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Does Shareholder Composition Matter? Evidence from the Market Reaction to Corporate Earnings Announcements

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ABSTRACT

We examine whether institutional ownership composition is related to parameters of the market reaction to negative earnings announcements. When firms report earnings below analysts' expectations, the stock price response is more negative for firms with higher levels of ownership by momentum or aggressive growth investors. There is no evidence, however, that these institutions cause an "overreaction" to earnings news. Ownership structure is also related to trading volume and to stock price volatility on days around earnings announcements. Our findings are consistent with the idea that the composition of institutional shareholders effects stock price behavior around the release of corporate information.

INSTITUTIONAL OWNERSHIP OF U.S. EQUITIES has increased dramatically during the past two decades. This rise has led to much debate concerning the impact of trading by institutional investors on stock prices. At one extreme, institutional investors are viewed as causing stock prices to deviate from fundamental values and causing excess volatility.[1] At the other, institutions are seen to increase firm value via their monitoring capabilities.[2] Empirically, the broad goal of our research is to understand whether and how the identity of a firm's institutional shareholders matters.

In this paper, we examine the relation between the composition of firms' institutional ownership and parameters of the market reaction to negative earnings announcements.[3] We focus on corporate earnings news because this is central to

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[1] Foot, Perold, and Stein (1992) provide an extensive review of these issues.

[2] See, for example, Admati, Pfleiderer, and Zechner (1994), Maug (1998), and Allen, Bernardo, and Welch (2000) for discussion of the role of institutions as monitors. Smith (1996), Carleton, Nelson, and Weisbach (1998), and Opler and Sokobin (1998) provide some empirical evidence supporting this view.

[3] As described below, we refer to negative earnings announcements as cases where the IBES consensus forecast exceeds actual reported earnings.

the debate about the impact of institutional investors. A frequently voiced concern is that the short-term horizon of institutional investors coupled with their significant equity positions may force managers to be overly concerned with measures of short-term corporate performance such as quarterly earnings. Managers frequently express the fear that they will be rashly judged on the basis of one quarter's earnings. Anecdotally, there are numerous instances where a small shortfall in reported versus expected earnings leads to a substantial price decline, and institutional investors are often blamed for "overreacting" to earnings news.[4]

This view of institutional investors suggests they act as "traders" rather than "owners." They have short expected holding periods and focus on predicting near-term price movements instead of long-term prospects. Their excessive focus on short-term earnings leads managers to fear that earnings disappointments will trigger large-scale selling and result in temporary undervaluation of the stock. The potential for mispricing, whether real or perceived by managers, is important because it can distort managerial incentives. Further, trading practices of certain institutions may increase the volatility of stock prices around these announcements (Lakonishok et al. (1991)).[5]

In this paper, we directly assess the impact of the identity and trading behavior of a firm's institutional investors by examining stock price behavior around quarterly earnings announcements. We examine quarterly earnings announcements between 1992 and 1997 for a sample of 203 firms for which data on the characteristics of the firm's institutional shareholders were made available by Georgeson & Co. Previous research examining the impact of ownership composition has focused on the distinction between institutional and individual investors, and to a lesser extent on differences between types of institutions such as banks, insurance companies, mutual funds, and pension and other investment advisors.[6] However, within these classifications of manager types, there is likely to be significant variation in investment objectives and trading behavior. It is also not obvious how each manager type will respond to earnings news. For example, income-oriented banks may be less responsive to negative earnings if these managers are less pressured to invest based on short-term performance. On the other hand, they may be more likely to respond by selling if the stock no longer meets their investment guidelines. The Georgeson data set allows us to consider additional classifications based on an analysis of individual managers' portfolio decisions. These classifications include whether the manager exhibits momentum

[4] For example, see Colvin's (1998) "Stop Whining about Wall Street." Bernard, Thomas, and Abarbanell (1992) describe the disparity between the size of the earnings shortfall and the magnitude of the market value lost.

[5] Several models describe how a short-term focus can lead to suboptimal investment behavior; see, for example, Stein (1989), Shleifer and Vishny (1990), and Bebchuk and Stole (1993). Schwert (1989) and Campbell et al. (2001) discuss the negative welfare consequences of changes in volatility for investors.

[6] Sias and Starks (1997a), Nofsinger and Sias (1999), and Denis and Strickland (2002) examine price impacts of aggregate institutional ownership. Del Guercio (1996) and Bennett, Sias, and Starks (1999) contrast portfolio holdings of different investor types defined by Spectrum.

investing behavior, their investment style (growth, aggressive growth, value, or income), and their historical portfolio turnover. We employ these classifications to determine if an announcing firm's change in price, volume, and volatility are related to characteristics of the firm's institutional owners.

To examine the link between stock price returns and ownership structure, we regress negative earnings announcement abnormal returns on characteristics of the ownership structure as well as a number of firm-specific variables. We find that when a larger proportion of stock is owned by momentum and aggressive growth investors, the magnitude of the response to earnings news is greater. We do not find, however, that certain investors cause an "overreaction" to earnings news; there is no evidence that ownership structure is related to price reversals in the days following the announcement. This finding is important, as managers and others argue that large price reactions can be attributed to impatient investors, and that the magnitude of the reaction is unwarranted. The results for our sample suggest that the presence of large institutional investors is not destabilizing.

A possible explanation for our findings is that ownership structure proxies for some unobservable firm characteristic that explains how stock prices will respond to earnings news. Notably, the composition of institutional ownership is a better indicator of abnormal stock returns than any firm characteristic we can specify. Two additional pieces of evidence, however, are more consistent with the idea that the price decline is related to a sell-off by these investors. First, we observe a decline in the holdings of these investors between quarterly dates surrounding the announcement, which is significantly related to the announcement return. We also estimate that the probability an individual manager sells a large proportion of holdings is significantly higher for certain classifications of institutions such as momentum investors. Second, the magnitude of these effects increases considerably for events occurring in the fourth calendar quarter of each year, suggesting that these effects are related to year-end trading of institutions.[7] These results are consistent with the idea that unexpected bad news about earnings leads to selling by these investors, increasing the magnitude of the stock price response at announcement.[8]

The importance of the composition of institutional holders is also striking when we look at the abnormal volume of trade and the change in volatility around announcement dates. If institutions follow a broad diversity of investing styles, they may to some extent offset each other with respect to the impact on

[7] For most sample firms, earnings news for the third fiscal quarter is released during this calendar quarter. See Ritter and Chopra (1989), Lakonishok et al. (1991), and Sias and Starks (1997b) for discussion of year-end portfolio rebalancing by institutions.

[8] The interpretation that demand by certain institutions has a significant price impact and that these price effects are permanent is consistent with other recent research. For example, Wermers (1999) concludes that herding by mutual funds speeds the price adjustment process and is not destabilizing. Sias, Starks, and Titman (2001, p. 23) find that "the contemporaneous covariance between quarterly changes in institutional holdings and returns arise because institutional buying and selling move prices."

returns but may generate greater volume and volatility. We find that volume is significantly higher when firms have a higher proportion of ownership by momentum investors, aggressive growth or growth investors, high turnover investors, or mutual funds/investment managers, and lower as the proportion of ownership by low turnover investors increases. We also observe large increases in the variance of stock returns in days surrounding the earnings announcement. In particular, when firms report lower than forecasted earnings, the increase in variance is greater for firms with a high proportion of momentum investors. This finding is consistent with that of Dennis and Strickland (2002), who also find that certain classes of institutional investors affect short-term stock return volatility.

Overall, we find that there is considerable heterogeneity in institutional trading behavior, and that the trading behavior of a firm's institutional investors is important in explaining stock price behavior over the days surrounding the release of corporate information. The remainder of this paper is organized as follows. Section I describes the ownership structure of the sample firms and provides an analysis of the investor classifications based on momentum, investment style, and turnover. Section II relates the stock price response to earnings information to characteristics of the firms' investors. Section III further examines the trading volume response, while Section IV provides an analysis of the increased stock return variance on days surrounding the announcement. Section V summarizes our results and conclusions.

I. Data and Sample Description

Our sample consists of 203 firms for which data on characteristics of the firm's institutional shareholders were made available by Georgeson & Co. We examine all quarterly earnings announcements between the fourth quarter of 1992 and the fourth quarter of 1997 for which data are available on CRSP, COMPUSTAT, and IBES. This produces an initial sample of 3,163 quarterly observations for the 203 firms.

Panel A of Table I provides descriptive statistics for the sample firms. The firms are generally large, with a median market value of equity equal to $2.1 billion and median total assets of $3.3 billion. Analyst coverage is also generally extensive, with a median of eight analysts covering the firm. One hundred twenty-nine firms are Fortune 500 companies.

Panel B describes characteristics of the institutional owners. The Securities Act Amendments of 1975 require that institutional investors with investment discretion over portfolios exceeding $100 million in equity securities file 13(f) statements reporting their holdings to the SEC on a quarterly basis. Data on quarterly holdings of institutions is obtained from Spectrum. The total number of shares outstanding for each firm is obtained from CRSP. We delete observations where the reported total institutional ownership is greater than 100 percent of the shares outstanding.

