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SOME STUDIES OF VARIABILITY OF RETURNS ON INVESTMENTS IN COMMON STOCKS*

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INTRODUCTION

We report here the findings of three studies we have conducted on the variability of returns on investments in common stocks listed on the New York Stock Exchange. One study examines the frequency distributions of returns on individual stocks for fifty-five specific periods ranging from one to forty years in length during the period 1926–65. A second examines the aggregated distributions of returns from investments in individual common stocks for nonoverlapping periods of equal length from one to twenty years. Aggregating frequency distributions of all such one-, five-, ten-, or twenty-year periods permits broader generalization about the behavior of the market, since these aggregated distributions are not dominated by the behavior of the market in any single period.

The third study deals with returns from investment in portfolios containing different numbers of common stocks on the New York Stock Exchange. Distributions were found for portfolios of six size ranges from one through 128 and for portfolios containing all such common stocks. The tables dealing with aggregated frequency distributions, paralleling the second study, are of greater general interest, we think, and are discussed in the text. The tables from which they were derived and which deal with specific periods, paralleling the first study, are of less direct interest and are presented in Appendix A.

Before discussing our results, we would like to indicate why we undertook these studies and the ways in which they are related to our earlier studies on average rates of return[1] and on outcomes for random investments.[2]

* We are indebted to Harry Roberts for aid in understanding Gini's mean difference. Our exposition has benefitted from reactions to presentations at seminars at the University of Chicago and several other universities. Most of the many computer programs required for this study were prepared by Marvin Lipson. Some additional programming was done by Mark Case and Owen M. Hewett.

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[1] Lawrence Fisher and James H. Lorie, "Rates of Return on Investments in Common Stocks," *Journal of Business* 37 (January 1964):1–21; Lawrence Fisher and James H. Lorie, "Rates of Return on Investments in Common Stocks: The Year-by-Year Record, 1926–65," *Journal of Business* 41 (July 1968):291–316.

[2] Lawrence Fisher, "Outcomes for 'Random' Investments in Common Stocks Listed on the New York Stock Exchange," *Journal of Business* 38 (April 1965):149–61.

For several reasons, studies of variability may be interesting. One of the most controversial and important subjects in the field of finance is risk. There is controversy about both methods of estimation and the nature of the relationship between risk and rates of return. The studies reported here do not deal directly with either of those controversial aspects of risk, but they do bear upon the general subject by providing the first comprehensive and well-based estimates of the effect of increasing the size of portfolios on the variability of returns—one of the most widely used estimates of risk. The earlier studies of average rates of return provided bench marks which have been widely used in evaluating the performance of average rates of return from portfolios; the studies reported here can be thought of as providing bench marks for evaluating the effectiveness of diversification in reducing variability of returns.

Another way of looking at the present studies would be to say that the earlier studies on average rates of return indicate only the average experience from investing in common stocks listed on the New York Stock Exchange without any indication of the inherent riskiness. The studies reported here indicate something about riskiness by providing detailed information on frequency distributions of returns.

These studies should prove more useful than the first author's earlier study of outcomes for random investments in common stocks, which also deals with variability of returns, because in these studies we are able to look at the variability of returns on portfolios as well as return on individual stocks. We can now look at portfolios because the current studies hold constant the holding period of the investments whose frequency distributions are reported. Looking at portfolios is obviously desirable, since almost all investors with significant investments hold portfolios of more than one common stock. Moreover, there is much interest in the effect of changing the size of portfolios on variability in return.

The current studies are also superior in that they, unlike the earlier study on outcomes for random investments, take into account the value of investments even after they consist of assets other than the common stock in which the investment was originally made. This change in assets can occur where there are mergers, spin-offs, or delistings.

A section on general methodology follows these introductory remarks. It includes some comments on statistics that we have computed in the course of all three studies. Next are sections on the three studies, and finally appendixes containing the basic data for the last study. The results are presented primarily in tables which, we hope, will provide reference material for specialists in the field. Since we have spent considerable time examining the material in the tables, we will make a few comments. However, most analysis will be left to the reader.

GENERAL METHODS OF ANALYSIS

The distributions which will be described are in all cases the distributions of "wealth ratios." The wealth ratio is the ratio of the value of the investment at the end of the period to the amount invested. Much of the work in this field has been in terms of rates of return, since such rates are necessary in comparing investment results for periods of different lengths. We are free to use wealth ratios because we compare only periods of equal length.

We have used wealth ratios for two reasons. First, introspection and observation have persuaded us that it is ex-

tremely difficult to understand the significance of differences among annual rates of return for long periods of time. For example, few persons easily see that a difference between 5 percent per annum, compounded annually, and 10 percent per annum over a forty-year period produces wealth ratios which are strikingly different—approximately 7 and 45, respectively. The wealth ratio produced by the 10 percent annual return is 543 percent greater than the ratio produced by the 5 percent return. The corresponding wealth ratios for annual rates of return of 9 percent and 10 percent are 31 and 45, respectively. The wealth ratio for the 10 percent rate of return exceeds that for the 9 percent rate of return by 44 percent.

The second reason for presenting data on wealth ratios rather than on rates of return is that data on rates of return are frequently misinterpreted. The most common mistake is to assume that one can deduce the mean wealth ratio from knowledge of the mean rate of return.[3] Such an attempt leads to an underestimate of the mean wealth ratio if the period in question exceeds the compounding interval, and to an overestimate if the period is less than the compounding interval. This is exemplified in table 1.

Harry Markowitz[4] uses returns, but they are not necessarily annual rates. They are simply one less than the corresponding wealth ratios, and they are typically expressed as percentages. In table 1, the Markowitz returns for stocks *A*, *B*, and *C* would be 0, 300 percent, and 600 percent, respectively. We have used wealth ratios rather than Markowitz's returns, since the latter are easily confused with *annual* rates of return.

We recognize, however, that some readers do think about returns from investments as annual rates. In order to

TABLE 1

ILLUSTRATION OF RELATIONSHIP BETWEEN WEALTH RATIOS AND RATES OF RETURN

Stock	Wealth Ratio After 10 Years	Annual Rate of Return Compounded Annually (Percent)
A	1	0
B	4	14.9
C	7	21.5
Mean	4	12.1

The wealth ratio implied by an investment returning 12.1 percent annually and held for ten years is 3.14, not 4.0. Thus, using the mean rate of return to deduce the mean wealth ratio would lead to a significant underestimate.

[3] See, for example, Marc Nerlove, "Factors Affecting Differences among Rates of Return on Investments in Individual Common Stocks," *Review of Economics and Statistics* 50 (August 1968): 312–31; and Eugene F. Brigham and James L. Pappas, "Rates of Return on Common Stock," *Journal of Business* 42 (July 1969): 302–20.

[4] Harry Markowitz, *Portfolio Selection: Efficient Diversification of Investments* (New York: John Wiley & Sons, 1959).

facilitate translation from wealth ratios to annual rates of return, we present table 2, which simply indicates for periods of various lengths the rates of return corresponding to various wealth ratios.

In computing wealth ratios, commissions were charged when investments were originally made and when each dividend was reinvested, but the value of the investment at the end of each period was calculated on the basis of the market price on that date without taking into account any contingent transaction costs or taxes.[5]

For each frequency distribution of wealth ratios the following statistics are reported:

1. *a*) 5th centile
   b) 10th centile
   c) 20th centile
   d) 30th centile
   e) 40th centile
   f) 50th centile (median)
   g) 60th centile
   h) 70th centile
   i) 80th centile
   j) 90th centile
   k) 95th centile
2. The maximum
3. The minimum
4. The arithmetic mean
5. Measures of absolute dispersion
   a) The standard deviation
   b) The mean deviation
   c) Gini's mean difference
6. Measures of relative dispersion
   a) Coefficient of variation
   b) Relative mean deviation
   c) Gini's coefficient of concentration
7. Momental skewness
8. Kurtosis

[5] The wealth ratios used were, in fact, the wealth ratios used to construct the table of annual rates of return with reinvestment of dividends for the tax-exempt investor in the cash-to-portfolio computations (part A of table 1 of the Fisher and Lorie 1968 article). For the methods of treating investments in stocks which were merged into or spun off other issues or which were delisted, see the 1968 article, p. 295, and the 1964 article, pp. 15–17.

All of the foregoing statistics should be familiar, with the possible exception of Gini's mean difference and Gini's coefficient of concentration. These statistics are discussed, among other places, in Gini's own work[6] and in a text of Kendall and Stuart.[7] Even so, it may be helpful for us to say something here about Gini's statistics.

In principle, to compute Gini's mean difference, one merely finds the absolute value of the difference between the elements of each possible pair of observations and divides by the number of such pairs. For example, consider the following three observations: 2, 4, 7. The following pairs are considered: 2 and 4, 2 and 7, and 4 and 7. The absolute values of the differences between the elements of these pairs are 2, 5, and 3, respectively. Thus Gini's mean difference is 10 divided by 3, or $3\frac{1}{3}$. If there are N observations, the number of possible pairs is equal to $N(N-1)/2$. When N is very large—as in our third study, for example—the volume of computations necessary for exact calculation is unbearable and estimation must be used.

The relationship between Gini's mean difference and Gini's coefficient of concentration is nearly analogous to that between the standard deviation and the coefficient of variation. To compute the coefficient of variation, one divides the standard deviation by the mean. To compute Gini's coefficient of concentration, one divides Gini's mean difference by *twice* the mean.

The discourteous reader might ask at this point why, instead of using statistics

[6] Corrado Gini, *Memorie di metodologia statistica*, 2d ed. rev. Ernesto Pizzetti and T. Salvemini (Rome: Libreria Eredi Virgilio Veschi, 1955).

[7] Maurice G. Kendall and Alan Stuart, *Advanced Theory of Statistics in Three Volumes*, 2d ed. (New York: Hafner Publishing Co., 1963), vol. 1.

TABLE 2

WEALTH RATIOS AND CORRESPONDING ANNUAL RATES OF RETURN
(COMPOUNDED ANNUALLY) FOR SPECIFIED PERIODS

Holding Period							
5 Years		10 Years		20 Years		39 11/12 Years	
Wealth Ratio	Rate of Return	Wealth Ratio	Rate of Return	Wealth Ratio	Rate of Return	Wealth Ratio	Rate of Return
.01	-60.2	.01	-36.9	.01	-20.6	.01	-10.9
.02	-54.3	.02	-32.4	.02	-17.8	.02	-9.3
.03	-50.4	.03	-29.6	.03	-16.1	.05	-7.2
.04	-47.5	.04	-27.5	.05	-13.9	.1	-5.6
.05	-45.1	.05	-25.9	.1	-10.9	.2	-4.0
.07	-41.2	.1	-20.6	.2	-7.7	.3	-3.0
.1	-36.9	.2	-14.9	.3	-5.8	.4	-2.3
.2	-27.5	.3	-11.3	.4	-4.5	.6	-1.3
.3	-21.4	.4	-8.8	.5	-3.4	1.0	0.0
.4	-16.7	.5	-6.7	.7	-1.8	1.5	1.0
.5	-12.9	.6	-5.0	.9	-0.5	2.2	2.0
.6	-9.7	.7	-3.5	1.1	0.5	3.2	3.0
.7	-6.9	.8	-2.2	1.4	1.7	4.6	3.9
.8	-4.4	.9	-1.0	1.8	3.0	6.4	4.8
.9	-2.1	1.1	1.0	2.3	4.3	8.6	5.5
1.0	0.	1.3	2.7	2.8	5.3	12.	6.4
1.1	1.9	1.5	4.1	3.4	6.3	15.	7.0
1.3	5.4	1.8	6.1	4.0	7.2	18.	7.5
1.4	7.0	2.0	7.2	4.7	8.0	22.	8.1
1.6	9.9	2.2	8.2	5.4	8.8	25.	8.4
1.7	11.2	2.4	9.1	5.9	9.3	28.	8.7
1.8	12.5	2.6	10.0	6.4	9.7	31.	9.0
1.9	13.7	2.7	10.4	6.8	10.1	34.	9.2
2.0	14.9	2.8	10.8	7.0	10.2	35.	9.3
2.1	16.0	2.9	11.2	7.1	10.3	36.	9.4
2.2	17.1	3.0	11.6	7.2	10.4	37.	9.5
2.3	18.1	3.1	12.0	7.3	10.5	38.	9.5
2.4	19.1	3.2	12.3	7.4	10.5	39.	9.6
2.5	20.1	3.3	12.7	7.6	10.7	40.	9.7
2.6	21.1	3.4	13.0	7.9	10.9	42.	9.8
2.7	22.0	3.5	13.3	8.3	11.2	44.	9.9
2.8	22.9	3.7	14.0	8.8	11.5	48.	10.2
2.9	23.7	4.0	14.9	9.4	11.9	53.	10.5
3.0	24.6	4.3	15.7	11.	12.7	60.	10.8
3.2	26.2	4.8	17.0	12.	13.2	70.	11.2
3.6	29.2	5.3	18.1	13.	13.7	80.	11.6
4.1	32.6	6.0	19.6	14.	14.1	90.	11.9
4.6	35.7	6.9	21.3	15.	14.5	100.	12.2
5.3	39.6	7.9	23.0	17.	15.2	120.	12.7
6.2	44.0	9.2	24.8	20.	16.2	150.	13.4
7.2	48.4	11.	27.1	22.	16.7	200.	14.2
8.6	53.8	13.	29.2	26.	17.7	250.	14.8
11.	61.5	16.	32.0	30.	18.5	300.	15.4
13.	67.0	19.	34.2	35.	19.5	350.	15.8
16.	74.1	23.	36.8	42.	20.5	400.	16.2
19.	80.2	29.	40.0	50.	21.6	500.	16.8
24.	88.8	36.	43.1	60.	22.7	700.	17.8
30.	97.4	46.	46.6	73.	23.9	1,000.	18.9
38.	107.0	58.	50.1	90.	25.2	1,300.	19.7
49.	117.8	75.	54.0	111.	26.6	1,715.	20.5

that are familiar to readers of English, we must refer to Gini's statistics. In the first place, Gini's mean difference gives us some information that is interesting in itself. It tells us the expected value of the difference in returns between two portfolios of any given size, including portfolios of one stock. In the second place, Gini's coefficient of concentration is useful in summarizing differences in returns

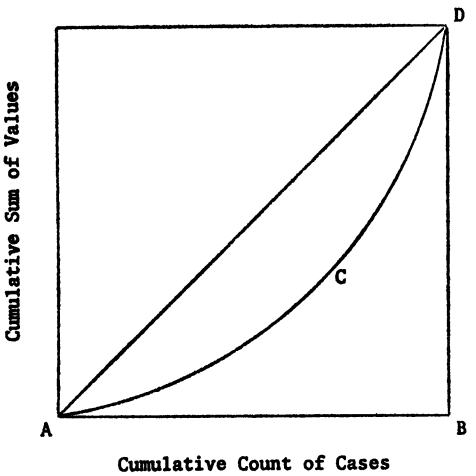

FIG. 1.—A Lorenz curve

to portfolios. The coefficient was originally developed to summarize differences in wealth or income and thus applies to our studies of differences among wealth ratios.

Many readers will be familiar with the Lorenz curve as exemplified in figure 1. Gini's coefficient of concentration measures the ratio of the area between the Lorenz curve ACD and the line AD to the total area of the triangle ABD. When applied to returns on portfolios, the interpretation is straightforward. If portfolios are ranked by the size of returns from the smallest to the largest, the locus of a Lorenz curve is readily drawn. The number of portfolios, M, is shown on the horizontal axis; and the sum of the wealth ratios of these M (smallest) portfolios is shown on the vertical axis. If all portfolios had equal returns, the Lorenz curve would be identical with line AD. If all portfolios except one had zero wealth ratios and that one had a positive wealth ratio, the Lorenz curve would be virtually identical with curve ABD. In the former case, Gini's coefficient of concentration would be zero; in the latter case, one.

In the third place, we use Gini's statistics because many of the distributions we report here depart greatly from normality. For such distributions, the standard deviation of even a large sample may not give a very meaningful indication of the dispersion of the population. Gini's mean difference and coefficient of concentration are nonparametric measures and are invulnerable to this consequence of departure from normality. The mean deviation from the mean is also invulnerable to this adverse consequence of departure from normality. Gini's mean difference differs from the mean deviation by giving greater weight to extreme observations, thus taking care of a frequently made criticism of the mean deviation.

We use measures both of absolute and of relative dispersion. The absolute measures are interesting in themselves, but reliance on them exclusively would conceal some relationships which, as we will see, have been remarkably invariant for long periods of time.

THE STUDIES

STUDY 1: DISTRIBUTIONS OF WEALTH RATIOS FOR INVESTMENTS IN SINGLE STOCKS

The frequency distributions of wealth ratios for investments in single stocks for fifty-five time periods are summarized in

table 3. Many of their general features should not surprise anyone. In general, the mean wealth ratios shown in column 16 increase with the length of the holding period, although there is substantial overlap. (For example, the greatest mean for a one-year period is greater than five of the eight means for five-year periods, and the worst mean for a five-year period exceeds only four of the 40 one-year means.)

The distributions for longer holding periods tend to have greater dispersion than the distributions for shorter periods, both absolutely and relatively. This tendency may be seen by looking at corresponding entries in columns (17–22) or by comparing ranges defined by columns (6) and (8), (5) and (9), (4) and (10), (3) and (11), (2) and (12), or (13) and (14).

For all periods studied, skewness of the distribution of wealth ratios was positive. This implies, as almost every investor knows, that the probability of deviating from the mean by very large amounts on the high side is greater than the probability of extremely large deviations on the low side. This skewness almost inevitably results from the simple arithmetic fact that it is impossible to lose more than 100 percent of one's investment, assuming that one does not buy on margin, while it is possible to make much more than 100 percent on one's money when one is lucky or wise. For all periods of five years or more, the maximum wealth ratio was at least 4.5 times as large as the mean wealth ratio. In fact, the maximum ratio was more than twice the mean in nine of the 40 one-year periods.

As would be expected with positive skewness, the mean is almost invariably greater than the median. There are a few exceptions for one-year periods when the positive skewness is slight. For almost all one-year periods and for all periods longer than one year the mean exceeds the median. The longer the period, the greater the difference.

For all periods except 1929, the kurtosis of the frequency distributions is greater than 3.0. That is, a greater proportion of the observations fall near the mean than is true for normal distributions.[8] Nearness to the mean is measured in terms of standard deviations. In these particular distributions, the kurtosis is relatively small when skewness is slight. Thus the "peakedness" is caused largely by the presence of a few very large wealth ratios.

In table 3, it is interesting to note the lower levels of relative dispersion after 1943. For example, Gini's coefficient of concentration was always at least 0.16 from 1926 through 1943; thereafter, the coefficient was always less than 0.16.

While discussing dispersion, it is interesting to compare the six measures of dispersion: the standard deviation, the mean deviation, the mean difference, the coefficient of variation, the relative mean deviation, and Gini's coefficient of concentration. The important fact is that the standard deviation and measure of relative dispersion derived from it, the coefficient of variation, are more variable from period to period than are the other measures. We believe that the greater instability in the standard deviation and the coefficient of variation lends support to Mandelbrot's hypothesis that the dis-

[8] As Kaplansky has stated (I. Kaplansky, "A Common Error concerning Kurtosis," *Journal of the American Statistical Association* 40 [June 1945]: 259), it is a vulgar error blandly or blindly to assume that high kurtosis necessarily implies great concentration around the rear. Since we have examined them in great detail, we know that the common interpretation is correct for these distributions.

tributions of returns on individual stocks over time have infinite variance.[9]

It is also mildly interesting to note that for our data the relationship between Gini's mean difference and the mean deviation was remarkably stable—always being near the ratio that would be expected if the distributions were normal. For normal distributions, the ratio of Gini's mean difference to the mean deviation is $\sqrt{2}$.[10] Thus, it appears that

[9] Benoit Mandelbrot, "Variation of Certain Speculative Prices," *Journal of Business* 36 (October 1963): 394–419.

[10] Derived from Kendall and Stuart, pp. 139, 241. For normal distributions the mean deviation is $\sqrt{(2/\pi)}$ (=0.80) times the standard deviation, and Gini's mean difference is $2/\sqrt{\pi}$ (=1.13) times the standard deviation. Note also that in table 3 the standard deviation is usually greater than Gini's mean difference.

TABLE 3

FREQUENCY DISTRIBUTIONS OF WEALTH RATIOS FROM INVESTMENTS IN INDIVIDUAL STOCKS LISTED ON THE NYSE, 1926–65

Period of Investment	Centiles of the Frequency Distributions										
	5th	10th	20th	30th	40th	(Median) 50th	60th	70th	80th	90th	95th
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
ONE-YEAR PERIODS											
1/30/26-12/31/26	.429	.560	.722	.845	.917	.991	1.060	1.115	1.183	1.316	1.485
12/31/26-12/31/27	.640	.752	.888	1.053	1.132	1.225	1.330	1.457	1.601	1.834	2.274
12/31/27-12/31/28	.725	.834	.976	1.064	1.153	1.251	1.376	1.512	1.711	2.136	2.795
12/31/28-12/31/29	.197	.279	.405	.518	.604	.700	.774	.873	.977	1.123	1.218
12/31/29-12/31/30	.205	.265	.367	.442	.521	.593	.674	.757	.868	.986	1.106
12/31/30-12/31/31	.158	.215	.292	.347	.401	.467	.536	.615	.738	.909	1.044
12/31/31-12/31/32	.353	.449	.561	.654	.729	.828	.931	1.035	1.173	1.377	1.662
12/31/32-12/30/33	.657	.856	1.189	1.402	1.628	1.849	2.075	2.394	2.742	3.331	4.338
12/30/33-12/31/34	.566	.645	.759	.849	.938	1.029	1.134	1.262	1.428	1.728	2.017
12/31/34-12/31/35	.761	.864	1.029	1.134	1.232	1.353	1.492	1.656	1.927	2.342	2.747
12/31/35-12/31/36	.854	.943	1.052	1.154	1.235	1.334	1.446	1.583	1.773	2.130	2.461
12/31/36-12/31/37	.276	.315	.373	.420	.472	.517	.562	.624	.687	.798	.888
12/31/37-12/31/38	.693	.838	.986	1.090	1.186	1.260	1.350	1.458	1.594	1.798	2.020
12/31/38-12/30/39	.554	.626	.704	.790	.869	.947	1.021	1.089	1.183	1.319	1.478
12/30/39-12/31/40	.477	.584	.713	.795	.852	.904	.952	1.005	1.069	1.194	1.331
12/31/40-12/31/41	.445	.545	.666	.751	.820	.879	.947	1.016	1.096	1.234	1.412
12/31/41-12/31/42	.844	.907	.986	1.054	1.120	1.190	1.273	1.380	1.527	1.766	2.106
12/31/42-12/31/43	1.032	1.088	1.195	1.249	1.331	1.403	1.499	1.624	1.812	2.130	2.560
12/31/43-12/30/44	1.029	1.088	1.151	1.202	1.245	1.304	1.372	1.447	1.556	1.750	2.025
12/30/44-12/31/45	1.179	1.238	1.316	1.372	1.427	1.500	1.578	1.672	1.805	2.074	2.329
12/31/45-12/31/46	.529	.592	.698	.785	.847	.898	.944	1.002	1.083	1.187	1.308
12/31/46-12/31/47	.617	.701	.795	.857	.910	.962	1.025	1.091	1.175	1.312	1.456
12/31/47-12/31/48	.600	.703	.798	.858	.916	.967	1.007	1.050	1.107	1.212	1.321
12/31/48-12/31/49	.840	.906	.997	1.061	1.122	1.178	1.233	1.302	1.374	1.481	1.617
12/31/49-12/30/50	.904	.965	1.047	1.123	1.207	1.298	1.384	1.487	1.614	1.817	2.015
12/30/50-12/31/51	.832	.905	.981	1.039	1.081	1.122	1.172	1.228	1.294	1.419	1.554
12/31/51-12/31/52	.771	.841	.920	.980	1.037	1.088	1.137	1.184	1.245	1.333	1.424
12/31/52-12/31/53	.602	.704	.805	.864	.918	.969	1.021	1.064	1.112	1.221	1.320
12/31/53-12/31/54	1.095	1.164	1.251	1.327	1.407	1.480	1.565	1.660	1.786	1.995	2.256
12/31/54-12/30/55	.829	.924	1.003	1.049	1.093	1.144	1.193	1.261	1.354	1.516	1.687
12/30/55-12/31/56	.711	.789	.880	.941	.989	1.026	1.082	1.141	1.236	1.378	1.518
12/31/56-12/31/57	.496	.567	.658	.721	.791	.856	.923	.996	1.060	1.149	1.228
12/31/57-12/31/58	1.112	1.199	1.294	1.363	1.434	1.491	1.552	1.647	1.780	2.001	2.326
12/31/58-12/31/59	.759	.845	.934	.988	1.028	1.080	1.149	1.214	1.323	1.527	1.715
12/31/59-12/30/60	.591	.652	.749	.825	.887	.948	1.022	1.100	1.196	1.325	1.447
12/30/60-12/29/61	.852	.935	1.037	1.114	1.176	1.235	1.301	1.373	1.460	1.621	1.818
12/29/61-12/31/62	.544	.616	.696	.761	.813	.856	.909	.965	1.019	1.114	1.207
12/31/62-12/31/63	.808	.894	.985	1.041	1.089	1.137	1.186	1.247	1.344	1.488	1.657
12/31/63-12/31/64	.765	.875	.978	1.049	1.099	1.142	1.194	1.248	1.323	1.466	1.622
12/31/64-12/31/65	.856	.923	.995	1.056	1.116	1.196	1.275	1.387	1.510	1.732	1.963
FIVE-YEAR PERIODS											
1/30/26-12/31/30	.041	.095	.192	.340	.518	.682	.876	1.116	1.443	1.884	2.476
12/31/30-12/31/35	.098	.227	.417	.660	.897	1.147	1.412	1.766	2.293	3.296	4.601
12/31/35-12/31/40	.119	.218	.364	.539	.673	.832	.959	1.134	1.336	1.736	2.061
12/31/40-12/31/45	1.459	1.721	2.084	2.408	2.708	3.155	3.688	4.335	5.556	7.601	10.036
12/31/45-12/30/50	.477	.627	.865	1.007	1.148	1.302	1.481	1.702	1.960	2.409	2.838
12/30/50-12/30/55	.853	1.142	1.440	1.691	1.907	2.107	2.337	2.621	3.002	3.775	4.568
12/30/55-12/30/60	.532	.707	.939	1.130	1.292	1.477	1.656	1.883	2.181	2.708	3.396
12/30/60-12/31/65	.761	.977	1.256	1.440	1.605	1.778	1.979	2.241	2.595	3.402	4.445
TEN-YEAR PERIODS											
1/30/26-12/31/35	.016	.048	.152	.256	.461	.688	1.007	1.368	1.850	2.730	4.297
12/31/35-12/31/45	.614	1.056	1.592	1.912	2.210	2.557	2.999	3.493	4.216	5.500	7.664
12/31/45-12/30/55	.621	.982	1.505	1.895	2.302	2.750	3.270	4.059	5.100	7.169	9.001
12/30/55-12/31/65	.836	1.157	1.654	2.035	2.427	2.814	3.208	3.681	4.289	5.473	7.075
20-YEAR PERIODS											
1/30/26-12/31/45	.000	.052	.324	.772	1.273	1.864	2.772	3.914	5.133	7.395	11.389
12/31/45-12/31/65	.912	1.886	3.357	4.549	6.269	8.242	10.111	12.529	16.068	21.992	30.115
40-YEAR PERIOD											
1/30/26-12/31/65	.000	.258	1.283	3.724	8.257	14.323	21.581	33.613	50.787	82.532	127.554

for the particular distribution we describe here, either measure provides a good estimate of the other. The mean deviation is usually easier to calculate.

