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## Quarterly returns to UK equities 1919-1970

### Working Paper

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**PAPERS ON CAPITAL AND RISK**

**No. 6, 1978**

**QUARTERLY RETURNS TO U. K. EQUITIES 1919-70**

**by**

**LUCIEN FOLDES AND PAULINE WATSON**

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## QUARTERLY RETURNS TO UK EQUITIES 1919-1970\*

by

Lucien Foldes and Pauline Watson

December

1978

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## DESCRIPTION OF THE STUDY

## SUMMARY

This paper forms part of a study<sup>(1)</sup> of the returns to investment in the ordinary shares of a group of companies quoted on the London Stock Exchange during the period 1919-70. The present pages are devoted mainly to a description of the group and of sources of information and methods of calculation, together with a number of tables and graphs displaying the principal output series. No serious attempt is made here to draw statistical conclusions from this material, but it is hoped to present an analysis in one or more later papers.

The group of companies studied is composed of the sample used in calculating Moodies' index of share prices 167, which has appeared since 1919, together with the companies appearing in the equity studies prepared annually by brokers de Zoete and Bevan 37; reasons for this choice are given below. The group varies in size and composition, growing from 55 in 1919 to 75 in 1970, and includes large and actively traded companies from most sectors of the equity market as well as a selection of smaller enterprises.

Information has been collected for each company about the share price (observed once a quarter) and about dividends, numbers of shares, issues, reorganisations, etc. These data, together with

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1 Known to its friends as the ERG Study, after the Economic Research Group which used to meet at 6 St James's Square.

suitably adjusted rates of income tax, surtax and capital gains tax, as well as an index of retail prices, form the main inputs to the calculations. The basic unit of output is the total return, comprising distributions and the terminal value of shares, but ignoring dealing costs, to £1 invested in one company for one quarter - defined gross or net of taxes, in money terms or in real. From these units, time series of returns have been built up for individual companies and for two portfolios, one weighted in each quarter according to the market value of equity, the other assigning equal weights to all companies appearing in a given quarter.

#### PREVIOUS WORK

Limited as our sample of companies is by comparison with American studies, it seems that at least for the years 1919-55 the present work provides a more extensive and detailed body of carefully adjusted data in the form needed for the study of returns to shareholding than has previously been available.<sup>(2)</sup> The only earlier work of which

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2 For the period from 1955 onwards, the data banks now established at the City University [18] and at the London Graduate School of Business Studies will provide ample information relating to quoted securities of all kinds. In the case of gilt-edged securities the two volumes by brokers Pember and Boyle [5] are a valuable source for the whole period of our study, though until 1950 only one price quotation a year is recorded for each stock.

we are aware in which returns have been built up, on a consistent basis over several decades, from the dividends and share prices of individual companies is the series of studies circulated since 1955 by de Zoete and Bevan<sup>(3)</sup>. These studies relate to a sample of 30 leading companies observed once a year, starting in 1919. The composition in each year is known, but details of the method of sampling and records of numerical inputs for the earlier part of the period are no longer available. Further evidence is desirable in view of the interest which the de Zoete studies have aroused and the importance of the problems to which their results have been applied, including the calculation of rates of return to shareholding and the cost of equity capital by Merrett and Sykes [10, 11] and the measurement of capital gains by the Diamond Commission [17]. Some comparisons are made below between our results and those of the de Zoete studies.

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3 Some studies for shorter periods are available in which portfolio returns have been calculated from individual dividends and share prices using specially collected data. The recent work by Guy [7] relating to the 1960's is of particular interest. Other authors have estimated returns to shareholding in the UK by combining published indices of dividends and share prices - see Farrell [4] and Barr [1]. These contributions will not be discussed here.

## CHOICE OF SAMPLE

The choice of companies does not result from an optimal experimental design, but is rather the outcome of decisions reached when it was realised that an earlier, more ambitious, project would have to be curtailed. Initially a pilot study was carried out using some 20 of the companies included in the de Zoete studies; these were chosen partly because their size and importance made it likely that they would be included in any extensive survey, partly because it was intended to reconstruct the data base for the de Zoete studies. As it became clear that the scope of our work would have to be limited, emphasis shifted to the choice of a small but representative group of companies for which data could readily be collected over a long period. Characteristics regarded as desirable in such a group included selection without bias due to hindsight (though not necessarily at random); substantial market value; a high proportion of actively traded and widely held shares; and adequate diversification (including, if possible, the representation of various combinations of risk and expected return). These characteristics would tend to make the observations suitable for the estimation of equilibrium relations in the market, as well as for historical measurement of the returns obtained by the representative investor.

The companies entering the index of share prices prepared monthly from 1919 onwards by Moodies' Services appeared to meet these requirements reasonably well. They had the special advantage that records of dividends, bonus issues, reorganisations, etc, were available from Moodies' Cards and other easily accessible records. The Moodies sample varies somewhat in size and composition, comprising 40 companies during 1919-29, 50 during 1929-50 and 60 thereafter. In

the early years the sample consisted mainly of market leaders, but in 1951 a change was made to a group stratified by size (giant, large, medium and small) and type (breweries, commercial and industrial, financial trusts, insurance, iron coal and steel, oil, shipping), which was intended to be more representative of the market as a whole.

It was natural to complete at the same time the records for the few companies in the de Zoete group which were not included in the pilot study or in the Moodies sample. The de Zoete group as a whole comprises 30 market leaders 'similar to those used by the Financial Times' for their Industrial Ordinary Share Index, which was not calculated prior to 1955 - see 37, 1969. The de Zoete studies relate to periods starting in 1919 but appeared only from 1955 onwards, and although the composition of the group is known in detail the method of selection for the years before 1955 is not documented. It seems likely (though this was not realised until our own work was far advanced) that the choice was made in 1955, so that the possibility of some bias due to hindsight cannot be ruled out. Consideration was therefore given to the possibility of excluding from the ERG study the companies appearing in the de Zoete group only before 1955<sup>(4)</sup>, but eventually it was decided to retain this material.

The reasons for this decision were as follows. A group of companies quoted in 1919 similar to that used later for the Financial Times Index could well have been chosen in 1955 on the basis only of

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4 A small number of suspect observations also occurred at later dates, in cases where a company left the group in the course of a year and its successor (not being its descendant by amalgamation or reorganisation) was perhaps not chosen until the preparation of the next study at the beginning of the following year. The effect of such observations is insignificant.

information available in 1919, for example by selecting the largest or most frequently traded companies in each of a number of sectors. The exclusion of certain sectors, namely mines, plantations, banks and public utilities, could be justified on investment grounds which were familiar in 1919, as is confirmed by the omission of the same sectors from the Moodies sample. The inclusion of additional large companies increases substantially the proportion of market value represented by the sample, and even if there were some posterior bias it would not affect the usefulness of additional data for various purposes other than the calculation of time series of portfolio returns. Finally, the figures themselves do not reveal clear evidence of posterior bias (which would presumably tend to exaggerate the returns achieved). The main indication of possible bias is that during the period 1929-39 the group of ten companies then appearing only in the de Zoete studies achieved a substantially higher return than the Moodies group. The mean quarterly log-returns for the two groups during this period were respectively .0120 and -.0001 in the value weighted case, .0196 and .0066 in the equally weighted case, corresponding to 4.92% and -.04%, 8.16% and 2.68%, in terms of per cent per annum - see below, Table (viii).<sup>(5)</sup> The inclusion of the ten companies raises the overall rate of return in this period by about 1.53% per annum in the case of a value weighted portfolio and by about 3.58% with equal weighting. The differences during this period are large enough to ensure higher rates of return over 1919-55 as a whole for portfolios which include the 'de Zoete only' companies. Yet the excess return is not maintained consistently over time, the additional

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5 The rest of this paragraph should be read in conjunction with explanations of the definitions and methods used in calculating the Tables.

companies are few, and the differences observed are not out of line with those which occur for certain other sub-portfolios of similar size. Formal tests of significance are of little value here, but detailed examination of results for individual companies shows that the bulk of the excess return to the de Zoete group during 1929-39 can be attributed in the value weighted case to just one company, Imperial Tobacco, which during this period had a high rate of return and an exceptionally large weight - see below, esp. Table (vii). It is inevitable that any sample of leading shares during this period should have included one of the two tobacco giants, Imperial and British-American, so that the results obtained may be attributed to the accident that de Zoete chose Imperial - which moreover had a considerably larger weight - while Moodies selected British-American. In the equally weighted case, the excess return to the de Zoete group during 1929-39 may be traced mainly to three companies, Richard Thomas, Austin and Murex - all companies which might reasonably be included in a group of market leaders. Detailed consideration of portfolios and returns for other parts of the period before 1955 yields equally inconclusive results. It appears that the discrepancies between the returns of the de Zoete and Moodies groups do not amount to evidence of biased selection in the former case, although the possibility of some involuntary bias cannot be ruled out with certainty. As a precaution we have included among our main tables one which sets out the returns to value weighted and equally weighted portfolios excluding in each quarter those companies which belong only to the de Zoete group - see Table IV.

A list of the companies included in the present study, together with the years in which they appear, is given in Appendix A below. The sample varies in composition and size, numbering between

55 and 60 during 1919-50 and between 75 and 80 during 1951-70. The increase in 1951 is due to a change in the Moodies group in that year; other alterations result from amalgamations, nationalisation, changes in the relative importance of companies and various other causes. Despite the vagaries of its method of selection, it seems likely that on the whole the size and spread of the sample are adequate to reflect fairly accurately the movements of the equity market as a whole (apart from the excluded sectors mentioned above), although it is obviously inadequate for calculations requiring the grouping of companies. The main reservation to be entered concerns the value weighted portfolio in the early years, when the results are unduly sensitive to changes in the returns of a small number of very large companies, which account for a much larger proportion of the value of the portfolio than of the market as a whole. Indeed, it was this problem which mainly prompted us to supplement the calculation for a value-weighted portfolio with one having equal weights. In the latter case, the results of Fisher and Lorie [6] concerning variability of return as a function of portfolio size on the New York Stock Exchange lend some support to the view that our sample should be reasonably representative.

#### RETURN - DEFINITION

The unit of output from which our time series are built up is the return - total or dividend, gross or net of tax, in money terms or in real - to one security in one quarter. A word here about terminology. 'Return' in general means 'proceeds at the end of a period per unit of investment at the beginning'; usually the term is applied to variables of the form  $1+r$ , and then  $r$  is called the 'rate of return' or 'yield' and  $\log_e(1+r)$  the 'log-return'. This usage applies in particular to

the total return, comprising all proceeds, and to the dividend return, defined as  $1+d$  where  $d$  is the dividend per £ invested or dividend yield. In this paper 'total return' is usually abbreviated to 'return' when no confusion is likely, but in the headings of tables the term 'return' is occasionally used more widely to refer to any one of several types of proceeds.

#### CALCULATION

We consider first the calculation of total gross money returns. For each company the share price, defined as the midpoint of the range of quotations, has been extracted from the Stock Exchange Daily List for the first day of February, May, August and November (or the next trading day thereafter) in each year.<sup>(6)</sup> The use of quotations rather than prices in actual deals has the advantage of reflecting market conditions over the same trading period for all securities, and avoids the known imperfections of the record of dealings - see Briston 27 p 254. In addition, information has been collected from records such as Stock Exchange Yearbooks and Daily Lists, Moodies' cards and company reports concerning dividends<sup>(7)</sup>, total numbers of shares outstanding,

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6 The dates were chosen so as to avoid times when the market is under the influence of special recurrent events such as the budget or the Christmas break. An unfortunate consequence is that our figures do not relate to the same days as other relevant quarterly series, in particular the data for gilt-edged securities recently published in the second volume of Pember and Boyle 157.

7 Date declared, date paid and amount.

share issues<sup>(8)</sup> and splits, cash bonuses, capital reorganisations, mergers, takeovers, etc. To calculate the return to a holding in one company in one quarter it has been assumed that the investor starts with £1 worth of shares, takes up all subsequent issues and pays for them in cash, and finally sells (or values) his holdings at the market price prevailing on the next quarter day; moreover, the investor is deemed to have made all payments at the start of the quarter and to have received all income at the end. The effects of issues, splits etc have of course been taken into account, but dealing costs have been ignored.

#### TAXATION

To obtain net returns it is necessary to allow for personal taxes on dividends and for capital gains tax. The rate charged on gross dividends is the so-called 'effective' rate, ie the overall weighted average of marginal rates of income tax and surtax for dividends estimated in Table I of Orhial and Foldes [13]. Capital gains tax has relatively little effect on our results since it was not introduced until April 1965, but in principle this tax presents a complicated problem. The main source of difficulty is that the charge is imposed, not on all appreciation as it occurs, but only on realised gains (in so far as they are not offset by deductible losses). The effect of this method of assessment, and of other rules too numerous to mention here, is that the tax payable on an individual's portfolio cannot be determined without making all sorts of assumptions, concerning in particular the dates of acquisitions and disposals. In order to avoid

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8 Date, number issued per share held, cost of rights and the price of non-ordinary stock at the end of the quarter in which the issue occurred.

these complications we have replaced the actual gains tax by a notional levy on all appreciation or depreciation, realised or unrealised, as it occurs, the rate being so calculated that (on certain assumptions) it gives rise to a stream of payments having the same net present value as the actual tax liability. The derivation of this rate is described in Appendix B. As a further simplification, the treatment of capital gains tax is based on the rules applicable to direct holdings of securities by individuals paying the full rate of tax, although some allowance is made for holdings by tax-exempt institutions and other exemptions. The effect of the simplified treatment of this tax on our results is probably very small. The overall impact of all the adjustments for taxes, as compared with simply charging the standard rate of income tax on dividends and ignoring capital gains tax, is a reduction of about 0.4 per cent per annum in the real rate of return over the whole period 1919-70.

#### PORTFOLIO SERIES - MONEY & REAL, EQUALLY & VALUE WEIGHTED

From the results for individual companies, series of gross and net total returns and log-returns have been calculated for two portfolios, one weighted in each quarter by the market values of the companies' total ordinary capital at the beginning of the quarter, the other weighted equally in each quarter. These series have been computed in both money and real terms, the conversion to real terms being based, for want of a better measure, on the index of retail prices appearing in Appendix D.

In addition, series of gross and net dividend returns have been calculated, in money terms only. It is indeed not quite obvious

how the adjustment of the money rate of total return is to be apportioned between the elements of dividend and capital appreciation, and this problem is considered in Appendix C. It turns out that the whole or nearly the whole of the adjustment (depending on the conventions adopted) should be applied to the rate of appreciation. With our definitions a small adjustment of the dividend rate would be appropriate, but it has little effect and for brevity is omitted from the tables.

#### PERIODS

For purposes of display and analysis it is convenient to divide the period 1919-70, comprising 207 quarters, into 5 sub-periods as follows:

1	February 1919 - January 1929	(40 quarters)
2	February 1929 - July 1939	(42 quarters)
3	August 1939 - January 1951	(46 quarters)
4	February 1951 - January 1961	(40 quarters)
5	February 1961 - October 1970	(39 quarters)

The choice of dates, although to some extent arbitrary, is determined mainly by the need to distinguish among inter-war, war economy and post-war periods. It is convenient to place the end of the war economy at the beginning of 1951, partly because the policy of cheap money and various emergency controls were abandoned around that time, partly because the list of companies appearing in Moodies' index was then revised and extended. It also seems desirable to give separate statistics for the 20's and 30's because of the very different levels

of returns and the different monetary policies in the two decades. The 'post-war' years 1951-70 are simply divided into two nearly equal parts.

#### MEAN VALUE WEIGHTS

The calculations of returns and log-returns described above are carried out separately in each quarter, both for individual companies and for value and equally weighted portfolios. When investigating the effects on the mean rate of return to a value-weighted portfolio of introducing or removing one or more companies, or comparing the performance of several sub-portfolios, it is sometimes convenient as an approximation to replace the actual time series of value weights for each company in a given period by its mean, (taken over those quarters for which the company belongs to the sample). The resulting portfolio series, which is called 'mean value weighted'<sup>(9)</sup>, can be calculated quickly without recomputing the true value weighted portfolio return quarter by quarter. Note that the advantage of using mean weights is fully realised only when working with rates of return  $r$ , as distinct from log-returns  $\log(1+r)$ , since then the mean portfolio rate for a period may be obtained by first calculating the mean quarterly rate separately for each company and then averaging according to the mean value weights.

This method is sometimes used in evaluating the effect of portfolio composition on return in particular sub-periods, but never for the period 1919-70 as a whole because the fluctuation of weights is too great. It is clear that mean weights have no particular

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9 Note that the sum of mean value weights in a given quarter may differ slightly from unity.

economic significance, and indeed could never be used to define a portfolio policy since their values would not be known in advance; they are used simply to shorten calculations.

#### FIXED INTEREST

This study is not primarily about fixed interest securities as such, but two series are included as standards of comparison: one for a perpetuity, 2½% Consolidated Stock, the other for a 'riskless' short-term asset, UK Treasury 90-day Bills. The prices for Consols have been collected from Daily Lists on the same basis and for the same dates as for equities. The calculation of returns also is similar, with two exceptions. The 'effective' tax rate for dividends has been replaced by that for bond interest given in [13] Table I; and no capital gains tax has been charged from April 1969 onward, because gains on disposals of British Government securities held for more than twelve months were exempted at that time. For Treasury Bills, the gross quarterly return is simply the ratio of the maturity value to the issue price (ie the maturity value less the initial discount), net returns being calculated as for Consols. Market discount rates were recorded at tender dates close to the quarter days used for equities - from 1942 onward the last tender date preceding each quarter day.<sup>(10)</sup>

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10 The sources for Treasury Bill rates were:

- (a) for Feb 1919 - May 1921, Morgan [12], chart on pp 174-5, (market rates for bank bills being used during the suspension of the tender system);

contd ...

## AMERICAN SERIES

American series\* have been introduced into our tables and graphs mainly to serve as a standard of comparison. Quarterly series of returns (for quarters starting February, May, August and November) from 1926 onward have been calculated from monthly series available as a supplement to the recent paper by Ibbotson and Sinquefeld [8]. They relate to three types of assets, namely a value-weighted portfolio of common stocks quoted on the New York Stock Exchange, US Treasury Bills (short-term coupon bonds 1926-31) and Long-term US Government Bonds; these may be compared respectively to our series for a value weighted portfolio of equities, UK Treasury Bills and Consols (subject, of course, to reservations concerning differences between dated bonds and perpetuities). Ibbotson and Sinquefeld give only returns before deduction of taxes, but otherwise their methods of data preparation appear to be similar to ours. A series of returns to an equally weighted portfolio of common stocks has been taken from the tables published

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10 (contd)

- (b) for Aug 1921 - Nov 1933, The Economist, figures of 'average rates of discount';
- (c) from 1934, the Bank of England's Statistical Summary, Abstract or Bulletin, figures of 'average successful tender rate' to 1941, 'average allotment rate' thereafter.

\* The availability of some additional information in (19) came to our attention only after the work reported here was completed.

by Fisher and Lorie [57], the figures used being those of one-year rates of return including dividends gross of tax and calculated on a 'portfolio-to-portfolio' basis, ie without charging dealing costs. These figures are available only for the period 1926 -65 and relate to calendar years (which in comparisons with our equally weighted portfolio must be matched with years starting in February). Conversion of American series to real terms has been carried out using the US Consumer Price Index tabulated by Ibbotson and Sinquefeld.

#### DISCUSSION OF TABLES AND GRAPHS - MAIN TABLES

The main quarterly series for the two equity portfolios, together with comparable figures for 2½% Consolidated Stock and Treasury Bills, are printed out in Table I at the end of the paper. They are presented in the form of quarterly logarithms of returns or 'log-returns', ie variables of the form  $z_t = \log(1+r_t)$ , where  $\log$  denotes the natural logarithm,  $r$  a quarterly rate expressed as a decimal and  $t$  the quarter. The companion Table II gives corresponding cumulative log-returns  $Z_T = z_1 + \dots + z_T$ , ie logarithms of terminal wealth per £1 invested initially; for brevity these are printed only at annual intervals. The log-return has strong theoretical claims to be the variable most suitable for analysis, particularly in work relating to long periods, but convention demands a presentation in the form of rates of return per annum; accordingly Table III repeats some of the information in this form.<sup>(11)</sup>

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11 In quarterly data,  $z_t$  usually differs little from  $r_t$ , while over one year there is little difference between compound and simple interest added at the end of each quarter; thus, as a rule of thumb, the annual rate of return corresponding to  $z_t$

Table IV is compiled like Table II but relates only to the period Feb 1919-Jan 1955 and omits companies belonging only to the de Zoete sample.

To enable the reader to form an impression of the series, and to provide supplementary information, a number of graphs and short tables have been placed at the end of the main text. A few comments on the form of these displays may be helpful, but we shall for the most part allow the numbers to speak for themselves since discussion of trends, significance of differences, etc, would call for statistical analysis beyond the scope of the present paper.

#### GRAPHS

Graph 1 depicts one of the quarterly series from Table I, that of total log-returns to the ERG value weighted portfolio net of taxes in real terms. The higgledy-piggledy appearance of this curve is typical of the series of quarterly total returns to equities, whether natural or logarithmic, gross or net of taxes, money or real. The influence of historical events is seen more clearly in the series of cumulative log-returns depicted in Graphs 2 and 3, which correspond to Table II. These graphs give an indication of the relative performance of equities (equally or value weighted), Consols and Treasury Bills, as well as of corresponding British and American investments. The

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11 contd

is approximately  $4z_t/100$ .

pattern would, of course, be altered in important respects if the series were brought up to date.<sup>(12)</sup>

#### SHORT TABLES;(i) - (ii) SUMMARIES OF MAIN TABLES

The first two short tables give summary statistics of quarterly log-returns and of returns expressed as annual percentages. Each table is divided into two parts, showing figures gross and net of tax respectively, and each part gives results for 1919-70 as a whole and for the sub-periods defined above. An example will illustrate the information obtainable from these tables. From the

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12 The present study has been a long time in preparation, and it has not so far been possible to bring up to date our records for individual securities other than Consols and Bills. As a stop-gap we have estimated gross equity returns for a further 20 quarters from November 1970 from the indices of share prices and gross dividends published by Moodies Services and then derived net returns by using the tax rates given in Orhnlial 14. These estimates are not included here because they have not been obtained by the same methods as our main series and because they also are now somewhat out of date - with little hope of continuation since Moodies' have recently gone out of business. However, they are useful for some purposes and it is hoped to circulate them in a separate note.

last line of Table (i) (a) it is seen that for the whole period 1919-70 a value weighted portfolio yielded a total real log-return averaging .0169 per quarter. This is translated in the last line of Table (ii)(a) into the more familiar form of a 'geometric' or d.c.f. rate of return per annum of 7.01% or an arithmetic mean rate of 8.30%.<sup>(13)</sup> Figures

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13 Note the terminology: for periods of given length, say a quarter, we speak of the arithmetic mean rate of return  $\bar{m}$ , which is the mean of one-period rates  $r_t$ , but of the geometric rate of return  $g$  (not the geometric mean rate) since it is  $1+g$  (and not  $g$ ) which is the geometric mean of returns  $1+r_t$ . Of course, we have  $\log(1+g) = \bar{z}$ , where  $\bar{z}$  is the (arithmetic) mean of the log-returns  $z_t = \log(1+r_t)$ .

It is worth bearing in mind that, whereas  $\bar{z}$  differs little from  $g$  when time is measured in the same, sufficiently short, units,  $\bar{m}$  remains significantly larger than  $g$  even when the unit of time tends to zero. Explicitly, we have  $\bar{z} = \log(1+g) \sim g$  for  $g$  close to zero, whereas with large samples  $\bar{m}$  is approximately  $g + s^2/2$ , where  $s^2$  may be taken as the variance of either returns or log-returns. These approximations are borne out by our tables. The studies by Merrett and Sykes [10] and Diamond [17] mentioned above quote arithmetic mean rates of return without stressing that these are substantially higher than d.c.f. rates - say, by about

$$\frac{4 \times (.078)^2}{2} \times 100 = 1.217\% \text{ p.a.}$$

if  $s=0.078$  in quarterly data.

net of tax are given by the corresponding entries in Tables (i)(b) and (ii)(b) as .0128 for the mean quarterly log-return and 5.25% and .6.48% respectively for the corresponding annual geometric and arithmetic rates. Moving further to the right in the last line of Table (i)(a) it is seen that, of the mean log-return of .0169, a figure of .0149 may be regarded as a risk premium. This premium is defined as the excess of the equity log-return over that for bills, and is the same in money terms as in real because of the logarithmic definition. Moving still further to the right, the table shows that, of the .0169, a figure of .0082 is represented by dividend log-return, the balance of .0087 being due to appreciation; and Table (ii)(a) shows that the .0082 translates into a dividend yield (geometric rate) of 3.32% per annum.

For reasons explained in Appendix C, the dividend yield is approximately the same in real as in money terms. Therefore nearly the whole of the adjustment of mean quarterly total log-return from money to real terms shown in the last line of Table (i)(a) - a reduction from .0222 to .0169 - may be assigned to the element of appreciation. Returning to the figure of .0169 and comparing it with its neighbour on the right, it is seen that a change from value to equal weighting increases the mean log-return to .0218; reasons for this difference are discussed below. Still looking at the last line of Table (i)(a), it may be noted that the value .0169 is the mean of a series of 207 observations whose standard deviation is .0780.<sup>(14)</sup>

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14 These numbers prompt an important remark concerning the difficulty of estimating expected log-return from historical data. A prime motive for studying historical rates of

14 contd

return to British shares has been to obtain commercially useful indications of the long-run opportunity cost of equity capital - see in particular Merrett and Sykes [11]. Now such an attempt faces all sorts of subtle difficulties connected with gearing, changes in riskless rates of interest, the use of past data to measure subjective estimates of the future etc. But even if these points are set aside, it seems that the fluctuations of the stock market are too large to allow the calculation of estimates which are precise enough to be of much use for the deterministic discounting procedures which are usual in business. Specifically, consider the assumption which is perhaps the most promising for estimation, namely that log-returns in each quarter can be treated as independent samples from one normal distribution. Then the sample mean of .0169 would estimate the expectation of log-return, and the standard deviation of this estimate would be  $.078/\sqrt{206} = .0054$ . Thus a confidence interval of 95%, of the form mean  $\pm 1.96$ s.d., would work out as (.0063, .0275), corresponding to an interval (2.55, 11.63) per cent per annum - which is hardly enlightening. Moreover, the estimate of the mean is found to be highly sensitive to the dates chosen for the beginning and end of the period under consideration. Similar difficulties naturally arise in attempts to detect trends or differences among sub-periods; thus rates of return may fall by amounts which are financially disastrous but which cannot clearly be shown to be statistically significant.

## TABLE (iii) COMPARISON WITH US SERIES

The table comparing the performance of corresponding British and American securities needs little explanation, though it suggests a number of interesting questions for further analysis. Part (a) of the table gives summary statistics relating to value weighted portfolios, bonds and bills for the whole of the period 1926-70 covered by the data from Ibbotson and Sinquefeld, while Part (c) sets out additional information for sub-periods. The series used in these two parts are quarterly, for quarters starting in February, May etc (see above, 'American Series'). Part (b) gives summary statistics for equally weighted portfolios based on annual series for 1926-65, setting the data from Fisher and Lorie which relate to calendar years against ERG series for years starting in February.<sup>(15)</sup> To facilitate comparisons we have added corresponding statistics for value weighted portfolios based on annual series, using in the American case figures for calendar years compiled from the monthly Ibbotson-Sinquefeld data. Part (d) gives information for sub-periods.

A few figures will illustrate the information shown in Table (iii). From (a), it is seen that for a value weighted portfolio the mean quarterly real log-return before taxes during 1926-70 was .0140 in London and .0181 in New York, corresponding to annual geometric rates of 5.75% and 7.50% respectively; the annual rate in money terms was

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15      Calculations not reproduced here show that the lagging of UK behind US data of log-returns by one month diminishes correlations in quarterly series, so that the coefficients calculated from annual series which are shown in Table (iii) (b) and (d) are probably a little too low.

about 9% in both cases. The standard deviations of quarterly real log-returns were .0743 and .0944 respectively, with a correlation coefficient of .357. Reference to Part (c) of the table shows that, while the value of the mean varied sharply from period to period, the standard deviation (apart from New York 1929-39) and correlation (apart from 1939-51) were relatively stable.

Turning to Table (iii)(b), it is found that for the period 1926-65 the geometric real rate of return to a value weighted portfolio was again lower in London than in New York, at 5.89% as compared with 8.86%, but that for an equally weighted portfolio the difference was much smaller, 8.58% as against 9.01%. It is noteworthy that in New York, unlike London, the rates for value and equally weighted portfolios were nearly the same. A glance at Part (d) of the table shows that in the period 1951-65 also the real rates for equally weighted portfolios in both centres and for a value weighted portfolio in New York were fairly close together with the value weighted portfolio in London trailing well behind, but these relationships did not hold in the periods 1929-39 and 1939-51. While real rates of return in the value weighted case were higher in New York in all three sub-periods shown in this part of the table, it comes as a surprise that in the equally weighted case the rates in London were higher in both of the peacetime periods, with 8.09% as against 5.52% during 1926-39 (shown in the table as annual log-returns of .0778 and .0537) and 12.75% as against 12.32% in 1951-65 (shown as .1200 and .1162). Over the period 1926-65 the correlation between value weighted and equally weighted portfolios is high ( $>0.9$ ) in both centres, as would be expected, but somewhat higher in London than New York.

