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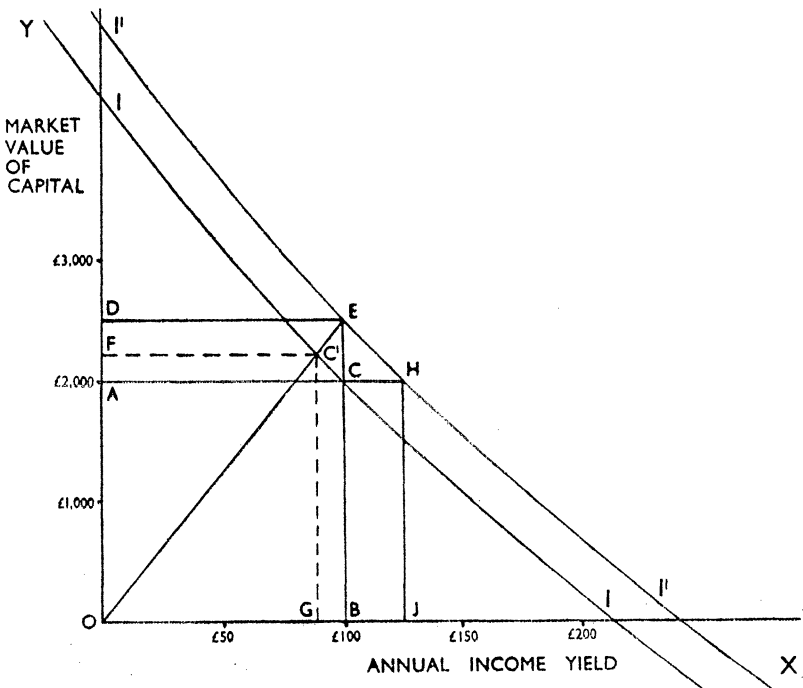
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Capital Value and Income

By F. W. PAISH

It would appear that the approach to the question of how far a change in the capital value of an asset without a change in the income derived therefrom improves the financial position of the owner could be appreciably simplified by the use of the following technique.



In the foregoing diagram, an investment with a market value equal to OA gives an annual income equal to OB . The point C , where the perpendiculars from A and B meet, indicates the value to the owner of the combination of capital value and income yield.

Through C construct an indifference curve (II'), between capital value (yielding no income) and annual income (having no marketable value).

If the owner is completely indifferent to the annual income, and is concerned only with capital value, II' will be parallel to the X axis.

If he is concerned only with the annual income, then it will lie parallel to the Y axis. It is unlikely that either of these limiting cases would in fact occur. A very large capital sum will finance a substantial annual expenditure for a long time, and would therefore be preferred to a small perpetual income even by the most conservative of rentiers. Conversely, it is unlikely that even an extremely short-term speculator would fail to feel recompensed for the loss of £100 of capital value by an increase in income of £100 per week. It is therefore highly probable that the indifference curve will slope downwards and to the right and that it will cut both axes.

Now let the percentage rate of interest fall from $\frac{100\ OB}{OA}$ to $\frac{100\ OB}{OD}$

The capital value of the security therefore rises to $OD, = BE$. Through E draw a second indifference curve, II' , lying above and to the right of II . From E draw a line to the origin.

If the owner of the security sells a part of it and consumes the proceeds, he will reduce both the capital value of his asset and his annual income, and his position will move along the line OE in the direction of O . If he stops at C' , where OE cuts II' , his position will be exactly as favourable as before the fall in interest occurred. But at this point he has spent less than the amount of the rise in the capital value of his asset, since some increase (AF) in capital value is needed to offset the fall (GB) in annual income. His true profit from the rise in capital value is therefore not AD but FD , since FD is the additional amount which he can spend without making himself worse off than he was originally.

From the foregoing analysis it is clear that a distinction requires to be drawn between a capital gain due to the capitalisation of an increased income at an unchanged rate of interest, and that due to the capitalisation of an unchanged income at a reduced rate of interest. In the former case the whole of the capital gain can be spent without making the position worse than it was originally, in the latter only a part of it.

On the same diagram can be shown how much in terms of annual income the service of the availability¹ of the additional capital value is worth to its owner. If AC is extended to cut II' at H , then CH ($=B\mathcal{Y}$) is the annual income equivalent of the rise in capital value. This does not of course mean that the owner can spend this additional amount per annum and still maintain his income at the new level. His position is similar to that of someone who receives the gift of a durable consumption good, from which he receives direct services by reason of which he is better off. If he now spends part of his capital and so reduces his money income, he will gradually return to another point on his original indifference curve, having a smaller money income but enjoying more direct services.

¹ See W. H. Hutt, *The Theory of Idle Resources*, pp. 63-64.

It can similarly be shown that if a man wishes to restore his financial position after a decline in the market value of his capital owing to a rise in the rate of interest, he must save until he has restored a part, but not the whole, of his capital loss. He will then still receive a smaller direct service from the availability of his capital, but will receive compensation for this in the form of a larger annual income. If, however, he wishes to restore his position after a decline in capital value due to a fall in the income yield, interest rates being unchanged, he must save until he has restored the whole of the former capital value.

The effect of changes in income yield, without a change in capital value (as for instance in consequence of a fall in interest rates accompanied by a conversion operation), can be similarly ascertained. If the yield of an investment falls, while its capital value is maintained, its owner, to restore his former position, must save enough to replace part, but not the whole, of his lost income. If the yield rises, without a rise in capital value, he will be no worse off than before the rise in yield if he spends a part of his capital, provided that he leaves his income still sufficiently above its former level to compensate him for the reduced market value of his capital.

Finally, this approach provides a convenient definition of the phrase 'maintaining capital intact', at least where the capital of an individual is concerned. Clearly, an individual owner of a security or other asset has maintained his capital intact if he is indifferent between his present combination of capital value and income yield and a former combination, *i.e.* if he is anywhere on the same indifference curve. Definitions of the phrase to mean the maintenance either of market value only or of annual income only can now be seen to be true only in the limiting cases where the indifference curve is parallel to one or other of the axes. Where, however, a corporation is concerned, its application is less obvious, since the indifference curves of the various shareholders may show great dissimilarities. It may therefore well be that movements in opposite directions of the market value of the securities and their yield will cause some shareholders to feel better off and others worse.