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On the Control of the American Economy

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"ON THE CONTROL OF THE AMERICAN ECONOMY"

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Orthodox neo-classical economic theory - whether monetarist or what Joan Robinson aptly called bastard Keynesian - fosters an illusion that quite simple operations by the Central Bank or by the Government manipulating its fiscal posture can control the aggregate development of the economy. This claim is maintained even through the recent past and current state of the economy leaves much to be desired in spite of various policy interventions that aim to put the economy on course. Because this neo-classical policy analysis holds that in principle control is possible, even though in fact it has not been achieved, it is "obvious" to neo-classical theorists that the fault lies with the policy makers - the Federal Reserve, the Carter Administration etc. - rather than with the system.

My view is quite different from the orthodox. I hold that economic policy in a capitalist economy can halt a process that moves an economy towards chaos but these interventions can at best enjoy a transitory success. Aside from rare episodes, such as the era of tranquility between 1946 and 1966 or so in the United States, the normal functioning of capitalist economics with elaborate financial structures leads to the emergence of "chaotic conditions" out of "coherence". These "incoherent", "turbulent" or "chaotic" conditions are first investment booms and then, as the investment boom is halted, a "debt-deflation"

followed by a deep depression. However as a result of the quite fortuitious effects of big government along with lender of last resort interventions by Central Banks, the threats of debt deflations and deep depressions - as well as the excesses of run away inflation can be contained. Perhaps my message in this paper can be summarized by saying that containment is possible but control, in the sense of fine tuning, is not.

Much of what I say is based upon an interpretation of Keynes' General Theory I put forth some years ago although my thinking has developed in a number of ways in the years since I wrote that little book. In particular the integration of investment, the deficit and the commitments embodied in liability structures, which rests upon Kalecki and Keynes in rather equal measure, was missing from my work of a decade or so ago. Although I feel I owe a great deal to Keynes my debts go beyond Keynes. I have often characterized my views as a "financial instability hypothesis" interpretation of Keynes. The "financial instability hypothesis" holds that the normal functioning of a modern capitalist economy - i.e., a capital using capitalist economy with a financial system that is complex, convoluted and evolving -- leads to business cycles and that, from time to time, these cycles include threats of incoherence in the form of a runaway inflation or a debt deflation process that can lead to a deep

depression. In particular what happened fifty years ago (1932/3) was not and must never be considered as a freak event, or as an event that was caused by incompetence or malevolence. The cause of the Great Collapse of 1932/3 rests in the nature of our type of market economy.

Even though the start of the economy on a route that leads to 1929-33 seems to be a normal result of market processes, policy interventions and the institutional structure affect what happens. The result of the process need not be a great depression. Policy interventions, of a lender of last resort nature, along with the impact of big government and the deficits it generates when income falls, have succeeded in containing the thrust toward deep depressions. However the medicine--like most powerful medicine--has side effects. The "inflation", "stagflation" and "turbulence" since 1966 are prices paid, in our times, for not having deep depressions. As I see it there is no way the monetary and fiscal authorities can abort a thrust towards a deep depression by way of a series of financial crises without setting the economy on a path that, "after a lag", yields an inflation. To be precise and specific: the financial crises of 1974/75 were contained and aborted by a combination of central bank (Federal Reserve) actions and a massive government deficit but the actions of 1974/75 set the process in motion that lead

to both a 50 + month expansion and the inflation of the late 70's, early 80's. Similarily the Federal Reserve and the Treasury can contain the current thrests of a financial debacle and a protracted recession/depression but only by Federal Reserve actions that "reliquify" banks, businesses and households and profit sustaining deficits. These interventions will set up a process that will replicate the broad outlines of the experience of 1976-79, i.e. an expansion that lasts several years and which leads up to a burst of inflation. Constraining a thrust to a deep depression leads to a situation conducive to a "run away" inflation (albeit with a 2 to 3 year lag); constraining inflation quite quickly leads to a threat of a financial debacle.

II. Significance of the Great Collapse

It is a common assertion that one picture is worth a thousand words. Similarly one counterexample is worth a thousand theorems that claim universality. The standard "theory" aims to explain how decentralized market mechanisms in which trading is guided solely by self-interest leads to a coherent outcome; i.e., a system that on the surface seems to be conducive to the emergence of chaos has a deep structure that leads to coherence. The counterexample to the claim of universality for the coherence theorems is the Great Collapse of 1929-33; the interaction among markets that led to the Great Collapse were beautifully described by I. Fisher in various places. Before this collapse was ended by intervention in March of 1933, the state of the economy could aptly be defined as "chaotic". What is there about on economy so that its normal functioning leads to an evolution from the on the whole tranquile progress of 1946-66 to turbulence and periodic threats of collapse that has ruled since 1967?