In view of the small numbers of observations and the large standard deviations it is unlikely that the above relationships among annual rates have any statistical significance, but as history they are interesting and in some ways unexpected.

As regards fixed interest, Table (iii)(a) and (c) shows that real returns to both Consols and Long-term US Bonds were positive in the pre-war periods and negative thereafter, with Consols losing 0.31% p.a. over 1926-70 as a whole and US Bonds earning 0.83% p.a. Standard deviations of quarterly log-returns were fairly stable but consistently higher in the case of Consols, reflecting no doubt an inherent difference between perpetuities and dated bonds. In the case of Bills the real returns in the two centres were identical during 1939-51 and 1961-70, but greater in New York by about .002% per quarter during 1929-39 and 1951-61; for 1926-70 as a whole, Bills lost 0.21% p.a. in London and made 0.14% p.a. in New York. It is worth mentioning that the standard deviations and correlations for Bills for 1926-70 as a whole given in part (a) of the table have no significance because of changes in arrangements governing exchange rates, movement of funds and the determination of short-term interest rates; in particular, Bill rates were in effect pegged at low rates by government in both countries between 1940 and 1951. The impact of the various changes can be seen in the movements of sub-period means, standard deviations and correlations for Bills in money and real terms shown in part (c) of the table.

#### TABLES (iv) - (vii) EFFECT OF WEIGHTING

Tables (i) and (ii) show that mean log-returns for our equally weighted portfolio exceeded those for our value weighted portfolio during 1919-70 as a whole and for every sub-period except the first.

The next group of tables is intended to throw some light on the reasons for these differences and on the related question of the distribution of value weights within the portfolio.<sup>(16)</sup> Table (iv) shows the distribution of the companies by weight. Tables (v) - (vi) show the effects of weighting on rates of return for the portfolio as a whole and by class of company, and Table (vii) gives further information about the largest companies. A more detailed discussion of these tables follows.

The distribution of companies by value-weight classes is shown in Table (vi). In each sub-period, each company is assigned to one of five classes, A to E, according to the interval in which its mean value weight falls. For example, a company belongs to Class E if its mean is at least 0.1 (ie if it accounts on average for at least .05 but less than 0.1. Part (a) of the Table shows for each sub-period the mean number of companies belonging to each class, taken over all quarters in the period; entries are not necessarily integers because the composition and size of the sample vary.

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16 No attempt is made here to determine which, if either, of the two weighting systems is optimal for the purpose of estimating the returns achieved by the representative investor, or to decide whether a sample of a given number of shares should contain, as ours does, a disproportionate representation of the largest companies. A discussion of these topics would require a separate paper. We merely treat the two methods of portfolio weighting as an alternative conventional standards for the measurement of return and attempt to trace the sources of discrepancies between the results.

Part (b) shows for each sub-period the mean value weight (taken over all quarters) accounted for by each class, together with the comparable figure obtained for that class if equal weights rather than value weights are initially assigned in each quarter.<sup>(17)</sup> The Table shows clearly the high proportion of the total value weight accounted for by a small number of companies. Thus in the first sub-period the two largest companies (Imperial Tobacco and British-American Tobacco) account for 39.2% of the total mean value weight but only for 3.6% if equal weights are considered. Even in the fifth sub-period the five companies belonging to classes D and E (Shell, ICI, Woolworth, BAT and Distillers) account for 44.6% of value weight but only 6.4% of equal weight.

As was mentioned above, it is convenient when analysing the effects of alternative systems of weighting on portfolio series to work with quarterly rates of return  $r$  instead of log-returns  $\log(1+r)$ . The means of these two time series cannot be expected to agree - see above, fn 13 - but the discrepancy between the mean rates of return of value weighted and equally weighted portfolios usually differs little

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17 It should perhaps be stressed that classes are defined throughout in terms of value weights, while the distribution of weights over classes is calculated for both systems of weighting.

from the corresponding discrepancy between mean log-returns. This point is borne out by Table (v), which shows in the first two columns the real net mean portfolio log-returns in each sub-period taken from Table (i)(b) and in the next two columns the corresponding mean rates of return. The last column gives mean rates of return if mean value weights are used in each sub-period instead of actual quarterly value weights.

It has been explained that mean value weights were introduced as an approximate method of calculating the rate of return to a value weighted portfolio. In particular, it was hoped that a sequence of calculations of mean value weighted return for sub-portfolios of varying composition would trace the discrepancies between equally weighted and value weighted portfolio returns to particular companies, preferably a few large ones. This approach worked well in the first sub-period, where the excess of value weighted over equally weighted return could be attributed (albeit somewhat arbitrarily) to one company, Imperial Tobacco; some relevant particulars appear in the first line of Table (vii). In later periods the same method did not yield clear-cut results; on the contrary, it appeared that the smoothing of weights due to the replacement of the true value weights by their means was itself enough to remove the bulk of the discrepancies. For the portfolio as a whole this is shown in Table (v) by the relatively close agreement, after the first period, of equally weighted with mean value weighted returns as compared with true value weighted returns. Table (vi) further indicates good agreement (with some exceptions) between equally weighted and mean value weighted returns for individual classes of companies in sub-periods, though this is less surprising since the companies are classified according to their mean value weights. This table also

reflects some of the difficulties found in trying to attribute differences between equally weighted and value weighted portfolios in a simple way to systematic differences of performance among companies or size groups. Thus, while there is some indication that in Periods 2-4 the smaller companies on the whole performed relatively well, the excess of equally weighted over value weighted return cannot be explained by poor results for the very largest companies. In fact, Group E had the highest rates of return among groups in Periods 4-5 and the second highest in Period 2; while in Period 3, when Group E fared badly, Group D had the best performance after Group A. An attribution of discrepancies on a cross-section basis would thus tend to be complicated and rather uninformative, with individual companies and groups changing places in the 'league table' from period to period. On the other hand, the fact that a smoothing of value weights can largely remove the differences between equally weighted and value weighted returns suggests that these differences might be explained by a negative relationship over time between return and value weight for individual companies. Correlations tend to support this hypotheses, and a few of the coefficients are set out in the last column of Table (vii). However, we can think of no good theoretical explanation of the relationship, which in any case is not uniform over time or over companies, and attribute it provisionally to statistical error.

Table (vii) also gives various other interesting statistics of the performance of companies of classes D and E, but no attempt will be made in the present paper to analyse information of this kind. Obviously noteworthy features include the importance of the tobacco giants in the inter-war years and the changes in the order and composition of the list of 'weighty' companies.

## TABLES (viii)-(ix) DE ZOETE SAMPLE

The last two short tables focus attention on the companies belonging to the de Zoete sample. Table (viii) compares the performance of the Moodies and de Zoete subsets of the ERG portfolio, singling out in particular the group of companies appearing in the de Zoete group only. The table is of some interest as an indication of the differences which may occur between the returns to two independently selected portfolios of moderate size, but it was prepared mainly in connection with the earlier discussion of the reasons for including the 'de Zoete only' group in our study, and need not be further considered at this stage.

Table (ix) compares the results of the present paper, as regards both our whole portfolio and our observations of the de Zoete sample, with the results given in the de Zoete studies.<sup>(18)</sup> We tabulate both the cumulative log-returns (logarithms of terminal wealth per £ invested) and the geometric (d.c.f.) rates of return for various periods, including the usual sub-periods. It appears that there are substantial discrepancies between 'ERG observations of the de Zoete portfolio' and figures calculated from the published de Zoete studies in the period 1919-29 and to a lesser extent in 1929-39. In principle, discrepancies may arise from the following causes:

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18 The de Zoete studies also give annual figures of cumulative returns from investment in 2½% Consols from 1919 and in Treasury Bills from 1946. The agreement of these series with our own results is very close, as might be expected.

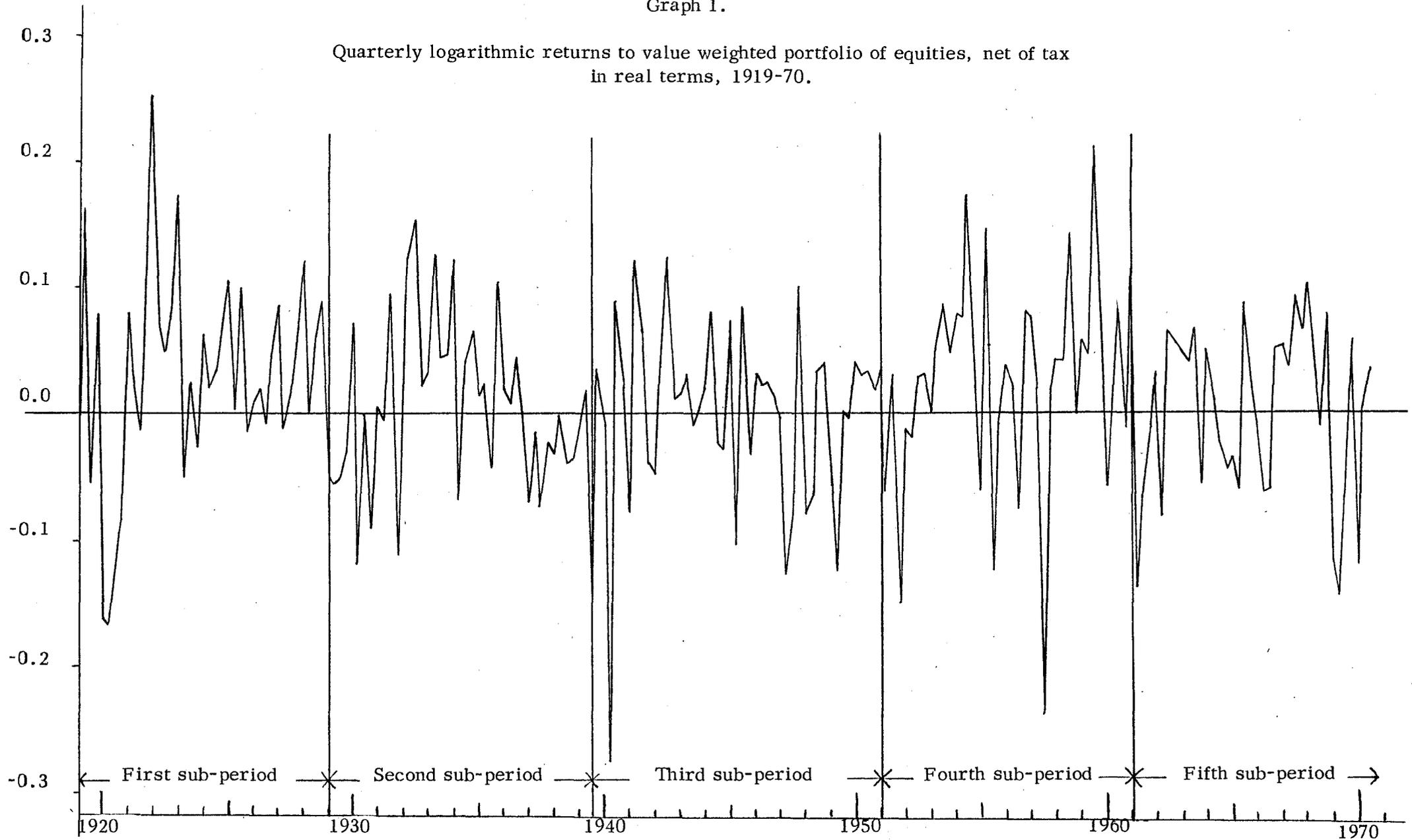
- (a) differences between prices observed on 1st February (ERG) and 1st January (de Zoete);
- (b) introduction of many of the companies which were in the de Zoete group on 1.1.1919 into the ERG portfolio only on 1.5.1919, owing to data problems;
- (c) payment of dividends during January;
- (d) differences in definitions (eg of prices) and methods of adjustment;
- (e) errors in calculation.

Since records of inputs to the de Zoete studies are not available it is impossible to trace the sources of discrepancies in detail without a good deal of further research. Some indication of the likely size of differences due to (a) and (b) can be obtained from movements of Moodies' monthly Share Price Index; but this is at best a rough guide, particularly in the volatile market conditions existing between 1919 and 1921, since each month's index is based on an average of several days' values and the prices of individual shares need not move with the index. Fortunately, as Table (ix) shows, the differences for the first period virtually disappear if 1921 is taken as the start instead of 1919; of course, this raises the estimated rates of return very substantially. As regards the period 1929-39, we have not been able to find any adjustment which would significantly reduce the disagreement between our figures and those published by de Zoete.

To sum up, it appears that in view of the possible sources of discrepancy the figures published by de Zoete agree well from 1939 onwards with our results for the de Zoete portfolio and even with those for the whole ERG portfolio. For the period 1919-39 the figures in the de Zoete reports are substantially higher than ours, but the results are very sensitive to the choice of starting date and much of the discrepancy vanishes if 1921 is chosen instead of 1919.

Graph 1.

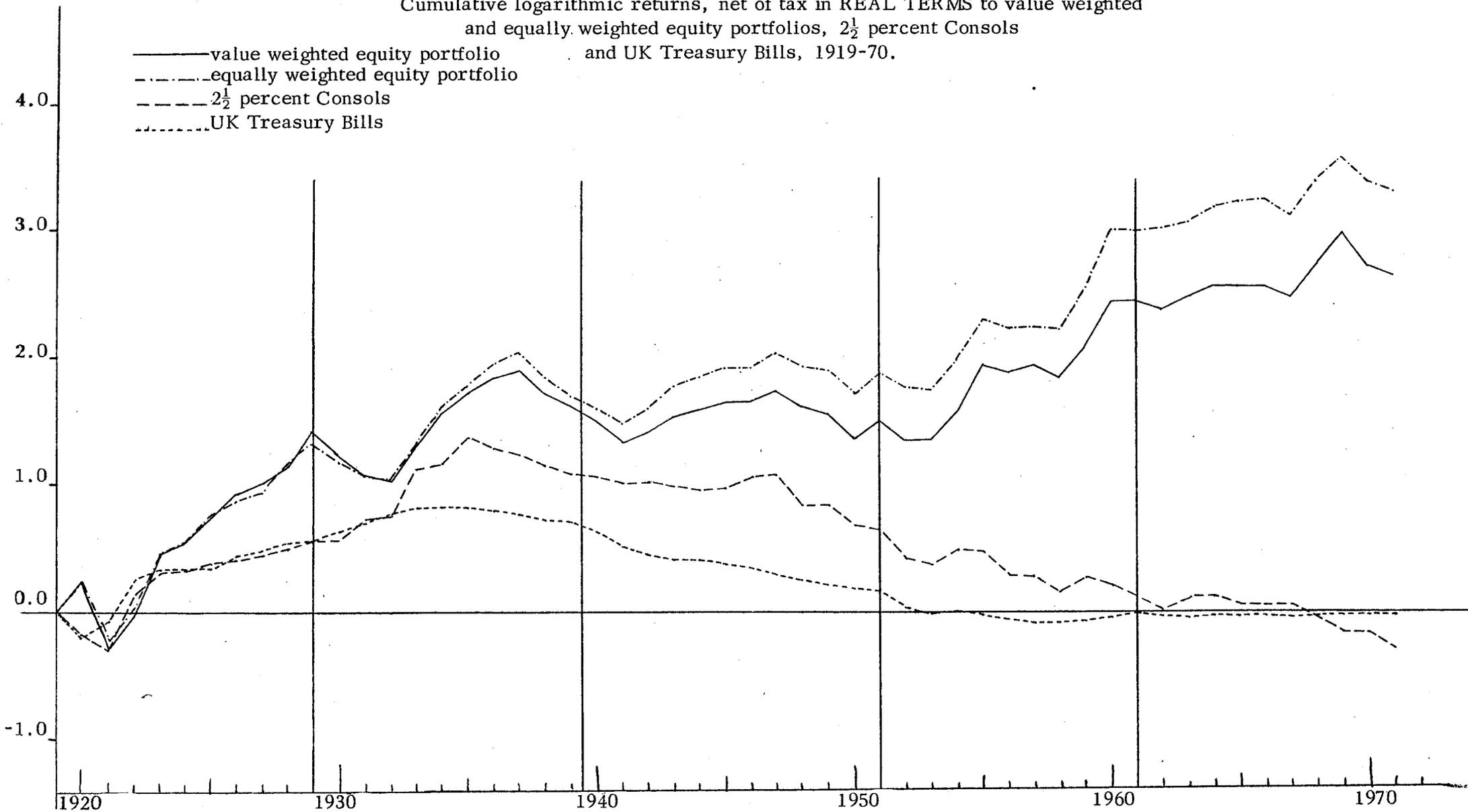
Quarterly logarithmic returns to value weighted portfolio of equities, net of tax  
in real terms, 1919-70.



Graph 2a

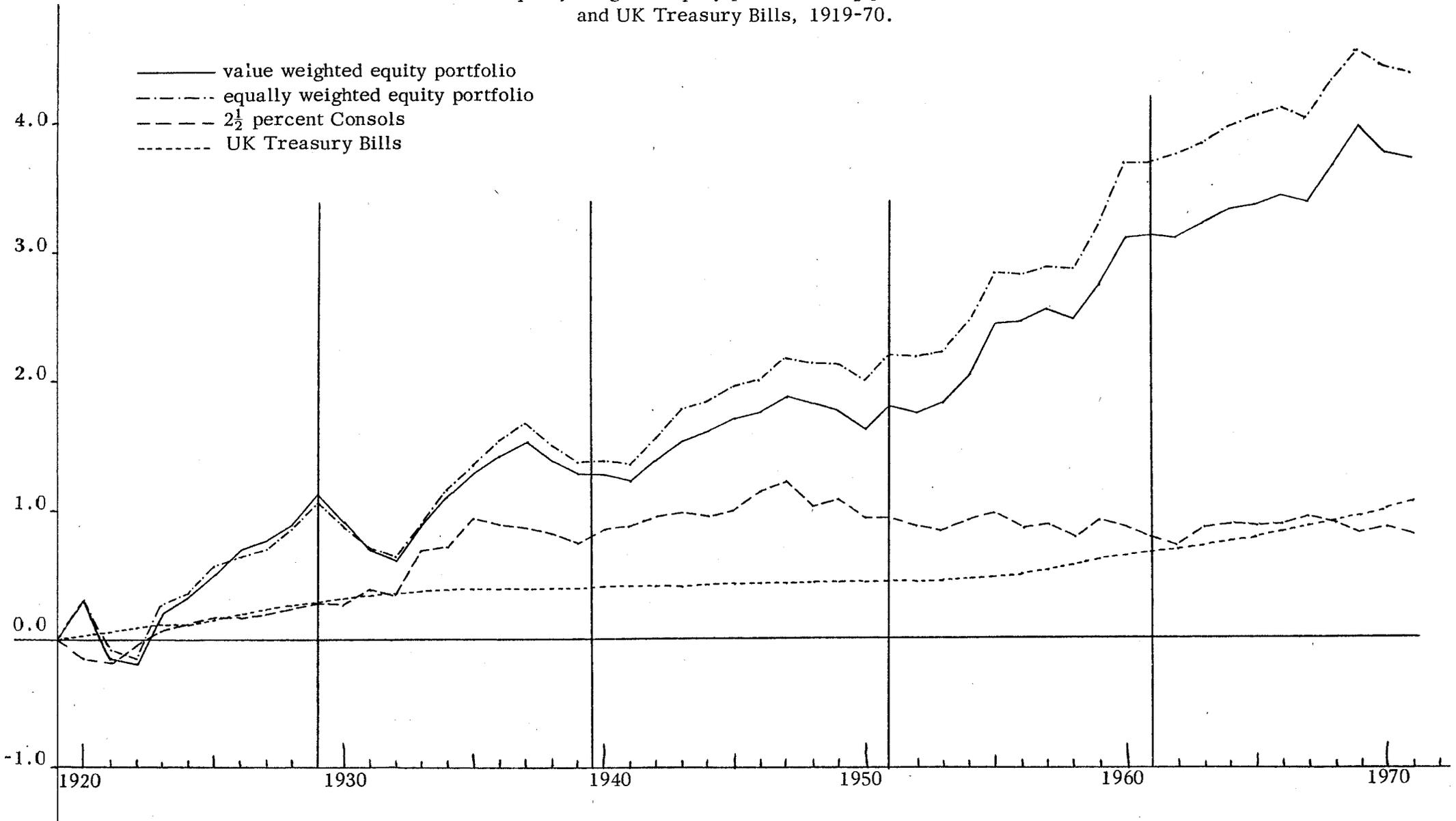
Cumulative logarithmic returns, net of tax in REAL TERMS to value weighted and equally weighted equity portfolios, 2½ percent Consols and UK Treasury Bills, 1919-70.

- value weighted equity portfolio
- - - - - equally weighted equity portfolio
- - - - - 2½ percent Consols
- · · · · UK Treasury Bills



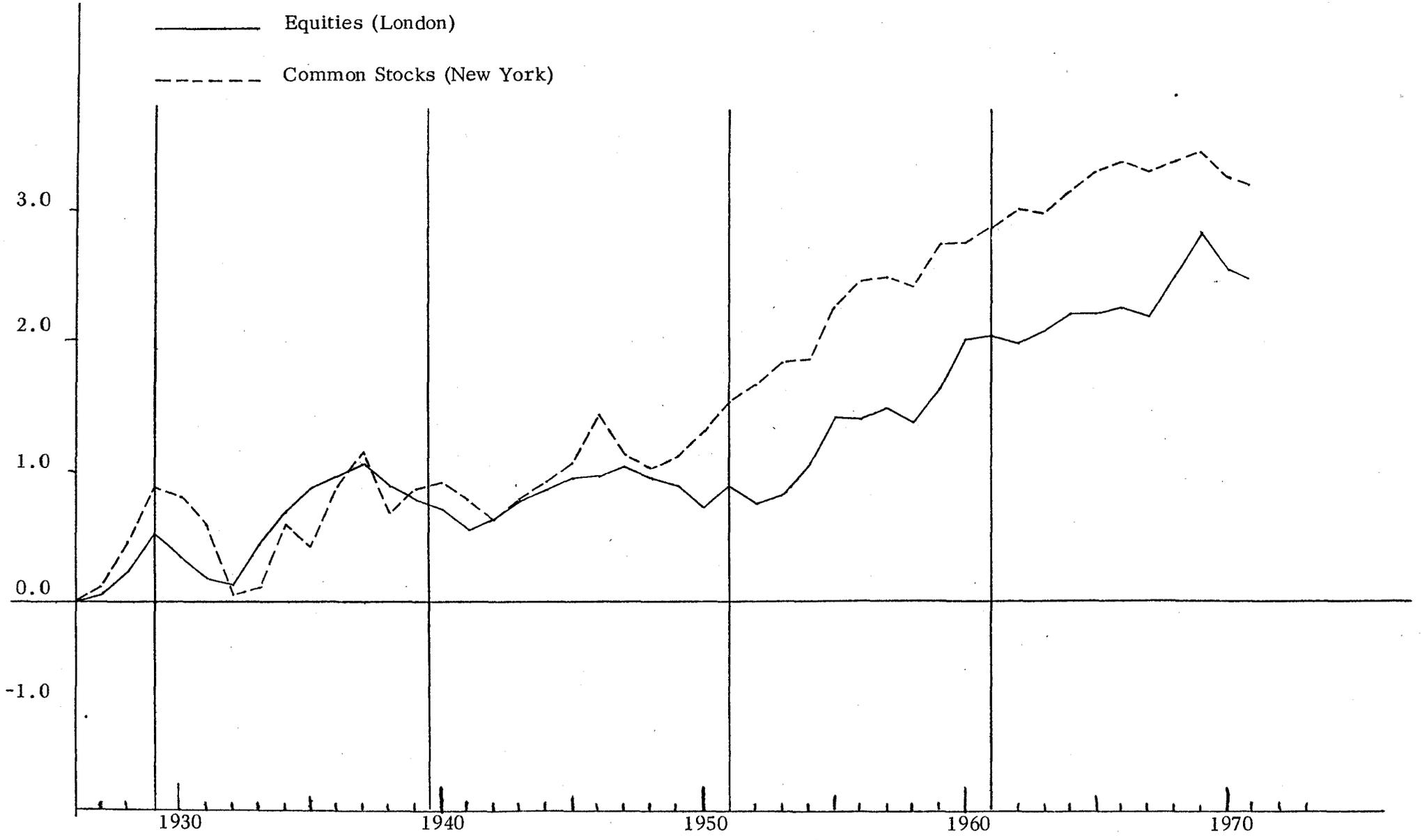
Graph 2b

Cumulative logarithmic returns, net of tax in MONEY TERMS to value weighted and equally weighted equity portfolios, 2½ percent Consols and UK Treasury Bills, 1919-70.



