Do Restructurings Improve Operating Performance?

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This study re-examines the issue of whether operational restructurings improve corporate operating performance, and why prior studies addressing the issue have reached differing conclusions. While managers intend restructurings to increase the efficiency and profitability of companies, studies have reached mixed conclusions regarding the post-restructuring operational effectiveness of these events. This study examines five accounting measures - profit margin, return on equity, return on assets, operating margin, and asset turnover - to evaluate whether operating performance improves as a result of restructuring. The study provides control for firm and industry performance in the absence of restructuring, and examines a time horizon extending five years subsequent to the restructuring. The results are not consistent with an improvement in operating performance resulting from restructuring after controlling for ex ante expectations of firm and industry performance.

Do Restructurings Improve Operating Performance?

The level and scope of corporate restructurings have dramatically expanded in recent years spurring widespread debate among corporate decision-makers, politicians, academics and financial analysts about the stakeholder consequences of these transactions.[1] Controversy over the desirability of corporate restructuring typically centers on the operational effectiveness of these events. Some argue that leaner, more efficient organizations result from restructuring, while others assert that the organizational disruption concurrent with and subsequent to restructurings exceeds any benefits from such transactions (Bowman and Singh, 1993).

This study has two objectives. First, we seek to further inform the debate over the effectiveness of restructurings by providing evidence on the operating performance effect of restructurings during the five years following the restructuring. In doing so, we make use of an enhanced operating performance metric not used in previous work. Second, we examine and explain why prior literature has reached differing conclusions regarding the issue of post-restructuring operating performance. In this regard, we re-perform both our tests and those in other papers using samples and methods from our work and those of previous studies.

The *Wall Street Journal* (*WSJ*) and other business publications are replete with articles suggesting restructurings create value and improve earnings performance. For example, a *WSJ* report on 11/24/94 stated that, "investors love restructurings because, following a jumbo charge . . . a company's profit nearly always improves sharply . . .". Additionally, there is support in the literature, though not conclusive, that stock prices increase at restructuring announcements (Brickley and Van Drunen 1990; Atiase, Platt, and Tse 1999; Kross, Park, and Ro 1998).[2] The primary explanation proposed for these price increases is that restructuring announcements convey favorable information to investors on firms' efficiency prospects. For example, Brickley and Van Drunen (1990, 251) state that their finding of a positive market reaction appears to result from "information about investment opportunities and increases in efficiency." Similarly, Jennings, Martin, and Thompson (1998, 46) state that the objective of restructuring is "to make

the company more efficient, more narrowly focused, and more profitable in the long run."

Despite substantial agreement regarding the stated intent of management, previous studies have reached mixed conclusions regarding the ex-post operating effectiveness of restructurings.[3] These studies, discussed in detail in the next section, reach fundamentally different conclusions about the effectiveness of restructurings in improving a firm's subsequent operating performance. Additionally, a recent American Management Association survey concludes that profits rose for only 51% of the companies that downsized between 1989 and 1994 and that only 34% reported an increase in productivity. Therefore, while the intent of management in announcing and carrying out a restructuring is clear, prima facie evidence suggests that restructurings may not be effective in improving performance.

At least two methodological problems make findings of earlier studies of post-restructure operating performance difficult to interpret. First, the performance metrics used in the studies may introduce measurement error if the effect of the restructurings are not appropriately isolated (Smart and Waldfogel 1994; Healy, Palepu, and Ruback 1992). Second, prior studies have generally limited their examination of post-restructure performance to relatively short horizons (three years or less) following the restructuring. Firms incurring near-term economic exit costs as part of a restructuring, for example, are unlikely to realize any corresponding near-term efficiency gains.[4] Because restructurings are generally implemented over a one to two year time period, efficiency improvements promised by management may not be realized until the plan is fully implemented, which may be several years subsequent to the restructuring announcement.[5]

Our objective is to probe the difficulty of the prior literature in arriving at a consensus on the effect of restructurings on firm operating performance. We incorporate an operating performance metric, suggested by Smart and Waldfogel (1994), that controls for firm and industry performance changes in the absence of restructuring. We also apply the tests performed by Atiase, et al. (1999) and Carter (1998) to our sample of firms. Our approach uses three separate non-restructuring control samples. We utilize *Value Line* industry aggregate data, as suggested by Smart and Waldfogel (1994), as our primary control

sample measure. We also identify two matched control samples based on size and pre-restructure operating performance similar to those employed by Atiase, et al. (1999) and Carter (1998).

Our empirical analysis suggests that restructurings *at best* have no effect on firm operating performance in the years subsequent to the restructuring.[6] The following empirical evidence provides support for this conclusion. First, the median profit margin, return on equity, return on assets, and operating margin relative to non-restructuring control firms (size- and industry-, performance- and industry-, and *Value Line* industry aggregate-adjusted) are either significantly negative or insignificant for all five post-restructure years examined. Second, the changes in post-restructure profit margin, return on assets, and asset turnover for years 3 through 5 from the pre-restructure period relative to non-restructuring control firms are insignificant. Though the changes in post-restructure return on equity for years 3 and 4 are significantly positive, a contradictory result is found for operating margin which is significantly negative in years 3, 4, and 5. Most importantly, empirical tests using the restructuring metric suggested by Smart and Waldfogel (1994) to control for firm and industry performance in the absence of a restructuring indicate that operating margin for restructuring firms is significantly negative in years 3 through 5, and return on equity is not significantly different from zero in the same periods.

Sensitivity tests indicate that the context of restructuring is important in assessing the ultimate effect on operating performance. First, consistent with Atiase, et al. (1999), we find that the magnitude of the restructuring charge is positively associated with post-restructure performance. Second, we find that the information environment of the firm is positively associated with post-restructure performance. This result, which is consistent with Bens (1999), suggests that firms that provide more information (better disclosure) tend to perform better in the post-restructure time period. Third, the existence of company-specific prior restructuring activity results in better post-restructure performance, as in Atiase, et al. (1999).[7] However, after controlling for these variables (the magnitude of the charge, the information environment of the firm, and prior restructuring activity), our empirical results indicate that the average effect of restructurings on post-restructure firm performance is significantly *negative*. This result supports our overall

conclusion that restructurings *at best* result in no change to operating performance. Further, differences in the degree to which these variables were controlled in previous studies, combined with the use of different performance benchmarks explains the conflicting results of prior work.

The remainder of the paper is organized as follows. The next section addresses the related literature. Section 3 addresses the sample selection and descriptive statistics. Section 4 presents the research methodology. The final two sections present the empirical results and sensitivity analyses and a brief summary and conclusion.

2. Prior Literature

Brickley and Van Drunen (1990) and Kross, Park, and Ro (1998) study the impact of restructuring announcements on short-period returns; however, both studies tangentially examine accounting measures of post-restructure operating performance. Two recent studies (Carter 1998; and Atiase, et al. 1999) focus more attention on the issue of the effect of restructuring on firm operating performance. These studies are summarized below.

1) Brickley and Van Drunen (1990) examine market returns and operating performance of a sample of firms that made internal division changes from 1980 to 1984. They report significantly positive 2-day announcement period abnormal returns for their full sample and insignificant post-restructure operating performance. They measure operating performance as the industry- and market-adjusted return on equity (ROE) for the seven years surrounding the restructuring year. For their full sample they generally find an insignificant difference between restructure firm return on equity and the market and industry. They report, however, significantly positive announcement returns for the efficiencyreason subsample and significantly negative post-restructure operating performance for the same group.

2) Kross, Park, and Ro (1998) report significantly positive 2-day announcement period returns for a sample of 125 firms that engaged in an operational restructuring. They measure operating performance as return on assets and report a decline in return on assets from the three-year pre- to the three-year post-restructure period. They also report that risk does not significantly change from the pre- to the post-restructure period.

3) Carter (1998) examines a sample of 1,050 restructuring observations for the years 1987 to 1993. She reports significantly negative 2-day abnormal returns for her sample. She measures operating performance as return on assets and return on sales. To isolate the effect of the restructuring on firm performance, she uses as a control the

operating performance of firms that have similar pre-restructure performance but that do not take restructuring charges in the same year as the restructuring firm. She reports weak evidence of an improvement in operating performance that does not appear until four years after the restructuring. This result is found only where the control measure is based on a performance-only match. When a performance- and industry-match control is utilized, the performance improvement is no longer present.

