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INSTITUTIONAL INVESTORS

John Pound

Robert J. Shiller

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Speculative Behavior of Institutional Investors

ABSTRACT

A survey compared speculative behavior in two groups of institutional investors. The 'experimental' group held stocks that had shown extraordinary price increases over the preceding year that also had high price earnings ratios. The control group held randomly selected stocks. In Shiller and Pound [1986] we argued that the survey results gave some support to some diffusion or epidemic models for interest in the stocks in the experimental group. Here, we show that the two groups are similar in describing their investment strategy as relating to a theory about fundamental value rather than about the kind of stocks that are becoming attractive to investors. However, the experimental group is less likely to make explicit comparisons of price with measures of fundamental value, and differs from the control group in their attitudes toward timing, price changes, and short-term earnings disappointment. Overall, these results appear consistent with the notion that price changes unrelated to fundamentals may be caused by contagious enthusiasm about fundamentals amongst institutional investors.

The holding patterns of those experimental group investors who said that they were unsystematic in their stock choice are studied. These investors tended to show gradually increasing holdings over the period of stock price increase. Reasons respondents gave for the gradual increase are discussed.

John Pound
Office of the Chief Economist
Securities and Exchange Commission
Room 6023, Stop 6-3
450 Fifth St., NW
Washington, DC 20549

Robert J. Shiller
Department of Economics,
Cowles Foundation and
School of Management
Yale University
Box 2125 Yale Station
New Haven, CT 06520

Introduction

We have undertaken a broad-based survey of institutional investors to learn about their habits of behavior, interpersonal communications, and the nature of their theories. In a companion paper (Shiller and Pound [1986]) some results of the survey were used to evaluate a model of interpersonal communications that was patterned after contagion models used by epidemiologists. In this paper other results of the survey are described that help us learn whether institutional investors in some stocks fit models of speculative behavior that could mean that they (and not just individual investors) give rise to price movements unrelated to objective fundamentals. Here, we also look at patterns of holdings of those institutional investors whose behavior seems particularly relevant to such presumed speculative "bubbles".

The idea that prices of speculative assets might move for reasons having to do more with the speculative behavior of investors than with information about true fundamentals has generally been out of favor ever since the literature on market efficiency became widely known. More recently, however, a lot of 'anomalous evidence' regarding the efficient markets hypothesis has appeared and the widespread conclusion that markets are efficient has been questioned (see, for example, Shiller [1984], or Summers [1986] for a discussion). One of us (Shiller [1984]) has proposed an alternative model of prices of speculative assets which admits the existence of some "smart money" that attenuate the effects of the more ordinary investors on price but do not eliminate the effects. In this model price is equal to the

present value of expected future dividends plus a term proportional to the present value of the expected (by smart money) demands of ordinary investors. Such a model might well accommodate most of the evidence on market efficiency while at the same time allowing also purely speculative price movements, i. e., price movements generated by investors speculative behavior rather than by any information about fundamental value. Analogous models have been proposed by Kyle [1986], and Singleton [1985]. A number of papers in the "noisy rational expectations" models literature also imply that the effect of ordinary investors on price is not eliminated by smart money (e. g., Hellwig [1980], Admati [1985]). The arbitrage pricing theory (Ross [1976]) is consistent with such an effect if the speculative price movements in individual stocks contribute towards a factor structure for all returns.

A great deal of attention has recently been paid the fact that stocks with high price-earnings ratios and stocks whose price has increased dramatically tend to show subsequent negative abnormal returns. (See for example Basu [1983] and DeBondt and Thaler [1985].) One popular interpretation for these results is that such stocks are often undergoing purely speculative price runups whose probable end brings subsequent price declines. We thus sought to study such stocks to see if we could find evidence that might show a speculative component to institutional investors' behavior.

The ten stocks used for the experimental¹ group were chosen to show, in

¹We use the term 'experimental' to denote the group of investors that we wish to compare with randomly selected investors. This use of the term corresponds to the common usage in analysis of variance, even though here no controlled experiment was undertaken.