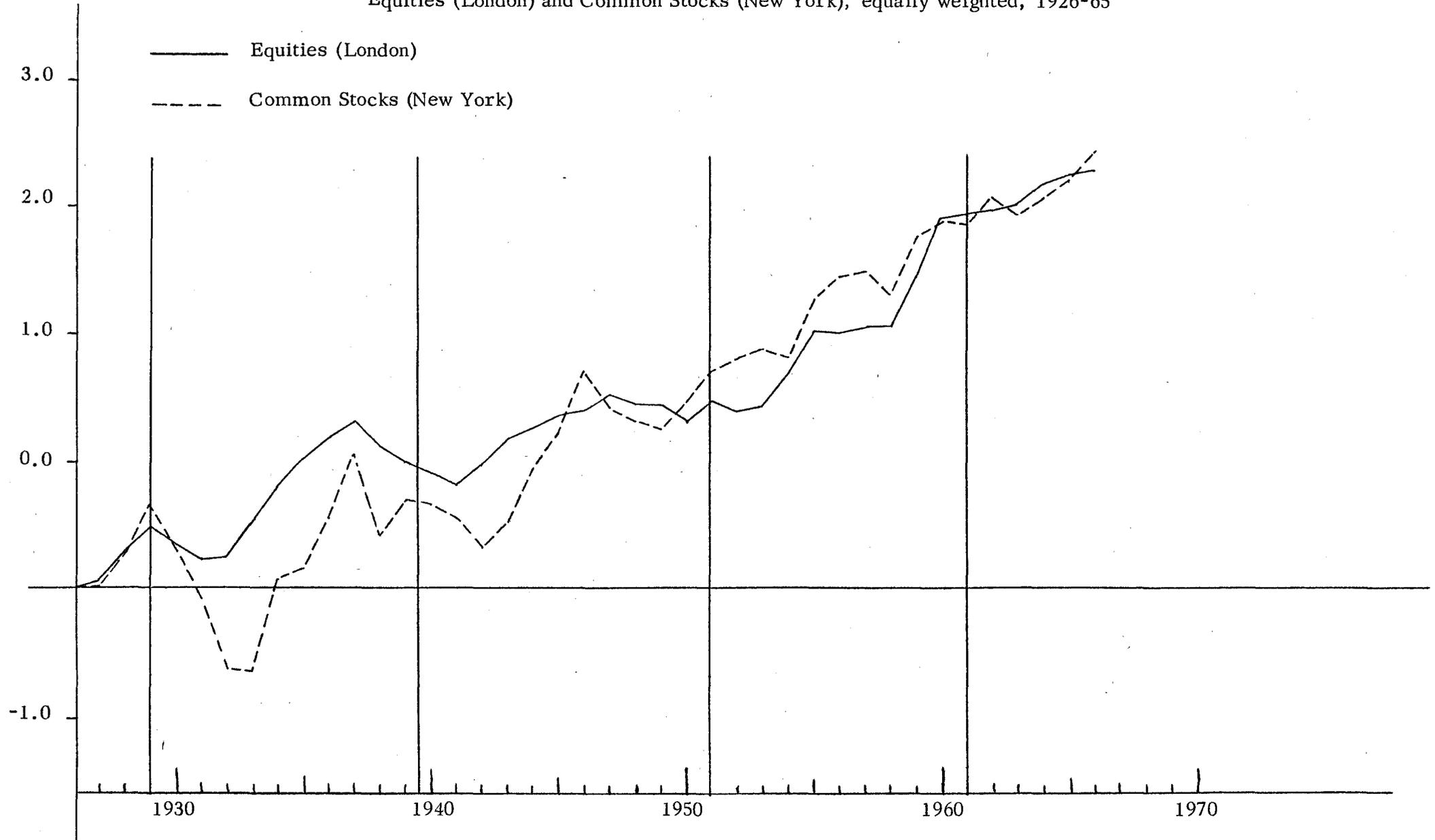
Graph 3a

Cumulative logarithmic returns gross of tax in real terms:  
Equities (London) and Common Stocks (New York), value weighted, 1926-70



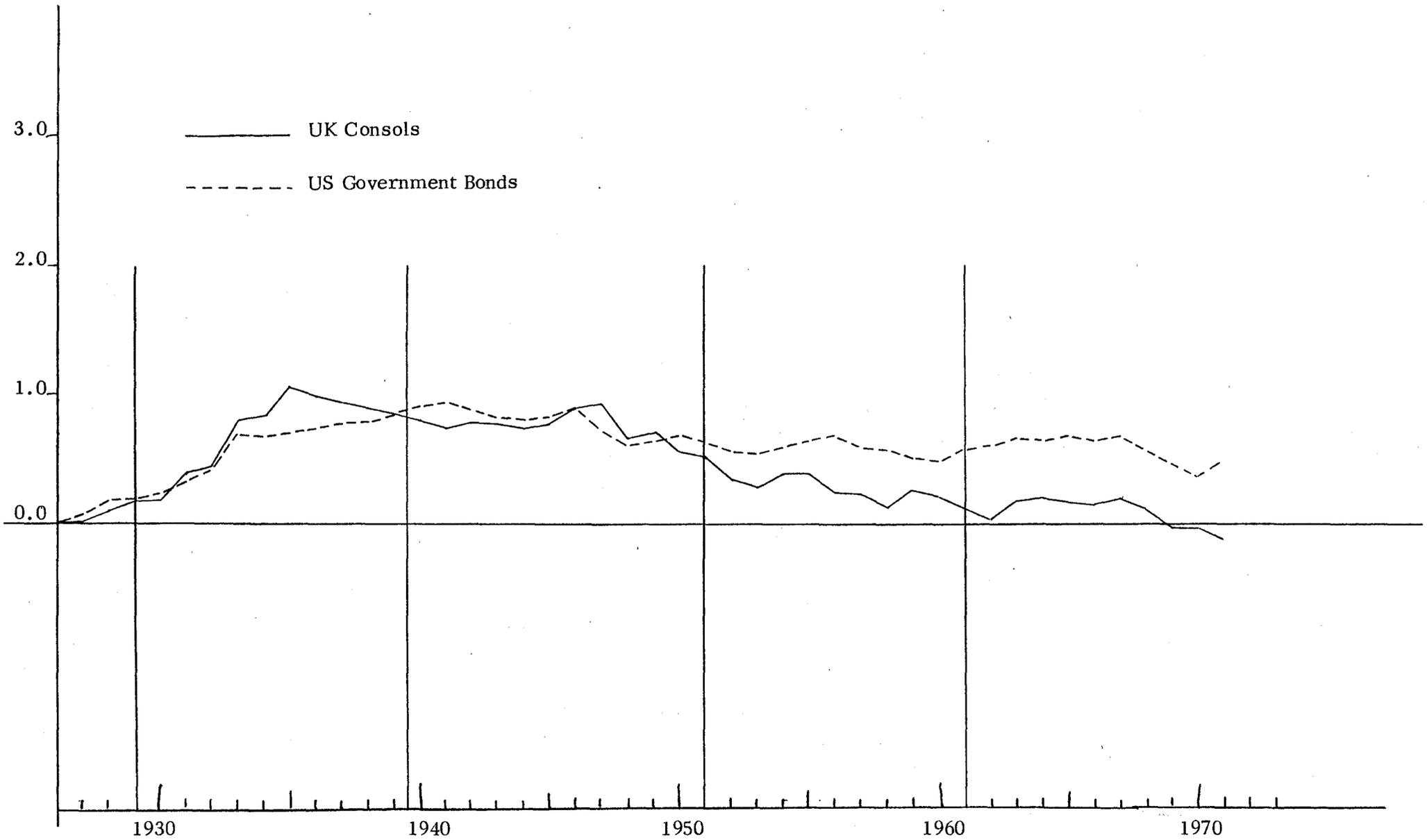
Graph 3b

Cumulative logarithmic returns gross of tax in real terms:  
Equities (London) and Common Stocks (New York), equally weighted, 1926-65



Graph 3c

Cumulative logarithmic returns gross of tax in real terms.  
2½ percent Consols and Long Term US Government Bonds, 1926-70



Graph 3d

Cumulative logarithmic returns gross of tax in real terms:  
UK and US Treasury Bills, 1926-70

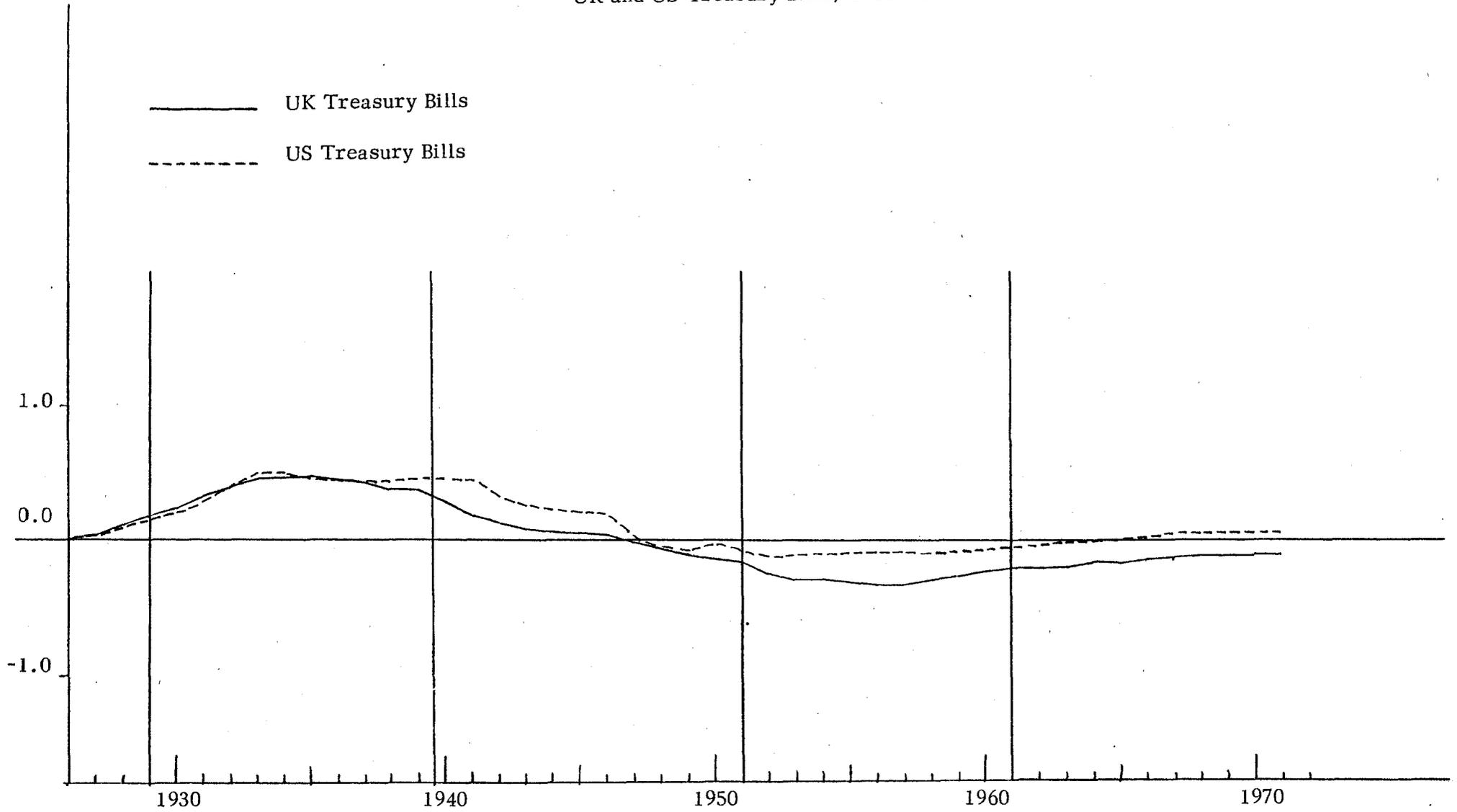


TABLE (i) (a)

Means and standard deviations of quarterly logarithmic returns GROSS OF TAX.

Total log-returns to value weighted (VW) and equally weighted (EW) equity portfolios,  
 2½% Consols (C) and Treasury Bills (B), in money and real terms.  
 Log-risk premium and dividend return for equities.

PERIOD	No. of obs.	MONEY								REAL								MONEY AND REAL							
		TOTAL LOG-RETURN								TOTAL LOG-RETURN								PREMIUM				DIVIDEND*			
		MEAN				STANDARD DEVIATION				MEAN				STANDARD DEVIATION				MEAN		STD DEV		MEAN		STD DEV	
		VW	EW	C	B	VW	EW	C	B	VW	EW	C	B	VW	EW	C	B	VW	EW	VW	EW	VW	EW	VW	EW
1. Feb. 1919 - Jan. 1929	40	.0306	.0305	.0103	.0099	.0784	.0716	.0358	.0028	.0378	.0377	.0175	.0171	.0844	.0772	.0654	.0434	.0207	.0206	.0798	.0730	.0069	.0125	.0022	.0038
2. Feb. 1929 - Jul. 1939	42	.0061	.0125	.0128	.0040	.0666	.0762	.0477	.0042	.0072	.0136	.0139	.0051	.0661	.0752	.0567	.0240	.0215	.0085	.0683	.0775	.0063	.0101	.0018	.0025
3. Aug. 1939 - Jan. 1951	46	.0160	.0233	.0085	.0019	.0707	.0705	.0473	.0006	.0020	.0093	-.0055	-.0121	.0743	.0739	.0503	.0192	.0141	.0214	.0706	.0704	.0078	.0104	.0025	.0025
4. Feb. 1951 - Jan. 1961	40	.0386	.0453	-.0005	.0080	.0817	.0757	.0429	.0039	.0292	.0359	-.0098	-.0013	.0833	.0783	.0450	.0133	.0306	.0372	.0818	.0757	.0102	.0152	.0024	.0039
5. Feb. 1961 - Oct. 1970	39	.0215	.0251	.0036	.0137	.0803	.0783	.0427	.0032	.0110	.0146	-.0069	.0032	.0791	.0774	.0468	.0081	.0078	.0114	.0809	.0789	.0098	.0127	.0037	.0032
Feb. 1919 - Oct. 1970	207	.0222	.0271	.0071	.0073	.0756	.0744	.0435	.0053	.0169	.0218	.0018	.0020	.0780	.0765	.0541	.0263	.0149	.0198	.0761	.0750	.0082	.0121	.0030	.0037

\* See Appendix C.

TABLE (i) (b)

Means and standard deviations of quarterly logarithmic returns NET OF TAX.

Total log-returns to value weighted (VW) and equally weighted (EW) equity portfolios, 2½% Consols (C) and Treasury Bills (B), in money and real terms.  
Log-risk premium and dividend return for equities.

PERIOD	No. of obs.	MONEY								REAL								MONEY AND REAL							
		TOTAL LOG-RETURN								TOTAL LOG-RETURN								PREMIUM				DIVIDEND*			
		MEAN				STANDARD DEVIATION				MEAN				STANDARD DEVIATION				MEAN		STD DEV		MEAN		STD DEV	
		VW	EW	C	B	VW	EW	C	B	VW	EW	C	B	VW	EW	C	B	VW	EW	VW	EW	VW	EW	VW	EW
1. Feb. 1919 - Jan. 1929	40	.0282	.0262	.0071	.0071	.0787	.0721	.0358	.0019	.0354	.0334	.0143	.0143	.0846	.0773	.0654	.0433	.0211	.0191	.0795	.0729	.0045	.0081	.0014	.0023
2. Feb. 1929 - Jul. 1939	42	.0038	.0088	.0102	.0029	.0668	.0767	.0477	.0031	.0049	.0099	.0113	.0040	.0663	.0756	.0567	.0236	.0009	.0059	.0680	.0777	.0040	.0064	.0011	.0016
3. Aug. 1939 - Jan. 1951	46	.0112	.0170	.0053	.0011	.0712	.0710	.0474	.0003	-.0027	.0030	-.0087	-.0129	.0748	.0744	.0504	.0192	.0101	.0159	.0712	.0710	.0030	.0040	.0012	.0013
4. Feb. 1951 - Jan. 1961	40	.0333	.0373	-.0040	.0055	.0819	.0762	.0429	.0027	.0239	.0279	-.0134	-.0039	.0834	.0788	.0451	.0126	.0278	.0318	.0819	.0762	.0047	.0070	.0010	.0018
5. Feb. 1961 - Oct. 1970	39	.0155	.0180	.0006	.0099	.0708	.0696	.0390	.0023	.0050	.0075	-.0099	-.0006	.0697	.0688	.0433	.0081	.0056	.0081	.0712	.0700	.0050	.0064	.0018	.0015
Feb. 1919 - Oct. 1970	207	.0181	.0212	.0039	.0051	.0740	.0731	.0429	.0038	.0128	.0159	-.0013	-.0002	.0766	.0753	.0536	.0259	.0130	.0161	.0743	.0734	.0042	.0063	.0015	.0022

\* See Appendix C.

TABLE (ii) (a)

Geometric and arithmetic mean annual returns expressed as percentage rates GROSS OF TAX.

Total log-return to value weighted (VW) and equally weighted (EW) equity portfolios,  
 2½% Consols (C) and Treasury Bills (B), in money and real terms.  
 Log-risk premium and dividend return for equities.

PERIOD	No. of obs.	MONEY								REAL								MONEY AND REAL			
		TOTAL RETURN								TOTAL RETURN								PREMIUM		DIVIDEND*	
		GEOMETRIC				ARITHMETIC				GEOMETRIC				ARITHMETIC				GEOMETRIC		GEOMETRIC	
		VW	EW	C	B	VW	EW	C	B	VW	EW	C	B	VW	EW	C	B	VW	EW	VW	EW
1. Feb.1919 - Jan.1929	40	13.02	12.97	4.20	4.05	14.38	14.10	4.47	4.06	16.31	16.27	7.25	7.09	17.93	17.63	8.16	7.49	8.61	8.57	2.79	5.13
2. Feb.1929 - Jul.1939	42	2.48	5.11	5.24	1.60	3.38	6.34	5.72	1.60	2.93	5.58	5.71	2.05	3.82	6.77	6.39	2.17	0.86	3.46	2.55	4.11
3. Aug.1939 - Jan.1951	46	6.62	9.77	3.46	0.78	7.64	10.82	3.91	0.78	0.82	3.80	-2.17	-4.71	1.89	4.89	-1.69	-4.64	5.80	8.93	3.16	4.24
4. Feb.1951 - Jan.1961	40	16.70	19.85	-0.18	3.27	18.21	21.18	0.18	3.27	12.41	15.44	-3.85	-0.53	13.91	16.81	-3.47	-0.50	13.01	16.06	4.16	6.25
5. Feb.1961 - Oct.1970	39	8.98	10.57	1.45	5.64	10.34	11.88	1.81	5.64	4.49	6.02	-2.73	1.29	5.75	7.25	-2.32	1.31	3.16	4.67	4.02	5.22
Feb.1919 - Oct.1970	207	9.30	11.44	2.86	2.96	10.54	12.67	3.25	2.97	7.01	9.11	0.71	0.81	8.30	10.38	1.30	0.95	6.15	8.24	3.32	4.96

\*See Appendix C.

TABLE (ii) (b)

Geometric and arithmetic mean annual returns expressed as percentage rates NET OF TAX.

Total log-return to value weighted (VW) and equally weighted (EW) equity portfolios,  
2½% Consols (C) and Treasury Bills (B), in money and real terms.

Log-risk premium and dividend return for equities.

PERIOD	No. of obs.	MONEY								REAL								MONEY AND REAL			
		TOTAL RETURN								TOTAL RETURN								PREMIUM		DIVIDEND*	
		GEOMETRIC				ARITHMETIC				GEOMETRIC				ARITHMETIC				GEOMETRIC		GEOMETRIC	
		VW	EW	C	B	VW	EW	C	B	VW	EW	C	B	VW	EW	C	B	VW	EW	VW	EW
1. Feb.1919 - Jan.1929	40	11.96	11.04	2.87	2.89	13.32	12.16	3.13	2.89	15.23	14.28	5.88	5.89	16.84	15.62	6.77	6.28	8.82	7.92	1.81	3.31
2. Feb.1929 - Jul.1939	42	1.53	3.58	4.17	1.15	2.43	4.80	4.65	1.15	1.98	4.04	4.63	1.60	2.87	5.22	5.31	1.71	0.38	2.40	1.62	2.60
3. Aug.1939 - Jan.1951	46	4.60	7.02	2.13	0.44	5.62	8.06	2.58	0.44	-1.09	1.20	-3.42	-5.02	-0.03	2.27	-2.95	-4.95	4.14	6.55	1.20	1.61
4. Feb.1951 - Jan.1961	40	14.23	16.09	-1.60	2.22	15.71	17.41	-1.25	2.22	10.03	11.82	-5.22	-1.55	11.50	13.17	-4.85	-1.51	11.75	13.58	1.89	2.83
5. Feb.1961 - Oct.1970	39	6.41	7.47	0.23	4.04	7.45	8.48	0.52	4.04	2.03	3.05	-3.90	-0.24	2.99	3.99	-3.55	-0.23	2.28	3.30	2.01	2.61
Feb.1919 - Oct.1970	207	7.50	8.86	1.59	2.07	8.67	10.02	1.96	2.07	5.25	6.58	-0.54	-0.06	6.48	7.78	0.04	0.07	5.32	6.65	1.69	2.56

\* See Appendix C.

Table (iii) (a)

London and New York : total returns gross of tax, in money and real terms, 1926-70

Value Weighted (VW) portfolios of equities/common stocks, 2½% Consols/long-term US government bonds and UK/US Treasury bills, based on QUARTERLY data

	Quarterly log-return						Geometric rate of return, % p.a.	
	Money			Real			Money	Real
	Mean	S.D.	Corr	Mean	S.D.	Corr		
London equities (VW)	.0214	.0733		.0140	.0743		8.95	5.75
New York common stocks (VW)	.0225	.0944	.371	.0181	.0944	.357	9.41	7.50
Consols	.0067	.0439		-.0008	.0497		2.71	-0.31
US bonds	.0065	.0231	.273	.0021	.0286	.388	2.63	0.83
UK Treasury bills	.0069	.0054		-.0005	.0198		2.81	-0.21
US Treasury bills	.0048	.0045	.886	.0003	.0150	.408	1.92	0.14
Log-risk premium (equities VW)	.0145	.0735					5.98	
Log-risk premium (common stocks VW)	.0177	.0948	.380				7.35	
London, retail price index	.0075	.0187					3.03	
New York, consumer price index	.0044	.0144	.338				1.78	

Table (iii) (b)

London and New York : total returns gross of tax, in money and real terms, 1926-65

Value weighted (VW) and equally weighted (EW) portfolios of equities/common stocks,  
based on ANNUAL data

	Annual log-returns						Geometric rate of return, % p.a.	
	Money			Real			Money	Real
	Mean	S.D.	Corr	Mean	S.D.	Corr		
London, equities (VW)	.0848	.1442	.497	.0572	.1504	.449	8.85	5.89
New York, common stocks (VW)	.0993	.2234		.0849	.2209		10.44	8.86
London, equities (EW)	.1099	.1491	.546	.0823	.1553	.489	11.61	8.58
New York, common stocks (EW)	.1007	.2974		.0863	.2897		10.60	9.01
London, retail price index	.0276	.0386	.568				2.80	
New York, consumer price index	.0144	.0482					1.45	

Table (iii) (c)

Returns in London <sup>(L)</sup> and New York <sup>(NY)</sup>, gross of tax, in money and real terms, 1926-70.

Means, standard deviations and correlation coefficients of QUARTERLY total log-returns.

Value weighted portfolios of equities/common stocks (VW), 2½% consols/long-term US government bonds (C) and UK/US Treasury bills (B).

PERIOD	No. of obs.	Place	TOTAL LOG-RETURN																	
			MONEY									REAL								
			Mean			SD			Corr.			Mean			SD			Corr.		
	VW	C	B	VW	C	B	VW	C	B	VW	C	B	VW	C	B	VW	C	B		
Feb. 1926 - Jan. 1929	12	L	.0384	.0122	.0105	.0388	.0163	.0007	.671	.371	-.021	.0423	.0162	.0144	.0425	.0339	.0298	.589	.522	.399
		NY	.0705	.0116	.0084	.0698	.0160	.0017				.0745	.0155	.0124	.0730	.0175	.0080			
Feb. 1929 - July 1939	42	L	.0061	.0128	.0040	.0666	.0477	.0042	.425	.379	.849	.0072	.0139	.0051	.0661	.0567	.0240	.428	.528	.494
		NY	-.0050	.0125	.0023	.1466	.0240	.0037				.0000	.0175	.0073	.1422	.0295	.0179			
Aug. 1939 - Jan. 1951	46	L	.0160	.0085	.0019	.0707	.0473	.0006	.344	.120	-.682	.0020	-.0055	-.0121	.0743	.0503	.0192	.274	.189	.016
		NY	.0278	.0070	.0011	.0793	.0133	.0009				.0145	-.0063	-.0121	.0845	.0252	.0172			
Feb. 1951 - Jan. 1961	40	L	.0386	-.0005	.0080	.0817	.0429	.0039	.338	.189	.481	.0292	-.0098	-.0013	.0832	.0450	.0133	.338	.252	.284
		NY	.0375	.0026	.0050	.0635	.0263	.0020				.0335	-.0014	.0010	.0641	.0270	.0056			
Feb. 1961 - Oct. 1970	39	L	.0215	.0036	.0137	.0803	.0427	.0032	.406	.349	.783	.0110	-.0069	.0032	.0791	.0468	.0081	.405	.365	-.072
		NY	.0158	.0019	.0104	.0605	.0283	.0035				.0086	-.0053	.0032	.0630	.0289	.0032			
Feb. 1926 - Oct. 1970	179	L	.0214	.0067	.0069	.0733	.0439	.0054	.371	.273	.886	.0140	-.0008	-.0005	.0743	.0497	.0198	.357	.388	.408
		NY	.0225	.0065	.0048	.0944	.0231	.0045				.0181	.0021	.0003	.0944	.0286	.0150			

Table (iii) (d)

Returns in London (L) and New York (NY), gross of tax, in money and real terms, 1926-65.  
Means, standard deviations and correlation co-efficients of ANNUAL total log-returns.  
Value weighted (WV) and equally weighted (EW) portfolios of equities/common stocks.

Period	No of obs	Place	Total log-return											
			Money						Real					
			Mean		Std	Dev	Corr		Mean		Std	Dev	Corr	
1926-39	13	L	.0538	.0706	.1740	.1709	.634	.738	.0610	.0778	.1714	.1697	.623	.708
		NY	.0539	.0345	.3303	.4465			.0727	.0537	.3125	.4214		
1939-51	12	L	.0629	.0935	.0989	.1096	.139	.162	.0093	.0399	.1091	.1186	.102	.154
		NY	.0958	.1342	.1509	.2222			.0476	.0843	.1754	.2442		
1951-65	15	L	.1292	.1570	.1445	.1530	.375	.471	.0922	.1200	.1588	.1685	.335	.425
		NY	.1414	.1313	.1542	.1753			.1252	.1162	.1581	.1810		
1926-65	40	L	.0848	.1099	.1442	.1491	.497	.546	.0572	.0823	.1504	.1553	.449	.489
		NY	.0993	.1007	.2234	.2974			.0849	.0863	.2209	.2897		

Table (iv)

Distribution of sample over classes of companies defined by  $X = \text{mean value weight}$

a) number of companies in each class - quarterly means

Period		A	B	C	D	E	Total
		$x < .005$	$.005 \leq x < .01$	$.01 \leq x < .05$	$.05 \leq x < .1$	$.1 \leq x$	
1.	1919-29	18.5	17.5	15.4	1.2	2.0	54.6
2.	1929-39	23.0	17.0	13.9	2.7	2.0	58.6
3.	1939-51	18.0	19.0	16.0	3.0	2.0	58.0
4.	1951-61	42.8	13.8	15.0	4.0	2.0	77.6
5.	1961-70	41.3	9.6	22.0	3.0	2.0	77.9

b) Total weights of companies in each class;  
mean value weights (MW) and equal weights (EW)

		A		B		C		D		E	
Period		MW	EW								
1.	1919-29	.050	.340	.132	.321	.321	.282	.105	.021	.392	.036
2.	1929-39	.070	.392	.127	.291	.223	.237	.190	.046	.390	.034
3.	1939-51	.058	.311	.132	.328	.258	.274	.242	.052	.310	.035
4.	1951-61	.080	.552	.097	.178	.275	.193	.282	.051	.266	.026
5.	1961-70	.066	.530	.079	.123	.409	.283	.164	.038	.282	.026

Table (v)

Effect of weighting on portfolio mean log-return and mean rate of return

Quarterly means, in money terms, net of tax

Period		Mean log-return		Mean rate of return		
		Value Weights	Equal Weights	Value Weights	Equal Weights	Mean Value Weights
1.	1919-29	.0282	.0262	.0318	.0291	.0368
2.	1929-39	.0038	.0088	.0060	.0118	.0112
3.	1939-51	.0112	.0170	.0138	.0196	.0159
4.	1951-61	.0333	.0373	.0372	.0409	.0409
5.	1961-70	.0155	.0180	.0181	.0206	.0217

Table (vi)

Effect of weighting on mean rate of return by class of company\*

Quarterly means, in money terms, net of tax  
Mean value weights (MVW) and equal weights (EW)

Period		A		B		C		D		E	
		MVW	EW								
1.	1919-29	.041	.037	.023	.024	.021	.021	.071	.070	.045	.045
2.	1929-39	.014	.016	.011	.010	.009	.009	.010	.008	.013	.011
3.	1939-51	.027	.026	.018	.020	.015	.016	.021	.021	.010	.011
4.	1951-61	.040	.042	.039	.038	.044	.044	.033	.032	.047	.048
5.	1961-70	.021	.022	.015	.015	.023	.021	.013	.013	.027	.025

\*Classes are defined as in Table (iv)

TABLE (vii)

## STATISTICS OF COMPANIES WITH MEAN VALUE WEIGHT OF AT LEAST FIVE PER CENT

PERIOD	COMPANY	NO OF QTRS IN	QUARTERLY NET MONEY RATE OF RETURN WHILE COMPANY IN SAMPLE						VALUE WEIGHT OF COMPANY WHILE IN SAMPLE				
			COMPANY MEAN	COMPANY STANDARD DEVIATION	CO FIRST ORDER SERIAL CORR COEFF	PORT-FOLIO MEAN WITHOUT CO	PORT-FOLIO MEAN	PORTFOLIO STANDARD DEVIATION	MEAN	STANDARD DEVIATION ÷ MEAN	MAX.	MIN.	CORREL. WITH CO. RATE OF RETURN
1. FEB 1919-JAN 1929 (40 QUARTERS) AVERAGE NO OF COS 54.6	IMP. TOBACCO	39	.043	.115	-.165	.031	.033	.082	.223	.180	.288	.137	.108
	BAT	40	.047	.077	.248	.028	.032	.081	.174	.194	.356	.125	.001
	COURTAULDS	39	.079	.184	-.050	.030	.033	.082	.092	.298	.152	.039	-.228
	ICI	8	.028	.156	-.226	.052	.049	.041	.080	.136	.093	.064	-.664
2. FEB 1929-JUL 1939 (42 QUARTERS) AVERAGE NO OF COS 58.6	IMP. TOBACCO	42	.017	.063	.030	.003	.006	.068	.246	.068	.304	.220	-.102
	BAT	42	.006	.083	.004	.006	.006	.068	.143	.164	.182	.108	-.065
	WOOLWORTH	29	.028	.086	.313	.027	.027	.063	.082	.096	.096	.069	-.718
	ICI	42	.009	.144	-.051	.006	.006	.068	.072	.130	.093	.047	-.383
	COURTAULDS	42	-.007	.174	-.188	.008	.006	.068	.061	.342	.133	.031	-.356
3. AUG 1939-JAN 1951 (46 QUARTERS) AVERAGE NO OF COS 58.0	IMP. TOBACCO	46	.007	.097	-.071	.016	.014	.070	.204	.166	.254	.151	.003
	BAT	46	.016	.114	-.152	.014	.014	.070	.106	.089	.130	.087	-.316
	WOOLWORTH	46	.023	.086	-.157	.013	.014	.070	.090	.129	.110	.069	-.310
	ICI	46	.016	.063	-.275	.014	.014	.070	.087	.139	.111	.073	-.157
	DISTILLERS	46	.024	.063	-.106	.013	.014	.070	.065	.186	.085	.050	-.072
4. FEB 1951-JAN 1961 (40 QUARTERS) AVERAGE NO OF COS 77.6	SHELL	40	.043	.104	-.117	.037	.037	.083	.158	.230	.237	.107	-.211
	ICI	40	.053	.122	-.033	.035	.037	.083	.108	.138	.157	.087	.020
	WOOLWORTH	40	.045	.097	-.140	.037	.037	.083	.090	.080	.109	.076	.044
	BAT	40	.035	.089	.011	.038	.037	.083	.069	.127	.085	.051	-.074
	IMP. TOBACCO	40	.016	.113	-.194	.039	.037	.083	.067	.429	.129	.034	-.200
	DISTILLERS	40	.032	.097	.142	.038	.037	.083	.056	.180	.086	.042	-.221
5. FEB 1961-OCT 1970 (39 QUARTERS) AVERAGE NO OF COS 77.9	SHELL	39	.040	.104	.329	.014	.018	.071	.156	.184	.215	.112	-.088
	ICI	39	.011	.088	-.031	.019	.018	.071	.126	.082	.152	.110	-.184
	WOOLWORTH	39	-.003	.090	-.111	.020	.018	.071	.056	.378	.093	.027	-.079
	BAT	39	.028	.084	.238	.018	.018	.071	.055	.168	.071	.041	-.006
	DISTILLERS	39	.015	.085	-.359	.018	.018	.071	.052	.189	.078	.037	-.180

Table (viii)

Effect on log-returns of including de Zoete sample  
 Quarterly means for value weighted (VW) and equally weighted (EW) portfolios,  
 in money terms, net of tax.

