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Stability Through Financial Embedding

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Abstract

We show that the activity of oligopolistic firms leads, through their build-up of inventories, to an unstable system. However, the industrial structure of an economy is embedded in a social structure of accumulation (SSA). The inventory plans of firms are consistent with the activity of banks. The coupling of the real and credit circuits delivers a weak stability. The modus operandi is the Wynne Godley and Francis Cripps (1983) framework.

Key Words: systemic instability, banks, social embedding

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Stability through financial embedding

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1. Introduction

The objective of the paper is not to pronounce on the relative merits of the real business cycle (RBC) approach or what has been generically referred to the classical business cycle (CBC) orientation as an umbrella for all methodologies other than the RBC. It is sufficient to observe that by the most exacting standards of quantitative testing, which is not necessarily theory-driven, the CBC approach(es) are not inferior as explanations of fluctuations in the industrialized world [SÜSSMUTH 2003], [WINTEK 1997]. In other words, it is not illegitimate to explain business cycles without recourse to so-called first principles. Secondly, the real-financial dichotomy might not apply. The object of interest is the capitalist economy. It turns out that aggregate investment contributes to most of the fluctuations of GDP in most developed economies. A stylized fact is that both a long and a short cycle in aggregate output can be discerned for both the prewar and the postwar period. The long cycle, of a length of six to nine years, is most pronounced for the structure of fixed investment. An approach to the study of fluctuations inspired by Kondratieff would necessarily entail the examination of how different subsystems of society interlock [TOGATI 2006]. Of particular interest here, however, is the short cycle, of a duration of three to four years, which dominates the cyclical structure of inventory investment. The relative strength of these cycles is explained by the speed with which the associated capital stock can be adjusted. The speed is naturally greatest for inventories, intermediate for equipment and machinery, and the longest for building and structures. The study of the trajectory of inventories in the form of the Kitchin cycle of approximately four to five years, it is generally agreed, should be at the forefront of any appraisal of business cycles [KLEIN 2006], [TVEDE 2006]. We endorse a non-neoclassical account, according to which downturns are the outcome of a collapse in the marginal efficiency of capital. Entrepreneurs are driven by a normal rate of capacity utilization, which implies correct, on average, forecasts of consumer demands and delivery schedules. However, inventory-sales ratios rarely equal norms, capacity

utilization is never at desired levels, and actual deployment of goods and services almost never reflect the marginal utility of money. In a market economy, prices reflect aggregate demand and supply and current inventory levels and are influenced by the beliefs of firms about inventory holdings. In the constant adjustments of that variable, an equilibrium will be buffeted by demand and supply shocks, generating instability. The thesis that is proposed here is that inventory management must be studied concurrently with financial arrangements in order to appreciate the fluctuations of a capitalist economy. For example, two variables that have purportedly contributed to the last stable Anglo-Saxon decade are improved inventory management and the ease of movement triggered by financial market deregulation [MARTIN AND ROWTHORN 2005]. In the first instance, against the proposition that innovations like ‘just-in-time’ production fostered stability is the evidence that over the period considered, the volatility of sales also fell concurrently with the fall of output in the US. Likewise, the greasing of the wheels of finance should have resulted in consumers better smoothening shocks to their incomes. However, financial market liberalisation also makes it possible for consumers to adjust spending to achieve desired holdings of consumer durables, aggravating volatility in spending. The term business cycle here is taken to mean the irregular periodic movement brought about by a first-order difference equation.

2. Godley-Cripps [1983] in the non-steady state

GODLEY AND CRIPPS [1983] (hereafter G-C) was an early and classic exposition of a completely structural account of macro dynamics. A supposition therein was that accounting restrictions concerning flows and the cumulation of flows into stocks matter. Recourse was taken to relationships as revealed in National Income and Product accounts. These relationships constrain the numbers that can be put in flow of funds boxes. “Stock-flow consistent” macro modeling, thereafter, has reached sophisticated proportions [TAYLOR 2004]. Many degrees of freedom from possible concatenations of patterns of payment are unavailable. The task of building theories to close the accounts into models is made much easier. Closure comes from distinguishing between endogenous and exogenous variables in a flow-of-funds account. The agenda is positive

