The Effects of Institutional Ownership on Financial Reporting Practices

Natasha Burns [a] Simi Kedia[b] and Marc Lipson[c]

This Draft: October 2006

[a]*University of Georgia;* [b]*Rutgers University;* [c]*University of Virginia.* We thank Brian Bushee, N.K. Chidambaran and the seminar participants at Rutgers Business School, the 13th Pacific Basin Conference, Darden Business School, Drexel University and the 17th FEA meetings held at UNC for helpful comments. Kedia thanks the Whitcomb Center for research support. All errors are our own.

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Abstract

We examine the relation between institutional ownership and financial reporting practices. We find that the likelihood and severity of financial restatements are positively related to aggregate institutional ownership, but negatively related to the concentration of institutional ownership. These effects are limited to institutions with transient and quasi-indexing investment styles, which are precisely the institutions we also observe selling at the announcement of a restatement. Firms placed on an institutions watch list for potential problems are also more likely to restate. On the other hand, we find that the use of discretionary accruals is negatively related to aggregate institutional ownership, but still positively related for institutions with transient investment styles. These results suggest that ownership by institutions poised to sell on bad news creates incentives to manage earnings, but this can be attenuated when institutions are sufficiently large owners to benefit from active monitoring.

1. Introduction

Institutional ownership can beneficially influence management practice. For example, greater institutional holdings have been credited with better investing, more aligned compensation, greater performance sensitive CEO turnover and more informative financial information.[1] On the other hand, recent evidence suggests institutions induce management over-emphasis on short-term financial performance and that ownership by institutions with short-term investment horizons detrimentally affects the bargaining power of target firms during merger negotiations.[2] In this research, we explore how institutional ownership influences management's financial reporting practices.

Institutional ownership can have two opposing effects. Since institutions are potentially large and influential owners, they may monitor firms in a manner that beneficially affects management practice (*agency monitoring*). This monitoring might prevent short-term opportunistic financial reporting changes, especially those that might be costly. In contrast, institutions may monitor firms to improve investment performance by quickly buying or selling shares based on any perceived change in performance (*investment monitoring*). This monitoring could induce myopic behavior in management's financial reporting practices as firm's attempt to forestall institutional departures by improving near-term reported results. To evaluate the effect of institutional ownership on financial reporting practices, we examine both misreporting, which is identified through eventual restatements, and discretionary accruals. Our primary focus is

[1] See Smith (1996) for investing; Hartzell and Starks (2004) for concentration; Parrino, Sias and Starks (2003) for CEO turnover; and Ajinkya, Bhojraj, and Sengupta (2005), Rajgopal and Venkatachalam (1997), and Shang (2003) for more informative financial information.

[2] See Coffee (1991), Lang and McNichols (1997) and Bushee (1998, 2001) for myopic investment horizons and Gaspar, Massa and Matos (2005) for bargaining power.

on misreporting because identifying the reporting practices that lead to restatements requires more than cursory monitoring.

Institutions may engage in both agency and investment monitoring or may favor one form over the other. Furthermore, a preference for one form of monitoring may follow from certain characteristics of the institution, such as the institution's investment style or the degree to which institutional ownership is concentrated. Acknowledging this, we proceed as follows. We first characterize the impact of institutional ownership levels in aggregate in order to document the net effect of both agency and investment monitoring on financial reporting. We then document the effects of investment style and ownership concentration in order to assess whether both types of monitoring occur and whether they vary as expected with institutional characteristics.

We partition institutions according to their investment styles as described in Bushee (1998).[3] We conjecture that transient institutions, institutions characterized by high turnover rates, are most likely to focus on short-term stock performance and, therefore, emphasize investment monitoring. In contrast, dedicated institutions with their large holdings and low turnover, are most likely to benefit from, and thus engage in, agency monitoring. Quasi-indexing firms, with their diversified holdings, are unlikely to incur the costs of agency monitoring. However, they may pursue investment monitoring to some degree since even "pure" indexing firms will do some active trading to enhance returns.

[3] Bushee (1998) partitions institutions into transient, quasi-indexing and dedicated institutions based on portfolio turnover and size of holdings. Transient institutions include those with high portfolio turnover and diversified holdings; quasi-indexing institutions are those that have low portfolio turnover and diversified holdings; and dedicated institutions are characterized by low portfolio turnover and relatively large investments. We are indebted to Brian Bushee for providing us with these classifications.

We expect institutions with substantial ownership concentration to obtain a greater share of the benefits from improvements in performance and, therefore, be more willing to bear the costs of agency monitoring.[4] Similarly, an institution may monitor its largest investments more carefully. For this reason we examine the proportion of a firm's institutional clients for whom that firm constitutes one of the institution's 10 largest investments. Finally, we examine other ownership characteristics that might affect reporting practices. In particular, we examine the effects of self-styled activist institutional ownership and the effects of a firm being placed on an institutional "watch list".

Using a sample consisting of 495 restating firm-years, we begin by documenting changes in ownership around restatement announcements to determine if institutions trade in a manner consistent with investment monitoring. Given that the announcement of a restatement is considered to be bad news on average, institutions engaged in investment monitoring will likely sell their holdings. In fact, firms sufficiently engaged in investment monitoring may be able to detect activities that later require restatement and sell prior to the price drop at announcement (Desai, Krisnamurthy, and Venkataraman, 2005). We find that institutions are significant sellers in the quarter a restatement is announced, but not in the prior quarters. The selling is concentrated in transient and quasi-indexing institutions.[5] The result for transient institutions is consistent with their presumed

[4] For a discussion of stock investor monitoring incentives see Aggrawal and Mandelker (1990), Porter (1992), Schleifer and Vishny (1997), among others.

[5] Our results differ slightly with those of Hribar, Jenkins and Wang (2005). We both find that transient institutions sell in the quarter a restatement is announced. However, they also find that transient institutions sell in the quarter *prior* to a restatement announcement. In an earlier version of this paper using data that ended in 2001, we did find similar results. The difference may reflect the effects of the October 2000 introduction of Reg FD, which potentially curtailed exclusive access to firm management by institutions. As far as this paper is concerned, the point remains that these institutions are actively engaged in investment monitoring and their ownership might, therefore, induce firms to manage their financial reports.

emphasis on active trading to enhance returns. As for quasi-indexing, this suggests that institutions in this category also engage, on average, in trading consistent with investment monitoring.[6]

Examining the effects of institutional ownership on financial practices, we find that institutional ownership is positively associated with the likelihood of misreporting. Upon partitioning based on institutional style, we determine that most of this effect is driven by transient and quasi-indexing ownership. The positive relationship between misreporting and both transient and quasi-indexing ownership suggests a non-trivial investment monitoring effect. Specifically, our results suggest that firms are sufficiently concerned that transient and quasi-indexing institutions are poised to sell the firm that they attempt to forestall a departure by aggressively managing reported performance. This result is notably consistent with the changes in ownership observed around restatement announcements. In contrast, the level of dedicated institutional ownership has no statistically reliable effect. Thus, we have no evidence to suggest they are engaged in either investment or agency monitoring to a degree that influences financial reporting practices.

In contrast to the positive relation between ownership and restatements, we find that a greater concentration of institutional ownership significantly *reduces* the likelihood of misreporting. It is important to note that the effects of concentration are quite strong and that separating the offsetting effects of ownership and concentration is vital to making correct inferences. Specifically, the parameter on ownership dramatically increases when we separately account for the effects of concentration. Further, it is the

[6] The investment style partitions are based on statistical descriptions of relative institution characteristics and are not self-identified. One should not, therefore, interpret the indexing label literally. We discuss this issue in greater detail at a later point when formally stating our hypotheses.

concentration of transient and quasi-indexing, rather than dedicated, institutions that reduce the likelihood of misreporting. Therefore, while transient ownership induces aggressive earnings management as evidenced by eventual restatements, concentration of that ownership provides sufficient incentive to engage in offsetting monitoring of reporting practices.

With regards to other ownership characteristics, we find that neither ownership by those identified as activist institutions, nor ownership by institutions for which a given firm constitutes a major part of the institution's holdings, has any effect on the likelihood of the firm making a restatement. Surprisingly, firms placed on an institutional "watch list" are more likely to misreport. This suggests that precisely when attention is drawn to the firm and institutions are, therefore, watching for faltering performance, the firms are responding to that scrutiny by managing reported performance. In other words, watch list status induces effects consistent with investment monitoring rather than agency monitoring.

