INSTITUTIONAL INVESTOR STUDY REPORT

OF THE

SECURITIES AND EXCHANGE COMMISSION

VOLUME 4

CONSISTING OF

INTRODUCTION TO PART THREE OF THE STUDY: IMPACTS OF INSTITUTIONAL INVESTING ON SECURITIES MARKETS, AND THE FOLLOWING CHAPTERS:

CHAPTER   X.—CHARACTERISTICS AND PRICE IMPACTS OF INSTITUTIONAL TRADING IMBALANCES AND POSITION CHANGES

CHAPTER   XI.—CHARACTERISTICS AND PRICE IMPACTS OF BLOCK TRADING IN COMMON STOCK LISTED ON NYSE

CHAPTER XII.—IMPACT OF INSTITUTIONAL TRADING ON THE MARKET-MAKING FUNCTION

CHAPTER XIII.—IMPACT OF INSTITUTIONAL TRADING ON BROKERAGE SERVICES AND THE SECURITIES INDUSTRY

OF THE INSTITUTIONAL INVESTOR STUDY REPORT, BEING A STUDY AND INVESTIGATION OF THE PURCHASE, SALE AND HOLDING OF SECURITIES BY INSTITUTIONAL INVESTORS OF ALL TYPES, PURSUANT TO SECTION 19(e) OF THE SECURITIES EXCHANGE ACT OF 1934 (PUBLIC LAW 90–438, 91–410)

MARCH 10, 1971.—Referred to the Committee on Interstate and Foreign Commerce and ordered to be printed

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INTRODUCTION TO PART THREE: IMPACTS OF INSTITUTIONAL INVESTING ON SECURITIES MARKETS

A. THE ISSUES INVOLVED

As described in Part One (I, III, NBER Report), the proportion of all outstanding stock held by institutions has not increased drastically during the last decade and still is somewhat less than 30 percent of the total. The dramatic increase in institutional turnover of equity portfolios in that period, however, which is detailed in Part Two (IV–IX), transformed those institutions into a major, if not the dominant factor in the equity markets. For example, during 1960 individual investors accounted for approximately 60 percent of the public dollar volume of trading on the New York Stock Exchange while institutions and nonmember broker-dealers accounted for 40 percent. By 1969 those proportions were more than reversed, with institutions and nonmember broker-dealers accounting for approximately 62 percent of public volume and individual investors accounting for the remaining 38 percent.[1] This shift has significantly changed the character of trading in the equity markets. Part Three (X–XIII) examines the adaptations of the securities industry and markets to these developments.

Institutional orders to purchase or sell equity securities tend to be larger than those of individual investors, and there are fewer of them. Thus, there are often not enough such orders to come to the markets in a continuous flow. This characteristic of institutional trading has led to the creation of new trading mechanisms. In addition, many institutional investors have not been willing to accept the usual level and structure of charges by the securities industry for handling trading in equities.

These basic differences between the trading of institutional investors and individual investors have impacted significantly on the markets. This part of the Study deals with four basic aspects of the consequences of institutional trading: (1) the impact on the prices of securities, (2) the impact on the structure of the markets, (3) the impact on the market-making function and (4) the impact on broker-dealer firms generally. It attempts to assess the implications of these impacts for the markets, for the institutions that use them and for the individual investors with whom the markets are shared.

B. THE SCOPE OF THE PART

As indicated, this part deals primarily with equity securities. The Study's resources did not allow general coverage of both the debt and the equity markets, and the greater part of the Commission's attention has traditionally been in the latter area. Two other limitations to the scope of the part should also be noted. As a matter of organization of

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[1] New York Stock Exchange, Public Transactions Study, 1970.

the report, for the most part only the secondary markets for equities are discussed in Part Three. Aspects of the primary markets—in particular those aspects involving venture capital investments, restricted securities and first public offerings—are covered in chapter XIV of Part Four. As a further matter of resource allocation, Part Three deals primarily with common stock listed on the New York or American Stock Exchanges. The Study decided not to collect transactions data about preferred stocks (straight or convertible), and time and data problems did not permit analysis of transactions data that it did collect about unlisted common stocks.

One general exception to the above limitations should be noted. In collecting aggregate data about the securities industry, as distinguished from particular transactions, the Study covered all securities and all markets in one of two data sets [2] and all corporate securities and all secondary markets in the other.[3] In analyzing this data the Study attempted to concentrate on subsets that would correspond in coverage as nearly as possible to the transactions data.

C. STRUCTURE OF PART THREE

The markets portion of the Study is comprised of four chapters.

Chapter X deals in general with institutional trading and analyzes its characteristics and price impacts. In particular, the first half of the chapter deals intensively with the aggregate effects of institutional trading, especially the net imbalances in that trading as between buying and selling. The second half takes a somewhat more microscopic approach and analyzes a sample of particular position changes by particular institutions. The chapter as a whole is designed to provide new insights into the impacts of institutional trading on securities prices and its potential interrelationships with trading by individual investors.

One of the most dramatic consequences of institutional trading in equity securities has been the growth of block trading. Consequently, an entire chapter has been devoted to this subject. Chapter XI deals with a number of different aspects of block trading, including positioning, in stocks listed on the New York Stock Exchange. One aspect is a description of the different markets in which such trading takes place. The mechanics of that trading in each market is also described. Another aspect involves analysis of factors that influence the choice of markets for particular block trades and the typical reasons why a particular market is selected. Finally to carry the analysis of chapter X one step further, the price impacts of samples of particular block trades are analyzed in considerable depth.

The price impacts of institutional trading depend considerably on the functioning of the market-making mechanisms. This is the subject of chapter XII, which describes the activities of stock exchange specialists, registered third market-makers and member block positioners. In addition to aggregate analyses of block positioning, particular emphasis is placed upon New York Stock Exchange specialists, to determine the extent to which they reduce avoidable temporary price

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[2] Questionnaire I–7, chapter XIII and Supplementary Volume II.
[3] Questionnaire I–61, chapter XIII and Supplementary Volume II.

fluctuations in their stocks by offsetting temporary imbalances in trading volume. Finally, their economic incentives to engage in this activity are explored in some detail.

Chapter XIII analyzes aggregate data about the securities industry. The magnitude of institutional payments of brokerage commissions to the industry is described both for the industry as a whole and for different types of firms. The services being provided by the industry to institutions and the reasons for the selection of particular types of firms are analyzed. Extensive consideration is given to the profitability of this business vis-a-vis that of individual investors and the substantial changes that have taken place in the industry as the result of that difference. Finally, the extent of institutional affiliation with broker-dealers is explored.

D. THE DATA BASE

An attempt was made to create as varied a data base as possible, over different time frames, for this part of the Study. The analysis of net institutional trading imbalances used monthly trading data and monthly prices. For particular position changes, individual transactions and both daily and intraday prices were used. Block trades were analyzed on the basis of individual transactions and both daily and intraday prices. The market-making studies utilized daily position changes, daily prices and monthly income data.

Varied data sources also were used for the study of the securities industry. Various sets of data were annual, semiannual and/or monthly. The data were collected not only from broker-dealers but also from their institutional customers. In some cases data collected from different sources were combined for analysis.

CHAPTER X

CHARACTERISTICS AND PRICE IMPACTS OF INSTITUTIONAL TRADING IMBALANCES AND POSITION CHANGES

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CHAPTER X

CHARACTERISTICS AND PRICE IMPACTS OF INSTITUTIONAL TRADING IMBALANCES AND POSITION CHANGES

A. INTRODUCTION

Prior to this Study, many different opinions about the trading patterns of institutions were held. At one extreme, it has been thought that institutions already constitute a separate submarket, trading largely among themselves. Thus, they could be segregated into a separate market entirely distinct from individual investors.[1] Another view, which is directly inconsistent, is that the trading of large institutions tends to predominate on one side of the market in a particular stock at a particular time, thereby creating net trading imbalances among institutional investors.[2] Under this view, institutions could not continue their existing trading patterns if they attempted to trade solely among themselves. They would either have to trade with individual investors to a large extent or reduce their trading in such a manner as to eliminate the imbalances.[3] Various hypotheses some contradictory, have been put forward to explain this second view:

      (1) Many instiutions tend to become aware quickly of the trading of certain "leader" institutions and pattern their trading after that of the leader; [4]

      (2) Institutions tend to receive their outside research from the same broker-dealers and therefore make identical investment decisions;

      (3) The institutions' internal staffs of professional analysts have the same data available to them and interpret them in the same way at approximately the same time, again leading to identical investment decisions [5] and

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[1] See, in this connection, the discussion of the fourth market and of automated trading systems in ch. XI.C.5 and XI.C.6, below. The "separate markets" concept has also been advocated for other reasons.

[2] Several prior analyses have reported that either all institutions or specific groups of institutions have exhibited net trading imbalances in varying degrees and over varying time periods. *Public Policy Implications of Investment Company Growth ("Public Policy Implications")*. H.R. Rep. No. 2337, 89th Cong., 2d Sess. (1966), pp. 289–290, 302 ; *Report of Special Study of Securities Markets*, H.R. Doc. No. 95, 88th Cong., 1st Sess. (1963), pt. 2, p. 839 ; Staff of Senate Comm. on Banking and Currency, *Institutional Investors and the Stock Markets, 1953–55* (1956), p. 46.

[3] See, for example, Letter from Richard W. Simmons and Michael C. Tobin to the Members of the Midwest Stock Exchange (Dec. 15, 1970), p. 8.

[4] See, for example, the assertion in a recent study of institutional investors to the effect that "the stock market (especially in ebullient periods) has always provided evidence of 'follow-the-leader behavior.' " I. Friend, M. Blum & J. Crockett, *Mutal Funds and Other Institutional Investors: A New Perspective* 77 (1970). This could arise if followers believe that the leaders possess more accurate information or evaluate it better. As a variation on this theme, if third persons believe that the leader's trading will be followed by others and therefore wish to trade in advance of the price impact of the followers, a similar effect may result.

[5] See C. Buck, "Trust Companies and Banks as Institutional Investors," 205 *Comm. Fin. Chron.* 610 (1967) :

    Frequently reference is made to the "impact" of institutional investors on the stock market. Apparently it is worrisome to the observers of the markets to find that we tend to buy and sell somewhat in unison.

    Could it be surprising to anyone that trained analysts and economists tend to agree on the significance of a development . . . ? Such events frequently have an understandable significance which will be apparent to experts. At such times stock prices may fluctuate sharply, and I see no reason why this should not be so.

(4) The reduction in the number of persons making investment decisions and the concomitant substantial increase in the quantity of shares governed by these decisions account for the phenomenon.[6]

Conflicting views have also been expressed about the impact of institutional trading on stock market prices, particularly on the volatility of those prices. According to one school of thought, institutional trading has benefited individual investors by generally raising the market prices of all stocks and by contributing to price stability.[7] Others have argued that particular institutional transactions may injure individual investors by increasing the price volatility of the market:

> The growing institutionalization of the securities markets tends to make the markets for the issues in which the institutional holdings are significant, more susceptible to sharp, sudden, and erratic price fluctuations. As the irregular and relatively infrequent transactions of institutional investors in sizable blocks of securities become more and more significant and the relative importance of broad streams of smaller 100-share orders from individual investors dwindles, the auction market is finding it increasingly difficult to maintain the high degree of depth, liquidity, and continuity which they have traditionally sought to achieve. Even when a large institutional investor makes a conscious effort to avoid upsetting the market by adhering to gradual programs of accumulation or disposition its activities tend to have a marked effect on the prices of the securities involved.[8]

In order to determine the extent of any net trading imbalances among institutions, their price impacts and the reasons for any such imbalances, an analysis of the trading patterns of institutional investors was undertaken. In addition, since the particular characteristics of particular position changes by particular institutions that comprise the imbalances may affect their price impacts, a more detailed analysis of position changes was also conducted.

B. EXTENT OF NET INSTITUTIONAL IMBALANCES

1. Data Used

Ideally, an analysis of net institutional trading imbalances would be based on trading data from all institutions covering a period recent enough to reflect current trends in institutional trading patterns and long enough not to be biased by temporary market conditions. It would use a unit of observation short enough to measure the maximum interaction of institutional trading and impacts on the market (something less than a day). Because of the enormous burden that such an under-

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[6] Some of the principal regulatory implications of the growth of institutional investment stem from the large number of sizable blocks of individual securities that institutional investors hold. These holdings may have been purchased with the funds of a multitude of small investors, but they are under the effective control of a relatively few professional managers. The decisions of these managers to buy, sell, or hold particular securities have significant effects on the markets for those securities. *Public Policy Implications*, p. 300.

[7] See New York Stock Exchange, *Institutional Shareownership: A Report on Financial Institutions in the Stock Market,* p. 8 (1964) :
Past studies indicate that the transactions of institutions in the auction market have tended to contribute to the market's price stability.
See also, *Public Policy Implications*, p. 299 ; Staff of the Senate Committee on Banking and Currency, *Institutional Investors in the Stock Market, 1953–55* (1956), p. 55 ; Hearings on Stock Market Study of the Senate Committee on Banking and Currency, 84th Cong., 1st Sess. (1955), pp. 701–702, 719–720.

[8] *Public Policy Implications*, p. 287 ; see also, *id.* at 301 ; Hearings on Stock Market Study, *supra* n. 7, at 706 ; *A Study of Mutual Funds, supra* n. 4, at 22, 384.

taking would have imposed upon the institutions and the limited resources available to the Study, a sampling technique was necessary to limit quantitatively the vast amount of data required. The sampling criteria used by the Study were as follows:

a. Time period and unit of observation

The unit of observation was one calendar month; that is, all purchases of a particular stock by a particular institution during a calendar month were aggregated.[9] So were all sales. For studies of net institutional trading imbalances, the Study determined that the benefits from data covering a longer time period and a larger number of stocks outweighed the possible benefits to be obtained from a shorter unit of observation. It was believed desirable for all analyses to use a relatively recent time period to maximize the accessibility of institutional records and include more recent trends in the pattern of institutional trading (such as high turnover rates). It also was believed desirable to include a period when the general level of stock prices both increased and decreased. January 1968 through September 1969 met these criteria.[10]

b. Institutions

The institutions selected do not really constitute a sample of a larger population in the technical sense, because it was not practicable to sample institutions for studies of net trading imbalances. In a given month, the buying or selling in a particular common stock may originate mainly from a handful of institutions. Even if all institutions were sampled at a very high rate, estimates of the number of shares of that stock bought or sold by all institutions would be subject to considerable sampling error. Instead, the Study attempted to maximize the proportion of total institutional trading covered by surveying all of the institutions of each type that met certain size criteria. The size criteria for each type, which are set forth in Appendix B, were based in part upon its average common stock activity rates.

The total group of 229 institutions account for approximately $226 billion in common stockholdings, or an estimated 69 percent of all common stock held by these types of institutions. In absolute size they range from about $131 billion for the bank trust departments to around $2 billion for the self-administered educational endowments. In terms of percentages of total common stockholdings of the entire type they range from 79 percent for registered investment companies to 33 percent for self-administered foundations (Table X-1).

c. Accounts within institutions

It was neither possible nor desirable in every instance to obtain data on purchases and sales for every account maintained by the institution.

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[9] Some institutions did not keep their internal records on a calendar-month basis. They reported for time periods approximately a month in length but not corresponding to a calendar month.

The month in which a particular purchase or sale occurred was to be determined by its trade date. Many respondents, however, found it necessary to use settlement dates instead. In such cases, they were requested to make every effort to use the date on which settlement was due (normally five business days later), rather than the date on which it was actually made. This was to avoid distortion of the analysis because of protracted "fails."

[10] On January 2, 1968, the Standard & Poor's average of 500 stocks closed at 96.11. The market peaked at 108.12 on December 2, 1968. By September 30, 1969, the average had fallen to 93.12.

One problem was to eliminate the possibility of double reporting. It is possible that a particular account obtained investment advice from two institutions—for example, a bank and an investment adviser, while custody of the securities was maintained by still a third institution. The Study generally attempted to include only those accounts for which the respondent institution had "trading authority." The requirement that brokers be selected by the institution, and that orders for purchases and sales be placed by the institution became the primary selection criterion because it was difficult to define "investment authority" in a uniformly meaningful way for all institutional types. In general, institutions with trading authority have investment authority.

Another problem arose because many banks and investment advisers do not keep records showing the total of their purchases and sales of specific common stocks for the institution as a whole. Such institutions may service thousands of separate accounts, and trading records are often maintained by account rather than by stock.

In the case of banks, when records were available for all accounts (or a reasonable substitute for such records was available), they were used. If such reports were not available, the bank was asked to report the aggregate purchases and sales of at least its 50 largest trust department accounts (primarily employee benefit and commingled investment accounts). Of the 50 banks for which usable data were furnished in time for analysis, the data for 26 were based on their largest accounts, but several were able to include substantially more than 50 accounts.

Each investment adviser was requested to report separately on three groups of accounts. The first group consisted of all registered investment companies whose combined purchases and sales of common stock in 1968 exceeded $1 million. The second group was generally the aggregate of all investment partnerships and clubs, hedge funds, offshore funds, venture capital funds and similar funds not included in the first group. The third group was generally the 25 largest other accounts.[11]

d. Common stocks

Four groups of common stocks listed on the New York Stock Exchange ("NYSE") or American Stock Exchange ("AMEX") were used in the analysis. List B' ("largest NYSE") consisted of the 27 largest (by market value) common stocks listed on the NYSE. List C' ("random NYSE") included 198 common stocks chosen at random from among the remaining common stocks listed on the NYSE. List D ("random AMEX") included 100 common stocks chosen at random from among all common stocks listed on the AMEX. Finally, List A' ("combined NYSE–AMEX") consisted of all common stocks appearing on List A that were listed on the NYSE or AMEX, a total of 563. The criteria for including stocks in List A and in the subsamples are described in detail in Appendix A.

A random sample of stocks traded over-the-counter was also selected. The data on these stocks, however, proved too sparse to be

[11] For further details and a statement of the exceptions, see the Supplementary Instructions for Forms I–1, I–2 and I–3: Investment Adviser, which is reproduced in Supplementary Volume II.

amenable to the techniques employed for analyzing net trading imbalances.

* * *

The data with respect to these samples were collected on Form I-1. For each stock and each month the number of shares acquired only for cash, the number disposed of only for cash, the number acquired other than only for cash and the number disposed of other than only for cash were reported. For cash-only transactions a dollar figure was also given. For other than cash-only transactions the type of transaction was specified.

2. Extent of Imbalances
a. Gross volume

The Study first computed the monthly gross volume of reported institutional trading for each stock. The gross volume for each stock-month combination is the sum of all institutional purchases and sales reported on Form I-1.[12]

For the largest NYSE stocks the average monthly volume of trading on the NYSE was $50 million.[13] The average monthly gross volume reported by institutions surveyed by the Study was $34.5 million, or about 35 percent of twice the total NYSE volume.[14] Since the reported institutional trading includes transactions in other markets (regional stock exchanges, third market and direct institutional trading), however, this does not mean that the reported trading actually constituted that percentage of the NYSE trading. Of the total reported volume, $13.5 million represented the trading of banks, and $14.8 million represented the trading of registered investment companies.[15] In the larger NYSE stocks there were no months without any reported institutional trading (Table X-2).

In the random NYSE stocks the average monthly volume on the NYSE was $6.7 million. The gross volume of trading by the institutions surveyed by the Study was $3.2 million, or 24 percent of twice this amount. The average monthly gross volume in these stocks for banks was $1.0 million and for registered investment companies was $1.8 million. In 14 percent of the stock months, however, there was no institutional trading reported (Table X-2). If only those stock months with reported institutional trading ("nonzero stock months") are considered, the average gross volume figures become $3.8 million

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[12] Prior to the analyses, the trading of each institution within a particular stock month was netted—that is, if the institution both purchased and sold the stock within that month, only the difference between the shares purchased and the shares sold was used. For example, if an institution reported total sales of $100,000 for a stock month and total purchases of $60,000, the institution was treated as a net seller of $40,000 in that stock month. This process of netting deducted only 5 percent of the total reported institutional volume. For the two groups of accounts composed mainly of hedge funds, however, 23 percent was deducted in the netting process. Apparently, hedge funds engage in substantially greater in-and-out trading within a single month than do other institutions.

[13] Unless otherwise indicated, throughout the analysis of net institutional trading imbalances a separate figure was computed for each stock month, and the average is the average of those separate figures rather than of the grand totals for the entire period studied.

[14] Since gross volume includes both purchases and sales, the comparison to twice total volume is appropriate.

[15] The sample apparently encompassed a larger proportion of total trading by registered investment companies than by banks. Overall, banks account for about half again as much trading on the NYSE as do mutual funds. NYSE, *Public Transaction Study 1969* (1970), p. 15.

for all respondents, $1.3 million for banks and $3.0 million for investment companies (Table X–3).

The average monthly volume on the AMEX for each of the random AMEX stocks was $2.2 million. The institutions included in the Study's survey had an average gross volume of $354,000 per stock month in these stocks, or 8 percent of twice this amount. The banks accounted for $38,000, and the registered investment companies accounted for $258,000. In these more thinly traded stocks only 46 percent of the stock months were nonzero stock months (Table X–2.) If only the nonzero stock months are considered, the average gross volume figures reported for the institutions surveyed become $777,000 for all institutions $150,000 for banks and $893,000 for registered investment companies (Table X–3).

Separate gross volume figures were calculated for the group of accounts composed primarily of hedge funds. In those stock months in which they traded, their average gross volume in the random NYSE stocks was $362,652. The average gross volume of the other institutions that traded in those stock months was $6.9 million. Thus, even in those stock months in which the hedge funds traded, their gross volume was less than 5 percent of the gross volume reported for all institutions.

The figures in this section indicate that banks and registered investment companies are by far the most important types among the institutions surveyed. In all three stock samples their combined trading accounted for over 80 percent of the total reported institutional trading. Thus, most analyses in the remainder of this part were made for banks alone, for registered investment companies alone and for banks and registered investment companies combined, in addition to the analyses for all institutional respondents. Hedge funds, on the other hand, represent a relatively insignificant proportion of the total institutional volume (even in those months in which they trade). Nevertheless, because of the recent public concern with this type of institution, some of the analyses were also made separately for hedge funds.

b. Dollar net imbalance

In any given nonzero stock month it is likely that there would be institutional volume on both sides of the market—that is, during a particular month some institutions will purchase a particular stock while others will sell the same stock. For example, in a given stock month total institutional sales might have been $100,000, and total institutional purchases might have been $60,000. The $60,000 on the purchase side would offset $60,000 of the sales. Thus, $120,000 is the offset volume.

The offset volume represents the extent to which institutions might have traded with each other. It does not mean that they necessarily did so. Smaller institutions not in the sample, individual investors or market makers could have been the other side of all the transactions involved. Moreover, because the unit of observation was one month, there may also be time-gaps involved: All of the institutional selling could have taken place at the beginning of the month, while all of the institutional buying took place at the end of the month. In such situations, monthly data overstate the potential for offsetting. On the other hand, all of the institutional selling could have taken place at the end

of the month, while all of the institutional buying took place at the beginning of the next month. In these situations, the potential for offsetting may be understated, either because the reporting periods of the institutions were not exactly the same,[16] or because a price concession could have induced the buyer to trade earlier. On balance, however, overstatement is more likely.

The difference between the gross volume for a particular stock month and the offset volume is the dollar net imbalance. This is the dollar amount of the net institutional imbalance for that stock month. In the example given in the preceding paragraph the gross volume would be $160,000, the offset volume would be $120,000 and the dollar imbalance would be $40,000. In all of the stock samples analyzed there was substantial offsetting among institutions. Hence, the dollar net imbalance was substantially less than the gross volume.

. In the largest NYSE stocks the average dollar net imbalance volume per stock month for all respondents was $8.8 million, or 18 percent as large as the average total NYSE volume per stock month. The average dollar net imbalance for banks was $5.8 million and for registered investment companies was $8.2 million. For banks and registered investment companies combined the average dollar net imbalance was only $8.4 million, indicating that there was substantial offsetting between banks and investment companies (Table X-2).[17]

In the random NYSE stocks the average dollar net imbalance per stock month for all respondents was $1.2 million, or 18 percent as large as the average total NYSE volume per stock month. The respective figures for banks, registered investment companies and banks and registered investment companies combined were $563,000, $973,000 and $1.1 million.[18] In these stocks the offsetting between banks and investment companies is relatively less (Table X-2). If only nonzero stock months are considered, the dollar net imbalance figures become $1.4 million for all respondents, or 21 percent of the total NYSE volume per stock month, $742,000 for banks, $1.6 million for registered investment companies and $1.3 million for banks and registered investment companies combined (Table X-3).

In the random AMEX stocks the average dollar net imbalance per stock month for all respondents was $217,000, or 10 percent as large as the average total AMEX volume per stock month. Banks had an average dollar net imbalance of $33,000, registered investment companies had an average dollar net imbalance of $178,000 and banks and registered investment companies had an average dollar net imbalance of $203,000.[19] Again there was some offsetting between banks and registered investment companies. But the magnitude of the offsetting was substantially less than in either of the other two groups of stock (Table X-2). If only the nonzero stock months are considered, the figures become $475,000 for all respondents, or 22 percent of the total average AMEX volume per stock month, $130,000 for banks, $617,000 for registered investment companies and $485,000 for banks and registered investment companies combined (Table X-3).

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[16] See sec. B.1.a., above.
[17] The frequency distribution of the number of stock months for each size category of dollar net imbalance is shown in Table X-4.
[18] The frequency distribution of the number of stock months for each size category of dollar net imbalance is shown in Table X-5.
[19] The frequency distribution of the number of stock months for each size category of dollar net imbalance is shown in Table X-6.

A separate analysis was again made for the accounts consisting primarily of hedge funds. In the random NYSE stocks their average dollar net imbalance in those stock months in which they traded was $314,000. The average dollar net imbalance for all the other institutions in those stock months was $2.4 million. Although the average dollar net imbalance of the hedge fund accounts was a larger proportion of the average dollar net imbalance of all institutions than was the proportion of the gross volume of all institutions represented by those accounts, there was substantial offsetting between the hedge fund accounts and all other institutions. The average dollar net imbalance for all institutions in those stock months in which the hedge fund accounts traded was $2.4 million—the same amount as without those accounts. Moreover, in 48 percent of the stock months in which hedge fund accounts traded, their dollar net imbalance was on the opposite side of the market to the dollar net imbalance of all other institutions. In those instances, the hedge fund accounts could have stabilized the market by reducing the net trading imbalance for all institutions.[20] Because of the limitations of monthly trading data, however, it cannot be concluded that hedge funds stabilize the market almost as frequently as they destabilize it. But, although monthly trading data do not negate the possibility that hedge funds are always or almost always destabilizing, they do make any such conclusion substantially less likely.

On an absolute basis the net trading imbalances of institutions (arising from trading in all markets combined) are substantial in comparison to the NYSE or AMEX volume in those stocks and presumably to the total trading in all markets as well. The percentage relationship between that net institutional trading imbalance and total NYSE or AMEX volume is about the same in random NYSE stocks and random AMEX stocks in those stock months when there is institutional trading. It is somewhat less, although still substantial, for the largest NYSE stocks. In all samples the magnitudes of the imbalances, as measured by monthly data, are too great to expect market makers to inventory the stock until the imbalances are reversed, and the positions can be "laid off" to other institutions.[21]

c. Percentage net imbalance

The preceding section considered the dollar amount of the net institutional trading imbalance. Another way to measure that imbalance is as a percentage of total reported institutional, or gross, volume. Thus, if total institutional sales in a particular stock month were $100,000 and total institutional purchases were $60,000, the dollar net imbalance of $40,000 would be 25 percent of the gross volume. This would be the percentage net imbalance.

In the largest NYSE stocks the average percentage net imbalance for all respondents was 25.5 percent. The percentages for banks, registered investment companies and banks and registered investment

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[20] In another 48 percent of the stock months the residual volume of the hedge fund accounts was on the same side of the market as that of all other institutions. In the remaining two percent of the stock months the hedge fund accounts alone reported trading.

[21] The imbalances tend to persist into subsequent months, as well. See sec. B.3.b., below.

companies combined were, respectively, 41.9 percent, 59.6 percent and 29.4 percent (Table X–2).[22]

In the random NYSE stocks the average net trading imbalance for all respondents was 55.4 percent. For banks it was 57.6 percent, for registered investment companies it was 45.8 percent and for banks and registered investment companies combined it was 56.4 percent (Table X–2).[23] If only nonzero stock months are considered, the average percentage net imbalance was 64.0 percent for all respondents, 75.9 percent for banks, 75.1 percent for registered investment companies and 67.0 percent for banks and registered investment companies combined (Table X–3).

When all stock months are considered, the average percentage net imbalance for all respondents was 38.1 percent in the random AMEX stocks. The figures for banks alone, registered investment companies alone and banks and registered investment companies combined were, respectively, 23.7 percent, 25.2 percent and 36.4 percent (Table X–2).[24] These percentages were smaller than for the random NYSE stocks. There were so few months in the random AMEX stocks in which there was any reported institutional trading, however, that the average percentage net imbalances for the nonzero stock months only were larger than for the other groups of stock. The figures were 83.6 percent for all respondents, 94.1 percent for banks, 87.2 percent for registered investment companies and 87.0 percent for banks and investment companies combined (Table X–3).

A separate analysis was again run for the hedge fund accounts. In the stock months in which they traded, their average trading was almost completely on one side of the market, the percentage net imbalance being 93.3 percent.[25] This imbalance had little effect, however, on the net trading imbalance for all institutions. In the stock months in which the hedge fund accounts traded, the percentage net imbalance for all other institutions was 49.4 percent. When the hedge fund trading was included, the percentage net imbalance for the combined group increased only to 50.0 percent.

The analysis of net institutional trading imbalances in terms of percentages is a measure of the extent to which institutions could not trade by themselves without interaction with smaller institutions not in the sample, market makers or individual investors. Even in the larger NYSE stocks, where the percentage net imbalance is the smallest, institutions tend to buy two-thirds more than they sell in a particular stock month or vice versa. In the random NYSE stocks and in the random AMEX stocks the percentage net imbalances are even greater. Existing institutional volume and patterns of trading could not be maintained if these surveyed institutions were segregated into a separate market and compelled to trade only with each other.[26]

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[22] The frequency distribution of stock months by size category of percentage net imbalance is shown in Table X–7. The average percentage net imbalance was computed by giving equal weight to each stock month. See sec. X.B.2.d., below.

[23] The frequency distribution of stock months by size category of percentage net imbalance is shown in Table X–8.

[24] The frequency distribution of stock months by size category of percentage net imbalance is shown in Table X–9.

[25] This may have happened because, on the average, only two of them traded in any given stock month. See sec. B.2.f , below.

[26] The infeasibility of completely segregating institutional trading does not eliminate the need for consideration of the interaction of institutional orders, particularly large ones, with those of individual investors. See generally chs. XI and XII, below.

d. Relations between percentage net imbalance and volume

The figures in the preceding section were averaged over all stock months without weighting according to the total institutional volume in those stock months. Thus, stock months with very low volume could unduly influence the average percentage net imbalances. If, instead, the average dollar net imbalance for all stock months is divided by the average gross volume for all stock months, the result is a percentage net imbalance weighted according to the gross volume in each stock month.[27]

In the largest NYSE stocks this weighted average does not differ significantly from the percentage net imbalance, indicating that the percentage net imbalance in these stocks does not vary substantially with changes in gross volume. In the random NYSE stocks and in the random AMEX stocks, however, the weighted average is substantially smaller than the unweighted percentage net imbalance (Table X-3). The smaller weighted average indicates that the stock months evidencing large percentage net imbalances are months with low institutional volume. This is consistent with the difference in percentage net imbalances among the three stock samples. The lowest unweighted average percentage net imbalances were in the largest NYSE stocks, which had the largest average gross volumes. The highest unweighted average percentage net imbalances were in the random AMEX stocks, which had the smallest average gross volumes.

e. Active versus passive institutions

Another set of analyses was performed to ascertain whether banks or registered investment companies play a more important role in determining the percentage net imbalance for all institutions. The percentage net imbalance for each stock month was given a positive sign if institutional purchases exceeded institutional sales and a negative sign if institutional sales exceeded institutional purchases. The stock months were then classified according to the sign and size of the percentage net imbalance. The results of these analyses for the combined NYSE-AMEX stocks indicate that the percentage net trading imbalances of registered investment companies are more typical of the net trading imbalances for all institutions than are those of banks (Table X-10).

f. Number of institutions [28]

In order to ascertain whether institutions tend to "gang up" on a stock during a particular month, analyses similar to some of those in the preceding sections were also performed with respect to the number of institutions buying and selling in each stock month rather than the dollar volume of trading on each side.

