

**CAPITAL MARKET LINE DETERMINATION
THROUGH INDUSTRY - WEIGHTED STRATEGY
FOR STOCKS OF COMPANIES REGISTERED WITH
BAHRAIN STOCK EXCHANGE**

MBA THESIS

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UNDER SUPERVISION OF : DR. SHERIF TUREN

READER : DR. TUNCER GURSOY

READER : DR. MOHAMMED AKRAM

FALL 1990

UNIVERSITY OF BAHRAIN
COLLEGE OF BUSINESS ADMINISTRATION

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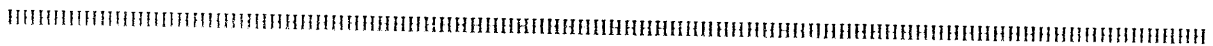
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PREFACE

Prior to attending the course of Investment Management, ie. FIN 512, evaluation of prices of financial papers seemed to me like enigma. I, naively, thought that, like any commodity, stock prices are merely a subject of demand and supply. However, my vision has changed since then. I am not boasting that I have become as expert as Fisher or any of the hundreds of scholars and professionals whose names are listed in Radcliffe, the headache causing text book, but I have gained some theoretical knowledge which I thought was good enough to try to determine the capital market line based on the stocks traded in Bahrain Stock Exchange (BSE).

Like any other project, my attempt to write this thesis started with collecting information. I am not exaggerating to allege that this stage was the most difficult stage in the process. Collecting information is not only a hardship but a process as well. This phenomenon itself deserves to be the subject matter of another thesis. A sociology theses of course. It is not only me who has complained from this problem, but all those who are unfortunate enough for being in a position to make research in a country, where those who possess the information avoid releasing them, making a false pretext for confidentiality of the data.

Another problem in the process of collecting data is that the companies which are the subject of this study are not aware of their market value. The only available source of this

information was BSE itself, where I spent over four months to be able to gather all information I needed due to some practical difficulties which would not be faced by students of some other countries.

Furthermore, the collection stage included library research to Bahrain Centre for Studies & Researches, and library of University of Bahrain. At the former, ie. Bahrain Centre for Studies & Researches I could not get in their library any information relevant to BSE. In the library of the University I found lot of theoretical information only, ie. I could not trace any projects about BSE.

Besides library research, I interviewed two gentlemen. I am very grateful to Mr. Ali Mansoor who was very helpful. Also, I made several telephone calls to the companies registered with BSE.

It is worth mentioning that prior to visiting Akhbar El Khaleej I had visited Gulf Daily News. Officials there were very cooperative, but unfortunately, they did not have information about stock prices prior to establishing BSE.

In the analysis stage the famous PC language, ie. LOTUS 123 was used. Eventhough not the best language, it is however the most convenient and adequate for the required statistical analysis; calculation of security returns, weights, coveights, variances, standard deviations, correlation coefficients, covariances, portfolio returns, and variances, etc.

------(ii)-----

I hope that this simple effort would represent some contribution to the information concerning to securities traded in the Bahrain Stock Exchange.

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1. INTRODUCTION

Although the joint stock companies were first introduced into the economy of Bahrain in 1950 when Gulf Aviation was established, however, dealings in stocks has not been practiced until 1957 when National Bank of Bahrain, the second shareholder company was formed. The reason is that Gulf Aviation (now Gulf Air), which was originally owned by a small number of Bahraini businessmen had retained property of the shares until it was nationalized by four of the Gulf states.

National Bank of Bahrain has an authorised capital of BD.100m, and 28m shares, being issued and fully paid capital of BD.1 each as nominal value. This figure is relatively large in a small market such as Bahrain.

Some few joint stock companies, such as Bahrain Flour Mills Company were formed in the 1960's. This stimulated the need to have a stock market. However, exchanging of stock had been practiced directly between individuals or through brokers who usually were money changers.

The rise in oil prices during the 1970's resulted in a large increase of the liquidity. Narrowness of the market encouraged forming finance companies. Poor knowledge of investment plus much liquidity caused wrong speculation practices not in Bahrain only but in the Gulf area. A good example is Souk Al Manakh crises in Kuwait in 1982. This spurred Government of Bahrain to expedite

establishing the stock market in order to protect the economy from irrational speculation. Thus, an Amiri decree was issued in 1987 to form the Bahrain Stock Exchange Market.

At present , dealing in shares can be conducted either through the office of one of the officially registered brokers, by trading with a licensed dealer or by dealing direct with other investors. Settlement of transactions is on 'cash and carry' basis and certificate of securities change hands only on receipt.

Recently, (as at November,1990), 29 companies are registered with BSEM. Hopefully, more companies are expected to be registered and plans are made to make BSEM operate on regional and international basis.

Brokers are required to register with Ministry of Commerce and Agriculture by paying a deposit of BD.3000. Minimum requirements as to education and character are to be satisfied before registration is granted. The registration fee is BD.300, renewable at BD.150 p.a. Under the brokerage law, brokerage activity is confined to individuals. Those interested in obtaining a dealer license can register with Ministry of Commerce and Agriculture at a fee of BD.100.

In order to increase the efficiency of information of security exchange, BSEM centre is linked to the offices of the registered brokers by a telex network. On the conclusion of a transaction the broker has immediately to send its details to the centre via four direct lines. Each broker is identified by an

individual code known only to himself and the BSEM centre. Then transaction information is recorded by the centre, which simultaneously, passes details of the transaction's size and price to all brokers in the network.

The day is divided into two sessions; the morning session from 9.00 am to 12.00 noon, and the evening session from 4.00 pm to 6.30 pm. At the end of the evening session the brokers, as well as local press are offered a summary of the day's transactions

Brokers maintain a daily blotter, part of which must be submitted to the information centre on the following day. The broker's blotters are compared with the centre's blotter to ensure legitimacy of all reported transactions.

The information centre also disseminates price sensitive information in a timely manner. Thus, registered companies are required to inform the centre about developments which are likely to affect investors' decisions and market prices.

The BSE is a legal personality, governed by a board of directors, chaired by Minister of Commerce and Agriculture, and is consisting of nine representatives of Bahrain Government and private sector.

In order to encourage trading in shares, certain measure were taken by granting GCC nationals the right to own up to 25% of shares of the Bahraini joint stock companies, allowing public joint stock companies to purchase up to 5% of their own issued shares, granting legal right to companies to issue preference

shares, and giving permission to General Organisation for Social Insurance as well as civil and military pension funds to own up to 10% of the issued share capital of companies.

Management of BSE believes of capability of BSE to become a regional market. This belief is based on possession of good communication facilities, availability of an efficient banking sector and other services, tax free economy, capital repatriation, plus Bahrain's strategic location.

Moreover the Board of BSE have potential prospects in converting BSE into an international centre.

This thesis is dedicated for proposing an efficient frontier of portfolios from securities of 26 companies registered with BSE, and to determine capital market line based on the stocks registered in BSE through an industry-weighted investment strategy.

Thus, the study will not cover all aspects of BSE activities, nor will analyse everything concerning the individual securities. The study will only tackle matters that bear on determining the efficient frontier of the portfolios formed.

2. THE PORTFOLIO POLICY STATEMENT

The purpose of this paper is to propose a set of efficient portfolios of five common stocks from securities of the companies that are registered with Bahrain Stock Exchange (BSE) .

2.1 The Portfolio Objectives :

The portfolio objectives are to achieve the highest possible return at a given level of risk. The return should, of course, exceed the prevailing risk free rate (RF), ie. the rate paid on the Treasury bills.

2.2 The Portfolio Constraints :

The following constraints are parts of the portfolio policy :

- (1) As mentioned above ,the portfolio return should exceed the prevailing RF. If the return is equal to , or less than RF , it would be irrational to invest in risky securities when it is possible to get the RF rate by investing in Treasury bills at zero risk. The current RF in Bahrain is 10.429% p.a. This represents coupon rate of 8.36% p.a. , plus a discount of 2.069% on the bill's value . (Source: AKHBAR EL KHALEEJ,18.4.90.).
- (2) The time scope of the investment is one year. The decision is based on the investment strategy which is explained below .

2.3 The Portfolio Strategy:

There are two broad strategies, namely, investment and speculative strategies. Investment strategy complies with Efficient Market Theory (EMT).

Followers of the Efficient Market theory, as well as followers of the Unbiased Expectation Theory (UET) believe that security prices are influenced by investors' expectations of present and future economic profits, risks and interest rates. Hence, market equilibrium is a factor of new information and since the stock market is perfectly efficient, any new information is immediately spread and security prices are adjusted accordingly. Thus, there is no chance to achieve speculative profits by trying to make use of new information. (1)

However, some empirical studies indicated that the price adjustment does not happen immediately, i.e. there is a time lag which permits some speculative activity. In other words the market is economically rather than perfectly efficient, in the sense that the adjustment is not momentary. (2) Despite that prices, in an economically efficient market, may depart slightly from intrinsic values, however, no trading strategy would be able to beat a simple buy-hold strategy after all transaction costs are considered, as these would eliminate any speculative abnormal profits. Additionally, an empirical study conducted by Seelenfreund, Parker and Van Horne on daily stock prices between 1960 and 1966 for 30 randomly selected stocks of companies registered with New York Stock Exchange has shown that there is

no guarantee that risks inherent in the buy-hold strategy are equivalent to the speculative strategy. Using speculative strategy, one is periodically 'out-of-the-market' and thus will incur no market risk. Using the buy-hold strategy, one is constantly invested in the market and thus is exposed to market risk. Conceptually, buy-hold profits should have been higher, due to risk exposure.(3) Other reasons for selecting investment rather than speculative strategy is the assumption that the portfolio holder is an average risk taker and that he is looking for long-run rather than short-run results. He also does not possess any speculative skills nor has access to new information.

Numerous empirical tests have examined speculative rules. Alexander, as well as Fama and Blume tested profitability of these rules and found that average security returns after commissions were usually negative or quite small. They have concluded that the speculative techniques such as filter trading rules and moving average rules are not capable to provide a rate of return (i) consistently (ii) after all transaction costs and taxes, which is (iii) higher than that available from a buy-hold strategy of equivalent risk.(4)

An investment strategy consists of (i) selecting an acceptable level of risk, (ii) broadly diversifying, and (iii) never trading simply because one believes that prevailing prices are too low or too high. Investors trade only when they have a cash deficiency or excess and to take advantage of various tax laws. (5)

1 Generally, the following are principles of portfolio management based on principles of investment strategy:

(1) Timing : Since market is efficient , the current security prices are fair because they reflect all the available information. Therefore, buy and hold a diversified portfolio. Do not sell because security is overpriced, nor buy because security is underpriced, ie. do not assiduously wait price fluctuations to speculate. Instead , buy when you have excess funds and sell when you are in need for funds.

(2) Diversification : The most important rule for investors to follow is to diversify. There are two broad methods of diversification. One is naive diversification , which means that securities are to be selected randomly. The other method is the efficient diversification , which is based on industry survey, evaluation of security systematic and unsystematic risks , security returns vis-a-vis security risk , correlation between securities , as well as other factors which will be illustrated when it comes to evaluating securities of BSE .

Naive diversification ignores the above factors. However , risk reduction under this method depends mainly on two factors. One is how large the portfolio is , and two, the degree of security correlation coefficient, which is a matter of chance, because selection is random, without regard to industry classification, expected returns, etc. One important question is, 'How much shall

an investor buy of each selected security? ' Three methods are recommended in this regard. One method is to join a mutual fund. A second method is to allocate funds proportionately to the weights of an index, and the third method is to invest proportionately according to the weight of the industry in the market. By the market we mean BSE.

Since there are neither mutual funds that are specifically dedicated for BSE securities, nor there is an index compiled for BSE securities yet (as at 30th November,1990), therefore , the third method ,ie. allocating according to the industry weight in the market is the only left choice.

(3)Risk Level: The main idea behind diversification is to get the maximum return at a given level of risk that is acceptable to the investor. But can an investor manage to eliminate all the portfolio risk ? The answer is no. There are two types of risk ; systematic and unsystematic. The former,ie. the systematic risk is caused by factors not specific to a particular firm , but general to the whole economy, such as inflation , employment levels, population growth, state of technology, gross national product, labour efficiency, interest rates , taxation policies, political stability, risk aversiveness, etc. Although these factors are general to the whole economy , however , they inflect each industry at a certain degree. This type of risk cannot be eliminated by diversification through securities of one country, but might be eliminated by diversifying internationally.

The other type of risk, ie. unsystematic risk, is specific to a individual firm and hence can be eliminated through diversification . Some examples of unsystematic risk are labour strike at one firm or one industry , loss of a law case , management inefficiency , etc. It should be noted that the loss of one firm caused by one of these factors might entail gains to a rival firm.

Portfolio risk is mainly measured by standard deviation, covariance and the correlation coefficient between securities. Each of these statistical tools will be described at a later stage. How much risk level shall the investor accept? Obviously , it is difficult to quantify the level of risk. The general formula is to accept a given risk level for the maximum possible return. The relationship between risk and return is positive. Every investor has got his own risk preference, because investors differ in risk aversiveness. Investors who are more risk averse can reduce risk by purchasing more RF Treasury bills. However , sale of RF Treasury bills of Bahrain Monetary Agency is confined to corporations. Thus, individual investors are not allowed to buy Treasury securities.

Risk level can be increased by dealing in futures, options, bonds, etc. but such sophisticated financial tools are still not yet introduced at the BSE . Notwithstanding , the individual securities can be shown on a risk-return diagram , which will help to draw an efficient frontier. The efficient frontier is the outer line on the diagram where the trade-off between risk and

return is the optimal. Irrespective of the individual's risk preference the efficient portfolios are those which lie on the efficient frontier.

(4) Other Considerations :

There are three other considerations that affect portfolio management. These are as follows:

(i) Portfolio Horizon date & Duration: It is important that the portfolio duration should match the horizon date in order that cash is made available to meet investor's obligations. For this purpose we will assume that the horizon date of the portfolio is one year.

(ii) Tax Considerations : Fortunately no tax is levied in Bahrain , neither on dividends nor on capital gains which are realized from sale of the securities. Investors have only to pay brokerage fees. BSE collects 5% of the brokerage fees from the brokers. The brokerage fees amount to 0.25% of the deal value up to deals of BD.10,000. and 0.125% are charged on deals exceeding BD.10,000. Brokerage fees are collected each of the buyer and the seller.(6)

(iii) Marketability : Only large portfolios , ie. those which worth millions of Bahraini Dinars , might find marketability problems. Medium and small portfolios do not suffer such a problem.

Finally, it is worth mentioning that monitoring the portfolio performance is of equal importance as planning and

implementing the objectives. Monitoring should ensure that speculative decisions do really add to the portfolio value and a certain that portfolio objectives are adhered to.

One more thing to be added is that the analysis are based on the data of six years ; 1985,86,87,88,89 and 90. Each year is taken as a base year of the following year to it , eg. 1985 is the base year of 1986, 1986 is base year of 1987 and so on.

Empirical studies that were conducted by the French mathematician, Bachelier, about 1900, Kendall in 1953, Fama between 1957 and 1962 to prove the random walk hypothesis concluded the following :(7)

1. Security returns are generally unrelated to prior returns. This is true not only for the United States but also for many other countries.
2. In those cases where a significant correlation does exist between past and present returns, the size of correlation is so slight that it is doubtful that profitable trading rules could be developed.
3. A minor tendency seems to exist towards positive correlation. But this can be explained by realizing that stocks contain risk and will on average, yield positive returns. The slight positive correlation in returns simply reflects long-run positive returns on stocks. When returns are adjusted for such a risk impact, they show no correlation.

4. A "large return" day tends to be followed by another "large return" day. But there is no relationship with the direction of the subsequent return. That is a given large price drop on day 0, the price change on day 1 is also likely to be large-but the direction is unknown.

5. Tests on Treasury and futures' prices suggest they, to, follow a random walk.

Despite of the findings of the empirical studies as mentioned above , it will be arbitrary assumed that performance of the securities in future will follow a trend similar to that of the period between 1985 and 1989, because the only available alternative to manipulating the historical data for measuring future performance of securities is to use personal judgement. However, personal judgement does, unfortunately involve some subjective bias.

FOOT NOTES:

(1) 'The Stock Market Theories & Evidence' James H. Lorie, Peter Dodd, Mary Hamilton Kimpton, 1985 second edition, page No. 55, Publisher: Richard D. Rwin, Inc. Homewood, Illinois 60430 & 'Financial Market Rates & Flows' James C. Van Horne, Page No. 78 Publisher: Prentice-Hall , Inc. Englewood Cliffs , New Jersey 07632

(2) 'Investment Concepts, Analysis & Strategy' Robert C. Radcliffe, page No. 492, second edition. Publisher: Scott Foresman & Co.,

Glenview, Illinois, London, England.

- (3) 'Stock Price Behaviors & Trading', 'Journal of Financial & Quantitative Analysis' September, 1968.
- (4) 'Filter Rules and Stock- Market Trading' Journal of Business, Special Supplement: January 1966, pp. 226-41, by E. Fama and M. Blume
- (5) 'Investment Concepts, Analysis & Strategy' Robert C. Radcliffe, page No. 316, second edition. Publisher: Scott Foresman & Co., Glenview, Illinois, London, England.
- (6) 'Bahrain Stock Exchange; Goals, Functions & Operations' An Arabic publication of BSE, issued on 17.6.1990.
- (7) 'The Stock Market Theories & Evidence' (see point No. 1 above) Page No. 56 to 63. Also Robert C. Radcliffe Pages Nos. 319 to 322.

3. PLAN FOR CALCULATING THE EFFICIENT FRONTIER OF BSE

In order to determine the efficient frontier of BSE the following eight steps had been followed:

Step One : Securities of the companies registered with BSE were classified according to their economic sectors, namely; banking, investment, insurance, services, industry and tourism, then each sector has been given a weight according to the total equity invested in that sector, relative to total equity invested in the five sectors.

Step Two: The PC had been programmed to build up portfolio combinations of five firms; one from each sector every time. This process resulted in creating 2,268 combinations.

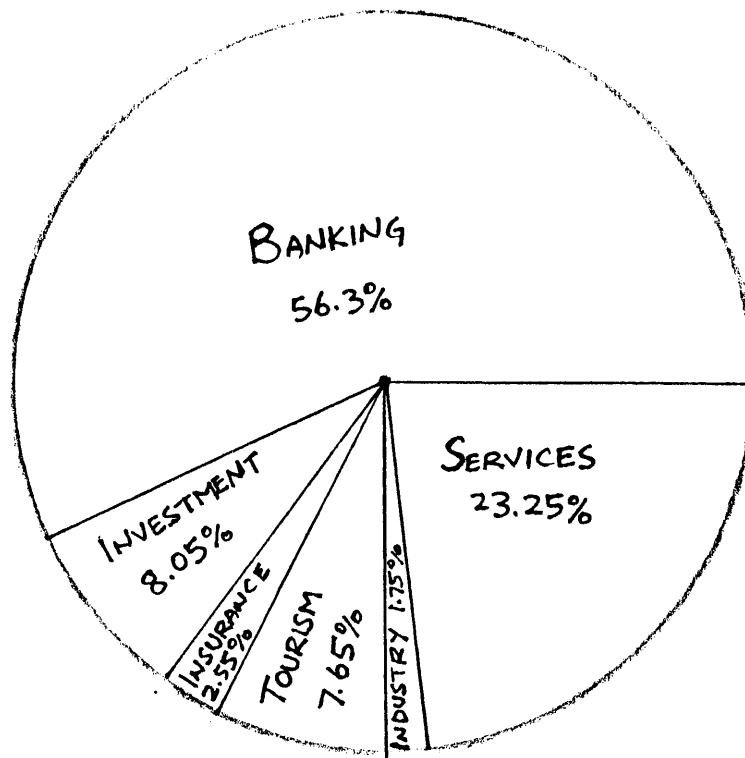
However, each of the 26 firms has been given a letter to denote it. Fortunately, the number of firms are exactly equal to the alphabetical letters. Following are the names of the firms together with the letters denoting them:

- A- National Bank of Bahrain
- B- Bank of Bahrain & Kuwait
- C- Al Ahli Commercial Bank
- D- Bahrain Saudi Bank
- E- Bahrain Islamic Bank
- F- Bahrain International Bank
- G- Bank of Bahrain & Middle East

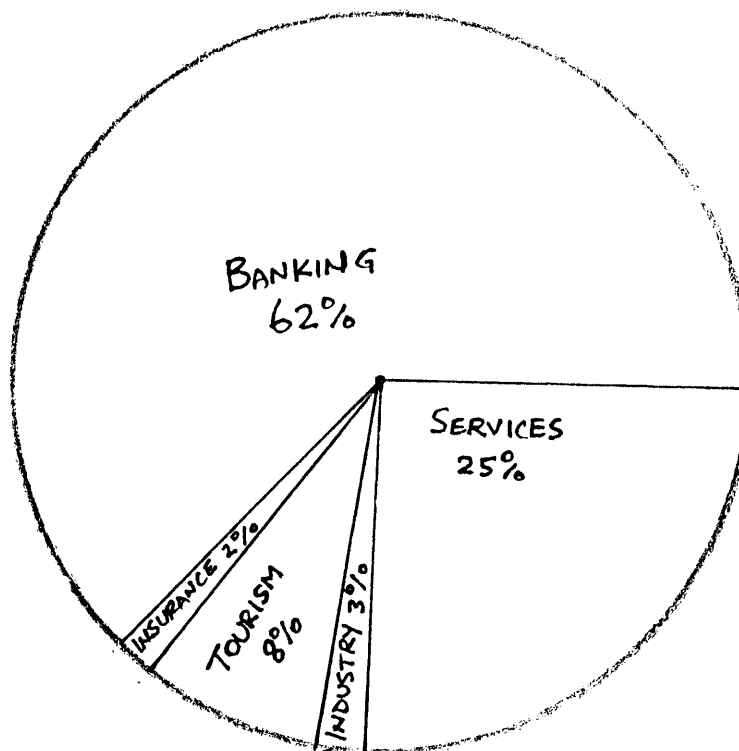
FIGURE 2.1

ECONOMIC SECTORS OF THE COMPANIES REGISTERED WITH
BAHRAIN STOCK EXCHANGE MARKET

A. WITH INVESTMENT SECTOR & GULF UNION INSURANCE CO.



B. WITHOUT INVESTMENT SECTOR & GULF UNION INSURANCE CO.



H- Investcorp
I- United Gulf Bank
J- Bahrain Insurance Company
K- Al Ahli Insurance Company
L- Bahrain & Kuwait Insurance Co.
M- Arab International Insurance Co.
N- Batelco
O- Bahrain Cinema Company
P- Bahrain Car Park Company
Q- Bahrain Ship Repairing & Engineering Co.
R- Bahrain Maritime & Mercantile Co.
S- General Trading & Food Processing Co.
T- Delmon Poultry Company
U- Bahrain Flour Mills Co.
V- National Imports & Exports Co.
W- National Hotels Company
X- Bahrain Hotels Company
Y- Bahrain Tourism Company
Z- Bahrain Light Industries Company

Step Three: Having compiled the possible combinations, the PC had been programmed to buy number of shares from each selected firm that worth an amount commensurate to the weight of the sector to which the firm pertains. However, shares are considered indivisible, hence fractions of shares had been rounded to intact ones.

Step Four: The PC had been programmed to calculate the return of each portfolio. The average return of each security of the period 1986-1990 had been multiplied by the weight of the sector. Then, the weighted returns had been summed up to find out total portfolio returns.

Step Five: The portfolio standard deviation had been calculated by taking the square root of the portfolio variance.

Step Six: Since the number of portfolio combinations is too large (2,268), it has been found impractical to plot such a large number on a diagram. To overcome this problem the PC had been programmed to select a reasonable figure, say the best 30 ones.

Step Seven: The thirty selected portfolios had been plotted on the diagram, and the efficient frontier was determined.

Step Eight: CML was drawn with the inclusion of risk-free rate.

In the following pages the above steps have been executed. This involved statistical analyses of the data, evaluation of the results and making the investment recommendations.

4. THE STATISTICAL ANALYSIS

In order to be able to determine the efficient frontier according to the constraints as per the portfolio strategy and the plan drawn for calculating the efficient frontier, the following statistical calculations have to be made :

(1) Portfolio Returns:

To calculate portfolio returns the following analysis are to be made:

- (i) Annual average return on securities of the companies registered with BSE
- (ii) Weights and economic sectors of the companies registered with BSE
- (iii) Portfolio returns

(2) Portfolio Standard Deviation:

To calculate the portfolio standard deviation, the following analysis have first to be made:

- (i) Security variances
- (ii) Security weights
- (iii) Security standard deviation
- (iv) Correlation coefficients between securities
- (v) Portfolio standard deviation

(3) Portfolio Relative Return:

By portfolio relative return, we mean how much return is achieved for one unit of risk. Since portfolio standard deviation is measurement of its risk, portfolio relative

return is calculated by dividing portfolio return by portfolio standard deviation. How to calculate portfolio return and how to calculate portfolio standard deviation are explained above in points Nos. 1 and 2 respectively.

The purpose of calculating the relative return is to select a reasonable number of portfolio, say thirty, that yield the highest return for a given level of risk, in order to plot them on a scattered diagram, since it is very difficult to depict all the portfolio combinations (2,268 ones).

(4) Capital Market Line:

- (i) Selecting a reasonable number of the best portfolio combinations (say thirty ones)
- (ii) Plotting the selected portfolios on a scattered diagram
- (iii) Determining the efficient frontier
- (iv) Determining the risk free (FR) rate on the Y axis
- (V) Drawing the Capital Market Line which emanated from the RF rate point and is a tangent to the Optimal portfolio in the efficient frontier.

Each of the above statistical measures are explained and calculated in the following chapters.

4.1 Annual Average Return on Securities of the Companies Registered with BSE :

In order to calculate the annual average return on Securities of the companies registered with BSE , the annual return on security i at time t is calculated first. This is done by finding the difference between present price and previous price of the security, adding that to the dividend paid in the present period and dividing the result by the price of the previous period. The equation of security annual return is as follows:

$$\text{Security Annual Return : } E (R_i) = \frac{(P_1 - P_0) + D_1}{P_0} \quad (3.1)$$

where P_1 refers to security price in period 1, P_0 refers to security price in the previous period, and D_1 refers to dividend paid in period 1 .

Asked market prices of securities of the companies registered with BSE are shown in Table 1, page 22. Market values were monitored and recorded over the period 1985-1990. Prices of 1990 were recorded as at 30th June, 1990.

Dividends paid over the period 1985-1990 are shown in Table 2, page 24.

In calculating the returns each year was taken as a base year of the year following it, eg. 1985 is a base year of 1986, 1986 is a base year of 1987, and so on. Returns on securities of the companies registered with BSE are shown in Table 3, page 25.

The annual average return is calculated by summing up the returns of security i for a number of periods, then dividing the

TABLE 1
MARKET VALUE* OF STOCK OF COMPANIES REGISTERED WITH BAHRAIN
STOCK EXCHANGE (BAHRAINI DINARS)

SR.	NAME	1985	1986	1987	1988	1989	1990 *
1 :	NATIONAL BANK OF BAHRAIN	3.770	2.750	2.080	3.100	3.270	4.000
2 :	BANK OF BAHRAIN & KUWAIT	2.150	1.210	0.700	0.695	0.840	1.050
3 :	AL AHLI COMMERCIAL BANK	1.730	1.500	0.900	1.075	1.120	0.940
4 :	BAHRAIN SAUDI BANK	0.405	0.358	0.370	0.790	0.790	0.870
5 :	BAHRAIN ISLAMIC BANK	1.220	1.400	1.400	1.610	1.500	1.690
6 :	BAHRAIN INTERNATIONAL BANK	0.275	0.370	0.096	0.092	0.092	0.070
7 :	BANK OF BAHRAIN & MIDDLE EAST	0.100	0.110	0.066	0.074	0.065	0.050
8 :	INVESTCORP	0.216	0.252	0.264	0.313	0.282	0.330
9 :	UNITED GULF BANK	0.040	0.077	0.075	0.075	0.075	0.057
10 :	BAHRAIN INSURANCE COMPANY	2.000	1.900	1.900	1.900	3.300	3.350
11 :	AL AHLI INSURANCE COMPANY	0.675	0.600	0.700	0.500	0.935	0.960
12 :	BAHRAIN & KUWAIT INSURANCE COMPANY	1.575	1.000	1.000	1.000	1.550	1.790
13 :	ARAB INTERNATIONAL INSURANCE COMPANY	0.070	0.070	0.070	0.070	0.070	0.070
14 :	BATELCO	2.790	3.050	2.750	3.250	3.310	3.430
15 :	BAHRAIN CINEMA COMPANY	1.500	1.300	1.500	1.450	1.620	1.750
16 :	BAHRAIN CAR PARK COMPANY	1.280	1.190	1.150	1.130	1.020	0.990
17 :	BAHRAIN SHIP REPAIRING & ENGINEERING COMPANY	3.500	3.500	3.500	3.500	8.150	8.600
18 :	BAHRAIN MARITIME & MERCHANTILE COMPANY	3.500	3.750	3.900	3.600	4.150	4.850
19 :	GENERAL TRADING & FOOD PROCESSING COMPANY	2.600	3.000	2.600	2.950	3.070	3.300
20 :	DELMON POULTRY COMPANY	0.825	0.575	1.250	1.450	0.930	0.955
21 :	BAHRAIN FLOUR MILLS COMPANY	1.550	1.550	1.500	1.400	1.410	1.400
22 :	NATIONAL IMPORT & EXPORT COMPANY	4.550	5.000	4.100	4.500	4.505	4.400
23 :	NATIONAL HOTEL COMPANY	0.260	0.200	0.450	0.330	0.422	0.740
24 :	BAHRAIN HOTEL COMPANY	1.450	1.500	2.100	2.100	2.050	2.120
25 :	BAHRAIN TOURISM COMPANY	0.700	0.850	0.950	0.875	0.940	0.925
26 :	BAHRAIN LIGHT INDUSTRIES COMPANY	1.200	0.350	0.250	0.170	0.282	0.300

* Asked value.

** As at 30th June 1990.

SOURCE : Bahrain Stock Exchange

FIGURE 3.1

AVERAGE MARKET PRICE OF ONE SHARE OVER THE PERIOD 1985 - 1990

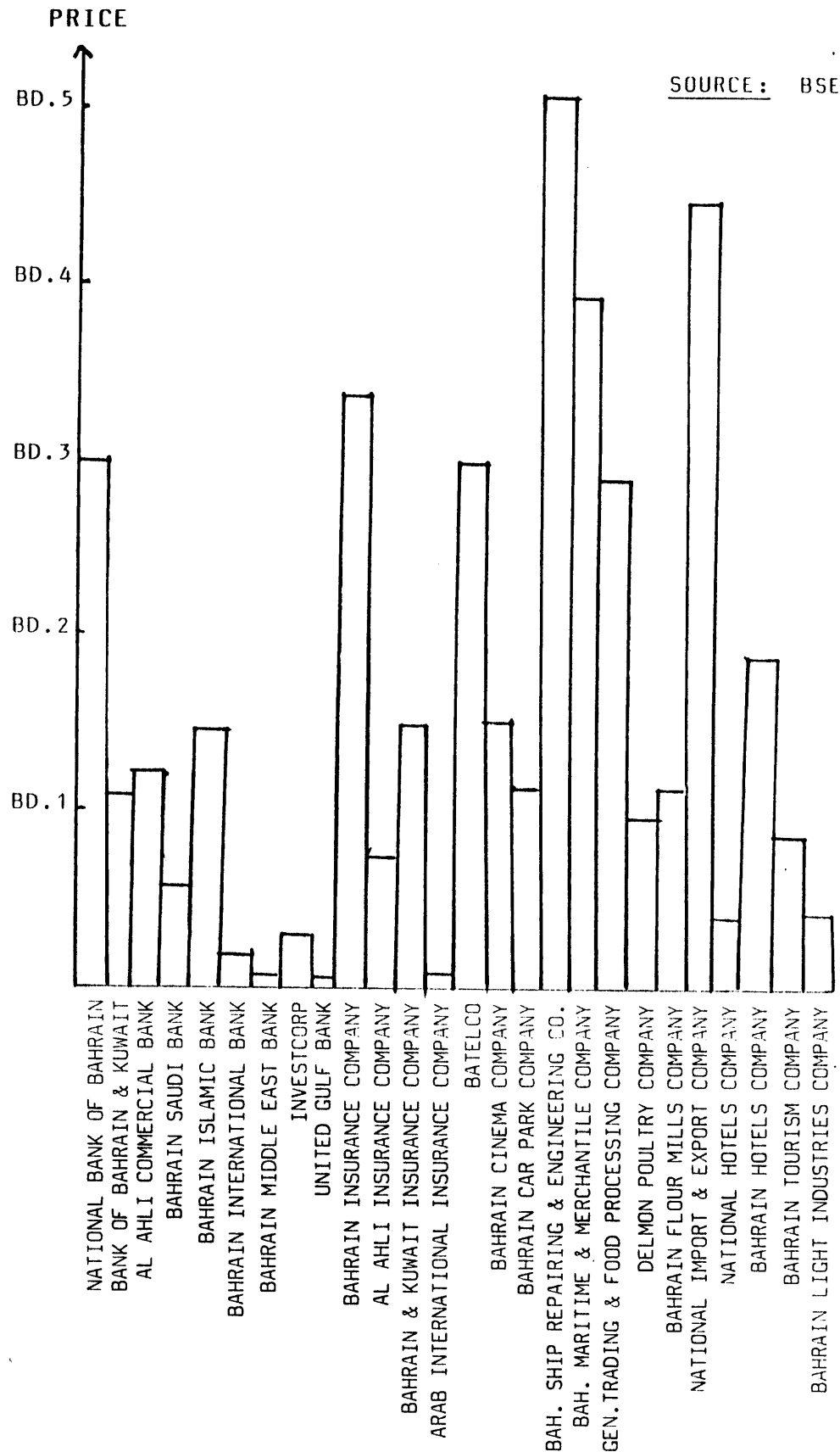


TABLE 2
DIVIDENDS PAID ON STOCK OF THE COMPANIES
REGISTERED WITH BAHRAIN STOCK EXCHANGE

SER. :	NAME	1985	1986	1987	1988	1989	1990 :
1 :	NATIONAL BANK OF BAHRAIN	0.150	0.100	0.100	0.150	0.200	0.200 :
2 :	BANK OF BAHRAIN & KUWAIT	0.000	0.000	0.000	0.000	0.000	0.000 :
3 :	AL AHLI COMMERCIAL BANK	0.100	0.050	0.000	0.000	0.000	0.000 :
4 :	BAHRAIN SAUDI BANK	0.000	0.025	0.000	0.000	0.050	0.050 :
5 :	BAHRAIN ISLAMIC BANK	0.100	0.100	0.100	0.100	0.100	0.100 :
6 :	BAHRAIN INTERNATIONAL BANK	0.029	0.034	0.009	0.008	0.008	0.008 :
7 :	BANK OF BAHRAIN & MIDDLE EAST	0.000	0.000	0.000	0.005	0.005	0.007 :
8 :	INVESTCORP	0.004	0.014	0.014	0.014	0.014	0.049 :
9 :	UNITED GULF BANK	0.000	0.000	0.000	0.000	0.000	0.000 :
10 :	BAHRAIN INSURANCE COMPANY	0.150	0.100	0.150	0.200	0.250	0.220 :
11 :	AL AHLI INSURANCE COMPANY	0.000	0.000	0.000	0.000	0.000	0.000 :
12 :	BAHRAIN & KUWAIT INSURANCE COMPANY	0.060	0.075	0.050	0.060	0.100	0.060 :
13 :	ARAB INTERNATIONAL INSURANCE COMPANY	0.000	0.075	0.071	0.000	0.000	0.007 :
14 :	BATELCO	0.250	0.225	0.240	0.250	0.250	0.250 :
15 :	BAHRAIN CINEMA COMPANY	0.150	0.150	0.150	0.150	0.151	0.120 :
16 :	BAHRAIN CAR PARK COMPANY	0.075	0.075	0.075	0.080	0.085	0.090 :
17 :	BAHRAIN SHIP REPAIRING & ENGINEERING COMPANY	0.350	0.350	0.700	0.350	1.600	0.350 :
18 :	BAHRAIN MARITIME & MERCHANTILE COMPANY	0.400	0.300	0.300	0.350	0.425	0.449 :
19 :	GENERAL TRADING & FOOD PROCESSING COMPANY	0.250	0.250	0.250	0.250	0.270	0.339 :
20 :	DELMON POULTRY COMPANY	0.000	0.100	0.060	0.070	0.080	0.080 :
21 :	BAHRAIN FLOUR MILLS COMPANY	1.150	0.100	0.100	0.100	0.100	0.100 :
22 :	NATIONAL IMPORT & EXPORT COMPANY	0.250	0.250	0.320	0.350	0.350	0.350 :
23 :	NATIONAL HOTEL COMPANY	0.000	0.000	0.000	0.000	0.000	0.000 :
24 :	BAHRAIN HOTEL COMPANY	0.100	0.100	0.120	0.150	0.120	0.120 :
25 :	BAHRAIN TOURISM COMPANY	0.050	0.050	0.050	0.050	0.070	0.050 :
26 :	BAHRAIN LIGHT INDUSTRIES COMPANY	0.000	0.000	0.000	0.000	0.000	0.000 :

SOURCE : Bahrain Stock Exchange

TABLE 3
ANNUAL RETURN ON STOCK OF THE COMPANIES REGISTERED WITH
BAHRAIN STOCK EXCHANGE

SER.	NAME	1986	1987	1988	1989	1990	AVG-RTN
1	NATIONAL BANK OF BAHRAIN	-0.244	-0.207	0.563	0.119	0.284	0.103
2	BANK OF BAHRAIN & KUWAIT	-0.437	-0.421	-0.007	0.209	0.250	-0.081
3	AL AHLI COMMERCIAL BANK	-0.104	-0.400	0.194	0.042	-0.161	-0.086
4	BAHRAIN SAUDI BANK	-0.054	0.034	1.135	0.063	0.165	0.268
5	BAHRAIN ISLAMIC BANK	0.230	0.071	0.221	-0.006	0.197	0.143
6	BAHRAIN INTERNATIONAL BANK	0.469	-0.716	0.042	0.087	-0.071	-0.038
7	BANK OF BAHRAIN & MIDDLE EAST	0.100	-0.400	0.192	-0.058	0.000	-0.033
8	INVESTCORP	0.231	0.103	0.239	-0.054	0.365	0.177
9	UNITED GULF BANK	0.925	-0.026	0.000	0.000	-0.247	0.130
10	BAHRAIN INSURANCE COMPANY	0.000	0.079	0.105	0.868	0.082	0.227
11	AL AHLI INSURANCE COMPANY	-0.111	0.167	-0.286	0.870	0.032	0.134
12	BAHRAIN & KUWAIT INSURANCE COMPANY	-0.317	0.050	0.060	0.650	0.194	0.127
13	ARAB INTERNATIONAL INSURANCE COMPANY	1.071	1.007	0.000	0.000	0.100	0.436
14	BATELCO	0.174	-0.020	0.273	0.095	0.112	0.127
15	BAHRAIN CINEMA COMPANY	-0.033	0.269	0.067	0.221	0.154	0.136
16	BAHRAIN CAR PARK COMPANY	-0.012	0.029	0.052	-0.022	0.059	0.021
17	BAHRAIN SHIP REPAIRING & ENGINEERING COMPANY	0.100	0.200	0.100	1.786	0.098	0.457
18	BAHRAIN MARITIME & MERCHANTILE COMPANY	0.157	0.120	0.013	0.271	0.277	0.168
19	GENERAL TRADING & FOOD PROCESSING COMPANY	0.250	-0.050	0.231	0.132	0.185	0.150
20	DELMON POULTRY COMPANY	-0.182	1.278	0.216	-0.303	0.113	0.224
21	BAHRAIN FLOUR MILLS COMPANY	0.065	0.032	0.000	0.079	0.064	0.048
22	NATIONAL IMPORT & EXPORT COMPANY	0.154	-0.116	0.183	0.079	0.054	0.071
23	NATIONAL HOTEL COMPANY	-0.231	1.250	-0.267	0.279	0.754	0.357
24	BAHRAIN HOTEL COMPANY	0.103	0.480	0.071	0.033	0.093	0.156
25	BAHRAIN TOURISM COMPANY	0.286	0.176	-0.026	0.154	0.037	0.125
26	BAHRAIN LIGHT INDUSTRIES COMPANY	-0.708	-0.286	-0.320	0.659	0.064	-0.118

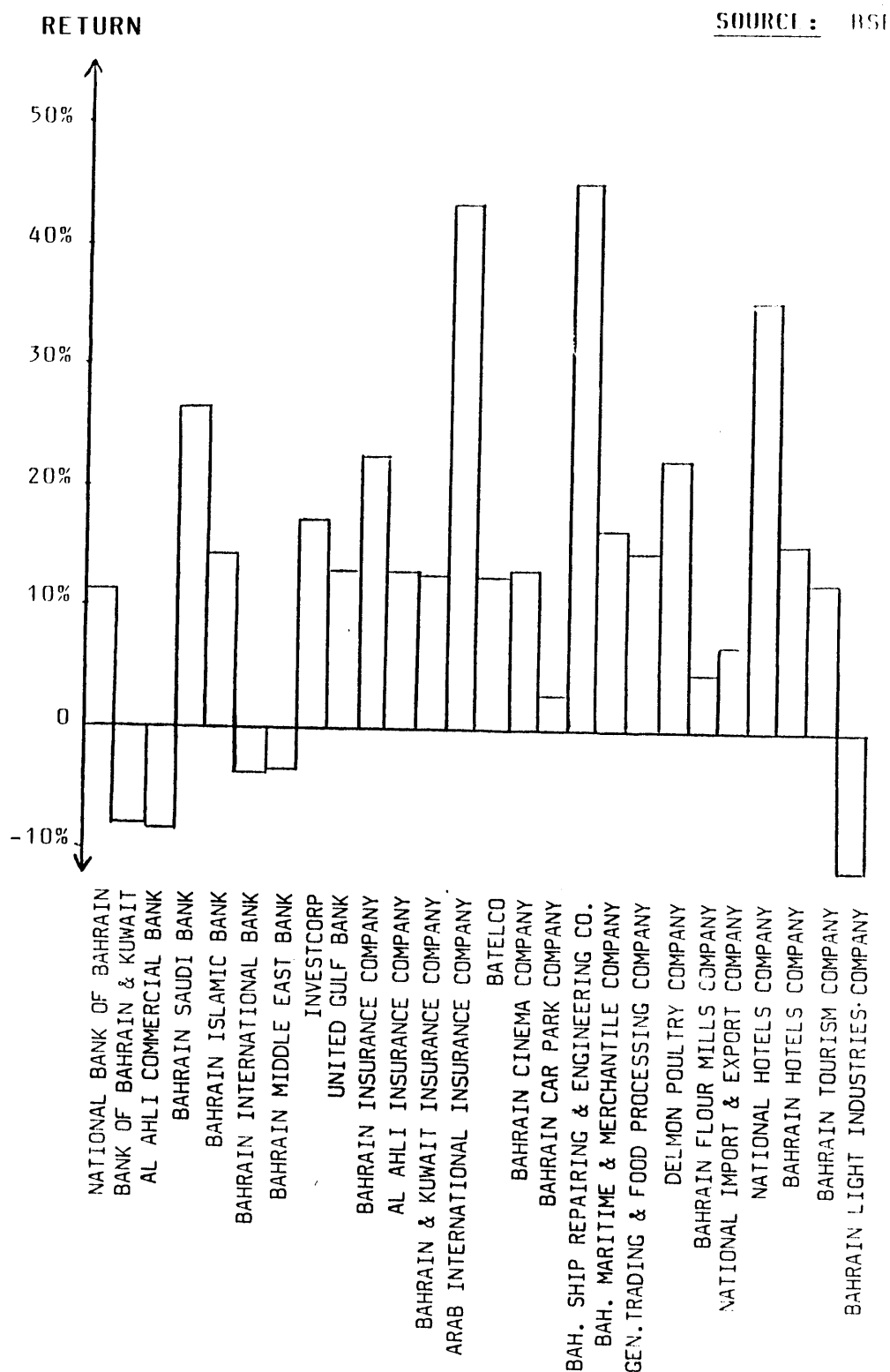
total by number of the periods. The period could be one or more of days, weeks , months, years, etc. The average return equation is as follows :

$$\text{The Average Return : } \bar{R}_i = \sum_{t=1}^N R_{it} / N \quad (3.2)$$

where $\bar{R}_i$ refers to average return of security i , N refers to number of periods and R_i refers to return on security i during period t.

