise, but there is still no "bright line" criteria to guide the decision. Some claim that the scope of the definition implemented in 2002 was too complex and increased the cost and effort for preparers. In 2014, the definition changed again, and regulators now emphasize that discontinued operations should represent significant strategic shifts, which is moving toward IFRS standards. This provides a future research opportunity to examine the change in reporting behaviors as we move toward more principle-based accounting standards.

The remainder of the paper is organized as follows. In the next section, we discuss historical trends in reporting of discontinued operations, and observe the effect of the regulatory change in 2002 on announcements of discontinuations, particularly by firms of different sizes. Then, we present our hypotheses. In the fourth section, we describe the variables used, the data sources, and report summary statistics. Next, we describe the logistic regression models to test our hypotheses, present the empirical

results, and discuss some sensitivity analyses. In the final section, we summarize and offer our conclusions.

2. History of Regulatory Change and Announcements of Discontinued Operations

There have been dramatic changes in reports of discontinued items in the recent decades. In Figure 1, we show the historical trends in the portion of firms announcing such divestitures between 1970 and 2012. Leading-up to 2002, the percentage of reporting companies hovers around 8% of the total. Negative-valued reports are more common, but generally the portions of positive and negative-valued announcements track each other through time. As expected, the implementation of SFAS No. 144 in 2002, clearly prompted an explosion in reports of discontinued operations. The jump is larger for positive-valued announcements, but generally the reports of the two signs continue to track each other.

To understand the relative magnitude of the reports through time, we also calculate the ratio of the announced value of discontinued operations to revenues. Earlier studies by Barua, Lin, Sbaraglia (2010) and Curtis, McVay, and Wolfe (2014) use this ratio as a measure of the size of a divestiture. We calculate the median values of this ratio for each fiscal year for one sample of positive-valued divestitures and another that make negative-valued announcements. A graph of these annual medians is given in Figure 2. Throughout the twentieth century, the relative magnitude of divestitures of both signs increases over time, but the scale of the average negative announcements are somewhat higher throughout. The relative magnitudes of reports of both signs clearly peak shortly before the implementation of SFAS No. 144, with an especially large spike in the median value for negative-valued discontinued operations in 2001. Then, after 2002, the average relative size of the reports of both signs decline sharply. This graph suggests that reports of positive-valued discontinuations are now relatively larger than the negative announcements, but their basic fluctuations are similar.

For a somewhat different perspective on the relative size of reporting firms and discontinuations, in Figure 3 we show the median size of companies that report a discontinued operation each year from 1970 to 2012. Revenues are normalized for the typical size of firms traded on the major North American

stock exchanges for each fiscal year, using a method suggested by Aggarwal and Samwick (1999) that is described in more detail below. Before 2002, the size of a typical company reporting a discontinuation is below average. Then, after the regulatory change, the size of the reporting firms suddenly leaps, and remains at a stable level well above average (around the size of companies larger than 60% of the observations in the sample). So, while Figure 2 suggests that the magnitude of the typical announcement of a discontinued operation has shrunken dramatically since 2002, Figure 3 shows that to some extent, this is because many more large firms have begun to report divestitures in this fashion.

To explore that issue further, in Figure 4 we show that portion of companies that announce discontinued operations based on relative firm size. For each fiscal year, we sort the entities into two samples, those with revenues above and below the average size for all corporations, again using the method of Aggarwal and Samwick (1999). Then, we determine the portion of firms in each of the two groups that announce a discontinued operation for each year. Before 2002, the relative portions of large and small firms announcing discontinued operations are very steady, and hover near 10% of total observations. Then, in 2002, there is a sudden and dramatic spike in the portion of large companies that report discontinuations. The new definitions under SFAS No. 144 were intended to broaden the reporting requirements for discontinued operations. This implies that before the change, managers of large firms took advantage of the greater flexibility under the old standard to book such divestitures in some other less overt manner, and the new regulation compelled them to report the disposals publicly as discontinued operations. Below, we will examine the relative historical performance of large and small companies announcing discontinued operation in the two regulatory regimes.

Overall, these figures suggest that the implementation of SFAS No. 144 had a very significant impact on announcements of discontinued operations and the type of reporting firms. There is a dramatic increase in the portion of companies reporting, especially for firms of above average size. There is some evidence that the relative value of discontinued operations to firm size declined after the regulatory change, but this must be weighed against the dramatic increase in the size of the reporting companies.

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3. Hypothesis Development

Nelson (2003) notes that there are few actual studies that examine how decision makers change their reporting behavior depending on the precision and complexity of accounting rules. This is a challenging task since we cannot easily identify the change in reporting behaviors. We attempt to capture this change by classification shifting of report of disposals in a case of regulatory change occurred in 2002 for large and small firms. We consider how past performance influences marginal decisions on how to report disposals. Earlier work by Barua, Lin, Sbaraglia (2010) and Curtis, McVay and Wolfe (2014) clearly show that under the regulatory regime in-place before 2002, managers had greater discretion over whether to book a disposal as a discontinued operation. The new definition under SFAS No. 144 broadened the reporting rule and placed greater emphasis on their strength of earnings from continuing operations. These reforms gave executives less discretion over how to book these divestitures. To extend the prior research on the effect of the regulatory change on managerial motivations, we propose two competing narratives about the type of firms most liable to use the discretion available before 2002 to report a disposal in a less public fashion; the signaling and concealing hypotheses.

FASB intends that announcements of discontinued operations should send clear signals to markets about the difference in earnings from continuing operations and the nonrecurring component of earnings. Under the signaling hypothesis, we propose that marginally weaker performing firms have the greatest incentive to publically announce a disposal as a discontinued operation to send clear signals about their aim to improve future performance.

While public announcements of a divestiture might relay information about changes that will enhance future performance, they also send very public signals about past corporate investment activities. Clearly, managers may be very reluctant to call attention to these earlier mistakes. Therefore, in the concealing hypothesis, marginally weaker performing firms have the least incentives to signal their past

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errors, and will be less likely to make a public announcement of a disposal through a discontinued operation.

In analyzing how the regulatory change in the definition of a discontinued operation under SFAS No. 144 influenced the type of firms that book a disposal under this account, we can only observe the entities that report the divestiture in this fashion. Those who choose not to, are not included in the sample. We presume that decisions to make disposals are driven by economic and market conditions and these fundamental choices should not be influenced by the institution of a new accounting regulation. In short, the increase in reports after 2002 is, to a great extent, a reporting choice, not an economic motivation. Therefore, we can only infer how the regulatory reform affected the type of firms that choose to report disposals as discontinued operations, by observing the change in the average prior performance characteristics of the companies in the sample before and after the change. For instance, if the historical net profit margin of the average firm in the sample that announces a discontinuation is weaker after the change in the rule, we can infer that before 2002 marginally less profitable companies chose not to report disposals as discontinued operations, and after the implementation of the new definition, they were mandated to book disposals publically in this fashion. Therefore, we can formally state the signaling hypothesis as:

H1: Historical operating performance of the marginal firm reporting a discontinued operation will improve following the regulatory change under SFAS No. 144 in 2002.

And, the concealing hypothesis is stated as

H2: Historical operating performance of the marginal firm reporting a discontinued operation will deteriorate following the regulatory change under SFAS No. 144 in 2002.

Our preliminary analysis of the size of firms that report discontinued operations before and after the implementation of SFAS No. 144, shown in Figures 3 and 4, raises questions about why managers of larger firms are more likely to book discontinuations after the regulatory change, and also about differences in other operating characteristics that motivate these decisions. On one hand, it may seem that smaller less diverse firms might have previously had greater discretion to avoid reporting a disposal under

discontinued operations, as they generally have fewer units that stand-out from other operations, to an extent all of these side-line operations can be viewed as part of the core business.[3] On the other hand, a divestiture for a larger and more diverse company is often a much smaller piece-of-the-pie, and the manager could conclude that this trifling disposal does not represent a significant change in corporate direction, providing an opportunity to book the divestiture in some less overt manner.

To a certain extent, these are empirical questions. Under the signaling and concealing hypotheses, are companies with weaker or stronger historical performance more likely to report disposals as discontinued operation before and after the change in accounting regime in 2002? Also, do different motives influence the mangers of large and small firms in deciding whether to relay public signals about their past choices or future intentions? These questions have important implications for the most appropriate reporting of disposals, and shed light on the motives of managers under different reporting requirements for discontinued operations. Given all of the changes in these rules over the course of this century, these are still important and controversial questions to answer. Is the primary purpose of this reporting item to signal significant strategic changes, or is it to send clear sharp signals to outsiders and investors about the prospects for future performance? Ultimately, did the implementation of the new scope of the definition of a discontinued operation in SFAS No. 144 curb managerial opportunism or reduce signaling quality? We shed light on all of these issues.