STUDY 2: DISTRIBUTIONS OF WEALTH RATIOS AGGREGATED FOR NONOVERLAPPING PERIODS

In table 4 we present data on aggregated frequency distributions of wealth ratios from investments in individual stocks on the New York Stock Exchange. When one considers individual periods separately, as in table 3, it is hard to make generalizations about the variability of experience in investing in stocks on the New York Stock Exchange because of the substantial changes from period to period.

We cannot, for example, tell the probability of gaining or losing a given

Period of Investment	Minimum	Maximum	Arithmetic Mean	Standard Deviation	Mean Deviation	Gini's Mean Difference	Coefficient of Variation	Relative Mean Deviation	Coefficient of Concentration	Skewness	Kurtosis	Number of Companies
(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
ONE-YEAR PERIODS												
1/30/26-12/31/26	.073	2.970	.985	.343	.242	.355	.348	.245	.180	1.304	8.891	510
12/31/26-12/31/27	.000	7.889	1.300	.577	.374	.546	.444	.288	.210	3.660	36.275	543
12/31/27-12/31/28	.398	13.226	1.453	.904	.498	.712	.622	.343	.245	5.844	60.390	589
12/31/28-12/31/29	.000	1.851	.700	.318	.259	.361	.454	.370	.258	.261	2.718	627
12/31/29-12/31/30	.046	2.105	.620	.286	.229	.318	.461	.369	.257	.685	4.047	717
12/31/30-12/31/31	.000	2.204	.522	.291	.221	.311	.558	.425	.298	1.323	6.365	737
12/31/31-12/31/32	.000	3.308	.891	.435	.319	.455	.488	.358	.255	1.481	7.462	732
12/31/32-12/30/33	.000	20.841	2.083	1.366	.873	1.253	.656	.419	.301	4.686	54.283	709
12/30/33-12/31/34	.090	9.481	1.139	.574	.364	.517	.504	.319	.227	5.358	67.343	707
12/31/34-12/31/35	.000	6.077	1.507	.675	.485	.687	.448	.322	.228	1.830	9.327	706
12/31/35-12/31/36	.178	17.234	1.483	.814	.424	.605	.549	.286	.204	10.719	197.482	719
12/31/36-12/31/37	.109	1.372	.541	.195	.153	.215	.360	.283	.199	.815	4.073	744
12/31/37-12/31/38	.000	7.187	1.307	.497	.320	.469	.380	.245	.179	3.998	44.628	780
12/31/38-12/30/39	.000	2.830	.967	.313	.234	.334	.324	.242	.173	1.140	6.735	775
12/30/39-12/31/40	.000	2.748	.901	.276	.195	.288	.306	.216	.160	.823	8.584	778
12/31/40-12/31/41	.000	2.941	.898	.312	.227	.330	.348	.253	.184	1.101	7.515	788
12/31/41-12/31/42	.560	5.907	1.311	.501	.320	.452	.382	.244	.172	3.358	21.015	797
12/31/42-12/31/43	.293	7.469	1.564	.644	.389	.550	.412	.249	.176	4.134	30.193	800
12/31/43-12/30/44	.417	4.389	1.383	.353	.237	.339	.256	.171	.123	2.451	14.494	810
12/30/44-12/31/45	.649	4.700	1.598	.422	.283	.400	.264	.177	.125	2.807	16.262	826
12/31/45-12/31/46	.254	2.230	.901	.242	.184	.266	.268	.204	.147	.609	4.739	853
12/31/46-12/31/47	.348	2.577	.994	.260	.195	.280	.262	.196	.141	1.031	5.812	904
12/31/47-12/31/48	.337	4.544	.969	.259	.169	.250	.268	.175	.129	3.571	44.575	939
12/31/48-12/31/49	.095	2.885	1.194	.254	.189	.271	.213	.158	.114	.967	7.704	963
12/31/49-12/30/50	.645	3.917	1.358	.378	.283	.397	.279	.208	.146	1.622	8.628	990
12/30/50-12/31/51	.135	4.047	1.149	.242	.168	.245	.211	.146	.107	2.249	24.699	1,010
12/31/51-12/31/52	.113	1.866	1.089	.201	.157	.223	.185	.144	.103	.207	3.915	1,029
12/31/52-12/31/53	.000	2.135	.968	.215	.162	.234	.222	.168	.121	.389	4.939	1,044
12/31/53-12/31/54	.608	5.441	1.548	.392	.279	.397	.253	.180	.128	2.205	15.744	1,045
12/31/54-12/30/55	.163	2.886	1.190	.270	.194	.280	.227	.163	.118	1.391	7.370	1,052
12/30/55-12/31/56	.142	4.282	1.065	.268	.188	.273	.251	.176	.128	2.342	24.249	1,055
12/31/56-12/31/57	.268	2.266	.864	.242	.191	.268	.280	.221	.155	.638	5.395	1,056
12/31/57-12/31/58	.803	5.077	1.579	.440	.285	.412	.279	.181	.131	2.873	16.763	1,077
12/31/58-12/31/59	.428	3.372	1.144	.310	.219	.314	.271	.191	.137	1.824	9.521	1,067
12/31/59-12/30/60	.253	2.380	.981	.276	.215	.303	.282	.219	.154	.886	5.001	1,088
12/30/60-12/29/61	.000	3.810	1.276	.330	.229	.335	.259	.180	.131	1.885	12.084	1,119
12/29/61-12/31/62	.146	1.741	.865	.206	.159	.228	.239	.184	.132	.364	4.102	1,142
12/31/62-12/31/63	.000	3.214	1.176	.287	.198	.291	.244	.168	.124	1.680	10.576	1,162
12/31/63-12/31/64	.326	3.130	1.163	.265	.188	.278	.228	.162	.120	1.043	7.656	1,191
12/31/64-12/31/65	.289	5.426	1.282	.410	.283	.401	.320	.221	.156	2.554	16.991	1,227
FIVE-YEAR PERIODS												
1/30/26-12/31/30	.000	4.487	.877	.778	.600	.822	.887	.684	.468	1.412	5.405	510
12/31/30-12/31/35	.000	11.841	1.568	1.585	1.079	1.506	1.011	.688	.480	2.463	11.345	737
12/31/35-12/31/40	.000	10.457	.949	.822	.519	.741	.867	.547	.391	4.460	41.754	719
12/31/40-12/31/45	.000	48.855	4.264	3.990	2.289	3.150	.936	.537	.369	5.010	41.665	788
12/31/45-12/30/50	.063	6.514	1.455	.771	.576	.811	.530	.396	.279	1.525	7.489	853
12/30/50-12/30/55	.113	10.794	2.335	1.217	.861	1.240	.521	.369	.266	1.836	9.107	1,010
12/30/55-12/30/60	.102	35.876	1.701	1.508	.737	1.067	.886	.433	.314	12.294	257.373	1,055
12/30/60-12/31/65	.159	18.598	2.086	1.382	.851	1.221	.663	.408	.293	4.087	34.270	1,119
TEN-YEAR PERIODS												
1/30/26-12/31/35	.000	24.679	1.238	1.852	1.086	1.480	1.496	.877	.598	5.481	56.199	510
12/31/35-12/31/45	.000	74.724	3.226	3.675	1.708	2.459	1.139	.529	.381	11.440	205.680	719
12/31/45-12/30/55	.047	21.753	3.526	2.766	2.012	2.779	.785	.571	.394	1.958	8.668	853
12/30/55-12/31/65	.084	22.340	3.241	2.350	1.506	2.166	.725	.465	.334	3.278	20.969	1,055
20-YEAR PERIODS												
1/30/26-12/31/45	.000	40.763	3.361	4.759	2.943	4.018	1.416	.876	.598	3.718	22.395	510
12/31/45-12/31/65	.116	110.916	10.766	10.593	7.083	9.866	.984	.658	.458	3.111	19.804	853
40-YEAR PERIOD												
1/30/26-12/31/65	.000	1715.239	35.124	89.807	36.247	48.377	2.557	1.032	.689	13.439	242.255	510

amount by selecting a stock at random during a year selected at random. We know only the distribution of experience for the individual periods. To answer a variety of interesting questions (at least for the forty years 1926–65), we must combine the frequency distributions for each period, giving equal weight to each period's distribution.

Suppose one were interested in knowing the relative frequency with which one would have lost more than 20 percent of his money if he had bought a stock at random and held it for a year during the forty-year period 1926–65. By reference to table 4, one can see that there was about a 20 percent chance of losing about 20 percent or more of one's money by investing in a stock for one year. Similarly, there was about a 37 percent chance of making 20 percent or more by investing in a stock for one year.

When one turns to the five-year periods, one can answer the same kinds of questions. For example, one lost about 20 percent or more of his money approximately 23 percent of the time. Conversely, one made at least 20 percent

TABLE 4

AGGREGATED FREQUENCY DISTRIBUTIONS OF WEALTH RATIOS FROM INVESTMENTS IN INDIVIDUAL STOCKS LISTED ON THE NYSE, 1926-65

Statistic	Periods					
	40 One-Year	20 One-Year (1926-45)	20 One-Year (1946-65)	8 Five-Year	4 Ten-Year	2 Twenty-Year
5th centile	.466	.356	.663	.201	.130	.052
10th centile	.613	.480	.763	.391	.340	.288
20th centile	.796	.675	.879	.726	.894	1.006
30th centile	.911	.828	.961	.990	1.416	1.871
40th centile	1.003	.958	1.026	1.240	1.833	3.028
50th centile (median)	1.085	1.075	1.091	1.491	2.245	4.222
60th centile	1.173	1.192	1.161	1.762	2.709	5.626
70th centile	1.277	1.326	1.245	2.096	3.282	7.940
80th centile	1.423	1.500	1.359	2.564	4.099	11.194
90th centile	1.675	1.830	1.551	3.581	5.479	17.263
95th centile	1.975	2.230	1.743	4.875	7.451	22.878
Minimum	0.000	0.000	0.000	0.000	0.000	0.000
Maximum	20.841	20.841	5.441	48.855	74.724	110.916
Mean	1.148	1.158	1.138	1.904	2.808	7.064
Standard deviation	.554	.699	.355	2.064	2.892	9.008
Mean deviation	.351	.447	.255	1.145	1.761	5.956
Gini's mean difference	.518	.653	.367	1.640	2.505	8.052
Coefficient of variation	.483	.604	.312	1.084	1.030	1.275
Relative mean deviation	.306	.386	.224	.601	.627	.843
Gini's coefficient of concentration	.226	.282	.161	.431	.446	.570
Skewness	5.339	5.062	1.791	7.197	7.315	3.485
Kurtosis	111.090	86.788	12.734	107.852	144.189	24.393
Number of cases	35,407	14,394	21,013	6,791	3,137	1,363

about half of the time. Naturally, the absolute variation in the wealth ratios increases as one moves from a one-year to a five-year holding period. Most of the increase is above the mean rather than below, as one would expect during periods when investors in common stocks generally received positive returns. It is important to note, however, that dispersion in the annual rates of return declines as the length of period increases. One can see this by interpreting the data in table 4 in connection with the conversion table presented earlier (table 2).

For ten-year periods, one lost 20 percent or more of his money less than 20 percent of the time and made a profit of at least 20 percent about three-quarters of the time (table 4). It is possible to make other similar observations from table 4.

STUDY 3: THE EFFECT OF INCREASING THE NUMBER OF STOCKS IN A PORTFOLIO ON THE DISTRIBUTION OF RETURNS

Some preliminary comments.—Now we shall discuss the most interesting study in this article. The study concerns the wealth ratios resulting from investment in portfolios of specified numbers of stocks, ranging from one through 128 and in all stocks listed on the New York Stock Exchange. The ratios refer to all of the 40 one-year periods, the eight possible nonoverlapping five-year periods, the four possible ten-year periods, and the two 20-year periods. We also present data for the first twenty years and the last twenty years of the forty-year period so as to permit a comparison of the twenty years ending with the last year of World War II and the first twenty years of the postwar period.

Much of the previous work on the effect of portfolio size on the dispersion of wealth ratios is discussed and summarized in Brealey.[11] Other empirical work has been done by Evans and Archer.[12] This work has generally been concerned only with the effect of diversification on the standard deviation of returns or on the standard deviation of annual rates of return over time. These studies are subject to a serious bias in that they are based on investment only in stocks which were listed throughout the period of study. The elimination of stocks which merged into other stocks or were delisted is the source of the bias.

Additional empirical work is not required to find the effect of diversification on the variance or standard deviation of returns when the mean and variance for each period are known. This is true for the following reasons: (1) the variance for any period for portfolios (randomly selected) of more than one stock can be calculated from knowledge of the variance of returns from investment in portfolios of one stock, and (2) the variance for several periods considered together (that is, aggregated) can be calculated from knowledge of the means and variances for the individual periods. The variance among wealth ratios of stocks or portfolios is equal to the sum of their average variances for the periods under consideration and the variance of the means. Diversification by random selection reduces the average variance within each period but does not affect the variance of the means.

If we had been content to rely on the variance and its derivative statistics, we could have avoided much expense in

[11] Richard A. Brealey, *An Introduction to Risk and Return from Common Stocks* (Cambridge, Mass.: M.I.T. Press, 1969).

[12] John L. Evans and Stephen H. Archer, "Diversification and the Reduction of Dispersion: An Empirical Analysis," *Journal of Finance* 23 (December 1968): 761–67.

using the computer merely by algebraically calculating the statistics. We incurred the computer expense because the variance and its derivatives have been under suspicion since Mandelbrot's work seven years ago.[13]

Table 5 shows the frequency distribution of returns for portfolios of different sizes. The frequency distributions for portfolios containing one stock were derived from complete enumeration of all possible such portfolios for the nonoverlapping periods selected. These distributions are also shown in table 4. We also used complete enumeration to find the frequency distributions for portfolios containing two different stocks. We assumed equal initial investment in each stock and also assumed that dividends were reinvested in the stock which paid them.

For portfolios containing 8, 16, 32, and 128 stocks, we used simple random selection of individual stocks without replacement. It is possible, however, that this process produced two or more identical portfolios. We were unable to construct frequency distributions of portfolios of these sizes on the basis of complete

[13] Mandelbrot (n. 9 above).

TABLE 5

AGGREGATED FREQUENCY DISTRIBUTIONS OF WEALTH RATIOS FROM INVESTMENTS IN RANDOMLY SELECTED PORTFOLIOS CONTAINING SPECIFIED NUMBERS OF STOCKS LISTED ON THE NYSE, 1926-65

Number and Length of Periods	Size of Portfolio/ Sampling Method	Centiles of the Aggregated Frequency Distributions										
		5th	10th	20th	30th	40th	(Median) 50th	60th	70th	80th	90th	95th
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
PERIODS						40 YEARS 1926-1965						
40 ONE-YEAR	1E	.466	.613	.796	.911	1.003	1.085	1.173	1.277	1.423	1.675	1.975
	2E	.539	.681	.838	.939	1.021	1.099	1.182	1.280	1.409	1.622	1.855
	8S	.582	.745	.883	.964	1.044	1.121	1.196	1.286	1.406	1.569	1.719
	8R	.584	.747	.883	.964	1.045	1.122	1.198	1.288	1.407	1.570	1.718
	16S	.583	.763	.893	.965	1.046	1.129	1.202	1.290	1.408	1.561	1.680
	16R	.587	.763	.894	.965	1.046	1.130	1.205	1.293	1.409	1.566	1.684
	32S	.581	.775	.899	.964	1.043	1.136	1.205	1.295	1.408	1.555	1.648
	32R	.588	.768	.902	.968	1.041	1.140	1.214	1.299	1.406	1.565	1.657
	128S	.576	.781	.900	.966	1.035	1.147	1.200	1.301	1.403	1.555	1.606
	All	.580	.782	.900	.968	1.030	1.147	1.192	1.303	1.418	1.556	1.588
8 FIVE-YEAR	1E	.201	.391	.726	.990	1.240	1.491	1.762	2.096	2.564	3.581	4.875
	2E	.418	.605	.879	1.109	1.328	1.553	1.803	2.110	2.555	3.444	4.533
	8S	.678	.804	1.021	1.239	1.435	1.627	1.842	2.101	2.473	3.355	4.278
	8R	.680	.805	1.023	1.242	1.437	1.631	1.848	2.107	2.480	3.423	4.366
	16S	.748	.847	1.036	1.287	1.470	1.641	1.847	2.093	2.405	3.508	4.308
	16R	.746	.845	1.036	1.292	1.473	1.650	1.866	2.113	2.415	3.695	4.490
	32S	.794	.868	1.023	1.336	1.491	1.639	1.845	2.097	2.360	3.674	4.327
	32R	.769	.849	1.018	1.347	1.503	1.665	1.916	2.171	2.404	4.051	4.672
	128S	.851	.891	.976	1.416	1.517	1.633	1.818	2.109	2.316	3.987	4.335
	All						1.635					
4 TEN-YEAR	1E	.130	.340	.894	1.416	1.833	2.245	2.709	3.282	4.099	5.479	7.451
	2E	.360	.683	1.250	1.727	2.129	2.496	2.885	3.340	3.959	5.086	6.235
	8S	.736	.979	1.607	2.233	2.571	2.838	3.097	3.383	3.746	4.324	4.881
	8R	.754	.992	1.618	2.255	2.596	2.861	3.118	3.404	3.763	4.335	4.879
	16S	.870	1.065	1.545	2.452	2.749	2.968	3.173	3.387	3.661	4.062	4.436
	16R	.888	1.080	1.551	2.504	2.804	3.016	3.221	3.433	3.690	4.090	4.447
	32S	.972	1.123	1.471	2.636	2.889	3.061	3.226	3.389	3.603	3.904	4.172
	32R	.898	1.026	1.334	2.797	3.036	3.207	3.357	3.524	3.696	3.992	4.314
	128S	1.109	1.185	1.351	2.895	3.070	3.185	3.284	3.384	3.525	3.671	3.829
	All						3.233					
2 TWENTY-YR	1E	.052	.288	1.006	1.871	3.028	4.222	5.626	7.940	11.194	17.263	22.878
	2E	.517	.959	1.893	2.763	3.722	4.981	6.601	8.647	11.282	15.653	20.082
	8S	1.608	2.010	2.661	3.390	4.465	6.201	7.895	9.424	11.129	13.516	15.839
	8R	1.660	2.060	2.717	3.464	4.531	6.242	7.888	9.408	11.100	13.468	15.770
	16S	2.012	2.360	2.911	3.502	4.335	6.359	8.501	9.845	11.135	12.984	14.497
	16R	2.100	2.437	2.992	3.587	4.418	6.423	8.523	9.856	11.105	12.924	14.378
	32S	2.350	2.665	3.070	3.514	4.078	6.467	9.058	10.174	11.110	12.523	13.417
	32R	2.293	2.569	2.980	3.393	3.848	6.376	9.147	10.206	11.092	12.449	13.352
	128S	2.791	2.962	3.272	3.506	3.739	6.377	9.924	10.447	10.971	11.494	12.574
	All						7.064					

enumeration because of the enormous volume of necessary computation. For example, the number of possible portfolios containing eight different stocks that could be selected from a list of 1,000 stocks is more than 24 quintillion.[14] At current costs for computer time, complete enumeration of all such portfolios of eight stocks would have cost approximately $150 trillion. Instead of complete enumeration, we used a sample of all possible portfolios. The sample numbers are indicated in the table. The smallest sample size was approximately 32,000 portfolios in a given period.[15] We believe that with random samples of this size there are no significant biases or errors in the portrayals in the frequency distributions for the specified periods.

As indicated earlier, there were two methods of random sampling. The first has already been described as simple random sampling without replacement. Samples of this type are designated in the

[14] 2.4115×10^{19}.

[15] These sample sizes were selected so as to make the total number of stocks selected approximately the same regardless of the size of the portfolio. The actual numbers (32,768, etc.) are powers of two, which were convenient to use in the computer programming.

