INDIVIDUAL SECURITIES

Major price movements

Sixty instances of major price movements in specific securities are observable during the 1953–58 span in the monthly data provided for the 30 common stocks selected for special study.[24] Thirty-three of the 60 are cases of price advances and 27 are declines. Each of these periods of price movement was divided into three subperiods in the same manner employed for the earlier analysis of aggregate common stock market movements. The basic data for the analysis of the major price movements are the percentage change in market price of the specific security, net purchases in that security by the investment funds covered in this study, the New York Stock Exchange volume in that security, and the ratio between the latter two. Each of these statistics was computed for the complete price movement and for each of the three subperiods into which these movements were divided, as a total figure and on a per month basis. The fund net purchase figures in the 2 months preceding the movement were also used to obtain a better perspective from which to view activity during that movement. An adjustment for net inflow was made in the aggregate analysis but is not appropriate for the individual securities.[25]

The aggregate data did not indicate that the rate of fund net purchases of common stock during periods of market decline was significantly different from the rate during periods of market advance. The findings for the individual securities are somewhat at variance with this conclusion. The funds were less likely to be net sellers during price increases than during price decreases.[26] As shown in table VI–8, the funds were net sellers in only 7 of 32 cases when the price was rising but in 11 of 27 when the price was falling. Although this difference might be regarded as statistically significant, it still shows the funds as net purchasers over half the time in a price decline. Any interpretation from these data that the funds are destabilizing on the downswing must rest on the funds' failure to support the price to the extent they do in an upswing or to the extent warranted by their inflow. The evidence could also be construed as supporting the hypothesis that the funds have been destabilizing in price advances. Again caution must be exercised in this interpretation since the funds have had net purchase balances in general.

[24] Only sustained price movements in individual securities were classified as major market movement for purposes of this analysis. Periods in which prices were relatively stable were, thus, excluded from this part of the analysis.

[25] The funds were net sellers in individual securities frequently and the ratio of net purchases in a particular security to net inflow was quite small, rarely as high as 1 percent. Any adjustment in view of these relationships would be quite tenuous and none will be employed in any of the analyses based on data for individual securities.

[26] Most of the evidence present d in this section is based on the 30 common stocks in which funds had their largest dollar holdings for the study period. Caution should, thus, be exercised in any generalizations from these 30 issues to other common stocks.

TABLE VI-8.—*Relation between direction of major price movement in individual securities and fund net purchases during movement, monthly data, 1953-58*

Sign of fund net purchases	Direction of price movement		
	Increase	Decrease	Total
Positive	25	16	41
Negative	7	11	18
Total	[1] 32	27	[1] 59

[1] Net purchases were 0 during 1 of the increases.

NOTE.—Difference is significant at the 0.1 level.

Table VI-9 presents data similar to those of table VI-8 except that the direction of price movement is related to fund balances in the preceding 2 months. These data suggest that the funds may share partial responsibility for inducing some of these price movements, particularly the declines.[27] This table shows that the funds were net purchasers in 22 of 31 instances in the 2 months preceding a price rise, but net sellers preceding a price decline in 14 of 27. In view of the funds' net purchase balance throughout the study, the latter seems quite striking. Accepting this evidence as consistent with the hypothesis that the funds have been at least partially responsible for some of these major price movements in these issues, their role in the movement after it is started deserves further attention.

TABLE VI-9.—*Relation between direction of major price movement in individual securities and fund net purchases in 2 months preceding movement, monthly data, 1953-58*

Sign of fund net purchases 2 preceding months	Direction of price movement		
	Increase	Decrease	Total
Positive	22	13	35
Negative	9	14	23
Total	[1] 31	27	[1] 58

[1] Data not available for 2 of the increases.

NOTE.—Difference is significant at the 0.05 level.

Inspecting first the price increases, it is apparent from tables VI-8 and VI-9 that the funds had a few more positive net purchases during the upswing than preceding it. This difference is not statistically significant. Moreover, a comparison of net purchases in the 2 preceding months with net purchases during the price movement reveals that net purchases by the funds increased in 15 cases and decreased in 16.[28] These findings give no general indication of increases in the funds' net purchases of specific issues when their price is rising and are more consistent with a hypothesis of no systematic pattern. Comparison within the three subperiods leads to a similar conclusion: the funds showed little propensity to increase or decrease their net purchases during the various stages of upward movements in price. Net purchases were increased between the first and second

[27] As discussed previously, these data could be interpreted as forecasts rather than activity which was partially responsible for the change.

