



Investment Performance and Investor Behavior

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INVESTMENT PERFORMANCE

AND

INVESTOR BEHAVIOR

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The operation and characteristics of the American securities markets have long been major preoccupations of financial research, especially during the last decade. Particular attention has been devoted to the question of whether there exist investment strategies, or investing entities, capable of producing consistently superior investment performance. The general consensus to date is that few, if any, such success stories are observable. Examinations of the value of professional investment research and counsel ([7][8][9][24]), of the payoff from technical trading rules ([11][13][18][20][26][34]), and of the investment results of institutional money management ([15][29][25][28]) have, in almost every instance, provided little indication of performance better than that attainable from a simple passive strategy of buying and holding a randomly selected, well-diversified portfolio of securities, after appropriate adjustments for portfolio risk levels are taken into account. The intensive competition in, and rapid information-digesting properties of, the capital market environment have been cited as explanations ([2][5][12]).

Until recently, however, only a small portion of this research has dealt directly with individual investors, and none has considered the actual--as opposed to simulated or inferred ([3][16][17])--investment performance of individuals. The problem has been lack of useful data. Our objective in the present paper is to fill at least part of that vacuum with data which document the securities trading activities of a large sample of such individuals, to offer some evidence therefrom of concentrations of superior acumen, and to seek the origins of the observed performance differentials.

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I. The Sample and the Data

The investor group at issue is a subset of the clientele of one of the major national retail brokerage houses. It is comprised of individuals who had accounts continuously open with the firm over the full period from January 1964 through December 1970, and represents a 10-percent random sample from the list of all customers who had such an ongoing relationship. While the sample was stratified geographically to match the distribution of the total population of the U. S. securityholders [27], no criteria of account activity or size were imposed in the selection process. Hence, a wide array of individual circumstances and trading patterns is encompassed by the group. The sample requirement of account longevity was designed simply to allow a meaningful history of investment performance to be constructed for each individual, for purposes of analysis and cross-comparison. The period chosen for investigation spans a variety of external market conditions, including three substantial upward and two significant downward extended movements in the general level of securities prices. Over the full interval, investments in the securities comprising the popular stock market indices would have produced approximately a 7-percent-per-annum-compounded rate of return, including dividend receipts.

The cooperating brokerage firm supplied a complete daily record of all the securities transactions executed in the 2500 accounts thus selected. During the seven-year study period, there were some 300,000 such events, of which approximately 200,000 represented trades in common stocks. We shall be concerned here only with the latter. In addition, the firm provided a mailing list of the customers involved, and each was sent a lengthy questionnaire requesting information on demographic characteristics, investment objectives, decision-making approaches, portfolio strategies, and opinions about the securities markets. The questionnaire was mailed in mid-1972, and just under 1000 usable completed forms were returned. Each was matched to the underlying transactions data for the particular account in question, in order that the linkages between investment style and performance, and individual circumstances and decision processes, could be explored. The combined body of evidence, therefore, consists of an exhaustive record of investment actions, coupled with a comprehensive profile of the attributes and attitudes of the associated investors.

In part, of course, the import of that evidence depends upon the extent to which the sample chosen is representative of the broader community of investors. We have addressed this issue in detail previously ([21][23]), and established that the demographic composition of the questionnaire respondents fits well both the pattern of the general U. S. shareholder head-of-household population [21] and the pattern of the respondents to a "control group" questionnaire sample which was selected from all the accounts of the brokerage firm involved, without regard to account longevity. Moreover, it was impossible within the studied sample to distinguish the questionnaire respondents from the nonrespondents on the basis of some 20 measures of account activity developed from the transactions file--these including trading volume, trading frequency, transaction type, securities selected, and so on [21]. Accordingly, we believe the group to be a sufficiently representative one as to merit close scrutiny for

its broader implications for individual investor behavior and performance.¹ That belief notwithstanding, there is clearly an adequate range within the sample itself of personal circumstances, investment styles, trading strategies, and decision approaches [23], to allow our primary objective here--an examination of cross-sectional patterns of investment performance differences--to be accomplished with confidence.

II. Measurement of Performance

The investment results on which we shall concentrate consist of the realized returns on all the completed common stock investment events--i.e., "round trips" from security purchase to sale, or short sale or subsequent coverage of the position--which took place in the sampled accounts between 1964 and 1970. There were 75,123 such round trips observable for the account group over that interval.² For each one, both a pre- and post-transactions-cost internal rate of return were determined, by merging the execution-price and brokerage-commission figures in the transaction file³ with a supplementary securities data base containing information on dividend payments, stock splits, and stock dividends for the traded shares. The calculated rates for the particular round trip are those which render the present value of the identified cash dividend receipts and recorded terminal sale price of the shares equal to the initial purchase price.⁴ They were computed for the precise calendar interval involved, in the form of a continuously-compounded annual rate, in every instance. In all, the round trips encompassed some 3500 different securities, including all NYSE and ASE listed shares, plus approximately 1200 additional common stocks traded over the counter or listed on one of the regional securities exchanges. A total of 19.2 million days of combined investment experience is represented therein, for the sample as a whole.

¹We are presently in the process of updating the securities transaction data for the sample to mid-1978, and compiling similar data for a new, more recent sample--in both instances to treat performance for the substantially different market conditions of the early 1970s.

²In sorting through the transactions file to identify the round trips, a "first-in-first-out" cycle convention was adopted for each account. Thus, if an investor purchased 100 shares of a particular security in January of 1964 and another 100 in March, followed by sales of 100 shares each in July and September, the assumed round-trip match-ups were January-July and March-September, respectively. See [29].

³The standard odd-lot trading price differential was treated as a transaction cost in this connection, as was the New York State securities transfer tax, where applicable [29].

⁴All transactions were evaluated as if executed on a cash basis, with no allowance for margin financing or loan costs. Our feeling was that the actual financing underpinnings of a particular trade are difficult to trace, whether it was recorded formally as a cash transaction or not, since it is really the total balance sheet liabilities of the investor that support his or her asset acquisitions. Accordingly, the calculated rates of return obtained are prefinancing, "pure" investment returns throughout.

A summary of the overall round-trip rate of return results is provided in Table 1, along with a synopsis of certain key characteristics of the round trips themselves. In that summary, the rate of return on each round trip is weighted for purposes of averaging by the duration of the associated investment cycle, i.e., by the number of calendar "position days" involved. In this fashion, brief round trips impact the composite record less than do extended ones, and the indicated mean returns denote, in effect, the (continuous) annual rates at which the wealth of the typical individual investor in the sample would have grown during the seven years studied had he or she engaged in a series of investment cycles whose performance just matched those of the round trips observed for the group as a whole.⁵

Figures are presented for four such measures of investment yield--two "raw" and two "relative." The raw returns are the pure internal discounted-cash-flow rates, before and after transactions costs, for the identified round trips, as described above. The mean values are, respectively, 9.9 percent and 5.5 percent per annum. Obviously, commission charges and transfer taxes had a significant impact on realized net investment results. The two relative-return tabulations record the annualized performance differentials between the various round trip outcomes and the returns which might have been realized in every case, over exactly the same calendar interval, from an investment in a fully-diversified portfolio of securities of comparable risk.