We also examine the relation between institutional ownership and the magnitude of restatements. We find a positive relation to institutional ownership, particularly transient and quasi-indexing ownership. These results suggest that firms act more aggressively to manage earnings when there is a greater potential departure of institutional owners. We also observe that concentration of institutional holdings is negatively related to the magnitude in aggregate and for transient institutions. Thus, results on the magnitude of restatements are similar to our results for the likelihood of restatement. The notable difference is that we do not observe an effect from concentration of quasi-indexing firms nor the positive effect from being placed on a watch list.

The evidence thus far, is somewhat at odds with previous results which document a negative relation between institutional ownership and earning management as implemented through discretionary accruals (Rajgopal and Venkatachalam, 1997 and Shang, 2003). Looking at discretionary accruals for our sample, we confirm prior evidence that institutional ownership is negatively associated with the use of discretionary accruals. This is consistent with the lower costs of monitoring accruals versus misreporting. However, after partitioning institutions based on investment style, we discover that this negative effect is driven entirely by dedicated institutions and quasi-indexers. In fact, the level of transient ownership is *positively* associated with the use of discretionary accruals. This suggests that even when it can be easily observed, firms may manage earnings in response to investment monitoring by transient institutions.

Taken together, our results highlight two offsetting effects of institutional ownership on financial reporting practices. On the one hand, ownership by institutions with short investment horizons may lead to financial reporting practices that later result in restatements. This is consistent with firms managing earnings to manipulate short-term results. It also confirms studies suggesting that institutions may choose to engage in costly monitoring, without regard to the impact on firm practice, only to the extent that it improves their trading profits (Coffee, 1991 and Bhide, 1993). It is worth emphasizing that it is precisely those types of institutions poised to exit a firm at the first sign of trouble (those that sell at the announcement of a restatement) whose presence is associated with questionable accounting practices. Clearly, our results suggest that policies which facilitate or encourage active trading by institutions may contribute to a reduction in the quality of financial information. On the other hand, our results confirm

the beneficial effects of concentrated ownership. In particular, when ownership is sufficiently concentrated within a firm, the dominant owners capture sufficient benefits to make agency monitoring worthwhile.

Our analysis complements a number of studies that examine corporate governance and restatements. Most of these identify particular governance mechanisms or board actions that might improve financial reporting and, therefore, reduce the need for restatement.[7] None focus on institutional ownership and few document characteristics of ownership that might *induce* misreporting. As in Ajinkya, Bhojraj and Sengupta (2005), we distinguish between the level of institutional ownership and the concentration of institutional ownership. They find that institutional ownership leads to more frequent and less biased forecasts while a greater concentration of institutional ownership has the opposite effect. They ascribe the difference to the ability of institutions with substantial ownership stakes to better communicate with managers. We ascribe any differences to the enhanced incentives of concentrated owners to monitor firm activities.

The balance of the paper is organized as follows: The next section develops our hypotheses, Section 3 describes our data, Section 4 presents our results, and Section 5 concludes.

2. Institutional Ownership and Hypotheses

Institutions may have differing incentives for gathering information; some institutions use information to help beneficially impact management practice and, therefore, the value of the firms they own (agency monitoring) while others use it to

[7] See, for example, Burns and Kedia (2003), Kinney, Pamrose and Scholz (2004), Agrawal and Chadha, (2005), Baber, Kan and Liang (2005), and Larcker, Richardson and Tuna (2006)

enhance their returns from trading (investment monitoring). If institutions chose to engage in agency monitoring, then firms with greater institutional holdings should be less likely to adopt reporting practices that might mislead investors and subsequently result in a restatement. This is particularly true if those reporting practices are value reducing. On the other hand, if institutions are engaged in investment monitoring and focused on short-term earnings, they may motivate managers to manipulating earnings. In this case, one might expect to find that large institutional holdings are more likely to adopt reporting practices that might mislead investors.

Institutions may engage in both investment and agency monitoring. Also, firm ownership may include a combination of institutions, some of which focus on investment monitoring and some who focus on agency monitoring. The net effect of institutional ownership on financial reporting is therefore unclear. Our first goal is to evaluate the net effect of these two forms of monitoring by examining the effect of aggregate institutional ownership:

> **H1a (H1b):** Aggregate firm institutional ownership *positively* (*negatively*) related to the likelihood and magnitude of restatements

It is, of course, useful to evaluate whether each form of monitoring occurs and influences reporting practices. Furthermore, since a preference for one form of monitoring over another may be related to certain characteristics of the institution, it is also useful to see if the relations between ownership and reporting practices varies depending on those institutional characteristics. We approach this issue in a number of ways.

First, agency monitoring is more likely when the gains from any improvement in firm performance that might derive from monitoring outweigh the costs of monitoring. In

particular, when institutional ownership is disperse, institutions benefit only slightly from monitoring. Concentrated institutional ownership might also reduce free rider problems between different institutions further increasing incentives for agency monitoring (See Noe (2002)). We use concentration of institutional ownership, in particular a Herfindahl index, to capture this incentive for agency monitoring.[8] We test, therefore, whether the degree of concentration within institutional ownership is related to the occurrence and magnitude of misreporting:

> **H2:** The concentration of institutional ownership among institutions is *negatively* related to the likelihood and magnitude of restatements

Second, the investment style of institutions may influence monitoring practices. We therefore follow Bushee (1998), and group institutions as transient, quasi-indexers and dedicated based on their investment style. Bushee (1998) initially uses principal components to identify major distinguishing institutional factors and then uses cluster analysis to partition the institutions.[9] A three cluster model best describes the variation in styles: institutions with relatively high portfolio turnover rates and relatively diversified holdings are characterized as transient investors, institutions with relatively low portfolio turnover and relatively diversified holdings are characterized as quasi-indexers, institutions with relatively low turnover rates and relatively large investments are characterized as dedicated. There is no notable cluster that might be categorized as having high turnover and concentrated holdings, which is not surprising since this would be a difficult strategy for an institution to implement.

[8] The Herfindahl index is the sum of the squared shares of each institutions ownership. The closer the index is to one, the more concentrated is institutional ownership

[9] The original Bushee (1998) model identified three major components. Our partitions are based on the implementation in Bushee and Noe (2002) and Bushee (2001), which use just two principal components.

Below we develop hypotheses based on these style partitions. It is important to note that since the partitions are based on *relative* characteristics, the classifications should not be taken too literally. Furthermore, we are classifying the institutions as a whole, though funds within the institutions may vary in their investment style. This is presents little concern when we develop hypotheses for transient and dedicated institutions. For these, the characteristics suggest a certain monitoring preference. For quasi-indexing firms, on the other hand, a literal interpretation would suggest no predictions since an indexing strategy is strictly passive. Yet, for the reasons just mentioned, institutions classified as quasi-indexing firms may exhibit some characteristics that might be expected from institutions who actively manage portfolios.[10] In fact, we will demonstrate later that quasi-indexing firms are significant sellers at the announcement of a restatement, which is inconsistent with a pure indexing investment strategy. Despite the noise in the classifications and the subsequent inconsistent result on the actual trading of quasi-indexing firms, we will develop our hypotheses under a fairly literal reading of the style and point out, as we have done here and elsewhere, how the observed empirical results might suggest a different interpretation.

Transient institutions, with their frequent trading, are more likely to focus on short term performance and, therefore, investment monitoring. Furthermore, with a diversified portfolio, they are not likely to incur the costs of agency monitoring given the small gains from the improvement in any one investment. Therefore:

> **H3:** Ownership by transient institutions is *positively* related to the likelihood and magnitude of restatements

[10] Even institutions that explicitly pursue an indexing strategy will often engage in some active trading to provide a little extra return.

