

Debt Deflation Processes in Today's Institutional Environment *

I. Introduction

At the end of his reply to Viner, Keynes wrote, "This that I offer is, therefore, a theory of why output and employment are so liable to fluctuations" (QJE, p. 221).¹ Although *The General Theory* is not a business cycle theory it is a formulation of economic theory that makes business cycles normal events. As the orthodox interpretation of *The General Theory* forced Keynes' insights and concerns into the market clearing paradigm of Walrasian theory and as the sophisticated modeling devices developed for the analysis of resource allocation within the Walrasian framework were ineptly applied to the analysis of resource accumulation, the endogenous instability content of *The General Theory* was lost. In Marshall, and Keynes was very much a Marshallian, equilibrium concepts are used as points of departure in arguments which show that endogenous disequilibrating forces are at work that disrupt the various defined equilibria, so that the economy transits among equilibria. The orthodox interpretation of Keynes, as well as the "new" rational expectations economics, takes the equilibrium defined by model parameters as the "normal" and attained state of the economy.

The theory of *The General Theory* can be characterized as an investment theory of income and a financial theory of investment. The economic theory of *The General Theory* does not allow for any dichotomization of "financial" and "real" phenomena when the subject is a capitalist economy. In this theory money is not a device to facilitate

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¹ Professor J. VINER's review of Keynes' *General Theory*, "Mr. Keynes on the Causes of Unemployment, (*Quarterly Journal of Economics* 51 (November 1936) 147-146) is a major source of the "Chicago" tradition in economic analysis.

trade but rather money is an instrument that arises in the financing of investment and positions in capital and financial assets.²

Even though the business cycle has been muted since World War II, for we have not as yet experienced a long and deep recession, the economy has experienced increasing turbulence since the middle 1960s. To understand why turbulence emerged out of the tranquility of the early post war years and why the turbulence has resulted in the peculiar phenomena labeled stagflation, it is necessary to return to some basics of monetary behaviour in a capitalist economy. To do this we start with Irving Fisher's Debt Deflation Theory of the Great Depression and recast the ideas of that theory in a form that is compatible with the way today's economy performs.³

In a rough and ready way, which captures the essential truth of what has happened, the years since World War II can be divided into two parts which differ in their broad behavior contours. The first, which ran from the end of the war to the mid-1960s, was an era of tranquil progress during which "on the whole" a close approximation to full employment at stable prices was achieved. The growth, price and distribution performance of the American economy over the first two decades after World War II may very well be a close approximation to the best that in practice can be obtained from a capitalist economy. While not perfect, this performance was very good indeed. The second part, which began in the mid-1960s and has continued to date, is an era of increasing turbulence and is characterized by stepwise higher unemployment and inflation rates. The experience since the 1960s shows that business cycles still characterize our economy, but the shape of the business cycle has changed. The new shape of the business cycle reflects the fact that even though the financial environment and the triggering relation necessary for a debt deflation have been "in place" since the mid-1960s, a fully realized debt deflation has not occurred.

In *The General Theory* and in the literature on business cycles two types of cycles or fluctuations can be distinguished.⁴ One is a mild

² HYMAN P. MINSKY, *John Maynard Keynes*, Columbia University Press, 1975.

³ IRVING FISHER, "The Debt Deflation Theory of Great Depressions", *Econometrica*, 1933, pp. 337-57. Also, *Booms and Depressions* (New York: Adelphi Co., 1932). Also, *100% Money*, (New Haven: The City Printing Co., 3rd Edition, 1945).

⁴ M. FRIEDMAN and A.C. SCHWARTZ distinguish between mild and deep depression cycles. See *A Monetary History of the United States*, Princeton University Press, 1963.

J. Schumpeter had a schema of three types of cycles, but the Kondratief is of a long term nature and much more conjectural than the other two. See J. SCHUMPETER, *Business Cycles*, (New York: McGraw Hill, 1939).

repetitive cycle in which the economy oscillates "...avoiding the gravest extremes of fluctuation in employment and in prices in both directions, round an intermediate position appreciably below full employment and appreciably above the minimum employment, a decline below which would endanger life..." [GT, p. 254] and the second is a deep depression cycle in which there is a traumatic crisis that leads to a long decline. In these cycles the gap of income above the level that "would endanger life" is much diminished.