Table I
Descriptive Statistics

This table presents firm characteristics and institutional ownership descriptive statistics for the sample of 3,163 observations for 203 firms with earnings announcements from 1992 through 1997. Market value of equity, market-to-book, and P/E ratios are based on the stock price 30 days prior to the earnings announcement. Other financial statement data are measured at the fiscal year-end prior to the earnings announcement. Institutional ownership data is obtained from Spectrum at the calendar quarter-end preceding the earnings announcement. All institutional ownership statistics are reported as a percentage of total shares outstanding. The percentage of shares owned by managers of different types are based on Spectrum. Investment advisors include both mutual fund companies and independent investment advisors. The percentage of shares owned by managers of different investment style and portfolio turnover are based on classifications provided by Georgeson & Co. Investment style classifications are based on the dividend yield, growth in EPS and sales, and leading P/E of stocks in the manager's portfolio. Momentum investors are determined by examining the net positive versus negative number of analyst earnings estimate changes (as a percentage of the number analysts following the stock) for stocks held, purchased, and sold by each manager. Turnover is based on the average holding period for stocks in the manager's portfolio. Managers are classified as high (average holding period less than 1.5 years), medium (1.5 to three years) or low (greater than three years) turnover.

	Mean	Median	Minimum	Maximum
Panel A: Firm Characteristics				
Market value of equity ($ billions)	6.9	2.1	0.023	174.6
Total assets	13.1	3.3	0.009	262.9
Total assets/liabilities	1.9	1.5	0.3	25.9
Operating income/revenue	0.18	0.19	− 13.51	0.88
Market/book ratio	3.0	2.3	− 523.5	755.4
P/E ratio	22.6	16.2	− 3170.3	2345.3
Number of analysts	9.1	8.0	1.0	32.0
Panel B: Institutional Ownership				
All 13(f) institutions	58.5%	61.0%	4.1%	99.9%
Largest 5 institutions	20.9%	19.2%	2.1%	72.5%
Largest 10 institutions	29.8%	28.5%	3.3%	85.8%
Largest 20 institutions	39.8%	39.4%	3.9%	90.5%
Panel C: Ownership by Manager Type				
Banks	12.9%	12.2%	0.4%	43.3%
Insurance companies	3.9%	2.8%	0.0%	59.6%
Investment advisors	36.2%	35.4%	1.8%	85.4%
Pensions & endowments	5.7%	5.3%	0.0%	31.7%
Panel D: Ownership by Manager Investment Style				
Aggressive growth	5.4%	2.6%	0.0%	58.3%
Other growth	25.0%	24.5%	0.5%	75.7%
Value	8.6%	6.6%	0.0%	70.8%
Income	13.5%	12.6%	0.1%	45.6%
Panel E: Ownership by Momentum Investors				
Ownership by momentum investors	8.2%	5.6%	0.0%	53.1%
Panel F: Ownership by Manager Portfolio Turnover				
High turnover	10.8%	8.7%	0.0%	62.5%
Medium turnover	20.3%	19.6%	0.2%	71.5%
Low turnover	27.4%	27.5%	1.4%	60.2%

Total 13(f) institutional ownership is high (on average near 60 percent), which we expect based on the size of the firms in our sample.[9] Although spread over a large number of institutions (on average 236 institutions per firm), there are some significant concentrations. The five largest institutions own on average 20.9 percent of the stock, and nearly 40 percent is held by the top 20 institutions. Spectrum also classifies investment managers by type: banks, insurance companies, "investment advisors," and others.[10] The largest ownership of these firms is by investment advisors, followed by banks and insurance companies.

Heterogeneity in trading behavior of institutions may not adequately be captured by examining total institutional holdings or the Spectrum classifications of manager type.[11] Therefore, we use Georgeson's analysis of the portfolios of institutional shareholders to further characterize the 13(f) institutions. Each institution is required to file only one 13(f). As a result, the holdings of several funds, which may be of quite different investment styles, are aggregated and reported under the principal fund manager. For example, Fidelity Management and Research aggregates all Fidelity equity holdings into one 13(f) filing. Georgeson classifications are based on the average characteristics of the fund family, not the particular characteristics of a given fund. The fact that institutions can only be classified based on their aggregate investment behavior, and not at the level of the individual funds, may reduce the magnitude of measured effects in our analysis.

The Spectrum data is merged with data on individual manager characteristics provided by Georgeson. There are nearly 2,700 managers in the Spectrum database during our sample period. For each manager, Georgeson analyzes characteristics of the stocks purchased, sold, and held for their portfolio. Based on this analysis, managers are categorized based on their investment style, whether they exhibit momentum trading behavior, and their portfolio turnover.

To determine investment style, each stock in the manager's portfolio is classified as aggressive growth, growth, income, or value, based on the dividend yield,

[9] McConnell and Wahal (2000) find average institutional holdings of 39.5 percent for a sample of 2,500 firms. Gompers and Metrick (2001) find that institutional holdings increase with firm size; they report institutional ownership in 1996 of 54.96 percent for the largest quintile of CRSP stocks. We also compare our sample firms to all S&P 500 firms over the sample period. The sample firms are slightly smaller (median book value of assets $3.3 billion versus $5.1 billion for S&P 500 firms). All median ownership characteristics, however, are within one percent of the S&P 500 firms, with the exception of holdings by "other growth" managers (24.5 percent versus 23 percent for S&P 500 firms).

[10] We refer to "investment advisors" as managers classified by Spectrum either as investment companies and their managers (Spectrum type 3) or independent investment advisors (Spectrum type 4). Spectrum type 3 includes most large mutual fund companies, but type 4 includes many managers having mutual funds as a substantial portion of their business. Since these managers file one statement for both the mutual funds they manage and for their private clients, our analysis combines these classifications.

[11] Bushee (1998) and Abarbanell, Bushee, and Raedy (1998) also suggest significant heterogeneity in investment styles across Spectrum manager types. These studies use factor analysis and cluster analysis to sort managers into four groups based on their revealed preference for large versus small cap stocks and for "growth" versus value stocks.

growth in EPS and sales, and leading P/E.[12] For each manager's portfolio in each quarter, the percentage of stock (by market value) in each category is computed, and compared to all other managers' portfolios; this measure is then averaged for the prior six quarters. Managers that are overweighted (relative to all other managers) in a particular category are classified as having that investment style or classified as "balanced" if there is no overweighting. Using these classifications, we compute the percentage of the firm's stock held by managers of each investment style. For example, Panel D of Table I shows that a large proportion of the sample firms' stock is held by growth or income investors (median ownership by these groups is 24.5 percent and 12.6 percent, respectively).

We also examine ownership by managers which have been identified as "momentum" investors.[13] Momentum investors are determined by examining the stocks held, purchased, and sold by each manager over six consecutive quarters. For each stock, the net number of analyst earnings estimate changes (positive versus negative) is expressed as a percentage of the number of analysts following the stock. When both the market value weighted measure for the manager's portfolio exceeds the market average, and this measure is higher for stocks purchased than for those sold, the manager is classified as a momentum investor. In other words, these investors show the greatest tendency to buy (sell) stocks with positive (negative) analyst revisions. From Panel E, the median ownership by momentum investors is only 5.6 percent. However, individual stocks clearly can attract high levels of momentum ownership (maximum 53.1 percent).

Lastly, we consider the portfolio turnover of each manager. Turnover is defined based on the average holding period for stocks in the manager's portfolio. For all managers on Spectrum in our sample period, the average (median) portfolio turnover is 1.6 (2.2) years. This contrasts with the institutional portfolio turnover averages reported in McConnell and Wahal (2000); they find that institutions in the upper quintile of portfolio turnover have an average holding period of five years. The difference in portfolio turnover for the two samples is likely because Georgeson calculates portfolio turnover on a shares-traded basis while McConnell and Wahal employ a price-weighted portfolio turnover measure. We divide managers roughly in thirds and classify them as high (average holding period less than 1.5 years), medium (1.5 to 3 years), or low (greater than 3 years) turnover.

[12] Georgeson further breaks down investment styles within these categories, and also defines secondary investment styles (if any) for each manager; we use only the broader style categories in our analysis. Previous research classifies investment styles based on past returns rather than an analysis of managers' portfolio holdings (Brown and Goetzmann (1997)). An advantage to these alternative methods is that they minimize the impact of window dressing (Lakonishok et al. (1991)). However, Georgeson's classifications are based on portfolio holdings over six quarters, minimizing the potential impact of window dressing. Georgeson also verifies investment styles based on phone interviews with some institutions. The database of styles is updated once per year.

[13] Grinblatt, Titman, and Wermers (1995),Wermers (1999), Badrinath and Wahal (2002), and Lakonishok, Shleifer, and Vishny (1992) show whether certain investor types actively invest using momentum strategies. Rather than focusing on whether certain classes of institutions follow momentum strategies, we use Georgeson's database to identify individual managers that exhibit this behavior.

Panel F shows the median percentage of stock held by investors in the highest turnover category is 8.7 percent, though ownership by high turnover investors reaches a maximum of 62.5 percent for an individual stock.

It is also important to sort out the relationship between the Spectrum manager types and our classifications of investment styles, momentum, and turnover. For example, we might expect that mutual funds/investment advisors tend to be high turnover investors. Therefore, Table II provides an analysis of characteristics at the level of managers rather than firms, showing the differences in managers across the investment style, momentum, and turnover classifications. Panel A shows a large proportion of managers are classified as growth investors; of the 2,244 managers owning shares in our sample firms at some time during the sample period, 10.4 percent are classified as aggressive growth and 46.9 percent as growth. Less than 10 percent of managers are classified as momentum investors, and approximately one-third of managers are included in each of the three turnover groups.

Panel B of Table II shows that the greatest proportion of aggressive growth style investors appears for investment advisors. Insurance companies appear more diverse in their styles, though there is still a high proportion of growth investors. There is clearly a higher percentage of income investors among banks, consistent with Del Guercio (1996), who finds that banks invest more heavily in "prudent" stocks with higher earnings and dividends. The investment advisor group also has the highest proportion of momentum investors and high turnover investors.