Average returns on stocks of the companies registered with BSE are shown in Table 3, page 25. The average return is for the period 1986-1990. The range of the average is between the extremes -11.8% of Bahrain Light Industries Company and 45.7% of Bahrain Ship Repairing and Engineering Company. This implies that there is a range as wide as 57.5 points. The simple average return of the 26 companies of the period 1986 to 1990 is 13.2%.

FIGURE (3.2)
 AVERAGE ANNUAL RETURN ON SECURITIES OF COMPANIES
 REGISTERED WITH BAHRAIN STOCK EXCHANGE MARKET
 BETWEEN 1986 - 1990



4.2 Weights & Economic Sectors Of The Companies Registered With Bahrain Stock Exchange :

Currently, (as at 30th November, 1990) there are 29 companies registered with BSE pertaining to six major economic sectors, namely ; banking , investment , insurance , service , industry and tourism sectors. Total equity of these six sectors is BD.692.9m. Banking sector represents the largest sector. In this sector nine banks having BD. 397m equity representing 57.3% of total equity of the 29 firms registered with BSE. The service sector is the second largest one. There are seven companies in the service sector which has an equity of BD.159.77m representing 23.06% of the weight. The following table is showing some information about status of the firms as at 31st December,1989.

Table 4

EQUITY & WEIGHT OF COMPANIES & ECONOMIC SECTORS OF THE FIRMS REGISTERED WITH BAHRAIN STOCK EXCHANGE AS AT 31.12.1989

	<u>EQUITY</u>	<u>WEIGHT</u>
	<u>BD. M</u>	<u>%</u>
<u>(i) Banking Sector :</u>		
1.National Bank of Bahrain	67. 88	9. 80
2.Bank of Bahrain & Kuwait	75. 76	10. 93
3.Alahli Commercial Bank	12. 01	1. 75
4.Bahrain Saudi Bank	20. 869	3. 03
5.Bahrain Islamic Bank	6. 90	1. 00
6.Bahrain International Bank	78. 90	11. 40
7.Bank of Bahrain & Middle East	54. 30	7. 84
8.Investcorp	73. 36	10. 58

EQUITY & WEIGHT OF COMPANIES & ECONOMIC SECTORS OF THE
FIRMS REGISTERED WITH BAHRAIN STOCK EXCHANGE AS AT 31.12.1989

	<u>EQUITY</u>	<u>WEIGHT</u>
	<u>BD. M</u>	<u>%</u>
<u>(i) Banking Sector : (Cont.)</u>		
9.United Gulf Bank	6. 967	1. 02
	<u>397. 946</u>	<u>57. 35</u>
<u>(ii) Investment Sector :</u>		
10.Pearl Investment Company	47. 08	6. 79
11.Gulf Investment Company	8. 69	1. 25
	<u>55. 77</u>	<u>8. 04</u>
<u>(iii) Insurance Sector :</u>		
12.Bahrain Insurance Company	4. 313	0. 61
13.Al Ahlia Insurance Company	1. 472	0. 20
14.Bahrain Kuwait Insurance Co.	2. 797	0. 40
15.Gulf Union Insurance Company	5. 85	0. 83
16.Arab International Insurance	2. 14	0. 35
	<u>16. 572</u>	<u>2. 39</u>
<u>(iv) Services Sector :</u>		
17.Batelco	115. 65	16. 67
18.Bahrain Cinema Company	2. 656	0. 39
19.Bahrain Car Park Company	8. 628	1. 24
20.Bah.Ship Repair & Eng. Co	6. 478	0. 93
21.Bah.Maritime & Mercantile Co	6. 831	0. 98
22.National Imports & Exports Co.	15. 35	2. 22
23.General Food Trading Co	4. 177	0. 60
	<u>159. 770</u>	<u>23. 03</u>

EQUITY & WEIGHT OF COMPANIES & ECONOMIC SECTORS OF THE
FIRMS REGISTERED WITH BAHRAIN STOCK EXCHANGE AS AT 31.12.1989

	<u>EQUITY</u>	<u>WEIGHT</u>
	<u>BD. M</u>	<u>%</u>
<u>(v) Industrial Sector :</u>		
24.Delmon Poultry Company	4. 22	0. 61
25.Bahrain Mills Company	6. 181	0. 89
26.Bahrain Light Industries Co.	1. 07	0. 15
	<u>11. 471</u>	<u>1. 65</u>
<u>(vi) Tourism Sector :</u>		
27.National Hotels Company	24. 037	3. 46
28.Bahrain Hotels Company	15. 185	2. 19
29.Bahrain Tourism Company	13. 149	1. 90
	<u>52. 371</u>	<u>7. 55</u>
<u>Total Equity/ Weight</u>	<u>693. 900</u>	<u>100. 00</u>

Source : BSE and annual reports of the concerned companies.

It is worth mentioning here that no dealings have taken place in the stocks of the two investment companies ,ie.Pearl Investment Co. and Gulf Investment Co. Same thing applies to Gulf Union Insurance Co. It is understood that these companies have been taken over by Kuwaiti investors. Although they are registered as public holding companies , virtually they are closely held companies. Therefore, these firms will be excluded from analysis henceforth. Thus, the sector weights are recalculated for the purposes of statistical analyses as follows:

Table 5

WEIGHTS OF ECONOMIC SECTORS OF THE
COMPANIES REGISTERED WITH BSE

<u>Sector</u>	<u>Equity*</u>	<u>Weight</u>
Banking	BD.397.946m	62%
Insurance	10.722m	2%
Service	159.770m	25%
Industry	11.471m	3%
Tourism	<u>52.371m</u>	<u>8%</u>
Total	<u>BD.632.280m</u>	<u>100%</u>

* As at 31 .12.1 989

Additionally, two companies are subsidized by Bahrain Government, in order to keep prices of the food stuff reasonably low. These are Delmon Poultry Co. and Bahrain Mills Co. The former made BD.585,623 loss over the period 1985-1989, representing 14% of its equity. However it received a subsidy of BD.688,634 which erased the loss and resulted in a net gain amounting to 0.236% R.O.E. Similarly, Bahrain Mills Co. suffered a loss of BD.179,711 in 1989, representing 2.5% of its equity, but was granted a subsidy of BD.0.5m, which erased the loss and resulted in 5.2% R.O.E. As a result to these subsidies the returns of these companies maintained stability, which kept their standard deviations relatively low and helped them maintain their equities.

4.3 Portfolio Returns:

As previously mentioned, The PC had been programmed to select combinations of five securities, one from each of the five economic sectors every time. This resulted in creation of 2,268 portfolios (combinations). Then the PC was programmed to allocate in each of the five securities an amount equivalent of the weight of the economic sector to which the firm pertains. In other words the PC had been programmed to invest 62% in banking, 2% in insurance, 25% in service sector, 3% in industry and 8% in tourism.

The formula for calculating the portfolio return is as follows:

$$\text{Portfolio Return : } R_p = \sum_{i=1} R_i W_i \quad (3.3)$$

where R_i , denotes return on security i , and W_i denotes weight of security i .

The return on each of the portfolio securities represents the average return of the period 1986-1990. This is shown in Table 13, Appendix 1, page 53.

4.4 Portfolio Standard Deviation :

Calculation of portfolio standard deviation requires first calculation of the following statistical exercises:

- (i) Security variances
- (ii) Security weights
- (iii) Security standard deviations

- (iv) Covariance of Securities of the Firms registered with BSE
- (v) Security correlation coefficient
- (vi) Weighted security variances
- (vii) Portfolio variance

(1) Variance of Securities of the Companies Registered with BSE :
The variances are calculated by squaring the difference between the return of each company, in each year and its average return, then summing them up. The equation is as follows:

$$\text{Security Variance : } \sigma_i^2 = \sum_{t=1}^N \frac{(R_{it} - \bar{R}_i)^2}{N} \quad (3.4)$$

where R_{it} refers to return on security i at time t , $\bar{R}_i$ denotes average return of security i and N denotes total number of securities. Average returns are shown in Table 3, page 25. The variances are shown in Table 6, page 34.

(2) Security Weights:

Equity of each of the companies registered with BSE as at 31st December, 1989 was expressed as a percentage of total equity of the 26 companies. This, ie. the percentage, was taken as weight of the security of the concerned company.

Security weights are shown in table 7, page 35.

(3) Standard Deviation of Securities of the Companies Registered with BSE :

Having calculated variance of the returns, the standard

TABLE 6
VARIANCE OF RETURNS OF COMPANIES REGISTERED WITH
BAHRAIN STOCK EXCHANGE

SER.	NAME	V A R I A N C E S				
		1986	1987	1988	1989	1990
1	NATIONAL BANK OF BAHRAIN	0.0596	0.0430	0.3164	0.0142	0.0809
2	BANK OF BAHRAIN & KUWAIT	0.1912	0.1777	0.0001	0.0435	0.0625
3	AL AHLI COMMERCIAL BANK	0.0108	0.1600	0.0378	0.0018	0.0258
4	BAHRAIN SAUDI BANK	0.0030	0.0011	1.2885	0.0040	0.0271
5	BAHRAIN ISLAMIC BANK	0.0527	0.0051	0.0490	0.0000	0.0387
6	BAHRAIN INTERNATIONAL BANK	0.2200	0.5130	0.0017	0.0076	0.0050
7	BANK OF BAHRAIN & MIDDLE EAST	0.0100	0.1600	0.0370	0.0034	0.0000
8	INVESTICORP	0.0536	0.0106	0.0569	0.0029	0.1334
9	UNITED GULF BANK	0.8558	0.0007	0.0000	0.0000	0.0608
10	BAHRAIN INSURANCE COMPANY	0.0000	0.0062	0.0111	0.7542	0.0067
11	AL AHLI INSURANCE COMPANY	0.0123	0.0278	0.0816	0.7569	0.0010
12	BAHRAIN & KUWAIT INSURANCE COMPANY	0.1008	0.0025	0.0036	0.4225	0.0375
13	ARAB INTERNATIONAL INSURANCE COMPANY	1.1480	1.0143	0.0000	0.0000	0.0100
14	BATELCO	0.0302	0.0004	0.0744	0.0091	0.0125
15	BAHRAIN CINEMA COMPANY	0.0011	0.0725	0.0044	0.0490	0.0238
16	BAHRAIN CAR PARK COMPANY	0.0001	0.0009	0.0027	0.0005	0.0035
17	BAHRAIN SHIP REPAIRING & ENGINEERING COMPANY	0.0100	0.0400	0.0100	3.1888	0.0096
18	BAHRAIN MARITIME & MERCHANTILE COMPANY	0.0247	0.0144	0.0002	0.0734	0.0767
19	GENERAL TRADING & FOOD PROCESSING COMPANY	0.0625	0.0025	0.0533	0.0175	0.0344
20	DELMON POULTRY COMPANY	0.0331	1.6340	0.0467	0.0921	0.0127
21	BAHRAIN FLOUR MILLS COMPANY	0.0042	0.0010	0.0000	0.0062	0.0041
22	NATIONAL IMPORT & EXPORT COMPANY	0.0237	0.0135	0.0335	0.0062	0.0030
23	NATIONAL HOTEL COMPANY	0.0533	1.5625	0.0711	0.0777	0.5678
24	BAHRAIN HOTEL COMPANY	0.0107	0.2304	0.0051	0.0011	0.0086
25	BAHRAIN TOURISM COMPANY	0.0816	0.0311	0.0007	0.0238	0.0014
26	BAHRAIN LIGHT INDUSTRIES COMPANY	0.5017	0.0816	0.1024	0.4340	0.0041

TABLE 7
STANDARD DEVIATION, VARIANCE, WEIGHTS AND WEIGHTED SECURITY VARIANCES OF COMPANIES REGISTERED WITH
BAHRAIN STOCK EXCHANGE

SER.	NAME	STD. DEV.	VARIANCE	WEIGHT	WEIGHTED SECURITY VARIANCES
1	NATIONAL BANK OF BAHRAIN	0.304	0.092203	10.75%	0.00991
2	BANK OF BAHRAIN & KUWAIT	0.297	0.088343	12.00%	0.01060
3	AL AHLI COMMERCIAL BANK	0.200	0.039900	1.90%	0.00075
4	BAHRAIN SAUDI BANK	0.439	0.192680	3.31%	0.00636
5	BAHRAIN ISLAMIC BANK	0.094	0.008780	1.09%	0.00009
6	BAHRAIN INTERNATIONAL BANK	0.385	0.148029	12.50%	0.01850
7	BANK OF BAHRAIN & MIDDLE EAST	0.202	0.040982	8.60%	0.00352
8	INVESTCORP	0.142	0.020232	11.62%	0.00235
9	UNITED GULF BANK	0.408	0.166443	1.10%	0.00183
10	BAHRAIN INSURANCE COMPANY	0.323	0.104153	0.68%	0.00071
11	AL AHLI INSURANCE COMPANY	0.397	0.157877	0.23%	0.00036
12	BAHRAIN & KUWAIT INSURANCE COMPANY	0.312	0.097184	0.44%	0.00043
13	ARAB INTERNATIONAL INSURANCE COMPANY	0.495	0.244612	0.34%	0.00082
14	BATELCO	0.096	0.009234	18.32%	0.00169
15	BAHRAIN CINEMA COMPANY	0.108	0.011771	0.42%	0.00004
16	BAHRAIN CAR PARK COMPANY	0.033	0.001080	1.37%	0.00001
17	BAHRAIN SHIP REPAIRING & ENGINEERING COMPANY	0.666	0.443038	1.03%	0.00454
18	BAHRAIN MARITIME & MERCHANTILE COMPANY	0.099	0.009785	1.08%	0.00010
19	GENERAL TRADING & FOOD PROCESSING COMPANY	0.108	0.011617	0.66%	0.00007
20	DELMON POULTRY COMPANY	0.560	0.313352	0.67%	0.00209
21	BAHRAIN FLOUR MILLS COMPANY	0.028	0.000801	0.98%	0.00000
22	NATIONAL IMPORT & EXPORT COMPANY	0.105	0.010939	2.43%	0.00026
23	NATIONAL HOTEL COMPANY	0.582	0.339050	3.81%	0.01290
24	BAHRAIN HOTEL COMPANY	0.164	0.026789	2.41%	0.00064
25	BAHRAIN TOURISM COMPANY	0.109	0.011986	2.08%	0.00024
26	BAHRAIN LIGHT INDUSTRIES COMPANY	0.459	0.210788	0.17%	0.00035
				100.00%	0.079

deviation is simply calculated by finding out the square root of the variances.

Standard deviation of securities of the companies registered with BSE are shown in Table 7 , page 35.

(4) Covariance of Securities of the Firms Registered with BSE :
It is calculated by multiplying the difference between the return of two securities and their average returns in a given year, adding the product to the product of the difference of the following years and then dividing the sum by number of the years. The covariance formula is as follows:

$$\text{Security Covariance: COV}_{ij} = [(R_{it1} - \bar{R}_i)(R_{jt1} - \bar{R}_j) + (R_{it2} - \bar{R}_i)(R_{jt2} - \bar{R}_j) + \dots + (R_{itn} - \bar{R}_i)(R_{jtn} - \bar{R}_j)] / N \quad (3.5)$$

where R_{it1} and R_{jt1} denote return on securities i and j in year 1 respectively, $\bar{R}_i$ and $\bar{R}_j$ denote average returns on securities i and j respectively, R_{it2} and R_{jt2} denote return on securities i and j in year 2 respectively, R_{itn} and R_{jtn} denote return on securities i and j in year n respectively and N refers to number of years.

Covariance of securities of companies registered with BSE is shown in Table 8, page 37.

(5) Security Correlation Coefficient:

If securities are negatively correlated, or if large number of

TABLE 8
COVARIANCE OF COMPANIES REGISTERED WITH
BAHRAIN STOCK EXCHANGE

SIR	NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1	AL. BANK OF BHE	1																									
2	AL. OF BHE & KWT	0.0049	1																								
3	AL. AELI CON. BHE	0.0043	0.0064	1																							
4	AL. SAUDI BHE	0.0820	0.0005	0.0099	1																						
5	AL. ISLAMIC BANK	0.0044	0.0027	0.0008	0.0129	1																					
6	AL. INT. BANK	0.0072	0.0268	0.0169	0.0007	0.0029	1																				
7	AL. BHE MILE EAST	0.0038	0.0061	0.0094	0.0096	0.0006	0.0169	1																			
8	AL. JETSTORP	0.0065	0.0041	0.0016	0.0154	0.0022	0.0036	0.0009	1																		
9	AL. GULF BANK	0.0112	0.0335	0.0022	0.0008	0.0095	0.0378	0.0017	0.0108	1																	
10	AL. INS. CO.	0.0030	0.0069	0.0006	0.0035	0.0002	0.0018	0.0008	0.0001	0.0001	1																
11	AL. AELI INS. CO.	0.0077	0.0081	0.0018	0.0217	0.0010	0.0046	0.0020	0.0016	0.0021	0.1144	1															
12	AL. & KWT INS. CO.	0.0033	0.0081	0.0007	0.0015	0.0014	0.0054	0.0006	0.0024	0.0177	0.0638	0.0643	1														
13	AL. INT. INS. CO.	0.0225	0.0801	0.0350	0.0010	0.0132	0.1546	0.0348	0.0147	0.1968	0.0013	0.0085	0.0237	1													
14	AL. TELCO	0.0053	0.0014	0.0007	0.0193	0.0011	0.0014	0.0006	0.0015	0.0053	0.0016	0.0027	0.0015	0.0070	1												
15	AL. CINEMA CO.	0.0014	0.0033	0.0025	0.0013	0.0003	0.0076	0.0024	0.0009	0.0005	0.0075	0.0079	0.0044	0.0150	0.0002	1											
16	AL. CAR PARK CO.	0.0002	0.0001	0.0001	0.0007	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	1										
17	AL. SHIP REP. ENG.	0.0103	0.0297	0.0025	0.0052	0.0003	0.0094	0.0035	0.0024	0.0018	0.4811	0.4831	0.2698	0.0104	0.0060	0.0319	0.0003	1									
18	AL. MARI & MERCE	0.0019	0.0031	0.0009	0.0005	0.0028	0.0006	0.0022	0.0111	0.0028	0.0037	0.0030	0.0149	0.0013	0.0004	0.0001	0.0115	0.0011	1								
19	AL. TRAD FOOD PROC.	0.0047	0.0031	0.0008	0.0140	0.0014	0.0031	0.0006	0.0022	0.0111	0.0028	0.0037	0.0030	0.0149	0.0013	0.0004	0.0001	0.0115	0.0011	1							
20	AL. POUULTY CO.	0.0179	0.0603	0.0528	0.0126	0.0026	0.1693	0.0528	0.0048	0.0060	0.0166	0.0239	0.0094	0.3391	0.0012	0.0247	0.0003	0.0720	0.0064	0.0021	1						
21	AL. FLOUR MILLS	0.0001	0.0003	0.0001	0.0000	0.0001	0.0003	0.0000	0.0002	0.0008	0.0009	0.0010	0.0006	0.0012	0.0000	0.0001	0.0000	0.0040	0.0002	0.0001	0.0005	1					
22	AL. INT. EXPR. CO.	0.0026	0.0015	0.0008	0.0087	0.0006	0.0024	0.0007	0.0007	0.0041	0.0010	0.0016	0.0011	0.0082	0.0007	0.0003	0.0000	0.0042	0.0003	0.0007	0.0050	0.0000	1				
23	AL. HOTEL CO.	0.0280	0.0653	0.0536	0.0218	0.0072	0.1634	0.0507	0.0199	0.0162	0.0146	0.0219	0.0127	0.3303	0.0031	0.0262	0.0007	0.0634	0.0146	0.0064	0.5145	0.0009	0.0054	1			
24	AL. HOTEL CO.	0.0026	0.0087	0.0075	0.0014	0.0005	0.0241	0.0074	0.0009	0.0020	0.0005	0.0016	0.0005	0.0492	0.0002	0.0034	0.0000	0.0026	0.0009	0.0004	0.0755	0.0001	0.0007	0.0732	1		
25	AL. TOURISM CO.	0.0014	0.0045	0.0012	0.0003	0.0009	0.0068	0.0012	0.0010	0.0140	0.0036	0.0040	0.0037	0.0251	0.0006	0.0007	0.0000	0.0156	0.0009	0.0011	0.0112	0.0001	0.0005	0.0111	0.0016	1	
26	AL. LIGHT INDUST.	0.0145	0.0259	0.0046	0.0271	0.0064	0.0312	0.0047	0.0071	0.0859	0.0658	0.0691	0.0469	0.1318	0.0054	0.0057	0.0001	0.2787	0.0091	0.0089	0.0390	0.0010	0.0038	0.0395	0.0050	0.0108	1

uncorrelated securities are available, proper diversification can eliminate the unsystematic risk and reduce portfolio risk. If securities are perfectly positively correlated, diversification will provide no risk-reduction advantages.

Correlation is the resultant of dividing security covariance by the product of multiplying standard deviation of the two securities, ie. their costandard deviation. The formula of the correlation coefficient is as follows:

$$\text{Security Correlation Coefficient: } r_{ij} = \text{COV}_{ij} / \sigma_i \sigma_j \quad (3.6)$$

where r_{ij} denote correlation coefficient of securities i with j , COV_{ij} denotes covariance of securities i and j , and σ_i, σ_j denote standard deviation of securities i and j .

Costandard deviation of securities of the companies registered with BSE is shown in Table 9, page 39 and correlation coefficient of the companies registered with BSE is shown in Table 10, page 40.

(6) Weighted Security Variances :

Weighted security variances are calculated by multiplying the squared weight of every security by its variance, then summing up the products of all securities in the portfolio. The formula is as follows:

$$\text{Weighted Security Variances: } \sum_{i=1}^n W_i^2 \sigma_i^2 \quad (3.7)$$

TABLE 9
STANDARD DEVIATION OF COMPANIES REGISTERED WITH
BAHRAIN STOCK EXCHANGE

27	NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
	ALC. BANK OF BH :																											
	BH OF BH & INT :	0.0963																										
	AL. AELI CON. BH :	0.0607	0.0594																									
	BH SAUDI BH :	0.1333	0.1305	0.0877																								
	BH ISLAMIC BH :	0.0285	0.0279	0.0187	0.0411																							
	BH INT. BANK :	0.1168	0.1144	0.0769	0.1689	0.0361																						
	BH BH MILE EAST :	0.0615	0.0602	0.0404	0.0889	0.0190	0.0779																					
	INVESTCORP :	0.0432	0.0423	0.0284	0.0624	0.0133	0.0547	0.0288																				
	UNITED GULF BANK :	0.1239	0.1213	0.0815	0.1791	0.0382	0.1570	0.0826	0.0580																			
	BH IS. CO. :	0.0980	0.0959	0.0645	0.1417	0.0302	0.1242	0.0653	0.0459	0.1317																		
	AL. AELI IS. CO. :	0.1207	0.1181	0.0794	0.1744	0.0372	0.1529	0.0804	0.0565	0.1621	0.1282																	
	BH & INT IS. CO. :	0.0947	0.0927	0.0623	0.1368	0.0292	0.1199	0.0631	0.0443	0.1272	0.1006	0.1239																
	ARAB INT. IS. CO. :	0.1502	0.1470	0.0988	0.2171	0.0463	0.1903	0.1001	0.0703	0.2018	0.1596	0.1965	0.1542															
	BALTECO :	0.0292	0.0286	0.0192	0.0422	0.0090	0.0370	0.0195	0.0137	0.0392	0.0310	0.0382	0.0300	0.0475														
	BH CITIEMA CO. :	0.0329	0.0322	0.0217	0.0476	0.0102	0.0417	0.0220	0.0154	0.0443	0.0350	0.0431	0.0338	0.0537	0.0104													
	BH CAR PARK CO. :	0.0100	0.0098	0.0066	0.0144	0.0031	0.0126	0.0067	0.0047	0.0134	0.0106	0.0131	0.0102	0.0163	0.0032	0.0036												
	BH SHIP REP. ENG. :	0.2021	0.1978	0.1330	0.2922	0.0624	0.2561	0.1347	0.0947	0.2716	0.2148	0.2645	0.2075	0.3292	0.0640	0.0722	0.0219											
	BH MAR. & MERCH. :	0.0300	0.0294	0.0198	0.0434	0.0093	0.0381	0.0200	0.0141	0.0404	0.0319	0.0393	0.0308	0.0489	0.0095	0.0107	0.0033	0.0658										
	6. TRAD FOOD PROC :	0.0327	0.0320	0.0215	0.0473	0.0101	0.0415	0.0218	0.0153	0.0440	0.0348	0.0428	0.0336	0.0533	0.0104	0.0117	0.0035	0.0717	0.0107									
	BELDON POULTRY CO. :	0.1700	0.1664	0.1118	0.2457	0.0525	0.2154	0.1133	0.0736	0.2284	0.1807	0.2224	0.1745	0.2769	0.0538	0.0607	0.0184	0.3726	0.0554	0.0603								
	BH FLOOD HILLS :	0.0084	0.0084	0.0057	0.0124	0.0027	0.0109	0.0057	0.0040	0.0116	0.0091	0.0113	0.0088	0.0140	0.0027	0.0031	0.0009	0.0188	0.0028	0.0031	0.0159							
	ALT. TRP. EXPR. CO. :	0.0318	0.0311	0.0209	0.0459	0.0098	0.0402	0.0212	0.0149	0.0427	0.0338	0.0416	0.0326	0.0517	0.0101	0.0113	0.0034	0.0696	0.0103	0.0113	0.0585	0.0030						
	NATIONAL HOTEL CO. :	0.1768	0.1731	0.1163	0.2556	0.0546	0.2240	0.1179	0.0828	0.2376	0.1879	0.2314	0.1815	0.2880	0.0560	0.0632	0.0191	0.3876	0.0576	0.0628	0.3259	0.0165	0.0609					
	BH HOTEL CO. :	0.0497	0.0486	0.0327	0.0718	0.0153	0.0630	0.0331	0.0233	0.0668	0.0528	0.0650	0.0510	0.0810	0.0157	0.0178	0.0054	0.1089	0.0162	0.0176	0.0916	0.0046	0.0171	0.0953				
	BH TOURISM CO. :	0.0332	0.0325	0.0219	0.0481	0.0103	0.0421	0.0222	0.0156	0.0447	0.0353	0.0435	0.0341	0.0541	0.0105	0.0119	0.0036	0.0729	0.0108	0.0118	0.0613	0.0031	0.0115	0.0638	0.0179			
	BH LIGHT INDUST. :	0.1394	0.1365	0.0917	0.2015	0.0430	0.1766	0.0929	0.0653	0.1873	0.1482	0.1824	0.1431	0.2271	0.0441	0.0498	0.0151	0.3056	0.0454	0.0495	0.2570	0.0130	0.0480	0.2673	0.0751	0.0503		

CORELATION COEFFICIENT OF COMPANIES REGISTERED WITH
BAHRAIN STOCK EXCHANGE

SEE	NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1	AL. BANK OF BAH :																										
2	AL. OF BAH & KWT :	0.0548																									
3	AL. AHI CON. BHK :	0.0712	0.1084																								
4	AL. SAUDI BHK :	0.6155	0.0041	0.1132																							
5	AL. ISLAMIC BANK :	0.1546	0.0962	0.0453	0.3131																						
6	AL. INT. BANK :	0.0620	0.2241	0.2203	0.0043	0.0804																					
7	AL. BHE MOLE EAST :	0.0626	0.1013	0.1079	0.0333	0.2166	0.0303																				
8	AL. INVESTOR :	0.1505	0.0975	0.0555	0.2472	0.1625	0.0659	0.0303																			
9	AL. GULF BANK :	0.0903	0.2763	0.0269	0.0047	0.2482	0.2408	0.0210	0.1861																		
10	AL. INT. CO. :	0.0307	0.0716	0.0090	0.0247	0.0057	0.0144	0.0121	0.0166	0.0006																	
11	AL. INT. CO. :	0.0640	0.0683	0.0227	0.1242	0.0261	0.0299	0.0252	0.0282	0.0131	0.0920																
12	AL. INT. CO. :	0.0344	0.0873	0.0107	0.0112	0.0477	0.0448	0.0094	0.0536	0.1392	0.6340	0.5190															
13	AL. INT. CO. :	0.1502	0.5446	0.3542	0.0044	0.2850	0.8124	0.3471	0.2094	0.0091	0.0080	0.0431	0.1538														
14	AL. INT. CO. :	0.1816	0.0492	0.0369	0.4566	0.1271	0.0385	0.0324	0.1105	0.1358	0.0501	0.0700	0.0509	0.1482													
15	AL. INT. CO. :	0.0438	0.1036	0.1157	0.0279	0.0309	0.1817	0.1087	0.0571	0.0111	0.2149	0.1833	0.1295	0.2797	0.0218												
16	AL. INT. CO. :	0.0239	0.0085	0.0101	0.0500	0.0181	0.0079	0.0073	0.0271	0.0049	0.0081	0.0095	0.0071	0.0132	0.0161	0.0102											
17	AL. INT. CO. :	0.0511	0.1500	0.0191	0.0178	0.0055	0.0366	0.0262	0.0258	0.0068	2.2394	1.8268	1.3000	0.0317	0.0944	0.4416	0.0151										
18	AL. INT. CO. :	0.0625	0.1038	0.0474	0.0123	0.0939	0.0723	0.0280	0.1696	0.1279	0.3503	0.2866	0.2360	0.1787	0.0503	0.1210	0.0195	0.7152									
19	AL. INT. CO. :	0.1449	0.0955	0.0372	0.2951	0.1435	0.0744	0.0280	0.1441	0.2528	0.0806	0.0862	0.0903	0.2800	0.1243	0.0370	0.0160	0.1598	0.1032								
20	AL. INT. CO. :	0.1050	0.3623	0.4723	0.0511	0.0490	0.7859	0.4656	0.0598	0.0264	0.0888	0.1073	0.0538	1.2248	0.0227	0.4067	0.0178	0.1932	0.1159	0.0354							
21	AL. INT. CO. :	0.1065	0.0357	0.0116	0.0024	0.0288	0.0278	0.0080	0.0395	0.0660	0.1026	0.0846	0.0721	0.0839	0.0171	0.0312	0.0040	0.2102	0.0630	0.0335	0.0310						
22	AL. INT. CO. :	0.0813	0.0474	0.0360	0.1887	0.0627	0.0608	0.0345	0.0501	0.0958	0.0306	0.0390	0.0324	0.1579	0.0657	0.0269	0.0069	0.0603	0.0284	0.0622	0.0852	0.0110					
23	AL. INT. CO. :	0.1582	0.3775	0.4610	0.0855	0.1328	0.7292	0.4300	0.2403	0.0683	0.0776	0.0945	0.0701	1.1471	0.0647	0.4146	0.0372	0.1636	0.2537	0.1016	1.5785	0.0563	0.0881				
24	AL. INT. CO. :	0.0518	0.1791	0.2288	0.0198	0.0303	0.3830	0.2243	0.0384	0.0295	0.0090	0.0240	0.0097	0.6080	0.0116	0.1914	0.0091	0.0239	0.0534	0.0208	6.8235	0.0141	0.0416	0.7679			
25	AL. INT. CO. :	0.0413	0.1368	0.0546	0.0054	0.0887	0.1620	0.0533	0.0642	0.3133	0.1028	0.0917	0.1079	0.4628	0.0525	0.0598	0.0031	0.2140	0.0797	0.0963	0.1822	0.0339	0.0441	0.1747	0.0903		
26	AL. INT. CO. :	0.1037	0.1899	0.0507	0.1343	0.1490	0.1764	0.0502	0.1084	0.4588	0.4441	0.3786	0.3279	0.5803	0.1215	0.1136	0.0085	0.9119	0.2014	0.1808	0.1516	0.0749	0.0796	0.1478	0.0671	0.2145	

where W_i denotes squared weight of security i and σ_i denotes variance of security i .

Weighted security variances are shown in Table 13, Appendix 1, page 53.

(7) Portfolio Variance:

Portfolio variance is calculated by summing up the weighted security variances plus the security covariances. Calculation of weighted security variances is shown in point No.6, on page No.38 and security covariances in point No.4, page No.36. The formula of portfolio variance is as follows:

$$\text{Portfolio Variance: } \sigma_p^2 = \sum_{i=1}^n W_i^2 \sigma_i^2 + \sum_{i=1}^n \sum_{j=1}^n 2(W_i W_j \sigma_i \sigma_j r_{ij}) \quad (3.8)$$

The first part of the above formula represents the weighted security variances and the second part represents covariance of each security with the others.

Portfolio variance is shown in Table 13, Appendix. 1, page 53.

(8) Portfolio Standard Deviation:

Portfolio standard deviation is simply the square root of portfolio variance. This is shown in Table 13, Appendix 1, page 53.

4.5 Portfolio Relative Return:

The relative return is calculated by deducting the risk free rate from the portfolio return then dividing the answer by its

standard deviation. The purpose of this exercise is to select a reasonable number of portfolios that can be depicted on a scattered diagram, so as to determine the efficient frontier, out of the relatively large number of portfolio combinations, ie. 2,268 ones. Having done that, a number of 30 portfolios which gave the highest return per one unit of risk have been selected. This is shown in Table 11, page 43. Table 13, Appendix 1, page 53, illustrates portfolio, returns, weighted security variances, covariances, variances, standard deviations, and portfolio relative returns for the 2,268 portfolio combinations of securities of the companies registered with BSE.

4.6 The Best Thirty Portfolio Combinations of Securities of the Companies Registered with BSE :

The best 30 portfolios are depicted in Table 11, page 43. It should be understood that those are the best portfolios under the aforesaid constraints and combination method. In other words, these are not the exclusively best portfolios in BSE. By altering our constraints, assumptions and combinations, we are going to get other set of best portfolios.

The optimal portfolio is HJUSX which consists of securities of Investcorp, Bahrain Insurance Company, Bahrain Flour Mills, General Trading and Food Processing Company and Bahrain Hotels Company. The portfolio return is 0.3781 to one unit of risk.

TABLE 11

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
1	HJUSX	0.1674	0.0649	0.0207	0.0088	0.0295	0.1717	0.3781
2	DMUQY	0.3046	0.2021	0.2385	0.0628	0.3013	0.5489	0.3682
3	DMUQX	0.3071	0.2046	0.2397	0.0751	0.3148	0.5610	0.3647
4	HJUNX	0.1617	0.0592	0.0201	0.0066	0.0267	0.1634	0.3624
5	HJURX	0.1718	0.0693	0.0202	0.0179	0.0381	0.1952	0.3551
6	HJUSY	0.1649	0.0624	0.0195	0.0128	0.0323	0.1799	0.3470
7	HLURX	0.1691	0.0666	0.0218	0.0153	0.0371	0.1927	0.3457
8	HLUSX	0.1646	0.0621	0.0223	0.0103	0.0326	0.1806	0.3438
9	HKUSX	0.1646	0.0621	0.0223	0.0116	0.0339	0.1841	0.3374
10	HJURY	0.1694	0.0669	0.0190	0.0212	0.0402	0.2005	0.3337
11	HJUNY	0.1592	0.0567	0.0189	0.0103	0.0292	0.1708	0.3321
12	DJURX	0.2285	0.1260	0.1271	0.0192	0.1463	0.3825	0.3295
13	HLUNX	0.1589	0.0564	0.0217	0.0079	0.0296	0.1720	0.3280
14	DLURX	0.2257	0.1232	0.1288	0.0130	0.1418	0.3766	0.3272
15	HKURX	0.1691	0.0666	0.0218	0.0199	0.0417	0.2042	0.3261
16	HJUOX	0.1639	0.0614	0.0207	0.0152	0.0359	0.1895	0.3241
17	HLURY	0.1666	0.0641	0.0207	0.0187	0.0394	0.1984	0.3231
18	DJURY	0.2261	0.1236	0.1260	0.0212	0.1472	0.3837	0.3222
19	HMUQY	0.2480	0.1455	0.1316	0.0747	0.2063	0.4542	0.3204
20	DLURY	0.2233	0.1208	0.1276	0.0151	0.1427	0.3778	0.3198
21	HKUNX	0.1589	0.0564	0.0217	0.0096	0.0313	0.1770	0.3187
22	DMURY	0.2323	0.1298	0.1302	0.0379	0.1681	0.4100	0.3166
23	HMUQX	0.2504	0.1479	0.1328	0.0857	0.2185	0.4674	0.3164
24	HLUSY	0.1621	0.0596	0.0211	0.0144	0.0355	0.1885	0.3162
25	HKUSY	0.1621	0.0596	0.0211	0.0149	0.0360	0.1898	0.3140
26	HJUOY	0.1614	0.0589	0.0195	0.0158	0.0353	0.1879	0.3135
27	DJUSX	0.2241	0.1216	0.1276	0.0237	0.1513	0.3889	0.3127
28	HLUOX	0.1611	0.0586	0.0223	0.0134	0.0357	0.1889	0.3103
29	DJUOX	0.2206	0.1181	0.1276	0.0188	0.1464	0.3826	0.3087
30	HKURY	0.1666	0.0641	0.0207	0.0225	0.0432	0.2078	0.3085

4.7 Capital Market Line :

The capital market line expresses the expected return on portfolio in terms of standard deviation of the portfolio. The capital market line formula is as follows:

$$\text{Capital Market Line: } E(R_p) = R_F + \sigma_p \left[\frac{R_{Pm}}{\sigma_m} \right] \quad (3.9)$$

where $E(R_p)$ denotes the expected return on the portfolio, R_F denotes risk free rate, σ_p denotes portfolio standard deviation, R_{Pm} denotes risk premium of the market, and σ_m denotes market standard deviation.

The above formula implies that in order to find out the capital market line we must first have the following information:

- (i) Risk free rate
- (ii) Portfolio standard deviation
- (iii) Market risk premium
- (iv) Market standard deviation

Since the risk free rate, as well as portfolio standard deviation are already calculated, we need only to calculate market standard deviation and market risk premium.

Weighted Average Market Return :

By the word market we mean BSE . The weighted average market return is calculated for the purpose of finding out the variance and the standard deviation of the market, subsequently. This exercise, ie. calculating the weighted average market return, is

shown in Table 12, page 46.

Weighted average market return is calculated as follows:

$$\text{Weighted Average Market Return: } \bar{R}_m = \frac{\sum_{i=1}^N (W_{it} R_{it})}{N} \quad (3.10)$$

where W_{it} denotes weights of shares of the companies registered with BSE at time t , R_{it} denotes return of securities of the companies registered with BSE at time t and N denotes number of time periods.

The weight is calculated by expressing equity of each individual company as a percentage of total equity of the 26 companies registered with BSE. R_{it} denotes return on security i at time t , and N denotes number of the years; 1986,87,88,89 and 1990. Thus, the weighted average market return, for every year, is calculated by multiplying weight of shares of each company in a given year by return of that company in the same year, then summing up the products of the 26 companies for each year to get the market return. The next step is to sum up the market returns of the five years and divide that by number of the years, i.e. five, to find out the average market return.

The Market Variance :

The equation for calculating the market variance is as follows :

$$\text{Market Variance : } \sigma_m^2 = \frac{\sum_{t=1}^N (R_{mt} - \bar{R}_m)^2}{N} \quad (3.11)$$

where R_{mt} denotes return on security i in time t , $\bar{R}_m$ refers to weighted average return of the market for the years 1986,87,88,89

TABLE 12
WEIGHTED AVERAGE RETURNS AND VARIANCES OF BAHRAIN STOCK EXCHANGE

NAME	RETURN X WEIGHT					WEIGHTED AVERAGE
	1986	1987	1988	1989	1990	
NATIONAL BANK OF BAHRAIN	-0.023	-0.020	0.057	0.012	0.028	0.011
BANK OF BAHRAIN & LEBANON	-0.065	-0.062	-0.001	0.023	0.027	-0.015
AL ACHI COMMERCIAL BANK	-0.003	-0.013	0.005	0.001	-0.003	-0.003
BAHRAIN SAUDI BANK	-0.002	0.001	0.042	0.002	0.005	0.010
BAHRAIN ISLAMIC BANK	0.002	0.001	0.002	0.000	0.002	0.001
BAHRAIN INTERNATIONAL BANK	0.056	-0.086	0.005	0.010	-0.008	-0.004
BANK OF BAHRAIN & MIDDLE EAST	0.009	-0.038	0.016	-0.005	0.000	-0.003
INVESTCORP	0.008	0.004	0.019	-0.005	0.039	0.013
UNITED GULF BANK	0.129	-0.004	0.000	0.000	-0.027	0.020
BAHRAIN INSURANCE COMPANY	0.006	0.000	0.001	0.006	-0.001	0.001
AL ACHI INSURANCE COMPANY	0.000	0.000	-0.001	0.002	0.000	0.000
BAHRAIN & LEBANON INSURANCE COMPANY	-0.001	0.000	0.000	0.003	0.001	0.001
ALFAR INTERNATIONAL INSURANCE COMPANY	0.003	0.003	0.000	0.000	0.000	0.001
BAHRAIN CINEMA COMPANY	0.027	-0.003	0.046	0.016	0.019	0.021
BAHRAIN CAR PAZI COMPANY	0.006	0.001	0.000	0.001	0.001	0.001
BAHRAIN SHIP REPAIRING & ENGINEERING COMPANY	0.006	0.000	0.001	0.000	0.001	0.000
BAHRAIN MATTINGS & MERCHANTILE COMPANY	0.001	0.002	0.001	0.020	0.001	0.005
GENERAL TRADING & FOOD PROCESSING COMPANY	0.002	0.001	0.000	0.003	0.003	0.002
DELMON POULTRY COMPANY	0.001	0.000	0.001	0.001	0.001	0.001
BAHRAIN FLOUR MILLS COMPANY	-0.001	0.008	0.001	-0.002	0.001	0.001
NATIONAL IMPORT & EXPORT COMPANY	0.001	0.000	0.000	0.001	0.001	0.000
NATIONAL HOTEL COMPANY	0.001	-0.001	0.001	0.000	0.000	0.000
BAHRAIN HOTEL COMPANY	-0.003	0.012	-0.002	0.004	0.026	0.007
BAHRAIN TOURISM COMPANY	0.002	0.010	0.002	0.001	0.002	0.003
BAHRAIN LIGHT INDUSTRIES COMPANY	0.006	0.004	-0.001	0.003	0.001	0.003
	-0.003	-0.001	-0.001	0.001	0.000	-0.001
MARKET RETURN	0.146	-0.178	0.196	0.097	0.120	0.076
MARKET VARIANCE	0.00489524	0.03169055	0.03842666	0.00941662	0.01451936	

and 1990. N refers to number of the years, ie. five years.

Variance of BSE is shown at the bottom of Table 12, page 46.

The Market Standard Deviation :

The market standard deviation is calculated by finding square root of sum of the variances divided by their number. The formula is as follows :

$$\text{Market Standard Deviation : } \sigma_m = \sqrt{\frac{\sigma_m^2}{n}} \quad (3.12)$$

where σ_m^2 denotes market variance.

Applying formula No.(3.12) the standard deviation of BSE is calculated as follows :

$$\begin{aligned} \sigma_m &= \sqrt{\frac{0.00489524 + 0.03169055 + 0.03824666 + 0.00941652 + 0.01451936}{5}} \\ &= 0.1406757 \end{aligned}$$

The Risk Premium of BSE :

This is the premium which is above the risk free rate, ie. the interest rate paid on securities of treasury of Bahrain Government. The prevailing rate is 10.429% p.a. (See page 5).

Risk premium of BSE is calculated as per the following formula :

$$\text{Risk Premium of BSE : } R_{Pm} = R_{mt} - R_{ft} \quad (3.13)$$

where R_{mt} denotes market return at time t and R_{ft} refers to risk free rate at time t.

Applying formula 3.13 and the market return of 1990, the risk premium is calculated as follows :

$$\text{Risk Premium of BSEM in 1990} = 12\% - 10.429 = \underline{1.571\%}$$

Capital Market Line:

Having calculated RF rate, standard deviation of the optimal portfolio, risk premium of the market and standard deviation of the market, it became possible now to calculate capital market line.

