

between market price and net purchases by funds with large percentage holdings.

Regression equations similar to those of the preceding section are not particularly useful for these data because net purchases are zero in a large number of instances. A portion of the analysis considered only those months with nonzero net purchases, while a second approach used the months in which net purchases were zero as a standard for comparison. The analyses are based on comparisons between net purchases in a particular month and the change in market price during that month or during the preceding month. Both variables of course refer to a specific security, but the change in market price is expressed relative to the change in the general market level as shown by the Standard and Poor's composite index.

The evidence is not inconsistent with the findings for the market leaders, but it is much more tentative. The inclusion of seven insurance companies tends to obscure the slight suggestion of a positive relationship between the sign of net purchases and the direction of market change. Rank correlation coefficients between change in market price during the month and net purchases of the same month (excluding those months in which net purchases were zero) were computed for each security. If the insurance stocks are not considered, 12 of 13 coefficients are positive although only 1 is statistically significant. Among the insurance stocks five of seven were negative with one of the latter significant. An identification of only those months in which the ratio of the price of the specific security to the market index changed by more than 10 percent revealed no systematic pattern in fund activity either preceding or following the change.⁴⁰ Other analyses gave little indication of either a positive or negative relationship between fund net purchases and market price, but the results are inconclusive. An attempt to study the months in which the funds had their largest net purchases (either positive or negative) was equally unproductive. The level of fund net purchases in these analyses is no doubt largely responsible for the inconclusive nature of the results. As already indicated there were many months in which net purchases were zero and the total dollar value was rather small in the other months since it represented activity by only one or two funds.

Some economic aspects of predictive ability

It has been noted that the funds as a whole may have to some extent the ability to fulfill their own market price predictions but that fully as interesting a question from certain points of view relates to their success in channeling funds into issues that subsequently have a favorable trend in per share earnings. The major reason for interest in this question is that one of the economic functions that may be performed by financial intermediaries like mutual funds is to help direct capital into those areas of investment which ultimately turn out to be most profitable. However, since the primary concern of this chapter is with the market impact of mutual funds, only a few simple tests have been made of the relationship between fund stock purchases and subsequent share earnings (adjusted for stock dividends,

⁴⁰ There were 65 instances of such changes.

splits, etc.). These tests were confined to the 30 mutual fund "favorite" stock issues and the 1953-58 period analyzed previously.

The average increase in per share earnings from 1953 to 1958 for the 15 stock issues in which fund net purchases were largest (in dollar amounts) in 1953 amounted to 14.3 percent, while the corresponding increase for the remaining 15 issues with lower initial purchases was 18.7 percent. On the other hand, the coefficient of rank correlation between initial purchases and the subsequent change in earnings was $+0.11$, though neither the difference in the two percentages nor the sign of the rank correlation is statistically significant. These findings do not indicate any significant relationship between fund purchases in individual securities and the later performance of per share earnings.

It is possible of course that the market did not evaluate with sufficient favor the prospective earnings of the 15 issues with largest mutual fund net purchases and the funds moved in to take advantage of this situation. A test of this possibility, though it has many inadequacies, is given by a comparison of the average ratios of 1953 prices to 1958 earnings for the two groups of issues classified by 1953 fund net purchases. The resulting price-earnings ratio was 10.1 for the 15 issues with the largest mutual fund net purchases and 9.8 for the remaining 15 issues, again not a statistically significant difference.

The combined results, while inconclusive without much more extensive testing, do not point to either superior or inferior performance by mutual funds in directing capital into particularly profitable areas of economic investment.