May or June of 1985, extremely high price increase in the preceding year and a high P/E ratio. Of course, we do not know with any certainty whether any of the ten stocks that we selected were actually overpriced. At the very least, however, the experimental group stocks are stocks that are 'interesting' and may incite extensive interpersonal communications, and may be also be grouped in some other dimensions with the stocks that could be predicted to show negative abnormal returns. The experimental group of investors consisted of 125 institutional investors in these ten stocks. The control group of investors consisted of 95 institutional investors in ten companies chosen at random from the universe of publicly held corporations. These investors should be representative of the market as a whole. Names of institutional investors were taken from those who indicated, on the 13f report to the Securities Exchange Commission, that they held stock in one of the companies on March 31 or June 30, 1985.²

Questionnaires that used the company name throughout for each of the 20 stocks. Complete individualization of questionnaires (rather than individualization of letters only asking that the questionnaire be filled out with the stock in mind) was done to assure that answers related to the actual stocks and were not interpreted as answers to hypothetical questions. Responses were obtained for nine stocks in the experimental group, and six in the control group. For these stocks, several summary statistical differences are shown in Table 1. As can be seen, not only were price increases and P/E ratios more dramatic in the group, but other differences

²Institutional investors with discretion over accounts with combined equity assets exceeding \$100 million must report on Form 13f their equity holdings at the end of each quarter. Equity holdings below 10,000 shares and also below \$200,000 in market value need not be reported, although such holdings often are reported anyway.

that we did not select on are also evocative of stocks going through a public fad. Turnover rates were higher for the experimental group stocks. Consensus forecasts of fiscal 1985 earnings increased more in the experimental group than in the control group, but the increase came nowhere near the increase in prices. The increase in the consensus forecast for fiscal 1985 relates to expectations for the firms over a short horizon (for which information is likely to be relatively concrete), in contrast to the increase in price which presumably reflects expectations for the firm over the indefinite future.

We followed a rigorous regimen (following Dillman's [1978] "Total Design Method") in order to maximize accuracy of sampling and the response rate from our sample of investing institutions. Each institution was initially contacted and asked to forward a questionnaire to an individual within the organization who was responsible for the decision to purchase stock in the corporation in question. The letter strongly emphasized that the questionnaire should be filled out only by the actual decision maker. Three follow-up letters were then sent, two of which included an extra questionnaire, the final letter delivered by registered mail. All emphasized the individual survey response would be treated confidentially, and that the survey results would be published, so that their efforts had the potential to result in significant advancement of public knowledge about the stock market.

We received cooperative responses from 128 or 59% of the 216 institutions surveyed. We felt this was a very high response rate given the pitfalls involved in asking institutions to obtain the cooperation of the relevant decision maker. Of these, 57 institutions indicated that they were out of

frame (usually, that the decision to purchase was not made by someone presently in the institution or that the decision was forced by a mechanical rule, as with index funds). We received usable questionnaires from 41 experimental group institutions, and 30 control group respondents.³

We concluded, in the other paper discussing some results of this survey (Shiller and Pound [1986]), that the evidence supported the notion that contagion models are particularly useful in understanding the investors' behavior in our experimental group. Contagion models have been used by epidemiologists to study the transmission of diseases (e. g., Bailey [1975]) or social psychologists and sociologists to study the transmission of fashions or fads (e. g., Bartholomew [1982]).⁴ If, as a simple contagion model suggests, interest in fad stocks is spread primarily by personal communication among investors, then this should be evident in two aspects of fad investors' communication patterns in our experimental group. First, these investors should become interested in the stocks in question primarily because of personal communications with other investors. Second, these investors should be active in communicating with others, thereby spreading the word about the stock. We interpreted our results as in concordance these inferences even for our control group, and, moreover, supporting these inferences more for those investors in the experimental group.

Fundamentals versus Market Psychology

For the purpose of learning whether traditional bubble or fads models

³Further details about the sampling procedure, implementation method are in Shiller and Pound [1986].

⁴Social psychologists have shown that direct interpersonal communications among peers is of singular importance for attitude change (McGuire [1969]).

might in some sense be descriptive of the behavior of investors in our experimental group, we first approached the issue in a very direct way. We posed an open-ended question, asking investors to state briefly the theory that motivated them to invest in the stock in question:⁵

In a few words, state the theory that caused you to purchase _____ . Put the theory as you would have put it to convince a trusted friend or fellow investment professional to buy the stock.