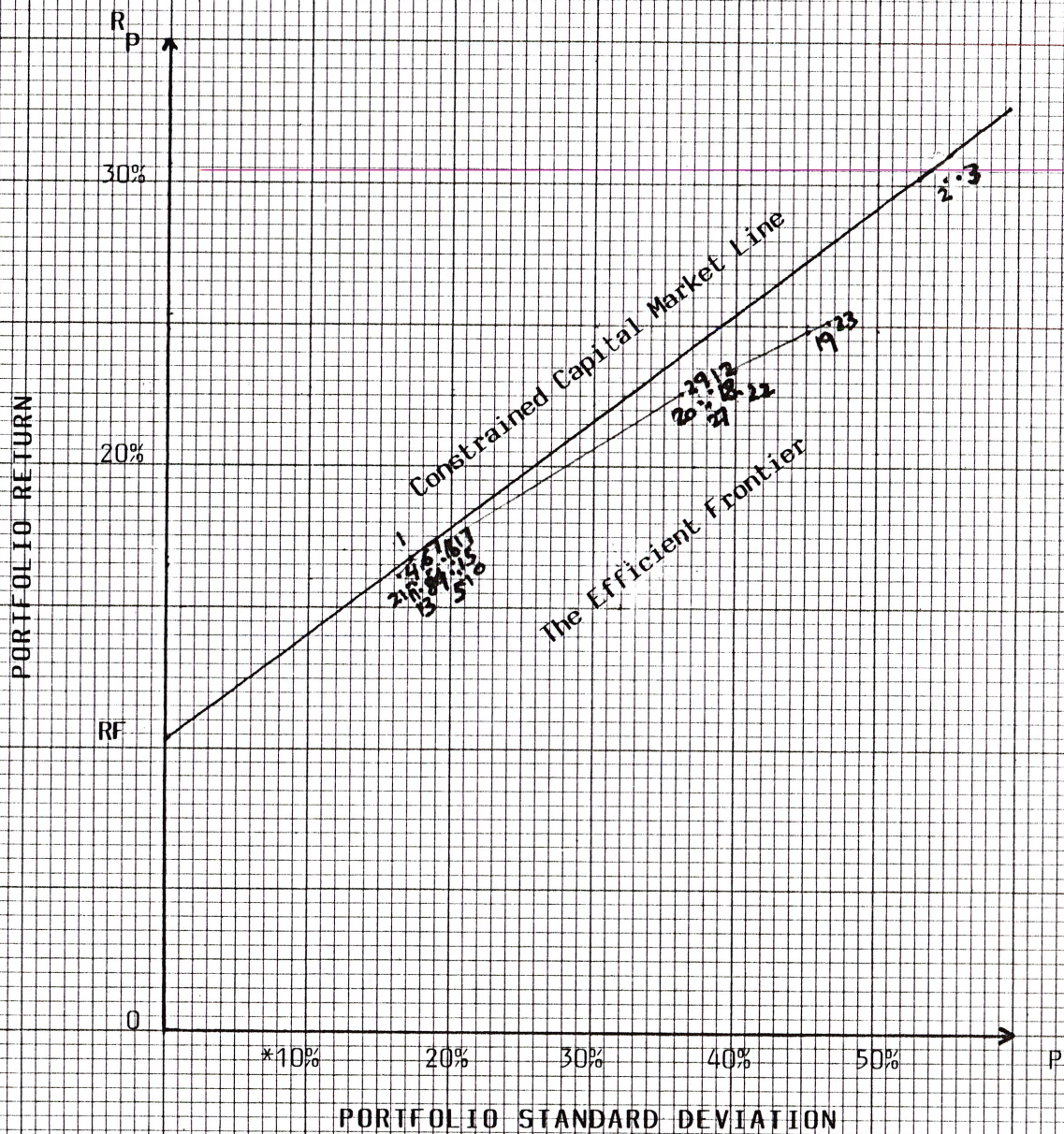
$$\begin{aligned} \text{Capital Market Line: } E(R) &= RF + \sigma_p \left[\frac{RP_m}{\sigma_m} \right] & (3.9) \\ &= 10.429 + 0.1346 \left[\frac{1.571}{0.1406757} \right] \\ &= \underline{11.932 \%} \end{aligned}$$

4.8. The Efficient Frontier for the Best 30 Portfolios of Securities of the Companies Registered with BSE :

This is shown in Figure (3.3), page 49. The 30 portfolios are denoted by numbers. Their combinations are shown in Table 11 , page 43. The table provides details about portfolio returns, weighted security variances, portfolio covariances, portfolio variances, portfolio standard deviation and portfolio return per one unit of standard deviation, ie. relative risk.

FIGURE 3.3.

THE EFFICIENT FRONTIER FOR THE BEST 30 PORTFOLIOS
OF SECURITIES OF THE COMPANIES REGISTERED WITH
BAHRAIN STOCK EXCHANGE



5. CONCLUSION & RECOMMENDATIONS

Appendix 1 is showing a lot of information about the 2,268 portfolio combinations of the 26 securities of the companies registered with BSE . These include portfolio combinations, portfolio return, return minus risk-free rate, weighted security variances, portfolio variances, portfolio covariances, portfolio standard deviation, and return per one unit of standard deviation (relative risk), for the 2,268 portfolios.

Some vital analysis of the portfolio combinations are below.

The Optimal Portfolio :

As have been mentioned before portfolio HJUSX is the optimal portfolio in BSE under the aforementioned constraints and assumptions. This portfolio gives the highest return for a given level of risk, ie. 37.81 units, being rate of return for one unit of risk. However, this portfolio does not give the exclusively higher return. The total return of the optimal portfolio is 16.74%. This return is higher than the expected return. Applying formula No. 3.9, page 44, the expected return is 12.35%. This implies that the actual portfolio return is 4.39% higher than its expected return.

The Highest Return :

The highest return in the 2,268 portfolios is that of portfolio No. 2032, ie. DJTQW. This portfolio is consisted of securities of Al-Ahli Commercial Bank, Bahrain Insurance Company,

Delmon Poultry Company, Bahrain Ship Repairing & Engineering Co. and National Hotels Company. The return of this portfolio is 32.04% and standard deviation is 121.3%, ie. return per one unit of risk is 0.1796 only. Compare this with 16.74%, 17.17% and 0.3781 respectively, return, standard deviation and relative return of the optimal portfolio. The expected return of portfolio DJTQW is 23.975%. Obviously, the actual return is higher than expected return by 8.065% in favour of the actual return.

The Loss-Making Portfolios :

In the 2,268 portfolio combinations there are 201, ie. 8.86% of total portfolios are portfolios with negative return. The worst is No.1253, ie. CKUVY, which has a negative return is of (3.63%).

The Most Risky Portfolio :

The most risky portfolio is FMTQW (No.1843), which has a standard deviation of 143.86% and a return of 13.68% return ie. 0.0238 for one unit of risk. Compare this with EJUPX (No.1296) which is the least risky portfolio which has a standard deviation of 11.53%, a return of 11.39% and a relative return of 0.099. The expected return of EJUPX is 11.7%. The above calculations are clearly showing that expected return of portfolio EJUPX is very close of its actual return.

The Ranges of Returns & Standard Deviations :

The range of returns is 35.67 points, ie. from positive

32.04% to negative 3.63%.

The range of standard deviations of the 2,268 portfolios is 132.33 points, ie. from 143.86% to 11.53%.

Below is a summary of the above observations :

PORT- FOLIO	ACTUAL RETURN	EXPECTED RETURN	RELATIVE RETURN	STANDARD DEVIATION	PORTFOLIO STATUS
HJUSX	16.74%	12.350%	0.3781	17.17%	The Optimal
DJTQW	32.04%	23.975%	0.1796	121.3%	Maximum Return
FMTQW	13.68%	26.495%	0.0238	143.86	Most Risky
EJUPX	11.39%	11.700%	0.0990	11.53	Least Risky

There is no doubt, that there is no rational investor, even if he was a risk taker, who is ready to buy the most risky portfolio, ie. FMTQW, which is yielding 13.68% only, when he is able to buy portfolio DJTQW, which yields higher return at less risk.

Which portfolio to chose is a matter of risk preference and other factors. Therefore, the most conservative investors will select portfolio EJUPX, while those who are ready to accept any level of risk for a higher return, will select portfolio DJTQW. However, investors who would like to subject the investment decision to the risk return trade-off, will select portfolio HJUSX, since it gives them the highest possible return for a given level of risk.

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

: A	B	C	D	D	E	F	G	H :
: SER.	PORTFOLIO	PORTFOLIO	RETURN	WEIGHTED	PORTFOLIO	PORTFOLIO	PORTFOLIO	RETURN /
: NO.		RETURN	MINUS	SEC. VAR.	COVARIANCES	VARIANCES	STD DEV.	STANDARD
:			RISK-FREE					DEVIATION :
: 1	IJTNW	0.1524	0.0499	0.1420	0.5787	0.7207	0.8489	0.0588 :
: 2	IJTNY	0.1339	0.0314	0.1158	0.0596	0.1754	0.4188	0.0750 :
: 3	IJTNX	0.1363	0.0338	0.1170	0.1083	0.2253	0.4747	0.0712 :
: 4	IJTVW	0.1384	0.0359	0.1424	0.5830	0.7254	0.8517	0.0422 :
: 5	IJTVY	0.1199	0.0174	0.1162	0.0616	0.1778	0.4216	0.0413 :
: 6	IJTVX	0.1223	0.0198	0.1174	0.1109	0.2283	0.4778	0.0415 :
: 7	IJTRW	0.1626	0.0601	0.1421	0.6049	0.7470	0.8643	0.0695 :
: 8	IJTRY	0.1441	0.0416	0.1159	0.0746	0.1905	0.4364	0.0953 :
: 9	IJTRX	0.1465	0.0440	0.1171	0.1237	0.2408	0.4907	0.0897 :
: 10	IJTOW	0.1546	0.0521	0.1426	0.6264	0.7690	0.8769	0.0594 :
: 11	IJTOY	0.1361	0.0336	0.1164	0.0844	0.2008	0.4481	0.0750 :
: 12	IJTOX	0.1386	0.0361	0.1176	0.1362	0.2538	0.5038	0.0717 :
: 13	IJTPW	0.1260	0.0235	0.1399	0.5687	0.7086	0.8418	0.0279 :
: 14	IJTPY	0.1075	0.0050	0.1138	0.0514	0.1652	0.4065	0.0123 :
: 15	IJTPX	0.1100	0.0075	0.1149	0.1006	0.2155	0.4642	0.0162 :
: 16	IJTQW	0.2349	0.1324	0.2504	1.1858	1.4362	1.1984	0.1105 :
: 17	IJTQY	0.2164	0.1139	0.2243	0.6214	0.8457	0.9196	0.1239 :
: 18	IJTQX	0.2188	0.1163	0.2254	0.6575	0.8829	0.9396	0.1238 :
: 19	IJTSW	0.1581	0.0556	0.1426	0.5899	0.7325	0.8559	0.0650 :
: 20	IJTSY	0.1396	0.0371	0.1164	0.0681	0.1845	0.4296	0.0864 :
: 21	IJTSX	0.1421	0.0396	0.1176	0.1165	0.2341	0.4838	0.0819 :
: 22	IJUNW	0.1489	0.0464	0.1357	0.0435	0.1792	0.4233	0.1096 :
: 23	IJUNY	0.1304	0.0279	0.1096	0.0270	0.1366	0.3696	0.0755 :
: 24	IJUNX	0.1328	0.0303	0.1107	0.0114	0.1221	0.3494	0.0867 :
: 25	IJUVW	0.1349	0.0324	0.1361	0.0441	0.1802	0.4244	0.0764 :
: 26	IJUVY	0.1164	0.0139	0.1100	0.0252	0.1352	0.3677	0.0378 :
: 27	IJUVX	0.1188	0.0163	0.1112	0.0102	0.1214	0.3484	0.0468 :
: 28	IJURW	0.1591	0.0566	0.1359	0.0647	0.2006	0.4478	0.1264 :
: 29	IJURY	0.1405	0.0380	0.1097	0.0369	0.1466	0.3829	0.0993 :
: 30	IJURX	0.1430	0.0405	0.1109	0.0217	0.1326	0.3641	0.1113 :
: 31	IJUOW	0.1511	0.0486	0.1364	0.0678	0.2042	0.4519	0.1076 :
: 32	IJUOY	0.1326	0.0301	0.1102	0.0283	0.1385	0.3722	0.0809 :
: 33	IJUOX	0.1350	0.0325	0.1114	0.0158	0.1272	0.3567	0.0912 :
: 34	IJUPW	0.1225	0.0200	0.1337	0.0344	0.1681	0.4100	0.0488 :
: 35	IJUPY	0.1040	0.0015	0.1075	0.0197	0.1272	0.3566	0.0042 :
: 36	IJUPX	0.1064	0.0039	0.1087	0.0045	0.1132	0.3364	0.0116 :
: 37	IJUQW	0.2314	0.1289	0.2442	0.5838	0.8280	0.9099	0.1417 :
: 38	IJUQY	0.2129	0.1104	0.2180	0.5220	0.7400	0.8602	0.1284 :
: 39	IJUQX	0.2153	0.1128	0.2192	0.4937	0.7129	0.8444	0.1336 :
: 40	IJUSW	0.1546	0.0521	0.1363	0.0539	0.1902	0.4362	0.1195 :
: 41	IJUSY	0.1361	0.0336	0.1101	0.0347	0.1448	0.3805	0.0883 :
: 42	IJUSX	0.1385	0.0360	0.1113	0.0187	0.1300	0.3605	0.0999 :
: 43	IJZNW	0.1456	0.0431	0.1399	0.2375	0.3774	0.6143	0.0702 :
: 44	IJZNY	0.1270	0.0245	0.1138	0.1930	0.3068	0.5539	0.0442 :
: 45	IJZNX	0.1295	0.0270	0.1149	0.1717	0.2866	0.5354	0.0504 :
: 46	IJZVW	0.1316	0.0291	0.1403	0.2365	0.3768	0.6138	0.0474 :
: 47	IJZVY	0.1130	0.0105	0.1142	0.1897	0.3039	0.5513	0.0191 :
: 48	IJZVX	0.1155	0.0130	0.1154	0.1690	0.2844	0.5333	0.0244 :

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

: A	B	C	D	D	E	F	G	H :
: SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION :
: 49	IJZRW	0.1557	0.0532	0.1401	0.2623	0.4024	0.6343	0.0839 :
: 50	IJZRY	0.1372	0.0347	0.1139	0.2066	0.3205	0.5661	0.0613 :
: 51	IJZRX	0.1397	0.0372	0.1151	0.1857	0.3008	0.5484	0.0678 :
: 52	IJZOW	0.1478	0.0453	0.1406	0.2620	0.4026	0.6345	0.0714 :
: 53	IJZOY	0.1292	0.0267	0.1144	0.1946	0.3090	0.5559	0.0480 :
: 54	IJZOX	0.1317	0.0292	0.1156	0.1764	0.2920	0.5404	0.0541 :
: 55	IJZPW	0.1192	0.0167	0.1379	0.2232	0.3611	0.6009	0.0278 :
: 56	IJZPY	0.1007	-0.0018	0.1117	0.1805	0.2922	0.5406	-0.0033 :
: 57	IJZPX	0.1031	0.0006	0.1129	0.1596	0.2725	0.5221	0.0012 :
: 58	IJZQW	0.2281	0.1256	0.2484	1.0472	1.2956	1.1382	0.1104 :
: 59	IJZQY	0.2095	0.1070	0.2222	0.9574	1.1796	1.0861	0.0985 :
: 60	IJZQX	0.2120	0.1095	0.2234	0.9235	1.1469	1.0709	0.1023 :
: 61	IJZSW	0.1513	0.0488	0.1405	0.2514	0.3919	0.6260	0.0780 :
: 62	IJZSY	0.1328	0.0303	0.1143	0.2042	0.3185	0.5644	0.0537 :
: 63	IJZSX	0.1352	0.0327	0.1155	0.1825	0.2980	0.5459	0.0599 :
: 64	IMTNW	0.1587	0.0562	0.1462	1.4196	1.5658	1.2513	0.0449 :
: 65	IMTNY	0.1402	0.0377	0.1200	0.6062	0.7262	0.8522	0.0443 :
: 66	IMTNX	0.1426	0.0401	0.1212	0.6823	0.8035	0.8964	0.0447 :
: 67	IMTVW	0.1447	0.0422	0.1466	1.4256	1.5722	1.2539	0.0337 :
: 68	IMTVY	0.1262	0.0237	0.1204	0.6099	0.7303	0.8545	0.0277 :
: 69	IMTVX	0.1286	0.0261	0.1216	0.6865	0.8081	0.8989	0.0290 :
: 70	IMTRW	0.1689	0.0664	0.1463	1.4379	1.5842	1.2586	0.0528 :
: 71	IMTRY	0.1503	0.0478	0.1202	0.6133	0.7335	0.8564	0.0558 :
: 72	IMTRX	0.1528	0.0503	0.1213	0.6897	0.8110	0.9006	0.0559 :
: 73	IMTOW	0.1609	0.0584	0.1468	1.4694	1.6162	1.2713	0.0459 :
: 74	IMTOY	0.1424	0.0399	0.1207	0.6330	0.7537	0.8682	0.0460 :
: 75	IMTOX	0.1448	0.0423	0.1218	0.7121	0.8339	0.9132	0.0463 :
: 76	IMTPW	0.1323	0.0298	0.1441	1.4043	1.5484	1.2443	0.0240 :
: 77	IMTPY	0.1138	0.0113	0.1180	0.5927	0.7107	0.8430	0.0134 :
: 78	IMTPX	0.1162	0.0137	0.1192	0.6692	0.7884	0.8879	0.0154 :
: 79	IMTQW	0.2412	0.1387	0.2546	1.5506	1.8052	1.3436	0.1032 :
: 80	IMTQY	0.2226	0.1201	0.2285	0.6919	0.9204	0.9594	0.1252 :
: 81	IMTQX	0.2251	0.1226	0.2297	0.7554	0.9851	0.9925	0.1235 :
: 82	IMTSW	0.1644	0.0619	0.1468	1.4375	1.5843	1.2587	0.0492 :
: 83	IMTSY	0.1459	0.0434	0.1206	0.6214	0.7420	0.8614	0.0504 :
: 84	IMTSX	0.1483	0.0458	0.1218	0.6971	0.8189	0.9049	0.0506 :
: 85	IMUNW	0.1551	0.0526	0.1399	0.5617	0.7016	0.8376	0.0628 :
: 86	IMUNY	0.1366	0.0341	0.1138	0.2508	0.3646	0.6038	0.0565 :
: 87	IMUNX	0.1391	0.0366	0.1150	0.2625	0.3775	0.6144	0.0596 :
: 88	IMUVW	0.1411	0.0386	0.1404	0.5639	0.7043	0.8392	0.0460 :
: 89	IMUVY	0.1226	0.0201	0.1142	0.2506	0.3648	0.6040	0.0333 :
: 90	IMUVX	0.1251	0.0226	0.1154	0.2629	0.3783	0.6151	0.0368 :
: 91	IMURW	0.1653	0.0628	0.1401	0.5749	0.7150	0.8456	0.0743 :
: 92	IMURY	0.1468	0.0443	0.1139	0.2528	0.3667	0.6056	0.0732 :
: 93	IMURX	0.1493	0.0468	0.1151	0.2649	0.3800	0.6164	0.0759 :
: 94	IMUOW	0.1574	0.0549	0.1406	0.5880	0.7286	0.8536	0.0643 :
: 95	IMUOY	0.1388	0.0363	0.1144	0.2542	0.3686	0.6071	0.0598 :
: 96	IMUOX	0.1413	0.0388	0.1156	0.2689	0.3845	0.6201	0.0626 :

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
97	IMUPW	0.1288	0.0263	0.1379	0.5472	0.6851	0.8277	0.0318
98	IMUPY	0.1103	0.0078	0.1117	0.2381	0.3498	0.5915	0.0132
99	IMUPX	0.1127	0.0102	0.1129	0.2503	0.3632	0.6026	0.0169
100	IMUQW	0.2376	0.1351	0.2484	0.6258	0.8742	0.9350	0.1445
101	IMUQY	0.2191	0.1166	0.2222	0.2697	0.4919	0.7013	0.1663
102	IMUQX	0.2216	0.1191	0.2234	0.2688	0.4922	0.7015	0.1698
103	IMUSW	0.1609	0.0584	0.1405	0.5787	0.7192	0.8481	0.0689
104	IMUSY	0.1423	0.0398	0.1144	0.2651	0.3795	0.6161	0.0646
105	IMUSX	0.1448	0.0423	0.1155	0.2764	0.3919	0.6261	0.0676
106	IMZNW	0.1518	0.0493	0.1441	0.8213	0.9654	0.9826	0.0502
107	IMZNY	0.1333	0.0308	0.1180	0.4826	0.6006	0.7750	0.0398
108	IMZNX	0.1358	0.0333	0.1192	0.4886	0.6078	0.7796	0.0427
109	IMZVW	0.1378	0.0353	0.1446	0.8220	0.9666	0.9832	0.0359
110	IMZVY	0.1193	0.0168	0.1184	0.4809	0.5993	0.7741	0.0217
111	IMZVX	0.1218	0.0193	0.1196	0.4875	0.6071	0.7792	0.0248
112	IMZRW	0.1620	0.0595	0.1443	0.8382	0.9825	0.9912	0.0600
113	IMZRY	0.1435	0.0410	0.1181	0.4882	0.6063	0.7787	0.0527
114	IMZRX	0.1459	0.0434	0.1193	0.4946	0.6139	0.7835	0.0554
115	IMZOW	0.1540	0.0515	0.1448	0.8479	0.9927	0.9963	0.0517
116	IMZOY	0.1355	0.0330	0.1186	0.4862	0.6048	0.7777	0.0424
117	IMZOX	0.1380	0.0355	0.1198	0.4952	0.6150	0.7842	0.0453
118	IMZPW	0.1254	0.0229	0.1421	0.8017	0.9438	0.9715	0.0236
119	IMZPY	0.1069	0.0044	0.1159	0.4647	0.5806	0.7620	0.0058
120	IMZPX	0.1094	0.0069	0.1171	0.4711	0.5882	0.7670	0.0090
121	IMZQW	0.2343	0.1318	0.2526	1.1549	1.4075	1.1864	0.1111
122	IMZQY	0.2158	0.1133	0.2264	0.7708	0.9972	0.9986	0.1135
123	IMZQX	0.2183	0.1158	0.2276	0.7642	0.9918	0.9959	0.1163
124	IMZSW	0.1575	0.0550	0.1447	0.8419	0.9866	0.9933	0.0554
125	IMZSY	0.1390	0.0365	0.1186	0.5004	0.6190	0.7868	0.0464
126	IMZSX	0.1415	0.0390	0.1197	0.5060	0.6257	0.7910	0.0493
127	ILTNW	0.1494	0.0469	0.1418	0.5877	0.7295	0.8541	0.0549
128	ILTNY	0.1311	0.0286	0.1174	0.0706	0.1880	0.4336	0.0660
129	ILTNX	0.1336	0.0311	0.1186	0.1193	0.2379	0.4877	0.0638
130	ILTVW	0.1356	0.0331	0.1440	0.5921	0.7361	0.8580	0.0386
131	ILTVY	0.1171	0.0146	0.1178	0.0726	0.1904	0.4364	0.0335
132	ILTVX	0.1196	0.0171	0.1190	0.1219	0.2409	0.4908	0.0349
133	ILTRW	0.1598	0.0573	0.1437	0.6101	0.7538	0.8682	0.0660
134	ILTRY	0.1413	0.0388	0.1176	0.0817	0.1993	0.4464	0.0869
135	ILTRX	0.1438	0.0413	0.1187	0.1308	0.2495	0.4995	0.0827
136	ILTOW	0.1518	0.0493	0.1442	0.6324	0.7766	0.8812	0.0560
137	ILTOY	0.1333	0.0308	0.1180	0.0923	0.2103	0.4585	0.0672
138	ILTOX	0.1358	0.0333	0.1192	0.1440	0.2632	0.5130	0.0649
139	ILTPW	0.1233	0.0208	0.1415	0.5778	0.7193	0.8481	0.0245
140	ILTPY	0.1047	0.0022	0.1154	0.0625	0.1779	0.4217	0.0052
141	ILTPX	0.1072	0.0047	0.1166	0.1116	0.2282	0.4777	0.0099
142	ILTQW	0.2321	0.1296	0.2520	0.9836	1.2356	1.1116	0.1166
143	ILTQY	0.2136	0.1111	0.2259	0.4211	0.6470	0.8044	0.1381
144	ILTQX	0.2161	0.1136	0.2271	0.4572	0.6843	0.8272	0.1373

APPENDIX NO. I

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
145	ILTSW	0.1554	0.0529	0.1442	0.5993	0.7435	0.8622	0.0614
146	ILTSY	0.1368	0.0343	0.1180	0.0794	0.1974	0.4443	0.0772
147	ILTSX	0.1393	0.0368	0.1192	0.1277	0.2469	0.4969	0.0741
148	ILUNW	0.1461	0.0436	0.1373	0.0590	0.1963	0.4430	0.0984
149	ILUNY	0.1276	0.0251	0.1112	0.0443	0.1555	0.3944	0.0637
150	ILUNX	0.1300	0.0275	0.1123	0.0287	0.1410	0.3755	0.0733
151	ILUVW	0.1321	0.0296	0.1378	0.0595	0.1973	0.4442	0.0667
152	ILUVY	0.1136	0.0111	0.1116	0.0426	0.1542	0.3926	0.0283
153	ILUVX	0.1160	0.0135	0.1128	0.0275	0.1403	0.3746	0.0361
154	ILURW	0.1563	0.0538	0.1375	0.0762	0.2137	0.4623	0.1164
155	ILURY	0.1378	0.0353	0.1113	0.0504	0.1617	0.4021	0.0878
156	ILURX	0.1402	0.0377	0.1125	0.0351	0.1476	0.3842	0.0982
157	ILUOW	0.1483	0.0458	0.1380	0.0802	0.2182	0.4671	0.0981
158	ILUOY	0.1298	0.0273	0.1118	0.0426	0.1544	0.3929	0.0695
159	ILUOX	0.1323	0.0298	0.1130	0.0300	0.1430	0.3781	0.0788
160	ILUPW	0.1197	0.0172	0.1353	0.0499	0.1852	0.4303	0.0400
161	ILUPY	0.1012	-0.0013	0.1091	0.0370	0.1461	0.3823	-0.0034
162	ILUPX	0.1037	0.0012	0.1103	0.0218	0.1321	0.3635	0.0033
163	ILUQW	0.2286	0.1261	0.2458	0.3880	0.6338	0.7961	0.1584
164	ILUQY	0.2101	0.1076	0.2196	0.3280	0.5476	0.7400	0.1454
165	ILUQX	0.2125	0.1100	0.2208	0.2998	0.5206	0.7215	0.1525
166	ILUSW	0.1518	0.0493	0.1379	0.0696	0.2075	0.4556	0.1082
167	ILUSY	0.1333	0.0308	0.1118	0.0523	0.1641	0.4051	0.0761
168	ILUSX	0.1358	0.0333	0.1129	0.0362	0.1491	0.3862	0.0863
169	ILZNW	0.1428	0.0403	0.1415	0.2343	0.3758	0.6131	0.0658
170	ILZNY	0.1243	0.0218	0.1154	0.1918	0.3072	0.5543	0.0393
171	ILZNX	0.1267	0.0242	0.1165	0.1705	0.2870	0.5357	0.0452
172	ILZVW	0.1288	0.0263	0.1420	0.2334	0.3754	0.6127	0.0429
173	ILZVY	0.1103	0.0078	0.1158	0.1885	0.3043	0.5516	0.0142
174	ILZVX	0.1127	0.0102	0.1170	0.1678	0.2848	0.5336	0.0191
175	ILZRW	0.1530	0.0505	0.1417	0.2553	0.3970	0.6301	0.0802
176	ILZRY	0.1344	0.0319	0.1155	0.2015	0.3170	0.5630	0.0567
177	ILZRX	0.1369	0.0344	0.1167	0.1805	0.2972	0.5452	0.0631
178	ILZOW	0.1450	0.0425	0.1422	0.2558	0.3980	0.6309	0.0674
179	ILZOY	0.1265	0.0240	0.1160	0.1903	0.3063	0.5534	0.0434
180	ILZOX	0.1289	0.0264	0.1172	0.1720	0.2892	0.5378	0.0491
181	ILZPW	0.1164	0.0139	0.1395	0.2200	0.3595	0.5996	0.0232
182	ILZPY	0.0979	-0.0046	0.1133	0.1793	0.2926	0.5409	-0.0085
183	ILZPX	0.1003	-0.0022	0.1145	0.1584	0.2729	0.5224	-0.0042
184	ILZQW	0.2253	0.1228	0.2500	0.8328	1.0828	1.0406	0.1180
185	ILZQY	0.2068	0.1043	0.2238	0.7449	0.9687	0.9842	0.1060
186	ILZQX	0.2092	0.1067	0.2250	0.7110	0.9360	0.9675	0.1103
187	ILZSW	0.1485	0.0460	0.1421	0.2485	0.3906	0.6250	0.0736
188	ILZSY	0.1300	0.0275	0.1160	0.2033	0.3193	0.5650	0.0487
189	ILZSX	0.1324	0.0299	0.1171	0.1816	0.2987	0.5465	0.0547
190	IKTNW	0.1496	0.0471	0.1436	0.5969	0.7405	0.8605	0.0547
191	IKTNY	0.1311	0.0286	0.1174	0.0709	0.1883	0.4340	0.0659
192	IKTNX	0.1336	0.0311	0.1186	0.1204	0.2390	0.4889	0.0636

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

: A	B	C	D	D	E	F	G	H :
: SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION :
: 193	IKTVW	0.1356	0.0331	0.1440	0.6007	0.7447	0.8630	0.0384 :
: 194	IKTVY	0.1171	0.0146	0.1178	0.0724	0.1902	0.4361	0.0335 :
: 195	IKTVX	0.1196	0.0171	0.1190	0.1224	0.2414	0.4913	0.0348 :
: 196	IKTRW	0.1598	0.0573	0.1437	0.6221	0.7658	0.8751	0.0655 :
: 197	IKTRY	0.1413	0.0388	0.1176	0.0849	0.2025	0.4500	0.0862 :
: 198	IKTRX	0.1438	0.0413	0.1187	0.1347	0.2534	0.5034	0.0821 :
: 199	IKTOW	0.1518	0.0493	0.1442	0.6439	0.7881	0.8878	0.0555 :
: 200	IKTOY	0.1333	0.0308	0.1180	0.0950	0.2130	0.4615	0.0668 :
: 201	IKTOX	0.1358	0.0333	0.1192	0.1475	0.2667	0.5164	0.0645 :
: 202	IKTPW	0.1233	0.0208	0.1415	0.5859	0.7274	0.8528	0.0244 :
: 203	IKTPY	0.1047	0.0022	0.1154	0.0617	0.1771	0.4208	0.0053 :
: 204	IKTPX	0.1072	0.0047	0.1166	0.1116	0.2282	0.4777	0.0099 :
: 205	IKTQW	0.2321	0.1296	0.2520	1.2050	1.4570	1.2071	0.1074 :
: 206	IKTQY	0.2136	0.1111	0.2259	0.6337	0.8596	0.9272	0.1198 :
: 207	IKTQX	0.2161	0.1136	0.2271	0.6706	0.8977	0.9474	0.1199 :
: 208	IKTSW	0.1554	0.0529	0.1442	0.6079	0.7521	0.8673	0.0610 :
: 209	IKTSY	0.1368	0.0343	0.1180	0.0793	0.1973	0.4441	0.0773 :
: 210	IKTSX	0.1393	0.0368	0.1192	0.1283	0.2475	0.4975	0.0740 :
: 211	IKUNW	0.1461	0.0436	0.1373	0.0540	0.1913	0.4373	0.0997 :
: 212	IKUNY	0.1276	0.0251	0.1112	0.0305	0.1417	0.3765	0.0667 :
: 213	IKUNX	0.1300	0.0275	0.1123	0.0157	0.1280	0.3577	0.0769 :
: 214	IKUVW	0.1321	0.0296	0.1378	0.0540	0.1918	0.4379	0.0676 :
: 215	IKUVY	0.1136	0.0111	0.1116	0.0282	0.1398	0.3739	0.0297 :
: 216	IKUVX	0.1160	0.0135	0.1128	0.0139	0.1267	0.3559	0.0380 :
: 217	IKURW	0.1563	0.0538	0.1375	0.0741	0.2116	0.4600	0.1170 :
: 218	IKURY	0.1378	0.0353	0.1113	0.0394	0.1507	0.3882	0.0910 :
: 219	IKURX	0.1402	0.0377	0.1125	0.0249	0.1374	0.3707	0.1017 :
: 220	IKUOW	0.1483	0.0458	0.1380	0.0775	0.2155	0.4643	0.0987 :
: 221	IKUOY	0.1298	0.0273	0.1118	0.0311	0.1429	0.3781	0.0722 :
: 222	IKUOX	0.1323	0.0298	0.1130	0.0193	0.1323	0.3638	0.0819 :
: 223	IKUPW	0.1197	0.0172	0.1353	0.0438	0.1791	0.4232	0.0407 :
: 224	IKUPY	0.1012	-0.0013	0.1091	0.0221	0.1312	0.3623	-0.0036 :
: 225	IKUPX	0.1037	0.0012	0.1103	0.0077	0.1180	0.3435	0.0035 :
: 226	IKUQW	0.2286	0.1261	0.2458	0.5952	0.8410	0.9171	0.1375 :
: 227	IKUQY	0.2101	0.1076	0.2196	0.5265	0.7461	0.8637	0.1246 :
: 228	IKUQX	0.2125	0.1100	0.2208	0.4990	0.7198	0.8484	0.1297 :
: 229	IKUSW	0.1518	0.0493	0.1379	0.0641	0.2020	0.4495	0.1097 :
: 230	IKUSY	0.1333	0.0308	0.1118	0.0380	0.1498	0.3870	0.0796 :
: 231	IKUSX	0.1358	0.0333	0.1129	0.0227	0.1356	0.3683	0.0905 :
: 232	IKZNW	0.1428	0.0403	0.1415	0.2512	0.3927	0.6266	0.0643 :
: 233	IKZNY	0.1243	0.0218	0.1154	0.1998	0.3152	0.5614	0.0388 :
: 234	IKZNX	0.1267	0.0242	0.1165	0.1793	0.2958	0.5438	0.0445 :
: 235	IKZVW	0.1288	0.0263	0.1420	0.2497	0.3917	0.6258	0.0420 :
: 236	IKZVY	0.1103	0.0078	0.1158	0.1959	0.3117	0.5583	0.0140 :
: 237	IKZVX	0.1127	0.0102	0.1170	0.1760	0.2930	0.5413	0.0189 :
: 238	IKZRW	0.1530	0.0505	0.1417	0.2749	0.4166	0.6455	0.0783 :
: 239	IKZRY	0.1344	0.0319	0.1155	0.2123	0.3278	0.5726	0.0557 :
: 240	IKZRX	0.1369	0.0344	0.1167	0.1921	0.3088	0.5557	0.0619 :

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
241	IKZOW	0.1450	0.0425	0.1422	0.2750	0.4172	0.6459	0.0658
242	IKZOY	0.1265	0.0240	0.1160	0.2007	0.3167	0.5627	0.0427
243	IKZOX	0.1289	0.0264	0.1172	0.1832	0.3004	0.5481	0.0482
244	IKZPW	0.1164	0.0139	0.1395	0.2358	0.3753	0.6126	0.0227
245	IKZPY	0.0979	-0.0046	0.1133	0.1862	0.2995	0.5473	-0.0084
246	IKZPX	0.1003	-0.0022	0.1145	0.1661	0.2806	0.5297	-0.0041
247	IKZQW	0.2253	0.1228	0.2500	1.0618	1.3118	1.1453	0.1072
248	IKZQY	0.2068	0.1043	0.2238	0.9652	1.1890	1.0904	0.0957
249	IKZQX	0.2092	0.1067	0.2250	0.9320	1.1570	1.0756	0.0992
250	IKZSW	0.1485	0.0460	0.1421	0.2649	0.4070	0.6380	0.0721
251	IKZSY	0.1300	0.0275	0.1160	0.2108	0.3268	0.5717	0.0481
252	IKZSX	0.1324	0.0299	0.1171	0.1898	0.3069	0.5540	0.0540
253	HJTNW	0.1812	0.0787	0.0513	0.5779	0.6292	0.7932	0.0992
254	HJTNY	0.1627	0.0602	0.0252	0.0422	0.0674	0.2596	0.2319
255	HJTNX	0.1652	0.0627	0.0263	0.1029	0.1292	0.3594	0.1745
256	HJTVW	0.1672	0.0647	0.0517	0.5827	0.6344	0.7965	0.0812
257	HJTVY	0.1487	0.0462	0.0256	0.0446	0.0702	0.2650	0.1744
258	HJTVX	0.1512	0.0487	0.0268	0.1059	0.1327	0.3642	0.1337
259	HJTRW	0.1914	0.0889	0.0515	0.6052	0.6567	0.8103	0.1097
260	HJTRY	0.1729	0.0704	0.0253	0.0582	0.0835	0.2890	0.2436
261	HJTRX	0.1754	0.0729	0.0265	0.1192	0.1457	0.3818	0.1910
262	HJTOW	0.1835	0.0810	0.0520	0.6299	0.6819	0.8257	0.0981
263	HJTOY	0.1649	0.0624	0.0258	0.0712	0.0970	0.3114	0.2004
264	HJTOX	0.1674	0.0649	0.0270	0.1349	0.1619	0.4024	0.1613
265	HJTPW	0.1549	0.0524	0.0493	0.5718	0.6211	0.7881	0.0665
266	HJTPY	0.1364	0.0339	0.0231	0.0379	0.0610	0.2470	0.1373
267	HJTPX	0.1388	0.0363	0.0243	0.0990	0.1233	0.3511	0.1034
268	HJTQW	0.2637	0.1612	0.1598	1.1895	1.3493	1.1616	0.1388
269	HJTQY	0.2452	0.1427	0.1336	0.6084	0.7420	0.8614	0.1657
270	HJTQX	0.2477	0.1452	0.1348	0.6565	0.7913	0.8895	0.1632
271	HJTSW	0.1870	0.0845	0.0519	0.5841	0.6360	0.7975	0.1060
272	HJTSY	0.1684	0.0659	0.0257	0.0456	0.0713	0.2671	0.2467
273	HJTSX	0.1709	0.0684	0.0269	0.1059	0.1328	0.3644	0.1877
274	HJUNW	0.1777	0.0752	0.0451	0.0435	0.0886	0.2976	0.2527
275	HJUNY	0.1592	0.0567	0.0189	0.0103	0.0292	0.1708	0.3321
276	HJUNX	0.1617	0.0592	0.0201	0.0066	0.0267	0.1634	0.3624
277	HJUVW	0.1637	0.0612	0.0455	0.0445	0.0900	0.2999	0.2041
278	HJUVY	0.1452	0.0427	0.0193	0.0089	0.0282	0.1680	0.2543
279	HJUVX	0.1476	0.0451	0.0205	0.0058	0.0263	0.1622	0.2781
280	HJURW	0.1879	0.0854	0.0452	0.0656	0.1108	0.3329	0.2565
281	HJURY	0.1694	0.0669	0.0190	0.0212	0.0402	0.2005	0.3337
282	HJURX	0.1718	0.0693	0.0202	0.0179	0.0381	0.1952	0.3551
283	HJUOW	0.1799	0.0774	0.0457	0.0720	0.1177	0.3430	0.2257
284	HJUOY	0.1614	0.0589	0.0195	0.0158	0.0353	0.1879	0.3135
285	HJUOX	0.1639	0.0614	0.0207	0.0152	0.0359	0.1895	0.3241
286	HJUPW	0.1513	0.0488	0.0430	0.0382	0.0812	0.2850	0.1713
287	HJUPY	0.1328	0.0303	0.0169	0.0068	0.0237	0.1540	0.1968
288	HJUPX	0.1353	0.0328	0.0180	0.0036	0.0216	0.1468	0.2234

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
289	HJUQW	0.2602	0.1577	0.1535	0.5881	0.7416	0.8612	0.1831
290	HJUQY	0.2417	0.1392	0.1274	0.5097	0.6371	0.7982	0.1744
291	HJUQX	0.2441	0.1416	0.1285	0.4934	0.6219	0.7886	0.1796
292	HJUSW	0.1834	0.0809	0.0457	0.0488	0.0945	0.3074	0.2632
293	HJUSY	0.1649	0.0624	0.0195	0.0128	0.0323	0.1799	0.3470
294	HJUSX	0.1674	0.0649	0.0207	0.0088	0.0295	0.1717	0.3781
295	HJZNW	0.1744	0.0719	0.0493	0.1591	0.2084	0.4566	0.1575
296	HJZNY	0.1559	0.0534	0.0231	0.0980	0.1211	0.3481	0.1535
297	HJZNX	0.1583	0.0558	0.0243	0.0887	0.1130	0.3361	0.1660
298	HJZVW	0.1604	0.0579	0.0497	0.1586	0.2083	0.4564	0.1269
299	HJZVY	0.1419	0.0394	0.0235	0.0952	0.1187	0.3445	0.1144
300	HJZVX	0.1443	0.0418	0.0247	0.0864	0.1111	0.3333	0.1255
301	HJZRW	0.1846	0.0821	0.0494	0.1850	0.2344	0.4841	0.1696
302	HJZRY	0.1661	0.0636	0.0232	0.1126	0.1358	0.3686	0.1726
303	HJZRX	0.1685	0.0660	0.0244	0.1036	0.1280	0.3578	0.1845
304	HJZOW	0.1766	0.0741	0.0499	0.1879	0.2378	0.4877	0.1520
305	HJZOY	0.1581	0.0556	0.0237	0.1038	0.1275	0.3571	0.1557
306	HJZOX	0.1605	0.0580	0.0249	0.0975	0.1224	0.3499	0.1658
307	HJZPW	0.1480	0.0455	0.0472	0.1487	0.1959	0.4426	0.1028
308	HJZPY	0.1295	0.0270	0.0211	0.0894	0.1105	0.3324	0.0812
309	HJZPX	0.1320	0.0295	0.0222	0.0805	0.1027	0.3204	0.0921
310	HJZQW	0.2569	0.1544	0.1577	0.9733	1.1310	1.0635	0.1452
311	HJZQY	0.2384	0.1359	0.1316	0.8668	0.9984	0.9992	0.1360
312	HJZQX	0.2408	0.1383	0.1327	0.8448	0.9775	0.9887	0.1399
313	HJZSW	0.1801	0.0776	0.0499	0.1680	0.2179	0.4668	0.1663
314	HJZSY	0.1616	0.0591	0.0237	0.1042	0.1279	0.3576	0.1653
315	HJZSX	0.1640	0.0615	0.0249	0.0944	0.1193	0.3454	0.1781
316	HMTNW	0.1875	0.0850	0.0555	1.2362	1.2917	1.1365	0.0748
317	HMTNY	0.1690	0.0665	0.0294	0.4061	0.4355	0.6599	0.1008
318	HMTNX	0.1714	0.0689	0.0306	0.4941	0.5247	0.7244	0.0951
319	HMTVW	0.1735	0.0710	0.0560	1.2426	1.2986	1.1396	0.0623
320	HMTVY	0.1550	0.0525	0.0298	0.4102	0.4400	0.6633	0.0792
321	HMTVX	0.1574	0.0549	0.0310	0.4988	0.5298	0.7278	0.0754
322	HMTRW	0.1977	0.0952	0.0557	1.2555	1.3112	1.1451	0.0831
323	HMTRY	0.1792	0.0767	0.0295	0.4142	0.4437	0.6661	0.1152
324	HMTRX	0.1816	0.0791	0.0307	0.5026	0.5333	0.7302	0.1083
325	HMTOW	0.1897	0.0872	0.0562	1.2901	1.3463	1.1603	0.0752
326	HMTOY	0.1712	0.0687	0.0300	0.4371	0.4671	0.6835	0.1005
327	HMTOX	0.1737	0.0712	0.0312	0.5281	0.5593	0.7479	0.0952
328	HMTPW	0.1611	0.0586	0.0535	1.2247	1.2782	1.1306	0.0518
329	HMTPY	0.1426	0.0401	0.0273	0.3965	0.4238	0.6510	0.0616
330	HMTPX	0.1451	0.0426	0.0285	0.4849	0.5134	0.7165	0.0595
331	HMTQW	0.2700	0.1675	0.1640	1.3716	1.5356	1.2392	0.1352
332	HMTQY	0.2515	0.1490	0.1378	0.4963	0.6341	0.7963	0.1871
333	HMTQX	0.2539	0.1514	0.1390	0.5716	0.7106	0.8430	0.1796
334	HMTSW	0.1932	0.0907	0.0561	1.2490	1.3051	1.1424	0.0794
335	HMTSY	0.1747	0.0722	0.0300	0.4162	0.4462	0.6680	0.1081
336	HMTSX	0.1772	0.0747	0.0311	0.5038	0.5349	0.7314	0.1022