An economy with capital assets, investment and our type of financial structures can be characterized as an interactive system in which outcomes of today become inputs of tomorrow. Whereas simple linear interactive systems are mathematically tractable (I exploited this tractability in a series of articles), until the advent of a serious capacity to simulate with the age of computers, the time paths generated by nonlinear systems could not be traced. It is now well known that as a general rule complex time interdependent nonlinear systems lead to exotic time series in which initially coherent

behavior breaks down into turbulence (or incoherence) which then may be succeeded by another period of apparent turbulence. Furthermore the evidence from simulations indicates that it is reasonable to conjecture "that chaotically unstable trajectories are more likely to occur with "less" nonlinearity for multi-equation models."*

R. Day experimented with a number of models that led to "chaotically unstable trajectories" and reported his results in the June 82 AER. In each run reported the model generated apparently coherent time series for a while, only to have unstable trajectories emerge. We can distinguish between the "free fall" of a time dependent process, in which the past of the system fully determines today's variables and "constrained behavior", in which some of the system determined variables are not allowed to rule but are replaced by "exogenously determined variables" [ceilings, floors, institutional rigidities, policy, etc.]. These dominating exogenous variables, together with the allowed endogenous variables, are the initial conditions for future runs of the system. Thus the apt 'model' for studying our economy, which is a complex iterative system with nonlinearities due to accumulations of capital and debts, leads to an endogenous generation of chaos; but the system may be constrained from achieving chaos by apt interventions that break into the progression to chaos.

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* R. Day, "Irregular Growth Cycles," AER, June 1982, pp. 413.

I am reproducing two charts from Day's article. The time series generated by non linear iterative processes have the character that the "initial values" or the "early period" paths are quite acceptable as pictures of the way economic variables behave, but as the examples show an acceleration takes place that "breaks down" into what Day and others call chaotic trajectories. Aside from the great hyperinflations and great depressions such as 1929-33 in the United States we do not see "chaotic trajectories". The reason is quite simple - the free play of the non-linear process in time that generates these paths are dominated by the imposition of new initial conditions. In the top graph I have "inked in" my conjecture of how interventions - by the Central Bank or the Government - sets a "new", iterative process off, how this degenerates quite soon so that a new set of initial conditions are needed. Whereas "laissez-faire" would lead to the "chaos" of Day's original series, the visible hand of intervention leads not to the fine tuning of the claims of the 1960's but to a set of pieces that give a reasonable cyclical growth path.

Some twenty-five years ago - in a number of articles I explored properties of a linear iterative process - the accelerator-multiplier interaction. The reasonable values of the reaction coefficients in those models gave an explosive time series. By

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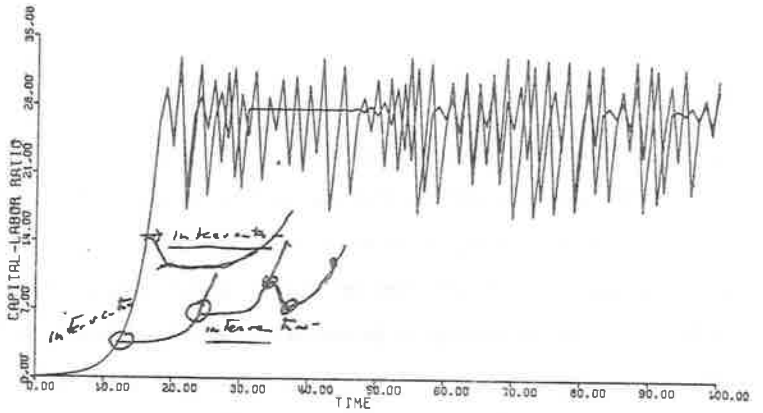
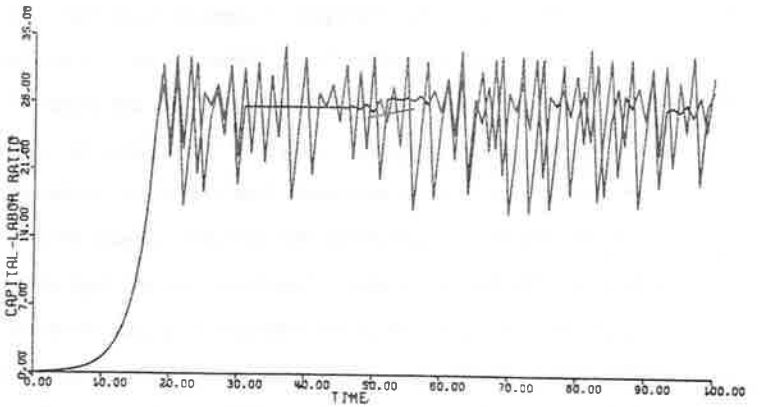


(a) A Small Perturbation in Initial Condition



(b) A Small Perturbation in Savings Rate

FIGURE 4. INSTABILITY OF CHAOTIC TRAJECTORIES
(Note that the trajectories wander away, wander close, and wander away from each other as time progresses.)

imposing ceilings and I was able to generate "business cycles" out of otherwise explosive series; i.e. series that would degenerate into chaotic behaviour. I now feel that these mathematical results of Day etc. validate the need for a serious treatment of the constraints necessary to make an accumulating economy behave in an acceptable way.