Immediately after the space in which they were to write the theory, the following questions appeared:

Which of the following better describes the above theory? (circle one number)

A theory about the kinds of stocks that are becoming attractive to investors 1
experimental group: 25% ($\sigma = 7\%$)
control group: 21% ($\sigma = 8\%$)

A theory about fundamentals, such as profits or dividends 2
experimental group: 75% ($\sigma = 7\%$)
control group: 79% ($\sigma = 8\%$)

n:40,28

There is virtually no difference between the experimental and control groups on their classification of their theories: they both tend strongly to

⁵In what follows, the percent of those answering the question who chose the indicated answer are shown for the experimental and control groups. Since some respondents did not answer all questions, the number answering the question are also shown for the experimental and control groups. Standard errors, designated σ , are computed by the formula $\sigma = \sqrt{(x(n-x)/n)}$, where x is the number selecting the answer.

describe their theories as concerning fundamentals.⁶ The theories provided, in both control and experimental groups, seemed also to refer to judgments about public information about fundamentals, such things as growth trends in the industry and quality of management.⁷ For both experimental and control groups, there was no explicit mention in the open-ended question of market psychology. No investor in either the control or experimental group of stocks explicitly stated that the stock in question might be overpriced. Of course, buying an overpriced stock would seem unlikely unless there is a theory that market psychology would result in its becoming even more overpriced, and we have seen that no mention of market psychology was ever made.

We interpret these results as rather unfavorable (at least for these institutional investors) to the sort of traditional bubble model in which investors perceive themselves as participating in a bubble and hope to exit before it is over. The answers to the open-ended question, however, are not inconsistent with the notion that 'fads' among institutional investors about theories of fundamental value might engender speculative bubbles.

Within the framework of fundamental analysis used by both investor groups, there was in fact a significant difference between control and experimental investors' theories. The difference lay in their concern with relative valuation. Among control investors, 60% mentioned the relative value of their stock in describing their investment theory -- comparing its

⁶ Of course, choosing the second answer to the above question does not rule out that the respondent was counting on an inappropriate market response to fundamentals. Margin comments indicated that some respondents had trouble answering this question

⁷ Except for unspecific references to discussions with management, none referred to distinct inside information.

price, at the time they invested, to some measure of fundamental value.⁸ Most common were mentions of low P/E ratios, low price relative to asset (or book) value, and low price relative to cash flow. A majority of control group investors thus explicitly stated that they considered the stock a good value at the time of investment -- with 44% explicitly suggesting that it was undervalued at the time.

By contrast, only 12% of our 41 experimental respondents compared the price of the stock to either current or future fundamental value.⁹ Instead, their answers focussed almost exclusively on the near-term future earnings and growth prospects for the industry in question. Of the 41 experimental group investors, 80% mentioned the prospect for strong, apparently short-term, growth as the major motivation to invest. Earnings projections were virtually never compared to price but rather mentioned as something desirable in their own right. The group thus appeared caught up in growth potential, and far less concerned with whether this potential was already reflected in the stock's current market price.

Almost all of the experimental group investors described their theory in the classic lines of the good "story" stock. The industry in question had

⁸Perhaps this concern with undervaluation reflects some concern with market psychology, not explicitly stated.

⁹Such comparisons with fundamental value need not have involved complicated calculations. While price was very high relative to the immediately available earnings figure, there are potentially many other things that one might expect professional investors to compare with price. For example, they might cite the per-share values of the appraised value of the assets, of public earnings forecasts, or of size of plausible market share. We cannot rule out the possibility that they had such comparisons in mind and did not see fit to write them in the four-lines space provided. Still, if such calculations were really on their mind one would think that the calculations would be cited more often in efforts to convince a "fellow investment professional to buy the stock."

undergone an important shift in prospects. This shift was tied to a fairly vivid recent qualitative changes that have been widely analyzed in the popular press. Prominent among the investors' "theories" mentioned were trends that any follower of general corporate news would be familiar with; including the shift in medical care to health maintenance organizations, the shift to generic drugs, and the growing industrial waste problem. Thus, experimental group investors' theories did not seem particularly subtle or unusually insightful, as would be suggested if the investment were driven by comparisons of price with specialized knowledge about the company.

Market Timing

The traditional bubble model might seem to suggest that investors are very concerned with the timing of their investments. If fundamentals do not justify the price increases, then investors are perhaps likely to feel that the profit opportunity is short-lived. We asked:

Do you remember thinking at any time that the potential for profiting in _____ was short-lived and that it was therefore urgent to purchase quickly?