In contrast, dedicated institutions with their large investments are most likely to benefit from agency monitoring. Their long trading horizons would reduce the focus on investment monitoring. Therefore:

> **H4:** Ownership by dedicated institutions is *negatively* related to the likelihood and magnitude of restatements

As for quasi-indexing firms, with a diversified portfolio, agency monitoring is not likely to be beneficial. Similarly, the long holding period reduces the need for investment monitoring. In general, one would expect indexing firms to be passive investors. Therefore:

> **H5:** Ownership by quasi-indexing institutions is *unrelated* to the likelihood and magnitude of restatements

We also examine the impact of institutions that are considered to be activist institutions - those who explicitly attempt to alter management practice. Given the governance initiatives of active institutional investors, those identified as active are expected to monitor to improve firm performance, i.e., agency monitoring. We test:

> **H6:** Ownership by institutions classified as activist is *negatively* related to the likelihood and magnitude of restatements

Some institutions create a "watch list" or "focus list" of the worst performers in their portfolios. The purpose of the watch list is to direct public and market attention to these firms in order to initiate change. Calpers and the Council of Institutional Investors both publish such a watch list.[11] Firms on these watch lists may be less likely to misreport in coming years both as a consequence of heightened public scrutiny and potential

[11] CalPERS focus list consist of firms that are the lowest long-term relative performers. The screening process consists of three performance criteria: 1) Shareholder returns for the past three years, 2) Economic Value Added and 3) Corporate Governance Screen. For more information, see http://www.calpers-governance.org.

agency monitoring by activist institutions. However, it is also possible that the pressure to improve performance may induce firms to manage short term performance. We test:

> **H6a (H6b):** Placement of a firm on an institutional watch list *negatively* (*positively*) related to the likelihood and magnitude of restatements

Institutions which have a substantial fraction of their portfolio in a firm are likely to have higher incentives to monitor to improve firm performance as these gains will have a greater impact on an institution's performance. To capture this increased incentive for agency monitoring, we calculate the proportion of a firm's institutional investors for whom the firm is one of the institution's top 10 holdings. If the firm is a large investment for many institutions it is more likely to be subject to agency monitoring and less likely to manage short term earnings.

> **H7:** The proportion of a firm's institutional investors for whom the firm is one of the institution's top 10 holdings of an institution is *negatively* related to the likelihood and magnitude of restatements

These hypotheses describe our expectations between our various ownership measures the financial reporting practices of firms. The next section describes the data we will use in our empirical analyses.

3. Data

We examine a sample of firms that announce a restatement of their financial statements due to accounting irregularities. This list of restating firms was complied by the General Accounting Office (GAO) for an October 2002 report to the Chairman, Committee on Banking, Housing and Urban Affairs of the U.S. Senate, titled "Financial Statement Restatements: Trends, Market Impacts, Regulatory Response, and Remaining Challenges." The GAO identified 919 announcements of accounting restatements by 845 firms over the period 1997 to June 2002 through a Lexus-Nexus search with variations of

the word 'restate'. These announced restatements were due to accounting irregularities resulting in material misstatements of financial reports.[12] We use this list as the basis of this study.

Data on quarterly institutional holdings is from 13(f) filings obtained from CDA Spectrum Database for the period 1994 through 2003. Data on firm returns is obtained from the Center for Research in Security Prices (CRSP) and accounting information is from Compustat. We collect data on the fiscal years that were misreported and subsequently restated.[13] We also collected data on the magnitude of the restatement, i.e., the effect of the restatement on net income measured as the ratio of the annual impact to the absolute value of stated net income.[14] The sample with full data availability consists of 495 restating firm years. Of these we have data on the magnitude of restatement for 342 firm years.

Table 1 presents summary statistics for our sample of restating firms. The number of restatements varies substantially from year to year, with 47% of the restatement firm year announcements occurring in 2000 and 2001.[15] The restated years

[12] GAO defined accounting irregularity as an instance where the company restates is financial statements because they were not fairly presented in accordance with GAAP. This includes material errors as well as fraud. As many restatements are routine and on account of acquisitions, divestitures and other corporate restructuring activities, it is important to isolate the firms that restate due of accounting irregularities.

[13] The data on the fiscal years and quarters that were misreported were obtained through a Lexus-Nexus search of the restatement announcements. When unavailable, the amended 10K and 10Q were searched. When the firm reported restating one or more quarters, the fiscal year was coded as a restated year.

[14] The data was collected from the restatement announcement when available, and otherwise from the amended 10-ks filed with the SEC. Data on the size of the restatement could not be obtained for some firms. This was due to several reasons. Firstly, some firms did not report the impact of the restatement on income. Some firms included events (like restructuring charges, one-time charges) other than restatement in the amended earnings. This made it difficult to isolate the impact of the restatement on income. Some firms did not file an amended 10-k. We have excluded outlier observations where the size of the restatement was more than the stated net income. Annual impact of the restatement is the total impact of the restatement on net income divided by the number of years restated.

[15] Other characteristics like the nature of the restatements, and the prompter of the restatement can be obtained in the GAO (2002) report.

are somewhat clustered – with 1999 and 2000 accounting for 46% of the sample. The magnitude of the restatement is a non-trivial percentage of net income. For the average firm, the magnitude of the restatement was about $7.6 million, or about 17% of the absolute value of stated net income.

To assess the likelihood a firm will restate, we need to have a control sample. One approach is to include all firms for which we can gather needed information that did not make a restatement (see, for example, Richardson, Tuna and Wu (2003)). The advantage of this approach is that the sample is reflective of the total population of firms, we have statistical power to identify ways in which restating firms differ from the population, and the logistic regressions do not overstate the probability a given firm will restate. The disadvantage is that there are relatively few restating firms compare to non-restating firms and logistic regressions are more powerful when the modeled event is more frequent. This raises concerns that any null results simply reflect a lack of power. Alternatively, one can construct a matched sample where each restating firm is matched to a similar non-restating firm (see Agrawal and Chada (2005)). This increases the relative number of observations of restatements but the whole sample size is much reduced. We believe the inclusion of both full sample and matched sample results provides a complete picture of the empirical strength of the results.

Table 2 presents firm characteristics of restating years relative to non-restating and matched sample years. Non-restating years consist of all firm years that were not restated and with data available on Spectrum. The matched sample is matched on year, size and industry as in Agrawal and Chadha (2005). In particular, matched firms were in the same two-digit SIC as the restating firm and with equity market capitalization within

20% of the restating firm. Broadly, we find that restating firm years are similar to non-restating years and matched firm years in equity value, number of shares outstanding, and market to book ratio. Restating firm years appear to have a somewhat higher leverage than non-restating and matched firm years.

Table 3 presents summary statistics for our empirical measure of institutional ownership for restating, non-restating and matched firm-years. Institutional characteristics were calculated for each quarter and then averaged to obtain an annual value. The average institutional ownership, expressed as a percentage of shares outstanding, is 39% for restating firm years and significantly higher than that for non-restating (34.6%) and matched (35.2%) firm years. The average number of institutions for restating firm years is 78 and is also higher than that for non-restating (63) and matched (65) firm years. The higher institutional ownership for restating firms is primarily due to higher ownership by transient and quasi-indexers. Though dedicated ownership for restating firm years is higher than the matched firms, it is lower than that for all non-restating firm years. The other characteristics of institutional ownership, like herfindahl and ownership by activist institutions, are not significantly different between the groups.

Table 4 presents a summary of market adjusted returns, levels and changes in institutional holdings around restatement announcements.[16] We refer to the quarter in which the firm announced a restatement as the restating quarter or quarter zero. All quarters prior to and after the announcement have been numbered relative to the

[16] The observations are restatement firms rather than restatement firm years. Further, as the announcement of the restatement occurs after the misreporting (the median time being one year), there are some firms for which data on returns and/or institutional shareholding is not available for this later date. Lastly, firms were included in the analysis only if they had data available in quarter -1 and quarter 0. Consequently, the number of observations is lower than that for the other tables.

announcement quarter. The changes in institutional holdings are adjusted for market wide trends by subtracting the average change in institutional holdings for all non-restating firms covered under Spectrum in the respective calendar quarter. We find significant price declines of 9% in the quarter of the announcement. Institutions are net sellers in the announcement quarter with an abnormal decline of about 2%. This is mostly accounted for by transient and quasi-indexers which have the largest and most significant reduction in their holdings. As these changes are adjusted for general level of changes, the decline does not reflect a market wide phenomenon.[17]

The significant selling by transient owners is consistent with their short-term focus. Since these investors depart at the first sign of trouble they are likely to be actively engaged in investment monitoring. As noted previously, the selling by quasi-indexing firms is inconsistent with a literal interpretation of the investment style name but not entirely surprising given how the style classifications are determined and given that even pure indexing strategies include some active trading to improve returns. The actual trading behavior of quasi-indexing firms suggests, as with transient firms, that ownership by quasi-indexing firms may induce aggressive earnings management.