[28] A comparison among issues that share in the same general market movement is made later in this section. The comparison introduces an automatic ajustment for general market level changes by virtue of the fact that those issues participating in the movement are compared with each other.

subperiods in only 18 of 33 issues and in only 16 between the second and third subperiods. The tendency of the funds to have positive net purchases during price increases seems to be a continuation of the decisions made in those months preceding the advance rather than a reaction to it. The funds do demonstrate a general refusal to become net sellers during these upswings as shown by a shift from a net purchase role to that of a net seller in only 3 of 22 issues.[29]

Inspecting next the data with respect to price declines, the shift from a majority of net sellers preceding declines to a majority of net purchasers during the decline is in the direction of stabilization, but again not statistically significant. Other evidence during price declines shows that the funds increased their net purchases in 17 of the 26 instances for which data are available and decreased them in 9. This pattern also suggests a stabilizing action although its significance must be modified by the funds' natural tendency to have net purchase balances and the fact that the funds had higher than average net selling balances at the beginning of these declines. Within the subperiods, the funds became destabilizing. The funds exhibited a fairly substantial tendency to decrease their net purchases in the third subperiod, reaching their lowest point at this stage for 14 of 27 observations, and decreasing net purchases between the second and third periods in 19 of 27 instances.

The data available also permit comparisons among various securities in the four different general major market movements (the declines of 1953 and late 1957 and the increases of 1955–56 and 1958). The common stocks that moved in the same direction as the market during these periods were compared in the percentage change in market price (both total and per month) and in fund net purchases for each of the four time intervals previously identified. Fund net purchases were considered on a dollar basis and as a percentage of New York Stock Exchange volume. This analysis introduces an automatic adjustment for price changes in other securities since various issues that participate in the same general price movement are compared with each other. For each of the market movements, various comparisons between fund net purchases and changes in market prices of individual securities were made. None of these attempts suggested an explanation of the differential price movements of these securities in terms of fund net purchases in them.

The aggregate analysis of weekly turning points in 1956 and 1957 revealed no consistent relation between fund net purchases and stock prices at these pivotal dates although fund discretionary action appeared to be destabilizing at the highs and stabilizing at the lows. The analysis for the individual securities does not lend itself to a separation of total net purchases and discretionary activity and only the former is employed. A further difficulty is found because the dates of the turning points for the market average do not coincide with the dates of the turning points for specific issues. Weekly data were provided only for the 4 weeks surrounding the four general turning points so the analysis must be based on them. The actual high (or low) prices for the specific securities were ascertained within

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[29] A wide variety of probability models is available for calculating the expected number of shifts from net purchases to net sales, but all of those employed yielded a greater number than the 3 of 22 which was observed.

each 4-week period and the timing of the price changes was compared
to the timing of fund net purchases. Within each 4-week period,
rank correlations between net purchases and market prices were com-
puted for each security and various combinations of the coefficients
were averaged. With one exception, the results did not indicate the
existence of any relationship between fund net purchases and market
price in these individual issues at these turning points. The one
exception was the trough of October 22, 1957, when the evidence
suggests the existence of a slight positive relationship (destabilizing).
The evidence was not strong in this one instance, and, in view of the
lack of evidence in the rest of the analysis, should probably be at-
tributed to chance.[30]

Monthly analysis

Regression equations based on the monthly data for the 30 mutual
fund favorites, contrary to those based on aggregate monthly data,
indicate a significant positive correlation between market prices and
preceding fund net purchases. The regressions between fund activity
and preceding market prices, however, reveal no consistent relation-
ship, a result similar to that obtained from the aggregate data. The
analysis for individual securities possesses two inherent advantages
not present for the aggregate data. The number of observations is
considerably increased, permitting more powerful analysis in terms of
statistical tests, and the data can be adjusted for price changes in other
securities so that the factors affecting the general level of stock prices
are kept constant to a considerable extent.