Panels C and D also show a relationship between the momentum, aggressive growth, and turnover classifications. Nonmomentum investors are less likely to be aggressive growth and more likely to be income and lower-turnover investors. Finally, high-turnover investors (Panel E) are least likely to be income investors.

This analysis to some extent helps us understand differences in trading styles across managers. Most importantly for our analysis, it demonstrates the substantial heterogeneity in trading behavior of these institutions even within the manager type classifications studied in previous papers. We do not observe high correlations across our classifications of manager type, investment style, momentum, and turnover; for example, momentum investors are frequently but not always aggressive growth investors. Since these classifications appear to capture independent information, we separately consider the importance of each type of heterogeneity in our subsequent analysis.

To provide additional insight into the Georgeson classifications and Spectrum manager types, Table III reports portfolio characteristics of managers in each classification at the beginning and end of our sample period. Characteristics of managers in these classifications change over time as markets change. For example, the mean dividend yield on portfolios of income investors falls from 2.9 percent in 1992 to 1.6 percent in 1997, but in each quarter is greater than portfolio yields for managers of other investment styles. Volatility of daily stock returns is slightly higher for aggressive growth managers and lowest for income investors. Although Table III shows that

Table II

Analysis of Manager Characteristics

This table provides an analysis of manager type, investment style, and momentum and turnover classifications. Percentages are based on *N*, the total number of managers of that classification owning shares (based on Spectrum) in the sample firms at some time during the sample period. Manager classifications are provided by Georgeson & Co. and defined as in Table I. "Balanced" investment style includes managers whose portfolios are not weighted toward any of the other style classifications. Momentum classifications indicate whether the manager does (1) or does not (0) exhibit earnings momentum trading behavior.

	Investment Style					Momentum Trading Style		Portfolio Turnover			
	Aggressive Growth	Growth	Value	Income	Balanced	(1)	(0)	High	Medium	Low	*N*
Panel A: All Institutions											
	10.40%	46.90%	13.70%	20.60%	8.40%	9.63%	81.98%	33.18%	31.69%	35.14%	2,244
Panel B: Manager Type											
Banks	1.20%	38.30%	7.50%	43.30%	9.70%	5.57%	94.43%	9.43%	28.68%	61.89%	321
Insurance companies	6.90%	43.80%	15.40%	15.40%	18.50%	8.48%	91.52%	26.44%	29.89%	43.68%	130
Investment advisors	13.00%	50.10%	15.30%	15.70%	5.80%	12.00%	88.00%	41.26%	33.14%	25.60%	1,544
Pension/endowment	7.60%	39.40%	10.40%	24.50%	18.10%	1.67%	98.33%	21.43%	24.49%	54.08%	249
Panel C: Investment Style											
Aggressive growth	—	—	—	—	—	25.55%	74.45%	64.29%	24.68%	11.04%	231
Growth	—	—	—	—	—	11.87%	88.13%	30.41%	35.38%	34.21%	1,053
Value	—	—	—	—	—	7.89%	92.11%	43.72%	32.56%	23.72%	309
Income	—	—	—	—	—	5.43%	94.57%	21.71%	29.66%	48.62%	468
Balanced	—	—	—	—	—	2.78%	97.22%	24.69%	20.99%	54.32%	183
Panel D: Momentum Trading Style											
Momentum (1)	24.70%	52.30%	10.20%	10.60%	2.10%	—	—	54.90%	37.75%	7.35%	239
Momentum (0)	8.60%	46.30%	14.20%	22.00%	8.90%	—	—	29.94%	30.72%	39.34%	2,005
Panel E: Portfolio Turnover											
High turnover	20.10%	42.30%	19.10%	14.40%	4.10%	22.67%	77.33%	—	—	—	756
Medium turnover	8.20%	52.20%	15.10%	20.90%	3.70%	16.42%	83.58%	—	—	—	713
Low turnover	3.40%	46.30%	10.10%	31.50%	8.70%	2.90%	97.10%	—	—	—	776

Table III
Institutional Investor Classifications

The table reports portfolio characteristics for institutional investor classifications for quarters ending December 31, 1992, and December 31, 1997. Manager classifications are provided by Georgeson & Co and defined as in Table I. Means (medians) are calculated for all institutions included in that classification. For each manager, market value weighted portfolio statistics are calculated based on all shareholdings as listed on Spectrum at the quarter end. Dividend yield is defined as the sum of quarterly cash dividends over the prior 12 months, divided by the end of quarter stock price. Sales growth is calculated as the average growth in annual sales over the preceding three fiscal years. *SD* of returns is the standard deviation of daily returns over the prior quarter. Turnover is measured by the average holding period for stocks in the portfolio.

	Manager Classifications						
	Aggressive Growth	Growth	Value	Income	Momentum	Investment Advisors	High Turnover
Portfolio characteristics: 1992							
Dividend yield	0.9%	1.9%	2.0%	2.9%	1.6%	1.9%	1.7%
	(0.6%)	(2.0%)	(2.2%)	(2.9%)	(1.6%)	(1.9%)	(1.7%)
Sales growth	28.0%	10.8%	7.7%	5.7%	18.0%	12.4%	14.4%
	(24.9%)	(8.3%)	(5.3%)	(4.9%)	(13.0%)	(8.4%)	(9.8%)
Market-to-book ratio	2.3	2.2	1.8	2.0	2.4	2.1	1.9
	(2.4)	(2.3)	(1.6)	(2.0)	(2.3)	(2.1)	(2.0)
P/E ratio	24.4	16.3	8.2	12.3	20.6	15.0	17.2
	(24.2)	(18.7)	(13.5)	(14.4)	(20.1)	(16.9)	(17.8)
SD of returns	0.091	0.078	0.084	0.069	0.084	0.081	0.085
	(0.092)	(0.075)	(0.078)	(0.068)	(0.081)	(0.078)	(0.082)
Market value ($mm)	1365.4	1662.7	1779.3	1920.6	1930.1	1503.8	1133.1
	(295.6)	(366.2)	(380.8)	(353.1)	(601.1)	(313.3)	(290.6)
Holding period	13.1	20.9	17.7	26.2	15.0	17.7	10.3
(months)	(15.7)	(25.9)	(21.5)	(37.0)	(17.2)	(22.9)	(12.0)
Portfolio characteristics: 1997							
Dividend yield	0.5%	1.0%	1.0%	1.6%	0.9%	1.0%	0.9%
	(0.4%)	(1.1%)	(1.1%)	(1.6%)	(0.9%)	(1.0%)	(0.9%)
Sales growth	102.8%	45.4%	33.1%	20.9%	43.5%	53.7%	48.8%
	(52.6%)	(19.3%)	(19.9%)	(14.7%)	(27.0%)	(21.3%)	(26.7%)
Market-to-book ratio	2.6	3.6	2.5	3.2	3.5	3.0	2.6
	(2.4)	(3.6)	(2.1)	(3.3)	(3.5)	(2.9)	(2.4)
P/E ratio	36.4	31.6	25.1	36.1	27.0	31.5	29.2
	(29.4)	(25.2)	(20.8)	(26.0)	(26.4)	(24.0)	(23.1)
SD of returns	0.098	0.076	0.081	0.065	0.083	0.079	0.085
	(0.096)	(0.073)	(0.075)	(0.064)	(0.078)	(0.075)	(0.079)
Market value ($mm)	3798.8	3984.1	3856.9	4418.6	3964.5	3382.5	2425.9
	(454.9)	(546.6)	(584.3)	(563.5)	(818.2)	(427.2)	(509.8)
Holding period	11.8	21.6	15.4	25.7	14.7	17.3	10.0
(months)	(13.8)	(26.6)	(20.1)	(34.5)	(16.7)	(22.9)	(11.8)

manager characteristics are changing with time, membership of managers in a particular classification based on Georgeson's calculations is very stable during our sample period.

II. Stock Price Reactions to Earnings Announcement

A. Abnormal Returns and Ownership Structure

A significant amount of empirical research examines the stock price response to unexpected earnings.[14] These studies show that cross-sectional differences in securities price responses are significantly related to unexpected earnings and other control variables, although the correlation between earnings and stock returns is generally low. We examine the stock price response over a two-day window starting at the day prior to the earnings announcement (days -1 to 0), and relate this return to variables shown to be important in previous studies as well as to our variables describing the firm's ownership structure.

The earnings forecast error is defined as the difference between reported earnings per share and the mean analyst forecast appearing on IBES prior to the announcement, deflated by the stock price 10 days prior to the announcement. Earnings announcement dates are obtained from COMPUSTAT. Abnormal returns are market model residuals using common stock returns from the period 250 to 60 days prior to the announcement. We also estimate market model parameters (not reported) for the period 60 to 9 days prior to the announcement so that the estimation period does not include the prior quarter's earnings announcement; none of the results in this paper are noticeably affected by this change. Test statistics are calculated as in Mikkelson and Partch (1986).

We first report the two-day cumulative abnormal returns (CAR) in Table IV. From our initial sample of 3,163 firm/quarters, there are 1,113 events where reported earnings are lower than forecasted. For comparison, we report CARs for 879 cases of positive forecast errors; positive forecast errors are defined as cases where reported earnings exceed the IBES consensus forecast by more than \$0.02 per share, since analyst "whisper" numbers are often above their stated forecast. There is a strong significant negative response when firms miss their earnings forecast (mean CAR -0.83 percent), and a significant positive response (mean CAR 1.30 percent) when reported earnings exceed analyst forecasts by more than \$0.02 per share. Mean and median announcement returns are significant despite the fact that the sample consists of generally large firms, for which earnings announcements have been suggested to contain less information.

