PORTFOLIO DIVERSIFICATION OF NYSE SPECIALIST UNITS

by

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PORTFOLIO DIVERSIFICATION OF NYSE SPECIALIST UNITS

Until recently each stock on the NEW-YORK Stock Exchange (NYSE) has been assigned to a specific specialist unit that has the responsability of dealing for its own account so as to maintain a "fair and orderly market". A specialist unit is a joint operation of one or more individual specialists. As of May 31, 1975 they were 381 individual specialists aggregated into 67 specialist units.[1] Although competition among these dealer firms has recently been permitted,[2] the fact remains that most specialist units have a monopoly, at least on the floor of the NYSE.[3]

A system of monopoly dealers tends, for a given number of specialist units, to minimize the number of stocks per unit and therefore limits the diversification against risk that each unit can achieve. The less diversified the unit, the more volatile bid and ask prices will be relative to the "true" price of the stock because the total price adjustment to an inventory change would tend to be in the stock traded and could not be passed on to as many other stocks in the form of changes in bid-ask quotations for those stocks. If the unit specializes in a single stock, it can eliminate the inventory risk of holding that stock only by selling that stock. If the unit has a portfolio of stocks, it can eliminate the inventory risk of holding a stock by selling that stock or by selling other specialty stocks the returns of which are correlated with the return of the stock in inventory. Thus, in the second case, bid and ask prices change in all stocks whose returns are correlated with those of the stock traded in order to encourage transactions in those stocks as well. And the bid and ask price changes are less for the traded stock than they would be if the unit specialized in only that stock.[4]

The purpose of this paper is to report on the degree of diversification of the 67 specialist units existing at the end of 1974. In the next section the data are described. Then the procedures for measuring diversification are presented. Finally the results and conclusions are given.

DATA

The specialist unit assigned to each security is identified in the NYSE publication, Stocks and Specialists. The data for December 31, 1974 are utilized, and the analysis is restricted to common stocks only. Thus the specialist unit in preferred stocks is omitted from consideration. The specialist units analysed are listed in Table 1.[5]

Measures of portfolio risk and return are based on measures of risk and return for the individual speciality stocks of each unit. These measures of risk and return are calculated using daily returns for the two year period, January 1, 1973 to December 31, 1974. Adjustment is made for all splits and stock dividends and account is taken of all cash dividend payments.[6] The market index used in the calculation of risk measures is a value weighted index of all stocks.

MEASURING DIVERSIFICATION

The measurement of diversification is based on the market model, which posits that the relation between the return on an individual stock, R_i, and the return on the market portfolio, R_m is :

$$R_i = a_i + b_i R_m + e_i \qquad (1)$$

where a_i and b_i are constants specific to the stock and where :

$$E(e_i) = 0, \; cov(R_m, e_i) = 0.$$

With these assumptions, one can write :

$$\sigma^2(R_i) = b_i^2 \, \sigma^2(R_m) + \sigma^2(e_i), \qquad (2)$$

where $b_i^2 \, \sigma^2(R_m)$ is usually referred to as "systematic risk" and $\sigma^2(e_i)$ as "unsystematic risk". The second term is referred to as unsystematic risk because it is assumed that $cov(e_i, e_j) = 0$ and that there is only one source of systematic variability - the behavior of the market as a whole.

The return on the portfolio of specialist unit k is given as :

$$R_k = \sum_{i=1}^{n_k} X_{i,k} R_{i,k} = \sum_{i=1}^{n_k} X_{i,k}(a_i + b_i R_m + e_i)$$

$$R_k = \sum_{i=1}^{n_k} X_{i,k} a_i + \sum_{i=1}^{n_k} X_{i,k} b_i R_m + \sum_{i=1}^{n_k} X_{i,k} e_i \qquad (3)$$

and

$$\sigma^2(R_k) = b_k^2 \sigma^2(R_m) + \sigma^2(e_k) \qquad (4)$$

where

n_k = number of stocks in portfolio of dealer k.

X_i = proportion of portfolio invested in stock i.

$$b_k = \sum_{i=1}^{n_k} X_{i,k} b_i$$

$$\sigma^2(e_k) = \sum_{i=1}^{n_k} X_i^2 \sigma^2(e_i)$$

The benefit of diversification is that the term, $\sigma^2(e_k)$ in (4) becomes very small as the number of stocks increases.

