12-29-1979

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In the following quotation, Henry Simons, a founder of the Chicago School, recognizes the endogenous nature of money and the impossibility of managing money by trying to control the quantity of some specific set of debts, especially in an economy in which the lure of potential profits induces innovations in financial practices.

> Banking is a pervasive phenomenon, not something to be dealt with merely by legislation directed at what we call banks. The experience with the control of note issue is likely to be repeated in the future; many expedients for controlling similar practices may prove ineffective and disappointing because of the reappearance of prohibited practices in new and unprohibited forms. It seems impossible to predict what forms the evasion might take or to see how particular prohibitions might be designed in order that they might be more than nominally effective.[1]

Simons followed the logic of his insight into the endogenous and evolutionary nature of money by advocating strict limitations on the permissible liabilities of enterprises and binding constraints upon the permitted activities of financial institutions.

In Simons's view, control over money requires strict limitations upon "large scale financing at short terms."[2] Simons therefore proposed to

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eliminate the financing, through banks and other intermediaries with short-term liabilities, of positions in capital assets and in investment in the process of production. Unfortunately for Simons's prescription, bank and other short-term financing of activity is a major link in the investment process under capitalism. Whereas titles to capital assets may be financed long, the producing of investment output, like other production activity, is a short-term affair that naturally calls for short-term financing.

An essential attribute of modern capitalism is that positions in both capital assets and investment in process are financed by a combination of debts and commitments of the liquid capital of the proximate owners or producers, that is, of corporations.[3] Debts are best interpreted as commitments to make payments over time. The flow of cash resulting from firms' operations is used to pay current costs, fulfill explicit payment commitments on debts, and yield a cash position for the firm and income to its owners. The debts of firms state the minimum profits, broadly defined, that must be generated if commitments as stated on the liabilities are to be fulfilled either by the flow of profits or by funds obtained by a refinancing arrangement. Entering into and repaying debts are essential processes of capitalism: Both depend upon profits, expected or realized.

If debts are to banks, then the payments which fulfill commitments on debts destroy "money." In a normally functioning capitalist economy, in which money is mainly debts to banks, money is constantly being created and destroyed. Economic theory that focuses only on the exchanges that create money, or which assumes that money is "the non-interest paying debt of some agency outside the formal system,"[4] induces no need to examine how borrowers are able to fulfill their commitments and the economic consequences of systemically induced failures to meet them.

In contrast, if money is viewed as a "veil" that "camouflages" ultimate ownership of wealth, then the major concern of monetary theory becomes the expected profits that induce debt creation and the realized profits that lead to the validation of debt. The transition from abstract economics to the economic analysis of capitalism depends upon defining money as a "product" of financial interrelations. This was well understood by J. M. Keynes:

> There is a multitude of real assets in the world which constitute our capital wealth—buildings, stock of commodities, goods in course of manufacture and of transport and so forth. The nominal owners of these assets, however, have not infrequently borrowed *money* in order to become possessed of them. To a corresponding extent the actual owners of wealth have claims, not on real assets, but on money. A considerable part of this "financing" takes place through the banking system, which imposes its

guarantee between its depositors who lend it money and its borrowing cus-
tomers to whom it loans money with which to finance the purchase of real
assets. The interposition of this veil of money between the real asset and
the wealth owner is a specially marked characteristic of the modern world
[emphasis in original].[5]

Any economic theory which ignores this "specially marked characteris-
tic of the modern world" cannot serve as an effective instrument for the
design of policies. In particular, today's standard economic theory—the
neoclassical synthesis—which ignores the "financing veil" aspects of
money and persists in viewing money only as a "bartering veil," cannot
explain how instability is a normal functioning result in a capitalist econ-
omy. As a result, neoclassical theory is a defective instrument to use in the
formulation of policies that aim at controlling or attentuating instability.
If we are to do better in controlling unemployment and inflation, we have
to return to the insights of Simons and Keynes and build an economic
theory that fully accepts the financing veil characteristic of money.

The current significance of Simons and Keynes is not surprising, for
their insights and analysis were born out of the observed instability of
capitalism. Our current difficulties in economics and in the economy stem
from our failures to understand and deal with instability. If we are to do
better, we must accept being forced back to the square zero of the 1930s.

Finance and the Behavior of a Capitalist Economy

Finance affects the behavior of a capitalist economy in three ways. First,
positions in the existing stock of capital assets need to be financed. Second,
activities, that is, the production and distribution of consumption and in-
vestment goods, need to be financed. Third, payment commitments, as
stated on financial contracts, need to be met.