APPENDIX TABLE VI-1.—Monthly relationships between market price and net purchases for individual common stocks,¹ constants of regression equations and adjusted coefficients of determination

Security	Constants				Mean of dependent variable	Adjusted coefficients of determination ²	
	a	b ₁	b ₂	b ₃		b ₄	$\bar{R}^2_{.123}$
Aluminum Ltd.	+0.286	-0.021	+0.024	+0.039	3 +0.864	0	0.639
Amerada Petroleum Corp.	+0.433	+0.059	+0.133	+0.059	3 +0.868	2.352	0.819
American Telephone & Telegraph Co.	-0.225	+0.009	-0.014	+0.020	3 +1.053	4.362	0.958
Armco Steel Corp.	+0.313	+0.011	-0.045	+0.065	3 +1.837	2.209	0.672
Atchison, Topeka & Santa Fe Railway Co.	+0.169	+0.130	+0.051	-0.015	3 +0.935	2.950	0.899
Bethlehem Steel Corp.	-0.190	+0.005	+0.059	+0.105	3 +1.074	3.429	0.926
Central & South West Corp.	+0.097	+0.020	-0.003	+0.017	3 +0.908	8.644	0.657
Continental Oil Co.	+0.990	+0.116	-0.059	+0.041	3 +0.573	2.381	0.569
Du Pont (E. I.) de Nemours & Co.	+0.945	+0.014	+0.001	+0.032	3 +0.766	4.296	0.827
Firestone Tire & Rubber Co.	+0.130	+0.092	+0.045	+0.002	3 +0.906	3.601	0.833
General Electric Co.	+0.694	+0.040	+0.031	+0.054	3 +0.829	3.830	0.797
General Motors Corp.	+1.194	-0.018	+0.006	-0.005	3 +0.558	2.747	0.361
General Public Utilities Corp.	+0.078	+0.016	-0.012	+0.006	3 +0.917	0.881	0.712
Goodyear (B. F.) Co.	+0.102	+0.087	-0.017	+0.022	3 +0.786	3.098	0.498
Goodyear Tire & Rubber Co.	+0.671	+0.071	+0.008	+0.108	3 +0.961	3.174	0.879
Gulf Oil Corp.	+0.109	+0.061	+0.022	+0.021	3 +0.698	2.418	0.681
International Business Machines Corp.	+1.009	+0.042	-0.033	+0.050	3 +0.991	1.734	0.932
International Paper Co.	+0.477	+0.033	+0.008	+0.010	3 +0.701	2.307	0.588
Kennecott Copper Corp.	+0.306	+0.121	+0.060	-0.016	3 +0.785	2.448	0.879
National Lead Co.	+0.477	+0.041	+0.019	-0.013	3 +0.870	2.093	0.859
Phillips Petroleum Co.	+0.726	+0.039	+0.030	+0.028	3 +0.776	2.044	0.757
Shell Oil Co.	+0.454	+0.085	+0.088	+0.011	3 +0.785	3.316	0.595
Socony Mobil Oil Co.	+0.783	+0.005	+0.001	+0.011	3 +0.457	1.456	0.067
Standard Oil Co. (California)	+1.045	-0.004	-0.026	+0.004	3 +0.525	2.184	0.228
Standard Oil Co. (Indiana)	+0.371	+0.070	+0.039	+0.024	3 +1.106	2.364	0.874
Standard Oil Co. (New Jersey)	+0.612	+0.031	-0.020	-0.010	3 +0.840	3.556	0.739
The Texas Co.	+0.425	+0.012	+0.041	+0.022	3 +0.889	2.725	0.687
Union Carbide Corp.	+0.262	+0.041	+0.019	+0.073	3 +0.889	2.443	0.129
United States Steel Corp.	+0.137	+0.027	+0.053	+0.033	3 +0.919	2.543	0.903
Westinghouse Electric Corp.	+0.092	-0.004	-0.003	+0.057	3 +0.929	1.403	0.829

¹ Equation is $M_t = a + b_1 P_{t-1} + b_2 P_{t-2} + b_3 P_{t-3} + b_4 P_{t-4} + b_5 M_{t-1} + b_6 M_{t-2}$
² See the following: $\bar{R}^2_{.1234}$ is based on all 4 independent variables. $\bar{R}^2_{.123}$ excludes market price as an independent variable.
³ Regression coefficient greater than twice standard error.