For quite a time now Frank Hahn, perhaps because he is the "neo-classical theorist" in Cambridge, has been insisting that there is no ground in the Arrow-Debreu results for assuming a "moving Walrasian Equilibrium" as the natural state of a Capitalist economy with money. That is once money and capital assets are introduced in any serious way the theorems of Arrow--Debreu do not carry through. Thus the basic monetarist game of assuming the existence of a moving equilibrium which is disturbed by monetary changes is not a valid game; for the equilibrium which was assumed to exist in truth does not exist. What the mathematical results I am drawing on indicate is

that the normal workings of an economy leads to periods of robust expansion, almost regardless of policy intervention, that is followed by chaos unless apt interventions take place.

It is nice to have mathematical models to point to as validating a general position that the normal progression of our economy implies the emergence of chaos, i.e., the market mechanism breaks down. The existence of such models carries little weight unless processes in and observations upon our economy indicate that progressions toward an unstable regime do take place. The evidence for the thrusts to financial instability, aside from the fact that it occurred in history, lies in the changing relation between debts and incomes, the variable margins of safety in financing contracts, and the evolution of financial practices over time.

The Great Collapse is the counterexample to the universality of the assertion that decentralized markets lead to coherence. We know that multi-equation iterative processes that are not linear generate time series that exhibit chaos. The Great Collapse of 1929-33 is an example of chaotic behavior. We now have to link chaotic behavior to observable developments in the economy.

III. Financial Innovations

Some 25 years ago I wrote:

> That the effort by the central bank to control inflation abets the development of unstable conditions in the money market may seem to be a dismal conclusion. Actually, it is too much to expect that a trivial set of operations such as those labeled monetary policy or fiscal policy will always succeed in maintaining stability in a dynamic economy. Institutional innovation is one aspect of a dynamic economy and money-market innovations occur in response to the needs of a growing economy. That these changes will tend to undermine the effectiveness of stabilization policies is a by-product of growth.
>
> However, the role of the central bank is not really diminished by the recognition of its ineffectiveness in preventing inflation as well as in stemming deflation. The central bank's function is to act as a lender of last resort and therefore to limit the losses due to the financial crisis which follows from the instability induced by the innovations during the boom. A combination of rapid central bank action to stabilize financial markets and rapid fiscal policy action to increase community liquidity will minimize the repercussions of the crisis upon consumption and investment expenditures. Thus a deep depression can be avoided. The function of central banks therefore is not to stabilize the economy so much as to act as a lender of last resort. This they are able to do.* [Hyman P. Minsky, "Central Banking and Money Market Changes," Quarterly Journal of Economics, Vol. XXI, No. 2, May 1957, pp. 171-187.]

About one month ago the Wall Street Journal commented:

> "Repercussions from Penn Square's collapse are spreading to smaller banks and exploration concerns, as lenders alter criteria for making energy-industry loans and emphasize borrowers' cash flow." [Wall Street Journal, Thursday, July 15, 1982.]

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* This perspective on central bank abilities is not unlike that of .. W. Mints, Monetary Policy for a Competitive Society (New York, 1950) and H. Simons, "Rules Versus Authorities in Monetary Policy," Journal of Political Economy, XLIV (1936), 1-30.

The above quotations, one from the conclusion of "Central Banking and Money Market Changes" of 1957 and the other from the Wall Street Journal of 1982 summarize my views about the significance of financial innovations. It is now twenty-five years since I concluded that "the function of central banks therefore is not to stabilize the economy but to act as a lender of last resort". At the time I wrote "Central Banking and Money Market Changes" instability of the kind we had had prior to World War II and since the middle 1960's was not "a clear and present danger". The credit crunch of 1966, which brought forth Federal Reserve lender of last resort intervention in order to contain a threatened debt deflation, was almost a decade in the future. Nevertheless the portfolio adventuring that led to the current fragile structure was taking place in the 1950's; the trend towards if not the achievement of financial fragility was evident.

The specific "money market innovation" that prompted "Central Banking and Money Market Changes" was the development of the modern Federal Funds Market. I happened to spend some weeks in 1955 observing operations on Wall Street. I was fortunate to catch the Federal Funds market at an early stage. I recall the mimeographed work sheets at Garvin-Bantel and the eccentric pattern of the banks that dealt in Federal Funds. The gist of the Federal Funds Market was that it enabled a given volume of reserves to carry a large volume of bank liabilities and thus earning assets and that it was changing the way banks made position.

