THE BASIS OF A THEORY OF PROFIT

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In the early days of the English Classical School of Political Economy the income of the investor was termed «the profits of stock» but early in the 19th century interest, which originally had been only an element in profit, began to assume the major role until in the 20th it came to be regarded as constituting the return to investment. In the later 19th C there were various attempts to define profit in terms of the institutional features of particular national economies, so that French, German and American theories of proift can be identified, each being based on the characteristics of the relevant national economic structure. Each of these theories seized upon a particular cause of a difference between the actual income of a factor of production and the payment that quantity of factor would have received in a state of perfectly competitive static equilibrium. So F. H. Knight was able to say «A theory of profit is inherently a theory of aberrations of actual economic conditions from the theoretical consequences or tendencies of the more general free forces which tend to eliminate them; a theory of imperfect competition supplementary to a theory of perfect competition defined in a sense which excludes profit.»

The primary cause of difference between the world as it is and the hypothetical world of static competition is that the results of all economic activity are fraught with uncertainty and so the majority of writers, who find any need for a theory of profit at all, agree that Knight laid the first foundation on which any future theory of profit must rest, the dependance of profit on uncertainty. So according to orthodox theory the return to investment is interest, a proposition which appears improbable on empirical grounds and it will be attempted to show it to be theoretically untenable.

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[1] Encyclopedia of the Social Sciences, Vol. XII pp. 480 - 486, MacMillan, 1934.

In this paper it will be argued that a divergence between factor incomes in the real world and in the hypothetical world of static competition is not an appropriate basis for a theory of profit and to find such a basis a return will be made to the classical view of profit as the net return to investment after the current rate of interest on money loans has been paid. Uncertainty will appear as a probable but not as an inevitable component of this foundation.

The first step must be to deal with the relationship between interest and the volume of investment. Examining the problem at the empirical level one can cite the evidence of business men in the «Oxford Seminars» of the 1930's [2] to the effect that their investment plans took little account of the rate; there is the evidence of the slump of the 1890's in Britain when interest rates were unusually low for some two and a half years without any perceptible influence on investment; the British balance of payments crises of the 1950's when credit rationing had to make up for the ineffectiveness of high interest rates in restricting investment. There are also such computations as that of Keynes of the costs of holding commodity stocks, which suggest that interest charges are «perhaps the least important element» in carrying costs [3]. At each of these levels doubt is cast on the proposition that interest rate changes have an important influence on the volume of investment.

We must clearly begin by defining interest in a manner which frees it from any direct dependence on the return to investment, defining the latter term in Keynesian fashion as the acquisition of producers' goods. Keynes in defining his marginal efficiency of capital subtracted a premium for risk from the gross rate of return over cost and by equating the net rate to the rate of interest determined the quantity of investment, a most unsatisfactory proceeding. It gives no clue as to why anyone should ever invest, since the whole income imputable to capital is paid away to the providers of money loans. If we equate the rate of interest and the rate of return to investment we must assume either that, although individual investors may make net incomes, profit regarded as a distri-

[2] The results are published in a series of articles in Oxford Economic Papers 1938 - 40 particularly, H. D. Henderson «The Significance of the Rate of Interest, Oct. 1938; J. E. Meade and P. W. S. Andrews «Summary of Replies to Questions on Effects of Interest Rates, ibid; R. S. Sayers Businessmen and the Terms Borrowing, Feb. 1940; P. W. S. Andrews A Fuarther Enquiry into the Effects of Rates of Interest, ibid, also G.L.S. Shackle Interest Rates and the Pace of Investment, Econ. Journal, March 1946.

[3] Treatise on Money Vol 2, Ch. 29).

butive share in the national dividend is zero in the long run, or alternatively that there is a positive surplus taking one year with another.

According to the first hypothesis which has many adherents the investor is taking part in a most improbable zero sum game and, although there is a net income under the second hypothesis, the origins of this distributive share are obscure. According to more recent writers of the Knight school it is the result of a difference between ex ante and ex post incomes arising from unpredictable changes in demand and supply functions but, apart from stock appreciations arising from the historical long run depreciation of the value of money, it would be remarkable if by pure chance a regular excess of ex post over ex ante incomes should emerge in the long run. If such a difference is to be positive, apart from the value changes due to inflation, the existence of uncertainty must have the effect of decreasing the amount of investment induced by a given income expectation and we are at least approaching the need for the functional relationship between investment and profit rate which is denied by this group of theorists.