The forms of the regressions for individual securities are conceptu-
ally quite similar to those used for the aggregate analysis. The initial
level of the dependent variable is introduced as a crude attempt to
hold other factors affecting relative stock prices constant and to permit
the separation of long-run and short-run effects. The explanatory
variables of principal interest are employed for each of the three im-
mediately preceding months, the periods found most promising in the
aggregate analysis. The stock prices of the specific securities are ex-
pressed as a ratio of the Standard & Poor's composite index in order
to adjust for any general change in the level of market prices. It is
in this form that market price is employed, both as the dependent
variable and as an independent variable, on the assumption that the
price fluctuations in a particular security vis-a-vis price changes in
other securities are more useful than the change by itself in dis-
entangling the impact of funds from other influences.

Changes in basic economic conditions will, of course, generate
changes in this ratio, but such changes would be positive for some
securities and negative for others and would not be expected to
disturb general conclusions which are based on a considerable number
of issues. Fund activity, when the dependent variable, is expressed
as the ratio of fund net purchases in a specific security to fund net
purchases in all common stock. The denominator of this ratio indi-

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[30] Of 18 securities in which the funds took positions on opposite sides of the market during this 4-week
period (i.e., they had net purchase balances in at least one week and net sales in at least one week), the rank
correlation was positive for 10 issues, negative for only 5, and zero for 3. Considering only the 15 cases
where the coefficient was nonzero, the difference is significant at the 0.05 level using a nonparametric test
of the equal likelihood of positive or negative signs. The number of different comparisons made for this
study of weekly turning points would suggest that chance alone might produce this one "statistically sig-
nificant difference." The funds were net sellers in each of the 4 weeks in 2 of the 30 securities and were
not net sellers in any of the 4 weeks in the remaining 10 securities.

cates the decision made with respect to common stocks in general. Given this decision, the view of the funds toward any specific security is a relative one that is indicated by this ratio. When fund net purchases are used as the independent variable, one can defend conceptually the use of either the absolute value or the ratio. The dollar figure indicates the actual amount that was invested in the security and is perhaps superior, though the ratio has the advantage of showing the relative importance given by the funds to each security. Equations employing the absolute net purchases were computed for all 30 securities, but equations containing the ratio were computed for only a sample.

The two equations used for the bulk of the analysis were:

$$(1) \qquad \frac{M_i}{M_t} = a + b_1 P_{it} + b_2 P_{i(t-1)} + b_3 P_{i(t-2)} + b_4 \frac{M_{i(t-3)}}{M_{(t-3)}}$$

and

$$(2) \qquad \frac{P_{it}}{P_t} = a + b_1 \frac{M_{i(t-1)}}{M_{(t-1)}} + b_2 \frac{M_{i(t-2)}}{M_{(t-2)}} + b_3 \frac{M_{i(t-3)}}{M_{(t-3)}} + b_4 \frac{P_{i(t-3)}}{P_{(t-3)}}$$

with the terms defined as before and the subscript "i" referring to an individual security. The constants of the regression equation, the adjusted coefficients of determination (with and without the initial level of the dependent variable), and the mean of the market ratio where it is the dependent variable are presented in appendix tables VI-1 and VI-2. The high serial correlation between the market price ratio in time "t" and the same ratio in time "$t-3$" is evident in the increase in the coefficients of determination with the introduction of the latter ratio and in the fact that the regression coefficient of the initial level is more than double its standard error for every security. The same phenomenon (extremely high serial correlation) is not observable between the net purchase ratios at "t" and at "$t-3$."

The results of the regressions indicate a positive correlation between net purchases in "t" and market price in "t" for several of these individual securities. The regression coefficient showing this relationship is statistically significant for 6 of the 30 issues and it is positive in each of the 6. The evidence also suggests positive relationships between market prices in "t" and net purchases in periods "$t-1$" and "$t-2$," but the results are not statistically significant.[31]

An inspection of the signs of the regression coefficients suggests a more widespread positive correlation than indicated by the above comparison. As shown in table VI-10, 23 of the 30 equations possess positive regression coefficients for net purchases in "t" when "$t-1$" and "$t-2$" are also included; and 22 of 30, for net purchases in "$t-1$." These findings lend strong support to the position that increases by the funds in their monthly net purchases of a particular security have been followed on the average by increases in the price of that security relative to general market prices. Similarly, decreases in their net purchases have been followed generally by relative decreases in the market price. The data in columns 3 and 4 of table VI-10 show the same

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[31] Significance tests are appropriate at two stages in this statement. First, the regression coefficients are compared to their own standard errors. A 0.05 level of significance was employed at this stage. Second, consideration must be given to the fact that 30 separate comparisons have been made. The expected number of "significant differences" due to chance at the 0.05 level is 1.5. The binomial distribution indicates that the six observed for "t" is significantly greater than expected from chance at a 0.01 level, but the two and three for "$t-1$" and "$t-2$" are not significant at even a 0.1 level.

pattern when consideration is given to only those coefficients that are larger than their own standard error. In the latter comparison, net purchases in "t-2" also show a significantly higher portion of positive signs.