In the largest NYSE stocks an average of 52 institutions traded per stock month. On the average, 28 were banks, seven were registered investment companies and the remainder were other types. Thirty-two institutions were on one side of the market and 21 were on the other,

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[27] For example, assume that in one stock month purchases were $100,000 and sales were $60,000 and in a second stock month they were, respectively, $20,000 and $10,000. An unweighted average of the 25 percent net imbalance in the first month and the 33 percent net imbalance in the second month would be 29 percent. On the other hand, the average dollar net imbalance of $25,000 divided by the average gross volume of $95,000 yields a weighted percentage net imbalance of 26 percent.

[28] The numbers in this section may not always add due to rounding.

giving a percentage net imbalance of 20 percent of the number of institutions (Table X–11).

In the random NYSE stocks an average of nine institutions traded per stock month. There were five institutions on one side of the market and three institutions on the other, yielding a percentage net imbalance of 36 percent of the number of institutions. On the average, four of the institutions were banks, two were registered investment companies and the remainder were others. If only nonzero stock months are considered, 10 institutions traded in the average stock month, with six on one side of the market and four on the other side. The greater was the total number of institutions trading, the smaller was the percentage net imbalance measured by the number of institutions (Tables X–11 and X–12).

Very few institutions traded in the average stock month in the random AMEX stocks. If all stock months are considered, only one institution—usually a registered investment company—was active. If only nonzero stock months are considered, there were three institutions trading, with two on one side of the market and one on the other side of the market. Two of the institutions were registered investment companies, and the other was a bank. Again, an increase in the number of institutions trading was associated with a decrease in the percentage net imbalance measured by the number of institutions.

A separate attempt was made to determine the average number of hedge fund respondents trading in a given month. This was done by determining the total number of stock months for which each hedge fund respondent reported trading in the random NYSE stocks, totaling those figures and dividing that sum by the number of stock months for which there was any trading in those stocks by any hedge fund respondent. The result was an average of only two hedge fund respondents trading in the average stock month in which any of them traded. The comparable figure for all institutions was 10.

These analyses of the number of institutions on either side of the market in a given stock month indicate further that large numbers of institutions do not "gang up" on one side of the market in a particular stock month. The very large percentage imbalances measured by the number of institutions seem to arise when there are few institutions trading. In such situations one of three institutions can often account for the entire imbalance. Unfortunately, there was not sufficient time systematically to relate this analysis to the analyses of net trading imbalances measured by dollar volume. A visual examination of the data, however, indicated that the two measures of institutional trading imbalances tended to run in opposite directions: When there was net institutional selling, more institutions would be buying than selling and vice versa. The large position changes of a handful of institutions tend to be offset in part by a larger number of institutions making opposite but smaller position changes.

3. Price Impacts

The purpose of this section is to determine the price impacts of net institutional trading imbalances measured by dollar volume. The technique used was to measure the price changes systematically associated with various magnitudes of net trading imbalances and then to analyze

the causes of these price changes. The price change for a given month was measured by the percentage difference between the closing price of the stock on the last day of the previous month and the closing price on the last day of the current month, minus any change during the month in the market index and adjusted for stock splits but without any credit for dividends paid during the month. No adjustment was made for the volatility of the stock. The detailed methodology for calculating this adjusted rate of return is similar to that used in Chapter XI, as described in Appendix A to that chapter.[29]

a. Price change in current month

If both the sign and the size of the percentage net trading imbalance are taken into account, there is a systematic direct relationship between the percentage net imbalance in a given month and the price change in that month.

In the largest NYSE stocks the average price decline was 1.49 percent when the percentage net imbalance was 20 to 80 percent on the sell side, and the average price rise was 0.90 percent when the percentage net imbalance was 20 to 80 percent on the buy side (Table X-13).[30] In the random NYSE stocks the average price decline was 1.21 percent when the percentage net imbalance was 80 to 100 percent on the sell side, and the average price rise was 1.59 percent when the percentage net imbalance was 80 to 100 percent on the buy side (Table X-14). In the random AMEX stocks the respective figures were a price decline of 3.43 percent and a price rise of 5.15 percent (Table X-15).

The price changes in the random AMEX stocks are quite large. A 5.15 percent change in a $20 stock is $1.03. The price changes in the largest and random NYSE stocks are not nearly as large in percentage terms. The stocks traded on that exchange, however, tend to have substantially higher average values per share, and a price change of 1.59 percent in a $40 stock is more than 5⁄8. Although these price changes may not seem very great in terms of dollars, it should be remembered that these are monthly figures, and an average price impact across a whole month is very strong. To the extent that these price changes represent liquidity costs caused by the market pressure of large institutional buying or selling programs, the price changes might be much greater on a day-to-day basis.[31]

b. Net trading imbalance in previous month

Although the price change in the current month is strongly associated with the net trading imbalance during that month, the price change initially seems unrelated to the percentage net imbalance in the preceding month. No systematic patterns of price changes appear in any of the stock samples when stock months are classified solely by the percentage net imbalance in the previous month. But, when stock months are cross-classified both by the percentage net imbalance during the current month and the percentage net imbalance during the previous month, the range of price changes increases, and some

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[29] The data for January 1968 were not used in this analysis because closing prices for December 1967 were not on the Study's computer file of prices.

[30] There were no stock months when the percentage net imbalance was 80 to 100 percent on the sell side and too few to be meaningful when the percentage net imbalance was 80 to 100 percent on the buy side.

[31] See pt. C and chs. XI.D and XII.E, below, for other analyses based on daily data.

inverse relationship appears between the price change in the current month and the percentage net imbalance in the previous month (Tables X–13 to X–15).

In the largest NYSE stocks, the largest average price decrease for any percentage net imbalance category was 3.46 percent, and the largest average price increase was 1.28 percent.[32] The respective figures for the random NYSE stocks were a price decrease of 2.99 percent and a price increase of 4.22 percent. In the random AMEX stocks they were a price decrease of 8.63 percent and a price increase of 10.03 percent. In each case the price change occurred in the same percentage net imbalance category for the current month as in the analysis in the preceding section. In five out of six cases the percentage net imbalance for the previous month was on the opposite side of the market (Tables X–13 to X–15).

The inverse relationship between the price change in the current month and the percentage net imbalance in the previous month is not consistent throughout every first level classification by current month percentage net imbalance. The general drift of numbers within each such classification, however, indicates that if there was net selling in the previous month, the price tended to fall less in the current month if there was net selling and to rise more if there was net buying. If there was net buying in the previous month, the price tended to rise less in the current month if there was net buying and to fall more if there was net selling (Tables X–13 to X–15).[33] In general, when the percentage net imbalance is held constant in the current month, the price changes in the current month tend to shift in a direction opposite to that of the percentage imbalance in the previous month.

To further test the relationship between the price change in the current month and the previous month's percentage net imbalance, two multiple regressions were run. One regression used the percentage net imbalance for the current month, the percentage net imbalance for the previous month and certain volume characteristics as independent variables.[34] It indicated a price reversal in the next month of more than one-half of the price change during the current month for the larger and random NYSE stocks and a price reversal of about one-fourth for the random AMEX stock (Table X–22). A second regression used these independent variables plus additional independent variables for the dollar net imbalances for the current and previous months. This regression indicated a price reversal for the larger and

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[32] Although a decrease of 1.78 percent appears for one cell of the cross-classification, it is based on too few stock months to be meaningful (Table X–16).

[33] Net selling in one month tends to be followed by net selling in the next month. Net buying in one month tends to be followed by net buying in the next month. This is indicated by comparison of the observed and expected numbers of stock months for each combination of percentage net imbalance categories. The expected number of stock months was calculated under the assumption of no relationship between net buying or selling in one month with net buying or selling the next month. (For example, if 10 percent of the stock months actually exhibited net selling of 80 to 100 percent, then 10 percent of that 10 percent, or 1 percent of the total stock months, could be expected to have that extent of imbalance two months in a row.) The actual number of stock months in each combination is shown in Tables X–16 to X–18. The expected numbers of stock months are shown in Tables X–19 to X–21. For random NYSE stocks, the hypothesis of no intermonth relationship between net buying or selling was tested statistically by performing a chi-square test on differences between actual and expected numbers of stock months (Tables X–17 and X–20). For each respondent group, the results of the test indicated that the hypothesis could be rejected with a very high degree of confidence. Such a test is not applicable for the large NYSE or random AMEX stocks because some of the expected numbers of stock months are so small.

[34] The volume characteristics measure total NYSE or AMEX volume and changes in that volume. See sec. B.3.d., below.

random NYSE stocks of about one-half of the previous price change and a price reversal for the random AMEX stocks of about one-third of the previous price change (Table X-23).

It should be noted that the price reversals indicated by the regressions did not necessarily take place in fact. But they could have been expected to take place absent the net trading imbalance in the current month. Moreover, the price reversals that appear when adjustments are made for net trading imbalances in the current month are important. After such adjustments, institutional selling in NYSE stocks in one month is accompanied by a price decline in that month and a price recovery in the following month equal to about one-half the decline. Similarly, net buying in one month is accompanied by a price rise in that month and a price decline in the next month equal in magnitude to about one-half of the price rise. Since the analyses were performed only for two consecutive months, it was not ascertained whether a longer period would show any further price reversal.

Price reversals such as these usually represent the liquidity cost of large selling or buying pressure on the market rather than persistent price changes resulting from news or other fundamental factors. Thus, when there is a temporary imbalance of supply over demand, prices temporarily fall to bring new demand into the market. When there is a temporary imbalance of demand over supply, prices temporarily rise to bring new supply into the market. When the temporary imbalance has been absorbed, prices return to their previous level.

It should be pointed out, however, that only a fraction of all month-to-month price changes can be associated with net institutional trading imbalances. Data on the combination of percentage net imbalance, dollar net imbalance and total NYSE or AMEX volume characteristics explain a maximum of only 10 percent of the month-to-month price changes in the larger NYSE stocks, 12 percent in the random NYSE stocks and 28 percent in the random AMEX stocks (Tables X-22 to X-24). Without data on exchange volume, it is likely that a very small percentage would be explained. The vast bulk of month-to-month price changes would seem to arise because of imbalances in the trading of individual investors, news or other factors.

c. Dollar net imbalance

The analyses in the preceding sections have been in terms of percentage net imbalance. Regressions were also run with the dollar imbalance as an independent variable. When only the dollar net imbalance for the current and previous months and the two volume variables from the previous section were used, the same relationships occurred for the net trading imbalances in both the current and previous months, with the exception that the reversals for the random AMEX stocks were not quite as great. Net buying in the current month was again associated with a price rise in the current month and a price decline in the next month. Net selling was again associated with a price decline in the current month and a price rise in the subsequent month. In both cases the price reversal was only partial (Table X-24). When both the percentage net imbalance and the dollar net imbalance for the current and previous months were included as independ-

ent variables in the same regression, the relation between the percentage net imbalance and dollar net imbalance was sufficiently close that little explanatory power was gained by using both of them as independent variables over the use of either one separately (Table X–23).

d. Relation to total NYSE or AMEX volume

The relationship between the price change in the current month and the total NYSE or AMEX volume in the stock was also examined. Two independent variables were used to measure total NYSE or AMEX volume. One variable was derived by ranking the random NYSE stocks according to total NYSE volume in each month, then dividing them into ten approximately equal groups or "deciles," computing the highest and lowest volume for each decile and then using those ranges to classify each stock month in all three groups of stocks according to its volume decile. In addition, the change in volume from the preceding month was measured by calculating the difference between the volume decile for the current month and the volume decile for the preceding month.

In the random NYSE and random AMEX stocks a significant direct relationship was found between the current monthly price change and both volume variables. Thus, prices tended to rise when total NYSE or AMEX volume rose or was high and tended to fall when total NYSE or AMEX volume fell or was low. Of the two, the change in volume from the previous month was more important than its level during the current month. For the largest NYSE stocks, however, the relationship was not statistically significant because the volume in these stocks was almost always at the high end of the decile ranges established for the random NYSE stocks (Tables X–22 to X–24).

e. Institutional type

Cross-classification indicated a closer relationship between the price change for the current month and the percentage net imbalance for registered investment companies than between the price change for the current month and the percentage net imbalance for banks (Tables X–13 to X–15). This difference was confirmed by the regression analyses. Here, the results for all institutions were much closer to those for registered investment companies than those for banks. Indeed, in some cases the results for banks were not even statistically significant (Tables X–22 to X–24).

These analyses indicate that registered investment companies tend to be price aggressive—that is, their net trading imbalance tends to be in the same direction as the price change in the same month. It seems likely that their trading contributes to these price changes. The banks, on the other hand, tend to be price neutral. Their net trading imbalance tends to be in the opposite direction to the price change as frequently as it is in the same direction. When the banks' imbalance is in the same direction, it may be said to contribute to the price changes. When it is in the opposite direction, the banks are probably responding to price changes caused by others, possibly registered investment companies. To this extent they are reducing the price changes by offsetting the net trading imbalances of the other institutions.

4. CAUSES OF NET IMBALANCES

In view of the substantial price impacts of net institutional trading imbalances, it is important to determine the causes of those imbalances. As indicated at the outset, such imbalances could arise by design, because of unplanned similarity in response to news or market developments or by chance.[35] The method used to determine the causes of the imbalances was the construction of mathematical models that would indicate the extent of net trading imbalances that could be expected to arise merely by chance.

a. Nonclustered model

The first model, the "nonclustered model," was designed to ascertain whether and to what extent the net trading imbalances actually observed could be expected to arise by chance from the "lumpiness" of the institutional trading patterns reported on Form I-1. That data indicated that the trading of a particular institution in a particular stock was discontinuous—the institution did not trade that stock in each of the 21 months studied—and was variable—the amount traded and the side of the market (purchase or sale) varied significantly even in those months in which the institution traded the stock.

The lumpiness was preserved in the model by using the actual figures reported on Form I-1. The element of chance was introduced by reassigning those figures to particular stock months by random selection. This process of reassignment was done separately for each institution and, within each institution, for each group of stocks.[36] In order to maintain the randomness of the selection process throughout each institution-stock-group population, the fact that the actual trading figure for a particular stock month had already been reassigned did not remove it from the pool subject to random selection for the remainder of the stock months.[37]

The nonclustered model was constructed by computer. A virtually indistinguishable model could also have been built manually, and a description of the process that would have been used may help to explain it. In a manual construction of the model the trading figures for each stock month within a particular institution-stock-sample group would have been written on a separate slip of paper; for example, bought $25,000, sold $10,000, no trading, etc. These slips of paper would then have been placed in a bowl. After the slips of paper were mixed up, one would have been selected for each possible stock month combination, and the data on the slip would have been substituted for the trading data actually reported for that stock month. After that figure had been reassigned to a new stock month, the slip of paper would have been returned to the bowl so that it could be selected again. This process would have been performed separately for each institu-

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[35] See pt. A, above.

[36] It was not originally planned to treat groups of stocks as though they were homogeneous. This technique was adopted. however, because the Study found almost no relationship between transaction size and the size of the issuer.

[37] One qualification must be made to the statement that the nonclustered model measured the extent of net trading imbalances that could be expected to arise solely by chance from the actual lumpiness of institutional trading. To the extent that the distribution of transaction frequency and size for an individual respondent itself resulted from design or unplanned similarity, that causal element "flowed through" to the model. It is doubtful that this resulted in any significant bias. In any event, some pool of trading figures had to be assumed before a process of random selection could be applied.

tion and, within each institution, for each group of stocks, thereby preserving the identity of the institution and the stock sample. Thus, whether a particular institution traded at all in a particular stock month, whether any such trading was a purchase or a sale and the amount of any such trading would all have been determined by random selection from the trading data actually reported for that institution-stock-sample group.

The nonclustered model resulted in larger average net trading imbalances among all respondents in all three stock groups than were actually reported. This can be seen by comparing the actual data for both dollar and percentage net imbalances with the nonclustered model. For example, the actual data for all respondents in the largest NYSE stocks resulted in an average dollar net imbalance of $8.8 million and an average percentage net imbalance of 25.5 percent. The nonclustered model resulted in an average dollar net imbalance of $10.0 million and an average percentage net imbalance of 28.2 percent. This relationship between the actual data and the nonclustered model was also true for the banks, registered investment companies and the banks and registered investment companies combined, both in the random NYSE stocks and the random AMEX stocks. In the largest NYSE stocks, however, with the exeception of the group of all respondents, the net trading imbalances were generally larger in the actual data than in the nonclustered model (compare Table X–25 with Table X–2).

It is important to note that for both largest and random NYSE stocks the dollar net imbalance for banks and registered investment companies combined is significantly smaller in the nonclustered model than the total of the dollar net imbalances for those two classes of institutions separately. Thus, some offsetting between the two groups took place by chance. It is also true, however, that there was more offsetting between banks and registered investment companies in the actual data than in the nonclustered model in all three stock samples. In the largest NYSE stocks, the actual percentage net imbalance for the combined group was only 29.4 percent, as compared to 32.1 percent in the nonclustered model. The respective figures for the random NYSE stocks were 56.4 percent for the actual data and 65.3 percent for the nonclustered model. For the random AMEX stocks they are 36.4 percent for the actual data and 58.3 percent for the nonclustered. Thus, investment companies and banks were on opposite sides of the market in the same stock during the same month more than could be expected merely from chance (compare Table X–25 with Table X–2). This is consistent with the previous finding that registered investment companies tend to be price aggressive (their trading contributes to price changes), and that banks are often price responsive (they buy stock because the price has fallen or sell it because the price has risen).[38]

When only nonzero stock months are considered, the relationship between the results in the actual data and the nonclustered model becomes somewhat different. In the random NYSE stocks and the random AMEX stocks, both of which had nonzero stock months, the weighted percentage of average dollar net imbalance to average gross volume is greater in the nonclustered model than in the actual data.

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[38] See sec. B.3.e., above.

The unweighted percentage net imbalances, however, do not follow this uniform pattern (compare Table X–26 with Table X–3). One possible explanation for this fact is, as indicated by the tendency of banks to trade in response to price changes caused by registered investment companies, that the decision of a particular institution to trade at a paticular time is not completely independent from the other institutional trading that is taking place. This does not necessarily mean that the institutions are on the same side of the market, but only that activity in a stock or the factors responsible for that activity lead a number of institutions to consider that stock for purchase *or* sale. In other words, institutions might be interested in the same stock at the same time because of common factors, but some would be buyers while others would be sellers.

Such clustering of institutional activity in a particular stock at a particular time would result in more stock months with large gross volumes and fewer stock months with small gross volumes than would be expected from chance. There are in fact more stock months with large gross volumes in the actual data than in the nonclustered model (Table X–27). Accordingly, it was necessary to construct a second model in order to take account of this clustering of activity.

b. Clustered model

In recognition of the tendency discovered in the preceding section for institutional interest in a particular stock to cluster in particular months more than would be expected by chance, a second mathematical model was constructed. This clustered model was identical to the nonclustered model except that the determination whether there was any trading by a particular institution in a particular stock month was made by reference to the actual data. To state it another way, the stock months that were zero stock months in the actual data were also zero stock months in the clustered model. Only the stock months that were nonzero stock months in the actual data were also nonzero stock months in the clustered model. The side of the market and number of shares for each institution were determined by the same random selection process as in the nonclustered model. If this model had been constructed manually rather than by computer, the process described in the preceding section would have been followed except that it would have been applied only with respect to those stock months in which the particular institution actually traded. The percentage of nonzero stock months in this clustered model was equal to the percentage in the actual data (compare Table X–28 with Table X–2). The number of stock months with large gross volumes was quite close (Table X–27). Thus, the clustered model successfully approximated the amount of clustering found in the actual data.

When all stock months were considered, clustering reduced the net institutional trading imbalances found in the nonclustered model in

most cases (Table X–28). For nonzero stock months the differences were not as great. Nevertheless, the unweighted percentage net trading imbalance was more frequently smaller than larger in the clustered model than in the nonclustered model. When the weighted average was considered, however, the percentage net imbalance was smaller in the clustered model in every case (Tables X–29 and X–30). Thus, the clustering of activity generally tended to reduce the net trading imbalances that would be expected by chance by increasing the likelihood that sufficient institutions would be trading at the same time so that the buyers and sellers would be likely to offset each other.

When the results from the two chance models are compared with the actual data, the following relationships emerge:

(1) Largest NYSE stocks—Both banks alone and registered investment companies alone exhibited larger net trading imbalances than could be expected from chance. Within each group there may be some degree of parallel trading—that is, their net trading imbalances arose to some extent either by design or by unplanned similarity of reaction. The amounts not explained by chance, however, are relatively small. Since banks and registered investment companies were often on opposite sides of the market, the net imbalances both for the combined group and for all respondents were actually less than could be expected from chance. Thus, in terms of total market impact, net trading imbalances can be fully explained as arising from the "lumpiness" of institutional trading rather than from design or unplanned similarity.

(2) Random NYSE stocks—Banks exhibited larger net trading imbalances in the actual data than could be expected from chance. Registered investment companies exhibited less. Neither difference was very great. The combined group of banks and registered investment companies and the group of all respondents both exhibited smaller net trading imbalances than could be expected from chance when clustering was considered and greater net trading imbalances when it was not considered. There appears to be no significant parallel trading for these stocks either.

(3) Random AMEX stocks—Banks alone exhibited slightly greater net imbalances than could be expected from chance when clustering was considered and less when it was not considered. Registered investment companies alone and banks and registered investment companies together exhibited about the same when clustering was considered and somewhat less than when it was not. The group of all institutions exhibited smaller net trading imbalances than could be expected from chance both with and without clustering. Here, too, there were little or no net trading imbalances remaining that cannot be explained as arising from the "lumpiness" of institutional volume and chance rather than by design or from unplanned similarity (Table X–31).

Table X-1
Total Assets and Common Stockholdings
Managed By Surveyed Institutions

Institutional Type	Total Asset		Percent of All	Total Common Stockholdings		Percent of All
	Institutions Surveyed	All		Institutions Surveyed	All	
	(Dollar Amounts in $1 Millions)					
Bank Trust Departments	$194,830	$280,109	70	$130,811	$181,089	72
Investment Advisers */	85,088	134,231	64	63,506	95,468	67
(Registered Investment Companies)	(51,794)	(63,279)	(82)	(40,850)	(51,611)	(79)
Property and Liability Insurance	30,767	48,179	64	8,346	11,724	71
Life Insurance	139,175	197,208	71	8,502	10,318	82
Self-administered Corporate Employee-Benefit	12,654	57,812 **/	22	9,116	13,392 **/	68
Self-administered Foundations	5,105	15,213 **/	34	3,847	11,622 **/	33
Self-administered Educational Endowments	2,550	7,834 **/	32	1,613	4,551 **/	35
Total	$470,169	$740,586	63	$225,741	$328,164	69

*/ Hedge funds in the group surveyed had total assets of $400 million, or about 40 percent of estimated assets of all hedge funds. The additional accounts of advisers to registered investment companies, which included hedge funds, amounted to an additional $200 million.

**/ Estimate. See introduction to Part 2.

Table X-2

Average Values by Stock Sample
All Stock Months

	Gross Volume ($000)	Offset Volume ($000)	Dollar Net Imbalance ($000)	Percentage Net Imbalance	Percentage Nonzero Months
All Respondents					
List B'	34,454	25,618	8,837	25.5	100.0
List C'	3,257	2,073	1,184	55.4	86.5
List D	354	137	217	38.1	45.6
Banks					
List B'	13,504	7,743	5,761	41.9	100.0
List C'	,965	402	563	57.6	75.9
List D	38	.5	33	23.7	25.1
Investment Co's					
List B'	14,750	6,378	8,193	59.6	100.0
List C'	1,799	826	973	45.8	60.7
List D	258	80	178	25.2	28.9
Banks & Investment Co's					
List B'	28,075	19,638	8,436	29.4	100.0
List C'	2,764	1,657	1,107	56.4	84.1
List D	296	93	203	36.4	41.8

Table X-3

Average Values by Stock Sample
Nonzero Stock Months

	(1) Gross Volume ($000)	Offset Volume ($000)	(2) Dollar Net Imbalance ($000)	Percentage Net Imbalance	Percentage of (2) / (1)
All Respondents					
List B'	34,454	25,618	8,837	25.5	25.6
List C'	3,763	2,397	1,369	64.0	36.3
List D	777	301	475	83.6	61.2
Banks					
List B'	13,504	7,743	5,761	41.9	42.7
List C'	1,272	530	742	75.9	58.3
List D	150	21	130	94.1	86.4
Investment Co's					
List B'	14,570	6,378	8,193	59.6	56.2
List C'	2,963	1,360	1,603	75.1	54.1
List D	893	277	617	87.2	69.0
Banks & Investment Co's					
List B'	28,075	19,638	8,436	29.4	30.0
List C'	3,287	1,971	1,316	67.0	40.0
List D	708	223	485	87.0	68.4

Table X-4

Dollar Net Imbalance
Percentages of Stock Months in Each Size Category
List B'

Size Category ($ mil.)	All Respondents	Banks	Investment Companies	Banks and Investment Companies
0	0.0	0.0	0.0	0.0
0+- 2	19.4	26.9	22.8	22.2
2- 4	17.3	23.5	15.8	17.1
4- 6	15.7	13.1	15.2	13.8
6- 8	10.8	12.0	11.8	10.4
8-10	8.4	7.2	7.3	9.7
10-12	5.1	5.9	4.5	6.2
12-14	4.8	3.5	6.6	3.5
14-16	2.6	1.8	3.9	2.4
16-18	3.2	1.7	2.4	3.3
18+	12.7	4.4	9.7	11.4

Table X-5

Dollar Net Imbalance
Percentages of Stock Months in Each Size Category
List C'

Size Category	All Respondents	Banks	Investment Companies	Banks and Investment Companies
($ mil.)				
0	13.5	24.1	39.3	15.9
0+- .8	53.5	58.9	33.4	53.3
.8-1.6	12.5	7.3	10.4	11.5
1.6-2.4	6.3	3.8	5.4	5.7
2.4-3.2	3.9	1.8	3.0	4.0
3.2-4.0	3.0	1.2	2.3	2.6
4.0-4.8	1.4	0.5	1.5	1.7
4.8-5.6	1.4	0.4	1.1	1.4
5.6-6.4	0.9	0.7	0.7	0.8
6.4-7.2	0.6	0.3	0.5	0.6
7.2+	3.0	1.0	2.4	2.5

Table X-6

Dollar Net Imbalance
Percentages of Stock Months in Each Size Category
List D

Size Category ($ mil.)	All Respondents	Banks	Investment Companies	Banks and Investment Companies
0	54.4	74.9	71.1	58.2
0+- .4	32.4	22.9	18.3	29.7
.4- .8	5.9	1.5	4.5	5.4
.8-1.2	2.4	0.2	1.8	1.9
1.2-1.6	1.8	0.4	1.4	1.4
1.6-2.0	0.8	0.0	0.6	0.8
2.0-2.4	0.5	0.0	0.6	0.7
2.4-2.8	0.3	0.1	0.4	0.5
2.8-3.2	0.2	0.0	0.3	0.2
3.2-3.6	0.3	0.0	0.3	0.3
3.6+	1.0	0.0	0.7	0.9

Table X-7

Percentage Net Imbalance
Percentages of Stock Months in Each Category
List B'

Percentage Net Imbalance	All Respondents	Banks	Investment Companies	Banks and Investment Companies
0	0	0	0	0
1 - 10	23.4	13.3	8.3	19.6
10 - 20	22.3	11.9	6.7	21.0
20 - 30	19.6	13.8	8.5	16.7
30 - 40	14.6	11.8	10.1	13.9
40 - 50	8.8	11.7	7.8	10.2
50 - 60	5.0	9.9	8.4	9.1
60 - 70	3.1	11.0	8.1	4.2
70 - 80	2.0	5.3	9.9	4.0
80 - 90	1.2	7.3	8.0	1.3
90 - 100	0.0	4.0	25.7	0.0

Table X-8

Percentage Net Imbalance
Percentages of Stock Months in Each Category
List C'

Percentage Net Imbalance	All Respondents	Banks	Investment Companies	Banks and Investment Companies
0	13.5	24.1	39.3	15.9
1 - 10	7.6	3.5	3.7	6.4
10 - 20	7.7	3.5	3.5	6.2
20 - 30	6.2	3.0	2.8	5.8
30 - 40	5.6	4.0	2.7	5.0
40 - 50	4.9	3.3	2.6	5.3
50 - 60	4.9	3.6	2.7	4.5
60 - 70	5.4	4.2	2.4	4.6
70 - 80	4.5	4.3	2.2	4.3
80 - 90	5.3	5.1	2.6	5.3
90 - 100	34.4	41.4	35.5	36.7

Table X-9

Percentage Net Imbalance
Percentages of Stock Months in Each Category
List D

Percentage Net Imbalance	All Respondents	Banks	Investment Companies	Banks and Investment Companies
0	54.4	74.9	71.1	58.2
1 - 10	1.7	0.2	1.0	0.8
10 - 20	1.0	0.2	0.7	1.1
20 - 30	1.6	0.2	0.4	0.9
30 - 40	1.6	0.3	0.8	1.2
40 - 50	1.5	0.2	1.0	1.2
50 - 60	1.3	0.5	0.5	0.8
60 - 70	1.7	0.5	0.7	1.4
70 - 80	1.4	0.3	0.9	1.7
80 - 90	2.0	0.8	0.4	1.5
90 - 100	31.8	21.9	22.5	31.5

Table X-10

Average Percentage Net Imbalances For List A'
All Stock Months

Percentage Net Imbalances	Percentage of Stock Months	Percentage Net Imbalances		
		All Respondents	Banks	Investment Companies
All Respondents				
80 to 100	19.0	96.4	33.7	67.2
20 to 80	18.4	48.0	17.0	38.5
-20 to 20	36.8	0.5	3.3	2.7
-20 to -80	10.7	-46.0	-14.8	-45.1
-80 to -100	15.0	-98.0	-59.2	-43.0
Banks				
80 to 100	18.9	48.5	96.7	8.1
20 to 80	11.8	24.2	51.8	-1.2
-20 to 20	40.4	7.3	0.1	7.3
-20 to -80	8.9	-5.1	-50.3	15.5
-80 to -100	20.0	-34.4	-98.2	9.2
Investment Co's				
80 to 100	21.5	70.8	-0.8	98.6
20 to 80	9.2	35.7	5.0	49.0
-20 to 20	46.4	-3.9	-4.6	0.0
-20 to -80	8.9	-19.1	19.6	-49.0
-80 to -100	14.1	-52.1	2.5	-97.8

Table X-11

Number of Institutions
Average Values by Stock Sample
All Stock Months

	Gross Number	Offset Number	Number Net Imbalance	Percentage Net Imbalance	Percentage Nonzero Months
All Respondents					
List B'	52.019	41.740	10.279	19.9	100.0
List C'	8.575	6.312	2.263	35.7	89.2
List D	1.416	0.741	0.675	30.7	50.3
Banks					
List B'	28.453	20.423	8.030	28.6	100.0
List C'	4.280	2.507	1.773	45.3	75.9
List D	0.392	0.105	0.287	21.5	25.1
Investment Companies					
List B'	7.332	4.537	2.795	41.1	100.0
List C'	1.748	0.887	0.861	39.4	60.8
List D	0.585	0.195	0.390	23.4	28.9
Banks & Investment Co's					
List B'	35.785	28.293	7.492	21.2	100.0
List C'	6.028	4.030	1.998	43.0	84.1
List D	0.977	0.383	0.594	31.9	41.8