Number and Length of Periods	Size of Portfolio and Sampling Method	Sample Minimum	Sample Maximum	Arithmetic Mean	Standard Deviation	Mean Deviation	Gini's Mean Difference	Coefficient of Variation	Relative Mean Deviation	Coefficient of Concentration	Skewness	Kurtosis	Number of Portfolios Examined
(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
PERIODS						40 YEARS 1926-1965							
40 ONE-YEAR	1E	.000	20.841	1.148	.554	.351	.518	.483	.306	.226	5.339	111.090	35,407
	2E	.000	14.428	1.148	.451	.307	.449	.393	.268	.196	3.097	41.128	16,357,749
	8S	.164	6.272	1.148	.354	.265	.381	.308	.231	.166	1.028	7.606	5,242,880
	8R	.185	6.171	1.148	.353	.264	.381	.307	.230	.166	1.037	7.837	2,621,440
	16S	.273	4.434	1.148	.335	.257	.367	.292	.224	.160	.680	5.069	2,621,440
	16R	.284	4.406	1.149	.334	.257	.367	.290	.223	.160	.661	5.075	1,310,720
	32S	.344	3.533	1.148	.325	.253	.359	.283	.220	.157	.502	4.136	1,310,720
	32R	.373	3.261	1.150	.324	.253	.359	.281	.220	.156	.474	4.074	655,360
	128S	.434	2.525	1.148	.318	.249	.353	.277	.217	.154	.380	3.618	655,360
	All	.522	2.083	1.148	.315	.247	.350	.275	.216	.152	.345	3.493	40
8 FIVE-YEAR	1E	.000	48.855	1.904	2.064	1.145	1.640	1.084	.601	.431	7.197	107.852	6,791
	2E	.000	45.698	1.904	1.623	.995	1.417	.852	.523	.372	4.713	47.629	3,023,639
	8S	.103	16.196	1.904	1.190	.827	1.171	.625	.434	.307	2.239	11.032	1,048,576
	8R	.122	15.239	1.918	1.209	.837	1.189	.631	.436	.310	2.212	10.601	524,288
	16S	.268	11.391	1.905	1.103	.787	1.113	.579	.413	.292	1.794	7.059	524,288
	16R	.278	10.258	1.934	1.145	.809	1.154	.592	.418	.298	1.754	6.528	262,144
	32S	.427	8.355	1.903	1.051	.762	1.075	.552	.401	.282	1.557	5.316	262,144
	32R	.428	7.618	1.966	1.145	.814	1.165	.582	.414	.296	1.537	4.981	131,072
	128S	.668	5.713	1.906	1.019	.745	1.043	.535	.391	.274	1.409	4.293	131,072
	All	.877	4.264	1.904	1.007	.743	1.021	.529	.390	.268	1.362	4.017	8
4 TEN-YEAR	1E	.000	74.724	2.808	2.892	1.761	2.505	1.030	.627	.446	7.315	144.189	3,137
	2E	.000	51.189	2.808	2.144	1.418	2.039	.763	.505	.363	4.564	62.253	1,307,279
	8S	.049	16.967	2.804	1.325	.991	1.431	.472	.354	.255	1.037	8.955	524,288
	8R	.079	16.527	2.824	1.342	.994	1.436	.475	.352	.254	1.205	10.180	262,144
	16S	.192	10.241	2.807	1.137	.881	1.254	.405	.314	.223	.104	3.940	262,144
	16R	.228	9.974	2.849	1.164	.898	1.270	.409	.315	.223	.236	4.525	131,072
	32S	.475	6.930	2.806	1.030	.822	1.131	.367	.293	.201	-0.459	2.580	131,072
	32R	.476	7.813	2.896	1.150	.940	1.239	.397	.325	.214	-0.371	2.801	65,536
	128S	.797	4.637	2.804	.942	.786	.974	.336	.280	.174	-0.945	2.255	65,536
	All	1.238	3.526	2.808	.914	.785	.860	.326	.280	.153	-1.094	2.293	4
2 TWENTY-YR	1E	.000	110.916	7.064	9.008	5.956	8.052	1.275	.843	.570	3.485	24.393	1,363
	2E	.000	94.155	7.064	6.883	4.983	6.778	.974	.705	.480	2.327	12.326	493,173
	8S	.172	41.127	7.070	4.702	3.903	5.189	.665	.552	.367	.893	3.586	262,144
	8R	.154	36.448	7.086	4.656	3.857	5.139	.657	.544	.363	.893	3.591	131,072
	16S	.545	28.019	7.063	4.221	3.735	4.748	.598	.529	.336	.510	2.265	131,072
	16R	.646	24.726	7.095	4.156	3.678	4.679	.586	.518	.330	.498	2.237	65,536
	32S	1.208	21.171	7.058	3.961	3.701	4.438	.561	.524	.314	.272	1.603	65,536
	32R	1.190	19.714	7.002	3.999	3.769	4.465	.571	.538	.319	.243	1.522	32,768
	128S	2.213	14.266	7.061	3.758	3.699	4.053	.532	.524	.287	.065	1.127	32,768
	All	3.361	10.766	7.064	3.702	3.702	3.702	.524	.524	.262	.000	1.000	2

TABLE 5, CONTINUED

AGGREGATED FREQUENCY DISTRIBUTIONS OF WEALTH RATIOS FROM INVESTMENTS IN RANDOMLY SELECTED PORTFOLIOS CONTAINING SPECIFIED NUMBERS OF STOCKS LISTED ON THE NYSE, 1926-65

Number and Length of Periods	Size of Portfolio/ Sampling Method	Centiles of the Aggregated Frequency Distributions										
		5th	10th	20th	30th	40th	(Median) 50th	60th	70th	80th	90th	95th
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
PERIODS							20 YEARS 1926-1945					
20 ONE-YEAR	1E	.356	.480	.675	.828	.958	1.075	1.192	1.326	1.500	1.830	2.230
	2E	.438	.545	.718	.859	.979	1.098	1.218	1.344	1.497	1.761	2.070
	8S	.510	.582	.760	.892	1.001	1.145	1.272	1.378	1.497	1.675	1.891
	8R	.512	.584	.760	.893	1.002	1.149	1.275	1.380	1.499	1.677	1.887
	16S	.524	.583	.771	.902	.995	1.167	1.295	1.389	1.498	1.649	1.837
	16R	.527	.587	.769	.903	.998	1.173	1.298	1.392	1.504	1.656	1.828
	32S	.530	.581	.779	.908	.986	1.189	1.311	1.396	1.496	1.622	1.816
	32R	.532	.588	.769	.913	.994	1.196	1.318	1.400	1.505	1.640	1.796
	128S	.533	.576	.781	.909	.976	1.221	1.322	1.400	1.501	1.593	1.766
	All	.531	.580	.795	.900	.976	1.219	1.309	1.418	1.495	1.581	1.841
4 FIVE-YEAR	1E	.100	.207	.435	.673	.920	1.200	1.561	2.022	2.722	4.123	6.168
	2E	.286	.421	.622	.798	.983	1.206	1.535	2.091	2.878	4.217	5.517
	8S	.586	.678	.804	.914	1.036	1.195	1.454	2.028	3.222	4.243	5.082
	8R	.591	.680	.806	.917	1.039	1.199	1.460	2.035	3.303	4.327	5.177
	16S	.677	.748	.847	.935	1.038	1.194	1.461	1.895	3.472	4.307	4.950
	16R	.677	.746	.845	.934	1.039	1.201	1.480	1.909	3.658	4.489	5.113
	32S	.740	.794	.868	.937	1.023	1.194	1.482	1.795	3.674	4.327	4.783
	32R	.712	.769	.849	.924	1.018	1.222	1.527	1.844	4.051	4.672	5.080
	128S	.821	.851	.891	.929	.976	1.191	1.536	1.680	3.987	4.335	4.549
	All						1.258					
2 TEN-YEAR	1E	.036	.133	.386	.772	1.255	1.702	2.084	2.596	3.367	4.578	6.213
	2E	.195	.362	.700	1.043	1.427	1.859	2.277	2.725	3.302	4.273	5.435
	8S	.590	.736	.979	1.246	1.621	2.108	2.498	2.842	3.236	3.812	4.350
	8R	.607	.754	.992	1.258	1.631	2.141	2.537	2.891	3.293	3.870	4.400
	16S	.749	.870	1.065	1.268	1.545	2.217	2.640	2.925	3.221	3.639	4.055
	16R	.763	.888	1.080	1.276	1.551	2.307	2.740	3.037	3.344	3.788	4.268
	32S	.871	.972	1.123	1.271	1.471	2.242	2.756	2.994	3.233	3.568	3.911
	32R	.813	.898	1.026	1.157	1.334	2.305	3.073	3.326	3.590	3.991	4.961
	128S	1.043	1.109	1.185	1.264	1.351	1.967	2.952	3.109	3.270	3.481	3.672
	All						2.232					

TABLE 5, CONTINUED

AGGREGATED FREQUENCY DISTRIBUTIONS OF WEALTH RATIOS FROM INVESTMENTS IN RANDOMLY SELECTED PORTFOLIOS CONTAINING SPECIFIED NUMBERS OF STOCKS LISTED ON THE NYSE, 1926-65

Number and Length of Periods	Size of Portfolio/ Sampling Method	Centiles of the Aggregated Frequency Distributions										
		5th	10th	20th	30th	40th	(Median) 50th	60th	70th	80th	90th	95th
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
PERIODS							20 YEARS 1945-1965					
20 ONE-YEAR	1E	.663	.763	.879	.961	1.026	1.091	1.161	1.245	1.359	1.551	1.743
	2E	.746	.820	.913	.982	1.042	1.100	1.162	1.236	1.335	1.497	1.650
	8S	.829	.876	.944	1.005	1.063	1.114	1.163	1.218	1.299	1.454	1.567
	8R	.831	.876	.944	1.005	1.062	1.113	1.163	1.219	1.300	1.454	1.566
	16S	.847	.887	.948	1.007	1.069	1.120	1.165	1.214	1.285	1.450	1.557
	16R	.849	.888	.948	1.005	1.067	1.120	1.166	1.216	1.287	1.448	1.559
	32S	.857	.891	.951	1.004	1.074	1.127	1.167	1.210	1.277	1.453	1.558
	32R	.860	.894	.954	1.003	1.065	1.128	1.174	1.219	1.282	1.443	1.560
	128S	.864	.887	.962	.994	1.078	1.140	1.169	1.199	1.277	1.456	1.561
	All	.865	.883	.968	.987	1.077	1.147	1.169	1.192	1.279	1.453	1.563
4 FIVE-YEAR	1E	.579	.797	1.057	1.264	1.460	1.656	1.875	2.131	2.474	3.149	3.916
	2E	.861	1.015	1.227	1.399	1.560	1.724	1.903	2.116	2.407	2.924	3.481
	8S	1.175	1.280	1.427	1.554	1.678	1.810	1.953	2.115	2.312	2.600	2.865
	8R	1.177	1.281	1.428	1.556	1.682	1.816	1.960	2.121	2.316	2.602	2.868
	16S	1.267	1.351	1.473	1.583	1.702	1.837	1.982	2.130	2.291	2.506	2.688
	16R	1.267	1.350	1.471	1.586	1.712	1.855	2.004	2.148	2.305	2.516	2.702
	32S	1.331	1.397	1.495	1.590	1.710	1.863	2.016	2.151	2.284	2.448	2.573
	32R	1.329	1.393	1.494	1.600	1.743	1.942	2.099	2.219	2.336	2.483	2.610
	128S	1.400	1.435	1.507	1.603	1.712	1.923	2.054	2.165	2.267	2.364	2.431
	All						1.894					
2 TEN-YEAR	1E	.749	1.073	1.576	1.960	2.358	2.787	3.233	3.843	4.661	6.361	8.260
	2E	1.290	1.590	2.003	2.340	2.661	2.992	3.361	3.824	4.483	5.610	6.839
	8S	2.144	2.350	2.620	2.836	3.034	3.241	3.463	3.719	4.068	4.643	5.146
	8R	2.160	2.364	2.630	2.845	3.040	3.244	3.465	3.718	4.059	4.628	5.118
	16S	2.439	2.614	2.831	2.993	3.151	3.308	3.479	3.669	3.922	4.290	4.620
	16R	2.451	2.626	2.845	3.005	3.161	3.313	3.479	3.663	3.906	4.256	4.559
	32S	2.661	2.800	2.962	3.105	3.224	3.342	3.472	3.613	3.785	4.020	4.268
	32R	2.721	2.867	3.020	3.153	3.262	3.371	3.493	3.619	3.773	3.992	4.201
	128S	2.924	3.021	3.147	3.219	3.291	3.363	3.445	3.535	3.625	3.738	3.904
	All						3.383					

Number and Length of Periods	Size of Portfolio and Sampling Method	Sample Minimum	Sample Maximum	Arithmetic Mean	Standard Deviation	Mean Deviation	Gini's Mean Difference	Coefficient of Variation	Relative Mean Deviation	Coefficient of Concentration	Skewness	Kurtosis	Number of Portfolios Examined
(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
PERIODS						20 YEARS 1926-1945							
20 ONE-YEAR	1E	.000	20.841	1.158	.699	.447	.653	.604	.386	.282	5.062	86.788	14,394
	2E	.000	14.428	1.158	.569	.399	.574	.492	.344	.248	2.880	31.712	5,246,994
	8S	.164	6.272	1.158	.448	.355	.493	.387	.306	.213	.869	5.628	2,621,440
	8R	.185	6.171	1.159	.447	.354	.492	.386	.306	.212	.874	5.805	1,310,720
	16S	.273	4.434	1.158	.425	.348	.476	.367	.301	.205	.529	3.691	1,310,720
	16R	.284	4.406	1.159	.422	.347	.474	.364	.300	.204	.507	3.709	655,360
	32S	.344	3.533	1.157	.412	.345	.465	.356	.298	.201	.358	2.993	655,360
	32R	.373	3.261	1.162	.410	.345	.464	.353	.297	.200	.322	2.946	327,680
	128S	.434	2.525	1.158	.403	.343	.455	.348	.296	.196	.237	2.606	327,680
	All	.522	2.083	1.158	.400	.341	.450	.346	.295	.194	.204	2.514	20
4 FIVE-YEAR	1E	.000	48.855	1.914	2.615	1.485	2.050	1.366	.776	.535	6.257	75.783	2,754
	2E	.000	45.698	1.914	2.091	1.355	1.825	1.092	.708	.477	3.996	32.107	969,210
	8S	.103	16.196	1.914	1.588	1.226	1.561	.830	.640	.408	1.805	6.781	524,288
	8R	.122	15.239	1.937	1.615	1.244	1.591	.834	.642	.411	1.762	6.447	262,144
	16S	.268	11.391	1.917	1.490	1.196	1.494	.778	.624	.390	1.413	4.158	262,144
	16R	.278	10.258	1.962	1.549	1.235	1.557	.789	.629	.397	1.346	3.765	131,072
	32S	.427	8.355	1.912	1.431	1.177	1.442	.748	.615	.377	1.212	3.056	131,072
	32R	.428	7.618	1.999	1.562	1.258	1.577	.781	.629	.395	1.147	2.761	65,536
	128S	.668	5.713	1.917	1.397	1.170	1.394	.729	.611	.363	1.070	2.391	65,536
	All	.877	4.264	1.914	1.383	1.175	1.347	.722	.614	.352	1.032	2.223	4
2 TEN-YEAR	1E	.000	74.724	2.232	3.075	1.845	2.302	1.378	.826	.516	10.879	225.901	1,229
	2E	.000	51.189	2.232	2.284	1.550	1.935	1.023	.695	.433	6.927	98.839	387,916
	8S	.049	16.967	2.227	1.415	1.189	1.459	.636	.534	.328	2.162	14.642	262,144
	8R	.079	16.527	2.269	1.473	1.202	1.497	.649	.530	.330	2.326	15.430	131,072
	16S	.192	10.241	2.229	1.222	1.091	1.327	.548	.489	.298	1.079	5.646	131,072
	16R	.228	9.974	2.316	1.322	1.134	1.420	.571	.490	.307	1.191	5.836	65,536
	32S	.475	6.930	2.230	1.113	1.039	1.239	.499	.466	.278	.511	2.630	65,536
	32R	.476	7.813	2.390	1.398	1.268	1.540	.585	.530	.322	.562	2.448	32,768
	128S	.797	4.637	2.228	1.023	1.000	1.118	.459	.449	.251	.103	1.233	32,768
	All	1.238	3.226	2.232	.994	.994	.994	.445	.445	.223	.000	1.000	2

Number and Length of Periods	Size of Portfolio and Sampling Method	Sample Minimum	Sample Maximum	Arithmetic Mean	Standard Deviation	Mean Deviation	Gini's Mean Difference	Coefficient of Variation	Relative Mean Deviation	Coefficient of Concentration	Skewness	Kurtosis	Number of Portfolios Examined
(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
PERIODS						20 YEARS 1945-1965							
20 ONE-YEAR	1E	.000	5.441	1.138	.355	.255	.367	.312	.224	.161	1.791	12.734	21,013
	2E	.174	4.951	1.138	.287	.216	.307	.252	.189	.135	1.233	7.080	11,110,755
	8S	.534	2.644	1.138	.223	.174	.246	.196	.153	.108	.769	3.673	2,621,440
	8R	.535	2.580	1.138	.222	.174	.246	.195	.153	.108	.772	3.654	1,310,720
	16S	.637	2.214	1.138	.210	.165	.233	.185	.145	.103	.708	3.259	1,310,720
	16R	.658	2.141	1.138	.210	.166	.233	.184	.146	.103	.710	3.228	655,360
	32S	.697	1.989	1.138	.203	.160	.227	.179	.141	.100	.681	3.059	655,360
	32R	.711	1.930	1.139	.202	.161	.226	.178	.142	.099	.670	3.007	327,680
	128S	.777	1.765	1.138	.198	.156	.221	.174	.137	.097	.664	2.917	327,680
	All	.864	1.579	1.138	.197	.154	.218	.173	.136	.096	.659	2.875	20
4 FIVE-YEAR	1E	.063	35.876	1.894	1.296	.806	1.152	.684	.425	.304	6.646	129.423	4,037
	2E	.107	24.524	1.894	.947	.635	.903	.500	.335	.238	4.318	57.353	2,054,429
	8S	.553	7.417	1.894	.557	.428	.597	.294	.226	.158	1.458	8.981	524,288
	8R	.639	7.554	1.899	.562	.430	.600	.296	.226	.158	1.528	9.500	262,144
	16S	.846	5.052	1.894	.460	.377	.514	.243	.199	.136	.699	3.666	262,144
	16R	.886	4.934	1.906	.470	.383	.524	.247	.201	.138	.732	3.866	131,072
	32S	.910	3.507	1.895	.404	.348	.462	.213	.184	.122	.309	2.168	131,072
	32R	1.022	3.471	1.932	.422	.370	.484	.218	.191	.125	.167	1.972	65,536
	128S	1.197	2.746	1.894	.355	.320	.408	.187	.169	.108	.052	1.596	65,536
	All	1.455	2.335	1.894	.340	.316	.378	.179	.167	.100	.004	1.461	4
2 TEN-YEAR	1E	.047	22.340	3.383	2.571	1.677	2.485	.760	.496	.367	2.499	13.148	1,908
	2E	.064	21.851	3.383	1.820	1.286	1.865	.538	.380	.276	1.775	8.049	919,363
	8S	.837	9.564	3.381	.917	.793	1.004	.271	.235	.148	.915	4.242	262,144
	8R	1.035	9.523	3.380	.902	.787	.990	.267	.233	.146	.886	4.139	131,072
	16S	1.451	7.562	3.385	.653	.671	.726	.193	.198	.107	.668	3.613	131,072
	16R	1.523	6.935	3.381	.630	.662	.703	.186	.196	.104	.611	3.488	65,536
	32S	1.999	5.787	3.382	.469	.605	.527	.139	.179	.078	.494	3.230	65,536
	32R	1.912	5.420	3.401	.425	.613	.479	.125	.180	.070	.358	3.029	32,768
	128S	2.600	4.409	3.379	.256	.572	.290	.076	.169	.043	.289	2.821	32,768
	All	3.241	3.526	3.383	.143	.143	.143	.042	.042	.021	.000	1.000	2

table with the letter *S*. A second method of random sampling was also used, and the results of this method are indicated in the table with the letter *R*. In the second method, we took steps to insure that the portfolios were well diversified by industry. All the common stocks on the New York Stock Exchange were assigned to thirty-four industry groups.[16] Our method of random selection insured that no more than one stock fell in any single industry group. The greater the number of stocks in an industry, the greater the probability of including that industry in the portfolio. But the greater the number in the industry, the smaller the probability of including any particular stock.

We will not distinguish between these two different random methods of sampling in discussing the results, since the

[16] See Appendix, table A1.

TABLE 6

DISPERSION OF RETURNS ON N-STOCK PORTFOLIOS AS PERCENTAGE OF DISPERSION OF ONE-STOCK PORTFOLIOS
(Based on portfolios of stocks from NYSE for 1926-65 or as specified)

MEASURE OF RELATIVE DISPERSION For holding period(s)	Number of Stocks in Portfolio						
	1	2	8	16	32	128	All (Market)
Coefficient of Variation							
40 one-year	100	81	64	60	59	57	57
20 one-year (1926-45)	100	81	64	61	59	58	57
20 one-year (1946-65)	100	81	63	59	57	56	55
8 five-year	100	79	58	53	51	49	49
4 ten-year	100	74	46	39	36	33	32
2 twenty-year	100	76	52	47	44	42	41
Relative Mean Deviation							
40 one-year	100	88	75	73	72	71	71
20 one-year (1926-45)	100	89	79	78	77	77	76
20 one-year (1946-65)	100	85	68	65	63	61	61
8 five-year	100	87	72	69	67	65	65
4 ten-year	100	81	56	50	47	45	45
2 twenty-year	100	84	65	63	62	62	62
Gini's Coefficient of Concentration							
40 one-year	100	87	74	71	69	68	68
20 one-year (1926-45)	100	88	76	73	71	70	69
20 one-year (1946-65)	100	84	67	64	62	60	59
8 five-year	100	84	67	64	62	60	59
4 ten-year	100	81	57	50	45	39	34
2 twenty-year	100	84	64	59	55	50	46

two methods of selecting the sample did not produce significantly different results. Although there was a slight reduction in dispersion within individual periods as a result of the constrained random sampling, this reduction was almost exactly offset by the increased dispersion of the means among periods. Thus, when periods were aggregated, the distributions from the two methods of sampling became almost the same.

The findings.—In considering the findings discussed here, it is important to remember that initial equal investments were made in each stock included in any portfolio and that there was no subsequent reallocation of resources to preserve the equality of investment. This is not an investment strategy we advocate; again, it was chosen to make certain that the distributions were affected only by the number of stocks in the portfolio.

TABLE 7

DISPERSION OF RETURNS ON N-STOCK PORTFOLIOS AS PERCENTAGE OF DISPERSION OF MARKET PORTFOLIOS
(Based on portfolios of stocks from NYSE for 1926-65 or as specified)

MEASURE OF RELATIVE DISPERSION For holding period(s)	Number of Stocks in Portfolio						
	1	2	8	16	32	128	All (Market)
Coefficient of Variation							
40 one-year	176	143	112	106	103	101	100
20 one-year (1926-45)	175	142	112	106	103	101	100
20 one-year (1946-65)	180	146	113	107	103	101	100
8 five-year	205	161	118	109	104	101	100
4 ten-year	316	234	145	124	113	103	100
2 twenty-year	243	186	127	114	107	102	100
Relative Mean Deviation							
40 one-year	142	124	107	104	102	101	100
20 one-year (1926-45)	131	117	104	102	101	100	100
20 one-year (1946-65)	165	140	113	107	104	101	100
8 five-year	154	134	111	106	103	100	100
4 ten-year	224	181	126	112	105	100	100
2 twenty-year	161	135	105	101	100	100	100
Gini's Coefficient of Concentration							
40 one-year	148	128	109	105	103	101	100
20 one-year (1926-45)	145	127	110	106	103	101	100
20 one-year (1946-65)	169	141	113	107	104	101	100
8 five-year	161	139	115	109	105	102	100
4 ten-year	291	237	167	146	132	113	100
2 twenty-year	217	183	140	128	120	110	100

There is only one important generalization about table 5. It is that portfolios containing eight stocks have frequency distributions strikingly similar to those of portfolios containing larger numbers of stocks—including all listed stocks—except for the tails beyond the fifth and ninetieth centiles. The tails beyond those centiles get progressively shorter as the number of stocks in the portfolio increases. This fact causes the measures of dispersion to get smaller, despite the nearly identical distributions between the fifth and ninetieth centiles.

Tables 6, 7, and 8 summarize the information in table 5 with respect to the effect on relative dispersion of changing the number of stocks in a portfolio. The tables are easily read. The market as a whole generally had 50–75 percent as

TABLE 8

PERCENT OF POSSIBLE REDUCTION IN RELATIVE DISPERSION ACHIEVED THROUGH INCREASING THE NUMBER OF STOCKS IN THE PORTFOLIO
(Based on portfolios of stocks from NYSE for 1926-65 or as specified)

	Number of Stocks in Portfolio						
MEASURE OF RELATIVE DISPERSION For holding period(s)	1	2	8	16	32	128	All (Market)
Coefficient of Variation							
40 one-year	0	43	84	92	96	99	100
20 one-year (1926-45)	0	43	84	92	96	99	100
20 one-year (1946-65)	0	43	84	92	96	99	100
8 five-year	0	42	83	91	96	99	100
4 ten-year	0	38	79	89	94	99	100
2 twenty-year	0	40	81	90	95	99	100
Relative Mean Deviation							
40 one-year	0	42	84	91	95	98	100
20 one-year (1926-45)	0	45	87	94	96	99	100
20 one-year (1946-65)	0	39	80	89	94	99	100
8 five-year	0	37	79	89	95	99	100
4 ten-year	0	35	79	90	96	100	100
2 twenty-year	0	43	91	99	100	100	100
Gini's Coefficient of Concentration							
40 one-year	0	41	81	90	94	98	100
20 one-year (1926-45)	0	39	79	87	93	98	100
20 one-year (1946-65)	0	40	81	89	94	98	100
8 five-year	0	36	76	85	91	97	100
4 ten-year	0	28	65	76	84	93	100
2 twenty-year	0	29	66	76	83	92	100

much dispersion as did one-stock portfolios, depending on the periods and measure of dispersion (table 6). Conversely, one-stock portfolios have roughly one and one-third to twice as much dispersion as the market (table 7). The opportunity to reduce dispersion by increasing the number of stocks in the portfolio is rapidly exhausted (table 8). Roughly, 40 percent of achievable reduction is obtained by holding two stocks; 80 percent, by holding eight stocks; 90 percent, by holding sixteen stocks; 95 percent, by holding thirty-two stocks; and 99 percent, by holding 128 stocks (table 8).

APPENDIX A

AGGREGATED FREQUENCY DISTRIBUTIONS FOR PORTFOLIOS OF SPECIFIED SIZES

Table A1 shows the frequency distributions of wealth ratios for portfolios of specified sizes for the fifty-five periods. These distributions were aggregated to produce tables 4 and 5.

Since the statistics for portfolios having eight or more stocks were based on samples, it is unlikely that the minimum and maximum wealth ratios for any samples were the true minima and maxima. Table A2 shows the true minima and maxima for portfolios of eight or more stocks for each of the fifty-five periods.

