

# Investment Decisions - Paper 2

The previous paper presented a comprehensive index of a security's performance over a past period based on discounted cash flow. This can be likened to an investor looking back over what would have been the results of an investment in a security now having full knowledge of the results of this investment.

This is interesting to the investor but it tells him very little about the period ahead. If one assumes that one cannot accurately project the future value of an investment from its past performance then a better guide is required. Past performance may be a guide to the future but the degree of guidance will depend on so many items that some way of bringing the assessment of the future into a more manageable form is needed.

Considering the investment in securities as a means of generating total return to the investor, we are interested in the means of maximising this return. We will consider only the impact of cash flows on the investor.

As we are looking into the future, our information is very much less complete than in the case of reviewing the past as presented in the first paper.

We know

- How much the security investment we are looking at will cost us as an initial cash outlay.
- We have some information on the expected cash flows from dividends (but not firm complete information).

We do not know

- What capital appreciation in the investment will take place over the period (including new issues converted if necessary by the sale of rights, or sold out to give a cash inflow).
- Exactly what will happen to dividends.
- What capital return in the period may eventuate.

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Considering the placement of investment in securities as one course of action out of a number of possible alternatives, there is another piece of information which has considerable impact on our decision.

— We know at what fixed income rate we could locate our funds for a guaranteed return for a specified period. (Excluding risk of loss.)

The question to be answered for the potential investor now can be framed: "How can I use these known and unknown pieces of information to allow me to make an investment decision being fully aware of the expectations I am setting up for this investment in a better way than is possible at the moment?"

This can be done by setting up for an investment under review the expected cash flow to be generated from the investment and computing the required market appreciation necessary for this total cash flow to be equal to the return given by an investment in a fixed income security, i.e., let the investor do the following:—

- (1) Decide on the investment and the period of review.
- (2) Determine the outlay.
- (3) Estimate (in light of as much information as he can assemble) the dividend income from the investment (and any other income such as capital return).
- (4) Discount the cash flows determined under (2) and (3) over the period at the rate of return on secure fixed income investments to give (by differencing) the required discounted flow in the final period from sale of the securities for this cash flow to be

equivalent to a fixed income investment.

- (5) Convert this discounted value of the final cash flow back to a required actual value of investment at end of period and express this as a % of original cost. (This will be the required capital appreciation over the period for the investment in this security for it to be as good as an investment in the fixed income security.)

Appendix 1 gives an example of this calculation using 7% as the fixed income rate. The method of calculation would remain the same for different

- Cash flows
- Fixed interest rates (Discount Factors).

What this Appendix 1 is saying is, that, receiving the dividend flows expected by the investor, unless he can believe that a 21.6% capital appreciation can take place over the 5-year period, then the investor would be better off investing in 7% fixed interest securities. This gives the investor the magnitude of the capital appreciation he is asking for over the period in the light of as much knowledge as he has about the security and in light of alternative fixed income investment opportunity.

The above can be simplified by assuming—

- (a) Constant dividend income over the period, and
- (b) no capital return over the period.

The information derived from a number of typical calculations like Appendix 1 can then be presented in graphical form. Appendix 2 shows such a graph.

In this case the constant yearly dividend income has been related to the cost of the investment to give a "yield". Taking this constant yield it is possible to graph return from fixed income investments against

required market appreciation of investment.

- What this graph is saying is—
- **given** expected fixed dividend and no capital return
- and a 5-year review period

**then we can deduce from the graph:**

- (a) Having the opportunity to invest in 7½% fixed income securities, or in securities with a 4% yield, then, unless the investor receives a better than 20% market appreciation in the 4% yielding security over the 5 years, he would obtain a better total return by investing in the 7½% fixed income securities..
- (b) Having the opportunity to

invest in 8% fixed income securities, or in securities with 6% yield, then, unless the investor receives a better than 11% market appreciation in the 6% yielding securities over the 5 years, he would obtain a better total return by investing in 8% fixed income securities.

And so on.

**Taxation**

The above analysis has failed to use a significant piece of information which is available to each investor, viz., what is the marginal taxation rate expected by the investor over the period ahead.

Remembering that for the general

run of private investors the income received from security dividends is taxable while the capital appreciation for the securities is not taxable, it would be expected that those investors with high marginal taxation rates could be prudent to invest in securities offering capital appreciation. How then can this be converted into a decision on required capital appreciation for an investment in a security.

This can be taken into account by computing the equivalent fixed income investment return v. dividend yield v. required market appreciation for various marginal taxation rates.