4. Institutional Ownership and Financial Reporting

In order to empirically investigate the role of institutional ownership, we examine the impact of institutional ownership on both the likelihood that a firm misreports in a particular year as well as the magnitude of the restatement. As discussed above, we estimate the likelihood of misreporting in 1) the full sample of all non-restating firms with data available in Spectrum, and 2) a size-and-industry matched sample. For the full

[17] As Nofsinger and Sias (1999) document a positive relation between institutional holdings and both contemporaneous and lagged returns, in unreported tests we verify these results in multivariate tests controlling for returns and prior institutional holdings.

sample, we model the likelihood of misreporting in a Logistic regression with an indicator variable equal to one for the misreported year. In essence, this analysis asks what factors might lead any given firm, relative to the universe of firms, to misreport. The empirical method acknowledges any differences between the restating and other firms through the inclusion of firm characteristics as regressors. In the matched sample, differences across restating and non-restating firms are addressed either through the match or the inclusion of regressors. To control for the non-random sample we estimate a conditional logistic regression that has been used recently by Agrawal and Chadha (2005) and discussed in detail in Hosmer and Lemeshow (2000). When we estimate a model for the magnitude of restatement, we fit a Tobit regression as the dependent variable is the percentage net income misreported.

The variables of interest, of course, are those related to ownership by institutions. We include the fractional ownership by institutions, *institutional*, as well as the fractional ownership by trading style: *transient*, *indexing*, *dedicated*, and *other*.[18] A significant, positive coefficient on any of these institutional holdings variables indicates that the presence of institutions is positively associated with misreporting of financial results, consistent with the impact of investment management. A negative coefficient is consistent with agency monitoring.

To measure the concentration of ownership, which should be associated with increased agency monitoring, we proceed as follows. We calculate a herfindahl index across all institutions and across institutions with a given trading style. The herfindahl index we calculate is the sum of the squares of the percentage ownership by institutions

[18] A classification as other occurs when there is insufficient data to make a classification.

with a given set of institutions (all institutions or those with a given trading style). While the inclusion of the variable *herfindahl*, which is the herfindahl across all institutions, will appropriately capture concentration, concentration within trading styles is complicated. We would not expect concentration to matter within a trading style except where the institutions in that trading style are substantial owners. This is appropriate since only when the investment styles are large enough to obtain benefits from monitoring with there be any potential monitoring. Put another way, it does not matter how concentrated transient ownership is when these institutions, as a group, own a minute fraction of the firm.[19] For this reason, when we evaluate the effects of concentration by investment style, we include in the regression the herfindahl of a given investment style when these institutions are the largest owners as a group. For example, the variable *Herf if Transient* is equal to the herfindahl within transient institutions when the total ownership by transient institutions exceeds the total ownership of each of the other investment styles. Otherwise, the variable is set to zero. The variables *Herf if Indexing* and *Herf if Dedicated* are defined analogously. There are virtually no observations where the "other" category is largest, so it is not included.

Other governance variables include *Top 10 Holdings*, which is the proportion of a firm's institutional investors for whom the firm is one of the institution's top 10 holdings, *Watch List*, which is an indicator that takes the value one if a firm was placed on the watch list of either Calpers or CII in a given year or in either of the two previous years, and *Activist*, which is the proportion of institutions that are either general members of the Council of Institutional Investors (an organization of large public, labor and corporate

[19] A typical instance is when there is a single institution from a given investment style who owns a minute fraction of the firm - the Herfindahl will be at its maximum, but this institution will have no reason to monitor.

pension funds) or are identified by Gillan and Starks (2000) as being active in submitting shareholder proposals over the 1987 to 1994 period.[20]

In estimating the likelihood of misreporting, we control for firm characteristics that affect the probability of restating. Firms are likely to restate to avoid the costs associated with the violation of debt covenants. The lagged value of the ratio of debt (short-term and long term) to total assets, *Leverage*, is a proxy for the proximity of the firms to violation of debt covenants (Richardson, Tuna and Wu (2003)). We include the variable *Ln(Size)*, which is the log of the lagged value of firm size, as measured by market value, and *Mkt-to-Book*, which is the lagged value of the market-to-book ratio to capture growth opportunities. Sales growth over the last year, *Sales Growth*, is included since Beneish (1999) finds that it is related to earnings manipulation. We also include prior year's stock return, *Return*, as past good performance may generate a propensity to continue that performance and therefore manage earnings. We include industry dummies to control for industry effects since previous studies have shown that restatements are more likely in some industries (Dechow, Sloan and Sweeney, 1995; Beneish, 1999; Richardson, et al., 2003; Burns and Kedia, 2004). The industries, measured by two-digit-SIC codes, most prevalent in the sample are business services and measuring instruments and computer equipment. We also include year dummies to control for any year effects.

[20] The Council of Institutional Investors has over 130 pension fund members with assets under management exceeding $ 2 trillion. For further information see http://cii.org. Gillan and Starks (2000) examine 2042 shareholder proposals submitted over the period 1987 to 1994. They find that shareholder activism is concentrated among a few institutions. These are 1) The New York Funds (36%), 2) TIAA-CREF (13%), 3) California funds, California Public Employees' Retirement System (Calpers) and California State Teachers' Retirement System (Calstrs) (19%), 4) Florida State Board of Administration, 5) Wisconsin Investment Board, and 6) State of Connecticut fund. Most of the above institutions with the exception of TIAA-CREF and Connecticut are also members of the Council of Institutional Investors

The results from the logistic models in the full sample are displayed in Table 5. Consistent with prior literature, we find that leverage is significantly related to the likelihood of misreporting. There is no evidence that firm size or growth opportunities affect the likelihood of restatement. More importantly, Model 1 shows that larger institutional ownership is associated with a higher likelihood of misreporting. This positive effect becomes stronger when we control for characteristics of institutional ownership in Model 2. The coefficient of institutional *Herfindahl* is negative and significant, i.e., concentrated institutional ownership, associated with greater incentives for agency monitoring, reduces the likelihood of misreporting.

Delving into the composition of total institutional ownership, Model 3 explores effects separately for transient, quasi-indexing and dedicated institutions. Transient ownership has the largest positive association with the likelihood of misreporting. A positive effect is also seen for ownership by quasi-indexers. In Model 4, we examine the effect of concentration of each type of institution. Transient and quasi-indexers are the institutions most inclined to engage in investment monitoring. We find, as expected that concentration of ownership by transients and quasi-indexers negatively impacts the likelihood of misreporting. Not surprisingly, controlling for the concentration of each subgroup makes the effect of transient and quasi-indexer ownership on misreporting stronger.

There is little evidence that ownership by institutions who are activists is associated with any discernable level of agency monitoring. Similarly, we find no evidence that institutions are more likely to engage in agency monitoring if the firm is often in the top ten holdings of an institution. Interestingly, we find that the coefficient

on *Watch List* is positive and significant, i.e., the presence of a firm on the watch list gives incentives to manage earnings. Watch list status appears to elicit investment monitoring rather than agency monitoring from institutions, and consequently increases the likelihood of managing earnings.

Table 6 presents the results for the size/year/industry matched sample. Note that in the matched sample analysis we use a conditional logistic regression. Results are generally similar to the full sample. We again find that institutional ownership is positively related to misreporting while the concentration of ownership is negatively related. Ownership by transient and quasi-indexing institutions continues to be associated with a greater likelihood of misreporting. Being placed on a watch list remains positive and significant. However, in this specification we find no reliable relation to the concentration of ownership within institutions of any particular investment style.

Finally, we examine whether institutional ownership affects not only the likelihood of misreporting but also the magnitude of misreporting. Firms may make much larger adjustments to earnings when pressures to manage earnings are higher. In Table 7, we regress the magnitude of the restatement, as measured by the proportion of the restatement relative to net income of the restated year, on the same set of explanatory variables. To simplify, we report only the results that include both ownership and concentration. Consistent with prior results, we find that larger institutional ownership is associated with a greater degree of restatement while the concentration of ownership has a negative effect. We find that larger transient and quasi-indexing ownership is associated with an increased magnitude of the restatement. Concentration of institutional ownership within the transient institutions reduces the magnitude of misreporting.

We do not observe, as with the likelihood of restatement in the whole sample, a countervailing effect from concentration within quasi-indexing firms. Nor do we observe the effect from being placed on a watch list. That the results are slightly weaker for the magnitude of restatements may not be surprising. Given that firms often manage earnings to achieve a certain target rather than to simply "manage up" their performance, and given that there may be limits imposed on the degree to which firms can manage earnings, there is ample reason to believe that the magnitude of restatements may be only weakly related to ownership.[21]

It is important to note that the positive relation between institutional ownership and restatements (including the magnitude of restatements) is driven by transient and quasi-indexing institutions. It is precisely these institutions, who are poised to exit at the first hint of a problem and therefore likely to focus management attention on short-term reported performance, that provide incentives to manipulate earnings. It also suggests that the results on the likelihood of restatement are not driven by institutions investing in firms based on characteristics, such as performance, that would later lead them to make a restatement. This is because such characteristics would likely induce holdings by a broad range of institutions, who trade for long term goals, not just transient and quasi-indexers.