TABLE A1

FREQUENCY DISTRIBUTIONS OF WEALTH RATIOS FROM INVESTMENTS IN RANDOMLY SELECTED PORTFOLIOS CONTAINING SPECIFIED NUMBERS OF STOCKS LISTED ON THE NYSE, 1926-65

Number and Length of Periods	Size of Portfolio/ Sampling Method	Centiles of the Frequency Distributions										
		5th	10th	20th	30th	40th	(Median) 50th	60th	70th	80th	90th	95th
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
					ONE-YEAR PERIODS							
1/26-12/26	1E	.429	.560	.722	.845	.917	.991	1.060	1.115	1.183	1.316	1.485
	2E	.626	.703	.796	.865	.923	.976	1.026	1.079	1.143	1.249	1.382
	8S	.802	.839	.886	.919	.949	.977	1.005	1.038	1.077	1.139	1.196
	8R	.801	.838	.884	.918	.947	.976	1.004	1.037	1.078	1.141	1.201
	16S	.853	.881	.914	.938	.960	.980	1.002	1.025	1.053	1.095	1.132
	16R	.851	.879	.912	.935	.957	.978	.999	1.023	1.052	1.095	1.132
	32S	.892	.912	.936	.953	.969	.983	.998	1.015	1.034	1.061	1.084
	32R	.886	.904	.928	.945	.961	.974	.989	1.005	1.024	1.052	1.075
	128S	.942	.952	.963	.971	.978	.985	.992	.999	1.008	1.019	1.029
12/26-12/27	1E	.640	.752	.888	1.053	1.132	1.225	1.330	1.457	1.601	1.834	2.274
	2E	.797	.895	1.011	1.099	1.175	1.248	1.326	1.414	1.532	1.739	1.957
	8S	1.024	1.077	1.142	1.192	1.235	1.277	1.321	1.372	1.435	1.536	1.637
	8R	1.026	1.077	1.140	1.189	1.231	1.273	1.317	1.367	1.430	1.529	1.631
	16S	1.097	1.137	1.185	1.221	1.253	1.285	1.318	1.354	1.400	1.474	1.557
	16R	1.095	1.134	1.182	1.216	1.247	1.278	1.309	1.345	1.389	1.459	1.530
	32S	1.153	1.181	1.216	1.243	1.267	1.291	1.313	1.340	1.374	1.427	1.477
	32R	1.148	1.175	1.210	1.235	1.256	1.278	1.301	1.325	1.355	1.397	1.439
	128S	1.230	1.244	1.262	1.275	1.287	1.299	1.310	1.323	1.338	1.359	1.377
12/27-12/28	1E	.725	.834	.976	1.064	1.153	1.251	1.376	1.512	1.711	2.136	2.795
	2E	.879	.960	1.064	1.148	1.227	1.310	1.402	1.517	1.689	2.049	2.459
	8S	1.095	1.149	1.219	1.276	1.330	1.386	1.449	1.524	1.626	1.811	2.026
	8R	1.096	1.148	1.217	1.274	1.326	1.381	1.442	1.517	1.618	1.802	2.031
	16S	1.176	1.220	1.279	1.326	1.369	1.413	1.460	1.518	1.597	1.731	1.878
	16R	1.167	1.208	1.265	1.309	1.350	1.391	1.438	1.492	1.568	1.699	1.839
	32S	1.244	1.281	1.325	1.362	1.395	1.430	1.468	1.510	1.566	1.662	1.754
	32R	1.207	1.237	1.275	1.306	1.335	1.363	1.393	1.431	1.479	1.558	1.630
	128S	1.344	1.365	1.392	1.412	1.430	1.448	1.466	1.486	1.512	1.547	1.579
12/28-12/29	1E	.197	.279	.405	.518	.604	.700	.774	.873	.977	1.123	1.218
	2E	.339	.412	.505	.574	.636	.694	.752	.816	.890	.994	1.079
	8S	.518	.556	.604	.639	.669	.698	.726	.757	.794	.844	.886
	8R	.520	.558	.604	.637	.667	.696	.723	.753	.789	.838	.879
	16S	.572	.599	.633	.657	.679	.699	.719	.740	.765	.801	.830
	16R	.573	.600	.632	.655	.675	.693	.712	.733	.758	.791	.819
	32S	.609	.629	.653	.670	.685	.699	.713	.728	.746	.770	.790
	32R	.612	.629	.651	.666	.679	.691	.703	.717	.734	.756	.775
	128S	.659	.667	.679	.686	.693	.700	.707	.713	.721	.732	.742
12/29-12/30	1E	.205	.265	.367	.442	.521	.593	.674	.757	.868	.986	1.106
	2E	.313	.370	.446	.504	.557	.607	.658	.715	.783	.882	.967
	8S	.462	.494	.535	.565	.591	.616	.641	.669	.702	.750	.791
	8R	.463	.496	.537	.568	.594	.620	.645	.673	.705	.753	.793
	16S	.506	.531	.560	.581	.600	.618	.636	.655	.679	.711	.739
	16R	.514	.537	.566	.588	.606	.624	.642	.662	.684	.716	.743
	32S	.539	.556	.578	.593	.606	.619	.631	.645	.661	.683	.702
	32R	.550	.566	.588	.603	.615	.628	.640	.653	.669	.692	.711
	128S	.582	.590	.601	.607	.614	.620	.625	.632	.639	.649	.658
12/30-12/31	1E	.158	.215	.292	.347	.401	.467	.536	.615	.738	.909	1.044
	2E	.241	.288	.350	.399	.446	.493	.545	.603	.677	.788	.891
	8S	.367	.397	.434	.463	.489	.514	.540	.568	.603	.656	.702
	8R	.371	.401	.439	.469	.494	.519	.545	.574	.610	.662	.708
	16S	.410	.432	.460	.481	.500	.518	.536	.556	.580	.616	.646
	16R	.420	.443	.472	.493	.511	.529	.548	.568	.593	.628	.658
	32S	.442	.458	.478	.494	.507	.520	.533	.547	.564	.587	.607
	32R	.463	.480	.500	.515	.529	.542	.555	.568	.585	.609	.627
	128S	.483	.491	.502	.509	.515	.521	.527	.534	.541	.552	.560
12/31-12/32	1E	.353	.449	.561	.654	.729	.828	.931	1.035	1.173	1.377	1.662
	2E	.475	.551	.646	.719	.786	.851	.920	1.000	1.103	1.272	1.451
	8S	.663	.707	.763	.805	.842	.878	.916	.959	1.012	1.093	1.163
	8R	.665	.709	.763	.805	.842	.877	.915	.957	1.009	1.088	1.160
	16S	.726	.759	.799	.830	.857	.883	.911	.941	.978	1.032	1.078
	16R	.723	.756	.797	.827	.854	.879	.906	.935	.970	1.022	1.066
	32S	.772	.796	.827	.849	.869	.887	.906	.927	.953	.989	1.020
	32R	.763	.785	.813	.834	.852	.871	.888	.908	.931	.963	.991
	128S	.834	.846	.862	.873	.882	.891	.900	.909	.921	.937	.950
12/32-12/33	1E	.657	.856	1.189	1.402	1.628	1.849	2.075	2.394	2.742	3.331	4.338
	2E	.986	1.165	1.401	1.587	1.755	1.925	2.106	2.319	2.608	3.128	3.691
	8S	1.459	1.568	1.712	1.822	1.919	2.018	2.124	2.245	2.397	2.634	2.865
	8R	1.451	1.557	1.697	1.802	1.900	1.998	2.101	2.221	2.373	2.613	2.839
	16S	1.619	1.704	1.814	1.897	1.971	2.045	2.121	2.208	2.312	2.480	2.662
	16R	1.586	1.669	1.777	1.856	1.929	2.000	2.075	2.160	2.273	2.448	2.658
	32S	1.744	1.806	1.889	1.950	2.005	2.057	2.113	2.176	2.256	2.383	2.517
	32R	1.704	1.768	1.843	1.902	1.956	2.007	2.064	2.128	2.219	2.399	2.576
	128S	1.915	1.950	1.992	2.023	2.052	2.080	2.107	2.138	2.174	2.227	2.274

Number and Length of Periods	Size of Portfolio and Sampling Method	Sample Minimum	Sample Maximum	Arithmetic Mean	Standard Deviation	Mean Deviation	Gini's Mean Difference	Coefficient of Variation	Relative Mean Deviation	Coefficient of Concentration	Skewness	Kurtosis	Number of Portfolios Examined
(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
					ONE-YEAR PERIODS								
1/26-12/26	1E	.073	2.970	.985	.343	.242	.355	.348	.245	.180	1.304	8.891	510
	2E	.174	2.950	.985	.242	.179	.259	.246	.181	.132	.920	5.910	129,795
	8S	.529	1.700	.984	.120	.094	.134	.122	.095	.068	.436	3.637	131,072
	8R	.554	1.843	.984	.122	.095	.135	.124	.096	.069	.499	3.744	65,536
	16S	.674	1.365	.985	.084	.067	.095	.086	.068	.048	.306	3.246	65,536
	16R	.692	1.410	.983	.085	.068	.096	.087	.069	.049	.346	3.283	32,768
	32S	.740	1.257	.985	.058	.046	.066	.059	.047	.033	.197	3.088	32,768
	32R	.789	1.198	.977	.057	.046	.064	.059	.047	.033	.228	3.007	16,384
	128S	.886	1.086	.985	.026	.021	.030	.027	.021	.015	.059	2.939	16,384
12/26-12/27	1E	.000	7.889	1.300	.577	.374	.546	.444	.288	.210	3.660	36.275	543
	2E	.000	6.338	1.300	.408	.278	.404	.314	.214	.155	2.581	19.478	147,153
	8S	.627	2.805	1.300	.203	.150	.215	.156	.115	.083	1.254	6.823	131,072
	8R	.632	2.881	1.296	.199	.148	.212	.154	.114	.082	1.261	6.922	65,536
	16S	.835	2.238	1.300	.143	.108	.155	.110	.083	.060	.895	4.825	65,536
	16R	.834	2.227	1.291	.136	.105	.148	.105	.081	.057	.812	4.718	32,768
	32S	.992	1.805	1.298	.098	.077	.109	.076	.059	.042	.568	3.653	32,768
	32R	.977	1.745	1.284	.089	.072	.099	.069	.056	.039	.449	3.595	16,384
	128S	1.134	1.476	1.300	.045	.036	.050	.034	.027	.019	.210	2.994	16,384
12/27-12/28	1E	.398	13.226	1.453	.904	.498	.712	.622	.343	.245	5.844	60.390	589
	2E	.407	10.450	1.453	.639	.388	.554	.440	.267	.191	4.122	31.444	173,166
	8S	.778	4.001	1.451	.316	.223	.317	.218	.154	.109	2.021	9.670	131,072
	8R	.803	4.080	1.447	.313	.222	.314	.216	.153	.108	2.033	9.757	65,536
	16S	.908	3.069	1.454	.223	.165	.235	.154	.114	.081	1.404	6.161	65,536
	16R	.961	2.802	1.431	.213	.163	.225	.149	.114	.079	1.398	6.136	32,768
	32S	1.053	2.288	1.454	.155	.120	.170	.107	.082	.058	.931	4.254	32,768
	32R	1.061	2.208	1.383	.132	.125	.144	.096	.090	.052	1.015	4.764	16,384
	128S	1.248	1.752	1.453	.071	.057	.080	.049	.039	.028	.360	3.008	16,384
12/28-12/29	1E	.000	1.851	.700	.318	.259	.361	.454	.370	.258	.261	2.718	627
	2E	.026	1.754	.700	.225	.181	.254	.321	.258	.182	.184	2.856	196,251
	8S	.216	1.214	.699	.112	.090	.126	.160	.128	.090	.096	2.981	131,072
	8R	.283	1.169	.697	.109	.087	.123	.156	.125	.088	.083	2.928	65,536
	16S	.360	1.024	.699	.079	.063	.089	.112	.090	.063	.059	2.952	65,536
	16R	.355	1.003	.695	.075	.060	.084	.108	.086	.061	.079	3.045	32,768
	32S	.476	.924	.699	.055	.044	.062	.079	.063	.044	.029	2.956	32,768
	32R	.509	.883	.692	.049	.040	.055	.071	.057	.040	.078	2.977	16,384
	128S	.605	.797	.700	.025	.020	.028	.036	.029	.020	.030	2.948	16,384
12/29-12/30	1E	.046	2.105	.620	.286	.229	.318	.461	.369	.257	.685	4.047	717
	2E	.051	1.961	.620	.202	.160	.226	.326	.258	.182	.483	3.516	256,686
	8S	.241	1.121	.620	.100	.080	.113	.162	.128	.091	.237	3.127	131,072
	8R	.260	1.123	.623	.100	.080	.113	.161	.128	.091	.223	3.095	65,536
	16S	.347	.950	.620	.070	.056	.079	.114	.091	.064	.153	3.021	65,536
	16R	.383	.927	.626	.070	.056	.079	.111	.089	.063	.133	3.009	32,768
	32S	.432	.822	.619	.049	.039	.056	.079	.063	.045	.102	2.970	32,768
	32R	.452	.825	.629	.049	.039	.055	.077	.063	.044	.105	2.978	16,384
	128S	.541	.716	.620	.023	.018	.026	.037	.029	.021	.046	2.995	16,384
12/30-12/31	1E	.000	2.204	.522	.291	.221	.311	.558	.425	.298	1.323	6.365	737
	2E	.000	2.114	.522	.206	.160	.225	.394	.306	.216	.933	4.667	271,216
	8S	.164	1.079	.521	.102	.081	.114	.196	.155	.110	.452	3.358	131,072
	8R	.185	1.132	.527	.103	.081	.115	.196	.154	.109	.458	3.419	65,536
	16S	.273	.910	.521	.072	.057	.081	.138	.110	.078	.328	3.223	65,536
	16R	.284	.899	.533	.072	.058	.081	.135	.108	.076	.286	3.116	32,768
	32S	.344	.770	.522	.050	.040	.057	.096	.077	.054	.190	3.024	32,768
	32R	.373	.730	.543	.050	.043	.056	.092	.079	.052	.143	2.940	16,384
	128S	.434	.614	.521	.023	.019	.026	.045	.036	.025	.084	3.000	16,384
12/31-12/32	1E	.000	3.308	.891	.435	.319	.455	.488	.358	.255	1.481	7.462	732
	2E	.000	3.188	.891	.307	.232	.331	.345	.260	.186	1.045	5.211	267,546
	8S	.375	1.787	.891	.153	.120	.170	.171	.135	.096	.506	3.514	131,072
	8R	.356	1.758	.890	.151	.119	.169	.170	.134	.095	.505	3.516	65,536
	16S	.520	1.521	.890	.108	.085	.121	.121	.096	.068	.379	3.288	65,536
	16R	.513	1.367	.885	.104	.083	.117	.118	.094	.066	.320	3.191	32,768
	32S	.622	1.217	.890	.075	.060	.085	.084	.067	.048	.249	3.083	32,768
	32R	.569	1.151	.873	.069	.058	.078	.080	.066	.045	.189	3.010	16,384
	128S	.770	1.039	.891	.035	.028	.039	.039	.031	.022	.095	3.009	16,384
12/32-12/33	1E	.000	20.841	2.083	1.366	.873	1.253	.656	.419	.301	4.686	54.283	709
	2E	.000	14.428	2.083	.965	.650	.933	.463	.312	.224	3.306	28.455	250,986
	8S	.832	6.272	2.082	.479	.350	.500	.230	.168	.120	1.628	9.059	131,072
	8R	.843	6.171	2.066	.486	.352	.500	.235	.170	.121	1.805	9.873	65,536
	16S	1.142	4.434	2.083	.339	.253	.363	.163	.122	.087	1.147	5.934	65,536
	16R	1.143	4.406	2.049	.353	.264	.371	.172	.129	.091	1.375	6.520	32,768
	32S	1.316	3.533	2.082	.236	.182	.260	.114	.087	.062	.762	4.204	32,768
	32R	1.381	3.261	2.048	.258	.203	.279	.126	.099	.068	.963	4.196	16,384
	128S	1.720	2.525	2.085	.108	.086	.122	.052	.041	.029	.272	3.031	16,384

TABLE A1, CONTINUED

FREQUENCY DISTRIBUTIONS OF WEALTH RATIOS FROM INVESTMENTS IN RANDOMLY SELECTED PORTFOLIOS CONTAINING SPECIFIED NUMBERS OF STOCKS LISTED ON THE NYSE, 1926-65

Number and Length of Periods	Size of Portfolio/ Sampling Method	Centiles of the Frequency Distributions										
		5th	10th	20th	30th	40th	(Median) 50th	60th	70th	80th	90th	95th
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
		ONE-YEAR PERIODS (CONTINUED)										
12/33-12/34	1E	.566	.645	.759	.849	.938	1.029	1.134	1.262	1.428	1.728	2.017
	2E	.690	.760	.855	.930	1.001	1.072	1.150	1.242	1.362	1.558	1.761
	8S	.883	.927	.986	1.031	1.072	1.111	1.155	1.204	1.266	1.364	1.462
	8R	.893	.937	.994	1.039	1.078	1.119	1.161	1.210	1.272	1.372	1.469
	16S	.947	.983	1.027	1.061	1.092	1.122	1.154	1.189	1.234	1.302	1.376
	16R	.967	1.002	1.045	1.078	1.107	1.137	1.167	1.202	1.246	1.314	1.388
	32S	.998	1.024	1.059	1.084	1.105	1.127	1.149	1.176	1.209	1.262	1.324
	32R	1.024	1.050	1.080	1.104	1.125	1.145	1.166	1.189	1.219	1.263	1.312
	128S	1.068	1.082	1.100	1.113	1.125	1.136	1.148	1.161	1.178	1.201	1.220
12/34-12/35	1E	.761	.864	1.029	1.134	1.232	1.353	1.492	1.656	1.927	2.342	2.747
	2E	.907	1.007	1.132	1.230	1.323	1.421	1.532	1.663	1.829	2.117	2.394
	8S	1.163	1.226	1.308	1.370	1.426	1.483	1.542	1.610	1.694	1.824	1.939
	8R	1.169	1.232	1.313	1.375	1.432	1.488	1.546	1.614	1.697	1.825	1.943
	16S	1.254	1.303	1.365	1.411	1.453	1.494	1.537	1.584	1.641	1.726	1.801
	16R	1.269	1.316	1.377	1.423	1.465	1.505	1.546	1.593	1.650	1.735	1.808
	32S	1.327	1.361	1.407	1.441	1.471	1.500	1.529	1.561	1.600	1.658	1.705
	32R	1.350	1.384	1.429	1.462	1.490	1.517	1.546	1.577	1.615	1.670	1.717
	128S	1.420	1.437	1.460	1.477	1.492	1.506	1.519	1.534	1.552	1.577	1.598
12/35-12/36	1E	.854	.943	1.052	1.154	1.235	1.334	1.446	1.583	1.773	2.130	2.461
	2E	.979	1.054	1.152	1.231	1.307	1.385	1.473	1.580	1.722	1.975	2.252
	8S	1.181	1.231	1.296	1.348	1.395	1.442	1.491	1.550	1.624	1.740	1.854
	8R	1.182	1.231	1.295	1.346	1.392	1.439	1.489	1.545	1.619	1.735	1.849
	16S	1.257	1.296	1.346	1.385	1.420	1.455	1.491	1.533	1.586	1.670	1.759
	16R	1.254	1.293	1.344	1.382	1.417	1.450	1.486	1.528	1.580	1.662	1.748
	32S	1.312	1.341	1.380	1.409	1.435	1.460	1.487	1.517	1.555	1.619	1.723
	32R	1.321	1.351	1.386	1.414	1.440	1.464	1.488	1.517	1.552	1.605	1.665
	128S	1.391	1.408	1.429	1.444	1.458	1.473	1.489	1.508	1.536	1.582	1.613
12/36-12/37	1E	.276	.315	.373	.420	.472	.517	.562	.624	.687	.798	.888
	2E	.338	.374	.423	.461	.495	.528	.563	.602	.650	.721	.786
	8S	.434	.455	.482	.502	.520	.537	.555	.574	.597	.631	.659
	8R	.434	.455	.482	.502	.519	.536	.554	.572	.595	.628	.656
	16S	.463	.480	.500	.514	.527	.539	.551	.565	.581	.604	.623
	16R	.464	.480	.498	.513	.525	.536	.549	.562	.577	.599	.618
	32S	.486	.498	.512	.522	.532	.540	.549	.558	.569	.585	.597
	32R	.478	.489	.502	.512	.521	.528	.537	.545	.556	.570	.582
	128S	.514	.521	.527	.532	.537	.541	.545	.549	.554	.561	.568
12/37-12/38	1E	.693	.838	.986	1.090	1.186	1.260	1.350	1.458	1.594	1.798	2.020
	2E	.849	.950	1.065	1.144	1.212	1.277	1.345	1.422	1.517	1.661	1.802
	8S	1.067	1.115	1.174	1.218	1.255	1.291	1.328	1.368	1.419	1.496	1.576
	8R	1.068	1.115	1.172	1.215	1.252	1.287	1.323	1.364	1.413	1.490	1.575
	16S	1.134	1.168	1.210	1.242	1.269	1.295	1.322	1.352	1.389	1.449	1.523
	16R	1.128	1.162	1.205	1.234	1.261	1.286	1.314	1.344	1.383	1.452	1.557
	32S	1.181	1.206	1.236	1.259	1.279	1.299	1.319	1.341	1.370	1.416	1.466
	32R	1.184	1.209	1.240	1.262	1.283	1.302	1.325	1.352	1.391	1.459	1.507
	128S	1.243	1.256	1.272	1.284	1.294	1.304	1.314	1.326	1.339	1.359	1.376
12/38-12/39	1E	.554	.626	.704	.790	.869	.947	1.021	1.089	1.183	1.319	1.478
	2E	.648	.709	.789	.848	.899	.948	.999	1.056	1.125	1.234	1.351
	8S	.798	.832	.874	.906	.934	.960	.988	1.018	1.055	1.111	1.160
	8R	.801	.835	.877	.909	.936	.963	.990	1.022	1.059	1.114	1.164
	16S	.846	.871	.902	.924	.944	.964	.983	1.005	1.030	1.068	1.101
	16R	.852	.877	.907	.931	.951	.970	.990	1.013	1.039	1.078	1.111
	32S	.881	.898	.921	.937	.951	.965	.979	.994	1.011	1.037	1.059
	32R	.905	.924	.947	.964	.979	.993	1.008	1.023	1.042	1.067	1.089
	128S	.925	.934	.946	.954	.961	.967	.974	.980	.989	1.000	1.010
12/39-12/40	1E	.477	.584	.713	.795	.852	.904	.952	1.005	1.069	1.194	1.331
	2E	.597	.672	.755	.811	.858	.899	.939	.982	1.036	1.122	1.204
	8S	.748	.782	.822	.851	.876	.899	.922	.947	.977	1.023	1.066
	8R	.751	.783	.822	.850	.875	.897	.920	.945	.977	1.024	1.069
	16S	.792	.816	.844	.865	.883	.899	.916	.934	.956	.988	1.017
	16R	.796	.819	.846	.866	.884	.901	.918	.937	.960	.993	1.022
	32S	.825	.841	.861	.876	.888	.900	.912	.925	.940	.963	.982
	32R	.837	.854	.874	.889	.902	.914	.927	.940	.957	.979	.999
	128S	.864	.872	.882	.889	.896	.902	.907	.914	.921	.930	.939
12/40-12/41	1E	.445	.545	.666	.751	.820	.879	.947	1.016	1.096	1.234	1.412
	2E	.572	.642	.726	.785	.836	.883	.931	.985	1.051	1.159	1.277
	8S	.729	.764	.807	.838	.866	.891	.918	.948	.984	1.039	1.089
	8R	.730	.766	.808	.839	.866	.893	.919	.948	.985	1.041	1.088
	16S	.777	.802	.833	.856	.875	.896	.914	.935	.960	.998	1.029
	16R	.778	.803	.833	.855	.875	.894	.913	.935	.959	.996	1.027
	32S	.811	.829	.852	.868	.882	.896	.910	.925	.943	.968	.989
	32R	.819	.836	.858	.873	.887	.900	.914	.928	.945	.969	.989
	128S	.856	.865	.876	.884	.891	.898	.904	.911	.920	.932	.941