The development of the Federal Funds Market marked a shift by banks from making position by Treasury debt to making position by "buying" money through a set of devices such as Federal Funds, Certificates of Deposits, Commercial Paper, Eurodollar borrowings and varieties of repurchase agreements. The growth of the Federal Funds market--like all market developments--was a response to profit making opportunities. This change had the effect of increasing the volume of financing that was available. The ability to increase available financing in response to profit opportunities indicates that in our type of economy the supply of finance that is available through banks and other financial institutions responds to the demand. As I argued in "Central Banking and Money Market Changes" and in other places this responsiveness of supply to demand leads to "an upward instability of the system". Steady noninflationary expansion gives way to an accelerating inflationary expansion. Stable expansion destabilizes the economy.

When we think of instability, in particular in the context of the lender of last resort responsibilities of the Federal Reserve, our concern is with downward instability. However before the threat of downward instability is serious the liability structure has to be complex so that a failure by events to validate a set of liability structures will lead to an attempt to unwind liability structures, which will have serious implications for asset prices, financing possibilities and investments. Before downward instability is a threat it is necessary to have a period of financial innovation and increasing complexity of liability structures. Such developments imply an upward instability to the economy.

Positions in capital assets and financial instruments are financed by liabilities, which in a "closed" economy are owned either directly or through a layer of institutions by households. Any innovation in finance that increases

the availability of finance for the holding of capital assets or financial instruments tends to increase either the quantity held or the price per unit. Given that today's stock of capital assets is given, this implies that prices of elements in the stock are higher than they would have been in the absence of the innovation: A higher capitalized value for a given expected stream of profits implies a "lower" interest rate.

Positions in capital assets in "embryo" need to be financed. Financial innovations increase the availability and lower the cost of financing for investment. [One of the most spectacular innovations of the past 20 years was the financing of construction through the R.E.I.T.'s.] For investment projects with significant gestation periods interest costs on early on inputs can be a large part of the supply price, if interest rates are at interesting levels.

Financial innovations therefore increase the supply of finance for positions in assets, which raises asset prices, even as they increase the supply of finance for investment, lowering the supply price of investment output. The gap between capital asset prices and investment output prices, in the context of a given set of criteria for financing investment, is a determinant of investment: The greater the gap the greater the level of investment. Furthermore for given criteria for financing investment the greater the gap the higher the incremented leverage ratio. Financial innovations, which are a response to profit opportunities, tend to increase aggregate profits because they increase investment. A self reinforcing destabilizi process exists in a modern capitalist economy in the financial innovations, financing of investment, and realized profits connections.

However even as financial innovations increase investment and profits now they increase the sensitivity of the system to rising interest rates.

Financial innovations are a response to rising interest rates, which effectively increase the income foregone by holding liquid assets. During the time a financial innovation is working its way through the economy it tends to keep interest rates lower than they would have been in the absence of the innovation. For a time the supply curve of finance might be infinitely elastic at a "plateau" but as the innovation works its way through the economy this downside effect is attenuated: interest rates rise. At such time, the larger cash flow required to validate increased leverage, combined with the impact on profits and expected profits of a slowdown of the rate of increase of investment, will trigger a downturn.

As financial innovation increases the financing available through the financial system with a given reserve base and the momentum of an investment boom draws forth financing at higher interest rates, the expansion leads to inflation. The impact upon interest rates of inflation and of the attempts by the Monetary authorities to slow inflation leads to sharp increases in interest rates. It is clear from 1966, 1969, 1974 and 1981-82 that a change from the high and rising interest rate inflationary mode of operation will lead to a break in the financial system--a credit crunch. What a credit crunch does is "alter criteria for making--loans". But such a change means a sharp fall in some asset values and a decrease in the protections given by cash flows and market values. The break from an inflationary expansion with momentum that has convoluted the financial structure will involve serious risks of a financial debacle.

IV. The Theory of Economic Instability

To link profit seeking behavior in financial markets and endogenously generated economic instability requires an economic theory in which instability is a 'normal functioning event'. To understand what this

requires it is necessary to get down to fundamentals of economic theory; in particular what can and what cannot be asserted as valid on the basis of economic theory.

There are really two branches of economic theory and they have little in common. In the "American" discipline one branch is only "minimally" represented whereas in Europe and Britain the balance is more even; even so the distinction between the two branches is hardly ever clearly made. Both branches are to be found in Smith. Smith really posed two questions for theory. These were:

1. Why do decentralized markets, which on the surface should lead to chaos, lead to coherent outcomes?

2. "Why is one country richer or poorer than another?", or alternatively "What determines the 'progress' or 'degradation' of an economy through time?"

Standard American economic theory addresses the first question. The Arrow-Debreu model may well be taken as an "end result" of the analysis of Smith's first question. The quantity theory of money is grafted onto the Arrow-Debreu model in an effort to address the second question. However the logical flaws in the treatment of capital assets in the neo-classical growth models that were revealed in the two-Cambridge debate shows that the basic belief of the monetarist school, that there exists an equilibrium growth rate determined by the "Walrasian model", is false. There is no way to transform the demonstration that an equilibrium exists in trading markets and/or in models of production with given resources into a model of the accumulation

of capital. In particular no theorems of the existence, stability and optimum characteristics of a decentralized market system in which accumulation and finance exist have been demonstrated.