TABLE VI–10.—*Relation between market price and fund net purchases of 30 individual common stocks, distribution of signs of regression coefficients, monthly data, January 1953–September 1958*

Independent variable	Number of plus signs	Number of minus signs	Coefficient exceeds standard error	
			Number of plus signs	Number of minus signs
Net purchases (t)	[1] 23	7	[1] 13	2
Net purchases (t−1)	[1] 22	8	[1] 12	1
Net purchases (t−2)	19	11	[2] 9	1
Market price (t−3)	[1] 30	0	[1] 30	0

[1] Significant at the 0.01 level.
[2] Significant at the 0.05 level.

NOTE.—Equation is $\frac{M_{it}}{M_t}=a+b_1P_{it}+b_2P_{i(t-1)}+b_3P_{i(t-2)}+b_4\frac{M_{i(t-3)}}{M_{(t-3)}}$

The regression coefficients are expressed in units showing the average change in the ratio of the market price of a specific security to the Standard and Poor's Composite Index associated with an increase in fund monthly net purchases of $100,000. The average level of the price ratio is obviously of some consequence in this relationship, but a division of the coefficient by that average level converts the figure to a percentage point change in the price ratio where the base for the computation is the average ratio for each security. These adjusted regression coefficients were multiplied separately by the standard deviation and by the arithmetic mean of the funds' net purchases in that security. The resulting figures permit an appraisal of the economic significance of the funds' transactions. The standard deviation introduces a concept which relates the significance of fund activity to differences in fund net purchases from month to month while the arithmetic mean introduces a concept of total influence based upon the level of fund activity. Similar statistics, computed by summing the regression coefficients, provide a crude indication of the cumulative effect. The results thus obtained approximate, under the various assumptions, the percentage point change in the relative market price that is produced by fund activity.

As shown in table VI–11, the regression coefficients do not assume very large values for net purchases in time "t" when the standard deviation is employed, but values of greater magnitude are recorded as the coefficients are summed or the arithmetic mean is substituted for the standard deviation. Only four securities exceeded 3 percentage points in the first instance (time "t" and standard deviation) and none exceeded 5 percentage points. When the coefficients are summed for all three time periods and the standard deviation is applied, six securities take on values in excess of 5 percentage points with a maximum of 6.3 for United States Steel. The use of the arithmetic mean in time "t" likewise produces an increase in the number of securities for which the result is of an appreciable magnitude with four exceeding 10 percentage points and Amerada reaching a level of 22.7. When the regression coefficients are summed and the arithmetic mean is

employed, nine securities exceed 10 percentage points and Amerada reaches 40.8.

TABLE VI-11.—*Number of individual securities in which adjusted regression coefficients exceed given values, monthly data, market price dependent* [1]

Net purchases regression coefficient(s)	Factor	Number of securities with adjusted regression coefficients		
		Exceeding 3 percentage points	Exceeding 5 percentage points	Exceeding 10 percentage points
"t" only	Standard deviation	4	0	0
Do	Arithmetic mean	11	9	4
Σ(t, t-1, t-2)	Standard deviation	15	6	0
Σ(t, t-1, t-2)	Arithmetic mean	16	13	9

[1] The original regression coefficients were divided by the arithmetic mean of the dependent variable and were multiplied by the factor indicated in col. 2, i.e., either the standard deviation or the arithmetic mean of the funds' monthly net purchases for the particular security.