4) Atiase, et al. (1999) examine the operating performance of 212 restructurings between 1991 and 1993 for the eight years surrounding the event. They use return on equity and profit margin as their primary measures of operating performance and report that operating performance improves in the post-restructure time period relative to non-restructuring firms. They find this result using the restructuring year as the benchmark against which post-restructure performance is measured.

The ambiguous results regarding the effect of restructuring on firm operating performance may derive from empirical design limitations. First, all of the studies cited above except Carter (1998) examine a three-year post-restructure time period, which may not be long enough to allow for the effect of restructuring to be fully realized.[8] Restructuring plans are generally implemented over a one to two year time period; thus, efficiency gains, if any, most likely will not be realized until year three or later. Potentially the most critical question concerning prior research design is whether the performance metrics captured the effect of restructuring on firm performance. Although the studies generally included industry or market controls, this may not adequately isolate the effect of restructuring on firm performance. For reasons not directly related to restructuring, firms with negative industry-adjusted operating performance prior to a restructuring may display positive industry-adjusted performance after the restructuring. For example, firms may engage in actions immediately prior to a restructuring that have the potential to impact post-restructure operating performance. Alternatively, negative industry-adjusted

performance after the restructuring is not necessarily caused by the adverse performance effects of the restructuring. The restructuring may in fact have caused an improvement in performance, but one that was not sufficient to bring the firm up to the industry standard.

We address these design concerns in three ways. First, we examine a five-year post-restructure period to allow for the possibility that performance improvements may significantly lag plan implementation. Second, we re-examine the tests performed by Atiase, et al. (1999) and Carter (1998) and perform additional tests based on the market and industry controls suggested in their papers. Lastly, we incorporate a measure designed to isolate the effect of restructuring on firm performance (Smart and Waldfogel 1994). This measure isolates the restructure effect on firm performance by capturing the difference between the post-restructure firm surprise in performance and the post-restructure industry surprise in performance.

3. Sample Selection and Descriptive Statistics

The sample selection procedures are summarized in Table 1 Panel A. We obtain an initial sample of restructuring observations by searching the National Automated Accounting Research System (NAARS) for the years 1984 to 1994 using the term "restruct!". Our search included the income statement and financial statement footnotes. The NAARS search generates an initial sample of 1635 restructuring observations. We then screen the sample using the data requirements developed in Smart and Waldfogel (1994). We call this the *Value Line Sample*. To allow for comparison with prior research, we construct an additional test sample based on the sample selection criteria developed in Atiase, et al. (1999). We call this the *Atiase Sample*.

To construct the *Value Line Sample,* we eliminate firms from the initial restructuring sample not covered (or dropped) by *Value Line Investment Survey* during the test period. This reduces the sample by 1084 firm-year observations. Next, we eliminate firms with insufficient *Value Line* data for the eleven-year period surrounding the restructuring event or with no identifiable event date further reducing the sample by

38 firm-year observations.[9] Lastly, we eliminate 14 extreme observations which reduces the final *Value Line Sample* to 499 firm-year observations.[10]

To construct the *Atiase Sample,* we eliminate firms from the initial restructuring sample with SIC codes outside the ranges 2000-3999 and 5000-5999, and firms with a fiscal year-end or not covered by Compustat. This reduces the sample by 956 firm-year observations. Eliminating firms without complete Compustat data for the 10-year period surrounding the restructuring event further reduces this sample by 61 firm-year observations.[11] Lastly, we eliminate 31 extreme observations which reduces the final *Atiase Sample* to 587 firm-year observations.

We construct two separate non-restructuring matched control samples for the 587 observations in the *Atiase Sample:* (1) size- and industry-matched, and (2) performance- and industry-matched.[12] To identify the size- and industry-matched control firms, we identify all non-restructuring firms with the same two-digit SIC as the restructuring firm that have 10 years of complete Compustat data surrounding the event year. From those firms, we select the firm that is closest in size (market value of equity) to the restructuring firm. To select the performance- and industry-matched control firms, we identify all non-restructuring firms with the same two-digit SIC as the restructuring firm that also have 10 years of complete Compustat data surrounding the event year. From those firms, we select the firm that has the closest average operating margin (operating income divided by net sales) to the restructuring firm over the three-year pre-restructure period.

Panel B of Table 1 presents selected descriptive statistics for the *Value Line Sample*. The mean (median) restructuring charge (RC) is $163 ($35) million. The mean (median) ratio of the restructuring charge to sales is 2.9% (2.4%). The mean and median sales revenues in the year prior to the event are $5.6 and $1.7 billion, respectively.[13] The mean and median restructuring charge, sales revenue, and total assets for this sample are almost identical to those for the *Atiase Sample*.[14]

Panel C of Table 1 presents selected descriptive statistics for the *Atiase Sample* and the matched control samples. The mean (median) restructuring charge (RC) is $176 ($23) million. The mean (median)

ratio of the restructuring charge to sales is 3.3% (2.1%). The mean total assets and sales revenue in the year prior to the event for the restructuring firms are $5.4 billion and $7.5 billion, respectively. Both the mean and median sales (SIZE-SALES) for the size- and industry-matched control sample, $5.1 billion and $1.2 billion, are almost identical to sales for the restructuring sample. However, the mean and median sales for the performance- and industry-matched control sample firms, $2.9 billion and $260 million, are much smaller than sales for the restructuring sample which suggests that the performance matched sample is substantially smaller than the test sample.

4. Research Design and Methodology

To test whether restructurings lead to improved operating performance, measures of operating performance must be selected and a research design that allows for determining the effect of the restructuring on firm operating performance must be determined. This section addresses these issues. First, we identify the operating performance measures tested. Second, we discuss a research design suggested by Smart and Waldfogel (1994).

4.1 Measures of Operating Performance

The performance measures used for our tests were selected to permit comparison with the prior literature (Atiase, et al. 1999; and Carter, 1998). The performance measures used in this study are profit margin (PMGN), return on equity (ROE), return on assets (ROA), asset turnover (ATRN), and operating margin (OPM). Performance changes for all metrics are reported in scaled percentage terms to allow comparability across firms. These measures are defined as follows:

$PMGN_{t+k}$ = Profit margin for year t+k, where year t is the restructuring year. The ratio of income before extraordinary items and the cumulative effect of changes in accounting principles to net sales. Income is adjusted for the restructuring charge, if any, by adding back the estimated after-tax restructuring charge.

ROE_{t+k} = Return on equity for year t+k, where year t is the restructuring year. The ratio of income before extraordinary items and the cumulative effect of changes in accounting principles to owners' equity. Income is adjusted for the restructuring charge, if any, by adding back the estimated after-tax restructuring charge.

ROA_{t+k}	=	Return on assets for year t+k, where year t is the restructuring year. The ratio of operating income to total assets. Operating income is adjusted for the restructuring charge, if any, by adding back the estimated after-tax restructuring charge.
$ATRN_{t+k}$	=	Asset turnover for year t+k, where year t is the restructuring year. The ratio of net sales to average total assets.
OPM_{t+k}	=	Operating margin for year t+k, where year t is the restructuring year. The ratio of operating income to sales.

Restructurings are multidimensional events that have both economic and accounting implications with differential effects on accounting measures of firm performance (Jennings, Martin, and Thompson 1998). For example, consider the implications of a workforce reduction. It may signal future efficiency gains from reduced future payroll expenses and benefit obligations, but it may also signal declining productivity and/or demand. Similarly, a plant closing results in reduced operating expense, but it may also signal declining demand for the firm's products. On the other hand, when a firm writes down an asset to its net realizable value, this specific action has no direct current or future cash flow implication. The writedown does imply an acceleration of future depreciation expense into the current period and has the accounting effect of increasing post-restructure earnings. In assessing the performance implications of a restructuring, the objective is to isolate the economic effect on performance from the accounting effect. Selecting a performance measure that captures the changes in economic performance while excluding the accounting effect of restructurings is a complex challenge for researchers. The economic and accounting effects of a restructuring are considered with respect to each of the performance measures identified above.

Measures of performance that include non-recurring items (such as restructurings, asset writedowns or asset sales) may lead to erroneous conclusions about the performance effects of restructurings. Thus, measures such as profit margin (PMGN) and return on equity (ROE) which include a comprehensive measure of income in the numerator may yield misleading results. For example, if a firm recognizes a non-recurring charge (gain) in a subsequent year, any performance improvements (declines) may be masked by

the subsequent charge (gain). Alternatively, if a firm recognizes non-recurring charges (gains) in years prior to the restructuring, any post-restructure performance decline (improvement) may also be masked.