4. Data, Sources and Variables

4.1 Explanatory Factors

Our main questions are whether there is a difference in historical firm performance for companies announcing discontinued operations before and after the implementation of SFAS No. 144 in 2002, and

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[3] There is a common perception that companies with only one operating cannot report a discontinued operation, but this is clearly not the case (at least with respect to what the firms report in the Compustat Historical Segment dataset). Of the 11,066 observations that announce a discontinued operation 3,025 (27%) report only a single operating segment in the year before the announcement (for comparison, in the overall sample, 57% of firms have only a single segment).

also how these effects vary by firm size. We develop two parsimonious specifications to explore these choices using seven explanatory variables in the models to test our hypotheses for numerous samples.

Based on our preliminary analysis, the effect of firm size on the choice to report a discontinued operation is one of the central elements of our study. Because annual revenues are often highly skewed, we employ an adjusted measure of lagged sales (SIZE) suggested by Aggarwal and Samwick (1999) as our measure of firm size. We estimate the cumulative density function for all corporations listed on the major North American stock exchanges for the fiscal year.[4] This variable will take a value between zero and one. For example, if a firm is larger than 75% of the observations in the annual sample it will have a value of 0.75.

To test our competing signaling and concealing hypotheses, we employ six measures to capture different aspects of firms' profitability, cost structure, and market performance. First, to capture the market assessment of firm performance, we calculate the historical stock returns (RET) using data from CRSP. The historic net profit margin (NPM) is an aggregate measure of corporate earnings. Then, we employ four measures to disaggregate the elements of profitability. We follow earlier works by Berger and Ofek (1999), Bates (2005) and Colak and Whited (2007) and include the growth in revenues over the prior three years (REV-GROW). Berger and Ofek note that negative revenue growth has a particularly powerful impact on decisions to divest assets, so we also employ a dummy variable set to one if a firm experiences negative revenue growth in the prior three years and is set to zero otherwise (NEG-GROW). Bens (2002) and Lee (2014) argue that an imbalanced cost structure in a prime motivation for a divestiture. Therefore, we include the two major elements of corporate cost structure, the historical levels of cost-of-goods-sold (COGS) and selling, general and administrative expenses (SGA), both weighted by revenues.

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[4] First, we collect data on annual revenues for all of the firms on Compustat that trade on the nine major North American stock exchanges for each fiscal year. We then calculate the mean and standard deviation of revenues for each year, and estimate the cumulative density function for this distribution. Finally, for each observation we estimate the portion of the annual sample that has a lower sales under the CDF for that year (SIZE).

We include three control variables to account for other factors that have proven to affect decisions to divest assets. Several earlier studies such as Kaplan and Weisbach (1992), John and Ofek (1995), Comment and Jarrell (1995) and Lord and Saito (2017) find that increasing corporate focus is a primary motive for corporate divestitures. Our measure of the extent of corporate diversification is the number of operating segments (SEG) for the prior year listed in the Historical Segments database in Compustat. Lord and Saito (2017) show that Tobin's Q is strongly related to decisions to discontinue operations, so we include this ratio (TOBINQ) as a proxy for the markets assessment of future firm growth prospects. Lang, Poulsen and Stulz (1995), Allen and McConnell (1998), Kruse (2002) and Bates (2005) show that heavily leveraged firms are more likely to dispose of assets to meet financial obligations or to raise capital. Similarly, Schlingemann, Stulz and Walking (2002) also find that cash constraints are a strong motive for divestitures. Therefore, we use a measure of net leverage (LEV) to capture the extent of financial constraint, which is the ratio of the book value of total debt minus cash and equivalents to total (book value) of assets.

We take the values of the number of segments (SEG) and firm size (SIZE) from the year before the announcement of a discontinued operation. As mentioned above, REV-GROW is the growth in corporate revenue over the prior three years, and the dummy variable NEG-GROW is set to one if revenue growth over this period is negative. For the other six explanatory variables (NPM, COGS, SGA, TOBINQ, RET and LEV), we take their average values over the prior three years. Then, we estimate the corresponding median figures for all the available observations from their Fama-French industrial sector (based on fifty industries) for each fiscal year.[5] Next, we calculate the difference between the three-year average for the firm and the industry medians for the same period. So, our measures show how an entity has performed over the prior three years relative to its competitors in the sector. This is an important element of our methodology, which controls for systematic industry and time effects associated with these six variables.

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[5]An industry sector must have at least five observations for a fiscal year to be included.

The historical industry adjusted net profit margins and growth in revenues have a large number of extreme observations, so we make a further adjustment to these two series. We add one to the value and take the logarithm of the sum,[6] which smooths the variability.

4.2 Data Sources and Sample Characteristics

We collect the required accounting data from 1973 through 2012 from the Compustat database. The number of segments are taken from Compustat's Historical Segments database, which is available from 1976. This restricts the first year of the sample period to 1977. Data to estimate annual stock returns are collected from CRSP.[7]

A firm must have at least four consecutive years of observations to be included in the sample. We eliminate firms with any missing variables. Financial institutions (industries 45 through 48 in the Fama and French fifty industrial classifications) are removed from the sample. We also purge some unrealistic or extreme observations.[8]

This produces a final sample with 91,440 firm-year observations during the period from 1977 to 2012. Of these, 58,580 are from years before 2002, and 32.860 after. There are 80,374 observations for firms that do not report discontinued observations, and 11,066 companies that announce discontinuations (14% of the sample). Of these reports, 5,528 occur before 2002 and 5,538 after. As expected, there are more announcements of discontinued operations after 2002. This is despite the smaller number of years in the post period, which bears-out the visual results in Figure 1, showing how much more prevalent these reports are after the regulatory change.

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[6] These adjustments result in the loss of all observations that have values less than negative one.
[7] We use daily returns from the CRSP database corresponding to the firm's fiscal year. We eliminate any company that has less than 100 observations in a fiscal year.
[8] We remove the few observations where cost-of-goods-sold and selling, general and administrative expenses are less than zero. We also purge firms where the leverage ratio is greater than one. To eliminate outliers, we Winsorize four of our measures of the difference for three-year firm average and the industry median at the upper 1%; stock returns (RET) cost-of-goods-sold (COGS), selling, general and administrative expenses (SGA) and Tobin's Q (TOBINQ). We also Winsorize the difference between three-year firm revenue growth and the industry average (REV-GROW) at both the upper and lower 1%.

4.3 Summary Statistics

Summary statistics for our overall sample are shown in Table 1 and descriptions of all of the variables are reported in the Appendix. The upper panel provides a comparison between companies that discontinue operation and the control firms that do not. The statistics in the lower panel highlight the differences between companies that report discontinued operation before and after the implementation of SFAS No. 144 in 2002. For each variable, we show the mean, median and standard deviation. Recall that six of these variables are the differences in the ratios for the firm during the prior three years less the same median measure for the Fama-French industry sector over the same period. This is why some of the values might seem to have counter-intuitively low or negative values. The last two columns in Table 1 contain test-statistics for the differences between the two samples in each panel. The first is a nonparametric Wilcoxon Rank Test, and the second a T-test based on the difference of the means between the two subsamples.[9]

In the upper panel, there are 80,374 control firms and 11,066 companies that discontinue operations. The test-statistics show the difference between the control sample, which do not report discontinued operations, and the experimental sample announcing discontinuations. So, a negative statistic indicates that the average value is lower for the divesting companies than the control sample. Over the entire sample period, the companies announcing discontinuations are considerably larger (SIZE) than the control sample. As expected, the typical divesting enterprise is far more diverse, having an average of three operating segments (SEG) compared to one for typical firms. Diversification might offer internal financing opportunities by allowing reallocation of resources within firms, our statistics indicates there might be also a case of overdiversification that results in more costs than benefit. The other summary statistics bear-out the common perceptions that firms that announce discontinuations are generally weak performers. These companies are far more liable to have negative revenue growth (NEG-GROW). They have stock returns (RET), net profit margins (NPM), revenue growth (REV-GROW), and

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[9] Because the variance often fluctuates dramatically between the categories, we use the Satterthwaite approximation of the T-value.

measures of Tobin's Q (TOBINQ) significantly lower than annual industry median compared to the control sample. The positive test scores indicate that the divesting firms have higher relative costs-of-goods-sold (COGS) than for typical companies in their sector, suggesting they are less efficient to produce products. These firms also have net financial leverage (LEV) higher than for typical companies, indicating these firms are capable of obtaining external financing. On the other hand, they do have lower industry-adjusted selling, general and administrative expenses (SGA) than the control sample.