Attempts were made to isolate those securities in which the funds seemed to demonstrate a potentially large economic impact and to examine any characteristics common to these securities. Standard Oil of Indiana, United States Steel, Amerada, Gulf Oil, and Continental Oil were among the top 10 in all 4 lists and the resulting coefficients were positive in every instance.[32] Four of these five securities are oils, appreciably more than might be expected even after adjusting for the fact that 10 of the 30 are oils. The funds' net purchases in each of these securities exceeded 3 percent of the New York Stock Exchange volume for the time span of the study,[33] but no general pattern of relationship between the ratio of exchange volume and the various regression coefficients (in any of the forms) was disclosed by further study.[34]

The data for the entire study period supply additional evidence that there is a positive relation between the funds' net purchase of a particular security and the price movement of that security. Table VI-12 presents the percentage increase in the market price of the 30 selected issues, the funds' net purchases in each issue for the major part of the period,[35] and the percentage increase in the Standard & Poor's Composite Index. Of these 30 securities which were investment fund favorites, 18 experienced a percentage increase greater than the market average, and the arithmetic mean increase for all 30 was 126 percent compared to 90 percent for Standard & Poor's. Within these 30 securities, those in which the fund net purchases accounted for the largest percentage of the New York Stock Exchange volume showed, on the average, the greatest percentage increase. The coefficient of rank correlation between these two variables is +0.37, approximately double its standard error. The rank correlation between the funds' dollar net purchases and the percentage increase in market price is also positive, but somewhat lower at 0.21.

[32] It should be noted that the values of these various statistics are generated by common factors in several instances.

[33] The ratio of fund net purchases to New York Stock Exchange volume exceeded 3 percent for 16 (or approximately half) of the 30 securities.

[34] A number of rank correlation coefficients were computed relating the above ratio to these adjusted regression coefficients and to various coefficients of determination. The percentage of the New York Stock Exchange volume was also compared to the number of positive regression coefficients. The only statistically significant relationship was between the percentage of New York Stock Exchange volume and the two types ("t" only and "t," "t-1," plus "t-2") of coefficients multiplied by the arithmetic mean. The result which is positive is not too informative since dollar net purchases by the funds enter into the numerator of both variables.

[35] The funds supplied purchase and sales data for only 51 months of the 5¾ years. These findings are based on those data which cover January to December 1953 and July 1955 to September 1958.

TABLE VI–12.—*Percentage increases in market price and fund net purchases of each of 30 individual common stocks, January 1953 to September 1958*

[Dollar amounts in thousands]

Security	Percentage increase in market price	Fund net purchases [1]	Fund net purchases as a percent of NYSE volume [1]
International Business Machines Corp	450	+$32, 714	4. 7
Goodyear Tire & Rubber Co	249	+21, 554	8. 8
National Lead Co	248	−4, 439	−1. 6
United States Steel Corp	248	+41, 495	3. 3
Bethlehem Steel Corp	243	−10, 924	−. 9
Firestone Tire & Rubber Co	194	+12, 690	11. 6
General Electric Co	187	+3, 683	. 5
Armco Steel Corp	184	+22, 606	8. 5
The Texas Co	173	+35, 802	8. 5
Gulf Oil Corp	141	+29, 478	3. 5
Central & South West Corp	135	+3, 931	5. 0
Shell Oil Co	133	+9, 191	5. 1
Standard Oil Co. (New Jersey)	130	+16, 428	1. 2
General Motors Corp	110	−27, 426	−2. 0
International Paper Co	109	−1, 238	−. 4
DuPont (E. I.) de Nemours & Co	98	+20, 220	2. 8
Continental Oil Co	96	+7, 797	4. 4
Standard Oil Co. (California)	96	+14, 546	3. 4
Standard & Poor's	90	-------------	-------------
Aluminium Ltd	78	+10, 992	2. 5
Goodrich (B. F.) Co	71	−15, 451	−8. 4
Socony Mobil Oil Co	69	+13, 528	3. 1
General Public Utilities Corp	65	+5, 043	6. 3
Union Carbide Corp	56	+5, 008	1. 1
Phillips Petroleum Co	48	+1, 241	. 2
Westinghouse Electric Corp	42	−4, 087	−. 6
Atchison, Topeka & Santa Fe Ry. Co	29	−6, 789	−3. 0
Amerada Petroleum Corp	25	+24, 331	6. 2
Standard Oil Co. (Indiana)	25	+30, 449	7. 3
Kennecott Copper Corp	21	−2, 130	−. 5
American Telephone & Telegraph Co	20	+17, 139	. 8

[1] January to December 1953 and July 1955 to September 1958.

The monthly regression equations in which fund net purchases in each individual security were expressed as a percentage of total fund net purchases in common stocks yielded somewhat similar findings, for a sample of six securities tested, but the results were less significant statistically. A more extensive comparison of the two approaches was made in the daily analysis where the results obtained using dollar figures were again superior to those obtained from the ratios.