Another potential limitation of certain performance measures is the deflator used. Measures that incorporate stockholders' equity and total assets (such as ROE, ROA, and ATRN) are subject to mechanically-induced changes from decreases in these accounts due to the recording of the restructuring charge. As a result, ROE, ROA, and ATRN capture both the operating changes and any induced improvement resulting from the accounting effect of the restructuring. Thus, these metrics may provide less reliable evidence of changes in post-restructure operating performance.

Operating margin, the ratio of operating income to net sales, is a measure of performance that limits the accounting effects described above. First, sales are not directly affected by the accounting for the restructuring. Second, operating income, which reflects the relative profitability of the company's operating activities, is less susceptible to the inclusion of non-recurring items than is a comprehensive measure of income. Barber and Lyon (1996, 364) state that operating income is a "cleaner measure" of performance than earnings, because non-recurrring (special items) items included in earnings obscure operating performance. They further suggest that operating margin is preferred when examining "certain types of operating performance changes - for example, reductions in selling, general, and administrative expenses, or improvements in production efficiecy..."(p. 391). Thus, operating margin provides a measure of performance that captures economic improvements generated by the restructuring while limiting the improvements that may be induced by the accounting.

4.2 Measuring the Restructuring Performance Effect

This study incorporates the Smart and Waldfogel (1994) metric to measure the effect of restructurings on operating performance.[15] The "difference in surprises" measure used in this paper provides control for factors unrelated to the restructuring to arrive at "what would have happened to performance at the restructuring firm in the absence of restructuring" (Smart and Waldfogel 1994, 503). To control for the possibility of a performance shock experienced by both restructuring and control firms, the measure

assesses the effect of restructuring as the performance surprise (actual less forecasted earnings) experienced at the restructuring firms, less the performance surprise at comparable non-restructuring firms. Thus, the Smart and Waldfogel measure controls for a performance shock experienced by both restructuring and non-restructuring control firms.

To isolate the restructuring performance effect, the effect of restructuring at the restructuring firm is measured as the operating margin (OPM) and return on equity (ROE) surprise experienced at the restructuring firms, less the operating margin and return on equity surprise at comparable non-restructuring firms.[16] We use *Value Line* industry aggregate data as the proxy for the control firm measures. The restructuring effect is measured as:

$$REOPM = [OPM^{R}_{t+k} - E_t(OPM^{R}_{t+k}|t)] - [OPM^{C}_{t+k} - E_t(OPM^{C}_{t+k}|t)] \quad (1)$$[17]

where:

REOPM = the effect of restructuring on operating margin.

OPM^{R}_{t+k} = restructuring firm operating margin for period t+k, where t is the year of restructuring and k is 1, 3, 4 or 5.

$E_t(OPM^{R}_{t+k}|t)$ = expected restructuring firm operating margin for period t+k at period t prior to the restructuring, where t is the year of restructuring and k is 1, 3, 4 or 5.

OPM^{C}_{t+k} = control firm operating margin for period t+k, where t is the year of restructuring and k is 1, 3, 4 or 5.

$E_t(OPM^{C}_{t+k}|t)$ = expected control firm operating margin for period t+k at period t prior to the restructuring, where t is the year of restructuring and k is 1, 3, 4 or 5.

and,

$$REROE = [ROE^{R}_{t+k} - E_t(ROE^{R}_{t+k}|t)] - [ROE^{C}_{t+k} - E_t(ROE^{C}_{t+k}|t)] \quad (2)$$[18]

where:

REROE = the effect of restructuring on return on equity.

ROE^{R}_{t+k} = restructuring firm return on equity for period t+k, where t is the year of restructuring and k is 1, 3, 4 or 5.

$E_t(ROE^{R}_{t+k}|t)$ = expected restructuring firm return on equity for period t+k at period t prior to the restructuring, where t is the year of restructuring and k is 1, 3, 4 or 5.

ROE^{C}_{t+k} = control firm return on equity for period t+k, where t is the year of restructuring and k is 1, 3, 4 or 5.

$E(ROE^{C}_{t+k}|t)$ = expected control firm return on equity for period t+k at period t prior to the restructuring, where t is the year of restructuring and k is 1, 3, 4 or 5.

The difference in surprise measure has an intuitive interpretation: If every statistically controllable aspect of the change in performance of restructuring and non-restructuring firms that is predictable prior to the restructuring has been accounted for, except the restructuring, what remains is a set of change-in-performance surprises for the restructuring and non-restructuring firms. The difference in surprises estimator is the average difference in performance surprises between restructuring and non-restructuring firms and may be interpreted as an estimate of the effect of restructuring on firm performance (Smart and Waldfogel, 1994).

Estimation of the effect of restructuring on performance using the framework of Smart and Waldfogel requires empirical analogues to each of the components of equations (1) and (2). These are comprised of two types of information (actual operating margin and return on equity, and expected operating margin and return on equity) for two types of firms (restructuring firms and non-restructuring control firms). Data on actual and forecasted operating margin and return on equity are collected from the *Value Line Investment Survey*. The unexpected changes in operating margin (OPM) and return on equity (ROE) at the restructuring firm ($[OPM^{R}_{t+k} - E(OPM^{R}_{t+k}|t)]$ and $[ROE^{R}_{t+k} - E(ROE^{R}_{t+k}|t)]$) is computed based on the difference between actual OPM (ROE) in the post-restructure period and the last *Value Line* forecast of OPM (ROE) before the restructure announcement. The unexpected change in OPM (ROE) for the control firms are calculated similarly using *Value Line* industry aggregate data.

Each restructuring firm is associated with a *Value Line* industry grouping and each firm's industry average is used as a control measure of performance for that firm. *Value Line* industry grouping has a much narrower industry definition than the usual 2-digit SIC code used in prior studies. For example, Eastman Kodak (SIC code 3861) is in the "Precision Instruments" industry and *Value Line* identified and reported on 24 firms in that industry in their most recent report. On the other hand, Compustat reports on 491 firms

with a 2-digit SIC code matching that of Eastman Kodak. Thus, the *Value Line* industry data should provide for a better industry control than employing a 2-digit SIC match.

5. Empirical Results

5.1 Additional Descriptives

In Table 2 are descriptive statistics for the *Value Line Sample* and comparisons of the median raw and industry-adjusted return on equity (ROE) and operating margin (OPM) for the 11 years surrounding the event year (-5 through 5). The median raw operating margin (OPM) and return on equity (ROE) decrease in the four years preceding the restructuring year and increase during the five years subsequent to the restructuring, reaching a high of 13.55% and 15.61%, respectivley. Table 2 also presents evidence regarding median operating margin and return on equity for restructuring firms adjusted for *Value Line* industry aggregate data (ADJ-OPM and ADJ-ROE) and Wilcoxon signed rank tests results.[19] Consistent with the results reported by Atiase, et al. (1999) and Carter (1998), both ADJ-OPM and ADJ-ROE are significantly negative in the year prior to the restructure year. ADJ-OPM is significantly negative in all eleven years surrounding the restructure event with the exception of year -2, in which it is insignificantly negative. ADJ-ROE is generally insignificant in the the years prior to -1, significantly negative in years 0 through 2 and insignificant for years 3 through 5.

5.2 Tests of the Effect of Restructurings on Operating Performance

Table 3 presents the empirical estimation of REOPM (Eq 1) and REROE (Eq 2) for the *Value Line Sample*. In year 1, REOPM is significantly negative as expected. This is consistent with the results reported in Table 2. Additionally, both the mean and median REOPM are significantly negative in years 3, 4, and 5, as is the average 3 to 5 year measure. Consistent with the REOPM results, the median REROE is significantly negative in year 1. However, both the mean and median REROE are not significantly different from zero in years 3 to 5.[20] Thus, the empirical results from Table 3 do not provide evidence of an improvement in post-restructure operating performance and suggest that operating performance may decline

in the post-restructure period. A performance improvement is not found despite potential bias toward finding a performance improvement in the return on equity metric noted previously.

5.3 The Effect of Restructurings on Operating Performance - Concurrent Studies

Our primary results obtained using the methodology suggested by Smart and Waldfogel (1994) do not support the conclusions stated in both Carter (1998) and Atiase, et al. (1999). While they conclude that restructurings result in improved performance, our analysis suggests that at best restructurings have no significant impact on operating performance. To reconcile these empirical differences, we re-examine tests performed by Atiase, et al. (1999) and Carter (1998).