Mild and severe cycles are differentiated by the extent of financial system involvement. In mild cycles the financial system remains stable. In deep depression cycles financial crises, and what Fisher characterized as a debt deflation process, are involved. In the post war era, prior to 1965, the business cycles in the National Bureau chronology did not involve any serious deviation from financial stability. In the business cycles of the years since the mid sixties, financial crises threatened; at least the Federal Reserve believed this was so, for it intervened as a lender of last resort. In spite of the financial involvement in the cycles since the middle 1960s the recessions have been short, relatively shallow and the recoveries, at least in their initial stages, have been strong.⁵ The differences in the course of debt deflation processes in the era before World War II and in our present economy has to be examined.

II. Tranquility and Turbulence

An economy that accumulates and which has capitalist financial arrangements is an iterative system in which the complex outcomes of yesterday determine what happens today, even as today's outcomes determine what happens tomorrow. The intertemporal linking has the further complexity that knowledge of the past and the present, along with the theories that are held as to how the economy functions, determine today's expectations of future values which affect today's behavior. An economy that invests and has capitalist financial processes operates with legacies of the past even as it creates the endowments of the future.

⁵ HYMAN P. MINSKY, "Finance and profits: the changing nature of business cycles" (Joint Economic Committee of the United States Congress, *The Business Cycle and Public Policy 1929-80*, 1980).

Modelling an economy in which time is unidirectional — in that the past and views about the future affect the present and the outcomes of the present sets the parameters within which the future takes place — cannot be done without explicitly taking these intertemporal relations into account. Furthermore, an economy in which the past, the present and the future are linked through the accumulation of capital assets and financial instruments is intractably non-linear.

Nonlinear time dependent processes occur in a number of disciplines — hydrodynamics, biological systems, aeronautics, meteorology are examples — and in the age of computers, the paths in time of such intractable processes have been examined through simulation. As a result some “empirical results” have been derived which indicate that the normal path of such processes is exotic, in that the characteristics of the “free iterative” time processes wander. The system transits from paths that look like tranquil expansion to apparently well mannered cycles to time paths that are best described as chaotic. Furthermore, a type of behaviour will appear and then disappear, i.e., order and tranquility will give way to chaos or turbulence only to be succeeded by a period in which order “reappears”.⁶

If non-linear iterative processes are accepted as the “best analogue” to the economy, then the emergence of turbulence and chaos out of initially tranquil and coherent states is a natural process. However, although turbulence and chaos may aptly describe the behavior of the economy at times, most of the time the path of the economy is tranquil and coherent — perhaps pockets of incoherence exist most of the time but this is not the general case.

If we distinguish between a “free determination” of the time path of the process, which rules when the value determined by system interactions are fed into the determination of future values and “constrained determination” of the time path, when values imposed from outside — by floors, ceilings, policy or institutional rigidities — are fed into the determination of future values, then the dominance of coherence out of a set up that is inherently conducive to the emergence of chaotic conditions is due to these “interventions”. This is so because each time new initial conditions are imposed the initial periods of the subsequent run are coherent. Interventions by floors, ceilings, institutional rigidity or policy, in effect, impose new initial conditions.

⁶ R.H. DAY, “Irregular Growth Cycles”, *American Economic Review*, June 1962, Vol. 72, p. 406-414.

Thus, our system is one whose internal operations would lead to the emergence of chaos, but if chaos implies unacceptable values of parameters and if there is a system of effective intervention that constrains the economy to acceptable values, then the overall path will be coherent with isolated incidents of incoherence. For incoherence to rule for more than a small interval of time, it is necessary for the system of intervention and constraints to break down.

The ability to point to events and say this is what I mean, this is what needs to be explained, is worth a host of abstract arguments. The debt deflation process that ruled from 1929-33 is an example of incoherent behavior of our economy. If any experience of the American Economy can be considered as chaotic it is the final months of the great collapse that ended with the virtually complete closure of the economy in early 1933. Because since 1966 a number of episodes have occurred which seems to be equivalent to those that seemingly triggered the course the economy followed after 1929, it is useful to examine the past in the light of more recent developments to understand why things are different.

Knowing that there are abstract models of migrating time series that can be interpreted as showing that the internal operations of a complex time dependent system leads to a breakdown of coherence, is of course satisfying to economists who have doubted the empirical relevance of the “super stability” economics of Arrow, Debreu, the first generation monetarists and the rational expectations schools. It is clear that Keynes treated the economy as just such a time dependent process. In Keynes the breakdown of asset values in the absence of interventions, constraints and rigidities is an integral part of the mechanism by which the economy fails to achieve full employment. However, the reinforcement of Keynesian perspectives by these mathematical tidbits means little unless we can exhibit and analyze a period of chaotic development and relate this to the absence of effective intervention.