The latter benchmarks were obtained by deriving, for each of the 84 months in the 1964-70 study period, the empirical risk/return relationship which prevailed in the equity securities market, in what is by now standard fashion in the literature. For this purpose, a value-weighted index portfolio of all NYSE and ASE listed shares was created, and a preliminary systematic risk measure $\hat{\beta}_i$ estimated for each of the separate securities therein by regressing their individual weekly rates of return on the corresponding weekly returns of the index, over the 78 weeks (July 1962 through December 1963) immediately preceding the beginning of our investigation period. The securities were, accordingly, ranked from highest to lowest by these $\hat{\beta}_i$ and grouped into 20 equally sized subportfolios of descending relative risk, as of January 1964. A $\hat{\beta}_p$ for each portfolio was thereupon estimated by regressing its (value-weighted) return in each month from January 1964 to June 1967, on the concurrent monthly NYSE/ASE index return. The relevant market risk/return profile for the first half of our study period was then established from separate cross-sectional regressions executed for each of the

⁵As an illustration, suppose the record consisted entirely of just three completed round trips: one of nine months' duration, involving a purchase at \$10 and a sale at \$15; one of eleven months, with purchase at \$30 and sale at \$36; and one lasting four months, in which the purchase was at \$12 and the sale at \$16. The computed investment returns by our procedures would be $r_1 = (4/3)[\log(1.5)]$, $r_2 = (12/11)[\log(1.2)]$, and $r_3 = (3) [\log(1.333)]$, as ¹continuous annual yields. Had an individual invested one dollar in the first round trip, reinvested the proceeds in the second, and then put those proceeds into the third, that dollar would have grown to \$2.40 by the end of the two years of combined investment security represented. The implied realized annual rate of return would be $r = (9/24) (r_1) + (11/24) (r_2) + (4/14) (r_3)$, and that value would be reported here as the sample mean.

TABLE 1

REALIZED ANNUAL RATES OF RETURN ON INVESTMENT
 ROUND TRIPS: TOTAL SAMPLE DATA
 [N=75,123]

	Actual Rates of Return:		Risk-Adjusted Differential Rates of Return:	
	Before Transactions Costs	After Transactions Costs	Before Transactions Costs	After Transactions Costs
<hr/>				
Decile Boundary Points of the Distributions:				
Decile #1	-39%	-44%	-38%	-42%
Decile #2	-15%	-18%	-18%	-21%
Decile #3	- 4%	- 6%	- 9%	-11%
Decile #4	3%	1%	- 3%	- 5%
Decile #5	8%	6%	2%	0%
Decile #6	14%*	12%	7%	5%
Decile #7	22%	19%	14%	12%
Decile #8	34%	30%	25%	22%
Decile #9	55%	50%	44%	40%
Distribution Mean	9.9%	5.5%	4.5%	0.1%
Distribution σ	70%	67%	66%	63%

* Read: 60 percent of all the round trips produced rates of return of 14 percent or less per annum.

Characteristics of the round trips:

Round Lots . . . 77%	Long Positions . . . 97%
Odd Lots 23%	Short Positions. . . 3%
NSYE Securities 58%	
ASE Securities 28%	
OTC/Regional 14%	

42 months involved, on the observed returns of the created subportfolios. This procedure was repeated for the interval July 1967-December 1970, the applicable subportfolios for that purpose being created from $\hat{\beta}_1$ estimates based on monthly returns for January 1964 to June 1967. Finally, a revised $\hat{\beta}_1$ for every security in which an investment round trip was undertaken by the sample during the period was derived by regressing its 84 monthly returns for 1964 through 1970 on those of the full value-weighted index.⁶ With that as the standard, the risk-adjusted benchmark return criterion for the individual round trip consisted of the continuously-compounded annualized rate of return which could in fact have been realized, over the specific calendar interval in question, from investment in a diversified assemblage of equities of matching systematic risk (equivalent β). For round trips that spanned more than a single month, the monthly benchmark return measures were linked to provide the appropriate comparisons; within months, the latter were obtained by interpolation.⁷ The relevant procedural precedents and attendant rationales for the indicated approach have been amply developed elsewhere ([2][4][14]). Additional details on their application to the present analysis may be found in ([29][30][31][35]).

As can be seen in Table 1, the investment performance picture which emerges for the investor sample from these risk-adjusted appraisals is one which implies that, on the whole, the securities trades executed produced returns comfortably in excess of the typical comparable "market" outcome before transactions costs, and approximately equal to the market after such costs, over the 1964 through 1970 period considered. The second comparison, of course, is a stern one since no allowance for transactions costs is imbedded in the benchmark returns employed. These findings, however, are discussed at length in ([29][30]), and are not our major concern at the moment.⁸ Rather, it

⁶A monthly return measurement interval was adopted simply because the available summary securities price data base [29] contained only month-end closing prices, except during the July 1962 to December 1963 period noted.

⁷Thus, if a given round trip ran from March 15 to April 15, the risk-adjusted benchmark return was computed as 16/21 times the March continuous-rate figure for the beta level involved, plus 5/21 times the April counterpart.

⁸One of the issues therewith is the possibility that the investment results in question may contain a "success bias" since they relate to an investor sample which had a long-term relationship with the cooperating brokerage house. Such investors might be expected to have been the more successful of the firm's customers, their less fortunate brethren moving on to other firms or leaving the market entirely. This possibility was tested by measuring the investment performance on a sample of roughly 1000 "control" customers of the firm selected at random without imposing an account longevity criterion. If anything, the control group's trades exhibited somewhat better round-trip rates of return than did those of our main study group [29]. Similarly, an examination of the portion of the study group's stock portfolios which did not turn over during the investigation interval revealed accrued returns which matched almost exactly the rates observed for the completed round trips considered here [30]. Hence, a success bias would appear not to be a serious problem in the data.

is the variations in investment experience across the various individual investors involved which is of present interest. The wide dispersion in the investment results documented in the tabulations for the distributions of all four round-trip rate-of-return measures suggests strongly--and, as it happens, accurately--that there may indeed be substantial differences among the individuals who undertook them as well.

III. Performance Groupings

That phenomenon was addressed by sorting the indicated round trips by account designation and calculating, for each of the 2500 investors in the sample, the mean return realized on all the round trips executed by the individual during the seven years at issue, as his or her combined measure of performance. As noted above, the return on each completed investment cycle was weighted by its duration to obtain these averages. The investor list was then "filtered," and any individual who undertook fewer than five round trips or had fewer than one full year's investment position-day experiences represented in the round trips, was eliminated from consideration. This was done in order that one or two aberrant round trip outcomes not dominate the separate investor performance statistics.⁹ After filtering, the sample was arrayed from highest to lowest, by the mean returns identified, on each of the four performance criteria described earlier and recorded in Table 1. The resulting array, which contained 1581 investors who met the two filter tests, was then divided into quintiles of approximately 316 accounts apiece, within each of the four investment return indices.¹⁰ These quintile memberships thereby comprise the individual investor "performance classes" to be analyzed.

The rationale for grouping is straightforward. Previous experience with the data for the sample ([6][22][23]) indicated that there were significant amounts of individual-account "noise" in most aspects of the behavior, attitudes, and investment postures of the investors in question. This would be expected from the intensely personal character of the investment decision process and the inherently multidimensional nature of the potential decision parameters and influences. It is also consistent with the findings of marketing research into the determinants of consumer behavior ([1][10][33]), which suggest that a segmentation of responses by groups rather than by individuals is as much as can reasonably be expected in most situations. We therefore felt that it was more fruitful to seek to identify the broad common characteristics which distinguish among investor classes, rather than to hope to explain well the features of specific individual behavior, and be content with whatever success we could achieve in that regard.