The primary measure of specialist diversification used is the percentage of told risk which is not diversified away :

$$D_k = \frac{\sigma^2(e_k)}{\sigma^2(R_k)}$$

Of course, this measure depends on the weights, X_i, assigned to each stock in the portfolio. Two weighting schemes are utilized : equal weights in which case $\frac{1}{n_k}$ of each speciality stock is held, and proportional weights in which case speciality stocks are held in the same proportions as they exist in the market as a whole. Under proportional weighting $X_i = \frac{V_i}{\sum_{i=1}^{T} V_i}$ when V_i = market value of common stock of firm i and T is the total number of firms with common stock listed on the NYSE.

These weighting schemes are essentially arbitrary since specialist units need not hold stocks in any particular proportion. In fact, specialists may have short positions in some stocks in order to hedge their portfolio. Nevertheless, risk reduction will be easier the more opportunity the specialist unit has to diversify and measurement of differences among specialist units in their ability to diversify is the objective of this paper.

The failure of certain specialist units to be able fully to diversify need not, however, necessarily imply that NYSE rules against competing specialists limited diversification that would otherwise have taken place in a free market. Diseconomies of scale in trading many stocks could in principle offset the benefits of diversification. Thus even without portfolio restrictions dealers might choose non-diversified portfolios. Nevertheless the question still remains of whether the particular stocks chosen yield the maximum diversification. In order to answer this question, specialist portfolios are compared with randomly selected portfolios containing the same number of stocks. The stocks are selected with equal probability from all NYSE stocks. The same portfolio characteristics are calculated as for the portfolio based on the actual speciality stocks. The random selection procedure is replicated 25 times for each specialist unit, and the average values of the portfolio characteristics are reported.

ESTIMATION OF THE MARKET MODEL

The use of daily data in estimating (1) directly can cause biases because of non-trading of securities. The less frequently a security is traded the more likely is the possibility that its return is measured over a time interval preceding that of the average time interval over which the market return is measured. This is due to the fact that returns are based on the last transaction price during the day, the time of which can vary across securities.[7]

Scholes and Williams [5] have devised a procedure of obtaining an unbiased, consistent estimator of b_i in (1), and their procedure was utilized in this study. This procedure requires calculation of slope coefficients for lagged relationship between R_i and R_m, and then averages the resulting values. Let

$$b_{i1} = \frac{\text{cov}(R_{it}, R_{mt})}{\sigma^2(R_{mt})}, \quad b_{i2} = \frac{\text{cov}(R_{it}, R_{mt-1})}{\sigma^2(R_{mt-1})}$$

$$b_{i3} = \frac{\text{cov}(R_{it}, R_{mt+1})}{\sigma^2(R_{mt+1})}, \quad b_4 = \frac{\text{cov}(R_{mt}, R_{mt-1})}{\sigma^2(R_{mt-1})}$$

Then the unbiased b_i used in this analysis is :

$$b_i = \frac{b_{i1} + b_{i2} + b_{i3}}{1 + 2\, b_4},$$

and :

$$a_i = \bar{R}_i - b_i \bar{R}_m$$

$$e_{it} = R_{it} - a_i - b_i R_{mt}$$

This is equivalent to using an instrumental variable for $R_{m,t}$ in (1) which is the sum of $R_{m,t}$ and $R_{m,t-1}$ and $R_{m,t+1}$.

The results do not, however, appear to be substantially different than if (1) were estimated directly.

RESULTS

Portfolio characteristics for the 67 specialist units are given in Table 1 along with some data for randomly selected portfolios. The number of speciality stocks ranges from a low of 4 to a high of 93. The Beta coefficient, b_k, of specialist portfolio ranges from .727 to 1.174 for equal weighting and from .636 to 1.544 when market value weights are used. The column labeled D_k measures the proportion of told risk which could be diversified away with sufficient numbers of stocks, but was not. The column labeled $\sigma^2(R_m) \times 10{,}000$ is the variance of the daily returns of the portfolio multiplied by 10,000. And the column labeled $\bar{R}_k \times 10{,}000$ is the average daily rate of return to the portfolio during the two year period multiplied by 10,000. Returns are generally negative because the market was falling during the period analysed. Values of b_k and $\bar{R}_k$ are not given for the randomly selected portfolios since the random selection procedure yields Beta values such that $E(b_k) = 1$ and $E(R_k) = E(R_m)$. Differences in "random" b_k across specialist units are due only to random errors, which are quite small because of the replication procedure.