Table X-12

Number of Institutions
Average Values By Stock Sample
Nonzero Stock Months

	(1)		(2)		
	Gross Number	Offset Number	Number Net Imbalance	Percentage Net Imbalance	Percentage of (2) / (1)
All Respondents					
List B'	52.019	41.740	10.279	19.9	19.8
List C'	9.610	7.074	2.536	40.0	26.4
List D	2.813	1.472	1.341	61.0	47.7
Banks					
List B	28.453	20.423	8.030	28.6	28.2
List C	5.641	3.304	2.337	59.7	41.4
List D	1.559	0.418	1.141	85.5	73.2
Investment Co's					
List B	7.332	4.537	2.795	41.1	38.1
List C'	2.877	1.460	1.417	64.9	49.3
List D	2.024	0.675	1.349	81.0	66.7
Banks & Investment Co's					
List B'	35.785	28.293	7.492	21.2	20.9
List C'	7.167	4.791	2.376	51.1	33.2
List D	2.337	0.916	1.421	76.3	60.8

TABLE X-13

AVERAGE MONTHLY ADJUSTED RATE OF RETURN (PERCENT)
DURING CURRENT MONTH

LIST B'

CURRENT MONTH PERCENTAGE NET IMBALANCE	ALL	PREVIOUS MONTH PERCENTAGE NET IMBALANCE (SAME RESPONDENT GROUP)				
		-80 to -100	-20 to -80	-20 to 20	20 to 80	80 to 100
ALL RESPONDENTS						
ALL	0.03	-	0.18	0.08	0.10	0.08
-80 to -100	-	-	-	-	-	-
-20 to -80	-1.49	-	-1.71	-0.50	-3.46	-
-20 to 20	0.07	-	1.26	-0.17	-0.24	-
20 to 80	0.90	-	1.28	0.93	0.91	-0.78
80 to 100	0.52	-	-	-	-0.11	1.78
BANKS						
ALL	0.03	-0.48	0.23	-0.49	0.35	-0.35
-80 to -100	-0.18	-2.88	0.12	3.49	-0.37	-
-20 to -80	-0.36	0.06	0.01	-1.26	0.43	-14.65
-20 to 20	-0.12	-	1.23	-0.27	-0.85	0.17
20 to 80	0.43	-0.54	-0.09	-0.31	0.80	0.71
80 to 100	-0.04	-	-4.20	2.71	0.94	-1.21
INVESTMENT CO'S						
ALL	0.03	-0.46	0.76	-0.01	-0.08	-0.41
-80 to -100	-1.28	-1.41	-0.61	-1.33	-2.70	-1.57
-20 to -80	-0.99	-1.30	-1.01	-0.54	-1.10	-1.10
-20 to 20	0.76	3.42	2.46	-0.28	-1.41	-0.44
20 to 80	1.38	3.99	2.93	0.88	0.97	0.18
80 to 100	0.71	2.24	4.21	2.49	-0.11	-0.36

TABLE X-14

AVERAGE MONTHLY ADJUSTED RATE OF RETURN (PERCENT)
DURING CURRENT MONTH

LIST C'

CURRENT MONTH PERCENTAGE NET IMBALANCE	ALL	PREVIOUS MONTH PERCENTAGE NET IMBALANCE (SAME RESPONDENT GROUP)				
		-80 to -100	-20 to -80	-20 to 20	20 to 80	80 to 100
ALL RESPONDENTS						
ALL	0.05	-0.07	0.30	0.51	-0.46	-0.12
-80 to -100	-1.21	-0.96	-2.61	-0.85	-2.99	-0.50
-20 to -80	-0.70	0.21	-0.77	-0.78	-0.22	-2.52
-20 to 20	-0.36	0.19	1.45	-0.20	-1.52	-1.22
20 to 80	0.55	0.57	1.55	1.45	-0.04	-0.01
80 to 100	1.59	2.23	2.53	4.22	0.81	0.64
BANKS						
ALL	0.05	-0.12	0.43	0.24	-0.26	-0.03
-80 to -100	-0.17	-0.05	-0.77	0.35	-0.19	-1.19
-20 to -80	0.16	-0.09	0.36	0.33	0.61	-0.89
-20 to 20	-0.10	-0.76	1.04	0.16	-0.65	-0.33
20 to 80	-0.43	-0.89	1.26	-0.13	-0.57	-1.18
80 to 100	0.78	1.37	1.40	0.66	-0.05	0.84
INVESTMENT CO'S						
ALL	0.05	0.71	0.03	-0.04	-0.08	-0.13
-80 to -100	-1.59	-0.46	-4.92	-0.97	-1.50	-3.05
-20 to -80	0.18	1.02	1.55	-1.53	0.48	-0.81
-20 to 20	-0.30	0.50	1.32	-0.47	-0.18	-0.35
20 to 80	0.93	4.09	1.52	1.82	-1.17	0.16
80 to 100	1.33	2.57	0.93	3.06	0.71	0.52

TABLE X-15

AVERAGE MONTHLY ADJUSTED RATE OF RETURN (PERCENT)
DURING CURRENT MONTH

LIST D

CURRENT MONTH PERCENTAGE NET IMBALANCE	ALL	PREVIOUS MONTH PERCENTAGE NET IMBALANCE (SAME RESPONDENT GROUP)				
		-80 to -100	-20 to -80	-20 to 20	20 to 80	80 to 100
ALL RESPONDENTS						
ALL	0.75	0.22	0.04	0.98	0.11	0.80
-80 to -100	-3.43	-3.01	-3.24	-2.50	-8.63	-5.99
-20 to -80	0.35	0.37	-4.86	0.95	-1.36	2.73
-20 to 20	0.08	-0.03	-1.43	0.38	-2.22	-2.04
20 to 80	3.87	-0.66	9.41	8.97	4.02	1.83
80 to 100	5.15	10.03	1.73	9.24	1.80	2.85
BANKS						
ALL	0.75	0.37	2.19	0.72	2.07	1.11
-80 to -100	-0.72	-3.01	-5.93	-0.05	-10.16	2.89
-20 to -80	3.92	-	-	-1.74	-4.05	9.11
-20 to 20	0.59	0.53	2.84	0.64	-3.00	-0.11
20 to 80	-0.41	0.12	-	16.46	-1.90	-3.04
80 to 100	3.32	7.16	5.70	2.84	10.15	1.51
INVESTMENT CO'S						
ALL	0.75	0.40	-1.40	0.62	3.50	1.28
-80 to -100	-4.47	-2.81	-5.85	-4.71	-7.13	-5.65
-20 to -80	-0.98	-1.32	-11.58	-13.26	5.86	5.22
-20 to 20	0.18	-1.04	-4.82	0.36	2.12	-1.54
20 to 80	5.43	15.52	24.69	-3.32	7.92	3.44
80 to 100	5.18	10.95	4.63	7.78	4.52	2.91

TABLE X-16

NUMBER OF STOCK MONTHS

LIST B'

CURRENT MONTH PERCENTAGE NET IMBALANCE	PREVIOUS MONTH PERCENTAGE NET IMBALANCE (SAME RESPONDENT GROUP)					
	ALL	-80 to -100	-20 to -80	-20 to 20	20 to 80	80 to 100
ALL RESPONDENTS						
ALL	513	0	105	239	163	6
-80 to -100	0	0	0	0	0	0
-20 to -80	104	0	51	39	14	0
-20 to 20	236	0	43	135	58	0
20 to 80	167	0	11	65	87	4
80 to 100	6	0	0	0	4	2
BANKS						
ALL	513	13	130	127	198	45
-80 to -100	12	2	7	1	2	0
-20 to -80	138	9	72	36	20	1
-20 to 20	125	0	31	41	50	3
20 to 80	196	2	18	47	104	25
80 to 100	42	0	2	2	22	16
INVESTMENT CO'S						
ALL	513	111	137	78	124	63
-80 to -100	108	64	26	9	5	4
-20 to -80	133	26	52	27	17	11
-20 to 20	79	10	26	15	22	6
20 to 80	131	8	24	23	57	19
80 to 100	62	3	9	4	23	23

TABLE X-17

NUMBER OF STOCK MONTHS

LIST C'

CURRENT MONTH PERCENTAGE NET IMBALANCE	PREVIOUS MONTH PERCENTAGE NET IMBALANCE (SAME RESPONDENT GROUP)					
	ALL	-80 to -100	-20 to -80	-20 to 20	20 to 80	80 to 100
ALL RESPONDENTS						
ALL	3749	693	407	1069	781	799
-80 to -100	694	329	73	145	54	93
-20 to -80	413	61	104	106	95	47
-20 to 20	1074	169	92	491	190	132
20 to 80	785	44	90	191	290	170
80 to 100	783	90	48	136	152	357
BANKS						
ALL	3749	969	365	1156	488	771
-80 to -100	975	479	99	228	56	113
-20 to -80	361	82	108	63	68	40
-20 to 20	1162	250	57	654	82	119
20 to 80	487	48	63	91	170	115
80 to 100	764	110	38	120	112	384
INVESTMENT CO'S						
ALL	3749	530	284	1731	289	915
-80 to -100	524	198	59	157	23	87
-20 to -80	299	57	78	71	46	47
-20 to 20	1736	171	46	1229	75	215
20 to 80	290	37	39	58	54	102
80 to 100	900	67	62	216	91	464

TABLE X-18

NUMBER OF STOCK MONTHS

LIST D

CURRENT MONTH PERCENTAGE NET IMBALANCE	ALL	PREVIOUS MONTH PERCENTAGE NET IMBALANCE (SAME RESPONDENT GROUP				
		-80 to -100	-20 to -80	-20 to 20	20 to 80	80 to 100
ALL RESPONDENTS						
ALL	1889	286	70	1064	106	363
-80 to -100	292	104	16	123	14	35
-20 to -80	67	14	11	8	7	27
-20 to 20	1054	117	16	821	20	80
20 to 80	111	13	11	15	31	41
80 to 100	365	38	16	97	34	180
BANKS						
ALL	1889	228	14	1411	24	212
-80 to -100	227	66	3	128	2	28
-20 to -80	13	0	0	5	1	7
-20 to 20	1414	127	5	1198	6	78
20 to 80	23	5	0	2	5	11
80 to 100	212	30	6	78	10	88
INVESTMENT CO'S						
ALL	1889	145	35	1358	49	302
-80 to -100	148	48	17	56	7	20
-20 to -80	33	10	4	4	3	12
-20 to 20	1351	63	3	1196	7	82
20 to 80	53	2	3	6	13	29
80 to 100	304	22	8	96	19	159

TABLE X-19

NUMBER OF STOCK MONTHS EXPECTED*
(ASSUMING NO RELATIONSHIP BETWEEN NET BUYING OR SELLING
IN ONE MONTH WITH NET BUYING OR SELLING THE PREVIOUS MONTH)

LIST B'

	PREVIOUS MONTH PERCENTAGE NET IMBALANCE (SAME RESPONDENT GROUP)				
CURRENT MONTH	-80	-20	-20	20	80
PERCENTAGE NET	to	to	to	to	to
IMBALANCE	-100	-80	20	80	100
ALL RESPONDENTS					
-80 to -100	0	0	0	0	0
-20 to -80	0	21	48	33	1
-20 to 20	0	48	110	75	3
20 to 80	0	34	78	53	2
80 to 100	0	1	3	2	0
BANKS					
-80 to -100	0	3	3	5	1
-20 to -80	3	35	34	53	12
-20 to 20	3	32	31	48	11
20 to 80	5	50	49	76	17
80 to 100	1	11	10	16	4
INVESTMENT CO's.					
-80 to -100	23	29	16	26	13
-20 to -80	29	36	20	32	16
-20 to 20	17	21	12	19	10
20 to 80	28	35	20	32	16
80 to 100	13	17	9	15	8

* Rounded to nearest month.

TABLE X-20

NUMBER OF STOCK MONTHS EXPECTED*
(ASSUMING NO RELATIONSHIP BETWEEN NET BUYING OR SELLING
IN ONE MONTH WITH NET BUYING OR SELLING THE PREVIOUS MONTH)

LIST C'

CURRENT MONTH PERCENTAGE NET IMBALANCE	PREVIOUS MONTH PERCENTAGE NET IMBALANCE (SAME RESPONDENT GROUP)				
	-80 to -100	-20 to -80	-20 to 20	20 to 80	80 to 100
ALL RESPONDENTS					
-80 to -100	128	75	198	146	148
-20 to -80	76	45	118	86	88
-20 to 20	199	117	306	224	229
20 to 80	145	85	224	164	167
80 to 100	145	85	223	163	167
BANKS					
-80 to -100	252	95	301	127	201
-20 to -80	93	35	111	47	74
-20 to 20	300	113	358	151	239
20 to 80	126	47	150	63	100
80 to 100	197	74	236	99	157
INVESTMENT CO's.					
-80 to -100	74	40	242	40	128
-20 to -80	42	23	138	23	73
-20 to 20	245	132	802	134	424
20 to 80	41	22	134	22	71
80 to 100	127	68	416	69	220

* Rounded to nearest month.

TABLE X-21

NUMBER OF STOCK MONTHS EXPECTED*
(ASSUMING NO RELATIONSHIP BETWEEN NET BUYING OR SELLING
IN ONE MONTH WITH NET BUYING OR SELLING THE PREVIOUS MONTH)

LIST D'

	PREVIOUS MONTH PERCENTAGE NET IMBALANCE (SAME RESPONDENT GROUP)				
CURRENT MONTH	-80	-20	-20	20	80
PERCENTAGE NET	to	to	to	to	to
IMBALANCE	-100	-80	20	80	100
ALL RESPONDENTS					
-80 to -100	44	11	164	16	56
-20 to -80	10	2	38	4	13
-20 to 20	160	39	594	59	203
20 to 80	17	4	63	6	21
80 to 100	55	14	206	20	70
BANKS					
-80 to -100	27	2	170	3	25
-20 to -80	2	0	10	0	1
-20 to 20	171	10	1056	18	159
20 to 80	3	0	17	0	3
80 to 100	26	2	158	3	24
INVESTMENT CO's.					
-80 to -100	11	3	106	4	24
-20 to -80	3	1	24	1	5
-20 to 20	104	25	971	35	216
20 to 80	4	1	38	1	8
80 to 100	23	6	219	8	49

* Rounded to nearest month.

TABLE X-22

REGRESSION EQUATIONS WITH ADJUSTED RATE OF RETURN (PERCENT)
IN CURRENT MONTH AS DEPENDENT VARIABLE

STOCK SAMPLE AND RESPONDENT GROUP	REGRESSION COEFFICIENTS (AND STANDARD ERRORS) OF EXPLANATORY VARIABLES:					COEFFICIENT OF DETERMINATION
	PERCENTAGE NET IMBALANCE		VOLUME DECILE			
	CURRENT MONTH	PREVIOUS MONTH	CURRENT MONTH	DIFFERENCE	INTERCEPT	
LIST B' (513 observations)						
ALL RESPONDENTS	4.83 (0.76)	-2.61 (0.77)	0.18 (1.12)	0.70 (0.98)	-1.87	0.08
BANKS	0.97 (0.57)	-0.70 (0.57)	0.26 (1.17)	1.00 (1.02)	-2.61	0.01
INVESTMENT CO'S	1.95 (0.36)	-1.08 (0.36)	0.30 (1.13)	0.73 (0.99)	-2.89	0.06
LIST C' (3749 ovservations)						
ALL RESPONDENTS	1.69 (0.20)	-0.91 (0.20)	0.14 (0.05)	1.88 (0.10)	-0.76	0.11
BANKS	0.36 (0.20)	-0.19 (0.20)	0.15 (0.05)	1.88 (0.10)	-0.76	0.10
INVESTMENT CO'S	1.83 (0.21)	-0.98 (0.21)	0.15 (0.05)	1.89 (0.10)	-0.85	0.11
LIST D (1889 observations)						
ALL RESPONDENTS	3.99 (0.46)	-0.92 (0.46)	0.53 (0.11)	4.32 (0.20)	-1.19	0.27
BANKS	0.69 (0.56)	0.27 (0.55)	0.60 (0.11)	4.38 (0.21)	-1.25	0.24
INVESTMENT CO'S	5.31 (0.57)	-1.43 (0.57)	0.50 (0.11)	4.45 (0.20)	-1.27	0.27

TABLE X-23

REGRESSION EQUATIONS WITH ADJUSTED RATE OF RETURN (PERCENT) IN CURRENT MONTH AS DEPENDENT VARIABLE

REGRESSION COEFFICIENTS (AND STANDARD ERRORS) OF EXPLANATORY VARIABLES:

STOCK SAMPLE AND RESPONDENT GROUP	PERCENTAGE NET IMBALANCE CURRENT MONTH	PREVIOUS MONTH	DOLLAR NET IMBALANCE ($1 Mil) CURRENT MONTH	PREVIOUS MONTH	VOLUME DECILE CURRENT MONTH	DIFFERENCE	INTERCEPT	COEFF. OF DETERMINATION
LIST B' (513 observ.)								
ALL RESP.	3.08 (1.31)	-1.91 (1.32)	0.05 (0.03)	-0.03 (0.03)	0.17 (1.12)	0.77 (0.99)	-1.84	0.08
BANKS	1.95 (0.92)	-1.92 (0.91)	-0.07 (0.05)	0.09 (0.05)	0.29 (1.17)	0.98 (1.02)	-2.93	0.02
I/C'S	0.72 (0.46)	-0.18 (0.46)	0.11 (0.03)	-0.08 (0.03)	0.31 (1.11)	0.91 (0.98)	-2.98	0.10
LIST C' (3749 observ.)								
ALL. RESP.	1.41 (0.22)	-0.66 (0.21)	0.20 (0.05)	-0.18 (0.05)	0.13 (0.05)	1.87 (0.10)	-0.75	0.12
BANKS	0.36 (0.21)	-0.39 (0.21)	0.05 (0.09)	-0.21 (0.09)	0.15 (0.05)	1.88 (0.10)	-0.75	0.10
I/C'S	1.49 (0.23)	-0.80 (0.23)	0.20 (0.05)	-0.12 (0.05)	0.15 (0.05)	1.88 (0.10)	-0.83	0.12
LIST D (1889 observ.)								
ALL RESP.	3.06 (0.49)	-0.98 (0.50)	2.11 (0.43)	-0.06 (0.45)	0.41 (0.11)	4.39 (0.20)	-0.93	0.28
BANKS	0.73 (0.59)	0.07 (0.59)	-0.26 (1.57)	1.45 (1.57)	0.59 (0.11)	4.38 (0.21)	-1.23	0.24
I/C'S	4.14 (0.63)	-1.38 (0.64)	2.04 (0.48)	-0.28 (0.53)	0.41 (0.11)	4.49 (0.20)	-1.03	0.28

Table X-24

REGRESSION EQUATIONS WITH ADJUSTED RATE OF RETURN (PERCENT)
IN CURRENT MONTH AS DEPENDENT VARIABLE

REGRESSION COEFFICIENTS (AND STANDARD ERRORS)
OF EXPLANATORY VARIABLES:

STOCK SAMPLE AND RESPONDENT GROUP	DOLLAR NET IMBALANCE ($1 Mil)		VOLUME DECILE			
	CURRENT MONTH	PREVIOUS MONTH	CURRENT MONTH	DIFFERENCE	INTERCEPT	COEFFICIENT OF DETERMINATION
LIST B' (513 observations)						
ALL RESPONDENTS	0.11	-0.06	0.17	0.94	-1.78	0.07
	(0.02)	(0.02)	(1.12)	(0.99)		
BANKS	0.01	0.01	0.21	1.03	-2.12	0.00
	(0.03)	(0.03)	(1.17)	(1.02)		
INVESTMENT CO'S	0.14	-0.09	0.28	1.01	-2.74	0.09
	(0.02)	(0.02)	(1.11)	(0.97)		
LIST C' (3,749 observations)						
ALL RESPONDENTS	0.30	-0.21	0.14	1.87	-0.76	0.11
	(0.05)	(0.05)	(0.05)	(0.10)		
BANKS	0.10	-0.20	0.16	1.88	-0.81	0.10
	(0.09)	(0.09)	(0.05)	(0.10)		
INVESTMENT CO'S	0.33	-1.18	0.14	1.88	-0.78	0.11
	(0.05)	(0.05)	(0.05)	(0.10)		
LIST D (1,889 observations)						
ALL RESPONDENTS	3.11	-0.27	0.40	4.47	-0.89	0.26
	(0.40)	(0.42)	(0.11)	(0.21)		
BANKS	0.47	1.61	0.60	4.39	-1.28	0.24
	(1.46)	(1.46)	(0.11)	(0.21)		
INVESTMENT CO'S	3.42	-0.70	0.43	4.48	-0.92	0.26
	(0.44)	(0.47)	(0.11)	(0.21)		

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Table X-25

Nonclustered Model

Average Values by Stock Sample
All Stock Months

	Gross Volume ($000)	Offset Volume ($000)	Dollar Net Imbalance ($000)	Percentage Net Imbalance	Percentage Nonzero Months
All Respondents					
List B'	34,668	24,625	10,043	28.2	100.0
List C'	3,201	1,219	1,982	60.5	99.9
List D	350	50	299	64.3	72.0
Banks					
List B'	13,428	8,016	5,412	37.4	100.0
List C'	934	228	706	70.0	99.0
List D	34	1	33	32.0	33.0
Investment Co's					
List B'	14,434	7,320	7,114	50.0	100.0
List C'	1,835	410	1,425	69.6	84.2
List D	248	22	226	41.4	43.9
Banks & Investment Co's					
List B'	27,965	18,703	9,262	32.1	100.0
List C'	2,711	871	1,840	65.3	99.7
List D	290	35	255	58.3	63.3

Table X-26

Nonclustered Model

Average Values by Stock Sample

Nonzero Stock Months

	(1) Gross Volume ($000)	(2) Offset Volume ($000)	Dollar Net Imbalance ($000)	Percentage Net Imbalance	Percentage of (2)/(1)
All Respondents					
List B'	34,668	24,625	10,043	28.2	29.2
List C'	3,202	1,219	1,982	60.5	61.9
List D	485	70	415	89.3	85.6
Banks					
List B'	13,428	8,016	5,412	37.4	40.3
List C'	943	230	713	70.7	75.6
List D	103	4	99	97.0	96.0
Investment Co's					
List B'	14,434	7,320	7,114	50.0	49.3
List C'	2,179	487	1,692	82.7	77.7
List D	565	50	515	94.3	91.1
Banks & Investment Co's					
List B'	27,965	18,703	9,262	32.1	33.1
List C'	2,719	874	1,845	65.5	67.9
List D	459	55	404	92.1	88.0

Table X-27

Percentage of Stock Months over Specified
Size by Gross Volume

	All Respondents	Banks	Investment Companies	Banks and Investment Companies
Largest NYSE Stocks over $50 Million				
Actual Data	19.9	0.5	2.1	12.9
Nonclustered Model	11.2	0.2	0.3	4.7
Clustered Model	16.9	0.0	1.8	7.2
Random NYSE Stocks over $10 Million				
Actual Data	9.4	1.5	4.2	7.7
Nonclustered Model	3.7	0.4	1.8	3.1
Clustered Model	9.8	1.0	3.4	7.0
Random AMEX Stocks over $2.5 Million				
Actual Data	3.6	0.1	2.9	3.1
Nonclustered Model	1.7	0.1	1.6	1.6
Clustered Model	4.1	0.1	2.7	3.0

Table X-28

Clustered Model
Average Values by Stock Sample
All Stock Months

	Gross Volume ($000)	Offset Volume ($000)	Dollar Net Imbalance ($000)	Percentage Net Imbalance	Percentage Nonzero Months
All Respondents					
List B'	34,763	24,710	10,052	29.0	100.0
List C'	3,362	1,582	1,780	58.8	86.5
List D	367	117	250	40.6	45.6
Banks					
List B'	13,603	8,385	5,218	35.6	100.0
List C'	996	358	638	56.3	75.9
List D	39	4	35	23.2	25.1
Investment Co's					
List B'	15,502	8,301	7,201	51.2	100.0
List C'	1,814	568	1,246	47.9	60.7
List D	261	72	189	25.3	28.9
Banks & Investment Co's					
List B'	28,125	19,129	8,996	31.3	100.0
List C'	2,799	1,212	1,587	58.8	84.1
List D	308	83	225	36,3	41.8

Table X-29

Clustered Model

Average Values by Stock Sample
Nonzero Stock Months

	(1) Gross Volume ($000)	Offset Volume ($000)	(2) Dollar Net Imbalance ($000)	Percentage Net Imbalance	Percentage of (2)/(1)
All Respondents					
List B'	34,763	24,710	10,052	29.0	28.9
List C'	3,888	1,829	2,059	68.0	52.9
List D	806	257	549	89.0	68.1
Banks					
List B'	13,603	8,385	5,218	35.6	38.4
List C'	1,313	472	842	74.2	64.1
List D	156	18	138	92.2	88.6
Investment Co's					
List B'	15,502	8,301	7,201	51.2	46.5
List C'	2,987	936	2,051	78.9	68.7
List D	902	249	652	87.4	72.4
Banks & Investment Co's					
List B'	28,125	19,129	8,996	31.3	32.0
List C'	3,329	1,442	1,887	69.9	56.7
List D	736	198	538	86.8	73.1

Table X-30

Percentage Net Trading Imbalance
Difference Between Nonclustered and Clustered Models
Nonzero Stock Months

	Unweighted Average		Weighted Average Difference
	Difference	Significance*	
All Respondents			
List B'	0.7	0.66	-0.1
List C'	7.5	7.48	-9.0
List D	-0.3	0.30	-17.5
Banks			
List B'	-1.8	1.32	-1.9
List C'	3.5	3.41	-11.5
List D	-4.7	3.72	-7.4
Investment Co's			
List B'	1.2	0.68	-2.8
List C'	-3.7	3.49	-9.0
List D	-6.9	4.82	-18.7
Banks & Investment Co's			
List B'	-0.8	0.61	-1.1
List C'	4.4	4.32	-11.2
List D	-5.3	4.17	-14.9

* This is roughly a t-ratio. It equals the absolute difference between the sample means divided by the sum of the standard deviations of the sample means.

Table X-31

Percentage Net Trading Imbalance
Difference Between Actual Data and Models
Nonzero Stock Months

	Nonclustered		Clustered	
	Difference	Significance*	Difference	Significance*
All Respondents				
List B'	-2.7	2.50	-3.5	2.14
List C'	3.5	3.30	-4.0	3.58
List D	-5.7	4.31	-5.4	3.54
Banks				
List B'	4.5	3.05	6.3	3.00
List C'	5.2	5.06	1.7	1.55
List D	-2.9	2.57	1.8	1.09
Investment Co's				
List B'	9.5	5.32	8.3	3.16
List C'	-7.3	6.41	-3.6	2.84
List D	-7.1	4.69	-0.2	0.08
Banks & Investment Co's				
List B'	-2.6	2.20	-1.9	1.05
List C'	1.5	1.46	-2.9	2.53
List D	-5.2	4.10	0.2	0.10

* This is roughly a t-ratio. It equals the absolute difference between
the sample means divided by the sum of the standard deviations of the
sample means.

C. PRICE IMPACTS OF POSITION CHANGES IN NYSE-LISTED SECURITIES

A position change is a series of transactions that increases or decreases the number of shares of a particular stock held by a particular investor. This part describes the characteristics of institutional position changes and their price effects. The unit of observation is the entire position change rather than each individual transaction that comprises it. The variables analyzed are characteristics of the position change, generally as measured by totals or averages over the individual transactions comprising it.

1. Data Used

a. Sampling procedure

The data for this part were collected on Form I–2. The institutional respondents for this form, which were the same as for Form I–1, are described in Appendix B. Each institution in the sample was requested to supply trading data over a three-month period for no more than 12 different stocks, which were to be chosen from lists supplied to the institution. The time period covered by the questionnaire was January 1, 1968, to September 30, 1969.

Two of the stock samples were from stocks listed on the NYSE. List B consisted of 25 of the 27 common stocks with the greatest market values of all NYSE listings. List C was a random sample of the remaining common stocks listed on the NYSE. Both samples are described more fully in Appendix A.[39]

Each list of stocks was arranged randomly in a different order for each respondent.[40] Stocks were selected in a three step procedure. In Step 1 (random position change) the respondents were asked to select the first stock in each list for which total cash-only acquisitions plus cash-only dispositions in a designated month exceeded $50,000. In Step 2 (large acquisition) the respondents were asked to select the first stock in each list for which cash-only acquisitions in the designated month exceeded the amount specified for each list ($1 million for List B and $750,000 for List C). In Step 3 (large disposition) the respondents were asked to select the first stock in each list for which cash-only dispositions in the designated month exceeded those amounts.[41] For each respondent the designated month was the middle month of a calendar quarter.

If a stock was found on the list, all of the respondent's transactions for the calendar quarter (the designated month and the months immediately before and after that month) were reported. Beginning with the latest month (August 1969) and going back in time to the earliest month (February 1968), the months were assigned in order of

[39] Lists of AMEX and over-the-counter stocks were also included. The data concerning these stocks were not analyzed. In the case of the AMEX stocks, this was because insufficient trading in the third market was reported to analyze the effect of that position change characteristic. The over-the-counter stocks were not analyzed because of the lack of daily price information in machine-readable form.

[40] Random numbers generated by the computer were used for this purpose. Randomizing the stock list for each respondent insured that the same stocks would not tend to be chosen by all of them.

[41] Stocks selected in Step 2 or 3 could be the same as those selected in Step 1, but the respondent was instructed not to select the same stock in both Steps 2 and 3. Because of this procedure there are a number of randomly selected position changes (selected in Step 1) that were also selected as large position changes (selected in Step 2 or 3).

largest to smallest institutions in each sample. Therefore, more trading tended to be reported for the more recent quarters.

The data resulting from the preceding sampling procedure is not a simple random sample of all institutional trading. For example, it is substantially overweighted with the largest NYSE stocks. Accordingly, it will not be used to make general statements about the characteristics of all institutional trading. Rather, it will be used to describe the relationship between the characteristics of a position change and the price changes associated with those characteristics. These relationships are not dependent upon the exact representativeness of the sample.

b. *Information reported*

Each trade comprising the position change was reported separately. The information reported was the trade date; whether the trade was a purchase, a sale (long) or a sale (short); the number of shares; the price per share before the addition or subtraction of any brokerage commission; the market or form of transaction and the name of the person with whom the respondent dealt. If that person was a broker-dealer, the respondent indicated whether the broker-dealer acted as agent or principal, whether the choice of the broker-dealer was designated by the respondent's customer and the dollar amount of any brokerage commission paid to that broker-dealer.[42]

c. *Classification of position changes*

Position changes were classified as purchase programs or sales programs. In the case of large position changes this information was supplied by the institution in selecting the position change as a large purchase (Step 2) or a large sale (Step 3). In the case of randomly selected position changes (Step 1) the dollar value of the greater of total purchases or total sales determined the program classification.

Once the position change was classified as a purchase or sale program, the beginning of the program was defined as the first reported trade corresponding to the program. For example, the beginning of a purchase program was the first reported purchase. The end of the program was the last reported trade corresponding to the program. For example, the end of a sale program was the last reported sale. Trades occurring before the beginning of the program or after its end were eliminated from analysis. Trades not corresponding to the program classification but occurring between the beginning and ending trades were not eliminated. They were, however, analyzed separately from those trades that did correspond to the program classification.

d. *Overview of the data*

Data for 19,827 separate trades were collected on Form I-2. Of these, 9,584 were reported for stocks selected in Step 1 as part of random position changes. There were 8,345 trades reported in Step 2 as part of large acquisition programs, and 4,899 trades were reported in Step 3 as part of large disposition programs. Therefore, 3,001 trades were reported for stocks selected in both Step 1, on the one hand, and Step 2 or 3, on the other.

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[42] The information collected on Form I-2 was supplemented by market information from Standard and Poor's ISL tapes.

The trades were part of 588 different position changes. Of these, 279 were large position changes (Step 2 or 3), and 375 were random position changes (Step 1). As already indicated with respect to the individual trades, a number of large position changes also satisfied the Step 1 criteria. In addition, a few position changes included in the total of 588 arose from overreporting. Since the error was not in the accuracy of the data itself but in the fact that an extra stock was reported by the institution (for example, two stocks may have been selected from List B in Step 1), the Study believed that the inclusion of the extra data would not bias the results in any significant way and they were used.