and productive and alternative institutional configurations are being developed based on Godley-like accounting identities [DOS SANTOS 2006]. Thus, in one account, banks are deposit-acceptors at given nominal interest rates and the asset side of their portfolios depends upon the expected rates of return. Alternatively, we can write a model in which banks bid for deposits. They are price makers in the loan markets and business loans are a prior claim on their disposable funds. The research programme is to construct frameworks that constrain actions and aggregates of those actions. An axiom is that distributional relationships across broad coalitions of action and productive sectors play an essential role in determining the stylized facts of macroeconomic activity. Macroeconomic identities between overall sectors and institutions like households, non financial business and financial business, for example, can be written. In terms of the familiar distinction, the G-C model is a hybrid in that a ‘monetarist’ financial system based on the behaviour of the stock of money drives a ‘Keynesian’ flow system based on the response of expenditure to income. G-C is a theory of how the system as a whole functions. The results are conditional on the behavioural axiom that stock variables do not change indefinitely as ratios to flow variables. For example, G-C operate with a money stock-income flow norm, α , which is independent of income. Secondly, they assume that the change in the actual stock of money in each period is a proportion, ϕ , of the gap between the stock of money in the previous period and the desired money stock.

2.1 Profit Cycles

Entrepreneurs must pay money for working capital in advance of receiving money from the sale of goods. One important result in G-C, pp. 66-75, is that profits are only realised as income to entrepreneurs if their working capital is financed by borrowing. Production and distribution processes are spread out in time. Consequently, the existence of work-in-progress and stocks of materials, components and finished goods collectively labeled ‘inventories’ is implied.

We begin with the definition of profits and add up to a difference equation [G-C pp. 186-187]:

$$\Pi_t = FE_t + I_t - I_{t-1} - WB_t - R.I_{t-1}$$

The notation is as follows, the time subscript referring to the accounting period: Π_t is profits, FE_t the value of final sales, $I_t - I_{t-1}$ is the change in the value of inventories, WB_t the wage bill, R the rate of interest and I_{t-1} the opening value of inventories on which interest is charged.

The historic costs of current-period sales HC_t is defined as

$$HC_t = WB_t - (I_t - I_{t-1})_t$$

The proportion of historic costs of sales which are carried over from previous periods is measured by the opening value of inventories κ . Thus,

$$\kappa = I_{t-1} / HC_t$$

Finally, the profit markup on historic costs plus interest charges is

$$\lambda = \Pi / HC_t + R.I_{t-1}$$

Putting all the equations together, the definition of profits can be expressed in the form of the following difference equation:

$$I_t = \left(1 + R + \lambda R + \lambda / \kappa \right) I_{t-1}$$

The model with endogenous inventories is unstable. In a related formulation, G-C, pp. 95-97, work with γ , a normal or desirable level of opening inventories relative to final sales. Sales will turn out to be such that this norm is met only if the growth rate of inventories takes a particular value which depends on α , ϕ and γ . The model could follow a steady growth path in which inventories, final sales and total income grow at this rate

and the actual inventory-sales ratio is equal to the norm. However, instability is not ruled out on the consideration that the accumulation of inventories is prompted by the anticipation of future sales that are never exactly fulfilled. The model suggests that the more inventories are increased in each period, the higher will final sales be relative to the opening value of inventories. Once the steady growth rate is exceeded, inventories never catch up with the norm no matter how fast inventories are accumulated. The norm is reestablished only if the growth of inventories slows down to the norm.

2.2 *The weak stability of the closed economy with credit money*

Entrepreneurs are supposed to come to banks and demand loans to finance working capital, offering the value of inventories which they will be purchasing as collateral. The purposes for which loans are made can easily be extended without altering the basic properties of the model [G-C pp. 84-85]. Assume the existence of borrowing which finances final purchases including the purchase of consumer durables or fixed capital used in production. Total final purchases are now divided into ‘income-generated expenditure’ and ‘loan-financed’ expenditure. The equation for loans is:

$$L_t - L_{t-1} = I_t - I_{t-1} + LFE$$

That is, new loans are the sum of changes in the value of inventories and loan-financed final purchases.

Along with the difference equation of the earlier section and defining

$$\mu = R + \lambda R + \lambda / \kappa$$

we have the following dynamic system

$$\begin{bmatrix} L_t \\ I_t \end{bmatrix} = \begin{bmatrix} 1 & \mu \\ 0 & 1 + \mu \end{bmatrix} \begin{bmatrix} L_{t-1} \\ I_{t-1} \end{bmatrix} + \begin{bmatrix} LFE \\ 0 \end{bmatrix}$$