In order to handle accumulation, economic theory has to conceive of the economy as an iterative process in which the accumulated results of past performance determine today's behavior and reflect views as to future performance. The second school of economics starts with the problem of accumulation in a capitalist economy. The object is to explain differential richness and the course of richness and resource utilization over time. How to explain investment--or resource creation--is the question and in particular the problem is specified to be the analysis of resource accumulation under capitalist conditions.

One way of distinguishing between the two views of theory is to examine the "parable" with which a heuristic exposition of the theory begins. The parable for resource utilization theory is that of traders at a Village Fair, where each actor has an initial bundle of goods such that mutually beneficial trading can occur. The parable for the accumulation theory is that of a 'conference' between bankers and businessmen in a board room where the subject is investment and finance. Another way of distinguishing between the two types of theory is that one--the theory that derives "coherence" from a set-up that seemingly would have chaos as its normal outcome--claims to be general, independent of institutional specifics, whereas the theorems of the accumulation paradigm theory depend upon institutional detail. The economy behaves differently with a big government and intervention than with small government in the accumulation but not in the resource use theory.

It is obvious that the "Keynes and the Classics" debate missed the point because it largely ignored the distinction between the economics of resources creation--which is where Keynes sits--and the economics of resource

utilization, which is the problem that is central to the Neo-Classical school. We should appreciate that the formulation of the "difference" that has been put forth here was not really available until after the two-Cambridge Debate and the precise statement of the content of price theory that followed the recognition of the limited domain of relevance of general equilibrium theory that resulted from that debate.

The real "victim" of these developments is the neo-classical synthesis. There is no way of integrating Keynes and the classics once Keynes is accepted as a statement of accumulation oriented theory that fully allows for the institutional detail of the financing of asset accumulation and asset holdings. To understand the basis of the accumulation view of a capitalist economy it is necessary to explore the implications of an uncompromising Wall Street view of our economy.

V. The Wall Street View

Let us take an unambiguous and uncompromising Wall Street view of our type of economy. The subject of this view is the financing of activity, which really has two aspects:

1. the financing of the use of existing resources;
2. the financing of positions in the stock of capital assets.

Part of the use of existing resources is to produce additions to the stock of capital assets, i.e., investment.

The question that always arises in Wall Street is "what is the apt liability structure for financing holdings of particular sets of capital assets; the capital assets that are used for the production and sale of the "commodities" that trading games economics deal with. Obviously this question of the apt liability structure for financing various types of activity is what Penn-Square, Penn-Central, International Harvester, Chrysler and the Dupont acquisition of Conoco deal with. It also was what the life, times and

business activity of J. P. Morgan were about. It is in short what "banking", generically defined, is about.

There are three aspects to the banking business that are critical to the Wall Street perspective:

a. the financing of positions in capital assets;

b. the financing of investment;

c. the financing of the "bank's" position.

The first two deal with the asset side of banks or the assets banks "broker". The liability side of banking arises because banks take positions in assets that need to be financed. Therefore in the background of every Wall Street discussion about financing investment or financing positions in capital assets is a question of the liability structure by which the banking institutions can finance their activities. In a banking structure, one outcome of the financing of position and investment can be the issuance by the banking system of negotiable and demand liabilities; negotiable demand liabilities in banks are money.

Money is a product of financing activity. When a unit holds money it has title to a liability on a bank's balance sheet; this liability together with other liabilities finance the bank's position. Inasmuch as the banking institution has such demand liabilities, a major activity of a bank is the financing and refinancing of its position. In the language that follows banks are "speculative" or rollover financing institutions.

Let us return to the question of the apt liability structure for financing a position in capital assets. This is a problem in corporate finance. The basic credit evaluation consists of "estimating" cash flows; credit is available exactly as the cash flows envisaged in the credit analysis are more than sufficient by some margin to meet the payment commitments on the

debts. Collateral is of secondary importance as compared to cash flows from operations; collateral can be interpreted as an alternative generator of cash flows to the prospective profits that are the normal determinant of the willingness to finance. The market value of collateral in turn is a capitalization of future cash flows.

The contracts out of which money arises involve commitments to make payments to the 'bank' of "money". In a banking system money is regularly destroyed as the payment commitments on the contracts are fulfilled. In a well functioning banking system the amount "paid" to the banks by borrowers exceeds by a margin (the "interest" on the loan) the amount paid by the banks to or for the borrower. This "reflux" which destroys money was, in some older doctrines, supposed to protect against excessive creation of credit, but that is not the issue here. The issue is that well structured bank loans lead to money creation now and money destruction later. Presumably the credit analysis that led to the bank financing of projects determined that the cash flow to the businesses--or the profits of the businesses--were sufficient to assure that payments would be made. But if the payment commitment on debts lead to a destruction of bank money, then the "later" debtors will find 'money' scarce. The borrowing and repaying game of financing works if bank financing maintains and even increases outstanding bank liabilities in the interval between the "loan" and the "repayment".