Of the total 588 position changes, 173 were reported by banks, 264 were reported by investment advisers (including mutual funds), 109 were reported by insurance companies and 42 were reported by other institutional types. The respective figures for the large position changes were 73 for banks, 161 for investment advisers, 29 for insurance companies and 16 for others. With respect to the total of 375 random position changes, banks accounted for 108, investment advisers for 166, insurance companies for 70 and other institutional types for 31.

Extensive editing of the data was undertaken.[43] This included checking the respondent's selection of stocks in each step against its reported monthly trading on Form I–1 to insure that the first stock on each list that met the pertinent criteria was in fact selected. Followups by telephone and letter resolved most errors. Some, however, remained. These data were excluded.[44]

After all exclusions of erroneous data and of AMEX and over-the-counter stocks, there remained 230 (of 279) large position changes and 313 (of 375) randomly selected position changes. By institutional type, 153 (of 173) position changes by banks and 212 (of 264) position changes of investment advisers remained.

2. Size and Determinants of Price Changes Accompanying Institutional Position Changes

The analyses described in this section were designed to measure the price changes associated with institutional position changes, to relate them to the characteristics of the position changes and then to explore the causal connections. These analyses were formulated and conducted on the assumption that a position change by an institutional investor would typically have a definite price impact whose magnitude might depend on certain characteristics of the position change, such as whether it was a purchase or sales program, the size of the position change, the number and size of transactions used, the intensity of trading, and so on. As indicated by the analysis of block trades in Chapter XI,[45] some individual large trades by institutions do have such price impacts. Similarly, the findings in this section are also

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[43] This included internal checks for consistency between number of shares, price and commissions and external checks of reported prices against the market prices.

[44] In particular, all responses of one bank were excluded because the reported trade price did not fall between the high and low for the day. A few additional position changes were excluded if certain price variables (for example, the change from the previous close) exceeded wide tolerance limits. About 10 position changes were excluded for this reason. Less than 10 large position changes had to be excluded because the size of the program did not meet the selection criteria.

[45] See ch. XI.D, below.

consistent with the proposition that some institutional position changes have significant price impacts. But they also indicate that situations in which the trading of an institution may create or accentuate price movements are more or less matched in number and importance by situations in which the trading behavior of an institution appears to reduce the magnitude of the price impacts of trading by others. Furthermore, the Study's analyses did not reveal any strong relationship between the characteristics of a position change and its price impact.

a. Size of price changes

(1) *Intraday.*—Figure X-a shows the average intraday price changes accompanying different groups of institutional position changes. The average price of an individual trade pursuant to the position change (after brokerage commissions) is related to the previous closing price for the stock and to the close on the day of the trade. For both random and large purchase programs the average trade price was higher than both closing prices. For both random and large sale programs it was lower.

Figure X-a

INTRADAY PRICE PATTERNS: LARGE AND RANDOMLY
SELECTED POSITION CHANGES*

SALES

P(0)

P(-1)

0.89%

-0.79%

PI

LARGE

P(-1)

-0.74%

P(0)

0.87%

PI

RANDOM

PURCHASES

PI

0.76%   -0.54%

P(0)

P(-1)
LARGE

PI

0.84%

-0.69%

P(-1)
RANDOM

P(0)

1451
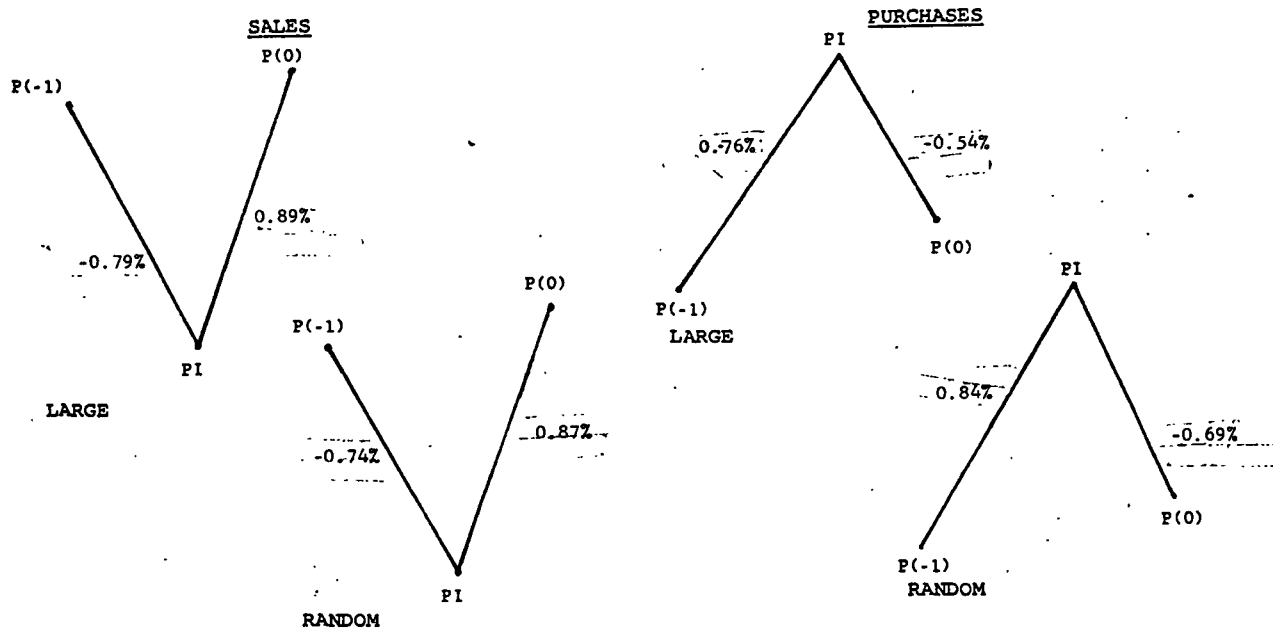
PI: Price at which institution traded; P(-1): Previous closing price; P(0): closing price on day of trade

*Values listed are the average percentage differences between the net trade price (after commission) and the
corresponding closing prices. Within each position change transactions are weighted by the number of shares
involved; but each position change is given equal weight, regardless of size. All the percentages are
significantly different from zero.

The average differences from the previous close ranged from 0.74 percent to 0.84 percent. From the close on the day of the trade they ranged from 0.54 percent to 0.89 percent. These average differences are of the same order of magnitude as one stock exchange minimum commission.[46]

Since the average trade price is net of commissions, while the closing prices are not; and the average differences were of the order of magnitude of one stock exchange commisison, the real difference between the average trade price and the closing prices was extremely small. This could mean that the average trade pursuant to institutional position change has almost no accompanying intraday price change. It could also mean that in some situations significant price rises accompany the trades, in other situations significant price declines accompany them and the price rises and declines are sufficiently equal in number and magnitude that they cancel each other out in the averaging process.[47] Further analyses were made to distinguish between these possibilities.

(2) *Over the course of the position change.*—In all four samples of position changes described in the preceding section the closing price on the day of the trade was higher than the previous close. This suggests that institutions trade more when prices are rising than when they are falling.[48]

The above analysis did not distinguish between the change in the closing price of the particular stock that accompanies the position change and the change in the market. Also, each position change is equally weighted regardless of the duration of the position change. Two other price measures consider these factors.

One measure is the percentage change in the closing price of the stock from the beginning of the position change to the end, less the percentage change in the market over the same period.[49] This "unweighted percentage price change" is plus 1.54 percent for large purchase programs. It is positive for the other three groups of position changes, also; but for them the value is not statistically different from zero (Table D-7).

Although this price measure considers the duration of the position change it does not distinguish between price changes that occur on days when the institution is trading and those when it is not. Furthermore, days are not weighted by the amount of institutional trading on them pursuant to the position change. Another price measure was developed to include these factors. This "weighted percentage value change" was calculated as follows: For each day on which there was trading pursuant to the position change the absolute difference was computed between the actual closing price and the closing price that would have resulted if the stock had changed in price by the same per-

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[46] The average trade size for large position changes was around $200,000 (5,000 shares of a $40 stock). The minimum stock exchange commission for such a trade was 0.98 percent of the value of the order in 1968 and 0.66 percent in 1969. The average trade size for random position changes was around $100,000 (2,500 shares of a $40 stock) (app. D, Table X–D–1). The minimum commission for such a trade was 0.98 percent in 1968 and 0.79 percent in 1969.

[47] For a similar situation with respect to the price changes accompanying block trades see ch. XI.D. below.

[48] The analyses of net trading imbalances indicate that on a monthly basis prices rise on rising NYSE or AMEX volume and fall on falling volume. See sec. B.3.d., above.

[49] See apps. C and D, below, for a more detailed technical description of the measure.

centage as the market since the beginning of the position change. This difference was multiplied by the number of shares traded pursuant to the position change that day, and the sum of the products was then divided by the total dollar value of the position change. The weighted percentage value change indicates an average price increase for large purchase and random sale programs and an average price decrease for large sale and random purchase programs. Again, however, only the value for the large purchase programs (plus 0.85 percent) differs from zero by a statistically significant amount. In three of the four groups the average position change does not seem to be accompanied by any significant price change. Only in the large purchase programs is there a significant change, and it is less than 5/8 on a $40 stock over an average of 29 trading days (Table X–D–7).

Either or both of the two possible explanations mentioned in the preceding section is apparently responsible for this near absence of detectable price changes.

b. Determinants of price changes

The relationship between the preceding price measures (both intra-day and over the course of the position change) and the following characteristics of the position change and/or market characteristics were explored by regression analysis: (1) dollar value of the position change, (2) proportion of the position change executed in the third market, (3) number of transactions, (4) number of broker-dealers used, (5) total NYSE dollar volume in the stock for the quarter, (6) net institutional trading imbalance [50] and (7) percentage of trading days on which trading actually took place ("intensity"). In some cases four variables representing the size distribution of trades were substituted for the single variable for the number of transactions. The results of the regressions are described in Appendix D. In general, they were inconclusive because of their inconsistency, particularly when purchase and sale programs are compared. The only finding from the regressions that can be stated with confidence is the existence of an average cost saving of the order of one stock exchange commission for that part of the position change that is executed in the third market. Again, it is not clear whether the other characteristics of insitutional position changes or market conditions are not systematically related to the price changes, or combined grouping of position changes with opposite price changes is causing those price changes to cancel each other out in the averaging process.

c. Frequency distribution of price changes

In order to examine the two possible explanations for the previous failures to find significant price changes or relationships between price changes, on the one hand, and position change characteristics and market conditions on the other, frequency distributions were calculated for the two price measures used to examine the price change over the course of a position change. These frequency distributions were plotted for large purchase and sale programs. The horizontal axis on each plot is the price measure. The figures at the top of each column

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[50] See pt. B, above.

of the plot count the number of large position changes in each size category for the price measure.

The frequency distribution of the unweighted percentage price change associated with the 102 large institutional sales programs included in the Study's sample is shown in figure X–b. In only two cases do the percentage price changes exceed 14 percent. In both of those cases the prices were rising, although the institutions were selling. The unweighted percentage price changes associated with the remaining position changes have a symmetrical distribution centered near zero. For example, they were between plus 10 percent and plus 14 percent in six instances and between minus 10 percent and minus 14 percent in five instances. The unweighted percentage price change was less than minus 2.44 percent for one quarter of the position changes and was greater than plus 3.39 percent for another quarter of the position changes.

Figure X–c shows the corresponding frequency distribution for the 128 large institutional purchase programs included in the Study's sample. Again, the distribution is symmetrical and is centered near zero. In the majority of the large purchase programs, the unweighted percentage price change is between minus 2.40 and plus 5.12 percent.

When the frequency distributions of unweighted percentage price changes for purchase and sale programs are compared, the most surprising finding was the lack of any statistically significant difference between the two distributions. The similarity between the two distributions tends to discredit the hypothesis that large position changes by institutions typically are in the same direction as the accompanying price changes. The symmetry in each individual frequency distribution leads to the same conclusion.

Figure X-b

Frequency Distribution of Unweighted Percentage Price Changes for Large Sale Programs

FREQUENCIES

MEAN = 0.845   ST DEV = 6.50

QUANTILE PERCENTILES AT: -16.   -7.   -3.   25   31   12   7   10   14   17   21   24   27   31   34

FIGURE X-c

Frequency Distribution of Unweighted Percentage Prices Changes for Large Purchase Programs
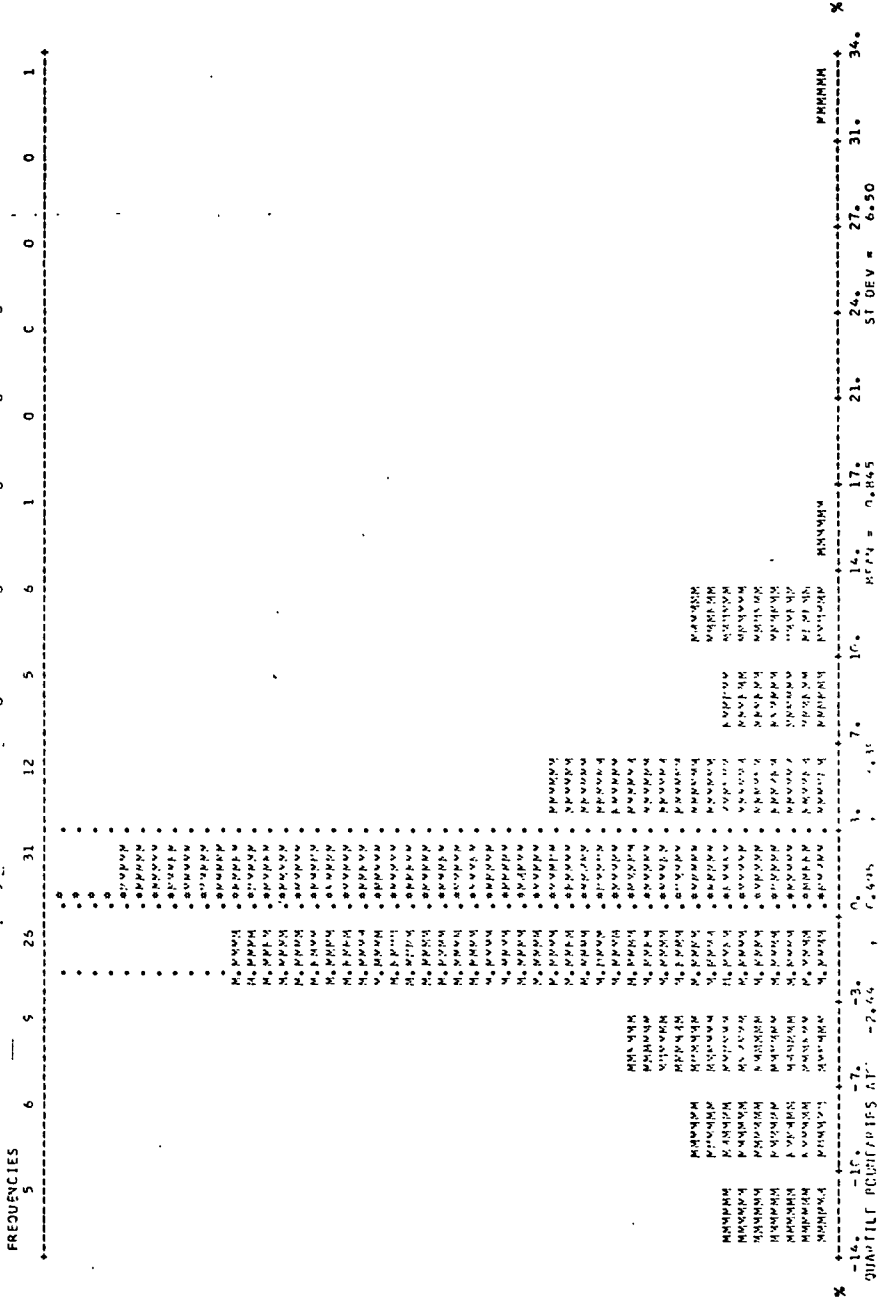
Similar results were obtained from the frequency distributions of the weighted percentage value changes for large position changes. The frequency distributions for large sale programs and large purchase programs, respectively, are plotted in figures X-d and X-e. Slightly less than half of the large sale programs have price measures in the same direction as the position change. Even for large purchase programs, nearly 40 percent of the position changes have price measures in the direction opposite to the position change.

* * * * * * *

What was intended as an analysis of the extent and determinants of the price changes accompanying institutional position changes was generally unsuccessful in that respect. But what emerged from this attempt was a perhaps even more important conclusion: Institutions appear to be price responsive as frequently and importantly as they are price aggressive. Their position changes are in the opposite direction to price movements and apparently offset trading imbalances of other investors (institutions and/or individuals) as often as they are in the same direction and either accelerate fundamental changes or contribute to temporary imbalances that cause temporary price changes in the market.[51]

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[51] See app. D, sec. 3.b(2), below, for one piece of inconsistent evidence.

FIGURE X-d

Frequency Distribution of Weighted Percentage Value Changes for Large Sale Programs

FREQUENCIES

MEAN = 0.351E-01   ST DEV = 4.32

QUARTILE BOUNDARIES AT   -5.   -2.51   -4.   -6.146   -3.   2.50   -1.

Prior to this Study, one view of institutional trading in common stocks was that institutions already traded largely among themselves and could be segregated into their own market entirely separate from the regular auction market for individual investors. Another and directly inconsistent view was that institutions tend to predominate on one side of the market in a particular stock at a particular time and could not continue their existing trading patterns if they attempted to trade solely among themselves. The latter view, that large net trading imbalances exist among institutions, has been explained by various hypotheses:

    (1) Institutions pattern their trading after that of certain "leader" institutions;

    (2) Institutions receive their outside research from the same broker-dealers;

    (3) Institutions' internal staffs of professional analysts have the same data available to them and interpret it in the same way at approximately the same time and

    (4) The reduction in the number of investment decision makers and the concomitant substantial increase in the number of shares governed by these decisions have made trading volume more "lumpy."

1. Extent of Net Institutional Trading Imbalances

An analysis was made of monthly purchases and sales of 563 common stocks by more than 230 financial institutions (representing about 70 percent of all institutional holdings of common stock) from January 1, 1968, to September 30, 1969. The analysis disclosed the existence of substantial net trading imbalances for all institutions as a group, for banks alone as a group, for registered investment companies alone as a group and for banks and registered investment companies as a combined group.

For the 27 largest NYSE stocks, out of a reported average monthly institutional trading volume in all markets of almost $35.5 million per stock, nearly $9 million (25 percent of the trading of all respondent institutions) was not offset by other respondent institutions. Similarly, for all other NYSE stocks a reported average monthly institutional volume in all markets of almost $3.3 million per stock resulted in nearly $1.2 million (more than 33 percent of the trading of all respondent institutions) that was not offset. Finally, for all AMEX stocks, out of a reported average monthly institutional volume in all markets of some $350,000 per stock, nearly $220,000 (63 percent of the trading of all respondent institutions) was not offset. These imbalances tended to persist, with some reduction in magnitude, for at least one additional month. Average monthly imbalances in the three lists of stocks (representing trading in all markets) were, respectively, 18, 18 and 10 percent as large as total reported NYSE or AMEX trading volume in those stocks.

In every month there was some reported institutional trading in

each of the 27 largest NYSE stocks. For the other NYSE stocks and the AMEX stocks there was no reported institutional trading in 14 and 55 percent, respectively, of the stock months. If these "zero stock months" are excluded, average reported monthly institutional volume for the NYSE stocks amounted to nearly $3.8 million, and average monthly volume that was not offset ("dollar net imbalance") amounted to $1.4 million (64 percent of total reported institutional volume and 22 percent as large as total reported NYSE volume). Comparative figures for AMEX stocks are a little less than $780,000 in total reported institutional volume and a dollar net imbalance of $480,000 (84 percent of total reported institutional volume and 21 percent as large as total reported AMEX volume).

There was no stock month in which reported institutional volume in the 27 largest NYSE stocks not offset by other reported institutional volume was more than 90 percent of total reported institutional volume. In other NYSE stocks and AMEX stocks, however, this did occur, respectively, in 40 and 70 percent of the stock months during which some institutional trading was reported. Particularly in these stocks the larger percentage imbalances tended to occur in stock months with low total reported institutional volume.

The figures on net institutional trading imbalances set forth above were designed to measure the extent to which the major institutions surveyed could trade directly with each other, rather than with smaller institutions not in the sample, individual investors and/or market makers. Because a monthly unit of observation was used, they probably overstate the extent to which such direct institutional trading does or could take place. Even on the basis of these figures, however, it is apparent that institutions cannot trade directly and solely among themselves without substantial changes both in the volume of their trading and in their trading patterns. Moreover, on a monthly basis the dollar amounts of these net trading imbalances appear too large to expect market makers alone to bridge the time gaps between institutional orders by inventorying the stock. It does not seem feasible to segregate institutions into a separate trading market wholly apart from other investors.

Similar figures on the number of institutions buying and selling in each stock month, rather than the dollar volume of trading on each side, indicate that at least on a monthly basis large numbers of institutions do not tend to "gang up" on one side of the market in a particular stock month. When there are very large percentage imbalances measured by the number of institutions, they seem to arise merely because there are few institutions trading. Indeed, a visual examination of the data indicated that the two measures of institutional trading imbalances tended to run in opposite directions: When there was net institutional selling, more institutions would be buying than selling and vice versa.

Because of the current interest in hedge funds, a separate analysis of their trading was made. In those months in which hedge funds traded, their average gross volume in the random NYSE stocks was about $360,000, as against $6.9 million for the other institutions that traded in those stock months. Their average dollar net imbalance in those stocks was about $310,000, as against $2.4 million for all other

institutions that traded in those stock months. Although hedge fund trading was almost completely on one side of the market in any given stock month (often because only one hedge fund traded), this imbalance had little effect on the net trading imbalance for all institutions. In almost one-half of those stock months, the hedge funds actually reduced the net trading imbalances for all institutions. Although hedge funds engage in substantially more in-and-out trading during a given month than any other type of institution and may well have significant market impacts over a shorter period of time, their contribution to the monthly net trading imbalance of all institutions is not significant.

2. Price Impacts of Net Institutional Trading Imbalances

Net institutional selling is systematically associated with price decreases, and net institutional buying is systematically associated with price increases. The magnitude of the imbalance, whether measured in absolute dollar amounts or as a percentage of total reported institutional trading, is directly related to the magnitude of the price change in that month.

In the largest NYSE stocks the average price decline was 1.49 percent when the percentage net imbalance was 20 to 80 percent on the sell side, and the average price rise was 0.90 percent when the percentage net imbalance was 20 to 80 percent on the buy side. In the random NYSE stocks the average price decline was 1.21 percent when the percentage net imbalance was 80 to 100 percent on the sell side, and the average price rise was 1.59 percent when the percentage net imbalance was 80 to 100 percent on the buy side. In the random AMEX stocks the respective figures were a price decline of 3.43 percent and a price rise of 5.15 percent.

If there was net selling in one month and adjustments were made for the imbalance in the next month, the price tended to rise in the next month. If there was net buying in the first month and the same adjustments were made, the price tended to fall in the next month. The indicated price reversal in the second month was more than one-half of the price change during the first month for the largest and random NYSE stocks and one-fourth to one-third of the previous price change for the random AMEX stocks.

Price reversals such as these usually represent the liquidity costs of large selling or buying pressures on the market rather than permanent adjustments to news or other fundamental factors. To the extent that the price changes represent such liquidity costs, they could be expected to be substantially greater on a day-to-day basis.

The net trading imbalances of registered investment companies are more typical of the net trading imbalances of all institutions than are those of banks. Similarly, the percentage net imbalances of registered investment companies correlate more closely with monthly price changes than do the percentage net imbalances of banks. Apparently, registered investment companies tend to be price aggressive—that is, their net trading imbalances tend to contribute to price changes in the same direction. Banks, on the other hand, tend to be price neutral: Their net trading imbalances tend to be in the opposite direction to the price change as frequently as they are in the same direction. In the

former situation they trade passively in response to the price change and offset the trading imbalances of the registered investment companies or other investors.

Although net institutional trading imbalances appear to have substantial market impacts, only a small fraction of all month-to-month price changes can be associated with institutional imbalances. Data on the combination of dollar net imbalance, percentage net imbalance and total NYSE or AMEX volume explain a maximum of only 10 percent of the month-to-month price changes in the largest NYSE stocks, 12 percent in the random NYSE stocks and 28 percent in the random AMEX stocks. The bulk of month-to-month price changes arise because of imbalances in the trading of individual investors, news or other factors.

3. Causes of Net Institutional Trading Imbalances

In order to determine the causes of observed net institutional trading imbalances, two mathematical models were constructed and used to simulate institutional trading. The imbalances expected from chance according to these models were then compared with the imbalances actually found in the data reported.

The first model utilized the reported number of shares purchased and sold per stock month, but the specific stock month in which each purchase or sale took place was determined by random selection. This model was constructed to ascertain the extent of net imbalances expected from the "lumpy" nature of institutional trading—that is, not only does the number of shares of a particular stock that any institution will purchase or sell vary widely from stock to stock and from month to month, but also the amounts are much greater than for an individual investor and there are fewer such stock months of trading. The model resulted in larger net trading imbalances among all respondents in all three stock groups than were actually reported. For example, in the larger NYSE stocks the model resulted in dollar imbalances of $10.0 million and a percentage net imbalance of 28.2 percent, as against $8.8 million and 25.5 percent in the actual data. This relationship between the actual data and the model was also true within the separate groups of banks, registered investment companies and banks and registered investment companies combined, both in the random NYSE stocks and the random AMEX stocks but not in the largest NYSE stocks.

There were indications from the comparison of the actual data with the first model that the decision of a particular institution to trade at a particular time is not completely independent from the other institutional trading that is then taking place in that stock. This does not necessarily mean that institutions tend to be on the same side of the market. Institutions tend to be interested in and trade the same stocks at the same time, but some purchase the stocks and others sell them. Accordingly, it was necessary to construct a second model in order to take account of any such "clustering" of institutional activity.

The second model was identical to the first, except that the determination whether there was any trading by a particular institution in a particular stock month was made by reference to the actual data.

The second model generally resulted in smaller net trading imbalances than the first model. Thus, the clustering of institutional activity tends to reduce the net trading imbalances that would be expected from chance.

When the results from the two models were compared with the actual data, the Study found:

With respect to the larger NYSE stocks, both banks alone and registered investment companies alone exhibited larger net trading imbalances than could be expected from chance. Within each group there may be some degree of parallel trading—that is, their net trading imbalances may arise to some extent either by design or from unplanned similarity. The amounts not explained by chance, however, were relatively small. Since banks and registered investment companies are often on opposite sides of the market, the net imbalances both for the combined group and for all respondents were actually less than could be expected from chance. Thus, in terms of total market impact on a monthly basis, parallel trading does not appear to be a factor. Rather, monthly institutional trading imbalances appear to arise because of the "lumpiness" of institutional trading.

With respect to the random NYSE stocks, banks exhibited larger net trading imbalances in the actual data than could be expected from chance. Registered investment companies exhibited less. Neither difference was very great. The combined group of banks and registered investment companies and the group of all respondents both exhibited smaller net trading imbalances than could be expected from chance when clustering was considered and greater net trading imbalances when it was not considered.

With respect to the random AMEX stocks, banks alone exhibited slightly greater net imbalances than could be expected from chance when clustering was considered and less when it was not considered. Registered investment companies alone and banks and registered investment companies together exhibited about the same as by chance when clustering was considered and somewhat less than when it was not. The group of all institutions exhibited substantially smaller net trading imbalances than could be expected from chance both with and without clustering. Here, too, there appeared to be little or no net trading imbalance remaining that might arise by design or from unplanned similarity.

Thus, at least on a monthly basis, net institutional trading imbalances appear to arise almost entirely from the "lumpiness" of institutional volume rather than from other factors. Such imbalances are accordingly inherent in the institutionalization of the equity markets. To cope with such imbalances an interchange between the trading of institutions and other investors and a strong market making mechanism seem to be necessary.

4. Price Impacts of Institutional Position Changes

To ascertain the price impacts of institutional position changes, the Study analyzed data on each transaction in several hundred such position changes in NYSE-listed stocks. The particular stocks and time period chosen for each institution were determined by strict rules set

down by the Study, which gave the responding institutions no leeway as to which stock or time period to select.

The analyses of these position changes were designed and conducted on the assumption that a large position change by an institutional investor would typically have a definite price impact whose magnitude might depend on certain characteristics of the position change, such as whether it was a purchase or sales program, the size of the position change, the number and size of transactions used, the intensity of trading and so on. The findings are consistent with the idea that a position change by an institutional investor sometimes does have a significant price impact—or at least tends to accentuate the price impacts of trading by others. But the findings indicate that situations in which the trading of an institution may create or accentuate price movements are more or less matched in number and importance by situations in which the trading behavior of an institution *reduces* the magnitude of the price impacts of trading by others. The most striking result of the analysis is that the original assumption is factually inaccurate. In general, situations in which an institutional position change may have a price impact seem to be no more frequent than situations in which such a position change tends to offset the price impacts of trading imbalances by other market participants.

This conclusion applies generally to large and small position changes, to those conducted by banks or by investment advisers (including mutual funds) and to both purchase and sales programs. With relatively minor exceptions, it applies even after allowance is made for characteristics of the position change, such as its total size or the size of the individual transactions used, and for the market conditions under which the position change was conducted. The analyses did, however, indicate that, when institutions trade on the third market, they save, on the average, the equivalent of a full stock exchange commission. But the Study could not determine whether the third market is underutilized, in the sense that substantial savings would also be available with respect to transactions that are presently executed in other markets.

APPENDICES

APPENDIX A

SAMPLE DOCUMENTATION—LIST A

A. INTRODUCTION

Sections A through E of this appendix set forth the criteria used in selecting the 800 common stock issues appearing on List A and used in various chapters of the Study. The 800 List A stocks are the result of combining the samples shown below which were chosen to meet specific research projects planned at the time List A was constructed.[52] A number of stocks in the specially constructed samples overlap with stocks in the basic random samples. Subsequent to the selection of List A, several researchers determined that samples not fitting into the molds detailed below were necessary for certain studies. An example might be a smaller subset of the Random NYSE Sample. While all the stocks in these special samples originate in List A, more detailed criteria by which they were selected are described when appropriate in the sections of the Study where they are used. The companies included in each sample of common stock issuers are shown in section F of this appendix.

B. TYPES OF SAMPLES AND SIZES

1. Random Samples

a. New York Stock Exchange:

List B	25
List B'	27
List C	200
List C'	198

b. American Stock Exchange: List D—100
c. Over-the-Counter ("OTC") Industrials: List E—150
d. Over-the-Counter Banks and Insurance—41

2. News Events

a. Transfers of Control:
Random mergers—70
Selected mergers—41
Proxy contests—25
b. Government Contract Awards—19
c. Large Price Changes—49
d. Companies Involved in Secondaries—57

3. Special Samples

a. 1953–1955 Senate Study—28
b. Special Study In-3 Questionnaire—8
c. Over-the-Counter Institutional Favorites—15
d. Selected stocks:
Special over-the-counter—10
Miscellaneous—5
Unusual price movements—29
Other large firms—45

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[52] Because of the unexpectedly long time that had to be spent editing the data submitted by respondents, some of these special projects were later modified or dropped. See ch. I.C.4, above. All of the NYSE or AMEX stocks, however, were at least used in many of the general analyses conducted by the Study.

1. New York and American Stock Exchanges

The basic data source used for choosing samples of stocks listed on either the New York or American Stock Exchanges was the *ISL Quarterly Historical Stock Tapes*, distributed by the Standard and Poors Corporation. The tapes contain daily trading information for all NYSE and AMEX stocks. The population from which the random samples were drawn consisted of all common stocks which appeared on the tape for the second quarter of 1968.

Two minor alterations were required: (a) Where two or more classes of common stock existed for one company, the issues were combined into one security, as it was felt that the population should consist of issuers rather than issues. In the cases where an issuer with more than one class of stock was chosen, all common issues of the issuer were followed. (b) Where a company's ISL record showed fewer than 100,000 shares of stock outstanding, the company was dropped from the population. Both NYSE and AMEX listing requirements are substantially above this figure, and an issuer in this category was considered to be either in a transitional or dormant state, remaining on the ISL tapes for some technical reason. A total of 42 issuers failed to meet the 100,000 share cutoff—21 from the NYSE and 21 from the AMEX. A number of these appeared with "zero" or fewer than 100 shares outstanding.