¹ Equation is $M_t = a + b_1 P_{t-1} + b_2 P_{t-2} + b_3 P_{t-3} + b_4 P_{t-4} + b_5 M_{t-1} + b_6 M_{t-2}$
 P_t is fund net purchases of security indicated in \$100,000.
 M_t is price per share of security indicated, adjusted for stock splits, etc.
 M is Standard and Poor's composite stock index.

APPENDIX TABLE VI-2.—Monthly relationships between net purchases and market prices for individual common stocks,¹ constants of regression equations and adjusted coefficients of determination

Security	Constants					Adjusted coefficients of determination ²	
	a	b ₁	b ₂	b ₃	b ₄	$\bar{R}^2_{.123}$	$\bar{R}^2_{.1234}$
Aluminium, Ltd.....	-0.002	-0.031	+0.019	+0.015	+0.028	0	0
Amerada Petroleum Corp.....	-.009	+0.015	-.004	-.007	+0.153	.024	.017
American Telephone & Telegraph Co.....	-.023	-.005	+0.019	-.008	+0.166	0	0
Armco Steel Corp.....	-.003	-.016	+0.019	+0.004	-.099	0	0
Atchison, Topeka & Santa Fe Ry. Co.....	-.013	³ +0.042	+0.004	³ -.042	+0.137	.187	.186
Bethlehem Steel Corp.....	+0.076	+0.011	-.067	+0.033	-.001	.195	.175
Central & South West Corp.....	+0.031	+0.038	-.010	³ -.062	-.120	.180	.174
Continental Oil Co.....	+0.017	+0.012	-.025	+0.010	-.043	0	0
Du Pont (E. I.) de Nemours & Co.....	+0.240	+0.020	+0.027	-.099	-.048	.290	.274
Firestone Tire & Rubber Co.....	+0.011	-.011	+0.005	+0.004	-.138	0	0
General Electric Co.....	+0.017	+0.019	+0.010	-.034	³ -.348	0	.092
General Motors Corp.....	+0.347	+0.014	-.026	³ -.117	-.089	.461	.459
General Public Utilities Corp.....	-.013	-.013	+0.045	-.016	³ +0.425	.060	.197
Goodrich (B. F.) Co.....	-.004	+0.016	+0.006	-.022	+0.128	0	0
Goodyear Tire & Rubber Co.....	+0.012	-.013	+0.022	-.010	+0.065	0	0
Gulf Oil Corp.....	-.069	+0.037	+0.053	-.057	+0.138	.204	.200
International Business Machines Corp.....	+0.002	-.008	+0.015	-.007	-.031	.020	0
International Paper Co.....	+0.031	+0.020	³ -.112	³ +0.077	+0.196	.087	.097
Kennecott Copper Corp.....	+0.007	+0.076	-.060	-.016	-.121	.023	.015
National Lead Co.....	-.015	+0.074	+0.017	³ -.086	-.042	.138	.118
Phillips Petroleum Co.....	+0.023	+0.008	+0.022	-.041	³ +0.327	.007	.109
Shell Oil Co.....	-.042	-.005	-.007	+0.001	+0.183	.022	.034
Socony Mobil Oil Co.....	+0.019	-.047	+0.049	-.012	+0.089	0	0
Standard Oil Co. (California).....	+0.023	-.029	+0.009	+0.012	+0.084	0	0
Standard Oil Co. (Indiana).....	+0.071	+0.086	-.091	-.019	+0.095	.091	.077
Standard Oil Co. (New Jersey).....	+0.004	-.009	-.104	³ +0.115	³ +0.153	.116	.113
The Texas Co.....	-.025	-.018	-.014	+0.048	+0.206	0	.004
Union Carbide Corp.....	+0.041	+0.076	-.053	-.037	-.001	0	0
United States Steel Corp.....	+0.025	³ +0.161	³ -.188	+0.023	+0.048	.114	.094
Westinghouse Electric Corp.....	+0.013	-.021	+0.123	-.112	-.014	.012	0