Whereas the aggressive accounting practices that might result in a restatement are one way to manage earnings, changes to accruals can also accomplish this. Our finding that institutional ownership is positively associated with misreporting is therefore in contrast to recent evidence that institutional ownership is negatively related to the use of accruals (Rajgopal and Venkatachalam, 1997 and Shang, 2003). Of course, earnings

[21] For a discussion of managing earnings to meet expectations, see Degeorge, Patel, Zeckhauser (1999) and Payne and Robb (2000). Barton and Simko (2002) discuss limits to earnings management.

manipulation through accruals is largely within the confines of GAAP whereas our restating firms are in violation of GAAP. More importantly, the use of accruals can be relatively easily monitored. The ease of monitoring or the difference in the nature of manipulation might explain some of our differences from the accruals studies.

To explore this further, we estimate the effect of institutional ownership on the absolute value of discretionary accruals in manner analogous to our earlier tables. Our dependent variable, discretionary current accruals, is equal to the difference between current accruals and non-discretionary or expected current accruals (see Teoh, Welch, and Wong (1998)). To determine expected current accruals we regress current accruals on a constant and change in sales, with all variables normalized by total assets. This is a cross-sectional regression at the two-digit SIC level. Expected or non-discretionary accruals are the fitted value of current accruals while discretionary current accruals are the residuals from the above regression.

Summary statistics for our analysis of discretionary accruals for the sample, which consists of all spectrum firm years with data in Compustat, are presented in Table 8. In determining the impact of institutional characteristics on discretionary accruals, we follow Rajgopal and Venkatachalam (1997) and Shang (2003) and include *Leverag, Mkt-to-Book*, and *Size*. We also include the standard deviation of net income over the period 1994-2000, *Std NI*, to control for earnings volatility and earnings before extraordinary items scaled by total assets, *Performance*, to control for firm performance.

Results are presented in Table 9. We find a negative, significant relationship between the use of discretionary accruals and institutional ownership. This overall negative effect of institutional ownership, indicative of agency monitoring, is not

surprising since accruals are easier to understand and can be monitored at low cost and without special incentives. Prior studies did not look at concentration, but given that accruals are easily monitored, a concentration of ownership may not be required to motivate agency monitoring. It is not surprising, therefore, that we find no evidence that concentration leads to any further reduction in the use of accruals. It also appears that though our earlier results suggest firms on a watch list feel pressure to deliver short-term performance, firms do not appear to do so by managing accruals.

Interestingly, we do find that transient institutional ownership has a positively related to accruals, while dedicated and quasi-indexer ownership is significantly and negatively associated with accruals. Thus, the overall effect documented elsewhere appears to be driven by dedicated and quasi-indexing institutions. Thus, even when easily monitored, firms respond to investment monitoring from transient institutions by managing earnings. It is not clear, of course, why this manipulation should be effective since it can be so easily monitored, but that is a topic of other research.

In summary, these results imply that sophisticated institutional investors are able to detect and discourage excessive earnings manipulation within the rules of GAAP, but are not able to detect more severe forms of earnings management result in later restatements. In general, greater institutional ownership and, in particular, ownership by transient and quasi-indexing institutions, may induce short-term focus on the part of management that leads to misreporting.

5. Conclusion

We explore the effects of institutional ownership on financial reporting. In particular, we focus on restatements. These events provide a natural context for exploring

financial reporting practices and institutional ownership for a number of reasons. Restatements are often the result of overly aggressive management practices and outside investors typically do not support these practices. Thus, if institutions provided sufficient monitoring with the intent to influence management actions, we expect institutions to oppose, and therefore attenuate, this behavior. Second, restatements are significant events which, if anticipated, may benefit institutions who monitor firms for the purpose of making investment decisions.

We find that transient and quasi-indexing institutions sell, on average, on the announcement of a restatement. This suggests management should be concerned about sudden departures of exactly these types of institutions on the announcement of bad news. Not surprisingly, we find that ownership by these types of institutions is positively related to misreporting. We also find that holdings by transient institutions are associated with an increase in the use of discretionary accruals. It would appear, therefore, that ownership by institutions who sell on bad news, those that focus on investment monitoring, induces more aggressive financial reporting practices.

We also find that concentration of ownership, in general and for the investment styles whose ownership is associated with misreporting, has beneficial effect - greater concentration is associated with reduced misreporting. This result is consistent with the monitoring literature that highlights the fact that when a monitor does not benefit sufficiently from monitoring, they will attempt to free-ride on the monitoring of others to avoid monitoring costs.

For a restatement to occur, there has to be both an original misreporting that requires restatement and the discovery of the need to restate. It is possible that

institutional ownership increases the chance of discovery rather than the extent of misreporting. We cannot distinguish the two effects. However, it seems unlikely that the institutions that we expect to engage in investment monitoring, and whose ownership is positively related to misreporting, would engage in monitoring sufficient to bring misreporting to light. Furthermore, we do find a beneficial impact from concentration, which is more likely to prevent misreporting than to reduce the likelihood of discovery. We believe, therefore, our analysis is predominantly capturing misreporting rather than discovery.

Taken together, our analysis provides a nuanced picture of the relationship between institutional ownership and financial reporting practices. On the one hand, ownership by institutions prone to depart at the first sign of bad news can induce misreporting as firms attempt to delay that departure. On the other hand, when institutional ownership is concentrated, our results suggest that the institutions monitor sufficiently that they attenuate aggressive reporting practices. The policy implications are relatively clear - policies that foster transient ownership may degrade financial reporting whereas policies that foster large ownership stakes will improve reporting.

References

Admati, A., P. Pfleiferer and J. Zechner, 1994, "Large Shareholder Activism, Risk Sharing, and Financial Market Equilibrium," Journal of Political Economy, 102, 1097-1130.

Agrawal, A., S. Chadha, 2005. Corporate Governance and Accounting Scandals. Journal of Law and Economics, 371-406.

Ajinka, B., S Bhojraj, P. Sengupta, 2005, The Association between Outside Diredtors, Institutions Investors and the Properties of Management Earnings Forecasts, *Journal of Accounting Research* 43, 343-376.

Anson, M., White, T., Ho, H., 2003. The shareholder wealth effects of CalPERS' focus list. Journal of Applied Corporate Finance 15, 8-17.

Baker, M., Litov L., Wachter, J., Wurgler, J., 2004. Can mutual fund managers pick stocks? Evidence from their trades prior to earnings announcements. Unpublished working paper. New York University.

Beneish, M., 1999. Incentives and penalties related to earnings overstatements that violate GAAP. The Accounting Review 74, 425-457.

Bhide, A., 1993, The hidden costs of stock market liquidity. Journal of Financial Economics 34, 31-51.

Burns, N., Kedia, S., 2004. The impact of performance-based compensation on misreporting. Journal of Financial Economics, *forthcoming*.

Bushee, B., 1998. The influence of institutional investors on myopic R&D investment behavior. The Accounting Review 73, 305-333.

Bushee, B., 2001. Do institutional investors prefer near-term earnings over long-run value?. Contemporary Accounting Research 18, 207-246.

Coffee, J., 1991. Liquidity versus control: The institutional investor as corporate monitor. Columbia Law Review 91, 1277-1368.

Dechow, P., Sloan, R., Sweeney, A., 1995. Detecting earnings management. The Accounting Review 70, 193-225.

Desai, H., S. Krishnamurthy, K. Venfataraman, 2005, Do short sellers traget firms with poor earnings quality? Evidence from earnings restatements, working paper.

Gillan, S., Starks, L., 2000. Corporate governance proposals and shareholder activism: The role of institutional investors. Journal of Financial Economics, 57, 275-305.

Gaspar, J. Massa, M., Matos, P. (2005) Shareholder Investment Horizons and the Market for Corporate Control, Journal of Financial Economics, *forthcoming*.

Hosmer, David W., and Stanley Lemeshow. 2000. Applied Logistic Analysis, 2ed. New York: John Wiley and Sons.

Hribar, Paul, Jenkins, N., Wang, J., 2004. Institutional Investors and Accounting Restatements. Working Paper, Cornell University.