⁹*While these particular filter thresholds--designed to eliminate the influence of any peculiarities in very infrequent-trading accounts--are arbitrary, alternative such parameters were tested and produced little impact on the findings.*

¹⁰*The fact of a few "ties" in aggregate rate-of-return experience among accounts causes the quintile memberships to vary slightly from exactly 316 each.*

In this fashion, hopefully, most of the nonsystematic personal-peculiarity phenomena involved would be neutralized, leaving the important group discriminating features both intact and detectable.¹¹

On that basis, the investor performance quintiles which emerged are delineated in Table 2. Clearly, there do exist substantial differences across the groupings in realized investment results. In the case of the raw pretransactions-cost round-trip outcomes, the mean rate of return experienced between 1964 and 1970 by the investors in the lowest-performing quintile was a (dismayingly) negative 14.2 percent per annum, whereas the members of the top quintile enjoyed an average 35.8 percent per annum positive return.¹² A similarly wide dispersion in realized yields is visible in the other

TABLE 2
INVESTOR PERFORMANCE QUINTILE GROUPINGS

Performance Quintile	Mean Rates of Return			
	Actual		Risk-Adjusted	
	Before Transaction Costs	After Transaction Costs	Before Transaction Costs	After Transaction Costs
#1	35.8% (319)	29.8% (318)	23.4% (319)	17.6% (317)
#2	17.5% (318)	13.1% (316)	7.4% (315)	3.2% (317)
#3	10.1% (316)	6.1% (318)	1.1% (317)	-2.9% (319)
#4	2.8% (318)	-1.4% (315)	-4.8% (315)	-9.3% (316)
#5	-14.2% (310)	-21.7% (314)	-20.1% (315)	-28.2% (312)

[Figures in parenthesis denote the number of investors in each quintile.]

¹¹A decision to divide the sample into five--instead of, say, four, six or ten--performance subgroups, of course, is largely a matter of taste. We sought simply to have each such subgroup contain an ample membership, and were attracted to an odd number of groupings just so there would be a "middle" category available. Selected tests of alternative quartile and decile separations yielded unchanged analytical results.

¹²Within the quintiles, the mean returns were derived in the form of simple averages of the time-weighted individual account returns.

three performance arrays as well, and the across-group differences involved are all statistically significant. Thus, an analysis of variance within each array on the return quintile groupings produced ANOVA F values sufficiently high as to conclude that every group's investment results differed from those of each of the other four in every case at well beyond the .01 confidence level. A definite pattern of distinctively different investment performance categories, therefore, seems in fact to be present within the sample.

One unsurprising feature of these categories is that their membership exhibits a fair degree of commonality across the four investment return measures at issue. In particular, individuals who had especially good investment performance in terms of raw pre-transactions-cost realized rates of round-trip return, also generally enjoyed good performance net of those costs. To a somewhat lesser--but still quite noticeable--extent, their risk-adjusted "excess" performance tended typically to be in the upper ranges for the sample as well. This pattern can be seen in Table 3, which presents a cross-classification analysis of the overlap in the relevant quintile memberships for two of the return measure linkages: (1) between the raw pre- and post-transaction-cost performance groupings, and (2) between the raw pre-cost and risk-adjusted pre-cost categories. Obviously, good performance by an investor according to one standard also usually means good performance by the others.¹³ There are, however, some differences of interest that can be discerned upon further analysis, and we shall address these below.

Of equal or greater interest is the nature of the composition of good performance within accounts. It could be, for example, that a "successful" investor--by our definition, an upper-quintile mean-return member--is one who simply occasionally enjoys a very sizable, and perhaps entirely accidental, round-trip trading profit which dominates his or her overall investment results and more than makes up for a large number of other poor or mediocre trades; the opposite might be true of individuals who appear here to be "unsuccessful" investors. Were this the case, of course, the usefulness of our mean-return classification scheme for distinguishing good and bad investment experiences across individuals would be compromised, as would our contention that meaningful internally-homogeneous performance subgroups exist. Fortunately, this does not appear to be a problem.

To consider the possibility of such a distortion, two measures of investing "consistency" were developed for each of the four return measures under examination, for each investor account in the sample. The first recorded the percentage of the observed round trip investment cycles completed in the account during the 1964-70 study period, for which the net returns were positive; the second recorded the percentage of the total investment position-days thereby encompassed which were associated with positive rate-of-return events.

¹³A conclusion which is buttressed by examination of the correlations among the four return measures for each account themselves. All exceeded 0.83, and only two were below 0.90.

TABLE 3

CROSS-CLASSIFICATION ANALYSIS OF PERFORMANCE
QUINTILE MEMBERSHIP SIMILARITIES

A. Groupings by Actual Pre-Transaction-Cost Returns, and by Actual Post-Transaction-Cost Returns:

Post-Cost Quintile	Pre-Cost Quintile				
	#1	#2	#3	#4	#5
#1	.87*	.12	.01	-	-
#2	.13	.72	.11	.04	-
#3	-	.17	.68	.13	.02
#4	-	-	.20	.71	.09
#5	-	-	-	.12	.88

Probability of Independence < .001

B. Groupings by Actual Pre-Transaction-Cost Returns, and by Risk-Adjusted Pre-Transaction Cost Returns:

Risk Adjusted Quintile	Actual Return Quintile				
	#1	#2	#3	#4	#5
#1	.76	.21	.02	.01	-
#2	.18	.53	.25	.04	-
#3	.05	.22	.46	.25	.02
#4	.02	.03	.24	.57	.14
#5	-	.01	.02	.13	.84

Probability of Independence < .001

*Read: 87 percent of the accounts in the top precost return quintile were also in the top postcost one.

Thus, if an individual were seen to have engaged in 10 investment round trips, of which 9 yielded positive raw pre-transactions-costs rates of return, 8 provided positive raw postcost rates, 6 generated precost returns in excess of our matched risk-adjustment performance benchmarks established for the separate investment cycles, and 5 gave rise to postcost rates that exceeded those same benchmarks, the first (unweighted) consistency measure for the individual would take on the values 0.9, 0.8, 0.6, and 0.5 for the four performance indices, respectively. If the investor's 9 positive pre-transaction-cost raw rate-of-return round trips spanned 1500 calendar days in all, and the one negative-return round trip lasted 500 days, the second (weighted) consistency statistic would be set at 0.75 for that performance index--and so on down the line for the other three, each in its own terms. Such measures were determined for all 1581 individual accounts in the sample, and they were divided into quintiles along each of those dimensions.

As Table 4 illustrates, there is a very high degree of association between the relevant "performance" and "consistency" quintile-group memberships. Cross-classification matrices are shown for two of the four performance standards at issue, for both of the applicable consistency measures derived. The other two are virtually identical, in pattern and in strength. Accordingly, there is every indication that overall investment success on the part of a given individual is produced not merely by an occasional big win, but rather by the accumulation (concentration) of a series of consistently profitable separate trades--lending credence to the characterization here of the identified investor performance quintile categories as legitimate subgroups displaying in fact distinctively different levels of realized investment experience and, presumably therefore, of investment expertise as well.¹⁴

IV. Performance Correlates

The question of expertise, of course, is a murky one. A (statistically significant) disparity in investment performance results of the sort discovered may well emerge from examining the securities trades of any large sample during a particular time period, and there is no guarantee that superior performance within one interval by an individual can be duplicated in a subsequent one. Similar reservations with regard to the secular character of institutional portfolio performance have been expressed in the literature [32]. It is possible, on the other hand, at least to investigate those attributes of the investor and his or her investment decision posture which were associated with good and poor return performance during the period at issue, and to consider the potential implications thereof, if any, for the matter of expertise. Indeed, the rich body of data available here about the characteristics and trading behavior of the investor sample involved makes the topic of performance correlates sufficiently interesting in its own right--whatever the inferences drawn about investment acumen--as to merit some attention.