[CIRCLE ONE NUMBER]

Yes.....1
experimental group: 30% ($\sigma = 7\%$)
control group: 17% ($\sigma = 7\%$)

No.....2
experimental group: 70% ($\sigma = 7\%$)
control group: 83% ($\sigma = 7\%$)

n:40,30

The experimental group does have somewhat more investors who feel that the profit opportunity is short-lived. We thought that such a result might be suggest that concerns with what other investors are thinking in the short run is much more on the mind of the experimental group investors. But,

admittedly, the outcome of this question could have other interpretations. It's possible, for example, that the greater concern with timing is just due to the observed rapidity of price movements.

Hypothetical Questions

We posed several hypothetical questions concerning the stocks under study:

In each of the following questions, what is your best guess as to how you would change your holdings of _____ common stock?

I would buy more I would do nothing I would sell

[CIRCLE ONE NUMBER FOR EACH ITEM]

a. Price of the stock <u>increases</u> by 25% over the next year	1	2	3
experimental group	16% ($\sigma=6\%$)	46% ($\sigma=8\%$)	38% ($\sigma=8\%$)
control group	4% ($\sigma=4\%$)	36% ($\sigma=9\%$)	61% ($\sigma=9\%$)
			n:37,28
b. Price of the stock <u>decreases</u> by 25% over the next year	1	2	3
experimental group	47% ($\sigma=9\%$)	38% ($\sigma=8\%$)	15% ($\sigma=6\%$)
control group	50% ($\sigma=9\%$)	43% ($\sigma=9\%$)	7% ($\sigma=5\%$)
			n:34,28
c. A broker, or other investment professional calls and recommends that you sell	1	2	3
experimental group	0%	92% ($\sigma=4\%$)	8% ($\sigma=4\%$)
control group	0%	100%	0%
			n:40,30
d. Bad news about current or near-term corporate performance appears in the <u>Wall Street Journal</u> (e.g., poor earnings, worsening competitive position, etc.)	1	2	3
experimental group	5% ($\sigma=3\%$)	40% ($\sigma=8\%$)	55% ($\sigma=8\%$)
control group	21% ($\sigma=8\%$)	57% ($\sigma=9\%$)	21% ($\sigma=8\%$)
			n:40,28
e. The company announces a cut in dividends	1	2	3
experimental group	0% ($\sigma=x\%$)	41% ($\sigma=8\%$)	59% ($\sigma=8\%$)

control group	4% ($\sigma=4\%$)	52% ($\sigma=10\%$)	44% ($\sigma=10\%$)
			n:34,27

Answers to part "a" show that control group investors are more likely than experimental group investors to sell if the price rises substantially. This suggests perhaps that control group investors more often have in mind a notion of fundamental value, and tend more to be looking for bargains in stocks. Moreover, the experimental group investors are more likely to buy more if there is a price rise, as suggested by traditional bubble models. Still, only 16% would buy more, which suggests against the importance of the notion that experimental group investors are well-described in terms of a traditional bubble story in which price increases generate increased demand and thus further price increases, in a vicious circle. There is essentially no difference between the groups in their reaction to a price decline, part "b".

Answers to part "d" show a difference between the groups' reactions to a short-term disappointment in fundamental performance. A majority of the experimental group investors say they would sell their holdings given such news, compared to only a fifth of the control investors. This result is consistent with the heavy emphasis experimental investors gave to near-term earnings performance in describing their investing theory.

Part "b" shows essentially no difference between the groups, but it is noteworthy that essentially half of both groups would buy more if price fell 25%. Certainly this result is not consistent with traditional bubble theory in which a price decrease would signal the collapse of the bubble.

Price Changes and Investor Interest

One possible view of investment professionals is that they might spend

their time estimating "intrinsic values" for a large number of stocks, and then automatically buy stocks whenever price falls below intrinsic value. Interest in particular stocks would then be spurred by price declines (as well as by reevaluations of intrinsic values). This may well be true of most of the investors in the control group:

Did a significant change in the price of stock motivate your initial interest in a way that led to your purchase of this stock?

[CIRCLE ONE NUMBER]

Yes 1
 experimental group: 30% ($\sigma = 7\%$)
 control group: 50% ($\sigma = 9\%$)

No 2
 experimental group: 70% ($\sigma = 7\%$)
 control group: 50% ($\sigma = 9\%$)
 n:41,30

If Yes, what was the direction of the change?