III. Fisher's Description of Debt Deflation

Because of the mathematical insights now available, the financial crunches since 1966, and the continuing threats of a financial debacle it is useful, at this time, to look carefully at Fisher's analysis of the debt

deflation process. Fisher begins his exposition by assuming an initial state of overindebtedness. Overindebtedness theories of the Great Depression were not rare at the time of the Great Depression. Research carried on under the auspices of the Twentieth Century Fund advanced an overindebtedness theory of the Great Depression and put forth programs of reform of the financial structure which aimed at avoiding future overindebtedness.⁷

As the Great Depression progressed Irving Fisher, as well as a coterie of economists at the University of Chicago, proposed a radical reform of banking and monetary institutions in the form of "100% money". A "100% money" banking and financial structure would forbid the practice of fractional reserve banking. It was argued that by making all money fiat or commodity money, "100% money" would prevent the type of decline in the money supply and financing that characterized the Great Depression. As the growth of money market funds illustrates, the pervasive character of banking and the way banking institutions emerge in response to profit opportunities, we can assume that the radical restructuring of banking proposed in the "100% money" schemes would not survive any era of tranquil expansion.⁸

Fisher identified nine links to debt deflation process. The second link is "contraction of check-book money..." In a comment he holds that "all the events listed occur through a contraction of check-book money". As is well known, the analysis of the Great Depression by monetarists such as Friedman and Schwartz places well nigh the entire "blame" for the Great Depression on the contraction of the money supply. Monetarism and "100% money doctrine" are alike in placing all, or almost all, of the blame for serious business cycles upon the malfunctioning of the money supply. In many ways the "100% money" advocates were more sophisticated than today's monetarists. The proponents of "100% money" recognized that the malfunctioning of the economy was due to institutions and instruments that perform vital functions in a capitalist economy. They therefore integrated their program of monetary reform with a radical restructuring of financial institutions and practices. The argument of today's monetarists almost seems to be that if the Federal Reserve got the growth of the money

⁷ TWENTIETH CENTURY FUND, "Debts and Recovery", (Twentieth Century Fund, 1937). Also, CLARK EVANS, *The Internal Debts of the United States*, (Twentieth Century Fund, 1935).

⁸ H. C. SIMONS, *Economic Policy for a Free Society* (Chicago: University of Chicago Press, 1948).

supply right, then the market economy would attain and sustain a position of full employment at stable prices.

Fisher identified a nine link process of debt deflation:

Assuming, accordingly, that, at some point of time, a state of overindebtedness exists, this will tend to lead to liquidation, through the alarm either of debtors or creditors or both. Then we may deduce the following chain of consequences, in nine links:

1. *Debt liquidation* leads to *distress selling* and to
2. *Contraction of check-book money*, as bank loans are paid off, and to a slowing down of velocity of circulation. This contraction of checking deposits and of their velocity, precipitated by distress selling, causes
3. *A fall in the level of prices*, in other words, a swelling of the value of the dollar. Assuming, as above stated, that this fall of prices is not interfered with by reflation or otherwise, there must be
4. *A still greater fall in the net worths of business*, precipitating *bankruptcies* and
5. *A like fall in profits*, often turning them into losses, which, in a "capitalistic", that is, a private-profit, society leads the concerns which are running at a loss to make
6. *A reduction in output, in trade, and in employment* of labor. These losses, bankruptcies, and unemployment, lead to
7. *Pessimism and loss of confidence*, which in turn lead to
8. *Hoarding and slowing down still more the velocity of circulation*. The above eight changes cause
9. *Complicated disturbances in the rate of interest* — in particular, a fall in the nominal rates of interest, that is, the rates expressed in terms of money, and a rise in the real rates of interest, that is, the rates translated into terms of commodities which money will purchase.

This deductive reasoning has been largely confirmed by inductive studies. Evidently, then, debt and deflation go far toward explaining a great mass of phenomena in a very simple, logical way. It should be noted that practically *all the events listed occur through* a contraction of check-book money. (I. Fisher, *100% Money*, New Haven: The City Printing Co., 1945 (First Edition 1935), pp. 122-123, (Fisher's italics).)