The techniques available for financing positions in capital assets affect
the assets' prices. In a capitalist economy, those assets are priced. The
prices reflect the relation between the cash flows, or quasi-rents, that capi-
tal assets are expected to earn as they are used in production and the pay-
ment commitments that have to be agreed upon in order to finance owner-
ship. A debt involves an exchange of money today for promises to pay
money in the future. The smaller the amount of future money that has to
be promised in order to receive current money to finance a position in a
capital asset with some given expected cash flow, the greater the demand
for such capital assets.

In the short term, the supply of capital assets is fixed; therefore, an in-

crease in demand will lead to an increase in the price. Innovations in mobilizing funds through intermediation and in the contracts used for financing ownership of assets will tend to raise the prices of assets. The various "innovations" in housing finance have led to higher prices of housing, the acceptance of a heavier weight of debt in corporation balance sheets has sustained the price of capital assets, and the explosive growth of money market funds has increased the availability of short-term finance to business.

Borrowing and lending take place on the basis of margins of safety. The fundamental margin of safety is the excess of the expected quasi-rents from operating capital assets over the cash flow committed by financial contracts. Two time series—the expected receipts and the contractual commitments—summarize the financial position of units. When Simons delivered his strictures against short-term financing, he was railing against arrangements in which payment commitments exceed the expected quasi-rents from operations for the near term. If businessmen and their bankers agree upon such arrangements, then they must envisage that there are sources of cash to debtors other than the flow of quasi-rents from operations, that is, cash can be obtained by refinancing. A secondary margin of safety is the breadth, depth, and resilience of markets in which refinancing can take place.

The financial relations of units owning capital assets depend upon the views of borrowers and lenders as to the assuredness of cash flows, the appropriate margin of safety, and the availability of alternative sources if cash from operations falls short of expectations. Expectations with regard to cash flows depend upon the history of cash flows, the margin of safety that is deemed appropriate depends upon the adequacy of past margins, and the willingness to rely upon refinancing depends upon the history and institutional structure of the markets in which refinancing may take place. During tranquil years, success combined with institutional evolution make borrowers and lenders more assured of the cash flows from operations, confident that success is compatible with smaller margins of safety, and secure in cash flow arrangements which require refinancing. Trends in financing reflect changes in views of how the economy normally functions and in the preference system of "operators." The liability structures used to finance positions in capital assets reflect subjective views as to the acceptable chance of illiquidity occurring. The essential liquidity preference in a capitalist economy is that of bankers and businessmen, and the observable phenomena that indicate the state of liquidity preference are the trends of business and banker balance sheets.

An immediate effect of a change in liquidity preference is upon the

money price of capital assets. A decrease in liquidity preference allows an increase in the ratio of near-term payment commitments to near-term expected quasi-rents to take place. This leads to an increase in the money price of capital assets. An increase in liquidity preference, which typically occurs when quasi-rents fail to validate debt structures or financial markets fail to refinance positions, will force attempts to reduce near-term payment commitments relative to expected quasi-rents. This will lead to a fall in the money price of capital assets.

In addition to positions in capital assets, the production and distribution of consumption and investment goods need to be financed. The cash that enables the "producers" of consumer goods to fulfill their commitments to bankers is derived from sales proceeds, which, if we abstract from consumer debt, depend upon consumer disposable income (largely wages and salaries). The cash that enables producers of investment goods to fulfill their commitments to their bankers is also derived from sales proceeds, but the "cash" used by the buyers of investment goods is derived from a combination of retained earnings and external finance. The financing of investment goods production leads to debts by investment goods producers. These debts are repaid when capital asset buyers pay. Such buyers typically borrow at least part of their needed funds. In the investment process, a continued funding of debt occurs, albeit it is the short-term debt of the producers of investment goods that is "funded" by the financing arrangements of the purchasers of investment goods as capital assets.

A capitalist economy is characterized by a layered set of payment commitments that are stated in financial contracts. These commitments will be fulfilled either by the flow of cash from operations—for business the flow is an "enlarged" gross profits—or by issuing debt. The ability to issue debt rests upon borrowers' and lenders' expectations of future cash flows, that is, of future profits. Thus, central to an understanding of the functioning of a capitalist economy is an understanding of how the flow of gross profits measured in money is determined.

An Aside on "Money Funds"

The points about banking being a pervasive phenomenon and that profit opportunities from borrowing and lending lead to financial innovations are beautifully illustrated by the growth and evolution of money market funds in the past several years. These funds, which first emerged in the high interest rate days of 1974–1975 and stagnated during the lower interest stagflation of 1975–1977, grew at an explosive rate in 1978–1979, when

the assets they managed increased by a factor of ten. In addition, the percentage of their funds invested in open market paper and miscellaneous assets rose from an estimated 16.2 percent in 1975 to an estimated 46.2 percent in 1979; these funds are now direct suppliers of short-term financing.