Period	Number of companies in sample				Mean log-return - VW				Mean log-return - EW			
	Moodies	de Zoete	de Zoete only	Whole Sample	Moodies	de Zoete	de Zoete only	Whole Sample	Moodies	de Zoete	de Zoete only	Whole Sample
1. Feb 1919-Jan 1929	39.5	28.9	15.1	54.6	.0290	.0252	.0288	.0282	.0279	.0236	.0225	.0262
2. Feb 1929-Jul 1939	49.0	29.4	9.6	58.6	.0001	.0048	.0120	.0038	.0066	.0107	.0196	.0088
3. Aug 1939-Jan 1951	50.0	29.9	8.0	58.0	.0133	.0114	.0045	.0112	.0160	.0174	.0226	.0170
4a. Feb 1951-Jan 1955*	60.0	30.0	18.0	78.0	.0397	.0367	.0439	.0405	.0397	.0369	.0372	.0392
Feb 1919-Jan 1955	47.9	29.5	11.6	59.5	.0167	.0161	.0178	.0170	.0192	.0193	.0233	.0196
4b. Feb 1955-Jan 1961	59.1	30.0	18.2	77.3	.0297	.0294	.0232	.0284	.0376	.0306	.0308	.0360
5. Feb 1961-Oct 1970	59.9	29.5	18.0	77.9	.0156	.0108	.0045	.0155	.0182	.0171	.0170	.0180

\* Date of first de Zoete study

Table (ix)

Comparison of portfolio returns with de Zoete studies,  
in money terms, gross of tax

Date	Cumulative log-return			Date	Geometric rate of return % p.a.		
1st Feb - Cols (1) & (2) 1st Jan - Col (3)	ERG portfolio (1)	ERG obs of de Zoete portfolio (2)	de Zoete studies (3)	Years Feb-Jan, Cols (4) & (5) Jan-Dec, Col (6)	ERG portfolio (4)	ERG obs of de Zoete portfolio (5)	de Zoete studies (6)
1919	0.00	0.00	0.00	1919-70 1921-70	9.47 10.16	9.23 10.20	10.10 10.37
1920	0.30	0.20	0.35	1919-29	13.02	11.88	15.35
1921	-0.12	-0.26	0.07	1920-29	10.78	10.74	12.72
1929	1.22	1.12	1.43	1921-29	18.36	18.84	18.47
1939	1.46	1.42	1.86	1929-39	2.42	2.98	4.39
1951	2.22	2.19	2.63	1939-51	6.49	6.66	6.67
1955	2.96	2.91	3.33	1951-55	20.54	19.75	18.93
1961	3.76	3.77	4.17	1955-61	14.21	15.49	15.09
1970	4.62	4.50	4.91	1961-70	9.97	8.44	8.58

APPENDIX A

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LIST OF COMPANIES

The companies are listed in the order in which they enter the portfolio. Companies entering in the same year are listed so that those with the longest period of inclusion appear first.

Period in whole sample	Company	Both	de Zoete	Moodies
1919-70	The Associated Portland Cement Man. Ltd.	1919-51	1951-70	
	{ Bass, Ratcliffe and Gretton Ltd.	1919-51	1951-61	
	{ Bass, Mitchells & Butlers Ltd.		1961-67	
	{ Bass, Charrington Ltd.		1967-70	
	{ Bell's United Asbestos Co. Ltd.		1919-28	
	{ Turner and Newall Ltd.	{ 1930-51	1928-30	
			1951-70	
	British-American Tobacco Co. Ltd.			1919-70
	{ J & P Coats Ltd.	1919-61		
	{ Coats Patons Ltd.	1961-70		
	Courtaulds Ltd.	1919-51	1951-70	
	Distillers Co. Ltd.	1933-70	1919-33	
	Dunlop Holdings Ltd.	1919-51	1951-70	
	{ Explosive Trades Ltd.		1919-20	
	{ Nobel Industries Ltd.		1920-27	
	{ Imperial Chemical Industries Ltd.	1930-70	1929-30	
	{ The General Electric Co. Ltd.	{ 1919-51	1951-67	
		{ 1967-70		
	{ The Gramophone Co. Ltd.	1919-31		
	{ Electrical and Musical Industries Ltd.	1932-51	1951-70	
	{ Guest, Keen and Nettlefolds Ltd.	1919-70		
	{ Harrods Ltd.	1919-51	1951-59	
	{ House of Fraser		1959-70	
	Imperial Tobacco Ltd.	1951-70	1919-51	
	Lyons (J) and Co. Ltd.			1919-70
	Peninsular and Oriental Steam Nav.Co.Ltd.	1946-70		1919-46
	{ Vickers Ltd.	{ 1919-51	1951-67	
		{ 1967-70		
	{ Watney Combe Reid and Co. Ltd.	1930-51	1951-62	1919-30
	{ Watney Mann Ltd.		1962-70	
	William Cory	1946-70		1919-46
1919-69	Rolls-Royce Ltd.	{ 1919-51	1951-52	
		{ 1952-69		
1919-64	{ Fine Cotton Spinners and Doublers Assn.Ltd.	1919-33	1933-46	
	{ Fine Spinners and Doublers Ltd.		1946-64	
1919-51	Babcock and Wilcox Ltd.	{ 1929-35		1919-29
				1935-51
	British Aluminium Co. Ltd.			1919-51
	The British Portland Cement Man. Ltd.			1919-51
	English Sewing Cotton Ltd.			1919-51
	Furness Withy and Co. Ltd.			1919-51
	W.T. Henley's Telegraph Works Co. Ltd.			1919-51
	John Barker and Co. Ltd.			1919-51
	Mather and Platt Ltd.			1919-51
	Schweppes Ltd.			1919-51
	Spillers Ltd.			1919-51
	United Dairies Ltd.			1919-51
1919-49	Redpath Dorman Long Ltd.		1919-49	
1919-45	Callender's Cable and Construction Co.Ltd.		1919-45	
	British Insulated Cables Ltd.			1919-45
1919-37	Salt Union Ltd.			1919-37
	(part of ICI from 1937)			
1919-33	Aerated Bread Co. Ltd.			1919-33
	Bleachers Association Ltd.			1919-33
	Bovril Ltd.			1919-33
	Bradford Dyers Association Ltd.	1919-22		1922-33

Period in whole sample	Company	Both	de Zoete	Moodies
	Calico Printers Association Ltd			1919-33
	Cunard Steam-Ship Co. Ltd.			1919-33
	Lister and Co. Ltd.			1919-33
	Maple and Co. Ltd.	1919-31		1931-33
	South Durham Steel Ltd.			1919-33
	Travers (Joseph) and Sons Ltd.			1919-33
1919-32	Powell Duffryn Ltd.		1919-32	
1919-31	Rover Co. Ltd.		1919-31	
1919-29	Armstrong Whitworth Ltd.		1919-29	
	Newcastle Breweries Ltd.		1919-29	
	The United Steel Companies Ltd.		1919-29	
1919-28	Maypole Dairy Co. Ltd.		1919-28	
	The Mond Nickel Co. Ltd.		1919-28	
1919-27	Wallpaper Manufacturers Ltd.		1919-27	
1919-26	Neuchatel Asphalte Co. Ltd.		1919-26	
1921-61	Patons and Baldwins Ltd. (part of Coats Patons from 1961)	1933-61	1921-33	
1927-70	London Brick Co. Ltd.	1933-51	1927-33 1951-70	
1927-59	Pinchin Johnson	1930-59	1927-30	
1929-70	International Stores Ltd.	1933-51	1929-33 1951-70	
	Tate and Lyle Ltd.	1933-51	1929-33 1951-70	
1930-70	British Match Corporation Ltd.			1930-70
	{ Murex		1930-67	
	{ The British Oxygen Co. Ltd.		1967-70	
1930-51	Associated Newspapers Group Ltd.			1930-51
	Dennis Brothers Ltd.			1930-51
	Joseph Lucas Ltd.			1930-51
	Unilever Ltd.			1930-51
1930-35	Richard Thomas and Baldwins Ltd.		1930-35	
1932-70	{ The Austin Motor Co. Ltd.	1951-52	1932-51	
	{ British Motor Corporation Ltd.		1952-68	
	{ British Leyland Motor Corporation Ltd.		1968-70	
	F.W. Woolworth and Co. Ltd.	1933-70	1932-33	
1933-70	Savoy Hotel Ltd.			1933-70
1933-51	Boots Pure Drug Co. Ltd.			1933-51
	The Fairey Aviation Co. Ltd.			1933-51
	Ford Motor Co.			1933-51
	Radiation Ltd.			1933-51
	Stewarts and Lloyds Ltd.			1933-51
1933-45	Bolsover Colliery Co. Ltd.			1933-45
1936-70	Hawker Siddeley Group Ltd.	1951-70	1936-51	
1936-49	The United Steel Companies Ltd.		1936-49	
1937-51	The Ever Ready Co. (GB) Ltd.			1937-51

Period in whole sample	Company	Both	de Zoete	Moodies
1945-51	Enfield Cables Ltd.			1945-51
1950-70	Swan Hunter Shipbuilders Ltd.		1950-70	
1950-68	Leyland Motor Corporation Ltd. (part of British Leyland from 1968)		1950-68	
1951-70	Burmah Oil Ltd.			1951-70
	{ Covent Garden Properties Co. Ltd.			1951-56
	{ Second Covent Garden Property Co. Ltd.			1956-70
	Debenhams Ltd.			1951-70
	Gaskell and Co (Bacup) Ltd.			1951-70
	C. & J. Hampton Ltd.			1951-70
	{ H. & R. Johnson Ltd.			1951-68
	{ Johnson-Richards (H. & R.) Tiles Ltd.			1968-70
	Jute Industries Ltd.			1951-70
	Manbre and Garton Ltd.			1951-70
	{ Purnell and Sons Ltd.			1951-64
	{ The British Printing Corporation Ltd.			1964-70
	{ Ranks Ltd.			1951-62
	{ Ranks, Hovis, McDougall Ltd.			1962-70
	{ Reckitt and Sons Ltd.			1951-54
	{ Reckitt and Coleman Ltd.			1954-70
	Richard Johnson and Nephew Ltd.			1951-70
	{ Royal Exchange Assurance			1951-68
	{ Guardian Royal Exchange Assurance Ltd.			1968-70
	St. Martin's Property Corporation Ltd.			1951-70
	The Shell Transport and Trading Co. Ltd.			1951-70
	The Victory Insurance Co. Ltd.			1951-70
	{ Vono Industrial Products Ltd.			1951-55
	{ Duport Ltd.			1955-70
	Yarrow and Co. Ltd.			1951-70
1951-69	Associated British Picture Corporation Ltd			1951-69
	Keith Blackman Ltd. (part of General Electric from 1968)			1951-68
	{ Northern Assurance Co. Ltd.			1951-60
	{ Northern and Employers Assurance Co. Ltd.			1960-68
	Rubber Plantations Investment Trust Ltd.			1951-68
1951-67	Associated Electrical Industries Ltd. (part of General Electric from 1967)			1951-67
1951-66	Massey's Burnley Brewery Ltd.			1951-66
	{ C.C. Wakefield and Co. Ltd.			1951-60
	{ Castrol Ltd. (part of Burmah Oil from 1966)			1960-66
1951-65	B. & F. Carter and Co. Ltd.			1951-65
1951-64	Bradford Dyers Association Ltd.			1951-64
	The Lancashire Cotton Corporation Ltd.			1951-64
	Powell Duffryn Ltd.			1951-64
1951-62	Lobitos Oilfields Ltd. (part of Burmah Oil from 1962)			1951-62
1951-61	Lightfoot Refrigeration			1951-61
	Mitchells and Butlers Ltd. (part of Bass, Mitchells and Butlers from 1961)			1951-61

Period in whole sample	Company	Both	de Zoete	Moodies
1951-60	Apex (Trinidad) Oilfields Ltd.			1951-60
	Garrard Engineering Ltd.			1951-60
	Newcastle Breweries Ltd.			1951-60
	United Gas Industries Ltd.			1951-60
1951-59	Amalgamated Press Ltd.			1951-59
1951-57	British Celanese Ltd.			1951-57
1951-56	Sanderson, Murray and Elder Ltd.			1951-56
	Trinidad Leaseholds Ltd.			1951-56
1951-54	Duncan Gilmour and Co. Ltd.			1951-54
	Kemp Town Brewery Brighton Ltd.			1951-54
1951-53	Ocean Coal and Wilsons Ltd.			1951-53
1951-52	Montague Burton Ltd.			1951-52
1952-70	United Drapery Stores Ltd.			1952-70
1953-70	Ward (Thos W) Ltd.			1953-70
1954-70	Lines Bros. Ltd.			1954-70
1954-69	Strong and Co. of Romsey Ltd.			1954-69
1956-70	Parkinson Cowan Ltd.			1956-70
	Trinidad Canadian Oils Ltd.			1956-70
1957-70	{The British Plaster Board (Holdings) Ltd. BPB Industries Ltd.			1957-65 1965-70
1959-70	Hoover Ltd.			1959-70
	Wiggins Teape Ltd.			1959-70
1960-70	Chubb and Son Ltd.			1960-70
	Duckham (Alexander) and Co. Ltd.			1960-70
	Vaux Breweries Ltd.			1960-70
1960-67	The United Steel Companies Ltd.			1960-67
1960-66	Harland and Wolff Ltd.			1960-66
1961-70	{Albert E. Reed and Co. Ltd. Reed Paper Group Ltd. Lindop Holdings Ltd. Tube Investments Ltd.		1961-70	1961-63 1963-70 1961-70
1962-69	London and Thames Haven Oil Wharves Ltd. (part of Shell from 1969)			1962-69
1964-70	West Riding Worsted and Woollen Mills Ltd.			1964-70
	Woolcombers (Holdings) Ltd.			1964-70
1964-67	John Summers and Sons Ltd.			1964-67
1965-70	Bowater Paper Corporation Ltd. Cronite Foundry Co. Ltd.		1965-70	1965-70
1966-70	Carrier Engineering Co. Ltd.			1966-70
	The Prestige Group Ltd.			1966-70
	Truman Hanbury Buxton and Co.			1966-70

## Portfolio

Period in whole sample	Company	Both	de Zoete	Moodies
1966-67	Qualcast Ltd.			1966-67
1968-70	Beecham Group Ltd.		1968-70	1968-70
	Kinloch (Provision Merchants) Ltd.			1968-70
	Pearl Assurance Co. Ltd.			1968-70
1968-69	Anglo Auto Finance Co. Ltd.			1968-69
1969-70	APV Holdings Ltd.			1969-70
	John Smith Tadcaster Brewery Ltd.			1969-70
	Mercantile Credit Co. Ltd.			1969-70
	Walkers (Century Oils) Ltd.			1969-70
1969	Aspro-Nicholas Ltd.			1969
1970	British Ropes Ltd.			1970
	Dowty Group Ltd.			1970
	Greenall Whitley and Co. Ltd.			1970
	Scottish Metropolitan Assurance Co. Ltd.			1970
	Telefusion Ltd.			1970

## APPENDIX B: TREATMENT OF CAPITAL GAINS TAX

This Appendix derives a notional tax rate chargeable on all appreciation of shares which is designed to be roughly equivalent to the capital gains tax payable on realised gains. The formulae given below depend on extreme simplifying assumptions and are designed to illustrate a method rather than to take into account all the cases which may actually occur or to yield accurate numerical results. Further refinement would have little effect on the estimates of net returns made in this paper. All calculations below are in money terms.

Suppose that shares are bought for £1 at a given time, say  $t = 0$ , that in each year shares appreciate by a constant proportion  $a$ , and that at the end of each year a proportion  $\lambda$  of the holding is sold. Let

$V_t$  = value of holding, after disposals, at end of year  $t$ ,  $t=0,1,\dots$ ,

$S_t$  = value of disposals at end of year  $t$   $t=1,2,\dots$ ;

then, for  $t=1,2,\dots$ ,

$$V_t = (1-\lambda)(1+a)V_{t-1} = \dots = (1-\lambda)^t(1+a)^t,$$

$$S_t = \lambda(1+a)V_{t-1} = \dots = \lambda(1-\lambda)^{t-1}(1+a)^t.$$

The value at zero time of the shares sold at  $t$  was

$$S_t(1+a)^{-t} = \lambda(1-\lambda)^{t-1},$$

so that the capital gain realised at  $t$  is

$$S_t - S_t(1+a)^{-t} = \lambda(1-\lambda)^{t-1}\{(1+a)^t - 1\}$$

If  $\tau$  is the rate of tax on realised capital gains, the tax payable on this amount is

$$\tau\lambda (1-\lambda)^{t-1} \{(1+a)^t - 1\}, \quad t=1,2,\dots$$

We wish to calculate the present value  $V$  of this series of tax payments; if  $r$  is the long-term discount rate, we have\*

$$\begin{aligned} V &= \tau\lambda \sum_{t=1}^{\infty} (1-\lambda)^{t-1} \{(1+a)^t - 1\} (1+r)^{-t} \\ &= \tau\lambda \sum_{t=0}^{\infty} \left[ \frac{1+a}{1+r} \left\{ \frac{(1-\lambda)(1+a)}{1+r} \right\}^t - \frac{1}{1+r} \left\{ \frac{1-\lambda}{1+r} \right\}^t \right] \\ &= \tau\lambda \left[ \frac{1+a}{1+r} \cdot \frac{1}{1-(1-\lambda)(1+a)/(1+r)} - \frac{1}{1+r} \cdot \frac{1}{1-(1-\lambda)/(1+r)} \right] \\ &= \tau\lambda \left[ \frac{1+a}{r+\lambda-a+\lambda a} - \frac{1}{r+\lambda} \right] \end{aligned}$$

The notional tax  $T$  on appreciation is to be determined so that

Present Value of {  $T$  x appreciations } = Present Value of tax payments, or

$$T = V/W$$

where  $W$  = Present value of appreciations. Since the appreciation at time  $t$  is

$$aV_{t-1} = a(1-\lambda)^{t-1} (1+a)^{t-1} \quad t=1,2,\dots$$

\* This calculation ignores the effect of the tax-payer's death on the stream of tax payments. It is not difficult to modify the formula to allow for the treatment of death either as a taxable realisation of the full value of shares (as was broadly the rule until 1971) or as an exempt realisation (as is the rule at the time of writing). In the former case the value  $V$  is somewhat increased, in the latter case reduced. The revised formula involves a new parameter denoting the remaining life expectancy of the representative investor. When this adjustment is introduced it is also necessary to deal separately with the holdings of non-exempt corporate investors; in the most important case, that of insurance companies, it is reasonable to set the life expectancy equal to infinity, and the formula then reduces to that given in the text above.

the present value of this stream is

$$\begin{aligned}
 W &= \sum_{t=1}^{\infty} a(1-\lambda)^{t-1} (1+a)^{t-1} (1+r)^{-t} \\
 &= \frac{a}{1+r} \cdot \frac{1}{1-(1-\lambda)(1+a)/(1+r)} \\
 &= \frac{a}{r+\lambda-a+\lambda a} .
 \end{aligned}$$

On forming the ratio  $T = V/W$  and simplifying one obtains

$$T = \frac{\tau\lambda}{r+\lambda} (1+r)$$

The values of the parameters assumed here for the purpose of calculating  $T$  are

$$\tau = 0.3 \times 0.84 \quad , \quad r = .064 \quad , \quad \lambda = .12 \quad .$$

The actual tax rate of 0.3 has been reduced by 16% to allow for the 11 or 12% of shares held during 1965-70 by tax-exempt institutions such as pension funds and charities - see [13] Table 3(a) - and also for certain disposals by individuals which are partly or wholly exempt from tax. The value of  $r$  is the net money (geometric) annual rate of return to our value-weighted portfolio during the period 1961-70, while the value of  $\lambda$  is a guess based on statistics of stock market turnover and total share values. The choice of these numbers is highly arbitrary, but more precise estimates would have little impact on net portfolio returns. The resulting notional tax rate is

$$T = 0.175,$$

so that the effect of the calculation is to replace the actual tax of 30% payable on most realised gains by a notional tax of 17.5% chargeable on all gains as they occur.

APPENDIX C: ADJUSTMENT TO REAL TERMS OF RATES OF  
DIVIDEND RETURN AND APPRECIATION

The rate of total money return to a share or portfolio during a given period is by definition the sum of the rate of dividend return (dividend yield) and the rate of appreciation. When total return is converted to real terms, it is perhaps not immediately apparent how the adjustment is to be apportioned between the elements of dividend and appreciation. This Appendix sets out some of the relevant definitions and shows that, as the length of the period tends to zero, the adjustment falls entirely on the rate of appreciation. In quarterly data a small adjustment of the dividend yield may be appropriate.

We treat time as continuous and suppose that the prices of shares and goods are positive, differentiable functions of time. Working in money terms, let

$$P_t = P(t) = \text{price of shares at time } t.$$

$$\Pi_t = \Pi(t) = \text{retail price index at } t.$$

Dividends can be treated as arriving either discretely or in a stream. In the discrete version, the function

$$D_t = D(t) = \text{dividend at } t$$

is positive at isolated points and zero otherwise; this approach has the advantage of realism and direct applicability to the calculation of tables, but leads to definitions of rates of dividend return and of appreciation which are not of the same form. In the continuous version, the function

$$f_t = f(t) = \text{dividend flow at } t$$

is non-negative and continuous, and its integral over any interval represents the total dividend paid. We present both versions side by side.\*

\*

To relate the two versions to one another, let the function  $D$  be given and let

$$t_1 < \dots < t_i < t_{i+1} < \dots$$

be an enumeration of the times at which  $D$  is positive; then  $f$  is to be chosen so that

$$D(t_{i+1}) = \int_{t_i}^{t_{i+1}} f(t) dt.$$

For an interval  $(t-h, t]$  we have

$$a = \text{rate of appreciation per unit of time} = \frac{P(t) - P(t-h)}{h P(t-h)} \rightarrow \frac{\dot{P}(t)}{P(t)}$$

$$\Delta = \text{rate of discrete dividend return} = \frac{D(t)}{P(t-h)} \rightarrow \frac{D(t)}{P(t)}$$

$$\delta = \text{rate of continuous dividend return per unit of time} = \frac{1}{P(t-h)} \cdot \frac{1}{h} \int_{t-h}^t f(s) ds \rightarrow \frac{f(t)}{P(t)}$$

$$r = \text{rate of total return} = a + \Delta \quad \text{or} \quad a + \delta$$

the limits being taken as  $h \downarrow 0$ .

Going now to real terms, the natural definitions are as follows:

$$P^*(t) = \frac{P(t)}{\Pi(t)}$$

$$D^*(t) = \frac{D(t)}{\Pi(t)}$$

$$f^*(t) = \frac{f(t)}{\Pi(t)}$$

$$a^* = \frac{P^*(t) - P^*(t-h)}{h P^*(t-h)} \rightarrow \frac{d}{dt} \log P^*(t) = \frac{\dot{P}(t)}{P(t)} - \frac{\dot{\Pi}(t)}{\Pi(t)}$$

$$\Delta^* = \frac{D^*(t)}{P^*(t-h)} \rightarrow \frac{D^*(t)}{P^*(t)} = \frac{D(t)}{P(t)}$$

$$\delta^* = \frac{1}{P^*(t-h)} \frac{1}{h} \int_{t-h}^t f^*(s) ds \rightarrow \frac{1}{P^*(t)} f^*(t) = \frac{f(t)}{P(t)}$$

$$r^* = a^* + \Delta^* \quad \text{or} \quad a^* + \delta^*$$

A comparison between the two sets of formulae shows that, when the length  $h$  of the period tends to zero, the difference  $\Delta - \Delta^*$  or  $\delta - \delta^*$  between the money and real dividend rates vanishes and the difference  $a - a^*$  tends to the rate of inflation  $\dot{\Pi}_t / \Pi_t$ .

In our Tables, dividends are deemed to accrue at the end of each quarter, a period of length (say)  $h=1$ ; thus

$$\Delta = \frac{D(t)}{P(t-1)} \quad , \quad \Delta^* = \frac{D(t)/\Pi(t)}{P(t-1)/\Pi(t-1)} = \Delta \frac{\Pi(t-1)}{\Pi(t)} .$$

The real quarterly dividend rates therefore differ from the money rates shown in the tables, but separate results have not been given since during 1919-70 the differences were usually small. For example, in the case of a value weighted portfolio the mean gross and net quarterly dividend yields in money terms were .00816 and .00418 respectively, while the mean differences between money and real rates were only .00005 gross and .00002 net and the mean absolute differences were .00014 gross and .00008 net. The absolute difference was greater than .0003 in 25 quarters in the gross case and in only 6 quarters in the net case; the largest values, occurring in the quarter beginning February 1921, were .00088 gross and .00052 net. Finally, if dividends had been deemed to accrue at the beginning of each quarter instead of the end, both  $\Delta$  and  $\Delta^*$  could have been defined as  $D(t-h)/P(t-h)$  and the distinction between money and real dividend rates would have disappeared.

## APPENDIX D: INDEX OF RETAIL PRICES

The index printed below is, until January 1962, essentially that published in the Bulletin of the London and Cambridge Economic Service; thereafter it is the Department of Employment's Index of Retail Prices. Quarterly means of monthly figures have been calculated and bases changed. Between 1914 and June 1947 the index in the 'Bulletin' was based on the Ministry of Labour's Cost of Living Index which is known to have been particularly unrealistic during 1938-June 1947; the figures for the latter period have accordingly been adjusted by making use of the revised annual index given in LCES 'Key Statistics'; 197 Table E. To be precise, the quarterly 'Bulletin' figures have been increased in each year by the ratio which the proportional change of the annual 'Key' index bears to the change of the 'Bulletin' index averaged over the year. Details of sources for LCES series on retail prices may be found on p.21 of 197.

The following summary table gives statistics for periods comparable with the statistics of log-returns appearing in Table (i).