The lower panel illustrates that differences between firms that announce discontinue operations before and after the regulatory change instituted in 2002. There are 5,528 observations that report discontinuations before 2002, and 5,538 after. In this panel, a negative test-statistic indicates a lower value for the variable after the regulatory change. As seen in Figures 3 and 4, companies that discontinue operations after the implementation of SFAS No. 144 are clearly larger (SIZE). There are not significant differences between stock returns (RET), relative costs-of-goods-sold (COGS) or net leverage (LEV) between the two periods. Most of the significant differences between the two subsamples support our concealing hypothesis, suggesting that marginally weaker performers avoided publicly announcing discontinued operations before 2002, to avoid attention to past corporate missteps. The average historical net profit margins (NPM) and revenue growth (REV-GROW) are lower after 2002 than before. Firms in the later period are also more likely to have negative revenue growth over the prior years (NEG-GROW). The exception to evidence of weaker performance after the regulatory change are significantly lower selling, general and administrative expenses (SGA) after 2002. Among the control factors, after the regulatory change the divesting companies are more diverse (SEG), potentially suggesting reallocation of resources, and have lower Tobin's Q (TOBINQ) than before.

Following the implementation of SFAS No. 144, we observe extremely divergent behavior between large and small firms. In Table 2, we examine differences between the companies that discontinue operations of different size classes before and after the regulatory change. We employ our measure of relative firm size (SIZE) based on the earlier work by Aggarwal and Samwick (1999). Large

firms are defined as those with revenues larger than half of the corporations listed on the nine major North

American stock exchanges, and small entities are in the lower half. In our sample of divesting firms, 7041

are larger than average with 3,094 of the discontinuations occurring before 2002 and 3,947 after. There

are 3,963 smaller than average divesting corporations in the sample,[10] and 2,434 of these are before 2002

and 1,529 after. The rapid expansion in reports of discontinued operations by large firms after the

regulatory change are obvious in these figures. This suggests that classification shifting was more

common practice for larger firms than small firms. The Wilcoxon and T-tests show the difference

between the before and after groups, so a negative sign indicates that the average magnitude of the

variables is lower after the implementation of SFAS No. 144.

In Table 2, the relative size of the firms (SIZE) in each sample is significantly larger after the

regulatory change. Even though we have bifurcated the observations on the basis of annual revenues, the

persistent increase in the size of the divesting firms is still evident. In the same vein, the typical company

announcing a discontinued operation has more business segments (SEG) in the period after the regulatory

change regardless of firm size class. These results again suggest that well-diverse firms actively engage in

reallocation of resources by utilizing internal financing opportunities. That is shifting resources from an

inefficient operating unit to more an efficient unit. However, these firms do not report disposals of an

inefficient operation as discontinued operation before 2002. After 2002 these transactions are reported as

discontinued operations.

The test statistics suggest that larger firms typically have better historical performance compared

to the annual industry medians after the regulatory change, and performance among the smaller

enterprises is weaker in the post regulatory period. For the large firms, stock returns (RET), net profit

margins (NPM) and revenue growth (REV-GROW) are all significantly higher than the sector average

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[10] Our final sample contains fewer smaller firms because of the requirement of four consecutive annual observation
in the Compustat database, and because they are more likely to be eliminated as outliers due to extreme values of the
estimated ratios.

after 2002 than before. The large companies also have lower selling, general and administrative costs (SGA) after the change. Among the small firms, industry-adjusted NPM are lower and SGA are higher after 2002. For the sample of small companies RET, REV-GROW and COGS are not significantly different from typical sector performance between the two periods. These results differ sharply by firm size. They indicate that more numerous strong-performing large firms report discontinued operations after the implementation of SFAS No. 144, which supports the signaling hypothesis. On the other hand, the performance of smaller divesting companies is weaker after the regulatory change, which also supports the concealing hypothesis.

The statistics for the other control variables indicate that divesting firms in both size classes are more likely to have lower values of Tobin's Q (TOBINQ) than competitors in the industry after the regulatory change. The companies in the larger sample have higher than sector average net financial leverage (LEV) after 2002, while smaller firms tend to have lower leverage after.

5. Logistic Regression Models and Empirical Results

5.1 Logistic Regression Models to Test Hypotheses

We first employ two models to test our hypotheses in a multivariable setting. In the first specification, we examine the impact of stock returns and net profit margins on decisions to report a discontinue operations; it takes the form

$$DO\text{-}CHOICE_t = \alpha_0 + \Delta_1 SIZE_{t-1} + \beta_1 RET_{t-1,t-3} + \beta_2 NPM_{t-1,t-3} + \theta_1 SEG_{t-1} + \theta_2 TOBINQ_{t-1,t-3} +$$

$$\theta_3 LEV_{t-1,t-3} + \varepsilon \tag{1}$$

In the second model, we disaggregate the elements of earnings, in the following format

$$DO\text{-}CHOICE_t = \alpha_0 + \Delta_1 SIZE_{t-1} + \beta_1 RET_{t-1,t-3} + \beta_3 REV\text{-}GROW_{t-1,t-3} + \beta_4 NEG\text{-}GROW_{t-1,t-3} +$$

$$\beta_5 COGS_{t-1,t-3} + \beta_6 SGA_{t-1,t-3} + \theta_1 SEG_{t-1} + \theta_2 TOBINQ_{t-1,t-3} + \theta_3 LEV_{t-1,t-3} + \varepsilon \tag{2}$$

Where the variables in the two models with the subscript t-1 are values for the prior years, and those with t-1, t-3 are average values for the company over the three prior years minus the corresponding averages for all of the firms in the Fama-French industry sector over the same timeframe. The regression parameter

Δ_1 is to examine the effect of firm size, the β_i are for the variables to test the effects of historical firm performance on the decision to discontinue an operation, and θ_i are for the control variables.

5.2 Logistic Regression Results

We present our logistic regression (logit) estimates in Tables 3, 4 and 5. For each specification, the results are presented in four columns. The first two are the coefficient estimates and the standard errors. The parameter estimates in a logit regression are not directly comparable to those in an OLS regression. Therefore, in the third column, we also provide the "marginal effects" (at the means) for each estimate. These can be interpreted as the change in the probability of dependent variable event for a one-unit change in an independent variable. To understand the relative magnitude of the impact of the independent variables on the likelihood that a firm will discontinue an operation, we compute an "economic effect," which is the product of the marginal effect and the standard deviation of the predictor variable for the entire sample. These measures are given in the fourth column, and show the percentage increase (or decrease) in the probability that a company will discontinue an operation. Also, in logit models there is no direct equivalent to r^2, but we provide estimates of the maximum rescaled r^2 for each specification.

As a first step, we estimate our two logit specifications for a broad sample where the dependent variables for DO-CHOICE is sorted into three classes; firms that do not discontinue an operation, and those that do announce discontinuations both before and after the regulatory change in 2002. Because the companies that do not discontinue an operation are the control group, the estimated logit regression parameters show how firms that divest assets during the two regulatory regimes differ from those that do not report a discontinuation. The estimates of the maximum rescaled r^2 are about 10% for the two specifications.

The results in Table 3 confirm the increase of the size of the typical firm that discontinues an operation after the implementation of SFAS No. 144 evident in Figures 3 and 4. The average size of firms (SIZE) reporting discontinued operations are notably different across the two regulatory regimes. Before

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2002, the firms that announce divestitures are smaller than the control group, but after they are obviously larger.

The two estimated parameters on all of the other explanatory variables for the periods before and after the regulatory change have the same sign for both estimates. The magnitude of the estimates suggest that there are important differences between companies reporting in the two periods. But, here we will concentrate on the evident differences between the announcing (the experimental firms) and non-reporting companies (the control group), and reserve a more detailed description of the contrast between the historical firm characteristics in the two regimes to later.

The coefficients on our test variables for operating performance clearly show that the enterprises that report a discontinuation have weak past operating performance. This is in-line with the extensive prior research, such as John, Lang and Netter (1992), Berger and Ofek (1999), Kruse (2002), Denis and Shome (2005) and Lord and Saito (2017) showing that firms that announce divestitures exhibit weak operating performance leading-up to the disposal. In the first model, the divesting firms have below-average historical stock returns (RET) and net profit margins (NPM). In the second model, we further break-down the elements of profitability. The companies that announce discontinuations have lower revenue growth over the prior three years (REV-GROW), and they are far more likely to have negative historical growth in sales (NEG-GROW). These enterprises also have higher than average cost-of-goods-sold (COGS) and selling, general and administrative expenses (SGA).

As expected, the parameter estimates on the three control variables in Table 3 also show that the firms that announce discontinued operations are more widely diversified, with more business segments (SEG) than other companies. They have lower measures of Tobin's Q (TOBINQ), suggesting that the market places a low value on their equity, and these firms employ high net leverage (LEV), implying that they face greater than average financial constraints.

Thus, the results in Table 3 bear-out previous findings on the characteristics of firms that announce discontinued operations. They are more widely diversified, financially constrained and have weaker historical operating performance than companies that do not report discontinuations.

In Table 4, we focus more tightly on the differences in the historical operating characteristics of firms that discontinue an operation before and after the implementation of SFAS No. 144. For these estimates of our two models, we use a sample of only companies that announce discontinued operations. The control group in the logit models are the firms that announce a discontinuation before the promulgation of the new regulation in 2002. Therefore, the parameter estimates show how the historical performance of companies reporting a discontinued operation after 2002 differs from those that divest before. Most of these results can be inferred by comparison of the coefficient estimates for before and after the regulatory change in Table 3, but here we can formally test for the statistical significance of the differences. The estimates of the maximum rescaled r^2 for the two models in Table 4 are about 9%.