Any analysis of these funds which looks at the assets they own and the liabilities they issue must identify the institutions as banks and their liabilities as money. Because of their success, we now have a two-tier monetary system; part of the money supply has the protection of bank equity, established channels for refinancing through the central bank, and deposit insurance, and another part lacks these margins of safety. When a money supply consists of instruments that differ in their yield and risk characteristics, then runs, in which holders of one type of money try to change quickly to another type, are possible. If there is no provision for supplying the desired money to the institutions which have the undesired money as liabilities, a run can have disasterous consequences. As financial markets replicate our experience of 1966, 1969–1970, and 1974–1975 and drive toward the brink of a financial crisis, some lender of last resort in interventions, because of the money market funds, is likely to be needed.

Money market funds are but the latest in a series of financial market and banking innovations that have changed the nature of the financial system over the past several decades. Beginning with the emergence of the federal funds market in the mid-1950s, changes such as certificates of deposits, the explosive growth of commercial paper, the rise and fall of REIT's,

Table 1. *Money Market Funds*

	1973	1974	1975	1976	1977	1978	1979a
Total assets	0	2.4	3.7	3.7	3.9	10.8	39.6
Demand deposits and currency	0	—	—	—	—	.4	.3
Time deposits	0	1.6	2.1	1.5	1.8	5.3	14.2
Credit market instruments	0	.8	1.5	2.1	1.9	5.1	24.1
U.S. government securities	0	.1	.9	1.1	.9	1.5	7.1
Open market paper	0	.6	.5	.9	1.1	3.7	17.1
Miscellaneous	0		.1	.1	.1	.3	1.2
Shares outstanding	0	2.4	3.7	3.7	3.9	10.8	39.6
Open market paper + miscellaneous as a share of totals, in percentage		25.0	16.2	27.0	30.8	37.0	46.2

Source: Board of Governors, Federal Reserve System, *Flow of Funds Accounts* (Washington, D.C.: quarterly).
aExtrapolated at 1979I rate of change.

the internationalization of banking, and the wide use of repurchase agreements have occurred. The changes have been in response to profit opportunities, and these have resulted from changing interest rate differentials due to demand for financing growing at a faster pace (at each set of terms for financing from traditional sources) than the supply of financing from traditional sources.[6]

Federal Reserve Operations to Constrain Inflation

A major portion of the traditional supply of financing comes from banks. Federal Reserve operations to constrain inflation first constrain the ability of commercial banks to finance asset acquisition by expanding their reserve-absorbing liabilities. Financial innovation and evolution are stimulated by the interest rate effects of such Federal Reserve constraining action. Innovation and evolution offsets a part, all, or even more than all of the constraint upon financing through banks caused by the initiating Federal Reserve actions.

This evolutionary response makes the rate of increase of activity that is financed greater than the rate of increase of commercial bank liabilities that absorb bank reserves: The velocity of money (narrowly defined as currency and reserve-absorbing liabilities of banks) rises. Such an increase of velocity to offset Federal Reserve constraint is a normal functioning result in financial markets. The limit on the offset through changes in institutions and usages of monetary constraint is determined by the effect of the cash payment commitments due to the increments of finance upon the cash flow relations of various asset and liability combinations. Monetary constraint does not lead to an immediate or smooth deceleration of an inflationary expansion. In the face of an accelerating inflationary expansion, monetary constraint initially leads to a sharp increase in financing outside normal banking channels. With a variable lag, this is followed by a sharp rise in payments required by debts relative to business profits. Monetary constraint in a situation in which ongoing investment activity leads to a rising demand for finance is effective only as it forces a sharp break in asset values caused by market pressures to liquidate or fund positions. Ever since the 1960s, monetary constraint has been effective only as it succeeded in pushing the economy to the brink of a debt deflation. This is shown by the credit crunch of 1966, the liquidity squeeze of 1969–1970, and the debacle of 1974–1975.[7]

The complex and evolving financial structure of a modern capitalist economy enables businessmen and their bankers to offset monetary constraint until it forces the economy to a crisis that threatens to lead to a

deep depression. The fundamental instability of capitalism is upward. Attempts by central banks to constrain upward expansion, or endogenous limits of the financial system, lead to present values and cash flow relations that break rather than attenuate the expansion. Once the break occurs, the effect on capital asset prices of expected higher nominal profits is removed. This implies that capital asset prices will tend to decline sharply, which will lead to a fall in the demand price and the available financing for investment. Once the price of capital assets reflects inflationary expectations, an end to those expectations will lead to a sharp fall in investment. The upward instability of capitalism is a necessary precondition for the possibility of a deep depression.