**APPENDIX 1**

Item	Amount	7% Discount Factor	Present Value
1. Cost of Investment Dividend expected—	£—1100 <sub>(1)</sub>	1.000	—1100
Year 1 .....	+ 30	0.935	+ 28
2 .....	+ 30	0.873	+ 26
3 .....	+ 40	0.816	+ 33
4 .....	+ 40	0.763	+ 30
5 .....	+ 40	0.713 <sub>(2)</sub>	+ 29
			+ 954 <sub>(3)</sub>

Required P.V. of Investment in 5 years to give 7% true return .....

Required Value of Investment at end of 5 years to give Present Value of £954<sub>(3)</sub> is,

954 ÷ 0.713<sub>(2)</sub>, which equals 1338<sub>(1)</sub> .....

Capital Appreciation required of this stock to give a true return of 7%

(1338<sub>(1)</sub> ÷ 1100<sub>(1)</sub> -- 100) ..... 21.6%

Appendix 3 and 4 show the graphs for 5/- and 10/- in the £ marginal taxation **with the following simplifying assumptions:**

- (a) 5-year period.
- (b) Taxation paid in same year income received.
- (c) Constant dividend for period.
- (d) No capital return for period or inflow from sale of rights.
- (e) Yearly discounting of cash flow.

The former assumptions can be modified for additional period and the marginal taxation rates range can be widened at will. A set of graphs covering Marginal Taxation rates from 5/- to 17/6 by 6d. steps and for 1, 2, 3, 5 and 10-year periods would seem an adequate set to cover most cases.

With these graphs an investor, or his advisers, could be expected to perform the following steps when contemplating an investment in a security.

**Query 1:** What period are we considering?

**Query 2:** What is the investor's marginal taxation rate?

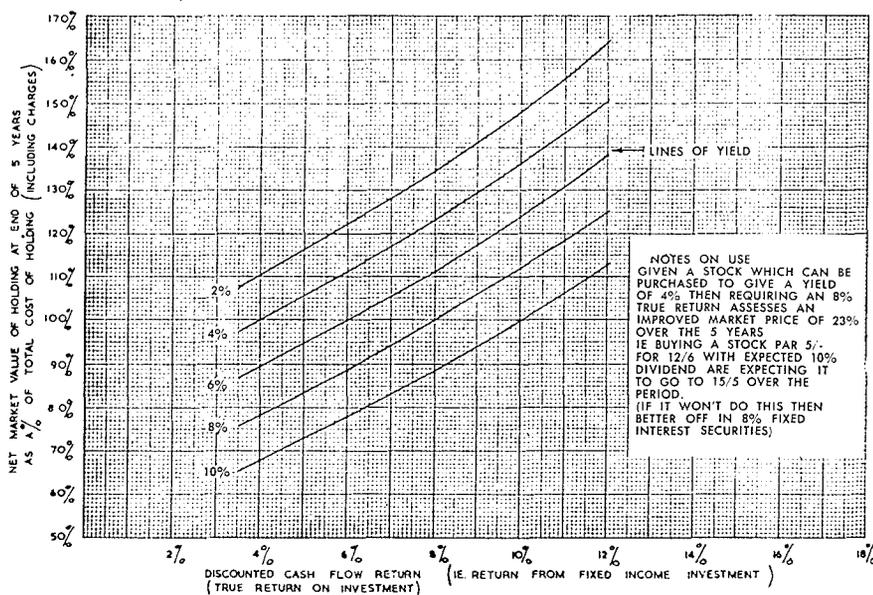
**STEP 1:** Turn up the appropriate graph.

**Query 3:** What is the annual dividend yield expected over the period for this security?

**Query 4:** What rate of return could the investor receive for an

**APPENDIX 2** 5 YEAR PERIOD  
TAXATION IGNORED

REQUIRED APPRECIATION IN MARKET VALUE VS. DIVIDEND YIELD VS. REQUIRED DCF. RETURN  
 (CONSTANT INCOME FROM DIVIDENDS)

