LIQUIDITY PREFERENCE, MARK-UP AND ECONOMIC DYNAMICS: A VALUE-THEORETIC APPROACH

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PREAMBLE

To my knowledge, all non-equilibrium thinkers acknowledge two fundamental absences in General Equilibrium: time, and ignorance. The purpose of this paper is to investigate the connection between the two. We hope this will broach value theory – our own special interest – in a way that other temporal thinkers will find congenial.

We begin with a simple observation: ignorance is a fruit of time, but time is not a joint product of ignorance. The future is unknown precisely *because* it is the future: I certainly know of no economist who complains that the past is unpredictable. However, if the dark forces of ignorance stem from the darker forces of time, then we should ask how much of what is traditionally blamed on ignorance may be laid directly at the door of time. This we study first.

Rates of return under more than one money

Suppose an asset *K* grows, for any reason. The money profit on this asset over any period is then equal to the change in its total price: if at the start of the year we have £10 and at the end we have £11, our profit is £1, the growth in the asset measured in money. If the asset grows continuously at a rate K', the money rate of return on this asset at any given time is

$$\frac{K'}{K}, \qquad (1)$$

the 'proportionate rate of change' of *K*. Proportionate change crops up so often that we will use a special notation for it:

for any *x*, define $$x^{+} = \frac{x'}{x}$$

Now suppose K can be priced in two different moneys, *m* and *l*. We use these like conventional money signs, so that just as \$12 is 12 dollars, ${}^{m}14$ is 14 units of *m*. Our asset measured in *m* is ${}^{m}K$, and ${}^{l}K$ when measured in *l*. If the notation gets difficult, write \$ instead of *m* and £ instead of *l* (for now). We can now write the return on *K* when designated in money *m as*

$$\frac{{}^{m}K'}{{}^{m}K} \qquad (2)$$

or just $${}^{m}K^{+} \qquad (3)$$

This rate of return depends on the money of account. If I hold an asset which is constant in dollars, and the dollar price of the pound falls, the asset will rise when measured in pounds. Only if the exchange rate is constant will the rates be the same.

We will call the exchange rate of *m* for *l* ('*m* per *l*') ${}^{m}{}_{l}$; evidently ${}^{l}{}_{m} = 1/{}^{m}{}_{l}$.

Clearly $${}^{m}K = {}^{m}{}_{l} \times {}^{l}K \qquad (4)$$

In words: the price in dollars is equal to the price in pounds times 'dollars per pound'. The notation may seem idiosyncratic but it makes it easier to follow exchange relations: superscripts 'cancel' dimensionally with subscripts.

What is the relation between the two rates of return? Suppose ${}^{m}{}_{l}$ fluctuates. Differentiate (4) using the product rule:

$$ {}^{m}K' = ({}^{m}{}_{l} \times {}^{l}K)' = {}^{m}{}_{l} \times {}^{l}K' + {}^{m}{}_{l}{}' \times {}^{l}K \quad (5) $$

Divide through by capital stock ${}^{m}K$, giving after a small amount of manipulation

$$ {}^{m}K^{+} = \frac{{}^{l}K'}{{}^{l}K} + \frac{{}^{m}{}_{l}{}'}{{}^{m}{}_{l}} \quad (6) $$

$$ = {}^{l}K^{+} + {}^{m}{}_{l}{}^{+} \quad (7) $$

In words: the dollar rate on any asset is equal to the pound rate on the same asset plus the proportional rate of change in the exchange rate.

Theorem 1: Money is only a veil if all prices are constant

The statement ‘money is a veil’ is equivalent to the following proposition: the behaviour of the economy cannot be affected by changing the money of account.

Proof of the theorem: Suppose first that any price varies. Since any commodity may be used as money of account, by equation (7) the rate of return will differ if the varying commodity is used as money of account. But the rate of return on assets affects behaviour. Therefore, if the price of anything varies, the behaviour of the economy can be altered by using it as money of account. ■

Use-value and own-rates

Any asset may form a money of account, since we can divide any other price by the given asset’s price to create a monetary measure.