¹⁴*Direct regressions of the performance on the performance-consistency measures reinforce the point. All the slope coefficients were positive and highly significant (.001 level or better).*

TABLE 4

INVESTMENT PERFORMANCE AND INVESTMENT
RETURN CONSISTENCY: CROSS-CLASSIFICATION ANALYSIS

A. Groupings by Mean Pre-Transactions-Cost Rates of Return,
and by Consistency of Positive Return Realization:

Performance Quintile	Unweighted Consistency Quintile:				
	#1	#2	#3	#4	#5
#1	.63	.22	.09	.05	-
#2	.24	.38	.24	.11	.02
#3	.08	.22	.29	.27	.14
#4	.04	.13	.20	.32	.31
#5	.01	.05	.17	.25	.53
(Quintile Mean)	*(92%)	(77%)	(67%)	(57%)	(38%)

Probability of Independence < .001

Performance Quintile	Weighted Consistency Quintile:				
	#1	#2	#3	#4	#5
#1	.65	.22	.10	.02	-
#2	.25	.37	.24	.13	.02
#3	.06	.25	.30	.23	.15
#4	.03	.11	.22	.34	.30
#5	.01	.05	.14	.27	.53
(Quintile Mean)	(95%)	(78%)	(66%)	(53%)	(30%)

Probability of Independence < .001

*Read: Investors in the top consistency quintile experienced positive pre-transactions-costs rates of return on 92 percent of their completed investment round trips.

TABLE 4 (Continued)

B. Groupings by Mean Post-Transactions-Cost Rates of Return, and by Consistency of Positive Return Realization:

Performance Quintile	Unweighted Consistency Quintile:				
	#1	#2	#3	#4	#5
#1	.59	.26	.10	.04	-
#2	.28	.35	.25	.09	.03
#3	.07	.29	.32	.26	.06
#4	.05	.08	.20	.38	.29
#5	.01	.03	.13	.23	.61
(Quintile Mean)	(89%)	(72%)	(61%)	(51%)	(32%)

Probability of Independence < .001

Performance Quintile	Weighted Consistency Quintile:				
	#1	#2	#3	#4	#5
#1	.64	.26	.08	.01	-
#2	.26	.40	.22	.11	.01
#3	.08	.23	.35	.25	.09
#4	.02	.07	.26	.34	.31
#5	.01	.04	.08	.30	.58
(Quintile Mean)	(93%)	(74%)	(61%)	(48%)	(26%)

Probability of Independence < .001

We shall address that topic from three perspectives: (1) what visible elements of securities trading activities appear to have been linked to the differential individual investment performances observed; (2) who were the investors, as judged by personal-circumstance (demographic) attributes, that were the most successful; and (3) how did they go about achieving success, in terms of the investment strategies and security-selection decision procedures they reported themselves as following? The first of these phenomena deals with the "hard" data in the underlying investor transactions file, while the latter two treat the "softer" evidence contained in the questionnaire responses received from our survey of the account sample.

The approach taken will be to attempt to distinguish among the derived investor performance quintile groupings, primarily by means of multiple discriminant analysis, where the independent variables are the respective indicated dimensions of trading behavior and investor characteristics. This approach fits our emphasis on broad group differences as the most promising avenue of inquiry, does not impose any a priori stipulations as to the unidirectional character of the possible influences of the independent variables, and accommodates readily the multiplicity of categorical--rather than ordinal or continuous--variables from the questionnaire forms. Since our goal at the moment is to identify the linkages to observed investment performance differentials, not to predict,

the full sample has been included in the MDA runs. Certain selected cross-classification and regression analyses will be offered, where appropriate, as well. The degree of success achieved in the search for these origins of investment return differentials was, as we shall see, somewhat uneven.

V. Elements of Trading Behavior

Perhaps predictably, the most pronounced pattern of intergroup performance correlates emerges when the concrete dimensions of investor trading activity and style are employed as the independent variables--predictable in the sense that investment success is obviously determined by what the investor does, even though the sorts of individuals doing it and their internal rationales for so behaving may be difficult to trace further. The relevant independent variables are listed in Table 5.¹⁵ They represent some dozen separate measures of the trading characteristics of the investors in the sample, defined for them in every instance for the 1964-70 study period as a whole, as derived from the master transactions file. They encompass indices of trading frequency and volume, of round trip timing and duration, and of "specialization" in certain market locales, security categories, and transaction types.

The results of stepwise multiple discriminant analyses on each of the four investment-performance-standard quintile groupings described above are presented in Tables 6 and 7. Within each, the variables are tabulated in order of the sequence of their entry as contributors to the discriminant function, and those for which a univariate F test indicates statistical significance across the quintile subgroups at either the .01 or .05 confidence level are noted. All four discriminant functions are themselves significant at the .01 level, and each correctly classifies approximately 32 percent of the sample subjects into the proper performance quintiles, where the best "naive" scheme would correctly classify just 20 percent (by random allocation among the five equal subgroups). Hence, there are some detectable intergroup trading differences which are associated with variations in realized investment performance.

The pattern involved is intriguing in several aspects. Contrary to what might have been expected, the apparent influence of a number of the variables is not in fact unidirectional. In particular, it is often the case that the best and worst performance quintiles share common attributes, on which dimensions they stand out from the three middle groups of their peers. Thus, both the top and bottom quintiles tend (1) to have specialized their trading activities in a relatively smaller number of securities than the other three investor categories identified, (2) to have invested especially heavily off the NYSE in ASE, OTC, and regional-exchange stocks, and (3) to have concentrated in the process on higher-risk (i.e., higher beta) such securities. Significant differences along these lines are visible in all four performance arrays.

¹⁵*The NYSE-stock trading percentage, of course, is the complement of the ASE/OTC/Regional percentage, and is omitted because it is thus linearly dependent. The same is true of the cash transaction (non-margin) percentage, and the "long" position percentage, as complements of the respective included variables.*

TABLE 5

DIMENSIONS OF INVESTOR TRADING BEHAVIOR

[All variables defined for 1964-70]

<u>Variable</u>	<u>Description</u>
NSTOCK	Number of different firms whose common shares were traded by the investor.
NTRANS	Number of securities transactions executed.
NTRIPS	Number of completed investment round trips.
BEGDAY	Mean initiation date of the round trips.
AVEDAYS	Mean duration of the round trips (days).
VOLUME	Total dollar volume of transactions executed (\$Thousands).
AVESHRS	Mean number of shares per transaction.
BETA	Mean β of the stocks traded.
PCTMARG	Percentage of transactions dollar volume executed on a margin basis.
PCTSHRT	Percentage of transactions dollar volume accounted for by short sales.
AMEX/OTC	Percentage of transactions dollar volume involving stocks listed on the American Stock Exchange, over-the-counter securities, or stocks listed on a regional exchange.