STATISTICS OF INDEX OF RETAIL PRICES

Date	Index (Feb 1919=100)	Log- Index	Period	Quarterly change of log-index		Geometric rate of price change % per annum	Arithmetic mean annual rate of price change % per annum
				Mean	Std Dev		
Feb 1919	100.0	0.00	Feb 1919-Oct 1970	.0053	.0253	2.14	2.27
Feb 1929	75.1	-0.29	Feb 1919-Jan 1929	-.0072	.0433	-2.84	-2.48
Aug 1939	71.6	-0.33	Feb 1929-Jul 1939	-.0011	.0227	-0.44	-0.34
Feb 1951	136.3	0.31	Aug 1939-Jan 1951	.0140	.0192	5.75	5.83
Feb 1961	198.3	0.68	Feb 1951-Jan 1961	.0094	.0113	3.82	3.85
Nov 1970	298.8	1.09	Feb 1961-Oct 1970	.0105	.0085	4.29	4.31

## INDEX OF RETAIL PRICES

YEAR	FEB	MAY	AUG	NOV
1919	48.2	44.9	47.1	49.3
1920	50.4	52.8	55.9	60.5
1921	55.0	50.0	48.7	44.5
1922	41.2	39.7	39.7	39.5
1923	38.8	37.3	37.5	38.4
1924	39.2	37.5	37.5	39.5
1925	39.2	37.9	37.9	38.6
1926	37.9	36.6	37.3	39.2
1927	37.7	35.9	35.9	37.0
1928	36.4	35.9	36.2	36.6
1929	36.2	35.3	35.7	36.6
1930	35.9	33.8	34.4	34.4
1931	33.3	32.2	31.8	32.0
1932	32.2	31.3	30.9	31.3
1933	30.9	29.8	30.5	31.3
1934	30.9	30.0	31.1	31.6
1935	31.1	30.5	31.3	32.2
1936	32.2	31.6	32.0	33.1
1937	33.1	33.3	34.0	35.1
1938	34.4	34.2	34.2	34.2
1939	34.5	34.1	34.5	37.6
1940	38.4	39.1	40.1	41.7
1941	43.1	43.8	43.6	43.8
1942	46.2	46.2	46.5	46.2
1943	48.2	48.2	48.2	48.2
1944	48.9	48.9	49.4	49.1
1945	50.6	50.9	51.4	50.9
1946	52.6	52.9	53.1	52.6
1947	55.5	55.5	55.5	57.4
1948	58.9	59.8	59.9	60.3
1949	60.6	61.4	61.7	62.3
1950	62.8	63.4	62.8	64.1
1951	65.7	68.9	70.5	71.7
1952	73.6	75.1	75.8	76.3
1953	77.0	77.9	77.8	77.9
1954	77.6	78.4	79.7	80.3
1955	81.0	81.3	82.7	85.4
1956	85.1	87.2	87.1	87.7
1957	88.8	89.0	90.6	91.7
1958	91.6	92.9	92.2	93.4
1959	93.9	92.9	93.0	93.6
1960	93.5	93.9	94.0	95.2
1961	95.6	96.7	98.5	99.5
1962	100.1	102.2	101.6	101.8
1963	103.6	103.9	103.0	104.0
1964	104.8	107.0	107.8	108.8
1965	109.5	112.4	112.9	113.6
1966	114.4	116.8	117.3	118.1
1967	118.6	119.4	118.9	120.4
1968	122.2	124.9	125.7	126.7
1969	129.8	131.5	131.8	133.5
1970	136.2	139.5	140.8	144.0

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TABLE I(a)

QUARTERLY LOGARITHMIC RETURNS,  $\text{LOG}_e(1+R_t)$ , 1919-70,  
GROSS AND NET OF TAX, MONEY AND REAL

VALUE WEIGHTED EQUITY PORTFOLIO

FIRST SUB-PERIOD, FEB 1919-JAN 1929, QUARTERS 1-40

QUARTER BEGINNING	TOTAL LOG-RETURN				RISK PREMIUM		DIVIDEND LOG-RETURN	
	REAL		MONEY		MONEY AND REAL		MONEY AND REAL	
	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET
1919 FEB	0.0660	0.0632	-0.0046	-0.0074	-0.0132	-0.0133	0.0071	0.0043
MAY	0.1659	0.1643	0.2136	0.2119	0.2050	0.2061	0.0050	0.0031
AUG	-0.0524	-0.0555	-0.0069	-0.0100	-0.0158	-0.0160	0.0077	0.0047
NOV	0.0786	0.0767	0.1006	0.0986	0.0986	0.0912	0.0055	0.0033
1920 FEB	-0.1602	-0.1641	-0.1135	-0.1174	-0.1272	-0.1266	0.0088	0.0053
MAY	-0.1634	-0.1683	-0.1069	-0.1118	-0.1226	-0.1223	0.0108	0.0063
AUG	-0.1148	-0.1188	-0.0356	-0.0396	-0.0514	-0.0500	0.0093	0.0055
NOV	-0.0766	-0.0786	-0.1715	-0.1735	-0.1875	-0.1841	0.0041	0.0024
1921 FEB	0.0890	0.0854	-0.0071	-0.0107	-0.0231	-0.0213	0.0087	0.0051
MAY	0.0343	0.0304	0.0076	0.0037	0.0057	-0.0052	0.0097	0.0058
AUG	-0.0120	-0.0154	-0.1015	-0.1049	-0.1123	-0.1121	0.0075	0.0045
NOV	0.1484	0.1458	0.0716	0.0690	0.0625	0.0630	0.0069	0.0041
1922 FEB	0.2547	0.2512	0.2168	0.2133	0.2086	0.2078	0.0105	0.0063
MAY	0.0733	0.0703	0.0733	0.0703	0.0674	0.0662	0.0089	0.0057
AUG	0.0496	0.0473	0.0441	0.0418	0.0399	0.0388	0.0067	0.0043
NOV	0.0961	0.0947	0.0793	0.0779	0.0732	0.0736	0.0042	0.0027
1923 FEB	0.1766	0.1732	0.1363	0.1329	0.1301	0.1285	0.0108	0.0070
MAY	-0.0472	-0.0495	-0.0413	-0.0436	-0.0461	-0.0471	0.0066	0.0044
AUG	0.0268	0.0248	0.0499	0.0479	0.0420	0.0422	0.0063	0.0042
NOV	-0.0255	-0.0268	-0.0029	-0.0042	-0.0105	-0.0097	0.0038	0.0025
1924 FEB	0.0650	0.0625	0.0193	0.0167	0.0112	0.0109	0.0077	0.0051
MAY	0.0214	0.0196	0.0214	0.0196	0.0141	0.0143	0.0056	0.0037
AUG	0.0374	0.0354	0.0887	0.0867	0.0796	0.0801	0.0064	0.0042
NOV	0.0731	0.0717	0.0675	0.0661	0.0584	0.0595	0.0044	0.0029
1925 FEB	0.1086	0.1058	0.0745	0.0717	0.0654	0.0651	0.0089	0.0059
MAY	0.0019	0.0005	0.0019	0.0005	-0.0089	-0.0077	0.0049	0.0034
AUG	0.0998	0.0981	0.1170	0.1153	0.1066	0.1073	0.0067	0.0048
NOV	-0.0111	-0.0121	-0.0283	-0.0293	-0.0376	-0.0364	0.0035	0.0025
1926 FEB	0.0111	0.0085	-0.0242	-0.0268	-0.0355	-0.0354	0.0086	0.0061
MAY	0.0215	0.0196	0.0393	0.0374	0.0288	0.0295	0.0065	0.0046
AUG	-0.0048	-0.0068	0.0468	0.0448	0.0361	0.0367	0.0072	0.0051
NOV	0.0458	0.0448	0.0059	0.0050	-0.0059	-0.0041	0.0032	0.0023
1927 FEB	0.0848	0.0825	0.0372	0.0349	0.0269	0.0270	0.0081	0.0057
MAY	-0.0110	-0.0125	-0.0110	-0.0125	-0.0199	-0.0194	0.0054	0.0038
AUG	0.0189	0.0172	0.0490	0.0472	0.0383	0.0391	0.0063	0.0045
NOV	0.0637	0.0626	0.0458	0.0447	0.0351	0.0366	0.0038	0.0027
1928 FEB	0.1206	0.1176	0.1084	0.1055	0.0981	0.0976	0.0113	0.0081
MAY	0.0018	-0.0005	0.0079	0.0056	-0.0017	-0.0017	0.0078	0.0055
AUG	0.0648	0.0631	0.0768	0.0752	0.0665	0.0673	0.0061	0.0043
NOV	0.0906	0.0896	0.0785	0.0775	0.0678	0.0694	0.0037	0.0026

TABLE I(a) (CONT)

## VALUE WEIGHTED EQUITY PORTFOLIO

SECOND SUB-PERIOD, FEB 1929-JUL 1939, QUARTERS 41-82

QUARTER BEGINNING	TOTAL LOG-RETURN				RISK PREMIUM		DIVIDEND LOG-RETURN	
	REAL		MONEY		MONEY AND REAL		MONEY AND REAL	
	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET
1929 FEB	-0.0470	-0.0493	-0.0716	-0.0739	-0.0820	-0.0818	0.0072	0.0051
MAY	-0.0558	-0.0583	-0.0435	-0.0459	-0.0557	-0.0551	0.0075	0.0052
AUG	-0.0492	-0.0509	-0.0249	-0.0266	-0.0382	-0.0365	0.0053	0.0036
NOV	-0.0275	-0.0296	-0.0457	-0.0477	-0.0597	-0.0581	0.0061	0.0042
1930 FEB	0.0715	0.0698	0.0086	0.0068	-0.0009	-0.0002	0.0056	0.0038
MAY	-0.1162	-0.1192	-0.0969	-0.0999	-0.1020	-0.1036	0.0078	0.0051
AUG	0.0012	-0.0015	0.0012	-0.0015	-0.0043	-0.0055	0.0077	0.0051
NOV	-0.0897	-0.0916	-0.1221	-0.1239	-0.1275	-0.1278	0.0046	0.0030
1931 FEB	0.0078	0.0054	-0.0257	-0.0281	-0.0316	-0.0324	0.0068	0.0044
MAY	-0.0501	-0.0529	-0.0638	-0.0666	-0.0701	-0.0710	0.0071	0.0045
AUG	0.0984	0.0964	0.1053	0.1033	0.0947	0.0959	0.0060	0.0038
NOV	-0.1117	-0.1139	-0.1049	-0.1071	-0.1177	-0.1161	0.0053	0.0033
1932 FEB	-0.0134	-0.0160	-0.0410	-0.0436	-0.0529	-0.0520	0.0067	0.0043
MAY	0.1306	0.1276	0.1165	0.1135	0.1119	0.1103	0.0091	0.0058
AUG	0.1565	0.1549	0.1706	0.1689	0.1693	0.1681	0.0052	0.0033
NOV	0.0229	0.0210	0.0088	0.0069	0.0071	0.0057	0.0051	0.0033
1933 FEB	0.0343	0.0317	-0.0018	-0.0044	-0.0035	-0.0055	0.0068	0.0043
MAY	0.1291	0.1266	0.1509	0.1484	0.1499	0.1476	0.0080	0.0051
AUG	0.0458	0.0445	0.0741	0.0729	0.0733	0.0723	0.0037	0.0023
NOV	0.0481	0.0466	0.0340	0.0325	0.0319	0.0311	0.0042	0.0026
1934 FEB	0.1267	0.1247	0.0979	0.0959	0.0956	0.0943	0.0059	0.0037
MAY	-0.0655	-0.0681	-0.0296	-0.0323	-0.0318	-0.0339	0.0074	0.0048
AUG	0.0451	0.0441	0.0591	0.0581	0.0573	0.0568	0.0032	0.0021
NOV	0.0691	0.0676	0.0551	0.0536	0.0544	0.0532	0.0044	0.0029
1935 FEB	0.0163	0.0144	-0.0050	-0.0069	-0.0055	-0.0073	0.0056	0.0036
MAY	0.0255	0.0229	0.0539	0.0513	0.0526	0.0504	0.0078	0.0051
AUG	-0.0428	-0.0440	-0.0152	-0.0164	-0.0167	-0.0175	0.0032	0.0021
NOV	0.1040	0.1025	0.1040	0.1025	0.1027	0.1015	0.0050	0.0033
1936 FEB	0.0281	0.0259	0.0075	0.0053	0.0062	0.0044	0.0062	0.0040
MAY	0.0094	0.0068	0.0232	0.0206	0.0219	0.0197	0.0072	0.0046
AUG	0.0464	0.0451	0.0800	0.0788	0.0787	0.0779	0.0036	0.0023
NOV	0.0029	0.0012	0.0029	0.0012	0.0015	0.0002	0.0049	0.0031
1937 FEB	-0.0631	-0.0659	-0.0565	-0.0593	-0.0577	-0.0602	0.0073	0.0047
MAY	-0.0149	-0.0174	0.0047	0.0021	0.0034	0.0012	0.0069	0.0043
AUG	-0.0693	-0.0710	-0.0375	-0.0393	-0.0388	-0.0402	0.0046	0.0029
NOV	-0.0214	-0.0237	-0.0404	-0.0426	-0.0416	-0.0435	0.0058	0.0037
1938 FEB	-0.0268	-0.0306	-0.0332	-0.0370	-0.0344	-0.0379	0.0099	0.0062
MAY	0.0006	-0.0031	0.0006	-0.0031	-0.0006	-0.0039	0.0088	0.0051
AUG	-0.0366	-0.0389	-0.0366	-0.0389	-0.0378	-0.0398	0.0054	0.0031
NOV	-0.0337	-0.0363	-0.0242	-0.0267	-0.0255	-0.0276	0.0059	0.0035
1939 FEB	-0.0055	-0.0102	-0.0185	-0.0232	-0.0198	-0.0241	0.0110	0.0065
MAY	0.0233	0.0188	0.0363	0.0318	0.0343	0.0306	0.0091	0.0045

TABLE I(a) (CONT)

## VALUE WEIGHTED EQUITY PORTFOLIO

THIRD SUB-PERIOD, AUG 1939-JAN 1951, QUARTERS 83-128

QUARTER BEGINNING	TOTAL LOG-RETURN				RISK PREMIUM		DIVIDEND LOG-RETURN	
	REAL		MONEY		MONEY AND REAL		MONEY AND REAL	
	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET
1939 AUG	-0.1374	-0.1402	-0.0509	-0.0537	-0.0526	-0.0547	0.0052	0.0026
NOV	0.0371	0.0339	0.0573	0.0542	0.0544	0.0524	0.0066	0.0033
1940 FEB	-0.0033	-0.0080	0.0135	0.0088	0.0109	0.0072	0.0093	0.0046
MAY	-0.2677	-0.2741	-0.2403	-0.2467	-0.2429	-0.2482	0.0087	0.0037
AUG	0.0962	0.0913	0.1333	0.1284	0.1308	0.1270	0.0096	0.0041
NOV	0.0208	0.0177	0.0554	0.0523	0.0529	0.0509	0.0057	0.0024
1941 FEB	-0.0710	-0.0776	-0.0559	-0.0625	-0.0584	-0.0639	0.0107	0.0045
MAY	0.1245	0.1198	0.1195	0.1148	0.1170	0.1135	0.0082	0.0029
AUG	0.0725	0.0671	0.0775	0.0721	0.0750	0.0708	0.0090	0.0032
NOV	-0.0358	-0.0394	0.0184	0.0148	0.0159	0.0136	0.0056	0.0020
1942 FEB	-0.0402	-0.0456	-0.0402	-0.0456	-0.0427	-0.0468	0.0078	0.0027
MAY	0.0453	0.0397	0.0503	0.0447	0.0478	0.0433	0.0090	0.0032
AUG	0.1275	0.1235	0.1225	0.1185	0.1200	0.1171	0.0070	0.0025
NOV	0.0149	0.0118	0.0562	0.0531	0.0537	0.0518	0.0050	0.0018
1943 FEB	0.0208	0.0165	0.0208	0.0165	0.0184	0.0152	0.0067	0.0023
MAY	0.0366	0.0320	0.0366	0.0320	0.0341	0.0306	0.0074	0.0026
AUG	-0.0056	-0.0092	-0.0056	-0.0092	-0.0081	-0.0105	0.0055	0.0019
NOV	0.0119	0.0088	0.0266	0.0235	0.0241	0.0222	0.0049	0.0017
1944 FEB	0.0310	0.0268	0.0310	0.0268	0.0285	0.0255	0.0066	0.0023
MAY	0.0837	0.0799	0.0936	0.0899	0.0911	0.0885	0.0063	0.0022
AUG	-0.0186	-0.0222	-0.0236	-0.0272	-0.0261	-0.0286	0.0053	0.0019
NOV	-0.0217	-0.0245	0.0078	0.0049	0.0053	0.0035	0.0044	0.0016
1945 FEB	0.0696	0.0655	0.0745	0.0704	0.0720	0.0690	0.0067	0.0024
MAY	-0.1009	-0.1047	-0.0910	-0.0949	-0.0935	-0.0963	0.0054	0.0020
AUG	0.0890	0.0858	0.0792	0.0760	0.0767	0.0746	0.0054	0.0020
NOV	-0.0301	-0.0335	0.0039	0.0006	0.0026	-0.0002	0.0052	0.0019
1946 FEB	0.0217	0.0175	0.0266	0.0225	0.0253	0.0217	0.0066	0.0024
MAY	0.0266	0.0222	0.0315	0.0271	0.0302	0.0263	0.0076	0.0031
AUG	0.0260	0.0234	0.0162	0.0136	0.0150	0.0128	0.0045	0.0018
NOV	0.0139	0.0108	0.0667	0.0637	0.0655	0.0629	0.0054	0.0022
1947 FEB	-0.0053	-0.0086	-0.0053	-0.0086	-0.0066	-0.0094	0.0055	0.0022
MAY	-0.1190	-0.1267	-0.1180	-0.1257	-0.1192	-0.1264	0.0091	0.0024
AUG	-0.0728	-0.0809	-0.0403	-0.0485	-0.0416	-0.0491	0.0104	0.0027
NOV	0.1053	0.1003	0.1311	0.1261	0.1298	0.1254	0.0076	0.0020
1948 FEB	-0.0710	-0.0790	-0.0551	-0.0631	-0.0563	-0.0638	0.0102	0.0026
MAY	-0.0592	-0.0649	-0.0573	-0.0630	-0.0586	-0.0638	0.0091	0.0038
AUG	0.0420	0.0353	0.0485	0.0418	0.0472	0.0410	0.0119	0.0049
NOV	0.0435	0.0399	0.0481	0.0445	0.0468	0.0437	0.0064	0.0026
1949 FEB	-0.0406	-0.0471	-0.0279	-0.0343	-0.0292	-0.0352	0.0106	0.0044
MAY	-0.1165	-0.1236	-0.1102	-0.1173	-0.1115	-0.1181	0.0109	0.0046
AUG	0.0066	-0.0007	0.0156	0.0082	0.0143	0.0074	0.0127	0.0053
NOV	0.0006	-0.0033	0.0086	0.0047	0.0073	0.0039	0.0067	0.0028
1950 FEB	0.0457	0.0386	0.0545	0.0474	0.0532	0.0466	0.0128	0.0054
MAY	0.0354	0.0285	0.0266	0.0197	0.0253	0.0189	0.0122	0.0052
AUG	0.0398	0.0324	0.0608	0.0533	0.0596	0.0525	0.0137	0.0059
NOV	0.0220	0.0186	0.0459	0.0425	0.0447	0.0417	0.0062	0.0027

TABLE I (A) (CONT)

## VALUE WEIGHTED EQUITY PORTFOLIO

FOURTH SUB-PERIOD, FEB 1951-JAN 1961, QUARTERS 129-168

QUARTER BEGINNING	TOTAL LOG-RETURN				RISK PREMIUM		DIVIDEND LOG-RETURN	
	REAL		MONEY		MONEY AND REAL		MONEY AND REAL	
	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET
1951 FEB	0.0402	0.0340	0.0872	0.0810	0.0859	0.0802	0.0117	0.0050
MAY	-0.0547	-0.0623	-0.0316	-0.0392	-0.0329	-0.0400	0.0122	0.0050
AUG	0.0379	0.0317	0.0559	0.0497	0.0546	0.0488	0.0110	0.0045
NOV	-0.1458	-0.1496	-0.1206	-0.1244	-0.1219	-0.1253	0.0056	0.0023
1952 FEB	-0.0043	-0.0117	0.0166	0.0092	0.0141	0.0076	0.0125	0.0051
MAY	-0.0121	-0.0209	-0.0025	-0.0114	-0.0082	-0.0150	0.0148	0.0061
AUG	0.0320	0.0255	0.0378	0.0313	0.0317	0.0274	0.0113	0.0046
NOV	0.0357	0.0305	0.0444	0.0392	0.0384	0.0354	0.0090	0.0037
1953 FEB	0.0086	0.0013	0.0215	0.0142	0.0156	0.0104	0.0126	0.0052
MAY	0.0627	0.0543	0.0613	0.0529	0.0554	0.0490	0.0155	0.0068
AUG	0.0932	0.0888	0.0946	0.0902	0.0888	0.0864	0.0084	0.0037
NOV	0.0564	0.0503	0.0521	0.0460	0.0469	0.0426	0.0112	0.0049
1954 FEB	0.0837	0.0781	0.0944	0.0887	0.0892	0.0853	0.0110	0.0048
MAY	0.0818	0.0755	0.0973	0.0909	0.0922	0.0876	0.0124	0.0055
AUG	0.1777	0.1739	0.1853	0.1815	0.1814	0.1790	0.0081	0.0036
NOV	0.0449	0.0392	0.0539	0.0481	0.0499	0.0455	0.0108	0.0048
1955 FEB	-0.0554	-0.0604	-0.0520	-0.0570	-0.0578	-0.0608	0.0084	0.0037
MAY	0.1533	0.1474	0.1709	0.1650	0.1613	0.1585	0.0131	0.0062
AUG	-0.1205	-0.1244	-0.0882	-0.0921	-0.0979	-0.0986	0.0066	0.0031
NOV	-0.0009	-0.0064	-0.0048	-0.0103	-0.0148	-0.0171	0.0103	0.0049
1956 FEB	0.0391	0.0347	0.0638	0.0594	0.0538	0.0527	0.0086	0.0041
MAY	0.0284	0.0219	0.0265	0.0200	0.0143	0.0118	0.0126	0.0060
AUG	-0.0709	-0.0751	-0.0631	-0.0673	-0.0752	-0.0755	0.0076	0.0036
NOV	0.0846	0.0796	0.0961	0.0912	0.0840	0.0830	0.0103	0.0049
1957 FEB	0.0818	0.0774	0.0847	0.0803	0.0736	0.0728	0.0092	0.0044
MAY	0.0286	0.0224	0.0456	0.0395	0.0360	0.0329	0.0122	0.0059
AUG	-0.2345	-0.2389	-0.2223	-0.2267	-0.2317	-0.2332	0.0068	0.0032
NOV	0.0239	0.0185	0.0230	0.0175	0.0070	0.0065	0.0107	0.0051
1958 FEB	0.0467	0.0412	0.0615	0.0559	0.0466	0.0457	0.0113	0.0054
MAY	0.0490	0.0422	0.0407	0.0339	0.0281	0.0253	0.0137	0.0066
AUG	0.1441	0.1408	0.1579	0.1546	0.1477	0.1476	0.0074	0.0036
NOV	0.0043	-0.0005	0.0088	0.0040	0.0000	-0.0020	0.0093	0.0045
1959 FEB	0.0613	0.0569	0.0504	0.0459	0.0427	0.0407	0.0090	0.0043
MAY	0.0527	0.0470	0.0545	0.0489	0.0464	0.0431	0.0121	0.0063
AUG	0.2155	0.2127	0.2218	0.2191	0.2133	0.2129	0.0071	0.0037
NOV	0.0667	0.0631	0.0658	0.0622	0.0575	0.0562	0.0078	0.0040
1960 FEB	-0.0518	-0.0558	-0.0482	-0.0522	-0.0593	-0.0602	0.0078	0.0040
MAY	0.0057	0.0000	0.0066	0.0009	-0.0048	-0.0073	0.0116	0.0060
AUG	0.0859	0.0830	0.0994	0.0965	0.0859	0.0868	0.0066	0.0034
NOV	-0.0059	-0.0102	-0.0023	-0.0067	-0.0147	-0.0156	0.0088	0.0045

TABLE I(a) (CONT)

## VALUE WEIGHTED EQUITY PORTFOLIO

FIFTH SUB-PERIOD, FEB 1961-OCT 1970, QUARTERS 169-207

QUARTER BEGINNING	TOTAL LOG-RETURN				RISK PREMIUM		DIVIDEND LOG-RETURN	
	REAL		MONEY		MONEY AND REAL		MONEY AND REAL	
	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET
1961 FEB	0.1239	0.1202	0.1354	0.1317	0.1252	0.1244	0.0085	0.0044
MAY	-0.1324	-0.1384	-0.1140	-0.1201	-0.1248	-0.1277	0.0110	0.0056
AUG	-0.0494	-0.0518	-0.0390	-0.0414	-0.0552	-0.0528	0.0047	0.0024
NOV	-0.0020	-0.0070	0.0042	-0.0009	-0.0098	-0.0107	0.0103	0.0053
1962 FEB	0.0351	0.0311	0.0558	0.0519	0.0431	0.0429	0.0085	0.0044
MAY	-0.0738	-0.0808	-0.0797	-0.0867	-0.0896	-0.0938	0.0130	0.0067
AUG	0.0675	0.0647	0.0695	0.0666	0.0600	0.0597	0.0063	0.0032
NOV	0.0602	0.0555	0.0778	0.0730	0.0683	0.0662	0.0103	0.0053
1963 FEB	0.0539	0.0501	0.0568	0.0530	0.0483	0.0468	0.0082	0.0042
MAY	0.0455	0.0396	0.0368	0.0309	0.0277	0.0243	0.0125	0.0064
AUG	0.0706	0.0682	0.0802	0.0778	0.0710	0.0711	0.0053	0.0027
NOV	-0.0513	-0.0562	-0.0437	-0.0485	-0.0529	-0.0552	0.0094	0.0048
1964 FEB	0.0527	0.0493	0.0735	0.0701	0.0643	0.0634	0.0075	0.0039
MAY	0.0210	0.0145	0.0284	0.0219	0.0179	0.0142	0.0136	0.0070
AUG	-0.0217	-0.0239	-0.0125	-0.0147	-0.0238	-0.0230	0.0045	0.0023
NOV	-0.0381	-0.0436	-0.0317	-0.0372	-0.0431	-0.0456	0.0109	0.0056
1965 FEB	-0.0261	-0.0338	0.0001	-0.0076	-0.0158	-0.0192	0.0156	0.0080
MAY	-0.0663	-0.0601	-0.0619	-0.0557	-0.0773	-0.0664	0.0118	0.0053
AUG	0.1098	0.0875	0.1160	0.0936	0.1023	0.0841	0.0085	0.0038
NOV	0.0335	0.0221	0.0405	0.0291	0.0273	0.0199	0.0117	0.0052
1966 FEB	-0.0008	-0.0140	0.0200	0.0068	0.0066	-0.0025	0.0249	0.0112
MAY	-0.0719	-0.0622	-0.0677	-0.0579	-0.0814	-0.0679	0.0074	0.0038
AUG	-0.0688	-0.0603	-0.0620	-0.0535	-0.0781	-0.0652	0.0079	0.0041
NOV	0.0693	0.0537	0.0735	0.0579	0.0578	0.0465	0.0106	0.0054
1967 FEB	0.0734	0.0551	0.0801	0.0618	0.0653	0.0511	0.0161	0.0083
MAY	0.0451	0.0346	0.0409	0.0304	0.0277	0.0209	0.0111	0.0057
AUG	0.1178	0.0937	0.1304	0.1062	0.1174	0.0968	0.0088	0.0045
NOV	0.0859	0.0661	0.1008	0.0810	0.0869	0.0709	0.0098	0.0050
1968 FEB	0.1336	0.1047	0.1555	0.1265	0.1373	0.1134	0.0123	0.0063
MAY	0.0834	0.0658	0.0898	0.0722	0.0727	0.0596	0.0083	0.0043
AUG	-0.0082	-0.0099	-0.0003	-0.0020	-0.0173	-0.0146	0.0056	0.0029
NOV	0.1017	0.0788	0.1258	0.1029	0.1101	0.0913	0.0070	0.0036
1969 FEB	-0.1351	-0.1165	-0.1221	-0.1035	-0.1384	-0.1155	0.0109	0.0056
MAY	-0.1757	-0.1453	-0.1735	-0.1431	-0.1922	-0.1566	0.0062	0.0032
AUG	-0.0388	-0.0366	-0.0260	-0.0238	-0.0448	-0.0373	0.0076	0.0039
NOV	0.0770	0.0585	0.0970	0.0785	0.0784	0.0651	0.0076	0.0039
1970 FEB	-0.1353	-0.1194	-0.1114	-0.0955	-0.1295	-0.1085	0.0130	0.0067
MAY	0.0133	0.0073	0.0226	0.0166	0.0062	0.0048	0.0073	0.0039
AUG	0.0494	0.0345	0.0718	0.0570	0.0553	0.0451	0.0096	0.0052

TABLE I(b)

QUARTERLY LOGARITHMIC RETURNS,  $\text{LOG}_e(1+R_t)$ , 1919-70,  
GROSS AND NET OF TAX, MONEY AND REAL

EQUALLY WEIGHTED EQUITY PORTFOLIO

FIRST SUB-PERIOD, FEB 1919-JAN 1929, QUARTERS 1-40

QUARTER BEGINNING	TOTAL LOG-RETURN				RISK PREMIUM		DIVIDEND LOG-RETURN	
	REAL		MONEY		MONEY AND REAL		MONEY AND REAL	
	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET
1919 FEB	0.0604	0.0539	-0.0102	-0.0168	-0.0188	-0.0226	0.0163	0.0099
MAY	0.0621	0.0573	0.1097	0.1050	0.1011	0.0991	0.0135	0.0082
AUG	0.0646	0.0591	0.1100	0.1045	0.1011	0.0985	0.0154	0.0094
NOV	0.0753	0.0714	0.0973	0.0934	0.0863	0.0860	0.0107	0.0065
1920 FEB	-0.1138	-0.1212	-0.0671	-0.0745	-0.0807	-0.0837	0.0174	0.0106
MAY	-0.1446	-0.1515	-0.0881	-0.0951	-0.1039	-0.1055	0.0153	0.0090
AUG	-0.1081	-0.1134	-0.0289	-0.0343	-0.0447	-0.0447	0.0124	0.0073
NOV	-0.0572	-0.0630	-0.1521	-0.1579	-0.1681	-0.1686	0.0121	0.0071
1921 FEB	0.0758	0.0670	-0.0203	-0.0291	-0.0363	-0.0398	0.0208	0.0123
MAY	0.0370	0.0299	0.0103	0.0032	-0.0031	-0.0056	0.0173	0.0103
AUG	-0.0141	-0.0202	-0.1036	-0.1096	-0.1144	-0.1168	0.0133	0.0079
NOV	0.1578	0.1534	0.0811	0.0766	0.0719	0.0705	0.0117	0.0070
1922 FEB	0.2531	0.2471	0.2151	0.2092	0.2069	0.2037	0.0178	0.0106
MAY	0.0600	0.0547	0.0600	0.0547	0.0542	0.0506	0.0156	0.0101
AUG	0.0637	0.0598	0.0582	0.0542	0.0540	0.0513	0.0115	0.0074
NOV	0.0976	0.0949	0.0808	0.0781	0.0748	0.0738	0.0082	0.0053
1923 FEB	0.1876	0.1812	0.1473	0.1409	0.1411	0.1365	0.0205	0.0132
MAY	-0.0851	-0.0893	-0.0792	-0.0834	-0.0840	-0.0869	0.0116	0.0078
AUG	0.0113	0.0077	0.0344	0.0309	0.0265	0.0251	0.0110	0.0073
NOV	-0.0131	-0.0162	0.0095	0.0064	0.0019	0.0009	0.0093	0.0062
1924 FEB	0.0780	0.0726	0.0323	0.0269	0.0242	0.0210	0.0164	0.0110
MAY	0.0217	0.0185	0.0217	0.0185	0.0145	0.0132	0.0096	0.0064
AUG	0.0478	0.0445	0.0991	0.0958	0.0900	0.0892	0.0107	0.0072
NOV	0.0777	0.0742	0.0722	0.0686	0.0631	0.0620	0.0113	0.0075
1925 FEB	0.0549	0.0495	0.0208	0.0154	0.0117	0.0088	0.0161	0.0108
MAY	-0.0298	-0.0327	-0.0298	-0.0327	-0.0406	-0.0409	0.0097	0.0069
AUG	0.0872	0.0843	0.1044	0.1015	0.0940	0.0935	0.0110	0.0078
NOV	0.0076	0.0052	-0.0096	-0.0120	-0.0189	-0.0191	0.0083	0.0059
1926 FEB	0.0148	0.0101	-0.0205	-0.0252	-0.0318	-0.0338	0.0157	0.0112
MAY	0.0005	-0.0027	0.0183	0.0151	0.0078	0.0071	0.0109	0.0077
AUG	-0.0029	-0.0059	0.0487	0.0456	0.0380	0.0375	0.0107	0.0076
NOV	0.0576	0.0555	0.0177	0.0156	0.0058	0.0066	0.0070	0.0049
1927 FEB	0.1042	0.0997	0.0566	0.0520	0.0462	0.0442	0.0161	0.0113
MAY	0.0082	0.0054	0.0082	0.0054	-0.0008	-0.0014	0.0095	0.0067
AUG	0.0511	0.0485	0.0811	0.0786	0.0705	0.0705	0.0094	0.0067
NOV	0.0763	0.0747	0.0584	0.0568	0.0477	0.0487	0.0056	0.0040
1928 FEB	0.1087	0.1043	0.0966	0.0922	0.0863	0.0843	0.0166	0.0118
MAY	-0.0276	-0.0306	-0.0215	-0.0245	-0.0312	-0.0318	0.0097	0.0069
AUG	0.0448	0.0424	0.0569	0.0544	0.0465	0.0466	0.0087	0.0061
NOV	0.0561	0.0545	0.0440	0.0425	0.0333	0.0344	0.0053	0.0038