However this does not of itself define the size of an asset. If we divide an asset’s price by itself we get 1, a dimensionless and unvarying measure. If, for example, an asset rises in price from £12 to £14 we cannot say, without further information, whether it has grown in absolute quantity, or simply gotten more expensive.

There is a subclass of assets whose quantity is defined independent of their monetary measure. For example this includes single use-values and any basket whose proportions are fixed in time. It also however includes any money serving as means of payment, including credit and paper money. If at the beginning of the year we posses a hundred banknotes and at the end a hundred and ten, then this asset has grown by ten percent in terms of itself, regardless of whether the notes have intrinsic worth. We will use the term ‘commodity asset’ for any asset B whose rate of return ${}^{b}B^{+}$ can be defined in terms of itself.

Speculative profits

The own-rate ${}^{m}K$ of any asset depends on the money used. Changes in price offer a rational basis for holding commodity assets with an own-rate of zero. Suppose for example that the price of silver is rising:

$$ {}^{m}{}_{s}{}^{+} > 0 \quad (9) $$

Since any commodity may be conceived as a money of account the rate of return on an asset consisting of silver can be written

$$ {}^{m}S^{+} = {}^{s}S^{+} + {}^{m}{}_{s}{}^{+} \quad (10) $$

that is to say, the rate of return on the asset, measured in money, is greater than the rate at which the asset grows, measured in itself. In fact, even if the asset does not grow at all, a positive profit rate will be recorded and the faster silver is rising in price, the greater this will be. This result is valid for any commodity asset as we have defined it including money such as paper or credit money.

This illustrates an obvious need to distinguish a purely *speculative* profit, which results from changes in price that we will designate as ‘nominal’, a profit which arises from something other than changes in price. Though taken for granted in almost all of economics, it is far from clear what this distinction means. The main purpose of this article is to clarify it and hopefully, to establish that it contains a dormant but inescapable concept of value.

The Quantity Theory of Money

The Quantity Theory of Money cannot itself be framed without a value concept: that is, without the real-nominal distinction. It contains a variable called ‘the price level’. A price level cannot exist, and has no meaning, unless there is some magnitude distinct from nominal price, so that the price level can be the ratio between this magnitude and the nominal price.

All schools of economic thought distinguish real from nominal prices. Insofar as they do, the concept of value arises implicitly in them as a distinction between the actual money-price of a thing, and something which behaves like a price and is common to all commodities, but is not the actual money price. The differences between schools and their implicit theories of value lie in the way they conceptualise and measure this distinction, and in the way it enters their economic explanations. Later we will be suggesting that there are in fact only two genuinely distinct value-concepts.

The issue can be expressed in terms of own-rates as follows. Suppose an asset has grown in money terms, say from $12 to $14. In conventional economic language it can be said that this might either be because prices have risen, or because the asset has gotten bigger. But how do you tell the difference? You require an independent measure of the size of the asset, to say whether it has got bigger or not. Value is the meaning of the word ‘bigger’; it is the unit in which ‘bigger’ is measured.

‘Real money’

The commonsense prejudice is to imagine that the use-value of the asset is a sufficient definition of its size. But if two assets have different own-rates, this intuitive idea gives rise to two measures of the price level, so it is inadequate.

Suppose an investment grows from 10 beans to 20 beans and that its price rises from $10 to $30; whilst another grows from 10 corns to 25 corns, and its price from $10 to $35. Starting from the increase in the beans, suppose we say that their own-rate is 100% and therefore the nominal increase in price is 50%. But for the corn the own-rate is 150% and the nominal increase in price is 40%. We are left with no independent meaning for the concept of price level.

A quite distinct measure of size is required, usually a price index. A price index implicitly defines a measure of value: it separates out every change in price into a nominal price rise, and a change in size. We will establish, later on, a completely different measure of size corresponding the the quantity of labour-time which an asset represents in exchange.