We further divide the sample by several ownership characteristics, based on whether ownership by that type of institution is in the top or bottom sample third. When firms miss their forecasted earnings, the mean cumulated abnormal return is 0.51 percent lower when total ownership by all 13(f) institutions is relatively high; the difference in the mean returns is significant at the five percent level. The difference in median returns, however, is not significant. In comparison, the difference in ownership groups for positive forecast errors is weaker, as mean returns are not significantly different between ownership groups. While the remainder of our analysis focuses on negative earnings events, the asymmetry in Table IV confirms that the effect of ownership structure is particularly important when firms report lower than expected earnings.

[14] Lev (1989) summarizes the findings of much of this work.

Table IV

Stock Price Reactions to Earnings Announcements

The table reports the cumulative market model abnormal returns for the [− 1,0] window relative to the earnings announcement. Market model parameters are estimated using returns from day − 250 to day − 50 relative to the earnings announcement. Firms which announce quarterly earnings below the IBES consensus forecast are designated as having negative earnings forecast errors; quarterly earnings more than $0.02 per share above the forecast are designated as having positive forecast errors. The forecast partitioned samples are further divided into high/low institutional ownership subsamples based on whether institutional ownership characteristics for that firm are in the top or bottom sample third. *P*-values for tests of difference in means and medians are shown in parentheses.

Panel A: Negative Forecast Errors

	Mean[a]	Median[a]	*N*	Mean[a]	Median[a]	*N*				
All observations	− 0.83%	− 0.54%	1,113							
	High Ownership			Low Ownership			Difference in Means		Difference in Medians	
Ownership by:										
All institutions	− 1.15%	− 0.62%	314	− 0.64%	− 0.56%	452	− 0.51%	(0.000)***	− 0.07%	(0.304)
Momentum investors	− 1.27%	− 0.85%	262	− 0.56%	− 0.42%	503	− 0.71%	(0.000)***	− 0.43%	(0.184)
Aggressive growth investors	− 1.09%	− 0.34%	243	− 0.55%	− 0.59%	504	− 0.54%	(0.020)**	0.25%	(0.902)
All growth investors	− 1.44%	− 1.16%	269	− 0.40%	− 0.33%	492	− 1.03%	(0.000)***	− 0.83%	(0.002)***
High turnover investors	− 1.24%	− 0.84%	259	− 0.54%	− 0.58%	478	− 0.71%	(0.000)***	− 0.26%	(0.068)*
Investment advisors	− 1.12%	− 0.85%	276	− 0.72%	− 0.59%	459	− 0.40%	(0.001)***	− 0.26%	(0.253)

Panel B: Positive Forecast Errors

	Mean[a]	Median[a]	*N*	Mean[a]	Median[a]	*N*				
All observations	1.30%	0.99%	879							
	High Ownership			Low Ownership			Difference in Means		Difference in Medians	
Ownership by:										
All institutions	1.38%	1.34%	302	1.15%	0.71%	304	0.23%	(0.116)	0.63%	(0.252)
Momentum investors	1.29%	1.46%	261	1.21%	0.79%	336	0.08%	(0.329)	0.67%	(0.562)
Aggressive growth investors	1.45%	1.62%	275	1.03%	0.70%	350	0.42%	(0.016)**	0.92%	(0.091)*
All growth investors	1.28%	1.26%	272	0.98%	0.67%	354	0.29%	(0.147)	0.59%	(0.123)
High turnover investors	1.32%	1.41%	304	1.27%	0.80%	311	0.05%	(0.370)	0.61%	(0.402)
Investment advisors	1.47%	1.34%	310	0.93%	0.60%	322	0.54%	(0.002)***	0.74%	(0.049)**

[a] All mean and median cumulative abnormal returns are significantly different from zero at the one percent level.
***,**,*Significant at the 1%, 5%, and 10% level, respectively.

For the other ownership characteristics, the most noticeable differences appear for the subsamples separated by the level of ownership by growth investors. For negative forecast errors, both mean and median returns are more negative for firms with higher ownership by all growth investors. This is consistent with the idea that the earnings news causes investors to reduce their future expected growth rate and thus their valuation of the firm.

The analysis of two-day returns is useful in that it demonstrates the magnitude of the mean and median stock price responses. In general, based on differences in medians, we do not observe a strong relationship between these returns and characteristics of the institutional owners. Interpretation is difficult, however, because these bivariate comparisons do not control for other factors affecting the abnormal returns. Therefore, we expand our analysis of the two-day cumulative abnormal returns using multivariate regressions. The results of this analysis are presented in Table V.

Panel A of Table V reports regression results for all observations with negative forecast errors which have data available on CRSP, COMPUSTAT, IBES, and Spectrum. We exclude observations with the largest (99th percentile) absolute forecast errors—this slightly improves our reported R^2s.[15] Our results are not sensitive to our cutoff for trimming the sample. We also examine regressions (not reported) where the dependent variable is the cumulative abnormal return over a three-day window (-1 to $+1$) and find similar results. Since our data set combines observations for the same firms across years, our independence assumption may not be appropriate and t-statistics may be inflated. To address this dependency, we also estimate a firm-fixed effects model; the firm-fixed effects, however, are not significant for our models.[16]

Each regression controls for the magnitude of unexpected earnings (forecast error) and the price/earnings ratio based on the stock price 30 days prior to the announcement. We expect abnormal returns to be positively related to the size of the forecast error (the degree to which reported earnings exceed the forecast); the coefficient for this variable is positive and significant for all regressions, though often only at the 10 percent level. The P/E ratio is included to allow for the possibility that high P/E stocks are more sensitive to a change in reported

[15] Freeman and Tse (1992) suggest that the magnitude of the stock price response to unexpected earnings is not linearly increasing in the magnitude of forecast error. Stock price revisions based on unexpected earnings reflect a change in investors' beliefs about the present value of expected future dividends. If small earnings surprises are valued as permanent shifts, they may lead to a significant price response. If large absolute earnings surprises have a greater transitory component, much of the information in these surprises is price irrelevant. Freeman and Tse show, however, that a linear model is well specified after eliminating large positive and negative earnings innovations.

[16] For the negative forecast error sample with complete regression data, there are 948 observations for 169 firms. One hundred thirty-five of these firms, covering two-thirds of the observations, appear eight or less times over the five-year sample period (21 quarters). Regression results eliminating firms which contribute the largest number of observations are similar to those reported.

Table V

Regressions for Abnormal Returns at Announcement of Negative Earnings News

The dependent variable is the two day [− 1,0] cumulative market model abnormal return for cases where reported earnings is lower than forecast. The earnings forecast error is defined as the difference between reported earnings per share and the consensus IBES forecast, deflated by the stock price 10 days prior to the announcement. Market value of equity, P/E ratio, and market-to-book ratio are based on the stock price 30 days prior to the announcement. Prior 3-month stock return is the market adjusted return over the three months prior to the announcement date. Total 13(f) ownership is based on Spectrum's listing of all holdings by 13(f) institutions at the calendar quarter-end preceding the announcement. All other ownership variables are based on Georgeson's classifications (defined in Table I) and are calculated as a percent of total shares held by 13(f) institutions. Panel A includes all earnings announcements where reported quarterly earnings per share is lower than the consensus IBES forecast. Panel B is limited to earnings announcements that occur in the fourth calendar quarter. Standard errors are reported in parentheses.

Panel A: Negative Forecast Errors

	(1)		(2)		(3)		(4)		(5)	
Intercept	0.0307	(0.0254)	0.0389	(0.0254)	0.0300	(0.0295)	0.0433	(0.0286)	0.0423	(0.0297)
Forecast error	0.6985	(0.3523)[b]	0.7717	(0.3518)[b]	0.8300	(0.3523)[b]	0.7051	(0.3526)[b]	0.7147	(0.3528)[b]
P/E ratio	0.0001	(0.0000)[c]	0.0000	(0.0000)	0.0000	(0.0000)	0.0000	(0.0000)	0.0001	(0.0000)[c]
Log (market value of equity)	− 0.0012	(0.0012)	− 0.0014	(0.0012)	− 0.0012	(0.0012)	− 0.0016	(0.0012)	− 0.0015	(0.0012)
Market-to-book ratio	− 0.0001	(0.0000)	− 0.0001	(0.0000)	− 0.0001	(0.0000)	− 0.0001	(0.0000)	− 0.0001	(0.0000)
3-year sales growth	0.0007	(0.0006)	0.0009	(0.0006)	0.0012	(0.0006)[b]	0.0009	(0.0006)	0.0008	(0.0006)
Dividend yield	0.0140	(0.0134)	0.0101	(0.0134)	0.0113	(0.0134)	0.0131	(0.0134)	0.0139	(0.0134)
Prior 3-month stock return	0.0124	(0.0103)	0.0111	(0.0102)	0.0097	(0.0103)	0.0119	(0.0103)	0.0115	(0.0103)
Total 13(f) ownership/shares outstanding	− 0.0173	(0.0081)[b]	− 0.0139	(0.0082)[c]	− 0.0191	(0.0083)[b]	− 0.0155	(0.0084)[c]	− 0.0165	(0.0082)[b]
Ownership by (as a % of total 13(f)):										
Momentum investors			− 0.0490	(0.0170)[a]						
Aggressive growth investors					− 0.0379	(0.0188)[b]				
Growth investors					− 0.0083	(0.0137)				
Value investors					0.0383	(0.0174)[b]				
High turnover investors							− 0.0227	(0.0177)		
Medium turnover investors							− 0.0039	(0.0148)		
Investment advisors									− 0.0090	(0.0131)
N	948		948		948		948		947	
R^2	0.019		0.028		0.034		0.021		0.020	