TABLE I(b) (CONT)

## EQUALLY WEIGHTED EQUITY PORTFOLIO

SECOND SUB-PERIOD, FEB 1929-JUL 1939, QUARTERS 41-82

QUARTER BEGINNING	TOTAL LOG-RETURN				RISK PREMIUM		DIVIDEND LOG-RETURN	
	REAL		MONEY		MONEY AND REAL		MONEY AND REAL	
	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET
1929 FEB	0.0023	-0.0022	-0.0223	-0.0267	-0.0327	-0.0346	0.0145	0.0103
MAY	-0.0482	-0.0517	-0.0359	-0.0393	-0.0481	-0.0485	0.0106	0.0073
AUG	-0.0496	-0.0527	-0.0254	-0.0285	-0.0387	-0.0384	0.0096	0.0066
NOV	-0.0474	-0.0503	-0.0655	-0.0685	-0.0796	-0.0789	0.0088	0.0061
1930 FEB	0.0766	0.0724	0.0137	0.0095	0.0042	0.0024	0.0134	0.0092
MAY	-0.1170	-0.1214	-0.0977	-0.1021	-0.1028	-0.1058	0.0115	0.0075
AUG	-0.0053	-0.0090	-0.0053	-0.0090	-0.0108	-0.0129	0.0104	0.0068
NOV	-0.0594	-0.0632	-0.0918	-0.0956	-0.0972	-0.0995	0.0098	0.0064
1931 FEB	-0.0282	-0.0338	-0.0616	-0.0672	-0.0676	-0.0716	0.0151	0.0099
MAY	-0.0485	-0.0526	-0.0622	-0.0663	-0.0685	-0.0707	0.0104	0.0066
AUG	0.2378	0.2353	0.2447	0.2421	0.2341	0.2347	0.0088	0.0056
NOV	-0.1494	-0.1532	-0.1426	-0.1464	-0.1554	-0.1554	0.0090	0.0057
1932 FEB	0.0046	-0.0007	-0.0229	-0.0283	-0.0349	-0.0367	0.0141	0.0089
MAY	0.0765	0.0726	0.0625	0.0585	0.0579	0.0553	0.0114	0.0073
AUG	0.1549	0.1522	0.1690	0.1663	0.1677	0.1654	0.0086	0.0055
NOV	0.0520	0.0486	0.0379	0.0346	0.0363	0.0334	0.0095	0.0060
1933 FEB	0.0392	0.0350	0.0030	-0.0011	0.0014	-0.0023	0.0113	0.0071
MAY	0.1448	0.1415	0.1666	0.1634	0.1655	0.1626	0.0103	0.0065
AUG	0.0464	0.0443	0.0748	0.0727	0.0739	0.0721	0.0061	0.0039
NOV	0.0652	0.0626	0.0511	0.0485	0.0491	0.0471	0.0074	0.0047
1934 FEB	0.1163	0.1130	0.0875	0.0842	0.0853	0.0827	0.0097	0.0061
MAY	-0.0638	-0.0670	-0.0280	-0.0312	-0.0302	-0.0328	0.0090	0.0059
AUG	0.0522	0.0506	0.0662	0.0646	0.0644	0.0633	0.0049	0.0032
NOV	0.0797	0.0774	0.0658	0.0634	0.0651	0.0629	0.0073	0.0048
1935 FEB	0.0239	0.0204	0.0025	-0.0010	0.0020	-0.0013	0.0101	0.0066
MAY	0.0663	0.0631	0.0946	0.0915	0.0934	0.0905	0.0099	0.0065
AUG	-0.0233	-0.0252	0.0043	0.0024	0.0028	0.0013	0.0055	0.0036
NOV	0.1054	0.1026	0.1054	0.1026	0.1040	0.1016	0.0087	0.0057
1936 FEB	0.0264	0.0230	0.0057	0.0024	0.0045	0.0015	0.0096	0.0063
MAY	0.0292	0.0259	0.0430	0.0397	0.0417	0.0387	0.0094	0.0060
AUG	0.0533	0.0514	0.0870	0.0851	0.0856	0.0842	0.0055	0.0035
NOV	0.0082	0.0047	0.0082	0.0047	0.0068	0.0037	0.0097	0.0062
1937 FEB	-0.0700	-0.0746	-0.0634	-0.0680	-0.0647	-0.0689	0.0118	0.0075
MAY	-0.0055	-0.0088	0.0141	0.0108	0.0128	0.0099	0.0090	0.0057
AUG	-0.0838	-0.0866	-0.0521	-0.0549	-0.0534	-0.0558	0.0071	0.0045
NOV	-0.0361	-0.0410	-0.0550	-0.0600	-0.0563	-0.0608	0.0125	0.0079
1938 FEB	-0.0118	-0.0168	-0.0182	-0.0232	-0.0194	-0.0241	0.0132	0.0083
MAY	-0.0174	-0.0224	-0.0174	-0.0224	-0.0187	-0.0233	0.0117	0.0069
AUG	-0.0328	-0.0366	-0.0328	-0.0366	-0.0340	-0.0375	0.0089	0.0052
NOV	-0.0437	-0.0491	-0.0341	-0.0395	-0.0354	-0.0404	0.0124	0.0073
1939 FEB	0.0199	0.0137	0.0069	0.0007	0.0056	-0.0001	0.0148	0.0087
MAY	0.0304	0.0247	0.0434	0.0377	0.0414	0.0365	0.0117	0.0058

TABLE I(b) (CONT)

## EQUALLY WEIGHTED EQUITY PORTFOLIO

THIRD SUB-PERIOD, AUG 1939-JAN 1951, QUARTERS 83-128

QUARTER BEGINNING	TOTAL LOG-RETURN				RISK PREMIUM		DIVIDEND LOG-RETURN	
	REAL		MONEY		MONEY AND REAL		MONEY AND REAL	
	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET
1939 AUG	-0.1464	-0.1505	-0.0600	-0.0640	-0.0617	-0.0651	0.0076	0.0038
NOV	0.0190	0.0128	0.0392	0.0331	0.0363	0.0313	0.0125	0.0062
1940 FEB	-0.0124	-0.0172	0.0044	-0.0004	0.0018	-0.0020	0.0095	0.0047
MAY	-0.2565	-0.2668	-0.2291	-0.2394	-0.2317	-0.2408	0.0139	0.0059
AUG	0.1049	0.0987	0.1420	0.1359	0.1395	0.1345	0.0121	0.0051
NOV	0.0543	0.0486	0.0890	0.0833	0.0864	0.0819	0.0107	0.0045
1941 FEB	-0.0463	-0.0540	-0.0312	-0.0388	-0.0337	-0.0402	0.0127	0.0054
MAY	0.1454	0.1385	0.1404	0.1335	0.1379	0.1322	0.0121	0.0042
AUG	0.0578	0.0507	0.0628	0.0557	0.0603	0.0544	0.0116	0.0041
NOV	-0.0093	-0.0154	0.0449	0.0389	0.0425	0.0376	0.0097	0.0034
1942 FEB	-0.0320	-0.0387	-0.0320	-0.0387	-0.0345	-0.0400	0.0099	0.0035
MAY	0.0766	0.0690	0.0816	0.0740	0.0791	0.0727	0.0126	0.0044
AUG	0.1296	0.1240	0.1246	0.1190	0.1221	0.1177	0.0096	0.0034
NOV	0.0328	0.0276	0.0741	0.0689	0.0716	0.0676	0.0084	0.0030
1943 FEB	0.0199	0.0136	0.0199	0.0136	0.0175	0.0123	0.0099	0.0035
MAY	0.0638	0.0567	0.0638	0.0567	0.0613	0.0554	0.0114	0.0040
AUG	-0.0057	-0.0107	-0.0057	-0.0107	-0.0082	-0.0120	0.0076	0.0027
NOV	0.0084	0.0031	0.0231	0.0178	0.0206	0.0164	0.0083	0.0029
1944 FEB	0.0451	0.0388	0.0451	0.0388	0.0426	0.0375	0.0101	0.0035
MAY	0.0902	0.0843	0.1001	0.0942	0.0976	0.0928	0.0099	0.0035
AUG	-0.0292	-0.0334	-0.0342	-0.0384	-0.0367	-0.0398	0.0062	0.0022
NOV	-0.0092	-0.0142	0.0202	0.0152	0.0177	0.0138	0.0078	0.0027
1945 FEB	0.0525	0.0463	0.0575	0.0513	0.0550	0.0499	0.0100	0.0035
MAY	-0.0832	-0.0895	-0.0734	-0.0796	-0.0759	-0.0811	0.0091	0.0033
AUG	0.0906	0.0862	0.0808	0.0764	0.0783	0.0750	0.0074	0.0027
NOV	-0.0204	-0.0260	0.0136	0.0080	0.0124	0.0073	0.0088	0.0032
1946 FEB	0.0455	0.0397	0.0504	0.0446	0.0491	0.0439	0.0095	0.0034
MAY	0.0342	0.0276	0.0391	0.0325	0.0378	0.0317	0.0114	0.0046
AUG	0.0210	0.0171	0.0112	0.0073	0.0099	0.0065	0.0066	0.0027
NOV	0.0326	0.0267	0.0854	0.0796	0.0842	0.0788	0.0106	0.0043
1947 FEB	0.0026	-0.0018	0.0026	-0.0018	0.0013	-0.0026	0.0074	0.0030
MAY	-0.0996	-0.1105	-0.0986	-0.1095	-0.0999	-0.1102	0.0131	0.0034
AUG	-0.0700	-0.0778	-0.0375	-0.0454	-0.0388	-0.0461	0.0101	0.0026
NOV	0.0957	0.0883	0.1215	0.1141	0.1202	0.1134	0.0111	0.0029
1948 FEB	-0.0499	-0.0561	-0.0340	-0.0402	-0.0352	-0.0409	0.0081	0.0021
MAY	-0.0573	-0.0653	-0.0555	-0.0634	-0.0567	-0.0642	0.0126	0.0053
AUG	0.0554	0.0495	0.0618	0.0560	0.0606	0.0551	0.0106	0.0044
NOV	0.0504	0.0441	0.0550	0.0486	0.0537	0.0478	0.0113	0.0047
1949 FEB	-0.0634	-0.0673	-0.0507	-0.0545	-0.0520	-0.0554	0.0062	0.0026
MAY	-0.1027	-0.1133	-0.0964	-0.1070	-0.0977	-0.1079	0.0164	0.0069
AUG	0.0053	-0.0005	0.0143	0.0085	0.0130	0.0076	0.0101	0.0043
NOV	0.0177	0.0100	0.0257	0.0179	0.0244	0.0171	0.0136	0.0057
1950 FEB	0.0371	0.0329	0.0459	0.0417	0.0446	0.0409	0.0075	0.0032
MAY	0.0574	0.0470	0.0486	0.0382	0.0474	0.0374	0.0188	0.0080
AUG	0.0476	0.0418	0.0686	0.0628	0.0674	0.0619	0.0109	0.0046
NOV	0.0293	0.0227	0.0532	0.0466	0.0519	0.0458	0.0120	0.0051

TABLE I(b) (CONT)

## EQUALLY WEIGHTED EQUITY PORTFOLIO

FOURTH SUB-PERIOD, FEB 1951-JAN 1961, QUARTERS 129-168

QUARTER BEGINNING	TOTAL LOG-RETURN				RISK PREMIUM		DIVIDEND LOG-RETURN	
	REAL		MONEY		MONEY AND REAL		MONEY AND REAL	
	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET
1951 FEB	0.0424	0.0371	0.0894	0.0841	0.0881	0.0833	0.0100	0.0043
MAY	-0.0095	-0.0194	0.0136	0.0035	0.0124	0.0027	0.0170	0.0070
AUG	0.0206	0.0118	0.0386	0.0298	0.0373	0.0290	0.0152	0.0062
NOV	-0.1437	-0.1521	-0.1185	-0.1269	-0.1198	-0.1277	0.0123	0.0050
1952 FEB	-0.0387	-0.0475	-0.0178	-0.0266	-0.0203	-0.0281	0.0143	0.0058
MAY	-0.0235	-0.0362	-0.0140	-0.0267	-0.0197	-0.0304	0.0209	0.0086
AUG	0.0395	0.0283	0.0454	0.0341	0.0393	0.0302	0.0196	0.0081
NOV	0.0494	0.0403	0.0581	0.0490	0.0521	0.0452	0.0160	0.0066
1953 FEB	0.0258	0.0178	0.0387	0.0307	0.0328	0.0269	0.0139	0.0057
MAY	0.0459	0.0326	0.0445	0.0312	0.0386	0.0273	0.0241	0.0106
AUG	0.1138	0.1071	0.1153	0.1085	0.1095	0.1047	0.0133	0.0058
NOV	0.0830	0.0747	0.0787	0.0704	0.0735	0.0670	0.0157	0.0069
1954 FEB	0.0687	0.0613	0.0793	0.0720	0.0741	0.0686	0.0139	0.0061
MAY	0.0981	0.0883	0.1136	0.1038	0.1085	0.1004	0.0194	0.0086
AUG	0.1397	0.1342	0.1473	0.1419	0.1435	0.1393	0.0112	0.0050
NOV	0.0475	0.0392	0.0565	0.0481	0.0526	0.0455	0.0157	0.0069
1955 FEB	-0.0604	-0.0663	-0.0570	-0.0629	-0.0628	-0.0667	0.0099	0.0044
MAY	0.1412	0.1314	0.1588	0.1490	0.1492	0.1425	0.0214	0.0101
AUG	-0.1140	-0.1201	-0.0817	-0.0877	-0.0914	-0.0943	0.0104	0.0049
NOV	0.0036	-0.0054	-0.0003	-0.0093	-0.0102	-0.0160	0.0168	0.0079
1956 FEB	-0.0110	-0.0170	0.0137	0.0077	0.0038	0.0009	0.0115	0.0054
MAY	0.0042	-0.0064	0.0023	-0.0083	-0.0099	-0.0165	0.0200	0.0095
AUG	-0.0002	-0.0076	0.0076	0.0002	-0.0045	-0.0079	0.0141	0.0067
NOV	0.0499	0.0411	0.0615	0.0527	0.0493	0.0445	0.0175	0.0084
1957 FEB	0.0966	0.0905	0.0994	0.0934	0.0883	0.0859	0.0126	0.0060
MAY	0.0418	0.0311	0.0588	0.0481	0.0492	0.0415	0.0215	0.0104
AUG	-0.1746	-0.1829	-0.1625	-0.1708	-0.1719	-0.1773	0.0134	0.0064
NOV	0.0406	0.0307	0.0397	0.0298	0.0237	0.0188	0.0195	0.0094
1958 FEB	0.0424	0.0344	0.0572	0.0492	0.0423	0.0389	0.0162	0.0078
MAY	0.0917	0.0809	0.0935	0.0726	0.0708	0.0640	0.0224	0.0109
AUG	0.1470	0.1418	0.1608	0.1555	0.1506	0.1486	0.0118	0.0057
NOV	0.0717	0.0641	0.0762	0.0686	0.0674	0.0626	0.0157	0.0076
1959 FEB	0.0997	0.0937	0.0888	0.0827	0.0811	0.0775	0.0126	0.0061
MAY	0.0703	0.0625	0.0722	0.0643	0.0641	0.0585	0.0172	0.0089
AUG	0.2278	0.2239	0.2342	0.2303	0.2256	0.2241	0.0102	0.0053
NOV	0.0986	0.0933	0.0977	0.0924	0.0894	0.0864	0.0120	0.0062
1960 FEB	-0.0428	-0.0486	-0.0392	-0.0450	-0.0503	-0.0530	0.0114	0.0059
MAY	-0.0115	-0.0192	-0.0106	-0.0183	-0.0219	-0.0265	0.0154	0.0079
AUG	0.0718	0.0672	0.0853	0.0807	0.0718	0.0710	0.0102	0.0052
NOV	-0.0080	-0.0133	-0.0044	-0.0097	-0.0168	-0.0187	0.0107	0.0055

TABLE I(b) (CONT)

## EQUALLY WEIGHTED EQUITY PORTFOLIO

FIFTH SUB-PERIOD, FEB 1961-OCT 1970, QUARTERS 169-207

QUARTER BEGINNING	TOTAL LOG-RETURN				RISK PREMIUM		DIVIDEND LOG-RETURN	
	REAL		MONEY		MONEY AND REAL		MONEY AND REAL	
	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET
1961 FEB	0.1380	0.1327	0.1495	0.1442	0.1393	0.1369	0.0124	0.0064
MAY	-0.1217	-0.1299	-0.1034	-0.1116	-0.1142	-0.1191	0.0148	0.0076
AUG	-0.0379	-0.0425	-0.0276	-0.0322	-0.0438	-0.0436	0.0091	0.0047
NOV	0.0544	0.0488	0.0605	0.0550	0.0466	0.0452	0.0120	0.0062
1962 FEB	0.0346	0.0287	0.0553	0.0494	0.0426	0.0405	0.0126	0.0065
MAY	-0.0856	-0.0950	-0.0915	-0.1009	-0.1014	-0.1081	0.0173	0.0089
AUG	0.0712	0.0664	0.0731	0.0684	0.0636	0.0615	0.0103	0.0053
NOV	0.0538	0.0484	0.0713	0.0659	0.0618	0.0591	0.0117	0.0060
1963 FEB	0.0664	0.0606	0.0693	0.0635	0.0607	0.0573	0.0125	0.0064
MAY	0.0487	0.0412	0.0400	0.0325	0.0309	0.0258	0.0159	0.0082
AUG	0.0747	0.0707	0.0844	0.0804	0.0752	0.0737	0.0088	0.0045
NOV	-0.0481	-0.0535	-0.0404	-0.0459	-0.0496	-0.0526	0.0106	0.0054
1964 FEB	0.0600	0.0544	0.0808	0.0752	0.0716	0.0685	0.0123	0.0063
MAY	0.0407	0.0328	0.0481	0.0403	0.0376	0.0326	0.0166	0.0086
AUG	-0.0312	-0.0351	-0.0220	-0.0258	-0.0333	-0.0341	0.0078	0.0040
NOV	-0.0147	-0.0211	-0.0083	-0.0147	-0.0198	-0.0231	0.0129	0.0066
1965 FEB	-0.0212	-0.0280	0.0049	-0.0018	-0.0109	-0.0134	0.0138	0.0071
MAY	-0.0679	-0.0644	-0.0634	-0.0600	-0.0789	-0.0708	0.0191	0.0085
AUG	0.1111	0.0877	0.1173	0.0938	0.1036	0.0843	0.0108	0.0048
NOV	0.0394	0.0260	0.0464	0.0331	0.0332	0.0238	0.0142	0.0064
1966 FEB	-0.0237	-0.0330	-0.0030	-0.0122	-0.0163	-0.0215	0.0245	0.0110
MAY	-0.0754	-0.0662	-0.0711	-0.0620	-0.0848	-0.0719	0.0109	0.0056
AUG	-0.0693	-0.0611	-0.0625	-0.0543	-0.0787	-0.0661	0.0091	0.0047
NOV	0.0694	0.0524	0.0736	0.0566	0.0578	0.0452	0.0151	0.0078
1967 FEB	0.0943	0.0728	0.1010	0.0796	0.0862	0.0688	0.0154	0.0079
MAY	0.0762	0.0590	0.0720	0.0548	0.0588	0.0452	0.0164	0.0084
AUG	0.1362	0.1089	0.1487	0.1215	0.1357	0.1120	0.0100	0.0051
NOV	0.0384	0.0257	0.0533	0.0406	0.0394	0.0305	0.0118	0.0060
1968 FEB	0.1061	0.0816	0.1280	0.1035	0.1099	0.0903	0.0114	0.0058
MAY	0.0520	0.0382	0.0584	0.0446	0.0413	0.0320	0.0126	0.0064
AUG	0.0242	0.0160	0.0321	0.0240	0.0150	0.0113	0.0084	0.0043
NOV	0.0625	0.0450	0.0867	0.0692	0.0710	0.0576	0.0097	0.0050
1969 FEB	-0.1148	-0.1001	-0.1018	-0.0871	-0.1181	-0.0991	0.0112	0.0057
MAY	-0.1899	-0.1583	-0.1876	-0.1560	-0.2064	-0.1695	0.0107	0.0055
AUG	0.0260	0.0158	0.0388	0.0286	0.0199	0.0150	0.0117	0.0060
NOV	0.0840	0.0633	0.1040	0.0833	0.0854	0.0699	0.0115	0.0060
1970 FEB	-0.1060	-0.0954	-0.0820	-0.0715	-0.1001	-0.0845	0.0128	0.0066
MAY	-0.0344	-0.0343	-0.0251	-0.0250	-0.0415	-0.0369	0.0133	0.0072
AUG	0.0498	0.0333	0.0723	0.0558	0.0558	0.0438	0.0141	0.0076

TABLE I(c)

QUARTERLY LOGARITHMIC RETURNS,  $\text{LOG}_e(1+R_t)$ , 1919-70,  
GROSS AND NET OF TAX, MONEY AND REAL

2½% CONSOLS AND TREASURY BILLS

FIRST SUB-PERIOD, FEB 1919-JAN 1929, QUARTERS 1-40

QUARTER BEGINNING	2½% CONSOLS				TREASURY BILLS			
	REAL		MONEY		REAL		MONEY	
	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET
1919 FEB	0.0206	0.0170	-0.0501	-0.0536	0.0792	0.0764	0.0086	0.0058
MAY	-0.1105	-0.1143	-0.0628	-0.0667	-0.0390	-0.0418	0.0086	0.0058
AUG	-0.0287	-0.0326	0.0167	0.0129	-0.0366	-0.0394	0.0089	0.0060
NOV	-0.0441	-0.0481	-0.0221	-0.0261	-0.0110	-0.0145	0.0110	0.0074
1920 FEB	-0.0955	-0.0997	-0.0488	-0.0530	-0.0330	-0.0375	0.0137	0.0093
MAY	-0.0539	-0.0584	0.0025	-0.0019	-0.0407	-0.0460	0.0157	0.0104
AUG	-0.0983	-0.1029	-0.0191	-0.0237	-0.0634	-0.0687	0.0157	0.0104
NOV	0.1723	0.1680	0.0774	0.0730	0.1110	0.1056	0.0160	0.0106
1921 FEB	0.0986	0.0942	0.0025	-0.0019	0.1121	0.1067	0.0160	0.0106
MAY	0.0703	0.0661	0.0436	0.0394	0.0401	0.0356	0.0134	0.0089
AUG	0.1020	0.0978	0.0126	0.0083	0.1003	0.0967	0.0108	0.0072
NOV	0.1385	0.1345	0.0617	0.0577	0.0859	0.0828	0.0091	0.0061
1922 FEB	0.1801	0.1766	0.1422	0.1387	0.0462	0.0434	0.0082	0.0055
MAY	0.0189	0.0158	0.0189	0.0158	0.0059	0.0042	0.0059	0.0042
AUG	-0.0224	-0.0255	-0.0279	-0.0310	0.0097	0.0085	0.0042	0.0029
NOV	0.0189	0.0157	0.0021	-0.0011	0.0229	0.0211	0.0061	0.0043
1923 FEB	0.1024	0.0994	0.0621	0.0591	0.0465	0.0447	0.0062	0.0044
MAY	-0.0123	-0.0151	-0.0064	-0.0093	-0.0011	-0.0024	0.0048	0.0035
AUG	-0.0211	-0.0240	0.0020	-0.0008	-0.0152	-0.0174	0.0079	0.0058
NOV	-0.0292	-0.0321	-0.0066	-0.0095	-0.0150	-0.0171	0.0076	0.0055
1924 FEB	0.0565	0.0536	0.0108	0.0079	0.0538	0.0516	0.0081	0.0059
MAY	0.0108	0.0079	0.0108	0.0079	0.0073	0.0053	0.0073	0.0053
AUG	-0.0148	-0.0176	0.0365	0.0336	-0.0423	-0.0447	0.0090	0.0066
NOV	0.0076	0.0047	0.0020	-0.0008	0.0147	0.0122	0.0091	0.0066
1925 FEB	0.0275	0.0246	-0.0066	-0.0095	0.0432	0.0407	0.0091	0.0066
MAY	-0.0023	-0.0049	-0.0023	-0.0049	0.0108	0.0082	0.0108	0.0082
AUG	-0.0285	-0.0311	-0.0113	-0.0139	-0.0068	-0.0093	0.0104	0.0079
NOV	0.0418	0.0392	0.0246	0.0220	0.0265	0.0243	0.0093	0.0071
1926 FEB	0.0194	0.0167	-0.0159	-0.0186	0.0466	0.0439	0.0113	0.0086
MAY	0.0161	0.0134	0.0339	0.0312	-0.0073	-0.0098	0.0105	0.0080
AUG	-0.0585	-0.0612	-0.0069	-0.0096	-0.0409	-0.0435	0.0106	0.0081
NOV	0.0692	0.0665	0.0293	0.0266	0.0517	0.0489	0.0119	0.0090
1927 FEB	0.0498	0.0471	0.0021	-0.0005	0.0580	0.0555	0.0103	0.0079
MAY	0.0067	0.0040	0.0067	0.0040	0.0090	0.0068	0.0090	0.0068
AUG	-0.0098	-0.0124	0.0202	0.0176	-0.0194	-0.0219	0.0106	0.0081
NOV	0.0291	0.0264	0.0111	0.0085	0.0286	0.0260	0.0107	0.0081
1928 FEB	0.0454	0.0428	0.0333	0.0307	0.0224	0.0200	0.0103	0.0079
MAY	-0.0084	-0.0111	-0.0023	-0.0050	0.0035	0.0012	0.0096	0.0073
AUG	-0.0010	-0.0037	0.0110	0.0084	-0.0017	-0.0042	0.0103	0.0078
NOV	0.0363	0.0337	0.0243	0.0216	0.0228	0.0202	0.0107	0.0081

TABLE I(c) (CONT)