We can in fact specify a money of account, which we will call ‘real money’, as follows: divide the nominal price by the price level, however this is calculated. This is simply the money of account which is used, for example, in the National Income statistics when these are reported in constant, instead of current prices.

The following theorems apply regardless of what definition of ‘real’ is adopted, that is, whatever the underlying value-concept.

Theorem 2: there exists a rate of fall of the price level at which liquid nominal money will be preferred to any other asset

A holding M of nominal money is a commodity asset[1] and therefore has an independent own-rate of return ${}^{m}M^{+}$. In order to be fully liquid, money must be commited nowhere and therefore its absolute magnitude cannot change ('under the mattress' money storage or pure hoarding). Hence for a completely liquid money asset

$$ {}^{m}M^{+} = 1 \tag{11} $$

Call 'real money' r and nominal money m. In that case the price level is ${}^{m}r$ ('nominal per real').

Note that by (7)

$$ {}^{m}M^{+} = {}^{r}M^{+} + {}^{m}_{r}{}^{+} \tag{12} $$

So that

$$ {}^{r}M^{+} = 1 - {}^{m}_{r}{}^{+} \tag{13} $$

Among all assets there will be some asset S for which the real rate of return ${}^{r}S^{+}$ is a maximum among non-monetary assets. If the price level falls fast enough, ${}^{m}_{r}{}^{+}$ will be a negative number of magnitude greater than ${}^{r}S^{+}$ and since

$$ {}^{m}S^{+} = {}^{r}S^{+} + {}^{m}_{r}{}^{+} \tag{14} $$

it follows that the nominal rate of return on any asset other than money will be negative. In this situation, the rate of return on liquid money assets is the greatest attainable and there is therefore a motive for holding liquid money assets in terms of a visible property of such assets, their nominal return compared to other assets.[2]

That is, the rate of return on money assets is equal to the real rate of return on money assets, plus the rate of change of the price level.

Corollary: the quantity theory of money is false

Proof: If the quantity theory is a generally true theory, it must be true no matter what the variation in the price level, for a given definition of the price level. However, by Theorem 2, for any definition of the price level and for any structure of rates of return, there always exists a rate of variation in the price level such that money is preferred to all other assets. In this situation there will be no trade and so the quantity of money must be independent of the volume of trade. ■

This extreme form of the proof may be rejected on the grounds that the quantity theory, like so many hand-waving theorems in economics, has a range of applicability. But the same method of proof shows that money will be held as soon as the rate of fall in the price level exceeds the profit on the asset with the lowest return, violating the quantity theory. Thus if there is a spread of returns, the impact of a falling price level will always be to divert a certain portion of money into hoards of liquid assets, and this portion will be the greater, the faster prices are falling.

Corollary 2: the general equilibrium determination of prices is false

(This result was first stated to my knowledge by Townsend (1937).

Proof: since there is a motive to hold assets other than the demand requirements arising from the neoclassical demand schedule, actual effective demand will differ from that given by the demand schedule, being augmented by any speculative holding of assets. In particular if the money of payment is hoarded due to such dynamical effects, all prices will affected and no price can be specified solely from the demand and supply schedules.

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[1] In case of misunderstanding, I am not entering the discussion on whether the material of money must be a commodity (gold, or such like). The statement 'money assets are commodity assets' means only that they are of constant composition (in fact undifferentiated) and therefore have an own rate.

[2] In practice, of course, liquid assets become a rational target for capital before this extremum, since as the rate of change of the price level increases, liquid assets will move up the 'efficiency of capital' schedule and productive capital that is unable to attain the maximum industrial profits will beging to migrate into liquid assets.

Equilibrium theories and path-dependent effects

It should be noted that this phenomenon by definition cannot be observed in equilibrium, since in equilibrium prices cannot change. It is one of a number of extremely important economic phenomena of *path-dependence*; phenomena which arise only from the motion of the economy.