Where the two groups diverge in their market behavior is in the character of their respective transactions and--as the performance standard at issue moves from a before-transactions-cost to an after-transactions-cost return measure--in the frequency and duration of their investment cycles. The top performance quintile invariably engaged in the smallest percentage of margined and short-sale trades, and the bottom quintile is invariably at or near the upper end of the spectrum.¹⁶ Similarly, although the average duration of the investment round trips involved was noticeably longer for the bottom performance quintile than for the top one in the pre-transactions-cost rankings, exactly the opposite is true of the postcost schedules. Finally, while the two indices of trading frequency created--total number of transactions executed during the seven years and total number of round trips undertaken--make no contribution to explaining pre-transactions-cost performance differentials, the best-performing quintile is consistently (and significantly) the least-frequent trading one when transactions costs are considered and is, in that regard, consistently well below the poorest quintile.

¹⁶As noted earlier, however, the round-trip rates of return themselves were computed without deducting financing, and its costs, for either margin or short trades.

TABLE 6

MULTIPLE DISCRIMINANT ANALYSES OF INVESTMENT PERFORMANCE
DIFFERENCES, BY INVESTOR TRADING BEHAVIOR DIMENSIONS:
ACTUAL RATES OF RETURN

Trading Behavior Variable	Univariate Significance	Variable Means, for Investor Performance Quintile:				
		#1	#2	#3	#4	#5
A. Before-Transactions-Costs Rates of Return:						
AMEX/OTC	.01	.42	.32	.29	.30	.35
AVEDAYS	.01	308	387	440	441	386
BEGDAY	.01	594	569	574	599	681
PCTMARG	.01	.27	.34	.35	.34	.35
NSTOCKS	.01	30	39	35	34	28
BETA	.01	1.44	1.37	1.32	1.29	1.41
VOLUME	-	\$287	\$478	\$532	\$400	\$358
NTRANS	-	94	119	111	101	84
NTRIPS	-	43	54	51	45	39
AVESHRS	-	130	116	125	127	125
PCTSHRT	-	.02	.02	.02	.02	.02
B. After-Transactions-Costs Rates of Return:						
AVEDAYS	.01	366	437	422	427	308
BETA	.01	1.43	1.33	1.33	1.29	1.44
NSTOCKS	.01	27	35	38	37	30
BEGDAY	.01	546	566	582	623	701
PCTMARG	.01	.26	.31	.34	.35	.39
AMEX/OTC	.01	.39	.32	.29	.30	.38
NTRIPS	.01	29	41	64	54	45
NTRANS	.01	71	99	131	94	115
PCTSHRT	.01	.01	.01	.02	.03	.03
AVESHRS	-	130	117	123	125	128
VOLUME	-	\$262	\$340	\$572	\$489	\$392

[Variables listed in stepwise entry order.]

TABLE 7

MULTIPLE DISCRIMINANT ANALYSES OF INVESTMENT PERFORMANCE
DIFFERENCES, BY INVESTOR TRADING BEHAVIOR DIMENSIONS:
RISK-ADJUSTED RATES OF RETURN

Trading Behavior Variable	Univariate Significance	Variable Means, for Investor Performance Quintile:				
		#1	#2	#3	#4	#5
A. Before-Transactions-Cost Rates of Return:						
AMEX/OTC	.01	.41	.33	.29	.30	35
AVEDAYS	.01	315	383	443	448	372
NSTOCKS	.01	30	39	35	34	27
PCTMARG	.05	.28	.36	.35	.32	.35
BETA	.01	1.40	1.32	1.34	1.34	1.43
PCTSHRT	-	.02	.02	.02	.02	.03
NTRANS	-	97	114	110	104	85
NTRIPS	-	45	50	52	47	40
VOLUME	-	\$309	\$416	\$459	\$478	\$394
AVESHRS	-	133	125	121	118	128
BEGDAY	-	647	603	573	576	616
B. After-Transactions-Cost Rates of Return:						
AVEDAYS	.01	377	411	472	413	285
BETA	.01	1.38	1.31	1.31	1.36	1.46
NSTOCKS	.05	28	36	34	37	32
PCTSHRT	.01	.02	.02	.02	.02	.03
AMEX/OTC	.01	.39	.30	.29	.33	.37
PCTMARG	.01	.26	.35	.31	.36	.39
NTRIPS	.01	30	43	45	62	53
NTRANS	.05	74	102	100	127	107
VOLUME	-	\$246	\$351	\$461	\$492	\$506
BEGDAY	-	619	584	586	592	635
AVESHRS	-	130	124	122	120	129

[Variables listed in stepwise entry order.]

The sort of summary picture which emerges, therefore, is that of two distinct trading approaches being applied to a similar clientele of securities. There was, it would seem, money to be made between 1964 and 1970 in high-beta, non-NYSE common stocks. However, individuals who pursued those possibilities through frequent, repetitive, short-term, heavily-margined purchase-and-resale cycles in fact ended up doing very poorly, even though their more patient (or more tenacious) brethren simultaneously did quite well. Given the favorable market conditions at the time for "lower tier" securities [29], and the lessons of previous empirical research into stock price movements ([13][20][34]), that scenario has certain plausibility. It is, in any case, generally supported by our data.

Those data also illustrate the logic of risk-adjusted return measures which control for concurrent broad stock price movements. In Table 6, there is evidence that the timing of the securities purchases in question had a noticeable effect on realized returns. Thus, the poorest-performing investor quintile was the one whose round trip investment cycles took place latest in the period considered--i.e., had the highest mean trading initiation date (BEGDAY), where January 1, 1964, was defined as day number one. Since the market environment was least favorable during the later years involved (1969-70), this is a reasonable finding. In the risk-adjusted framework of Table 7, on the other hand, the mean round-trip initiation date disappears as a significant discriminating variable, as rates of return are compared with those which were experienced at the same times by like securities. There is some comfort in that outcome.

Noteworthy as well is the fact that two of the variables listed entered nowhere as correlates of performance differentials--the total dollar volume of trading by the investor, and the mean number of shares per transactions. Both are implicit--if imperfect--surrogates for investor wealth. In effect, then, large (as opposed to frequent) traders who acquire sizable blocs of shares seem to have done neither better nor worse than smaller investors, at least on the basis of the data available here.¹⁷

These various findings are drawn together in Table 8, which records the trading activity dimensions that are statistically significant in each of the four performance quintile arrays, along with the observed direction of their apparent influences. The designation "x" refers to variables for which the two extreme quintiles stand out similarly from the other three. The overall pattern for the period investigated is that of generally superior performance results for investments in relatively risky, non-NYSE stocks, coupled with a substantial visible impact of transactions costs, "speculative" investment styles, and--in terms of raw rates of return--poor market timing.¹⁸

¹⁷A vague, although not statistically significant, negative association between volume and performance can perhaps be discerned in the after-transactions-cost quintile groupings. Presumably, this is a reflection of the frequency as well as size aspect of trading volume, which is picked up directly elsewhere.

¹⁸As we anticipated, given the individual-investor "noise" phenomenon mentioned above and the lack of directional consistency in several of the variables' influences, regressions of the performance measures on the trading activity dimensions yielded mostly poor results. Typically, less (Footnote 18 continued on next page.)