The regression equations in which net purchases are the dependent variable disclose very little correlation between these purchases and preceding market prices. As discussed earlier in this section all variables were expressed as ratios, but the distribution of the regression coefficients does not differ significantly from what one would expect from chance forces alone. The coefficients for market price in "t–3" are more than double their standard error for six securities; however two have positive signs and four negative. The data for these six issues as well as the data presented in table VI–13 disclose no consistent pattern. The switch from a majority of positive signs in "t–1" to a majority of negative signs in "t–3" provides fuel for speculation on a time lag in fund reaction to market prices, but the data do not justify any definite conclusion.

TABLE VI–13.—*Relation between fund net purchases and market prices of 30 individual common stocks, distribution of signs of regression coefficients, monthly data, January 1953–September 1958*

Independent variable	Number of + signs	Number of − signs	Coefficient exceeds standard error	
			Number of + signs	Number of − signs
Market price (t–1)	17	13	[1] 10	3
Market price (t–2)	17	13	5	5
Market price (t–3)	11	19	2	[1] 11
Net purchases (t–3)	17	13	[1] 7	1

[1] Significant at the 0.05 level.

NOTE.—Equation is $\frac{P_{it}}{P_t} = a + b_1 \frac{M_{i(t-1)}}{M_{(t-1)}} + b_2 \frac{M_{i(t-2)}}{M_{(t-2)}} + b_3 \frac{M_{i(t-3)}}{M_{(t-3)}} + b_4 \frac{P_{i(t-3)}}{P_{(t-3)}}$

Daily analysis

The individual security regression equations relating daily market prices and daily fund net purchases within the third quarter of 1958 demonstrate the same sort of relationships as those found in the monthly equations, but the results are slightly less significant. The equations employed are of the same form as those in the monthly analysis with the exception that five daily periods are used instead of three monthly periods. The results of the equations are presented in appendix tables VI–3 and VI–4 which are symmetric with appendix tables VI–1 and VI–2 for the monthly regressions.

Considering first the equations with market price as the dependent variable, the number of statistically significant regression coefficients exceeds the expected number (1.5) for each of the 5 time periods and for all time periods combined there was a total of 18 statistically significant coefficients. This figure of 18 is in contrast to an expected value of 7½, and 14 of the 18 are positive in sign. However, the number of statistically significant coefficients exceeds the expectancy by a significant degree (in a probability sense) for only one time period (t—2) and one of the six coefficients is negative in the period. This evidence is less conclusive than that found in the monthly equations for individual securities, but certainly is consistent with the hypothesis that there is a positive correlation between the two variables. As shown in table VI–14, the number of positive signs is significantly greater than the number of negative signs for net purchases for each of the five time lags. The figures for the distribution of signs where the coefficient exceeds its own standard error are less impressive. Only one period ("t—3") is statistically significant but all exhibit a positive tendency and the combined results are quite significant.

Table VI-14.—*Relation between market price and fund net purchases of 30 individual common stocks, distribution of signs of regression coefficients, daily data, 3d quarter 1958*

Independent variable	Number of + signs	Number of − signs	Coefficient exceeds standard error	
			Number of + signs	Number of − signs
Net purchases (t)	1 20	10	9	3
Net purchases (t–1)	1 21	9	7	2
Net purchases (t–2)	1 20	10	9	3
Net purchases (t–3)	2 22	8	1 9	2
Net purchases (t–4)	1 20	10	10	5
Market price (t–5)	2 29	1	2 28	1

[1] Significant at the 0.05 level.
[2] Significant at the 0.01 level.

Note.—Equation is $\frac{M_{it}}{M_t} = a + b_1 P_{it} + b_2 P_{i(t-1)} + b_3 P_{i(t-2)} + b_4 P_{i(t-3)} + b_5 P_{i(t-4)} + b_6 \frac{M_i(t-5)}{M_{(t-5)}}$.

A comparison of specific securities in the daily and monthly analyses is quite informative. The results indicate that the positive relationships observed between fund net purchases and later market prices hold for these securities in general rather than for specific issues in the group. Only one security, Standard Oil of Indiana, possesses at least one statistically significant regression coefficient (excluding that for initial market price) in both the monthly and daily analyses. Only five securities reveal all positive coefficients in both regression equations: Standard Oil of Indiana, Bethlehem Steel, Goodyear, Phillips Petroleum, and Union Carbide. Both findings coincide almost precisely with the result to be expected if chance forces determined the degree of duplication in the two analyses.