Number and Length of Periods	Size of Portfolio and Sampling Method	Sample Minimum	Sample Maximum	Arithmetic Mean	Standard Deviation	Mean Deviation	Gini's Mean Difference	Coefficient of Variation	Relative Mean Deviation	Coefficient of Concentration	Skewness	Kurtosis	Number of Portfolios Examined
(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
					ONE-YEAR PERIODS (CONTINUED)								
12/33-12/34	1E	.090	9.481	1.139	.574	.364	.517	.504	.319	.227	5.358	67.343	707
	2E	.154	6.789	1.139	.406	.269	.384	.356	.236	.169	3.780	34.938	249,571
	8S	.626	2.975	1.139	.202	.144	.207	.178	.127	.091	1.874	10.659	131,072
	8R	.627	2.609	1.147	.201	.143	.206	.176	.125	.090	1.866	10.388	65,536
	16S	.744	2.046	1.139	.142	.105	.150	.124	.092	.066	1.258	6.423	65,536
	16R	.721	2.093	1.154	.139	.102	.148	.121	.088	.064	1.293	6.465	32,768
	32S	.856	1.689	1.138	.100	.076	.109	.087	.067	.048	.871	4.473	32,768
	32R	.899	1.642	1.153	.089	.068	.098	.078	.059	.042	.783	4.378	16,384
	128S	.974	1.326	1.139	.046	.037	.052	.040	.032	.023	.302	3.020	16,384
12/34-12/35	1E	.000	6.077	1.507	.675	.485	.687	.448	.322	.228	1.830	9.327	706
	2E	.000	5.683	1.507	.477	.359	.508	.317	.238	.168	1.291	6.137	248,865
	8S	.768	3.035	1.508	.238	.187	.265	.158	.124	.088	.630	3.710	131,072
	8R	.716	3.008	1.512	.237	.186	.263	.157	.123	.087	.640	3.738	65,536
	16S	.946	2.433	1.507	.167	.132	.187	.111	.088	.062	.452	3.390	65,536
	16R	.970	2.499	1.517	.165	.130	.185	.109	.086	.061	.446	3.362	32,768
	32S	1.109	2.103	1.505	.116	.092	.130	.077	.061	.043	.310	3.173	32,768
	32R	1.180	2.020	1.523	.112	.089	.126	.074	.059	.041	.320	3.189	16,384
	128S	1.332	1.731	1.507	.054	.043	.061	.036	.029	.020	.162	2.994	16,384
12/35-12/36	1E	.178	17.234	1.483	.814	.424	.605	.549	.286	.204	10.719	197.482	719
	2E	.186	11.272	1.483	.575	.321	.460	.388	.217	.155	7.563	99.551	258,121
	8S	.853	4.318	1.483	.285	.178	.257	.192	.120	.087	3.723	26.134	131,072
	8R	.869	4.095	1.481	.285	.177	.256	.192	.120	.086	3.777	26.489	65,536
	16S	1.004	3.005	1.485	.204	.133	.194	.137	.089	.065	2.629	13.936	65,536
	16R	1.010	2.834	1.479	.195	.130	.187	.132	.088	.063	2.585	14.164	32,768
	32S	1.138	2.299	1.481	.140	.098	.141	.095	.066	.048	1.787	7.928	32,768
	32R	1.140	2.265	1.478	.122	.087	.125	.082	.059	.042	1.665	8.485	16,384
	128S	1.298	1.748	1.484	.066	.052	.074	.045	.035	.025	.672	3.202	16,384
12/36-12/37	1E	.109	1.372	.541	.195	.153	.215	.360	.283	.199	.815	4.073	744
	2E	.123	1.345	.541	.138	.109	.154	.254	.201	.142	.575	3.529	276,396
	8S	.276	.867	.541	.069	.055	.077	.127	.101	.071	.294	3.134	131,072
	8R	.314	.893	.540	.068	.054	.076	.125	.100	.070	.284	3.126	65,536
	16S	.350	.762	.541	.048	.039	.055	.090	.071	.050	.193	3.044	65,536
	16R	.368	.786	.538	.047	.037	.053	.087	.069	.049	.204	3.069	32,768
	32S	.414	.690	.541	.034	.027	.038	.062	.050	.035	.131	3.009	32,768
	32R	.419	.666	.529	.031	.027	.035	.059	.051	.033	.124	3.038	16,384
	128S	.482	.608	.541	.016	.012	.018	.029	.023	.016	.075	3.006	16,384
12/37-12/38	1E	.000	7.187	1.307	.497	.320	.469	.380	.245	.179	3.998	44.628	780
	2E	.073	6.919	1.307	.351	.236	.344	.269	.181	.132	2.822	23.675	303,810
	8S	.716	3.008	1.307	.175	.126	.183	.134	.097	.070	1.397	7.977	131,072
	8R	.731	2.776	1.305	.176	.126	.183	.135	.097	.070	1.517	8.203	65,536
	16S	.910	2.219	1.307	.123	.092	.132	.094	.070	.051	.979	5.385	65,536
	16R	.863	2.145	1.303	.129	.096	.137	.099	.073	.053	1.179	5.657	32,768
	32S	1.009	1.801	1.307	.086	.066	.095	.066	.051	.036	.636	3.950	32,768
	32R	1.020	1.832	1.318	.098	.074	.107	.074	.056	.041	.822	3.857	16,384
	128S	1.152	1.465	1.306	.040	.032	.045	.031	.024	.017	.279	3.136	16,384
12/38-12/39	1E	.000	2.830	.967	.313	.234	.334	.324	.242	.173	1.140	6.735	775
	2E	.098	2.623	.967	.221	.168	.241	.229	.174	.125	.805	4.852	299,925
	8S	.564	1.553	.967	.110	.087	.123	.114	.090	.064	.390	3.412	131,072
	8R	.561	1.654	.970	.111	.087	.124	.114	.090	.064	.401	3.420	65,536
	16S	.681	1.329	.967	.077	.061	.087	.080	.064	.045	.259	3.172	65,536
	16R	.672	1.391	.974	.079	.063	.089	.081	.064	.045	.285	3.194	32,768
	32S	.742	1.229	.967	.054	.043	.061	.056	.045	.032	.201	3.105	32,768
	32R	.773	1.239	.995	.056	.049	.063	.056	.050	.032	.128	2.969	16,384
	128S	.870	1.089	.967	.025	.020	.029	.026	.021	.015	.069	2.986	16,384
12/39-12/40	1E	.000	2.748	.901	.276	.195	.288	.306	.216	.160	.823	8.584	778
	2E	.000	2.559	.901	.195	.144	.210	.216	.160	.117	.581	5.770	302,253
	8S	.509	1.484	.901	.097	.076	.108	.108	.084	.060	.288	3.650	131,072
	8R	.524	1.446	.901	.097	.076	.108	.108	.084	.060	.361	3.681	65,536
	16S	.572	1.246	.901	.068	.054	.076	.076	.060	.042	.184	3.312	65,536
	16R	.615	1.235	.904	.069	.054	.077	.076	.060	.043	.256	3.286	32,768
	32S	.710	1.116	.901	.048	.038	.054	.053	.042	.030	.147	3.178	32,768
	32R	.749	1.121	.916	.049	.040	.055	.054	.044	.030	.171	3.088	16,384
	128S	.814	.992	.902	.022	.018	.025	.025	.020	.014	.041	2.994	16,384
12/40-12/41	1E	.000	2.941	.898	.312	.227	.330	.348	.253	.184	1.101	7.515	788
	2E	.000	2.689	.898	.221	.166	.239	.246	.184	.133	.777	5.239	310,078
	8S	.450	1.493	.898	.110	.086	.122	.122	.096	.068	.386	3.537	131,072
	8R	.452	1.560	.898	.109	.085	.122	.121	.095	.068	.365	3.505	65,536
	16S	.616	1.306	.898	.077	.061	.087	.086	.068	.048	.263	3.253	65,536
	16R	.635	1.259	.897	.076	.060	.085	.085	.067	.048	.253	3.176	32,768
	32S	.669	1.160	.898	.054	.043	.061	.060	.048	.034	.182	3.049	32,768
	32R	.707	1.132	.902	.052	.041	.058	.057	.046	.032	.150	3.054	16,384
	128S	.801	.992	.898	.026	.020	.029	.028	.023	.016	.085	2.959	16,384

TABLE A1, CONTINUED

FREQUENCY DISTRIBUTIONS OF WEALTH RATIOS FROM INVESTMENTS IN RANDOMLY SELECTED PORTFOLIOS CONTAINING SPECIFIED NUMBERS OF STOCKS LISTED ON THE NYSE, 1926-65

Number and Length of Periods	Size of Portfolio/ Sampling Method	Centiles of the Frequency Distributions										
		5th	10th	20th	30th	40th	(Median) 50th	60th	70th	80th	90th	95th
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
		ONE-YEAR PERIODS (CONTINUED)										
12/41-12/42	1E	.844	.907	.986	1.054	1.120	1.190	1.273	1.380	1.527	1.766	2.106
	2E	.940	.990	1.060	1.119	1.175	1.234	1.299	1.376	1.484	1.686	1.965
	8S	1.085	1.122	1.169	1.207	1.243	1.279	1.320	1.368	1.436	1.549	1.653
	8R	1.098	1.135	1.184	1.223	1.259	1.295	1.335	1.385	1.453	1.563	1.664
	16S	1.141	1.170	1.208	1.238	1.266	1.294	1.325	1.360	1.407	1.479	1.543
	16R	1.170	1.200	1.240	1.271	1.299	1.327	1.359	1.395	1.441	1.511	1.575
	32S	1.184	1.207	1.238	1.260	1.282	1.303	1.325	1.351	1.382	1.428	1.468
	32R	1.239	1.264	1.295	1.319	1.338	1.359	1.380	1.405	1.434	1.477	1.516
	128S	1.247	1.260	1.276	1.289	1.300	1.310	1.320	1.332	1.346	1.364	1.380
12/42-12/43	1E	1.032	1.088	1.195	1.249	1.331	1.403	1.499	1.624	1.812	2.130	2.560
	2E	1.123	1.182	1.260	1.325	1.389	1.457	1.536	1.634	1.770	2.025	2.327
	8S	1.287	1.330	1.387	1.433	1.476	1.520	1.569	1.627	1.707	1.852	2.022
	8R	1.301	1.342	1.398	1.444	1.486	1.531	1.581	1.639	1.719	1.868	2.037
	16S	1.352	1.386	1.432	1.468	1.503	1.537	1.574	1.619	1.680	1.779	1.872
	16R	1.378	1.413	1.459	1.496	1.532	1.566	1.604	1.651	1.715	1.817	1.906
	32S	1.404	1.433	1.469	1.498	1.524	1.551	1.578	1.611	1.652	1.715	1.769
	32R	1.454	1.482	1.519	1.547	1.575	1.602	1.632	1.666	1.708	1.769	1.826
	128S	1.483	1.499	1.519	1.534	1.548	1.561	1.575	1.589	1.607	1.632	1.653
12/43-12/44	1E	1.029	1.088	1.151	1.202	1.245	1.304	1.372	1.447	1.556	1.750	2.025
	2E	1.097	1.143	1.200	1.246	1.289	1.334	1.383	1.442	1.526	1.684	1.853
	8S	1.212	1.242	1.282	1.312	1.339	1.367	1.397	1.432	1.477	1.548	1.613
	8R	1.215	1.245	1.284	1.313	1.340	1.367	1.396	1.429	1.472	1.538	1.599
	16S	1.255	1.279	1.309	1.333	1.353	1.374	1.396	1.421	1.453	1.500	1.542
	16R	1.262	1.284	1.313	1.335	1.355	1.374	1.394	1.417	1.446	1.488	1.527
	32S	1.290	1.308	1.331	1.348	1.364	1.378	1.394	1.411	1.432	1.462	1.488
	32R	1.303	1.321	1.341	1.356	1.370	1.385	1.399	1.414	1.433	1.460	1.484
	128S	1.336	1.346	1.359	1.368	1.375	1.382	1.390	1.398	1.407	1.421	1.432
12/44-12/45	1E	1.179	1.238	1.316	1.372	1.427	1.500	1.578	1.672	1.805	2.074	2.329
	2E	1.264	1.312	1.377	1.430	1.482	1.535	1.596	1.670	1.772	1.941	2.122
	8S	1.397	1.432	1.476	1.511	1.543	1.575	1.609	1.650	1.704	1.795	1.882
	8R	1.401	1.435	1.480	1.516	1.549	1.582	1.617	1.657	1.712	1.804	1.894
	16S	1.447	1.475	1.510	1.537	1.562	1.586	1.613	1.642	1.680	1.738	1.789
	16R	1.457	1.486	1.521	1.549	1.573	1.600	1.627	1.657	1.694	1.752	1.803
	32S	1.490	1.510	1.536	1.557	1.575	1.593	1.611	1.632	1.659	1.697	1.729
	32R	1.513	1.533	1.560	1.581	1.598	1.617	1.635	1.656	1.679	1.714	1.746
	128S	1.544	1.555	1.569	1.580	1.589	1.597	1.606	1.616	1.627	1.643	1.657
12/45-12/46	1E	.529	.592	.698	.785	.847	.898	.944	1.002	1.083	1.187	1.308
	2E	.636	.692	.760	.810	.854	.895	.935	.980	1.034	1.115	1.190
	8S	.766	.794	.830	.855	.877	.898	.920	.943	.971	1.010	1.045
	8R	.772	.799	.832	.856	.878	.898	.919	.941	.968	1.007	1.041
	16S	.806	.826	.851	.869	.885	.900	.915	.931	.951	.978	1.002
	16R	.813	.832	.855	.871	.886	.900	.914	.930	.949	.975	.996
	32S	.833	.848	.866	.879	.891	.901	.912	.924	.937	.956	.973
	32R	.842	.854	.870	.882	.892	.901	.910	.920	.932	.949	.964
	128S	.870	.876	.885	.891	.896	.902	.907	.912	.918	.928	.935
12/46-12/47	1E	.617	.701	.795	.857	.910	.962	1.025	1.091	1.175	1.312	1.456
	2E	.727	.780	.845	.893	.935	.977	1.020	1.069	1.131	1.229	1.322
	8S	.853	.882	.917	.944	.967	.989	1.012	1.037	1.068	1.113	1.154
	8R	.852	.880	.915	.941	.964	.987	1.009	1.035	1.066	1.110	1.149
	16S	.894	.914	.940	.959	.976	.992	1.009	1.027	1.048	1.079	1.106
	16R	.890	.911	.936	.955	.972	.987	1.003	1.020	1.041	1.071	1.097
	32S	.922	.937	.955	.969	.981	.992	1.004	1.016	1.031	1.052	1.070
	32R	.920	.933	.950	.963	.974	.984	.995	1.006	1.019	1.038	1.054
	128S	.959	.966	.976	.983	.989	.994	1.000	1.006	1.013	1.023	1.030
12/47-12/48	1E	.600	.703	.798	.858	.916	.967	1.007	1.050	1.107	1.212	1.321
	2E	.715	.772	.840	.886	.924	.959	.994	1.032	1.079	1.156	1.238
	8S	.839	.865	.898	.922	.942	.962	.981	1.003	1.030	1.072	1.113
	8R	.842	.868	.900	.923	.943	.962	.981	1.003	1.029	1.072	1.113
	16S	.875	.894	.918	.935	.950	.964	.978	.994	1.014	1.045	1.076
	16R	.879	.898	.920	.937	.951	.965	.979	.995	1.014	1.044	1.074
	32S	.901	.915	.932	.944	.955	.966	.976	.988	1.002	1.026	1.049
	32R	.904	.917	.933	.944	.954	.964	.974	.985	.999	1.019	1.038
	128S	.934	.942	.951	.957	.963	.968	.974	.980	.987	.998	1.007
12/48-12/49	1E	.840	.906	.997	1.061	1.122	1.178	1.233	1.302	1.374	1.481	1.617
	2E	.930	.986	1.052	1.100	1.143	1.183	1.224	1.269	1.325	1.411	1.495
	8S	1.055	1.085	1.121	1.146	1.169	1.190	1.211	1.235	1.265	1.308	1.347
	8R	1.059	1.088	1.123	1.149	1.171	1.192	1.214	1.238	1.266	1.309	1.347
	16S	1.094	1.115	1.141	1.161	1.177	1.192	1.208	1.225	1.246	1.276	1.302
	16R	1.103	1.122	1.148	1.166	1.181	1.196	1.212	1.229	1.249	1.279	1.304
	32S	1.123	1.138	1.157	1.171	1.182	1.193	1.204	1.217	1.231	1.252	1.269
	32R	1.141	1.155	1.173	1.185	1.197	1.207	1.218	1.230	1.243	1.263	1.281
	128S	1.160	1.167	1.176	1.183	1.189	1.194	1.199	1.205	1.212	1.221	1.229

Number and Length of Periods	Size of Portfolio and Sampling Method	Sample Minimum	Sample Maximum	Arithmetic Mean	Standard Deviation	Mean Deviation	Gini's Mean Difference	Coefficient of Variation	Relative Mean Deviation	Coefficient of Concentration	Skewness	Kurtosis	Number of Portfolios Examined
(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
					ONE-YEAR PERIODS (CONTINUED)								
12/41-12/42	1E	.560	5.907	1.311	.501	.320	.452	.382	.244	.172	3.358	21.015	797
	2E	.584	5.268	1.311	.354	.242	.344	.270	.184	.131	2.370	11.947	317,206
	8S	.883	2.496	1.312	.177	.135	.190	.135	.103	.073	1.148	4.989	131,072
	8R	.913	2.638	1.327	.176	.133	.191	.133	.100	.072	1.120	5.007	65,536
	16S	.985	2.155	1.312	.124	.097	.137	.095	.074	.052	.820	4.007	65,536
	16R	.979	2.148	1.344	.125	.098	.138	.093	.073	.051	.765	3.954	32,768
	32S	1.055	1.840	1.312	.087	.069	.097	.066	.053	.037	.570	3.458	32,768
	32R	1.112	1.778	1.366	.084	.078	.094	.062	.057	.034	.491	3.452	16,384
	128S	1.177	1.517	1.311	.040	.032	.046	.031	.025	.017	.211	2.995	16,384
12/42-12/43	1E	.293	7.469	1.564	.644	.389	.550	.412	.249	.176	4.134	30.193	800
	2E	.459	7.459	1.564	.455	.299	.424	.291	.191	.136	2.918	16.507	319,600
	8S	1.063	3.513	1.565	.228	.169	.240	.146	.108	.077	1.454	6.316	131,072
	8R	1.035	3.128	1.577	.228	.168	.240	.145	.106	.076	1.425	6.084	65,536
	16S	1.169	2.609	1.564	.161	.124	.175	.103	.079	.056	1.039	4.672	65,536
	16R	1.182	2.570	1.594	.163	.124	.178	.102	.078	.056	.946	4.202	32,768
	32S	1.258	2.158	1.564	.112	.088	.125	.072	.056	.040	.673	3.631	32,768
	32R	1.311	2.343	1.616	.114	.095	.127	.070	.059	.039	.630	3.482	16,384
	128S	1.378	1.792	1.564	.052	.041	.058	.033	.027	.019	.286	3.081	16,384
12/43-12/44	1E	.417	4.389	1.383	.353	.237	.339	.256	.171	.123	2.451	14.494	810
	2E	.417	3.850	1.383	.250	.178	.255	.181	.129	.092	1.730	8.708	327,645
	8S	.992	2.216	1.384	.125	.096	.137	.090	.070	.049	.854	4.337	131,072
	8R	.979	2.151	1.382	.119	.093	.131	.086	.067	.047	.783	4.185	65,536
	16S	1.091	1.955	1.383	.088	.069	.098	.064	.050	.035	.618	3.708	65,536
	16R	1.105	1.828	1.382	.081	.064	.090	.059	.046	.033	.524	3.497	32,768
	32S	1.186	1.681	1.383	.061	.048	.068	.044	.035	.025	.401	3.268	32,768
	32R	1.199	1.635	1.388	.055	.044	.062	.039	.032	.022	.335	3.078	16,384
	128S	1.284	1.497	1.383	.029	.023	.032	.021	.017	.012	.153	3.001	16,384
12/44-12/45	1E	.649	4.700	1.598	.422	.283	.400	.264	.177	.125	2.807	16.262	826
	2E	.691	4.606	1.598	.299	.212	.301	.187	.133	.094	1.982	9.587	340,725
	8S	1.170	2.581	1.597	.149	.114	.162	.093	.072	.051	.974	4.518	131,072
	8R	1.155	2.601	1.604	.150	.115	.164	.094	.072	.051	.934	4.343	65,536
	16S	1.275	2.205	1.598	.105	.082	.116	.065	.052	.036	.657	3.678	65,536
	16R	1.248	2.236	1.611	.106	.083	.118	.066	.052	.037	.622	3.587	32,768
	32S	1.369	2.005	1.599	.074	.058	.082	.046	.036	.026	.484	3.351	32,768
	32R	1.399	1.952	1.621	.071	.058	.080	.044	.036	.025	.395	3.176	16,384
	128S	1.478	1.770	1.598	.034	.027	.039	.021	.017	.012	.183	3.028	16,384
12/45-12/46	1E	.254	2.230	.901	.242	.184	.266	.268	.204	.147	.609	4.739	853
	2E	.271	2.113	.901	.171	.133	.190	.189	.148	.105	.430	3.861	363,378
	8S	.537	1.345	.901	.085	.067	.096	.094	.075	.053	.225	3.213	131,072
	8R	.604	1.329	.901	.082	.065	.092	.090	.072	.051	.227	3.164	65,536
	16S	.674	1.189	.901	.059	.047	.067	.066	.052	.037	.159	3.106	65,536
	16R	.679	1.160	.902	.056	.044	.063	.062	.049	.035	.159	3.060	32,768
	32S	.740	1.078	.902	.042	.033	.047	.047	.037	.026	.093	3.028	32,768
	32R	.762	1.087	.902	.037	.029	.042	.041	.033	.023	.145	3.052	16,384
	128S	.830	.981	.902	.020	.016	.022	.022	.017	.012	.049	2.965	16,384
12/46-12/47	1E	.348	2.577	.994	.260	.195	.280	.262	.196	.141	1.031	5.812	904
	2E	.369	2.342	.994	.184	.142	.202	.185	.142	.102	.728	4.395	408,156
	8S	.663	1.592	.994	.092	.072	.103	.092	.073	.052	.374	3.364	131,072
	8R	.663	1.455	.992	.091	.072	.102	.092	.073	.051	.342	3.287	65,536
	16S	.771	1.298	.995	.064	.051	.073	.065	.052	.036	.252	3.141	65,536
	16R	.767	1.297	.989	.063	.050	.070	.063	.051	.036	.213	3.102	32,768
	32S	.824	1.235	.994	.045	.036	.051	.045	.036	.026	.195	3.082	32,768
	32R	.831	1.174	.985	.041	.034	.046	.041	.034	.023	.155	3.006	16,384
	128S	.914	1.078	.994	.021	.017	.024	.022	.017	.012	.066	2.988	16,384
12/47-12/48	1E	.337	4.544	.969	.259	.169	.250	.268	.175	.129	3.571	44.575	939
	2E	.342	3.691	.969	.183	.126	.184	.189	.130	.095	2.521	23.673	440,391
	8S	.634	1.776	.969	.092	.067	.097	.094	.069	.050	1.258	8.080	131,072
	8R	.594	1.675	.969	.090	.066	.095	.093	.068	.049	1.280	8.075	65,536
	16S	.738	1.411	.969	.064	.048	.070	.067	.050	.036	.913	5.552	65,536
	16R	.749	1.400	.970	.062	.047	.067	.064	.048	.035	.817	5.088	32,768
	32S	.801	1.202	.969	.045	.035	.050	.047	.036	.026	.607	4.046	32,768
	32R	.815	1.194	.967	.041	.032	.046	.043	.033	.024	.484	3.737	16,384
	128S	.898	1.061	.969	.022	.017	.024	.022	.018	.013	.252	3.073	16,384
12/48-12/49	1E	.095	2.885	1.194	.254	.189	.271	.213	.158	.114	.967	7.704	963
	2E	.236	2.845	1.194	.180	.136	.196	.150	.114	.082	.683	5.337	463,203
	8S	.807	1.737	1.194	.089	.070	.099	.075	.059	.042	.345	3.572	131,072
	8R	.851	1.666	1.196	.088	.069	.099	.074	.058	.041	.329	3.535	65,536
	16S	.947	1.539	1.194	.063	.050	.071	.053	.042	.030	.231	3.281	65,536
	16R	.966	1.524	1.199	.062	.049	.069	.051	.041	.029	.285	3.395	32,768
	32S	1.033	1.391	1.194	.044	.035	.050	.037	.029	.021	.170	3.082	32,768
	32R	1.054	1.413	1.208	.042	.035	.047	.035	.029	.020	.209	3.137	16,384
	128S	1.115	1.270	1.194	.021	.017	.023	.017	.014	.010	.046	3.016	16,384

TABLE A1, CONTINUED

FREQUENCY DISTRIBUTIONS OF WEALTH RATIOS FROM INVESTMENTS IN RANDOMLY SELECTED PORTFOLIOS CONTAINING SPECIFIED NUMBERS OF STOCKS LISTED ON THE NYSE, 1926-65