After following these procedures, the population sizes were 1,253 issuers from the NYSE and 957 from the AMEX. A computer program was used to select randomly 200 NYSE issuers and 100 AMEX issuers from the populations. These were the basic random samples—Lists C and D, respectively.

The 300 issuers thus chosen are known to have existed at some time during the second quarter of 1968. However, because data were gathered from January 1968 through September 1969, the Study decided that in those cases where an issuer in the basic sample disappeared through merger, adjustments to the sample should be made. Consequently, the existence of each issuer was checked through the second quarter of 1969. Where the securities of an issuer in the sample ceased to be traded due to a merger, it was dropped, and the surviving issuer was added. Name changes which had occurred during the period were noted.

It was then decided that a more complete representation of the largest NYSE-listed issuers was necessary. In terms of total market value (shares outstanding times price), 31 issuers accounted for approximately 40 percent of the total value of all NYSE issuers at the end of June 1968. The total market value of the shares of all NYSE issuers on this data was $600 billion.

To form List B, six issuers were then dropped from the 31. Shell Transport, Royal Dutch Petroleum and Shell Oil Company were eliminated because their stock is largely foreign held. Pacific Telephone and Telegraph is primarily held by American Telephone & Telegraph, and its inclusion in the list would represent substantial double counting. Finally, American Home Products and the General Electric Company were excluded from List B because they had been chosen as part of the random 200 List C stocks. For the purposes of Form I–2 (which was based on List C and List B), any overlap between lists was considered undesirable.

For some analyses, American Home Products and Genral Electric were added back to List B, and the 27 stocks became known as List B'. This was done in order to have a single list of the largest NYSE firms. When this was done, the two firms were removed from List C—the remainder being List C', which can be viewed as a 198 firm random sample drawn from a population of issuers whose cumulative market values equal the bottom 60 percent of the NYSE. Thus, the sample pairs (B–C and B'–C') contain no overlapping of stocks and were used independently, depending on the context of the analysis.

2. Nonlisted Securities

a. Over-the-counter—industrials

This random sample of 150 issuers was drawn from a population of 912 stocks which appear on the Standard and Poor's *Compustat Tapes*. The tape used was dated April 1, 1969. Although the universe of OTC stocks is significantly larger than 912, the Study decided to choose a sample from a subset of the universe that met two requirements: (a) The stocks had a reasonable probability of being held by institutions, and (b) balance sheet data could readily be obtained for

use in holdings analyses. These two limitations resulted in the use of the Compustat Tapes. These tapes contain balance sheet information for firms in which Standard and Poor's clients "have expressed an interest." Since the sample of stocks was chosen from a set which existed in April 1969, no adjustment for mergers was required. Name changes were traced back through 1967.

b. Over-the-counter—Banks & Insurance

A random sample of 41 banks and insurance companies was drawn from a population of 121 issuers on a list covering over-the-counter activity for the second half of 1968. The list included all OTC stocks having five or more market-makers in 20 of 26 weeks in the six months ending December 31, 1968, with the following exception. Stocks with five or more market-makers for fewer than 20 of 26 weeks were included if there were five or more market-makers in 20 of 26 weeks during the six-month period ending July 1, 1968, and if there was a legitimate reason for having fewer than 20 weeks of market-making in the second half of 1968. In 95 percent of the cases the legitimate reason was that a new issue in the stock occurred. The Commission's Rule 10b–6 under the Securities Exchange Act of 1934 generally prohibits making a market in a stock by a person participating in a distribution which includes an underwriting of a new issue. This prohibition extends from ten days before the commencement of the offering to the point in time when all shares allocated are sold ; that is, the distribution is completed.

D. NEWS EVENTS

1. Transfers of Control

The sample for companies involved in merger and acquisition activity was designed to provide a data base for the following two analytical areas of interest : (1) market impacts of news events and (2) relationships between financial institutions and portfolio companies.

To obtain a sample that would serve both purposes, the population was defined as that set of publicly held corporations which were involved in mergers and satisfied the following criteria :

a. were mentioned in a merger announcement carried by Moody's Industrials, Standard Corporation Records, *The Wall Street Journal, The Journal of Commerce* or *The New York Times;*

b. had assets of $10 million or more;

c. were listed on the New York or American Stock Exchange, and

d. the announcement and/or completion occurred between January 1, 1968 and January 31, 1969.

The basic source for the events in the population was a record of public announcements maintained by the Federal Trade Commission. The FTC data provided complete coverage within the defined population for mining and manufacturing corporations but the extent of the coverage provided in other industries was unknown. To supplement the FTC information, several additional sources were consulted.

Separate lists for mergers involving New York and American Stock Exchange issues were available from the *NYSE Fact Book* and a list supplied by the AMEX. Additional coverage was provided by statistical data from the Office of Policy Research of the Commission on security registrations in 1968 and 1969 for the purpose of tender offers reported between July 30, 1968, and March 1, 1969. The combined population resulting from all of these sources was 393 events.

A sample of 30 merger targets was randomly selected from the population, and this sample provided a list of 70 corporations involved in merger and acquisition activity. To insure the collection of data necessary to describe the ways in which institutions have influenced merger and acquisition events, a judgment sample of 41 issues was chosen to supplement the random sample.

Transfers of control sought through proxy contests could be easily defined. Selection was based on the filing of a statement under Section 14(b) of the Securities Exchange Act. A random sample of 16 corporations was selected from the identified population of 31 events. In addition to the random sample, nine corporations from the purposive sample were included on the list.

2. Government Contract Awards

Nineteen firms were drawn from a list of all parent companies which received a prime military contract (either directly or through a subsidiary) in the first half of 1968 which was equivalent to seven percent or more of their 1967 net sales. The data source Defense Department publication entitled *100 Companies and Their Subsidiary Corporations Listed According to Net Value of Military Prime Contract Awards*, published November 11, 1968. The publication is issued annually by the Office of the Secretary of Defense, Director for Statistics and Services.

3. Large Price Changes

The basic source of information used in choosing this sample was the *ISL Quarterly Historical Stock Tapes* for the second quarter 1968 and the first quarter 1969. These quarters were chosen because they were, respectively, periods of an upward movement in the entire market and a virtually level market.[53] From these two quarters all stocks which had monthly price changes of greater than plus 30 percent or minus 20 percent were listed. Price changes were calculated by computing the ratio of beginning price minus ending price, divided by beginning price, adjusted for stock splits, etc.

From the set of stocks which met the price change criteria a sample of 49 stocks was selected on the following bases: (a) any stock which had both a 30 percent increase and a 20 percent decrease in the same quarter; (b) additional stocks with the largest increases or decreases were selected in equal numbers from both exchanges in both quarters. Thus, the sample was not totally representative, but broad coverage was considered more important than statistical considerations.

4. Companies Involved in Secondaries

The set of 57 firms involved in secondary distributions consists of two parts: (1) registered secondary distributions and (2) unregistered secondary and exchange distributions. The registered secondary distributions consisted of all secondary distributions of listed companies valued at over $5 million, covered by a registration statement which became effective on any of the first three or last two *trading* days of any month between July 1967 and December 1968. The source of these data was a current list of "Registered Secondary Distributions" maintained by the Office of Policy Research of the Commission.

The unregistered secondaries and exchange distributions consisted of all such distributions of listed companies valued at over $5 million which took place on any of the first three or last two *trading* days of the month between July 1967 and December 1968. The source of these data was a list of "Block Distributions of Stock," based on the exchanges' reports and published by the Office of Policy Research of the Commission in the *Statistical Bulletin*.

E. SPECIAL SAMPLES

1. 1953–1955 Senate Study

Twenty-five stocks which were studied in a Staff Report to the Committee on Banking and Currency of the United States Senate and entitled *Institutional Investors and the Stock Market, 1953–1955*, published in December 1956, were specifically chosen as a separate sample. Because of subsequent mergers and in order to ensure comparable data, it was necessary to add three additional companies which raised the sample to 28 firms.

At the time the 25 stocks were originally selected an attempt was made to satisfy three conditions: "(1) they should represent the more actively traded issues; (2) the stocks should be among the favorites in the portfolios of investment institutions; and (3) the sample should have a fair degree of representation of various industries" (p. 2 of Senate Study).

2. Special Study, IN–3 Questionnaire

Eight stocks for which transactions data were collected by the *Special Study of Securities Markets of the Securities and Exchange Commission*, published in August 1963, were selected as a special sample.

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[53] As measured by Standard and Poor's Composite Index, the market advanced 8 percent in the first period and declined 2 percent in the second period.

3. OTC Institutional Favorites

The source of information used in choosing this sample was the 16th issue of *Vickers OTC Favorites,* published by Vickers Associates, Inc., which is a listing of the top 50 industrials, the top 30 bank stocks and the top 25 insurance companies, ranked on the basis of dollar value of shares held by investment companies as of December 31, 1968. Stocks owned by less than three investment companies and individual blocks of stocks held for control or what appeared to be a similar purpose were omitted.

The survey covers the holdings of more than 650 investment companies. Market values as of December 31, 1968, were based on bid prices from recognized sources such as the National Quotation Bureau, *Wall Street Journal, Barron's* and others. Shares and prices were adjusted for stock dividends and splits through February 15, 1969.

The Study started with the 50 industrial stocks listed for December 31, 1968; added the 12 stocks that were in the top 50 as of June 30, 1968, but were replaced or displaced on the December 31 listing and subtracted one stock whose company had been involved in a merger (TCO Industries, Inc.). This resulted in a population of the top 61 stocks from the rankings of June 30 and December 31, 1968. From this population a random sample of 25 stocks was selected. Subsequently, the Study eliminated from the 25 those stocks which did not exist on both January 1, 1967, and June 30, 1969. The final group then contained 15 issues. Because this sample was used primarily to improve the experimental quality of the random samples, in the sense of providing boundaries, it was felt that selectively eliminating companies which had merged or changed their name would not impair its usefulness.

4. Selected Stocks

The following four samples were selected exclusively to provide situations in which it was alleged that unusual activity had been observed in a stock, either in the form or abnormal trading patterns or unusual news events. The stocks were selected from lists suggested by members of the Advisory Committee, the regular staff of the Commission or particular members of the Study Staff. The names assigned to the four sets bear no particular significance and were used only for internal identification.

a. Special OTC_____ 10
b. Miscellaneous_____ 5
c. Unusual price movements_____ 29
d. Other large firms_____ 45

F. STOCK LISTS

1. Random Samples

a. New York Stock Exchange: List B

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
1	030177109	AMER TEL & TEL	T
2	054303102	AVON PRODUCTS INC	AVP
3	171196108	CHRYSLER CORP	C
4	263525107	DUPONT	DD
5	277461109	EASTMAN KODAK	EK
6	345370100	FORD MOTOR CO	F
7	370442105	GEN MOTORS	GM
8	371028101	GEN TEL & ELECTRONIC	GEN
9	402460109	GULF OIL CORP	GO
10	459200101	INTL BUSINESS MACH	IBM
11	460056104	INTL NICKEL OF CANADA	N
12	460470107	INTL TEL & TEL	ITT
13	589331107	MERCK & CO	MRK
14	604059105	MINN MINING & MANUFAC	MMM
15	607080108	MOBIL OIL CORP	MOB
16	731095105	POLAROID CORP	PRD
17	742718109	PROCTER & GAMBLE CO	PG
18	749285102	RCA CORP	RCA
19	812387108	SEARS, ROEBUCK & CO	S
20	853083100	STAND OIL OF CALIF	SD
21	853700102	STAND OIL INDIANA	SN
22	853717106	STAND OIL NJ	J
23	881694103	TEXACO, INC	TX
24	960402105	WESTINGHOUSE ELECTRIC	WX
25	984121103	XEROX CORPORATION	XRX

New York Stock Exchange: List C

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
1	006212104	ADAMS EXPRESS CO	ADX
2	008644106	AGUIRRE CO	AGG
3	023141104	AMBAC CORPORATION	AB
4	023537103	AMERACE ESNA CORP	AAE
5	026573105	AMER HOIST & DERR CO	AHO
6	026609107	AMER HOME PROD	AHP
7	027465103	AMER METAL CLIMAX	AMX
8	029267101	AMER RESEARCH & DEVEL	ARD
9	030105100	AMER SUGAR	ASR
10	031105109	AMETEK, INC	AME
11	032087108	AMPEX CORP	APX
12	033609108	ANDERSON, CLAYTON & CO	AYL
13	040555104	ARIZONA PUBLIC SERVICE	AZP
14	053159109	AUTOMATIC SPRINKLER	ATO
15	070581103	BATES MFG CO	BAT
16	074077108	BEATRICE FOODS CO	BRY
17	075815100	BECKMAN INSTRUMENTS	BEC
18	081689101	BENDIX CORPORATION	BX
19	115727109	BROWN SHOE CO, INC	BWS
20	119529105	BUFFALO FORGE CO	BFC
21	122205107	BURNDY CORPORATION	BDC
22	126149103	CPC INTERNATIONAL INC	CFG
23	146285101	CARTER-WALLACE, INC	CAR
24	150843100	CELANESE CORP	CZ
25	167808104	CHICAGO MUSICAL INSTR	CMI
26	168106102	CHI, ROCK ISL & PAC RR	RI
27	177846102	CITY INVESTING CO	CNV
28	181396102	CLARK EQUIPMENT CO	CKL
29	189486103	CLUETT, PEABODY & CO	CLU
30	190558106	COASTAL STATE GAS PROD	CGP
31	196864102	CULT INDUSTRIES INC	COT
32	206613107	CONE MILLS CORP	COE
33	208291104	CONRAC	CAX
34	209111103	CONSOLIDATED EDISON NY	ED
35	210795100	CONT AIRLINES	CAL
36	211291109	CONT COPPER & STEEL	CCX
37	211723101	CONT MOTORS	CMR
38	212093109	CONT TELEPHONE	CTC
39	213147101	COOK COFFEE CO	CCF
40	219831104	CORONET INDUSTRIES	CID
41	245217104	DEL MONTE CORP	DEL
42	249073107	DENVER&RIO GRDE WESTRN	DGR

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New York Stock Exchange: List C

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
43	252741103	DIAMOND SHAMROCK CORP	DIA
44	277173100	EASTERN UTILITIES	EUA
45	283695104	EL PASO NATURAL GAS	ELG
46	291101103	EMERY AIR FREIGHT CORP	EAF
47	292371101	EMPORIUM CAPWELL CO	EMP
48	292605102	ENDICOTT JOHNSON	EJN
49	294497102	EQUITABLE GAS CO	EQT
50	296659105	ESQUIRE INC	ESQ
51	298731100	EUROFUND, INC	EFD
52	305189102	FAIRMONT FOODS CO	FMF
53	306855107	FALSTAFF BREWING CORP	FAL
54	314225103	FEDERATED MORTGAGE INV	FDM
55	315405100	FERRO CORPORATION	FOE
56	317315109	FILTROL CORP	FLT
57	335765103	FIRST NATIONAL STORES	FST
58	340639103	FLORIDA EAST COAST RY	FLA
59	343862108	FLUOR CORPORATION LTD	FLR
60	345514103	FOREMOST-MCKESSON	FOR
61	356820100	FREEPORT SULPHUR CO	FT
62	361028103	FUQUA INDUSTRIES INC	FQA
63	365550102	GARDNER-DENVER CO	GDC
64	368658100	GEMINI FUND CAP	GEM
65	369604103	GEN ELECTRIC CO	GE
66	370514101	GEN PORTLAND CEMENT	GPT
67	371532102	GENESCO INC	GCO
68	374532109	GIANT PORTLAND CEMENT	GPO
69	379568108	GLOBE-UNION INC	GLB
70	382550101	GOODYEAR TIRE & RUBBER	GT
71	386532105	GRAND UNION CO	GUX
72	387316102	GRANITE CITY STEEL	GRC
73	390064103	GREAT ATL & PAC TEA CO	GAP
74	391064102	GRT NORTHERN IRON ORE	GNI
75	402370100	GULF MOBILE & OHIO RR	GFO
76	406216101	HALLIBURTON CO	HAL
77	408306108	HAMMERMILL PAPER CO	HML
78	408360105	HAMMOND CORPORATION	HMD
79	410342109	HANES COMPANY	HNS
80	416162105	HART SCHAFFNER & MARX	HSM
81	423434109	HELME PRODUCTS	HPI
82	423632108	HEMISPHERE FUND CAP	HEM
83	432848109	HILTON HOTELS CORP	HLT
84	433650108	HITCO	HIT

New York Stock Exchange: List C

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
85	434434106	HOFFMAN ELECTRONICS	HEC
86	439254103	HOOVER BALL & BEARING	HBB
87	442164109	HOLSTON LIGHTING & POW	HOU
88	459086101	INTNATL INDUSTRIES INC	INT
89	460146103	INTL PAPER CO	IP
90	461074106	INTERSTATE POWER CO	IPW
91	462416108	IOWA ELECTRIC LT & PWR	IEL
92	465632107	ITEK CORPORATION	ITK
93	469898100	JAEGER MACHINE	JAE
94	483008108	KAISER ALUMINUM & CHEM	KLU
95	489170100	KENNAMETAL	KMT
96	494368103	KIMBERLY-CLARK CORP	KMB
97	495890105	KINGS DEPT STRS	KDT
98	501026108	KROEHLER MFG CO	KFM
99	522066109	LEASEWAY TRANS CORP	LTC
100	525030102	LEHIGH VALLEY IND	LEH
101	526570106	LEONARD REFINERIES	LNR
102	530710102	LIBERTY LOAN CORP	LLC
103	532202108	LIGG & MEYERS TOB INC	LM
104	538021106	LITTON INDUSTRIES INC	LIT
105	538735101	LIVINGSTON OIL	LVO
106	542263108	LONE STAR CEMENT CORP	LCE
107	542671102	LONG ISLAND LIGHTING	LLT
108	546608100	LOUIS & NASHVILLE RR	LN
109	549662104	LUDLOW CORP	LUD
110	549866101	LUKENS STEEL CO	LUC
111	554205104	MAC ANDREWS & FORBES	MAF
112	554307108	MACDONALD E F & CO	MAC
113	554528109	MACKE COMPANY CL A	MAK
114	557480100	MADISON FUND INC	MAD
115	566472106	MAREMONT CORPORATION	MAR
116	577778103	MAY DEPT STORES	MA
117	578473100	MAYS, J.W. INC	MJW
118	579746108	MC CORD CORP	MCR
119	580169100	MC DONNELL DOUGLAS	MD
120	581238102	MC INTYRE PORCUPINE MN	MP
121	586005100	MEMOREX CORP	MRX
122	591605100	METRO-GOLDWYN-MAYER	MGM
123	591690102	METROMEDIA INC	MET
124	595390105	MID CONT TELEPHONE	MID
125	595832106	MIDDLE SOUTH UTILITIES	MSU
126	609150107	MONARCH MACHINE TOOL	MMO

New York Stock Exchange: List C

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
127	624029104	MOUNTAIN FUEL SUPPLY	MFS
128	632431102	NATL AIRLINES INC	NAL
129	635128101	NATL CAN CORP	NAC
130	637844101	NATL STEEL CORP	NS
131	638097105	NATL TEA CO	NTY
132	649313103	NY & HONDURAS ROS MNG	NYH
133	651639106	NEWMONT MINING CORP	NEM
134	655694107	NORFOLK & WESTERN RY	NFK
135	666807102	NORTHROP CORP	NOC
136	667332100	NORTHWEST BANCORP	NOB
137	668707102	NORTON SIMON INC	NSI
138	682063102	OMARK INDUSTRIES INC	OMK
139	690734108	OWENS-CORN FIBERGLAS	OCF
140	691497101	OXFORD INDUSTRIES A	OXM
141	694308107	PAC GAS & ELEC	PCG
142	699466108	PARGAS INC	PAG
143	701111106	PARKER PEN	PKR
144	708160106	PENNEY, J.C. COMPANY	JCP
145	716026109	PETER PAUL INC	PPI
146	718507106	PHILLIPS PETROLEUM	P
147	718592108	PHILLIPS-VAN HEUSEN	PVH
148	740512108	PREMIER INDUST CORP	PRE
149	759200108	REICHHOLD CHEMICALS	RCI
150	761406107	REVERE COPPER & BRASS	RVB
151	769535105	RIVIANA FOODS INC	RVR
152	769756107	ROAN SELECTION TRUST	RST
153	776678104	ROPER CORPORATION	ROP
154	776763104	RORER, WM H. INC	ROR
155	782242101	RUSS TOGS	RTS
156	793453101	ST REGIS PAPER CO	SRT
157	799850102	SANDERS ASSOCIATES	SAA
158	803701101	SARGENT WELCH SCIENTIF	WLS
159	806500104	SCHENLEY INDUSTRIES	SH
160	806602108	SCHERING CORP	SRG
161	811148105	SCUDDER DUO-VEST INC	SDV
162	822737102	SHELLER-GLOBE CORP	SHG
163	829302108	SINGER CO	SMF
164	843673104	SOUTHERN RAILWAY	SR
165	853139103	STAND BRANDS INC	SB
166	853768109	STAND PACKAGING	SPK
167	853870103	STD PRUDENTIAL CORP	STU
168	864473103	SUBURBAN PROPANE GAS	SPG

New York Stock Exchange: List C

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
169	867833105	SUNSHINE MINING CO	SSC
170	869716100	SWANK INC	SNK
171	871140109	SYBRON CORP	SYB
172	872649108	TRW INC	TRW
173	875127102	TAMPA ELECTRIC CO	TE
174	879335107	TELEDYNE INC	TDY
175	880370107	TENNECO INC	TGT
176	882593106	TEXAS OIL & GAS	TXO
177	889837101	TOBIN PACKING CO	TBN
178	892892100	TRANE COMPANY	TRA
179	893341107	TRANS UNION CORP	TU
180	893349100	TRANS WORLD AIRLINES	TWA
181	893366104	TRANS-WORLD FINANCIAL	TWF
182	895436103	TRI-CONTINENTAL	TY
183	902878107	UMC INDUSTRIES INC	UMT
184	910110105	UNITED CORP	U
185	910416106	UNITED FRUIT CO	UF
186	911315109	UNIT PARK CITY MINES	UPK
187	912010105	U S FREIGHT CO	UFG
188	913130100	UNITED UTILITIES	UT
189	915302103	UPJOHN CO	UPJ
190	917270100	URIS BUILDINGS CORP	URB
191	917508103	UTAH POWER & LIGHT	UTP
192	934051103	WARD FOODS	WD
193	950817106	WESCO FINANCIAL CORP	WSC
194	957518103	WESTCOAST TRANS	WTC
195	958570103	WESTERN MARYLAND RY CO	WM
196	959129107	WESTERN PACIFIC RR	WRS
197	974280109	WINN-DIXIE STORES INC	WIN
198	980881106	WOOLWORTH, F.W.	Z
199	982594103	WURLITZER CO	WUR
200	989195102	ZAYRE CORP	ZY

b. <u>American Stock Exchange</u>: List D

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
1	007680101	AERO-FLOW DYNAMICS	AER
2	011662103	ALASKA AIRLINES	ALK
3	018789107	ALLIANCE TIRE & RUBBER	ATR A
4	032159105	AMREP CORPORATION	AXR
5	034393103	ANDREA RADIO CORP	AND
6	042735100	ARROW ELECTRONICS	ARW
7	045609104	ASSOC FOOD STORES	AFC
8	068221100	BARNWELL INDUSTRIES	BRN
9	087257101	BETHLEHEM CORP	BET
10	134177104	CAMPBELL CHIB MINES	CCH
11	136357100	CANADIAN MARCONI CO	CMW
12	141663104	CAREER ACADEMY INC	RRR
13	143483105	CARNATION CO	CMK
14	163267107	CHELSEA INDUSTRIES	CHD
15	191054105	COBURN CORP OF AM	CCD
16	204525109	COMPO INDUSTRIES INC	CEM
17	205201106	COMPUTER LEASING CO	CLE
18	206039109	CONCHEMCO INC	CKC
19	211237102	CUNT CONNECTOR A	CCE A
20	216165100	COCK ELECTRIC CO	CEE
21	216237107	COOK PAINT & VARNISH	COK
22	222687105	COURTAULDS, LTD	COU
23	228219101	CROWN CENTRAL PETR	CNP
24	239613102	DAYLIN	DLN
25	247883101	DELTONA CORP	DLT
26	255093106	DIVERSEY CORPORATION	DIV
27	282443100	EHRENREICH PHOTO OPT	EHR
28	284893104	ELEC HOSE & RUBBER CO	EH
29	286065107	ELECTR CORP OF AMER	ECA
30	290875103	EMENEE CORPORATION	EME
31	299101105	EVANS ARISTOCRAT IND	EVS
32	307045104	FAMILY RECORD PLAN	FRP
33	313765109	FED RESOURCES CORP	FDR
34	339099103	FLEETWOOD ENTERPRISES	FLE
35	345838106	FOREST LABORATORIES	FRX
36	368226106	GAYLORDS NATL CORP	GYL
37	369640107	GEN ELECTRIC LTD	GLE
38	374478105	GIANT FOOD A	GFS A
39	381370105	GOLDFIELD CORP	GV
40	397442104	GREER HYDRAULICS, INC	GRH
41	402496103	GULF RESCES & CHEM	GRE
42	435560107	HOLLINGER MINES LTD	HOL

American Stock Exchange: List D

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
43	4405061C3	HORN & HARDART CO	HOR
44	448888107	HYDROMATICS, INC	HFD
45	456632108	INFLIGHT MOTION PICT	INF
46	463560102	IROQUOIS INDUSTRIES	IRI
47	486332109	KAVANAU REAL ESTATE	KAV
48	493494108	KEYSTONE INDUSTRIES,A	KEY
49	501566103	KYSOR INDUSTRIES CORP	KZ
50	527012108	LESLIE FAY A	LES A
51	540210101	LODGE & SHIPLEY CO	LSP
52	564402105	MANSFIELD TIRE & RUB	MSF
53	577353105	MAUL BROS INC	MBS
54	595050105	MICRODOT INC	MIC
55	595169103	MICROWAVE ASSOCIATES	MAI
56	624590105	MOVIE STAR, INC	MVS A
57	627151103	MURRAY OHIO MFG	MYO
58	629257106	NMS INDUSTRIES	NMS
59	637351107	NATIONAL REALTY INV	NRY
60	641066105	NESTLE-LE MUR CO	NMR
61	644596108	NEW HAMPSHIRE BALL BR	NWH
62	677194102	OHIO BRASS CO	OHS
63	686220104	ORIGINALA INC	ORG
64	694070102	PAC CLAY PRODUCTS	PCP
65	694665100	PAC NW BELL TEL	PNB
66	705455103	PEEL-ELDER LTD	PL
67	723835104	PIONEER PLASTICS CORP	PPK
68	725786107	PITTWAY CORP	PRY
69	730026101	PLYMOUTH RUBBER A	PLR A
70	730026200	PLYMOUTH RUBBER B	PLR B
71	738102102	POTTER INSTRUMENT CO	PIC
72	746316108	PURITAN FASHIONS CORP	PFC
73	761185107	RESORTS INTL INC A	RT A
74	761185206	RESORTS INTL INC B	RT B
75	763410107	RICHFORD IND INC	RFI
76	775133101	ROGERS CORPORATION	ROG
77	783073109	RUSTCRAFT GREET CARDS	RUS
78	804090108	SATURN INDUSTRIES	SAT
79	815773106	SEEMAN BROS, INC	SEE
80	828675108	SIMMONDS PRECISION PRO	SP
81	830830105	SKYLINE CORP	SKY
82	844521104	SOUTHLAND ROYALTY CO	SRO
83	847541109	SPECTOR INDUSTRIES	SIX
84	853836104	STAND PRODUCTS CO	SPD

American Stock Exchange: List D

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
85	868647108	SUPRONICS CORP	SU
86	876553108	TASTY BAKING CO A	TBC A
87	879488104	TELEPROMPTER CORP	TP
88	885851105	THRIFTIMART INC A	TFT A
89	893247106	TRANS-LUX CORP	TLX
90	898592100	TUBOS MEXICO	TAM
91	906871108	UNION INVESTMENT CO	UIV
92	920355104	VALSPAR CORP	VAL
93	926089103	VICTOREEN INSTRUMENT	VIC
94	929794105	WACKENHUT CORPORATION	WAK
95	957280100	WESTBURY FASHIONS	WBF
96	965033103	WHITEHALL ELECTRONICS	WHT
97	969309103	WILLIAMHOUSE-REGENCY	WMH
98	972397103	WILSON SPORTING GOODS	WSG
99	983544107	WYOMISSING CORP	WYS
100	989637103	ZION FOODS CORP	ZIO

c. Over-the-Counter Industrials: List E

SEQ. NO.	CUSIP NO.	ISSUER NAME
1	001604107	A L D INC
2	003788106	ABRAMS AR INC COM
3	003896107	ACADEMIC PRESS INC
4	004644100	ACME ELECTRIC CORP COM
5	007086101	ADLEY CORP COM
6	007806102	AEROLOGICAL RESEARCH
7	008014102	AEROSONIC CORP COM
8	008230104	AFFILIATED HOSP PROD
9	013104104	ALBERTSONS INC COM
10	016410102	ALISON AYRES INC COM
11	016680100	ALL TECH IND INC
12	020015103	ALLSTATE INDUSTRIES
13	024825101	AMERICAN CADUCEUS
14	025411109	AMER DISTRICT TEL CO
15	026303107	AMER FURNITURE CO INC
16	029573102	AMER SELF SERV STORES
17	029681103	AMERICAN SNACKS
18	032339103	AMT CORP DEL COM
19	038231106	APPLIED RESEARCH INC
20	040429102	ARISTO FOODS INC
21	040501108	ARIZ-COLO LAND&CATTLE
22	042591107	ARNOLD GRAPHIC INDUS
23	042753103	ARROW HART INC
24	045537107	ASSOCIAT COCA COLA BOT
25	045897105	ASSOCIATED TRUCK LINES
26	048699102	ATLANTIC MICROFILM COR
27	084095108	BERGSTROM PAPER CO A
28	097293104	BOGUE ELECTRIC MFG CO
29	118079102	BUCKBEE MEARS CO
30	119043107	BUEHLER CORP COM
31	137735106	CANNON MILLS CO
32	153357108	CENTRAL DEL RIO OILS
33	163753106	CHEMICAL LEAMAN TANK
34	165213109	CHESAPEAKE INSTRUMENT
35	205381106	COMPUTER SERVICENTERS
36	205543101	COMPUTER USAGE CO INC
37	221255102	COSMETICALLY YOURS INC
38	224111104	CRADDOCK TERRY SHOE
39	225795103	CRESCENT TECHNOL CORP
40	233287101	DPA INC
41	234523108	DALLAS AIRMOTIVE INC
42	236235107	DANIEL INDUSTRIES

Over-the-Counter Industrials: List E

SEQ. NO.	CUSIP NO.	ISSUER NAME
43	239739105	DAYTON CORP
44	243631108	DECORATOR INDUSTRIES
45	254003106	DIGITRONICS CORP
46	257651109	DONALDSON CO INC
47	261237101	DOYLE DANE BERNBACH
48	285659108	ELECTRONIC DATA SYSTMS
49	286119102	ELECTRONIZED CHEMICALS
50	292101102	EMPIRE STATE OIL COM
51	302101100	EXOLON CO COM
52	313225104	FEDERAL CO
53	320891104	FIRST MISSISSIPPI CORP
54	339729105	FLO TRONICS INC
55	344064100	FLXIBLE CO
56	355460106	FRANTZ MFG CO COM
57	359856101	FULLVIEW INDUST INC
58	366424109	GARRETT FREIGHTLINES
59	368118105	GAY GIBSON INC
60	369208103	GENERAL BOX CO
61	375622107	GILFORD INSTRUMENT LAB
62	380298109	GODFREY CO COM
63	381010107	GOLDEN FLAKE INC
64	390712107	GREAT LAKES PAPER CO
65	400172102	GRUMMAN ALLIED INDUST
66	406774109	HAMCO MACH&ELECTRONICS
67	410270102	HANDMACHER VOGEL INC
68	416018109	HART CARTER CO
69	428272108	HEXAGON LABORATORIES
70	433236106	HINES ED LUMBER CO COM
71	438470106	HONEYCOMB PRODUCTS INC
72	443546106	HUBINGER CO COM
73	451650105	IDEAL TOY CORP
74	455866103	INDUSTRIAL AIR PRDS CO
75	456740109	INFORMATION INTL
76	459749107	INTL LEISURE CORP
77	460416100	INTL SYSTEMS&CONTROLS
78	471016105	JANTZEN INC COM
79	477412100	JIFFY FOODS CORP
80	482580107	KMS INDUSTRIES
81	483476107	KALVAR CORP
82	486746100	KEARNEY & TRECKER COM
83	492854104	KEWAUNEE SCIENTIFIC EQ
84	493278105	KEYES FIBRE CO COM

Over-the-Counter Industrials: List E

SEQ. NO.	CUSIP NO.	ISSUER NAME
85	501206106	KUHLMAN CO COM
86	514606102	LANCE INC N C COM
87	515480101	LANE CO INC
88	524102100	LEE WAY MTR FRGHT INC
89	527707103	LEWIS BUSINESS FORMS
90	540465101	LOFT CANDY CORP
91	541398103	LOGIC CORP
92	561229105	MALLINCKRODT CHEM WRKS
93	570646109	MARKITE CORP N J COM
94	573173101	MARTIN BROWER CORP
95	582698106	MCQUAY INC COM
96	584488100	MEDIC HOME ENTERPRISES
97	598376101	MIDWEST RUBBER RECLAIM
98	602108102	MILTON ROY CO INC COM
99	605775105	MISSISSIPPI VY STEEL
100	606011104	MISSOURI BEEF PACKERS
101	609023106	MONARCH CAPITAL CORP
102	615598109	MOORE SAMUEL & CO
103	632346102	NATHANS FAMOUS INC
104	640235107	NEKOOSA EDWARDS PAPER
105	656559101	NORTEK INC
106	657101101	NORTH AMER RESOURCES
107	695037101	PACIFIC VEGETABLE OIL
108	704301100	PAY LESS DRUG STRS NW
109	716366109	PETERSON HOWEL HEATHER
110	716723101	PETROLITE CORP DEL COM
111	716774104	PETTIBONE MULLIKEN COR
112	729093104	PLENUM PUBLISHING CORP
113	750786105	RAILWEIGHT INC
114	751311101	RAM TOOL CORP COM
115	752006106	RANCHERS EXPLOR & DEV
116	761627108	REXACH CONSTRUCTION CO
117	771061108	ROBO WASH INC
118	773131107	ROCKET RESEARCH CORP
119	774846109	RODALE ELECTRONICS INC
120	784143109	SFM CORP
121	811046101	SCRIPPS-HOWARD BRDCST
122	818036105	SEVEN-UP CO COM
123	820208106	SHATTERPROOF GLASS COR
124	825077100	SHOP RITE FOODS INC
125	835495102	SONOCO PRODUCTS CO COM
126	842179103	SOUTHERN AIRWAYS INC.