Jones, C., Lipson, M., 1999. Execution costs of institutional equity orders. Journal of Financial Intermediation 8, 123-140.

Kahn, C., and A. Winton, 1998, "Ownership Structure, Speculation, and Shareholder Intervention," Journal of Finance, 53, 99-129.

Ke, B., Petroni, K., forthcoming. How informed are actively trading institutional investors? Evidence from their trading behavior before a break in a string of consecutive earnings increases. Journal of Accounting Research.

Keim, D., Madhavan, A., 1995. Anatomy of the trading process empirical evidence on the behavior of institutional traders. Journal of Financial Economics 37, 371-398.

Lang, M., McNichols, M., 1997. Institutional trading and corporate earnings and returns. Unpublished working paper. Stanford University.

Maug, E., 1998, "Larges Shareholders as Monitors: Is there a Tradeoff between Liquidity and Control?," Journal of Finance, 53, 65-98.

Nesbitt, S., 1994. Long term rewards from shareholder activism: A study of the "CalPERS" effect. Journal of Applied Corporate Finance 6, 75-80.

Noe, T., 2002. Investor activism and financial market structure. Review of Financial Studies 15, 289-318.

Nofsinger, J., Sias R., 1999. Herding and feedback trading by institutional and individual investors. The Journal of Finance 54, 2263-2295.

Parino, R., R., Sias and L. Starks, "Voting with their Feet: Institutional Investors and CEO Turnover,"

Rajgopal, S., Venkatachalam, M., 1997. The role of institutional investors in corporate governance: An empirical investigation. Unpublished working paper. Duke University.

Richardson, S., Tuna, A., Wu, M., 2003. Capital market pressures and earnings management: The case of earnings restatements. Unpublished working paper. University of Pennsylvania.

Shang, A., 2003. Earnings management and institutional ownership. Unpublished working paper. Harvard University.

Shliefer, A., and R., Vishny, 1986, "Large Shareholder and Corporate Control," Journal of Political Economy, 98, 461-488.

Smith, M., 1996. Shareholder activism by institutional investors: Evidence from CalPERS. The Journal of Finance 51, 227-252.

Teoh, S., Welch, I., Wong, T., 1998. Earnings management and the long-run market performance of initial public offerings. The Journal of Finance 53, 1935-1974.

Table 1 –Restatement Characteristics

Summary statistics for 495 restatement firm years announced between 1997 and 2002 that have spectrum data, and also have matched firms in the same year, same two-digit SIC code, and an equity market value within 20% of the equity value of the restating firm. Data on the magnitude of the restatement are only available for 342 restatement firm years. Dollar magnitude is the dollar value of the average annual change to stated net income due to the restatement. Proportion of Net Income expresses the dollar magnitude as a fraction of the absolute value of stated net income

Distribution of Restatements (495 restated years)

	By Announcement Year		By Restated Year	
Year	Number	Proportion	Number	Proportion
1994			3	0.6%
1995			6	1.2%
1996			26	5.3%
1997	42	8.5%	64	12.9%
1998	38	7.7%	97	19.6%
1999	101	20.4%	104	21.0%
2000	103	20.8%	123	24.8%
2001	136	27.5%	67	13.5%
2002	75	15.2%	5	1.0%

Restatement Magnitude (342 restated year)

	Level		Dispersion		
	Mean	Median	Std. Deviation	1st Quartile	3rd Quartile
Dollar Magnitude (×1000)	-7,610	-1,381	36,992	73	-4,000
Proportion of Net Income	-17.3%	-8.5%	21.7%	-1.8%	-25.4%

Table 2 –Firm Characteristics

Table presents characteristics for 495 restated years, one-to-one industry/year/size matches, and 35,512 non-restating firm year observations. *Size* (equity value) is the number of shares outstanding (*Shares Outstanding*) multiplied by the price at fiscal year-end and is expressed in millions of dollars. *Leverage* is the ratio of short-term & long-term debt to total assets. *Mkt-to-book* is the ratio of total assets minus the book value of equity plus the market value of equity to total assets. Significance levels are computed for the difference, in means and medians, between the restating sample and the indicated sample using a t-test for means (Satterthwaite unequal variances) and Wilcoxon Z-test for medians. The superscripts ***, **, and * represent significance at the .01, .05 and .10 levels, respectively.

		Level		**Dispersion**		
		Mean	Median	Std Deviation	Quartile 1	Quartile 3
Size	Restating	2,094	176	8,231	44	713
	Matched	2,019	177	7,619	41	716
	Non-Restating	2,281	148	13,075	37	709
Shares Outstanding	Restating	16.58	9.63	23.95	3.69	20.25
	Matched	17.38	10.56	20.01	3.88	24.52
	Non-Restating	17.16	10.82*	21.90	4.06	23.53
Leverage	Restating	0.27	0.24	0.29	0.06	0.39
	Matched	0.23**	0.21**	0.22	0.02	0.37
	Non-Restating	0.24**	0.20	0.28	0.03	0.36
Mkt-to-Book	Restating	2.35	1.43	4.38	1.05	2.08
	Matched	2.39	1.46	2.63	1.03	2.72
	Non-Restating	2.10	1.42	2.49	1.06	2.20

Table 3 – Ownership Characteristics

This table presents summary statistics on ownership characteristics. *Institutional* is the total institutional ownership as a percentage of shares outstanding while *Number of Institutions* is the number of institutional investors reported in specturm. *Herfindahl* is the sum of squared institutional shares and captures concentration of institutional ownership. *Top 10 Holding* is the proportion of a firm's institutional investors for whom the firm is one of the institution's top 10 holdings. *Activist* is the proportion of institutions that are members of the CII and/or those that have submitted shareholder proposals. Ownership partitions by investment style (*Transient, Indexing, and Dedicated*) are based on Bushee (1998). Significance levels are computed for the difference, in means and medians, between the restating sample and the indicated sample using a t-test for means (Satterthwaite unequal variances) and Wilcoxon Z-test for medians. There are 495 restating and matched firm years and 35,512 non-restating firm years. The superscripts ***, **, and * represent significance at the .01, .05 and .10 levels, respectively.

		Level		**Dispersion**		
		Mean	Median	Quartile 1	Quartile 3	Std Dev.
Institutional	Restating	39.3%	37.1%	26.8%	17.4%	59.7%
	Matched	35.2%**	32.2%***	27.3%	10.2%	56.9%
	Non-Restating	34.6%***	29.6%***	26.4%	10.1%	54.0%
Number of Institutions	Restating	77.99	35.67	119.64	10.25	89.25
	Matched	64.53*	29.25**	105.68	10.25	72.00
	Non-Restating	63.34***	25.67***	107.29	9.50	71.75
Herfindahl	Restating	0.189	0.013	0.005	0.026	0.022
	Matched	0.188	0.011***	0.002	0.023	0.035
	Non-Restating	0.178	0.011**	0.003	0.023	0.034
Top10 Holding	Restating	0.016	0.005	0.027	0.000	0.023
	Matched	0.016	0.003	0.040	0.000	0.024
	Non-Restating	0.017	0.000*	0.041	0.000	0.022
Activist	Restating	1.9%	1.3%	0.5%	2.2%	2.7%
	Matched	1.9%	1.1%***	0.3%	3.5%	2.3%
	Non-Restating	1.8%	1.1%**	0.3%	3.4%	2.3%
Institutional Ownership by Style (Bushee (1998))						
Transient	Restating	13.39%	10.49%	12.25%	3.16%	20.45%
	Matched	11.79%**	7.89%***	12.48%	1.77%	17.97%
	Non-Restating	10.29%***	5.73%***	12.18%	1.00%	15.43%
Indexing	Restating	17.68%	14.68%	14.24%	5.58%	28.13%
	Matched	15.82%**	11.84%***	14.27%	3.17%	25.14%
	Non-Restating	14.74%***	11.03%***	13.42%	3.58%	23.07%
Dedicated	Restating	6.87%	3.69%	8.70%	0.18%	10.15%
	Matched	5.90%*	1.67%***	8.96%	0.01%	8.75%
	Non-Restating	7.73%**	4.04%	9.52%	0.12%	12.29%
Other	Restating	0.82%	0.24%	1.73%	0.00%	0.98%
	Matched	1.06%	0.22%	3.53%	0.00%	0.98%
	Non-Restating	0.78%	0.13%***	2.70%	0.00%	0.66%

Table 4: Returns, Institutional Holdings, and Changes in Holdings

This table presents the levels and changes in institutional ownership around restatements. Level institutional holding are the average percentage of the firm held by all institutions or by all institutions of a particular type. Changes in institutional holdings are adjusted for changes in market wide holdings by subtracting the mean change in institutional holdings for all non-restating firms reported in spectrum for the respective calendar quarter. The return is market adjusted return. The number of observations is reported in column 2. Superscripts indicate significance of a test that examines whether the change in ownership differs from zero. Changes are also given for a partition of institutional investment styles based on Bhushee (1998). The superscripts ***, **, and * represent significance at the .01, .05 and .10 levels, respectively.