Before we take up the "nine links" in Fisher's exposition of the debt deflation process it is necessary to note that his initial condition is that "...a state of over-indebtedness exists". Fisher's characterization of overindebtedness is that:

- (a) over-indebtedness is always relative to other items — to national wealth and income, to bank reserves in general, and to gold in particular, when

a gold standard exists; and that (b) over-indebtedness is not a mere one-dimensional magnitude, to be measured simply by the number of dollars owed. It must also take account of the distribution in time of the sums coming due. Debts due at once are more embarrassing to the debtor than debts due year hence; and those payable at the option of the creditor, than those payable at the convenience of the debtor. Thus, debt embarrassment is especially severe in the case of call loans and in the case of early maturities.

But for practical purposes, we may roughly measure the total debt embarrassment of the people by taking the total sum currently due, say within the current year, including rent, taxes, interest, installments, sinking fund requirements, maturities and any other definite or rigid commitments for payment on principal. (I. Fisher, *op. cit.*, pp. 126-127).

Before overindebtedness can exist it is necessary to have what Keynes identified as "system of borrowing and lending based upon margins of safety". As Fisher recognized, any question of the existence of nonexistence of "over-indebtedness must take into account the "...distribution in time of the sums coming due". Fisher's remark about "call loans" and "early maturities" indicates that the sums coming due include the amount due on account of principal as well as interest. If debt structures generate a distribution in time of sums that need to be paid, it is the asset structures that generate a distribution in time of the sums coming to the unit. The national income (when Fisher was writing national income was an imprecise concept) referred to by Fisher is not enough to determine the money flows to debtors that are available to fulfill commitments that are coming due. Before the prospects of a debt deflation occurring in any situation can be assessed it is necessary to "model" both the payment commitments on debt structures and the source of funds by which the commitments can be fulfilled. Because payment commitments and sources of cash are related to financing institutions, the structure of financial intermediation that exists and its evolution through time are determinants of system behaviour as affected by the consequences of overindebtedness.

Fisher has overindebtedness "leads to liquidation, through the alarm either of debtors or creditors or both". Fisher does not identify any systemic properties which will transform a "bearable debt" into "over-indebtedness". However, if debt is short term a rise in interest rates leads to a rise in payments due, even as a rise in long rates lowers the value of long term financial and capital assets. The margins of safety that Keynes referred to are either an excess of cash receipts over cash payment commitments, the excess of the value of assets over liabilities,

and holding of cash and other liquid assets. A rise in the interest rates leads to a decrease in the excess of cash receipts over cash payments and in the value of assets over liabilities, even as it induces an economizing of cash or liquid assets. For any given cash receipts due to assets and income production and payment commitments due to the liability structure there is an outer limit to interest rates that will preserve adequate margins of safety for the normal functioning of borrowing and lending. The maximum interest rates that are consistent with the viability of a debt structure decrease as the ratio of debt financing to owners equity increases. If over time debt financing of positions increases, then the margin of safety in both cash flows and assets values that makes the continued normal functioning of a system of debt possible can disappear as a result of a not unusual rise in interest rates or of a not unusual shortfall of profits. The evolution of the debt structure can lead to a situation in which a not unusual event triggers both a desire to reduce debt and an unwillingness to debt finance new endeavors. The evolution of the debt structure and of financial institutions, as well as the changes in the standards of acceptable liability structures to finance positions in assets, are important empirical correlatives of the migration of non-linear iterative systems from producing coherent to producing incoherent results.

Fisher does not identify the ways a unit can get cash to repay loans that fall due. In a capitalist economy there are three basic sources of cash for the payment of commitments. These are the cash flow due to operations (profits for business and wages for households), borrowing or refinancing, and the sale of assets. In addition there is the possibility that a unit has cash on hand or assets superfluous to its operation which can be readily sold. In all capitalist financial structures a major threat to the viability of the financing structure is that units may be forced to sell out positions in assets which have a thin market in order to raise cash needed to meet payment commitments. Such sales lower the market price of assets and thus the cash that assets can fetch.

Liquidity preference attaches value above that derived from cash flows to assets which can be used to meet payment commitments or which can be used to raise cash for payments. The demand for cash depends upon the structure of payment commitments embodied in the liability structure relative to the cash flow from operations and the existence of financial markets which facilitate refinancing. Liquidity preference leads to a transaction demand for money and near monies that is derived from payments that are required by the liability structure.

Once a situation exists where debt payments cannot be made either by cash from operations or refinancing, so that assets have to be sold,

then the requirements imposed by the debt structure can lead to a fall in the prices of assets. In a free market, the fall in asset prices can be so large that the sale of assets cannot realize the funds needed to fulfill commitments. When this happens, widespread insolvency results from systemic illiquidity.