The parameter estimate for the SIZE variable confirms that the typical companies that discontinue operations after 2002 are much larger than those that do so before, which validates the visual evidence in Figure 4. This suggests that under the laxer regulatory regime, larger firms may have had greater flexibility to avoid reporting disposals as discontinued operations. Perhaps their political clout and considerable accounting expertise allowed them greater flexibility to avoid publicly airing information on past missteps.

For the most part, the coefficient estimates on the test variables for firm performance are mixed, not providing clear support for either of our two competing hypotheses. In both specifications, the typical firms that announce discontinue operations after the regulatory change have higher historical stock returns (RET) than those before. In Model 1, the parameter estimate on the past net profit margin (NPM) is not significantly different between the two periods. In Model 2, where we break-down profitability into its constituent elements, the average historical revenue growth (REV-GROW) of the divesting companies is higher, but the portion of firms with negative revenue growth (NEG-GROW) over the prior three years

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are far more likely to report discontinued operations after the regulatory change. The entities reporting

discontinued operations after the regulatory change do have lower cost-of-goods-sold (COGS), but there

is no evidence that selling, general and administrative expenses (SGA) differ between the two regulatory

regimes. While the results in Table 3 do not distinctly support either of our hypotheses, below, there are

more clear results when we separate the sample by firm size.

The coefficient estimates on the control variables show that the firms that discontinue an

operation after 2002 have more operating segments (SEG), and lower Tobin's Q (TOBINQ) and net

leverage (LEV) than those divesting before the regulatory change.

In Table 5, we show how historical performance varies between large and small firms

discontinuing operations before and after the implementation of SFAS No. 144 using a series of logit

models. From Figure 4, it is clear that the portion of large companies announcing discontinued operations

increased dramatically after the promulgation of the new regulation. The results in Table 5 clearly support

the signaling hypothesis, where the new large firms announcing discontinuations following the regulatory

reform are stronger performers than those reporting before. But, the results for the small companies

support the concealing hypothesis, where the performance of the typical divesting small firm is weaker

after the change. The estimates of the maximum rescaled r^2 for the two specifications examining the small

firms are close to 10%, while those for the models of the larger companies are about 5% and 7% for

Models 1 and 2 respectively.

The typical firm size (SIZE) and the number of business segments (SEG) for both samples of

companies that discontinue operations are larger after the regulatory change, which is similar to the

univariate results in Table 2. The economic effects suggest that an increase in both SIZE and SEG have

particularly powerful effects on the decisions to book a disposal as a discontinued operation. In the

sample of smaller firms, both the typical levels of Tobin's Q (TOBINQ) and net leverage (LEV) are lower

after 2002, and the economic effects show that these factors have a powerful impact on the decision to

book a discontinued operation. But, the differences in these control factors are insignificant for the sample of larger firms.

The differences in the performance variables after the regulatory change are very clear. In Model 1, for the larger firms, both historic stock return (RET) and net profit margin (NPM) are higher after the promulgation of the new regulation. But, for small firms, the NPM is lower after the change, but the difference in RET is not statistically significant. In Model 2, where we break-down profitability into its constituent components, the economic effects show that the cost-structures for the different sized firms have a profound impact on the choice of how to book a disposal. For larger companies, it is clear that both cost-of-goods-sold (COGS) and selling, general and administrative expenses (SGA) are lower in the later period, which indicates superior performance. If these variables are one standard deviation lower, a company is about 7% or 9% more likely to book a discontinued operation after the regulatory change. While among small firms, SGA is higher after 2002, and again has a considerable economic effect on the choice of how to record a disposal. But, the difference in COGS is not statistically significant. Revenue growth over the prior three years (REV-GROW) is not significantly different between the two periods for the samples of firms of either size. But, firms that have negative historical revenue growth (NEG-GROW) are between 7% and 9% more liable to report a discontinued operation after 2002. This latter effect shines-through as a significant factor in all of our analyses of divesting firms after the regulatory change.

The results for the logit models shown in Table 5 bear-out the earlier univariate results from Table 2 showing that there are distinct differences in how the implementation of SFAS No. 144 in 2002 affects decisions to book disposal decisions depending on firm size. The size of the companies in both samples are clearly larger after the regulatory change. As above in the discussion of Table 2, the number of firms reporting discontinuations after 2002 is larger, despite the shorter time-frame. The large companies that report discontinued operations clearly have stronger performance characteristics after 2002, which supports our signaling hypothesis. In particular, they have much lower cost structures than large firms reporting discontinuation before the new regulatory regime. The one glaring exception is that

the large reporting firms are more liable to have negative historical revenue growth after 2002. On the other hand, historical operating performance is evidently weaker based on all of the other performance characteristics after 2002 among the sample of smaller firms that book discontinuations, which supports the concealing hypothesis for these companies.

Overall, these results suggest that weak revenue growth is a major motive to report discontinuations for both large and small firms. However, the changes in historical performance of these two groups of firms before and after the promulgation of the new regulation are completely opposite. This provides convincing evidence that the change in precision and complexity of the definition of a discontinued operation significantly altered managers' reporting behavior.

5.3 Sensitivity Analyses

We sub-divide our samples of firms that announce discontinued along three different lines to examine whether the results depend upon any of these factors. First, we separate companies that announce positive and negative-valued discontinued operations. Barua, Lin, Sbaraglia (2010) find that before 2002 firms that announce negative-valued discontinuations are often involved in classification shifting. This suggests that managers use their discretion to move negative-valued divestitures to discontinued operations to increase core earnings. But, they do not find manipulation in reports of positive-valued discontinuations. To test for whether the effect of the regulatory change effects reporting of discontinued operations of one sign more than the other, we estimate specifications of models 1 and 2 based on the samples of firms that report positive and negative-valued discontinuations. However, the results for both samples are very similar to those in Table 4, there is little difference in the results based on the sign of the discontinuation. The lack of appreciable differences in the results between the two samples based on sign of the discontinuation, is probably because of the similarity of these reports through time, as shown in Figures 1 and 2.

Second, we divide the sample based on the number of operating segments rather than firm size. But, the results are very similar to those in Table 5. In general, the companies with more segments are

bigger. So, like larger firms, historical performance for companies with more operating units is stronger after 2002. While for firms with less segments, which tend to be smaller, historical performance is weaker after the regulatory change.

Third, we divide reports of discontinued operations by the relative reported size of the divestiture. Following Barua, Lin, Sbaraglia (2010) and Curtis, McVay, and Wolfe (2014), we calculate the ratio of the absolute value of discontinued operations to revenues. We categorize the divestitures as large or small depending on whether the reported value is more or less than 5% of revenues. In this case there is evidence that the firms making smaller divestitures have higher historic stock returns and revenue growth, but the other estimated parameters differ little between the two samples.

We also examine whether two other factors have an important impact on our results. First, we replicate the work of McVay (2006) and Barua, Lin, Sbaraglia (2010) and calculate their measure of unexpected core earnings for each observation. They employ this as a proxy for evidence of classification shifting by managers. We employ two approaches. First, we include this measure as an explanatory variable in Models 1 and 2. Second, we estimate OLS regressions with the performance measures as the dependent variables as a function of unexpected core earnings along with interactive variables of this measure with a dummy for the period after the regulatory change. The only significant finding is that firms with large unexpected core earnings that announce a discontinuation after 2002, have slightly higher stock returns than before.

Finally, we also examine the effect of prior acquisition activities on the historical performance characteristics for the reporting firms, both for the entire sample and for large and small firms. But, there is no evidence that the regulatory change in 2002 had an important effect of the influence of acquisitions on firm performance leading-up to the decision to report a disposal as a discontinued operation.

6. Summary and Conclusion

We test two competing hypotheses to explain the possible motivations of mangers in deciding whether to report a discontinued operation before and after 2002. The first is the signally hypothesis.

When there is greater discretion over whether to report a disposal as a discontinued operation, the managers of marginally weaker firms are more likely to publicly report a discontinuation to signal their attempt to improve future firm performance. This implies that the marginally stronger firms will be required to report more discontinued operation after 2002, and the quality of the performance characteristics of companies in the reporting sample will improve after the change. Alternatively, the second proposition is the concealing hypothesis, when managers of marginally weaker firms have discretion, they will eschew reporting disposals as discontinued operations to avoid making a public admission of previous investment public. Therefore, under this hypothesis, worse performing companies will be required to report discontinuations under SFAS No. 144, and so the overall performance characteristics of the sample firms will be weaker after 2002.