5.3.1 Methodologies of Prior Studies

Atiase, et al. (1999) report statistics on numerous measures (e.g., inventory turnover, ratio of sales to selling, general and administrative expense, etc), which we do not include in our analysis. We examine three measures of operating performance in their study: return on equity (ROE), profit margin (PMGN), and asset turnover (ATRN). Additionally, we include an analysis of operating margin (OPM) and return on assets (ROA) based on their methodology.

Atiase, et al. (1999) construct a matched control sample of non-restructuring firms based on size and industry. Consistent with Atiase, et al., we examine performance measures of restructuring firms relative to the contemporaneous performance of the matched control sample reporting no restructurings. Atiase, et al. also measure changes in performance in the pre- and post-restructuring periods. They calculate these changes for both sample firms and industry and sized-matched control firms. The change in the pre-restructuring period performance is defined as the difference between the year -4 and year -1 measures. The change in the post-restructuring period performance is defined as the difference between the year 0 and year 3 measures.

Carter (1998) examines two measures of operating performance: operating margin (OPM), which she labels return on sales, and return on assets (ROA). Additionally, we include an analysis of asset turnover (ATRN), profit margin (PMGN), and return on equity (ROE) based on her methodology. To test whether

and when restructurings generate improvements in operating performance, Carter (1998) uses a profiling technique to match restructuring firms with firms having similar patterns of performance in the pre-restructuring period, but do not restructure in the same year as the test firm. Test firm performance (ROA and OPM) is compared to the performance of the control firms for the nine years surrounding the event to assess whether restructurings result in performance improvements.

Carter (1998) establishes two separate benchmarks of restructuring firm performance in the absence of a restructuring. For each firm-year observation, the benchmarks are (1) the median performance of all Compustat firms that have similar operating performance prior to the restructuring but do not take a restructuring charge in that year (performance-only match), and (2) the median performance of all Compustat firms with similar operating performance in the same industry (2-digit SIC), that do not take a restructuring charge that year (performance- and industry-matched). For our study, we uitlize a performance- and industry-matched control scheme.

5.3.2 Additional Descriptive Data -Atiase Sample

In Table 4 we provide descriptive statistics for the *Atiase Sample* and report comparisons of the median raw, size- and industry-adjusted, and performance-and industry-adjusted profit margin (PMGN), return on equity (ROE), return on assets (ROA), operating margin (OPM), and asset turnover (ATRN) for the ten years surrounding the event year (-4 through 5). Our size- and performance-adjusted results are quantitatively and qualitatively similar to those reported by Atiase, et al. (1999) and Carter (1998). Additionally, all unadjusted performance measures decrease in the years leading up to the restructure year and increase in the years after the restructure.

5.3.3 Atiase, et al. and Carter Tests of the Effect of Restructurings on Operating Performance

In this section we provide evidence on whether the different samples yield different experimental results. The objective is to isolate the source of differences in results across this and prior studies.

Atiase, et al. (1999) examine the performance of restructuring firms relative to the contemporaneous performance of a matched control sample of firms which report no restructurings. In

Table 4 we report operating performance of restructuring firms relative to the contemporaneous performance of a size- and industry-matched control sample of non-restructuring firms and Wilcoxon signed rank tests results.[21] Atiase, et al. (1999) report evidence on profit margin (PMGN), return on equity (ROE), and asset turnover (ATRN). Consistent with Atiase, et al., we find that the size- and industry-adjusted profit margin (SADJ-PMGN) and return on equity (SADJ-ROE) are significantly negative in the year prior to the event and either significantly negative or insignificant in each of the four years following the event. Our results with respect to performance measures not examined by Atiase, et al., i.e.,operating margin (OPM) and return on assets (ROA), are consistent with the SADJ-PMGN and SADJ-ROE results in both the pre- and post-restructure years examined. Atiase, et al. report no significant difference in the size- and industry-adjusted asset turnover (SADJ-ATRN) either in the periods before the restructuring or after the restructuring. We find that SADJ-ATRN is significantly positive in three of the four years prior to the event. However, like Atiase, et al., we find no significant difference in the years after the event. With the exception of the size- and industry-adjusted ROA (SADJ-ROA), which is significantly negative in year 3, every other SADJ- measure is insignficant in years 3 through 5. Overall, the size- and industry-adjusted results are quantitatively and qualitatively similar to those reported by Atiase, et al. (1999). Thus, as in Atiase, et al., this table provides no evidence of an improvement in operating performance after a restructuring for variables.

Carter (1998) tests whether and when restructurings generate improvements in operating performance by comparing the performance of restructuring firms against firms with similar patterns of performance in the pre-restructuring period, but that do not restructure in the same year as the test firm. In Table 4 we report the operating performance of restructuring firms relative to that of a performance- and industry-matched control sample of non-restructuring firms and Wilcoxon signed rank tests results.

Carter (1998) reports evidence on operating margin (OPM) and return on assets (ROA). Additionally, we include an analysis of asset turnover (ATRN), profit margin (PMGN), and return on equity (ROE) based on her methodology. Inconsistent with Carter (1998), the performance- and industry-adjusted

ROA (PADJ-ROA) is significantly negative in the years prior to the event. However, we too find that PADJ-ROA is significantly negative in the year after the event and insignificant in years 3 through 5. The performance- and industry-adjusted operating margin (PADJ-OPM) is insignificant in every year except the restructuring year (year 0) in which it is significantly negative. Carter (1998) reports that performance-only-adjusted return on assets (ROA) is significantly positive in years 4 and 5. We are unable to replicate those results with a performance- and industry-matched control sample adjustment. However, consistent with our results, Carter (1998) reports insignificant differences in adjusted ROA for years 4 and 5 using a performance- and industry-matched control design. Thus, as in Carter (1998), we find no evidence of an improvement in operating performance after a restructuring with repsect to these variables.

Taken together, the Table 2 and 4 results indicate that restructuring firms had relatively poor performance in the years prior to restructuring. In years subsequent to the restructuring, it appears restructuring firms continued to have relatively poor performance for at least two years after the event. Overall, the data exhibit no evidence of an improvement in operating performance after a restructuring. Excluding ATRN, all adjusted measures reported (size-, performance-, or *Value Line* industry aggregate-adjusted) are significantly negative in the year after the restructuring and most are significantly negative in the two years after the event. No adjusted measure reported is significantly positive in any year after the restructuring. Moreover, though the adjusted measures are generally insignificant in years 3 through 5, most are negative. Thus, the evidence from Tables 2 and 4 suggest that restructurings at best result in no change to operating performance after a restructuring.

5.3.4 Atiase, et al. Analysis of Pre- and Post-Restructuring Changes in Performance

Table 5 presents tests of pre- and post-restructure changes in operating performance consistent with the methodology of Atiase, et al. (1999). The change in pre-restructure performance is defined as the difference between the year -4 and year -1 measures. The change in post-restructure performance is defined as the difference between the year 0 and year 3 measures. Consistent with Atiase, et al (1999), we report the pre- and post-restructure change in firm performance relative to changes in control firm performance.

We utilize both the size-and industry- and performance- and industry-matched controls for these tests. The Wilcoxon signed rank test is used to assess the statistical significance of the median raw and control firm adjusted values. Panels A and B of Table 5 reports these tests on the *Atiase Sample* and *Value Line Sample*, respectively.

Consistent with the decline in operating performance noted in Tables 2 and 4, the median pre-restructure change (PRE-Δ) for all measures (except asset turnover) is significantly negative. Additionally, the pre-restructure size- and industry-adjusted change in profit margin, return on equity, and return on assets are significantly negative suggesting that restructuring firms generally perform worse than other firms in their industries. On the other hand, the performance- and industry-adjusted pre-restructure measures are all insignificant, supporting the quality of our matching process.

Our results for both the unadjusted and adjusted post-restructure changes (POST-Δ) are generally consistent with the results reported in Atiase, et al. (1999). Each of the unadjusted post-restructure changes is significantly positive (again with the exception of ATRN). The size- and industry-adjusted post-restructure change in return on equity (ROE), return on assets (ROA), and operating margin (OPM) are significantly positive as are the performance- and industry-adjusted post-restructure changes in OPM and ROA. The *Value Line* industry aggregate-adjusted post-restructure change in ROE reported in Panel B is also significantly positive. These results are generally consistent with Atiase, et al. (1999) and are intepreted by them as evidence that restructurings result in improved post-restructure operating performance.