To settle the role of interest we will suppose that buyers of investment goods borrow the money for their purchases by issuing bonds and we will deal with the situation where the purchases are made with funds already at the disposal of the purchaser by counting such individuals as lenders as well as borrower-investors By investment we include not merely the establishment of new firms or the expansion of old ones but also the purchase of goods for the ordinary conduct of production. The rate of interest is both the liquidity premium of money over bonds and the rate which equates the demand and supply of loans.

All considerations of time preference on the supply of loans are excluded. The traditional micro theory of the supply of loans deriving from the supply of savings is rejected for the reason that individual savings schedules are not summable since each is based on the assumption that individual income is constant. If a significant number of the members of a community attempt to increase their savings, that is their unspent margins, and *nothing else happens* there will be a general fall in the level of incomes and communal income being lower, total savings will decrease and not increase. If we consider savings on the macro scale then acts of saving must also be acts of investment, since saving can take place only by a change in the proportions of consumption and investment goods in the national product and saving and investment on the national scale are necessarily identical.

The question of the proportion of current income appropriated for current consumption is adequately dealt with by the marginal propensity to consume. Whether the stocks of money acquired by not spending on consumption are held as money hoards, or are turned into a less liquid form by lending, depends on liquidity preference and the rate of interest. In the latter case no idle hoards are created and the money is spent by the borrowers on production goods. Money is required for all kinds of transactions and there is no point in distinguishing between that which is held to facilitate the exchange of goods and services and that which is held for speculative reasons. If a sufficiently high rate of interest is offered, the quantity of money required to effect a given volume of transactions can within limits be reduced without any reduction in the volume of transactions in any direction. The marginal propensity to consume accounts for the size of unspent margins and liquidity preference determines the form in which they are held. To bring time preference into the determination of the rate of interest is to use it in the wrong context.

This section of the argument has some resemblance to the Schumpeter theory of the return to capital. Schumpeter's theory involved the concept of innovation, an entirely new type of investment opportunity disturbing the tranquility of a constant flow of commodities, services and money. We are concerned with a constantly varying volume of investment, the total demand for producers' goods; and for our purpose it does not affect the form of the argument if the effective demand for factor inputs decreases or increases. Whatever the volume of investment may be, some rate of return will be necessary to maintain it at that level and whereas the Schumpeter model demands the ad hoc creation of new bank credit to undertake each innovation, we are considering a supply of credit which within limits extends for a rise in the interest rate.

As we have already indicated the right place to use the idea of time preference is in the theory of return to investment. This theory must also take account of, first, the productivity of capital goods secondly, of the payment for loss of liquidity when wealth is held in the form of capital goods as compared with bonds, thirdly, of the uncertainties of an unpredictable future. Following the Keynesian method we can start with the productivity of capital goods as a physical fact and consider the investment opportunities in which they may be employed and the rates of return over cost which are anticipated from them. There can be no conception of the marginal productivity of capital since the capital value of an asset is the anticipated income capitalised at an appropriate rate, but we can consider the costs at current prices of making particular invest-

ments and the estimated rats of return which result. We can then arrange investment opportunities according to the prospects of return.

The Fisher - Keynes method of deducting a premium for risk from the gross rate of return over cost not only assumes that there is some safe investment which can be used as a standard of reference but that the prospective income can be expressed by a single figure so that we can describe one investment as offering a very risky 20 %, another as offering a fairly safe 7 % compared perhaps with a «safe» 5 % Such a picture bears no resemblance to reality for as Hicks showed long ago [4] the anticipated return from an investment opportunity can be represented as a scatter of possible outcomes ranging from total loss of the investment to a very high rate of return. It is possible that a single opportunity may offer both a fairly high possibility of total loss and a similar chance of considerable gain, with little or no chance of breaking even or making a small gain. This concept leaves us with the task of deciding which aspect of the scatter of possible outcomes is taken into account in making investment decisions, but having developed the uncertainty element in profit to this point we will leave it there for the moment and pass to the other considerations which affect the rate of return.