¹ Equation is $\frac{P_{it}}{P_i} = a + b_1 \frac{M_{i(t-1)}}{M_{i(t-1)}} + b_2 \frac{M_{i(t-2)}}{M_{i(t-2)}} + b_3 \frac{M_{i(t-3)}}{M_{i(t-3)}} + b_4 \frac{P_{i(t-3)}}{P_{i(t-3)}}$
P is fund net purchases in \$100,000; *P_i* is fund net purchases of security indicated.
M_i is price per share of security indicated, adjusted for stock splits, etc.
M is Standard and Poor's composite stock index.

² See the following:
 $\bar{R}^2_{.1234}$ is based on all 4 independent variables. $\bar{R}^2_{.123}$ excludes fund net purchases as an independent variable.

³ Regression coefficient greater than twice standard error.

APPENDIX TABLE VI-3.—Daily relationships between market price and net purchases for individual common stocks,¹ constants of regression equations and adjusted coefficients of determination

Security	Constants						Mean of dependent variable	Adjusted coefficients of determination ²		
	a	b ₁	b ₂	b ₃	b ₄	b ₅		b ₆	$\bar{R}^2_{.12345}$	$\bar{R}^2_{.123456}$
Aluminium Ltd.....	+0.546	-0.003	-0.004	0	+0.0002	-0.004	+0.111	0.621	0.152	0.147
Amerada Petroleum Corp.....	+2.306	-0.003	-0.006	-0.005	-0.007	-0.005	-0.007	2.280	.056	.088
American Telephone & Telegraph Co.....	+2.414	-0.002	+0.001	+0.004	+0.001	+0.002	§ +0.372	3.549	0	.124
Armco Steel Corp.....	+0.591	+0.001	+0.001	-0.004	+0.003	+0.002	§ +0.509	1.199	.054	.421
Atchison, Topeka & Santa Fe Railway Co.....	+0.205	+0.001	+0.001	+0.002	+0.001	+0.003	§ +0.589	.495	0	.293
Bethlehem Steel Corp.....	+0.387	+0.003	+0.001	+0.002	+0.001	+0.002	§ +0.609	.959	0	.321
Central & South West Corp.....	-0.045	-0.003	§ -0.005	§ -0.007	§ -0.009	§ -0.006	§ +1.029	1.022	.094	.902
Continental Oil Co.....	+0.349	-0.006	-0.003	-0.001	-0.002	-0.002	§ +0.713	1.205	0	.408
Du Pont (E. I.) de Nemours and Co.....	+1.081	+0.007	-0.001	+0.003	+0.001	+0.003	§ +0.731	4.088	.069	.288
Firestone Tire & Rubber Co.....	+0.621	+0.028	§ +0.037	§ +0.034	+0.029	+0.010	§ +0.693	2.104	0	.274