Selected rank values on D_k, the proportion of total risk that was diversifiable are reported in Table 2 (in percentage terms). The table shows that, even when specialists hold all their stocks, a substantial number of units incurred risk that could have been diversified away with a portfolio containing more stocks. If stocks are held in equal proportions, 33 units incurred risk 24.01 % or more of which could have been diversified away. If stocks are held in market value weights, 33 units incurred risk 32.19 % or more of which could have been diversified away. The specialist unit with the most stocks (93) had the lowest level of diversifiable risk ; the unit with the fewest stocks (4), the highest. Although these results indicate that specialists could have incurred less risk through greater diversification, they do not show that it would have been optimal to do so since there may be offsetting costs in making markets in a large number of stocks. However, under competition, dealers would presumably be free to choose that number of specialty stocks which minimizes the cost of risk and their other costs, and this may be a number quite different than under the NYSE specialist system.

Figures 1 and 2 plot D_k against the number of stocks for equal weighted portfolios and for market weighted portfolios respectively. Each figure locates the specialist unit, denoted by S, and the random portfolio with the same number of stocks, denoted by R. An "X" indicates that two or more portfolios fall on the same point. First, the figure shows the benefits of diversification in the usual way - as the number of stocks increases diversifiable risk decreases. The cluster of random portfolios is "tighter" because of the replication procedure.

Second the figures indicate the extent to which specialist units incurred diversifiable risk greater or less than the amount one would expect on the basis of the number of stocks in the portfolio. In other words, suppose the specialist units were constrained only in the number of stocks. Do the stocks actually assigned to specialist units result in less diversifiable risk or is there little difference ? The figures indicate that while some specialist units incur more diversifiable risk than the corresponding random portfolios, others incur less. The observed variation is consistent with random selection of specialist portfolios, and there is no systematic tendency for specialist portfolios to be more or less diversified than one would expect given the number of stocks in each portfolio. This is evident from the summary statistics in Table 1; the difference in mean D_k between specialist and random portfolios is not statistically significant.

SUMMARY

This existence of incomplete diversification for a significant number of specialist units is demonstrated on the basis of the market model. This result does not necessarily imply that complete diversification of specialist portfolios would be optimal since the benefits of diversification may be offset by diseconomies of scale arising from clerical and other costs of handling many stocks.

Second, supposing that limited diversification is desirable for these other reasons, the paper shows that the particular stocks chosen by specialist units provide no greater degree of diversification than if the same number of stocks had been chosen at random.

The effect of incomplete diversification on the price of dealer services is not investigated, although explicit measures of dealer diversification are provided that could be utilized in further studies of bid-ask spreads on the NYSE.[8]

FOOTNOTES

1 - NYSE, Fact Book, 1976.

2 - NYSE, Special Membership Bulletin, May 27, 1976.

3 - As of the end of 1976, one specialist unit had competition from another unit on the floor. There is of course some competition from market makers located away from the NYSE, and this competition is scheduled to increase with the development of a national quotation system.

4 - See H. STOLL [7] for a more detailed analysis.

5 - If names of units given in Stocks and Specialists were not identical they were treated as separate units. It appears from the names only that some specialist firms participated in more than one unit.

6 - The daily price and returns files of the Center for Research in Securities Prices of the University of CHICAGO was utilized.

7 - This is the so called "Lawrence Fisher Effect" [2] which has recently been investigated in some detail by Schwartz and Whitcomb [6].

8 - For studies of bid-ask spreads on the NYSE see Demsetz [1] , Tinic [8] and Hamilton [3]. Only Tinic utilizes a variable - the number of specialist stocks - which in part reflects diversification but also reflects diseconomics of trading a large portfolio.