The return to investment like the income from any economic activity accrues at a later date than that of the activity which gives rise to it. In general an investor, private or institutional can be assumed to prefer an income stream which begins at an earlier date to one of equal volume and duration beginning at a later date. Some income instalments may not accrue until dates when they have no significance to the investor who must be credited with some form of time perspective. Strictly we should make comparisons between equal increments of income available at different points of time, for clearly the choice between 1,000 T.L. per annum from now on and 20,000 plus accumulated interest 20 years hence involves other considerations. It is indeed doubtful if the time preference functions is so smoothly continuous as those who have used it in their interest theories assume, but the phenomenon must be taken into consideration when comparing the different expectations from different investment opportunities.

Furthermore it is a characteristic of investment that when wealth is committed to the form of producers' goods it loses mobility to a degree depending on the adaptability of the asset in question. Some assets have only one possible use, others are more versatile. There is thus the ques-

[4] The Theory of Uncertainty Profit; Economica, May 1931.

tion of the payment for loss of liquidity when the investor increases his liabilities in terms of bonds and his assets in terms of producers' goods. It may appear that the considerations involved here could be dealt with under time preference or uncertainty but the element is worthy of separate notice, if only because of the possibility of a change in the direction of the premium. Ordinarily bonds have a premium over physical assets and we can attribute this to the characteristics of the asset but if commodity prices rise rapidly there can be a drastic change in the premia between goods, bonds and money. In a period of rapid inflation there is an advantage in holding assets which will appreciate and not depreciate in terms of money and which will at least depreciate less in terms of general purchasing power than either bonds or money. In a very violent inflation the order of preference may change so that real assets show a premium over money and money a premium of abnormal dimensions over bonds.

We have now all the material we need to explain the margin between the gross rate of return over cost of an investment and the rate the investor must pay for the money he borrows, that is, the margin dismissed as a premium for risk by Fisher and Keynes. In fact the only true risk element, that of the default of the borrower, is included in the rate of interest since it will affect the liquidity of a particular loan as compared with those granted to safer borrowers. So the large concern may be able to borrow at rates approximating to government borrowing rates, while concern whose bonds are less easily saleable will have to offer a higher rate.

The determination of the quantity of investment can be approached in two ways. On the one hand we have a demand for investible funds based on the capital requirements of available investment opportunities, graded according to anticipated returns, and against this can be set a supply schedule of investible funds with supply price based on uncertainty, loss of liquidity and time preference, all treated as subjective real costs. We can either treat the rate of interest as part of the supply price or include it in costs of the real assets. This method does not however look promising. We cannot arrive at anything so concrete as a demand schedule from the data of expected returns and we are faced with the difficulty that considerations of uncertainty on the supply side are detached from the data of expected returns to which they relate.

Instead we may hypothesise a demand for accumulation and for an increased level of wealth which causes particular investment outcomes to engender a certain emotional response. The investment project may

be expected to result in a sum of money which is greater than the amount of the investment accumulated for the life of the project at the current rate of interest or alternatively it is expected that the anticipated income stream will have a greater value on the capital market than the assets, organised to produce that income stream, have at the beginning of the project. What is more uncertain in the present will be less uncertain in the future when the initial difficulties have been overcome; what is now in the future will have become actual, and assets which are producing income will be worth more than they are when that income is entirely potential.

In either case there will be a capital gain and it is the planning for the emergence of a capital gain which distinguishes a profit earning situation from an interest earning situation where capital value will merely fluctuate with changes in the rate of interest and no longrun growth of capital can be anticipated.

The approach to the problem of determining the quantity of investment can be demonstrated by the use of the Shackle function [5] which deals with the process of choice between investment projects of varying degrees of uncertainty and varying scales of potential return.

Shackle accepts the Clark-Knight definition of uncertainty as referring to situations in which it is impossible to use probability theory to predict outcomes because of lack of numerical data, but unlike these two writers he recognises that the individual will nevertheless make subjective estimates of outcomes and that these will influence his conduct. In spite of the fact that most investment decisions are made in circumstances very similar to those in which many other such decisions have been made previously, each decision has unique features and the law of large numbers is of no assistance to the investor, because if he guesses wrongly his scope for making further decisions in the future will be impaired and indeed loss of capital may make further investment projects impossible.