We can visualize a two way process by which bank financing increases the level of total demand even as the repayment of debt to banks decreases both the money supply and escapes from the circuit of demand. These leakages must be offset. This requires that a sufficient quota of well structured loans are approved by bank lending officers over each time interval.

A banking system-finance approach to money makes money one output of the

ruling financing arrangements. The question is what determines the demand and the supply for financing. In a world with complex financing structures where the basic financing act is an agreement to finance and where liabilities can become generally acceptable by endorsement the amount of money is endogenous; supply adjusts to demand.

A strong demand for the financing of investment relative to the supply from existing channels and institutions will lead to the development of new institutions and new usages. Excess or growing demand for financing implies profit opportunities in financing--which in turn implies that entrepreneurial initiative will take advantage of the differentials among available terms that develop.

In a financing structure payment commitments on account of principal and interest on liabilities are related to cash flows from operations in one of three ways:

1. cash flows sufficient to meet all payment commitments;

2. cash flows sufficient to meet interest payments on liabilities but not repayment of principal;

3. cash flows not sufficient to meet all of principal.

I have labeled these hedge, speculative and Ponzi finance. Over an era of successful financing of the economy the proportion of speculative (i.e., rollover) financing to hedge financing increases. This is so because over a period of successful functioning business is able to rollover maturing debt; the supply of short-term funds is increased due to financial innovations because in the main financial innovations are ways of exploiting and putting to use prior pools of liquid assets.

In an economy the sum of deficits over all sectors must sum to zero. Profits under strong assumptions, equals investment plus the government deficit. In this essential equality profits are the gross capital

income. The liability structure determines how profits are distributed between debtors, equity holders and retained earnings of businesses (all gross). When financial innovation as well as the creation of financing through normal banking structures leads to investment expansion then profits increase, if there is no offset through the government budget. In a closed capitalist economy with small government, aggregate profits equal investment; in a closed capitalist economy with large government, aggregate profits equals investment plus the deficit. If the government deficit is inversely related to employment levels, then a strong debt deflation cannot take place if government is big, because the cash flows to pay debts cannot fall as far and as fast in response to an investment decline as they would if government is small. Big government implies an automatic intervention that prevents the market economy from degenerating into the chaos of a debt deflation.

The view of gross capital income as the sum of investment plus the deficit--under special assumptions about savings out of profits and out of wage incomes--and the schema of hedge, speculative and Ponzi finance combine to give us an endogenous generation of instability in our economy. The cash payment commitment on liabilities that make a unit a hedge, speculative or Ponzi finance unit are functions of the interest rate. Inasmuch as speculative units are such because they finance part of their position on short term, a rise in interest rates will transform hedge units into speculative units, speculative units into Ponzi units, and Ponzi units, which in effect capitalize interest, into units whose expected cash flows, when capitalized out to whatever horizon may be chosen, are unlikely to fulfill all commitments on debts. That is with given gross capital incomes, Ponzi units become "bankrupt" when interest rates become high and stay high.

Investment takes place because the present value of gross capital income expected from utilizing investment goods as capital assets exceeds the supply

price of investment output by a good enough margin so that financing for investment activity and the subsequent holding of the capital assets is available. But rising interest rates decrease the value of capital assets, even as they increase the supply price of investment output. Thus rising interest rates will decrease investment unless the realized and expected cash flows from operations--i.e., gross capital income increases. A cumulative process in which rising profits more than offset the increase in interest rate occurs when financial innovations suppress the rise in the rate of interest. However as demand for financing builds up and as the Federal Reserve dampens the rate of expansion through the fixed on slowly changing institutions, the rise in interest rates will dominate the current realized and expected improvement in profits, decreasing investment.

High interest rates and the decline in gross capital income lead to further shifts from hedge to speculative to Ponzi finance. The result is a cumulative debt deflation unless the fall in gross capital income is broken by either sharp declines in interest rates or measures that sustain profits.

In our experience since the mid-sixties sharp declines in interest rates followed lender of last resort interventions even as large government deficits sustained gross capital income. Instability has been contained because government deficits have sustained gross capital incomes.

V. Lender of Last Resort Interventions

Charts 1 and 2, which are borrowed from Professor E. I. Altman's June 1982 statement to a House subcommittee, give us a "balance sheet" and "income flow" perspective on the changes in the way business finances positions in assets and the cash flow commitments embodied in liability structure. Parallel with these developments there was a rise in the banking

and financial systems loans/asset ratio and the proportion of bought money in total liabilities.

In the 1960's, about a third of business debt was short term; in the 1980's this ratio is about 40%. This is not a dramatic increase, but as is well known debt became a higher percentage of total liabilities over this period and even in 1965, the beginning of Altmans' chart, short-term debt was a significantly larger proportion of total liabilities of firms than earlier in the post-war period.