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TABLE I

SPECIALIST UNIT	NUMBER OF COMMON STOCKS	SPECIALIST UNIT PORTFOLIO CHARACTERISTICS								RANDOM PORTFOLIO CHARACTERISTICS			
		EQUAL WEIGHTS				MARKET VALUE WEIGHTS				EQUAL WEIGHTS		MARKET VALUE WEIGHTS	
		b_k	D_k	$\sigma^2(R_k)$ x 10,000	$\bar{R}_k$ x 10,000	b_k	D_k	$\sigma^2(R_k)$ x 10,000	$\bar{R}_k$ x 10,000	D_k	$\sigma^2(R_k)$ x 10,000	D_k	$\sigma^2(R_k)$ x 10,000
ADLER COLEMAN	43	.970	.143	1.58	-12.83	1.000	.155	1.71	-10.85	.121	1.58	.213	1.77
ASIEL	11	1.084	.301	2.42	-13.39	1.015	.444	2.67	-5.96	.367	2.23	.443	2.79
BEAR STEARNS, JOHN MUIR	17	.772	.299	1.23	-18.69	.803	.351	1.43	-7.49	.258	1.89	.350	2.45
BEAUCHAMP & Co	29	1.114	.159	2.13	-12.49	1.046	.213	2.00	-3.89	.174	1.58	.245	1.96
BENTON, CORCORAN, LEIB	19	.832	.294	1.41	-11.13	.769	.413	1.45	-9.63	.244	1.77	.316	2.32
BENTON, TOMPANE	32	1.149	.122	2.17	-8.88	.911	.245	1.59	-.49	.158	1.56	.245	1.90
RODI GAVIN	13	1.001	.327	2.14	-11.42	1.135	.336	2.80	-3.38	.328	1.84	.388	2.37
CHAUNCEY	8	.754	.449	1.49	-6.75	.675	.583	1.57	-4.77	.424	2.25	.501	3.02
DE CORDOVA, COOPER, KAVANEWS	18	1.033	.243	2.03	-11.72	.974	.502	2.74	-10.51	.264	1.82	.335	2.16
COLIN HOCHSTIN	17	.789	.286	1.26	-8.40	.786	.370	1.41	-6.21	.252	1.85	.344	2.28
CONKLIN, CAHILL	33	1.106	.128	2.02	-14.51	1.109	.244	2.34	-5.69	.162	1.52	.240	1.98
COWEN	18	.901	.294	1.65	-9.83	.930	.377	2.00	-3.04	.261	1.74	.324	2.31
CREEM & CREEM	15	.775	.478	1.66	-13.49	.878	.492	2.19	-7.75	.282	1.84	.357	2.28
CUNIFF, LAMM, STOUTENBURGH	17	.853	.401	1.75	-10.08	.822	.347	1.49	-4.98	.261	1.85	.347	2.24
HAUPT, ANDREWS, FRAIMAN & HU.	15	.976	.223	1.76	-11.42	1.082	.322	2.49	-8.61	.291	2.03	.342	2.30
EINHORN	12	1.174	.187	2.44	-8.93	1.103	.337	2.65	-3.05	.348	2.17	.398	2.63
ERNST & Co, WARE & KEELIPS	21	.962	.240	1.76	-10.22	.911	.428	2.09	-3.17	.229	1.72	.298	2.11
FAGENSON & FRANKEL, J. STREIC.	27	.958	.198	1.65	-6.69	1.149	.286	2.67	-10.06	.184	1.54	.265	2.00
FARRELL & Co, ROTHENBURG	27	.913	.203	1.51	-12.90	.944	.303	1.84	-7.80	.180	1.71	.285	2.10
FOSTER & Co, F.L. SALOMON	15	.991	.300	2.02	-9.03	1.162	.282	2.71	-6.64	.300	1.79	.362	2.30
FOWLER & ROSENAU	38	.943	.152	1.51	-15.29	1.118	.279	2.49	-11.21	.138	1.53	.228	2.00
FRANK, TRAVERS & HUME	20	1.110	.216	2.27	-9.91	1.078	.210	2.12	-5.93	.241	1.75	.338	2.15
FREIDAY	26	.970	.248	1.80	-14.29	1.133	.297	2.63	-6.41	.181	1.64	.250	2.14
FRIED	14	1.063	.221	2.09	-8.81	1.188	.291	2.87	-11.00	.305	1.83	.368	2.25
GAINES, REIS	20	.912	.259	1.62	-6.91	1.056	.265	2.19	-2.19	.228	1.69	.310	2.28
GENGLER BROS	9	.871	.368	1.73	-10.37	.995	.492	2.81	-.91	.385	2.34	.444	3.10
GIANNI	20	.952	.214	1.66	-14.98	1.091	.310	2.48	-9.78	.219	1.79	.317	2.08
GOLDBERG	19	.927	.229	1.60	-9.90	1.025	.273	2.08	-5.45	.235	1.67	.317	2.10
GOLDSTEIN, LIEF, WERLE	4	.907	.796	5.81	-6.79	.861	.668	3.22	-1.36	.596	3.38	.649	4.00
HENDERSON BROS	43	.965	.173	1.62	-9.44	.896	.267	1.58	-10.93	.121	1.57	.193	1.79
HIRSHON ROTH	21	1.012	.206	1.86	-6.10	1.053	.240	2.10	1.27	.213	1.75	.312	2.26
JACOBSEN BENJAMIN & SONS	20	.975	.284	1.91	-9.38	1.014	.437	2.63	6.06	.237	1.81	.320	2.18
KINGSLEY, BOYCE, SOUTHWOOD	36	.912	.134	1.38	-11.29	1.139	.212	2.37	-5.24	.153	1.51	.254	1.88
LA BRANCHE & Co	19	.843	.255	1.37	-7.93	.660	.473	1.19	.35	.252	1.72	.350	2.31
LASKER, STONE & STERN	31	1.120	.115	2.04	-10.03	1.090	.189	2.11	-7.76	.166	1.68	.256	2.02
LAURO & Co, M.J. COHEN	19	1.013	.237	1.94	-12.78	.880	.382	1.81	-5.22	.257	1.84	.333	2.06
LENART, McHUGH	22	.857	.262	1.43	-10.32	.916	.304	1.74	-4.72	.214	1.79	.317	2.22
LIEF, WERLE	35	.802	.170	1.12	-8.52	.803	.235	1.21	-1.93	.143	1.62	.226	1.99