Let us take an individual considering the investment of a certain capital sum and consider his response to a range of outcomes which we will take as varying from total loss, through the point of recovery of the original sum, to gains of considerable size. We will represent outcomes as capital sums, that is we will imagine the investor to compute the capital value, under various degrees of success or failure, of the as-

[5] G.L.S. Shackle, Expectation in Economics Cambridge Univ. Press 1949.

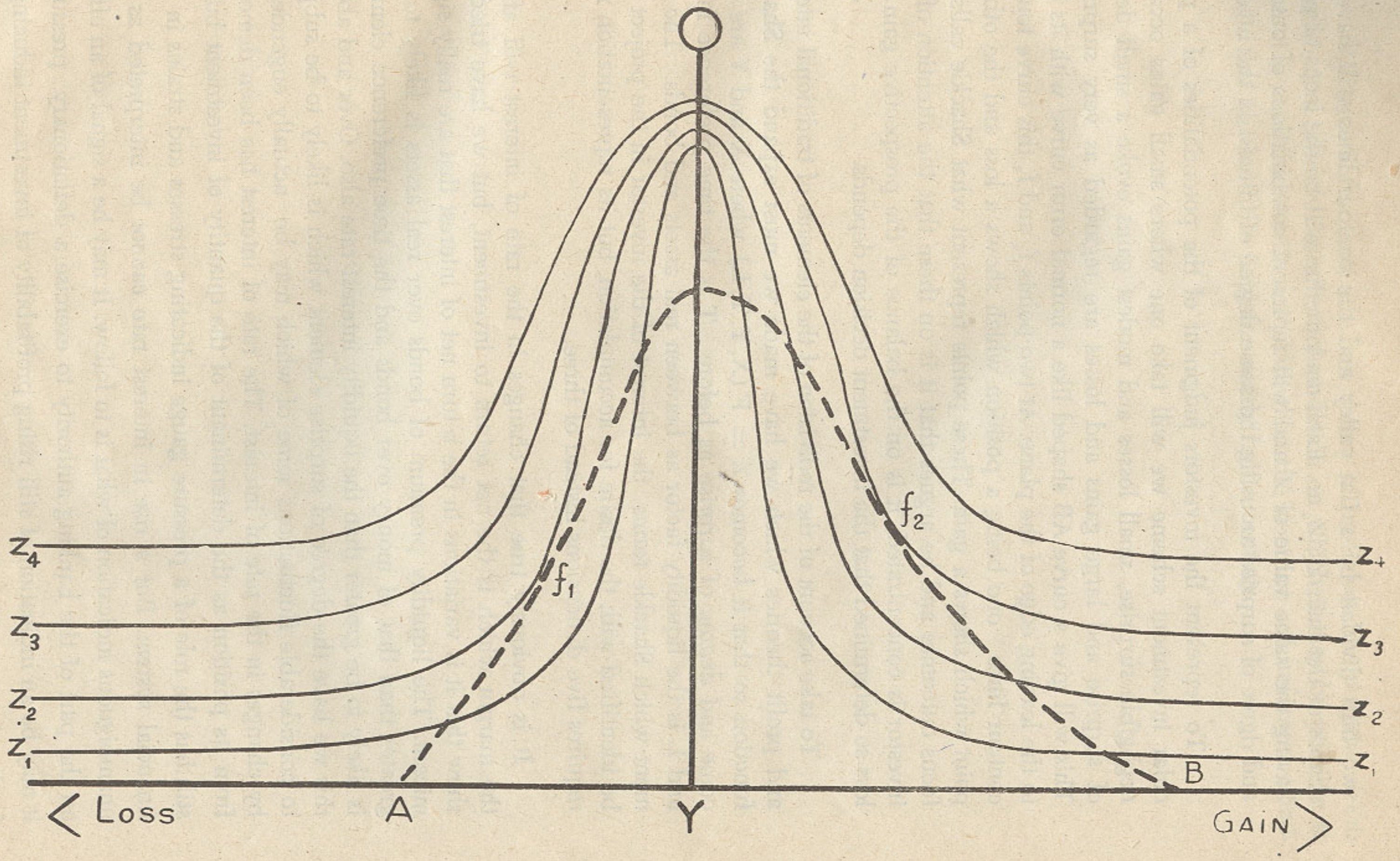
sets he intends to create, the value being estimated for some future date which he has selected for the closure of the transaction. Shackle considers the degrees of subjective possibility to be attached to each possible outcome and arranges them according to their latent power to surprise. There may be some size of loss which can be regarded as practically impossible so that its occurence would occasion the maximum degree of surprise and there will be other outcomes which are regarded as so large as to be equally surprising. Small gains or losses may occasion no surprise and other outcomes, whether gains or losses, will have attached to them some finite degree of potential surprise.