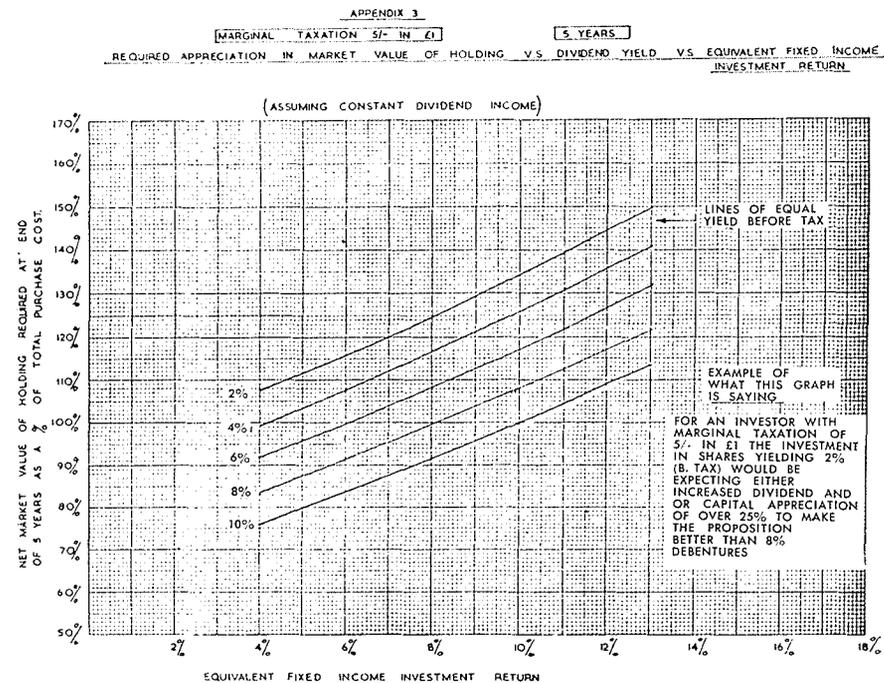


alternative fixed income investment over the period?

**STEP 2:** Look up graph to see what capital appreciation is required from the investment in the security to equal the return from investing in the fixed income security.

**Query 5:** Can the investor reasonably expect market appreciation of this % from this security over the period?

In making decisions about market appreciation expected you are obviously making a value judgment. You are not assessing what you believe the market **should** value the stock at the end of the period but what the market **will** value the stock at. By using this numerical measure of required growth in value then to recommend an investment requires a reasoned judgment on how the market is expected to react generally and on how the market will react to the stock under consideration in particular. The latter part of the assessment would be guided by analysis of the company's past, its statements on its future plans



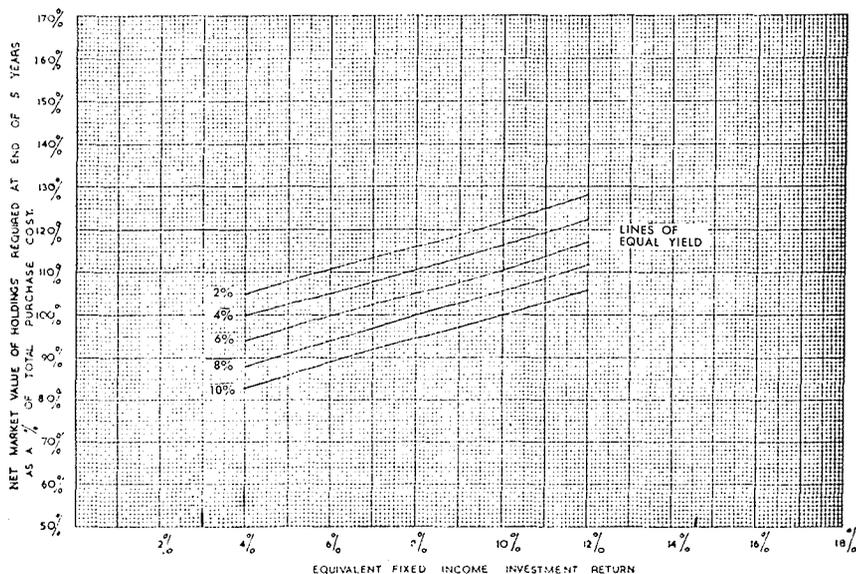
and on knowledge of its total environment.

**For example,** let us take an investor with a 5/- marginal tax rate investing in securities yielding 2% and having an 8% alternative fixed interest investment available. Then over a 5-year period unless he could expect

a 25% market appreciation in his investment then he would be better advised to invest in the 8% fixed interest securities. If he had a marginal tax rate of 10/- then the required appreciation would reduce to 16% to be equal to an investment in the 8% fixed interest securities.

The advantage of this process is that it uses the most information an investor has at his disposal.

APPENDIX 4  
MARGINAL TAXATION 10/- IN £1      5 YEARS  
REQUIRED APPRECIATION IN MARKET VALUE OF HOLDING VS. DIVIDEND YIELD VS. EQUIVALENT FIXED INCOME INVESTMENT RETURN



- Information on his own background (marginal taxation and period).
- Alternative available from fixed income investment.
- Information which allows assessment of plausibility of capital appreciation of security required to be as good as fixed income (analysis of the security's expected growth as shown by the market's regard for it).

An approach such as this being used by an investor and his adviser seem to offer decision-making based on the best information available.