TABLE 1

SPECIALIST UNIT	NUMBER OF COMMON STOCKS	SPECIALIST UNIT PORTFOLIO CHARACTERISTICS: EQUAL WEIGHTS b_k	D_k	$\sigma^2(R_k)$ x 10,000	$\bar{R}_k$ x 10,000	MARKET VALUE WEIGHTS b_k	D_k	$\sigma^2(R_k)$ x 10,000	$\bar{R}_k$ x 10,000	RANDOM PORTFOLIO CHARACTERISTICS: EQUAL WEIGHTS D_k	$\sigma^2(R_k)$ x 10,000	MARKET VALUE WEIGHTS D_k	$\sigma^2(R_k)$ x 10,
ADLER COLEMAN	43	.970	.143	1.58	- 12.83	1.000	.155	1.71	- 10.85	.121	1.58	.213	1.7
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BENTON, TOMPANE	32	1.149	.122	2.17	- 8.88	.911	.245	1.59	- .49	.158	1.56	.245	1.9
RODI GAVIN	13	1.001	.327	2.14	- 11.42	1.135	.336	2.80	- 3.38	.328	1.84	.388	2.3
CHAUNCEY	8	.754	.449	1.49	- 6.75	.675	.583	1.57	- 4.77	.424	2.25	.501	3.0
DE CORDOVA, COOPER, KAVANEWS	18	1.033	.243	2.03	- 11.72	.974	.502	2.74	- 10.51	.264	1.82	.335	2.1
COLIN HOCHSTIN	17	.789	.286	1.26	- 8.40	.786	.370	1.41	- 6.21	.252	1.85	.344	2.2
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JACOBSEN BENJAMIN & SONS	20	.975	.284	1.91	- 9.38	1.014	.437	2.63	6.06	.237	1.81	.320	2.18
KINGSLEY, BOYCE, SOUTHWOOD	36	.912	.134	1.38	- 11.29	1.139	.212	2.37	- 5.24	.153	1.51	.254	1.88
LA BRANCHE & Co	19	.843	.255	1.37	- 7.93	.660	.473	1.19	.35	.252	1.72	.350	2.31
LASKER, STONE & STERN	31	1.120	.115	2.04	- 10.03	1.090	.189	2.11	- 7.76	.166	1.68	.256	2.02
LAURO & Co, M.J. COHEN	19	1.013	.237	1.94	- 12.78	.880	.382	1.81	- 5.22	.257	1.84	.333	2.06
LENART, McHUGH	22	.857	.262	1.43	- 10.32	.916	.304	1.74	- 4.72	.214	1.79	.317	2.22
LIEF, WERLE	35	.802	.170	1.12	- 8.52	.803	.235	1.21	- 1.93	.143	1.62	.226	1.98

TABLE 1

(continued)