Up 1
 experimental group: 33% ($\sigma = 14\%$)
 control group: 0%

Down 2
 experimental group: 67% ($\sigma = 14\%$)
 control group: 100%

n:12,15

An opposite view of investor reaction to price changes that is often espoused is that investor interest in individual stocks is spurred by price increases. As noted above, traditional bubble models say that people extrapolate past price increases, thinking that the trend will continue. Some of the experimental group said they were attracted by a price

increase, though most did not.

Investor Motivation

Related to the conventional notion of speculative bubbles is the notion that participants in the bubble are motivated by the hopes of great profits. This would imply that the experimental group investors would be more likely to be seeking an unusual profit opportunity. The answers to the following question confirm this presumption, but in fact most investors in both groups describe themselves as seeking such opportunities:

Which of the following statements better describes how your current portfolio (or the portfolios you manage) was put together?

[CIRCLE ONE NUMBER]

The primary motivation for purchasing each stock was my expectation of an unusual profit opportunity in that stock at the time of purchase.

.....1

experimental group: 95% ($\sigma = 3\%$)
control group: 77% ($\sigma = 8\%$)

The primary motivation for purchasing each stock was to balance the portfolio, that is, to keep certain kinds of stocks as a certain proportion of the portfolio.

.....2

experimental group: 5% ($\sigma = 3\%$)
control group: 23% ($\sigma = 8\%$)

n:30.40

Diffusion Investors and Systematic Investors

Decision makers in the experimental group of stocks tend to describe their approach to stock-picking differently than do investors in other stocks. We asked the decision makers surveyed whether they agreed with the

statement: "My initial interest was the result of my, or someone else's, systematic search over a large number of stocks (using a computerized or other similar search procedure) for a stock with certain characteristics." The differences in response to this question were striking. Among control-group investors, 67% answered yes. By contrast, in the experimental group only 25% answered yes. We took these results to be quite important (Shiller and Pound [1986]). Diffusion or contagion models of stock price behavior are based on unsystematic investor behavior, and indeed the great majority in our experimental group appear unsystematic. Even if the wording of the question leaves some doubt as to how unsystematic those who answer no actually are, it is nonetheless clear that those in the experimental group are less systematic than those in the control group. Note that the question does not specify what the investors were systematic about. For what follows, we shall divide the investors in our sample into two groups: 'diffusion investors' are those who answered no to the above question, denying that they were systematic. 'Systematic investors' are those who answered yes.

Diffusion Investors Tended to Increase Holdings During Period of Rapidly Rising Prices

Figure 1 shows the number of shares (adjusted for splits and distributions) held by each of the diffusion traders in the experimental group as a function of time.¹⁰ These are end-of-quarter data for each quarter from June 1984 to September 1985. Since the stocks used in the experimental group were selected to have very high price increases over the

¹⁰It should be noted that figures shown are for the institution and do not necessarily reflect primarily the decision maker who filled out the questionnaire.

year ending May or June 1985, the time period in the plots (except for the last observation) may be characterized as having an 'uptrend' in price.

It is striking that over this period of price increase diffusion investors tended to increase their holdings. Many of these investors showed a gradual increase in holdings over the period of price increase, but only one showed a gradual decrease.¹¹ It should be emphasized that what are plotted are numbers of shares and not value of holdings. Since there were no new issues by any of the firms, the remainder of investors, not among the diffusion investors in our sample, must have tended to decrease their holdings over the sample period.

One possible interpretation that is consistent with this finding is that diffusion investors are overly enthusiastic and faddish, that other investors tend to offset the effect of their enthusiasm on price, but do not offset their effect enough to prevent a dramatic price increase.

The 'Steady Growth and Sudden Collapse' Pattern of Holdings

As is evident from Figure 1, the number of shares held through time for each of the 30 diffusion investors in the experimental group tended to grow gradually through the sample period, over which prices per share were generally rising dramatically.¹² This steady growth generally either

¹¹Of course, since our sample consisted of investors who held the stock near the end of the sample period plotted, those investors who systematically decreased their holdings to zero by this date do not appear in the plots. However, it is not clear that any important bias is introduced by this sampling method. Suppose that the holdings of shares are for each investor a random walk truncated at zero and at an upper barrier. Then those in the sample are as likely to have a higher quantity of holdings at the beginning of the sample as a lower.

¹²Since the stocks for the experimental group were selected from among the highest performing stocks for the year ending June 1985 (corresponding to the second to the last point plotted in Figure 1) the prevailing pattern of price was dramatically upwards.

continued unabated throughout the times observed or suddenly collapsed.