Evidence concerning the economic significance of the regression coefficients is conflicting. Adjustments similar to those employed in the monthly analysis[36] supply the basis for such an appraisal, but negative coefficients appear among the larger values too frequently to justify any generalizations. For example, the summation of the adjusted coefficients multiplied by the standard deviation is greater than 0.02[37] for six securities, but the sign is positive in three cases and negative in the other three. None of the other statistics is as large as 0.02 for any security, and negative signs appear among the highest values for each statistic. In contrast to these findings, the four securities that rank high in each of the four statistics[38] employed have positive signs in every instance. These securities, Firestone, Standard Oil of Indiana, Standard Oil of California, and General Motors, reach their highest level when the adjusted coefficients are summed over the five periods and the standard deviation is employed as the weighting factor. The actual statistics for these four securities vary from 1.6 percentage points for Standard Oil of Indiana to 3.0 for Firestone. Fund net purchases during the third quarter of 1958 were equal to at least 8.0 percent of the New York Stock Exchange

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[36] See that analysis for a discussion of the computations of the statistics employed.

[37] Changes in market prices and the volume of fund activity are naturally much smaller on a daily basis than on a monthly basis. Since this analysis is based on daily data, these figures are much smaller than those of the monthly analysis.

[38] Adjusted coefficients for "t" and for $\sum_{i=0}^{4}$ (t—i) multiplied by arithmetic mean and multiplied by standard deviation.

volume for each of these four securities, but attempts to establish any general relationship between the apparent significance of the results and percentage of market volume were unsuccessful. The appearance of one issue (Standard Oil of California) on the list for both the monthly and daily data would be expected from chance forces alone and should not be interpreted in any special way with respect to that security.

TABLE VI-15.—*Relation between fund net purchases and market prices of 30 individual common stocks, distribution of signs of regression coefficients, daily data, 3d quarter 1958*

Independent variable	Number of plus signs	Number of minus signs	Coefficient exceeds standard error	
			Number of plus signs	Number of minus signs
Market price (t-1)	17	13	8	3
Market price (t-2)	14	16	4	6
Market price (t-3)	18	12	8	2
Market price (t-4)	11	19	1	5
Market price (t-5)	16	14	3	2
Net purchases (t-5)	12	18	1	3

NOTE.—Equation is $\frac{P_{it}}{P_i} = a + b_1 \frac{M_{i(t-1)}}{M_{(t-1)}} + b_2 \frac{M_{i(t-2)}}{M_{(t-2)}} + b_3 \frac{M_{i(t-3)}}{M_{(t-3)}} + b_4 \frac{M_{i(t-4)}}{M_{(t-4)}} + b_5 \frac{M_{i(t-5)}}{M_{(t-5)}} + b_6 \frac{P_{i(t-5)}}{P_{(t-5)}}$.

The daily regression equations relating fund net purchases in specific issues to preceding market prices in that issue indicate neither a positive nor a negative correlation. There are five securities in which the regression coefficients for market price in (t-1) are statistically significant, but three are positive and two are negative. Considering the coefficients for all 5 time periods, a total of 14 are statistically significant, but they are divided between 6 positive and 8 negative values. The same sort of pattern can be observed in table VI-15 which summarizes the signs for all securities. The division between signs is not statistically significant in any comparison, and the pattern fluctuates with respect to which sign is in the majority.

Specific securities in which one or more funds have large percentage holdings

Data secured for the analysis of the control of portfolio companies may be useful in the study of impact. Each investment fund was asked to identify all common stocks in which it held 1 percent or more of the outstanding voting securities on either January 1, 1953, or September 30, 1958, and to indicate its purchases or sales in each of the identified securities for every month of the period January–December 1953 and July 1955–September 1958. Many securities were listed by more than one fund and the cumulative percentage holding by all funds listing each security was obtained. A simple random sample of those securities in which the cumulative figure was greater than 10 percent was selected using a sampling fraction of one-third. All securities with fewer than 5 months in which the funds had transactions were discarded, yielding a sample of 20 issues.[39] These data were analyzed in an attempt to show what, if any, relationship existed

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[39] None of these 20 securities appeared in the list of 30 market leaders studied in the preceding section.