The characteristic equation of the homogenous system is

$$(\lambda - 1)(\lambda - 1 - \mu) = 0$$

Since the eigenvalue $\lambda = 1$ is simple, the system is weakly stable. The potential instability arises because the amount of credit supplied to finance inventories and other loan-financed expenditure is likely to be sensitive to changes in income [G-C p. 96]. For example, if income growth causes loans to expand faster than people want to hold the money created, in relation to the corresponding aggregate income flow, an explosive growth of aggregate income will occur. In an identical fashion, if the demand for loans is weak relative to income, there would be a fall in aggregate income over the indefinite future. A corollary of the condition is that in economies in which the banking industry is crucial in the disbursement of credit, an unexpected shock to the system of intermediation would have an unusually large negative impact on sectors that are intimately associated with banks. In one study using data from thirty-eight developed and developing countries that underwent financial turmoil in the last quarter of the last century, it was found that sectors that were highly geared experienced a disproportionately large contraction of value added during a banking breakdown in systems that were in an advanced stage of financial evolution than relatively primitive economies [KLIGETEIL, MROZNER AND LAESEN 2006].

The knife-edge and delicate nature of the stability condition cannot be overstated [BECK, DERMIRGÜÇ-KUNT AND LEVINE 2006]. Our model does not include the degree of monopoly in the banking sector. One thesis is that concentrated banking systems are stabilizing. Greater-than-normal profits are a buffer against the adverse shocks mentioned above. The charter or franchise value of the banks increases and owners and bank managers are not induced to take excessive risks. Also, for the regulators it is simpler to audit a few banks in a concentrated system rather than many banks in a large system. The opposite view is that monopoly in the banking system increases market power and, thereby, interest rates that can be charged to borrowers. These high costs might push firms towards assuming unacceptably high risks. Less

competition can lead to less credit rationing, larger loans, and a higher percentage of failures if losses are subject to multiplicative uncertainty. Policy makers are more sensitive in systems with a few large banks because the domino effect generated by even a single failure can be quick and disastrous. The ‘too large to fail’ syndrome will apply and these banks will receive large implicit subsidies. Risk-taking activity will increase and, thus, so too systemic fragility.

In addition, financial liberalization is probably associated with the accentuation of the financial accelerator mechanism and, thereby, the augmentation of the boom-bust cycle [GOODHART HOFMAN AND SEGOVIANO 2004, 2006]. In the decades immediately following the Second World War, the traits of the cycle included a policy-driven high level of aggregate demand and, crucially, a damping of inflation by strict control of the banking system. Consequently, there were few banking crises and, therefore, bank regulation was light. With the spread of liberalization, a generalized asset-price boom occurred in the early seventies. Thereafter, monetary authorities have used market-oriented instruments to maintain price stability. The success in taming inflation has been accompanied by a return to the pre-1913 pattern of the business cycle. Real shocks tend to generate fluctuations in prices, which lead to volatile asset prices which, in turn, make the banking system fragile. Thus, liberalization of banking systems and capital and stock markets have gone together. Consequently, it becomes easier for the large and safe clients of banks to raise funds on the stock markets. As a result, banks tend to compensate for the loss by lending to small and medium-sized enterprises (SMEs). Since these borrowers are usually riskier and the costs of acquiring information on the credit worthiness of idiosyncratic borrowers are large, banks take recourse to collateral as a basis for lending. However, changes in the value of collateralisable assets, property in particular, will enhance the dynamic instability of the system in the form of the financial accelerator. For example, an upturn might originate in a positive productivity or trade shock. Profits rise, so do asset values, leading to a lending boom because loans are more easily available. The increased lending raises investment, profit, and asset values to close the loop. The bubble expands till the increase in the stock of capital exceeds a level beyond which profit margins begin to decline. The system goes into reverse. In general, the heightening of competition has pushed banks into unfamiliar

territory with a resolve to maintain their return on equity despite declining profit margins for safe business. Businesses, whose risk-return characteristics are unknown, lead to non-performing assets in balance sheets and subsequent loan waivers. Declining profit margins, higher non-performing assets, and an attempt to maintain return on equity leads to a decline in capital ratios. Finally, the decline in capital ratios results in augmenting financial fragility.