5.4 Sensitivity Tests

5.41 Alternative Specification of Benchmark Performance

Interpreting the Table 5 results as evidence of a post-restructure improvement in operating performance - as in the previous section - is complicated by the use of the restructure year performance in calculating the post-restructure change in performance. Prior empirical and anecdotal evidence suggests that

restructuring firms take a "big bath" in the year of the restructure.[22] Consistent with the "big bath" hypothesis, Rees, et al. (1996) report that firms that restructured also took significantly negative discretionary accruals in the year of restructuring. Similarly, Elliott and Hanna (1996, 145) report that "write-offs are associated with the most extreme realizations of deflated earnings before special items"and the quarters following the write-offs do not have as extreme earnings before special items realizations as do the write-off quarters. Thus, the use of the restructure year performance as a benchmark may result in the appearance of a performance improvement if the restructuring firm engaged in "big bath" behavior in the year of the restructure.

We examine post-restructure changes in operating performance relative to the pre-restructure performance of the restructuring firm and the non-restructuring control sample using different assumptions about these periods than Atiase, et al. and present the results in Table 6. We redefine the pre-restructure period as years -3 through -1 eliminating the potential confound of including the restructure year. The post-restructure changes we examine are defined as follows:

CHG3	=	year t+3 performance measure (PMGN, ROE, ROA, ATRN, OPM) less the three year pre-restructure average (t-3 through t-1) for the same measure.
CHG4	=	year t+4 performance measure (PMGN, ROE, ROA, ATRN, OPM) less the three year pre-restructure average (t-3 through t-1) for the same measure.
CHG5	=	year t+5 performance measure (PMGN, ROE, ROA, ATRN, OPM) less the three year pre-restructure average (t-3 through t-1) for the same measure.

The median unadjusted changes in profit margin (PMGN), return on equity (ROE), and operating margin (OPM) are significantly positive for CHG3, CHG4, and CHG5. However, the adjusted measures are generally insignificant except for size- and industry-adjusted ROE (which is significantly positive for CHG3, CHG4, and CHG5) and the performance- and industry-adjusted ROE (which is significantly positive for CHG3 and CHG4). In contrast, the *Value Line* industry-aggregate-adjusted OPM is significantly negative for CHG3, CHG4, and CHG5. We replicate these findings (results not reported) using a two-year

pre-restructure average performance measure (years -2 and -1). The empirical evidence from this table confirms the problem with using the restructure year performance as a benchmark in assessing post-restructure performance changes. The results of this analysis demonstrate that the finding of performance improvements are not robust to an alternative specification of the benchmark operating performance. Overall, the Table 6 results provide contradictory evidence regarding the effect of restructurings on post-restructure operating performance. However, the preponderance of the empirical evidence is consistent with the Tables 2, 3 and 4 results and suggests that restructurings appear to have no significant effect on post-restructuring performance.

5.42 Additional Factors that may Influence Performance

Prior research and anecdotal evidence suggests that there are other factors which may influence the effect of a restructuring on firm performance. Atiase, et al. (1999) report evidence which suggests that the degree of post-restructure improvement in operating performance is associated with the relative size of the charge. They report that firms with larger restructuring charges have greater improvements in post-restructure performance. Bens (1999) argues that the change in future operating performance relates to the level of restructuring disclosures by the firm. He suggests that firms with greater disclosure will have higher post-restructure performance. Elliott and Hanna (1996), in their investigation of repeated accounting writeoffs, report evidence which suggests that multiple write-offs are associated with decreasing firm performance. In contrast to that result, Atiase, et al. (1998) report that repeat restructurings are associated with greater post-restructure improvements in performance than single restructurings. To assess the influence of these factors, we estimate the following multiple regression model as a sensitivity test of our results:

$$REOPM35_i \ (REROE35_i) = \beta_0 + \beta_1 SRC_i + \beta_2 SIZE_i + \beta_3 PRIOR_i + \varepsilon_i \qquad (3)$$

where:

$REOPM35_i$ = average t+3 through t+5 REOPM for firm *i*. (from equation 1).
$REROE35_i$ = average t+3 through t+5 REROE for firm *i*. (from equation 2).

SRC_i = restructuring charge scaled by sales for the restructuring year times 100 (adjusted to percentage terms for consistency with the dependent variable).

$SIZE_i$ = dummy variable equal to 1 if the firm sales in year t-1 is in the top quartile of all firms in the sample, 0 otherwise.

$PRIOR_i$ = dummy variable equal to 1 if the firm had a restructuring in any of the prior 5 years, 0 otherwise.

The three independent variables in equation (3) are the scaled restructuring charge (SRC), firm size (SIZE), and prior restructuring activity (PRIOR). The ratio of the restructuring charge to net sales (SRC) allows us to assess whether the relative magnitude of the restructuring charge is associated with changes in post-restructure performance. Consistent with Collins and Kothari (1989), we use firm size (SIZE) to proxy for the information environment (disclosure level) of the firm. SIZE is set equal to one if firm year *t-1* sales are in the top 25 percent of the sample firms' sales, and zero otherwise.[23] PRIOR is set equal to one if the firm took a restructuring charge in any of the prior five years, and zero otherwise.[24]

Regression results for equation (3) are presented in Table 7. Consistent with Atiase, et al. (1999), we find that the magnitude of the restructuring charge is positively associated with post-restructure performance. The coefficient on SRC is positive and significant (p-value<0.01) for both REOPM35 and REROE35. Consistent with Bens (1999), we find that the information environment of the firm is positively associated with post-restructure performance. The coefficient on SIZE is positive and significant for both REOPM35 (p-value=0.02) and REROE35 (p-value=0.05). This result is consistent with the interpretation that firms that provide more information tend to perform better in the post-restructure time period. The coefficient on PRIOR is insignificant for REOPM35, but positive and significant (p-value=0.05) for REROE35. Our results support the conclusion in Atiase, et al. (1999) that prior restructuring activity is associated with better post-restructure performance. The intercept in both models tested (REOPM35 and REROE35) is significantly negative (p-value<0.01). Thus, after controlling for the magnitude of the charge, the information environment of the firm, and prior restructuring activity, we find that the average effect of restructurings on firm performance is negative.

6. Summary and Conclusion

This study examines the post-restructure operating performance of firms undertaking operational restructurings. Because previous studies have reached mixed conclusions regarding the effectiveness of restructurings, this study incorporates a set of methodological enhancements designed to provide reliable evidence related to the long-term impact of operational restructurings. Using these design enhancements, the results are not consistent with operational restructurings improving subsequent operating performance.

Our conclusion is based on several analyses. First, the median profit margin, return on equity, return on assets, asset turnover, and operating margin relative to non-restructuring control firms (size- and industry-, performance- and industry-, and *Value Line* industry aggregate-adjusted) is either significantly negative or insignificant for all five post-restructure years. Second, the changes in post-restructure profit margin, return on assets, and asset turnover for years 3 through 5 from the pre-restructure period relative to non-restructuring control firms are insignificant. Though the changes in post-restructure return on equity for years 3, 4, and 5 are significantly positive, a contradictory result is found for operating margin which is significantly negative for the same years. Third, in a multivariate regression we find that changes in operating margin and return on equity are significantly negative after controlling for the magnitude of the charge, the information environment of the firm, and prior restructuring activity. Most importantly, empirical tests using the enhanced restructuring metric suggested by Smart and Waldfogel (1994) to control for firm and industry performance in the absence of a restructuring indicate that the operating margin for restructuring firms is significantly negative in years 3 through 5, and the return on equity surprise is insignificantly different from zero in the same period. Overall, the empirical evidence seems to strongly suggest that restructurings at best result in no change to operating performance.

Our analysis also provides evidence with respect to the effect of sample selection, performance metrics, benchmark performance, and the business context of the charge on the mixed conclusions reported in the prior literature. The test samples in this study are qualitatively similar to those reported used in Atiase, et al. (1999)

and Carter (1998). In spite of that similarity, the adjusted performance measures reported in this study yield almost identical results to those reported by Atiase, et.al. (1999) and Carter (1998). Thus, the evidence strongly suggests that the sample and performance metrics used were not the primary factors in the mixed results previously reported. However, sensitivity tests indicate that the benchmark performance used to calculate post-restructure changes and the context of the charge may have contributed to the differences. We find that previous conclusions of a post-restructure improvement are not robust to alternative specifications of the benchmark performance. Our evidence also suggests that the magnitude of the restructuring charge, the information environment of the firm, and prior restructuring activity are positively associated with post-restructure performance. Thus, differences in the degree to which these variables were controlled in previous studies, combined with the use of different performance benchmarks, explains in part the conflicting conclusions of prior work.