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
337	HMUNW	0.1840	0.0815	0.0493	0.3789	0.4282	0.6544	0.1246
338	HMUNY	0.1655	0.0630	0.0231	0.0514	0.0745	0.2729	0.2309
339	HMUNX	0.1679	0.0654	0.0243	0.0750	0.0993	0.3151	0.2076
340	HMUVW	0.1700	0.0675	0.0497	0.3816	0.4313	0.6567	0.1028
341	HMUVY	0.1515	0.0490	0.0235	0.0517	0.0752	0.2742	0.1787
342	HMUVX	0.1539	0.0514	0.0247	0.0759	0.1006	0.3172	0.1621
343	HMURW	0.1942	0.0917	0.0494	0.3932	0.4426	0.6652	0.1379
344	HMURY	0.1756	0.0731	0.0233	0.0544	0.0777	0.2787	0.2623
345	HMURX	0.1781	0.0756	0.0244	0.0784	0.1028	0.3206	0.2358
346	HMUOW	0.1862	0.0837	0.0499	0.4094	0.4593	0.6777	0.1235
347	HMUOY	0.1677	0.0652	0.0238	0.0589	0.0827	0.2876	0.2267
348	HMUOX	0.1701	0.0676	0.0249	0.0856	0.1105	0.3324	0.2034
349	HMUPW	0.1576	0.0551	0.0472	0.3683	0.4155	0.6446	0.0855
350	HMUPY	0.1391	0.0366	0.0211	0.0426	0.0637	0.2524	0.1451
351	HMUPX	0.1415	0.0390	0.0223	0.0666	0.0889	0.2982	0.1308
352	HMUQW	0.2665	0.1640	0.1577	0.4475	0.6052	0.7779	0.2108
353	HMUQY	0.2480	0.1455	0.1316	0.0747	0.2063	0.4542	0.3204
354	HMUQX	0.2504	0.1479	0.1328	0.0857	0.2185	0.4674	0.3164
355	HMUSW	0.1897	0.0872	0.0499	0.3909	0.4408	0.6639	0.1314
356	HMUSY	0.1712	0.0687	0.0237	0.0606	0.0843	0.2903	0.2366
357	HMUSX	0.1736	0.0711	0.0249	0.0838	0.1087	0.3298	0.2156
358	HMZNW	0.1807	0.0782	0.0535	0.5603	0.6138	0.7835	0.0998
359	HMZNY	0.1621	0.0596	0.0273	0.2049	0.2322	0.4819	0.1237
360	HMZNX	0.1646	0.0621	0.0285	0.2228	0.2513	0.5013	0.1239
361	HMZVW	0.1667	0.0642	0.0539	0.5614	0.6153	0.7844	0.0819
362	HMZVY	0.1481	0.0456	0.0277	0.2037	0.2314	0.4810	0.0948
363	HMZVX	0.1506	0.0481	0.0289	0.2222	0.2511	0.5011	0.0960
364	HMZRW	0.1908	0.0883	0.0536	0.5782	0.6318	0.7949	0.1111
365	HMZRY	0.1723	0.0698	0.0275	0.2116	0.2391	0.4889	0.1428
366	HMZRX	0.1748	0.0723	0.0286	0.2299	0.2585	0.5084	0.1422
367	HMZOW	0.1829	0.0804	0.0541	0.5911	0.6452	0.8032	0.1001
368	HMZOY	0.1643	0.0618	0.0279	0.2127	0.2406	0.4905	0.1260
369	HMZOX	0.1668	0.0643	0.0291	0.2337	0.2628	0.5126	0.1255
370	HMZPW	0.1543	0.0518	0.0514	0.5445	0.5959	0.7720	0.0671
371	HMZPY	0.1358	0.0333	0.0253	0.1909	0.2162	0.4650	0.0716
372	HMZPX	0.1382	0.0357	0.0265	0.2092	0.2357	0.4855	0.0735
373	HMZQW	0.2631	0.1606	0.1619	0.8983	1.0602	1.0297	0.1560
374	HMZQY	0.2446	0.1421	0.1358	0.4976	0.6334	0.7958	0.1786
375	HMZQX	0.2471	0.1446	0.1370	0.5029	0.6399	0.7999	0.1808
376	HMZSW	0.1864	0.0839	0.0541	0.5758	0.6299	0.7937	0.1057
377	HMZSY	0.1678	0.0653	0.0279	0.2176	0.2455	0.4955	0.1318
378	HMZSX	0.1703	0.0678	0.0291	0.2352	0.2643	0.5141	0.1319
379	HLTNW	0.1783	0.0758	0.0511	0.5710	0.6221	0.7887	0.0961
380	HLTNY	0.1600	0.0575	0.0268	0.0372	0.0640	0.2530	0.2274
381	HLTNX	0.1624	0.0599	0.0279	0.0978	0.1257	0.3545	0.1690
382	HLTVW	0.1645	0.0620	0.0534	0.5758	0.6292	0.7932	0.0782
383	HLTVY	0.1459	0.0434	0.0272	0.0397	0.0669	0.2586	0.1679
384	HLTVX	0.1484	0.0459	0.0284	0.1009	0.1293	0.3595	0.1277

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
385	HLTRW	0.1887	0.0862	0.0531	0.5944	0.6475	0.8046	0.1071
386	HLTRY	0.1701	0.0676	0.0269	0.0493	0.0762	0.2761	0.2449
387	HLTRX	0.1726	0.0701	0.0281	0.1103	0.1384	0.3720	0.1884
388	HLTOW	0.1807	0.0782	0.0536	0.6198	0.6734	0.8206	0.0953
389	HLTOY	0.1622	0.0597	0.0274	0.0630	0.0904	0.3007	0.1985
390	HLTOX	0.1646	0.0621	0.0286	0.1267	0.1553	0.3941	0.1576
391	HLTPW	0.1521	0.0496	0.0509	0.5649	0.6158	0.7847	0.0632
392	HLTPY	0.1336	0.0311	0.0247	0.0329	0.0576	0.2400	0.1296
393	HLTPX	0.1360	0.0335	0.0259	0.0939	0.1198	0.3462	0.0968
394	HLTQW	0.2610	0.1585	0.1614	0.9713	1.1327	1.0643	0.1489
395	HLTQY	0.2424	0.1399	0.1352	0.3922	0.5274	0.7262	0.1927
396	HLTQX	0.2449	0.1424	0.1364	0.4401	0.5765	0.7593	0.1876
397	HLTSW	0.1842	0.0817	0.0535	0.5774	0.6309	0.7943	0.1029
398	HLTSY	0.1657	0.0632	0.0274	0.0409	0.0683	0.2613	0.2419
399	HLTSX	0.1681	0.0656	0.0285	0.1011	0.1296	0.3600	0.1822
400	HLUNW	0.1749	0.0724	0.0467	0.0429	0.0896	0.2993	0.2419
401	HLUNY	0.1564	0.0539	0.0205	0.0116	0.0321	0.1791	0.3009
402	HLUNX	0.1589	0.0564	0.0217	0.0079	0.0296	0.1720	0.3280
403	HLUVW	0.1609	0.0584	0.0471	0.0439	0.0910	0.3017	0.1936
404	HLUVY	0.1424	0.0399	0.0209	0.0103	0.0312	0.1766	0.2259
405	HLUVX	0.1449	0.0424	0.0221	0.0072	0.0293	0.1711	0.2479
406	HLURW	0.1851	0.0826	0.0468	0.0612	0.1080	0.3286	0.2514
407	HLURY	0.1666	0.0641	0.0207	0.0187	0.0394	0.1984	0.3231
408	HLURX	0.1691	0.0666	0.0218	0.0153	0.0371	0.1927	0.3457
409	HLUOW	0.1771	0.0746	0.0473	0.0683	0.1156	0.3400	0.2195
410	HLUOY	0.1586	0.0561	0.0211	0.0140	0.0351	0.1874	0.2994
411	HLUOX	0.1611	0.0586	0.0223	0.0134	0.0357	0.1889	0.3103
412	HLUPW	0.1486	0.0461	0.0446	0.0376	0.0822	0.2868	0.1608
413	HLUPY	0.1300	0.0275	0.0185	0.0082	0.0267	0.1633	0.1684
414	HLUPX	0.1325	0.0300	0.0197	0.0049	0.0246	0.1568	0.1914
415	HLUQW	0.2574	0.1549	0.1551	0.3763	0.5314	0.7290	0.2125
416	HLUQY	0.2389	0.1364	0.1290	0.2997	0.4287	0.6548	0.2083
417	HLUQX	0.2414	0.1389	0.1301	0.2834	0.4135	0.6430	0.2160
418	HLUSW	0.1807	0.0782	0.0473	0.0485	0.0958	0.3094	0.2527
419	HLUSY	0.1621	0.0596	0.0211	0.0144	0.0355	0.1885	0.3162
420	HLUSX	0.1646	0.0621	0.0223	0.0103	0.0326	0.1806	0.3438
421	HLZNW	0.1716	0.0691	0.0509	0.1400	0.1909	0.4369	0.1582
422	HLZNY	0.1531	0.0506	0.0247	0.0808	0.1055	0.3248	0.1558
423	HLZNX	0.1556	0.0531	0.0259	0.0714	0.0973	0.3119	0.1703
424	HLZVW	0.1576	0.0551	0.0513	0.1395	0.1908	0.4368	0.1262
425	HLZVY	0.1391	0.0366	0.0251	0.0780	0.1031	0.3211	0.1140
426	HLZVX	0.1416	0.0391	0.0263	0.0692	0.0955	0.3090	0.1266
427	HLZRW	0.1818	0.0793	0.0510	0.1620	0.2130	0.4615	0.1719
428	HLZRY	0.1633	0.0608	0.0249	0.0915	0.1164	0.3412	0.1782
429	HLZRX	0.1657	0.0632	0.0260	0.0825	0.1085	0.3294	0.1919
430	HLZOW	0.1738	0.0713	0.0515	0.1657	0.2172	0.4660	0.1530
431	HLZOY	0.1553	0.0528	0.0253	0.0835	0.1088	0.3298	0.1601
432	HLZOX	0.1578	0.0553	0.0265	0.0771	0.1036	0.3219	0.1718

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PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
433	HLZPW	0.1452	0.0427	0.0488	0.1296	0.1784	0.4224	0.1011
434	HLZPY	0.1267	0.0242	0.0227	0.0722	0.0949	0.3081	0.0786
435	HLZPX	0.1292	0.0267	0.0239	0.0632	0.0871	0.2951	0.0905
436	HLZQW	0.2541	0.1516	0.1593	0.7428	0.9021	0.9498	0.1596
437	HLZQY	0.2356	0.1331	0.1332	0.6383	0.7715	0.8784	0.1515
438	HLZQX	0.2380	0.1355	0.1343	0.6163	0.7506	0.8664	0.1564
439	HLZSW	0.1773	0.0748	0.0515	0.1491	0.2006	0.4479	0.1670
440	HLZSY	0.1588	0.0563	0.0253	0.0872	0.1125	0.3354	0.1679
441	HLZSX	0.1613	0.0588	0.0265	0.0774	0.1039	0.3223	0.1825
442	HKTNW	0.1785	0.0760	0.0529	0.5949	0.6478	0.8049	0.0944
443	HKTNY	0.1600	0.0575	0.0268	0.0523	0.0791	0.2813	0.2044
444	HKTNX	0.1624	0.0599	0.0279	0.1137	0.1416	0.3763	0.1592
445	HKT VW	0.1645	0.0620	0.0534	0.5992	0.6526	0.8078	0.0768
446	HKT VY	0.1459	0.0434	0.0272	0.0542	0.0814	0.2854	0.1521
447	HKT VX	0.1484	0.0459	0.0284	0.1162	0.1446	0.3803	0.1207
448	HKTRW	0.1887	0.0862	0.0531	0.6212	0.6743	0.8211	0.1050
449	HKTRY	0.1701	0.0676	0.0269	0.0673	0.0942	0.3069	0.2203
450	HKTRX	0.1726	0.0701	0.0281	0.1291	0.1572	0.3964	0.1769
451	HKTOW	0.1807	0.0782	0.0536	0.6462	0.6998	0.8365	0.0935
452	HKTOY	0.1622	0.0597	0.0274	0.0806	0.1080	0.3286	0.1817
453	HKTOX	0.1646	0.0621	0.0286	0.1450	0.1736	0.4167	0.1491
454	HKTPW	0.1521	0.0496	0.0509	0.5878	0.6387	0.7992	0.0621
455	HKTPY	0.1336	0.0311	0.0247	0.0470	0.0717	0.2677	0.1162
456	HKTPX	0.1360	0.0335	0.0259	0.1087	0.1346	0.3669	0.0913
457	HKTQW	0.2610	0.1585	0.1614	1.2074	1.3688	1.1700	0.1355
458	HKTQY	0.2424	0.1399	0.1352	0.6195	0.7547	0.8687	0.1610
459	HKTQX	0.2449	0.1424	0.1364	0.6683	0.8047	0.8970	0.1588
460	HKTSW	0.1842	0.0817	0.0535	0.6009	0.6544	0.8089	0.1010
461	HKTSY	0.1657	0.0632	0.0274	0.0555	0.0829	0.2880	0.2195
462	HKTSX	0.1681	0.0656	0.0285	0.1165	0.1450	0.3808	0.1723
463	HKUNW	0.1749	0.0724	0.0467	0.0527	0.0994	0.3153	0.2297
464	HKUNY	0.1564	0.0539	0.0205	0.0126	0.0331	0.1819	0.2964
465	HKUNX	0.1589	0.0564	0.0217	0.0096	0.0313	0.1770	0.3187
466	HKUVW	0.1609	0.0584	0.0471	0.0532	0.1003	0.3166	0.1845
467	HKUVY	0.1424	0.0399	0.0209	0.0107	0.0316	0.1778	0.2245
468	HKUVX	0.1449	0.0424	0.0221	0.0083	0.0304	0.1745	0.2431
469	HKURW	0.1851	0.0826	0.0468	0.0738	0.1206	0.3473	0.2379
470	HKURY	0.1666	0.0641	0.0207	0.0225	0.0432	0.2078	0.3085
471	HKURX	0.1691	0.0666	0.0218	0.0199	0.0417	0.2042	0.3261
472	HKUOW	0.1771	0.0746	0.0473	0.0805	0.1278	0.3574	0.2087
473	HKUOY	0.1586	0.0561	0.0211	0.0174	0.0385	0.1962	0.2860
474	HKUOX	0.1611	0.0586	0.0223	0.0175	0.0398	0.1995	0.2938
475	HKUPW	0.1486	0.0461	0.0446	0.0464	0.0910	0.3016	0.1529
476	HKUPY	0.1300	0.0275	0.0185	0.0081	0.0266	0.1630	0.1688
477	HKUPX	0.1325	0.0300	0.0197	0.0055	0.0252	0.1588	0.1889
478	HKUQW	0.2574	0.1549	0.1551	0.5983	0.7534	0.8680	0.1785
479	HKUQY	0.2389	0.1364	0.1290	0.5129	0.6419	0.8012	0.1703
480	HKUQX	0.2414	0.1389	0.1301	0.4974	0.6275	0.7921	0.1754

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
481	HKUSW	0.1807	0.0782	0.0473	0.0578	0.1051	0.3241	0.2413
482	HKUSY	0.1621	0.0596	0.0211	0.0149	0.0360	0.1898	0.3140
483	HKUSX	0.1646	0.0621	0.0223	0.0116	0.0339	0.1841	0.3374
484	HKZNW	0.1716	0.0691	0.0509	0.1716	0.2225	0.4717	0.1465
485	HKZNY	0.1531	0.0506	0.0247	0.1036	0.1283	0.3582	0.1413
486	HKZNX	0.1556	0.0531	0.0259	0.0950	0.1209	0.3477	0.1528
487	HKZVW	0.1576	0.0551	0.0513	0.1706	0.2219	0.4710	0.1170
488	HKZVY	0.1391	0.0366	0.0251	0.1002	0.1253	0.3540	0.1034
489	HKZVX	0.1416	0.0391	0.0263	0.0921	0.1184	0.3442	0.1136
490	HKZRW	0.1818	0.0793	0.0510	0.1964	0.2474	0.4974	0.1594
491	HKZRY	0.1633	0.0608	0.0249	0.1172	0.1421	0.3769	0.1613
492	HKZRX	0.1657	0.0632	0.0260	0.1089	0.1349	0.3673	0.1721
493	HKZOW	0.1738	0.0713	0.0515	0.1997	0.2512	0.5012	0.1423
494	HKZOY	0.1553	0.0528	0.0253	0.1087	0.1340	0.3660	0.1443
495	HKZOX	0.1578	0.0553	0.0265	0.1031	0.1296	0.3600	0.1536
496	HKZPW	0.1452	0.0427	0.0488	0.1601	0.2089	0.4571	0.0934
497	HKZPY	0.1267	0.0242	0.0227	0.0939	0.1166	0.3415	0.0709
498	HKZPX	0.1292	0.0267	0.0239	0.0857	0.1096	0.3310	0.0807
499	HKZQW	0.2541	0.1516	0.1593	0.9867	1.1460	1.0705	0.1416
500	HKZQY	0.2356	0.1331	0.1332	0.8734	1.0066	1.0033	0.1327
501	HKZQX	0.2380	0.1355	0.1343	0.8521	0.9864	0.9932	0.1364
502	HKZSW	0.1773	0.0748	0.0515	0.1803	0.2318	0.4814	0.1554
503	HKZSY	0.1588	0.0563	0.0253	0.1095	0.1348	0.3672	0.1534
504	HKZSX	0.1613	0.0588	0.0265	0.1005	0.1270	0.3563	0.1651
505	AJTNW	0.1354	0.0329	0.0959	0.6051	0.7010	0.8373	0.0393
506	AJTNY	0.1168	0.0143	0.0698	0.0617	0.1315	0.3626	0.0395
507	AJTNX	0.1193	0.0168	0.0710	0.1237	0.1947	0.4412	0.0381
508	AJTVW	0.1214	0.0189	0.0964	0.6079	0.7043	0.8392	0.0225
509	AJTVY	0.1028	0.0003	0.0702	0.0622	0.1324	0.3639	0.0009
510	AJTVX	0.1053	0.0028	0.0714	0.1247	0.1961	0.4429	0.0063
511	AJTRW	0.1455	0.0430	0.0961	0.6281	0.7242	0.8510	0.0505
512	AJTRY	0.1270	0.0245	0.0699	0.0734	0.1433	0.3786	0.0647
513	AJTRX	0.1295	0.0270	0.0711	0.1358	0.2069	0.4548	0.0594
514	AJTOW	0.1376	0.0351	0.0966	0.6538	0.7504	0.8663	0.0405
515	AJTOY	0.1191	0.0166	0.0704	0.0875	0.1579	0.3973	0.0418
516	AJTOX	0.1215	0.0190	0.0716	0.1525	0.2241	0.4734	0.0402
517	AJTPW	0.1090	0.0065	0.0939	0.5953	0.6892	0.8302	0.0078
518	AJTPY	0.0905	-0.0120	0.0677	0.0537	0.1214	0.3485	-0.0344
519	AJTPX	0.0929	-0.0096	0.0689	0.1161	0.1850	0.4301	-0.0223
520	AJTQW	0.2179	0.1154	0.2044	1.2208	1.4252	1.1938	0.0967
521	AJTQY	0.1993	0.0968	0.1782	0.6320	0.8102	0.9001	0.1076
522	AJTQX	0.2018	0.0993	0.1794	0.6814	0.8608	0.9278	0.1070
523	AJTSW	0.1411	0.0386	0.0965	0.6100	0.7065	0.8406	0.0459
524	AJTSY	0.1226	0.0201	0.0704	0.0639	0.1343	0.3665	0.0549
525	AJTSX	0.1250	0.0225	0.0716	0.1255	0.1971	0.4439	0.0507
526	AJUNW	0.1318	0.0293	0.0897	0.0575	0.1472	0.3837	0.0764
527	AJUNY	0.1133	0.0108	0.0635	0.0167	0.0802	0.2831	0.0382
528	AJUNX	0.1158	0.0133	0.0647	0.0143	0.0790	0.2810	0.0474

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PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
529	AJUVW	0.1178	0.0153	0.0901	0.0566	0.1467	0.3830	0.0400
530	AJUVY	0.0993	-0.0032	0.0640	0.0134	0.0774	0.2781	-0.0115
531	AJUVX	0.1018	-0.0007	0.0651	0.0116	0.0767	0.2769	-0.0025
532	AJURW	0.1420	0.0395	0.0898	0.0754	0.1652	0.4065	0.0972
533	AJURY	0.1235	0.0210	0.0637	0.0233	0.0870	0.2950	0.0712
534	AJURX	0.1259	0.0234	0.0648	0.0213	0.0861	0.2934	0.0798
535	AJUOW	0.1340	0.0315	0.0903	0.0828	0.1731	0.4161	0.0757
536	AJUOY	0.1155	0.0130	0.0642	0.0190	0.0832	0.2884	0.0451
537	AJUOX	0.1180	0.0155	0.0653	0.0197	0.0850	0.2915	0.0532
538	AJUPW	0.1055	0.0030	0.0877	0.0486	0.1363	0.3692	0.0082
539	AJUPY	0.0869	-0.0156	0.0615	0.0095	0.0710	0.2665	-0.0585
540	AJUPX	0.0894	-0.0131	0.0627	0.0076	0.0703	0.2651	-0.0494
541	AJUQW	0.2143	0.1118	0.1981	0.6063	0.8044	0.8969	0.1247
542	AJUQY	0.1958	0.0933	0.1720	0.5202	0.6922	0.8320	0.1122
543	AJUQX	0.1983	0.0958	0.1732	0.5052	0.6784	0.8236	0.1163
544	AJUSW	0.1375	0.0350	0.0903	0.0616	0.1519	0.3897	0.0898
545	AJUSY	0.1190	0.0165	0.0641	0.0180	0.0821	0.2865	0.0576
546	AJUSX	0.1215	0.0190	0.0653	0.0152	0.0805	0.2838	0.0670
547	AJZNW	0.1285	0.0260	0.0939	0.1806	0.2745	0.5240	0.0496
548	AJZNY	0.1100	0.0075	0.0677	0.1118	0.1795	0.4237	0.0177
549	AJZNX	0.1124	0.0099	0.0689	0.1038	0.1727	0.4155	0.0238
550	AJZVW	0.1145	0.0120	0.0943	0.1782	0.2725	0.5220	0.0230
551	AJZVY	0.0960	-0.0065	0.0682	0.1070	0.1752	0.4186	-0.0155
552	AJZVX	0.0984	-0.0041	0.0693	0.0995	0.1688	0.4109	-0.0100
553	AJZRW	0.1387	0.0362	0.0940	0.2022	0.2962	0.5442	0.0665
554	AJZRY	0.1202	0.0177	0.0679	0.1221	0.1900	0.4359	0.0406
555	AJZRX	0.1226	0.0201	0.0690	0.1144	0.1834	0.4283	0.0470
556	AJZOW	0.1307	0.0282	0.0945	0.2062	0.3007	0.5483	0.0514
557	AJZOY	0.1122	0.0097	0.0684	0.1144	0.1828	0.4275	0.0227
558	AJZOX	0.1147	0.0122	0.0695	0.1094	0.1789	0.4230	0.0289
559	AJZPW	0.1021	-0.0004	0.0919	0.1665	0.2584	0.5083	-0.0008
560	AJZPY	0.0836	-0.0189	0.0657	0.0995	0.1652	0.4065	-0.0465
561	AJZPX	0.0861	-0.0164	0.0669	0.0919	0.1588	0.3985	-0.0411
562	AJZQW	0.2110	0.1085	0.2023	0.9988	1.2011	1.0960	0.0990
563	AJZQY	0.1925	0.0900	0.1762	0.8847	1.0609	1.0300	0.0874
564	AJZQX	0.1949	0.0924	0.1774	0.8640	1.0414	1.0205	0.0906
565	AJZSW	0.1342	0.0317	0.0945	0.1882	0.2827	0.5317	0.0596
566	AJZSY	0.1157	0.0132	0.0683	0.1167	0.1850	0.4301	0.0307
567	AJZSX	0.1182	0.0157	0.0695	0.1082	0.1777	0.4216	0.0373
568	AMTNW	0.1416	0.0391	0.1002	1.2689	1.3691	1.1701	0.0334
569	AMTNY	0.1231	0.0206	0.0740	0.4312	0.5052	0.7108	0.0290
570	AMTNX	0.1256	0.0231	0.0752	0.5205	0.5957	0.7718	0.0299
571	AMTVW	0.1276	0.0251	0.1006	1.2734	1.3740	1.1722	0.0214
572	AMTVY	0.1091	0.0066	0.0744	0.4333	0.5077	0.7126	0.0093
573	AMTVX	0.1116	0.0091	0.0756	0.5232	0.5988	0.7738	0.0118
574	AMTRW	0.1518	0.0493	0.1003	1.2840	1.3843	1.1765	0.0419
575	AMTRY	0.1333	0.0308	0.0741	0.4350	0.5091	0.7135	0.0432
576	AMTRX	0.1357	0.0332	0.0753	0.5246	0.5999	0.7746	0.0429

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PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

: A	B	C	D	D	E	F	G	H :
: SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION :
: 577	AMTOW	0.1438	0.0413	0.1008	1.3197	1.4205	1.1918	0.0347 :
: 578	AMTOY	0.1253	0.0228	0.0746	0.4590	0.5336	0.7304	0.0312 :
: 579	AMTOX	0.1278	0.0253	0.0758	0.5513	0.6271	0.7919	0.0320 :
: 580	AMTPW	0.1153	0.0128	0.0981	1.2538	1.3519	1.1627	0.0110 :
: 581	AMTPY	0.0967	-0.0058	0.0720	0.4179	0.4899	0.6999	-0.0083 :
: 582	AMTPX	0.0992	-0.0033	0.0731	0.5076	0.5807	0.7620	-0.0043 :
: 583	AMTQW	0.2241	0.1216	0.2086	1.4085	1.6171	1.2716	0.0956 :
: 584	AMTOY	0.2056	0.1031	0.1824	0.5254	0.7078	0.8413	0.1226 :
: 585	AMTOX	0.2081	0.1056	0.1836	0.6021	0.7857	0.8864	0.1191 :
: 586	AMTSW	0.1473	0.0448	0.1007	1.2805	1.3812	1.1752	0.0381 :
: 587	AMTSY	0.1288	0.0263	0.0746	0.4400	0.5146	0.7174	0.0367 :
: 588	AMTSX	0.1313	0.0288	0.0758	0.5289	0.6047	0.7776	0.0370 :
: 589	AMUNW	0.1381	0.0356	0.0939	0.3986	0.4925	0.7017	0.0507 :
: 590	AMUNY	0.1196	0.0171	0.0677	0.0633	0.1310	0.3620	0.0473 :
: 591	AMUNX	0.1220	0.0195	0.0689	0.0883	0.1572	0.3965	0.0492 :
: 592	AMUVW	0.1241	0.0216	0.0943	0.3993	0.4936	0.7025	0.0308 :
: 593	AMUVY	0.1056	0.0031	0.0682	0.0617	0.1299	0.3604	0.0086 :
: 594	AMUVX	0.1080	0.0055	0.0693	0.0872	0.1565	0.3956	0.0139 :
: 595	AMURW	0.1483	0.0458	0.0940	0.4085	0.5025	0.7089	0.0646 :
: 596	AMURY	0.1298	0.0273	0.0679	0.0621	0.1300	0.3605	0.0758 :
: 597	AMURX	0.1322	0.0297	0.0691	0.0874	0.1565	0.3956	0.0751 :
: 598	AMUOW	0.1403	0.0378	0.0945	0.4258	0.5203	0.7213	0.0524 :
: 599	AMUOY	0.1218	0.0193	0.0684	0.0677	0.1361	0.3689	0.0523 :
: 600	AMUOX	0.1242	0.0217	0.0696	0.0957	0.1653	0.4065	0.0534 :
: 601	AMUPW	0.1117	0.0092	0.0919	0.3843	0.4762	0.6901	0.0133 :
: 602	AMUPY	0.0932	-0.0093	0.0657	0.0509	0.1166	0.3414	-0.0272 :
: 603	AMUPX	0.0957	-0.0068	0.0669	0.0762	0.1431	0.3783	-0.0179 :
: 604	AMUQW	0.2206	0.1181	0.2024	0.4712	0.6736	0.8208	0.1439 :
: 605	AMUQY	0.2021	0.0996	0.1762	0.0907	0.2669	0.5167	0.1928 :
: 606	AMUQX	0.2045	0.1020	0.1774	0.1030	0.2804	0.5296	0.1926 :
: 607	AMUSW	0.1438	0.0413	0.0945	0.4093	0.5038	0.7098	0.0582 :
: 608	AMUSY	0.1253	0.0228	0.0683	0.0713	0.1396	0.3736	0.0610 :
: 609	AMUSX	0.1277	0.0252	0.0695	0.0959	0.1654	0.4066	0.0620 :
: 610	AMZNW	0.1348	0.0323	0.0981	0.5874	0.6855	0.8279	0.0390 :
: 611	AMZNY	0.1163	0.0138	0.0719	0.2242	0.2961	0.5442	0.0254 :
: 612	AMZNX	0.1187	0.0162	0.0731	0.2435	0.3166	0.5627	0.0288 :
: 613	AMZVW	0.1208	0.0183	0.0985	0.5865	0.6850	0.8277	0.0221 :
: 614	AMZVY	0.1023	-0.0002	0.0724	0.2211	0.2935	0.5417	-0.0004 :
: 615	AMZVX	0.1047	0.0022	0.0735	0.2409	0.3144	0.5607	0.0039 :
: 616	AMZRW	0.1450	0.0425	0.0982	0.6010	0.6992	0.8362	0.0508 :
: 617	AMZRY	0.1264	0.0239	0.0721	0.2266	0.2987	0.5466	0.0437 :
: 618	AMZRX	0.1289	0.0264	0.0733	0.2462	0.3195	0.5653	0.0467 :
: 619	AMZOW	0.1370	0.0345	0.0987	0.6149	0.7136	0.8448	0.0409 :
: 620	AMZOY	0.1185	0.0160	0.0726	0.2288	0.3014	0.5490	0.0292 :
: 621	AMZOX	0.1209	0.0184	0.0738	0.2511	0.3249	0.5700	0.0323 :
: 622	AMZPW	0.1084	0.0059	0.0961	0.5679	0.6640	0.8149	0.0073 :
: 623	AMZPY	0.0899	-0.0126	0.0699	0.2066	0.2765	0.5258	-0.0239 :
: 624	AMZPX	0.0923	-0.0102	0.0711	0.2262	0.2973	0.5453	-0.0187 :

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PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
625	AMZQW	0.2173	0.1148	0.2066	0.9295	1.1361	1.0659	0.1077
626	AMZQY	0.1987	0.0962	0.1804	0.5210	0.7014	0.8375	0.1149
627	AMZQX	0.2012	0.0987	0.1816	0.5277	0.7093	0.8422	0.1172
628	AMZSW	0.1405	0.0380	0.0987	0.6016	0.7003	0.8368	0.0454
629	AMZSY	0.1220	0.0195	0.0725	0.2357	0.3082	0.5552	0.0351
630	AMZSX	0.1244	0.0219	0.0737	0.2546	0.3283	0.5730	0.0382
631	ALTNW	0.1324	0.0299	0.0957	0.5968	0.6925	0.8322	0.0359
632	ALTNY	0.1141	0.0116	0.0714	0.0553	0.1267	0.3560	0.0326
633	ALTNX	0.1165	0.0140	0.0726	0.1173	0.1899	0.4357	0.0322
634	ALTVW	0.1186	0.0161	0.0980	0.5997	0.6977	0.8353	0.0193
635	ALTVY	0.1001	-0.0024	0.0718	0.0559	0.1277	0.3573	-0.0067
636	ALTVX	0.1025	0.0000	0.0730	0.1184	0.1914	0.4374	0.0000
637	ALTRW	0.1428	0.0403	0.0977	0.6159	0.7136	0.8447	0.0477
638	ALTRY	0.1242	0.0217	0.0715	0.0632	0.1347	0.3670	0.0592
639	ALTRX	0.1267	0.0242	0.0727	0.1255	0.1982	0.4452	0.0544
640	ALTOW	0.1348	0.0323	0.0982	0.6424	0.7406	0.8606	0.0375
641	ALTOY	0.1163	0.0138	0.0720	0.0780	0.1500	0.3872	0.0357
642	ALTOX	0.1187	0.0162	0.0732	0.1429	0.2161	0.4649	0.0349
643	ALTPW	0.1062	0.0037	0.0955	0.5871	0.6826	0.8262	0.0045
644	ALTPY	0.0877	-0.0148	0.0693	0.0474	0.1167	0.3416	-0.0433
645	ALTPX	0.0901	-0.0124	0.0705	0.1097	0.1802	0.4245	-0.0292
646	ALTQW	0.2151	0.1126	0.2060	1.0012	1.2072	1.0987	0.1025
647	ALTQY	0.1966	0.0941	0.1798	0.4144	0.5942	0.7708	0.1221
648	ALTQX	0.1990	0.0965	0.1810	0.4637	0.6447	0.8029	0.1202
649	ALTSW	0.1383	0.0358	0.0981	0.6020	0.7001	0.8367	0.0428
650	ALTSY	0.1198	0.0173	0.0720	0.0578	0.1298	0.3602	0.0481
651	ALTSX	0.1222	0.0197	0.0732	0.1193	0.1925	0.4388	0.0449
652	ALUNW	0.1291	0.0266	0.0913	0.0556	0.1469	0.3833	0.0694
653	ALUNY	0.1105	0.0080	0.0651	0.0166	0.0817	0.2859	0.0280
654	ALUNX	0.1130	0.0105	0.0663	0.0142	0.0805	0.2838	0.0370
655	ALUVW	0.1151	0.0126	0.0917	0.0547	0.1464	0.3826	0.0330
656	ALUVY	0.0965	-0.0060	0.0656	0.0134	0.0790	0.2810	-0.0213
657	ALUVX	0.0990	-0.0035	0.0667	0.0115	0.0782	0.2797	-0.0125
658	ALURW	0.1392	0.0367	0.0914	0.0696	0.1610	0.4013	0.0915
659	ALURY	0.1207	0.0182	0.0653	0.0194	0.0847	0.2910	0.0626
660	ALURX	0.1232	0.0207	0.0665	0.0174	0.0839	0.2896	0.0715
661	ALUOW	0.1313	0.0288	0.0919	0.0778	0.1697	0.4119	0.0699
662	ALUOY	0.1127	0.0102	0.0658	0.0158	0.0816	0.2857	0.0357
663	ALUOX	0.1152	0.0127	0.0670	0.0165	0.0835	0.2889	0.0440
664	ALUPW	0.1027	0.0002	0.0893	0.0467	0.1360	0.3688	0.0006
665	ALUPY	0.0842	-0.0183	0.0631	0.0095	0.0726	0.2695	-0.0679
666	ALUPX	0.0866	-0.0159	0.0643	0.0075	0.0718	0.2680	-0.0593
667	ALUQW	0.2115	0.1090	0.1998	0.3931	0.5929	0.7700	0.1416
668	ALUQY	0.1930	0.0905	0.1736	0.3088	0.4824	0.6946	0.1303
669	ALUQX	0.1955	0.0930	0.1748	0.2938	0.4686	0.6846	0.1359
670	ALUSW	0.1348	0.0323	0.0919	0.0599	0.1518	0.3896	0.0829
671	ALUSY	0.1162	0.0137	0.0657	0.0182	0.0839	0.2897	0.0473
672	ALUSX	0.1187	0.0162	0.0669	0.0154	0.0823	0.2869	0.0565

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PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
673	ALZNW	0.1257	0.0232	0.0955	0.1601	0.2556	0.5056	0.0459
674	ALZNY	0.1072	0.0047	0.0693	0.0932	0.1625	0.4032	0.0117
675	ALZNX	0.1097	0.0072	0.0705	0.0851	0.1556	0.3945	0.0183
676	ALZVW	0.1117	0.0092	0.0959	0.1577	0.2536	0.5036	0.0183
677	ALZVY	0.0932	-0.0093	0.0698	0.0885	0.1583	0.3978	-0.0234
678	ALZVX	0.0957	-0.0068	0.0709	0.0809	0.1518	0.3897	-0.0174
679	ALZRW	0.1359	0.0334	0.0956	0.1778	0.2734	0.5229	0.0639
680	ALZRY	0.1174	0.0149	0.0695	0.0997	0.1692	0.4113	0.0363
681	ALZRX	0.1198	0.0173	0.0707	0.0919	0.1626	0.4033	0.0429
682	ALZOW	0.1279	0.0254	0.0961	0.1825	0.2786	0.5279	0.0481
683	ALZOY	0.1094	0.0069	0.0700	0.0927	0.1627	0.4033	0.0171
684	ALZOX	0.1119	0.0094	0.0712	0.0876	0.1588	0.3986	0.0236
685	ALZPW	0.0994	-0.0031	0.0935	0.1460	0.2395	0.4894	-0.0063
686	ALZPY	0.0808	-0.0217	0.0673	0.0809	0.1482	0.3850	-0.0563
687	ALZPX	0.0833	-0.0192	0.0685	0.0733	0.1418	0.3765	-0.0510
688	ALZQW	0.2082	0.1057	0.2040	0.7671	0.9711	0.9854	0.1073
689	ALZQY	0.1897	0.0872	0.1778	0.6549	0.8327	0.9125	0.0956
690	ALZQX	0.1922	0.0897	0.1790	0.6341	0.8131	0.9017	0.0995
691	ALZSW	0.1314	0.0289	0.0961	0.1680	0.2641	0.5139	0.0563
692	ALZSY	0.1129	0.0104	0.0699	0.0984	0.1683	0.4102	0.0254
693	ALZSX	0.1154	0.0129	0.0711	0.0899	0.1610	0.4012	0.0322
694	AKTNW	0.1326	0.0301	0.0976	0.6260	0.7236	0.8507	0.0354
695	AKTNY	0.1141	0.0116	0.0714	0.0757	0.1471	0.3836	0.0303
696	AKTNX	0.1165	0.0140	0.0726	0.1384	0.2110	0.4593	0.0305
697	AKTVW	0.1186	0.0161	0.0980	0.6283	0.7263	0.8522	0.0189
698	AKTVY	0.1001	-0.0024	0.0718	0.0757	0.1475	0.3840	-0.0062
699	AKTVX	0.1025	0.0000	0.0730	0.1389	0.2119	0.4604	0.0000
700	AKTEW	0.1428	0.0403	0.0977	0.6479	0.7456	0.8635	0.0467
701	AKTRY	0.1242	0.0217	0.0715	0.0864	0.1579	0.3974	0.0546
702	AKTRX	0.1267	0.0242	0.0727	0.1494	0.2221	0.4713	0.0514
703	AKTOW	0.1348	0.0323	0.0982	0.6740	0.7722	0.8788	0.0368
704	AKTOY	0.1163	0.0138	0.0720	0.1007	0.1727	0.4156	0.0332
705	AKTOX	0.1187	0.0162	0.0732	0.1665	0.2397	0.4896	0.0331
706	AKTPW	0.1062	0.0037	0.0955	0.6152	0.7107	0.8430	0.0044
707	AKTPY	0.0877	-0.0148	0.0693	0.0667	0.1360	0.3687	-0.0401
708	AKTPX	0.0901	-0.0124	0.0705	0.1298	0.2003	0.4475	-0.0277
709	AKTQW	0.2151	0.1126	0.2060	1.2426	1.4486	1.2036	0.0936
710	AKTQY	0.1966	0.0941	0.1798	0.6470	0.8268	0.9093	0.1035
711	AKTQX	0.1990	0.0965	0.1810	0.6971	0.8781	0.9371	0.1030
712	AKTSW	0.1383	0.0358	0.0981	0.6307	0.7288	0.8537	0.0419
713	AKTSY	0.1198	0.0173	0.0720	0.0777	0.1497	0.3869	0.0447
714	AKTSX	0.1222	0.0197	0.0732	0.1400	0.2132	0.4617	0.0427
715	AKUNW	0.1291	0.0266	0.0913	0.0706	0.1619	0.4024	0.0661
716	AKUNY	0.1105	0.0080	0.0651	0.0229	0.0880	0.2966	0.0270
717	AKUNX	0.1130	0.0105	0.0663	0.0212	0.0875	0.2958	0.0355
718	AKUVW	0.1151	0.0126	0.0917	0.0692	0.1609	0.4011	0.0314
719	AKUVY	0.0965	-0.0060	0.0656	0.0190	0.0846	0.2909	-0.0206
720	AKUVX	0.0990	-0.0035	0.0667	0.0180	0.0847	0.2910	-0.0120

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PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
721	AKURW	0.1392	0.0367	0.0914	0.0875	0.1789	0.4230	0.0868
722	AKURY	0.1207	0.0182	0.0653	0.0285	0.0938	0.3062	0.0595
723	AKURX	0.1232	0.0207	0.0665	0.0272	0.0937	0.3061	0.0677
724	AKUOW	0.1313	0.0288	0.0919	0.0952	0.1871	0.4326	0.0666
725	AKUOY	0.1127	0.0102	0.0658	0.0244	0.0902	0.3004	0.0340
726	AKUOX	0.1152	0.0127	0.0670	0.0259	0.0929	0.3047	0.0417
727	AKUPW	0.1027	0.0002	0.0893	0.0606	0.1499	0.3872	0.0005
728	AKUPY	0.0842	-0.0183	0.0631	0.0147	0.0778	0.2789	-0.0656
729	AKUPX	0.0866	-0.0159	0.0643	0.0134	0.0777	0.2788	-0.0570
730	AKUQW	0.2115	0.1090	0.1998	0.6204	0.8202	0.9057	0.1204
731	AKUQY	0.1930	0.0905	0.1736	0.5273	0.7009	0.8372	0.1081
732	AKUQX	0.1955	0.0930	0.1748	0.5130	0.6878	0.8294	0.1121
733	AKUSW	0.1348	0.0323	0.0919	0.0745	0.1664	0.4079	0.0792
734	AKUSY	0.1162	0.0137	0.0657	0.0240	0.0897	0.2994	0.0458
735	AKUSX	0.1187	0.0162	0.0669	0.0219	0.0888	0.2980	0.0544
736	AKZNW	0.1257	0.0232	0.0955	0.1970	0.2925	0.5408	0.0429
737	AKZNY	0.1072	0.0047	0.0693	0.1213	0.1906	0.4366	0.0108
738	AKZNX	0.1097	0.0072	0.0705	0.1139	0.1844	0.4295	0.0168
739	AKZVW	0.1117	0.0092	0.0959	0.1940	0.2899	0.5384	0.0171
740	AKZVY	0.0932	-0.0093	0.0698	0.1159	0.1857	0.4310	-0.0216
741	AKZVX	0.0957	-0.0068	0.0709	0.1092	0.1801	0.4243	-0.0160
742	AKZRW	0.1359	0.0334	0.0956	0.2175	0.3131	0.5596	0.0597
743	AKZRY	0.1174	0.0149	0.0695	0.1306	0.2001	0.4473	0.0333
744	AKZRX	0.1198	0.0173	0.0707	0.1236	0.1943	0.4408	0.0393
745	AKZOW	0.1279	0.0254	0.0961	0.2218	0.3179	0.5638	0.0451
746	AKZOY	0.1094	0.0069	0.0700	0.1231	0.1931	0.4394	0.0157
747	AKZOX	0.1119	0.0094	0.0712	0.1188	0.1900	0.4359	0.0216
748	AKZPW	0.0994	-0.0031	0.0935	0.1818	0.2753	0.5247	-0.0059
749	AKZPY	0.0808	-0.0217	0.0673	0.1079	0.1752	0.4186	-0.0518
750	AKZPX	0.0833	-0.0192	0.0685	0.1010	0.1695	0.4117	-0.0466
751	AKZQW	0.2082	0.1057	0.2040	1.0162	1.2202	1.1046	0.0957
752	AKZQY	0.1897	0.0872	0.1778	0.8952	1.0730	1.0358	0.0842
753	AKZQX	0.1922	0.0897	0.1790	0.8752	1.0542	1.0267	0.0874
754	AKZSW	0.1314	0.0289	0.0961	0.2044	0.3005	0.5481	0.0527
755	AKZSY	0.1129	0.0104	0.0699	0.1259	0.1958	0.4425	0.0235
756	AKZSX	0.1154	0.0129	0.0711	0.1182	0.1893	0.4351	0.0297
757	GJTNW	0.0510	-0.0515	0.0642	0.6558	0.7200	0.8486	-0.0607
758	GJTNY	0.0324	-0.0701	0.0380	0.0895	0.1275	0.3571	-0.1963
759	GJTNX	0.0349	-0.0676	0.0392	0.1565	0.1957	0.4424	-0.1528
760	GJTVW	0.0370	-0.0655	0.0646	0.6615	0.7261	0.8521	-0.0769
761	GJTVY	0.0184	-0.0841	0.0384	0.0928	0.1312	0.3623	-0.2321
762	GJTVX	0.0209	-0.0816	0.0396	0.1604	0.2000	0.4472	-0.1824
763	GJTRW	0.0611	-0.0414	0.0643	0.6821	0.7464	0.8640	-0.0479
764	GJTRY	0.0426	-0.0599	0.0382	0.1046	0.1428	0.3779	-0.1585
765	GJTRX	0.0451	-0.0574	0.0393	0.1720	0.2113	0.4597	-0.1249
766	GJTOW	0.0532	-0.0493	0.0648	0.7102	0.7750	0.8803	-0.0560
767	GJTOY	0.0347	-0.0678	0.0387	0.1209	0.1596	0.3995	-0.1697
768	GJTOX	0.0371	-0.0654	0.0398	0.1910	0.2308	0.4804	-0.1361