Number and Length of Periods	Size of Portfolio/ Sampling Method	Centiles of the Frequency Distributions										
		5th	10th	20th	30th	40th	(Median) 50th	60th	70th	80th	90th	95th
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
		ONE-YEAR PERIODS (CONTINUED)										
12/49-12/50	1E	.904	.965	1.047	1.123	1.207	1.298	1.384	1.487	1.614	1.817	2.015
	2E	1.000	1.057	1.138	1.203	1.263	1.322	1.385	1.457	1.548	1.694	1.836
	8S	1.161	1.198	1.246	1.283	1.315	1.347	1.380	1.417	1.463	1.532	1.595
	8R	1.163	1.200	1.246	1.281	1.312	1.342	1.373	1.408	1.452	1.516	1.576
	16S	1.215	1.243	1.278	1.305	1.329	1.352	1.376	1.403	1.435	1.481	1.523
	16R	1.212	1.238	1.272	1.296	1.317	1.338	1.359	1.382	1.410	1.452	1.489
	32S	1.256	1.276	1.302	1.322	1.338	1.355	1.371	1.390	1.413	1.444	1.471
	32R	1.238	1.255	1.278	1.294	1.309	1.322	1.336	1.351	1.368	1.394	1.416
	128S	1.308	1.319	1.332	1.342	1.350	1.358	1.366	1.375	1.385	1.399	1.412
12/50-12/51	1E	.832	.905	.981	1.039	1.081	1.122	1.172	1.228	1.294	1.419	1.554
	2E	.909	.963	1.022	1.064	1.100	1.134	1.170	1.211	1.264	1.348	1.426
	8S	1.022	1.049	1.081	1.104	1.124	1.143	1.163	1.185	1.211	1.252	1.289
	8R	1.023	1.049	1.080	1.103	1.123	1.142	1.161	1.183	1.209	1.248	1.283
	16S	1.057	1.076	1.099	1.116	1.131	1.145	1.159	1.175	1.194	1.223	1.250
	16R	1.058	1.076	1.097	1.114	1.128	1.142	1.156	1.171	1.189	1.216	1.239
	32S	1.083	1.097	1.113	1.125	1.136	1.147	1.157	1.168	1.182	1.203	1.221
	32R	1.080	1.093	1.109	1.119	1.129	1.138	1.147	1.157	1.169	1.186	1.199
	128S	1.116	1.123	1.132	1.138	1.143	1.148	1.153	1.159	1.166	1.175	1.184
12/51-12/52	1E	.771	.841	.920	.980	1.037	1.088	1.137	1.184	1.245	1.333	1.424
	2E	.864	.912	.971	1.014	1.050	1.085	1.120	1.158	1.203	1.269	1.329
	8S	.973	.999	1.029	1.051	1.070	1.088	1.106	1.125	1.148	1.180	1.208
	8R	.976	1.001	1.030	1.051	1.070	1.086	1.104	1.122	1.145	1.175	1.201
	16S	1.006	1.024	1.046	1.062	1.075	1.088	1.101	1.115	1.130	1.153	1.171
	16R	1.007	1.024	1.044	1.060	1.072	1.084	1.096	1.108	1.124	1.145	1.162
	32S	1.031	1.043	1.059	1.070	1.079	1.088	1.097	1.107	1.118	1.134	1.147
	32R	1.024	1.035	1.049	1.059	1.068	1.076	1.084	1.093	1.103	1.118	1.129
	128S	1.060	1.066	1.073	1.079	1.084	1.088	1.093	1.097	1.103	1.110	1.117
12/52-12/53	1E	.602	.704	.805	.864	.918	.969	1.021	1.064	1.112	1.221	1.320
	2E	.727	.781	.845	.891	.930	.965	1.000	1.038	1.083	1.154	1.220
	8S	.845	.872	.904	.928	.947	.966	.985	1.005	1.030	1.065	1.095
	8R	.848	.873	.905	.928	.947	.966	.984	1.005	1.029	1.065	1.095
	16S	.881	.900	.922	.939	.953	.967	.980	.995	1.012	1.037	1.057
	16R	.883	.902	.924	.940	.954	.967	.981	.996	1.013	1.037	1.057
	32S	.906	.920	.936	.948	.958	.967	.977	.987	.999	1.016	1.030
	32R	.918	.931	.946	.957	.967	.975	.984	.994	1.006	1.023	1.036
	128S	.939	.945	.953	.959	.964	.968	.973	.978	.984	.992	.999
12/53-12/54	1E	1.095	1.164	1.251	1.327	1.407	1.480	1.565	1.660	1.786	1.995	2.256
	2E	1.193	1.254	1.333	1.394	1.451	1.507	1.568	1.639	1.733	1.890	2.035
	8S	1.349	1.386	1.434	1.470	1.503	1.535	1.568	1.605	1.651	1.722	1.791
	8R	1.355	1.392	1.439	1.474	1.506	1.536	1.569	1.605	1.651	1.720	1.787
	16S	1.404	1.431	1.466	1.493	1.518	1.541	1.565	1.591	1.624	1.674	1.720
	16R	1.412	1.438	1.473	1.499	1.522	1.544	1.567	1.593	1.625	1.672	1.718
	32S	1.444	1.465	1.491	1.511	1.528	1.545	1.562	1.580	1.604	1.637	1.667
	32R	1.457	1.476	1.500	1.519	1.535	1.551	1.566	1.585	1.607	1.639	1.666
	128S	1.496	1.507	1.520	1.530	1.539	1.547	1.556	1.565	1.575	1.590	1.604
12/54-12/55	1E	.829	.924	1.003	1.049	1.093	1.144	1.193	1.261	1.354	1.516	1.687
	2E	.932	.983	1.042	1.084	1.123	1.161	1.204	1.256	1.323	1.432	1.544
	8S	1.047	1.075	1.110	1.136	1.159	1.182	1.205	1.232	1.266	1.315	1.358
	8R	1.047	1.075	1.108	1.134	1.156	1.179	1.203	1.229	1.262	1.311	1.354
	16S	1.086	1.107	1.133	1.153	1.170	1.186	1.203	1.222	1.244	1.278	1.305
	16R	1.082	1.103	1.128	1.148	1.165	1.181	1.198	1.217	1.239	1.272	1.301
	32S	1.115	1.130	1.149	1.163	1.176	1.187	1.199	1.212	1.228	1.250	1.269
	32R	1.112	1.128	1.147	1.161	1.173	1.185	1.197	1.210	1.225	1.249	1.267
	128S	1.153	1.161	1.170	1.177	1.183	1.189	1.195	1.201	1.209	1.219	1.228
12/55-12/56	1E	.711	.789	.880	.941	.989	1.026	1.082	1.141	1.236	1.378	1.518
	2E	.805	.859	.923	.968	1.007	1.045	1.087	1.136	1.197	1.290	1.376
	8S	.926	.954	.989	1.015	1.037	1.059	1.081	1.106	1.136	1.180	1.221
	8R	.924	.952	.987	1.012	1.034	1.054	1.076	1.100	1.128	1.171	1.211
	16S	.965	.986	1.011	1.030	1.046	1.061	1.077	1.094	1.116	1.147	1.177
	16R	.960	.980	1.004	1.022	1.037	1.051	1.066	1.083	1.101	1.130	1.155
	32S	.993	1.008	1.027	1.040	1.051	1.062	1.074	1.086	1.101	1.124	1.145
	32R	.985	.999	1.015	1.027	1.037	1.047	1.057	1.068	1.080	1.099	1.115
	128S	1.031	1.037	1.047	1.054	1.060	1.065	1.071	1.077	1.084	1.095	1.104
12/56-12/57	1E	.496	.567	.658	.721	.791	.856	.923	.996	1.060	1.149	1.228
	2E	.597	.652	.721	.773	.817	.859	.901	.947	1.001	1.075	1.139
	8S	.729	.757	.793	.819	.841	.862	.883	.906	.933	.973	1.008
	8R	.739	.765	.798	.822	.843	.863	.883	.906	.932	.971	1.005
	16S	.767	.788	.814	.832	.848	.863	.878	.894	.914	.941	.965
	16R	.780	.799	.822	.838	.853	.867	.881	.896	.915	.941	.965
	32S	.797	.811	.829	.842	.853	.864	.875	.886	.899	.919	.935
	32R	.816	.829	.845	.856	.866	.875	.885	.896	.908	.926	.940
	128S	.831	.839	.847	.853	.859	.864	.869	.875	.882	.891	.898

Number and Length of Periods	Size of Portfolio and Sampling Method	Sample Minimum	Sample Maximum	Arithmetic Mean	Standard Deviation	Mean Deviation	Gini's Mean Difference	Coefficient of Variation	Relative Mean Deviation	Coefficient of Concentration	Skewness	Kurtosis	Number of Portfolios Examined
(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
					ONE-YEAR PERIODS (CONTINUED)								
12/49-12/50	1E	.645	3.917	1.358	.378	.283	.397	.279	.208	.146	1.622	8.628	990
	2E	.650	3.915	1.358	.267	.204	.289	.197	.150	.106	1.145	5.797	489,555
	8S	.936	2.186	1.358	.133	.105	.148	.098	.077	.055	.555	3.641	131,072
	8R	.909	2.041	1.352	.126	.100	.141	.093	.074	.052	.506	3.550	65,536
	16S	1.053	2.044	1.358	.094	.075	.106	.069	.055	.039	.401	3.376	65,536
	16R	1.028	1.765	1.343	.084	.068	.094	.062	.051	.035	.317	3.221	32,768
	32S	1.124	1.660	1.358	.066	.052	.074	.048	.039	.027	.283	3.153	32,768
	32R	1.128	1.555	1.324	.054	.052	.061	.041	.039	.023	.187	3.053	16,384
	128S	1.249	1.514	1.359	.031	.025	.035	.023	.018	.013	.130	3.030	16,384
12/50-12/51	1E	.135	4.047	1.149	.242	.168	.245	.211	.146	.107	2.249	24.699	1,010
	2E	.311	3.253	1.149	.171	.124	.179	.149	.108	.078	1.588	13.792	509,545
	8S	.780	1.765	1.148	.085	.065	.093	.074	.056	.040	.766	5.465	131,072
	8R	.826	1.815	1.147	.083	.064	.091	.072	.055	.040	.734	5.462	65,536
	16S	.892	1.574	1.149	.060	.046	.066	.052	.040	.029	.551	4.258	65,536
	16R	.962	1.496	1.145	.057	.044	.063	.049	.039	.027	.462	4.059	32,768
	32S	.984	1.415	1.149	.042	.033	.047	.037	.029	.020	.412	3.632	32,768
	32R	.996	1.335	1.139	.037	.030	.041	.032	.026	.018	.261	3.525	16,384
	128S	1.082	1.246	1.149	.020	.016	.023	.017	.014	.010	.182	3.075	16,384
12/51-12/52	1E	.113	1.866	1.089	.201	.157	.223	.185	.144	.103	.207	3.915	1,029
	2E	.291	1.832	1.089	.142	.112	.159	.131	.103	.073	.146	3.452	528,906
	8S	.737	1.401	1.089	.071	.057	.080	.065	.052	.037	.070	3.082	131,072
	8R	.769	1.416	1.087	.069	.054	.077	.063	.050	.036	.053	3.131	65,536
	16S	.884	1.334	1.088	.050	.040	.056	.046	.037	.026	.031	3.038	65,536
	16R	.912	1.285	1.084	.047	.038	.053	.043	.035	.024	.052	3.037	32,768
	32S	.952	1.261	1.088	.035	.028	.040	.032	.026	.018	.032	2.999	32,768
	32R	.938	1.211	1.076	.032	.027	.036	.029	.025	.017	.017	2.960	16,384
	128S	1.023	1.152	1.088	.017	.013	.019	.015	.012	.009	.039	2.994	16,384
12/52-12/53	1E	.000	2.135	.968	.215	.162	.234	.222	.168	.121	.389	4.939	1,044
	2E	.174	1.990	.968	.152	.117	.168	.157	.121	.087	.274	3.962	544,446
	8S	.662	1.384	.968	.076	.060	.085	.079	.062	.044	.150	3.237	131,072
	8R	.650	1.382	.968	.075	.059	.084	.078	.061	.044	.170	3.225	65,536
	16S	.755	1.195	.967	.054	.043	.060	.055	.044	.031	.094	3.061	65,536
	16R	.776	1.234	.969	.053	.042	.060	.055	.044	.031	.117	3.078	32,768
	32S	.816	1.124	.968	.037	.030	.042	.039	.031	.022	.071	3.069	32,768
	32R	.848	1.122	.976	.036	.029	.040	.037	.030	.021	.123	3.086	16,384
	128S	.903	1.049	.968	.018	.014	.020	.018	.015	.010	.031	3.022	16,384
12/53-12/54	1E	.608	5.441	1.548	.392	.279	.397	.253	.180	.128	2.205	15.744	1,045
	2E	.659	4.841	1.548	.277	.204	.291	.179	.132	.094	1.557	9.338	545,490
	8S	1.078	2.485	1.548	.138	.106	.151	.089	.069	.049	.770	4.508	131,072
	8R	1.098	2.462	1.550	.136	.104	.149	.088	.067	.048	.842	4.884	65,536
	16S	1.238	2.120	1.548	.097	.076	.108	.063	.049	.035	.557	3.786	65,536
	16R	1.267	2.061	1.552	.094	.073	.105	.061	.047	.034	.595	3.913	32,768
	32S	1.331	1.989	1.548	.068	.054	.076	.044	.035	.025	.368	3.333	32,768
	32R	1.326	1.930	1.555	.065	.051	.072	.042	.033	.023	.424	3.488	16,384
	128S	1.427	1.699	1.548	.032	.026	.037	.021	.017	.012	.172	3.096	16,384
12/54-12/55	1E	.163	2.886	1.190	.270	.194	.280	.227	.163	.118	1.391	7.370	1,052
	2E	.357	2.747	1.190	.191	.144	.206	.160	.121	.086	.982	5.172	552,826
	8S	.830	1.731	1.190	.095	.075	.106	.080	.063	.045	.481	3.485	131,072
	8R	.842	1.757	1.187	.094	.074	.105	.079	.063	.044	.490	3.536	65,536
	16S	.946	1.577	1.190	.067	.053	.075	.056	.045	.032	.332	3.263	65,536
	16R	.962	1.520	1.185	.067	.053	.075	.056	.045	.032	.328	3.221	32,768
	32S	1.026	1.415	1.189	.047	.037	.053	.039	.031	.022	.239	3.139	32,768
	32R	1.032	1.404	1.187	.047	.038	.053	.040	.032	.022	.208	3.098	16,384
	128S	1.105	1.290	1.190	.022	.018	.025	.019	.015	.011	.094	2.973	16,384
12/55-12/56	1E	.142	4.282	1.065	.268	.188	.273	.251	.176	.128	2.342	24.249	1,055
	2E	.221	3.510	1.065	.189	.138	.199	.178	.130	.093	1.654	13.570	555,985
	8S	.709	1.852	1.065	.094	.072	.103	.089	.068	.048	.796	5.413	131,072
	8R	.741	1.730	1.060	.091	.070	.099	.086	.066	.047	.738	5.372	65,536
	16S	.769	1.452	1.065	.066	.051	.073	.062	.048	.034	.581	4.296	65,536
	16R	.807	1.398	1.054	.060	.049	.067	.057	.046	.032	.409	3.966	32,768
	32S	.902	1.303	1.065	.046	.036	.051	.043	.034	.024	.371	3.535	32,768
	32R	.902	1.271	1.048	.040	.035	.044	.038	.033	.021	.253	3.420	16,384
	128S	.975	1.171	1.066	.022	.018	.025	.021	.016	.012	.152	3.096	16,384
12/56-12/57	1E	.268	2.266	.864	.242	.191	.268	.280	.221	.155	.638	5.395	1,056
	2E	.274	2.242	.864	.171	.134	.190	.198	.155	.110	.451	4.189	557,040
	8S	.534	1.313	.864	.085	.067	.095	.098	.078	.055	.226	3.297	131,072
	8R	.563	1.379	.866	.081	.064	.091	.094	.074	.053	.277	3.391	65,536
	16S	.637	1.179	.864	.060	.048	.068	.069	.055	.039	.158	3.161	65,536
	16R	.658	1.137	.869	.056	.044	.063	.065	.051	.036	.227	3.197	32,768
	32S	.697	1.050	.865	.042	.033	.047	.049	.039	.027	.114	3.073	32,768
	32R	.761	1.027	.877	.038	.031	.042	.043	.036	.024	.167	2.990	16,384
	128S	.777	.957	.864	.020	.016	.023	.023	.019	.013	.037	3.013	16,384

TABLE A1, CONTINUED

FREQUENCY DISTRIBUTIONS OF WEALTH RATIOS FROM INVESTMENTS IN RANDOMLY SELECTED PORTFOLIOS CONTAINING SPECIFIED NUMBERS OF STOCKS LISTED ON THE NYSE, 1926-65

Number and Length of Periods	Size of Portfolio/ Sampling Method	Centiles of the Frequency Distributions										
		5th	10th	20th	30th	40th	(Median) 50th	60th	70th	80th	90th	95th
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
		ONE-YEAR PERIODS (CONTINUED)										
12/57-12/58	1E	1.112	1.199	1.294	1.363	1.434	1.491	1.552	1.647	1.780	2.001	2.326
	2E	1.223	1.282	1.357	1.413	1.464	1.517	1.575	1.646	1.744	1.922	2.145
	8S	1.373	1.407	1.453	1.488	1.521	1.554	1.590	1.633	1.690	1.786	1.875
	8R	1.373	1.409	1.456	1.491	1.523	1.556	1.591	1.634	1.691	1.785	1.873
	16S	1.423	1.450	1.486	1.514	1.539	1.565	1.592	1.623	1.664	1.724	1.778
	16R	1.428	1.455	1.491	1.518	1.544	1.569	1.595	1.627	1.665	1.723	1.776
	32S	1.464	1.485	1.513	1.534	1.553	1.572	1.592	1.614	1.641	1.680	1.716
	32R	1.470	1.490	1.516	1.536	1.553	1.570	1.589	1.609	1.634	1.669	1.699
	128S	1.520	1.532	1.547	1.558	1.568	1.577	1.586	1.597	1.609	1.626	1.641
12/58-12/59	1E	.759	.845	.934	.988	1.028	1.080	1.149	1.214	1.323	1.527	1.715
	2E	.862	.914	.977	1.022	1.064	1.107	1.155	1.213	1.290	1.418	1.552
	8S	.986	1.016	1.053	1.082	1.107	1.133	1.160	1.191	1.230	1.289	1.342
	8R	.989	1.018	1.054	1.083	1.109	1.134	1.161	1.191	1.230	1.290	1.342
	16S	1.030	1.051	1.079	1.101	1.120	1.139	1.158	1.180	1.207	1.246	1.279
	16R	1.031	1.053	1.082	1.103	1.122	1.140	1.159	1.181	1.207	1.245	1.279
	32S	1.060	1.077	1.099	1.115	1.128	1.142	1.156	1.171	1.189	1.215	1.239
	32R	1.068	1.084	1.104	1.120	1.133	1.145	1.158	1.171	1.189	1.213	1.235
	128S	1.102	1.111	1.122	1.130	1.136	1.143	1.150	1.157	1.166	1.178	1.187
12/59-12/60	1E	.591	.652	.749	.825	.887	.948	1.022	1.100	1.196	1.325	1.447
	2E	.692	.746	.816	.870	.919	.965	1.013	1.067	1.132	1.229	1.319
	8S	.828	.859	.897	.926	.951	.976	1.000	1.027	1.059	1.107	1.148
	8R	.835	.864	.901	.929	.953	.976	1.000	1.025	1.057	1.103	1.143
	16S	.871	.894	.923	.943	.961	.978	.996	1.015	1.038	1.071	1.099
	16R	.878	.900	.927	.946	.963	.979	.996	1.014	1.036	1.069	1.095
	32S	.902	.919	.940	.955	.968	.980	.992	1.005	1.021	1.043	1.062
	32R	.918	.934	.953	.967	.980	.992	1.003	1.016	1.031	1.052	1.070
	128S	.943	.951	.961	.968	.975	.981	.987	.993	1.000	1.010	1.019
12/60-12/61	1E	.852	.935	1.037	1.114	1.176	1.235	1.301	1.373	1.460	1.621	1.818
	2E	.964	1.025	1.099	1.154	1.201	1.247	1.296	1.352	1.424	1.547	1.685
	8S	1.106	1.140	1.181	1.211	1.238	1.265	1.292	1.324	1.364	1.426	1.485
	8R	1.110	1.143	1.185	1.215	1.243	1.270	1.298	1.330	1.370	1.435	1.495
	16S	1.152	1.176	1.207	1.230	1.250	1.269	1.290	1.313	1.341	1.384	1.422
	16R	1.162	1.187	1.219	1.242	1.263	1.283	1.304	1.327	1.357	1.400	1.440
	32S	1.186	1.204	1.227	1.244	1.259	1.273	1.288	1.304	1.323	1.351	1.376
	32R	1.214	1.232	1.255	1.273	1.288	1.303	1.318	1.334	1.355	1.384	1.411
	128S	1.231	1.241	1.252	1.261	1.268	1.275	1.282	1.289	1.298	1.311	1.322
12/61-12/62	1E	.544	.616	.696	.761	.813	.856	.909	.965	1.019	1.114	1.207
	2E	.634	.684	.745	.788	.825	.860	.896	.934	.980	1.048	1.110
	8S	.747	.773	.803	.826	.845	.863	.881	.901	.925	.958	.986
	8R	.748	.773	.803	.825	.844	.862	.880	.899	.923	.957	.985
	16S	.781	.800	.821	.837	.851	.864	.877	.891	.908	.931	.951
	16R	.779	.797	.819	.834	.848	.861	.874	.888	.905	.928	.947
	32S	.805	.818	.834	.845	.855	.864	.874	.883	.895	.912	.926
	32R	.802	.814	.829	.840	.850	.859	.868	.878	.889	.904	.917
	128S	.835	.842	.850	.855	.860	.864	.869	.874	.879	.887	.894
12/62-12/63	1E	.808	.894	.985	1.041	1.089	1.137	1.186	1.247	1.344	1.488	1.657
	2E	.902	.960	1.026	1.072	1.111	1.150	1.192	1.241	1.306	1.417	1.539
	8S	1.026	1.056	1.093	1.120	1.144	1.167	1.191	1.218	1.253	1.307	1.358
	8R	1.027	1.058	1.094	1.121	1.146	1.169	1.194	1.222	1.257	1.312	1.363
	16S	1.067	1.089	1.116	1.136	1.154	1.171	1.189	1.209	1.233	1.269	1.302
	16R	1.072	1.093	1.121	1.142	1.159	1.177	1.195	1.216	1.240	1.277	1.308
	32S	1.099	1.114	1.134	1.149	1.161	1.174	1.186	1.200	1.217	1.241	1.262
	32R	1.114	1.130	1.150	1.165	1.178	1.189	1.203	1.216	1.233	1.256	1.276
	128S	1.137	1.145	1.155	1.163	1.169	1.175	1.182	1.188	1.197	1.208	1.217
12/63-12/64	1E	.765	.875	.978	1.049	1.099	1.142	1.194	1.248	1.323	1.466	1.622
	2E	.883	.947	1.021	1.070	1.111	1.149	1.188	1.233	1.292	1.390	1.491
	8S	1.018	1.048	1.085	1.112	1.136	1.158	1.180	1.205	1.236	1.283	1.324
	8R	1.021	1.051	1.088	1.115	1.138	1.161	1.184	1.210	1.240	1.287	1.328
	16S	1.059	1.081	1.107	1.127	1.144	1.160	1.177	1.195	1.217	1.249	1.276
	16R	1.065	1.088	1.115	1.135	1.152	1.169	1.185	1.204	1.226	1.257	1.285
	32S	1.090	1.105	1.124	1.138	1.150	1.162	1.174	1.186	1.202	1.223	1.241
	32R	1.112	1.128	1.147	1.161	1.173	1.184	1.196	1.209	1.223	1.244	1.261
	128S	1.126	1.134	1.144	1.151	1.157	1.163	1.169	1.175	1.182	1.192	1.200
12/64-12/65	1E	.856	.923	.995	1.056	1.116	1.196	1.275	1.387	1.510	1.732	1.963
	2E	.937	.991	1.062	1.120	1.175	1.231	1.292	1.364	1.459	1.626	1.817
	8S	1.081	1.117	1.163	1.200	1.232	1.264	1.299	1.338	1.389	1.467	1.543
	8R	1.088	1.123	1.168	1.203	1.235	1.266	1.300	1.339	1.388	1.464	1.535
	16S	1.134	1.161	1.197	1.224	1.248	1.273	1.297	1.326	1.360	1.413	1.464
	16R	1.141	1.168	1.202	1.228	1.251	1.274	1.298	1.325	1.359	1.409	1.455
	32S	1.174	1.195	1.222	1.243	1.261	1.278	1.296	1.316	1.340	1.376	1.409
	32R	1.180	1.199	1.223	1.241	1.257	1.272	1.288	1.305	1.326	1.357	1.385
	128S	1.227	1.239	1.253	1.263	1.272	1.281	1.290	1.300	1.311	1.328	1.341