Our study has implications for both market participants and security market regulators. We provide evidence suggesting that restructurings are generally ineffective in improving operating performance. This finding, which counters conventional wisdom, is of interest to investors and analysts in assessing the performance prospects of firms that have recently undertaken a restructuring. The findings of this study should also be of interest to the Securities and Exchange Commission (SEC). Arthur Levitt, Chairman of the SEC, recently expressed the concern that companies are utilizing restructuring charges to manage their earnings to meet analysts' expectations.[25] The results of our study appear to undercut the assumption which forms the basis of the concerns raised by Chairman Levitt. If firms are utilizing restructuring charges to manage earnings, we would expect, at a minimum, a short-term increase in earnings. Our results are inconsistent with an earnings management explanation. The results of our study are particularly important in light of the recent SEC announcement that an earnings management task force has been formed within the Division of Corporation and Finance at the SEC and the increased disclosure suggested in SEC Staff Accounting Bulletin 101. Both of these SEC initiatives are costly to the firms involved and in light of the evidence reported here,

may not be warranted.

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TABLE 1
SAMPLE SELECTION AND DESCRIPTIVE STATISTICS

Panel A: Sample Selection

	Value-Line Sample	Atiase Sample
FIRM-YEAR OBSERVATIONS WITH A RESTRUCTURING CHARGE BETWEEN 1984 AND 1994	1635	1635
FIRM-YEAR OBSERVATIONS NOT COVERED BY COMPUSTAT, WITHOUT A CALENDAR YEAR-END, OR AN SIC CODE NOT INCLUDED IN THE RANGES 2000-3999 AND 5000-5999.		(956)
REMAINING FIRM-YEAR OBSERVATIONS WITHOUT 10 YEARS OF COMPLETE COMPUSTAT DATA SURROUNDING THE RESTRUCTURE YEAR		(61)
FIRM-YEAR OBSERVATIONS NOT COVERED OR DROPPED BY *VALUE LINE INVESTMENT SURVEY* DURING THE TEST PERIOD .	(1084)	
FIRM-YEAR OBSERVATIONS WITHOUT 11 YEARS *VALUE LINE* DATA SURROUNDING THE RESTRUCTURE YEAR.	(38)	
ELIMINATION OF EXTREME OBSERVATIONS	(14)	(31)
FINAL SAMPLE (FIRM-YEAR OBSERVATIONS)	499	587

TABLE 1 (continued)

Panel B: Value Line Sample (n=499)

VARIABLE	MEAN	MEDIAN	STD DEV	MIN	MAX
RC	162.53	35.00	389.47	0.3200	3314.00
SRC	0.03	0.02	0.04	0.0003	0.40
TA	7625.22	1301.79	24775.04	6.803	216986.00
SALES	5646.73	1705.30	14486.58	87.8000	132429.00

Panel C: Atiase Sample (n=587)

VARIABLE	MEAN	MEDIAN	STD DEV	MIN	MAX
RC	175.62	22.75	565.50	0.3200	9426.90
SRC	0.03	0.02	0.03	0.0003	0.40
TA	7475.16	1111.26	24331.45	6.803	216986.00
SALES	5379.59	1112.08	14885.99	8.554	130590.00
SIZE-SALES	5110.07	1238.18	13815.63	0.114	108448.00
PERF-SALES	2932.41	258.35	11021.27	3.214	96145.87

Note: We do not provide comparative control data for the *Value Line Sample*, because we use *Value Line* industry aggregate data as the control for the Smart and Waldfogel tests. The use of the industry aggregate data required no size comparison, unlike the tests performed with the Atiase Sample.

RC = restructuring charge.
SRC = restructuring charge scaled by sales for the restructuring year.
TA = restructuring firm total assets in the year prior to the event year.
SALES = restructuring firm sales revenue in the year prior to the event year.
SIZE-SALES = size- and industry-matched control firm sales revenue in the year prior to the event.
PERF-SALES = performance- and industry-matched control firm sales revenue in the year prior to the event.

TABLE 2
MEDIAN RAW AND INDUSTRY-AGGREGATE ADJUSTED
OPERATING MARGIN AND RETURN ON EQUITY (n=499)

YEAR	OPM	ADJ-OPM	ROE	ADJ-ROE
-5	13.14	-0.55	13.06	0.38
-4	13.10	-0.61**	13.12	-0.70
-3	12.97	-0.68**	12.89	-0.37
-2	12.75	-0.65	12.00	-0.70
-1	12.26	-1.08*	10.78	-1.47*
0	11.44	-1.97*	9.622	-3.08*
1	12.59	-1.37*	11.93	-1.48*
2	12.58	-1.51*	13.58	-1.13**
3	13.47	-0.94**	15.61	-0.11
4	13.55	-1.13*	15.25	-0.59
5	13.21	-1.27*	14.98	-0.73

* significant at 0.01 level based on Wilcoxon Sign Rank test.

** significant at 0.05 level based on Wilcoxon Sign Rank test.

OPM_t = operating margin for period t.
ADJ-OPM = restructuring firm operating margin for period t less the *Value Line* industry aggregate operating margin for the same period.
ROE = return on equity for period t.
ADJ-ROE = restructuring firm return on equity for period less the *Value Line* industry aggregate return on equity for the same period.

TABLE 3
SMART AND WALDFOGEL MEASURE OF
RESTRUCTURING EFFECT ON OPERATING PERFORMANCE (n=499)

YEAR	REOPM MEAN	REOPM MEDIAN	REROE MEAN	REROE MEDIAN
1	-0.5476*	-0.50*	-0.0215	0.40
3	-1.2447*	-1.18*	0.1946	-1.10*
4	-1.1810*	-1.20*	-0.0558	-0.60
5	-1.4172*	-0.80*	-0.2660	-0.50
Avg3-5	-1.2808*	-1.35*	-0.0543	-0.55

* significant at 0.01 level based on Wilcoxon Sign Rank test.

** significant at 0.05 level based on Wilcoxon Sign Rank test.

REOPM	=	$[OPM^{R}_{t+k} - E_t(OPM^{R}_{t+k}\|t)] - [OPM^{C}_{t+k} - E_t(OPM^{C}_{t+k}\|t)]$, the effect of restructuring on the operating margin.
OPM^{R}_{t}	=	restructurng firm operating margin for period t.
OPM^{C}_{t}	=	industry operating margin for period t.
$E_t(OPM^{R}_{t+k})$	=	expected restructuring firm operating margin for period t+k prior to the restructuring.
$E_t(OPM^{C}_{t+k})$	=	expected control firm operating margin for period t+k prior to the restructuring.
REROE	=	$[ROE^{R}_{t+k} - E_t(ROE^{R}_{t+k}\|t)] - [ROE^{C}_{t+k} - E_t(ROE^{C}_{t+k}\|t)]$, the effect of restructuring on return on equity.
ROE^{R}_{t}	=	restructurng firm return on equity for period t.
ROE^{C}_{t}	=	industry return on equity for period t.
$E_t(ROE^{R}_{t+k}\|t)$	=	expected restructuring firm return on equity for period t+k prior to the restructuring.
$E_t(ROE^{C}_{t+k}\|t)$	=	expected control firm return on equity for period t+k prior to the restructuring.
Avg3-5	=	average of year 3 to 5 REOPM and REROE.