A debt deflation can develop if a shortfall of profits relative to payment commitments takes place. Profit flows are determined by the level of income and in particular, in the no or small government case, by the level of investment. A debt deflation will not get very far if profits are sustained or even increased when income falls.

To understand a debt deflation process it is necessary to specify what is meant by "a fall in the level of prices". In the attempt to raise cash to pay debt by selling assets downward pressure on the prices of assets will take place. However, there is another price level — that of current output. Part of the revenue from current output is a mark up on out of pocket costs times output; this is the profit flow. If prices decline relative to money wage rates, profits will be squeezed and thus decrease the likelihood that payment commitments can be fulfilled. If "policy" aims to prevent a debt deflation, then policy must aim to prevent any significant fall in prices relative to wages. Price deflation that leads to profit deflation increases the likelihood of a severe debt deflation.

Fisher's nine links of a debt deflation reduce to two critical steps once a debt deflation process has been triggered: the course of profits and the availability of refinancing on favorable terms. The crunches of the post war period — those of 1966, 1969/70 and 1974-75, the quick crunch of 1980 and the unfolding events of 1982 — can be interpreted as triggering events, in a highly indebted financial structure that could lead to a full debt deflation. However distress selling, that depresses assets prices, and the prolonged decline in profits, that increases the burden of debt, were avoided. The result of these years was a series of short and contained recessions and the emergence of the special phenomenon of stagflation, i.e., incomplete expansions and inflation.

IV. A Modern Restatement of Debt Deflation Views

A much better story of debt deflation can be told today than that which Fisher told in 1933. Furthermore, we do not have to leave overindebtedness or the triggering of the downturn unexplained. The

fundamental monetary process in a capitalist economy is the financing of positions and of investment; in particular investment and owning capital assets are exchanges of money now for money later. However, for capital assets that are used in production the money later comes in the form of a flow of gross profits. In order to obtain the money now, businesses retain earnings and issue debts. Some portion of the debts used to finance investment, positions in capital assets or positions in financial assets are in turn financed by liabilities that are classified as money for their holders. The existence of a financing network is a basic characteristic of a capitalist economy.

As a result of contracts entered into in the past there are payments due now. The cash flows to units that have payments to make are in the form of gross profits, payments on owned financial contracts or proceeds from either borrowing or the sale of assets. An important attribute that characterizes liability structures is whether cash to meet financial commitments arises from "profits", contract fulfillment, refinancing of positions or selling of positions.

We can separate liability structures into those in which profits of business (wages for households) are sufficient to meet financial commitments and those which require some rollover of debt for contracts to be fulfilled. I have called financial situations where profits suffice, hedge finance and where refinancing is needed, speculative finance. I have called the speculative financial posture in which a net increase in debt takes place, Ponzi finance; in Ponzi financing interest is capitalized.

In a capitalist economy there are profit seeking financial organizations and both businessmen and bankers are free to innovate in finance. The broader the range of financing alternatives the greater the demand for existing assets and the greater the financing available for investment. Greater demand implies higher prices. Any broadening of financing alternatives that increases the available finance for holding capital assets will tend to increase the price of capital assets. But any increase in the price of capital assets increases the margin of safety in any given liability structure by raising the value of assets relative to the value of debts. Thus an increase in the breadth of financing alternatives will first increase the supply of finance but by increasing the margins of safety in existing and potential contracts may also increase the demand for financing.

In any money using economy with debts there are pockets of money that are committed by the holder to payments that will take place in the (near) future. These "pockets of money" are raw material for

short-term debt financing. Innovators in financial markets develop new ways of using or of getting cash for both long- and short-term financing. Over a period in which business is doing well the available supply of short-term financing adapts faster than the supply of long finance. Thus over a period of good times short-term debt increases relative to the flow of cash in the form of gross profits. As short-term debt becomes an increasing part of the debt structure, finance becomes increasingly speculative, in that a larger portion of maturing debt can be paid off only by issuing new debt. In these circumstances the viability of borrowers becomes increasingly dependent upon the availability of funds through various markets.

A reversion from a speculative debt structure is triggered when interest rates rise so that the payments on new debt as well as on refinanced old debt rise relative to expected cash flows. This will affect the willingness and ability of units to go into debt; units will try to substitute selling out positions for refinancing of positions.