To test our hypotheses, we examine the change in the characteristics of firms that report discontinued operations before and after the implementation of the new accounting regulation, SFAS No. 144, in 2002. This provides a unique setting to study how managers and companies react to a change in the precision and complexity of an accounting rule. The issue is of particular interest because there has been sharp debate for over a decade on the nature of discontinued operations, and the proper scope in the definition of these items. We are extending earlier work by Barua, Lin, Sbaraglia (2010) and Curtis, McVay, and Wolfe (2014) who show that managers had greater leeway over whether to report divestitures as discontinued operations before the new regulation was promulgated in 2002. However, we examine the managerial decisions from a very distinctive point-of-view, using a different methodology. We assume that decisions to dispose of assets are generally driven by economic factors, not by an accounting reporting regulatory change. But, the manager has some discretion over whether to report the divestiture as a discontinued operation or in some other less overt fashion. We assume that the implementation of SFAS No. 144 probably diminished the leeway that managers had to determine how to report disposals. This provides an opportunity to test for a change in managerial behavior as the result of a change in degree of the precision in criterion of the definition on discontinued operations.

We confirm earlier findings that companies that announce discontinued operations generally have weak historical performance, are more widely diversified and suffer from greater financial constraints than for typical firms. After the regulatory change, there are obviously many more announcements of discontinued operations, and there is clear evidence that the discontinuing companies are much larger and more widely diversified than the non-reporting firms. There are also notable differences in the measures of historical performance of the companies that report discontinuations after the regulatory change, but these do not unambiguously support either of our hypotheses.

We then separate the sample of reporting firms based on their size, which captures the different information environments that the companies face. Larger enterprises have heavier following by analysts, therefore managers of marginally weaker performing large firms have greater incentives to signal positive information to markets. We find clear differences in historical performance between the two groups after the regulatory change in 2002. In the subsample of large companies that announce a discontinuation, historical performance is obviously stronger after the implementation of the new regulation. The operating cost structure is much lower for these large reporting firms after the change. These results support our signaling hypothesis, where managers of marginally weaker performing firms used their discretion under the old standard to report discontinued operations to signal the probability of better future performance. While marginally stronger entities that make divestitures tend not to report them as discontinued operations. Then, SFAS No. 144, requires the managers of these better performing companies to report these items as discontinuations. Among the smaller firms, the results are opposite. The historical performance of the small reporting companies is weaker after the regulatory change, which supports the concealing hypothesis where managers of weaker firms avoided announcing discontinue operations before 2002 to evade publicly revealing past investment mistakes. In the new regulatory regime, more of these divestitures must be booked as discontinued operations. Thus, the change in the definition has a clear effect on reporting behavior.

Following the implementation of SFAS No. 144 in 2002, we show that the number of announcements of discontinued operations rose dramatically, and that most of this increase was by large firms. There are also sharp differences in the type of companies that report discontinuations depending on firm size. After 2002 marginally better performing large companies and marginally weaker small firms tend to announce discontinued operations. Under the previous regulatory regime, is it likely that strong performing large firms considered most asset disposals as too inconsequential to book as a discontinued operation. While underperforming small companies probably were reluctant to report past investment mistakes in a public fashion. Our results show that the implementation of SFAS No. 144 had a significant impact on managerial behavior and on the type of firms that chose to report discontinued operations. These results are consistent with rational managerial behavior. Given a higher degree of discretion, managers of large weak performing firms, which operate in a rich information environment, would have incentives to send strong signals of improving future performance. While the managers at weak underperforming firm would try to conceal information about poor past investment choices.

These issues are important to practitioners and regulators because the recent enactment of Accounting Standards Update No. 2014-08, returns to a definition of discontinued operations by reducing the scope of the definition, making it closer to that in-place before 2002. It stresses the need for managerial judgement by placing emphasis on signaling significant strategic shifts. Our results provide strong evidence that the precision and complexity of the rules for disclosure of discontinuations affect decision makers' reporting behavior. The new definition is more judgmental because it allows managers to determine the importance of a strategic shift. It will be interesting to observe how this will affect reporting behavior in the future.

Appendix **Variable Descriptions**	
Variable	**Description**
DO-CHOICE	Binary or Multinominal Variable to Capture Whether or Not a Firm Discontinues an Operation Before or After the Regulatory Change in 2002
SIZE	Percentage of Firms Traded on Major North American Exchanges with Lower Values of Revenue Under the Cumulative Density Function for the Previous Year
RET	Average Annual Stock Return for the Three Previous Fiscal Years Minus the Same Three-Year Average for the Fama-French 50-Industry Sector
NPM	Average Net Profit Margin (Ratio of Earnings Excluding Extraordinary Items and Discontinued Operations to Revenure) for the Three Previous Fiscal Years Minus the Same Three-Year Average for the Fama-French 50-Industry Sector
REV-GROW	Growth in Revenues for the Three Previous Fiscal Years Minus the Same Three-Year Growth Rate for the Fama-French 50-Industry Sector
NEG-GROW	Dummy Variable Set to One if REV-GROW is Negative, and to Zero Otherwise
COGS	Average Ratio of Cost-of-Goods-Sold to Revenues for the Three Previous Fiscal Years Minus the Same Three-Year Average for the Fama-French 50-Industry Sector
SGA	Average Ratio of Selling, General and Administrative Expenses to Revenues for the Three Previous Fiscal Years Minus the Same Three-Year Average for the Fama-French 50-Industry Sector
SEG	Number of Operating Segments in the Compustat Historical Segments Database for the Previous Year
TOBINQ	Average Tobin's Q (Ratio of the Book Value of Assets to the Sum of the Book Value of Liabilities and the Market Value of Equity) for the Three Previous Fiscal Years Minus the Same Three-Year Average for the Fama-French 50-Industry Sector
LEV	Average Net Leverage Ratio (Ratio of the Book Value of Debt Minus Cash and Equivalents to the Book Value of Assets) for the Three Previous Fiscal Years Minus the Same Three-Year Average for the Fama-French 50-Industry Sector