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PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
769	GJTPW	0.0246	-0.0779	0.0621	0.6505	0.7126	0.8442	-0.0923
770	GJTPY	0.0061	-0.0964	0.0360	0.0860	0.1220	0.3494	-0.2759
771	GJTPX	0.0085	-0.0940	0.0372	0.1535	0.1907	0.4367	-0.2152
772	GJTQW	0.1335	0.0310	0.1726	1.2693	1.4419	1.2008	0.0258
773	GJTQY	0.1149	0.0124	0.1465	0.6577	0.8042	0.8968	0.0138
774	GJTQX	0.1174	0.0149	0.1477	0.7121	0.8598	0.9273	0.0161
775	GJTSW	0.0567	-0.0458	0.0648	0.6613	0.7261	0.8521	-0.0537
776	GJTSY	0.0382	-0.0643	0.0386	0.0923	0.1309	0.3617	-0.1777
777	GJTSX	0.0406	-0.0619	0.0398	0.1589	0.1987	0.4457	-0.1389
778	GJUNW	0.0474	-0.0551	0.0579	0.0733	0.1312	0.3622	-0.1521
779	GJUNY	0.0289	-0.0736	0.0318	0.0095	0.0413	0.2032	-0.3622
780	GJUNX	0.0314	-0.0711	0.0330	0.0122	0.0452	0.2125	-0.3345
781	GJUVW	0.0334	-0.0691	0.0584	0.0751	0.1335	0.3654	-0.1891
782	GJUVY	0.0149	-0.0876	0.0322	0.0090	0.0412	0.2030	-0.4316
783	GJUVX	0.0174	-0.0851	0.0334	0.0123	0.0457	0.2137	-0.3982
784	GJURW	0.0576	-0.0449	0.0581	0.0945	0.1526	0.3907	-0.1149
785	GJURY	0.0391	-0.0634	0.0319	0.0195	0.0514	0.2267	-0.2797
786	GJURX	0.0415	-0.0610	0.0331	0.0225	0.0556	0.2359	-0.2586
787	GJUOW	0.0496	-0.0529	0.0586	0.1042	0.1628	0.4035	-0.1311
788	GJUOY	0.0311	-0.0714	0.0324	0.0174	0.0498	0.2232	-0.3199
789	GJUOX	0.0336	-0.0689	0.0336	0.0232	0.0568	0.2382	-0.2892
790	GJUPW	0.0211	-0.0814	0.0559	0.0688	0.1247	0.3532	-0.2305
791	GJUPY	0.0025	-0.1000	0.0297	0.0068	0.0365	0.1912	-0.5231
792	GJUPX	0.0050	-0.0975	0.0309	0.0099	0.0408	0.2021	-0.4824
793	GJUQW	0.1299	0.0274	0.1664	0.6199	0.7863	0.8868	0.0309
794	GJUQY	0.1114	0.0089	0.1402	0.5108	0.6510	0.8069	0.0110
795	GJUQX	0.1139	0.0114	0.1414	0.5009	0.6423	0.8014	0.0142
796	GJUSW	0.0531	-0.0494	0.0585	0.0779	0.1364	0.3693	-0.1337
797	GJUSY	0.0346	-0.0679	0.0324	0.0113	0.0437	0.2092	-0.3246
798	GJUSX	0.0371	-0.0654	0.0335	0.0136	0.0471	0.2171	-0.3012
799	GJZNW	0.0441	-0.0584	0.0621	0.1867	0.2488	0.4988	-0.1171
800	GJZNY	0.0256	-0.0769	0.0360	0.0950	0.1310	0.3619	-0.2125
801	GJZNX	0.0280	-0.0745	0.0372	0.0919	0.1291	0.3594	-0.2073
802	GJZVW	0.0301	-0.0724	0.0626	0.1870	0.2496	0.4996	-0.1449
803	GJZVY	0.0116	-0.0909	0.0364	0.0929	0.1293	0.3596	-0.2527
804	GJZVX	0.0140	-0.0885	0.0376	0.0905	0.1281	0.3579	-0.2472
805	GJZRW	0.0543	-0.0482	0.0623	0.2116	0.2739	0.5233	-0.0921
806	GJZRY	0.0358	-0.0667	0.0361	0.1086	0.1447	0.3804	-0.1753
807	GJZRX	0.0382	-0.0643	0.0373	0.1060	0.1433	0.3785	-0.1698
808	GJZOW	0.0463	-0.0562	0.0628	0.2178	0.2806	0.5297	-0.1061
809	GJZOY	0.0278	-0.0747	0.0366	0.1031	0.1397	0.3738	-0.1998
810	GJZOX	0.0303	-0.0722	0.0378	0.1032	0.1410	0.3755	-0.1923
811	GJZPW	0.0177	-0.0848	0.0601	0.1770	0.2371	0.4870	-0.1741
812	GJZPY	-0.0004	-0.1029	0.0339	0.0871	0.1210	0.3479	-0.2958
813	GJZPX	0.0017	-0.1008	0.0351	0.0845	0.1196	0.3459	-0.2914
814	GJZQW	0.1266	0.0241	0.1706	1.0027	1.1733	1.0832	0.0223
815	GJZQY	0.1081	0.0056	0.1444	0.8657	1.0101	1.0050	0.0056
816	GJZQX	0.1105	0.0080	0.1456	0.8501	0.9957	0.9978	0.0080

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
817	GJZSW	0.0498	-0.0527	0.0627	0.1948	0.2575	0.5074	-0.1038
818	GJZSY	0.0313	-0.0712	0.0366	0.1004	0.1370	0.3701	-0.1924
819	GJZSX	0.0338	-0.0687	0.0377	0.0969	0.1346	0.3669	-0.1872
820	GMTNW	0.0572	-0.0453	0.0684	1.3341	1.4025	1.1843	-0.0382
821	GMTNY	0.0387	-0.0638	0.0422	0.4735	0.5157	0.7181	-0.0888
822	GMTNX	0.0412	-0.0613	0.0434	0.5678	0.6112	0.7818	-0.0784
823	GMTVW	0.0432	-0.0593	0.0688	1.3414	1.4102	1.1875	-0.0499
824	GMTVY	0.0247	-0.0778	0.0427	0.4784	0.5211	0.7219	-0.1078
825	GMTVX	0.0272	-0.0753	0.0438	0.5733	0.6171	0.7856	-0.0958
826	GMTRW	0.0674	-0.0351	0.0685	1.3525	1.4210	1.1920	-0.0294
827	GMTRY	0.0489	-0.0536	0.0424	0.4806	0.5230	0.7232	-0.0741
828	GMTRX	0.0513	-0.0512	0.0436	0.5753	0.6189	0.7867	-0.0651
829	GMTOW	0.0594	-0.0431	0.0690	1.3904	1.4594	1.2081	-0.0357
830	GMTOY	0.0409	-0.0616	0.0429	0.5068	0.5497	0.7414	-0.0831
831	GMTOX	0.0434	-0.0591	0.0441	0.6042	0.6483	0.8052	-0.0734
832	GMTPW	0.0309	-0.0716	0.0664	1.3234	1.3898	1.1789	-0.0607
833	GMTPY	0.0123	-0.0902	0.0402	0.4646	0.5048	0.7105	-0.1269
834	GMTPX	0.0148	-0.0877	0.0414	0.5593	0.6007	0.7751	-0.1131
835	GMTQW	0.1397	0.0372	0.1768	1.4715	1.6483	1.2839	0.0290
836	GMTQY	0.1212	0.0187	0.1507	0.5655	0.7162	0.8463	0.0221
837	GMTQX	0.1237	0.0212	0.1519	0.6472	0.7991	0.8939	0.0237
838	GMTSW	0.0629	-0.0396	0.0690	1.3462	1.4152	1.1896	-0.0333
839	GMTSY	0.0444	-0.0581	0.0428	0.4828	0.5256	0.7250	-0.0801
840	GMTSX	0.0469	-0.0556	0.0440	0.5767	0.6207	0.7879	-0.0706
841	GMUNW	0.0537	-0.0488	0.0621	0.4287	0.4908	0.7006	-0.0696
842	GMUNY	0.0352	-0.0673	0.0360	0.0706	0.1066	0.3265	-0.2061
843	GMUNX	0.0376	-0.0649	0.0372	0.1006	0.1378	0.3712	-0.1748
844	GMUVW	0.0397	-0.0628	0.0626	0.4322	0.4948	0.7034	-0.0893
845	GMUVY	0.0212	-0.0813	0.0364	0.0718	0.1082	0.3289	-0.2472
846	GMUVX	0.0236	-0.0789	0.0376	0.1023	0.1399	0.3741	-0.2109
847	GMURW	0.0639	-0.0386	0.0623	0.4420	0.5043	0.7102	-0.0543
848	GMURY	0.0454	-0.0571	0.0361	0.0727	0.1088	0.3298	-0.1731
849	GMURX	0.0478	-0.0547	0.0373	0.1030	0.1403	0.3746	-0.1460
850	GMUOW	0.0559	-0.0466	0.0628	0.4616	0.5244	0.7242	-0.0643
851	GMUOY	0.0374	-0.0651	0.0366	0.0805	0.1171	0.3422	-0.1902
852	GMUOX	0.0398	-0.0627	0.0378	0.1136	0.1514	0.3891	-0.1611
853	GMUPW	0.0273	-0.0752	0.0601	0.4189	0.4790	0.6921	-0.1086
854	GMUPY	0.0088	-0.0937	0.0339	0.0626	0.0965	0.3106	-0.3016
855	GMUPX	0.0113	-0.0912	0.0351	0.0930	0.1281	0.3579	-0.2548
856	GMUQW	0.1362	0.0337	0.1706	0.4993	0.6699	0.8185	0.0412
857	GMUQY	0.1177	0.0152	0.1444	0.0958	0.2402	0.4901	0.0310
858	GMUQX	0.1201	0.0176	0.1456	0.1132	0.2588	0.5087	0.0346
859	GMUSW	0.0594	-0.0431	0.0627	0.4399	0.5026	0.7090	-0.0608
860	GMUSY	0.0409	-0.0616	0.0366	0.0791	0.1157	0.3401	-0.1811
861	GMUSX	0.0433	-0.0592	0.0378	0.1087	0.1465	0.3827	-0.1546
862	GMZNW	0.0504	-0.0521	0.0663	0.6078	0.6741	0.8211	-0.0634
863	GMZNY	0.0319	-0.0706	0.0402	0.2218	0.2620	0.5119	-0.1379
864	GMZNX	0.0343	-0.0682	0.0414	0.2461	0.2875	0.5362	-0.1272

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
865	GMZVW	0.0364	-0.0661	0.0668	0.6098	0.6766	0.8226	-0.0803
866	GMZVY	0.0179	-0.0846	0.0406	0.2214	0.2620	0.5119	-0.1652
867	GMZVX	0.0203	-0.0822	0.0418	0.2463	0.2881	0.5368	-0.1531
868	GMZRW	0.0606	-0.0419	0.0665	0.6248	0.6913	0.8314	-0.0504
869	GMZRY	0.0420	-0.0605	0.0403	0.2275	0.2678	0.5175	-0.1169
870	GMZRX	0.0445	-0.0580	0.0415	0.2522	0.2937	0.5419	-0.1070
871	GMZOW	0.0526	-0.0499	0.0670	0.6410	0.7080	0.8414	-0.0593
872	GMZOY	0.0341	-0.0684	0.0408	0.2320	0.2728	0.5223	-0.1309
873	GMZOX	0.0365	-0.0660	0.0420	0.2593	0.3013	0.5489	-0.1202
874	GMZPW	0.0240	-0.0785	0.0643	0.5928	0.6571	0.8106	-0.0968
875	GMZPY	0.0055	-0.0970	0.0381	0.2086	0.2467	0.4967	-0.1953
876	GMZPX	0.0079	-0.0946	0.0393	0.2333	0.2726	0.5221	-0.1812
877	GMZQW	0.1329	0.0304	0.1748	0.9478	1.1226	1.0595	0.0287
878	GMZQY	0.1143	0.0118	0.1486	0.5165	0.6651	0.8155	0.0145
879	GMZQX	0.1168	0.0143	0.1498	0.5281	0.6779	0.8234	0.0174
880	GMZSW	0.0561	-0.0464	0.0669	0.6226	0.6895	0.8304	-0.0559
881	GMZSY	0.0376	-0.0649	0.0408	0.2338	0.2746	0.5241	-0.1238
882	GMZSX	0.0400	-0.0625	0.0420	0.2577	0.2997	0.5475	-0.1141
883	GLTNW	0.0480	-0.0545	0.0640	0.6471	0.7111	0.8433	-0.0646
884	GLTNY	0.0297	-0.0728	0.0396	0.0827	0.1223	0.3497	-0.2081
885	GLTNX	0.0321	-0.0704	0.0408	0.1497	0.1905	0.4364	-0.1613
886	GLTVW	0.0342	-0.0683	0.0662	0.6528	0.7190	0.8479	-0.0805
887	GLTVY	0.0157	-0.0868	0.0401	0.0861	0.1262	0.3552	-0.2444
888	GLTVX	0.0181	-0.0844	0.0412	0.1536	0.1948	0.4414	-0.1912
889	GLTRW	0.0584	-0.0441	0.0659	0.6695	0.7354	0.8576	-0.0514
890	GLTRY	0.0398	-0.0627	0.0398	0.0939	0.1337	0.3656	-0.1715
891	GLTRX	0.0423	-0.0602	0.0410	0.1612	0.2022	0.4497	-0.1338
892	GLTOW	0.0504	-0.0521	0.0664	0.6983	0.7647	0.8745	-0.0596
893	GLTOY	0.0319	-0.0706	0.0403	0.1110	0.1513	0.3889	-0.1815
894	GLTOX	0.0343	-0.0682	0.0414	0.1810	0.2224	0.4716	-0.1446
895	GLTPW	0.0218	-0.0807	0.0638	0.6418	0.7056	0.8400	-0.0961
896	GLTPY	0.0033	-0.0992	0.0376	0.0792	0.1168	0.3418	-0.2902
897	GLTPX	0.0057	-0.0968	0.0388	0.1466	0.1854	0.4306	-0.2248
898	GLTQW	0.1307	0.0282	0.1742	1.0493	1.2235	1.1061	0.0255
899	GLTQY	0.1122	0.0097	0.1481	0.4396	0.5877	0.7666	0.0127
900	GLTQX	0.1146	0.0121	0.1493	0.4940	0.6433	0.8021	0.0151
901	GLTSW	0.0539	-0.0486	0.0664	0.6528	0.7192	0.8481	-0.0573
902	GLTSY	0.0354	-0.0671	0.0402	0.0857	0.1259	0.3548	-0.1891
903	GLTSX	0.0378	-0.0647	0.0414	0.1523	0.1937	0.4401	-0.1470
904	GLUNW	0.0447	-0.0578	0.0595	0.0709	0.1304	0.3611	-0.1600
905	GLUNY	0.0261	-0.0764	0.0334	0.0090	0.0424	0.2059	-0.3710
906	GLUNX	0.0286	-0.0739	0.0346	0.0117	0.0463	0.2151	-0.3436
907	GLUVW	0.0307	-0.0718	0.0600	0.0728	0.1328	0.3644	-0.1970
908	GLUVY	0.0121	-0.0904	0.0338	0.0086	0.0424	0.2058	-0.4391
909	GLUVX	0.0146	-0.0879	0.0350	0.0118	0.0468	0.2163	-0.4063
910	GLURW	0.0548	-0.0477	0.0597	0.0882	0.1479	0.3846	-0.1240
911	GLURY	0.0363	-0.0662	0.0335	0.0151	0.0486	0.2205	-0.3002
912	GLURX	0.0388	-0.0637	0.0347	0.0181	0.0528	0.2299	-0.2771

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

: A	B	C	D	D	E	F	G	H :
: SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION :
: 913	GLUOW	0.0469	-0.0556	0.0602	0.0987	0.1589	0.3986	-0.1395 :
: 914	GLUOY	0.0283	-0.0742	0.0340	0.0138	0.0478	0.2187	-0.3393 :
: 915	GLUOX	0.0308	-0.0717	0.0352	0.0195	0.0547	0.2339	-0.3064 :
: 916	GLUPW	0.0183	-0.0842	0.0575	0.0665	0.1240	0.3521	-0.2391 :
: 917	GLUPY	-0.0001	-0.1026	0.0313	0.0064	0.0377	0.1941	-0.5285 :
: 918	GLUPX	0.0022	-0.1003	0.0325	0.0094	0.0419	0.2048	-0.4897 :
: 919	GLUQW	0.1271	0.0246	0.1680	0.4063	0.5743	0.7578	0.0325 :
: 920	GLUQY	0.1086	0.0061	0.1418	0.2991	0.4409	0.6640	0.0092 :
: 921	GLUQX	0.1111	0.0086	0.1430	0.2891	0.4321	0.6573	0.0131 :
: 922	GLUSW	0.0504	-0.0521	0.0601	0.0757	0.1358	0.3686	-0.1413 :
: 923	GLUSY	0.0318	-0.0707	0.0340	0.0111	0.0451	0.2124	-0.3328 :
: 924	GLUSX	0.0343	-0.0682	0.0352	0.0134	0.0486	0.2204	-0.3094 :
: 925	GLZNW	0.0413	-0.0612	0.0637	0.1657	0.2294	0.4790	-0.1278 :
: 926	GLZNY	0.0228	-0.0797	0.0376	0.0759	0.1135	0.3369	-0.2365 :
: 927	GLZNX	0.0253	-0.0772	0.0388	0.0729	0.1117	0.3342	-0.2310 :
: 928	GLZVW	0.0273	-0.0752	0.0642	0.1661	0.2303	0.4799	-0.1567 :
: 929	GLZVY	0.0088	-0.0937	0.0380	0.0740	0.1120	0.3346	-0.2800 :
: 930	GLZVX	0.0113	-0.0912	0.0392	0.0715	0.1107	0.3327	-0.2741 :
: 931	GLZRW	0.0515	-0.0510	0.0639	0.1867	0.2506	0.5006	-0.1019 :
: 932	GLZRY	0.0330	-0.0695	0.0377	0.0857	0.1234	0.3513	-0.1978 :
: 933	GLZRX	0.0354	-0.0671	0.0389	0.0830	0.1219	0.3492	-0.1921 :
: 934	GLZOW	0.0435	-0.0590	0.0644	0.1938	0.2582	0.5081	-0.1161 :
: 935	GLZOY	0.0250	-0.0775	0.0382	0.0810	0.1192	0.3452	-0.2245 :
: 936	GLZOX	0.0275	-0.0750	0.0394	0.0810	0.1204	0.3470	-0.2161 :
: 937	GLZPW	0.0150	-0.0875	0.0617	0.1561	0.2178	0.4667	-0.1875 :
: 938	GLZPY	-0.0039	-0.1064	0.0355	0.0681	0.1036	0.3219	-0.3305 :
: 939	GLZPX	-0.0017	-0.1042	0.0367	0.0655	0.1022	0.3196	-0.3260 :
: 940	GLZQW	0.1238	0.0213	0.1722	0.7705	0.9427	0.9709	0.0219 :
: 941	GLZQY	0.1053	0.0028	0.1460	0.6354	0.7814	0.8840	0.0032 :
: 942	GLZQX	0.1078	0.0053	0.1472	0.6197	0.7669	0.8757	0.0061 :
: 943	GLZSW	0.0470	-0.0555	0.0643	0.1741	0.2384	0.4883	-0.1136 :
: 944	GLZSY	0.0285	-0.0740	0.0382	0.0816	0.1198	0.3461	-0.2138 :
: 945	GLZSX	0.0310	-0.0715	0.0394	0.0781	0.1175	0.3428	-0.2085 :
: 946	GKTNW	0.0482	-0.0543	0.0658	0.6733	0.7391	0.8597	-0.0632 :
: 947	GKTNX	0.0297	-0.0728	0.0396	0.1001	0.1397	0.3737	-0.1948 :
: 948	GKTNW	0.0321	-0.0704	0.0408	0.1678	0.2086	0.4567	-0.1541 :
: 949	GKTVW	0.0342	-0.0683	0.0662	0.6784	0.7446	0.8629	-0.0791 :
: 950	GKTVY	0.0157	-0.0868	0.0401	0.1028	0.1429	0.3781	-0.2296 :
: 951	GKTVX	0.0181	-0.0844	0.0412	0.1711	0.2123	0.4608	-0.1831 :
: 952	GKTRW	0.0584	-0.0441	0.0659	0.6986	0.7645	0.8743	-0.0504 :
: 953	GKTRY	0.0398	-0.0627	0.0398	0.1141	0.1539	0.3923	-0.1598 :
: 954	GKTRX	0.0423	-0.0602	0.0410	0.1822	0.2232	0.4724	-0.1274 :
: 955	GKTOW	0.0504	-0.0521	0.0664	0.7269	0.7933	0.8907	-0.0585 :
: 956	GKTOY	0.0319	-0.0706	0.0403	0.1307	0.1710	0.4135	-0.1707 :
: 957	GKTOX	0.0343	-0.0682	0.0414	0.2015	0.2429	0.4928	-0.1384 :
: 958	GKTPW	0.0218	-0.0807	0.0638	0.6669	0.7307	0.8548	-0.0944 :
: 959	GKTPY	0.0033	-0.0992	0.0376	0.0955	0.1331	0.3648	-0.2719 :
: 960	GKTPX	0.0057	-0.0968	0.0388	0.1636	0.2024	0.4499	-0.2151 :

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

: A	B	C	D	D	E	F	G	H :
: SER.	PORTFOLIO	PORTFOLIO	RETURN	WEIGHTED	PORTFOLIO	PORTFOLIO	PORTFOLIO	RETURN /
: NO.		RETURN	MINUS	SEC. VAR.	COVARIANCES	VARIANCES	STD DEV.	STANDARD
:			RISK-FREE					DEVIATION :
: 961	GKTQW	0.1307	0.0282	0.1742	1.2877	1.4619	1.2091	0.0233 :
: 962	GKTQY	0.1122	0.0097	0.1481	0.6692	0.8173	0.9041	0.0107 :
: 963	GKTQX	0.1146	0.0121	0.1493	0.7243	0.8736	0.9347	0.0130 :
: 964	GKTSW	0.0539	-0.0486	0.0664	0.6785	0.7449	0.8631	-0.0563 :
: 965	GKTSY	0.0354	-0.0671	0.0402	0.1026	0.1428	0.3778	-0.1776 :
: 966	GKTSX	0.0378	-0.0647	0.0414	0.1699	0.2113	0.4597	-0.1407 :
: 967	GKUNW	0.0447	-0.0578	0.0595	0.0829	0.1424	0.3774	-0.1531 :
: 968	GKUNY	0.0261	-0.0764	0.0334	0.0122	0.0456	0.2135	-0.3577 :
: 969	GKUNX	0.0286	-0.0739	0.0346	0.0156	0.0502	0.2241	-0.3297 :
: 970	GKUVW	0.0307	-0.0718	0.0600	0.0842	0.1442	0.3798	-0.1890 :
: 971	GKUVY	0.0121	-0.0904	0.0338	0.0112	0.0450	0.2121	-0.4261 :
: 972	GKUVX	0.0146	-0.0879	0.0350	0.0152	0.0502	0.2240	-0.3923 :
: 973	GKURW	0.0548	-0.0477	0.0597	0.1031	0.1628	0.4035	-0.1182 :
: 974	GKURY	0.0363	-0.0662	0.0335	0.0212	0.0547	0.2338	-0.2831 :
: 975	GKURX	0.0388	-0.0637	0.0347	0.0249	0.0596	0.2442	-0.2608 :
: 976	GKUOW	0.0469	-0.0556	0.0602	0.1131	0.1733	0.4163	-0.1335 :
: 977	GKUOY	0.0283	-0.0742	0.0340	0.0194	0.0534	0.2311	-0.3211 :
: 978	GKUOX	0.0308	-0.0717	0.0352	0.0259	0.0611	0.2471	-0.2901 :
: 979	GKUPW	0.0183	-0.0842	0.0575	0.0774	0.1349	0.3673	-0.2292 :
: 980	GKUPY	-0.0001	-0.1026	0.0313	0.0085	0.0398	0.1995	-0.5143 :
: 981	GKUPX	0.0022	-0.1003	0.0325	0.0123	0.0448	0.2117	-0.4738 :
: 982	GKUQW	0.1271	0.0246	0.1680	0.6305	0.7985	0.8936	0.0275 :
: 983	GKUQY	0.1086	0.0061	0.1418	0.5145	0.6563	0.8101	0.0075 :
: 984	GKUQX	0.1111	0.0086	0.1430	0.5053	0.6483	0.8052	0.0107 :
: 985	GKUSW	0.0504	-0.0521	0.0601	0.0873	0.1474	0.3839	-0.1357 :
: 986	GKUSY	0.0318	-0.0707	0.0340	0.0138	0.0478	0.2187	-0.3232 :
: 987	GKUSX	0.0343	-0.0682	0.0352	0.0169	0.0521	0.2282	-0.2989 :
: 988	GKZNW	0.0413	-0.0612	0.0637	0.1996	0.2633	0.5131	-0.1193 :
: 989	GKZNY	0.0228	-0.0797	0.0376	0.1009	0.1385	0.3722	-0.2141 :
: 990	GKZNX	0.0253	-0.0772	0.0388	0.0986	0.1374	0.3707	-0.2082 :
: 991	GKZVW	0.0273	-0.0752	0.0642	0.1994	0.2636	0.5134	-0.1465 :
: 992	GKZVY	0.0088	-0.0937	0.0380	0.0984	0.1364	0.3693	-0.2537 :
: 993	GKZVX	0.0113	-0.0912	0.0392	0.0967	0.1359	0.3686	-0.2474 :
: 994	GKZRW	0.0515	-0.0510	0.0639	0.2234	0.2873	0.5360	-0.0951 :
: 995	GKZRY	0.0330	-0.0695	0.0377	0.1136	0.1513	0.3889	-0.1787 :
: 996	GKZRX	0.0354	-0.0671	0.0389	0.1116	0.1505	0.3880	-0.1729 :
: 997	GKZOW	0.0435	-0.0590	0.0644	0.2300	0.2944	0.5426	-0.1087 :
: 998	GKZOY	0.0250	-0.0775	0.0382	0.1084	0.1466	0.3829	-0.2024 :
: 999	GKZOX	0.0275	-0.0750	0.0394	0.1092	0.1486	0.3854	-0.1946 :
: 1000	GKZPW	0.0150	-0.0875	0.0617	0.1888	0.2505	0.5005	-0.1748 :
: 1001	GKZPY	-0.0039	-0.1064	0.0355	0.0920	0.1275	0.3571	-0.2979 :
: 1002	GKZPX	-0.0017	-0.1042	0.0367	0.0902	0.1269	0.3562	-0.2925 :
: 1003	GKZQW	0.1238	0.0213	0.1722	1.0166	1.1888	1.0903	0.0195 :
: 1004	GKZQY	0.1053	0.0028	0.1460	0.8727	1.0187	1.0093	0.0028 :
: 1005	GKZQX	0.1078	0.0053	0.1472	0.8577	1.0049	1.0025	0.0053 :
: 1006	GKZSW	0.0470	-0.0555	0.0643	0.2075	0.2718	0.5213	-0.1064 :
: 1007	GKZSY	0.0285	-0.0740	0.0382	0.1061	0.1443	0.3799	-0.1948 :
: 1008	GKZSX	0.0310	-0.0715	0.0394	0.1034	0.1428	0.3779	-0.1892 :

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

: A	B	C	D	D	E	F	G	H :
: SER.	PORTFOLIO	PORTFOLIO	RETURN	WEIGHTED	PORTFOLIO	PORTFOLIO	PORTFOLIO	RETURN /
: NO.		RETURN	MINUS	SEC. VAR.	COVARIANCES	VARIANCES	STD DEV.	STANDARD
:			RISK-FREE					DEVIATION :
: 1009	CJTNW	0.0184	-0.0841	0.0635	0.6587	0.7222	0.8498	-0.0990 :
: 1010	CJTNY	-0.0002	-0.1027	0.0373	0.0895	0.1268	0.3560	-0.2884 :
: 1011	CJTNX	0.0023	-0.1002	0.0385	0.1565	0.1950	0.4416	-0.2269 :
: 1012	CJTVW	0.0044	-0.0981	0.0639	0.6643	0.7282	0.8533	-0.1149 :
: 1013	CJTVY	-0.0147	-0.1172	0.0378	0.0927	0.1305	0.3613	-0.3244 :
: 1014	CJTVX	-0.0114	-0.1139	0.0390	0.1603	0.1993	0.4465	-0.2551 :
: 1015	CJTRW	0.0286	-0.0739	0.0637	0.6853	0.7490	0.8654	-0.0854 :
: 1016	CJTRY	0.0100	-0.0925	0.0375	0.1048	0.1423	0.3773	-0.2452 :
: 1017	CJTRX	0.0125	-0.0900	0.0387	0.1723	0.2110	0.4593	-0.1959 :
: 1018	CJTOW	0.0206	-0.0819	0.0641	0.7131	0.7772	0.8816	-0.0929 :
: 1019	CJTOY	0.0021	-0.1004	0.0380	0.1209	0.1589	0.3986	-0.2519 :
: 1020	CJTOX	0.0045	-0.0980	0.0392	0.1910	0.2302	0.4798	-0.2042 :
: 1021	CJTPW	-0.0077	-0.1102	0.0615	0.6533	0.7148	0.8455	-0.1303 :
: 1022	CJTPY	-0.0260	-0.1285	0.0353	0.0859	0.1212	0.3482	-0.3690 :
: 1023	CJTPX	-0.0247	-0.1272	0.0365	0.1534	0.1899	0.4357	-0.2919 :
: 1024	CJTQW	0.1009	-0.0016	0.1720	1.2711	1.4431	1.2013	-0.0013 :
: 1025	CJTQY	0.0823	-0.0202	0.1458	0.6566	0.8024	0.8958	-0.0225 :
: 1026	CJTQX	0.0848	-0.0177	0.1470	0.7110	0.8580	0.9263	-0.0191 :
: 1027	CJTSW	0.0241	-0.0784	0.0641	0.6643	0.7284	0.8534	-0.0919 :
: 1028	CJTSY	0.0056	-0.0969	0.0379	0.0923	0.1302	0.3608	-0.2685 :
: 1029	CJTSX	0.0080	-0.0945	0.0391	0.1590	0.1981	0.4450	-0.2123 :
: 1030	CJUNW	0.0148	-0.0877	0.0573	0.0761	0.1334	0.3652	-0.2401 :
: 1031	CJUNY	-0.0031	-0.1056	0.0311	0.0094	0.0405	0.2012	-0.5248 :
: 1032	CJUNX	-0.0018	-0.1043	0.0323	0.0121	0.0444	0.2107	-0.4949 :
: 1033	CJUVW	0.0008	-0.1017	0.0577	0.0779	0.1356	0.3682	-0.2762 :
: 1034	CJUVY	-0.0176	-0.1201	0.0315	0.0088	0.0403	0.2009	-0.5979 :
: 1035	CJUVX	-0.0153	-0.1178	0.0327	0.0121	0.0448	0.2117	-0.5563 :
: 1036	CJURW	0.0250	-0.0775	0.0574	0.0976	0.1550	0.3937	-0.1968 :
: 1037	CJURY	0.0065	-0.0960	0.0312	0.0197	0.0509	0.2256	-0.4256 :
: 1038	CJURX	0.0090	-0.0935	0.0324	0.0228	0.0552	0.2349	-0.3980 :
: 1039	CJUOW	0.0171	-0.0854	0.0579	0.1070	0.1649	0.4061	-0.2103 :
: 1040	CJUOY	-0.0011	-0.1036	0.0317	0.0173	0.0490	0.2215	-0.4678 :
: 1041	CJUOX	0.0010	-0.1015	0.0329	0.0231	0.0560	0.2367	-0.4288 :
: 1042	CJUPW	-0.0116	-0.1141	0.0552	0.0716	0.1268	0.3561	-0.3204 :
: 1043	CJUPY	-0.0299	-0.1324	0.0291	0.0067	0.0358	0.1892	-0.6999 :
: 1044	CJUPX	-0.0277	-0.1302	0.0302	0.0098	0.0400	0.2000	-0.6508 :
: 1045	CJUQW	0.0973	-0.0052	0.1657	0.6217	0.7874	0.8873	-0.0058 :
: 1046	CJUQY	0.0788	-0.0237	0.1395	0.5097	0.6492	0.8057	-0.0294 :
: 1047	CJUQX	0.0813	-0.0212	0.1407	0.4998	0.6405	0.8003	-0.0265 :
: 1048	CJUSW	0.0206	-0.0819	0.0579	0.0808	0.1387	0.3724	-0.2199 :
: 1049	CJUSY	0.0020	-0.1005	0.0317	0.0114	0.0431	0.2075	-0.4843 :
: 1050	CJUSX	0.0045	-0.0980	0.0329	0.0137	0.0466	0.2158	-0.4540 :
: 1051	CJZNW	0.0115	-0.0910	0.0615	0.1894	0.2509	0.5009	-0.1816 :
: 1052	CJZNY	-0.0069	-0.1094	0.0353	0.0948	0.1301	0.3607	-0.3033 :
: 1053	CJZNX	-0.0047	-0.1072	0.0365	0.0918	0.1283	0.3582	-0.2992 :
: 1054	CJZVW	-0.0022	-0.1047	0.0619	0.1897	0.2516	0.5016	-0.2087 :
: 1055	CJZVY	-0.0204	-0.1229	0.0357	0.0928	0.1285	0.3584	-0.3429 :
: 1056	CJZVX	-0.0182	-0.1207	0.0369	0.0904	0.1273	0.3567	-0.3383 :

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
1057	CJZRW	0.0217	-0.0808	0.0616	0.2146	0.2762	0.5256	-0.1537
1058	CJZRY	0.0032	-0.0993	0.0354	0.1088	0.1442	0.3797	-0.2615
1059	CJZRX	0.0056	-0.0969	0.0366	0.1062	0.1428	0.3778	-0.2564
1060	CJZOW	0.0137	-0.0888	0.0621	0.2206	0.2827	0.5317	-0.1670
1061	CJZOY	-0.0049	-0.1074	0.0359	0.1030	0.1389	0.3727	-0.2881
1062	CJZOX	-0.0026	-0.1051	0.0371	0.1031	0.1402	0.3744	-0.2807
1063	CJZPW	-0.0145	-0.1170	0.0594	0.1797	0.2391	0.4890	-0.2392
1064	CJZPY	-0.0338	-0.1363	0.0333	0.0869	0.1202	0.3467	-0.3931
1065	CJZPX	-0.0305	-0.1330	0.0344	0.0844	0.1188	0.3446	-0.3859
1066	CJZQW	0.0940	-0.0085	0.1699	1.0044	1.1743	1.0837	-0.0078
1067	CJZQY	0.0755	-0.0270	0.1437	0.8645	1.0082	1.0041	-0.0269
1068	CJZQX	0.0780	-0.0245	0.1449	0.8489	0.9938	0.9969	-0.0246
1069	CJZSW	0.0172	-0.0853	0.0621	0.1977	0.2598	0.5097	-0.1673
1070	CJZSY	-0.0019	-0.1044	0.0359	0.1003	0.1362	0.3691	-0.2828
1071	CJZSX	0.0012	-0.1013	0.0371	0.0970	0.1341	0.3661	-0.2767
1072	CMTNW	0.0246	-0.0779	0.0677	1.3374	1.4051	1.1854	-0.0657
1073	CMTNY	0.0061	-0.0964	0.0416	0.4738	0.5154	0.7179	-0.1343
1074	CMTNX	0.0086	-0.0939	0.0427	0.5682	0.6109	0.7816	-0.1201
1075	CMTVW	0.0106	-0.0919	0.0682	1.3446	1.4128	1.1886	-0.0773
1076	CMTVY	-0.0077	-0.1102	0.0420	0.4787	0.5207	0.7216	-0.1527
1077	CMTVX	-0.0054	-0.1079	0.0432	0.5737	0.6169	0.7854	-0.1374
1078	CMTRW	0.0348	-0.0677	0.0679	1.3561	1.4240	1.1933	-0.0567
1079	CMTRY	0.0163	-0.0862	0.0417	0.4813	0.5230	0.7232	-0.1192
1080	CMTRX	0.0188	-0.0837	0.0429	0.5760	0.6189	0.7867	-0.1064
1081	CMTOW	0.0269	-0.0756	0.0684	1.3938	1.4622	1.2092	-0.0625
1082	CMTQY	0.0083	-0.0942	0.0422	0.5072	0.5494	0.7412	-0.1271
1083	CMTQX	0.0108	-0.0917	0.0434	0.6046	0.6480	0.8050	-0.1139
1084	CMTQW	-0.0017	-0.1042	0.0657	1.3267	1.3924	1.1800	-0.0883
1085	CMTQY	-0.0200	-0.1225	0.0395	0.4649	0.5044	0.7102	-0.1725
1086	CMTQX	-0.0177	-0.1202	0.0407	0.5597	0.6004	0.7749	-0.1551
1087	CMTQW	0.1071	0.0046	0.1762	1.4737	1.6499	1.2845	0.0036
1088	CMTQY	0.0886	-0.0139	0.1500	0.5649	0.7149	0.8455	-0.0164
1089	CMTQX	0.0911	-0.0114	0.1512	0.6466	0.7978	0.8932	-0.0128
1090	CMTSW	0.0304	-0.0721	0.0683	1.3496	1.4179	1.1908	-0.0605
1091	CMTSY	0.0118	-0.0907	0.0422	0.4833	0.5255	0.7249	-0.1251
1092	CMTSX	0.0143	-0.0882	0.0433	0.5773	0.6206	0.7878	-0.1119
1093	CMUNW	0.0211	-0.0814	0.0615	0.4320	0.4935	0.7025	-0.1159
1094	CMUNY	0.0026	-0.0999	0.0353	0.0709	0.1062	0.3260	-0.3065
1095	CMUNX	0.0050	-0.0975	0.0365	0.1010	0.1375	0.3708	-0.2629
1096	CMUVW	0.0071	-0.0954	0.0619	0.4354	0.4973	0.7052	-0.1353
1097	CMUVY	-0.0116	-0.1141	0.0357	0.0721	0.1078	0.3283	-0.3476
1098	CMUVX	-0.0083	-0.1108	0.0369	0.1027	0.1396	0.3736	-0.2966
1099	CMURW	0.0313	-0.0712	0.0616	0.4456	0.5072	0.7122	-0.1000
1100	CMURY	0.0128	-0.0897	0.0354	0.0733	0.1087	0.3297	-0.2720
1101	CMURX	0.0152	-0.0873	0.0366	0.1037	0.1403	0.3746	-0.2330
1102	CMUOW	0.0233	-0.0792	0.0621	0.4649	0.5270	0.7260	-0.1091
1103	CMUOY	0.0048	-0.0977	0.0359	0.0809	0.1168	0.3418	-0.2858
1104	CMUOX	0.0073	-0.0952	0.0371	0.1140	0.1511	0.3887	-0.2449

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

: A	B	C	D	D	E	F	G	H :
: SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION :
: 1105	CMUPW	-0.0056	-0.1081	0.0594	0.4221	0.4815	0.6939	-0.1558 :
: 1106	CMUPY	-0.0239	-0.1264	0.0333	0.0629	0.0962	0.3102	-0.4075 :
: 1107	CMUPX	-0.0217	-0.1242	0.0345	0.0933	0.1278	0.3575	-0.3474 :
: 1108	CMUQW	0.1036	0.0011	0.1699	0.5015	0.6714	0.8194	0.0014 :
: 1109	CMUQY	0.0851	-0.0174	0.1438	0.0951	0.2389	0.4888	-0.0356 :
: 1110	CMUQX	0.0875	-0.0150	0.1449	0.1125	0.2574	0.5074	-0.0295 :
: 1111	CMUSW	0.0268	-0.0757	0.0621	0.4433	0.5054	0.7109	-0.1065 :
: 1112	CMUSY	0.0083	-0.0942	0.0359	0.0796	0.1155	0.3398	-0.2772 :
: 1113	CMUSX	0.0108	-0.0917	0.0371	0.1092	0.1463	0.3825	-0.2397 :
: 1114	CMZNW	0.0178	-0.0847	0.0657	0.6111	0.6768	0.8227	-0.1029 :
: 1115	CMZNY	-0.0009	-0.1034	0.0395	0.2221	0.2616	0.5115	-0.2021 :
: 1116	CMZNX	0.0017	-0.1008	0.0407	0.2464	0.2871	0.5359	-0.1881 :
: 1117	CMZVW	0.0038	-0.0987	0.0661	0.6130	0.6791	0.8241	-0.1198 :
: 1118	CMZVY	-0.0144	-0.1169	0.0399	0.2217	0.2616	0.5115	-0.2285 :
: 1119	CMZVX	-0.0122	-0.1147	0.0411	0.2466	0.2877	0.5364	-0.2138 :
: 1120	CMZRW	0.0280	-0.0745	0.0658	0.6283	0.6941	0.8331	-0.0894 :
: 1121	CMZRY	0.0094	-0.0931	0.0396	0.2281	0.2677	0.5174	-0.1799 :
: 1122	CMZRX	0.0119	-0.0906	0.0408	0.2528	0.2936	0.5419	-0.1672 :
: 1123	CMZOW	0.0200	-0.0825	0.0663	0.6442	0.7105	0.8429	-0.0979 :
: 1124	CMZOY	0.0015	-0.1010	0.0401	0.2323	0.2724	0.5219	-0.1935 :
: 1125	CMZOX	0.0039	-0.0986	0.0413	0.2597	0.3010	0.5486	-0.1797 :
: 1126	CMZPW	-0.0085	-0.1110	0.0636	0.5960	0.6596	0.8122	-0.1367 :
: 1127	CMZPY	-0.0278	-0.1303	0.0375	0.2089	0.2464	0.4964	-0.2625 :
: 1128	CMZPX	-0.0245	-0.1270	0.0387	0.2336	0.2723	0.5218	-0.2434 :
: 1129	CMZQW	0.1003	-0.0022	0.1741	0.9500	1.1241	1.0602	-0.0021 :
: 1130	CMZQY	0.0818	-0.0207	0.1480	0.5157	0.6637	0.8147	-0.0254 :
: 1131	CMZQX	0.0842	-0.0183	0.1491	0.5274	0.6765	0.8225	-0.0222 :
: 1132	CMZSW	0.0235	-0.0790	0.0663	0.6259	0.6922	0.8320	-0.0949 :
: 1133	CMZSY	0.0050	-0.0975	0.0401	0.2343	0.2744	0.5238	-0.1861 :
: 1134	CMZSX	0.0074	-0.0951	0.0413	0.2582	0.2995	0.5473	-0.1738 :
: 1135	CLTNW	0.0154	-0.0871	0.0633	0.6502	0.7135	0.8447	-0.1031 :
: 1136	CLTNY	-0.0028	-0.1053	0.0390	0.0829	0.1219	0.3492	-0.3015 :
: 1137	CLTNX	-0.0005	-0.1030	0.0401	0.1499	0.1900	0.4359	-0.2363 :
: 1138	CLTVW	0.0016	-0.1009	0.0656	0.6559	0.7215	0.8494	-0.1188 :
: 1139	CLTVY	-0.0163	-0.1188	0.0394	0.0862	0.1256	0.3544	-0.3352 :
: 1140	CLTVX	-0.0140	-0.1165	0.0406	0.1538	0.1944	0.4409	-0.2642 :
: 1141	CLTRW	0.0258	-0.0767	0.0653	0.6730	0.7383	0.8592	-0.0893 :
: 1142	CLTRY	0.0073	-0.0952	0.0391	0.0944	0.1335	0.3654	-0.2605 :
: 1143	CLTRX	0.0097	-0.0928	0.0403	0.1618	0.2021	0.4495	-0.2064 :
: 1144	CLTOW	0.0178	-0.0847	0.0658	0.7015	0.7673	0.8759	-0.0967 :
: 1145	CLTOY	-0.0007	-0.1032	0.0396	0.1112	0.1508	0.3883	-0.2657 :
: 1146	CLTOX	0.0017	-0.1008	0.0408	0.1813	0.2221	0.4712	-0.2139 :
: 1147	CLTPW	-0.0103	-0.1128	0.0631	0.6449	0.7080	0.8414	-0.1340 :
: 1148	CLTPY	-0.0296	-0.1321	0.0369	0.0794	0.1163	0.3410	-0.3873 :
: 1149	CLTPX	-0.0263	-0.1288	0.0381	0.1468	0.1849	0.4300	-0.2995 :
: 1150	CLTQW	0.0981	-0.0044	0.1736	1.0514	1.2250	1.1068	-0.0040 :
: 1151	CLTQY	0.0796	-0.0229	0.1474	0.4388	0.5862	0.7656	-0.0299 :
: 1152	CLTQX	0.0820	-0.0205	0.1486	0.4932	0.6418	0.8011	-0.0256 :