TABLE 8

PROFILE OF TRADING BEHAVIOR CORRELATES
OF INVESTMENT PERFORMANCE

Actual Rates of Return		Risk-Adjusted Rates of Return	
Before Transactions Costs	After Transactions Costs	Before Transactions Costs	After Transactions Costs
AMEX/OTC(x)	AMEX/OTC(x)	AMEX/OTC(x)	AMEX/OTC(x)
BETA(x)	BETA(x)	BETA(x)	BETA(x)
NSTOCKS(x)	NSTOCKS(x)	NSTOCKS(x)	NSTOCKS(x)
AVEDAYS(-)	AVEDAYS(+)	AVEDAYS(-)	AVEDAYS(+)
PCTMARG(-)	PCTMARG(-)	PCTMARG(-)	PCTMARG(-)
BEGDAY(-)	NTRIPS(-)		NTRIPS(-)
	NTRANS(-)		NTRANS(-)
	PCTSHRT(-)		PCTSHRT(-)
	BEGDAY(-)		

() Denotes Direction of Association With Performance

VI. Investor Demographics

Comparable patterns of association between the characteristics of the investors in the sample, and their investment performance experiences, are rather more difficult to detect. Neither by the use of discriminant, regression, nor cross-classification analyses were there found to be much in the way of linkages between differential investment success and customer demographics. The personal-circumstance attributes examined

18 (Cont.)

than 10 percent of the variance in the dependent variable was explained by the fitted equation. To the extent that relationships were detectable, however, they fit the pattern revealed by the MDA findings. As an example, in a stepwise regression of after-transactions-cost rates of return for each investor on trading behavior characteristics, the R^2 was .048 and only four variables emerged as having significant coefficients: BEGDAY (negative), PCTMARG (negative), PCTSHRT (negative), and AMEX/OTC (positive).

included age, sex, marital status, family size, income, occupational category, educational attainment, total asset holdings, and the percentage composition of the asset portfolio. All were derived from the responses to the questionnaire survey described earlier, to which 972 usable replies were received [21].¹⁹

When these items were added to the indicated transactions dimensions as independent variables in the discriminant analyses, the improvement in capacity to distinguish among the performance quintile groupings established was quite modest. While the discriminant functions remained highly significant, their ability to classify correctly the individual investor subjects into the proper quintile locales rose only to approximately a 35-percent success ratio--little better than the 32 percent realized from the transactions variables alone.²⁰ Equally poor results were obtained from regressions of performance on demographics, and from a variety of cross-classification attempts. The inference must therefore be that whatever caused investors to transact the way they did, and whatever gave rise to security selection acumen, it is to be found within the individual at a level not easily explainable by objective external-circumstance dimensions. While that is perhaps not surprising, it is at least mildly disappointing.

There was, for example, no indication that investment skill improved with age and investing experience²¹, that a large asset portfolio--or even a large common stock port-

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Which 972 respondents comprised the sample for the relevant analyses here, rather than the larger group--including questionnaire nonrespondents--for which transactions data were available.

²⁰*The same "filter" criteria--requiring no fewer than five securities transactions, and no less than one year of round-trip position-day investment history, during the seven-year study period--were imposed on the 972 questionnaire respondents for inclusion in the analysis. This reduced their numbers to 632. Since their performance quintile designation was maintained at that wherein they fell according to the original rate of return computations from the transactions file, however, the resulting "quintiles" had slight membership variations at this second stage. For the raw after-transactions-cost return array, as an illustration, the group membership breakdown of the 632 subjects was 110, 127, 131, 132, 132 within performance quintiles #1 through #5, respectively. Similar variations in group membership showed up in connection with the other three performance measures. The fact that they remain so close to equal membership, obviously, reinforces our earlier assertion that the respondents to the questionnaire cannot be distinguished from the nonrespondents by any measurable features of account activity or trading behavior [21].*

²¹*With regard to which, the questionnaire respondent's report of the year in which he or she first purchased shares of common stock was employed as an additional independent variable to represent "experience," to no avail.*

folio--meant greater money management expertise,²² or that male investors enjoyed trading profits any different from those of females. We tried, we must confess, especially hard to uncover some evidence of the latter--using a two-tailed significance test, we hasten to add.

The only visible signs of a link between performance and demographics, interestingly, involved investor education and income brackets, and these were counter-intuitive. Both variables were univariate significant at the .05 level, across quintiles, in all four of the performance arrays--but the relationship was negative in each case. A typical pattern was that for the risk-adjusted after-transactions-cost rate of return performance index, wherein the mean (annual) income and mean number of years of formal education reported by the respective quintile members ran as follows:

Quintile	Income	Education
#1	\$35,300	14.3 Years
#2	31,100	14.5 Years
#3	32,100	15.0 Years
#4	40,200	15.3 Years
#5	41,300	15.4 Years

A corresponding profile emerged in the other rate-of-return tableaus as well. Uniformly, the top three performance quintiles fell in significantly lower income categories (by a univariate F criterion) than the bottom two, and the top two had received significantly (if not, in absolute terms, substantially) less formal education than the rest.

As educators, of course, we find that phenomenon somewhat short of fully gratifying. It suggests that the merits of education as preparation for employment success are apparently greater than those as preparation for investment success. One possible explanation lies in the (positive) relationship observed elsewhere for the study group, between investor income level and securities trading frequency [23]. Given that the more active traders in the sample were often among the poorer performers, and given that income and education are generally positively linked, complementary relationships between income, education, and performance would not be entirely unanticipated. They are, in any case, discernible in the data. We could--but, out of timorousness, will

²²A finding that bears on the results of a previous segment of the investigation. The questionnaire data, as analyzed in [6], showed that, on a cross-sectional basis, the larger the individual investor's total asset holdings, the greater the fraction thereof committed to common stocks and other "risky" assets. The associated inference was one of diminishing absolute and relative risk aversion, in the underlying investor utility-of-wealth perceptions. A possible caveat, on the other hand, was the chance that great wealth, and high proportions of risky assets, were consequences of good investment return experiences, rather than that such high proportions represented conscious policy decisions. The evidence here that "large" investors are not the most successful ones would mitigate such a concern.

not--propose the attendant characterization that a little income, like a little education, is potentially a dangerous (investment) thing.

VII. Investment Strategies and Opinions

A search for the investment strategy and decision-making underpinnings of superior market performance yielded similarly sparse results. In that regard, a series of questionnaire items was adopted as descriptors of the individual investor's approach to managing his or her portfolio. These covered: asserted basic investment objectives (dividend income, long-term capital appreciation, short-term capital gains); specific procedures utilized for security selection (fundamental analysis, technical analysis, reliance on brokerage firm and account executive); the number of hours devoted monthly to analysis and decision-making; the amount of money spent annually to gather information and advice from financial publications, investment advisory services, and professional investment counselors; the degree of diversification sought in the portfolio; the emphasis within the portfolio on securities chosen primarily for reasons of dividend income rather than capital gains potential; and the extent to which mutual funds were employed as investment vehicles. Each represents a fairly concrete expression of a particular aspect of the individual's formulated investment posture.

As supplements to those "active" dimensions of policy, the investor was also asked on the questionnaire to indicate his or her reaction to an array of "opinion" statements --about the market environment and its impact on individual investment opportunities, and about the investor's perception of his or her role and success in that environment. These are listed in Table 9. For each, a rating of extent of agreement with the statement was requested, on a scale of one to five, where a rating of five denoted "strong agreement" and a rating of one "strong disagreement." In previous analyses of the data, such opinions have been found to be tied in frequent and systematic fashion to the observable features of individuals' securities trading activities and investment styles ([22][23]), in the sense that overt behavior was consistent with stated fundamental attitudes.