Asset Prices, Investment, and Financing

In a brilliant, incisive, and unfortunately neglected article published in 1955, Dudley Dillard noted that, to Keynes, the "problem of economics" was the analysis of the behavior of a monetary production economy.[8] Dillard argues that in *General Theory*, and in the interpretative literature that followed, the emphasis is upon the way in which money enters into the determination of interest rates. As I have pointed out,[9] in *General Theory* and in later pieces clarifying it,[10] Keynes treated liquidity preference as a relation between money and the price level of capital assets.

Although a money–interest rate relation and a relation between money and the "price level" of capital assets can be made formally identical,[11] in truth they lead to quite different perspectives on how a capitalist economy works. Once an interest rate–money supply relation is accepted as the theoretical correlative of how financial markets affect the operations of the economy, the way is clear for the monetarist counterrevolution in which the liquidity preference function becomes a demand function for money. The stability of the latter function and the exogenous determination of the supply of money are the rocks upon which the secularist monetarist faith rests.[12]

The price level of capital assets and the interest rate statements of liquidity preference lead to quite different views of the economic process. The perception that the quantity of money determines the price level of capital assets, for any given set of expectations with respect to quasi-rents and state of uncertainty, because it affects the financing conditions for positions in capital assets, implies that in a capitalist economy there are two "price levels," one of current output and the second of capital assets. A fundamental insight of Keynes is that an economic theory that is rele-

vant to a capitalist economy must explicitly deal with these two sets of prices. Economic theory must be based upon a perception that there are two sets of prices to be determined, and they are determined in different markets and react to quite different phenomena. Thus, the relation of these prices—say, the ratio—varies, and the variations affect system behavior.[13] When economic theory followed Sir John Hicks and phrased the liquidity preference function as a relation between the money supply and the interest rate,[14] the deep significance of Keynesian theory as a theory of behavior of a capitalist economy was lost.

The demand for current output consists of the demand for consumption and investment outputs in the "no government" case. The demand for investment depends upon the price of capital assets, the supply price of investment output, and the financing condition and availability of internal finance for investment output.

In Figure 1, the investment and financing relations of a representative firm are set out. P_K, the money price of capital assets, is the demand price of investment output. P_K depends upon what Keynes called the state of long-term expectations which leads to current views about future profits; the financing conditions that are available for positions in capital assets; and the supply of money, defined as the default-free assets that yield only liquidity.

P_I is the supply function of gross investment. The "position" of P_I depends upon the short-run profit expectations of the producers of investment goods. The supply curve of investment output states the minimum price at which particular outputs of investment goods would be produced given current money wages, the carrying interest costs of investment goods as they are produced, and the cost of purchased inputs.

The existing liability structure of firms determines the cash payment commitments. The sum of gross profits after taxes and interest paid on debts as reported in the national income accounts is the gross capital income. This income minus gross payments on debts and dividends yields the gross internal finance. The price multiplied by the quantity of investment goods that can be internally financed yields a rectangular hyperbole ($\dot{Q}_1$ in the diagram) which defines the combinations that can be so financed. The intersection of the expected internal finance and the supply function of investment goods yields the amount of investment that it is expected can be financed internally. In the diagram this is labelled $\hat{I}$.

External finance is required if investment is to exceed $\hat{I}$. Given that $P_K > P_I$, there will be a demand for external finance to acquire investment. The supply price of investment output has to be modified by the
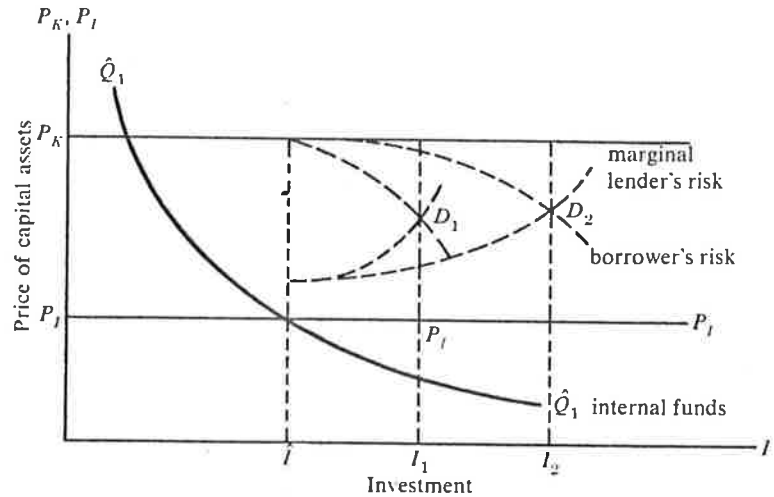
Figure 1. *The Determination of Investment*

cost of debt financing, which reflects the premiums upon a constant interest rate that reflect lenders' risk. Furthermore, the demand price for investment will fall away from the price of capital assets to reflect borrowers' risk. Investment will be carried to the point at which the price of capital, as affected by borrowers' risk, equals the supply price of investment output, as augmented to reflect lenders' risk. In Figure 1, let us say that I_1 of investment will be undertaken, of which $\hat{I}$ is internally financed and $I_1 - \hat{I}$ is externally financed.