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
1153	CLTSW	0.0213	-0.0812	0.0657	0.6561	0.7218	0.8496	-0.0956
1154	CLTSY	0.0028	-0.0997	0.0396	0.0860	0.1256	0.3544	-0.2813
1155	CLTSX	0.0053	-0.0972	0.0407	0.1526	0.1933	0.4397	-0.2210
1156	CLUNW	0.0121	-0.0904	0.0589	0.0740	0.1329	0.3645	-0.2480
1157	CLUNY	-0.0067	-0.1092	0.0327	0.0092	0.0419	0.2047	-0.5335
1158	CLUNX	-0.0034	-0.1059	0.0339	0.0119	0.0458	0.2139	-0.4950
1159	CLUVW	-0.0019	-0.1044	0.0593	0.0758	0.1351	0.3676	-0.2840
1160	CLUVY	-0.0202	-0.1227	0.0331	0.0087	0.0418	0.2044	-0.6001
1161	CLUVX	-0.0179	-0.1204	0.0343	0.0120	0.0463	0.2151	-0.5597
1162	CLURW	0.0223	-0.0802	0.0590	0.0916	0.1506	0.3881	-0.2066
1163	CLURY	0.0037	-0.0988	0.0328	0.0156	0.0484	0.2200	-0.4490
1164	CLURX	0.0062	-0.0963	0.0340	0.0187	0.0527	0.2295	-0.4196
1165	CLUOW	0.0143	-0.0882	0.0595	0.1018	0.1613	0.4016	-0.2196
1166	CLUOY	-0.0046	-0.1071	0.0333	0.0140	0.0473	0.2176	-0.4922
1167	CLUOX	-0.0014	-0.1039	0.0345	0.0198	0.0543	0.2330	-0.4459
1168	CLUPW	-0.0142	-0.1167	0.0568	0.0695	0.1263	0.3554	-0.3284
1169	CLUPY	-0.0325	-0.1350	0.0307	0.0065	0.0372	0.1929	-0.6998
1170	CLUPX	-0.0302	-0.1327	0.0319	0.0096	0.0415	0.2037	-0.6514
1171	CLUQW	0.0946	-0.0079	0.1673	0.4083	0.5756	0.7587	-0.0104
1172	CLUQY	0.0760	-0.0265	0.1412	0.2982	0.4394	0.6629	-0.0400
1173	CLUQX	0.0785	-0.0240	0.1423	0.2883	0.4306	0.6562	-0.0366
1174	CLUSW	0.0178	-0.0847	0.0595	0.0790	0.1385	0.3721	-0.2276
1175	CLUSY	-0.0007	-0.1032	0.0333	0.0114	0.0447	0.2115	-0.4879
1176	CLUSX	0.0017	-0.1008	0.0345	0.0137	0.0482	0.2196	-0.4590
1177	CLZNW	0.0087	-0.0938	0.0631	0.1688	0.2319	0.4815	-0.1948
1178	CLZNY	-0.0095	-0.1120	0.0369	0.0761	0.1130	0.3361	-0.3332
1179	CLZNX	-0.0073	-0.1098	0.0381	0.0730	0.1111	0.3334	-0.3293
1180	CLZVW	-0.0057	-0.1082	0.0635	0.1691	0.2326	0.4823	-0.2243
1181	CLZVY	-0.0230	-0.1255	0.0373	0.0740	0.1113	0.3337	-0.3761
1182	CLZVX	-0.0218	-0.1243	0.0385	0.0716	0.1101	0.3318	-0.3746
1183	CLZRW	0.0189	-0.0836	0.0632	0.1901	0.2533	0.5033	-0.1661
1184	CLZRY	0.0004	-0.1021	0.0370	0.0861	0.1231	0.3509	-0.2909
1185	CLZRX	0.0029	-0.0996	0.0382	0.0835	0.1217	0.3488	-0.2855
1186	CLZOW	0.0110	-0.0915	0.0637	0.1968	0.2605	0.5104	-0.1792
1187	CLZOY	-0.0075	-0.1100	0.0375	0.0812	0.1187	0.3445	-0.3193
1188	CLZOX	-0.0052	-0.1077	0.0387	0.0812	0.1199	0.3463	-0.3110
1189	CLZPW	-0.0171	-0.1196	0.0610	0.1591	0.2201	0.4691	-0.2549
1190	CLZPY	-0.0363	-0.1388	0.0349	0.0682	0.1031	0.3211	-0.4323
1191	CLZPX	-0.0331	-0.1356	0.0361	0.0656	0.1017	0.3189	-0.4252
1192	CLZQW	0.0912	-0.0113	0.1715	0.7725	0.9440	0.9716	-0.0116
1193	CLZQY	0.0727	-0.0298	0.1454	0.6345	0.7799	0.8831	-0.0337
1194	CLZQX	0.0752	-0.0273	0.1465	0.6188	0.7653	0.8748	-0.0312
1195	CLZSW	0.0145	-0.0880	0.0637	0.1773	0.2410	0.4909	-0.1792
1196	CLZSY	-0.0045	-0.1070	0.0375	0.0818	0.1193	0.3454	-0.3097
1197	CLZSX	-0.0012	-0.1037	0.0387	0.0784	0.1171	0.3422	-0.3030
1198	CKTNW	0.0156	-0.0869	0.0651	0.6761	0.7412	0.8609	-0.1009
1199	CKTNY	-0.0028	-0.1053	0.0390	0.1000	0.1390	0.3728	-0.2824
1200	CKTNX	-0.0005	-0.1030	0.0401	0.1677	0.2078	0.4559	-0.2259

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
1201	CKTVW	0.0016	-0.1009	0.0656	0.6812	0.7468	0.8642	-0.1167
1202	CKTVY	-0.0163	-0.1188	0.0394	0.1027	0.1421	0.3770	-0.3151
1203	CKTVX	-0.0140	-0.1165	0.0406	0.1710	0.2116	0.4600	-0.2532
1204	CKTRW	0.0258	-0.0767	0.0653	0.7017	0.7670	0.8758	-0.0876
1205	CKTRY	0.0073	-0.0952	0.0391	0.1143	0.1534	0.3917	-0.2430
1206	CKTRX	0.0097	-0.0928	0.0403	0.1824	0.2227	0.4720	-0.1966
1207	CKTOW	0.0178	-0.0847	0.0658	0.7297	0.7955	0.8919	-0.0950
1208	CKTOY	-0.0007	-0.1032	0.0396	0.1306	0.1702	0.4126	-0.2501
1209	CKTOX	0.0017	-0.1008	0.0408	0.2015	0.2423	0.4922	-0.2048
1210	CKTPW	-0.0103	-0.1128	0.0631	0.6697	0.7328	0.8560	-0.1318
1211	CKTPY	-0.0296	-0.1321	0.0369	0.0954	0.1323	0.3637	-0.3632
1212	CKTPX	-0.0263	-0.1288	0.0381	0.1635	0.2016	0.4490	-0.2868
1213	CKTQW	0.0981	-0.0044	0.1736	1.2895	1.4631	1.2096	-0.0036
1214	CKTQY	0.0796	-0.0229	0.1474	0.6681	0.8155	0.9030	-0.0253
1215	CKTQX	0.0820	-0.0205	0.1486	0.7232	0.8718	0.9337	-0.0219
1216	CKTSW	0.0213	-0.0812	0.0657	0.6815	0.7472	0.8644	-0.0939
1217	CKTSY	0.0028	-0.0997	0.0396	0.1026	0.1422	0.3771	-0.2644
1218	CKTSX	0.0053	-0.0972	0.0407	0.1700	0.2107	0.4590	-0.2118
1219	CKUNW	0.0121	-0.0904	0.0589	0.0857	0.1446	0.3803	-0.2377
1220	CKUNY	-0.0067	-0.1092	0.0327	0.0121	0.0448	0.2116	-0.5159
1221	CKUNX	-0.0034	-0.1059	0.0339	0.0155	0.0494	0.2223	-0.4763
1222	CKUVW	-0.0019	-0.1044	0.0593	0.0870	0.1463	0.3825	-0.2729
1223	CKUVY	-0.0202	-0.1227	0.0331	0.0110	0.0441	0.2101	-0.5841
1224	CKUVX	-0.0179	-0.1204	0.0343	0.0150	0.0493	0.2221	-0.5420
1225	CKURW	0.0223	-0.0802	0.0590	0.1062	0.1652	0.4065	-0.1973
1226	CKURY	0.0037	-0.0988	0.0328	0.0213	0.0541	0.2327	-0.4245
1227	CKURX	0.0062	-0.0963	0.0340	0.0252	0.0592	0.2432	-0.3959
1228	CKUOW	0.0143	-0.0882	0.0595	0.1159	0.1754	0.4188	-0.2106
1229	CKUOY	-0.0046	-0.1071	0.0333	0.0193	0.0526	0.2294	-0.4669
1230	CKUOX	-0.0014	-0.1039	0.0345	0.0258	0.0603	0.2456	-0.4230
1231	CKUPW	-0.0142	-0.1167	0.0568	0.0801	0.1369	0.3700	-0.3154
1232	CKUPY	-0.0325	-0.1350	0.0307	0.0083	0.0390	0.1975	-0.6834
1233	CKUPX	-0.0302	-0.1327	0.0319	0.0122	0.0441	0.2099	-0.6321
1234	CKUQW	0.0946	-0.0079	0.1673	0.6323	0.7996	0.8942	-0.0088
1235	CKUQY	0.0760	-0.0265	0.1412	0.5133	0.6545	0.8090	-0.0327
1236	CKUQX	0.0785	-0.0240	0.1423	0.5042	0.6465	0.8040	-0.0298
1237	CKUSW	0.0178	-0.0847	0.0595	0.0902	0.1497	0.3869	-0.2189
1238	CKUSY	-0.0007	-0.1032	0.0333	0.0138	0.0471	0.2171	-0.4753
1239	CKUSX	0.0017	-0.1008	0.0345	0.0169	0.0514	0.2267	-0.4446
1240	CKZNW	0.0087	-0.0938	0.0631	0.2023	0.2654	0.5152	-0.1821
1241	CKZNY	-0.0095	-0.1120	0.0369	0.1008	0.1377	0.3711	-0.3018
1242	CKZNX	-0.0073	-0.1098	0.0381	0.0985	0.1366	0.3696	-0.2970
1243	CKZVW	-0.0057	-0.1082	0.0635	0.2021	0.2656	0.5153	-0.2099
1244	CKZVY	-0.0230	-0.1255	0.0373	0.0982	0.1355	0.3681	-0.3409
1245	CKZVX	-0.0218	-0.1243	0.0385	0.0965	0.1350	0.3674	-0.3383
1246	CKZRW	0.0189	-0.0836	0.0632	0.2265	0.2897	0.5382	-0.1553
1247	CKZRY	0.0004	-0.1021	0.0370	0.1137	0.1507	0.3882	-0.2630
1248	CKZRX	0.0029	-0.0996	0.0382	0.1118	0.1500	0.3873	-0.2571

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
1249	CKZOW	0.0110	-0.0915	0.0637	0.2328	0.2965	0.5445	-0.1680
1250	CKZOY	-0.0075	-0.1100	0.0375	0.1083	0.1458	0.3818	-0.2881
1251	CKZOX	-0.0052	-0.1077	0.0387	0.1091	0.1478	0.3844	-0.2802
1252	CKZPW	-0.0171	-0.1196	0.0610	0.1915	0.2525	0.5025	-0.2380
1253	CKZPY	-0.0363	-0.1388	0.0349	0.0918	0.1267	0.3560	-0.3899
1254	CKZPX	-0.0331	-0.1356	0.0361	0.0900	0.1261	0.3551	-0.3819
1255	CKZQW	0.0912	-0.0113	0.1715	1.0183	1.1898	1.0908	-0.0104
1256	CKZQY	0.0727	-0.0298	0.1454	0.8714	1.0168	1.0084	-0.0295
1257	CKZQX	0.0752	-0.0273	0.1465	0.8566	1.0031	1.0015	-0.0272
1258	CKZSW	0.0145	-0.0880	0.0637	0.2103	0.2740	0.5235	-0.1681
1259	CKZSY	-0.0045	-0.1070	0.0375	0.1061	0.1436	0.3789	-0.2824
1260	CKZSX	-0.0012	-0.1037	0.0387	0.1034	0.1421	0.3770	-0.2751
1261	EJTNW	0.1599	0.0574	0.0442	0.5621	0.6063	0.7787	0.0737
1262	EJTNY	0.1414	0.0389	0.0181	0.0390	0.0571	0.2389	0.1629
1263	EJTNX	0.1438	0.0413	0.0192	0.0993	0.1185	0.3442	0.1200
1264	EJTVW	0.1459	0.0434	0.0446	0.5671	0.6117	0.7821	0.0555
1265	EJTVY	0.1274	0.0249	0.0185	0.0416	0.0601	0.2452	0.1016
1266	EJTVX	0.1298	0.0273	0.0197	0.1025	0.1222	0.3496	0.0781
1267	EJTRW	0.1701	0.0676	0.0444	0.5882	0.6326	0.7954	0.0850
1268	EJTRY	0.1516	0.0491	0.0182	0.0538	0.0720	0.2684	0.1830
1269	EJTRX	0.1540	0.0515	0.0194	0.1145	0.1339	0.3660	0.1408
1270	EJTOW	0.1621	0.0596	0.0449	0.6139	0.6588	0.8116	0.0734
1271	EJTOY	0.1436	0.0411	0.0187	0.0677	0.0864	0.2940	0.1398
1272	EJTOX	0.1460	0.0435	0.0199	0.1311	0.1510	0.3886	0.1120
1273	EJTPW	0.1335	0.0310	0.0422	0.5563	0.5985	0.7736	0.0401
1274	EJTPY	0.1150	0.0125	0.0160	0.0350	0.0510	0.2258	0.0554
1275	EJTPX	0.1175	0.0150	0.0172	0.0957	0.1129	0.3360	0.0447
1276	EJTQW	0.2424	0.1399	0.1527	1.1719	1.3246	1.1509	0.1216
1277	EJTQY	0.2239	0.1214	0.1265	0.6035	0.7300	0.8544	0.1421
1278	EJTQX	0.2263	0.1238	0.1277	0.6512	0.7789	0.8825	0.1403
1279	EJTSW	0.1656	0.0631	0.0448	0.5679	0.6127	0.7827	0.0806
1280	EJTSY	0.1471	0.0446	0.0186	0.0420	0.0606	0.2462	0.1812
1281	EJTSX	0.1495	0.0470	0.0198	0.1019	0.1217	0.3489	0.1347
1282	EJUNW	0.1564	0.0539	0.0380	0.0298	0.0678	0.2603	0.2071
1283	EJUNY	0.1378	0.0353	0.0118	0.0091	0.0209	0.1447	0.2441
1284	EJUNX	0.1403	0.0378	0.0130	0.0051	0.0181	0.1346	0.2809
1285	EJUVW	0.1424	0.0399	0.0384	0.0310	0.0694	0.2634	0.1515
1286	EJUVY	0.1238	0.0213	0.0122	0.0080	0.0202	0.1422	0.1499
1287	EJUVX	0.1263	0.0238	0.0134	0.0046	0.0180	0.1341	0.1775
1288	EJURW	0.1665	0.0640	0.0381	0.0508	0.0889	0.2981	0.2147
1289	EJURY	0.1480	0.0455	0.0119	0.0189	0.0308	0.1756	0.2592
1290	EJURX	0.1505	0.0480	0.0131	0.0153	0.0284	0.1685	0.2849
1291	EJUOW	0.1586	0.0561	0.0386	0.0581	0.0967	0.3109	0.1805
1292	EJUOY	0.1401	0.0376	0.0124	0.0145	0.0269	0.1639	0.2294
1293	EJUOX	0.1425	0.0400	0.0136	0.0135	0.0271	0.1647	0.2429
1294	EJUPW	0.1300	0.0275	0.0359	0.0248	0.0607	0.2464	0.1117
1295	EJUPY	0.1115	0.0090	0.0098	0.0060	0.0158	0.1257	0.0717
1296	EJUPX	0.1139	0.0114	0.0109	0.0024	0.0133	0.1153	0.0990

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
1297	EJUQW	0.2389	0.1364	0.1464	0.5727	0.7191	0.8480	0.1609
1298	EJUQY	0.2203	0.1178	0.1203	0.5068	0.6271	0.7919	0.1488
1299	EJUQX	0.2228	0.1203	0.1214	0.4902	0.6116	0.7820	0.1538
1300	EJUSW	0.1621	0.0596	0.0386	0.0347	0.0733	0.2707	0.2202
1301	EJUSY	0.1436	0.0411	0.0124	0.0113	0.0237	0.1540	0.2669
1302	EJUSX	0.1460	0.0435	0.0136	0.0069	0.0205	0.1432	0.3038
1303	EJZNW	0.1530	0.0505	0.0422	0.1449	0.1871	0.4325	0.1168
1304	EJZNY	0.1345	0.0320	0.0160	0.0963	0.1123	0.3351	0.0955
1305	EJZNX	0.1370	0.0345	0.0172	0.0866	0.1038	0.3222	0.1071
1306	EJZVW	0.1390	0.0365	0.0426	0.1446	0.1872	0.4326	0.0844
1307	EJZVY	0.1205	0.0180	0.0164	0.0937	0.1101	0.3318	0.0543
1308	EJZVX	0.1230	0.0205	0.0176	0.0845	0.1021	0.3196	0.0642
1309	EJZRW	0.1632	0.0607	0.0423	0.1695	0.2118	0.4603	0.1319
1310	EJZRY	0.1447	0.0422	0.0161	0.1098	0.1259	0.3548	0.1190
1311	EJZRX	0.1472	0.0447	0.0173	0.1004	0.1177	0.3431	0.1303
1312	EJZOW	0.1553	0.0528	0.0428	0.1734	0.2162	0.4650	0.1136
1313	EJZOY	0.1367	0.0342	0.0166	0.1019	0.1185	0.3443	0.0994
1314	EJZOX	0.1392	0.0367	0.0178	0.0953	0.1131	0.3363	0.1092
1315	EJZPW	0.1267	0.0242	0.0401	0.1347	0.1748	0.4181	0.0579
1316	EJZPY	0.1081	0.0056	0.0140	0.0880	0.1020	0.3194	0.0176
1317	EJZPX	0.1106	0.0081	0.0151	0.0787	0.0938	0.3062	0.0265
1318	EJZQW	0.2355	0.1330	0.1506	0.9572	1.1078	1.0525	0.1264
1319	EJZQY	0.2170	0.1145	0.1245	0.8634	0.9879	0.9939	0.1152
1320	EJZQX	0.2195	0.1170	0.1256	0.8410	0.9666	0.9832	0.1190
1321	EJZSW	0.1588	0.0563	0.0428	0.1533	0.1961	0.4428	0.1272
1322	EJZSY	0.1402	0.0377	0.0166	0.1020	0.1186	0.3444	0.1095
1323	EJZSX	0.1427	0.0402	0.0178	0.0919	0.1097	0.3313	0.1214
1324	EMTNW	0.1662	0.0637	0.0484	1.2194	1.2678	1.1260	0.0566
1325	EMTNY	0.1476	0.0451	0.0223	0.4020	0.4243	0.6514	0.0693
1326	EMTNX	0.1501	0.0476	0.0235	0.4896	0.5131	0.7163	0.0665
1327	EMTVW	0.1522	0.0497	0.0489	1.2261	1.2750	1.1292	0.0440
1328	EMTVY	0.1336	0.0311	0.0227	0.4063	0.4290	0.6550	0.0475
1329	EMTVX	0.1361	0.0336	0.0239	0.4945	0.5184	0.7200	0.0467
1330	EMTRW	0.1763	0.0738	0.0486	1.2376	1.2862	1.1341	0.0651
1331	EMTRY	0.1578	0.0553	0.0224	0.4089	0.4313	0.6567	0.0842
1332	EMTRX	0.1603	0.0578	0.0236	0.4969	0.5205	0.7215	0.0801
1333	EMTOW	0.1684	0.0659	0.0491	1.2732	1.3223	1.1499	0.0573
1334	EMTOY	0.1499	0.0474	0.0229	0.4327	0.4556	0.6750	0.0702
1335	EMTOX	0.1523	0.0498	0.0241	0.5234	0.5475	0.7399	0.0673
1336	EMTPW	0.1398	0.0373	0.0464	1.2083	1.2547	1.1201	0.0333
1337	EMTPY	0.1213	0.0188	0.0202	0.3926	0.4128	0.6425	0.0293
1338	EMTPX	0.1237	0.0212	0.0214	0.4806	0.5020	0.7086	0.0299
1339	EMTQW	0.2487	0.1462	0.1569	1.3531	1.5100	1.2288	0.1190
1340	EMTQY	0.2301	0.1276	0.1307	0.4904	0.6211	0.7881	0.1619
1341	EMTQX	0.2326	0.1301	0.1319	0.5654	0.6973	0.8350	0.1558
1342	EMTSW	0.1719	0.0694	0.0490	1.2319	1.2809	1.1317	0.0613
1343	EMTSY	0.1534	0.0509	0.0229	0.4117	0.4346	0.6592	0.0772
1344	EMTSX	0.1558	0.0533	0.0240	0.4989	0.5229	0.7231	0.0737

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
1345	EMUNW	0.1626	0.0601	0.0422	0.3643	0.4065	0.6375	0.0943
1346	EMUNY	0.1441	0.0416	0.0160	0.0493	0.0653	0.2556	0.1628
1347	EMUNX	0.1466	0.0441	0.0172	0.0726	0.0898	0.2997	0.1472
1348	EMUVW	0.1486	0.0461	0.0426	0.3672	0.4098	0.6401	0.0720
1349	EMUVY	0.1301	0.0276	0.0164	0.0499	0.0663	0.2574	0.1073
1350	EMUVX	0.1326	0.0301	0.0176	0.0737	0.0913	0.3022	0.0996
1351	EMURW	0.1728	0.0703	0.0423	0.3774	0.4197	0.6478	0.1085
1352	EMURY	0.1543	0.0518	0.0162	0.0512	0.0674	0.2596	0.1996
1353	EMURX	0.1567	0.0542	0.0173	0.0749	0.0922	0.3036	0.1786
1354	EMUOW	0.1648	0.0623	0.0428	0.3946	0.4374	0.6614	0.0942
1355	EMUOY	0.1463	0.0438	0.0166	0.0567	0.0733	0.2707	0.1619
1356	EMUOX	0.1488	0.0463	0.0178	0.0830	0.1008	0.3175	0.1458
1357	EMUPW	0.1363	0.0338	0.0401	0.3540	0.3941	0.6277	0.0539
1358	EMUPY	0.1177	0.0152	0.0140	0.0408	0.0548	0.2341	0.0650
1359	EMUPX	0.1202	0.0177	0.0152	0.0645	0.0797	0.2824	0.0627
1360	EMUQW	0.2451	0.1426	0.1506	0.4311	0.5817	0.7627	0.1870
1361	EMUQY	0.2266	0.1241	0.1245	0.0709	0.1954	0.4420	0.2898
1362	EMUQX	0.2291	0.1266	0.1257	0.0815	0.2072	0.4552	0.2781
1363	EMUSW	0.1683	0.0658	0.0428	0.3758	0.4186	0.6470	0.1017
1364	EMUSY	0.1498	0.0473	0.0166	0.0581	0.0747	0.2734	0.1739
1365	EMUSX	0.1523	0.0498	0.0178	0.0810	0.0988	0.3144	0.1584
1366	EMZNW	0.1593	0.0568	0.0464	0.5451	0.5915	0.7691	0.0739
1367	EMZNY	0.1408	0.0383	0.0202	0.2022	0.2224	0.4716	0.0812
1368	EMZNX	0.1432	0.0407	0.0214	0.2198	0.2412	0.4912	0.0829
1369	EMZVW	0.1453	0.0428	0.0468	0.5465	0.5933	0.7702	0.0556
1370	EMZVY	0.1268	0.0243	0.0206	0.2012	0.2218	0.4710	0.0516
1371	EMZVX	0.1292	0.0267	0.0218	0.2194	0.2412	0.4911	0.0544
1372	EMZRW	0.1695	0.0670	0.0465	0.5619	0.6084	0.7800	0.0859
1373	EMZRY	0.1510	0.0485	0.0204	0.2078	0.2282	0.4777	0.1016
1374	EMZRX	0.1534	0.0509	0.0215	0.2257	0.2472	0.4972	0.1024
1375	EMZOW	0.1615	0.0590	0.0470	0.5757	0.6227	0.7891	0.0748
1376	EMZOY	0.1430	0.0405	0.0208	0.2098	0.2306	0.4802	0.0844
1377	EMZOX	0.1455	0.0430	0.0220	0.2305	0.2525	0.5025	0.0856
1378	EMZPW	0.1329	0.0304	0.0443	0.5296	0.5739	0.7576	0.0401
1379	EMZPY	0.1144	0.0119	0.0182	0.1885	0.2067	0.4547	0.0262
1380	EMZPX	0.1169	0.0144	0.0194	0.2065	0.2259	0.4753	0.0303
1381	EMZQW	0.2418	0.1393	0.1548	0.8814	1.0362	1.0179	0.1369
1382	EMZQY	0.2233	0.1208	0.1287	0.4932	0.6219	0.7886	0.1532
1383	EMZQX	0.2257	0.1232	0.1299	0.4982	0.6281	0.7925	0.1555
1384	EMZSW	0.1650	0.0625	0.0470	0.5602	0.6072	0.7792	0.0802
1385	EMZSY	0.1465	0.0440	0.0208	0.2146	0.2354	0.4852	0.0907
1386	EMZSX	0.1490	0.0465	0.0220	0.2318	0.2538	0.5038	0.0923
1387	ELTNW	0.1569	0.0544	0.0440	0.5548	0.5988	0.7738	0.0703
1388	ELTNY	0.1386	0.0361	0.0197	0.0336	0.0533	0.2308	0.1565
1389	ELTNX	0.1411	0.0386	0.0208	0.0938	0.1146	0.3386	0.1140
1390	ELTVW	0.1431	0.0406	0.0463	0.5599	0.6062	0.7786	0.0522
1391	ELTVY	0.1246	0.0221	0.0201	0.0363	0.0564	0.2374	0.0931
1392	ELTVX	0.1271	0.0246	0.0213	0.0971	0.1184	0.3441	0.0715

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
1393	ELTRW	0.1673	0.0648	0.0460	0.5770	0.6230	0.7893	0.0821
1394	ELTRY	0.1488	0.0463	0.0198	0.0445	0.0643	0.2537	0.1826
1395	ELTRX	0.1512	0.0487	0.0210	0.1052	0.1262	0.3552	0.1371
1396	ELTOW	0.1593	0.0568	0.0465	0.6034	0.6499	0.8062	0.0705
1397	ELTOY	0.1408	0.0383	0.0203	0.0592	0.0795	0.2820	0.1359
1398	ELTOX	0.1433	0.0408	0.0215	0.1226	0.1441	0.3796	0.1075
1399	ELTPW	0.1307	0.0282	0.0438	0.5490	0.5928	0.7699	0.0366
1400	ELTPY	0.1122	0.0097	0.0176	0.0296	0.0472	0.2172	0.0447
1401	ELTPX	0.1147	0.0122	0.0188	0.0903	0.1091	0.3303	0.0370
1402	ELTQW	0.2396	0.1371	0.1543	0.9533	1.1076	1.0524	0.1303
1403	ELTQY	0.2211	0.1186	0.1281	0.3868	0.5149	0.7176	0.1653
1404	ELTQX	0.2235	0.1210	0.1293	0.4344	0.5637	0.7508	0.1612
1405	ELTSW	0.1628	0.0603	0.0464	0.5608	0.6072	0.7793	0.0774
1406	ELTSY	0.1443	0.0418	0.0203	0.0369	0.0572	0.2391	0.1749
1407	ELTSX	0.1468	0.0443	0.0214	0.0968	0.1182	0.3437	0.1289
1408	ELUNW	0.1536	0.0511	0.0396	0.0288	0.0684	0.2615	0.1954
1409	ELUNY	0.1351	0.0326	0.0134	0.0101	0.0235	0.1532	0.2128
1410	ELUNX	0.1375	0.0350	0.0146	0.0060	0.0206	0.1436	0.2438
1411	ELUVW	0.1396	0.0371	0.0400	0.0301	0.0701	0.2647	0.1402
1412	ELUVY	0.1211	0.0186	0.0138	0.0090	0.0228	0.1510	0.1232
1413	ELUVX	0.1235	0.0210	0.0150	0.0055	0.0205	0.1433	0.1466
1414	ELURW	0.1638	0.0613	0.0397	0.0459	0.0856	0.2926	0.2095
1415	ELURY	0.1452	0.0427	0.0136	0.0160	0.0296	0.1720	0.2483
1416	ELURX	0.1477	0.0452	0.0147	0.0123	0.0270	0.1644	0.2751
1417	ELUOW	0.1558	0.0533	0.0402	0.0540	0.0942	0.3069	0.1737
1418	ELUOY	0.1373	0.0348	0.0140	0.0123	0.0263	0.1622	0.2146
1419	ELUOX	0.1397	0.0372	0.0152	0.0113	0.0265	0.1628	0.2285
1420	ELUPW	0.1272	0.0247	0.0375	0.0239	0.0614	0.2477	0.0998
1421	ELUPY	0.1087	0.0062	0.0114	0.0069	0.0183	0.1354	0.0458
1422	ELUPX	0.1112	0.0087	0.0126	0.0033	0.0159	0.1261	0.0691
1423	ELUQW	0.2361	0.1336	0.1480	0.3605	0.5085	0.7131	0.1874
1424	ELUQY	0.2176	0.1151	0.1219	0.2965	0.4184	0.6468	0.1780
1425	ELUQX	0.2200	0.1175	0.1230	0.2798	0.4028	0.6347	0.1852
1426	ELUSW	0.1593	0.0568	0.0402	0.0340	0.0742	0.2723	0.2086
1427	ELUSY	0.1408	0.0383	0.0140	0.0125	0.0265	0.1629	0.2352
1428	ELUSX	0.1432	0.0407	0.0152	0.0081	0.0233	0.1526	0.2668
1429	ELZNW	0.1503	0.0478	0.0438	0.1253	0.1691	0.4112	0.1163
1430	ELZNY	0.1317	0.0292	0.0176	0.0787	0.0963	0.3103	0.0941
1431	ELZNX	0.1342	0.0317	0.0188	0.0690	0.0878	0.2962	0.1070
1432	ELZVW	0.1363	0.0338	0.0442	0.1251	0.1693	0.4114	0.0822
1433	ELZVY	0.1177	0.0152	0.0180	0.0761	0.0941	0.3068	0.0496
1434	ELZVX	0.1202	0.0177	0.0192	0.0669	0.0861	0.2935	0.0603
1435	ELZRW	0.1604	0.0579	0.0439	0.1461	0.1900	0.4359	0.1328
1436	ELZRY	0.1419	0.0394	0.0178	0.0883	0.1061	0.3257	0.1210
1437	ELZRX	0.1444	0.0419	0.0189	0.0789	0.0978	0.3127	0.1340
1438	ELZOW	0.1525	0.0500	0.0444	0.1508	0.1952	0.4418	0.1132
1439	ELZOY	0.1340	0.0315	0.0182	0.0812	0.0994	0.3152	0.1000
1440	ELZOX	0.1364	0.0339	0.0194	0.0745	0.0939	0.3064	0.1107

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PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
1441	ELZPW	0.1239	0.0214	0.0417	0.1152	0.1569	0.3961	0.0541
1442	ELZPY	0.1054	0.0029	0.0156	0.0704	0.0860	0.2932	0.0099
1443	ELZPX	0.1078	0.0053	0.0168	0.0610	0.0778	0.2790	0.0190
1444	ELZQW	0.2328	0.1303	0.1522	0.7264	0.8786	0.9373	0.1390
1445	ELZQY	0.2142	0.1117	0.1261	0.6345	0.7606	0.8721	0.1281
1446	ELZQX	0.2167	0.1142	0.1272	0.6121	0.7393	0.8598	0.1328
1447	ELZSW	0.1560	0.0535	0.0444	0.1340	0.1784	0.4224	0.1267
1448	ELZSY	0.1375	0.0350	0.0182	0.0847	0.1029	0.3207	0.1092
1449	ELZSX	0.1399	0.0374	0.0194	0.0745	0.0939	0.3065	0.1221
1450	EKTNW	0.1571	0.0546	0.0458	0.5791	0.6249	0.7905	0.0691
1451	EKTNY	0.1386	0.0361	0.0197	0.0491	0.0688	0.2622	0.1377
1452	EKTNX	0.1411	0.0386	0.0208	0.1101	0.1309	0.3618	0.1067
1453	EKT VW	0.1431	0.0406	0.0463	0.5836	0.6299	0.7937	0.0512
1454	EKT VY	0.1246	0.0221	0.0201	0.0512	0.0713	0.2670	0.0828
1455	EKT VX	0.1271	0.0246	0.0213	0.1128	0.1341	0.3662	0.0672
1456	EKTRW	0.1673	0.0648	0.0460	0.6042	0.6502	0.8063	0.0804
1457	EKTRY	0.1488	0.0463	0.0198	0.0629	0.0827	0.2876	0.1611
1458	EKTRX	0.1512	0.0487	0.0210	0.1243	0.1453	0.3812	0.1278
1459	EKTOW	0.1593	0.0568	0.0465	0.6301	0.6766	0.8226	0.0691
1460	EKTOY	0.1408	0.0383	0.0203	0.0771	0.0974	0.3121	0.1228
1461	EKTOX	0.1433	0.0408	0.0215	0.1412	0.1627	0.4034	0.1012
1462	EKTPW	0.1307	0.0282	0.0438	0.5722	0.6160	0.7849	0.0359
1463	EKTPY	0.1122	0.0097	0.0176	0.0440	0.0616	0.2482	0.0391
1464	EKTPX	0.1147	0.0122	0.0188	0.1054	0.1242	0.3525	0.0346
1465	EKTQW	0.2396	0.1371	0.1543	1.1899	1.3442	1.1594	0.1183
1466	EKTQY	0.2211	0.1186	0.1281	0.6145	0.7426	0.8618	0.1376
1467	EKTQX	0.2235	0.1210	0.1293	0.6629	0.7922	0.8901	0.1360
1468	EKTSW	0.1628	0.0603	0.0464	0.5847	0.6311	0.7944	0.0759
1469	EKTSY	0.1443	0.0418	0.0203	0.0519	0.0722	0.2687	0.1556
1470	EKTSX	0.1468	0.0443	0.0214	0.1125	0.1339	0.3660	0.1211
1471	EKUNW	0.1536	0.0511	0.0396	0.0390	0.0786	0.2803	0.1824
1472	EKUNY	0.1351	0.0326	0.0134	0.0114	0.0248	0.1575	0.2070
1473	EKUNX	0.1375	0.0350	0.0146	0.0081	0.0227	0.1508	0.2322
1474	EKUVW	0.1396	0.0371	0.0400	0.0397	0.0797	0.2822	0.1315
1475	EKUVY	0.1211	0.0186	0.0138	0.0098	0.0236	0.1536	0.1212
1476	EKUVX	0.1235	0.0210	0.0150	0.0071	0.0221	0.1486	0.1414
1477	EKURW	0.1638	0.0613	0.0397	0.0590	0.0987	0.3141	0.1952
1478	EKURY	0.1452	0.0427	0.0136	0.0202	0.0338	0.1838	0.2324
1479	EKURX	0.1477	0.0452	0.0147	0.0173	0.0320	0.1788	0.2529
1480	EKUOW	0.1558	0.0533	0.0402	0.0665	0.1067	0.3267	0.1632
1481	EKUOY	0.1373	0.0348	0.0140	0.0160	0.0300	0.1733	0.2009
1482	EKUOX	0.1397	0.0372	0.0152	0.0158	0.0310	0.1761	0.2113
1483	EKUPW	0.1272	0.0247	0.0375	0.0329	0.0704	0.2654	0.0931
1484	EKUPY	0.1087	0.0062	0.0114	0.0072	0.0186	0.1364	0.0455
1485	EKUPX	0.1112	0.0087	0.0126	0.0043	0.0169	0.1301	0.0670
1486	EKUQW	0.2361	0.1336	0.1480	0.5829	0.7309	0.8549	0.1563
1487	EKUQY	0.2176	0.1151	0.1219	0.5100	0.6319	0.7949	0.1448
1488	EKUQX	0.2200	0.1175	0.1230	0.4941	0.6171	0.7856	0.1496

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PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

: A	B	C	D	D	E	F	G	H :
: SER.	PORTFOLIO	PORTFOLIO	RETURN	WEIGHTED	PORTFOLIO	PORTFOLIO	PORTFOLIO	RETURN /
: NO.		RETURN	MINUS	SEC. VAR.	COVARIANCES	VARIANCES	STD DEV.	STANDARD
:			RISK-FREE					DEVIATION :
: 1489	EKUSW	0.1593	0.0568	0.0402	0.0436	0.0838	0.2896	0.1962 :
: 1490	EKUSY	0.1408	0.0383	0.0140	0.0134	0.0274	0.1655	0.2315 :
: 1491	EKUSX	0.1432	0.0407	0.0152	0.0097	0.0249	0.1578	0.2580 :
: 1492	EKZNW	0.1503	0.0478	0.0438	0.1573	0.2011	0.4485	0.1066 :
: 1493	EKZNY	0.1317	0.0292	0.0176	0.1019	0.1195	0.3456	0.0845 :
: 1494	EKZNX	0.1342	0.0317	0.0188	0.0929	0.1117	0.3342	0.0949 :
: 1495	EKZVW	0.1363	0.0338	0.0442	0.1565	0.2007	0.4480	0.0755 :
: 1496	EKZVY	0.1177	0.0152	0.0180	0.0987	0.1167	0.3416	0.0445 :
: 1497	EKZVX	0.1202	0.0177	0.0192	0.0903	0.1095	0.3309	0.0535 :
: 1498	EKZRW	0.1604	0.0579	0.0439	0.1810	0.2249	0.4742	0.1221 :
: 1499	EKZRY	0.1419	0.0394	0.0178	0.1143	0.1321	0.3634	0.1084 :
: 1500	EKZRX	0.1444	0.0419	0.0189	0.1057	0.1246	0.3529	0.1187 :
: 1501	EKZOW	0.1525	0.0500	0.0444	0.1851	0.2295	0.4791	0.1044 :
: 1502	EKZOY	0.1340	0.0315	0.0182	0.1067	0.1249	0.3534	0.0892 :
: 1503	EKZOX	0.1364	0.0339	0.0194	0.1008	0.1202	0.3467	0.0978 :
: 1504	EKZPW	0.1239	0.0214	0.0417	0.1461	0.1878	0.4334	0.0494 :
: 1505	EKZPY	0.1054	0.0029	0.0156	0.0925	0.1081	0.3287	0.0089 :
: 1506	EKZPX	0.1078	0.0053	0.0168	0.0839	0.1007	0.3173	0.0167 :
: 1507	EKZQW	0.2328	0.1303	0.1522	0.9706	1.1228	1.0596	0.1230 :
: 1508	EKZQY	0.2142	0.1117	0.1261	0.8699	0.9960	0.9980	0.1119 :
: 1509	EKZQX	0.2167	0.1142	0.1272	0.8483	0.9755	0.9877	0.1156 :
: 1510	EKZSW	0.1560	0.0535	0.0444	0.1655	0.2099	0.4582	0.1168 :
: 1511	EKZSY	0.1375	0.0350	0.0182	0.1074	0.1256	0.3543	0.0988 :
: 1512	EKZSX	0.1399	0.0374	0.0194	0.0980	0.1174	0.3426	0.1092 :
: 1513	BJTNW	0.0210	-0.0815	0.0935	0.6849	0.7784	0.8822	-0.0924 :
: 1514	BJTNY	0.0025	-0.1000	0.0674	0.1072	0.1746	0.4178	-0.2393 :
: 1515	BJTNX	0.0049	-0.0976	0.0686	0.1722	0.2408	0.4907	-0.1989 :
: 1516	BJTVW	0.0070	-0.0955	0.0940	0.6905	0.7845	0.8857	-0.1078 :
: 1517	BJTVY	-0.0119	-0.1144	0.0678	0.1104	0.1782	0.4222	-0.2709 :
: 1518	BJTVX	-0.0097	-0.1122	0.0690	0.1760	0.2450	0.4950	-0.2266 :
: 1519	BJTRW	0.0312	-0.0713	0.0937	0.7129	0.8066	0.8981	-0.0794 :
: 1520	BJTRY	0.0127	-0.0898	0.0675	0.1240	0.1915	0.4376	-0.2052 :
: 1521	BJTRX	0.0151	-0.0874	0.0687	0.1894	0.2581	0.5080	-0.1720 :
: 1522	BJTOW	0.0232	-0.0793	0.0942	0.7394	0.8336	0.9130	-0.0868 :
: 1523	BJTOY	0.0047	-0.0978	0.0680	0.1387	0.2067	0.4547	-0.2151 :
: 1524	BJTOX	0.0072	-0.0953	0.0692	0.2068	0.2760	0.5254	-0.1814 :
: 1525	BJTPW	-0.0050	-0.1075	0.0915	0.6788	0.7703	0.8777	-0.1225 :
: 1526	BJTPY	-0.0232	-0.1257	0.0653	0.1030	0.1683	0.4102	-0.3064 :
: 1527	BJTPX	-0.0210	-0.1235	0.0665	0.1684	0.2349	0.4846	-0.2548 :
: 1528	BJTQW	0.1035	0.0010	0.2020	1.3237	1.5257	1.2352	0.0008 :
: 1529	BJTQY	0.0850	-0.0175	0.1758	0.7008	0.8766	0.9362	-0.0187 :
: 1530	BJTQX	0.0874	-0.0151	0.1770	0.7532	0.9302	0.9644	-0.0156 :
: 1531	BJTSW	0.0267	-0.0758	0.0941	0.6920	0.7861	0.8866	-0.0855 :
: 1532	BJTSY	0.0082	-0.0943	0.0680	0.1116	0.1796	0.4238	-0.2225 :
: 1533	BJTSX	0.0107	-0.0918	0.0692	0.1762	0.2454	0.4954	-0.1853 :
: 1534	BJJUNW	0.0175	-0.0850	0.0873	0.0950	0.1823	0.4270	-0.1990 :
: 1535	BJJUNY	-0.0003	-0.1028	0.0611	0.0199	0.0810	0.2845	-0.3613 :
: 1536	BJJUNX	0.0014	-0.1011	0.0623	0.0206	0.0829	0.2878	-0.3512 :

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PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