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Figure 1
Portion of Discontinued Operations
1970 - 2012
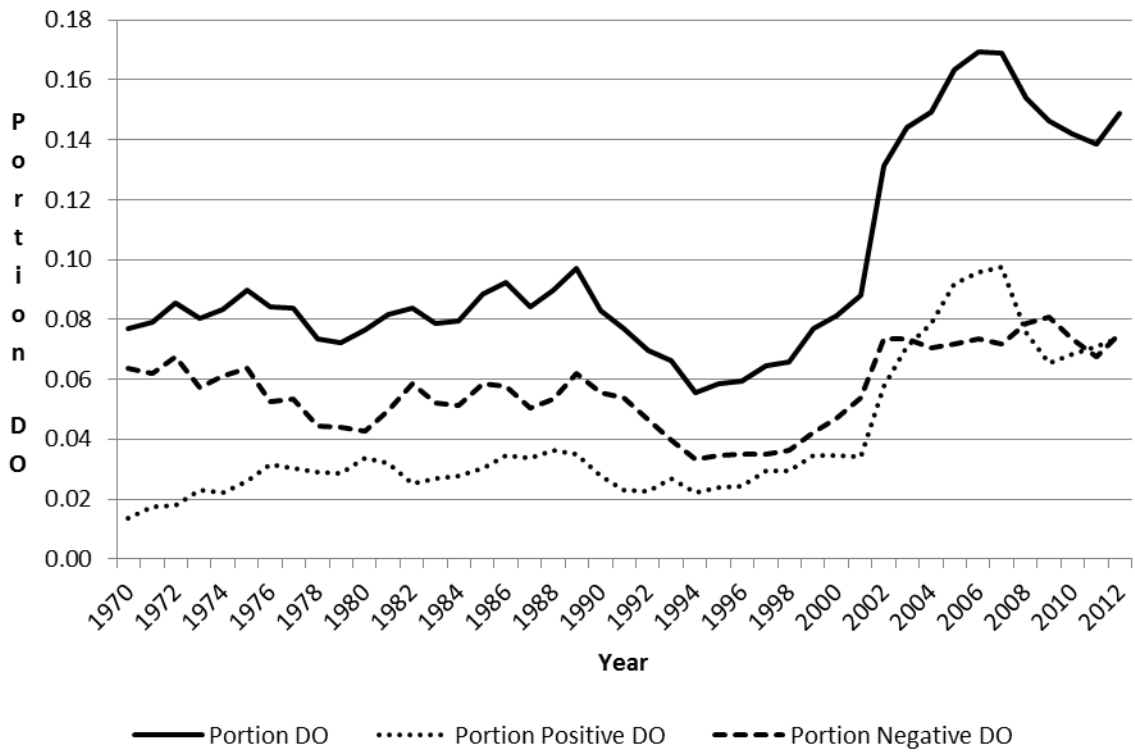
Figure 2
Ratio of DO to Sales
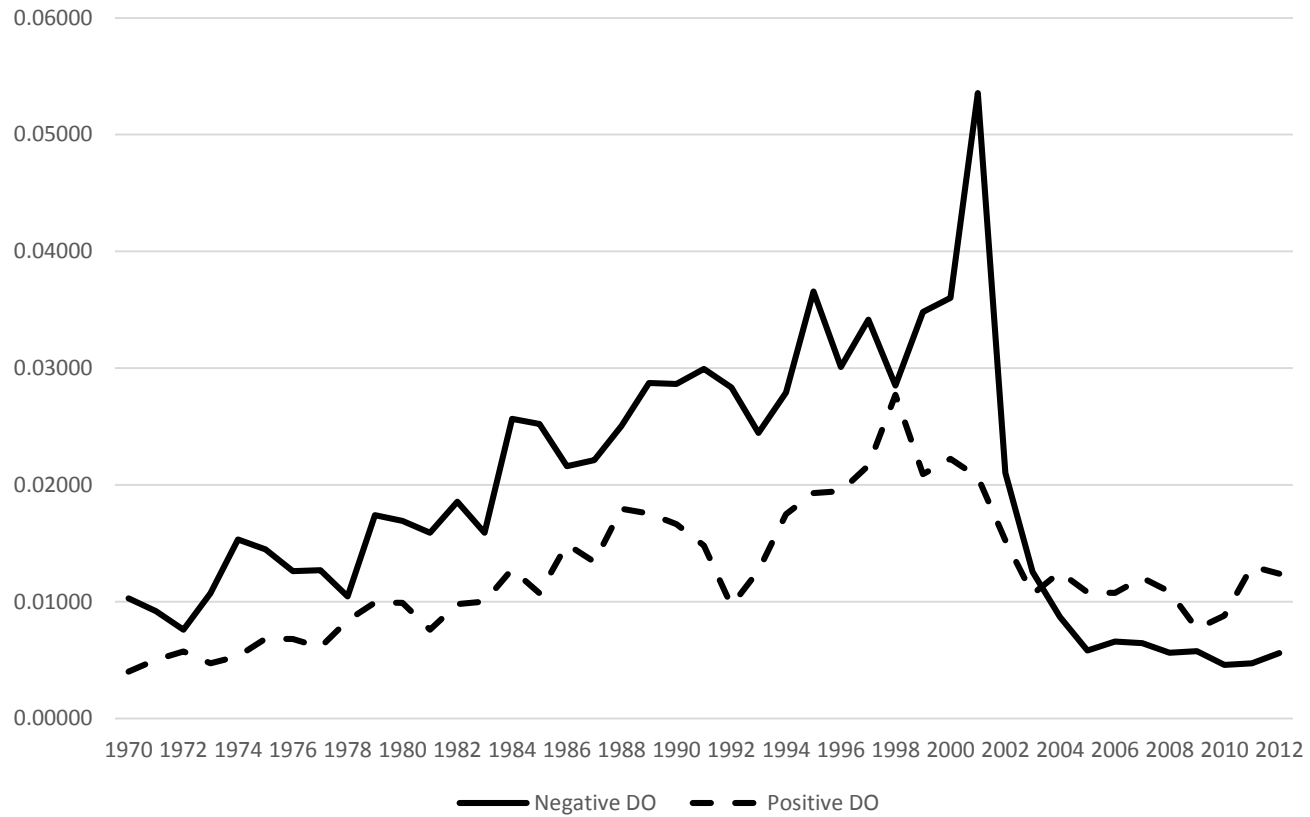
Figure 3
DO Firms Average Size by Revenue CDF
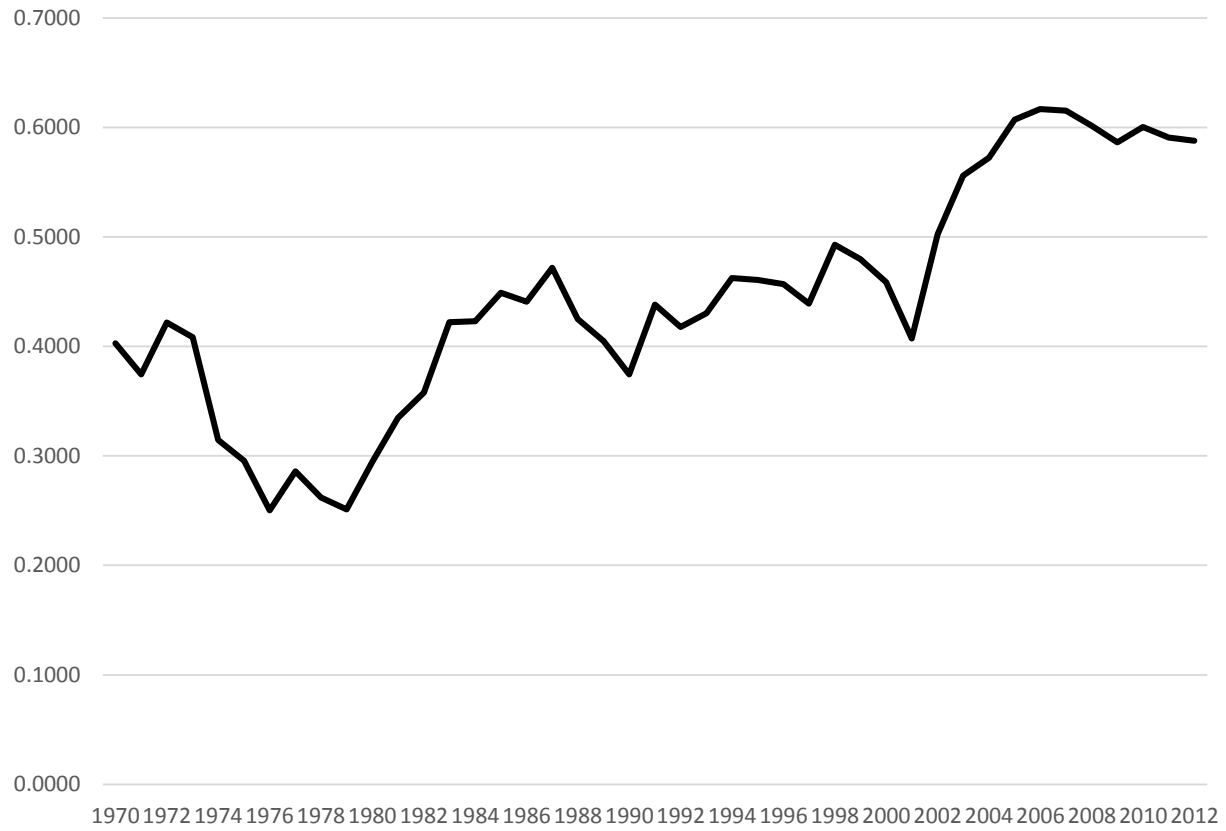
Figure 4
Portion of Firms Announcing DO by Size
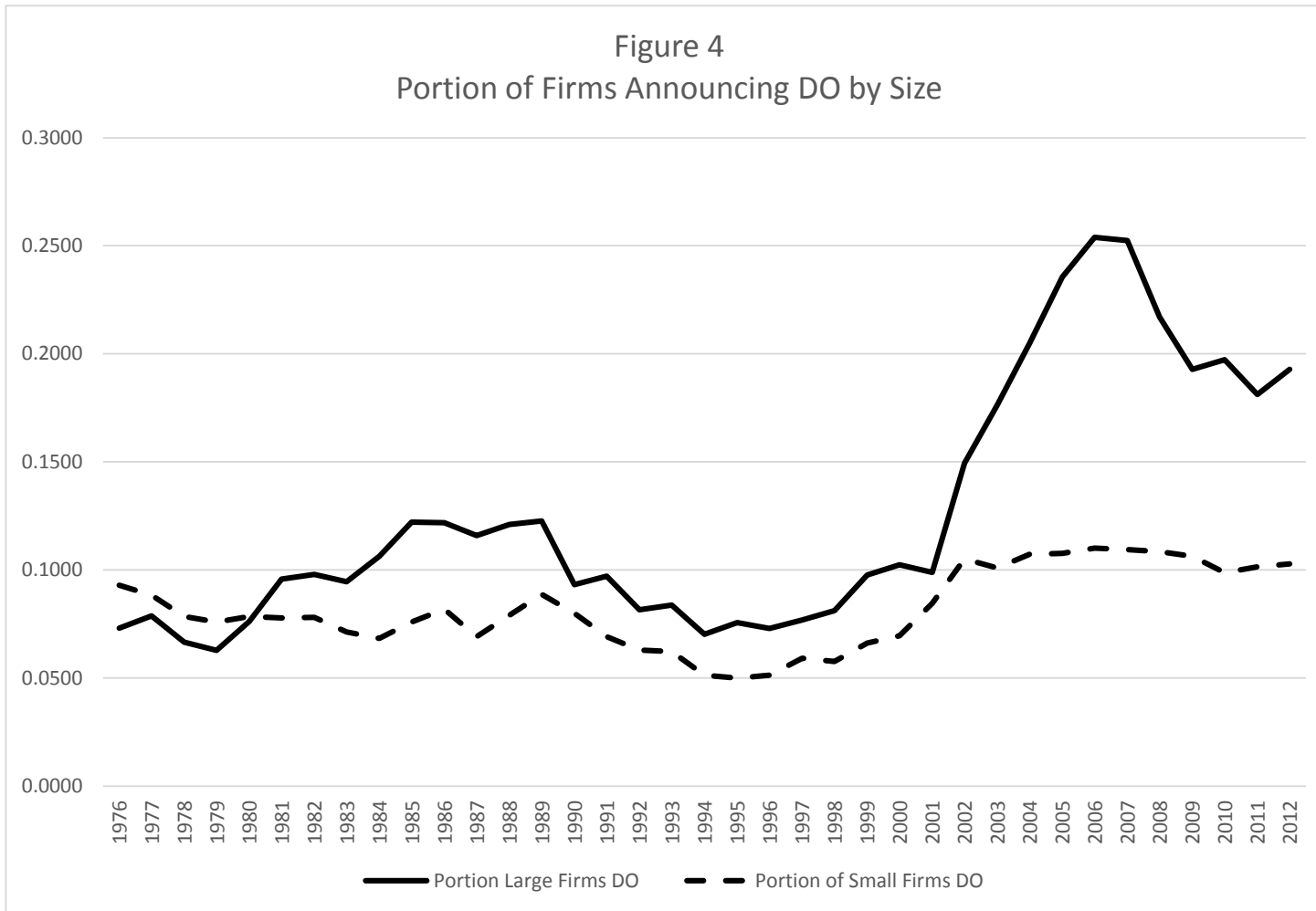
Table 1
Summary Statistics
Firms With and Without Discontinued Operations, and With Discontinued Operations Before and After the Regulatory Change