TABLE 4
MEDIAN RAW AND CONTROL FIRM ADJUSTED-
PROFIT MARGIN, RETURN ON EQUITY, RETURN ON ASSETS,
OPERATING MARGIN, AND ASSET TURNOVER (n=587)

YEAR	PMGN	SADJ-PMGN	PADJ-PMGN	ROE	SADJ-ROE	PADJ-ROE	ROA	SADJ-ROA	PADJ-ROA	OPM	SADJ-OPM	PADJ-OPM	ATRN	SADJ-ATRN	PADJ-ATRN
-4	3.95	-0.47	-0.64	12.47	-1.50**	-3.17*	15.17	0.21	-1.22*	12.07	-0.32	0.41	1.25	0.07**	-0.14*
-3	3.73	-0.67*	-0.86*	11.24	-1.88*	-3.37*	14.21	0.52	-1.57*	11.57	-0.68	0.06	1.25	0.06**	-0.21*
-2	3.62	-1.26*	-0.53*	10.42	-3.14*	-1.89**	13.46	-0.27	-1.73*	11.49	-0.47	0.20	1.20	0.05	-0.18*
-1	3.11	-1.48*	-0.87*	8.98	-3.82*	-1.80**	12.83	-0.79	-1.47*	10.90	-1.26*	0.27	1.20	0.07**	-0.19*
0	2.82	-0.98*	-0.71*	8.00	-2.82*	-1.06**	11.63	-1.67*	-2.21*	10.14	-1.59*	-0.41*	1.17	-0.01	-0.13*
1	3.14	-1.19*	-0.98*	10.06	-3.24*	-2.94*	12.51	-1.80*	-1.89*	11.07	-1.24*	-0.72	1.17	-0.01	-0.13*
2	3.72	-0.82*	-0.45	11.34	-1.14**	-0.54	12.88	-0.40*	-0.66	11.61	-0.57**	-0.01	1.17	0.04	-0.13*
3	3.91	-0.52	-0.49	12.09	-0.32	0.62	13.42	-0.76*	-0.94	11.98	-0.32	0.59	1.18	0.03	-0.18*
4	4.65	-0.35	-0.42	12.11	-0.15	-0.07	13.60	-0.49	-0.47	12.42	-0.05	1.12	1.18	0.05	-0.15*
5	4.08	-0.99	-0.69*	10.91	-0.99	-0.50	13.06	-0.20	-0.76	12.05	0.28	0.51	1.16	-0.01	-0.18*

NOTE: "SADJ" - size and industry matched control firm adjusted. "PADJ" - performance and industry matched control firm adjusted.
* significant at 0.01 level.

** significant at 0.05 level.

$PMGN_t$ = profit margin in period t (ratio of income before extraordinary items and the cumulative effect of changes in accounting principles to net sales; income is adjusted for the restructuring charge, if any, by adding back the estimated after-tax restructuring charge).

ROE_t = return on equity in period t (ratio of income before extraordinary items and the cumulative effect of changes in accounting principles to owners' equity; both income and owners' equity are adjusted for the restructuring charge, if any, by adding back the estimated after-tax restructuring charge).

ROA_t = return on assets in period t (ratio of operating income before depreciation to net sales; operating income is adjusted for the restructuring charge, if any, by adding back the estimated after-tax restructuring charge).

OPM_t = operating margin in period t (ratio of operating income before depreciation to net sales; operating income is adjusted for the restructuring charge, if any, by adding back the estimated after-tax restructuring charge).

$ATRN_t$ = asset turnover in period t, the ratio of average total assets to net sales.

TABLE 5
PRE- AND POST-RESTRUCTURE CHANGES IN MEDIAN PROFIT MARGIN, RETURN ON EQUITY, RETURN ON ASSETS, ASSET TURNOVER, AND OPERATING MARGIN

Panel A: ATIASE SAMPLE (n=587)

MEASURE	MEDIAN	Size and Industry Adjusted-	Performance and Industry Adjusted-
PRE-ΔPMGN	-0.61*	-0.60**	-0.12
POST-ΔPMGN	0.86*	0.56	0.46
PRE-ΔROE	-1.94*	-2.46*	1.39
POST-ΔROE	3.36*	2.68*	1.86
PRE-ΔROA	-1.37*	-1.29**	-0.48
POST-ΔROA	1.98*	1.31*	1.41**
PRE-ΔATRN	-2.48	-0.48	-5.87
POST-ΔATRN	3.56	1.70	1.82
PRE-ΔOPM	-0.57*	-0.46	-0.33
POST-ΔOPM	1.36*	0.82*	0.81*

Note: The values in this table are based on Compustat data, with the exception of the restructuring charge. We obtained the restructuring charge directly from the firm financial statement (footnotes). The Compustat data items used are income before extraordinary items (I18), sales (I12), stockholder's equity (I60), operating income before depreciation (I13), and total assets (I6). Adjusted measures (ADJ-) are the restructuring firm measure adjusted for the size and industry-matched control firm measure and the performance and industry-matched control firm measure.

Panel B: VALUE LINE SAMPLE (n=499)

MEASURE	MEDIAN	Industry Aggregate Adjusted-
PRE-ΔROE	-0.70*	-0.80**
POST-ΔROE	2.90*	0.70*
PRE-ΔOPM	-0.60*	-0.20**
POST-ΔOPM	1.00*	0.10

Note: All values in this table are based on data taken from *Value Line Investment Survey*.

* significant at 0.01 level based on Wilcoxon Sign Rank test.

** significant at 0.05 level based on Wilcoxon Sign Rank test.

TABLE 5 (continued)

PRE-ΔPMGN	=	$PMGN_{t-1}$ - $PMGN_{t-4}$.
PRE-ΔROE	=	ROE_{t-1} - ROE_{t-4}.
PRE-ΔROA	=	ROA_{t-1} - ROA_{t-4}.
PRE-ΔATRN	=	$ATRN_{t-1}$ - $ATRN_{t-4}$.
PRE-ΔOPM	=	OPM_{t-4} -OPM_{t-1}.
POST-ΔPMGN	=	$PMGN_{t+3}$ - $PMGN_{t}$.
POST-ΔROE	=	ROE_{t+3} - ROE_{t}.
POST-ΔROA	=	ROA_{t+3} - ROA_{t} .
POST-ΔATRN	=	$ATRN_{t+3}$ - $ATRN_{t}$.
POST-ΔOPM	=	OPM_{t+3} -OPM_{t}.

TABLE 6
PRE-TO-POST RESTRUCTURE CHANGES IN PROFIT MARGIN, RETURN ON EQUITY, RETURN ON ASSETS, ASSET TURNOVER, AND OPERATING MARGIN FOR ATIASE AND VALUE LINE SAMPLE FIRMS

MEASURE	MEDIAN (n=587)	Size and Industry Adjusted (n=587)	Performance and Industry Adjusted- (n=587)	VALUE LINE MEDIAN (n=499)	Industry Aggregate Adjusted (n=499)
CHG3PMGN	0.69*	0.64	0.76		
CHG4PMGN	1.37*	0.58	0.51		
CHG5PMGN	1.09*	0.54	0.18		
CHG3ROE	2.69*	1.99*	3.61**	2.20*	-0.51
CHG4ROE	3.01*	2.67*	5.04*	3.13*	0.20
CHG5ROE	1.86*	2.76*	4.14	2.67*	0.37
CHG3ROA	-0.37	-0.66*	1.11		
CHG4ROA	0.15	0.40	1.37		
CHG5ROA	-0.20	0.35	0.91		
CHG3ATRN	-0.98	-0.00	4.01		
CHG4ATRN	-3.01**	0.63	2.51		
CHG5ATRN	-5.00*	-1.02	4.00		
CHG3OPM	0.72*	0.17	0.44	0.48*	-0.49*
CHG4OPM	1.05*	0.46	0.68	0.87*	-0.45**
CHG5OPM	1.04*	0.22	0.04	0.80*	-0.43**

* significant at 0.01 level based on Wilcoxon Sign Rank test.

** significant at 0.05 level. based on Wilcoxon Sign Rank test.

CHG3 = year t3 performance measure (PMGN, ROE, ROA, ATRN, OPM) less the three year pre-restructure average (t-3 through t-1) for the same measure.

CHG4 = year t+4 performance measure (PMGN, ROE, ROA, ATRN, OPM) less the three year pre-restructure average (t-3 through t-1) for the same measure.

CHG5 = year t5 performance measure (PMGN, ROE, ROA, ATRN, OPM) less the three year pre-restructure average (t-3 through t-1) for the same measure.

TABLE 7
Regressions of Restructuring Effect on Operating Margin and Return on Equity on the Magnitude of the Restructuing Charge, Firm Size, and Prior Restructuring Activity (n=499)

EQUATION (3): REOPM35 (REROE35$_i$) = $\beta_0 + \beta_1 SRC_i + \beta_2 SIZE_i + \beta_4 PRIOR_i$

	INTERCEPT	SRC	SIZE	PRIOR	ADJUSTED-R^2
MODEL 1 - REOPM35	-2.2500 (-4.100)[a] [0.0.001][b]	0.2463 (3.160) [0.0017]	1.6577 (2.230) [0.0264]	-0.0911 (-0.014) [0.8923]	0.030
MODEL 2 - REROE35	-3.1085 (-3.050) [0.0024]	0.3744 (2.590) [0.0099]	2.6148 (1.900) [0.0587]	2.4111 (1.940) [0.0538]	0.029

[a] t-statistic
[b] two-tailed p-value

REOPM35 = average +3 to +5 REOPM.
REROE35 = average +3 to +5 REROE.
SRC = restructuring charge scaled by sales for the restructuring year times 100 (percentage terms for consistency with dependent variable).
SIZE = dummy variable equal to 1 if the firm sales in year t-1 is in the top quartile of all firms in the sample, 0 otherwise.
PRIOR = dummy variable equal to 1 if the firm had a restructuring charge in any of the prior 5 years, 0 otherwise.