Panel B: Calendar Quarter 4 Only

Intercept	0.1110	(0.0482)[b]	0.1301	(0.0468)[a]	0.1297	(0.0555)[b]	0.1678	(0.0538)[a]	0.1782	(0.0548)[a]
Forecast error	− 0.2351	(0.7406)	− 0.1117	(0.7160)	− 0.1750	(0.7477)	− 0.2812	(0.7410)	− 0.1815	(0.7325)
P/E ratio	0.0000	(0.0000)	0.0000	(0.0000)	0.0000	(0.0000)	0.0000	(0.0000)	0.0000	(0.0000)
Log (market value of equity)	− 0.0044	(0.0022)[b]	− 0.0049	(0.0021)[b]	− 0.0050	(0.0023)[b]	− 0.0062	(0.0023)[a]	− 0.0062	(0.0023)[a]
Market-to-book ratio	0.0000	(0.0001)	0.0000	(0.0001)	0.0000	(0.0001)	0.0000	(0.0001)	0.0000	(0.0001)
3-year sales growth	− 0.0157	(0.0039)[a]	− 0.0132	(0.0038)[a]	− 0.0120	(0.0043)[a]	− 0.0144	(0.0039)[a]	− 0.0145	(0.0039)[a]
Dividend yield	0.0043	(0.0219)	− 0.0017	(0.0212)	0.0042	(0.0220)	0.0035	(0.0217)	0.0052	(0.0217)
Prior 3-month stock return	0.0201	(0.0198)	0.0286	(0.0193)	0.0254	(0.0200)	0.0195	(0.0197)	0.0194	(0.0196)
Total 13(f) ownership/shares outstanding	− 0.0422	(0.0164)[b]	− 0.0344	(0.0160)[b]	− 0.0408	(0.0172)[b]	− 0.0303	(0.0171)[c]	− 0.0324	(0.0167)[c]
Ownership by (as a % of total 13(f)):										
Momentum investors			− 0.1298	(0.0315)[a]						
Aggressive growth investors					− 0.1055	(0.0383)[a]				
Growth investors					− 0.0116	(0.0251)				
Value investors					0.0073	(0.0333)				
High turnover investors							− 0.0627	(0.0364)[c]		
Medium turnover investors							− 0.0474	(0.0262)[b]		
Investment advisors									− 0.0593	(0.0239)[b]
N	232		232		232		232		232	
R^2	0.110		0.174		0.126		0.131		0.134	

[a,b,c] Significant at the 1%, 5%, and 10% level, respectively.

earnings, but this variable is significant only at the 10 percent level in regressions (1) and (5).

The regressions also include variables to control for characteristics of the stock which are related to or were actually used in defining the investor classifications. These control variables allow us to test whether the ownership structure, rather than the firm characteristics themselves, are related to the stock price response. The variables include firm size (measured by the log of market value of equity), the market-to-book ratio based on the stock price 30 days prior to the announcement, sales growth over the prior three years, dividend yield, and the market adjusted stock return for the three months prior to the announcement. The market-to-book ratio is included because high market-to-book firms are likely to have greater growth opportunities, and bad news about earnings may cause investors to decrease expectations for future growth. Low market-to-book firms are also likely to attract value investors. The market-adjusted stock return is used to measure prior stock price momentum.

The results show that these firm characteristic variables are generally insignificant. There is a significant positive relation to historical sales growth only in regression (3), and no significant relation to the market-to-book ratio, dividend yield, or prior stock price momentum. All results are similar if we instead control for prior momentum using the net upward versus downward analyst revisions (deflated by the number of analyst estimates) over the prior 90-day period.

The remaining explanatory variables describe the ownership structure of the firm. The level of institutional ownership is measured at the end of the calendar quarter preceding the earnings announcement. Regression (1) shows that total 13(f) institutional holdings (measured as a percentage of shares outstanding) is significantly negatively related to the announcement return at the five percent level. The remaining regressions include additional variables to examine the importance of the composition of the institutional holdings. Regression (2) includes a variable measuring the percentage stock held by momentum investors, as a percentage of total 13(f) institutional holdings. Total ownership is now significant at the 10 percent level, and the momentum ownership variable is significant at the one percent level. We also find returns are lower for firms with a higher proportion of aggressive growth investors, and higher as the proportion of value investors increases. In contrast, manager type and turnover variables (regressions (4) and (5)) are not significantly related to the two-day return.[17] To deter-

[17] We also examine regressions for the subset of observations where there has been a change in the pattern of forecast errors; a change in the security's earnings momentum from positive to negative may prompt a sell-off by investors following a momentum strategy. We estimate regressions including only observations where firms miss earnings forecast after previously exceeding the forecast for the previous four quarters, and find results similar to those reported. We also examine the subset of cases where there is both a negative forecast error and a drop in earnings from the previous quarter. Results are again very similar to those reported, except that the coefficient for the momentum ownership variable increases slightly to -0.085, which is significant at the one percent level. Finally, the coefficient is also not significant when we include a variable measuring ownership by investment advisors who are also momentum and high turnover investors, or a variable measuring ownership by investment advisors who are also aggressive growth and high turnover.

mine whether the effects are more pronounced for extreme cases, we reestimate the regression models for extreme levels of ownership (top decile) by certain groups of investors and large negative forecast errors (forecast exceeds reported earnings by at least \$0.01). The results are not substantially different from those reported in Table V.

We also examine whether our results are sensitive to the timing of the earnings announcement. If managers are subject to investor withdrawals due to periodic performance evaluations, then they may be more likely to react to negative forecast errors during certain times of the year. Hotchkiss and Lawrence (2002) show that portfolio turnover of managers on the Spectrum database is significantly higher in the fourth calendar quarter of each year. The regressions in Panel B include only announcements occurring in the fourth calendar quarter; these announcements are for the third fiscal quarter earnings for most sample firms. The difference in the R^2s from our previous regressions is striking, and they are substantially higher than reported in other literature attempting to explain earnings announcement effects. The magnitude of the coefficients for both total institutional ownership and the ownership classifications substantially increases for these regressions.[18] The coefficient for aggressive growth ownership is now negative and significant at the one percent level. Returns are also more negative for higher levels of ownership by "high" or "medium" turnover investors and by investment advisors. Overall, it appears that the relationship between returns and ownership structure documented by our regressions is particularly strong for announcements in the fourth quarter.

Finally, we test (not reported) whether there is a reversal in price movements in the days following the earnings announcement, and if so, whether it is significantly related to our ownership variables. For example, if momentum or aggressive growth investors destabilize prices, we expect a significant negative relation between the announcement day abnormal return and returns over subsequent days. To address this possibility, we compute an abnormal return for 5-, 10-, and 20-day windows starting at the date following the earnings announcement. We also compute one-, two-, and three-trading-month window postannouncement abnormal returns. We find that these returns are not reliably different from zero for the whole sample or for high versus low institutional ownership subsamples. This suggests an absence of postannouncement reversals or continuations. It is possible, however, that firms with high momentum ownership might display patterns which are not obvious in the full sample or simple high versus low ownership partitions. To address this possibility, we regress (not reported) the postannouncement returns on the announcement day return, on a series of own-

[18] While we still observe significant effects for the ownership variables in other quarters, the coefficients are lower than for quarter four, and the R^2s are similar to the full-sample results in Panel A. Similar results are obtained when we instead estimate regressions for the full sample using a dummy variable for the fourth quarter as well as this dummy interacted with the ownership variables. Using regressions for the full sample, we directly test that the coefficients for each of the significant ownership variables are significantly different for quarter four versus other quarters. Results for quarter four alone are reported here for clarity.

ership characteristic dummy variables, and on the interaction of these dummy variables and the announcement day return. The dummy variables and interaction variable coefficients are not significantly different from zero. These findings are consistent with previous work that suggests that although trading behavior by certain investors moves prices, they do not necessarily have a destabilizing effect on prices (Wermers (1999), Nofsinger and Sias (1999), Sias et al. (2001)).

B. Interpretation and Alternative Regressions

These results are consistent with the hypothesis that institutions affect returns through their trading behavior. An alternative explanation, however, is that our ownership characteristic variables are correlated with some other firm characteristic which explains the reaction to earnings news. However, our control variables include the firm characteristics Georgeson uses to define the investor classifications. The most benign interpretation of our results is that, at a minimum, ownership characteristics are a better proxy for underlying firm characteristics than any directly observable firm characteristic. The finding that our results for the ownership variables are significantly stronger for the fourth quarter, however, suggests our findings are related to trading behavior of institutions. We further consider the interpretation that the negative relation between institutional holdings by momentum investors and aggressive growth investors and the stock price response to bad news may be driven by a sell-off by these investors.

We examine more directly whether the trading behavior of different types of institutions is related to the stock price response in two ways. First, we calculate the regressions for abnormal returns using explanatory variables measuring the change rather than the level of ownership (Table VI). Second, we directly examine the probability that a particular investor type substantially decreases shareholdings in response to earnings news (Tables VII and VIII). Although we cannot observe the change in holdings in the days immediately surrounding the earnings release, we calculate the change in holdings between quarterly calendar dates surrounding the announcement.

From Table VI, results are similar to the regressions using ownership levels. When momentum or aggressive growth investors decrease their holdings relative to other institutions, the stock price response is more negative. In addition to the previous findings, there is also a similar relation for high turnover investors. Results (not reported) are unchanged when we include only more extreme negative forecast errors. We also obtain similar results using only announcements that occur in the fourth quarter; the R^2 for these regressions is substantially higher, as we found for the regressions using ownership levels, though the coefficients are similar to those reported in Table VI for the full sample.