Consequently, the current dispensation of deregulation of financial and industrial markets is regarded with considerable dismay. The influence of financial markets on corporate decision making is increasing. The corporation is increasingly regarded as a portfolio of liquid sub-units that management must continuously restructure to maximize the price of stock at any given moment. The objective is backed by an incentive structure that links emoluments to short-term price movements rather than the long-term success of the firm. The result is that the planning horizon of the corporation has sharply shortened. The paradox here is that financial markets expect corporations to book higher and higher profits while effective demand constraints and intense competition makes this result impossible to attain. Over the past decade the stock market in the USA has become the main index of corporate success. This is connected with recent speculative bubbles in the stock market and the potential for a collapse of confidence now that the bubble has burst. The outcome might be a deep recession if consumption and investment demand is constrained. In sum, industrial capital is being dominated by financial capital which is inhibiting the emergence of a long wave upswing. The need is to strengthen financial regulation. In this context, the Basel Committee on Banking Supervision might not be productive because the norms are pro cyclical. Banks are vulnerable in recessions and when asset prices have plummeted. The more regulation is based on present value considerations, the more pro cyclical the regulatory system will become. Secondly, supervision is defined in terms of the individual bank. In that case, bank regulation might reinforce herd behavior.

3. A structural-institutional interpretation

The canvas on which any institutional account must be writ is social reality, which comprises of sets of social relations which are interconnected and organic [HODGSON 2006], [LAWSON 2006]. A subset would be internal social relations such as those between employer and employee. Human agency is a nascent aspect of social structures. Hence, the state of the world is intrinsically dynamic. Institutions are defined as systems of embedded rules that structure social interactions. The efficacy of financial arrangements, as well, is dependent on the social context within which borrowing and lending and so on takes place. In an exacting study of seventy-two countries over the period 1978-2000, Demetriades and Law discover that finance positively impacts on GDP per capita more efficaciously when the financial system is embedded in a system of enabling rules and regulations which shape the behavior of members of society and by means of which they interact with one another.

The title of the paper modifies Mark Granovetter's famous notion of social embedding to our context. Thus, stable links between surplus and deficit financial units in a modern economy are forged because they are enmeshed in a network of inter bank linkages. The sociological insight is that banks are conservative institutions with a bias in favour of safety and soundness [VISSANO 2006]. Banks, in a Durkheimian sense, are mechanisms that aid the stability of the social order, unlike markets. They are not mere financial intermediaries, but arise to cater to those unable to access debt or equity markets. When bank liabilities are an integral part of a country's medium of exchange and short-term loans are the most important source of working capital, a smoothly-functioning banking system oils the wheels of commerce and industry. Indeed, in that case, banks will push against the limits of the credit-creation process and create opportunities to increase the rate of accumulation. The production possibility frontier is not a physical datum.

The SSA is sensitive to the delineation of the institutional contours within the accumulation process takes place [WOLFSON 2003]. The circuit of capital in the sense of the exchange of money capital for the means of production and labour power, the production process and the sale of commodities is predicated on stable and favourable relationships that obtain in the sphere of finance. The necessary conditions for nonfinancial corporations to encourage product and process innovations over the long

term include financial commitments [CROTTY 2003]. The reason is that large-scale innovation is uncertain and path-dependent. In the words of a closely related methodological cousin, the Régulation School, a regulated financial system means an amelioration of the conflict between money capital and industrial capital by increasing the profit of industry through the availability of loans on easy terms and endogenous money [O'HARA 2003]. Yet another member of the fraternity is the Varieties of Capitalism (VoE) literature which, identically, is concerned with the differing means by which mode, relations, and financing of production cohere under advanced capitalism. An appraisal and critique that is of relevance to our formal model consists of the following elements [GOYER 2006]. While the VoE models, and by extension the other kindred spirits referred to, have been strong in specifying the conditions of stability of particular institutional arrangements, they have been less illuminating in tracing the paths of institutional transformation. One aspect of the challenge is that the process of small, discrete changes can add up to significant discontinuity without requiring a chaotic or catastrophic changes in circumstances. Institutional complementarities are not broken nor preferences refigured. Thus, while banks are nascent in the first look at the Godley and Cripps framework, they do no more than come to the fore in the second model. No bifurcations are engendered by the system. Institutional transformations are most often evolutionary rather than revolutionary. Secondly, but relatedly, the transformation of the dynamics can occur without any formal institutional change. A process of financial conversion can occur, generating a stable system, where only particular institutional objectives are highlighted. In our system, only the financing of inventories by banks is given salience.

4. Conclusion

The fundamental impulse driving the capitalist economy, according to non neoclassical economics, is the profit motive. We have used a consistent accounting framework to transform an aggregate profit equation into a difference equation in inventories. The solution is unstable providing a putative explanation of Kitchin-type cycles. When the equation is embedded in a system of loan-financing by banks, a weak stability emerges,

indicating the pivotal role played by financial institutions in mitigating business cycles and delivering financial stability in a modern economy.

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