ENDNOTES

1. In 1996, 1995, 1994, and 1993, the 600 firms covered by *Accounting Trends & Techniques* (AICPA 1997) reported 138, 129, 100, and 190 restructurings, respectively. Dechow, Huson, and Sloan (1994) report that over $15 billion in restructuring charges against 1986 earnings were announced by all public companies to the financial press through December 1986. Those expenses and losses followed an additional $11 billion announced for 1985 reporting. However, between 1991 and 1994, 24 of the 30 companies in the Dow Jones Industrial Average took restructuring charges which totaled $41.1 billion representing 18% of the 24 companies' combined 1990 average book value (*WSJ* 1/30/96 pg A4). Only four of the 30 Dow Jones industrials did not take a restructuring charge between 1991 and 1995 (Ableson 1996).

2. There have been several studies of stock price performance of firms announcing "asset writeoffs" or "asset writedowns." The samples for these studies include firms that have engaged in operational restructurings (employee terminations, plant closings, etc) as well as asset writedowns. Since this study focuses on operational restructurings, only studies that have a similar focus are reviewed here.

3. For example, Robert J. Mckenna, CEO of Acme Electric, stated the following regarding Acme's 1994 restructuring, "The actions we take will allow the company to return to profitability during the first half of fiscal year 1995, while improving our ability to effectively compete in the aerospace market with our core product technology" (The Buffalo News, April 21, 1994). Similarly, Rober Allen, CEO of AT&T, stated the following regarding AT&T's 1995 restructuring, "I truly wish we didn't have to do this downsizing. I understand how wrenching it will be for employees and their families. But the actions ... are absolutely essential if our businesses are to be competitive" (USA Today, January 3, 1996).

4. Organizational transitions might be hard to implement if employees resist the change. The cost associated with employee stress and declining morale might result in deteriorating employee performance until the restructuring plan is fully implemented.

5. Take for example the restructuring of Aetna (USA Today 10/11/96). Aetna announced a $307 million restructuring charge that includes the elimination of 4,400 jobs. The job cuts were not expected to be complete until the end of 1998.

6. Of the 94 separate measures we report in the post-restructure years 3 to 5, only eleven are significantly positive while seventeen are significantly negative.

7. This result is also consistent with anecdotal evidence which suggests that repeat restructurings are undertaken to address past failed restructurings. For example, in 1994 George Fisher CEO of Eastman Kodak in addressing the failed restructurings of the past decade stated, "We're still cleaning up the place." He further stated that he expected it would take three to five years to get Kodak where he wanted it to be (USA Today, November 14, 1994, pg 1B).

8. Atiase, et al. (1999) report measures four years after the event year, however, their primary measure of post-restructure change in performance incorporates year 3 after the event.

9. The event date is required to identify the appropriate pre-restructure *Value Line* forecast.

10. This includes firms with return on equity, profit margin, operating margin, and return on assets greater than 3 and less than -3. All tests were performed on the full samples (*Value Line Sample* and *Atiase Sample*) before eliminating extreme observations. The results of the statistical tests on the median values were consistent with those reported in the tables.

11. The Compustat data items collected for this sample are operating income before depreciation (I13), income before extraordinary items (I18), net sales (I12), total assets (I6), and common equity (I60). These are the data items required to compute profit margin (PMGN), return on equity (ROE), return on assets (ROA), and asset turnover (ATRN).

12. The size- and industry-matched control firms are to provide consistency with Atiase, et al. (1999) and the performance- and industry-matched control firms are to provide consistency with Carter (1998).

13. We do not provide comparative control data for the *Value Line Sample* for two reasons. First, we use *Value Line* industry aggregate data as the control for the tests performed on this sample; thus, no size or performance comparison was required as was necessary for the matched control samples identified for the *Atiase Sample*. Second, *Value Line* provides summary measures on the performance metrics tested, operating margin and return on equity, for both the individual firm and the industry aggregate data. Thus, it was not necessary to collect the indiviual components of these metrics which comprise the basis of the comparative data provided in Panel C.

14. Further support for the similarities of the *Value Line Sample* and *Atiase Sample* can be found in Tables 2 and 4. The raw and adjusted measures reproted in Tables 2 and 4 in both the pre- and post-restructuring time periods are qualitative similar.

15. Carter (1998) utilizes a performance-matched control design as the appropriate benchmark of restructuring firm performance in the absence of a restructuring for two stated reasons. First, using market or industry performance as the benchmark may not be appropriate because they may fail to capture improvements whose magnitudes, while making the firm better off than it would have been without the restructuring, are not large enough to bring performance to a level exceeding the market or industry. Second, using the firm's own industry-adjusted pre-restructure performance may result in the appearance of an improvement that simply is an artifact of mean reversion (restructuring firms have declining performance leading up to the year of restructure).

While we agree with Carter (1998) on this issue, we have additional concerns that the design she implements may not capture the firms' actual performance absent the restructuring. First, utilizing actual performance of non-restructuring firms as a proxy for the expected performance of the restructuring firm assumes that all changes in the performance of restructuring firms is related to the restructuring event. Improvements or declines in the operating performance of restructuring firms may in fact be related to known non-restructuring events undertaken by the firm prior to the

restructuring. Thus, the expected performance of the restructuring firm can be better measured directly by utilizing analysts' forecasts. Second, her design assumes that the control firms took no affirmative action after year t-1 that affected performance (positively or negatively) or that any action these firms took after year t-1, other than the restructuring, would have been mirrored by the restructuring firm. Lastly, the control firms are equally susceptible to the mechanical mean reversion effect as the sample firms.

16. We limit this part of the study to an examination of operating margin and return on equity due to the unavailability of *Value Line* data for the other measures.

17. $OPINC^{R}_{t+k}$ is a measure of operating income at the restructuring firm for period t+k and $E(OPINC^{R}_{t+k}|t)$ is a measure of the expected operating income at the restructuring firm for period t+k at developed at time period t. $OPINC_{t+k}$ and $E(OPINC_{t+k}|t)$ are the same measures for the control firms.

18. ROE^{R}_{t+k} is a measure of return on equity at the restructuring firm for period t+k and $E(ROE^{R}_{t+k}|t)$ is a measure of the expected return on equity at the restructuring firm for period t+k at developed at time period t. ROE_{t+k} and $E(ROE_{t+k}|t)$ are the same measures for the control firms.

19. Barber and Lyon (1996) find that in examining accounting performance measures non-parametric

Wilcoxon test statistics are uniformly more powerful than t-statistics, regardless of the operating performance measure employed. They indicate this is attributable to the existence of extreme observations in all the performance measures they examined.

20. In addition to using *Value Line* industry aggregate data as our control measure, we also constructed a matched sample of non-restructuring firms for the years 1991 through 1993 (185 firm-year observations) that were also covered by *Value Line*. We identified these matched control firms on the basis of industry and size (net worth as reported by *Value Line*). Re-estimation of equations (1) and (2) using this alternative control yielded quantitatively and qualitatively similar results to those reported in Tables 2 and 3.

21. We report medians in all tables. The means, not reported, are qualitatively similar to the medians reported.

22. In fact, our descriptive evidence is consistent with this. Each of our performance measures is significantly lower (results not reported) in the year of the restructure than in the year prior to or after the event. Arthur Levitt, the chairman of the SEC, stated, in a speech given at NYU September 28, 1998, that some restructuring firms "clean up their balance sheet -- giving them the a so-called big bath".

23. The top 25% was arbitrarily chosen. We also estimated equation (3) using a top 10% cutoff and the results are quantitatively and qualitatively the similar to those reported in Table 7.

24. We re-estimated equation (3) setting PRIOR equal to 1 based on based on restructuring activity in the prior three years. The results of those tests, not reported, are quantitatively and qualitatively similar to those reported in Table 7.

25. "The Numbers Game" Remarks by Chairman Arthur Levitt. NYU Center for Law and Business 9/28/98.