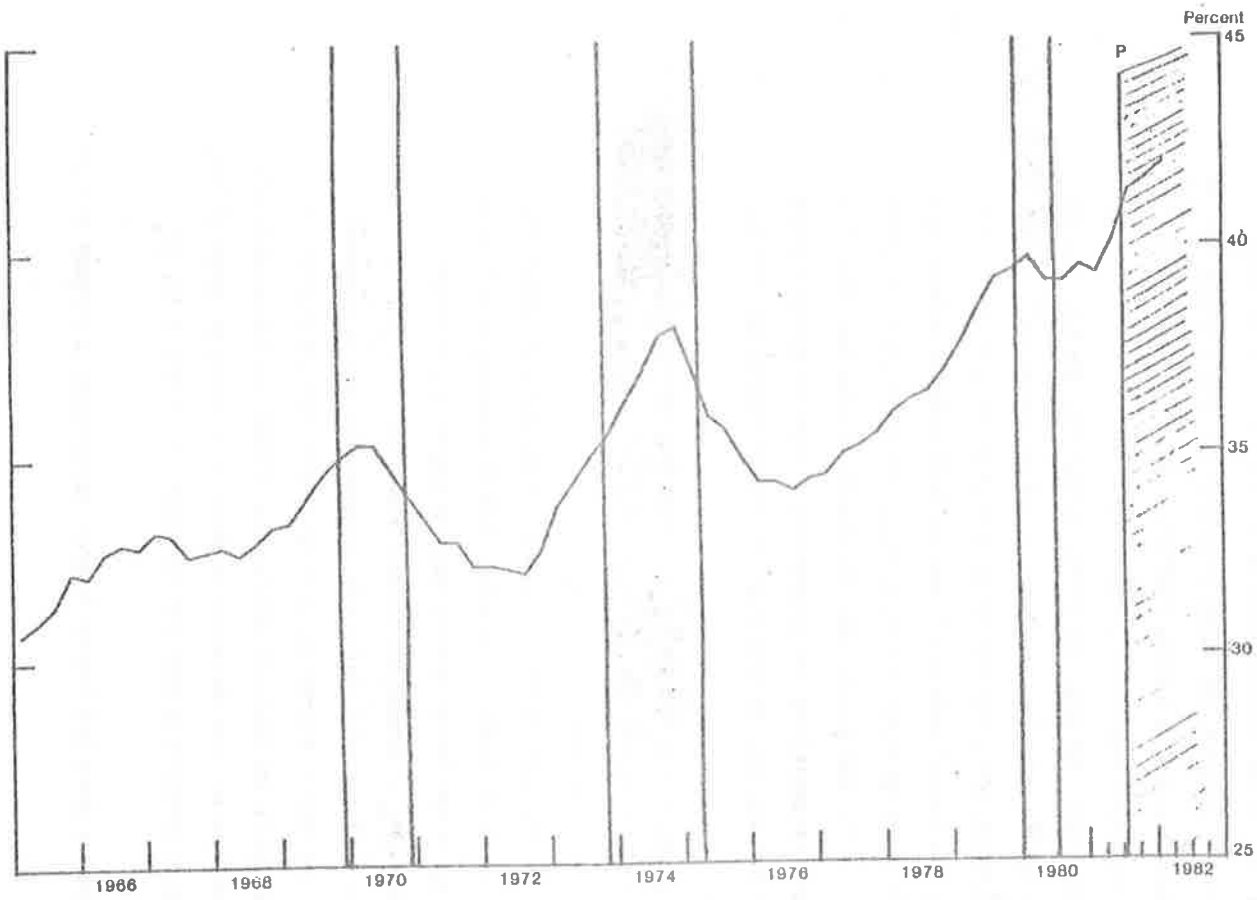
The second chart tells us a more dramatic story. It chronicles a startling rise in net interest payments as a percent of capital income (the sum of gross profits before taxes, interest paid (net) and rent) from approximately 8% in 1965 to about 42% in early 1982. If we think of the chart as tracing the mean of a frequency distribution, it is obvious that the likelihood of a substantial number of firms having to pay more in interest than available funds from operations was much greater in 1982 than in 1966.

The trend and the cycle in the ratio of net interest payments to capital income that is sketched in Chart 2 is compounded out of three parts:

1. the debt component in the liability structure;
2. the behavior of interest rates and;
3. the path of the denominator-gross capital income.

The cyclical peaks in this ratio come in recessions and quite apparently reflects the effect of shortfalls in capital income and peaks in interest rates.

If we integrate the developments shown in the charts with our knowledge of recent cycle experience, the sharp falls in the ratio of short term to total debt that began during the recessions of 1970 and 1974 are associated with a funding of short-term debt into long-term debt as interest rates fell. The



Flow of Funds, quarterly data at seasonally adjusted annual rates.
Data for 1982–Q1 are preliminary.