Investment is the use of resources over a period of time to create a capital asset that will be used in production over a period of time; the use period for capital assets commences when the investment process is "finished". The production of investment goods takes place because the producers expect to make profits. This means that the prices at which they expect to sell their output leaves a margin after covering costs of production. In investment projects which take a significant time to complete interest on early on costs can be a significant part of the costs that prices must cover. These interest costs will vary as short-term market interest rates change; a rise in short-term interest rates raises the supply price of investment output.

Capital assets are valuable only because they are expected to earn profits; the market price of capital assets is a capitalization of expected profits. With expected future profits unchanged a rise in market long-term interest rates lowers the market price of capital assets.

Rising interest rates raise the supply price of investment output and lower the market price of capital assets. The gap between the market price of capital assets and the supply price of investment output is the driving force in investment activity. Sharp increases in interest rates can cause the gap to disappear and even become negative. This will affect investment decisions and, with a distributed lag, investment. Both the running down of inventories and the cut back of durable investment, if they are not offset, will lead, with various lags, to a decrease in profits.

The evolution of financial interrelations, so that a structure conducive to a debt deflation emerges, is a normal functioning result of the demonstrated profitability of using debt to finance activity and asset holdings. The susceptibility of the economy to a debt deflation depends upon the minimum set of interest rates that would lead to an erosion of the various margins of safety for given cash flows and mix of assets (as embodied in the financial structure) and the level of interest rates that would lower and reverse the gap between the market valuation of capital assets and the supply price of investment output, decreasing investment. The upward volatility of interest rates in turn depends upon the extent of financing which is interest inelastic (because it is either the refinancing of positions or the financing of long gestation investment projects) and the elasticity of the supply of finance with respect to financing terms. The elasticity of the supply of finance mainly deals with the supply of short-term financing and depends upon the elasticity of bank credit and the effect, upon the supply of funds, of the institutional innovations that are taking place in finance markets.

It is clear in theory — and it has been observed in the economy — the larger the dependence upon speculative and Ponzi finance the greater the likelihood that a sharp run up in short-term interest rates will occur. Once rapid increases in short-term interest rates take place, the expected gain from carrying assets decreases: this leads units to try to make payments by selling out positions. A collapse of asset values as a result of excess supply in markets or the inability of units that have maturing debts to roll debt over are the triggers of a debt deflation process.

V. Interventions that Abort a Debt Deflation Process

Financial crises always have a "focus" — one or several institutions or markets in which the inability to make payment commitments first becomes evident. The failure to meet payments by these "initiating" institutions means that cash receipts someplace else in the system fall short of the commitments as stated on assets. The repercussions of the initial inability to meet payments is contained only as some form of concessionary finance emerges; either from debt holding organizations or from without. In today's economy concessionary finance almost

always involves the Central Bank either directly or indirectly. The Central Bank's actions or interventions almost always involve the introduction of Central Bank liabilities — reserve money — into the economy, either in the refinancing process or to ease the burden of the proximate refinancing organization.

A financial crisis always leads to efforts by borrowers to decrease their dependence upon external funds — which means that business bank loans or open market loans decrease. We now live in an economy with a large outstanding volume of government debt. Banks, who become uncomfortable with their high loan to asset ratio as a financial crisis progresses, use the resources made available by business paying off loans and Federal Reserve interventions that increases reserves to increase their holdings of government securities. As a result interest rates fall and the quantity of bank deposits is sustained. The decline in the money supply, step 2 in Fisher's scenario, does not take place.

The fall in the level of prices (Fisher's step 3) is here presumed to be a fall in output prices; the fall in the price of assets sold out by banks and other financial institutions as the crisis was triggered, is presumably stopped by the Federal Reserve's intervention. However for output prices — and for wage costs — to fall, excess supply on product and labor markets on a significant scale needs to develop and be maintained. Fisher's step 3 cannot be assumed to occur in this sequence and early on in a debt deflation process. Fisher places the fall in the net worth of business and an increase in bankruptcies (step 4 in his sequence) before the fall in profits (step 5). A fall in net worth due to the decline in asset values and the rise in the costs of carrying positions is one of the initiating factors in a debt deflation, for it signals a decline in the margins of safety in financing relations. However as part of the cumulative interactive process of a deflation it is a consequence of a fall in profits.

The second intervention that prevents full-fledged debt deflation processes in today's economy occurs when big government intervenes to sustain profits. Although sustaining and increasing business profits has never been an avowed objective of active fiscal policy — employment or income have been the avowed policy objectives — a major effect of the big deficits that big governments generate when income falls is to sustain profits.