Number and Length of Periods	Size of Portfolio and Sampling Method	Sample Minimum	Sample Maximum	Arithmetic Mean	Standard Deviation	Mean Deviation	Gini's Mean Difference	Coefficient of Variation	Relative Mean Deviation	Coefficient of Concentration	Skewness	Kurtosis	Number of Portfolios Examined
(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
					ONE-YEAR PERIODS (CONTINUED)								
12/57-12/58	1E	.803	5.077	1.579	.440	.285	.412	.279	.181	.131	2.873	16.763	1,077
	2E	.817	4.951	1.579	.311	.217	.311	.197	.137	.098	2.029	9.846	579,426
	8S	1.136	2.644	1.579	.155	.119	.168	.098	.075	.053	.983	4.532	131,072
	8R	1.157	2.580	1.580	.153	.118	.167	.097	.075	.053	.952	4.407	65,536
	16S	1.261	2.214	1.578	.109	.086	.121	.069	.054	.038	.713	3.851	65,536
	16R	1.247	2.141	1.581	.106	.084	.118	.067	.053	.037	.624	3.559	32,768
	32S	1.319	1.957	1.579	.077	.061	.086	.049	.039	.027	.493	3.347	32,768
	32R	1.356	1.870	1.576	.070	.056	.079	.045	.036	.025	.400	3.212	16,384
	128S	1.456	1.765	1.578	.037	.029	.041	.023	.018	.013	.211	3.100	16,384
12/58-12/59	1E	.428	3.372	1.144	.310	.219	.314	.271	.191	.137	1.824	9.521	1,067
	2E	.464	3.147	1.144	.219	.163	.232	.191	.142	.102	1.288	6.242	568,711
	8S	.794	1.875	1.144	.109	.086	.121	.096	.075	.053	.639	3.793	131,072
	8R	.802	1.739	1.146	.108	.085	.120	.095	.074	.053	.630	3.714	65,536
	16S	.888	1.541	1.145	.076	.061	.086	.067	.053	.037	.442	3.322	65,536
	16R	.887	1.531	1.146	.076	.060	.085	.066	.052	.037	.448	3.395	32,768
	32S	.947	1.428	1.145	.054	.043	.061	.047	.038	.027	.309	3.197	32,768
	32R	.990	1.362	1.147	.051	.040	.057	.044	.035	.025	.289	3.142	16,384
	128S	1.055	1.244	1.144	.026	.021	.029	.022	.018	.013	.127	2.958	16,384
12/59-12/60	1E	.253	2.380	.981	.276	.215	.303	.282	.219	.154	.886	5.001	1,088
	2E	.322	2.360	.981	.195	.153	.217	.199	.156	.110	.626	3.993	591,328
	8S	.631	1.457	.980	.097	.077	.109	.099	.079	.056	.298	3.203	131,072
	8R	.676	1.481	.981	.094	.075	.106	.096	.076	.054	.328	3.262	65,536
	16S	.702	1.299	.981	.069	.055	.078	.070	.056	.040	.213	3.110	65,536
	16R	.736	1.323	.982	.066	.052	.074	.067	.053	.038	.252	3.141	32,768
	32S	.803	1.179	.981	.048	.038	.054	.049	.039	.028	.138	2.971	32,768
	32R	.813	1.173	.992	.046	.038	.052	.046	.038	.026	.135	3.000	16,384
	128S	.887	1.070	.981	.023	.018	.026	.023	.019	.013	.030	2.907	16,384
12/60-12/61	1E	.000	3.810	1.276	.330	.229	.335	.259	.180	.131	1.885	12.084	1,119
	2E	.247	3.785	1.276	.233	.170	.246	.183	.133	.096	1.331	7.519	625,521
	8S	.845	2.154	1.276	.116	.090	.128	.091	.071	.050	.660	4.099	131,072
	8R	.883	2.036	1.281	.118	.091	.131	.092	.071	.051	.671	4.059	65,536
	16S	.997	1.838	1.276	.083	.065	.092	.065	.051	.036	.477	3.567	65,536
	16R	.998	1.844	1.290	.085	.067	.095	.066	.052	.037	.494	3.633	32,768
	32S	1.083	1.616	1.276	.058	.046	.065	.045	.036	.025	.322	3.228	32,768
	32R	1.114	1.605	1.306	.060	.052	.067	.046	.040	.026	.355	3.278	16,384
	128S	1.179	1.388	1.275	.027	.022	.031	.021	.017	.012	.142	3.035	16,384
12/61-12/62	1E	.146	1.741	.865	.206	.159	.228	.239	.184	.132	.364	4.102	1,142
	2E	.203	1.737	.865	.146	.114	.163	.169	.132	.094	.257	3.546	651,511
	8S	.552	1.232	.864	.073	.058	.082	.084	.067	.047	.121	3.133	131,072
	8R	.535	1.228	.864	.072	.057	.081	.083	.066	.047	.142	3.155	65,536
	16S	.653	1.090	.865	.051	.041	.058	.059	.047	.033	.094	3.073	65,536
	16R	.670	1.096	.862	.051	.041	.057	.059	.047	.033	.116	3.070	32,768
	32S	.709	1.022	.865	.036	.029	.041	.042	.033	.024	.076	2.989	32,768
	32R	.711	1.004	.859	.035	.028	.040	.041	.033	.023	.066	3.079	16,384
	128S	.800	.939	.865	.017	.014	.019	.020	.016	.011	.045	3.038	16,384
12/62-12/63	1E	.000	3.214	1.176	.287	.198	.291	.244	.168	.124	1.680	10.576	1,162
	2E	.175	3.177	1.176	.203	.148	.215	.173	.126	.091	1.187	6.769	674,541
	8S	.775	1.807	1.176	.102	.079	.112	.086	.067	.048	.602	3.966	131,072
	8R	.734	1.872	1.178	.102	.080	.114	.087	.068	.048	.571	3.815	65,536
	16S	.922	1.569	1.176	.072	.056	.080	.061	.048	.034	.406	3.433	65,536
	16R	.936	1.537	1.182	.072	.057	.081	.061	.048	.034	.387	3.358	32,768
	32S	1.002	1.426	1.176	.050	.040	.056	.042	.034	.024	.286	3.191	32,768
	32R	1.000	1.449	1.192	.049	.041	.055	.041	.034	.023	.242	3.164	16,384
	128S	1.094	1.275	1.176	.024	.019	.027	.020	.016	.012	.148	3.005	16,384
12/63-12/64	1E	.326	3.130	1.163	.265	.188	.278	.228	.162	.120	1.043	7.656	1,191
	2E	.347	2.763	1.163	.188	.140	.203	.161	.120	.087	.736	5.315	708,645
	8S	.772	1.740	1.163	.094	.073	.104	.081	.063	.045	.369	3.598	131,072
	8R	.786	1.671	1.166	.094	.074	.105	.081	.063	.045	.362	3.470	65,536
	16S	.890	1.522	1.163	.066	.052	.074	.057	.045	.032	.250	3.246	65,536
	16R	.894	1.480	1.171	.066	.053	.075	.057	.045	.032	.201	3.177	32,768
	32S	.981	1.383	1.163	.046	.037	.052	.040	.032	.022	.170	3.156	32,768
	32R	1.026	1.400	1.186	.045	.040	.051	.038	.034	.021	.143	3.087	16,384
	128S	1.083	1.252	1.163	.022	.018	.025	.019	.015	.011	.056	2.957	16,384
12/64-12/65	1E	.289	5.426	1.282	.410	.283	.401	.320	.221	.156	2.554	16.991	1,227
	2E	.371	4.762	1.282	.290	.209	.298	.226	.163	.116	1.804	9.964	752,151
	8S	.876	2.367	1.282	.144	.111	.158	.112	.087	.061	.887	4.654	131,072
	8R	.859	2.340	1.283	.140	.108	.153	.109	.084	.060	.866	4.627	65,536
	16S	.963	1.937	1.282	.102	.080	.113	.079	.062	.044	.656	3.996	65,536
	16R	.977	1.824	1.283	.096	.076	.107	.075	.059	.042	.569	3.654	32,768
	32S	1.065	1.737	1.283	.071	.056	.080	.056	.044	.031	.445	3.444	32,768
	32R	1.087	1.559	1.276	.062	.050	.070	.049	.039	.027	.362	3.307	16,384
	128S	1.164	1.431	1.282	.034	.027	.039	.027	.021	.015	.177	2.958	16,384

TABLE A1, CONTINUED

FREQUENCY DISTRIBUTIONS OF WEALTH RATIOS FROM INVESTMENTS IN RANDOMLY SELECTED PORTFOLIOS CONTAINING SPECIFIED NUMBERS OF STOCKS LISTED ON THE NYSE, 1926-65

Number and Length of Periods	Size of Portfolio/ Sampling Method	Centiles of the Frequency Distributions										
		5th	10th	20th	30th	40th	(Median) 50th	60th	70th	80th	90th	95th
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
						FIVE-YEAR PERIODS						
1/26-12/30	1E	.041	.095	.192	.340	.518	.682	.876	1.116	1.443	1.884	2.476
	2E	.159	.254	.402	.530	.653	.782	.921	1.083	1.299	1.630	1.921
	8S	.469	.542	.642	.718	.786	.853	.923	1.001	1.098	1.241	1.361
	8R	.471	.545	.643	.718	.786	.854	.925	1.003	1.099	1.239	1.364
	16S	.582	.639	.714	.769	.819	.867	.916	.971	1.037	1.131	1.210
	16R	.584	.639	.709	.763	.812	.859	.908	.961	1.026	1.119	1.200
	32S	.667	.708	.762	.802	.838	.872	.906	.944	.990	1.056	1.109
	32R	.632	.670	.717	.752	.784	.814	.845	.879	.918	.973	1.019
	128S	.779	.798	.825	.844	.862	.877	.892	.908	.931	.955	.983
12/30-12/35	1E	.098	.227	.417	.660	.897	1.147	1.412	1.766	2.293	3.296	4.601
	2E	.340	.494	.715	.902	1.086	1.283	1.518	1.811	2.225	3.005	3.854
	8S	.813	.931	1.095	1.229	1.355	1.484	1.626	1.792	2.004	2.323	2.605
	8R	.826	.943	1.105	1.238	1.363	1.489	1.631	1.795	2.008	2.335	2.622
	16S	1.000	1.100	1.233	1.338	1.434	1.530	1.633	1.749	1.894	2.101	2.288
	16R	1.016	1.115	1.251	1.359	1.455	1.552	1.651	1.763	1.907	2.121	2.312
	32S	1.150	1.229	1.332	1.409	1.480	1.549	1.620	1.700	1.795	1.927	2.054
	32R	1.181	1.265	1.371	1.453	1.526	1.593	1.668	1.749	1.844	1.987	2.109
	128S	1.363	1.410	1.462	1.500	1.536	1.569	1.601	1.640	1.680	1.745	1.798
12/35-12/40	1E	.119	.218	.364	.539	.673	.832	.959	1.134	1.336	1.736	2.061
	2E	.299	.401	.541	.651	.754	.857	.967	1.092	1.253	1.516	1.820
	8S	.578	.643	.725	.789	.847	.903	.964	1.035	1.128	1.279	1.452
	8R	.587	.648	.729	.790	.847	.903	.963	1.034	1.129	1.286	1.465
	16S	.673	.723	.785	.834	.877	.920	.966	1.018	1.088	1.206	1.335
	16R	.679	.726	.788	.836	.879	.922	.969	1.024	1.095	1.219	1.352
	32S	.744	.781	.829	.866	.898	.932	.967	1.006	1.057	1.140	1.213
	32R	.772	.806	.856	.894	.929	.964	.999	1.042	1.097	1.187	1.261
	128S	.842	.865	.889	.911	.928	.945	.963	.983	1.005	1.040	1.069
12/40-12/45	1E	1.459	1.721	2.084	2.408	2.708	3.155	3.688	4.335	5.556	7.601	10.036
	2E	1.883	2.116	2.470	2.794	3.124	3.501	3.982	4.584	5.382	6.974	9.008
	8S	2.671	2.889	3.197	3.452	3.699	3.954	4.241	4.594	5.082	5.985	6.993
	8R	2.745	2.967	3.281	3.539	3.781	4.035	4.326	4.681	5.177	6.063	7.052
	16S	3.020	3.209	3.472	3.681	3.874	4.081	4.307	4.579	4.950	5.586	6.214
	16R	3.194	3.387	3.658	3.869	4.066	4.268	4.489	4.757	5.113	5.708	6.283
	32S	3.308	3.466	3.674	3.845	4.002	4.159	4.327	4.524	4.783	5.193	5.547
	32R	3.680	3.845	4.051	4.212	4.361	4.510	4.672	4.850	5.080	5.428	5.727
	128S	3.761	3.866	3.987	4.080	4.167	4.250	4.335	4.432	4.549	4.714	4.843
12/45-12/50	1E	.477	.627	.865	1.007	1.148	1.302	1.481	1.702	1.960	2.409	2.838
	2E	.726	.846	1.008	1.135	1.254	1.375	1.505	1.657	1.851	2.159	2.450
	8S	1.052	1.126	1.225	1.299	1.366	1.432	1.501	1.578	1.671	1.812	1.935
	8R	1.052	1.126	1.224	1.297	1.365	1.430	1.498	1.576	1.670	1.813	1.937
	16S	1.161	1.220	1.291	1.348	1.397	1.445	1.494	1.546	1.612	1.708	1.791
	16R	1.159	1.215	1.286	1.340	1.389	1.436	1.484	1.537	1.602	1.696	1.779
	32S	1.238	1.285	1.341	1.380	1.416	1.450	1.485	1.522	1.569	1.633	1.682
	32R	1.241	1.284	1.333	1.369	1.402	1.434	1.465	1.502	1.541	1.603	1.658
	128S	1.346	1.364	1.400	1.419	1.435	1.452	1.469	1.492	1.514	1.537	1.575
12/50-12/55	1E	.853	1.142	1.440	1.691	1.907	2.107	2.337	2.621	3.002	3.775	4.568
	2E	1.230	1.420	1.662	1.848	2.017	2.187	2.374	2.600	2.908	3.425	3.954
	8S	1.711	1.826	1.973	2.086	2.189	2.288	2.396	2.521	2.674	2.907	3.118
	8R	1.710	1.825	1.968	2.081	2.183	2.280	2.387	2.509	2.661	2.893	3.099
	16S	1.877	1.965	2.078	2.163	2.239	2.314	2.392	2.477	2.583	2.740	2.879
	16R	1.868	1.955	2.066	2.150	2.224	2.295	2.369	2.453	2.556	2.701	2.834
	32S	2.004	2.064	2.149	2.215	2.270	2.324	2.377	2.440	2.512	2.616	2.703
	32R	2.000	2.060	2.141	2.204	2.254	2.305	2.355	2.410	2.475	2.574	2.662
	128S	2.159	2.202	2.239	2.276	2.306	2.332	2.359	2.385	2.429	2.474	2.517
12/55-12/60	1E	.532	.707	.939	1.130	1.292	1.477	1.656	1.883	2.181	2.708	3.396
	2E	.798	.937	1.121	1.266	1.399	1.533	1.678	1.849	2.081	2.497	3.043
	8S	1.168	1.253	1.366	1.454	1.534	1.614	1.701	1.805	1.938	2.162	2.416
	8R	1.176	1.258	1.369	1.455	1.534	1.615	1.702	1.805	1.944	2.169	2.423
	16S	1.292	1.360	1.449	1.517	1.579	1.641	1.707	1.783	1.884	2.050	2.241
	16R	1.305	1.371	1.458	1.524	1.586	1.648	1.714	1.791	1.894	2.071	2.286
	32S	1.390	1.442	1.511	1.564	1.611	1.659	1.710	1.765	1.840	1.967	2.120
	32R	1.426	1.480	1.546	1.598	1.645	1.693	1.745	1.808	1.894	2.091	2.674
	128S	1.527	1.555	1.596	1.627	1.654	1.680	1.712	1.746	1.796	1.885	1.961
12/60-12/65	1E	.761	.977	1.256	1.440	1.605	1.778	1.979	2.241	2.595	3.402	4.445
	2E	1.067	1.222	1.421	1.576	1.720	1.870	2.040	2.255	2.568	3.160	3.826
	8S	1.474	1.571	1.702	1.806	1.902	2.001	2.110	2.240	2.407	2.682	2.975
	8R	1.483	1.584	1.717	1.823	1.920	2.020	2.130	2.261	2.432	2.710	3.022
	16S	1.619	1.698	1.801	1.884	1.960	2.037	2.117	2.210	2.331	2.524	2.724
	16R	1.653	1.737	1.846	1.930	2.007	2.082	2.167	2.265	2.392	2.610	2.831
	32S	1.737	1.799	1.882	1.947	2.005	2.062	2.122	2.188	2.275	2.410	2.533
	32R	1.839	1.905	1.993	2.060	2.122	2.183	2.249	2.322	2.411	2.543	2.649
	128S	1.896	1.938	1.982	2.022	2.051	2.080	2.112	2.148	2.184	2.249	2.286

Number and Length of Periods	Size of Portfolio and Sampling Method	Sample Minimum	Sample Maximum	Arithmetic Mean	Standard Deviation	Mean Deviation	Gini's Mean Difference	Coefficient of Variation	Relative Mean Deviation	Coefficient of Concentration	Skewness	Kurtosis	Number of Portfolios Examined
(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
					FIVE-YEAR PERIODS								
1/26-12/30	1E	.000	4.487	.877	.778	.600	.822	.887	.684	.468	1.412	5.405	510
	2E	.000	4.445	.877	.550	.432	.602	.627	.492	.343	.996	4.184	129,795
	8S	.103	2.467	.876	.272	.216	.305	.310	.247	.174	.484	3.267	131,072
	8R	.122	2.259	.877	.272	.217	.305	.310	.247	.174	.496	3.293	65,536
	16S	.268	1.857	.878	.191	.152	.215	.218	.174	.123	.334	3.124	65,536
	16R	.278	1.801	.871	.187	.150	.210	.215	.172	.121	.369	3.130	32,768
	32S	.427	1.483	.878	.134	.107	.151	.153	.122	.086	.252	3.018	32,768
	32R	.428	1.354	.818	.116	.106	.131	.142	.130	.080	.194	2.985	16,384
	128S	.668	1.099	.877	.059	.047	.066	.067	.054	.038	.074	2.926	16,384
12/30-12/35	1E	.000	11.841	1.568	1.585	1.079	1.506	1.011	.688	.480	2.463	11.345	737
	2E	.000	11.085	1.568	1.120	.820	1.145	.714	.523	.365	1.738	7.140	271,216
	8S	.203	5.424	1.569	.557	.438	.614	.355	.279	.196	.856	4.029	131,072
	8R	.266	4.853	1.577	.556	.436	.612	.353	.276	.194	.868	4.036	65,536
	16S	.486	3.941	1.573	.396	.314	.442	.252	.200	.141	.612	3.505	65,536
	16R	.445	3.650	1.591	.395	.311	.441	.248	.196	.139	.588	3.435	32,768
	32S	.745	2.750	1.567	.274	.219	.308	.175	.139	.098	.388	3.126	32,768
	32R	.808	3.050	1.614	.282	.225	.317	.175	.139	.098	.415	3.265	16,384
	128S	1.089	2.149	1.572	.128	.102	.144	.081	.065	.046	.186	3.082	16,384
12/35-12/40	1E	.000	10.457	.949	.822	.519	.741	.867	.547	.391	4.460	41.754	719
	2E	.000	9.666	.949	.581	.384	.552	.613	.405	.291	3.147	22.236	258,121
	8S	.226	3.512	.947	.289	.210	.301	.306	.222	.159	1.557	7.697	131,072
	8R	.263	3.312	.950	.292	.211	.303	.307	.222	.159	1.603	7.606	65,536
	16S	.400	2.406	.948	.203	.153	.219	.214	.162	.115	1.068	5.072	65,536
	16R	.411	2.352	.954	.207	.156	.223	.217	.163	.117	1.112	5.186	32,768
	32S	.552	1.656	.948	.142	.111	.157	.150	.117	.083	.718	3.817	32,768
	32R	.572	1.752	.982	.149	.116	.165	.151	.118	.084	.685	3.657	16,384
	128S	.732	1.249	.949	.066	.053	.074	.069	.056	.039	.290	3.019	16,384
12/40-12/45	1E	.000	48.855	4.264	3.990	2.289	3.150	.936	.537	.369	5.010	41.665	788
	2E	.000	45.698	4.264	2.819	1.780	2.486	.661	.418	.292	3.536	22.205	310,078
	8S	1.553	16.196	4.263	1.400	1.017	1.436	.328	.238	.168	1.734	7.502	131,072
	8R	1.539	15.239	4.344	1.393	1.001	1.434	.321	.230	.165	1.681	7.202	65,536
	16S	2.095	11.391	4.269	.991	.752	1.062	.232	.176	.124	1.225	5.219	65,536
	16R	2.278	10.258	4.434	.952	.717	1.031	.215	.162	.116	1.078	4.642	32,768
	32S	2.617	8.355	4.255	.686	.538	.756	.161	.126	.089	.814	3.931	32,768
	32R	2.967	7.618	4.583	.624	.530	.695	.136	.116	.076	.660	3.591	16,384
	128S	3.218	5.713	4.270	.324	.259	.365	.076	.061	.043	.335	3.017	16,384
12/45-12/50	1E	.063	6.514	1.455	.771	.576	.811	.530	.396	.279	1.525	7.489	853
	2E	.107	6.024	1.455	.545	.418	.591	.374	.287	.203	1.076	5.228	363,378
	8S	.553	3.177	1.454	.271	.214	.302	.186	.147	.104	.530	3.559	131,072
	8R	.639	2.884	1.453	.270	.213	.301	.186	.147	.104	.520	3.432	65,536
	16S	.846	2.697	1.455	.191	.152	.214	.131	.104	.074	.362	3.268	65,536
	16R	.886	2.333	1.447	.188	.150	.211	.130	.104	.073	.371	3.219	32,768
	32S	.910	2.128	1.455	.133	.106	.150	.092	.073	.052	.217	3.113	32,768
	32R	1.022	1.910	1.439	.123	.099	.138	.085	.069	.048	.235	3.012	16,384
	128S	1.197	1.706	1.455	.063	.050	.071	.043	.034	.024	.097	3.004	16,384
12/50-12/55	1E	.113	10.794	2.335	1.217	.861	1.240	.521	.369	.266	1.836	9.107	1,010
	2E	.145	9.896	2.335	.860	.643	.915	.368	.275	.196	1.296	6.035	509,545
	8S	1.059	5.107	2.335	.430	.338	.477	.184	.145	.102	.644	3.739	131,072
	8R	1.067	4.842	2.326	.423	.334	.470	.182	.143	.101	.628	3.643	65,536
	16S	1.299	4.119	2.337	.302	.240	.339	.129	.103	.072	.466	3.362	65,536
	16R	1.406	3.880	2.316	.292	.233	.327	.126	.100	.071	.431	3.314	32,768
	32S	1.595	3.364	2.334	.212	.169	.238	.091	.072	.051	.323	3.162	32,768
	32R	1.698	3.140	2.312	.196	.157	.220	.085	.068	.048	.273	3.084	16,384
	128S	1.943	2.746	2.334	.100	.080	.113	.043	.034	.024	.131	3.008	16,384
12/55-12/60	1E	.102	35.876	1.701	1.508	.737	1.067	.886	.433	.314	12.294	257.373	1,055
	2E	.107	24.524	1.701	1.066	.562	.813	.626	.330	.239	8.681	129.571	555,985
	8S	.629	7.417	1.701	.536	.322	.467	.315	.189	.137	4.319	33.403	131,072
	8R	.666	7.554	1.709	.555	.326	.474	.325	.191	.139	4.426	33.331	65,536
	16S	.889	5.052	1.701	.373	.240	.348	.219	.141	.102	3.001	17.842	65,536
	16R	.896	4.934	1.722	.413	.251	.371	.240	.146	.108	3.133	16.777	32,768
	32S	1.066	3.480	1.702	.265	.181	.262	.156	.106	.077	2.104	9.975	32,768
	32R	1.115	3.471	1.773	.335	.213	.323	.189	.120	.091	1.971	6.963	16,384
	128S	1.389	2.314	1.701	.125	.097	.137	.074	.057	.040	.883	3.833	16,384
12/60-12/65	1E	.159	18.598	2.086	1.382	.851	1.221	.663	.408	.293	4.087	34.270	1,119
	2E	.187	16.508	2.086	.977	.654	.931	.468	.314	.223	2.886	18.560	625,521
	8S	.869	6.516	2.085	.486	.361	.513	.233	.173	.123	1.444	6.908	131,072
	8R	.878	5.599	2.106	.495	.365	.523	.235	.173	.124	1.410	6.435	65,536
	16S	1.209	4.381	2.083	.342	.262	.372	.164	.126	.089	.996	4.792	65,536
	16R	1.205	4.128	2.137	.355	.270	.388	.166	.126	.091	.914	4.182	32,768
	32S	1.383	3.507	2.088	.241	.189	.267	.115	.090	.064	.703	3.883	32,768
	32R	1.495	3.293	2.205	.244	.210	.275	.111	.095	.062	.419	3.071	16,384
	128S	1.731	2.650	2.086	.115	.092	.129	.055	.044	.031	.312	3.120	16,384

TABLE A1, CONTINUED

FREQUENCY DISTRIBUTIONS OF WEALTH RATIOS FROM INVESTMENTS IN RANDOMLY SELECTED PORTFOLIOS CONTAINING SPECIFIED NUMBERS OF STOCKS LISTED ON THE NYSE, 1926-65