## 2½% CONSOLS AND TREASURY BILLS

SECOND SUB-PERIOD, FEB 1929-JUL 1939, QUARTERS 41-82

QUARTER BEGINNING	2½% CONSOLS				TREASURY BILLS			
	REAL		MONEY		REAL		MONEY	
	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET
1929 FEB	0.0088	0.0061	-0.0157	-0.0184	0.0350	0.0325	0.0104	0.0079
MAY	-0.0193	-0.0222	-0.0069	-0.0099	-0.0001	-0.0032	0.0123	0.0091
AUG	-0.0313	-0.0343	-0.0071	-0.0100	-0.0110	-0.0144	0.0133	0.0099
NOV	0.0482	0.0453	0.0301	0.0272	0.0322	0.0286	0.0141	0.0105
1930 FEB	0.0925	0.0896	0.0295	0.0267	0.0724	0.0700	0.0095	0.0070
MAY	0.0009	-0.0022	0.0201	0.0170	-0.0142	-0.0156	0.0051	0.0037
AUG	0.0632	0.0602	0.0632	0.0602	0.0055	0.0039	0.0055	0.0039
NOV	0.0258	0.0228	-0.0065	-0.0095	0.0378	0.0363	0.0054	0.0039
1931 FEB	0.0696	0.0667	0.0362	0.0333	0.0394	0.0378	0.0060	0.0043
MAY	0.0072	0.0041	-0.0065	-0.0096	0.0200	0.0181	0.0063	0.0044
AUG	-0.0310	-0.0342	-0.0241	-0.0273	0.0037	0.0006	0.0106	0.0075
NOV	-0.0136	-0.0170	-0.0068	-0.0101	0.0060	0.0022	0.0128	0.0090
1932 FEB	0.1453	0.1423	0.1177	0.1147	0.0395	0.0360	0.0120	0.0084
MAY	0.1980	0.1955	0.1839	0.1815	0.0187	0.0173	0.0046	0.0032
AUG	0.0632	0.0609	0.0773	0.0750	-0.0128	-0.0132	0.0013	0.0009
NOV	-0.0201	-0.0225	-0.0342	-0.0366	0.0157	0.0152	0.0016	0.0012
1933 FEB	0.0476	0.0452	0.0115	0.0091	0.0378	0.0373	0.0017	0.0012
MAY	-0.0540	-0.0565	-0.0321	-0.0347	-0.0208	-0.0211	0.0010	0.0007
AUG	0.0005	-0.0019	0.0289	0.0264	-0.0275	-0.0278	0.0009	0.0006
NOV	0.0490	0.0466	0.0349	0.0325	0.0161	0.0155	0.0020	0.0014
1934 FEB	0.0786	0.0763	0.0498	0.0475	0.0310	0.0304	0.0022	0.0016
MAY	-0.0187	-0.0208	0.0172	0.0151	-0.0336	-0.0342	0.0022	0.0016
AUG	0.0304	0.0284	0.0444	0.0424	-0.0122	-0.0127	0.0018	0.0013
NOV	0.1294	0.1275	0.1154	0.1135	0.0146	0.0145	0.0007	0.0005
1935 FEB	-0.0245	-0.0264	-0.0458	-0.0477	0.0219	0.0217	0.0005	0.0004
MAY	-0.0443	-0.0463	-0.0159	-0.0179	-0.0271	-0.0275	0.0013	0.0009
AUG	-0.0439	-0.0459	-0.0163	-0.0183	-0.0261	-0.0265	0.0015	0.0011
NOV	0.0338	0.0318	0.0338	0.0318	0.0014	0.0010	0.0014	0.0010
1936 FEB	0.0220	0.0200	0.0014	-0.0006	0.0219	0.0216	0.0013	0.0009
MAY	-0.0095	-0.0115	0.0043	0.0022	-0.0125	-0.0129	0.0013	0.0009
AUG	-0.0235	-0.0256	0.0102	0.0081	-0.0324	-0.0327	0.0013	0.0009
NOV	-0.0344	-0.0365	-0.0344	-0.0365	0.0014	0.0010	0.0014	0.0010
1937 FEB	-0.0585	-0.0607	-0.0519	-0.0541	-0.0053	-0.0057	0.0013	0.0009
MAY	-0.0443	-0.0467	-0.0247	-0.0271	-0.0183	-0.0187	0.0012	0.0009
AUG	-0.0168	-0.0192	0.0149	0.0125	-0.0305	-0.0308	0.0013	0.0009
NOV	0.0468	0.0445	0.0279	0.0255	0.0202	0.0198	0.0013	0.0009
1938 FEB	-0.0118	-0.0142	-0.0182	-0.0206	0.0076	0.0073	0.0013	0.0009
MAY	0.0215	0.0189	0.0215	0.0189	0.0013	0.0008	0.0013	0.0008
AUG	-0.0424	-0.0451	-0.0424	-0.0451	0.0013	0.0009	0.0013	0.0009
NOV	-0.0255	-0.0283	-0.0159	-0.0187	-0.0083	-0.0087	0.0013	0.0009
1939 FEB	-0.0403	-0.0433	-0.0533	-0.0563	0.0143	0.0139	0.0013	0.0009
MAY	0.0076	0.0040	0.0206	0.0170	-0.0110	-0.0118	0.0020	0.0012

TABLE I(c) (CONT)

## 2½% CONSOLS AND TREASURY BILLS

THIRD SUB-PERIOD, AUG 1939-JAN 1951, QUARTERS 83-128

QUARTER BEGINNING	2½% CONSOLS				TREASURY BILLS			
	REAL		MONEY		REAL		MONEY	
	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET
1939 AUG	-0.0551	-0.0586	0.0314	0.0278	-0.0848	-0.0854	0.0017	0.0010
NOV	0.0793	0.0761	0.0996	0.0964	-0.0174	-0.0185	0.0029	0.0018
1940 FEB	-0.0085	-0.0117	0.0083	0.0051	-0.0142	-0.0152	0.0026	0.0016
MAY	-0.0393	-0.0430	-0.0119	-0.0156	-0.0249	-0.0260	0.0025	0.0014
AUG	-0.0019	-0.0055	0.0353	0.0316	-0.0346	-0.0357	0.0025	0.0014
NOV	0.0061	0.0026	0.0407	0.0372	-0.0321	-0.0332	0.0025	0.0014
1941 FEB	-0.0008	-0.0043	0.0143	0.0108	-0.0126	-0.0137	0.0025	0.0014
MAY	0.0565	0.0527	0.0515	0.0477	0.0075	0.0063	0.0025	0.0013
AUG	0.0147	0.0110	0.0197	0.0160	-0.0025	-0.0038	0.0025	0.0013
NOV	-0.0468	-0.0505	0.0075	0.0038	-0.0518	-0.0530	0.0025	0.0013
1942 FEB	0.0105	0.0068	0.0105	0.0068	0.0025	0.0013	0.0025	0.0013
MAY	0.0025	-0.0010	0.0075	0.0040	-0.0025	-0.0037	0.0025	0.0013
AUG	0.0094	0.0060	0.0045	0.0010	0.0075	0.0063	0.0025	0.0013
NOV	-0.0293	-0.0328	0.0120	0.0085	-0.0388	-0.0400	0.0025	0.0013
1943 FEB	-0.0092	-0.0127	-0.0092	-0.0127	0.0024	0.0013	0.0024	0.0013
MAY	-0.0109	-0.0144	-0.0109	-0.0144	0.0025	0.0013	0.0025	0.0013
AUG	0.0077	0.0042	0.0077	0.0042	0.0025	0.0013	0.0025	0.0013
NOV	-0.0101	-0.0137	0.0046	0.0010	-0.0122	-0.0134	0.0025	0.0013
1944 FEB	-0.0016	-0.0052	-0.0016	-0.0052	0.0025	0.0013	0.0025	0.0013
MAY	0.0041	0.0007	0.0141	0.0107	-0.0074	-0.0085	0.0025	0.0014
AUG	0.0220	0.0187	0.0171	0.0137	0.0075	0.0064	0.0025	0.0014
NOV	0.0057	0.0024	0.0351	0.0318	-0.0269	-0.0280	0.0025	0.0014
1945 FEB	0.0204	0.0172	0.0254	0.0221	-0.0024	-0.0035	0.0025	0.0014
MAY	-0.0084	-0.0115	0.0014	-0.0017	-0.0073	-0.0084	0.0025	0.0014
AUG	0.1188	0.1160	0.1090	0.1062	0.0123	0.0112	0.0025	0.0014
NOV	-0.0233	-0.0261	0.0107	0.0079	-0.0328	-0.0333	0.0013	0.0007
1946 FEB	0.0500	0.0474	0.0549	0.0523	-0.0036	-0.0042	0.0013	0.0007
MAY	-0.0062	-0.0086	-0.0013	-0.0037	-0.0036	-0.0041	0.0013	0.0008
AUG	0.0440	0.0417	0.0342	0.0319	0.0111	0.0106	0.0013	0.0008
NOV	-0.0567	-0.0591	-0.0038	-0.0062	-0.0516	-0.0521	0.0013	0.0008
1947 FEB	-0.0297	-0.0321	-0.0297	-0.0321	0.0013	0.0008	0.0013	0.0008
MAY	-0.1286	-0.1320	-0.1276	-0.1310	0.0003	-0.0003	0.0013	0.0007
AUG	0.0443	0.0411	0.0767	0.0735	-0.0312	-0.0318	0.0013	0.0007
NOV	-0.1372	-0.1408	-0.1114	-0.1150	-0.0245	-0.0251	0.0013	0.0007
1948 FEB	-0.0400	-0.0437	-0.0241	-0.0278	-0.0147	-0.0152	0.0012	0.0007
MAY	0.0127	0.0098	0.0145	0.0117	-0.0006	-0.0010	0.0013	0.0008
AUG	0.0207	0.0179	0.0272	0.0243	-0.0052	-0.0057	0.0013	0.0008
NOV	0.0405	0.0378	0.0451	0.0424	-0.0033	-0.0038	0.0013	0.0008
1949 FEB	0.0009	-0.0018	0.0136	0.0109	-0.0114	-0.0119	0.0013	0.0008
MAY	-0.1209	-0.1240	-0.1146	-0.1177	-0.0050	-0.0055	0.0013	0.0008
AUG	-0.0640	-0.0672	-0.0550	-0.0582	-0.0076	-0.0081	0.0013	0.0008
NOV	0.0439	0.0408	0.0519	0.0488	-0.0067	-0.0071	0.0013	0.0008
1950 FEB	-0.0284	-0.0316	-0.0196	-0.0228	-0.0075	-0.0080	0.0013	0.0008
MAY	0.0249	0.0218	0.0161	0.0130	0.0101	0.0096	0.0013	0.0008
AUG	0.0501	0.0472	0.0711	0.0682	-0.0197	-0.0202	0.0013	0.0008
NOV	-0.0850	-0.0881	-0.0610	-0.0642	-0.0227	-0.0231	0.0013	0.0008

TABLE I(c) (CONT)

## 2½% CONSOLS AND TREASURY BILLS

FOURTH SUB-PERIOD, FEB 1951-JAN 1961, QUARTERS 129-168

QUARTER BEGINNING	2½% CONSOLS				TREASURY BILLS			
	REAL		MONEY		REAL		MONEY	
	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET
1951 FEB	-0.0747	-0.0779	-0.0276	-0.0309	-0.0457	-0.0462	0.0013	0.0008
MAY	-0.0213	-0.0247	0.0018	-0.0016	-0.0218	-0.0223	0.0013	0.0008
AUG	-0.0237	-0.0271	-0.0058	-0.0092	-0.0167	-0.0171	0.0013	0.0008
NOV	-0.0625	-0.0661	-0.0373	-0.0409	-0.0239	-0.0244	0.0013	0.0008
1952 FEB	-0.0434	-0.0471	-0.0225	-0.0262	-0.0184	-0.0193	0.0025	0.0016
MAY	-0.0500	-0.0539	-0.0405	-0.0444	-0.0038	-0.0059	0.0057	0.0037
AUG	0.0639	0.0603	0.0698	0.0661	0.0003	-0.0019	0.0061	0.0039
NOV	-0.0234	-0.0271	-0.0147	-0.0184	-0.0027	-0.0049	0.0060	0.0038
1953 FEB	0.0224	0.0187	0.0353	0.0316	-0.0070	-0.0091	0.0059	0.0038
MAY	0.0198	0.0163	0.0183	0.0149	0.0073	0.0053	0.0059	0.0039
AUG	0.0562	0.0529	0.0576	0.0544	0.0044	0.0024	0.0058	0.0038
NOV	0.0139	0.0106	0.0096	0.0063	0.0095	0.0077	0.0052	0.0034
1954 FEB	0.0590	0.0559	0.0697	0.0666	-0.0055	-0.0073	0.0052	0.0034
MAY	0.0081	0.0050	0.0235	0.0205	-0.0104	-0.0121	0.0051	0.0033
AUG	0.0085	0.0054	0.0161	0.0131	-0.0038	-0.0051	0.0039	0.0026
NOV	-0.0741	-0.0773	-0.0651	-0.0684	-0.0050	-0.0064	0.0039	0.0026
1955 FEB	-0.0573	-0.0607	-0.0538	-0.0573	0.0024	0.0004	0.0058	0.0038
MAY	-0.0239	-0.0273	-0.0063	-0.0097	-0.0080	-0.0111	0.0096	0.0065
AUG	-0.0558	-0.0593	-0.0235	-0.0269	-0.0226	-0.0258	0.0097	0.0066
NOV	-0.0204	-0.0240	-0.0243	-0.0279	0.0139	0.0106	0.0100	0.0067
1956 FEB	-0.0316	-0.0352	-0.0069	-0.0105	-0.0147	-0.0179	0.0100	0.0067
MAY	-0.0427	-0.0466	-0.0447	-0.0486	0.0142	0.0101	0.0122	0.0082
AUG	0.0042	0.0002	0.0120	0.0080	0.0044	0.0004	0.0121	0.0081
NOV	0.0743	0.0707	0.0859	0.0822	0.0006	-0.0034	0.0122	0.0082
1957 FEB	-0.0281	-0.0319	-0.0252	-0.0290	0.0083	0.0046	0.0111	0.0075
MAY	-0.0528	-0.0566	-0.0358	-0.0396	-0.0075	-0.0105	0.0096	0.0066
AUG	-0.1020	-0.1061	-0.0898	-0.0940	-0.0027	-0.0057	0.0094	0.0065
NOV	0.0665	0.0626	0.0656	0.0616	0.0169	0.0119	0.0160	0.0110
1958 FEB	0.0378	0.0340	0.0526	0.0488	0.0001	-0.0045	0.0149	0.0102
MAY	0.0302	0.0264	0.0219	0.0181	0.0209	0.0169	0.0126	0.0086
AUG	0.0270	0.0232	0.0407	0.0370	-0.0036	-0.0068	0.0102	0.0069
NOV	0.0350	0.0314	0.0396	0.0359	0.0043	0.0015	0.0088	0.0060
1959 FEB	-0.0150	-0.0187	-0.0259	-0.0297	0.0186	0.0162	0.0076	0.0052
MAY	0.0288	0.0256	0.0307	0.0274	0.0062	0.0040	0.0081	0.0058
AUG	0.0052	0.0020	0.0116	0.0084	0.0022	-0.0002	0.0086	0.0062
NOV	-0.0650	-0.0685	-0.0659	-0.0694	0.0092	0.0069	0.0083	0.0060
1960 FEB	-0.0218	-0.0254	-0.0181	-0.0218	0.0075	0.0043	0.0111	0.0080
MAY	-0.0523	-0.0562	-0.0514	-0.0553	0.0105	0.0073	0.0114	0.0082
AUG	0.0330	0.0293	0.0465	0.0428	-0.0000	-0.0038	0.0135	0.0097
NOV	-0.0453	-0.0493	-0.0417	-0.0457	0.0088	0.0054	0.0124	0.0089

TABLE I(c) (CONT)

## 2½% CONSOLS AND TREASURY BILLS

FIFTH SUB-PERIOD, FEB 1961-OCT 1970, QUARTERS 169-207

QUARTER BEGINNING	2½% CONSOLS				TREASURY BILLS			
	REAL		MONEY		REAL		MONEY	
	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET
1961 FEB	-0.0203	-0.0244	-0.0088	-0.0128	-0.0013	-0.0042	0.0102	0.0073
MAY	-0.1012	-0.1059	-0.0829	-0.0876	-0.0075	-0.0107	0.0108	0.0076
AUG	0.0309	0.0263	0.0412	0.0366	0.0059	0.0011	0.0162	0.0114
NOV	0.0094	0.0048	0.0156	0.0109	0.0078	0.0037	0.0139	0.0098
1962 FEB	0.0434	0.0390	0.0642	0.0598	-0.0080	-0.0118	0.0128	0.0090
MAY	0.0442	0.0402	0.0383	0.0343	0.0158	0.0131	0.0099	0.0072
AUG	0.0578	0.0540	0.0598	0.0560	0.0076	0.0049	0.0095	0.0069
NOV	-0.0149	-0.0187	0.0027	-0.0012	-0.0081	-0.0107	0.0095	0.0068
1963 FEB	0.0222	0.0184	0.0251	0.0213	0.0057	0.0033	0.0086	0.0062
MAY	0.0659	0.0623	0.0572	0.0536	0.0178	0.0153	0.0091	0.0066
AUG	-0.0071	-0.0107	0.0026	-0.0011	-0.0004	-0.0029	0.0092	0.0067
NOV	-0.0608	-0.0647	-0.0531	-0.0570	0.0015	-0.0010	0.0092	0.0067
1964 FEB	-0.0415	-0.0455	-0.0207	-0.0247	-0.0116	-0.0141	0.0092	0.0067
MAY	0.0192	0.0152	0.0266	0.0227	0.0031	0.0002	0.0105	0.0077
AUG	0.0054	0.0015	0.0146	0.0107	0.0021	-0.0009	0.0114	0.0083
NOV	-0.0276	-0.0317	-0.0212	-0.0253	0.0051	0.0020	0.0115	0.0084
1965 FEB	-0.0481	-0.0457	-0.0220	-0.0196	-0.0103	-0.0146	0.0158	0.0116
MAY	-0.0143	-0.0146	-0.0098	-0.0102	0.0110	0.0063	0.0155	0.0108
AUG	0.0727	0.0574	0.0789	0.0636	0.0075	0.0034	0.0137	0.0096
NOV	-0.0165	-0.0168	-0.0094	-0.0098	0.0062	0.0022	0.0132	0.0092
1966 FEB	-0.0563	-0.0521	-0.0356	-0.0313	-0.0074	-0.0115	0.0133	0.0093
MAY	-0.0418	-0.0368	-0.0375	-0.0326	0.0094	0.0057	0.0137	0.0099
AUG	0.0512	0.0396	0.0580	0.0464	0.0094	0.0049	0.0162	0.0117
NOV	0.0767	0.0614	0.0809	0.0657	0.0116	0.0072	0.0158	0.0114
1967 FEB	0.0088	0.0046	0.0156	0.0113	0.0080	0.0040	0.0148	0.0107
MAY	-0.0446	-0.0375	-0.0488	-0.0417	0.0174	0.0138	0.0132	0.0096
AUG	-0.0093	-0.0115	0.0032	0.0010	0.0005	-0.0031	0.0130	0.0095
NOV	-0.0253	-0.0252	-0.0105	-0.0104	-0.0009	-0.0047	0.0139	0.0101
1968 FEB	-0.0185	-0.0208	0.0034	0.0010	-0.0037	-0.0087	0.0181	0.0132
MAY	-0.0173	-0.0169	-0.0109	-0.0106	0.0107	0.0063	0.0171	0.0127
AUG	0.0101	0.0054	0.0180	0.0134	0.0091	0.0047	0.0171	0.0126
NOV	-0.1289	-0.1115	-0.1047	-0.0873	-0.0084	-0.0125	0.0157	0.0116
1969 FEB	-0.0428	-0.0394	-0.0298	-0.0264	0.0033	-0.0010	0.0163	0.0120
MAY	0.0019	-0.0042	0.0042	-0.0019	0.0165	0.0112	0.0188	0.0135
AUG	0.0434	0.0375	0.0562	0.0503	0.0060	0.0007	0.0188	0.0136
NOV	0.0011	-0.0048	0.0211	0.0152	-0.0014	-0.0066	0.0186	0.0134
1970 FEB	-0.0548	-0.0610	-0.0308	-0.0371	-0.0058	-0.0109	0.0181	0.0130
MAY	0.0306	0.0246	0.0399	0.0339	0.0071	0.0026	0.0164	0.0119
AUG	-0.0730	-0.0795	-0.0506	-0.0571	-0.0060	-0.0105	0.0165	0.0119

TABLE II(a)

CUMULATIVE QUARTERLY LOGARITHMIC RETURNS,  $\sum \text{LOG}_e(1+R_e)$ , AT ANNUAL INTERVALS, FEB 1919-NOV 1970,  
GROSS AND NET OF TAX, MONEY AND REAL

## VALUE WEIGHTED EQUITY PORTFOLIO

YEAR ENDING	TOTAL LOG-RETURN				RISK PREMIUM		DIVIDEND LOG-RETURN	
	REAL		MONEY		MONEY AND REAL		MONEY AND REAL	
	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET
JAN 1920	0.2581	0.2487	0.3026	0.2931	0.2655	0.2680	0.0253	0.0154
1921	-0.2568	-0.2811	-0.1249	-0.1493	-0.2233	-0.2151	0.0583	0.0350
1922	0.0030	-0.0349	-0.1542	-0.1921	-0.3019	-0.2907	0.0911	0.0545
1923	0.4767	0.4287	0.2592	0.2112	0.0872	0.0957	0.1214	0.0735
1924	0.6074	0.5504	0.4012	0.3442	0.2027	0.2096	0.1490	0.0916
1925	0.8043	0.7395	0.5980	0.5333	0.3661	0.3743	0.1730	0.1076
1926	1.0035	0.9318	0.7632	0.6915	0.4915	0.5025	0.1970	0.1243
1927	1.0771	0.9980	0.8309	0.7518	0.5150	0.5292	0.2225	0.1423
1928	1.2336	1.1477	0.9519	0.8661	0.5954	0.6125	0.2461	0.1590
1929	1.5112	1.4175	1.2236	1.1298	0.8261	0.8450	0.2750	0.1794
1930	1.3317	1.2294	1.0380	0.9357	0.5904	0.6135	0.3011	0.1975
1931	1.1985	1.0869	0.8288	0.7172	0.3557	0.3764	0.3269	0.2145
1932	1.1429	1.0220	0.7397	0.6188	0.2310	0.2528	0.3520	0.2305
1933	1.4395	1.3095	0.9946	0.8646	0.4664	0.4849	0.3782	0.2472
1934	1.6967	1.5589	1.2518	1.1140	0.7179	0.7303	0.4008	0.2615
1935	1.8721	1.7272	1.4342	1.2894	0.8935	0.9008	0.4216	0.2750
1936	1.9751	1.8230	1.5719	1.4198	1.0266	1.0278	0.4433	0.2892
1937	2.0619	1.9021	1.6856	1.5257	1.1349	1.1299	0.4651	0.3032
1938	1.8933	1.7240	1.5559	1.3867	1.0001	0.9872	0.4897	0.3187
1939	1.7968	1.6152	1.4626	1.2810	0.9017	0.8781	0.5197	0.3367
1940	1.7143	1.5176	1.4868	1.2901	0.9181	0.8823	0.5516	0.3535
1941	1.5602	1.3444	1.4487	1.2329	0.8698	0.8193	0.5849	0.3682
1942	1.6505	1.4142	1.6083	1.3721	1.0194	0.9533	0.6184	0.3808
1943	1.7979	1.5436	1.7971	1.5428	1.1982	1.1188	0.6472	0.3909
1944	1.8616	1.5917	1.8755	1.6056	1.2667	1.1762	0.6717	0.3995
1945	1.9360	1.6518	1.9843	1.7001	1.3655	1.2651	0.6944	0.4075
1946	1.9636	1.6649	2.0509	1.7521	1.4233	1.3122	0.7172	0.4156
1947	2.0517	1.7388	2.1919	1.8789	1.5593	1.4359	0.7413	0.4251
1948	1.9599	1.6228	2.1593	1.8222	1.5216	1.3763	0.7739	0.4343
1949	1.9153	1.5542	2.1435	1.7824	1.5008	1.3334	0.8115	0.4483
1950	1.7655	1.3795	2.0296	1.6437	1.3817	1.1914	0.8524	0.4655
1951	1.9084	1.4976	2.2175	1.8067	1.5644	1.3510	0.8974	0.4847
1952	1.7860	1.3514	2.2083	1.7737	1.5501	1.3148	0.9380	0.5014
1953	1.8372	1.3748	2.3045	1.8421	1.6261	1.3701	0.9855	0.5209
1954	2.0581	1.5695	2.5340	2.0454	1.8328	1.5586	1.0333	0.5414
1955	2.4462	1.9360	2.9648	2.4546	2.2455	1.9559	1.0756	0.5601
1956	2.4226	1.8921	2.9907	2.4602	2.2363	1.9378	1.1141	0.5780
1957	2.5038	1.9533	3.1140	2.5635	2.3131	2.0099	1.1532	0.5966
1958	2.4037	1.8327	3.0450	2.4740	2.1980	1.8889	1.1921	0.6152
1959	2.6479	2.0563	3.3140	2.7224	2.4204	2.1055	1.2337	0.6353
1960	3.0441	2.4361	3.7065	3.0985	2.7804	2.4584	1.2698	0.6537
1961	3.0780	2.4530	3.7620	3.1371	2.7875	2.4622	1.3046	0.6715
1962	3.0182	2.3761	3.7485	3.1064	2.7229	2.3954	1.3391	0.6892
1963	3.1073	2.4466	3.8720	3.2113	2.8046	2.4704	1.3772	0.7087
1964	3.2260	2.5483	4.0022	3.3245	2.8987	2.5574	1.4126	0.7268
1965	3.2399	2.5446	4.0600	3.3646	2.9139	2.5664	1.4491	0.7455
1966	3.2909	2.5602	4.1547	3.4241	2.9505	2.5847	1.4967	0.7678
1967	3.2188	2.4775	4.1187	3.3774	2.8554	2.4956	1.5475	0.7923
1968	3.5410	2.7270	4.4708	3.6568	3.1527	2.7352	1.5933	0.8158
1969	3.8515	2.9664	4.8416	3.9565	3.4555	2.9848	1.6265	0.8328
1970	3.5789	2.7265	4.6171	3.7647	3.1585	2.7405	1.6588	0.8494
OCT 1970 *	3.5062	2.6490	4.6002	3.7429	3.0905	2.6818	1.6886	0.8652

\* 3 QUARTERS ONLY

TABLE II(b)

CUMULATIVE QUARTERLY LOGARITHMIC RETURNS,  $\sum \text{LOG}_e(1+R_t)$ , AT ANNUAL INTERVALS, FEB 1919-NOV 1970,  
GROSS AND NET OF TAX, MONEY AND REAL

## EQUALLY WEIGHTED EQUITY PORTFOLIO

YEAR ENDING	TOTAL LOG-RETURN				RISK PREMIUM		DIVIDEND LOG-RETURN	
	REAL		MONEY		MONEY AND REAL		MONEY AND REAL	
	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET
JAN 1920	0.2624	0.2417	0.3068	0.2862	0.2697	0.2611	0.0559	0.0340
" 1921	-0.1613	-0.2074	-0.0294	-0.0756	-0.1277	-0.1414	0.1131	0.0681
" 1922	0.0953	0.0227	-0.0619	-0.1345	-0.2096	-0.2331	0.1763	0.1056
" 1923	0.5697	0.4793	0.3522	0.2618	0.1802	0.1463	0.2294	0.1390
" 1924	0.6705	0.5627	0.4642	0.3565	0.2657	0.2219	0.2818	0.1735
" 1925	0.8957	0.7726	0.6894	0.5664	0.4575	0.4074	0.3299	0.2056
" 1926	1.0156	0.8790	0.7753	0.6386	0.5037	0.4497	0.3749	0.2369
" 1927	1.0856	0.9360	0.8395	0.6899	0.5235	0.4672	0.4192	0.2683
" 1928	1.3253	1.1643	1.0437	0.8827	0.6871	0.6291	0.4598	0.2970
" 1929	1.5073	1.3350	1.2196	1.0473	0.8221	0.7625	0.5002	0.3255
" 1930	1.3643	1.1780	1.0706	0.8843	0.6230	0.5621	0.5437	0.3557
" 1931	1.2592	1.0568	0.8894	0.6871	0.4164	0.3463	0.5889	0.3857
" 1932	1.2709	1.0524	0.8677	0.6492	0.3590	0.2833	0.6321	0.4135
" 1933	1.5590	1.3252	1.1141	0.8803	0.5859	0.5006	0.6757	0.4411
" 1934	1.8545	1.6087	1.4097	1.1638	0.8758	0.7801	0.7108	0.4634
" 1935	2.0390	1.7826	1.6012	1.3448	1.0604	0.9562	0.7417	0.4834
" 1936	2.2112	1.9435	1.8080	1.5403	1.2626	1.1483	0.7759	0.5058
" 1937	2.3282	2.0485	1.9518	1.6721	1.4011	1.2763	0.8102	0.5278
" 1938	2.1328	1.8374	1.7955	1.5001	1.2397	1.1006	0.8507	0.5533
" 1939	2.0272	1.7125	1.6930	1.3783	1.1321	0.9753	0.8970	0.5810
" 1940	1.9500	1.6132	1.7225	1.3857	1.1538	0.9779	0.9436	0.6055
" 1941	1.8402	1.4765	1.7287	1.3651	1.1498	0.9514	0.9897	0.6257
" 1942	1.9878	1.5964	1.9457	1.5543	1.3567	1.1355	1.0358	0.6428
" 1943	2.1948	1.7784	2.1940	1.7775	1.5951	1.3535	1.0764	0.6571
" 1944	2.2812	1.8410	2.2951	1.8549	1.6863	1.4255	1.1137	0.6702
" 1945	2.3780	1.9165	2.4263	1.9648	1.8075	1.5298	1.1477	0.6822
" 1946	2.4175	1.9335	2.5048	2.0208	1.8772	1.5809	1.1830	0.6948
" 1947	2.5508	2.0446	2.6909	2.1847	2.0583	1.7417	1.2211	0.7098
" 1948	2.4795	1.9428	2.6788	2.1421	2.0412	1.6963	1.2627	0.7217
" 1949	2.4780	1.9149	2.7062	2.1431	2.0635	1.6941	1.3055	0.7381
" 1950	2.3350	1.7438	2.5992	2.0080	1.9512	1.5556	1.3518	0.7576
" 1951	2.5065	1.8882	2.8155	2.1973	2.1625	1.7416	1.4009	0.7786
" 1952	2.4163	1.7656	2.8386	2.1879	2.1804	1.7290	1.4554	0.8011
" 1953	2.4429	1.7505	2.9102	2.2178	2.2318	1.7459	1.5261	0.8301
" 1954	2.7114	1.9827	3.1874	2.4586	2.4861	1.9718	1.5932	0.8591
" 1955	3.0655	2.3057	3.5841	2.8243	2.8648	2.3256	1.6533	0.8856
" 1956	3.0359	2.2454	3.6039	2.8134	2.8495	2.2911	1.7118	0.9129
" 1957	3.0789	2.2555	3.6890	2.8657	2.8881	2.3121	1.7749	0.9430
" 1958	3.0832	2.2249	3.7245	2.8662	2.8775	2.2811	1.8418	0.9752
" 1959	3.4361	2.5460	4.1022	3.2121	3.2086	2.5952	1.9079	1.0071
" 1960	3.9325	3.0193	4.5950	3.6818	3.6688	3.0417	1.9599	1.0336
" 1961	3.9421	3.0055	4.6261	3.6895	3.6516	3.0146	2.0075	1.0580
" 1962	3.9748	3.0146	4.7051	3.7449	3.6795	3.0339	2.0559	1.0828
" 1963	4.0487	3.0631	4.8134	3.8277	3.7461	3.0868	2.1078	1.1094
" 1964	4.1904	3.1820	4.9666	3.9582	3.8632	3.1911	2.1557	1.1339
" 1965	4.2452	3.2131	5.0652	4.0332	3.9192	3.2350	2.2052	1.1594
" 1966	4.3066	3.2344	5.1705	4.0982	3.9662	3.2589	2.2631	1.1862
" 1967	4.2076	3.1265	5.1075	4.0263	3.8442	3.1446	2.3228	1.2153
" 1968	4.5526	3.3930	5.4824	4.3228	4.1643	3.4011	2.3764	1.2427
" 1969	4.7975	3.5739	5.7876	4.5640	4.4015	3.5923	2.4186	1.2643
" 1970	4.6028	3.3945	5.6410	4.4328	4.1823	3.4085	2.4636	1.2875
OCT 1970 *	4.5122	3.2981	5.6062	4.3921	4.0965	3.3310	2.5038	1.3089

\* 3 QUARTERS ONLY

TABLE II(c)

CUMULATIVE QUARTERLY LOGARITHMIC RETURNS,  $\sum \text{LDG}_e(1+R_e)$ , AT ANNUAL INTERVALS, FEB 1919-NOV 1970,  
GROSS AND NET OF TAX, MONEY AND REAL.