As a result of the gross investment of I_1, P_I ($I_1 - \hat{I}$) of debt becomes part of the liability structure of firms. The extent of leverage in the financing of investment is given by the ratio of I_1 to $\hat{I}$. This ratio depends upon the excess of P_K over P_I, the available financing contracts, and the evaluation of and attitude toward risk of lenders and borrowers. Whereas lenders' risk becomes, in part, an objective phenomenon, in the form of interest rates and contract provisions, borrowers' risk is largely a subjective phenomenon which sets limits on the ratio of payment commitments to gross profits.

The evolution of financial institutions and usages, such as was discussed earlier, will tend to increase the feasible leverage. The success of business in fulfilling payment commitments due to past financing will increase the "subjectively acceptable" external financing over a run of tranquil good

times. The flow-of-funds data for the first three decades after World War II bear this out. With an increase in leverage relative to gross profits, the ratio of payment commitments (because of liabilities) to gross profits rises; the margins of safety in cash flows are eroded. As this occurs, the financial system becomes fragile.

Once financial considerations are integrated into the investment decision, it is evident that capitalism as we know it is endogenously unstable. As Dillard points out, in Keynes the proposition "that employment depends upon investment" leads to a general critique of the whole capitalist process. Contradictions and tensions associated with the accumulation of wealth come to the forefront of the analysis. Instability becomes normal rather than abnormal.[15]

Investment, Profits, and the Validation of Business Debts

Once debts exist, some of the cash receipts of debtors are committed to the fulfillment of contracts. Thus, the cash receipts of debtors must meet some minimal standard if the debts are to be validated. Furthermore, debts finance only a portion of the positions in capital assets and investment in process. There is some minimum standard that the cash receipts attributed to capital assets have to meet if the debts and the prices paid for capital assets are to be validated. The validating cash receipts are gross capital income (profits, broadly defined). The successful functioning of a capitalist economy requires that the present and expected gross capital income be large enough so that past decisions to invest and to finance are validated.

In a capitalist economy, present views about future profits determine current investment and financing decisions, even as present achieved profits determine whether what was done in the past is validated. An economic theory that is relevant to a capitalist economy cannot evade the issues involved in unidirectional historical time by assuming recontracting or the existence of universal systems of future, or contingent, contracts. The essence of capitalism is that units have to take positions in an uncertain world.[16]

In a world in which investment is taking place, the heroic assumptions that workers spend all of their wage income on consumption goods and capitalists do not consume yields the result that[17]

$$C = W_c N_c + W_I W_I; \tag{1}$$

$$\pi_c = P_c Q_c - W_c N_c = W_I N_I; \text{ and} \tag{2}$$

$$\pi_I = P_I Q_I - W_I N_I = \pi_I. \tag{3}$$

Since $\pi_C + \pi_I = \pi$, and $P_I Q_I = I$, we have

$$\pi = W_I N_I + \pi_I = I. \tag{4}$$

As is well known, the simple Kalecki result can be expanded to

$$\pi = I + Df \tag{5}$$

if government is introduced,

$$\pi = I + Df + C\pi - SW \tag{6}$$

if consumption out of profits and savings out of wages are allowed, and

$$\pi = I + Df + C\pi - SW + BPS \tag{7}$$

if the economy is open.[18]

Given that investment is determined by a complex interplay which involves present expectations of future performance, the simple Kalecki relation can be interpreted as meaning that profits are determined by investment. As the Kalecki relation is extended, the logic of running from investment to profits is reinforced by the structural and policy determinants of the government deficit, the balance of payments, savings by households, and consumption by receivers of capital income.

Investment is carried to the point at which the adjusted price of capital assets (as a function of expected profits and the available financing conditions for holding capital and financial assets) equals the adjusted supply price of investment output (as a function of the money wage), where the adjustments reflect uncertainty and financing conditions. The evolution of financial markets affects investment both through the pricing of capital assets and the financing available for investment. Normal functioning of the financial system is a necessary condition for investment to be sustained so that profits are forthcoming to validate debt and induce future investment. Any break in the financial system—such as occurred on a massive scale between 1929 and 1933, and on a minor or contained scale in 1966, 1969–1970, and 1974–1975—will disrupt the economy. If institutional change and central bank behavior allow available financing to expand rapidly, then an inflationary boom is likely to result; if a financial crisis compromises the ability and willingness of institutions to provide credit, or if central bank actions constrain credit, a debt deflation and deep depression are likely to occur.