	Without Discontinued Operations			With Discontinued Operations			Difference Tests	
	Median	Mean	Stand Dev	Median	Mean	Stand Dev	Wilcox	T-Test
SIZE	0.5216	0.5230	0.2728	0.6231	0.5955	0.2667	26.14***	26.29***
RET	0.0035	0.0808	0.3971	-0.0461	0.0069	0.3541	-21.06***	-18.59***
NPM	0.0120	-0.0065	0.2702	-0.0006	-0.0213	0.2425	-24.39***	-5.89***
REV-GROW	0.0367	0.0850	0.6443	-0.0945	-0.0920	0.6835	-30.72***	-25.72***
NEG-GROW	0.0000	0.1959	0.3969	0.0000	0.3238	0.4679	30.88***	27.42***
COGS	-0.0156	-0.0208	0.2120	0.0070	0.0026	0.1704	17.70***	13.13***
SGA	-0.0010	0.0264	0.2084	-0.0044	0.0099	0.1821	-5.14***	-8.79***
SEG	1.0000	2.0247	1.5467	3.0000	3.0677	1.8736	66.61***	55.99***
TOBINQ	-0.0071	-0.0054	0.2891	0.0822	0.0854	0.2703	-26.61***	-29.79***
LEV	0.0031	0.3039	1.1704	-0.0991	0.0366	0.8382	32.85***	32.87***
		80,374 Observations			11,066 Observations			
	With Discontinued Operations Before 2002			With Discontinued Operations After 2002			Difference Tests	
	Median	Mean	Stand Dev	Median	Mean	Stand Dev	Wilcox	T-Test
SIZE	0.5497	0.5486	0.2717	0.6905	0.6423	0.2531	18.13***	18.77***
RET	-0.0426	0.0123	0.3677	-0.0491	0.0015	0.3400	-0.27	-1.61
NPM	-0.0036	-0.0224	0.1699	0.0035	-0.0202	0.2982	-9.33***	-0.48
REV-GROW	-0.0879	-0.0733	0.7552	-0.1012	-0.1107	0.6029	-1.84*	-2.88***
NEG-GROW	0.0000	0.2970	0.4570	0.0000	0.3505	0.4772	6.01***	6.02***
COGS	0.0090	0.0041	0.1628	0.0044	0.0011	0.1776	-0.28	-0.93
SGA	0.0000	0.0167	0.1654	-0.0121	0.0031	0.1972	-7.80***	-3.95***
SEG	2.0000	2.6822	1.5768	3.0000	3.4525	2.0583	19.87***	22.10***
TOBINQ	-0.0781	0.0809	0.8780	-0.1301	-0.0077	0.7941	-7.64***	-5.57***
LEV	0.0790	0.0834	0.2601	0.0866	0.0875	0.2801	0.96	0.80
		5,528 Observations			5,538 Observations			

*** - Significant with 1% Confidence, ** - Significant with 5% Confidence, * - Significant with 10% Confidence

<table>
<thead>
<tr><th></th><th colspan="3">Large Firms Before 2002</th><th colspan="3">Large Firms After 2002</th><th colspan="2">Difference Tests</th></tr>
<tr><th></th><th>Median</th><th>Mean</th><th>Stand Dev</th><th>Median</th><th>Mean</th><th>Stand Dev</th><th>Wilcox</th><th>T-Test</th></tr>
</thead>
<tbody>
<tr><td>SIZE</td><td>0.7580</td><td>0.7545</td><td>0.1490</td><td>0.7884</td><td>0.7779</td><td>0.1408</td><td>6.50***</td><td>6.71***</td></tr>
<tr><td>RET</td><td>-0.0582</td><td>-0.0388</td><td>0.2704</td><td>-0.0556</td><td>-0.0217</td><td>0.2789</td><td>2.26**</td><td>2.59***</td></tr>
<tr><td>NPM</td><td>0.0009</td><td>0.0032</td><td>0.0964</td><td>0.0100</td><td>0.0159</td><td>0.1912</td><td>8.45***</td><td>3.60***</td></tr>
<tr><td>REV-GROW</td><td>-0.0665</td><td>-0.0527</td><td>0.6582</td><td>-0.0843</td><td>-0.0961</td><td>0.5327</td><td>-1.98**</td><td>-2.98***</td></tr>
<tr><td>NEG-GROW</td><td>0.0000</td><td>0.2676</td><td>0.4428</td><td>0.0000</td><td>0.3273</td><td>0.4693</td><td>5.42***</td><td>5.47***</td></tr>
<tr><td>COGS</td><td>0.0141</td><td>0.0043</td><td>0.1385</td><td>0.0056</td><td>0.0025</td><td>0.1619</td><td>1.14</td><td>0.51</td></tr>
<tr><td>SGA</td><td>-0.0122</td><td>-0.0135</td><td>0.1181</td><td>-0.0270</td><td>-0.0342</td><td>0.1266</td><td>-6.67***</td><td>-7.09***</td></tr>
<tr><td>SEG</td><td>3.0000</td><td>3.1244</td><td>1.6851</td><td>4.0000</td><td>3.7933</td><td>2.1387</td><td>13.21***</td><td>14.68***</td></tr>
<tr><td>TOBINQ</td><td>-0.0704</td><td>0.0118</td><td>0.5859</td><td>-0.0883</td><td>0.0113</td><td>0.6650</td><td>-2.42***</td><td>0.03</td></tr>
<tr><td>LEV</td><td>0.1048</td><td>0.1173</td><td>0.2355</td><td>0.1290</td><td>0.1346</td><td>0.2558</td><td>2.87***</td><td>2.94***</td></tr>
<tr><td></td><td colspan="3">3,094 Observations</td><td colspan="3">3,947 Observations</td><td></td><td></td></tr>
</tbody>
</table>

Table 2
Summary Statistics
Large and Small Firms With Discontinued Operations Before and After the Regulatory Change