Over-the-Counter Industrials: List E

SEQ. NO.	CUSIP NO.	ISSUER NAME
127	845420108	SOUTHWESTERN DRUG CORP
128	872489109	T I M E DC
129	875467102	TANGER INDUSTRIES INC
130	877418103	TAYLOR WINE CO COM
131	883237109	THALHIMER BROS COM
132	883662108	THERMOTECH INDUSTRIES
133	886444108	TIDEWATER MARINE SERV
134	896522109	TRINITY INDUSTRIES INC
135	898456108	TRYGON ELECTRONICS INC
136	909398109	UNITED ARTISTS THEA CT
137	911621100	U S BANK NOTE
138	918693102	VACU DRY COMPANY
139	922408109	VEECO INSTRUMENT INC
140	927107102	VILLAGE SUPER MARKET
141	929339109	WTC AIR FREIGHT
142	936529106	WARSHOW H & SONS INC A
143	937224103	WASHBURN WIRE CO COM
144	949391106	WELDOTRON CORP COM
145	950749101	WERNER CONTINENTAL INC
146	960691103	WESTMINISTER CORP
147	969088103	WILL ROSS INC
148	972227102	WILSON FREIGHT CO
149	975468109	WINSLOW TELE TRONICS
150	985012103	YARDNEY ELECTRIC

d. Over-the-Counter Banks and Insurance

SEQ. NU.	CUSIP NO.	ISSUER NAME
1	026033100	AMER FID LIFE INS FLA
2	026285106	AMER FOUNDERS LIFE TEX
3	060887106	BANK OF CALIFORNIA N A
4	064059108	BANK OF NEW YORK
5	073167108	BAYSTATE CORP
6	130825102	CAL WSTRN STS LIFE INS
7	173144106	CITIZENS&STHN NA BK GA
8	190576108	COASTAL STS LIFE INS
9	207579103	CONN GEN INS
10	211075106	CONTL B&T NORRISTOWN
11	226795102	CROCKER CITIZENS N B
12	291785103	EMPIRELIFEINS AMER ALA
13	310225107	FARMERS NEW WORLD LIFE
14	320819105	FIRST MER NB ASBURY PK
15	324477108	FIRST NB CHICAGO ILL
16	325297109	FIRST NB IN DALLAS TEX
17	330585100	FIRST N B MEMPHIS TENN
18	353784101	FRANKLIN LIFE INSUR
19	376316105	GIRARD TRUST BANK
20	383730108	GOVT EMPL LIFE INS
21	410864102	HANOVER INSUR CO NY
22	437056104	HOME BENEFICIAL LIFE
23	531099109	LIBERTY NATL LIFE INS
24	546183104	LOUISIANA&SOUTHRN LIFE
25	575668108	MASS GEN LIFE INS CO
26	609541107	MONMOUTH NB RED BK NJ
27	636775108	NATL LIFE INS CO FLA
28	637079104	NATL OLD LINE INS BB
29	638369108	NATL UNION FIRE INS
30	705506103	PEERLESS INSURANCE CO
31	717758106	PHILA PA NATIONAL BANK
32	725191100	PITTSBURGH NATL BK PA
33	812574101	SEATTLE-FIRST N B
34	845607100	SOUTHWESTERN LIFE INS
35	857449102	STATE STR BK&TR CO BOS
36	910246107	UNITED FAMILY LIFE INS
37	910790104	UNITED LIFE&ACC INS CO
38	911825107	US FIDELITY & GUARANTY
39	913164109	UNITED VIRGINIA BANKSH
40	919796102	VALLEY NATL BANK ARIZ
41	959180100	WSTN PENN N B

2. News Events

a. Transfers of Control

Random mergers

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
1	017591108	ALLEN ELECTRIC&EQUIP	ALN
2	017663105	ALLEN INDUSTRIES	ANL
3	024843104	AMER CAN CO	AC
4	026357103	AMER GENERAL INS CO	AGC
5	027303106	AMER MACH & FNDRY	AMF
6	027465103	AMER METAL CLIMAX	AMX
7	048825103	ATLANTIC RICHFIELD CO	AFI
8	071041107	BATH INDUSTRIES	BIW
9	074077108	BEATRICE FOODS CO	BRY
10	124893108	CCI MARQUARDT CORP	CCI
11	126149103	CPC INTERNATIONAL INC	CFG
12	148429103	CASTLE & COOKE	CKE
13	159213107	CHANNING FINANCIAL COR	
14	189486103	CLUETT, PEABODY & CO	CLU
15	196864102	COLT INDUSTRIES INC	COT
16	203363106	COMMONWEALTH UNITED	CUC A
17	205363104	COMPUTER SCIENCES CORP	CSC
18	228777108	CRUCIBLE STEEL CO	XA
19	239577109	DAYCO CORPORATION	DAY
20	254111107	DILLINGHAM CORP	DHM
21	361364102	GAC CORP	GAC
22	377370101	GLEN ALDEN CORP	GA
23	402064109	GULF & WESTERN IND	GW
24	402118103	GULF AMERICAN CORP	GFD
25	402496103	GULF RESCES & CHEM	GRE
26	423434109	HELME PRODUCTS	HPI
27	450420104	ITE IMPERIAL CORP	ITE
28	451848105	ILLINOIS CENTRAL IND	IL
29	466538105	JACKSON ATLANTIC INC	JAC
30	486386105	KAWECKI BERYLCO INDUST	KBI
31	524138104	LEECE NEVILLE CO	LEN
32	527372106	LEVIN-TOWNSEND COMP	LTX
33	612051102	MONTANA FLOUR MILLS CO	
34	635859101	NATIONAL EQUITIES INC	
35	636316101	NATIONAL GYPSUM	NG
36	806500104	SCHENLEY INDUSTRIES	SH
37	808791107	SCIENTIFIC RESOURCES	SRE
38	818529109	SEXTON JOHN & CO	
39	829251107	SINCLAIR OIL CORP	L
40	910212109	UNITED ENGR & FOUNDRY	UEF
41	917389108	UTAH CONSTRUCTION & MI	UC
42	918442104	VWR UNITED CORP	VWP

Transfers of Control

Random mergers

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
43	926089103	VICTOREEN INSTRUMENT	VIC
44	926089103	VICTOREEN LEECE NEVILL	VIC
45	947015103	WEAN UNITED INC	WID.
46	948594106	WEHR CORP	
47	959826108	WESTERN UNION TELE	WU
48	966680100	WHITTAKER CORPORATION	WKR
49	989102108	ZAPATA NORNESS INC	ZOS
50	989110101	ZAPATA OFF SHORE CO	ZOS
51	990009102	ABEX CORPORATION	ABK
52	990010100	ATLANTIC CO	ATC
53	990011108	JACKSONS MINIT MARKETS	JAK
54	990012106	BUNKER HILL CO	BUK
55	990013104	CALIFORNIA LIQ GAS	CLG
56	990014102	CCI CORPORATION	CCI
57	990015109	MARQUARDT CORP	MRQ
58	990018103	I-T-E CIRCUIT BREAKER	ITE
59	990019101	KAWECKI CHEMICAL CO	KCC
60	990020109	BERYLLIUM CORP	BRL
61	990022105	VAN RAALTE CO	VRT
62	990040107	BINSWANGER GLASS CO	
63	990041105	BLOCH BROTHERS TOB CO	
64	990042103	BUTTERICK CO	
65	990043101	COLUMBUS MILPAR	
66	990044109	HARLEY DAVIDSON MTR CO	
67	990045106	IMPERIAL EASTMAN	
68	990046104	PARAMOUNT PACIFIC	
69	990047102	PENICK SB & CO	
70	990048100	STD FRUIT&STEAMSHIP CO	

Transfers of Control

Selected mergers

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
1	001732106	AMK CORPORATION	AMK
2	019645100	ALLIS-CHALMERS MFG	AH
3	042303107	ARMOUR & CO	AM
4	048825103	ATLANTIC RICHFIELD CO	AFI
5	060221108	BANGOR PUNTA CORP	BNK
6	117043109	BRUNSWICK CORP	BC
7	120655105	BUNKER RAMO	BR
8	125569103	C I T FINANCIAL CORP	CIT
9	170520100	CHRIS-CRAFT INDUSTRIES	CCN
10	195018106	COLLINS RADIO CO	CRI
11	212363105	CONTROL DATA CORP	CDA
12	285659108	ELECTRONIC DATA SYSTMS	
13	370064107	GEN HOST CORP	GH
14	382388106	GOODRICH, B. F. CO	GR
15	389838103	GREAT AMERICAN HOLDING	GAH
16	398028100	GREYHOUND CORP	G
17	416524106	HARTFORD FIRE INS CO	
18	449744101	INA CORP	INA
19	460470107	INTL TEL & TEL	ITT
20	480034107	JONES & LAUGHLIN STEEL	JL
21	522030105	LEASCO DATA PROC EQUIP	LDP
22	535732101	LING-TEMCO-VOUGHT INC	LTV
23	540448107	LOEW'S THEATRES INC	LTR
24	636214108	NATL GENERAL CORP	NGC
25	667528103	NORTHWEST INDUSTRIES	NWT
26	698057106	PAN AM WORLD AIRWAYS	PN
27	724071105	PIPER AIRCRAFT CORP	PPA
28	759472103	RELIANCE INSURANCE CO	RLI
29	761185107	RESORTS INTL INC A	RT A
30	761185206	RESORTS INTL INC B	RT B
31	831338108	SLICK CORP	SLI
32	934425109	WARNER SEVEN ARTS	WBS
33	957586100	WESTERN AIRLINES INC	WAL
34	981423106	WORLD AIRWAYS INC	WOA
35	984121103	XEROX CORPORATION	XRX
36	990006108	CHICAGO & N WESTERN RR	NW
37	990024101	AMPHENOL CORP	ABE
38	990025108	COMMERCIAL CREDIT	CC
39	990026106	RAYONIER, INC	RNR
40	990027104	WARNER BROS PICTURES	WB
41	990049108	HOME INSURANCE	

Transfers of Control

Proxy fights

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
1	014482103	ALEXANDER & BALDWIN	
2	021375100	ALTAMIL CORP	ALW
3	029717105	AMER STANDARD	AST
4	055673107	B S F CORP	BSF
5	130217102	CALIF FINANCIAL CORP	CFI
6	161321104	CHARTER OIL	CHR
7	168628105	CHIEF CONS MINING	CFC
8	186792107	CLEVITE CORPORATION	CGH
9	244667101	DEFIANCE INDUSTRIES, A	DFI A
10	244667200	DEFIANCE INDUSTRIES, B	DFI B
11	285839106	ELECTRONIC SPECIALTY	ELS
12	335765103	FIRST NATIONAL STORES	FST
13	371316100	GEN TIME CORP	GLI
14	469826101	JACOBSEN MFG CO	
15	524138104	LEECE NEVILLE CO	LEN
16	695037101	PACIFIC VEGETABLE OIL	
17	744635103	PUBLICKER INDUSTRIES	PUL
18	760541102	REPUBLIC INVS LIFE INS	
19	766685101	RILEY STOKER CORP	
20	897081105	TROPICAL GAS CO	TPG
21	910399104	UNITED FNDRS LIFE INS	
22	926089103	VICTOREEN INSTRUMENT	VIC
23	926089103	VICTOREEN LEECE NEVILL	VIC
24	960385102	WESTINGHOUSE AIRBRAKE	WK
25	990039109	WESTERN LAND CORP	

b. Government Contract Awards

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
1	049231103	ATLAS CHEMICAL IND	ACI
2	206741100	CONDEC CORP	CDT
3	263525107	DUPONT	DD
4	303711105	FAIRCHILD HILLER CORP	FEN
5	417560109	HARVEY ALUMINUM, A	HAR A
6	421596107	HAZELTINE CORP	HZ
7	427056106	HERCULES, INC	HPC
8	483008108	KAISER ALUMINUM & CHEM	KLU
9	535732101	LING-TEMCO-VOUGHT INC	LTV
10	538021106	LITTON INDUSTRIES INC	LIT
11	539821108	LOCKHEED AIRCRAFT	LK
12	580169100	MC DONNELL DOUGLAS	MD
13	637215104	NATIONAL PRESTO IND	NPK
14	656389103	NORRIS INDUSTRIES	NRI
15	698057106	PAN AM WORLD AIRWAYS	PN
16	799850102	SANDERS ASSOCIATES	SAA
17	880370107	TENNECO INC	TGT
18	883203101	TEXTRON, INC	TXT
19	884102104	THIOKOL CHEMICAL CORP	THI

c. Large Price Changes

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
1	001732106	AMK CORPORATION	AMK
2	008086100	ALROVOX CORP	AVX
3	020771101	ALPHA PORTLAND CEMENT	APC .
4	025069105	AMER CEMENT CORP	AAC
5	038177101	APPLIED DEVICES CORP	ADE
6	082311101	BENRUS WATCH CO	BEN
7	084419100	BERKEY PHOTO INC	BKY
8	085203107	BERMEC CORP	BMA
9	091437103	BISHOP INDUSTRIES	BIS
10	136033107	CANADIAN HOMESTD OILS	CHO
11	168088102	CHICAGO RIVET $ MACH	CVR .
12	182702100	CLAROSTAT MFG	CLR
13	206777104	CONDUCTRON CORP	CDV
14	221309107	COSMODYNE	CDY
15	226219103	CRESTMONT OIL $ GAS	CRE
16	278821103	ECKMAR CORP	EKR
17	284083102	EL-TRONICS INC	ELT .
18	285551107	ELECTRONIC ASSOC	EA
19	307351106	FAR WEST FINANCIAL	FWF
20	356820100	FREEPORT SULPHUR CO	FT
21	368226106	GAYLORDS NATL CORP	GYL
22	391514106	GREAT WESTERN UNITED	GWU
23	427038104	HERCULES GALION PROD	HSL
24	435758107	HOLLY CORP	HOC
25	459362109	INTERNATL CONTROLS	INC
26	465632107	ITEK CORPORATION	ITK
27	482052107	JUPITER CORP	JUP
28	496278102	KINGSFORD CO	KFD
29	498548106	KLEINERT,I.B. RUBBER	KLR
30	532406105	LILLI ANN CORP	LLA
31	535732101	LING-TEMCO-VOUGHT INC	LTV
32	584054100	MEDCO INC	MED A
33	604025106	MINN ENTERPRISES	MEI
34	638760108	NATOMAS CO	NOM
35	698839107	PAPERT KOENIG LOIS INC	PKL A
36	713669109	PERFECT FILM & CHEM	PFO
37	728185109	PLAZA GROUP	PZG
38	739647105	PRARIE OIL ROYALTIES	POY
39	751481102	RAMER INDUSTRIES	RAI
40	759540107	REMCO IND	REO
41	808791107	SCIENTIFIC RESOURCES	SRE
42	825791106	SIBONEY CORP	SBN

Large Price Changes

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
43	830830105	SKYLINE CORP	SKY
44	853343101	STAND DREDGING CORP	SDR
45	866645104	SUN CHEMICAL CORP	SNL
46	878521103	TECHNICOLOR INC	TK
47	893247106	TRANS-LUX CORP	TLX
48	910416106	UNITED FRUIT CO	UF
49	989637103	ZION FOODS CORP	ZIO

D. Companies Involved in Secondaries

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
1	023551104	AMERADA HESS CORP	AHC
2	031141104	AMFAC INC	AMA
3	038375101	AQUA-CHEM INC	AQM
4	042303107	ARMOUR & CO	AM
5	047483102	ATHLONE IND INC	ATH
6	097383103	BOISE CASCADE CORP	BCC
7	120547104	BUNDY CORP	BNY
8	158501106	CHAMPION HOME BUILDERS	CHB
9	203417100	COMM SATELLITE CORP	CQ
10	237829106	DATA PRODUCTS	DPC
11	253849103	DIGITAL EQUIP CORP	DEC
12	278767108	ECKERD DRUGS FLORIDA	ECK
13	291173102	EMERY INDUSTRIES INC	EI
14	293389102	ENNIS BUSINESS FORMS	EBF
15	371532102	GENESCO INC	GCO
16	374478105	GIANT FOOD A	GFS A
17	387604101	W.T.GRANT CO	GTW
18	401586102	GUERDON IND INC	GUR
19	402460109	GULF OIL CORP	GO
20	422074104	HEAD SKI CORP	SKI
21	443204102	HOWMET CORP	HW
22	443510102	HARVEY HUBBELL INC	HUB
23	459200101	INTL BUSINESS MACH	IBM
24	460056104	INTL NICKEL OF CANADA	N
25	486098106	KATZ DRUG CO	KD
26	493782106	KIDDE, WALTER & CO	KDE
27	503624108	LA MAUR INC	LMR
28	506750108	LAFAYETTE RADIO ELEC	LAF
29	522030105	LEASCO DATA PROC EQUIP	LDP
30	527372106	LEVIN-TOWNSEND COMP	LTX
31	546268103	LA.LAND & EXPLORATION	LLX
32	550890107	LYKES-YOUNGSTOWN CORP	LY
33	566319109	MARCOR INC	M
34	569713100	MARION LABORATORIES	MKC
35	580135101	MCDONALD'S CORP	MCD
36	604059105	MINN MINING & MANUFAC	MMM
37	635230105	NATIONAL CASH REGISTER	NCR
38	637402108	NATIONAL RESEARCH CORP	NCH
39	655694107	NORFOLK & WESTERN RY	NFK
40	667281109	NORTHWEST AIRLINES	NWA
41	707270104	PENN CENTRAL CORP	PC
42	713448108	PEPSICO INC	PEP

Companies Involved in Secondaries

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
43	719865107	PICKWICK INTL INC	PIK
44	729178103	PLOUGH INC	PLO
45	752397109	RANDOLPH COMPUTER CORP	RCR
46	760881102	RESEARCH-COTTRELL INC	RC
47	770706109	A.H.ROBINS CO INC	RAH
48	806823100	JOS SCHLITZ BREWING CO	SLZ
49	848338109	SPERRY & HUTCHINSON CO	SNH
50	859281107	STERLING ELECTRONICS	SEC
51	860163104	J.P.STEVENS & CO	STN
52	867068108	SUNBEAM CORP	SMB
53	871565107	SYNALLOY CORP	SYO
54	901221101	TWENT CENTURY-FOX	TF
55	920474103	VALVE CORP OF AMER	VLV
56	928720101	VOLUME MERCHANDISE INC	VLM
57	942486101	WATKINS-JOHNSON CO	WJ

3. Special Samples

a. <u>1953-55 Senate Study</u>

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
1	013716105	ALCAN ALUMINUM LTD	AL
2	024843104	AMER CAN CO	AC
3	029717105	AMER STANDARD	AST
4	030177109	AMER TEL & TEL	T
5	046753109	ATCHISON,TOPEKA & S.F.	ASF
6	087509105	BETHLEHEM STEEL CORP	BS
7	125569103	C I T FINANCIAL CORP	CIT
8	263525107	DUPONT	DD
9	369604103	GEN ELECTRIC CO	GE
10	370442105	GEN MOTORS	GM
11	370550105	GEN PUB UTILITIES	GPU
12	382550101	GOODYEAR TIRE & RUBBER	GT
13	459578100	INTL HARVESTER	HR
14	694308107	PAC GAS & ELEC	PCG
15	709325104	PENNZOIL UNITED INC	PZL
16	761831106	REYNOLDS TOBACCO	RJR
17	802020107	SANTE FE INDUSTRIES	SFF
18	812387108	SEARS,.ROEBUCK & CO	S
19	842400103	SO CALIFORNIA EDISON	SCE
20	843571100	SOUTHERN PACIFIC	SX
21	853683100	STAND OIL OF CALIF	SD
22	853717106	STAND OIL NJ	J
23	881694103	TEXACO, INC	TX
24	905581104	UNION CARBIDE CORP	UK
25	910416106	UNITED FRUIT CO	UF
26	912656105	U S STEEL CORP	X
27	990028102	PENNZOIL CO	PZL
28	990029100	UNITED GAS CORP	UGC

b. Special Study IN-3 Questionnaire

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
1	030177109	AMER TEL & TEL	T
2	053501102	AVCO CORPORATION	AV
3	117043109	BRUNSWICK CORP	BC
4	370442105	GEN MOTORS	GM
5	459200101	INTL BUSINESS MACH	IBM
6	847218104	SPARTANS IND NY	SPT
7	853717106	STAND OIL NJ	J
8	912656105	U S STEEL CORP	X

c. Over-the-Counter Institutional Favorites

SEQ. NO.	CUSIP NO.	ISSUER NAME
1	025411109	AMER DISTRICT TEL CO
2	025825100	AMERICAN EXPRESS CO
3	026375105	AMER GREETINGS CORP A
4	117421107	BRUSH BERYLLIUM CO
5	260561105	DOW JONES & CO INC
6	351586102	FOX STANLEY PHOTO PROD
7	398550103	GRINNELL CORP COM
8	459254108	INTL CHEM & NUCLEAR
9	462218108	IONICS INC MASS COM
10	483098109	KAISER STEEL COM
11	582086104	MC LEAN IND COM A
12	585055106	MEDTRONICS INC MINN
13	601073109	MILLIPORE CORP
14	809146103	SCOPE INC
15	914216106	UNIVERSITY COMPUT CO

d. Selected Stocks

Special over-the-counter

SEQ. NO.	CUSIP NO.	ISSUER NAME
1	020789103	ALPHANUMERIC INC
2	025825100	AMERICAN EXPRESS CO
3	117421107	BRUSH BERYLLIUM CO
4	137735106	CANNON MILLS CO
5	228795100	CRUM & FORSTER
6	370640104	GENERAL REINSUR CORP
7	521876102	LEAR JET INDUST INC
8	532457108	ELI LILLY & CO
9	756231106	RECOGNITION EQUIP INC
10	914216106	UNIVERSITY COMPUT CO

Miscellaneous

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
1	122781107	BURROUGHS CORP	BGH
2	303693105	FAIRCHILD CAMERA	FCI
3	620076109	MOTOROLA INC	MOT
4	667281109	NORTHWEST AIRLINES	NWA
5	848355103	SPERRY RAND CORP	SY

Unusual Price Movements

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
1	008140105	AETNA LIFE & CASUALTY	AET
2	023551104	AMERADA HESS CORP	AHC
3	023555105	AMERADA PETROLEUM	ARC
4	027627108	AMER MOTORS CORP	AMO
5	053159109	AUTOMATIC SPRINKLER	ATO
6	053807103	AVNET INC	AVT
7	081851107	BENGUET CONSOLIDATED	BE
8	247361108	DELTA AIR LINES, INC	DAL
9	266057108	DUPLAN CORPORATION	DUP
10	303693105	FAIRCHILD CAMERA	FCI
11	371316100	GEN TIME CORP	GLI
12	389838103	GREAT AMERICAN HOLDING	GAH
13	428110100	HESS OIL & CHEMICAL	HES
14	449744101	INA CORP	INA
15	452722101	IMPERIAL CORP OF AM	ICA
16	522030105	LEASCO DATA PROC EQUIP	LDP
17	535732101	LING-TEMCO-VOUGHT INC	LTV
18	536257108	LIONEL CORPORATION	LIO
19	538021106	LITTON INDUSTRIES INC	LIT
20	609762109	MONOGRAM INDUSTRIES	MG
21	636214108	NATL GENERAL CORP	NGC
22	667528103	NORTHWEST INDUSTRIES	NWT
23	674599105	OCCIDENTAL PETROLEUM	OXY
24	808791107	SCIENTIFIC RESOURCES	SRE
25	871616108	SYNTEX CORP	SYN
26	879335107	TELEDYNE INC	TDY
27	901221101	TWENT CENTURY-FOX	TF
28	912078102	U S INDUSTRIES	USI
29	990006108	CHICAGO & N WESTERN RR	NW

Other Large Firms

SEQ. NO.	CUSIP NO.	ISSUER NAME	TICKER SYMBOL
1	019087105	ALLIED CHEMICAL CORP	ACD
2	023551104	AMERADA HESS CORP	AHC
3	023555105	AMERADA PETROLEUM	ARC
4	052339108	AUSTIN, NICHOLS & CO	ANO
5	075887109	BECTON, DICKINSON & CO	BDX
6	087509105	BETHLEHEM STEEL CORP	BS
7	097023105	BOEING COMPANY	BA
8	171196108	CHRYSLER CORP	C
9	212363105	CONTROL DATA CORP	CDA
10	228669107	CROWN ZELLERBACH	ZB
11	276191103	EASTERN AIR LINES	EAL
12	277461109	EASTMAN KODAK	EK
13	303693105	FAIRCHILD CAMERA	FCI
14	319441101	FIRST CHARTER FINAN	FCF
15	369550108	GEN DYNAMICS CORP	GD
16	370442105	GEN MOTORS	GM
17	391442100	GREAT WESTERN FINAN	GWF
18	402064109	GULF & WESTERN IND	GW
19	402460109	GULF OIL CORP	GO
20	428110100	HESS OIL & CHEMICAL	HES
21	435074109	HOLIDAY INNS OF AMER	HIA
22	452722101	IMPERIAL CORP OF AM	ICA
23	460146103	INTL PAPER CO	IP
24	465632107	ITEK CORPORATION	ITK
25	493782106	KIDDE, WALTER & CO	KDE
26	532202108	LIGG & MEYERS TOB INC	LM
27	535732101	LING-TEMCO-VOUGHT INC	LTV
28	539821108	LOCKHEED AIRCRAFT	LK
29	582834107	MEAD CORPORATION	MEA
30	698057106	PAN AM WORLD AIRWAYS	PN
31	700892102	PARKE, DAVIS & CO	PDC
32	717078109	PFIZER, CHAS. & CO	PFE
33	731095105	POLAROID CORP	PRD
34	761525104	REVLON, INC	REV
35	812387108	SEARS, ROEBUCK & CO	S
36	853717106	STAND OIL NJ	J
37	879335107	TELEDYNE INC	TDY
38	881094103	TEXACO, INC	TX
39	905581104	UNION CARBIDE CORP	UK
40	909279101	UNITED AIRLINES	UAL
41	912027109	U S GYPSUM CO	USG
42	912656105	U S STEEL CORP	X
43	922204102	VARIAN ASSOCIATES	VAR
44	980881106	WOOLWORTH, F.W.	Z
45	984121103	XEROX CORPORATION	XRX

APPENDIX B

Respondent Sampling Procedure for Forms I-1, I-2, I-3 and I-12

Sampling procedures used to select institutions and investment accounts that were respondent units for Study questionnaire Forms I-1, I-2, I-3 and I-12 are given below. The analyses of data from Forms I-1 and I-2 are found primarily in this Chapter. The analyses involving Form I-3 are found in Chapters IX and XV. The analyses involving Form I-12 are in Chapter XV.[54]

1. SELECTION OF SAMPLE INSTITUTIONS

The sample of financial institutions for these questionnaires was designed to include representatives of each type of financial institution known to manage accounts with significant equity holdings, to cover as large a proportion of the equity trading by such institutions as was feasible and to minimize the possibility of double-counting either holdings or trading. To maximize coverage, size cutoffs were set for each institutional type to determine which institutions would be selected for study. The cutoff criterion was usually based on asset holding, but trading activity data were used when available. To minimize double-counting, accounts for which the institution did not exercise trading authority were excluded. These general principles were modified as necessary to adjust to the specific situation of each type of financial institution, as discussed below.

The relevant information and sources for each type of institution were as follows:

a. Bank trust departments

The Study selected the 50 largest bank trust departments in terms of the market value of all trust assets as reported at year-end 1967 in a staff report to the House Committee on Banking and Currency.[55] The smallest of these banks had over a billion dollars in assets and the group made up 70 percent of the assets of all insured bank (by the FDIC) trust departments.

b. Investment Advisers

The investment adviser sample, consisting of 97 firms whose assets made up over 65 percent of the industry, was chosen in three stages:

1. All investment advisers managing more than $100 million in net assets of registered investment companies according to their regular quarterly holdings report to the Securities and Exchange Commission (Form N1Q), dated June 30, 1969, were selected.

2. Investment advisers not in the first stage that met either or both of the following criteria based on their response to the Study's Form I-5 screening questionnaire to investment advisers were selected:

    (a) The sum of stockholdings in discretionary accounts in all Form I-5 account categories, excluding individuals' accounts, was $100 million or over as of June 30, 1969.

    (b) The sum of stockholdings in discretionary accounts in the Form I-5 categories for hedge funds and offshore funds was $5 million or more.

3. Certain general partners not included in stage 1 or 2 above that manage hedge funds were selected. The 10 hedge funds chosen in this stage were those with assets in excess of $20 million that responded to the Commission's hedge fund survey in 1969 or were described in the *Fortune* article "Hard Times Come to the Hedge Funds," January, 1970. Since the Commission's study in 1969 identified funds with about $1 billion in assets and *Fortune* estimated hedge fund assets at over one billion the Study determined that a reasonable estimate for the hedge fund universe would be assets of $1 to $1.5 billion. The hedge funds providing data to the Institutional Investor Study comprised 40 to 60 percent of the industry according to this estimate.

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[54] Lists of respondents for these questionnaires, classified by type of institution, are found in sec. E of Supplementary Volume II. Although these samples are essentially the same throughout the Study for banks, property and liability insurance groups and life insurance companies, the other institutional types differ in varying degrees. These differences are explained in the pertinent chapters.