In Figure 1, the extent of debt financing as determined by lender and borrower risk and the evolving structure of financial relations were shown

to affect the level of investment. During a tranquil era, the development of new institutions and new usages leads to an increase in the leveraging ratio. As I_1 "drifts" to the right relative to expected $\hat{I}$, greater achieved investment (I_2) will lead to realized profits greater than anticipated profits. This will mean that internal finance will be greater and external finance smaller than anticipated. Even as investing units and their bankers attempt to increase debt financing, greater than expected profits will result in a shortfall of realized as compared to anticipated debts. During business cycle expansions, the "unused" or "open" borrowing capacity of business and owners of wealth increases.

A rise in investment, due to improved financing terms, leads to an increase in profits. As the level and trend of profits enter into the determination of the price of capital assets, the "evolutionary" expansion of financing forms increases the prices of capital assets in two ways: It increases both expected quasi-rents and the price that will be paid in the market for given time series of expected quasi-rents.

The path of a capitalist economy in historic time depends upon the transactions between businessmen and bankers as they finance capital asset ownerships and investment. During good times, these transactions increasingly reflect overestimation by borrowers and lenders of the risks of external finance. This means that such an economy is unstable. The path of this basic instability is "upward" from periods of tranquil expansion to those of "inflationary" boom.

As the leverage ratio for new investment increases, "underlevered" positions in the inherited stock of capital assets are refinanced to conform to the emerging standards. Such refinancing leads to debts growing at a faster rate than both the capital stock and profits. Even if interest rates on financial contracts do not increase, the ratio of payment commitments to profits increases.

Financial innovation, combined with the interactions by which increased investment leads to increased profits, implies that current output prices rise.[19] Either because the central bank attempts to restrict financing available through banks or because the pace of the demand for financing outraces the availability of finance, the rise in investment in the "pipeline" will lead to a rise in interest rates. Because investment decisions lead to a sequence of investment demands, a run of tranquil behavior leads to a rising inelastic demand for financing for the production of investment goods. Given this inelasticity, any emerging inelasticity in the supply of finance will lead to a sharp rise in interest rates. Such a rise, by initially lowering the price of capital assets, lowers the demand price of investment

even as it raises the supply price of investment output. As a result, the ratio of planned investment demand to expected internal funds will fall; the thrust toward ever higher profits due to increasing investment reflecting ever higher leverage ratios will cease.

The financial processes of a capitalist economy introduce instability by making a tranquil state unstable in an upward direction and set flexible limits to this upward expansion. However, the limit to external finance requires that weak or fragile financial situations emerge. A decrease in investment will decrease profits, thus increasing the ratio of payment commitments on outstanding debt to gross funds available for such payment and also increasing the proportion of current investment that must be financed externally. Just as rising profits frustrate the attempts of bankers and businessmen to debt finance investments, so falling profits frustrate their attempts to decrease their indebtedness.

The debt deflation process can be limited if the financial system is robust. From time to time in history, a financial system has proved so fragile that deep depressions, such as that in 1929–1933, have occurred. In the era since World War II, no such debt deflation and deep depression have taken place.

In the years since the mid-1960s there have been three episodes—1966, 1969–1970, and 1974–1975—when the economy was on the verge of a debt deflation. Nevertheless, it did not occur. In part this was because the Federal Reserve quickly intervened and bolstered the system with its guarantee to protect banks and other financial institutions; in part it was because a huge government deficit substitutes for investment in sustaining deficit profits. With profits sustained, a debt deflation process cannot gain momentum.

From equation (5) we have $\pi = I + Df$. If a decline in investment and employment triggers an explosion of the government deficit so that the increase in the deficit offsets the decline in investment, then profits will not fall. If profits are sustained, then the gross cash flow to capital owners is sustained. This means that outstanding debts and the prices that were paid for capital assets tend to be validated.

The combination of automatic stabilizers, lagged adjustments to past inflation in various government transfer payment schemes, and discretionary fiscal intervention means that when financial stringency is followed by a fall in investment, a massive government deficit occurs. Profits are sustained even as business activity and employment decrease. As a result, the business sector is able to validate its debts. The interactions among investment, profits, and financial markets which constitute the downward spiral of a deep depression do not occur.

The aggregate demand effect of big government, especially government that expands dramatically when income and employment fall, sustains and increases the markup on labor costs.[20] Inasmuch as transfer payment schemes sustain money wages in the face of excess supply of labor, and the deficit tends to sustain, if not increase, the markup on money wages, prices do not fall; they even rise when unemployment increases. Stagflation is truly a result of big government, but so is the absence of a deep depression in the years since 1966.