: A	B	C	D	D	E	F	G	H :
: SER.	PORTFOLIO	PORTFOLIO	RETURN	WEIGHTED	PORTFOLIO	PORTFOLIO	PORTFOLIO	RETURN /
: NO.		RETURN	MINUS	SEC. VAR.	COVARIANCES	VARIANCES	STD DEV.	STANDARD
:			RISK-FREE					DEVIATION :
: 1537	BJUVW	0.0035	-0.0990	0.0877	0.0969	0.1846	0.4296	-0.2304 :
: 1538	BJUVY	-0.0148	-0.1173	0.0616	0.0193	0.0809	0.2845	-0.4123 :
: 1539	BJUVX	-0.0126	-0.1151	0.0627	0.0206	0.0833	0.2886	-0.3987 :
: 1540	BJURW	0.0277	-0.0748	0.0874	0.1180	0.2054	0.4532	-0.1650 :
: 1541	BJURY	0.0091	-0.0934	0.0613	0.0316	0.0929	0.3048	-0.3064 :
: 1542	BJURX	0.0116	-0.0909	0.0625	0.0326	0.0951	0.3085	-0.2947 :
: 1543	BJUOW	0.0197	-0.0828	0.0879	0.1261	0.2140	0.4626	-0.1790 :
: 1544	BJUOY	0.0012	-0.1013	0.0618	0.0280	0.0898	0.2996	-0.3381 :
: 1545	BJUOX	0.0036	-0.0989	0.0629	0.0317	0.0946	0.3076	-0.3215 :
: 1546	BJUPW	-0.0089	-0.1114	0.0853	0.0898	0.1751	0.4185	-0.2662 :
: 1547	BJUPY	-0.0272	-0.1297	0.0591	0.0165	0.0756	0.2749	-0.4717 :
: 1548	BJUPX	-0.0249	-0.1274	0.0603	0.0176	0.0779	0.2791	-0.4565 :
: 1549	BJUQW	0.1000	-0.0025	0.1957	0.6671	0.8628	0.9288	-0.0027 :
: 1550	BJUQY	0.0815	-0.0210	0.1696	0.5466	0.7162	0.8463	-0.0248 :
: 1551	BJUQX	0.0839	-0.0186	0.1708	0.5347	0.7055	0.8399	-0.0221 :
: 1552	BJUSW	0.0232	-0.0793	0.0879	0.1013	0.1892	0.4350	-0.1823 :
: 1553	BJUSY	0.0047	-0.0978	0.0617	0.0234	0.0851	0.2917	-0.3352 :
: 1554	BJUSX	0.0071	-0.0954	0.0629	0.0237	0.0866	0.2943	-0.3242 :
: 1555	BJZNW	0.0142	-0.0883	0.0915	0.2294	0.3209	0.5665	-0.1559 :
: 1556	BJZNY	-0.0042	-0.1067	0.0653	0.1263	0.1916	0.4378	-0.2437 :
: 1557	BJZNX	-0.0019	-0.1044	0.0665	0.1213	0.1878	0.4334	-0.2409 :
: 1558	BJZVW	0.0002	-0.1023	0.0919	0.2297	0.3216	0.5671	-0.1804 :
: 1559	BJZVY	-0.0187	-0.1212	0.0658	0.1243	0.1901	0.4360	-0.2780 :
: 1560	BJZVX	-0.0154	-0.1179	0.0669	0.1199	0.1868	0.4322	-0.2728 :
: 1561	BJZRW	0.0243	-0.0782	0.0916	0.2560	0.3476	0.5896	-0.1326 :
: 1562	BJZRY	0.0058	-0.0967	0.0655	0.1417	0.2072	0.4552	-0.2124 :
: 1563	BJZRX	0.0083	-0.0942	0.0667	0.1371	0.2038	0.4514	-0.2087 :
: 1564	BJZOW	0.0164	-0.0861	0.0921	0.2607	0.3528	0.5940	-0.1449 :
: 1565	BJZOY	-0.0021	-0.1046	0.0660	0.1347	0.2007	0.4480	-0.2335 :
: 1566	BJZOX	0.0003	-0.1022	0.0671	0.1327	0.1998	0.4470	-0.2286 :
: 1567	BJZPW	-0.0127	-0.1152	0.0895	0.2190	0.3085	0.5555	-0.2074 :
: 1568	BJZPY	-0.0300	-0.1325	0.0633	0.1178	0.1811	0.4255	-0.3114 :
: 1569	BJZPX	-0.0287	-0.1312	0.0645	0.1132	0.1777	0.4215	-0.3112 :
: 1570	BJZQW	0.0966	-0.0059	0.1999	1.0709	1.2708	1.1273	-0.0052 :
: 1571	BJZQY	0.0781	-0.0244	0.1738	0.9225	1.0963	1.0470	-0.0233 :
: 1572	BJZQX	0.0806	-0.0219	0.1750	0.9048	1.0798	1.0392	-0.0211 :
: 1573	BJZSW	0.0199	-0.0826	0.0921	0.2392	0.3313	0.5756	-0.1435 :
: 1574	BJZSY	0.0014	-0.1011	0.0659	0.1334	0.1993	0.4464	-0.2264 :
: 1575	BJZSX	0.0038	-0.0987	0.0671	0.1280	0.1951	0.4417	-0.2234 :
: 1576	BMTNW	0.0273	-0.0752	0.0978	1.4023	1.5001	1.2248	-0.0614 :
: 1577	BMTNY	0.0088	-0.0937	0.0716	0.5303	0.6019	0.7758	-0.1208 :
: 1578	BMTNX	0.0112	-0.0913	0.0728	0.6227	0.6955	0.8339	-0.1095 :
: 1579	BMTVW	0.0133	-0.0892	0.0982	1.4096	1.5078	1.2279	-0.0726 :
: 1580	BMTVY	-0.0059	-0.1084	0.0720	0.5352	0.6072	0.7793	-0.1391 :
: 1581	BMTVX	-0.0027	-0.1052	0.0732	0.6281	0.7013	0.8375	-0.1256 :
: 1582	BMTRW	0.0375	-0.0650	0.0979	1.4224	1.5203	1.2330	-0.0527 :
: 1583	BMTRY	0.0189	-0.0836	0.0717	0.5392	0.6109	0.7816	-0.1069 :
: 1584	BMTRX	0.0214	-0.0811	0.0729	0.6319	0.7048	0.8395	-0.0966 :

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PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
1585	BMTOW	0.0295	-0.0730	0.0984	1.4588	1.5572	1.2479	-0.0585
1586	BMTQY	0.0110	-0.0915	0.0722	0.5639	0.6361	0.7975	-0.1147
1587	BMTQX	0.0134	-0.0891	0.0734	0.6593	0.7327	0.8560	-0.1041
1588	BMTPW	0.0009	-0.1016	0.0957	1.3909	1.4866	1.2193	-0.0833
1589	BMTPY	-0.0172	-0.1197	0.0696	0.5207	0.5903	0.7683	-0.1558
1590	BMTPX	-0.0150	-0.1175	0.0707	0.6135	0.6842	0.8271	-0.1420
1591	BMTQW	0.1098	0.0073	0.2062	1.5651	1.7713	1.3309	0.0055
1592	BMTQY	0.0912	-0.0113	0.1800	0.6478	0.8278	0.9098	-0.0124
1593	BMTQX	0.0937	-0.0088	0.1812	0.7275	0.9087	0.9533	-0.0092
1594	BMTSW	0.0330	-0.0695	0.0984	1.4161	1.5145	1.2306	-0.0565
1595	BMTSY	0.0145	-0.0880	0.0722	0.5414	0.6136	0.7833	-0.1123
1596	BMTSX	0.0169	-0.0856	0.0734	0.6333	0.7067	0.8406	-0.1018
1597	BMUNW	0.0237	-0.0788	0.0915	0.4897	0.5812	0.7624	-0.1034
1598	BMUNY	0.0052	-0.0973	0.0653	0.1202	0.1855	0.4307	-0.2259
1599	BMUNX	0.0077	-0.0948	0.0665	0.1482	0.2147	0.4634	-0.2046
1600	BMUVW	0.0097	-0.0928	0.0919	0.4932	0.5851	0.7649	-0.1213
1601	BMUVY	-0.0088	-0.1113	0.0658	0.1213	0.1871	0.4326	-0.2573
1602	BMUVX	-0.0066	-0.1091	0.0670	0.1499	0.2169	0.4657	-0.2342
1603	BMURW	0.0339	-0.0686	0.0916	0.5047	0.5963	0.7722	-0.0888
1604	BMURY	0.0154	-0.0871	0.0655	0.1240	0.1895	0.4353	-0.2001
1605	BMURX	0.0179	-0.0846	0.0667	0.1524	0.2191	0.4680	-0.1807
1606	BMUOW	0.0260	-0.0765	0.0921	0.5228	0.6149	0.7841	-0.0975
1607	BMUOY	0.0074	-0.0951	0.0660	0.1303	0.1963	0.4431	-0.2146
1608	BMUOX	0.0099	-0.0926	0.0672	0.1614	0.2286	0.4781	-0.1937
1609	BMUPW	-0.0029	-0.1054	0.0895	0.4791	0.5686	0.7541	-0.1398
1610	BMUPY	-0.0211	-0.1236	0.0633	0.1115	0.1748	0.4180	-0.2956
1611	BMUPX	-0.0189	-0.1214	0.0645	0.1399	0.2044	0.4521	-0.2685
1612	BMUQW	0.1062	0.0037	0.2000	0.5856	0.7856	0.8863	0.0042
1613	BMUQY	0.0877	-0.0148	0.1738	0.1708	0.3446	0.5870	-0.0252
1614	BMUQX	0.0902	-0.0123	0.1750	0.1862	0.3612	0.6010	-0.0204
1615	BMUSW	0.0295	-0.0730	0.0921	0.5026	0.5947	0.7712	-0.0946
1616	BMUSY	0.0109	-0.0916	0.0659	0.1304	0.1963	0.4430	-0.2067
1617	BMUSX	0.0134	-0.0891	0.0671	0.1580	0.2251	0.4744	-0.1878
1618	BMZNW	0.0204	-0.0821	0.0957	0.6898	0.7855	0.8863	-0.0926
1619	BMZNY	0.0019	-0.1006	0.0695	0.2924	0.3619	0.6016	-0.1672
1620	BMZNX	0.0044	-0.0981	0.0707	0.3147	0.3854	0.6208	-0.1580
1621	BMZVW	0.0064	-0.0961	0.0961	0.6918	0.7879	0.8876	-0.1083
1622	BMZVY	-0.0127	-0.1152	0.0700	0.2920	0.3620	0.6017	-0.1915
1623	BMZVX	-0.0094	-0.1119	0.0712	0.3149	0.3861	0.6214	-0.1801
1624	BMZRW	0.0306	-0.0719	0.0958	0.7085	0.8043	0.8968	-0.0802
1625	BMZRY	0.0121	-0.0904	0.0697	0.2998	0.3695	0.6079	-0.1487
1626	BMZRX	0.0145	-0.0880	0.0709	0.3225	0.3934	0.6272	-0.1403
1627	BMZOW	0.0226	-0.0799	0.0963	0.7231	0.8194	0.9052	-0.0883
1628	BMZOY	0.0041	-0.0984	0.0702	0.3027	0.3729	0.6107	-0.1611
1629	BMZOX	0.0066	-0.0959	0.0714	0.3281	0.3995	0.6321	-0.1517
1630	BMZPW	-0.0057	-0.1082	0.0937	0.6741	0.7678	0.8762	-0.1235
1631	BMZPY	-0.0240	-0.1265	0.0675	0.2785	0.3460	0.5882	-0.2151
1632	BMZPX	-0.0217	-0.1242	0.0687	0.3012	0.3699	0.6082	-0.2042

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PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
1633	BMZQW	0.1029	0.0004	0.2042	1.0551	1.2593	1.1222	0.0004
1634	BMZQY	0.0844	-0.0181	0.1780	0.6124	0.7904	0.8891	-0.0203
1635	BMZQX	0.0869	-0.0156	0.1792	0.6221	0.8013	0.8952	-0.0174
1636	BMZSW	0.0261	-0.0764	0.0963	0.7062	0.8025	0.8958	-0.0853
1637	BMZSY	0.0076	-0.0949	0.0701	0.3061	0.3762	0.6133	-0.1547
1638	BMZSX	0.0101	-0.0924	0.0713	0.3280	0.3993	0.6319	-0.1462
1639	BLTNW	0.0180	-0.0845	0.0933	0.6775	0.7708	0.8780	-0.0962
1640	BLTNY	0.0000	-0.1025	0.0690	0.1018	0.1708	0.4132	-0.2480
1641	BLTNX	0.0022	-0.1003	0.0702	0.1668	0.2370	0.4868	-0.2060
1642	BLTVW	0.0042	-0.0983	0.0956	0.6832	0.7788	0.8825	-0.1114
1643	BLTVY	-0.0145	-0.1170	0.0694	0.1051	0.1745	0.4177	-0.2801
1644	BLTVX	-0.0112	-0.1137	0.0706	0.1706	0.2412	0.4912	-0.2315
1645	BLTRW	0.0284	-0.0741	0.0953	0.7017	0.7970	0.8927	-0.0830
1646	BLTRY	0.0099	-0.0926	0.0691	0.1147	0.1838	0.4287	-0.2160
1647	BLTRX	0.0124	-0.0901	0.0703	0.1800	0.2503	0.5003	-0.1801
1648	BLTOW	0.0204	-0.0821	0.0958	0.7289	0.8247	0.9082	-0.0904
1649	BLTOY	0.0019	-0.1006	0.0696	0.1302	0.1998	0.4470	-0.2250
1650	BLTOX	0.0044	-0.0981	0.0708	0.1982	0.2690	0.5187	-0.1891
1651	BLTPW	-0.0085	-0.1110	0.0931	0.6715	0.7646	0.8744	-0.1269
1652	BLTPY	-0.0268	-0.1293	0.0670	0.0976	0.1646	0.4057	-0.3187
1653	BLTPX	-0.0246	-0.1271	0.0681	0.1630	0.2311	0.4807	-0.2644
1654	BLTQW	0.1007	-0.0018	0.2036	1.1051	1.3087	1.1440	-0.0016
1655	BLTQY	0.0822	-0.0203	0.1774	0.4841	0.6615	0.8133	-0.0249
1656	BLTQX	0.0847	-0.0178	0.1786	0.5364	0.7150	0.8456	-0.0210
1657	BLTSW	0.0239	-0.0786	0.0958	0.6849	0.7807	0.8836	-0.0889
1658	BLTSY	0.0054	-0.0971	0.0696	0.1064	0.1760	0.4196	-0.2314
1659	BLTSX	0.0079	-0.0946	0.0708	0.1710	0.2418	0.4917	-0.1924
1660	BLUNW	0.0147	-0.0878	0.0889	0.0940	0.1829	0.4277	-0.2052
1661	BLUNY	-0.0039	-0.1064	0.0627	0.0208	0.0835	0.2890	-0.3682
1662	BLUNX	-0.0017	-0.1042	0.0639	0.0215	0.0854	0.2922	-0.3566
1663	BLUVW	0.0007	-0.1018	0.0893	0.0959	0.1852	0.4304	-0.2365
1664	BLUVY	-0.0174	-0.1199	0.0632	0.0203	0.0835	0.2890	-0.4148
1665	BLUVX	-0.0152	-0.1177	0.0644	0.0216	0.0860	0.2932	-0.4014
1666	BLURW	0.0249	-0.0776	0.0890	0.1131	0.2021	0.4496	-0.1726
1667	BLURY	0.0064	-0.0961	0.0629	0.0286	0.0915	0.3025	-0.3176
1668	BLURX	0.0088	-0.0937	0.0641	0.0297	0.0938	0.3062	-0.3060
1669	BLUOW	0.0169	-0.0856	0.0895	0.1220	0.2115	0.4599	-0.1861
1670	BLUOY	-0.0019	-0.1044	0.0634	0.0258	0.0892	0.2987	-0.3495
1671	BLUOX	0.0009	-0.1016	0.0646	0.0295	0.0941	0.3068	-0.3311
1672	BLUPW	-0.0115	-0.1140	0.0869	0.0889	0.1758	0.4193	-0.2719
1673	BLUPY	-0.0307	-0.1332	0.0607	0.0174	0.0781	0.2795	-0.4765
1674	BLUPX	-0.0275	-0.1300	0.0619	0.0185	0.0804	0.2836	-0.4584
1675	BLUQW	0.0972	-0.0053	0.1974	0.4548	0.6522	0.8076	-0.0066
1676	BLUQY	0.0787	-0.0238	0.1712	0.3363	0.5075	0.7124	-0.0334
1677	BLUQX	0.0811	-0.0214	0.1724	0.3243	0.4967	0.7048	-0.0304
1678	BLUSW	0.0204	-0.0821	0.0895	0.1006	0.1901	0.4360	-0.1883
1679	BLUSY	0.0019	-0.1006	0.0633	0.0246	0.0879	0.2965	-0.3393
1680	BLUSX	0.0044	-0.0981	0.0645	0.0249	0.0894	0.2989	-0.3281

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
1681	BLZNW	0.0114	-0.0911	0.0931	0.2099	0.3030	0.5504	-0.1655
1682	BLZNY	-0.0078	-0.1103	0.0669	0.1087	0.1756	0.4190	-0.2632
1683	BLZNX	-0.0045	-0.1070	0.0681	0.1037	0.1718	0.4144	-0.2582
1684	BLZVW	-0.0020	-0.1045	0.0935	0.2102	0.3037	0.5511	-0.1896
1685	BLZVY	-0.0213	-0.1238	0.0674	0.1067	0.1741	0.4173	-0.2967
1686	BLZVX	-0.0180	-0.1205	0.0686	0.1022	0.1708	0.4133	-0.2915
1687	BLZRW	0.0216	-0.0809	0.0932	0.2326	0.3258	0.5708	-0.1417
1688	BLZRY	0.0030	-0.0995	0.0671	0.1202	0.1873	0.4328	-0.2299
1689	BLZRX	0.0055	-0.0970	0.0683	0.1155	0.1838	0.4287	-0.2262
1690	BLZOW	0.0136	-0.0889	0.0937	0.2381	0.3318	0.5760	-0.1543
1691	BLZOY	-0.0047	-0.1072	0.0676	0.1139	0.1815	0.4261	-0.2516
1692	BLZOX	-0.0025	-0.1050	0.0688	0.1120	0.1808	0.4252	-0.2469
1693	BLZPW	-0.0143	-0.1168	0.0911	0.1995	0.2906	0.5391	-0.2166
1694	BLZPY	-0.0336	-0.1361	0.0649	0.1001	0.1650	0.4063	-0.3350
1695	BLZPX	-0.0313	-0.1338	0.0661	0.0955	0.1616	0.4020	-0.3328
1696	BLZQW	0.0939	-0.0086	0.2016	0.8400	1.0416	1.0206	-0.0084
1697	BLZQY	0.0754	-0.0271	0.1754	0.6936	0.8690	0.9322	-0.0291
1698	BLZQX	0.0778	-0.0247	0.1766	0.6759	0.8525	0.9233	-0.0267
1699	BLZSW	0.0171	-0.0854	0.0937	0.2199	0.3136	0.5600	-0.1525
1700	BLZSY	-0.0017	-0.1042	0.0675	0.1160	0.1835	0.4284	-0.2432
1701	BLZSX	0.0010	-0.1015	0.0687	0.1106	0.1793	0.4234	-0.2397
1702	BKTNW	0.0182	-0.0843	0.0952	0.7022	0.7974	0.8930	-0.0944
1703	BKTNY	0.0000	-0.1025	0.0690	0.1177	0.1867	0.4320	-0.2372
1704	BKTNX	0.0022	-0.1003	0.0702	0.1834	0.2536	0.5036	-0.1991
1705	BKTVW	0.0042	-0.0983	0.0956	0.7073	0.8029	0.8961	-0.1097
1706	BKTVY	-0.0145	-0.1170	0.0694	0.1204	0.1898	0.4357	-0.2685
1707	BKTVX	-0.0112	-0.1137	0.0706	0.1867	0.2573	0.5073	-0.2241
1708	BKTRW	0.0284	-0.0741	0.0953	0.7292	0.8245	0.9080	-0.0816
1709	BKTRY	0.0099	-0.0926	0.0691	0.1334	0.2025	0.4500	-0.2058
1710	BKTRX	0.0124	-0.0901	0.0703	0.1995	0.2698	0.5194	-0.1734
1711	BKTOY	0.0204	-0.0821	0.0958	0.7560	0.8518	0.9229	-0.0889
1712	BKTOX	0.0019	-0.1006	0.0696	0.1485	0.2181	0.4670	-0.2154
1713	BKTOX	0.0044	-0.0981	0.0708	0.2173	0.2881	0.5367	-0.1828
1714	BKTPW	-0.0085	-0.1110	0.0931	0.6951	0.7882	0.8878	-0.1250
1715	BKTPY	-0.0268	-0.1293	0.0670	0.1124	0.1794	0.4235	-0.3053
1716	BKTPX	-0.0246	-0.1271	0.0681	0.1785	0.2466	0.4966	-0.2559
1717	BKTQW	0.1007	-0.0018	0.2036	1.3421	1.5457	1.2433	-0.0014
1718	BKTQY	0.0822	-0.0203	0.1774	0.7122	0.8896	0.9432	-0.0215
1719	BKTQX	0.0847	-0.0178	0.1786	0.7653	0.9439	0.9716	-0.0183
1720	BKTSW	0.0239	-0.0786	0.0958	0.7092	0.8050	0.8972	-0.0876
1721	BKTSY	0.0054	-0.0971	0.0696	0.1218	0.1914	0.4375	-0.2219
1722	BKTSX	0.0079	-0.0946	0.0708	0.1872	0.2580	0.5079	-0.1862
1723	BKUNW	0.0147	-0.0878	0.0889	0.1046	0.1935	0.4399	-0.1996
1724	BKUNY	-0.0039	-0.1064	0.0627	0.0225	0.0852	0.2920	-0.3644
1725	BKUNX	-0.0017	-0.1042	0.0639	0.0240	0.0879	0.2964	-0.3515
1726	BKUVW	0.0007	-0.1018	0.0893	0.1059	0.1952	0.4418	-0.2304
1727	BKUVY	-0.0174	-0.1199	0.0632	0.0215	0.0847	0.2910	-0.4120
1728	BKUVX	-0.0152	-0.1177	0.0644	0.0235	0.0879	0.2965	-0.3970

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

: A	B	C	D	D	E	F	G	H :
: SER.	PORTFOLIO	PORTFOLIO	RETURN	WEIGHTED	PORTFOLIO	PORTFOLIO	PORTFOLIO	RETURN /
: NO.		RETURN	MINUS	SEC. VAR.	COVARIANCES	VARIANCES	STD DEV.	STANDARD
:			RISK-FREE					DEVIATION :
: 1729	BKURW	0.0249	-0.0776	0.0890	0.1265	0.2155	0.4643	-0.1671 :
: 1730	BKURY	0.0064	-0.0961	0.0629	0.0332	0.0961	0.3100	-0.3099 :
: 1731	BKURX	0.0088	-0.0937	0.0641	0.0350	0.0991	0.3148	-0.2976 :
: 1732	BKUOW	0.0169	-0.0856	0.0895	0.1350	0.2245	0.4738	-0.1807 :
: 1733	BKUOY	-0.0019	-0.1044	0.0634	0.0299	0.0933	0.3055	-0.3417 :
: 1734	BKUOX	0.0009	-0.1016	0.0646	0.0344	0.0990	0.3146	-0.3229 :
: 1735	BKUPW	-0.0115	-0.1140	0.0869	0.0983	0.1852	0.4304	-0.2648 :
: 1736	BKUPY	-0.0307	-0.1332	0.0607	0.0181	0.0788	0.2807	-0.4745 :
: 1737	BKUPX	-0.0275	-0.1300	0.0619	0.0199	0.0818	0.2860	-0.4545 :
: 1738	BKUQW	0.0972	-0.0053	0.1974	0.6776	0.8750	0.9354	-0.0057 :
: 1739	BKUQY	0.0787	-0.0238	0.1712	0.5502	0.7214	0.8494	-0.0280 :
: 1740	BKUQX	0.0811	-0.0214	0.1724	0.5390	0.7114	0.8435	-0.0254 :
: 1741	BKUSW	0.0204	-0.0821	0.0895	0.1107	0.2002	0.4474	-0.1835 :
: 1742	BKUSY	0.0019	-0.1006	0.0633	0.0258	0.0891	0.2986	-0.3369 :
: 1743	BKUSX	0.0044	-0.0981	0.0645	0.0269	0.0914	0.3023	-0.3245 :
: 1744	BKZNW	0.0114	-0.0911	0.0931	0.2422	0.3353	0.5791	-0.1573 :
: 1745	BKZNY	-0.0078	-0.1103	0.0669	0.1323	0.1992	0.4463	-0.2471 :
: 1746	BKZNX	-0.0045	-0.1070	0.0681	0.1280	0.1961	0.4428	-0.2416 :
: 1747	BKZVW	-0.0020	-0.1045	0.0935	0.2420	0.3355	0.5793	-0.1804 :
: 1748	BKZVY	-0.0213	-0.1238	0.0674	0.1297	0.1971	0.4440	-0.2788 :
: 1749	BKZVX	-0.0180	-0.1205	0.0686	0.1260	0.1946	0.4411	-0.2731 :
: 1750	BKZRW	0.0216	-0.0809	0.0932	0.2678	0.3610	0.6009	-0.1346 :
: 1751	BKZRY	0.0030	-0.0995	0.0671	0.1466	0.2137	0.4623	-0.2152 :
: 1752	BKZRX	0.0055	-0.0970	0.0683	0.1427	0.2110	0.4593	-0.2112 :
: 1753	BKZOW	0.0136	-0.0889	0.0937	0.2728	0.3665	0.6054	-0.1468 :
: 1754	BKZOY	-0.0047	-0.1072	0.0676	0.1399	0.2075	0.4555	-0.2353 :
: 1755	BKZOX	-0.0025	-0.1050	0.0688	0.1387	0.2075	0.4555	-0.2305 :
: 1756	BKZPW	-0.0143	-0.1168	0.0911	0.2308	0.3219	0.5674	-0.2058 :
: 1757	BKZPY	-0.0336	-0.1361	0.0649	0.1226	0.1875	0.4330	-0.3143 :
: 1758	BKZPX	-0.0313	-0.1338	0.0661	0.1187	0.1848	0.4299	-0.3112 :
: 1759	BKZQW	0.0939	-0.0086	0.2016	1.0847	1.2863	1.1341	-0.0076 :
: 1760	BKZQY	0.0754	-0.0271	0.1754	0.9294	1.1048	1.0511	-0.0258 :
: 1761	BKZQX	0.0778	-0.0247	0.1766	0.9125	1.0891	1.0436	-0.0237 :
: 1762	BKZSW	0.0171	-0.0854	0.0937	0.2518	0.3455	0.5878	-0.1453 :
: 1763	BKZSY	-0.0017	-0.1042	0.0675	0.1391	0.2066	0.4545	-0.2292 :
: 1764	BKZSX	0.0010	-0.1015	0.0687	0.1344	0.2031	0.4507	-0.2252 :
: 1765	FJTNW	0.0481	-0.0544	0.1306	0.8868	1.0174	1.0087	-0.0539 :
: 1766	FJTNY	0.0295	-0.0730	0.1044	0.2135	0.3179	0.5638	-0.1295 :
: 1767	FJTNX	0.0320	-0.0705	0.1056	0.2915	0.3971	0.6302	-0.1119 :
: 1768	FJTVW	0.0340	-0.0685	0.1310	0.8934	1.0244	1.0121	-0.0677 :
: 1769	FJTVY	0.0155	-0.0870	0.1048	0.2177	0.3225	0.5679	-0.1532 :
: 1770	FJTVX	0.0180	-0.0845	0.1060	0.2963	0.4023	0.6343	-0.1332 :
: 1771	FJTRW	0.0582	-0.0443	0.1307	0.9145	1.0452	1.0224	-0.0433 :
: 1772	FJTRY	0.0397	-0.0628	0.1045	0.2299	0.3344	0.5783	-0.1086 :
: 1773	FJTRX	0.0422	-0.0603	0.1057	0.3084	0.4141	0.6435	-0.0937 :
: 1774	FJTOW	0.0503	-0.0522	0.1312	0.9455	1.0767	1.0377	-0.0503 :
: 1775	FJTOY	0.0317	-0.0708	0.1050	0.2492	0.3542	0.5952	-0.1189 :
: 1776	FJTOX	0.0342	-0.0683	0.1062	0.3304	0.4366	0.6607	-0.1034 :

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
1777	FJTPW	0.0217	-0.0808	0.1285	0.8808	1.0093	1.0046	-0.0804
1778	FJTPY	0.0032	-0.0993	0.1023	0.2092	0.3115	0.5582	-0.1779
1779	FJTPX	0.0056	-0.0969	0.1035	0.2877	0.3912	0.6255	-0.1549
1780	FJTQW	0.1305	0.0280	0.2390	1.5054	1.7444	1.3207	0.0212
1781	FJTQY	0.1120	0.0095	0.2128	0.7867	0.9995	0.9998	0.0095
1782	FJTQX	0.1145	0.0120	0.2140	0.8522	1.0662	1.0325	0.0116
1783	FJTSW	0.0538	-0.0487	0.1311	0.8939	1.0250	1.0124	-0.0481
1784	FJTSY	0.0352	-0.0673	0.1050	0.2179	0.3229	0.5682	-0.1184
1785	FJTSX	0.0377	-0.0648	0.1062	0.2955	0.4017	0.6338	-0.1022
1786	FJUNW	0.0445	-0.0580	0.1243	0.1880	0.3123	0.5588	-0.1038
1787	FJUNY	0.0260	-0.0765	0.0981	0.0172	0.1153	0.3395	-0.2253
1788	FJUNX	0.0285	-0.0740	0.0993	0.0309	0.1302	0.3608	-0.2051
1789	FJUVW	0.0305	-0.0720	0.1247	0.1908	0.3155	0.5617	-0.1282
1790	FJUVY	0.0120	-0.0905	0.0986	0.0176	0.1162	0.3409	-0.2654
1791	FJUVX	0.0145	-0.0880	0.0997	0.0319	0.1316	0.3628	-0.2425
1792	FJURW	0.0547	-0.0478	0.1244	0.2106	0.3350	0.5788	-0.0826
1793	FJURY	0.0362	-0.0663	0.0983	0.0286	0.1269	0.3562	-0.1861
1794	FJURX	0.0386	-0.0639	0.0995	0.0427	0.1422	0.3771	-0.1694
1795	FJUOW	0.0467	-0.0558	0.1249	0.2233	0.3482	0.5901	-0.0945
1796	FJUOY	0.0282	-0.0743	0.0988	0.0295	0.1283	0.3582	-0.2074
1797	FJUOX	0.0307	-0.0718	0.1000	0.0463	0.1463	0.3825	-0.1877
1798	FJUPW	0.0181	-0.0844	0.1223	0.1828	0.3051	0.5524	-0.1528
1799	FJUPY	-0.0005	-0.1030	0.0961	0.0138	0.1099	0.3315	-0.3107
1800	FJUPX	0.0021	-0.1004	0.0973	0.0279	0.1252	0.3539	-0.2837
1801	FJUQW	0.1270	0.0245	0.2328	0.7397	0.9725	0.9862	0.0249
1802	FJUQY	0.1085	0.0060	0.2066	0.5236	0.7302	0.8545	0.0070
1803	FJUQX	0.1109	0.0084	0.2078	0.5247	0.7325	0.8559	0.0098
1804	FJUSW	0.0502	-0.0523	0.1249	0.1943	0.3192	0.5650	-0.0926
1805	FJUSY	0.0317	-0.0708	0.0987	0.0207	0.1194	0.3456	-0.2048
1806	FJUSX	0.0342	-0.0683	0.0999	0.0341	0.1340	0.3660	-0.1866
1807	FJZNW	0.0412	-0.0613	0.1285	0.3276	0.4561	0.6754	-0.0908
1808	FJZNY	0.0227	-0.0798	0.1023	0.1289	0.2312	0.4808	-0.1660
1809	FJZNX	0.0251	-0.0774	0.1035	0.1369	0.2404	0.4903	-0.1578
1810	FJZVW	0.0272	-0.0753	0.1289	0.3289	0.4578	0.6766	-0.1113
1811	FJZVY	0.0087	-0.0938	0.1028	0.1278	0.2306	0.4802	-0.1953
1812	FJZVX	0.0111	-0.0914	0.1039	0.1364	0.2403	0.4902	-0.1864
1813	FJZRW	0.0514	-0.0511	0.1286	0.3539	0.4825	0.6946	-0.0736
1814	FJZRY	0.0329	-0.0696	0.1025	0.1439	0.2464	0.4964	-0.1402
1815	FJZRX	0.0353	-0.0672	0.1037	0.1523	0.2560	0.5060	-0.1328
1816	FJZOW	0.0434	-0.0591	0.1291	0.3632	0.4923	0.7016	-0.0842
1817	FJZOY	0.0249	-0.0776	0.1030	0.1415	0.2445	0.4944	-0.1569
1818	FJZOX	0.0273	-0.0752	0.1042	0.1526	0.2568	0.5067	-0.1484
1819	FJZPW	0.0148	-0.0877	0.1265	0.3172	0.4437	0.6661	-0.1316
1820	FJZPY	-0.0033	-0.1058	0.1003	0.1203	0.2206	0.4697	-0.2252
1821	FJZPX	-0.0010	-0.1035	0.1015	0.1287	0.2302	0.4798	-0.2157
1822	FJZQW	0.1237	0.0212	0.2370	1.1487	1.3857	1.1772	0.0180
1823	FJZQY	0.1052	0.0027	0.2108	0.9047	1.1155	1.0562	0.0026
1824	FJZQX	0.1076	0.0051	0.2120	0.9001	1.1121	1.0546	0.0048

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
1825	FJZSW	0.0469	-0.0556	0.1291	0.3374	0.4665	0.6830	-0.0814
1826	FJZSY	0.0284	-0.0741	0.1029	0.1360	0.2389	0.4887	-0.1516
1827	FJZSX	0.0308	-0.0717	0.1041	0.1436	0.2477	0.4977	-0.1440
1828	FMTNW	0.0543	-0.0482	0.1348	1.6839	1.8187	1.3486	-0.0357
1829	FMTNY	0.0358	-0.0667	0.1086	0.7162	0.8248	0.9082	-0.0734
1830	FMTNX	0.0383	-0.0642	0.1098	0.8216	0.9314	0.9651	-0.0665
1831	FMTVW	0.0403	-0.0622	0.1352	1.6921	1.8273	1.3518	-0.0460
1832	FMTVY	0.0218	-0.0807	0.1090	0.7221	0.8311	0.9116	-0.0885
1833	FMTVX	0.0243	-0.0782	0.1102	0.8280	0.9382	0.9686	-0.0807
1834	FMTRW	0.0645	-0.0380	0.1349	1.7037	1.8386	1.3559	-0.0280
1835	FMTRY	0.0460	-0.0565	0.1087	0.7248	0.8335	0.9129	-0.0619
1836	FMTRX	0.0484	-0.0541	0.1099	0.8305	0.9404	0.9697	-0.0558
1837	FMTOW	0.0565	-0.0460	0.1354	1.7446	1.8800	1.3711	-0.0335
1838	FMTQY	0.0380	-0.0645	0.1092	0.7540	0.8632	0.9291	-0.0694
1839	FMTQX	0.0405	-0.0620	0.1104	0.8624	0.9728	0.9863	-0.0629
1840	FMTPW	0.0279	-0.0746	0.1327	1.6725	1.8052	1.3436	-0.0555
1841	FMTPY	0.0094	-0.0931	0.1066	0.7066	0.8132	0.9018	-0.1032
1842	FMTPX	0.0119	-0.0906	0.1077	0.8124	0.9201	0.9592	-0.0944
1843	FMTQW	0.1368	0.0343	0.2432	1.8263	2.0695	1.4386	0.0238
1844	FMTQY	0.1183	0.0158	0.2171	0.8134	1.0305	1.0151	0.0156
1845	FMTQX	0.1207	0.0182	0.2182	0.9061	1.1243	1.0603	0.0172
1846	FMTSW	0.0600	-0.0425	0.1354	1.6977	1.8331	1.3539	-0.0314
1847	FMTSY	0.0415	-0.0610	0.1092	0.7273	0.8365	0.9146	-0.0667
1848	FMTSX	0.0440	-0.0585	0.1104	0.8322	0.9426	0.9709	-0.0602
1849	FMUNW	0.0508	-0.0517	0.1285	0.6623	0.7908	0.8893	-0.0581
1850	FMUNY	0.0323	-0.0702	0.1024	0.1971	0.2995	0.5473	-0.1282
1851	FMUNX	0.0347	-0.0678	0.1035	0.2382	0.3417	0.5845	-0.1160
1852	FMUVW	0.0368	-0.0657	0.1289	0.6667	0.7956	0.8920	-0.0736
1853	FMUVY	0.0183	-0.0842	0.1028	0.1992	0.3020	0.5496	-0.1532
1854	FMUVX	0.0207	-0.0818	0.1040	0.2408	0.3448	0.5872	-0.1393
1855	FMURW	0.0610	-0.0415	0.1287	0.6770	0.8057	0.8976	-0.0462
1856	FMURY	0.0424	-0.0601	0.1025	0.2006	0.3031	0.5505	-0.1091
1857	FMURX	0.0449	-0.0576	0.1037	0.2420	0.3457	0.5880	-0.0979
1858	FMUOW	0.0530	-0.0495	0.1291	0.6996	0.8287	0.9103	-0.0544
1859	FMUOY	0.0345	-0.0680	0.1030	0.2115	0.3145	0.5608	-0.1212
1860	FMUOX	0.0369	-0.0656	0.1042	0.2556	0.3598	0.5998	-0.1094
1861	FMUPW	0.0244	-0.0781	0.1265	0.6517	0.7782	0.8822	-0.0885
1862	FMUPY	0.0059	-0.0966	0.1003	0.1884	0.2887	0.5373	-0.1798
1863	FMUPX	0.0083	-0.0942	0.1015	0.2298	0.3313	0.5756	-0.1636
1864	FMUQW	0.1333	0.0308	0.2370	0.7379	0.9749	0.9874	0.0312
1865	FMUQY	0.1148	0.0123	0.2108	0.2274	0.4382	0.6620	0.0186
1866	FMUQX	0.1172	0.0147	0.2120	0.2558	0.4678	0.6840	0.0215
1867	FMUSW	0.0565	-0.0460	0.1291	0.6752	0.8043	0.8968	-0.0513
1868	FMUSY	0.0380	-0.0645	0.1029	0.2073	0.3102	0.5570	-0.1158
1869	FMUSX	0.0404	-0.0621	0.1041	0.2480	0.3521	0.5933	-0.1046
1870	FMZNW	0.0475	-0.0550	0.1327	0.8676	1.0003	1.0002	-0.0550
1871	FMZNY	0.0289	-0.0736	0.1065	0.3746	0.4811	0.6936	-0.1061
1872	FMZNX	0.0314	-0.0711	0.1077	0.4099	0.5176	0.7194	-0.0988

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

: A	B	C	D	D	E	F	G	H :
: SER.	PORTFOLIO	PORTFOLIO	RETURN	WEIGHTED	PORTFOLIO	PORTFOLIO	PORTFOLIO	RETURN /
: NO.		RETURN	MINUS	SEC. VAR.	COVARIANCES	VARIANCES	STD DEV.	STANDARD
:			RISK-FREE					DEVIATION :
: 1873	FMZVW	0.0335	-0.0690	0.1331	0.8705	1.0036	1.0018	-0.0689 :
: 1874	FMZVY	0.0149	-0.0876	0.1070	0.3751	0.4821	0.6944	-0.1261 :
: 1875	FMZVX	0.0174	-0.0851	0.1082	0.4110	0.5192	0.7206	-0.1181 :
: 1876	FMZRW	0.0576	-0.0449	0.1329	0.8860	1.0189	1.0094	-0.0445 :
: 1877	FMZRY	0.0391	-0.0634	0.1067	0.3817	0.4884	0.6988	-0.0907 :
: 1878	FMZRX	0.0416	-0.0609	0.1079	0.4174	0.5253	0.7248	-0.0840 :
: 1879	FMZOW	0.0497	-0.0528	0.1333	0.9052	1.0385	1.0191	-0.0518 :
: 1880	FMZOY	0.0312	-0.0713	0.1072	0.3891	0.4963	0.7045	-0.1012 :
: 1881	FMZOX	0.0336	-0.0689	0.1084	0.4275	0.5359	0.7321	-0.0941 :
: 1882	FMZPW	0.0211	-0.0814	0.1307	0.8519	0.9826	0.9913	-0.0821 :
: 1883	FMZPY	0.0026	-0.0999	0.1045	0.3606	0.4651	0.6820	-0.1465 :
: 1884	FMZPX	0.0050	-0.0975	0.1057	0.3964	0.5021	0.7086	-0.1376 :
: 1885	FMZQW	0.1300	0.0275	0.2412	1.2126	1.4538	1.2058	0.0228 :
: 1886	FMZQY	0.1114	0.0089	0.2150	0.6743	0.8893	0.9430	0.0094 :
: 1887	FMZQX	0.1139	0.0114	0.2162	0.6970	0.9132	0.9556	0.0119 :
: 1888	FMZSW	0.0532	-0.0493	0.1333	0.8841	1.0174	1.0086	-0.0489 :
: 1889	FMZSY	0.0347	-0.0678	0.1071	0.3883	0.4954	0.7038	-0.0963 :
: 1890	FMZSX	0.0371	-0.0654	0.1083	0.4232	0.5315	0.7291	-0.0897 :
: 1891	FLTNW	0.0451	-0.0574	0.1303	0.8818	1.0121	1.0060	-0.0570 :
: 1892	FLTNY	0.0268	-0.0757	0.1060	0.2104	0.3164	0.5625	-0.1346 :
: 1893	FLTNX	0.0292	-0.0733	0.1072	0.2884	0.3956	0.6290	-0.1165 :
: 1894	FLTVW	0.0313	-0.0712	0.1326	0.8885	1.0211	1.0105	-0.0705 :
: 1895	FLTVY	0.0128	-0.0897	0.1064	0.2147	0.3211	0.5666	-0.1583 :
: 1896	FLTVX	0.0152	-0.0873	0.1076	0.2933	0.4009	0.6332	-0.1379 :
: 1897	FLTRW	0.0555	-0.0470	0.1323	0.9057	1.0380	1.0188	-0.0461 :
: 1898	FLTRY	0.0369	-0.0656	0.1061	0.2230	0.3291	0.5737	-0.1143 :
: 1899	FLTRX	0.0394	-0.0631	0.1073	0.3014	0.4087	0.6393	-0.0987 :
: 1900	FLTOW	0.0475	-0.0550	0.1328	0.9375	1.0703	1.0345	-0.0532 :
: 1901	FLTOY	0.0290	-0.0735	0.1066	0.2431	0.3497	0.5913	-0.1243 :
: 1902	FLTOX	0.0314	-0.0711	0.1078	0.3241	0.4319	0.6572	-0.1082 :
: 1903	FLTPW	0.0189	-0.0836	0.1301	0.8758	1.0059	1.0030	-0.0833 :
: 1904	FLTPY	0.0004	-0.1021	0.1040	0.2062	0.3102	0.5570	-0.1833 :
: 1905	FLTPX	0.0028	-0.0997	0.1051	0.2846	0.3897	0.6243	-0.1597 :
: 1906	FLTQW	0.1278	0.0253	0.2406	1.2891	1.5297	1.2368	0.0205 :
: 1907	FLTQY	0.1092	0.0067	0.2145	0.5724	0.7869	0.8871	0.0076 :
: 1908	FLTQX	0.1117	0.0092	0.2156	0.6378	0.8534	0.9238	0.0100 :
: 1909	FLTSW	0.0510	-0.0515	0.1328	0.8892	1.0220	1.0110	-0.0509 :
: 1910	FLTSY	0.0325	-0.0700	0.1066	0.2151	0.3217	0.5672	-0.1234 :
: 1911	FLTSX	0.0349	-0.0676	0.1078	0.2927	0.4005	0.6329	-0.1068 :
: 1912	FLUNW	0.0417	-0.0608	0.1259	0.1894	0.3153	0.5615	-0.1083 :
: 1913	FLUNY	0.0232	-0.0793	0.0997	0.0205	0.1202	0.3467	-0.2287 :
: 1914	FLUNX	0.0257	-0.0768	0.1009	0.0342	0.1351	0.3675	-0.2089 :
: 1915	FLUVW	0.0277	-0.0748	0.1263	0.1922	0.3185	0.5644	-0.1325 :
: 1916	FLUVY	0.0092	-0.0933	0.1002	0.0210	0.1212	0.3481	-0.2680 :
: 1917	FLUVX	0.0117	-0.0908	0.1014	0.0352	0.1366	0.3696	-0.2456 :
: 1918	FLURW	0.0519	-0.0506	0.1261	0.2081	0.3342	0.5781	-0.0875 :
: 1919	FLURY	0.0334	-0.0691	0.0999	0.0280	0.1279	0.3576	-0.1932 :
: 1920	FLURX	0.0359	-0.0666	0.1011	0.0421	0.1432	0.3784	-0.1760 :