[55] "Commercial Banks and Their Trust Activities: Emerging Influence on the American Economy," Staff Report for the Subcommittee on Domestic Finance of the Committee on Banking and Currency, House of Representatives, 90th Cong., 2d Sess. (1968), Vol. I.

c. Life insurance companies

The 26 largest life insurance companies in terms of common stockholdings at the end of 1968 according to *Best's Insurance Reports Life 1969*, were included. There were 22 domestic companies (including TIAA–CREF), the smallest of which held over $80 million in common stock. Four Canadian firms were also included because they had holdings of U.S. common stock that were as large as the domestic companies. Four companies had property and liability affiliates that were included in the property and liability samples.

d. Property and liability insurance groups

The 25 largest property and liability groups, in terms of net premiums during 1968, were selected from *Best's Insurance Reports Property-Liability 1969*. These groups included the five largest mutual groups and the 20 largest stock groups. The smallest of these groups had approximately $100 million in common stock.

e. Self-administered corporate employee benefit plans

Fourteen corporations whose officers or employees made day-to-day investment decisions and placed trading orders for their employee-benefit plan accounts were included in this sample. These fourteen were selected from responses to the Study's questionnaire Form I–8, which was sent to corporations having large non-insured employee-benefit plans. The sampling procedure for Form I–8 is described in Appendix A of Chapter VIII. All plans chosen exceeded $100 million in total assets as of June 30, 1969.

f. Self-administered foundations

Ten foundations whose assets exceeded $100 million and whose trading orders were placed by officers or employees of the foundation made up the sample. These foundations were selected from the 29 foundations identified in Chapter VIII as having assets over $100 million. Asset size was determined from various sources described in Appendix A of Chapter VIII.

g. Self-administered educational endowments

The Study selected 20 educational endowments for which securities were purchased and sold by the college or university investment committee, department or officers. The smallest of these 20 endowments reported over $40 million in assets on the Study's Form I–11, which asked for market value as of June 30, 1969. Appendix A to Chapter VIII discusses the sources used to identify the largest college and university portfolios.

2. Accounts Within Institutions

In many cases, the institutions selected were not required to submit information for all of their managed accounts. The reasons for this varied between institutional type but, in general, reflected an attempt to avoid double reporting and to minimize the cost and burden placed on the institution. Since historical records vary widely in both amount and detail among institutions, the Study frequently allowed each institution to select, with a required minimum, the subset of its accounts for which it would respond to certain questionnaires. The following discussion sets forth the general criteria used for each institutional type.[56]

a. Bank trust departments

Bank trust departments that did not maintain internal reports covering substantially all trust department trading activity were allowed, when responding to the I–1 questionnaire, to report on an aggregate of accounts that included, but was not limited to, the 50 largest accounts among all collective investment funds and all trust and agency accounts, other than estate, administered by the bank trust department. All banks were asked to exclude accounts for which the bank was acting only as a registrar, assignee, receiver, safe keeping agent, custodian, escrow agent or in any similar capacity. But for the purposes of the

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[56] For the exact instructions received by each institutional type, see Supplementary Vol. II, where the instructions for Forms I–1, I–2, and I–3 are reproduced.

I-2 and I-3 questionnaires, in all cases the respondent unit was the aggregate of all administered accounts. In some cases, a bank was also required to submit an additional I-3 report covering the same accounts used in responding to I-1.

b. *Investment advisers*

Each investment adviser was required to submit a Form I-1 for three distinct classes of accounts, identified below as R1, R2 and R3. The R1 respondent unit was the aggregate of all investment companies registered with the Investment Company Act of 1940 for which the firm or any of its affiliates was an investment adviser within the meaning of that Act or would be an investment adviser but for the exception in clause (iii) of Section 2(a)(19) of that Act. (That clause excepts companies furnishing the services of an investment adviser but *at cost* to one or more investment companies or other financial institutions.) The firm was allowed to exclude any investment company whose combined purchases and sales of common stock during 1968 were less than $1 million.

The R2 respondent unit was the aggregate of all investment partnerships and clubs, hedge funds, offshore funds, venture capital funds and other similar investment accounts. The $1 million account exclusion again applied.

The R3 respondent unit was the aggregate of all accounts not included in R1 and R2. Among the types of accounts included here were employee benefit plans, personal trusts, non-profit organizations, non-financial companies and financial institutions of categories other than those from which R1 and R2 are drawn. The $1 million trading exclusion again applied, as well as a $15 million (market value) minimum size of common stockholdings and a limitation to the 25 largest accounts.

For the purposes of the I-2 questionnaire, each investment adviser was asked to aggregate trading from the R1, R2, and R3 units and, in addition, to include trading from accounts excluded from I-1 on the basis of the trading or holding minimums.

Form I-3 was completed for each of the R1, R2, and R3 units, and, in addition, for a fourth category which was the aggregate of the three units plus any accounts excluded on the basis of the trading or holding cutoffs.

c. *Life insurance companies*

As with investment advisers, separate reporting units were identified for each life company. These were: (1) The life insurance company's general account; (2) The aggregate of all separate accounts of the life insurance company, each of which accounts is administered for a single client; and (3) All the remaining separate accounts of each life insurance company grouped in such a way that each group included accounts with similar investment objectives. Each account was to be included in only one category. Thus, life companies each had a variable number of reporting units. Life companies were required to use the same account units for Forms I-1, I-2 and I-3.

d. *Property and liability insurance groups*

All directly or indirectly affiliated companies whose records could readily be combined were grouped into aggregates in such a way that each aggregate included companies that were under common investment administration and direction. Each aggregate was then treated as a separate respondent unit.

e. *Self-administered corporate employee benefit plans*

All pension funds whose assets are administered by employees of the corporation were aggregated to form one respondent unit. If the corporation's employees did not customarily place orders for the fund, no I-2 response was required.

f. *Self-administered foundations*

Only foundations that customarily placed their own trading orders were required to submit Forms I-1, I-2 and I-3.

g. *Self-administered educational endowments*

Each educational endowment selected was told by the Study which accounts it should aggregate and report for on Forms I-1, I-2, and I-3. The requirement was similar to that used for self-administered foundations, in that no reporting was required when double counting would have resulted from an investment adviser, bank or the like reporting for the same transactions.

APPENDIX C

DEFINITION OF PRICE IMPACT VARIABLES

A set of price impact variables is calculated for each position change. These variables are defined below: [57]

A. WITHIN-DAY VARIABLES

The following ratios are dollar weighted, include all trades that are part of the position change and are after commissions. They calculate the net dollar outlay or receipts of the institution on each day and compare this amount to the dollar outlay or receipts had yesterday's closing price, today's closing price or an estimated closing price for today, been used.

$$DE1 = 100 \frac{\sum_k D(k)}{\sum_k D1(k)} - 100$$

$$DE2 = 100 \frac{\sum_k D(k)}{\sum_k D2(k)} - 100$$

$$DE3 = 100 \frac{\sum_k D(k)}{\sum_k D3(k)} - 100$$

where:

$D(k)$ = shares * trade price plus commissions if kth trade is purchase.
  = shares * trade price minus commissions if kth trade is sale.

$D1(k)$ = plus or minus shares * $ACLPRY(t)$
  (plus or minus signifies purchase or sale)

$D2(k)$ = plus or minus shares * $CLPR(t)$

$D3(k)$ = plus or minus shares * $ECLPR1(t)$

$CLPR(t)$ is "today's" closing price on day t,

$ACLPRY(t)$ is "yesterday's" closing price adjusted for splits and dividends that have occurred between "yesterday" and "today,"

$$ECLPR1(t) = ACLPRY(t) \left[1 + \log \frac{I(t)}{IY(t)} \right]$$

and

$I(t)$, $IY(t)$ = value of S&P 500 Index "today" and "yesterday."

B. Net Impact Measures

There are two measures of the net price impact over the length of the position change. The first is the percentage change in the closing price of the stock from the beginning of the position change to the end, less the percentage change in the market index over the same period. It is given by:

$$U3 = 100 \left(\frac{CLPR(T)}{ECLPR3(T)} \right) - 100$$

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[57] In the definitional identities, an asterisk (*) denotes multiplication and "log" denotes natural (Naperian) logarithm.

where $T=$ last day of position change and

$$ECLPR3(t) = \left[CLPRY(1)* \frac{SPLITY(1)}{SPLIT(t)} \right] \left[1+\log \left(\frac{I(t)}{IY(1)} \right) \right]$$

$CLPRY(1) =$ the closing price on the day before day one of the position change.

$SPLITY(1) =$ the cumulative split factor for the day before day one.

and

$SPLIT(t) =$ the cumulative split factor for day t during the position change.

The split factor for a trading day is one if there was no split, two if there was a two-for-one split effective that day, and so on. The cumulative split factor is the product of the preceding split factors.

The second measure is a share-weighted price change stated in dollar terms. It is given by

$$COST = \sum_j [D2(j) - D9(j)] \text{ for purchase programs}$$

$$= \sum_j [D2(j) + D9(j)] \text{ for sale programs}$$

where $D9 =$ shares $*ECLPR3(j)$. The variable "weighted percentage value change" is the ratio of $COST$ to the value of the position change.

Only trades pursuant to programs are considered; that is, only purchase trades in purchase programs, sale trades in sale programs. $COST$ should be interpreted as the sum of the dollar difference between the actual values, at the closing price, of trades and the value if the closing price had changed since the beginning of the program by the same amount at the market index. As used in the text of the chapter, the weighted percentage value change is $COST$ divided by the total dollar value of the position change.

APPENDIX D

REGRESSION ANALYSES OF PRICE CHANGES ASSOCIATED WITH INSTITUTIONAL POSITION CHANGES

This appendix provides a detailed technical description of the analyses, the conclusions of which are summarized in Section C of the chapter. The objective of these analyses was to determine what characteristics, if any, were systematically associated with the price changes accompanying institutional position changes and to explore the causal connections.

1. Data Used for the Regression Analyses

The basic analytical method used is regression analysis, which is designed to isolate the separate effects of each of a number of explanatory variables. To do this, the technique requires the data to be grouped so that there is a reasonably consistent relation between the explanatory (independent) variables and the variable being explained (dependent variable). Inadequate grouping may conceal a relationship that actually exists. For example, even if institutional trading were highly price aggressive, a regression analysis might find no correlation between the size of a position change and the average size and direction of the resultant price impact if purchase and sale transactions were included in the same data set. Large purchase programs could increase prices, large sales programs could decrease prices, and the average price change associated with the average large position change might still be zero. The plusses and minuses would cancel each other out in the averaging process.

A simple remedy in this instance is separately to analyze purchase and sale programs, which has been done in this appendix. But the same problem can arise in other forms. For example, the trading behavior of banks may differ from that of investment advisers. Or large position changes may differ from small position changes. In analyzing the price changes accompanying institutional trading, eight different (but overlapping) data sets have been distinguished.

There are four basic groupings of the samples of position changes developed from Form I-2: large position changes, randomly selected position changes, all position changes of investment advisers (including mutual funds) and all position changes of banks.[58] In each group, sale programs and purchase programs are analyzed separately. Finally, there are four different measures of price effects. Thus the results of 32 (4×2×4) separate regression equations are included.

Since the unit of observation for the analyses is the position change, summary measures describing the characteristics of each position change or of the relevant market conditions were necessary. The objective was to select summary measures that might be expected to be related to the magnitude of the price changes. The characteristics of position changes and market conditions that were used as explanatory variables are the following: the dollar size of the position change, the number of trades in the position change, the number of different broker-dealers, the dollar value of trades executed in the third market, the quarterly NYSE dollar volume in the stock and the percentage net institutional imbalance in the middle month of the position change.[59] In some cases the intensity of trading (number of actual trade days divided by total number of trade days during the period of the position change) was also used.[60] Summary statistics on the variables describing the position changes are set forth in Tables X-D-1 and X-D-2.

Two alternative models incorporate price impact measures as dependent variables: a "relative" model and an "absolute" model. The first states the explanatory variables in relative terms; that is, in percentage terms. The second states explanatory variables in absolute terms; that is, in dollars or in numbers. Statistical tests indicated that intraday price effects were best explained by the relative model while interday price effects were best explained by the absolute model.

2. Factors Affecting the Number, Size, and Characteristics of the Trades Used in Position Changes

The number of trades per position change, the average size of those trades and their size distribution were used as independent variables in the regression analyses that attempt to explain the price changes accompanying institutional position changes. These variables, as well as some of the other independent variables used, however, are not necessarily exogenous or predetermined variables.

The various groups of position changes described in the preceding section are not necessarily representative samples.[61] Consequently, the averages of the summary characteristics for those samples are not necessarily typical of all institutional position changes. Regression analyses, however, can be used to ascertain the relationships among some of these summary characteristics and with certain market characteristics.

There is no easy way, with the data available, to isolate institutional trading preferences from factors outside their control. All data reflect not only the institutions' desires but also the constraints imposed by factors such as the normal volume in the stock, the activity of other institutions and the like. The trade size, the number of trades and the size of the position change itself are simultaneously determined by the desires of the particular institution and the desires of all the other investors in the market at the same time. In part because of this problem it seemed useful to relate the number of trades per position change and the average trade size to some variables to which they could be expected to be related, even though questions of causality might be difficult to resolve.

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[58] Banks and investment advisers are the only two institutional types for which the sample sizes were sufficiently large for separate analysis.

[59] The percentage net institutional imbalance measures, see sec. B.2.c., above, were calculated only for stock months. It would therefore have required a great deal of extra work to calculate measures for the relevant time period of each position change. Since there is serial correlation in the percentage net imbalance, this measure is not inappropriate for position changes lasting more than one month. See sec. B.3.b., above.

[60] Values of the variables include only trades pursuant to the position change; that is, sale transactions are omitted in purchase programs and purchase transactions are omitted in sale programs. This qualification is of little practical importance, since the average value of trades pursuant to the position change was more than 97 percent of the value of all trades during its course.

[61] For example, large institutions and small institutions select the same maximum number of stocks from Lists B and C and use the same trading volume cutoffs.

Regression results are presented in Table X–D–3 using the number of trades as the dependent variable and in Table X–D–4 using the average trade size as the dependent variable. In both tables the results from randomly selected purchase and sale programs and large purchase and sale programs are presented separately. The discussion in the text emphasizes the analyses in which the number of trades is the dependent variable.

The regression coefficient for the dummy variable designating bank position changes indicates that, other things being equal, banks use more trades than other institutions. Investment advisers may use fewer trades than other non-bank institutions, but the difference was not statistically significant.

The number of trades is systematically related to the size of the position change. In principle an institution might, on the average, have the same number of trades for all its position changes but simply have larger trades for larger position changes. But the regressions indicated that in fact the number of trades adjusts to changes in the size of the position change more than average trade size adjusts to the size of the position change.[62]

In the case of random purchase programs, a $100,000 increase in the size of the position change leads to 1.2 additional trades, on the average. In the case of random sale programs, a $100,000 increase in the size of the program only leads to 0.57 additional trades. This implies that the incremental trade sizes are $83,333 ($100,000/1.2) and $175,439 ($100,000/0.57), respectively, for purchase and sale programs. These figures are close to the average trade size found in the sample when no other variables were considered (Table X–D–1). The fact that the marginal trade size is nearly the same as the average trade size is an additional indication that, on the average, almost all of the, adjustment to a larger position change is made by increasing the number of trades.

The results for large position changes are partly inconsistent. For large purchase programs, a $100,000 increase in the size of the program leads to 0.64 additional trades, or a marginal trade size of only $156,250. This is also about the same as the average trade size. But an increase of $100,000 in the size of a large sale program leads to only 0.31 additional trades, or a marginal trade size of $322,580. This is significantly larger than the average trade size (see Table X–D–1). Moreover, the fact that both coefficients for the large position changes are significantly smaller than the respective coefficients for the random position changes, coupled with the inconsistent results for large sale programs, indicates the need for caution in interpreting the data with respect to these variables.[63]

The fact that institutions tend to use smaller trades sizes to carry out purchase programs might simply reflect their trading preferences and the nature of the investment decision-making process within the institution. Many stocks may be on the "buy list," and purchases are likely to be distributed among these stocks as funds become available. Stocks in disfavor are, however, likely to be sold as quickly as possible. But, to some extent, it may be that the differences between purchase programs and sale programs reflect the adjustment of institutions to the fact that it appears to be more difficult to buy large quantities of stock than to sell large quantities.[64]

The number of trades is positively related to the intensity of trading in the case of purchase programs. There is no statistically significant relationship in the case of sale programs. There is, however, a significant association between average trade size and the intensity of sale programs. Finally, there was no statistically significant relation between the number of trades and the size of the percentage net imbalance or the quarterly volume in the stock.[65]

The determinants of the average number of trades in a position change have been considered. It is also of interest to consider the association between the char-

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[62] If all of the adjustments were in the number of trades, there would be no correlation between the size of trades and the size of the program. This is in fact almost true. Only in the case of random sale programs is there a significant relation between trade size and size of position change.

[63] If the model were correctly specified, the coefficients of the variable for number of trades should be unchanged from one data set to the other. The fact that the coefficient is less in the case of large position changes suggests that the model is incomplete. Probably some explanatory variables correlated with position size have been omitted.

[64] This difference is reflected in market-makers' preferences for long rather than short positions. See ch. XII.C.1.c., below.

[65] The percentage net imbalance was expected to bear a positive relation in the case of purchase programs and a negative relation in the case of sale programs. None of the coefficients is, however, significantly different from zero. The average number of trades used by institutions to carry out a given position change is apparently not influenced by net institutional imbalance in the market at the time.

acteristics of the position change and the use of block trades. For this purpose, a block trade is defined as any trade over $750,000 in value. One or more block trades were used in 49 large sale programs (48 percent), in 38 large purchase programs (30 percent), in 21 randomly selected sale programs (16 percent), and in 16 randomly selected purchase programs (9 percent). Regression analyses with the occurrence of block trades as the dependent variable are described in Tables X–D–5 and X–D–6.[66]

The occurrence of a block trade is positively related to the size of the position change and is negatively related to the number of trades. Thus, the occurrence of blocks appears to be accompanied by a reduction in the total number of trades. In most cases, blocks are used as an alternative to many small trades. None of the other variables tested is consistently related to the occurrence of blocks. In particular, there is no consistent relationship between the quarterly NYSE volume and the occurrence of blocks. It should be noted that the definition of "block trade" used here differs from the definition used in other portions of the Study. In other chapters a trade is classified as a block trade if the number of shares or the value of the trade exceeds some predetermined limit. If an institution participated in part of such a trade, but its participation was for less than $750,000, its participation is not considered to be part of a block trade for purposes of this analysis.

3. Regression Analyses of Price Changes

The regression analyses described in this section are stated in terms of certain price change variables whose technical definitions have been set forth in Appendix C. Average values of these variables are presented in Table X–D–7. Average values of the intraday variables were already presented in Figure X–a in the body of the chapter. The detailed regression results are presented in Tables X–D–10 to X–D–19 at the end of this appendix, along with a glossary for the independent variables. The regression results are summarized in Tables X–D–8 and X–D–9. For each regression, the latter tables present the sign (+ or −) and t value of the regression coefficient for each explanatory variable in each regression.

a. Intraday analysis

The magnitudes of the average intraday price changes associated with institutional position changes have been described in the body of the chapter. In general, sales are made at prices below both the previous closing price and the closing price on the same day. Purchases are made at prices above these prices. The trade prices are after commissions, and the price differences are of the order of one stock exchange commission.

(1) *Price aggressive versus price responsive.*—The intraday variables give some insight into the question of the extent to which institutions are price aggressive and have an impact on prices and the extent to which they are price responsive and accommodate the trading of others, thereby offsetting price movements. If institutions are price aggressive on balance, the difference between trade price and the prior day's closing price ought to be negatively associated with variables reflecting size in the case of sale programs and positively associated in the case of purchase programs. The same should be true of the difference between the trade price and the closing price for the day. Thus, the larger the sale is, the further the trade price should be below the two closes. The larger the purchase is, the further the trade price should be above the two closes. If institutions tend to be price responsive on balance, the reverse should be true: A positive association should exist between these price measures and size variables in the case of sales and a negative association, in the case of purchases.

Variables reflecting the size of a position change include the average size trade the position change as a proportion of quarterly NYSE volume, and the ratio of trade days to total days in the program (intensity of trading). If both the signs of these variables and the t values of the regression coefficients, as shown in Table X–D–8, are taken into account, the available evidence does not provide strong or consistent support for either hypothesis.

[66] Whether or not a block trade occurs as part of a position change is a qualitative characteristic of that position change. By defining a "dummy variable" for each position change, which took on the value of one if one or more block trades were part of the position change and the value of zero if no block trade was involved, it is possible to conduct a multiple regression analysis with the occurrence of a block trade as the dependent variable and other characteristics of the block trade as independent variables.

Evidence favorable to the first hypothesis is most apparent in the case of sale programs. When size is measured in terms of the size of the position change relative to quarterly NYSE volume in the stock, six of the eight signs for sale programs are consistent with the hypothesis. Three of the six favorable signs have t values of two or more (indicating statistical significance). Intensity of trading is also consistent with the first hypothesis in sale programs. Seven of eight signs are negative, although only one has a t value of two or more.

Some evidence favorable to the second hypothesis can be found in the analyses of purchase programs. In particular all eight signs for average trade size support this hypothesis. Five of the eight have t values of two or more.

(2) *Third market trading.*—The characteristic of the position change most significant (statistically) in explaining variations in intraday price changes is the proportion of the position change executed in the third market. Use of the third market raises the net price received in sales and lowers the net price paid in purchases. All 16 signs for the coefficients in Table X–D–8 are consistent with this interpretation, and seven are statistically significant. In seven out of eight cases, the t values are greater when the trade price for sales programs is compared to the previous close and the trade price for purchase programs is compared to the close on the day of the trade.

The statistically significant coefficients of the regressions indicate average cost savings in third market trades from 0.65 to 1.33 percent. By comparison, the minimum stock exchange commission on 100 shares of $48 stock (the average traded in the third market) is 0.90 percent. Thus, the cost saving is in the neighborhood of a full stock average commission.

The magnitude of the cost saving might lead one to believe that the third market is underutilized by institutions—that is, that some trades are executed in other markets even though they could have been done less expensively in the third market. This is one of the two possible explanations. It could also be that institutions only use the third market when there is a cost saving, because of the market maker's current inventory position or otherwise, and that they always use it when such a saving is available. Either situation would result in an average cost saving.

In order to verify which of these hypotheses is correct, it would be necessary to ascertain the marginal cost saving in using the third market. Unfortunately, the Study was not able to do this. It should be noted, however, that in order to have a zero marginal cost saving with an average cost saving in the neighborhood of a full stock exchange commission it would be necessary for many third market transactions to be executed at cost savings even greater in magnitude.

(3) *Net institutional trading imbalance.*—When the ratio of net institutional purchases to total institutional volume ("percentage net imbalance") is positive—that is, there is net buying by institutions generally, sale programs should be accompanied by smaller price decreases. The price increases accompanying buying programs should be greater. Similarly, if there is a net selling imbalance by institutions generally, sale programs should be accompanied by greater price decreases, and purchase programs should be accompanied by smaller price increases. On this interpretation the coefficient of this variable should be positive for both purchase and sale programs.[67]

The coefficients have the expected sign in seven out of eight cases for sale programs, and three of the seven values are statistically significant. In the case of the purchase programs, the coefficients have the expected sign in only three of eight cases. One of the three coefficients is statistically significant. None of the five coefficients with the unexpected sign has a t value of two or more.

(4) *Number of trades per broker.*—The independent variable for the number of trades per broker did not result in any coefficient with a t value of two or more. Moreover, there was no consistent relationship between the sign of the coefficient and the type of program. It is not clear whether this variable is unrelated to the intraday price changes accompanying the position changes, or whether the observations have been insufficiently grouped for analysis of this variable.

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[67] There may be a systematic downward bias in the magnitude of this coefficient because the net institutional imbalance measure did not exclude the position changes whose price changes were the dependent variable. Recalculating these measures was not possible for the Study.

(5) *Constant term.*—The constant term measures the average price changes that occur irrespective of the independent variables. The sign of the constant term is consistently positive for purchase programs and consistently negative for sale programs. It is statistically significant in 13 out of 16 cases and, when so, ranges from 0.50 percent to 1.10 percent. This is in the neighborhood of one stock exchange commission and reflects the fact that the trade prices are net of commissions while the closing prices are not. Moreover, the fact that the constant term for each regression is usually close to the average value of the dependent variable indicates that the effects of the independent variables in the regression tend to be in opposite directions and, on the average, offset each other.

b. Price changes over the length of the position change

(1) *Price variables used and regressions run.*—The intraday price variables previously considered measure trade prices relative to closing prices. The price variables discussed here measure changes in the closing prices themselves, adjusted for changes in the market.[68] One of these variables measures the percentage change in the market price of the stock from the beginning to the end of the position change, adjusted for changes in the market. This will be referred to as the unweighted percentage price change.[69] Increases are denoted as positive numbers; decreases, as negative.

Since institutional trading pursuant to a position change does not occur on every trading day during the course of the position change and varies in amount from day to day, a price variable weighted by the institution's own trading was also used. Specifically, this variable was the sum of the differences between the closing price on the days when trading pursuant to the position change took place and the previous close, adjusted for the market and weighted by the number of shares pursuant to the position change on the particular day.[70] This variable, which is stated in dollars, will be referred to as the weighted absolute price change. Price changes in the same direction as the position change are denoted as positive numbers—that is, a positive value indicates that the price rose more than the market index during a purchase program or fell more than the market index during a sale program.[71]

Regression analyses were performed for data grouped by the two major institutional types, banks and investment advisers (including mutual funds) as well as for large and random data sets. In the case of banks and investment advisers, two models were used: One includes the number of trades in the position changes as an explanatory variable. The other substitutes four variables describing the size distribution of trading for the number of trades in the position change. The trade size classes represented by the four variables were (1) $750,000 and over (block trades), (2) $400,000 to $750,000, (3) $15,000 to $400,000, and (4) less than $15,000. The value of each of these variables is the number of trades in the size class.

The regression results for the unweighted percentage price change and weighted absolute price change are summarized in Table X-D-9. Although the effects of all explanatory variables are estimated simultaneously, the results for each variable are discussed in turn.

(2) *Effect of dollar size of position change.*—Other things being equal, there is a systematic tendency for larger position changes to be accompanied by falling prices. In the case of sale programs, larger programs tend to be associated with more rapidly falling prices. In the case of purchase programs, greater size is associated with falling or less rapidly rising prices. These findings apply most strongly to banks. All but two of the 24 coefficient signs are consistent with this finding, and those two are not statistically significant. The data thus suggests some tendency for sale programs to be price aggressive and for purchase programs to be price responsive.

(3) *Effect of the number of trades.*—There is some consistency among data sets in the role played by the number of trades. Although the number of trades per position change appears to be positively associated with increased price

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[68] A detailed technical description of the price variables used is in Appendix C.

[69] In appendix C this variable is denoted as U3.

[70] Adjustment for the changes in the market were with respect to the cumulative change in the market index from the beginning of the position change to the day of trading.

[71] In appendix C this variable is denoted as *COST*. The corresponding relative measure is the value of *COST* divided by the dollar value of the position change. This variable is the weighted percentage value change. See Tabe X-D-7.

changes in the same direction as the position change, the evidence for this as-sociation is weak. For sale programs, the signs are all consistent with this interpretation, but none of them is statistically significant. For purchase pro-grams the signs are consistent for six of eight regressions, but of the two statisti-cally significant signs one is inconsistent.

As with the other relationships resulting from the regression analyses, the relationship between the number of trades in a position change and the price change accompanying the position change may be interpreted as a valid de-scription of the data. But it is not valid to conclude merely from this de-scription that using a large number of trades in a position change will result in a greater price impact. Such a conclusion assumes that the direction of causa-tion is from the trade size to the price change. But it is also possible that the causal relationship is in the opposite direction. An institution carrying out a purchase program may find that it is easier to arrange a large trade when prices are falling than when they are rising. The latter hypothesis assumes that the direction of causation is from the price change to the average trade size. Either or both causal relationships may be valid. The regression analyses per-formed could not distinguish between them.

Because the average trade size may be unrepresentative of the price effects of all trade sizes, an explicit distribution of trade sizes was included in a separate set of regressions (regression set (2)) for banks and investment advisers. To some extent the results of these regressions may be inconsistent with the find-ings relating to the average number of trades.

The size distribution of trades was more significantly related to price changes accompanying position changes of banks than of investment advisers. In the case of purchase programs by banks, the coefficient of the number of trades is posi-tive in most size classes and in a few is significantly so. The coefficients in Tables X–D–18 to X–D–19 also tend to be larger for the large trade size classes; that is, a single large trade tends to be associated with more of a price increase than a single small trade. Depending on the ratios of the coefficients, a purchase pro-gram with a few large trades may be accompanied by a larger price increase than a purchase program of the same size with many small trades.[72] Investment adviser purchase programs have the same pattern, except that coefficients are less significant.

Bank sale programs are different from bank purchase programs. Six of the signs indicate price decreases, one indicates price increases and two zero. The direct relationship between size of the coefficient and the trade size category is also not as consistent. The difference between investment advisers' sale pro-grams and their purchase programs does not appear to be as great.

(4) *Use of the third market.*—As has been the case with the other variables discussed, the influence of the dollar amount of trading in the third market is not symmetric between sale and purchase progress. Use of the third market tends to be associated with a price increase both for large sale programs and for large purchase programs. Many of the sgns are statistically significant. There is an apparent discrepancy between these results and the findings for the intraday price changes in the case of purchase programs. There the use of the third market lowered the net purchase price.[73] The discrepancy may be only apparent, however, because trades can take place at prices below the closing price, while at the same time the closing price, adjusted for the market, could be above the previous close.

(5) *Number of broker-dealers.*—The use of many different broker-dealers tends to be associated with smaller price changes in the direction of the position

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[72] In hypothesizing a shift from a small number of large trades to a large number of small trades without changing the total dollar value or other characteristics of the posi-tion change, the total price change for the position change is the sum of the products of the coefficient for each trade size category times the number of trades in the category. Assume, for example, that there are two trade size categories. For the large trades the coefficient is 20; for the small trades it is five. If one large trade is equal in dollar value to two small trades, a shift to small trades will reduce the price change: $(1 \times 20 = 20)$ is greater than $(2 \times 5 = 10)$. On the other hand, if one large trade is equal in dollar value to six small trades, the reverse is true: $(1 \times 20 = 20)$ is less than $(6 \times 5 = 30)$.

The size distribution of trades and the price impact of the position change may be simultaneously determined. Thus, the direction of causation may not be in only one direction.

[73] See sec. C.2.b., above.

change in the case of both sale and purchase programs. Twenty-one out of the 24 signs are in this direction. For purchase programs, however, only one of the consistent signs is statistically significant, and one of the inconsistent signs is also.

(6) *Control variables.*—The remaining variables, quarterly NYSE dollar volume and percentage net imbalance, are meant to control for market conditions in which institutions trade. The coefficients of quarterly dollar volume are not significant.[74] The sign of the coefficient for the percentage net imbalance variable could be expected to indicate greater price increases for net purchase programs and greater price decreases or smaller price increases for sale progams. Sixteen of the 24 signs fit this pattern, but few of them are statistically significant.

(7) *Constant term.*—If the explanatory variables used in the regressions explain all of the factors systematically associated with the price changes accompanying position changes, then the constant term should be close to zero. If important explanatory variables that should have been included in the analysis were omitted, their average effect would be reflected in the magnitude of the difference between constant term and zero. In fact, the constant term is positive in 12 out of 24 regressions. But in only two of the 12 cases is the t value large enough to indicate statistical significance. Taken together, these results do not provide impressive support for or against the hypothesis that any important explanatory variable has been omitted.

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[74] There was no difference when the volume decile relative to a random sample of stocks was substituted.