In a great debt deflation, such as took place between 1929-1933 the aggregate burden of debt increased even as interest rates fell because of the decline in income and the virtual collapse of profits and asset values.

Ever since the early work of Kalecki it has been known that gross profits equals gross investment plus the government deficit, *but* this cash flow to business has never been integrated with the existence of a debt structure and the need to make payments to fulfill obligations stated in debt instruments. With big government Fisher's step 5, the fall in gross profits, does not occur.

It was noted earlier that investment is a money in-money out process in which the money out comes later as income is earned when the capital assets are used in production. The money out is profits. In the M-C-M' type of statement, it has to be recognized that the initial M is often obtained by selling debts, issuing equities or retaining earnings, the C is both inventory and fixed capitals and the M' are profit flows, which in a system with debt may be largely committed to fulfill debt contracts. In the economics of the neo-classical synthesis M' is either the marginal productivity of capital times capital — whatever that may be — or is some empirically estimated relation. In the economics of Keynes and Kalecki the fluctuating volume of profits is determined by the composition of demand so that investment, government deficits and the balance of trade affect system performance by affecting profits.

If the current Reagan reconstruction of the American economy succeeds in its objectives, the level and the income/employment elasticities of taxes and government spending will lower. As a result, the ability of the deficit to sustain profits will decrease. Although government will remain big by the standards of the 1920's it will be smaller and less deficit prone than the government of the 60's and 70's. Therefore the economy will be more susceptible to downside deviations than was true in the past sixteen years when debt deflations were aborted by prompt "explosions" of the government deficit.

The sixth link in the debt deflation process according to Fisher is "a reduction in output, in trade and in employment". In each of the recessions that followed the crunches of the sixties and seventies output and employment fell; but "trade" as reflected by consumer taking, hardly fell at all. Furthermore consumer demand always led in the recovery. This was mainly so because by the weight of transfer payments in government spending and the way transfer payments increased when employment declined. The path by which the specific structures of big government of the 1960's and 1970's sustained profits in the face of a decline in income and output was by way increasing and sustaining consumer disposable income. This structure of government spending meant that inventories of final output were quite quickly reduced and

that the decline of output was never so great that significant abandonment of investment in process took place.

Fisher's final links in the debt deflation process are (7) pessimism, (8) hoarding and (9) complicated disturbances in the rate of interest. The initiating financial disturbances typically induce pessimism. Hoarding, mainly in the form of a transitory shift to more conservative asset and liability structures, still takes place and financing terms change to reflect an increasing awareness of the possibility of disasters. However, as the refinancing crisis is contained by Federal Reserve lender of last resort interventions and profits are sustained by deficits, the initial defensive portfolio behavior quickly wanes. Financial turbulence, inflation and escalating unemployment have not led to a lasting pessimistic outlook by business and financiers. The awareness of the power of government to prevent disaster has been reinforced by the exercising of power to dissipate threats of disaster over the past fifteen years.

It is quite clear that Fisher's 9 point debt deflation process described, without any strong analytical basis, observable elements in the emergence and the full flowering of turbulence or incoherent behavior out of a prior tranquil or coherent process. It is also quite clear that the lender of last resort interventions as well as the profit flow impact of the government deficit impose new initial conditions upon the "economy", in the sense that values of assets and business profits that would have occurred in the absence of these interventions are not allowed to occur. "Islands of order" [of wages and prices that don't respond to current short run excess of supply, of consumer demand financed by transfer payments, of "strong" points that can look over the valley of the unfolding crises] are created by government interventions. The path of the economy reflects this continued and, in the case of the built in stabilizer of profits in the government budget, automatic imposition of new initial conditions. Coherence is imposed by interventions; it is not a natural outgrowth of system behavior.

VI. Why Have Aborted Debt Deflations Been Associated With Inflation?

The modern combination of a lender of last resort, that assures that refinancing will be available, and a big government, that assures that profits will be sustained, has prevented the realization of a debt

deflation and a deep depression, even though the economy has started on the road to debt deflation and deep depression at least four times since the mid 1960s. The years characterized by lender of last resort interventions as well as profit sustaining contra cyclical deficits have also been the years of inflation rates that have reached new highs in the recoveries. Furthermore, the recoveries have been perhaps increasingly unsatisfactory. What is there about the interventions that abort the thrust towards a deep depression that makes for "stagflation"?