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
1921	FLUOW	0.0440	-0.0585	0.1265	0.2216	0.3481	0.5900	-0.0991
1922	FLUOY	0.0254	-0.0771	0.1004	0.0297	0.1301	0.3607	-0.2137
1923	FLUOX	0.0279	-0.0746	0.1016	0.0464	0.1480	0.3848	-0.1939
1924	FLUPW	0.0154	-0.0871	0.1239	0.1842	0.3081	0.5551	-0.1569
1925	FLUPY	-0.0030	-0.1055	0.0977	0.0171	0.1148	0.3388	-0.3113
1926	FLUPX	-0.0008	-0.1033	0.0989	0.0312	0.1301	0.3607	-0.2864
1927	FLUQW	0.1242	0.0217	0.2344	0.5298	0.7642	0.8742	0.0248
1928	FLUQY	0.1057	0.0032	0.2082	0.3156	0.5238	0.7237	0.0044
1929	FLUQX	0.1082	0.0057	0.2094	0.3167	0.5261	0.7253	0.0079
1930	FLUSW	0.0475	-0.0550	0.1265	0.1959	0.3224	0.5678	-0.0968
1931	FLUSY	0.0289	-0.0736	0.1003	0.0243	0.1246	0.3530	-0.2085
1932	FLUSX	0.0314	-0.0711	0.1015	0.0376	0.1391	0.3729	-0.1906
1933	FLZNW	0.0384	-0.0641	0.1301	0.3104	0.4405	0.6637	-0.0966
1934	FLZNY	0.0199	-0.0826	0.1039	0.1136	0.2175	0.4664	-0.1771
1935	FLZNX	0.0224	-0.0801	0.1051	0.1216	0.2267	0.4761	-0.1682
1936	FLZVW	0.0244	-0.0781	0.1305	0.3117	0.4422	0.6650	-0.1174
1937	FLZVY	0.0059	-0.0966	0.1044	0.1126	0.2170	0.4658	-0.2074
1938	FLZVX	0.0084	-0.0941	0.1056	0.1211	0.2267	0.4762	-0.1976
1939	FLZRW	0.0486	-0.0539	0.1303	0.3328	0.4631	0.6805	-0.0792
1940	FLZRY	0.0301	-0.0724	0.1041	0.1248	0.2289	0.4784	-0.1513
1941	FLZRX	0.0325	-0.0700	0.1053	0.1332	0.2385	0.4883	-0.1433
1942	FLZOW	0.0406	-0.0619	0.1307	0.3429	0.4736	0.6882	-0.0899
1943	FLZOY	0.0221	-0.0804	0.1046	0.1231	0.2277	0.4772	-0.1685
1944	FLZOX	0.0246	-0.0779	0.1058	0.1341	0.2399	0.4898	-0.1590
1945	FLZPW	0.0120	-0.0905	0.1281	0.3001	0.4282	0.6543	-0.1383
1946	FLZPY	-0.0069	-0.1094	0.1019	0.1051	0.2070	0.4549	-0.2405
1947	FLZPX	-0.0036	-0.1061	0.1031	0.1135	0.2166	0.4654	-0.2280
1948	FLZQW	0.1209	0.0184	0.2386	0.9203	1.1589	1.0765	0.0171
1949	FLZQY	0.1024	-0.0001	0.2124	0.6782	0.8906	0.9437	-0.0001
1950	FLZQX	0.1048	0.0023	0.2136	0.6735	0.8871	0.9419	0.0025
1951	FLZSW	0.0441	-0.0584	0.1307	0.3205	0.4512	0.6717	-0.0869
1952	FLZSY	0.0256	-0.0769	0.1045	0.1210	0.2255	0.4748	-0.1619
1953	FLZSX	0.0281	-0.0744	0.1057	0.1285	0.2342	0.4840	-0.1537
1954	FKTNW	0.0453	-0.0572	0.1322	0.9058	1.0380	1.0188	-0.0561
1955	FKTNY	0.0268	-0.0757	0.1060	0.2255	0.3315	0.5758	-0.1315
1956	FKTNX	0.0292	-0.0733	0.1072	0.3043	0.4115	0.6415	-0.1142
1957	FKTVW	0.0313	-0.0712	0.1326	0.9118	1.0444	1.0220	-0.0697
1958	FKTVY	0.0128	-0.0897	0.1064	0.2292	0.3356	0.5793	-0.1548
1959	FKTVX	0.0152	-0.0873	0.1076	0.3086	0.4162	0.6451	-0.1353
1960	FKTRW	0.0555	-0.0470	0.1323	0.9324	1.0647	1.0319	-0.0455
1961	FKTRY	0.0369	-0.0656	0.1061	0.2410	0.3471	0.5891	-0.1113
1962	FKTRX	0.0394	-0.0631	0.1073	0.3201	0.4274	0.6538	-0.0965
1963	FKTOW	0.0475	-0.0550	0.1328	0.9638	1.0966	1.0472	-0.0525
1964	FKTOY	0.0290	-0.0735	0.1066	0.2606	0.3672	0.6059	-0.1213
1965	FKTOX	0.0314	-0.0711	0.1078	0.3424	0.4502	0.6710	-0.1060
1966	FKTPW	0.0189	-0.0836	0.1301	0.8987	1.0288	1.0143	-0.0824
1967	FKTPY	0.0004	-0.1021	0.1040	0.2202	0.3242	0.5694	-0.1793
1968	FKTPX	0.0028	-0.0997	0.1051	0.2994	0.4045	0.6360	-0.1567

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PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
1969	FKTQW	0.1278	0.0253	0.2406	1.5253	1.7659	1.3289	0.0190
1970	FKTQY	0.1092	0.0067	0.2145	0.7998	1.0143	1.0071	0.0067
1971	FKTQX	0.1117	0.0092	0.2156	0.8659	1.0815	1.0400	0.0089
1972	FKTSW	0.0510	-0.0515	0.1328	0.9127	1.0455	1.0225	-0.0504
1973	FKTSY	0.0325	-0.0700	0.1066	0.2297	0.3363	0.5799	-0.1207
1974	FKTSX	0.0349	-0.0676	0.1078	0.3081	0.4159	0.6449	-0.1048
1975	FKUNW	0.0417	-0.0608	0.1259	0.1992	0.3251	0.5701	-0.1066
1976	FKUNY	0.0232	-0.0793	0.0997	0.0214	0.1211	0.3480	-0.2278
1977	FKUNX	0.0257	-0.0768	0.1009	0.0359	0.1368	0.3698	-0.2076
1978	FKUVW	0.0277	-0.0748	0.1263	0.2014	0.3277	0.5725	-0.1306
1979	FKUVY	0.0092	-0.0933	0.1002	0.0213	0.1215	0.3486	-0.2676
1980	FKUVX	0.0117	-0.0908	0.1014	0.0364	0.1378	0.3712	-0.2446
1981	FKURW	0.0519	-0.0506	0.1261	0.2208	0.3469	0.5890	-0.0859
1982	FKURY	0.0334	-0.0691	0.0999	0.0318	0.1317	0.3629	-0.1904
1983	FKURX	0.0359	-0.0666	0.1011	0.0466	0.1477	0.3843	-0.1733
1984	FKUOW	0.0440	-0.0585	0.1265	0.2337	0.3602	0.6002	-0.0975
1985	FKUOY	0.0254	-0.0771	0.1004	0.0330	0.1334	0.3653	-0.2110
1986	FKUOX	0.0279	-0.0746	0.1016	0.0505	0.1521	0.3901	-0.1912
1987	FKUPW	0.0154	-0.0871	0.1239	0.1929	0.3168	0.5628	-0.1547
1988	FKUPY	-0.0030	-0.1055	0.0977	0.0170	0.1147	0.3386	-0.3115
1989	FKUPX	-0.0008	-0.1033	0.0989	0.0318	0.1307	0.3616	-0.2857
1990	FKUQW	0.1242	0.0217	0.2344	0.7518	0.9862	0.9931	0.0219
1991	FKUQY	0.1057	0.0032	0.2082	0.5288	0.7370	0.8585	0.0037
1992	FKUQX	0.1082	0.0057	0.2094	0.5306	0.7400	0.8603	0.0066
1993	FKUSW	0.0475	-0.0550	0.1265	0.2052	0.3317	0.5759	-0.0955
1994	FKUSY	0.0289	-0.0736	0.1003	0.0248	0.1251	0.3536	-0.2081
1995	FKUSX	0.0314	-0.0711	0.1015	0.0388	0.1403	0.3746	-0.1898
1996	FKZNW	0.0384	-0.0641	0.1301	0.3420	0.4721	0.6871	-0.0933
1997	FKZNY	0.0199	-0.0826	0.1039	0.1364	0.2403	0.4902	-0.1685
1998	FKZNX	0.0224	-0.0801	0.1051	0.1452	0.2503	0.5003	-0.1601
1999	FKZVW	0.0244	-0.0781	0.1305	0.3428	0.4733	0.6880	-0.1135
2000	FKZVY	0.0059	-0.0966	0.1044	0.1348	0.2392	0.4891	-0.1975
2001	FKZVX	0.0084	-0.0941	0.1056	0.1441	0.2497	0.4997	-0.1883
2002	FKZRW	0.0486	-0.0539	0.1303	0.3673	0.4976	0.7054	-0.0764
2003	FKZRY	0.0301	-0.0724	0.1041	0.1504	0.2545	0.5045	-0.1435
2004	FKZRX	0.0325	-0.0700	0.1053	0.1595	0.2648	0.5146	-0.1360
2005	FKZOW	0.0406	-0.0619	0.1307	0.3769	0.5076	0.7124	-0.0869
2006	FKZOY	0.0221	-0.0804	0.1046	0.1482	0.2528	0.5028	-0.1599
2007	FKZOX	0.0246	-0.0779	0.1058	0.1601	0.2659	0.5156	-0.1511
2008	FKZPW	0.0120	-0.0905	0.1281	0.3306	0.4587	0.6773	-0.1336
2009	FKZPY	-0.0069	-0.1094	0.1019	0.1268	0.2287	0.4782	-0.2288
2010	FKZPX	-0.0036	-0.1061	0.1031	0.1359	0.2390	0.4889	-0.2170
2011	FKZQW	0.1209	0.0184	0.2386	1.1641	1.4027	1.1844	0.0155
2012	FKZQY	0.1024	-0.0001	0.2124	0.9132	1.1256	1.0609	-0.0001
2013	FKZQX	0.1048	0.0023	0.2136	0.9093	1.1229	1.0597	0.0022
2014	FKZSW	0.0441	-0.0584	0.1307	0.3516	0.4823	0.6945	-0.0841
2015	FKZSY	0.0256	-0.0769	0.1045	0.1432	0.2477	0.4977	-0.1545
2016	FKZSX	0.0281	-0.0744	0.1057	0.1516	0.2573	0.5073	-0.1467

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PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
2017	DJTNW	0.2379	0.1354	0.1582	0.6081	0.7663	0.8754	0.1547
2018	DJTNY	0.2194	0.1169	0.1321	0.0697	0.2018	0.4493	0.2602
2019	DJTNX	0.2219	0.1194	0.1333	0.1317	0.2650	0.5147	0.2320
2020	DJTVW	0.2239	0.1214	0.1587	0.6031	0.7618	0.8728	0.1391
2021	DJTVY	0.2054	0.1029	0.1325	0.0623	0.1948	0.4414	0.2331
2022	DJTVX	0.2079	0.1054	0.1337	0.1248	0.2585	0.5085	0.2073
2023	DJTRW	0.2481	0.1456	0.1584	0.6158	0.7742	0.8799	0.1655
2024	DJTRY	0.2296	0.1271	0.1322	0.0662	0.1984	0.4454	0.2854
2025	DJTRX	0.2321	0.1296	0.1334	0.1284	0.2618	0.5117	0.2533
2026	DJTOW	0.2401	0.1376	0.1589	0.6428	0.8017	0.8954	0.1537
2027	DJTOY	0.2216	0.1191	0.1327	0.0814	0.2141	0.4627	0.2574
2028	DJTOX	0.2241	0.1216	0.1339	0.1464	0.2803	0.5294	0.2297
2029	DJTPW	0.2116	0.1091	0.1562	0.5849	0.7411	0.8609	0.1267
2030	DJTPY	0.1930	0.0905	0.1300	0.0483	0.1783	0.4223	0.2143
2031	DJTPX	0.1955	0.0930	0.1312	0.1106	0.2418	0.4918	0.1891
2032	DJTQW	0.3204	0.2179	0.2667	1.2047	1.4714	1.2130	0.1796
2033	DJTQY	0.3019	0.1994	0.2405	0.6210	0.8615	0.9282	0.2148
2034	DJTQX	0.3044	0.2019	0.2417	0.6703	0.9120	0.9550	0.2114
2035	DJTSW	0.2436	0.1411	0.1588	0.6083	0.7671	0.8759	0.1611
2036	DJTSY	0.2251	0.1226	0.1327	0.0672	0.1999	0.4471	0.2742
2037	DJTSX	0.2276	0.1251	0.1339	0.1287	0.2626	0.5125	0.2441
2038	DJUNW	0.2344	0.1319	0.1520	0.0658	0.2178	0.4666	0.2827
2039	DJUNY	0.2159	0.1134	0.1258	0.0299	0.1557	0.3946	0.2874
2040	DJUNX	0.2183	0.1158	0.1270	0.0275	0.1545	0.3930	0.2947
2041	DJUVW	0.2204	0.1179	0.1524	0.0569	0.2093	0.4575	0.2577
2042	DJUVY	0.2019	0.0994	0.1262	0.0187	0.1449	0.3807	0.2612
2043	DJUVX	0.2043	0.1018	0.1274	0.0169	0.1443	0.3798	0.2680
2044	DJURW	0.2446	0.1421	0.1521	0.0683	0.2204	0.4695	0.3027
2045	DJURY	0.2261	0.1236	0.1260	0.0212	0.1472	0.3837	0.3222
2046	DJURX	0.2285	0.1260	0.1271	0.0192	0.1463	0.3825	0.3295
2047	DJUOW	0.2366	0.1341	0.1526	0.0770	0.2296	0.4791	0.2799
2048	DJUOY	0.2181	0.1156	0.1265	0.0181	0.1446	0.3803	0.3040
2049	DJUOX	0.2206	0.1181	0.1276	0.0188	0.1464	0.3826	0.3087
2050	DJUPW	0.2080	0.1055	0.1499	0.0433	0.1932	0.4396	0.2400
2051	DJUPY	0.1895	0.0870	0.1238	0.0093	0.1331	0.3643	0.2385
2052	DJUPX	0.1920	0.0895	0.1250	0.0073	0.1323	0.3637	0.2461
2053	DJUQW	0.3169	0.2144	0.2604	0.5955	0.8559	0.9251	0.2318
2054	DJUQY	0.2984	0.1959	0.2343	0.5143	0.7486	0.8652	0.2264
2055	DJUQX	0.3008	0.1983	0.2355	0.4992	0.7347	0.8572	0.2314
2056	DJUSW	0.2401	0.1376	0.1526	0.0651	0.2177	0.4666	0.2950
2057	DJUSY	0.2216	0.1191	0.1264	0.0265	0.1529	0.3910	0.3046
2058	DJUSX	0.2241	0.1216	0.1276	0.0237	0.1513	0.3889	0.3127
2059	DJZNW	0.2311	0.1286	0.1562	0.2016	0.3578	0.5981	0.2150
2060	DJZNY	0.2126	0.1101	0.1300	0.1378	0.2678	0.5175	0.2128
2061	DJZNX	0.2150	0.1125	0.1312	0.1297	0.2609	0.5108	0.2203
2062	DJZVW	0.2171	0.1146	0.1566	0.1912	0.3478	0.5898	0.1943
2063	DJZVY	0.1986	0.0961	0.1304	0.1251	0.2555	0.5054	0.1902
2064	DJZVX	0.2010	0.0985	0.1316	0.1175	0.2491	0.4991	0.1974

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A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
2065	DJZRW	0.2413	0.1388	0.1563	0.2078	0.3641	0.6034	0.2300
2066	DJZRY	0.2227	0.1202	0.1302	0.1328	0.2630	0.5128	0.2344
2067	DJZRX	0.2252	0.1227	0.1313	0.1250	0.2563	0.5063	0.2424
2068	DJZOW	0.2333	0.1308	0.1568	0.2130	0.3698	0.6081	0.2151
2069	DJZOY	0.2148	0.1123	0.1307	0.1263	0.2570	0.5069	0.2216
2070	DJZOX	0.2172	0.1147	0.1318	0.1212	0.2530	0.5030	0.2280
2071	DJZPW	0.2047	0.1022	0.1541	0.1740	0.3281	0.5728	0.1784
2072	DJZPY	0.1862	0.0837	0.1280	0.1120	0.2400	0.4899	0.1709
2073	DJZPX	0.1886	0.0861	0.1292	0.1043	0.2335	0.4832	0.1782
2074	DJZQW	0.3136	0.2111	0.2646	1.0007	1.2653	1.1248	0.1877
2075	DJZQY	0.2951	0.1926	0.2385	0.8916	1.1301	1.0631	0.1812
2076	DJZQX	0.2975	0.1950	0.2397	0.8708	1.1105	1.0538	0.1850
2077	DJZSW	0.2368	0.1343	0.1568	0.2044	0.3612	0.6010	0.2235
2078	DJZSY	0.2183	0.1158	0.1306	0.1379	0.2685	0.5182	0.2235
2079	DJZSX	0.2207	0.1182	0.1318	0.1294	0.2612	0.5111	0.2313
2080	DMTNW	0.2442	0.1417	0.1624	1.2499	1.4123	1.1884	0.1192
2081	DMTNY	0.2257	0.1232	0.1363	0.4172	0.5535	0.7440	0.1656
2082	DMTNX	0.2281	0.1256	0.1375	0.5064	0.6439	0.8024	0.1565
2083	DMTVW	0.2302	0.1277	0.1629	1.2465	1.4094	1.1872	0.1076
2084	DMTVY	0.2117	0.1092	0.1367	0.4114	0.5481	0.7403	0.1475
2085	DMTVX	0.2141	0.1116	0.1379	0.5012	0.6391	0.7995	0.1396
2086	DMTRW	0.2544	0.1519	0.1626	1.2496	1.4122	1.1884	0.1278
2087	DMTRY	0.2359	0.1334	0.1364	0.4056	0.5420	0.7362	0.1812
2088	DMTRX	0.2383	0.1358	0.1376	0.4953	0.6329	0.7955	0.1707
2089	DMTOW	0.2464	0.1439	0.1631	1.2865	1.4496	1.2040	0.1195
2090	DMTOY	0.2279	0.1254	0.1369	0.4308	0.5677	0.7535	0.1664
2091	DMTOX	0.2303	0.1278	0.1381	0.5231	0.6612	0.8132	0.1572
2092	DMTPW	0.2178	0.1153	0.1604	1.2213	1.3817	1.1754	0.0981
2093	DMTPY	0.1993	0.0968	0.1342	0.3904	0.5246	0.7243	0.1337
2094	DMTPX	0.2018	0.0993	0.1354	0.4800	0.6154	0.7845	0.1266
2095	DMTQW	0.3267	0.2242	0.2709	1.3703	1.6412	1.2811	0.1750
2096	DMTQY	0.3082	0.2057	0.2447	0.4923	0.7370	0.8585	0.2396
2097	DMTQX	0.3106	0.2081	0.2459	0.5689	0.8148	0.9027	0.2306
2098	DMTSW	0.2499	0.1474	0.1630	1.2567	1.4197	1.1915	0.1237
2099	DMTSY	0.2314	0.1289	0.1369	0.4213	0.5582	0.7471	0.1725
2100	DMTSX	0.2338	0.1313	0.1381	0.5101	0.6482	0.8051	0.1631
2101	DMUNW	0.2407	0.1382	0.1562	0.3847	0.5409	0.7355	0.1879
2102	DMUNY	0.2221	0.1196	0.1300	0.0545	0.1845	0.4295	0.2785
2103	DMUNX	0.2246	0.1221	0.1312	0.0794	0.2106	0.4589	0.2661
2104	DMUVW	0.2267	0.1242	0.1566	0.3775	0.5341	0.7308	0.1700
2105	DMUVY	0.2081	0.1056	0.1305	0.0450	0.1755	0.4189	0.2521
2106	DMUVX	0.2106	0.1081	0.1316	0.0704	0.2020	0.4495	0.2405
2107	DMURW	0.2509	0.1484	0.1563	0.3793	0.5356	0.7319	0.2028
2108	DMURY	0.2323	0.1298	0.1302	0.0379	0.1681	0.4100	0.3166
2109	DMURX	0.2348	0.1323	0.1314	0.0632	0.1946	0.4411	0.2999
2110	DMUOW	0.2429	0.1404	0.1568	0.3979	0.5547	0.7448	0.1885
2111	DMUOY	0.2244	0.1219	0.1307	0.0447	0.1754	0.4189	0.2911
2112	DMUOX	0.2268	0.1243	0.1319	0.0727	0.2046	0.4523	0.2748

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A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
2113	DMUPW	0.2143	0.1118	0.1542	0.3569	0.5111	0.7149	0.1564
2114	DMUPY	0.1958	0.0933	0.1280	0.0285	0.1565	0.3957	0.2358
2115	DMUPX	0.1982	0.0957	0.1292	0.0539	0.1831	0.4278	0.2237
2116	DMUQW	0.3232	0.2207	0.2646	0.4383	0.7029	0.8384	0.2633
2117	DMUQY	0.3046	0.2021	0.2385	0.0628	0.3013	0.5489	0.3682
2118	DMUQX	0.3071	0.2046	0.2397	0.0751	0.3148	0.5610	0.3647
2119	DMUSW	0.2464	0.1439	0.1568	0.3906	0.5474	0.7399	0.1945
2120	DMUSY	0.2279	0.1254	0.1306	0.0577	0.1883	0.4340	0.2890
2121	DMUSX	0.2303	0.1278	0.1318	0.0822	0.2140	0.4626	0.2763
2122	DMZNW	0.2373	0.1348	0.1604	0.5862	0.7466	0.8641	0.1560
2123	DMZNY	0.2188	0.1163	0.1342	0.2281	0.3623	0.6019	0.1932
2124	DMZNX	0.2213	0.1188	0.1354	0.2473	0.3827	0.6186	0.1920
2125	DMZVW	0.2233	0.1208	0.1608	0.5775	0.7383	0.8593	0.1406
2126	DMZVY	0.2048	0.1023	0.1347	0.2171	0.3518	0.5931	0.1725
2127	DMZVX	0.2073	0.1048	0.1358	0.2368	0.3726	0.6104	0.1717
2128	DMZRW	0.2475	0.1450	0.1605	0.5845	0.7450	0.8632	0.1680
2129	DMZRY	0.2290	0.1265	0.1344	0.2152	0.3496	0.5913	0.2140
2130	DMZRX	0.2315	0.1290	0.1356	0.2348	0.3704	0.6086	0.2120
2131	DMZOW	0.2396	0.1371	0.1610	0.5997	0.7607	0.8722	0.1572
2132	DMZOY	0.2210	0.1185	0.1349	0.2186	0.3535	0.5946	0.1993
2133	DMZOX	0.2235	0.1210	0.1361	0.2409	0.3770	0.6140	0.1971
2134	DMZPW	0.2110	0.1085	0.1584	0.5533	0.7117	0.8436	0.1286
2135	DMZPY	0.1925	0.0900	0.1322	0.1970	0.3292	0.5737	0.1569
2136	DMZPX	0.1949	0.0924	0.1334	0.2166	0.3500	0.5916	0.1562
2137	DMZQW	0.3198	0.2173	0.2688	0.9092	1.1780	1.0854	0.2002
2138	DMZQY	0.3013	0.1988	0.2427	0.5058	0.7485	0.8652	0.2298
2139	DMZQX	0.3038	0.2013	0.2439	0.5124	0.7563	0.8696	0.2315
2140	DMZSW	0.2431	0.1406	0.1610	0.5957	0.7567	0.8699	0.1616
2141	DMZSY	0.2245	0.1220	0.1348	0.2349	0.3697	0.6080	0.2007
2142	DMZSX	0.2270	0.1245	0.1360	0.2537	0.3897	0.6242	0.1995
2143	DLTNW	0.2349	0.1324	0.1580	0.5976	0.7556	0.8693	0.1523
2144	DLTNY	0.2166	0.1141	0.1337	0.0611	0.1948	0.4414	0.2585
2145	DLTNX	0.2191	0.1166	0.1349	0.1230	0.2579	0.5079	0.2296
2146	DLTVW	0.2212	0.1187	0.1603	0.5926	0.7529	0.8677	0.1368
2147	DLTVY	0.2026	0.1001	0.1341	0.0538	0.1879	0.4335	0.2310
2148	DLTVX	0.2051	0.1026	0.1353	0.1163	0.2516	0.5016	0.2046
2149	DLTRW	0.2453	0.1428	0.1600	0.6014	0.7614	0.8726	0.1637
2150	DLTRY	0.2268	0.1243	0.1338	0.0537	0.1875	0.4330	0.2871
2151	DLTRX	0.2293	0.1268	0.1350	0.1159	0.2509	0.5009	0.2531
2152	DLTOW	0.2374	0.1349	0.1605	0.6292	0.7897	0.8886	0.1518
2153	DLTOY	0.2189	0.1164	0.1343	0.0697	0.2040	0.4517	0.2577
2154	DLTOX	0.2213	0.1188	0.1355	0.1347	0.2702	0.5198	0.2286
2155	DLTPW	0.2088	0.1063	0.1578	0.5744	0.7322	0.8557	0.1242
2156	DLTPY	0.1903	0.0878	0.1316	0.0397	0.1713	0.4139	0.2122
2157	DLTPX	0.1927	0.0902	0.1328	0.1020	0.2348	0.4846	0.1862
2158	DLTQW	0.3177	0.2152	0.2683	0.9829	1.2512	1.1186	0.1924
2159	DLTQY	0.2991	0.1966	0.2421	0.4011	0.6432	0.8020	0.2451
2160	DLTQX	0.3016	0.1991	0.2433	0.4504	0.6937	0.8329	0.2391

APPENDIX NO. 1

PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

A	B	C	D	D	E	F	G	H
SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION
2161	DLTSW	0.2409	0.1384	0.1604	0.5981	0.7585	0.8709	0.1589
2162	DLTSY	0.2224	0.1199	0.1343	0.0589	0.1932	0.4395	0.2728
2163	DLTSX	0.2248	0.1223	0.1355	0.1203	0.2558	0.5058	0.2418
2164	DLUNW	0.2316	0.1291	0.1536	0.0616	0.2152	0.4639	0.2783
2165	DLUNY	0.2131	0.1106	0.1274	0.0276	0.1550	0.3937	0.2809
2166	DLUNX	0.2156	0.1131	0.1286	0.0252	0.1538	0.3922	0.2884
2167	DLUVW	0.2176	0.1151	0.1540	0.0528	0.2068	0.4548	0.2531
2168	DLUVY	0.1991	0.0966	0.1279	0.0165	0.1444	0.3800	0.2542
2169	DLUVX	0.2016	0.0991	0.1290	0.0146	0.1436	0.3790	0.2615
2170	DLURW	0.2418	0.1393	0.1537	0.0603	0.2140	0.4626	0.3011
2171	DLURY	0.2233	0.1208	0.1276	0.0151	0.1427	0.3778	0.3198
2172	DLURX	0.2257	0.1232	0.1288	0.0130	0.1418	0.3766	0.3272
2173	DLUOW	0.2338	0.1313	0.1542	0.0697	0.2239	0.4732	0.2775
2174	DLUOY	0.2153	0.1128	0.1281	0.0128	0.1409	0.3753	0.3006
2175	DLUOX	0.2178	0.1153	0.1292	0.0134	0.1426	0.3776	0.3054
2176	DLUPW	0.2053	0.1028	0.1516	0.0392	0.1908	0.4368	0.2354
2177	DLUPY	0.1867	0.0842	0.1254	0.0071	0.1325	0.3639	0.2314
2178	DLUPX	0.1892	0.0867	0.1266	0.0050	0.1316	0.3628	0.2390
2179	DLUQW	0.3141	0.2116	0.2620	0.3800	0.6420	0.8013	0.2641
2180	DLUQY	0.2956	0.1931	0.2359	0.3008	0.5367	0.7326	0.2636
2181	DLUQX	0.2981	0.1956	0.2371	0.2857	0.5228	0.7230	0.2705
2182	DLUSW	0.2373	0.1348	0.1542	0.0612	0.2154	0.4641	0.2905
2183	DLUSY	0.2188	0.1163	0.1280	0.0245	0.1525	0.3905	0.2979
2184	DLUSX	0.2213	0.1188	0.1292	0.0216	0.1508	0.3884	0.3059
2185	DLZNW	0.2283	0.1258	0.1578	0.1788	0.3366	0.5802	0.2168
2186	DLZNY	0.2098	0.1073	0.1316	0.1170	0.2486	0.4986	0.2152
2187	DLZNX	0.2122	0.1097	0.1328	0.1088	0.2416	0.4916	0.2232
2188	DLZVW	0.2143	0.1118	0.1582	0.1685	0.3267	0.5716	0.1956
2189	DLZVY	0.1958	0.0933	0.1321	0.1043	0.2364	0.4862	0.1919
2190	DLZVX	0.1982	0.0957	0.1332	0.0967	0.2299	0.4795	0.1996
2191	DLZRW	0.2385	0.1360	0.1579	0.1812	0.3391	0.5823	0.2336
2192	DLZRY	0.2200	0.1175	0.1318	0.1081	0.2399	0.4898	0.2399
2193	DLZRX	0.2224	0.1199	0.1330	0.1003	0.2333	0.4830	0.2482
2194	DLZOW	0.2305	0.1280	0.1584	0.1872	0.3456	0.5879	0.2178
2195	DLZOY	0.2120	0.1095	0.1323	0.1023	0.2346	0.4844	0.2261
2196	DLZOX	0.2145	0.1120	0.1334	0.0973	0.2307	0.4803	0.2332
2197	DLZPW	0.2019	0.0994	0.1558	0.1513	0.3071	0.5541	0.1794
2198	DLZPY	0.1834	0.0809	0.1296	0.0912	0.2208	0.4699	0.1722
2199	DLZPX	0.1859	0.0834	0.1308	0.0835	0.2143	0.4629	0.1802
2200	DLZQW	0.3108	0.2083	0.2662	0.7667	1.0329	1.0163	0.2050
2201	DLZQY	0.2923	0.1898	0.2401	0.6595	0.8996	0.9485	0.2001
2202	DLZQX	0.2947	0.1922	0.2413	0.6387	0.8800	0.9381	0.2049
2203	DLZSW	0.2340	0.1315	0.1584	0.1820	0.3404	0.5834	0.2254
2204	DLZSY	0.2155	0.1130	0.1322	0.1173	0.2495	0.4995	0.2262
2205	DLZSX	0.2180	0.1155	0.1334	0.1088	0.2422	0.4921	0.2347
2206	DKTNW	0.2352	0.1327	0.1598	0.6425	0.8023	0.8957	0.1482
2207	DKTNY	0.2166	0.1141	0.1337	0.0972	0.2309	0.4805	0.2375
2208	DKTNX	0.2191	0.1166	0.1349	0.1598	0.2947	0.5429	0.2148

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PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

: A	B	C	D	D	E	F	G	H :
: SER. NO.	PORTFOLIO	PORTFOLIO RETURN	RETURN MINUS RISK-FREE	WEIGHTED SEC. VAR.	PORTFOLIO COVARIANCES	PORTFOLIO VARIANCES	PORTFOLIO STD DEV.	RETURN / STANDARD DEVIATION :
: 2209	DKTVW	0.2212	0.1187	0.1603	0.6369	0.7972	0.8929	0.1330 :
: 2210	DKTVY	0.2026	0.1001	0.1341	0.0893	0.2234	0.4726	0.2118 :
: 2211	DKTVX	0.2051	0.1026	0.1353	0.1525	0.2878	0.5365	0.1913 :
: 2212	DKTRW	0.2453	0.1428	0.1600	0.6491	0.8091	0.8995	0.1588 :
: 2213	DKTRY	0.2268	0.1243	0.1338	0.0926	0.2264	0.4758	0.2613 :
: 2214	DKTRX	0.2293	0.1268	0.1350	0.1556	0.2906	0.5391	0.2352 :
: 2215	DKTOW	0.2374	0.1349	0.1605	0.6764	0.8369	0.9148	0.1475 :
: 2216	DKTOY	0.2189	0.1164	0.1343	0.1081	0.2424	0.4924	0.2364 :
: 2217	DKTOX	0.2213	0.1188	0.1355	0.1738	0.3093	0.5562	0.2136 :
: 2218	DKTPW	0.2088	0.1063	0.1578	0.6182	0.7760	0.8809	0.1207 :
: 2219	DKTPY	0.1903	0.0878	0.1316	0.0747	0.2063	0.4542	0.1933 :
: 2220	DKTPX	0.1927	0.0902	0.1328	0.1377	0.2705	0.5201	0.1734 :
: 2221	DKTQW	0.3177	0.2152	0.2683	1.2400	1.5083	1.2281	0.1752 :
: 2222	DKTOY	0.2991	0.1966	0.2421	0.6494	0.8915	0.9442	0.2082 :
: 2223	DKTOX	0.3016	0.1991	0.2433	0.6994	0.9427	0.9709	0.2051 :
: 2224	DKTSW	0.2409	0.1384	0.1604	0.6425	0.8029	0.8960	0.1545 :
: 2225	DKTSY	0.2224	0.1199	0.1343	0.0944	0.2287	0.4782	0.2507 :
: 2226	DKTSX	0.2248	0.1223	0.1355	0.1567	0.2922	0.5405	0.2263 :
: 2227	DKUNW	0.2316	0.1291	0.1536	0.0923	0.2459	0.4959	0.2604 :
: 2228	DKUNY	0.2131	0.1106	0.1274	0.0495	0.1769	0.4206	0.2630 :
: 2229	DKUNX	0.2156	0.1131	0.1286	0.0478	0.1764	0.4201	0.2693 :
: 2230	DKUVW	0.2176	0.1151	0.1540	0.0830	0.2370	0.4868	0.2365 :
: 2231	DKUVY	0.1991	0.0966	0.1279	0.0378	0.1657	0.4071	0.2373 :
: 2232	DKUVX	0.2016	0.0991	0.1290	0.0367	0.1657	0.4071	0.2435 :
: 2233	DKURW	0.2418	0.1393	0.1537	0.0939	0.2476	0.4976	0.2800 :
: 2234	DKURY	0.2233	0.1208	0.1276	0.0398	0.1674	0.4092	0.2952 :
: 2235	DKURX	0.2257	0.1232	0.1288	0.0385	0.1673	0.4091	0.3012 :
: 2236	DKUOW	0.2338	0.1313	0.1542	0.1028	0.2570	0.5069	0.2590 :
: 2237	DKUOY	0.2153	0.1128	0.1281	0.0370	0.1651	0.4064	0.2776 :
: 2238	DKUOX	0.2178	0.1153	0.1292	0.0384	0.1676	0.4094	0.2816 :
: 2239	DKUPW	0.2053	0.1028	0.1516	0.0688	0.2204	0.4695	0.2190 :
: 2240	DKUPY	0.1867	0.0842	0.1254	0.0279	0.1533	0.3915	0.2151 :
: 2241	DKUPX	0.1892	0.0867	0.1266	0.0266	0.1532	0.3914	0.2215 :
: 2242	DKUQW	0.3141	0.2116	0.2620	0.6230	0.8850	0.9407	0.2249 :
: 2243	DKUQY	0.2956	0.1931	0.2359	0.5349	0.7708	0.8779	0.2200 :
: 2244	DKUQX	0.2981	0.1956	0.2371	0.5206	0.7577	0.8704	0.2247 :
: 2245	DKUSW	0.2373	0.1348	0.1542	0.0914	0.2456	0.4956	0.2720 :
: 2246	DKUSY	0.2188	0.1163	0.1280	0.0459	0.1739	0.4170	0.2789 :
: 2247	DKUSX	0.2213	0.1188	0.1292	0.0438	0.1730	0.4159	0.2856 :
: 2248	DKZNW	0.2283	0.1258	0.1578	0.2314	0.3892	0.6238	0.2017 :
: 2249	DKZNY	0.2098	0.1073	0.1316	0.1607	0.2923	0.5406	0.1985 :
: 2250	DKZNX	0.2122	0.1097	0.1328	0.1533	0.2861	0.5349	0.2051 :
: 2251	DKZVW	0.2143	0.1118	0.1582	0.2205	0.3787	0.6154	0.1817 :
: 2252	DKZVY	0.1958	0.0933	0.1321	0.1475	0.2796	0.5287	0.1765 :
: 2253	DKZVX	0.1982	0.0957	0.1332	0.1406	0.2738	0.5233	0.1829 :
: 2254	DKZRW	0.2385	0.1360	0.1579	0.2366	0.3945	0.6281	0.2165 :
: 2255	DKZRY	0.2200	0.1175	0.1318	0.1546	0.2864	0.5352	0.2196 :
: 2256	DKZRX	0.2224	0.1199	0.1330	0.1476	0.2806	0.5298	0.2264 :

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PORTFOLIO COMBINATIONS, RETURNS, WEIGHTED SECURITY VARIANCES,
COVARIANCES, VARIANCES, STANDARD DEVIATIONS & RETURN PER UNIT OF RISK

: A	B	C	D	D	E	F	G	H :
: SER. PORTFOLIO PORTFOLIO RETURN WEIGHTED PORTFOLIO PORTFOLIO PORTFOLIO RETURN / :	NO.	RETURN	MINUS	SEC. VAR.	COVARIANCES	VARIANCES	STD DEV.	STANDARD :
:	:	:	RISK-FREE	:	:	:	:	DEVIATION :
: 2257	DKZOW	0.2305	0.1280	0.1584	0.2421	0.4005	0.6329	0.2023 :
: 2258	DKZOY	0.2120	0.1095	0.1323	0.1484	0.2807	0.5299	0.2067 :
: 2259	DKZOX	0.2145	0.1120	0.1334	0.1441	0.2775	0.5268	0.2126 :
: 2260	DKZPW	0.2019	0.0994	0.1558	0.2027	0.3585	0.5988	0.1660 :
: 2261	DKZPY	0.1834	0.0809	0.1296	0.1338	0.2634	0.5132	0.1576 :
: 2262	DKZPX	0.1859	0.0834	0.1308	0.1269	0.2577	0.5076	0.1643 :
: 2263	DKZQW	0.3108	0.2083	0.2662	1.0315	1.2977	1.1391	0.1829 :
: 2264	DKZOY	0.2923	0.1898	0.2401	0.9155	1.1556	1.0750	0.1766 :
: 2265	DKZQX	0.2947	0.1922	0.2413	0.8954	1.1367	1.0662	0.1803 :
: 2266	DKZSW	0.2340	0.1315	0.1584	0.2340	0.3924	0.6264	0.2099 :
: 2267	DKZSY	0.2155	0.1130	0.1322	0.1606	0.2928	0.5411	0.2089 :
: 2268	DKZSX	0.2180	0.1155	0.1334	0.1528	0.2862	0.5350	0.2159 :

TABLE 14
AVERAGE EQUITY OF COMPANIES REGISTERED WITH
BAHRAIN STOCK EXCHANGE MARKET

(BD. THOUSANDS)

SER.	NAME	1985	1986	1987	1988	1989	TOTAL	AVERAGE
1	NATIONAL BANK OF BAHRAIN	61,110	62,390	63,670	65,870	67,880	320,920	64,184
2	BANK OF BAHRAIN & KUWAIT	95,091	94,407	71,934	71,436	75,761	408,629	81,726
3	AL AHLI COMMERCIAL BANK	20,882	20,529	14,974	15,995	12,011	84,391	16,878
4	BAHRAIN SAUDI BANK	22,305	22,421	23,085	20,284	20,869	108,964	21,793
5	BAHRAIN ISLAMIC BANK	6,447	6,532	6,611	6,724	6,899	33,213	6,643
6	BAHRAIN INTERNATIONAL BANK	75,966	77,282	78,942	78,086	78,949	389,225	77,845
7	BANK OF BAHRAIN & MIDDLE EAST	59,398	60,700	52,501	53,552	54,301	280,452	56,090
8	INVESTCORP * *	22,240	24,778	49,608	60,449	73,363	230,438	46,088
9	UNITED GULF BANK	89,103	87,599	73,519	76,028	76,028	402,277	80,455
10	BAHRAIN INSURANCE COMPANY	2,507	2,892	3,440	4,277	4,313	17,429	3,486
11	AL AHLI INSURANCE COMPANY	1,225	1,259	1,279	1,314	1,472	6,549	1,310
12	BAHRAIN & KUWAIT INSURANCE COMPANY	2,883	2,927	2,593	2,705	2,797	13,905	2,781
13	ARAB INTERNATIONAL INSURANCE COMPANY	1,730	1,792	1,939	2,066	2,140	9,667	1,933
14	BATELCO	98,224	102,290	105,585	110,096	115,653	531,848	106,370
15	BAHRAIN CINEMA COMPANY	2,565	2,571	2,477	2,673	2,656	12,942	2,588
16	BAHRAIN CAR PARK COMPANY	8,024	8,219	8,392	8,524	8,628	41,787	8,357
17	BAHRAIN SHIP REPAIRING & ENGINEERING COMPANY	7,996	8,058	6,994	7,158	6,478	36,684	7,337
18	BAHRAIN MARITIME & MERCHANTILE COMPANY	6,700	6,975	6,830	6,757	6,831	34,093	6,819
19	GENERAL TRADING & FOOD PROCESSING COMPANY	3,739	3,907	3,926	4,070	4,177	19,819	3,964
20	DELMON POULTRY COMPANY	3,549	3,860	4,053	4,199	4,220	19,881	3,976
21	BAHRAIN FLOUR MILLS COMPANY	5,575	5,675	5,942	6,100	6,182	29,474	5,895
22	NATIONAL IMPORT & EXPORT COMPANY	3,739	3,907	3,926	4,070	4,177	19,819	3,964
23	NATIONAL HOTEL COMPANY	7,073	5,949	5,454	9,194	24,037	51,707	10,341
24	BAHRAIN HOTEL COMPANY	13,829	14,019	14,089	14,760	15,185	71,882	14,376
25	BAHRAIN TOURISM COMPANY	13,141	12,873	12,760	12,994	13,149	64,917	12,983
26	BAHRAIN LIGHT INDUSTRIES COMPANY	2,521	1,944	1,436	1,221	1,071	8,193	1,639

* Rounded to the nearest BD 1000
 ** Converted from US \$ @ BD 0.377 = 1 US \$

SOURCE : Bahrain Stock Exchange Market

TABLE 15
EQUITY WEIGHTS OF COMPANIES REGISTERED WITH
BAHRAIN STOCK EXCHANGE MARKET

: SER. :	NAME	(BD. THOUSANDS)				
		1985	1986	1987	1988	1989
1 :	NATIONAL BANK OF BAHRAIN	9.58%	9.66%	10.17%	10.12%	9.85%
2 :	BANK OF BAHRAIN & KUWAIT	14.91%	14.62%	11.49%	10.98%	10.99%
3 :	AL AHLI COMMERCIAL BANK	3.28%	3.18%	2.39%	2.46%	1.74%
4 :	BAHRAIN SAUDI BANK	3.50%	3.47%	3.69%	3.12%	3.03%
5 :	BAHRAIN ISLAMIC BANK	1.01%	1.01%	1.06%	1.03%	1.00%
6 :	BAHRAIN INTERNATIONAL BANK	11.92%	11.97%	12.61%	12.00%	11.45%
7 :	BANK OF BAHRAIN & MIDDLE EAST	9.32%	9.40%	8.39%	8.23%	7.88%
8 :	INVESTCORP * *	3.49%	3.84%	7.93%	9.29%	10.64%
9 :	UNITED GULF BANK	13.98%	13.57%	11.75%	11.69%	11.03%
10 :	BAHRAIN INSURANCE COMPANY	0.39%	0.45%	0.55%	0.66%	0.63%
11 :	AL AHLI INSURANCE COMPANY	0.19%	0.19%	0.20%	0.20%	0.21%
12 :	BAHRAIN & KUWAIT INSURANCE COMPANY	0.45%	0.45%	0.41%	0.42%	0.41%
13 :	ARAB INTERNATIONAL INSURANCE COMPANY	0.27%	0.28%	0.31%	0.32%	0.31%
14 :	BATELCO	15.41%	15.84%	16.87%	16.92%	16.78%
15 :	BAHRAIN CINEMA COMPANY	0.40%	0.40%	0.40%	0.41%	0.39%
16 :	BAHRAIN CAR PARK COMPANY	1.26%	1.27%	1.34%	1.31%	1.25%
17 :	BAHRAIN SHIP REPAIRING & ENGINEERING COMPANY	1.25%	1.25%	1.12%	1.10%	0.94%
18 :	BAHRAIN MARITIME & MERCHANTILE COMPANY	1.05%	1.08%	1.09%	1.04%	0.99%
19 :	GENERAL TRADING & FOOD PROCESSING COMPANY	0.59%	0.61%	0.63%	0.63%	0.61%
20 :	DELMON POULTRY COMPANY	0.56%	0.50%	0.65%	0.65%	0.61%
21 :	BAHRAIN FLOUR MILLS COMPANY	0.87%	0.88%	0.95%	0.94%	0.90%
22 :	NATIONAL IMPORT & EXPORT COMPANY	0.59%	0.61%	0.63%	0.63%	0.61%
23 :	NATIONAL HOTEL COMPANY	1.11%	0.92%	0.87%	1.41%	3.49%
24 :	BAHRAIN HOTEL COMPANY	2.17%	2.17%	2.25%	2.27%	2.20%
25 :	BAHRAIN TOURISM COMPANY	2.06%	1.99%	2.04%	2.00%	1.91%
26 :	BAHRAIN LIGHT INDUSTRIES COMPANY	0.40%	0.30%	0.23%	0.19%	0.16%
		100.00%	100.00%	100.00%	100.00%	100.00%

* Rounded to the nearest BD 1000

* * Converted from US \$ @ BD 0.377 = 1 US \$

SOURCE : Bahrain Stock Exchange Market

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