## 2½% CONSOLS AND TREASURY BILLS

YEAR ENDING	2½% CONSOLS				TREASURY BILLS			
	REAL		MONEY		REAL		MONEY	
	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET
JAN 1920	-0.1627	-0.1780	-0.1183	-0.1335	-0.0073	-0.0194	0.0371	0.0251
▪ 1921	-0.2381	-0.2711	-0.1063	-0.1392	-0.0335	-0.0660	0.0983	0.0658
▪ 1922	0.1713	0.1215	0.0141	-0.0357	0.3049	0.2558	0.1477	0.0986
▪ 1923	0.3668	0.3042	0.1494	0.0867	0.3895	0.3329	0.1720	0.1154
▪ 1924	0.4067	0.3324	0.2005	0.1262	0.4048	0.3409	0.1985	0.1346
▪ 1925	0.4669	0.3810	0.2606	0.1747	0.4382	0.3652	0.2320	0.1590
▪ 1926	0.5054	0.4087	0.2651	0.1683	0.5120	0.4292	0.2716	0.1889
▪ 1927	0.5515	0.4441	0.3054	0.1979	0.5621	0.4688	0.3160	0.2226
▪ 1928	0.6273	0.5092	0.3456	0.2275	0.6382	0.5352	0.3565	0.2536
▪ 1929	0.6996	0.5710	0.4119	0.2833	0.6852	0.5724	0.3975	0.2847
▪ 1930	0.7060	0.5659	0.4122	0.2722	0.7413	0.6159	0.4475	0.3221
▪ 1931	0.8883	0.7364	0.5186	0.3666	0.8428	0.7105	0.4730	0.3407
▪ 1932	0.9206	0.7560	0.5174	0.3528	0.9119	0.7692	0.5087	0.3660
▪ 1933	1.3070	1.1322	0.8621	0.6874	0.9731	0.8246	0.5282	0.3797
▪ 1934	1.3502	1.1656	0.9053	0.7208	0.9787	0.8285	0.5338	0.3837
▪ 1935	1.5699	1.3771	1.1321	0.9392	0.9785	0.8264	0.5407	0.3886
▪ 1936	1.4911	1.2903	1.0879	0.8871	0.9485	0.7952	0.5453	0.3920
▪ 1937	1.4457	1.2367	1.0694	0.8604	0.9270	0.7722	0.5507	0.3958
▪ 1938	1.3730	1.1546	1.0356	0.8172	0.8932	0.7368	0.5558	0.3994
▪ 1939	1.3148	1.0858	0.9806	0.7516	0.8951	0.7371	0.5609	0.4029
▪ 1940	1.3064	1.0640	1.0789	0.8365	0.7962	0.6353	0.5688	0.4078
▪ 1941	1.2628	1.0062	1.1513	0.8948	0.6904	0.5251	0.5790	0.4136
▪ 1942	1.2864	1.0151	1.2442	0.9730	0.6311	0.4609	0.5890	0.4188
▪ 1943	1.2794	0.9942	1.2786	0.9933	0.5998	0.4249	0.5989	0.4241
▪ 1944	1.2570	0.9576	1.2709	0.9715	0.5949	0.4155	0.6088	0.4294
▪ 1945	1.2872	0.9741	1.3355	1.0224	0.5705	0.3866	0.6188	0.4349
▪ 1946	1.3948	1.0697	1.4820	1.1570	0.5403	0.3527	0.6276	0.4399
▪ 1947	1.4259	1.0911	1.5660	1.2312	0.4925	0.3029	0.6326	0.4430
▪ 1948	1.1747	0.8273	1.3741	1.0266	0.4383	0.2465	0.6377	0.4459
▪ 1949	1.2086	0.8490	1.4367	1.0772	0.4145	0.2208	0.6427	0.4490
▪ 1950	1.0684	0.6968	1.3326	0.9610	0.3838	0.1882	0.6479	0.4523
▪ 1951	1.0300	0.6461	1.3391	0.9551	0.3440	0.1466	0.6531	0.4556
▪ 1952	0.8478	0.4503	1.2701	0.8726	0.2359	0.0366	0.6582	0.4589
▪ 1953	0.7949	0.3825	1.2622	0.8498	0.2111	0.0046	0.6784	0.4719
▪ 1954	0.9072	0.4811	1.3831	0.9570	0.2253	0.0109	0.7012	0.4868
▪ 1955	0.9087	0.4702	1.4273	0.9888	0.2007	-0.0199	0.7193	0.4987
▪ 1956	0.7514	0.2989	1.3194	0.8670	0.1864	-0.0457	0.7544	0.5223
▪ 1957	0.7556	0.2880	1.3657	0.8981	0.1908	-0.0565	0.8009	0.5536
▪ 1958	0.6392	0.1559	1.2805	0.7972	0.2058	-0.0562	0.8471	0.5851
▪ 1959	0.7692	0.2709	1.4355	0.9370	0.2275	-0.0492	0.8935	0.6169
▪ 1960	0.7233	0.2112	1.3858	0.8737	0.2637	-0.0224	0.9261	0.6401
▪ 1961	0.6370	0.1096	1.3210	0.7937	0.2905	-0.0092	0.9745	0.6749
▪ 1962	0.5558	0.0104	1.2861	0.7407	0.2953	-0.0193	1.0256	0.7110
▪ 1963	0.6864	0.1249	1.4510	0.8896	0.3026	-0.0238	1.0673	0.7409
▪ 1964	0.7066	0.1302	1.4828	0.9064	0.3272	-0.0091	1.1034	0.7671
▪ 1965	0.6621	0.0697	1.4821	0.8898	0.3260	-0.0219	1.1460	0.7982
▪ 1966	0.6559	0.0500	1.5198	0.9138	0.3404	-0.0245	1.2042	0.8393
▪ 1967	0.6857	0.0620	1.5856	0.9619	0.3634	-0.0181	1.2632	0.8818
▪ 1968	0.6153	-0.0076	1.5451	0.9222	0.3883	-0.0082	1.3181	0.9216
▪ 1969	0.4607	-0.1515	1.4508	0.8387	0.3960	-0.0184	1.3861	0.9717
▪ 1970	0.4643	-0.1624	1.5025	0.8759	0.4204	-0.0140	1.4587	1.0243
OCT 1970 *	0.3671	-0.2783	1.4610	0.8156	0.4157	-0.0329	1.5097	1.0611

\* 3 QUARTERS ONLY

TABLE III(a)

RATES OF RETURN PER ANNUM AT ANNUAL INTERVALS, YEARS STARTING FEBRUARY, 1919-1970,  
GROSS AND NET OF TAX, MONEY AND REAL

YEAR ENDING	TOTAL RETURN				RISK PREMIUM		DIVIDEND RETURN	
	REAL		MONEY		MONEY AND REAL		MONEY AND REAL	
	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET
JAN 1920	29.447	28.236	35.337	34.058	30.408	30.735	2.562	1.552
1921	-40.244	-41.128	-34.786	-35.751	-38.664	-38.313	3.355	1.979
1922	29.667	27.916	-2.887	-4.190	-7.559	-7.281	3.334	1.969
1923	60.593	58.979	51.195	49.676	47.565	47.167	3.076	1.918
1924	13.963	12.942	15.258	14.225	12.243	12.064	2.798	1.826
1925	21.762	20.816	21.750	20.816	17.751	17.904	2.429	1.613
1926	22.043	21.203	17.963	17.140	13.360	13.678	2.429	1.684
1927	7.638	6.844	7.004	6.216	2.378	2.706	2.583	1.816
1928	16.941	16.149	12.862	12.109	8.372	8.687	2.388	1.684
1929	31.996	30.970	31.219	30.174	25.948	26.175	2.932	2.061
1930	-16.431	-17.147	-16.939	-17.642	-20.998	-20.666	2.644	1.926
1931	-12.471	-13.281	-18.877	-19.628	-20.919	-21.109	2.614	1.715
1932	-5.408	-6.284	-8.525	-9.371	-11.724	-11.627	2.542	1.613
1933	34.528	33.309	29.033	27.864	26.541	26.125	2.655	1.684
1934	29.330	28.326	29.330	28.326	28.595	27.813	2.286	1.440
1935	19.172	18.329	20.009	19.172	19.196	18.590	2.102	1.359
1936	10.849	10.054	14.763	13.928	14.236	13.542	2.194	1.430
1937	9.068	8.231	12.042	11.171	11.438	10.749	2.204	1.410
1938	-15.515	-16.314	-12.164	-12.977	-12.611	-13.299	2.491	1.562
1939	-9.199	-10.309	-8.908	-10.031	-9.371	-10.336	3.045	1.816
1940	-7.919	-9.299	2.450	0.914	1.654	0.421	3.241	1.694
1941	-14.281	-15.903	-3.738	-5.559	-4.715	-6.106	3.386	1.481
1942	9.450	7.229	17.304	14.935	16.137	14.339	3.407	1.268
1943	15.882	13.815	20.780	18.613	19.578	17.998	2.922	1.015
1944	6.577	4.928	8.156	6.481	7.090	5.908	2.480	0.864
1945	7.724	6.194	11.494	9.911	10.385	9.297	2.296	0.803
1946	2.798	1.319	6.887	5.338	5.950	4.823	2.306	0.813
1947	9.210	7.670	15.142	13.519	14.568	13.168	2.439	0.955
1948	-8.771	-10.952	-3.207	-5.512	-3.700	-5.786	3.314	0.924
1949	-4.362	-6.630	-1.568	-3.902	-2.059	-4.199	3.832	1.410
1950	-13.912	-16.029	-10.765	-12.951	-11.228	-13.238	4.175	1.735
1951	15.361	12.536	20.671	17.704	20.045	17.304	4.603	1.939
1952	-11.521	-13.602	-0.916	-3.246	-1.420	-3.555	4.144	1.684
1953	5.253	2.368	10.098	7.079	7.896	5.686	4.865	1.969
1954	24.720	21.495	25.797	22.544	22.961	20.744	4.896	2.071
1955	47.432	44.268	53.864	50.561	51.104	48.780	4.321	1.877
1956	-2.332	-4.285	2.614	0.562	-0.926	-1.784	3.925	1.806
1957	8.459	6.301	13.122	10.882	7.983	7.466	3.987	1.877
1958	-9.525	-11.361	-6.658	-8.561	-10.872	-11.397	3.967	1.888
1959	27.660	25.057	30.852	28.197	24.920	24.185	4.248	2.030
1960	48.602	46.199	48.068	45.659	43.319	42.319	3.676	1.847
1961	3.448	1.704	5.717	3.935	0.723	0.381	3.541	1.806
1962	-5.805	-7.402	-1.351	-3.023	-6.265	-6.462	3.510	1.776
1963	9.319	7.304	13.145	11.060	8.524	7.788	3.884	1.969
1964	12.603	10.705	13.906	11.984	9.867	9.090	3.603	1.826
1965	1.400	-0.369	5.950	4.091	1.532	0.904	3.717	1.898
1966	5.243	1.572	9.944	6.131	3.717	1.847	4.875	2.255
1967	-6.966	-7.937	-3.546	-4.563	-9.063	-8.525	5.211	2.470
1968	38.016	28.338	42.205	32.234	34.608	27.074	4.687	2.378
1969	36.411	27.049	44.904	34.945	35.364	28.351	3.376	1.715
1970	-23.860	-21.329	-20.108	-17.445	-25.696	-21.675	3.283	1.674
OCT 1970 *	-9.226	-9.817	-2.241	-2.878	-8.656	-7.528	4.067	2.129

\* BASED ON 3 QUARTERS ONLY

TABLE III(b)

RATES OF RETURN PER ANNUM AT ANNUAL INTERVALS, YEARS STARTING FEBRUARY, 1919-1970,  
GROSS AND NET OF TAX, MONEY AND REAL

## EQUALLY WEIGHTED EQUITY PORTFOLIO

YEAR ENDING	TOTAL RETURN				RISK PREMIUM		DIVIDEND RETURN	
	REAL		MONEY		MONEY AND REAL		MONEY AND REAL	
	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET
JAN 1920	30.005	27.341	35.907	33.136	30.957	29.836	5.749	3.458
1921	-34.538	-36.180	-28.552	-30.358	-32.793	-33.135	5.887	3.469
1922	29.253	25.873	-3.198	-5.720	-8.764	-8.762	6.524	3.821
1923	60.705	57.870	51.301	48.632	47.669	46.141	5.454	3.396
1924	10.606	8.698	11.851	9.933	8.926	7.853	5.380	3.510
1925	25.257	23.355	25.257	23.355	21.143	20.382	4.928	3.262
1926	12.738	11.227	8.970	7.487	4.728	4.321	4.603	3.179
1927	7.251	5.866	6.631	5.264	2.000	1.765	4.530	3.190
1928	27.087	25.646	22.654	21.264	17.774	17.574	4.144	2.912
1929	19.961	18.613	19.232	17.892	14.454	14.271	4.123	2.891
1930	-13.325	-14.530	-13.843	-15.041	-18.053	-18.160	4.446	3.066
1931	-9.977	-11.414	-16.573	-17.897	-18.666	-19.410	4.624	3.045
1932	1.177	-0.439	-2.147	-3.719	-5.578	-6.106	4.415	2.819
1933	33.389	31.364	27.941	25.999	25.470	24.272	4.456	2.798
1934	34.380	32.777	34.393	32.777	33.629	32.247	3.572	2.255
1935	20.262	18.994	21.106	19.842	20.274	19.256	3.138	2.020
1936	18.792	17.457	22.974	21.592	22.409	21.179	3.479	2.265
1937	12.412	11.071	15.465	14.088	14.855	13.655	3.490	2.224
1938	-17.749	-19.031	-14.470	-15.802	-14.905	-16.113	4.133	2.583
1939	-10.022	-11.741	-9.742	-11.467	-10.201	-11.777	4.739	2.809
1940	-7.430	-9.453	2.994	0.743	2.194	0.260	4.770	2.480
1941	-10.399	-12.777	0.622	-0.039	-2.039	-2.615	4.718	2.041
1942	15.905	12.738	24.234	20.828	22.986	20.214	4.718	1.725
1943	22.998	19.961	28.184	25.007	26.922	24.359	4.144	1.440
1944	9.024	6.460	10.639	8.047	9.549	7.466	3.800	1.319
1945	10.164	7.842	14.020	11.617	12.885	10.993	3.458	1.207
1946	4.029	1.715	8.166	5.760	7.219	5.243	3.593	1.268
1947	14.259	11.751	20.454	17.810	19.854	17.445	3.884	1.511
1948	-6.882	-9.679	-1.203	-4.171	-1.695	-4.438	4.248	1.197
1949	-0.150	-2.751	2.778	0.100	2.255	-0.220	4.373	1.654
1950	-13.325	-15.726	-10.147	-12.637	-10.622	-12.934	4.739	1.969
1951	18.708	15.535	24.147	20.840	23.528	20.442	5.033	2.122
1952	-8.625	-11.538	2.337	-0.934	1.806	-1.252	5.601	2.276
1953	2.696	-1.499	7.423	3.035	5.274	1.704	7.326	2.942
1954	31.943	26.137	30.800	27.176	28.956	25.345	6.940	2.942
1955	42.476	38.140	48.691	44.167	46.038	42.447	6.194	2.685
1956	-2.917	-5.861	2.000	-1.084	-1.518	-3.391	6.024	2.768
1957	4.394	1.025	8.893	5.359	3.946	2.122	6.513	3.056
1958	0.441	-3.014	3.614	0.060	-1.064	-3.052	6.919	3.272
1959	42.305	37.864	45.878	41.312	39.264	36.903	6.833	3.241
1960	64.296	60.528	63.689	59.951	58.439	56.299	5.338	2.685
1961	0.955	-1.380	3.159	0.773	-1.715	-2.674	4.875	2.480
1962	3.324	0.924	8.220	5.707	2.829	1.949	4.959	2.501
1963	7.670	4.959	11.438	8.632	6.887	5.432	5.327	2.696
1964	15.223	12.637	16.556	13.928	12.423	10.982	4.907	2.491
1965	5.633	3.149	10.374	7.788	5.760	4.488	5.075	2.573
1966	6.343	2.163	11.093	6.727	4.812	2.419	5.961	2.716
1967	-9.435	-10.237	-6.106	-6.938	-11.485	-10.801	6.152	2.953
1968	41.213	30.539	45.499	34.501	37.727	29.253	5.506	2.778
1969	27.737	19.830	35.690	27.290	26.769	21.058	4.310	2.183
1970	-17.692	-16.414	-13.645	-12.305	-19.676	-16.781	4.603	2.347
OCT 1970 *	-11.367	-12.062	-4.534	-5.282	-10.810	-9.829	5.506	2.894

\* BASED ON 3 QUARTERS ONLY

TABLE III(c)

RATES OF RETURN PER ANNUM AT ANNUAL INTERVALS, YEARS STARTING FEBRUARY, 1919-1970,  
GROSS AND NET OF TAX, MONEY AND REAL

## 2½% CONSOLS AND TREASURY BILLS

YEAR ENDING	2½% CONSOLS				TREASURY BILLS			
	REAL		MONEY		REAL		MONEY	
	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET
JAN 1920	-15.015	-16.306	-11.157	-12.497	-0.727	-1.921	3.780	2.542
▪ 1921	-7.263	-8.890	1.207	-0.568	-2.586	-4.553	6.311	4.154
▪ 1922	50.591	48.083	12.795	10.905	40.270	37.961	5.064	3.334
▪ 1923	21.592	20.045	14.488	13.021	8.828	8.015	2.460	1.694
▪ 1924	4.071	2.860	5.243	4.029	1.542	0.803	2.685	1.939
▪ 1925	6.205	4.980	6.194	4.970	3.396	2.460	3.407	2.470
▪ 1926	3.925	2.809	0.451	-0.638	7.659	6.609	4.039	3.035
▪ 1927	4.718	3.603	4.112	3.004	5.138	4.039	4.540	3.427
▪ 1928	7.875	6.727	4.102	3.004	7.907	6.865	4.133	3.149
▪ 1929	7.498	6.375	6.855	5.739	4.812	3.790	4.185	3.159
▪ 1930	0.642	-0.509	0.030	-1.104	5.770	4.446	5.127	3.811
▪ 1931	19.997	18.590	11.227	9.900	10.683	9.922	2.583	1.877
▪ 1932	3.283	1.979	-0.120	-1.371	7.154	6.046	3.634	2.562
▪ 1933	47.167	45.674	41.157	39.738	6.311	5.696	1.969	1.379
▪ 1934	4.415	3.396	4.415	3.396	0.562	0.391	0.562	0.401
▪ 1935	24.570	23.553	25.458	24.408	-0.020	-0.210	0.692	0.491
▪ 1936	-7.578	-8.314	-4.324	-5.077	-2.955	-3.072	0.461	0.341
▪ 1937	-4.438	-5.219	-1.833	-2.635	-2.127	-2.274	0.541	0.381
▪ 1938	-7.012	-7.882	-3.324	-4.228	-3.324	-3.478	0.511	0.361
▪ 1939	-5.654	-6.649	-5.351	-6.349	0.190	0.030	0.511	0.351
▪ 1940	-0.836	-2.156	10.329	8.861	-9.417	-9.679	0.793	0.491
▪ 1941	-4.264	-5.616	7.509	6.003	-10.040	-10.435	1.025	0.582
▪ 1942	2.388	0.894	9.735	8.134	-5.758	-6.218	1.005	0.521
▪ 1943	-0.698	-2.068	3.500	2.051	-3.082	-3.536	0.995	0.531
▪ 1944	-2.215	-3.594	-0.767	-2.156	-0.489	-0.936	0.995	0.531
▪ 1945	3.066	1.664	6.673	5.222	-2.410	-2.849	1.005	0.552
▪ 1946	11.360	10.032	15.777	14.408	-2.975	-3.333	0.884	0.501
▪ 1947	3.159	2.163	8.763	7.702	-4.668	-4.858	0.501	0.310
▪ 1948	-22.213	-23.187	-17.461	-18.503	-5.276	-5.484	0.511	0.290
▪ 1949	3.448	2.194	6.460	5.190	-2.352	-2.537	0.501	0.310
▪ 1950	-13.082	-14.118	-9.886	-10.970	-3.023	-3.207	0.521	0.331
▪ 1951	-3.767	-4.944	0.652	-0.588	-3.902	-4.075	0.521	0.331
▪ 1952	-16.657	-17.782	-6.667	-7.919	-10.246	-10.417	0.511	0.331
▪ 1953	-5.153	-6.555	-0.787	-2.254	-2.450	-3.149	2.041	1.308
▪ 1954	11.885	10.362	12.851	11.316	1.430	0.632	2.306	1.501
▪ 1955	0.150	-1.084	4.519	3.231	-2.430	-3.033	1.826	1.197
▪ 1956	-14.555	-15.743	-10.228	-11.467	-1.420	-2.547	3.572	2.388
▪ 1957	0.421	-1.084	4.739	3.159	0.441	-1.074	4.760	3.179
▪ 1958	-10.988	-12.375	-8.167	-9.598	1.511	0.030	4.728	3.200
▪ 1959	13.883	12.187	16.742	15.004	2.194	0.702	4.749	3.231
▪ 1960	-4.486	-5.795	-4.829	-6.134	3.686	2.716	3.314	2.347
▪ 1961	-8.268	-9.661	-6.275	-7.688	2.716	1.329	4.959	3.541
▪ 1962	-7.799	-9.444	-3.430	-5.162	0.481	-1.005	5.243	3.676
▪ 1963	13.951	12.131	17.928	16.056	0.733	-0.449	4.258	3.035
▪ 1964	2.041	0.531	3.231	1.694	2.491	1.481	3.676	2.655
▪ 1965	-4.352	-5.871	-0.070	-1.646	-0.120	-1.272	4.352	3.159
▪ 1966	-0.618	-1.951	3.842	2.429	1.450	-0.260	5.993	4.196
▪ 1967	3.025	1.207	6.801	4.928	2.327	0.642	6.078	4.342
▪ 1968	-6.798	-6.723	-3.949	-3.892	2.521	0.995	5.643	4.060
▪ 1969	-14.324	-13.403	-8.999	-8.011	0.773	-1.015	7.037	5.138
▪ 1970	0.361	-1.084	5.306	3.790	2.470	0.441	7.530	5.401
OCT 1970 *	-12.155	-14.319	-5.383	-7.725	-0.625	-2.489	7.037	5.029

\* BASED ON 3 QUARTERS ONLY

TABLE IV

CUMULATIVE QUARTERLY LOGARITHMIC RETURNS,  $\sum \text{LOG}_e(1+R_t)$ , AT ANNUAL INTERVALS, FEB 1919-JAN 1955,  
GROSS OF TAX IN MONEY TERMS, VALUE AND EQUALLY WEIGHTED EQUITY PORTFOLIOS  
EXCLUDING COMPANIES WHICH APPEAR ONLY IN THE DE ZOETE SAMPLE

YEAR ENDING	VALUE WEIGHTED EQUITY PORTFOLIO			EQUALLY WEIGHTED EQUITY PORTFOLIO		
	TOTAL LOG-RETURN	DIVIDEND LOG-RETURN	RISK PREMIUM	TOTAL LOG-RETURN	DIVIDEND LOG-RETURN	RISK PREMIUM
JAN 1920	0.3907	0.0259	0.3536	0.3250	0.0510	0.2879
1921	-0.0700	0.0570	-0.1683	-0.0121	0.1082	-0.1105
1922	-0.1096	0.0953	-0.2572	-0.0245	0.1757	-0.1723
1923	0.2965	0.1355	0.1245	0.3821	0.2362	0.2099
1924	0.4199	0.1705	0.2213	0.5138	0.2904	0.3151
1925	0.5922	0.2023	0.3601	0.7409	0.3407	0.5087
1926	0.7749	0.2335	0.5031	0.8632	0.3890	0.5913
1927	0.8316	0.2654	0.5155	0.9551	0.4361	0.6389
1928	1.0285	0.2949	0.6718	1.1488	0.4804	0.7921
1929	1.2689	0.3287	0.8713	1.2953	0.5248	0.8977
1930	1.0500	0.3584	0.6024	1.1567	0.5702	0.7091
1931	0.7710	0.3900	0.2978	0.9693	0.6180	0.4962
1932	0.6753	0.4208	0.1664	0.9202	0.6625	0.4115
1933	0.9295	0.4526	0.4010	1.1524	0.7058	0.6242
1934	1.1958	0.4823	0.6619	1.4406	0.7412	0.9068
1935	1.3617	0.5095	0.8208	1.6259	0.7739	1.0853
1936	1.4988	0.5375	0.9533	1.8186	0.8087	1.2733
1937	1.6245	0.5658	1.0737	1.9235	0.8436	1.3729
1938	1.4706	0.5970	0.9147	1.7789	0.8837	1.2233
1939	1.3693	0.6354	0.8084	1.6877	0.9289	1.1270
1940	1.4249	0.6768	0.8561	1.6904	0.9748	1.1218
1941	1.4179	0.7188	0.8389	1.7165	1.0220	1.1376
1942	1.5291	0.7600	0.9401	1.9327	1.0672	1.3437
1943	1.7341	0.7968	1.1351	2.1602	1.1067	1.5612
1944	1.8049	0.8275	1.1962	2.2535	1.1421	1.6445
1945	1.9371	0.8560	1.3184	2.3911	1.1749	1.7721
1946	2.0250	0.8840	1.3975	2.4752	1.2078	1.8474
1947	2.1959	0.9128	1.5634	2.6632	1.2427	2.0303
1948	2.1871	0.9466	1.5496	2.6421	1.2827	2.0040
1949	2.1682	0.9796	1.5255	2.6591	1.3244	2.0161
1950	2.0605	1.0173	1.4126	2.5550	1.3710	1.9067
1951	2.2439	1.0582	1.5908	2.7501	1.4190	2.0967
1952	2.2221	1.0962	1.5639	2.7741	1.4741	2.1155
1953	2.3215	1.1406	1.6431	2.8370	1.5472	2.1580
1954	2.5513	1.1850	1.8501	3.1364	1.6146	2.4345
1955	2.9715	1.2238	2.2523	3.5291	1.6753	2.8092