These results are consistent with observed changes in investor holdings. We calculate (but do not report), on average, a one percent decline in the proportion of institutional holdings by momentum investors (and a nine percent decline in the number of momentum investors). Overall, the average change in total institu-

Table VI

Abnormal Return Regressions with Changes in Institutional Ownership

The dependent variable is the two-day [− 1,0] cumulative market model abnormal return at announcement of negative earnings news. The independent variables are a series of firm characteristic control variables, the earnings forecast error, and the change in the level and composition of institutional ownership. Changes in ownership are calculated as the change between the calendar quarter end dates surrounding the earnings announcement. Change in total 13(f) ownership is the change in holdings by all 13(f) institutions as a percentage of shares outstanding. All other ownership changes are based on Georgeson's classifications (defined in Table I) and are measured as the change in holdings as a percentage of total 13(f) institutional holdings. Standard errors are reported in parentheses.

	(1)		(2)		(3)		(4)		(5)	
Intercept	0.0252	(0.0252)	0.0232	(0.0249)	0.0299	(0.0250)	0.0192	(0.0249)	0.0244	(0.0253)
Forecast error	0.6859	(0.3526)[c]	0.6526	(0.3479)[c]	0.7635	(0.3502)[b]	0.7429	(0.3479)[b]	0.6856	(0.3528)[c]
P/E ratio	0.0000	(0.0000)	0.0000	(0.0000)	0.0000	(0.0000)	0.0000	(0.0000)	0.0000	(0.0000)
Log (market value of equity)	− 0.0014	(0.0012)	− 0.0013	(0.0011)	− 0.0016	(0.0011)	− 0.0011	(0.0011)	− 0.0014	(0.0012)
Market-to-book ratio	− 0.0001	(0.0000)	− 0.0001	(0.0000)	0.0000	(0.0000)	− 0.0001	(0.0000)	0.0000	(0.0000)
3-year sales growth	0.0008	(0.0006)	0.0008	(0.0006)	0.0008	(0.0006)	0.0010	(0.0006)[c]	0.0009	(0.0006)
Dividend yield	0.0138	(0.0134)	0.0111	(0.0132)	0.0093	(0.0134)	0.0127	(0.0132)	0.0136	(0.0134)
Prior 3-month stock return	0.0104	(0.0105)	− 0.0090	(0.0109)	− 0.0025	(0.0108)	− 0.0036	(0.0107)	0.0070	(0.0106)
Change in total 13(f) ownership	0.0382	(0.0194)[b]	0.0463	(0.0239)[c]	0.0605	(0.0245)[b]	0.0543	(0.0243)[b]	0.0752	(0.0242)[a]
Change in ownership by:										
Momentum investors			0.2035	(0.0389)[a]						
Aggressive growth investors					0.1937	(0.0528)[a]				
Growth investors					0.0218	(0.0375)				
Value investors					− 0.0367	(0.0485)				
High turnover investors							0.2087	(0.0418)[a]		
Medium turnover investors							0.0114	(0.0355)		
Investment advisors									0.0434	(0.0316)
N	945		940		940		940		939	
R^2	0.019		0.051		0.044		0.053		0.026	

[a,b,c] Significant at the 1%, 5%, and 10% level, respectively.

Table VII

Logit Regressions for Individual Institution's Probability of Selling in Response to Negative Earnings News

The dependent variable Sell > 10%, 20% indicates the investor decreased shares held by greater than 10% or 20%, respectively, in response to negative earnings news. The change in shares held is measured over the quarterly period containing the earnings announcement. Abnormal trading volume is calculated as the difference between daily turnover (volume/shares outstanding) and the median daily turnover on days −250 to −60. The *SD* of analysts' forecasts is the standard deviation of forecasts from IBES prior to the announcement. Momentum investor, aggressive growth or growth investor, investment advisor, and high turnover investor are dummy variables indicating investor characteristics. *P*-values are reported in parentheses.

	Forecast Error < 0				Forecast Error < −0.01			
	Sell > 10%		Sell > 20%		Sell > 10%		Sell > 20%	
	Panel A: All Quarters							
N (Sell = 1)	99,099		86,233		7,095		6,324	
N (Sell = 0)	159,010		171,876		9,317		10,088	
Total *N*	258,109		258,109		16,412		16,412	
Intercept	0.9375	(0.0001)[a]	1.3782	(0.0001)[a]	1.7603	(0.0001)[a]	2.0117	(0.0001)[a]
Forecast error	−1.5337	(0.0410)[b]	−0.8313	(0.2779)	0.3463	(0.7879)	−0.1213	(0.9260)
Log (market value of equity)	−0.1097	(0.0001)[a]	−0.1438	(0.0001)[a]	−0.1511	(0.0001)[a]	−0.1786	(0.0001)[a]
Stock return over quarter	−0.1622	(0.0001)[a]	−0.2179	(0.0001)[a]	−0.2341	(0.0036)[a]	−0.1984	(0.0149)[b]
Market return over quarter	0.8975	(0.0001)[a]	1.2077	(0.0001)[a]	0.6956	(0.0403)[b]	1.1871	(0.0006)[a]
P/E ratio	0.0000	(0.0002)[a]	0.0000	(0.0051)[a]	0.0001	(0.4296)	0.0000	(0.8000)
Market-to-book ratio	0.0006	(0.0043)[a]	0.0006	(0.0014)[a]	0.0007	(0.0153)[b]	0.0009	(0.0017)[a]
SD of analysts' forecasts	0.0871	(0.3154)	0.1098	(0.2157)	−0.3032	(0.0208)[b]	−0.3492	(0.0094)[a]
Abnormal stock trading volume	0.1468	(0.0001)[a]	0.1548	(0.0001)[a]	0.1704	(0.0001)[a]	0.1805	(0.0001)[a]
Momentum investor	0.1580	(0.0001)[a]	0.1463	(0.0001)[a]	0.2848	(0.0001)[a]	0.2823	(0.0001)[a]
Aggressive growth or growth investor	0.1126	(0.0001)[a]	0.1422	(0.0001)[a]	0.0606	(0.3781)	0.0349	(0.6124)
Investment advisor	0.3244	(0.0001)[a]	0.3813	(0.0001)[a]	0.3601	(0.0001)[a]	0.4469	(0.0001)[a]
High turnover investor	0.6974	(0.0001)[a]	0.7536	(0.0001)[a]	0.7204	(0.0001)[a]	0.7513	(0.0001)[a]
Log likelihood	12,415		14,897		1,001		1,195	

Panel B: Calender Quarter 4 Only

N (Sell = 1)	24,070		21,065		1,728		1,536	
N (Sell = 0)	35,739		38,744		2,025		2,217	
Total N	59,809		59,809		3,753		3,753	
Intercept	0.6859	(0.0001)[a]	1.0658	(0.0001)[a]	2.5658	(0.0011)[a]	3.3029	(0.0001)[a]
Forecast error	− 3.9790	(0.0147)[b]	− 1.4579	(0.3747)	0.2658	(0.9281)	2.9999	(0.3033)
Log (market value of equity)	− 0.0816	(0.0001)[a]	− 0.1124	(0.0001)[a]	− 0.1635	(0.0001)[a]	− 0.2126	(0.0001)[a]
Stock return over quarter	− 0.1934	(0.0076)[a]	− 0.2541	(0.0006)[a]	− 0.2091	(0.3422)	− 0.0719	(0.7468)
Market return over quarter	0.3321	(0.2188)	0.9270	(0.0009)[a]	7.0629	(0.0001)[a]	7.3488	(0.0001)[a]
P/E ratio	0.0000	(0.4288)	0.0000	(0.5931)	− 0.0001	(0.7819)	− 0.0001	(0.7082)
Market-to-book ratio	− 0.0003	(0.4310)	− 0.0003	(0.3777)	0.0344	(0.0001)[a]	0.0349	(0.0001)[a]
SD of analysts' forecasts	0.6542	(0.0025)[a]	0.8341	(0.0002)[a]	0.4715	(0.4169)	0.2767	(0.6396)
Abnormal stock trading volume	0.0894	(0.0001)[a]	0.0931	(0.0001)[a]	0.0103	(0.7726)	0.0291	(0.4183)
Momentum investor	0.1288	(0.0001)[a]	0.1159	(0.0001)[a]	0.3720	(0.0006)[a]	0.3882	(0.0003)[a]
Aggressive growth or growth investor	0.0114	(0.7567)	0.0619	(0.0969)[c]	0.0099	(0.9432)	− 0.0279	(0.8403)
Investment advisor	0.2531	(0.0001)[a]	0.3045	(0.0001)[a]	0.3970	(0.0001)[a]	0.4902	(0.0001)[a]
High turnover investor	0.6702	(0.0001)[a]	0.7480	(0.0001)[a]	0.6054	(0.0001)[a]	0.6888	(0.0001)[a]
Log likelihood	2,112		2,678		278		351	

Table VIII

Computed Probabilities from Logit Regressions: Individual Institution's Probability of Selling in Response to Negative Earnings News

Sell > 10%, 20% indicates the investor decreased shares held by greater than 10% or 20%, respectively, in response to negative earnings news. The change in shares held is measured over the quarterly period containing the earnings announcement. Probabilities are computed using estimates reported in Table VII. Base case is calculated setting all independent variables to their sample means or to zero for dummy variables. Additional probability estimates are calculated by increasing the independent variable by one standard deviation or setting the dummy variable for investor characteristics equal to one. Difference from base case probability is shown in parentheses.