There is no free lunch; we have eliminated deep depressions, but the price has been first chronic and now accelerating inflation.

Conclusion

Once we shift from an abstract economy and turn to analyzing the behavior of a capitalist economy with expensive capital assets and a sophisticated financial system, the equilibrium, equilibrating, and stability properties derived in standard economic theory are not relevant. Such a capitalist economy is unstable due to endogenous forces which reflect financing processes. These processes transform a tranquil and relatively stable system into one in which a continued accelerating expansion of debts, investment, profits, and prices is necessary to prevent a deep depression.

A comparison of 1929–1933 with 1966, 1969–1970, and 1974–1975 makes it clear that when a financial crisis is imminent, the structure of the economy and discretionary intervention by the authorities determine what happens. At such a juncture, policy does matter. If, as in 1929, aggregate federal government spending is small relative to investment, and if the Federal Reserve takes a narrow view of its responsibilities, then a debt deflation and a deep depression will follow financial trauma. If, as in 1966, 1969–1970, and 1974–1975, aggregate government spending is large relative to investment, and if the Federal Reserve takes a broad view of its responsibilities, then stagflation and a stepwise accelerating inflation will follow financial trauma.

Whereas the period 1946–1966 shows that an extended run of capitalism without instability is possible, it should be recognized that these years are a special case. The memory of 1929–1939 made "balance sheet conservation" a dominant characteristic when World War II ended. The available ability to spend, which was a legacy of war finance, was gradually transformed into actual spending. A long tranquil period of expansion and relative price stability resulted; however, as was evident even in the mid-1960s, the basis of this stability was gradually being eroded.[21]

Both the Great Depression and the great inflation and intermittent stagnation of 1966–1979 are symptoms of the underlying instability of capitalism. A great depression is the outcome when government is small and the central bank is timid. A great stagflation is the outcome when government is big and the central bank intervenes forcefully.

Given the fragility of our financial system, we will soon experience another crisis period reminiscent of the more recent ones. This time, however, big government will not be as quick nor as able (because of international financial relations) to pour money into the economy, as in 1974–1975. In addition, the Federal Reserve will be reluctant to intervene and increase the monetary base and extend broad guarantees. The prospect is that the next time financial instability occurs, the policy response will be slower and more modest than in 1974–1975. The subsequent recession will be both longer and deeper.

The current institutional structure offers us unappetizing alternatives; we need to alter it, recognizing that the essential critical flaw in capitalism is instability, and that instability is due to the way capital asset holding and accumulation are financed. Simons was correct: Banking, that is, the financing of capital asset ownership and investment, is the critical destabilizing phenomenon. But, as Simons realized, control of banking —money, if you wish—is not enough; the liability structures available to units that own the massive capital assets of the economy must be constrained.

The fundamental dilemma in economic organization is how to preserve the vitality and resilience of decentralized decisions without the instability accompanying decentralized financial markets. Keynes's solution—the socialization of investment—may be a way of attenuating, although not eliminating, financial instability by removing the financing of the most capital-intensive processes and expensive capital assets from private debt markets. The substitution of government for private financing of capital-intensive investment, along with limitations on the liability structure of private business, could decrease the domain of instability of a capitalist economy.

The economics of Simons of Chicago and Keynes of Cambridge have much in common, but this is not surprising. Both Keynes's *General Theory* and Simons's *Rules versus Authorities* were responses to the same real world situation. However, Simons never broke with inherited economic theory, whereas Keynes saw that one aspect of the crisis of his time was that the inherited theory was incapable of explaining what was happening.

In many ways, today's many crises of economics—in performance, policy, and theory—are reminiscent of those of the 1930s. Once again,

the discipline is divided between those who view the inherited theory as an adequate basis for future progress of both the economy and the discipline and those who hold that inherited standard theory will not do. Today, just as in the 1930s, the control of systemic instability is the critical problem in performance and policy, and instability is the phenomenon that renders inherited theory suspect.