Number and Length of Periods	Size of Portfolio/ Sampling Method	Centiles of the Frequency Distributions										
		5th	10th	20th	30th	40th	(Median) 50th	60th	70th	80th	90th	95th
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
						TEN-YEAR PERIODS						
1/26-12/35	1E	.016	.048	.152	.256	.461	.688	1.007	1.368	1.850	2.730	4.297
	2E	.115	.196	.365	.540	.716	.908	1.106	1.373	1.790	2.593	3.633
	8S	.488	.590	.736	.859	.979	1.104	1.246	1.420	1.641	2.002	2.353
	8R	.502	.607	.754	.875	.992	1.116	1.259	1.428	1.647	2.009	2.370
	16S	.657	.749	.870	.971	1.065	1.162	1.268	1.390	1.545	1.790	2.102
	16R	.672	.763	.888	.985	1.080	1.174	1.276	1.395	1.551	1.816	2.169
	32S	.796	.871	.972	1.050	1.123	1.194	1.271	1.357	1.471	1.667	1.859
	32R	.743	.813	.898	.964	1.026	1.087	1.157	1.234	1.334	1.520	1.705
	128S	1.008	1.043	1.109	1.147	1.185	1.223	1.264	1.306	1.351	1.434	1.476
12/35-12/45	1E	.614	1.056	1.592	1.912	2.210	2.557	2.999	3.493	4.216	5.500	7.664
	2E	1.221	1.515	1.890	2.186	2.464	2.751	3.068	3.462	4.030	5.194	6.442
	8S	1.987	2.174	2.419	2.616	2.797	2.987	3.193	3.434	3.760	4.317	4.996
	8R	2.024	2.211	2.457	2.657	2.843	3.035	3.248	3.495	3.819	4.370	5.105
	16S	2.257	2.414	2.614	2.767	2.914	3.057	3.217	3.387	3.638	4.054	4.599
	16R	2.365	2.502	2.714	2.884	3.029	3.181	3.342	3.538	3.787	4.268	4.886
	32S	2.467	2.608	2.755	2.886	2.994	3.103	3.233	3.363	3.568	3.911	4.454
	32R	2.755	2.895	3.073	3.205	3.326	3.454	3.590	3.742	3.991	4.961	5.642
	128S	2.805	2.873	2.952	3.030	3.109	3.190	3.270	3.351	3.481	3.672	3.852
12/45-12/55	1E	.621	.982	1.505	1.895	2.302	2.750	3.270	4.059	5.100	7.169	9.001
	2E	1.211	1.512	1.943	2.315	2.690	3.089	3.550	4.121	4.908	6.125	7.333
	8S	2.128	2.367	2.682	2.939	3.175	3.410	3.659	3.947	4.303	4.827	5.329
	8R	2.142	2.377	2.686	2.935	3.161	3.389	3.634	3.914	4.271	4.780	5.250
	16S	2.482	2.678	2.935	3.135	3.306	3.479	3.654	3.858	4.093	4.450	4.768
	16R	2.479	2.668	2.912	3.104	3.267	3.431	3.603	3.795	4.021	4.362	4.676
	32S	2.747	2.903	3.111	3.244	3.376	3.502	3.627	3.769	3.941	4.194	4.382
	32R	2.786	2.915	3.106	3.221	3.337	3.453	3.571	3.689	3.861	4.042	4.272
	128S	3.129	3.185	3.295	3.400	3.463	3.525	3.588	3.650	3.723	3.897	3.984
12/55-12/65	1E	.836	1.157	1.654	2.035	2.427	2.814	3.208	3.681	4.289	5.473	7.075
	2E	1.382	1.669	2.054	2.361	2.640	2.923	3.232	3.602	4.112	5.036	6.036
	8S	2.158	2.336	2.576	2.759	2.933	3.103	3.295	3.518	3.814	4.336	4.885
	8R	2.170	2.350	2.591	2.774	2.949	3.122	3.315	3.544	3.849	4.372	4.901
	16S	2.414	2.565	2.747	2.899	3.029	3.165	3.309	3.479	3.687	4.025	4.346
	16R	2.432	2.598	2.782	2.934	3.071	3.211	3.353	3.534	3.747	4.075	4.377
	32S	2.624	2.723	2.885	2.993	3.101	3.208	3.314	3.434	3.595	3.819	4.003
	32R	2.684	2.831	2.962	3.089	3.195	3.298	3.403	3.538	3.674	3.916	4.072
	128S	2.879	2.934	3.043	3.128	3.182	3.235	3.289	3.342	3.398	3.560	3.642
						20-YEAR PERIODS						
1/26-12/45	1E	.000	.052	.324	.772	1.273	1.864	2.772	3.914	5.133	7.395	11.389
	2E	.249	.523	.982	1.496	2.010	2.527	3.072	3.770	4.797	7.002	9.909
	8S	1.319	1.608	2.010	2.345	2.662	3.006	3.396	3.848	4.532	5.659	6.734
	8R	1.366	1.660	2.061	2.393	2.717	3.063	3.470	3.941	4.593	5.751	6.813
	16S	1.783	2.012	2.360	2.645	2.911	3.177	3.502	3.835	4.337	5.062	5.592
	16R	1.854	2.100	2.437	2.728	2.992	3.267	3.587	3.928	4.419	5.149	5.676
	32S	2.185	2.350	2.665	2.867	3.070	3.281	3.514	3.746	4.078	4.520	4.956
	32R	2.095	2.293	2.569	2.787	2.980	3.172	3.393	3.620	3.848	4.338	4.597
	128S	2.706	2.791	2.962	3.132	3.272	3.389	3.506	3.623	3.739	3.856	4.215
12/45-12/65	1E	.912	1.886	3.357	4.549	6.269	8.242	10.111	12.529	16.068	21.992	30.115
	2E	2.648	3.608	5.140	6.452	7.741	9.138	10.688	12.552	15.132	19.496	24.671
	8S	5.790	6.623	7.674	8.562	9.372	10.231	11.115	12.220	13.514	15.838	18.168
	8R	5.805	6.646	7.673	8.552	9.358	10.210	11.088	12.175	13.466	15.769	18.061
	16S	6.947	7.590	8.493	9.174	9.844	10.489	11.135	11.939	12.984	14.497	15.874
	16R	6.994	7.634	8.515	9.195	9.856	10.480	11.105	11.871	12.924	14.378	15.811
	32S	7.992	8.383	9.058	9.706	10.174	10.642	11.110	11.629	12.523	13.417	14.352
	32R	8.128	8.468	9.147	9.764	10.206	10.649	11.092	11.547	12.449	13.352	14.072
	128S	8.903	9.662	9.924	10.185	10.447	10.709	10.971	11.232	11.494	12.574	13.164
						40-YEAR PERIOD						
1/26-12/65	1E	.000	.258	1.283	3.724	8.257	14.323	21.581	33.613	50.787	82.532	127.554
	2E	1.041	2.663	6.631	10.964	15.669	21.557	28.267	37.228	50.393	76.499	107.820
	8S	10.323	12.954	17.309	21.097	24.948	28.812	33.363	39.326	45.335	60.472	76.912
	8R	10.505	13.251	17.570	21.354	25.136	28.917	33.404	39.255	45.106	60.046	75.798
	16S	15.068	17.211	21.496	24.556	27.547	30.538	34.621	39.153	43.685	56.084	64.379
	16R	15.190	17.236	21.328	24.320	27.194	30.068	33.820	38.339	42.857	54.034	63.398
	32S	18.151	21.735	24.177	26.618	29.060	31.551	35.280	39.010	42.740	54.865	72.821
	32R	16.895	19.399	22.798	24.802	26.806	28.810	30.814	34.606	39.154	43.701	57.493
	128S	23.045	24.410	27.140	29.870	32.555	35.182	37.809	40.436	43.063	48.040	56.520

Number and Length of Periods	Size of Portfolio and Sampling Method	Sample Minimum	Sample Maximum	Arithmetic Mean	Standard Deviation	Mean Deviation	Gini's Mean Difference	Coefficient of Variation	Relative Mean Deviation	Coefficient of Concentration	Skewness	Kurtosis	Number of Portfolios Examined
(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
					TEN-YEAR PERIODS								
1/26-12/35	1E	.000	24.679	1.238	1.852	1.086	1.480	1.496	.877	.598	5.481	56.199	510
	2E	.000	17.915	1.238	1.308	.836	1.166	1.057	.675	.471	3.864	29.331	129,795
	8S	.049	7.590	1.236	.651	.471	.664	.526	.381	.268	1.894	9.102	131,072
	8R	.079	6.002	1.251	.656	.468	.665	.524	.374	.266	1.947	9.257	65,536
	16S	.192	4.421	1.237	.456	.342	.485	.368	.276	.196	1.305	5.767	65,536
	16R	.228	3.756	1.253	.462	.341	.488	.369	.272	.195	1.351	5.738	32,768
	32S	.475	2.862	1.237	.319	.246	.349	.258	.199	.141	.882	4.104	32,768
	32R	.476	2.468	1.131	.285	.249	.311	.252	.220	.137	.943	4.175	16,384
	128S	.797	1.807	1.231	.140	.112	.158	.113	.091	.064	.286	2.962	16,384
12/35-12/45	1E	.000	74.724	3.226	3.675	1.708	2.459	1.139	.529	.381	11.440	205.680	719
	2E	.000	51.189	3.226	2.597	1.329	1.912	.805	.412	.296	8.073	103.621	258,121
	8S	.822	16.967	3.217	1.274	.773	1.112	.396	.240	.173	3.958	27.222	131,072
	8R	1.017	16.527	3.286	1.356	.787	1.157	.413	.240	.176	4.018	26.253	65,536
	16S	1.4.0	10.241	3.221	.900	.582	.841	.279	.181	.131	2.769	14.393	65,536
	16R	1.621	9.974	3.379	1.010	.616	.928	.299	.182	.137	2.709	12.609	32,768
	32S	1.864	6.930	3.223	.635	.440	.634	.197	.137	.098	1.887	7.961	32,768
	32R	2.069	7.813	3.650	.811	.580	.813	.222	.159	.111	1.633	5.430	16,384
	128S	2.476	4.637	3.225	.294	.233	.327	.091	.072	.051	.724	3.224	16,384
12/45-12/55	1E	.047	21.753	3.526	2.766	2.012	2.779	.785	.571	.394	1.958	8.668	853
	2E	.064	20.431	3.526	1.955	1.489	2.074	.554	.422	.294	1.382	5.814	363,378
	8S	.947	9.541	3.522	.976	.771	1.084	.277	.219	.154	.693	3.692	131,072
	8R	1.035	9.523	3.501	.952	.754	1.058	.272	.215	.151	.683	3.662	65,536
	16S	1.451	7.562	3.531	.687	.545	.770	.195	.154	.109	.477	3.347	65,536
	16R	1.523	6.869	3.481	.653	.524	.733	.188	.151	.105	.451	3.236	32,768
	32S	2.034	5.787	3.523	.483	.385	.543	.137	.109	.077	.324	3.112	32,768
	32R	1.912	5.420	3.473	.429	.348	.484	.123	.100	.070	.256	2.979	16,384
	128S	2.753	4.409	3.524	.228	.183	.259	.065	.052	.037	.125	2.963	16,384
12/55-12/65	1E	.084	22.340	3.241	2.350	1.506	2.166	.725	.465	.334	3.278	20.969	1,055
	2E	.130	21.851	3.241	1.661	1.137	1.630	.513	.351	.252	2.315	11.938	555,985
	8S	.837	9.564	3.240	.829	.627	.892	.256	.194	.138	1.145	5.171	131,072
	8R	1.085	9.047	3.260	.832	.630	.897	.255	.193	.138	1.102	4.917	65,536
	16S	1.519	7.398	3.239	.581	.453	.640	.180	.140	.099	.807	4.073	65,536
	16R	1.597	6.935	3.282	.590	.457	.651	.180	.139	.099	.764	3.945	32,768
	32S	1.999	5.491	3.241	.409	.325	.458	.126	.100	.071	.552	3.434	32,768
	32R	2.089	5.244	3.329	.408	.327	.458	.123	.098	.069	.455	3.193	16,384
	128S	2.600	4.055	3.235	.192	.154	.218	.059	.048	.034	.219	3.020	16,384
					20-YEAR PERIODS								
1/26-12/45	1E	.000	40.763	3.361	4.759	2.943	4.018	1.416	.876	.598	3.718	22.395	510
	2E	.000	39.315	3.361	3.362	2.240	3.150	1.000	.666	.469	2.622	12.596	129,795
	8S	.172	18.387	3.362	1.674	1.274	1.784	.498	.379	.265	1.294	5.274	131,072
	8R	.154	18.345	3.419	1.669	1.269	1.788	.488	.371	.261	1.234	5.007	65,536
	16S	.545	12.660	3.367	1.177	.924	1.295	.350	.274	.192	.896	4.089	65,536
	16R	.646	10.138	3.450	1.167	.914	1.290	.338	.265	.187	.828	3.820	32,768
	32S	1.208	7.561	3.361	.811	.644	.906	.241	.192	.135	.604	3.417	32,768
	32R	1.190	6.953	3.234	.744	.610	.834	.230	.189	.129	.523	3.393	16,384
	128S	2.213	4.861	3.362	.363	.290	.414	.108	.086	.062	.212	2.992	16,384
12/45-12/65	1E	.116	110.916	10.766	10.593	7.083	9.866	.984	.658	.458	3.111	19.804	853
	2E	.119	94.155	10.766	7.486	5.299	7.469	.695	.492	.347	2.196	11.349	363,378
	8S	2.018	41.127	10.779	3.731	2.858	4.043	.346	.265	.188	1.079	4.989	131,072
	8R	2.095	36.448	10.753	3.698	2.834	4.005	.344	.264	.186	1.083	4.961	65,536
	16S	3.560	28.019	10.760	2.629	2.057	2.904	.244	.191	.135	.766	4.013	65,536
	16R	3.340	24.726	10.741	2.568	2.010	2.839	.239	.187	.132	.764	3.906	32,768
	32S	5.425	21.171	10.755	1.838	1.456	2.058	.171	.135	.096	.523	3.444	32,768
	32R	5.838	19.714	10.769	1.744	1.383	1.955	.162	.128	.091	.507	3.335	16,384
	128S	7.893	14.266	10.761	.860	.686	1.001	.080	.064	.046	.168	3.012	16,384
					40-YEAR PERIOD								
1/26-12/65	1E	.000	1715.239	35.124	89.807	36.247	48.377	2.557	1.032	.689	13.439	242.255	510
	2E	.000	1087.753	35.124	63.440	28.714	39.764	1.806	.818	.566	9.475	121.439	129,795
	8S	.527	333.032	35.210	31.657	17.366	24.888	.899	.493	.353	4.645	30.636	131,072
	8R	.611	330.521	35.280	31.870	17.214	24.720	.903	.488	.350	4.727	31.201	65,536
	16S	3.781	192.144	35.143	22.158	13.321	19.228	.631	.379	.274	3.211	15.717	65,536
	16R	5.401	187.310	34.451	21.616	12.928	18.429	.627	.375	.267	3.355	16.712	32,768
	32S	8.839	121.271	35.138	15.524	10.304	14.839	.442	.293	.211	2.145	8.076	32,768
	32R	8.492	104.613	31.215	12.718	9.591	11.730	.407	.307	.188	2.633	11.739	16,384
	128S	19.230	59.400	35.131	6.933	5.666	7.734	.197	.161	.110	.670	2.638	16,384

TABLE A2

MINIMUM AND MAXIMUM WEALTH RATIOS FROM INVESTMENTS IN INFINITE NUMBERS OF RANDOMLY SELECTED PORTFOLIOS CONTAINING SPECIFIED NUMBERS OF STOCKS LISTED ON THE NYSE, 1926-65*

Size of Portfolio/ Sampling Method	1926		1927		1928		1929	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
8S	0.279	2.447	0.188	3.943	0.494	6.760	0.074	1.568
8R	0.293	2.447	0.251	3.839	0.495	6.760	0.077	1.522
16S	0.328	2.114	0.355	3.308	0.543	5.267	0.106	1.482
16R	0.370	2.046	0.418	3.136	0.568	4.928	0.113	1.397
32S	0.383	1.811	0.487	2.807	0.616	4.150	0.138	1.378
32R	0.523	1.630	0.638	2.434	0.721	3.354	0.254	1.193
128S	0.589	1.383	0.737	2.000	0.820	2.536	0.269	1.153

	1930		1931		1932		1933	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
8S	0.102	1.610	0.005	1.720	0.028	2.867	0.071	9.188
8R	0.104	1.616	0.005	1.591	0.046	2.649	0.109	9.169
16S	0.122	1.460	0.038	1.508	0.103	2.529	0.249	7.532
16R	0.126	1.412	0.041	1.419	0.140	2.263	0.305	7.246
32S	0.148	1.309	0.076	1.336	0.185	2.181	0.415	6.204
32R	0.203	1.201	0.132	1.175	0.283	1.786	0.587	5.234
128S	0.245	1.061	0.185	1.007	0.386	1.589	0.775	4.077

	1934		1935		1936		1937	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
8S	0.359	4.260	0.233	4.534	0.472	5.803	0.172	1.254
8R	0.375	3.798	0.353	4.438	0.484	5.727	0.178	1.239
16S	0.418	3.407	0.380	4.045	0.600	4.568	0.197	1.151
16R	0.464	3.009	0.476	3.817	0.622	4.423	0.205	1.094
32S	0.475	2.796	0.522	3.555	0.705	3.706	0.226	1.043
32R	0.567	2.340	0.695	3.042	0.795	3.299	0.253	0.914
128S	0.610	1.963	0.795	2.611	0.891	2.513	0.293	0.858

	1938		1939		1940		1941	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
8S	0.208	3.942	0.259	2.330	0.080	2.136	0.127	2.260
8R	0.270	3.942	0.307	2.270	0.173	2.053	0.191	2.165
16S	0.320	3.156	0.340	2.122	0.173	1.841	0.205	2.042
16R	0.427	3.118	0.394	2.007	0.301	1.746	0.297	1.880
32S	0.427	2.641	0.411	1.854	0.293	1.619	0.298	1.793
32R	0.641	2.512	0.506	1.696	0.458	1.491	0.425	1.597
128S	0.729	2.022	0.571	1.462	0.504	1.308	0.476	1.385

	1942		1943		1944		1945	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
8S	0.690	4.299	0.724	5.808	0.627	3.254	0.955	4.100
8R	0.691	4.096	0.764	5.704	0.757	3.080	0.962	3.596
16S	0.739	3.759	0.807	4.723	0.762	2.921	1.027	3.530
16R	0.748	3.247	0.888	4.423	0.898	2.656	1.051	3.109
32S	0.778	3.115	0.885	3.851	0.874	2.590	1.085	3.044
32R	0.845	2.531	1.023	3.255	1.021	2.219	1.156	2.609
128S	0.872	2.141	1.038	2.609	1.028	1.991	1.194	2.336

*The corresponding minima and maxima for portfolios of one and two stocks are shown in Table 5.

TABLE A2, CONTINUED

MINIMUM AND MAXIMUM WEALTH RATIOS FROM INVESTMENTS IN INFINITE NUMBERS OF RANDOMLY SELECTED PORTFOLIOS CONTAINING SPECIFIED NUMBERS OF STOCKS LISTED ON THE NYSE, 1926-65*

Size of Portfolio/ Sampling Method	1946		1947		1948		1949	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
8S	0.353	1.821	0.437	2.077	0.381	2.400	0.481	2.313
8R	0.409	1.742	0.437	1.994	0.416	2.307	0.493	2.272
16S	0.394	1.671	0.478	1.904	0.425	2.012	0.591	2.118
16R	0.468	1.575	0.485	1.787	0.479	1.897	0.632	2.033
32S	0.437	1.533	0.521	1.757	0.469	1.747	0.683	1.928
32R	0.555	1.378	0.598	1.498	0.583	1.568	0.766	1.795
128S	0.547	1.292	0.640	1.453	0.620	1.375	0.833	1.629

	1950		1951		1952		1953	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
8S	0.703	3.196	0.507	2.328	0.505	1.733	0.378	1.798
8R	0.725	2.866	0.510	2.241	0.506	1.690	0.403	1.775
16S	0.752	2.867	0.581	2.057	0.587	1.684	0.444	1.684
16R	0.787	2.450	0.599	1.983	0.600	1.596	0.473	1.632
32S	0.799	2.578	0.650	1.873	0.653	1.612	0.496	1.561
32R	0.870	2.086	0.741	1.691	0.697	1.465	0.608	1.453
128S	0.905	2.068	0.816	1.575	0.772	1.433	0.619	1.339

	1954		1955		1956		1957	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
8S	0.732	3.609	0.548	2.437	0.421	2.376	0.320	1.855
8R	0.772	3.465	0.556	2.437	0.427	2.274	0.339	1.855
16S	0.823	3.149	0.628	2.274	0.492	2.092	0.350	1.655
16R	0.874	3.015	0.651	2.232	0.525	1.929	0.395	1.629
32S	0.920	2.853	0.701	2.084	0.559	1.870	0.384	1.501
32R	1.016	2.530	0.766	1.889	0.653	1.638	0.493	1.410
128S	1.081	2.304	0.835	1.722	0.701	1.555	0.493	1.268

	1958		1959		1960		1961	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
8S	0.879	4.306	0.527	2.709	0.408	2.168	0.522	3.093
8R	0.884	3.942	0.558	2.694	0.408	2.093	0.526	3.029
16S	0.921	3.864	0.572	2.482	0.450	1.974	0.611	2.765
16R	0.942	3.365	0.630	2.308	0.460	1.872	0.636	2.687
32S	0.973	3.339	0.630	2.232	0.488	1.792	0.687	2.452
32R	1.054	2.734	0.729	1.924	0.571	1.618	0.776	2.261
128S	1.108	2.458	0.761	1.770	0.587	1.493	0.837	1.916

	1962		1963		1964		1965	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
8S	0.283	1.629	0.439	2.731	0.424	2.[illegible]	0.509	3.665
8R	0.286	1.573	0.440	2.653	0.467	[illegible]	0.517	3.414
16S	0.350	1.516	0.532	2.448	0.501	2.[illegible]	0.582	3.232
16R	0.364	1.461	0.551	2.335	0.566	[illegible]	0.593	2.901
32S	0.409	1.420	0.607	2.208	0.575	2.[illegible]	0.653	2.866
32R	0.474	1.305	0.710	1.957	0.720	[illegible]	0.723	2.300
128S	0.531	1.237	0.779	1.752	0.745	[illegible]	0.818	2.154

*The corresponding minima and maxima for portfolios of one and two stocks are shown in Table 5.

TABLE A2, CONTINUED

MINIMUM AND MAXIMUM WEALTH RATIOS FROM INVESTMENTS IN INFINITE NUMBERS OF RANDOMLY SELECTED PORTFOLIOS CONTAINING SPECIFIED NUMBERS OF STOCKS LISTED ON THE NYSE, 1926-65*

Size of Portfolio/ Sampling Method	1926-30		1931-35		1936-40		1941-45	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
8S	0.006	3.719	0.	9.572	0.004	5.817	0.756	31.511
8R	0.013	3.591	0.	9.407	0.021	5.789	0.958	26.887
16S	0.016	3.345	0.	8.352	0.021	4.484	1.003	24.365
16R	0.031	3.135	0.013	7.958	0.057	4.220	1.224	20.627
32S	0.028	2.922	0.020	7.027	0.052	3.421	1.175	18.623
32R	0.126	2.175	0.119	5.657	0.148	3.020	1.663	14.447
128S	0.120	1.965	0.181	4.280	0.184	2.136	1.582	10.566

	1946-50		1951-55		1956-60		1961-65	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
8S	0.232	4.928	0.281	8.402	0.180	12.182	0.308	11.463
8R	0.232	4.752	0.312	8.057	0.224	11.794	0.351	9.420
16S	0.282	4.328	0.375	7.533	0.242	8.973	0.387	9.273
16R	0.315	4.105	0.431	6.905	0.304	8.221	0.431	7.693
32S	0.338	3.801	0.497	6.550	0.312	6.790	0.467	7.610
32R	0.482	3.221	0.751	5.376	0.499	5.677	0.678	5.795
128S	0.540	2.836	0.886	4.742	0.543	3.987	0.753	4.895

	1926-35		1936-45		1946-55		1956-65	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
8S	0.	10.651	0.	25.166	0.155	16.431	0.200	19.032
8R	0.	9.855	0.067	24.508	0.158	16.215	0.214	16.832
16S	0.	8.559	0.078	18.215	0.221	14.600	0.301	15.819
16R	0.004	7.041	0.291	17.543	0.254	13.488	0.370	13.017
32S	0.005	6.500	0.241	13.577	0.316	12.608	0.456	12.382
32R	0.070	4.320	0.731	12.258	0.603	9.511	0.732	9.761
128S	0.081	3.347	0.888	7.541	0.769	8.765	0.865	7.800

	1926-45		1946-65		1926-65	
	MIN	MAX	MIN	MAX	MIN	MAX
8S	0.	29.113	0.197	73.778	0.	483.576
8R	0.	28.161	0.202	73.778	0.	459.290
16S	0.	23.406	0.275	59.439	0.	332.143
16R	0.002	20.750	0.340	55.418	0.006	307.518
32S	0.001	17.654	0.417	48.120	0.005	234.007
32R	0.142	12.785	1.211	39.077	0.919	178.207
128S	0.157	8.998	1.418	29.602	0.637	106.832

*The corresponding minima and maxima for portfolios of one and two stocks are shown in Table 5.

APPENDIX B

INDUSTRY GROUPS USED IN THE RESTRICTED SAMPLING PROCESS

Samples shown with an *R* in tables 5, A1, and A2 were random samples subject to the restriction that no more than one stock in a given industry be included in any given portfolio. This procedure, as well as simple random sampling, was employed for portfolios of eight, sixteen, and thirty-two stocks.

We classified the companies listed on the New York Stock Exchange into thirty-six industry groups. In defining an index group for this purpose, we used the Securities and Exchange Commission (SEC) two-digit groupings[17] subject to the restriction that there be at least one stock in each group at the beginning of each period. This restriction made it necessary to aggregate several two-digit groups in a number of instances. Table B1 contains the list of industry groups we used.

[17] The SEC two-digit groups correspond closely to the Standard Industrial Classification (SIC) groups.

TABLE B1

LIST OF INDUSTRY GROUPS USED IN RESTRICTED RANDOM SAMPLES

Industry Group	Description	Industry Group	Description
10	Metal mining	38	Instruments and related products
11–12	Coal mining	39	Miscellaneous manufacturing industries
13	Crude petroleum	40, 47	Railroads; miscellaneous transportation services
20	Food and kindred products		
21	Tobacco manufacturing	41–42	Local and highway transportation and public warehousing
22	Textile-mill products		
23	Apparel and other finished textiles	44	Water transportation
24–25	Lumber and wood products; furniture and fixtures	48	Wire and radio communication
		49	Electric, gas, and water utilities
26	Paper and allied products	53	Department stores, mail order houses and vending-machine operators
27	Printing, publishing, and allied industries		
28	Chemical and allied products	54	Food stores
29	Products of petroleum and coal	56	Retail clothing and shoe stores
30	Rubber products	58	Restaurants
31*	Leather and leather products	50–52, 55,	
32*	Stone, clay, and glass products	57, 59	Other wholesale and retail trade
33*	Primary metal industries	60–63	Banks, savings and loan associations, finance companies, and insurance
34	Fabricated metal products		
35	Machinery except electrical	67	Investment companies
36	Electrical machinery	70–79	Services
37	Transportation equipment	All other	

* Because of a programming error, these industry groups were combined.