In the present context, however, there were only scattered indications that those attitudes and the attendant developed investment strategies had any detectable association with performance variations within the investor sample. Individuals who contended that they selected securities via fundamental analysis performed no differently than their "technician" contemporaries, and no differently than individuals who said they relied mostly on their account executives for trading advice.²³ Investors who reported spending substantial sums on compiling information on securities and market trends, and considerable time in analyzing that information to make security selection decisions,

²³Another aspect of such "reliance" was also examined. The master transactions file contained a designation for each trade which indicated whether it was "solicited" (undertaken at the explicit suggestion of the customer's account executive) or "unsolicited" (initiated by the customer himself). There turned out to be no significant differences across the performance quintiles in the percentage of the respective investor groups' transactions which were thus designated as "solicited."

TABLE 9

QUESTIONNAIRE OPINION VARIABLES

1. The individual investor who manages his own portfolio of stocks is likely to fare better financially than one who puts his money into mutual funds.
2. The level of risk--i.e., variability of returns--in your portfolio is substantially lower than for the average investor.
3. Given the risk level of your portfolio, your average return is substantially lower than the average market return.
4. A relatively small group of investors are making money consistently on the basis of "insider information."
5. The individual who regularly trades securities is likely to fare better financially than the individual who holds out for the long run.
6. Compared with mutual fund management fees, the brokerage commission on common stocks is excessive.
7. Security prices are not predictable in the short run.
8. The degree of diversification--i.e., the number and kind of different securities held--in your portfolio is substantially more than for the average investor.
9. The SEC regulations afford ample protection for the small investor.
10. You are substantially better informed than the average investor.
11. Relying exclusively upon mutual fund investments reduces the personal satisfaction you obtain from making your own investment decisions.
12. You prefer to take substantial financial risks to realize significant financial gains from investments.

seemed to realize profits at no higher a rate than did their more parsimonious and less studious colleagues--a finding that fits respectably, it would appear, with the accumulating empirical evidence on market "efficiency." Proclaimed portfolio objectives and diversification levels were equally invisible as performance correlates.²⁴

While in the MDA runs, a number of the relevant strategy variables displayed some suggestive patterns across the performance quintile groupings examined, almost universally they failed the necessary statistical significance tests. With those variables added, the overall discriminant functions gained just 4 percent in performance-group-membership classifying power. Regression and cross-tabulation results were comparably poor. Conceivably, some patterns will emerge pursuant to more subtle analytical techniques and an expanded data base--or perhaps upon more imaginative definitions of the relevant independent variables as indices of decision-making approaches--but the conclusion at this stage must be that no demonstrably superior standard investment strategy can be discerned in the evidence for the period studied. Money management skill properly remains to be characterized as a peculiarly individual attribute, with few perceptible objective investment policy correlates.

We can, nonetheless, report indications of at least one intriguing--though not totally startling--investment strategy dimension which was related to measured performance differences in all four of the derived rate-of-return tableaus: The percentage of the investor's portfolio which he or she regarded as comprised of securities designed chiefly to produce dividend income. The profile--which was the same and was statistically significant in every instance--is illustrated in Table 10 for the risk-adjusted after-transactions-cost rate of return performance quintile array. Invariably, the middle quintile of investors (i.e., the "average" performers in the sample) emphasized income securities most heavily, and the farther away from the middle group one moved, the lighter the emphasis. In effect, a relatively large commitment to high-dividend-yield stocks generally assured a respectable, but not outstanding, investment outcome over the calendar interval examined. By contrast, investors who instead aimed much more at capital gains either did very well or very poorly, depending on their respective skills and styles--as manifest in our discussion above of trading behavior links to performance. Such a finding has considerable credibility.

The other three investment strategy and opinion items listed in Table 10 as having significant associations with realized performance are obviously of lesser moment. They can most logically be interpreted merely as reflections of differential rate of return experiences, rather than as contributors thereto. Thus, the lower-performing sample quintiles, as judged by the results of their direct trading activities in common stocks, were more frequent owners of mutual fund shares; the lower quintiles tended--accurately--to be less than sanguine about their personal investment skills (from the ratings of item #1 in Table 9); and they reported that they gained relatively less satisfaction

²⁴*The degree of portfolio diversification involved was indexed from the replies to a questionnaire item which requested the investor to indicate the number of different firms' securities which were included in his or her total common stock portfolio. The mean in each performance quintile, for each performance measure, was between 10 and 12 securities; none of the differences was statistically significant.*

TABLE 10

STATISTICALLY SIGNIFICANT INVESTMENT STRATEGY AND MARKET OPINION
CORRELATES OF DIFFERENTIAL INVESTMENT PERFORMANCE

Variable Means, for Risk-Adjusted After-Transactions-Cost Return Quintile	Income Security Portfolio Percentage	Number Of Mutual Funds Owned	Rating of:	
			Own Investment Skills*	Satisfaction in Self Management *
#1	32%	0.50	3.7	4.1
#2	40%	0.63	3.8	4.1
#3	43%	0.81	3.8	3.9
#4	38%	0.79	3.5	3.9
#5	35%	0.83	3.4	3.8

* On a scale of one to five, where five is the highest rating.

[All variables univariate significant at .05 level.]

from portfolio self-management (item #11 above). These, of course, are not unreasonable reactions to lack of trading success.²⁵ There were, on the other hand, no signs of a "disgruntlement" phenomenon. Lower-quintile performance groups were not prone to complain particularly heavily about commission charges, "insider" trading advantages, security price unpredictability, or lack of SEC protection (items #4, #6, #7, and #9 from Table 9). Seemingly, they accepted their setbacks with equanimity.

As a final fillip, there was mild evidence that investors' return perceptions were aligned generally with their return experiences. On the questionnaire, the survey subjects were requested to estimate the average annual rates of return they had realized over the immediately-preceding five years on their direct investments in equity securities. In each of the four performance arrays, the upper-quintile groups responded with higher such estimates. The pattern for the risk-adjusted after-transactions-cost return measure was typical:

<u>Performance Quintile</u>	<u>Mean Estimated Realized Return</u>
#1	11.8%
#2	10.0
#3	9.4
#4	7.6
#5	8.4

²⁵They appeared in all four performance measure groupings as statistically significant.

This one was in fact statistically significant at the .05 level, although--despite similar profiles--only one of the others managed to pass such a formal test. A charitable observer, therefore, might infer that the sample displayed some modest capacity for realistic investment performance self-appraisal.²⁶

VIII. Summary

However that may be, the combined body of evidence cited suggests strongly that there were, during the years in question, quite distinct internally-homogeneous investment performance subgroups within the individual investor sample studied. Certain of those subgroups did extremely well--and others remarkably poorly--in their respective common stock trading activities. As importantly, both sorts of groups did so very consistently, transaction after transaction, departing from benchmark equivalent-risk market return opportunities by substantial margins throughout. Although the point is debatable, we interpret that finding as reflective not merely of the normal vagaries of fortune but, because of the internal consistency displayed, as indicative in fact of underlying differences in investment acumen as well.