All of the 30 investors increased their holdings at some point in the sample shown in Figure 1, yet only 7 (or 23%) made an abrupt (that is, within three months) increase in their holdings from essentially nothing to the maximum holdings. On the other hand, of the 15 investors whose holdings decreased at some point in the sample shown in Figure 1, 11 (Or 73%) decreased their holdings abruptly (that is, within three months) from essentially their maximum holdings to essentially zero. There is thus a distinct asymmetry between increases and decreases in holdings patterns.

In only two cases was there an abrupt in-and-out pattern of holding. There was no highly irregular pattern of holdings, in which a firm came in and out of the stock more than once in the sample period, as might be suggested by models in which firms were comparing the price with their own specific information as it evolved.¹³

The smoothness of the increase in holdings might possibly be attributed to the fear on the part of investors that buying large blocks of stocks might push up the price of the stock. But there are several reasons why this explanation is unconvincing. First, our diffusion investors are not afraid to sell abruptly, only to buy. Second, total institutional holdings in our sample are small, with none exceeding the 5% threshold requiring SEC disclosure. Third, the literature on block trades -- defined as more than 10,000 shares transacted at once, as a secondary distribution -- documents

¹³The absence of monotonically declining patterns of holdings among the diffusion investors in the experimental group is striking. Of course, our sampling procedure assured that all those included would hold shares on either March or June 1985, and so there are none who had sold out by those dates. Still, there could have been monotonically declining patterns in figure 1, and their absence is probably due to the behavior of diffusion investors in a market with rapidly rising prices.

an insignificant price effect from "market disruption", and a small (1 or 2%) price impact from "information" (Scholes [1972], Kraus and Stoll [1972]).

A further examination of the holdings in the sample, comparing them to trading volume, heightens the impression that market disruption is not the reason for the pattern of slow accumulation. Taking the largest holdings among diffusion traders in our experimental group in each of the nine experimental stocks, as of December 31, 1984, and dividing the number of shares traded in that stock in January 1985 yields an average ratio of .165. With about 22 trading days in the average month, this ratio shows that the largest positions in our sample of institutional investors amounted approximately to three trading days worth of volume -- hardly justification for six-month-long periods of increasing holdings. Further, as the institutions showing highest holdings tended to be disproportionately large, with disproportionately large holdings, the same ratio for most institutions was a fraction of the above figure, often amounting to less than one day of trading volume.

If investors' fear of influencing price is not likely to be the reason for the smoothness of holding patterns, what is the reason? The following question was posed to afford some impression as to the possibilities:

Which of the following help to explain why you waited as long as you did to increase your holdings to their maximum?

[CIRCLE ONE NUMBER FOR EACH]

	Yes	No
a. I purchased only when cash flows or other sales provided funds for the purchase.	1	2

experimental group:	29% ($\sigma=7\%$)	71% ($\sigma=7\%$)
control group:	23% ($\sigma=8\%$)	77% ($\sigma=8\%$)
diffusion traders, experimental:	27% ($\sigma=10\%$)	73% ($\sigma=8\%$)

n:41,30,30

b. I waited until I had carefully thought through purchasing the stock.

	1	2
experimental group:	49% ($\sigma=8\%$)	51% ($\sigma=8\%$)
control group:	40% ($\sigma=9\%$)	60% ($\sigma=9\%$)
diffusion traders, experimental:	53% ($\sigma=9\%$)	47% ($\sigma=9\%$)

n:41,30,30

c. I wanted to accumulate over time, buying more if the stock's performance confirmed my initial expectations.

	1	2
experimental group:	46% ($\sigma=8\%$)	54% ($\sigma=8\%$)
control group:	47% ($\sigma=x\%$)	53% ($\sigma=8\%$)
diffusion traders, experimental:	50% ($\sigma=9\%$)	50% ($\sigma=9\%$)

n:41,30,30

d. I purchased at that time because some critical information suggested that this was the best time to buy.

	1	2
experimental group:	39% ($\sigma=8\%$)	61% ($\sigma=8\%$)
control group:	33% ($\sigma=9\%$)	67% ($\sigma=9\%$)
diffusion traders, experimental:	37% ($\sigma=9\%$)	63% ($\sigma=9\%$)

n:41,30,30

e. I waited until a broker, analyst, or other expert suggested that I buy.