	All Quarters				Calendar Quarter 4 Only			
	Forecast Error				Forecast Error			
Dependent variable from logistic regression	<0 Sell > 10%	<0 Sell > 20%	<-0.01 Sell > 10%	<-0.01 Sell > 20%	<0 Sell > 10%	<0 Sell > 20%	<-0.01 Sell > 10%	<-0.01 Sell > 20%
Base case (all at means, or 0)	*30.44%*	*24.97%*	*34.29%*	*29.23%*	*33.43%*	*27.62%*	*43.77%*	*35.61%*
Momentum investor	33.89%	27.81%	40.96%	35.39%	36.36%	30.00%	53.03%	44.92%
	(3.45%)	*(2.84%)*	*(6.67%)*	*(6.16%)*	*(2.92%)*	*(2.38%)*	*(9.26%)*	*(9.30%)*
Aggressive growth or growth investor	32.88%	27.72%	35.67%	29.96%	33.69%	28.88%	44.01%	34.98%
	(2.44%)	*(2.76%)*	*(1.38%)*	*(0.73%)*	*(0.25%)*	*(1.25%)*	*(0.24%)*	*(−0.64%)*
Investment advisor	37.71%	32.76%	42.79%	39.24%	39.28%	34.10%	53.65%	47.45%
	(7.27%)	*(7.79%)*	*(8.50%)*	*(10.01%)*	*(5.85%)*	*(6.48%)*	*(9.89%)*	*(11.84%)*
High turnover investor	46.78%	41.42%	51.75%	46.68%	49.54%	44.64%	58.78%	52.41%
	(16.34%)	*(16.45%)*	*(17.46%)*	*(17.45%)*	*(16.11%)*	*(17.02%)*	*(15.01%)*	*(16.80%)*

tional holdings is only −0.3 percent (as a percentage of shares outstanding). However, for firms in the top sample quintile of institutional ownership (having a mean level of institutional ownership of 82.5 percent), the mean drop in total institutional holdings is 3.03 percent, with a maximum of 89 percent. Firms in the top ownership quintile of holdings by momentum, aggressive growth, and high-turnover investors, respectively, have mean pre-announcement levels of ownership by these groups of 26.4 percent, 21.8 percent, and 31.3 percent. Ownership by these groups drops on average by 3.7 percent, 2.4 percent, and 2.3 percent, with a maximum of 30.2 percent, 30.7 percent, and 25.3 percent, respectively. Even though, on average, we do not observe large changes, for some observations, the change in ownership structure can be substantial. Thus, the observed changes in ownership, together with our regressions relating the abnormal returns to the change in ownership, are consistent with the idea that selling by these investors is associated with a greater stock price decline.

We further examine these issues using logistic regressions to estimate the probability of an individual institution selling in response to the negative earnings news (Table VII). The dependent variable indicates for each institution whether it decreased shares held by more than 10 percent or 20 percent over the quarterly period containing the earnings announcements. The regressions are pooled for all firms and earnings announcements. We include a number of control variables in addition to dummy variables indicating characteristics of the institution. Variables that indicate momentum investors, growth investors, investment advisors, and high-turnover investors are each positively related to the observed decision to sell. Results are also reported for more extreme forecast errors, while Panel B provides results for all events occurring in the fourth quarter. For both extreme forecast errors and fourth quarter events, the variable indicating growth investors is not significant.[19]

Since we are interested in the economic as well as statistical significance of the ownership variables, Table VIII reports the predicted probabilities of selling based on these estimates. The base case is the predicted probability of selling, setting all explanatory variables either at their sample means for the control variables or at zero for the investor characteristic indicator variables. For example, a momentum investor has a predicted probability of selling more than 10 percent in response to negative earnings news of 33.89 percent, which is 3.45 percent higher than the base case where the momentum indicator variable is equal to zero. The increase in probability is greater (6.67 percent) for extreme forecast errors, and is greatest for extreme forecast errors occurring in the fourth quarter (increase of 9.26 percent). Investment advisors show a more striking difference of 7.27 percent, and the greatest increase is again for extreme forecast errors in the fourth quarter (9.89 percent). Finally, higher turnover investors by definition will be

[19] The regressions combine reactions by the same institutions across different firms' announcements at similar points in time, assuming observations are independent. Results are similar to those reported when we include time dummies in the regressions. Results are also similar deleting the largest managers (based on the number of observations) from the sample.

more likely to trade regardless of the news. However, they are substantially more likely to sell on bad earnings news, with more than a 16 percent greater probability than the base case.[20] Overall, these results are consistent with the interpretation that the abnormal stock price responses reported in the previous tables are related to selling by certain types of institutions.

III. Trading Volume

This section examines the relation between trading volume in days surrounding quarterly earnings announcements and institutional holdings. Karpoff (1986) demonstrates that information flows lead to increased volume if investor disagreement exists or market participants have divergent prior expectations. Kim, Krinsky, and Lee (1997) find that trading volume in response to earnings news is greater for firms with higher institutional ownership, after controlling for the magnitude of the stock price reaction and the dispersion of analyst's earnings forecasts. Since we cannot directly observe trading activity on the event days, we again consider the effects of ownership levels at the calendar quarter ending prior to the earnings announcement.

Table IX reports regressions explaining trading volume, where the dependent variable is the log of abnormal trading volume on days -1 and 0. Abnormal trading volume is calculated as the difference between daily turnover (volume/shares outstanding) and the median daily turnover for that stock on days -250 to -60. Defining abnormal turnover based on median turnover from days -60 to -9, or based on the three days (-1 to $+1$) surrounding the announcement, produces nearly identical results to those reported here. Each regression controls for the two-day abnormal stock return. When firms miss earnings forecasts, as the return becomes more negative, trading volume increases. We also control for the dispersion of analysts' forecasts, measured as the standard deviation of forecasts from IBES. This variable is positive and significant in each case, suggesting earnings announcements may convey more useful information when the dispersion of analyst forecasts is higher. Additional control variables for stock characteristics are as previously described.

We expect cross-sectionally a positive relation between the proportion of institutional ownership and trading volume reactions during the event period. The regressions in Table IX show that in each case, the percentage of stock held by all 13(f) institutions is positive and significant. However, the composition of the institutional holdings also appears to have an important effect on turnover. Trading volume is higher when a greater proportion of that stock is held by momentum investors. We also observe a relation between investment style and volume; as aggressive growth or growth ownership increases, trading volume increases.

[20] In a previous draft, we also showed that high turnover investors also have an increased probability of buying in response to good earnings news. However, for momentum investors, growth investors, and investment advisors there is an asymmetry in the response to good and bad earnings news; there is a significant increase in the probability of selling in response to bad news but little increase in the probability of buying in response to good news.

Table IX

Trading Volume Regressions with Institutional Ownership Levels

The dependent variable is the two-day [− 1,0] abnormal trading volume at announcement of negative earnings news. Abnormal trading volume is calculated as the difference between daily turnover (volume/shares outstanding) and the median daily turnover on days − 250 to − 60. The independent variables are a series of firm characteristic control variables, and the level and composition of institutional ownership. Abnormal return is the two-day [− 1,0] cumulative market model abnormal stock return. The *SD* of analysts' forecasts is the standard deviation of forecasts from IBES prior to the announcement. Total 13(f) ownership is based on Spectrum's listing of all holdings by 13(f) institutions at the calendar quarter-end preceding the announcement. All other ownership variables are based on Georgeson's classifications (defined in Table I) and are calculated as a percent of total shares held by 13(f) institutions. Standard errors are reported in parentheses.

	(1)		(2)		(3)		(4)		(5)	
Intercept	3.9938	(0.5459)[a]	3.5215	(0.5319)[a]	2.0919	(0.6059)[a]	3.1938	(0.5592)[a]	1.2713	(0.6021)[b]
Abnormal return [− 1,0]	− 3.8560	(0.6886)[a]	− 3.5394	(0.6680)[a]	− 3.4853	(0.6557)[a]	− 3.7532	(0.6702)[a]	− 3.8927	(0.6607)[a]
SD of analysts' forecasts	2.3714	(0.5331)[a]	2.8670	(0.5199)[a]	2.8132	(0.5151)[a]	2.4766	(0.5190)[a]	2.6146	(0.5121)[a]
Log (market value of equity)	− 0.0256	(0.0247)	− 0.0135	(0.0239)	0.0353	(0.0250)	0.0317	(0.0255)	0.0407	(0.0248)
3-year sales growth	0.0403	(0.0151)[a]	0.0263	(0.0147)[c]	− 0.0050	(0.0150)	0.0185	(0.0150)	0.0237	(0.0146)
Dividend yield	− 0.4526	(0.2739)[c]	− 0.2835	(0.2661)	− 0.2648	(0.2608)	− 0.3983	(0.2666)	− 0.4548	(0.2627)[c]
Prior 3-month stock return	− 0.9522	(0.2162)[a]	− 0.9038	(0.2095)[a]	− 0.7594	(0.2059)[a]	− 0.9192	(0.2107)[a]	− 0.8192	(0.2080)[a]
Total 13(f) ownership/shares outstanding	1.1615	(0.1798)[a]	0.9342	(0.1764)[a]	0.9245	(0.1759)[a]	0.8471	(0.1821)[a]	0.8190	(0.1765)[a]
Ownership by (as a % of total 13(f)):										
Momentum investors			2.9037	(0.3628)[a]						
Aggressive growth investors					3.8259	(0.3878)[a]				
Growth investors					0.9550	(0.2841)[a]				
Value investors					0.4149	(0.3640)				
High turnover investors							1.6219	(0.4412)[a]		
Low turnover investors							− 1.0155	(0.3134)[a]		
Investment advisors									2.5555	(0.2776)[a]
N	959		959		959		959		958	
R^2	0.122		0.178		0.213		0.170		0.194	

[a,b,c] Significant at the 1%, 5%, and 10% level, respectively.