The apparatus constructed by Shackle consists of two parts, the first portrays the reaction of the individual to investment projects in general, his degree of caution or the lack of it, his optimism or pessimism, and the second part records his judgment of the possibilities of a particular investment scheme. The first part consists of a three dimensional model in which height above the plane which forms the base is taken as the degree of interest which is evoked by the combination of outcome and degree of surprise represented by a point in the base plane. In the diagram the solid figure has been reduced to two dimensions by the use of contour lines. A point Y is taken in the leading edge of the base plane and outcomes are measured along this edge starting with complete loss on the extreme left and some outcome which is regarded as far too good to be conceivable on the extreme right. The point Y is the breakeven point.

From Y a line at right angles to the leading edge is drawn to point O and the distance OY is scaled so that if O represents the point of zero surprise, the point Y represents the point of maximum degree of surprise, that is of complete disbelief. So, small gains and losses will occasion no great surprise and will be represented by points close to the line OY and lying back from the leading edge towards O. Very large gains will be represented by points well to the right and large losses by points well to the left and as these outcomes will occasion great surprise the points which represent them will lie close to the leading edge.

If we represent the reaction Z evoked by a given combination of outcome X and degree of surprise Y by the function $Z = F(X, Y)$ then Z will have greater positive values the larger is X for a given value of Y and the smaller is Y for a given value of X. The same generalisation is true for negative values of Z given by values of outcomes to the left of OY.

If both positive and negative values of Z are measured by vertical distances above the base plane the solid figure will have the shape of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two hills divided by a flat valley and the contour lines will have the shapes of the lines Z_1, Z_2 . . . Each contour line will be the locus of points having the same value of Z and will represent combinations of outcome and dgree of surprise arousing the same degree of interest in the investor.

To represent the investors judgment of the potentialities of a particular investment scheme we will take one where small gains occasion negligible surprise, small losses and modest gains evoke a small degree of surprise and large gains and losses are regarded as very surprising This will give a curve AB shaped like a normal error curve with its base to the leading edge of the plane. At two points f_1 and f_2 this curve touches contour lines, one being a position which shows a loss and the other a point which shows a gain. These points represent what Shackle calls the focus outcomes and he argues that it is on these that the attention of the investor is concentrated; it is on the balance of the prospective gain and loss so determined that the investment decision depends.

To take account of the redivision of the elements of traditional interest and profit theories which we have made we must expand the Shackle function so that it becomes $Z = F(X, Y, T, L)$ where X and Y are outcome and degree of surprise as before, T is the time preference factor and L is the liquidity factor as between real assets and bonds. The element which Shackle terms the interest of the investor in the project can be identified with the desire for accumulation, but its representation now requires five dimensions instead of three.

It is obviously true that changes in the rate of interest will affect the margin which is the net return to investment, but we have tried to show that it is variations in the return net of interest that are really signimicant. The liquidity premium of bonds over real assets is likely to be greater than that of money over bonds and the time preference element is likely to be greater than the liquidity interest rate also. Over and above this we have the degree of surprise element which is likely to be subject to considerable fluctuations some of which may be actually engendered by changes in the rate of interest. The rate of interest has been demoted from its position as the determinant of the quantity of investment but it still has the role of a pressure gauge indicating stresses and strains in the financial system. But a rise in interest rate cannot be interpreted as an unambiguous indication of what is to follow. It may be a signal of an effort on the part of the banking authority to exercise a deflationary pressure; it may be an indication of still rising profitability of investment inducing a further increase in investment.

We have not arrived at a new theory of profit yet; the purpose of this article has been to describe a foundation on which it may be possible to build a more convincing structure than the doctrine of unforseen windfalls that has held the field for nearly half a century.