<table>
<thead>
<tr><th></th><th colspan="3">Small Firms Before 2002</th><th colspan="3">Small Firms After 2002</th><th colspan="2">Difference Tests</th></tr>
<tr><th></th><th>Median</th><th>Mean</th><th>Stand Dev</th><th>Median</th><th>Mean</th><th>Stand Dev</th><th>Wilcox</th><th>T-Test</th></tr>
</thead>
<tbody>
<tr><td>SIZE</td><td>0.2933</td><td>0.2869</td><td>0.1307</td><td>0.3181</td><td>0.3059</td><td>0.1222</td><td>4.25***</td><td>4.68***</td></tr>
<tr><td>RET</td><td>-0.0129</td><td>0.0772</td><td>0.4546</td><td>-0.0244</td><td>0.0590</td><td>0.4526</td><td>-1.19</td><td>-1.25</td></tr>
<tr><td>NPM</td><td>-0.0155</td><td>-0.0555</td><td>0.2284</td><td>-0.0233</td><td>-0.1130</td><td>0.4604</td><td>-2.21**</td><td>-4.54***</td></tr>
<tr><td>REV-GROW</td><td>-0.1166</td><td>-0.0995</td><td>0.8623</td><td>-0.1605</td><td>-0.1470</td><td>0.7482</td><td>-1.55</td><td>-1.85*</td></tr>
<tr><td>NEG-GROW</td><td>0.0000</td><td>0.3344</td><td>0.4719</td><td>0.0000</td><td>0.4079</td><td>0.4916</td><td>4.74***</td><td>4.71***</td></tr>
<tr><td>COGS</td><td>0.0006</td><td>0.0039</td><td>0.1893</td><td>0.0014</td><td>-0.0023</td><td>0.2116</td><td>-0.53</td><td>-0.94</td></tr>
<tr><td>SGA</td><td>0.0275</td><td>0.0551</td><td>0.2044</td><td>0.0377</td><td>0.0956</td><td>0.2892</td><td>2.90***</td><td>4.85***</td></tr>
<tr><td>SEG</td><td>2.0000</td><td>2.1200</td><td>1.2139</td><td>3.0000</td><td>2.6072</td><td>1.5487</td><td>9.29***</td><td>10.60***</td></tr>
<tr><td>TOBINQ</td><td>-0.0904</td><td>0.1687</td><td>1.1407</td><td>-0.2744</td><td>-0.0550</td><td>1.0467</td><td>-7.42***</td><td>-7.31***</td></tr>
<tr><td>LEV</td><td>0.0317</td><td>0.0402</td><td>0.2827</td><td>-0.0257</td><td>-0.0293</td><td>0.3026</td><td>-11.18***</td><td>-8.40***</td></tr>
<tr><td></td><td colspan="3">2,434 Observations</td><td colspan="3">1,529 Observations</td><td></td><td></td></tr>
</tbody>
</table>

*** - Significant with 1% Confidence, ** - Significant with 5% Confidence, * - Significant with 10% Confidence

Table 3
Logistic Regression Results
Comparing Historical Performance for Firms that Discontinue Operations Before and After the Regulatory Change to the Control Sample

Variable	DO Period	Para Est	Stand Err	Margin Eff	Econ Eff	Para Est	Stand Err	Margin Eff	Econ Eff
Intercept	Before2002	-2.8763***	0.0322			-3.1306***	0.0368		
	After2002	-3.9485***	0.0390			-4.1860***	0.0425		
SIZE	Before2002	-0.5436***	0.0573	-0.0321	-0.0087	-0.2797***	0.0606	-0.0156	-0.0043
	After2002	0.6112***	0.0633	0.0323	0.0088	0.7350***	0.0646	0.0309	0.0107
RET	Before2002	-0.3385***	0.0390	-0.0200	-0.0079	-0.2883***	0.0412	-0.0161	-0.0063
	After2002	-0.1954***	0.0442	-0.0103	-0.0041	-0.1437***	0.0446	-0.0077	-0.0030
NPM	Before2002	-0.7824***	0.0670	-0.0462	-0.0086				
	After2002	-0.8533***	0.0816	-0.0452	-0.0084				
REV-GROW	Before2002					-0.1513***	0.0280	-0.0085	-0.0055
	After2002					-0.1093***	0.0300	-0.0058	-0.0038
NEG-GROW	Before2002					0.3324***	0.0392	0.0184	
	After2002					0.6899***	0.0384	0.0358	
COGS	Before2002					0.4780***	0.0718	0.0267	0.0055
	After2002					0.2947***	0.0874	0.0158	0.0033
SGA	Before2002					0.3550***	0.0782	0.0199	0.0041
	After2002					0.5395***	0.0927	0.0288	0.0059
SEG	Before2002	0.2299***	0.0081	-		0.2187***	0.0083	0.0122	
	After2002	0.3435***	0.0075			0.3390***	0.0076	0.0181	
TOBINQ	Before2002	-0.1171***	0.0161	-0.0069	-0.0013	-0.0780***	0.0166	-0.0044	-0.0050
	After2002	-0.3474***	0.0227	-0.0184	-0,0034	-0.2429***	0.0218	-0.0130	-0.0148
LEV	Before2002	0.9086***	0.0488	0.0536	0.0154	0.9283***	0.0511	0.0519	0.0150
	After2002	0.5854***	0.0542	0.0310	0.0089	0.6583***	0.0548	0.0352	0,0101

Obs	94,107	
DO Before Reg Change	6,021	
DO After Reg Change	5,584	
Max ReScaled r^2	0.0897	

Obs	91,440	
DO Before Reg Change	5,528	
DO After Reg Change	5,538	
Max ReScaled r^2	0.1020	

*** - Significant with 1% Confidence, ** - Significant with 5% Confidence, * - Significant with 10% Confidence

Table 4
Logistic Regression Results
Comparing Historical Performance for Firms that Discontinue Operations After the Regulatory Change to Those that do so Before

Variable	Para Est	Stand Err	Margin Eff	Econ Eff	Para Est	Stand Err	Margin Eff	Econ Eff
Intercept	-1.2866***	0.0535			-1.2694***	0.0591		
SIZE	1.1861***	0.0838	0.2765	0.0734	1.0560***	0.0875	0.2475	0.0660
RET	0.1474***	0.0550	0.0344	0.0124	0.1382**	0.0576	0.0324	0.0115
NPM	-0.0219	0.1135	-0.0051	-0.0009				
REV-GROW					0.0645*	0.0367	0.0151	0.0103
NEG-GROW					0.3702***	0.0529	0.0852	
COGS					-0.2832**	0.1369	-0.0664	-0.0113
SGA					0.0803	0.1362	0.0188	0.0034
SEG	0.1806***	0.0116	0.0421		0.1843***	0.0118	0.0432	
TOBINQ	-0.1673***	0.0262	-0.0390	-0.0327	-0.1257***	0.0267	-0.0304	-0.0255
LEV	-0.4019***	0.0743	-0.0937	-0.0254	-0.3475***	0.0771	-0.0814	-0.0220

	DO Before Reg Change		5,584			DO Before Reg Change	5,538	
	DO After Reg Change		6,021			DO After Reg Change	5,528	
	Max ReScaled r^2		0.0881			Max ReScaled r^2	0.0832	

*** - Significant with 1% Confidence, ** - Significant with 5% Confidence, * - Significant with 10% Confidence

Table 5
Logistic Regression Results
Comparing Historical Performance for Firms that Discontinue Operations After the Regulatory Change to Those that do so Before

	Large Firms – Model 1				Small Firms – Model 1			
Variable	Para Est	Stand Err	Margin Eff	Econ Eff	Para Est	Stand Err	Margin Eff	Econ Eff
Intercept	-0.8209***	0.1306			-1.6530***	0.1023		
SIZE	0.5563***	0.1770	0.1329	0.0193	1.6271***	0.2717	0.3514	0.0454
RET	0.2516***	0.0882	0.0601	0.0168	0.1043	0.0730	0.0225	0.0104
NPM	0.8241***	0.1939	0.1969	0.0258	-0.7056***	0.1481	-0.1524	-0.0354
SEG	0.1666***	0.0133	0.0398		0.2483***	0.0239	0.0536	
TOBINQ	-0.0053	0.0406	-0.0130	-0.0008	-0.3350***	0.0406	-0.0723	-0.0796
LEV	0.1689*	0.1005	0.0403	0.0100	-1.1087***	0.1162	-0.2395	-0.0701

	3,255 Obs Before 2002, 3,980 Obs After 2002, Max Res r^2 = 0.0469				2,766 Obs Before 2002, 1,604 Obs After 2002, Max Res r^2 = 0.0962			

	Large Firms – Model 2				Small Firms – Model 2			
Variable	Para Est	Stand Err	Margin Eff	Econ Eff	Para Est	Stand Err	Margin Eff	Econ Eff
Intercept	-0.8264***	0.1374			-1.6966***	0.1156		
SIZE	0.0368**	0.1823	0.0904	0.0131	1.6556***	0.2927	0.3656	0.0467
RET	0.3333***	0.0930	0.0779	0.0214	0.0361	0.0796	0.0800	0.0036
REV-GROW	-0.0142	0.0516	-0.0033	-0.0197	0.0820	0.0564	0.0181	0.0087
NEG-GROW	0.3860***	0.0657	0.0896		0.3433***	0.0926	0.0739	
COGS	-2.0182***	0.2475	-0.4716	-0.0717	0.2806	0.1923	0.0620	0.0123
SGA	-3.0849***	0.3057	-0.0721	-0.0889	1.1432***	0.1711	0.2525	0.0612
SEG	0.1755***	0.0137	0.0410		0.2520***	0.0247	0.0557	
TOBINQ	-0.0017	0.0441	-0.0004	-0.0003	-0.2798***	0.0404	-0.0620	-0.0686
LEV	-0.0267	0.1063	-0.0062	-0.0015	-0.9321***	0.1212	-0.2058	-0.0602

	3,094 Obs Before 2002, 3,947 Obs After 2002, Max Res r^2 = 0.0692				2,434 Obs Before 2002, 1,591 Obs After 2002, Max Res r^2 = 0.1025			

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