The market locales, and trading style origins, of those differences turned out to be discernible in the data with some reasonable degree of success. The conclusion was that relatively risky securities, especially those traded off the NYSE, offered particular profit opportunities during the interval examined. Presumably, this implies that departures from price equilibrium were somewhat greater and somewhat more persistent in that segment of the market, allowing individuals to exploit the discrepancies. Too intensive a pace of attempted exploitation, however, was clearly counter-productive in terms of the attendant burden of transactions costs.

While such differential levels of performance across investor subgroups were quite visible, additional systematic relationships with the demographic attributes and reported investment decision modes of the members of those subgroups were rather less apparent. Only scattered suggestions of a link between either personal-circumstance or stated investment-strategy dimensions, and investment performance experiences, could be uncovered. The most significant of these involved the proportionate role in the investor's portfolio of securities selected specifically for their dividend yields; a heavy concentration thereof seemed generally to be conducive to moderate overall performance results, whereas individuals who approached the market with a strong capital-gains orientation gravitated instead--as one might expect--to the extremes of the performance spectrum.

²⁶*Interestingly, however, the returns the sample reported on the questionnaire as those they expected to be able to earn in the future on common stock investments uniformly exceeded those they felt they had recently earned, by approximately a percentage point in every performance quintile.*

The paucity of other detectable strategy and demographic cross-sectional patterns may in part, of course, be a consequence simply of the inevitable imprecision in questionnaire response data. With improved survey instruments, we may eventually be able to refine the necessary measures. As noted above, however, the problem is as likely to be that the origins of investment expertise (if it exists) are very much individual in nature, without many standard external correlates. At the moment, that would seem to be the message of our data. The hope nonetheless is that the other elements of the analysis do provide some new insights into the individual investor's role and experience in the equity marketplace.

REFERENCES

- [1] Bass, F. "Unexplained Variance in Studies of Consumer Behavior." In Control of Error in Market Research Data, edited by J. Farley. Lexington, Mass.: D.C. Heath (1975), pp. 11-36.
- [2] Black, F.; M. Jensen; and M. Scholes. "The Capital Asset Pricing Model: Some Empirical Tests." In Studies in the Theory of Capital Markets, edited by M. Jensen. New York: Praeger (1972), pp. 79-121.
- [3] Blume, M.; J. Crockett; and I. Friend. "Stock Ownership in the United States: Characteristics and Trends." Survey of Current Business (November 1974), pp. 16-40.
- [4] Blume, M., and I. Friend. "A New Look at the Capital Asset Pricing Model." Journal of Finance (March 1973), pp. 19-33.
- [5] Brealey, R. An Introduction to Risk and Return from Common Stocks. Cambridge, Mass.: MIT Press (1969).
- [6] Cohn, R.; W. Lewellen; R. Lease; and G. Schlarbaum. "Individual Investor Risk Aversion and Investment Portfolio Composition." Journal of Finance (May 1975), pp. 605-620.
- [7] Colker, S. "An Analysis of Security Recommendations by Brokerage Houses." Quarterly Review of Economics and Business (Summer 1963), pp. 19-28.
- [8] Cowles, A. "Can Stock Market Forecasters Forecast?" Econometrica (July 1933), pp. 309-324.
- [9] Diefenback, R. "How Good is Institutional Brokerage Research?" Financial Analysts Journal (January-February 1972), pp. 54-60.
- [10] Engel, J., H. Fiorello; and M. Cayley. Market Segmentation: Concepts and Applications. New York: Holt Rinehart and Winston (1972).
- [11] Fama, E. "The Behavior of Stock Market Prices." Journal of Business (January 1965), pp. 34-105.
- [12] _____. "Efficient Capital Markets: A Review of Theory and Empirical Work." Journal of Finance (May 1970), pp. 383-417.
- [13] Fama, E., and M. Blume. "Filter Rules and Stock Market Trading." Journal of Business (January 1966), pp. 226-241.
- [14] Fama, E., and J. MacBeth. "Risk, Return, and Equilibrium: Some Empirical Tests." Journal of Political Economy (May-June 1973), pp. 607-636.
- [15] Friend, I.; M. Blume; and J. Crockett. Mutual Funds and Other Institutional Investors. New York: McGraw-Hill (1970).
- [16] Friend, I., and J. Crockett. "Characteristics of Stock Ownership." American Statistical Association: Business and Economic Proceedings (1963), pp. 146-186.
- [17] Friend, I., and J. DeCani. "Stock Market Experience of Different Investor Groups." American Statistical Association: Business and Economic Proceedings (1966), pp. 44-51.
- [18] Granger, C., and O. Morgenstern. "Spectral Analysis of New York Stock Market Prices." Kyklos (1963), pp. 1-27.
- [19] Jensen, M. "The Performance of Mutual Funds in the Period 1945-64." Journal of Finance (May 1968), pp. 389-416.

- [20] Jensen, M., and G. Bennington. "Random Walks and Technical Theories: Some Additional Evidence." Journal of Finance (May 1970), pp. 469-482.
- [21] Lease, R.; W. Lewellen; and G. Schlarbaum. "The Individual Investor: Attributes and Attitudes." Journal of Finance (May 1974), pp. 413-433.
- [22] _____ . "Market Segmentation: Evidence on the Individual Investor." Financial Analysts Journal (September-October 1976), pp. 53-60.
- [23] Lewellen, W.; R. Lease; and G. Schlarbaum. "Patterns of Investment Strategy and Behavior Among Individual Investors." Journal of Business (July 1977), pp. 296-333.
- [24] Logue, D., and D. Tuttle. "Brokerage House Investment Advice." Financial Review (1973), pp. 38-54.
- [25] Lorie, J., et al. Measuring the Investment Performance of Pension Funds. Park Ridge, Ill.: Bank Administration Institute (1968).
- [26] More, A. "Some Characteristics of Changes in Common Stock Prices." In The Random Character of Stock Market Prices, edited by P. Cootner. Cambridge, Mass.: MIT Press (1964), pp. 139-161.
- [27] New York Stock Exchange. 1973 Fact Book. New York, NYSE (1973).
- [28] Schlarbaum, G. "The Investment Performance of the Common Stock Portfolios of Property-Liability Insurance Companies." Journal of Financial and Quantitative Analysis (January 1974), pp. 89-106.
- [29] Schlarbaum, G; W. Lewellen; and R. Lease. "Realized Returns on Common Stock Investments: The Experience of Individual Investors." Journal of Business (April 1978), pp. 299-325.
- [30] _____ . "The Common-Stock-Portfolio Performance Record of Individual Investors." Journal of Finance (May 1978), pp. 429-441.
- [31] _____ . "The Stock Market Experience of Individual Investors: Some Additional Evidence." Working Paper No. 619, Krannert Graduate School of Management, Purdue University (1977).
- [32] Sharpe, W. "Mutual Fund Performance." Journal of Business (January 1966), pp. 119-138.
- [33] Smith, W. "Product Differentiation and Marketing Segmentation as Alternative Marketing Strategies." Journal of Marketing (July 1956), pp. 3-8.
- [34] Van Horne, J, and G. Parker. "The Random Walk Theory: An Empirical Test." Financial Analysts Journal (November-December 1967), pp. 87-92.
- [35] Ying, L; W. Lewellen; G. Schlarbaum; and R. Lease. "Stock Exchange Listings and Securities Returns." Journal of Financial and Quantitative Analysis (December 1979), pp. 415-432.