	2	1
experimental group:	10% ($\sigma=5\%$)	90% ($\sigma=5\%$)
control group:	3% ($\sigma=3\%$)	97% ($\sigma=3\%$)
diffusion traders, experimental:	10% ($\sigma=5\%$)	90% ($\sigma=5\%$)

n:41,30,30

f. Other (specify): _____

	1	2
experimental group:	29% ($\sigma=7\%$)	71% ($\sigma=7\%$)
control group:	27% ($\sigma=8\%$)	73% ($\sigma=8\%$)
diffusion traders, experimental:	37% ($\sigma=9\%$)	63% ($\sigma=9\%$)

Most of those filling in an "other" for part "f" said something to the effect that the purchase was triggered when price fell or when information suggested that fundamental value had risen relative to price. Only three of the 71 answering part "f" brought up concerns that might be construed as related to their possibly influencing the price of the stock.

We see in these answers instead some confirmation that for many their timing of purchase had its origins in their own way of thinking or operating. They needed time to think through their purchases (part "b"). To a lesser extent, they maintain their interest until cash flows allow them to invest in the shares (part "a"). These answers suggest that the kind of time lags between the time a diffusion investor hears a story about a stock and actually invests fully in it may be thought of as due to simple delay, as hypothesized in the simple contagion or epidemic models (Shiller and Pound [1986]).

The most popular answer of all to the above question is part "c". They wanted to experience good performance before investing a lot. This answer suggests that traditional 'vicious circle' bubble models may have some validity, not because price increases attract initial interest, but because they reassure those who have already invested, who then increase their demand.

Analysis

Institutional investors in our experimental group of 'fad' stocks are different from those in our control group in a number of dimensions. They are less likely to compare price with any measure of fundamental value, and more likely to rest their case for a stock on a nonspecific "story" about

short-run earnings prospects. They are somewhat more likely to think that timing is critical, somewhat more likely to have their interest attracted by price increases and somewhat less likely to report that they would sell the share if the price increases substantially. They are more likely to sell their shares if confronted with a short-term disappointment about fundamental performance.

Institutional investors in our experimental group are not very different from those in our control group in a number of other dimensions where bubble models might have led us to expect differences. The two groups both generally agree that they are investing on theories about fundamentals rather than about market psychology. Most in the two groups agree that they are seeking unusual profit opportunities, and not looking for a "balanced" portfolio. The two groups give similar explanations why most of them take a substantial time to get around to investing in the stocks they are interested in.

These results help us to frame a little better the nature of possible purely speculative movements in stock prices. They suggest, for example, some modification of the traditional story, as told by Keynes, of the role of professionals in such price movements:¹⁴

This battle of wits to anticipate the basis of conventional valuation a few months hence, rather than the prospective yield of an investment over the long term of years, does not even require the gulls amongst the public to feed the maws of the professional; --

¹⁴ John Maynard Keynes, The General Theory of Employment, Interest and Money, pp.155-6.

-- it can be played by the professionals amongst themselves. Nor is it necessary that anyone should keep this simple faith in the conventional basis of valuation having any genuine long-term validity. For it is, so to speak, a game of Snap, of Old Maid, of Musical Chairs, a pastime in which he is victor who says Snap neither too soon nor too late, who passes the Old Maid to his neighbor before the game is over, who secures a seat for himself when the music stops.

Investors in our experimental group are not so conscious of timing and are more concerned with fundamentals than his story might suggest. The bubbles might better be described as involving interpersonal communications, rumors and theories, about genuine fundamentals. The bubbles, if they indeed were found among our experimental group, would be more in the nature of fashions or fads concerning theories about which industries will be profitable in the short-run.

Table 1.