SPECIALIST UNIT	NUMBER OF COMMON STOCKS	SPECIALIST UNIT PORTFOLIO CHARACTERISTICS								RANDOM PORTFOLIO CHARACTERISTICS			
		EQUAL WEIGHTS				MARKET VALUE WEIGHTS				EQUAL WEIGHTS		MARKET VALUE WEIGHTS	
		b_k	D_k	$\sigma^2(R_k)$ x 10,000	$\bar{R}_k$ x 10,000	b_k	D_k	$\sigma^2(R_k)$ x 10,000	$\bar{R}_k$ x 10,000	D_k	$\sigma^2(R_k)$ x 10,000	D_k	$\sigma^2(R_k)$ x 10,000
MARCUS	21	1.055	.188	1.97	-11.78	1.085	.233	2.21	-3.97	.211	1.72	.276	2.08
MARCUS SCHLOSS	12	.863	.308	1.55	-10.83	1.053	.260	2.16	-5.34	.337	1.81	.391	2.31
MEEHAN	17	1.273	.141	2.71	-5.60	1.349	.197	3.26	-4.20	.277	1.81	.347	2.14
MICHAEL, BREGMAN	21	1.123	.204	2.28	-13.97	1.365	.259	3.62	-6.48	.235	1.71	.326	2.08
MITCHUM, JONES, TEMPLETON	18	.949	.293	1.83	-11.87	.949	.320	1.91	-5.41	.280	1.70	.360	2.17
MURPHEY, MARSEILLES & SMITH	33	.964	.161	1.60	-10.96	.914	.235	1.57	-1.53	.159	1.56	.248	1.96
NICK, JF	15	1.124	.216	2.32	-6.98	.934	.323	1.86	-3.77	.296	1.83	.378	2.29
PFORZHEIMER	14	.745	.333	1.20	-11.72	.853	.505	2.11	1.49	.337	1.94	.382	2.44
PHELAN, SILVER	40	1.041	.117	1.77	-13.78	.950	.153	1.53	-10.62	.139	1.54	.226	1.95
PICOLI	17	1.016	.189	1.83	-10.72	1.126	.264	2.48	-1.21	.256	1.85	.357	2.43
ROBB, PECK, McCOOEY	56	1.006	.073	1.57	-6.93	1.095	.167	2.07	-7.69	.094	1.55	.159	1.73
SCHENKER, IRVIN	16	.829	.370	1.57	-13.01	.636	.506	1.18	-5.19	.275	1.97	.340	2.35
SCHOLL, LEVIN, FINKLE	9	1.166	.246	2.60	-4.10	1.114	.327	2.66	-2.87	.398	2.32	.416	2.56
SCHOLL, LEVIN, FINKLE, GREE.	9	1.133	.440	3.30	-18.93	.776	.458	1.60	-8.38	.404	2.40	.438	3.09
SESKIS	33	.920	.149	1.43	-9.13	1.144	.228	2.44	-2.14	.161	1.61	.215	2.00
SHAW&ADRIAN, PURCELL, GRAHAM	14	.970	.359	2.11	-14.40	1.249	.412	3.82	-11.34	.317	2.03	.395	2.31
SPEAR, LEEDS, KELLOG	93	.942	.062	1.36	-8.92	.989	.075	1.52	-4.18	.061	1.44	.109	1.94
SPRAGUE NAMMACK	18	.845	.285	1.44	-11.44	.964	.334	2.01	-8.63	.255	1.75	.339	2.41
STERN BROS.	10	1.236	.311	3.20	-14.49	1.544	.386	5.59	-7.96	.384	2.10	.438	2.89
STERN & KENNEDY	18	.990	.285	1.98	-13.56	1.250	.329	3.35	-1.96	.260	1.85	.316	2.28
STOKES, HOYT	19	.879	.313	1.62	-11.27	1.042	.368	2.48	-9.63	.242	1.72	.307	2.00
WAGNER, STOTT	33	.988	.128	1.61	-13.62	1.104	.135	2.03	-9.64	.156	1.61	.236	1.83
WEIL & DUFFY	26	.993	.173	1.72	-9.99	.920	.231	2.81	-3.90	.183	1.75	.252	2.04
WEISS, PECK & GREER	16	1.109	.166	2.12	-5.29	1.217	.251	2.85	2.28	.270	1.81	.375	2.48
WILLIAMS	13	1.074	.201	2.08	-7.12	.960	.356	2.06	-10.56	.321	1.95	.390	2.52
ROBB, PECK, McCOOEY, THOMAS	23	.869	.278	1.51	-13.31	1.002	.354	2.24	-4.89	.210	1.74	.291	2.13
WRESZIN, PROSSER, ROMANO	24	.941	.198	1.59	-11.37	.938	.338	1.92	-4.73	.206	1.69	.299	2.23
ZIEBARTH GEARY	16	.727	.245	1.01	-8.46	1.130	.322	2.71	-4.77	.277	1.74	.379	2.29
ZUCKERMAN, SMITH	13	.852	.303	1.50	-10.78	1.044	.340	2.38	-5.68	.301	2.10	.351	2.49
AVERAGE	22.2	.968	.247	1.87	-10.75	1.013	.321	2.27	-5.36	.249	1.82	.324	2.26
ST. DEVIATION	13.1	.122	.111	.65	2.98	.164	.110	.71	3.69	.089	.29	.083	.36
MEDIAN	19	.970	.237	1.73	-10.78	1.015	.320	2.12	-5.24	.252	1.75	.333	2.24
HIGH	93	1.174	.796	5.81	-4.10	1.544	.668	5.59	6.06	.596	3.38	.643	4.00
LOW	4	.727	.062	1.01	-18.93	.636	.075	1.18	-11.34	.061	1.44	.109	1.73