In normal banking relations a "balance" exists between an inflationary pulse, that starts with money creation as credits are extended to business, and a deflationary pulse, that follows when there is an increase in goods and services sold in order to acquire money to fulfill the borrower's contractual commitments. Central Bank interventions as the lender of last resort take place when the goods and services that would be sold to generate cash to meet commitments to banks cannot generate the needed cash. In lender of last resort interventions the refinancing by the Central Bank keeps the "money", which should have been extinguished as the original contracts were fulfilled, outstanding in the economy. The money supply remains at a higher level, even as the commitments by the public or business to make payments to the monetary system are "stretched out" in time. This increase in the ratio of money as a banking system liability, held by business and households, to payments made to banks by business and households means that once the balance sheet conservatism induced by the initial shock is attenuated business and households will be able to buy assets and increase the ratio of consumption to income. The Central Bank lender of last resort intervention has diminished the normal offset to the "liquidity" of money holders by the "illiquidity" of debtors.

Even as lender of last resort interventions increase liquidity when refinancing aborts a debt deflation, the deficit of big government, when income and investment fall, sustains profits. However, there is a difference between the inflationary impact of sustaining profits by deficits and sustaining profits by investments. Investments if successful lead to an increase in the potential flow of output. Inasmuch as the increased flow of output is deflationary, an increase in investment is inflationary now, when increases in the mark up on the wage bill take place, and deflationary later, when an increased flow of output is realized. When government deficits sustain profits there is no subsequent flow of commodities such as follows investment; this is especially true when government spending is largely transfer payments and for

defense. A deficit raises the mark up on labor costs for consumer goods even as it yields government bonds for portfolios. It is "inflationary" on both scores.

Thus there is a link between the stagflation since the mid-sixties and the emergence of financial crises, the threats of deep depressions and the measures that halt and reverse the thrust towards a deep depression. A major effect of financial crises and realized deep depressions of the past was to induce financial conservatism. The price paid for this was mass unemployment and perpetuation of poverty. The rapid Central Bank interventions, combined with the profit sustaining deficits of recent years, have so eased the pain from exposed speculative and Ponzi financing arrangements that they have not induced financial conservatism.

VII. Conclusion

Monetary theory is specifically concerned with the overall behavior of a capitalist economy that is investing. This behavior depends upon relations that reflect the institutional structure of the economy. Although the evolving financing processes that lead to financial instability are essential characteristics of a capitalist economy in which bankers and their customers are free to innovate, the resolutions of the crises that result from time to time depends upon the institutional characteristics of the economy. The particular institutional characteristics that seem to be most relevant are the relative size of the "government" that can finance a deficit by issuing money or near monies and the willingness and ability of the Central Bank to intervene vigorously to arrange the refinancing of units that cannot meet their financial commitments. Whereas a deficit generating relation of the Federal Government is built into the tax and spending programs, the Congress and the Administration have typically engaged in discretionary action where a "larger" deficit was felt to be needed. Central bank intervention as a lender of last resort is always a discretionary act: whether, at what point, how and on what terms to intervene are always open to decision by the authorities.

When Irving Fisher, Henry Simons and the economists working with the Twentieth Century Fund identified the characteristics of a debt

deflation process and the importance of over-indebtedness as a cause and as a consequence of the Great Depression, they identified essential forces which make for the observed instability of capitalist economies. However, although the processes that make for debt deflations and overindebtedness are persistent characteristics of economies that are capitalist the actual result of these processes in observable behavior depends upon the institutional context and the force of policy interventions. Thus the processes and economic relations that led to the Great Depression, in the context of the 1929 institutions and the policies of the time, lead to inflation and relative stagnation in the current environment. Serious economic theory cannot be so abstract that it ignores institutional characteristics, especially as a time dependent process endogenously generates a thrust towards incoherence and institutional rigidities and policy interventions constrain the system to a semblance of coherence.

In the observations upon the economy as it moved towards the great collapse of the winter of 1932-33, the elements of what happens when the market system breaks down are revealed. In the successful interventions of the 1960s and 70s further details of how incoherence can be constrained and a semblance of coherence imposed were revealed. It is quite clear that the way in which incoherence was aborted had inflationary and relative stagnation implications for the economy.

Economic administration in a capitalist economy cannot be reduced to a routine such as can be programmed in a computer; furthermore every substantive success in improving some dimensions of the performance of the economy seems to have side effects that lead to a deterioration in other dimensions of the performance of the economy.

St. Louis

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