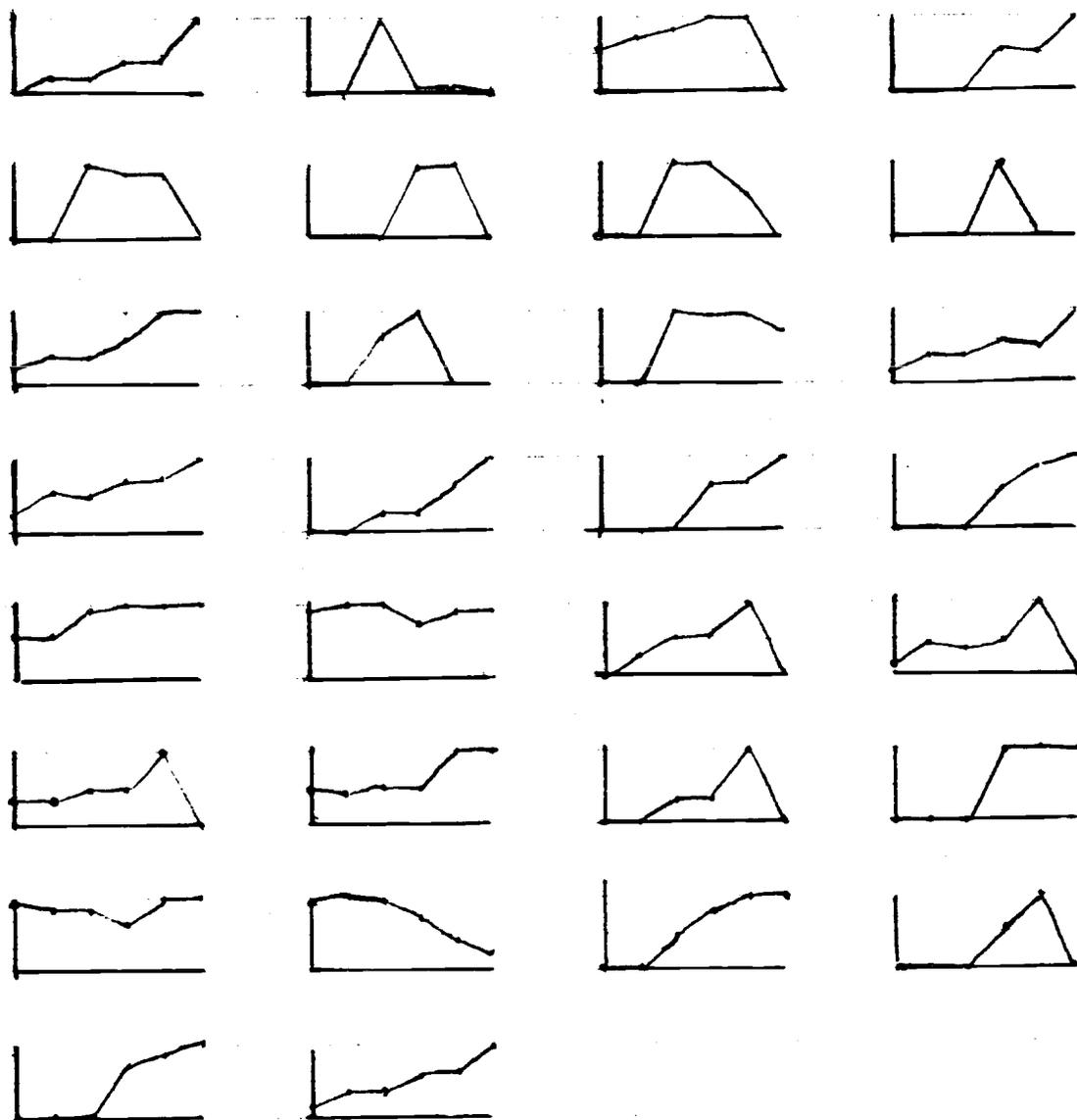
Comparison of Experimental and Control Group Stocks

	Experimental	Control
Price Increase (6/84-6/85)	184.5%	9.0%
Earnings-Price Ratio (6/85)	.025	.056
Turnover Rate (6/85)	8.0%	4.7%
Change in Consensus Forecast of Fiscal 1985 Earnings (6/84-6/85) (IBES Earnings Forecast Data Base)	35.6%	-25.3%

Note: All figures shown are weighted averages of figures for individual stocks. Weights used were the number of respondents we had for each stock. Earnings forecasts exclude several stocks: stocks for which we had three respondents in the experimental group and two respondents in the control group.

Figure 1.

Number of Shares Held by Firms as Proportion of Maximum Number Held



Note: Each plot in the above figure corresponds to a firm represented by a diffusion investor in the experimental group. For each plot the vertical axis shows number of (split and distribution adjusted) shares held (as a proportion of the maximum number held for that investor) on each of 6 dates: June, September, and December of 1984, and March, June and September of 1985. Data are from Form 13f filings with the S. E. C., as reported in Computer Directions Advisors, Inc., SPECTRUM III: 13f Institutional Stockholder Survey.

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