TABLE 2

SELECTED RANK VALUES OF DIVERSIFIABLE RISK AS A PERCENTAGE OF TOTAL RISK FOR PORTFOLIOS OF 67 NYSE SPECIALIST UNITS

	Market Value Weights		Equal Weights	
Number of Units with Lower Value	% Diversifiable Risk D_kx100	Number of Stocks in Portfolio	% Diversifiable Risk D_kx100	Number of Stocks in Portfolio
0	7.54	93	6.24	93
6	19.73	17	12.24	32
13	23.50	35	16.05	33
20	25.86	21	18.86	17
27	28.63	27	21.39	20
34	32.19	16	24.01	21
41	33.74	12	26.19	22
48	36.76	19	29.39	18
55	41.34	19	31.13	10
62	50.17	18	40.10	17
66	66.82	4	79.60	4

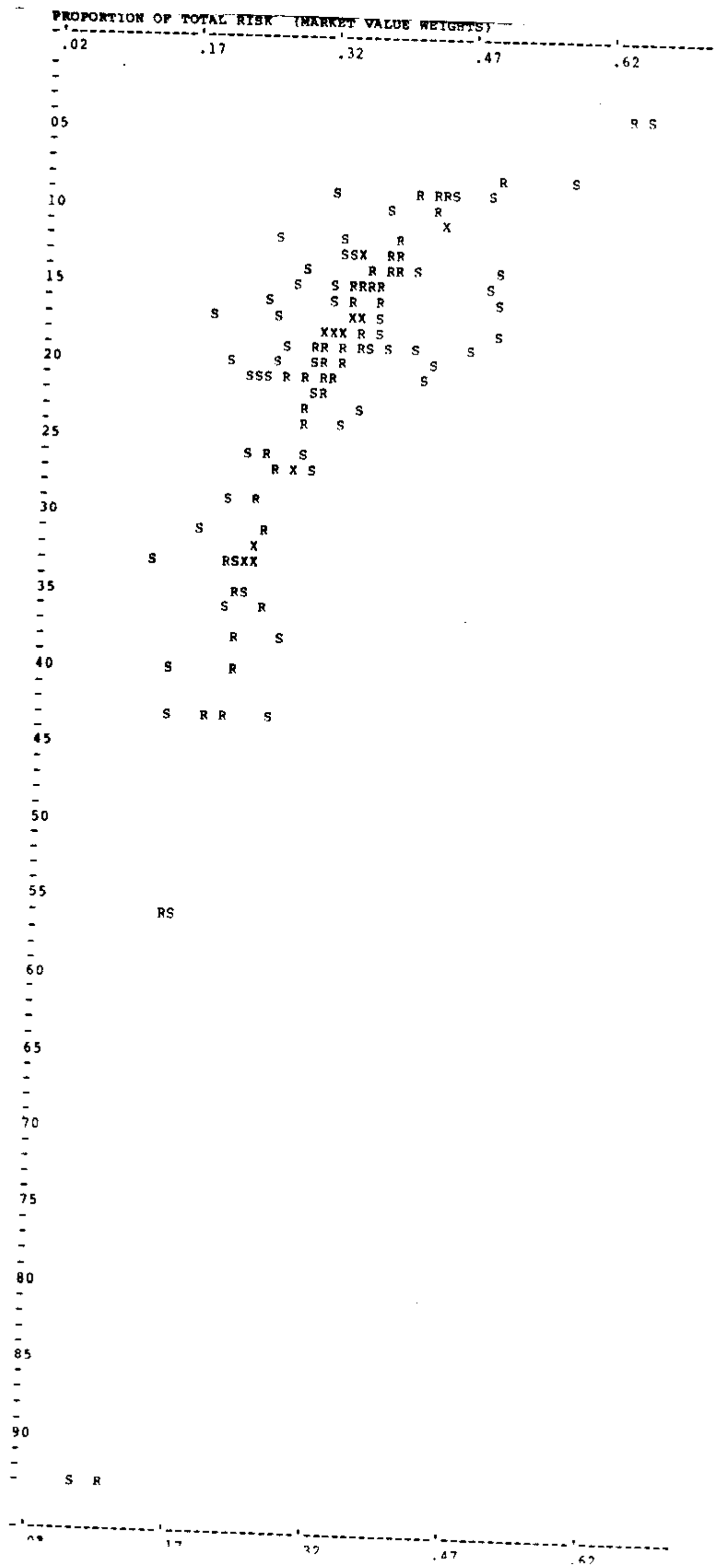
PROPORTION OF TOTAL RISK (MARKET VALUE WEIGHTS)
.02
.17
.32
.47
.62
05
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90