					Partition by Institution Investment style					
			All Institutions		Transient		Quasi Indexer		Dedicated	
Quarter	*Number*	*Return*	*Level*	*Change*	*Level*	*Change*	*Level*	*Change*	*Level*	*Change*
-8	262	-1.35	40.17%	0.39%	11.87%	0.39%**	19.58%	-0.15%	7.89%	0.35%
-7	277	5.84**	40.33%	0.76%	12.45%	0.43%	19.16%	-0.09%	7.82%	0.29%
-6	291	2.33	40.69%	0.77%	12.81%	0.34%	19.50%	0.29%	7.59%	0.26%
-5	301	-2.51	39.76%	-0.84%*	12.84%	-0.47%	18.82%	-0.25%	7.15%	-0.20%
-4	311	0.88	39.80%	0.62%	13.83%	0.53%	18.52%	0.12%	6.63%	0.02%
-3	318	3.67	39.81%	0.03%	14.80%	0.44%	17.78%	-0.35%	6.43%	-0.02%
-2	322	-0.56	39.43%	-0.08%	15.54%	0.22%	16.99%	-0.20%	6.19%	-0.09%
-1	327	-2.14	39.29%	-0.20%	15.67%	-0.10%	16.29%	-0.39%	6.51%	0.28%
0	327	-9.00***	37.56%	-2.00%***	15.34%	-0.95%***	15.32%	-0.72%**	6.16%	-0.40%*
1	304	-1.53	37.52%	-0.90%**	15.16%	-0.59%**	15.24%	-0.38%	6.45%	0.15%
2	288	2.81	39.29%	0.05%	15.73%	-0.11%	16.03%	-0.04%	6.64%	0.01%
3	275	1.43	42.05%	1.11%	16.60%	0.47%	17.88%	0.84%	6.53%	-0.20%
4	265	1.49	41.11%	-0.83%**	15.89%	-0.37%	18.25%	0.01%	5.92%	-0.59%*
5	256	7.06**	42.78%	0.18%	15.71%	-0.51%	19.72%	0.76%**	5.95%	-0.26%
6	231	3.78	42.64%	-0.62%*	15.26%	-0.84%**	19.93%	0.08%	6.43%	0.31%
7	199	4.35	42.84%	-0.03%	15.67%	0.40%	19.80%	-0.30%	6.46%	-0.17%
8	172	1.37	41.41%	0.03%	15.00%	-0.32%	18.68%	0.15%	6.95%	0.22%

Table 5 - Restatement Probability Using All Firms

This table presents results of a logistic regression that predicts which firm/year is likely to be restated. Sample includes 495 restated years combined with 35,512 non-restated years. Ownership variables are proportions, not percentages. *Leverage* is the ratio of short-term & long-term debt to total assets. *Size* is market value of equity. *Mkt-to-book* is the ratio of total assets minus the book value of equity plus the market value of equity to total assets. *Return* is the return over the year prior to the restated year. *Sales Growth* is growth in revenue. *Herfindahl* is the sum of squared institutional ownership percentages. *Top 10 Holding* is the proportion of a firm's institutional investors for whom the firm is one of the institution's top 10 holdings holdings. *Activist* is the proportion of ownership by institutions that are members of the CII and/or those that have submitted shareholder proposals. *Watch List* indicates the firm was placed on an institutional watch list. Ownership partitions by style (*Transient, Indexing, Dedicated*) are based on Bushee (1998). *Herf if Transient* is the herfindahl of transient institutions when transient institutions own more than institutions pursuing any other trading style, with the others similarly defined. Year and industry indicators were included but are not reported. The probability of significance based on a chi-squared test statistics is shown in brackets below coefficient estimates. The superscripts ***, **, and * represent significance at the .01, .05 and .10 levels, respectively.

	Probability of Restatement			
Intercept	-7.29***	-7.21***	-7.20***	-7.08***
	[0.001]	[0.001]	[0.001]	[0.001]
Leverage	0.45**	0.47**	0.48**	0.48**
	[0.019]	[0.014]	[0.013]	[0.012]
Ln(Size)	-0.04	-0.07**	-0.06*	-0.069***
	[0.123]	[0.039]	[0.063]	[0.033]
Mkt-To-Book	0.01	0.01	0.01	0.01
	[0.545]	[0.434]	[0.523]	[0.532]
Return	0.00	0.00	-0.001	-0.002
	[0.933]	[0.932]	[0.986]	[0.945]
Sales Growth (x1000)	0.881**	0.861**	0.880**	0.862**
	[0.028]	[0.031]	[0.029]	[0.029]
Ownership				
Institutional	0.91***	1.33***		
	[0.001]	[0.001]		
Herfindahl		-5.63**	-5.66**	
		[0.036]	[0.048]	
Top 10 Holding		-1.51	-1.48	-1.53
		[0.342]	[0.361]	[0.348]
Activist		-0.23	-0.20	-0.08
		[0.925]	[0.932]	[0.975]
Watch List		0.58*	0.60*	0.60*
		[0.069]	[0.059]	[0.062]
Style Partitions				
Transient			1.78***	2.42***
			[0.000]	[0.001]
Indexing			0.86*	1.13*
			[0.059]	[0.052]
Dedicated			1.53**	-0.10
			[0.031]	[0.912]
Other			0.05	0.24
			[0.986]	[0.926]
Herf if Transient				-14.43***
				[0.009]
Herf if Indexing				-10.21**
				[0.041]
Herf if Dedicated				1.21
				[0.696]
Likelihood Ratio	389.8	400.7	402.9	411.74
Probability > ChiSq	0.001	0.001	0.001	0.001
Concordant (%)	72.7	72.7	73.0	73.0

Table 6 - Restatement Probability Using Matched Sample

This table presents the results of a conditional logistic regression analysis on the likelihood that one firm in a match pair will have made a restatement. The sample is 495 restated years combined with a size/industry/year matches non-restating firm year. *Leverage* is the ratio of short-term & long-term debt to total assets. *Mkt-to-book* is the ratio of total assets minus the book value of equity plus the market value of equity to total assets. *Return* is the return over the year prior to the restated year. *Sales Growth* is growth in revenue. *Herfindahl* is the sum of squared institutional ownership percentages and *Top 10 Holding* is the proportion of a firm's institutional investors for whom the firm is one of the institution's top 10 holdings holdings. *Activist* is the proportion of ownership by institutions that are members of the CII and/or those that have submitted shareholder proposals. *Watch List* indicates the firm was placed on an institutional watch list. Ownership partitions by style (*Transient, Indexing, Dedicated*) are based on Bushee (1998). *Herf if Transient* is the herfindahl of transient institutions when transient institutions own more than institutions pursuing any other trading style, with the others similarly defined. The probability of significance based on a chi-squared test statistics is shown in brackets below coefficient estimates. The superscripts ***, **, and * represent significance at the .01, .05 and .10 levels, respectively.