General Electric Co.....	+0.794	+0.001	+0.001	-0.001	-0.001	§ +0.002	§ +0.405	1.337	0	.254
General Motors Corp.....	+0.368	+0.001	§ +0.002	§ +0.002	+0.002	+0.001	§ +0.593	.921	2.76	.555
General Public Utilities Corp.....	+0.242	-0.001	+0.003	§ +0.010	§ +0.010	+0.004	§ +0.733	.930	.002	.660
Goodrich (B. F.) Co.....	+1.026	-0.002	+0.002	+0.002	+0.011	+0.007	§ +0.275	1.411	.135	.195
Goodyear Tire & Rubber Co.....	+1.156	+0.002	+0.002	+0.002	+0.004	+0.003	§ +0.384	1.885	0	.069
Gulf Oil Corp.....	+0.843	+0.002	-0.001	-0.002	+0.001	+0.003	§ +0.634	2.343	0	.705
International Business Machines Corp.....	+3.156	-0.106	-0.111	-0.004	-0.006	-0.012	§ +0.610	7.928	.008	.383
International Paper Co.....	+0.983	+0.005	+0.006	+0.003	-0.003	-0.008	§ +0.561	2.233	0	.260
Kennecott Copper Corp.....	+1.094	+0.003	+0.001	+0.006	+0.002	+0.001	§ +0.445	1.968	0	.134
National Lead Co.....	+0.955	+0.002	-0.003	+0.002	+0.001	+0.006	§ +0.550	2.128	0	.261
Phillips Petroleum Co.....	+0.147	+0.003	+0.010	§ +0.017	+0.010	§ +0.016	§ +0.850	.974	.230	.700
Shell Oil Co.....	+0.830	-0.004	+0.003	+0.004	+0.005	+0.003	§ +0.513	1.716	.023	.248
Socony Mobil Oil Co.....	+0.332	+0.002	+0.002	+0.001	+0.002	-0.002	§ +0.663	1.011	.044	.763
Standard Oil Co. (California).....	+0.672	§ +0.008	§ +0.006	§ +0.006	+0.004	§ +0.006	§ +0.363	1.086	.463	.674
Standard Oil Co. (Indiana).....	+0.190	§ +0.004	+0.003	+0.002	+0.001	+0.004	§ +0.797	1.011	.464	.787
Standard Oil Co. (New Jersey).....	+0.863	+0.002	+0.001	-0.001	-0.002	-0.002	§ +0.258	1.165	.021	.166
The Texas Co.....	+1.041	-0.001	+0.001	+0.001	+0.001	-0.003	§ +0.303	1.500	0	.083
Union Carbide Corp.....	+0.692	+0.003	+0.006	+0.006	+0.006	+0.005	§ +0.681	2.214	.134	.748
United States Steel Corp.....	+0.102	+0.003	+0.002	+0.003	+0.002	-0.003	§ +0.938	1.529	.054	.662
Westinghouse Electric Corp.....	+0.606	+0.003	-0.006	-0.007	-0.008	+0.001	§ +0.543	1.303	0	.194