Notes

1. Henry Simons, "Rules versus Authorities in Monetary Policy," *Journal of Political Economy* 44 (February 1936): 1–39, reprinted in *H. Simons' Economic Policy for a Free Society* (Chicago: University of Chicago Press, 1948), p. 172. "Rules versus Authorities" was written in the same years of intellectual ferment that gave rise to *The General Theory* and reflects a similar concern with understanding the fundamental rules of behavior of a capitalist economy.
2. Ibid., p. 171.
3. In all that follows, "corporations" or "firms" will be the proximate owners of the capital assets of the economy. This institutional specification simplifies the exposition and does not do grave violence to reality.
4. Kenneth Arrow and Frank Hahn, *General Competitive Analysis* (San Francisco and London: Holden-Day, 1971), p. 346.
5. J. M. Keynes, "The Consequences to the Banks of the Collapse of Money Value," in *Essays in Persuasion,* vol. 9, *The Collected Writings of John Maynard Keynes* (New York: Macmillan, for The Royal Economic Society, 1971), p. 151.
6. Hyman P. Minsky, "Central Banking and Money Market Changes," *Quarterly Journal of Economics* 71 (May 1957): 171–87.
7. Irving Fisher, "The Debt Deflations Theory of Great Depressions," *Econometrica* 1 (October 1933): 337–57.
8. Dudley Dillard, "Theory of a Monetary Economy," in *Post Keynesian Economics,* edited by L. K. Kurihara (London: 1955).
9. Hyman P. Minsky, *John Maynard Keynes* (New York: Columbia University Press, 1975).
10. J. M. Keynes, "The General Theory of Employment," *Quarterly Journal of Economics* 51 (February 1937): 209–33.
11. Minsky, *Keynes,* chapter 4, "Capitalist Finance and the Pricing of Capital Assets."
12. Milton Friedman, "The Quantity Theory of Money: A Restatement," in *Studies in the Quantity Theory of Money,* edited by Milton Friedman (Chicago: University of Chicago Press, 1956).
13. When neoclassical theory is extended to deal with problems of accumulation and growth, in one form or another, the assumption is made that the depreciated value of historical investments equals the value of the capital stock as determined by the present value of future profits: that is, two sets of prices are equal. But this assumption is an attribute of an investing

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economy in equilibrium. Neoclassical general equilibrium theory, when extended to investing capitalist economies. proves the existence of equilibrium by first assuming the economy is in equilibrium. See G. C. Harcourt, *Some Cambridge Controversies in the Theory of Capital* (Cambridge: the University Press, 1972). This point is very clear in the writings of Jan Kregal; see especially *The Reconstruction of Political Economy* (New York: Wiley, 1973).

14. J. R. Hicks, "Mr. Keynes and the Classics," *Econometrica* 5, no. 1 (1937): 147–59.

15. Dillard, "Theory," pp. 22–23.

16. Kregal, *Reconstruction;* and Paul Davidson, *Money in the Real World* (New York: Wiley, 1972).

17. C = consumption; W_c, W_I = wages in consumption and investment production; N_c, N_I = employment in consumption and investment production; π_c, π_I, π = profits in consumption. investment, and total production; Df = government deficit: C = consumption coefficient out of profits; s = saving coefficient out of wages, and BPS = surplus in the balance of payments. See Michal Kalecki. *Selected Essays on the Dynamics of the Capitalist Economy* (1933–1970) (Cambridge: the University Press, 1971). Chpter 7, pp. 78–92. "The Determinants of Profits," is a reprint of a paper that first appeared in 1942.

18. There is a formal equivalence between $Y = C + $ I, and so forth, and $\pi = I + Df$, and so forth: the difference is in the treatment of received income as a homogeneous glob in the $Y = C + I$ (and so forth) formulation and the differentiation by source of income in the $\pi = I + Df$ (and so forth) formulation . The emphasis upon π as the especially relevant attribute of a capitalist economy is important once the financial structure is specified, and once it is recognized that it is the flow of profits that determines whether past financing and asset values are to be validated.

19. From the Kalecki relations we have

$$\hat{P}_c Q_c = W_c N_c + W_I N_I ,$$

which yields

$$P_c = \frac{W_c}{(Q_c/N_c)} \left(1 + \frac{W_I N_I}{W_c N_c} \right) ,$$

or

$$P_c = \frac{W_c}{A_v} \left(1 + \frac{W_I N_I}{W_c N_c} \right) ,$$

where A_v is the average productivity of labor in the production of consumer goods. The higher the ratio of N_I/N_c, the higher the price level of consumer goods.

20. $\hat{P}_c Q_c = W_E N_E + W_I N_I + Df$;

$$P_c = \frac{W_c N_c}{Q_c} \left[1 + \frac{W_I N_I}{W_c N_c} + \frac{Df}{W_c N_c} \right] ; \quad \text{and}$$

$$P_c = \frac{W_c}{A_r} \left[1 + \frac{W_I N_I}{W_c N_c} + \frac{Df}{W_c N_c} \right] .$$

The markup on labor is

$$\frac{WN + Df}{W_c N_c} .$$

21. Hyman P. Minsky, "Longer Waves in Financial Relations; Financial Factors in the More Severe Depressions," *American Economic Review* 54 (May 1964) : 324–32.