These results suggest that income-investors holdings stock based on its dividend yield or balanced investors are less likely to trade in response to bad news. The effects of the turnover classifications are also as expected; a greater proportion of high turnover investors (relative to medium turnover investors) increases trading volume, while a greater proportion of low turnover investors decreases volume. Lastly, we observe that higher institutional ownership by investment advisors is associated with higher trading volume. For regressions for more extreme forecast errors (not reported), the coefficients for the momentum and aggressive growth ownership increase slightly (3.2 and 4.1, respectively, which are both significant at the one percent level). Regressions using only announcements in the fourth quarter again have higher R^2s (ranging from 0.24 to 0.32), but are otherwise similar.[21]

Our evidence is consistent with that of Kandel and Pearson (1995), who find abnormal volume is associated with quarterly earnings announcements, even when prices do not change in response to the announcement. They interpret their results as evidence that agents have differential interpretations of public signals. Overall, the trading volume response is strongly related not just to the level of institutional ownership but to the composition of that ownership. These results demonstrate the significance of heterogeneity in institutional investors' trading behavior in response to earnings information.

IV. Variance of Returns at Earnings Announcements

Our final tests consider the impact of institutional ownership structure on the change in the variance of returns in the days around earnings announcements. Chari, Jagannathan, and Ofer (1988) find that variability increases during earnings announcement periods relative to nonannouncement periods, and that the increase is greatest for smaller firms.

Table X reports the average of the squared standardized OLS market model excess returns on days -1 through $+5$ relative to the earnings announcement. Under the null hypothesis that the same OLS market model holds in both the estimation period (days -250 to -60) and the test period and the assumption that this model's residuals are normally distributed, the standardized prediction error has a t-distribution with 191 degrees of freedom. Therefore, $(189/191) \times$ the squared standardized prediction error has an expected value of one. Chari et al. (1988) provide detailed explanation of these calculations. Despite the fact that the sample includes relatively large firms, for the total sample (first line in Table X), the volatility of excess returns increases on days close to the announcement date and then returns to more normal levels. When firms miss their earnings forecasts, there is a 236% increase in variance on the announcement date (day 0). We provide t-statistics (in parentheses) for the test that the average ratio of the variance on an event date to the daily variance during the estimation period is

[21] We also regress abnormal trading volume on changes in the level of institutional ownership. The results are similar to the levels regressions, except for the notable difference that the change in total institutional ownership does not enter the regression significantly.

Table X

Variance of Stock Returns on Days around Earnings Announcements

The table reports the mean squared standardized OLS market model excess return on days –1 through +5 relative to the earnings announcement for 1,113 cases of negative forecast errors. Under the null hypothesis that the same OLS market model holds in both the estimation period (days –250 to –60) and the test period, the squared standardized prediction error has an expected value of one. The sample is further divided into high/low institutional ownership and high/low estimation period volatility subsamples based on whether characteristics for that firm are in the top or bottom sample third. a,b,c indicate the mean squared standardized return is significantly different between ownership subgroups at the 1%, 5%, and 10% level, respectively. *T*-statistics (in parentheses) are provided for the test that the average ratio of the variance on that date to the daily variance during the estimation period is different from one.

		Day Relative to Earnings Announcement:						
		−1	0	+1	+2	+3	+4	+5
All observations		2.21	3.36	2.49	1.24	1.11	0.96	1.03
		(5.46)	(7.08)	(4.78)	(2.32)	(1.44)	(0.55)	(0.65)
Ownership by								
All institutions	Low ownership	1.88[b]	2.34[a]	1.72b	1.13	1.11	0.93	0.97
		(3.10)	(4.26)	(4.20)	(1.44)	(0.75)	(0.62)	(0.14)
	High ownership	3.27	4.28	2.77	1.67	1.18	0.95	1.11
		(4.23)	(5.39)	(4.01)	(1.96)	(1.30)	(0.32)	(0.79)
Momentum investors	Low ownership	1.72[b]	2.53[a]	1.80[b]	1.17	1.12	1.02	1.02
		(3.60)	(4.77)	(4.40)	(1.90)	(1.53)	(0.43)	(0.43)
	High ownership	3.19	4.43	2.90	1.10	1.33	0.91	0.98
		(3.42)	(3.73)	(3.65)	(1.03)	(1.18)	(0.74)	(0.07)
All growth investors	Low ownership	1.66[a]	2.86[c]	1.67[a]	1.16	1.19	1.05	1.02
		(3.46)	(4.54)	(4.25)	(1.89)	(1.18)	(0.76)	(0.34)
	High ownership	3.56	3.89	3.28	1.06	1.12	0.98	1.11
		(3.52)	(3.51)	(4.09)	(0.59)	(0.93)	(0.09)	(0.81)
High turnover investors	Low ownership	2.11	2.30[b]	2.32	1.25	1.19	0.95	1.11
		(3.38)	(4.44)	(2.21)	(2.56)	(1.16)	(0.40)	(0.98)
	High ownership	2.59	3.66	2.89	0.99	0.99	0.88	0.90
		(2.97)	(4.19)	(3.51)	(0.14)	(0.11)	(1.04)	(0.79)
Investment advisors	Low ownership	1.91[c]	2.55[c]	1.74[b]	1.07	1.19	0.99	0.97
		(3.24)	(3.97)	(4.42)	(1.03)	(1.17)	(0.02)	(0.18)
	High ownership	3.03	3.99	2.89	1.49	1.06	0.91	0.98
		(3.60)	(4.38)	(3.70)	(1.36)	(0.69)	(0.77)	(0.02)
Low estimation period volatility		2.26	3.07	2.13	1.31	0.95	0.97	1.02
		(4.12)	(4.99)	(3.05)	(2.35)	(0.31)	(0.14)	(0.36)
High estimation period volatility		2.03	3.10	2.34	1.27	0.98	0.95	1.05
		(2.78)	(4.48)	(4.81)	(1.13)	(0.06)	(0.48)	(0.45)

different from one. Test statistics based on an estimation period −60 to −9 days prior to the earnings announcement are similar to those reported.

We further divide the sample into high/low institutional ownership subsamples based on whether institutional ownership characteristics for that firm are in the top or bottom sample third. The increase in variance is greater for firms with higher levels of institutional ownership (day 0 variance increases 328 percent versus 134 percent); the difference in mean squared standardized residuals is significant at the one percent level. Consistent with our previous results, the

change in variance is related to the composition of institutional ownership. The date 0 increase in variance is more than twice as large (343 percent vs. 153 percent) for firms with higher proportions of momentum ownership, which is significant at the one percent level. The increase is also significantly greater for firms with a higher proportion of ownership by growth (including aggressive growth) investors, high turnover investors, or investment advisors.

The increase in variance is only slightly more pronounced for events which occur in the fourth calendar quarter (not reported), except for the momentum ownership group, where the difference from other quarters is more striking. For quarter four, the day zero variance increases 504 percent for the high momentum ownership group, versus 117 percent for the lower momentum ownership group.

Notice that it is the reaction to the earnings news (the *change* in volatility) that differs across the ownership groups, not just that certain shareholder clienteles are attracted to more volatile stocks.[22] The final lines in Table X divide the sample into high and low preannouncement volatility subsamples (using sample thirds based on the standard deviation of excess returns from the -250 to -60 period). It does not appear that higher estimation period volatility stocks show a different response in the days around the earnings announcement.[23]

Our finding that ownership structure is related to abnormal volatility is important for two reasons. First, while our evidence is limited to specific firm events, this finding does suggest that it is possible that ownership structure in addition to macroeconomic conditions can affect a fundamental equity characteristic, volatility. Second, as discussed earlier, changes in idiosyncratic volatility have real welfare consequences.

V. Summary and Conclusions

Are institutions "short-term" traders who reward strong performance and punish weak performance? This debate is central to a growing literature which examines the stock price impact of institutional trading. In this paper, we study one facet of this question: How does the ownership composition of firms affect parameters of the market reaction to earnings information?

We extend the literature on the impact of institutional ownership by considering their heterogeneity in investment style, momentum trading behavior, and portfolio turnover. We find that the magnitude of the price reaction at earnings announcements is related not just to the level of institutional ownership, but

[22] Notice also in Table III that the standard deviation of daily returns for the sample firms is somewhat higher for aggressive growth and lower for income investors, but otherwise similar across the ownership classifications. Bennett et al. (1999) reject the hypothesis that manager types (from Spectrum) exhibit homogeneous preferences for risk, measured as the standard deviation of monthly returns.

[23] To assess the robustness of the volatility results, we reestimate the Table V regressions with the announcement volatility level as the dependent variable. Consistent with Table X, volatility at the earnings announcement is significantly related to the ownership variables, and the relationship is strongest for the total institutional ownership and momentum ownership variables.

more importantly to characteristics of the institutional holders. There is no evidence, however, that certain types of investors have a destabilizing effect on stock prices. Our results are consistent with the interpretation that the relation between returns and ownership structure is related to a change in demand by certain institutions. We further find that abnormal trading volume and increased variance at earnings announcements are related to the composition of institutional ownership. Our findings demonstrate that there is a link between the portfolio decisions of institutions and the returns and trading patterns of common stocks.

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