Economic Dynamics and the relevance of Value Theory

There is a long Twentieth-Century tradition, both predating and contemporaneous with Keynes, of what I will term *Economic Dynamics in the proper sense*. By the use of this term I intend a contrast with *Comparative Statics*, in which the presupposition of equilibrium is made and dynamics is introduced as the study of the motion of this equilibrium. It principally includes Hilferding and Kalecki (see Dibeh 1997). Beside the comparative static 'dynamics' we also find a third species of approach which essentially takes equilibrium (or reproduction) as the teleological determinant of prices and studies 'disequilibrium' as a process of convergence to this equilibrium: that is, it treats dynamics essentially as a stability problem. In this tradition we find not only the Walrasian Tatônnement discussion but also, surprisingly, the great bulk of Marxist crisis theory (Luxemburg/Buhharin/Grossman etc) which takes its point of departure from the schemes of reproduction and studies the conditions of its stability.

It is a very important mathematical fact that any dynamic problem can be formulated either as a proper dynamical or as a comparative static problem, and gives a different solution depending on which formulation is used. In consequence, the entire endeavour of solving for equilibrium variables and regarding them either as a moving dynamical object (comparatic statics) or as a centre of gravity (stability) is mathematically misconceived and false. The dynamical solution to any equation, in any but the most trivial cases, exhibits phenomena (such as those exhibited aboe) which arise only from the motion of the system. The static approaches, of both varieties, assume away all these effects of motion before deriving their solutions.

As a simple example of this consider a 'corn-model' in which the productivity of labour increases year-on-year, such that though the input of labour is constant, the output of corn rises by ten percent per year. Assume, for example, an initial value of 1000 units of corn and an output of 1100 units, and a constant labour input of 1000. For a simpler presentation we assume zero wages.

Written as a problem in comparative statics, we could calculate prices using time-subscripts in as follows:

$$1000\, p_t + 1000 = 1000(1.1)^t\, p_t \qquad (15)$$

and thas the solution

$$1000(1.1^t - 1)\, p_t = 1000 \qquad (16)$$

that is

$$p_t = 1/(1.1^t - 1) \qquad (17)$$

Moreover profits are clearly going to rise continuously, (and are also independent of prices, exhibiting the 'money is a veil' behaviour characteristic of comparative statics), being

$$1000((1.1)^t - 1) \qquad (18)$$

This corresponds to the commonsense notion that since such an economy is producing more 'things' profits, conceived of as a return on 'things' must also increase.

However, this result is clearly dependent on the money of account. Consider the proper dynamical version of the equation above:

$$1000\, p_{t-1} + 1000 = 1000(1.1)^t\, p_t \qquad (15)$$

the difference being the term p_{t-1} instead of p_t (reflecting the somewhat obvious fact that seed-corn is placed in the ground before its fruit is harvested, a notion that seems to have caused the greatest economic geniusses of our age a certain amount of trouble)

In this case we find, first, that the path of p is at every point different to the comparative static solution, but (this is an extremely well-established and general result) the rate of profit *falls* instead of rising.

Thus even the most fundamental variables of economics (the rate of movement of the return on an asset) not only depend on dynamical facts, but we find that the most cherished theorems of the last twenty years, such as the Okishio theorem, turn out to be dependent on a *monetary assumption that is valid only in equilibrium*

Moreover, *even though it is the case* that in a money of account that follows the course suggested by (17), we could not unambiguously assert that 'the' rate of profit rises as specified by this money, since there is no indication and now guarantee that this theoretical money, a money derived from the assumption of equilibrium, would be the actual money used in exchange.

This leads to the following notion: since there are a variety of profit rates corresponding to a variety of possible moneys of account, and since there is a necessary conception in economics of 'real' and nominal money corresponding to a value concept (either explicit or implicit), should we not search for a concept of value (a monetary measure distinct from nominal price) that permits the distinctions appropriate to proper dynamical analysis.

The basis we suggest for this is

(1) pure circulation cannot increase value

(2) the own-rate of all commodities except labour is one