	Probability of Restatement			
Leverage	0.41	0.41	0.428	0.41
	[0.202]	[0.214]	[0.194]	[0.217]
Mkt-To-Book	-0.003	0.002	0.002	0.002
	[0.875]	[0.882]	[0.917]	[0.909]
Return	0.02	0.01	0.01	0.012
	[0.754]	[0.833]	[0.846]	[0.862]
Sales Growth	-0.024	-0.025	-0.026	-0.027
	[0.267]	[0.241]	[0.231]	[0.225]
Ownership				
Institutional	0.99***	1.56***		
	[0.003]	[0.000]		
Herfindahl		-5.86*	-8.17*	
		[0.073]	[0.061]	
Top 10 Holding		-1.168	-1.16	-1.43
		[0.667]	[0.663]	[0.601]
Activist		-3.02	-3.44	-3.522
		[0.370]	[0.308]	[0.304]
Watch List		1.14*	1.246*	1.240*
		[0.085]	[0.063]	[0.064]
Style Partitions				
Transient			1.96**	2.08**
			[0.015]	[0.042]
Indexing			3.37***	2.92***
			[0.007]	[0.054]
Dedicated			1.196*	1.400
			[0.092]	[0.123]
Other			-5.30	-5.29
			[0.194]	[0.196]
Herf if Transient				-9.61
				[0.201]
Herf if Indexing				-6.41
				[0.238]
Herf if Dedicated				-10.845
				[0.149]
Likelihood Ratio	14.1	23.6	30.06	30.42
Pr > ChiSq	0.015	0.004	0.003	0.007

Table 7 - Impact of Institutional Ownership on the Magnitude of Misreporting

This table presents results of tobit regressions where the dependent variable is the absolute value of the ratio of the restatement to the level of stated net income. Sample is 342 restated years for which the magnitude of the restatement can be determined. *Leverage* is the ratio of short-term & long-term debt to total assets. *Size* is market value of equity. *Mkt-to-book* is the ratio of total assets minus the book value of equity plus the market value of equity to total assets. *Return* is the return over the year prior to the restated year. *Sales Growth* is growth in revenue. *Herfindahl* is the sum of squared institutional ownership percentages and *Top 10 Holding* is the proportion of a firm's institutional investors for whom the firm is one of the institution's top 10 holdings holdings. *Activist* is the proportion of ownership by institutions that are members of the CII and/or those that have submitted shareholder proposals. *Watch List* indicates the firm was placed on an institutional watch list. Ownership partitions by style (*Transient, Indexing, Dedicated*) are based on Bushee (1998). *Herf if Transient* is the herfindahl of transient institutions when transient institutions own more than institutions pursuing any other trading style, with the others similarly defined. Year and industry indicators were included but are not reported. Probability of significance using a Chi-squared statistic is shown in brackets. The superscripts ***, **, and * represent significance at the .01, .05 and .10 levels, respectively.

	Magnitude of Restatement	
Intercept	-1.80***	-1.77***
	[0.001]	[0.001]
Leverage	0.14***	0.14***
	[0.002]	[0.002]
Ln(Size)	-0.01	-0.011
	[0.194]	[0.154]
Mkt-To-Book	0.003	0.003
	[0.270]	[0.273]
Return	0.001	0.001
	[0.856]	[0.913]
Sales Growth (x1000)	0.210	0.218
	[0.121]	[0.120]
Ownership		
Institutional	0.29***	
	[0.001]	
Herfindahl	-1.031*	
	[0.088]	
Top 10 Holding	-0.71	-0.698
	[0.120]	[0.134]
Activist	0.45	0.48
	[0.414]	[0.398]
Watch List	0.06	0.064
	[0.477]	[0.474]
Style Partitions		
Transient		0.44***
		[0.002]
Indexing		0.30**
		[0.030]
Dedicated		-0.02
		[0.929]
Other		0.09
		[0.879]
Herf if Transient		-2.44**
		[0.039]
Herf if Indexing		-1.57
		[0.147]
Herf if Dedicated		0.33
		[0.668]
Log Likelihood	-1,546	-1,544

Table 8 – Summary Statistics for Discretionary Accrual Analysis

Summary statistics for the 32,426 firm/year observations used in the analysis of discretionary accruals. *Leverage* is the ratio of short-term & long-term debt to total assets. *Size* is market value of equity. *Mkt-to-book* is the ratio of total assets minus the book value of equity plus the market value of equity to total assets. *StdNI* is the standard deviation of net income over 1994-2000. *Performance* is earnings before extraordinary items scaled by lagged total assets. Ownership partitions by style (*Transient, Indexing, Dedicated*) are based on Bushee (1998). Ownership is in percentages and partitions by style (*Transient, Indexing, Dedicated*) are based on Bushee (1998). *Herfindahl* is the sum of squared institutional ownership percentages and *Top 10 Holding* is the proportion of a firm's institutional investors for whom the firm is one of the institution's top 10 holdings holdings. *Activist* is the proportion of ownership by institutions that are members of the CII and/or those that have submitted shareholder proposals. Significance levels are computed for the difference, in mean s and medians, between the restating sample and the indicated sample using a t-test for means (Satterthwaite unequal variances) and Wilcoxon Z-test for medians. The superscripts ***, **, and * represent significance at the .01, .05 and .10 levels, respectively.

	Level		**Dispersion**		
	Mean	Median	Quartile 1	Quartile 3	Std Dev.
Discretionary Accruals	0.081	0.043	0.017	0.095	0.153
Firm Characteristics					
Leverage	0.28	0.21	0.03	0.40	0.36
Size	5.12	5.09	3.72	6.54	2.21
Market-to-Book	2.11	1.42	1.06	2.20	2.57
Standard Dev. Net Income	0.15	0.06	0.03	0.13	0.83
Performance	-0.04	0.03	-0.06	0.08	0.47
Ownership Characteristics					
Institutional (All)	34.51%	30.39%	10.85%	30.39%	55.40%
Transient	10.39%	5.88%	1.05%	15.61%	12.20%
Quasi-Indexing	14.88%	11.22%	3.64%	23.26%	13.47%
Dedicated	7.74%	4.06%	0.12%	12.29%	9.52%
Other	0.78%	0.13%	0.00%	0.67%	2.69%
Herfindahl	0.018	0.011	0.003	0.023	0.032
Top 10 Holding	0.017	0.000	0.000	0.023	0.041
Activist	1.17%	0.20%	0.00%	1.76%	2.13%

Table 9: Discretionary Accruals and Institutional Ownership

The dependent variable is the absolute value of discretionary accruals as measured as in Teoh, Welch and Wong (1998). *Leverage* is the ratio of short-term & long-term debt to total assets. *Size* is market value of equity. *Size* is equity value. *Mkt-to-book* is the ratio of total assets minus the book value of equity plus the market value of equity to total assets. *Std NI* is the standard deviation of net income over 1994-2000. *Performance* is earnings before extraordinary items scaled by lagged total assets. *Herfindahl* is the sum of squared institutional ownership percentages. *Top 10 Holding* is the proportion of a firm's institutional investors for whom the firm is one of the institution's top 10 holdings. *Activist* is the proportion of ownership by institutions that are members of the CII and/or those that have submitted shareholder proposals. Ownership partitions by style (*Transient, Indexing, Dedicated*) are based on Bushee (1998). *Herf if Transient* is the herfindahl of transient institutions when transient institutions own more than institutions pursuing any other trading style, with the others similarly defined. The regressions include yearly indicators (not reported). T-statistics in square brackets. The superscripts ***, **, and * represent significance at the .01, .05 and .10 levels, respectively.

	Level of Discretionary Accruals			
Intercept	0.091***	0.092***	0.095***	0.096***
	[0.001]	[0.001]	[0.001]	[0.001]
Leverage	0.054***	0.054***	0.053***	0.053***
	[0.001]	[0.001]	[0.001]	[0.001]
Ln(Size)	-0.006***	-0.006***	-0.005***	-0.005***
	[0.001]	[0.001]	[0.001]	[0.001]
Mkt-To-Book	0.005***	0.005***	0.005***	0.005***
	[0.001]	[0.001]	[0.001]	[0.001]
Std NI	0.007***	0.007***	0.007***	0.007***
	[0.001]	[0.001]	[0.001]	[0.001]
Performance	-0.015***	-0.016***	-0.016***	-0.016***
	[0.001]	[0.001]	[0.001]	[0.001]
Ownership				
Institution	-0.026***	-0.019***		
	[0.001]	[0.001]		
Herfindahl		-0.037	-0.008	
		[0.229]	[0.821]	
Top 10 Holding		0.026	0.026	0.026
		[0.236]	[0.234]	[0.234]
Watch List		-0.005	-0.001	0.001
		[0.578]	[0.948]	[0.969]
Active		-0.130***	-0.112**	-0.105**
		[0.003]	[0.011]	[0.015]
Style Partitions				
Transient			0.063***	0.071***
			[0.001]	[0.001]
Indexing			-0.094***	-0.101***
			[0.001]	[0.001]
Dedicated			-0.027**	-0.026*
			[0.019]	[0.083]
Other			-0.055	-0.052
			[0.107]	[0.130]
Herf if Transient				-0.008
				[0.886]
Herf if Indexing				0.045
				[0.339]
Herf if Dedicated				-0.087
				[0.119]
Adj R-square	0.266	0.266	0.269	0.269