TABLE X-D-1

SUMMARY MEASURES OF TRADING CHARACTERISTICS FOR FORM I-2 SAMPLE
AVERAGE AND MEDIAN VALUES FOR LARGE AND RANDOMLY SELECTED POSITION CHANGES

	LARGE POSITION CHANGES						RANDOMLY SELECTED POSITION CHANGES					
	SALES (102)			PURCHASES (128)			SALES (129)			PURCHASES (184)		
	Median	Mean	STD Error of Mean	Median	Mean	STD Error of Mean	Median	Mean	STD Error of Mean	Median	Mean	STD Error of Mean
1. Size of position change in $100,000	27.5	46.4	6.4	26.7	39.2	4.1	7.39	15.0	1.8	6.47	14.3	2.1
2. Number of trades	18.0	36.4	4.0	26.0	49.5	5.9	9.0	15.3	1.7	9.5	24.2	3.2
3. Average trade size in $100,000	1.52	2.38	.29	1.01	1.96	.39	.85	1.52	.18	.639	1.01	.09
4. Number of trade days position change	18.0	26.1	2.2	26.5	29.4	1.8	11.0	19.9	1.8	25.5	27.9	1.5
5. Number of days of trading	6.0	13.0	1.3	9.50	15.3	1.4	4.0	7.33	.73	6.0	11.0	.93
6. Intensity of trading -- Number of days of trading divided by number of trade days	.642	.606	.026	.542	.569	.026	.600	.612	.030	.409	.490	.024
7. Number of broker-dealers used	4.0	10.1	1.4	5.0	11.5	1.5	2.0	4.93	.61	3.0	6.7	.70
8. Average number of trades per broker-dealer	3.57	5.36	.57	4.0	7.49	.97	3.0	4.18	.43	2.50	5.18	.62
9. Size of position change as proportion of market volume on days during which institution traded	.247	.341	.028	.186	.276	.028	.143	.312	.062	.081	.218	.039
10. Size of position change as proportion of total quarterly volume	.0316	.0667	.0083	.0353	.0603	.0062	.0110	.0336	.0052	.0083	.0318	.0053
11. Proportion of value of position change traded in third market	0.0	.166	.029	0.0	.094	.018	0.0	.093	.022	0.0	.088	.016
12. Proportion of value of position change traded on regional exchanges	.00049	.113	.022	0.0	.079	.016	0.0	.059	.016	0.0	.068	.012

TABLE X-D-2

SUMMARY MEASURES TRADING CHARACTERISTICS FOR FORM I-2 SAMPLE

AVERAGE VALUES FOR LARGE POSITION CHANGES BY INSTITUTIONAL TYPE

	BANKS		INVESTMENT ADVISERS		INSURANCE		OTHER	
	SALES (33)	PURCHASES (33)	SALES (51)	PURCHASES (70)	SALES (11)	PURCHASES (17)	SALES (7)	PURCHASES (8)
1. Size of position change in $100,000	63.5	47.2	44.0	39.4	22.2	23.3	20.8	38.1
2. Number of trades	60.8	100.4	29.5	30.6	10.7	24.2	12.0	59.2
3. Average trade size in $100,000	1.40	.90	2.77	2.66	3.61	1.47	2.15	1.18
4. Number of trade days during position change	44.4	49.3	19.1	22.8	13.4	23.9	11.6	16.7
5. Number of trade days	22.73	30.52	9.84	9.36	4.00	11.06	5.00	13.63
6. Intensity of trading: number of days of trading divided by number of trade days	.542	.622	.665	.524	.595	.543	.501	.797
7. Number of broker-dealers used	19.4	26.9	6.6	6.5	3.5	5.7	2.7	4.3
8. Average number of trades per broker-dealer	3.84	4.11	6.84	9.38	3.06	5.40	5.35	9.31
9. Size of position change as proportions of market volume on days during which institution traded	.2337	.1786	.3805	.3300	.4645	.2723	.3613	.2203
10. Size of position change as proportion of total quarterly volume	.0712	.0791	.0722	.0515	.0447	.0708	.0393	.0375
11. Proportion of value of position change traded in third market	.2780	.1319	.0960	.1663	.1795	.1189	.1321	.0708
12. Proportion of value of position change traded on regional exchanges	.0286	.0748	.1753	.0924	.1279	.0679	.0294	.0000

Table X-D-3

DETERMINANTS OF NUMBER OF TRADES PER POSITION CHANGE: REGRESSION ANALYSIS

Regression coefficients and t values (in parentheses)

Independent Variable	Large Sale	Large Purchase	Random Sale	Random Purchase
CONSTANT	- 2.364 (.2373)	- 11.53 (.7836)	6.398 (1.5940)	- 2.467 (.4879)
BANKS [1]	37.15 (4.0070)	53.84 (4.0530)	12.01 (3.3050)	13.99 (2.7990)
I.A.'s [2]	10.79 (-1.2540)	- 5.798 (.4876)	- 2.466 (.7322)	- 4.112 (.9248)
INTENSITY OF TRADING [3]	9.934 (.9229)	53.52 (3.5070)	- 4.379 (1.0650)	21.26 (3.4840)
SIZE OF POSITION CHANGE ($100,000)	.3096 6.3440)	.6404 (6.5900)	.5691 (8.5320)	- 1.163 .(16.9300)
PERCENTAGE NET. IMBALANCE [4]	4.067 (.4608)	10.10 (.9390)	- 3.481 (1.1500)	- 2.276 (.4803)
QUARTERLY NYSE VOLUME	.000782 (.3815)	.00491 (1.3520)	.000079 (.0765)	- .001951 (1.1950)
ADJUSTED R^2	.4236	.4444	.4087	.6575
OBSERVATIONS	102	128	129	184

[1] Variable is one if the institution is a bank and zero otherwise.

[2] Variable is one if the institution is an investment adviser and zero otherwise.

[3] Number of days trading divided by number of trade days.

[4] Institutional purchases minus sales divided by purchases plus sales for middle month of the quarter in which the position change took place.

Table X-D-4

DETERMINANTS OF AVERAGE TRADE SIZE: REGRESSION ANALYSIS

Regression Coefficients and t values (in parentheses)

Independent Variable	Large Sale	Large Purchase	Random Sale	Random Purchase
CONSTANT	1.709 (1.8950)	.5093 (.3999)	.2977 (.6024)	.8217 (3.7620)
BANKS 1/	- 1.701 (2.0270)	- .6235 (.5423)	- .6311 (1.4100)	- .6551 (3.0340)
I.A.'s 2/	- .5948 (.7634)	1.650 (1.6030)	.4556 (1.0980)	.2182 (1.1370)
INTENSITY OF TRADING 3/	2.582 (2.6510)	1.524 (1.1540)	1.437 (2.8370)	.08762 (.3325)
SIZE OF POSITION CHANGE ($100,000)	.002146 (.4859)	.006485 (.7711)	.02819 (3.4310)	.003501 (1.1800)
PERCENTAGE NET IMBALANCE 4/	- .09537 (.1194)	- 1.912 (2.0550)	- .06313 (.1694)	.08825 (.4312)
QUARTERLY NYSE VOLUME ($100,000)	- .0001071 (.5775)	- .00009127 (.2904)	- .00005305 (.4156)	- .0001493 (2.1190)
ADJUSTED R²	.0831	.0430	.2068	.1027
OBSERVATIONS	102	128	129	184

1/ Variable is one if the institution is a bank and zero otherwise.

2/ Variable is one if the institution is an investment adviser and zero otherwise.

3/ Number of days trading divided by number of trade days.

4/ Institutional purchases minus sales divided by purchases plus sales for middle month of the quarter in which the position change took place.

TABLE X-D-5

Determinants of the Occurrence of Block Trades ($750,000 or More)
Regression Statistics for Large and Random Position Changes
(dependent variable is 1 if position change contains block, 0 otherwise)
(t value in parentheses)

INDEPENDENT VARIABLE	LARGE SALE	LARGE PURCHASE	RANDOM SALE	RANDOM PURCHASE
Constant	.3876	.1714	.08265	.06138
	(2.553)	(1.457)	(1.038)	(1.293)
Banks 1/	-.07461	.1201	-.02685	.02263
	(.4884)	(1.064)	(3604)	(.4723)
I.A.'s 2/	-.03546	.1038	-.03773	.08863
	(.2681)	(1.094)	(.5693)	(2.120)
Intensity of Trading 3/	.09372	.01199	.1013	-.09310
	(.5688)	(.0938)	(1.249)	(1.573)
Size of Position Change	.003848	.00567	.01319	.00813
	(4.336)	(6.273)	(7.972)	(7.792)
Number of Transactions	-.00328	-.00331	-.08530	-.00345
	(2.095)	(4.561)	(4.799)	(4.894)
Percentage Net Imbalance 4/	-.1630	-.03342	-.06498	.02529
	(1.211)	(.3885)	(1.088)	(.5685)
Quarterly NYSE Volume Index	.00001	-.00002	-.00002	-.000005
	(.2576)	(.5596)	(1.070)	(.3122)
Adjusted R^2	.1343	.2629	.3686	.2827
Observations	102	128	129	184
Mean of Dependent Variable	.4804	.2969	.1628	.08696

1/ Variable is one if the institution is a bank and zero otherwise.
2/ Variable is one if the institution is an investment adviser and zero otherwise.
3/ Number of days trading divided by number of trade days.
4/ Institutional purchases minus sales divided by purchases plus sales for middle month of the quarter in which the position change took place.

Table X-D-6

Determinants of the Occurrence of Block Trades ($750,000 or More)
Regression Statistics for Investment Advisers and Banks
(dependent variable is 1 if position change contains block, 0 otherwise)
(t value in parentheses)

	I.A. SALE	I.A. PURCHASE	BANK SALE	BANK PURCHASE
Constant	-.00811	.1232	.1298	-.06324
	(.0820)	(1.518)	(1.431)	(1.119)
Intensity of Trading 1/	.1781	.05265	-02098	.3910
	(1.478)	(5.179)	(.1355)	(2.956)
Size of Position Change	.00868	.00703	.00296	.00556
	(5.799)	(7.206)	(4.831)	(6.779)
Number of Transactions	-.00316	-.00339	-.00073	-.00291
	(1.420)	(2.915)	(.6165)	(4.878
Percentage Net Imbalance 2/	-.1999	-.04535	-.1370	.1360
	(2.074)	(.5914)	(1.177)	(2.118)
Quarterly NYSE Volume Index	.00002	-.00001	.00000	-.00000
	(.6021)	(.2098)	(.0798)	(.0453)
Adjusted R^2	.3761	.3083	.2859	.3980
Observations	92	120	71	82
Mean of Dependent Variable	.3152	.2417	.2113	.0854

1/ Number of days trading divided by number of trade days.

2/ Institutional purchases minus sales divided by purchases plus sales for
middle month of the quarter in which the position change took place.

TABLE X-D-7

Price Behavior During Large and Randomly Selected
Position Changes: Means and Standard Errors of
Selected Percentage Price Differences

Price Variable Percentage Difference	LARGE				RANDOM			
	Sales		Purchases		Sales		Purchases	
	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error
	%	%	%	%	%	%	%	%
Trade price versus previous close 1/	-.79110	.13919	.76468	.10004	-.73511	.12270	.84183	.07958
Trade price versus trade date close 1/	-.89205	.07243	.53946	.06931	-.86860	.07414	.68792	.05419
Trade date close versus previous close 2/	.12830	.11224	.23757	.07537	.20743	.11027	.13996	.06372
Unweighted percentage price change	.84529	.65001	1.54110	.55571	.68732	.57217	.63963	.47164
Weighted percentage value value change 3/	.03504	.43207	.84799	.32597	-.03912	.38758	-.12853	.37098

1/   Weighted by number of shares within each position change

2/   Unweighted average of all trade dates in each position change

3/   See Appendix C for a description of this variable

TABLE X-D-8

Intraday Price Changes: Summary of Regression Results
Signs (+ or -) and t Values of Regression Coefficients
(Dependent Variables Are Weighted Percentage
Differences of Trade Prices Relative to
Prior Day's Close (DE1) and to Trade Date Close (DE2))

Independent Variables	SALE PROGRAMS								PURCHASE PROGRAMS							
	Prior Close				Trade Date Close				Prior Close				Trade Date Close			
	large	rand.	I.A.	bank	large	rand.	I.A.	Bank	large	rand.	I.A.	bank	large	rand.	I.A.	bank
Constant term	− 1.6	− 2.8	− .6	− 5.3	− 3.4	− 3.0	− 1.7	− 4.7	+ 3.3	+ 6.4	+ 3.2	+ 4.9	+ 3.2	+ 8.9	+ 5.4	+ 4.9
Percentage net imbalance	+ 3.2	+ 1.7	+ 1.4	+ 2.2	+ 2.1	+ .2	− .1	+ 1.5	− .5	− .9	− .8	− .2	+ 3.0	− .5	+ 1.5	+ .3
Size of position change as proportion of total NYSE quarterly volume	− .8	+ .3	− .3	− 1.6	− 3.6	− 2.0	− 3.6	+ 1.0	+ .2	+ .1	+ .6	+ 1.3	− .2	+ .7	− .1	− .9
Proportion of the value of the position change traded in the third market	+ 1.9	+ 2.5	+ 2.4	+ 3.2	+ .9	+ 1.7	+ .8	+ 2.6	− 1.4	− 1.6	− 1.3	− 1.5	− 2.1	− 2.6	− 2.9	− 1.3
Average trade size	+ .1	+ .6	− .0	+ .5	− 2.2	− .8	− 1.1	− 2.5	− 3.1	− 2.7	− 2.8	− .4	− 2.9	− 1.8	− 2.1	− 1.6
Average number of trades per broker-dealer	− .0	+ .0	+ .3	+ 1.4	− 1.9	− .6	− .5	+ 1.0	+ .6	− 1.0	+ .3	− .5	− .8	− .7	+ .1	− .9
Intensity of trading: number of days of trading divided by number of trade days	− .9	− .7	− 1.6	+ 1.1	− 3.4	− 1.7	− 1.1	− .3	+ .6	+ .4	+ .6	+ .7	+ 1.2	− 2.3	− 1.8	+ 1.2

TABLE X-D-9
Price Changes Over Course of Position Change: Summary of Regression Results

Signs (+ or -) and t Values (to 1 decimal) of Regression Coefficients
Dependent Variables Are Unweighted Percentage Price Change $[U_3]$ and Weighted Absolute Price Change [COST]

Independent Variables	SALE PROGRAMS — WEIGHTED Large	Random	I.A. (1)	Bank (1)	I.A. (2)	Bank (2)	UNWEIGHTED Large	Random	I.A. (1)	Bank (1)	I.A. (2)	Bank (2)	PURCHASE PROGRAMS — WEIGHTED Large	Random	I.A. (1)	Bank (1)	I.A. (2)	Bank (2)	UNWEIGHTED Large	Random	I.A. (1)	Bank (1)	I.A. (2)	Bank (2)
Constant Term	− 1.5	+ .7	− 1.4	+ .5	− 1.4	+ .7	+ .9	+ .9	+ .3	+ 1.3	+ .3	+ 1.3	+ 1.5	+ 3.2	+ .5	+ .8	+ .3	+ 1.6	+ 2.4	+ 1.2	+ .8	+ .7	+ 1.2	+ .8
Dollar Value of Position Change	+ 6.2	− .3	+ 3.0	+ 1.4	+ .0	+ 3.2	− .8	− .1	− .3	− .2	+ .5	− .7	− 3.0	− 9.9	+ .1	+ 6.3	− .5	+ 9.2	− 1.7	− 1.7	− 1.3	− 1.5	− 1.2	− 1.5
Dollar Value of Trades Executed in Third Market	− 6.4	− 3.0	− 3.6	− 2.2	− 2.8	+ 1.4	+ 1.0	+ .8	+ 1.1	− .3	+ 1.0	− .5	+ 2.5	+ 2.4	+ 2.3	+ 3.0	+ 1.8	+ 2.5	+ .0	− .1	+ .1	+ 1.8	− .1	+ 1.7
Number of Transactions	+ .6	+ .5	+ 1.6	+ 1.7			− 1.2	+ .1	+ 1.6	− .3			− 3.3	+ 2.0	+ 1.2	− .1			+ .1	+ 1.5	+ 1.9	+ 1.5		
Number of Block Transactions (Over $750,000 in Value)					+ 1.9	− 1.7					+ .2	+ .4					+ .4	+ 5.0					+ .3	+ 1.3
Number of Transactions from $400,000 to $750,000					+ 1.0	− 4.8					− .0	+ 1.0					+ .3	+ 1.8					+ .7	− .2
Number of Transactions from $15,000 to $400,000					+ 1.6	+ .9					− .9	− .0					+ 1.2	+ 5.5					+ 2.1	+ 1.6
Number of Transactions under $15,000	~				+ 1.2	+ .6					+ 1.0	− .0					− .0	+ .4					− .2	+ 1.4
Number of Broker-Dealers Used	− 1.2	− .8	− 2.6	− 1.6	− 2.2	− 1.3	+ 2.4	− .2	+ 3.6	+ .1	+ 2.8	+ .1	+ 2.4	− 1.4	− 1.2	+ .5	+ 1.0	+ 1.4	− .3	− 1.3	− .6	+ 1.8	+ .4	+ 2.1
Total NYSE Dollar Volume for Quarter	− .8	+ .5	+ .1	− 1.0	+ .3	− .8	− .2	+ .3	− .4	+ .3	− .5	+ .2	+ .3	+ 1.0	− .0	+ .1	+ .0	+ .0	− .0	+ .0	+ .8	+ .3	+ .7	− .3
Percentage Net Imbalance	− 1.0	− .6	− .4	− .3	+ .0	− 1.0	+ 2.7	+ 1.6	+ .8	+ 2.5	+ .7	+ 2.6	+ 2.8	− .0	− .2	+ 1.0	− .3	+ .2	+ .9	+ 1.3	− 1.1	+ .6	+ 1.4	+ .3

TABLE-X-D-10
Large and Randomly Selected Position Changes
Intraday Price Changes: Regression Analysis
Dependent Variable is DEI (Average Weighted Percent Price Difference
Between Trade Price and Closing Price of Prior Day)
(t Value is in Parentheses)

Independent Variables	Large Sale	Large Purchase	Random Sale	Random Purchase
CONSTANT	-.5752 (1.604)	.8135 (3.355)	-.7645 (2.790)	1.102 (6.435)
NET/GROS	1.220 (3.152)	-.1302 (.5173)	.4814 (1.738)	-.1669 (.8533)
V/Q$VOL	-1.240 (.7645)	-.3540 (.2430)	.7653 (.3255)	.1439 (.1270)
V1OTC/V	.9440 (1.941)	-.6976 (1.369)	1.329 (2.501)	-.5864 (1.579)
V1/TR1	.006245 (.1269)	-.07016 (3.084)	.03993 (.5760)	-.1858 (2.721)
TR1/NRBD1	-.0007258 (.02993)	.005776 (.6117)	.001926 (.07416)	-.009847 (1.025)
TDYS/DYS	-.4103 (.8511)	.1922 (.5697)	-.2759 (.7292)	.09543 (.3843)
ADJ. R²	.1323	.05706	.07147	.03487
OBSERVATIONS	102	128	129	184

TABLE X-D-11
Large and Randomly Selected Position Changes
Intraday Price Changes: Regression Analysis
Dependent Variable is DE2 (Average Weighted Percent Price Difference
Between Trade Price and Closing Price on Same Day)
(t Value in Parentheses)

Independent Variables	Large Sale	Large Purchase	Random Sale	Random Purchase
CONSTANT	-.6146 (3.443)	.5130 (3.235)	-.4982 (3.016)	1.030 (8.918)
NET/GROS	.4224 (2.103)	.4944 (3.004)	.04134 (.2476)	-.07052 (.5345)
V/QSVOL	-.3023 (3.646)	-.1816 (.1906)	-2.874 (2.028)	.5668 (.7417)
V1OTC/V	.2000 (.8610)	-.7151 (2.146)	.5361 (1.674)	-.6509 (2.597)
V/TR1	-.05675 (2.214)	-.04365 (2.933)	-.03170 (.7586)	-.08135 (1.766)
TR1/NRBD1	-.02285 (1.907)	-.06848 (.7910)	-.01002 (.6401)	-.004665 (.7197)
TDYS/DYs	-.6146 (3.443)	.2672 (1.211)	-.3785 (1.660)	-.3831 (2.287)
ADJ. R^2	.12730	.15936	.07559	.05258
OBSERVATIONS	102	128	129	184

TABLE X-D-12
Large and Randomly Selected Position Changes
Price Changes Over Course of Position Change: Regression Analysis
Dependent Variable is Weighted Absolute Price Change ($1,000)
(t Value in Parentheses)

Independent Variables	Large Sale	Large Purchase	Random Sale	Random Purchase
CONSTANT	-67.10	54.31	10.24	46.15
	(1.466)	(1.528)	(.6689)	(3.248)
V ($100,000)	5.784	-1.654	-.2128	-5.831
	(6.193)	(3.026)	(.3246)	(9.907)
V1OTC ($100,000)	-12.37	5.246	-5.572	4.812
	(6.382)	(2.473)	(2.961)	(2.398)
TR1	1.037	-1.824	.6576	.9519
	(.5865	(3.343	(.5055)	(2.008)
NRBD1	-5.353	4.702	-2.797	-1.988
	(1.190)	(2.396)	(.8370)	(1.426)
Q$VOL ($100,000)	-.01468	.002368	.003598	.007347
	(.8062)	(.3034)	(.4722)	(1.012)
NET/GROS	-78.32	131.5	-13.96	-.4839
	(.9936)	(2.816)	(.6183)	(.0231)
ADJ. R^2	.38146	.28260	.09285	.58070
OBSERVATIONS	102	128	129	184
AVERAGE VALUE OF COST ($1000)	37.51	1.03	-2.20	-12.18

TABLE X-D-13
Large and Randomly Selected Position Changes
Price Changes Over Course of Position Change: Regression Analyses
Dependent Variable is Unweighted Percentage Price Change

(t Value in Parentheses)

Independent Variables	Large Sale	Large Purchase	Random Sale	Random Purchase
CONSTANT =	.8879	2.476	.8390	.9636
	(.8701)	(2.390)	(.9244)	(1.197)
V ($100,000)	-.01760	-.02643	-.003202	-.05688
	(.8450)	(1.659)	(.08232)	(1.706)
V1OTC ($100,000)	.04254	.003079	.09176	-.01227
	(.9845)	(.04980)	(.8221)	(.1079)
TR1	-.04775	.001733	-.008152	.3971
	(1.211)	(.1090)	(.1121)	(1.478)
NRBD1	.2376	-.01527	-.04572	-.09924
	(2.370)	(.2670)	(.2307)	(1.256)
Q$VOL ($100,000)	-.0000959	-.0000038	.0001367	.0000204
	(.2361)	(.008335)	(.3025)	(.04952)
NET/GROSS	4.785	1.215	2.076	1.517
	(2.722)	(.8930)	(1.550)	(1.277)
ADJ. R^2	.13936	.00917	0.0	.005217
OBSERVATIONS	102	128	129	184

TABLE X-D-14
Position Changes of Banks and Investment Advisers
Intraday Price Changes: Regression Analysis.
Dependent Variable is DE1 (Average Weighted Percent Price Difference
Between Trade Price and Closing Price of Prior Day)
(t Value is in Parentheses)

Independent Variables	I.A. Sale	I.A. Purchase	Bank Sale	Bank Purchase
CONSTANT	-.2337	.8040	-1.616	1.264
	=(.5987)	(3.236)	(5.327)	(4.910)
NET/GROS	.5322	-.2334	.7942	-.06019
	(1.368)	(.8170)	(2.204)	(.2110)
V/Q$VOL	-.8076	1.343	-3.023	-2.496
	(.3475)	(.6258)	(1.590)	(1.314)
V1OTC/V	1.754	-.8129	1.662	-.7436
	(2.447)	(1.264)	(3.215)	(1.485)
V1/TR1	-.002933	-.07539	.07020	-.0423
	(.04975)	(2.775)	(.5148)	(.4251)
TR1/NRBD1	.008902	.002818	.05723	-.01824
	(.3198)	(.2828)	(1.414)	(.4556)
TDYS/DYS	-.7965	.2123	.5490	.3036
	(1.597)	-(.5894)	(1.136)	(.6557)
ADJ. R^2	.08077	.04044	.21542	.00448
OBSERVATIONS	92	120	71	82

TABLE X-D-15
Position Changes of Banks and Investment Advisers
Intraday Price Changes: Regression Analysis
Dependent Variable is DE2 (Average Weighted Percent Price Difference
Between Trade Price and Closing Price on Same Day)
(t Value in Parentheses)

Independent Variables	I.A. Sale	I.A. Purchase	Bank Sale	Bank Purchase
CONSTANT	-.3940	.8124	-.8551	.9237
	(1.725)	(5.396)	(4.652)	(4.916)
NET/GROS	-.01379	.2612	.3353	.06682
	(.06058)	(1.509)	(1.535)	(.3210)
V/Q$VOL	-4.867	-.1137	1.113	-1.247
	(3.580	(.08741)	(.9655)	(.8994)
V1OTC/V	.3158	-1.133	.8283	-.4567
	(.7531)	(2.908)	(2.644)	(1.250
V/TR1	-.03676	-.3502	-.2028	-.1146
	(1.066)	(2.128)	(2.455)	(1.578)
TR1/NRBD1	-.00844	.000764	.02534	-.02576
	(.5184)	(.1265)	(1.033)	(.8784)
TDY/DYS	-.3298	-.3836	-.07330	.4076
	(1.130)	(1.757)	(.2503)	(1.206)
ADJ.R ^{2}	.16031	.12149	.15848	.03106
OBSERVATIONS	92	120	71	82

TABLE X-D-16
Position Changes of Banks and Investment Advisers
Price Changes over Course of Position Change: Regression Analysis
Dependent Variable is Weighted Absolute Price Change
($1,000)
(t Value in Parentheses)

Independent Variables	I.A. Sale	I.A. Purchase	Bank Sale	Bank Purchase
CONSTANT	-45.12 (1.429)	13.15 (.5304)	-36.98 (.5429)	27.66 (.7511)
V ($100,000)	3.027 (3.033)	.0628 (.1363)	1.592 (1.409)	-5.356 (6.274)
V1OTC ($100,000)	-5.957 (3.620)	4.015 (2.258)	-6.781 (2.206)	-12.19 (3.033)
TR1	2.915 (1.578)	.8750 (1.221)	4.736 (1.708)	-.0829 (.09513)
NRBD1	-11.09 (2.638)	-2.613 (1.195)	-12.12 (1.550)	1.589 (.5409)
Q$VOL ($100,000)	.001094 (.08047)	-.0002797 (.02272)	-.03429 (.9884)	-.001577 (.09562)
NET/GROS	-19.87 (.4171)	-6.594 (.1978)	-39.91 (.3381)	50.13 (1.022)
ADJ. R^2	.26700	.03825	.08106	.53288
OBSERVATIONS	92	120	71	82
MEAN VALUE ($1,000)	21.34	29.99	5.80	-35.56

TABLE X-D-17
Position Changes of Banks and Investment Advisers
Price Change over Course of Position Change: Regression Analysis
Dependent Variable is Unweighted Percentage Price Change
(t Value in Parentheses)

Independent Variables	I.A. Sale	I.A. Purchase	Bank Sale	Bank Purchase
CONSTANT	.3542 (.3367)	.8939 (.8026)	1.878 (1.307)	1.114 (.6927)
V ($100,000)	-.01092 (.3285)	-.02707 (1.309)	-.004878 (.2047)	-.05588 (1.499)
V1OTC ($100,000)	-.06208 (1.132)	.006301 (.07887)	.01798 (.2774)	.3203 (1.824)
TR1	-.09847 (1.599)	.06139 (1.906)	-.01538 (.2631)	.05751 (1.511)
NRBD1	.5259 (3.757)	-.06000 (.6108)	.01920 (.1165)	-.2352 (1.833)
Q$VOL ($100,000)	-.0002038 (.4499)	.0004280 (.7738)	.0001916 (.2618)	-.0002272 (.3153)
NET/GROS	1.235 (.7782)	-1.718 (1.147)	6.333 (2.544)	1.288 (.6015)
ADJ. R^2	.17698	.00879	.039970	.014409
OBSERVATIONS	92	120	71	82

TABLE X-D-18

Position Changes of Banks and Investment Advisers

Price Changes over Course of Position Change: Regression Analysis

Dependent Variable is Weighted Absolute Price Change ($1,000)

(t Value in Parentheses)

Independent Variables	I.A. Sale	I.A. Purchase	Bank Sale	Bank Purchase
CONSTANT	-42.82 (1.366)	7.864 (.2995)	42.57 (.7135)	47.71 (1.623)
V ($100,000)	.05162 (.02414)	-.6475 (.4509)	7.275 (3.208)	-15.10 (9.288)
VIOTC ($100,000)	-4.899 (2.764)	-3.624 (1.795)	-6.688 (1.386)	8.175 (2.468)
Number of Trades: >$750,000	79.29 (1.926)	12.05 (.3588)	-168.8 (1.727)	-237.1 (5.066)
$400,000-$750,000	22.94 (.9799)	4.736 (.3397)	-141.5 (4.787)	-50.55 (1.822)
$15,000-$400,000	4.089 (1.606)	2.271 (1.225)	2.627 (.8839)	8.466 (5.536)
<$15,000	5.273 (1.205)	-.02872 (.02144)	3.122 (.6417)	.3414 (.4132)
NRBD1	-13.45 (2.220)	-.2.285 (.9937)	-12.74 (1.264)	-3.519 (1.413)
Q$VOL ($100,000)	.003973 (.2892)	-.0004736 (.03767)	-.02387 (.7824)	.0002020 (.01534)
NET/GROS	1.662 (.03446)	-10.33 (.2977)	-107.7 (1.021)	9.058 (.2293)
ADJ. R^2	.2844	.01876	.31887	.70806
OBSERVATIONS	92	120	71	82

TABLE X-D-19
Position Change of Banks and Investment Advisers
Price Change over Course of Position Change: Regression Analysis
Dependent Variable is Unweighted Percentage Price Change
(t Value in Parentheses)

Independent Variables	I.A. Sale	I.A. Purchase	Bank Sale	Bank Purchase
CONSTANT	.3592	.5292	1.853	1.341
	(.3342)	(1.168)	(1.250)	(.8196)
V ($100,000)	-.03315	-.07413	-.03676	-.1365
	(.4522)	(1.161)	(.6523)	(1.509)
V10TC ($100,000)	.06240	-.008803	-.05711	.3041
	(1.027)	(.09804)	(.4763)	(1.650)
Number of Trades:				
>$750,000	.2984	.4034	- 1.052	-3.514
	(.2115)	(.2702)	(.4332)	(1.349)
$400,000- $750,000	-.04115	.4339	.7437	-.3589
	(.0513)	(.6997)	(1.012)	(.2324)
$ 15,000- $400,000	-.07449	.1712	-.002366	.1378
	(.8534)	(2.077)	(.03202)	(1.619)
<$15,000	-.1536	-.01455	-.004349	.06310
	(1.024)	(.2442)	(.03596)	(1.372)
NRBD1	.5851	-.03780	.01851	-.2864
	(2.818)	(.3697)	(.07391)	(2.066)
Q$VOL ($100,000)	-.0002301	.0003713	.0001343	-.0002558
	(.4885)	(.6642)	(.1773)	(.3490)
NET/GROS	1.194	-2.166	6.747	.7224
	(.7221)	(1.404)	(2.575)	(.3285)
ADJ.R ^{2}	.14927	.00920	.01201	.00011
OBSERVATIONS	92	120	71	82

GLOSSARY OF INDEPENDENT VARIABLES FOR TABLES X–D–10 TO X–D–19

CONSTANT—constant term.

NET/GROS—percentage net imbalance.

NRBD1—number of broker dealers.

Q$VOL ($100,000)—total NYSE quarterly volume.

TDYS/DYS—intensity of trading: number of days of trading divided by number of trade days.

TR1—number of transactions.

TR1/NRBD1—average number of trades per broker-dealer.

V($100,000)—dollar value of position change.

V1OTC ($100,000)—dollar value of trades executed in third market.

V1OTC/V—proportion of the value of the position change traded in the third market.

V/Q$VOL—size of position change as proportion of total quarterly NYSE volume.

V1/TR1—average trade size.

CHARACTERISTICS AND PRICE IMPACTS OF BLOCK TRADING IN COMMON STOCK LISTED ON NYSE

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