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

P_i is fund net purchases of security indicated in \$100,000.
M_i is price per share of security indicated, adjusted for stock splits, etc.
M is Standard and Poor's composite stock index.

² See the following:

$\bar{R}^2_{.123456}$ is based on all 6 independent variables. $\bar{R}^2_{.12345}$ excludes market price as an independent variable.

³ Regression coefficient greater than twice standard error.

APPENDIX TABLE VI-4.—Daily relationships between net purchases and market prices for individual common stocks,¹ constants of regression equations and adjusted coefficients of determination

Security	Constants						Adjusted coefficients of determination ²		
	a	b ₁	b ₂	b ₃	b ₄	b ₅	b ₆	$\bar{R}^2_{.12345}$	$\bar{R}^2_{.123456}$
Aluminium Ltd	+0.510	-1.235	+0.812	-0.206	-1.056	+0.848	+0.041	0	0
Amerada Petroleum Corp	+ .560	- .076	+ .026	+ .112	- .133	- .171	+ .024	0	0
American Telephone & Telegraph Co.	-1.431	³ +1.812	² -2.664	+ .865	-1.110	+1.469	+ .091	.090	.080
Armco Steel Corp	+ .178	+ .094	- .207	³ + .591	- .261	- .373	+ .417	.187	.173
Atchison, Topeka & Santa Fe Railway Co.	- .200	+1.082	- .196	- .622	- .442	+ .574	- .082	0	0
Bethlehem Steel Corp	- .206	+1.581	- .637	- .830	- .716	+ .792	- .015	0	0
Central & South West Corp	+ .011	- .575	+ .030	+ .375	+ .159	- .003	- .055	0	0
Continental Oil Co.	- .221	+ .095	- .204	- .592	+ .586	+ .308	- .082	0	0
Du Pont (E. I.) de Nemours & Co.	- .263	+ .048	+ .080	- .172	+ .142	- .030	+ .161	0	0
Firestone Tire & Rubber Co.	+ .810	³ - .958	+ .800 ⁴	+ .737	- .932	- .035	- .009	.142	.126
General Electric Co.	+2.607	³ +6.186	² -10.056	+3.132	-1.306	+ .085	- .110	.180	.176
General Motors Corp	- .288	- .115	+1.237	+1.366	³ -2.602	+ .449	- .146	.162	.165
General Public Utilities Corp	+ .011	+ .505	- .675	+ .510	- .327	- .023	- .003	0	0
Goodrich (B. F.) Co.	- .168	+ .412	- .671	+ .338	- .584	+ .616	+ .077	.009	0
Goodyear Tire & Rubber Co.	+ .432	- .038	+ .004	- .061	- .038	- .092	+ .017	.003	0
Gulf Oil Corp	+ .601	- .982	+ .594	+ .895	-1.002	+ .249	+ .028	0	0
International Business Machines Corp.	+ .307	- .024	+ .021	- .083	- .108	+ .159	- .208	.001	.033
International Paper Co.	+ .055	³ + .561	³ - .576	³ + .390	³ - .403	+ .006	+ .056	.293	.283
Kennecott Copper Corp	- .109	+ .142	- .038	- .403	+ .312	+ .041	+ .089	0	0
National Lead Co.	+ .277	+ .342	- .280	- .179	+ .109	- .127	- .019	0	0
Phillips Petroleum Co.	- .255	- .262	+ .654	+ .124	- .398	+ .136	+ .009	0	0
Shell Oil Co.	- .243	- .058	+ .268	+ .097	- .442	+ .279	- .034	0	0
Socony Mobil Oil Co.	- .197	+ .214	- .223	+ .594	- .424	+ .021	- .093	0	0
Standard Oil Co. (California)	- .284	+ .644	+ .460	- .964	+ .438	- .307	- .013	.039	.021
Standard Oil Co. (Indiana)	- .045	+ .610	- .968	+1.211	- .736	- .051	- .062	0	0
Standard Oil Co. (New Jersey)	-1.631	+3.191	-2.268	- .619	+1.349	- .244	- .019	0	0
The Texas Co.	-1.102	+1.526	-1.197	+ .252	+ .126	+ .040	- .147	0	0
Union Carbide Corp	- .098	- .325	+ .355	- .320	+ .548	- .203	- .163	0	0
United States Steel Corp	+1.385	³ ⁴ -3020.960	³ -9.159	³ +9.347	+ .342	-1.358	- .039	.142	.128
Westinghouse Electric Corp.	- .018	-17.190	+ .525	+ .062	+ .171	- .751	+ .052	.059	.042

¹ Equation is $\frac{P_t}{P_t} = 1 + b_1 \frac{M_{t(t-1)}}{M_{t(t-1)}} + b_2 \frac{M_{t(t-2)}}{M_{t(t-2)}} + b_3 \frac{M_{t(t-3)}}{M_{t(t-3)}} + b_4 \frac{M_{t(t-4)}}{M_{t(t-4)}} + b_5 \frac{M_{t(t-5)}}{M_{t(t-5)}} + b_6 \frac{P_{t(t-5)}}{P_{t(t-5)}}$

P is fund net purchases in \$100,000; *P*_t is fund net purchases of security indicated.
*M*_t is price per share of security indicated, adjusted for stock splits, etc.
M is Standard and Poor's composite stock index.

² See the following:
 $\bar{R}^2_{.123456}$ is based on all 6 independent variables. $\bar{R}^2_{.12345}$ excludes fund net purchases as an independent variable.

³ Regression coefficient greater than twice standard error.
⁴ This large coefficient for United States Steel is attributable principally to one very extreme observation.