FIGURE 2

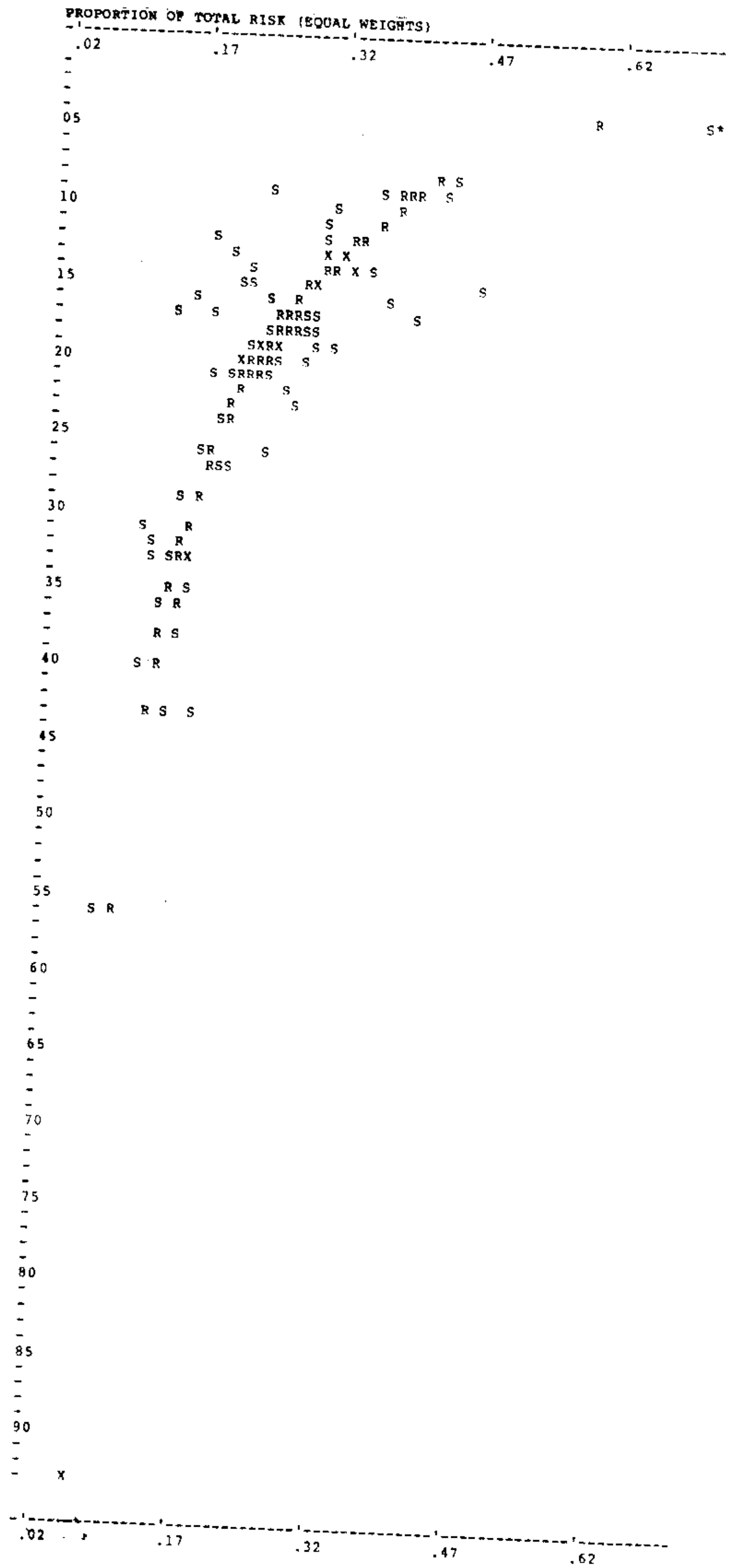
PROPORTION OF TOTAL RISK (EQUAL WEIGHTS)
.02
.17
.32
.47
.62
05
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90

FIGURE 1