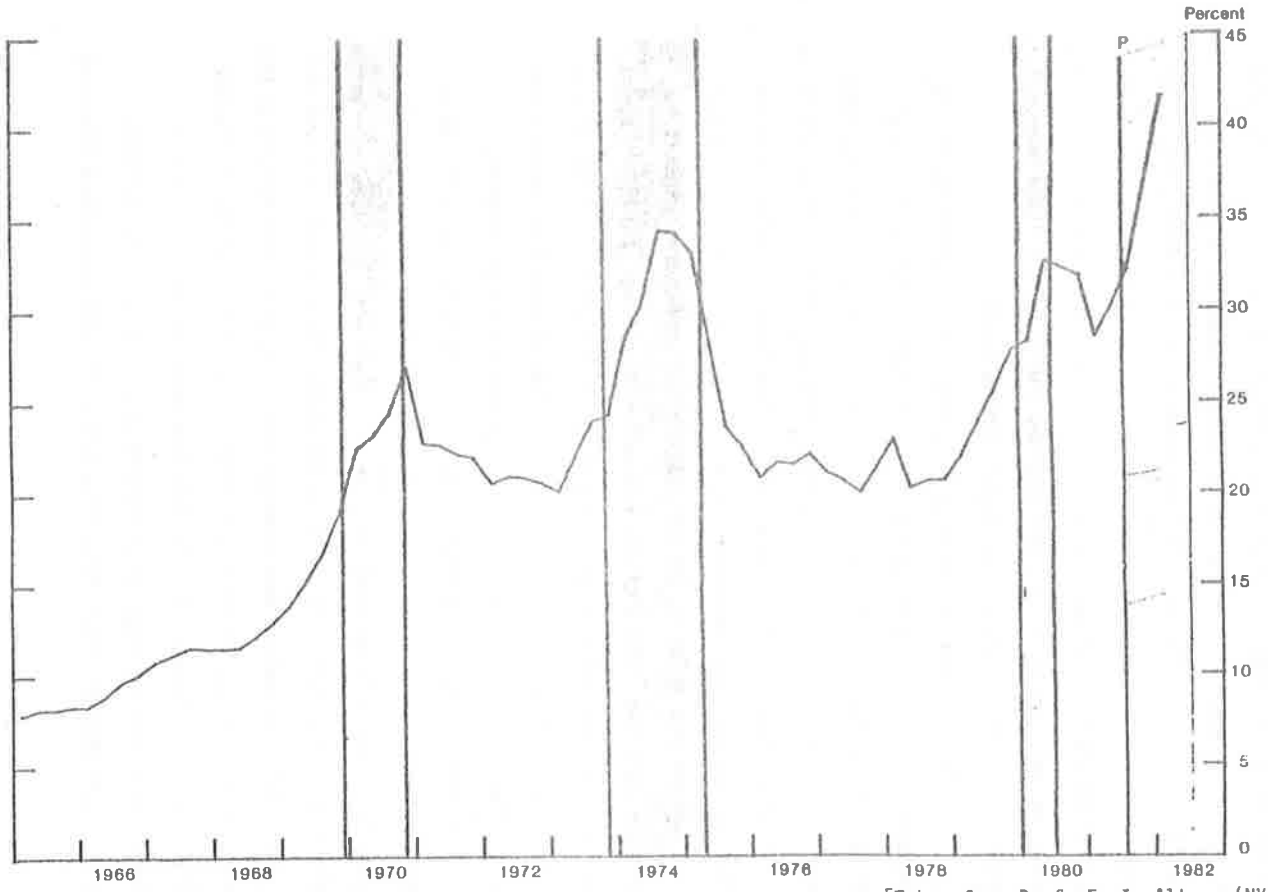
Note: Shaded areas denote recessions as defined by NBER

[Taken from: Prof. E. I. Altman (NYU)
Statement, June 23, 1982
Subcommittee on General Oversight, Comm. on Small Business
House of Representatives]

Chart 2

Net Interest Payments as a Percent of Capital Income*

Nonfinancial Corporations



* Capital income is economic profits before tax plus net interest payments

Department of Commerce, National Income and Product Accounts, quarterly data at seasonally adjusted annual rates.

[Taken from Prof. E. I. Altman (NYU)
statement June 23, 1982. Subcommittee
on General Oversight Committee on

decline in the net interest payments as a percent of capital income reflects the fall in interest rate and a rise in capital income as an expansion "matures". In both 1970 and 1974 "improvements" in these ratios took place after the crunch. The Penn-Central Crisis (with Chrysler finance involvement) in 1970 and the Franklin National/REIT debacle in 1974/75 are the identifying labels for these episodes. In each case the crunch brought forth lender of last resort interventions by the Federal Reserve System.

The Federal Reserve is organized as a bank. It can affect markets by investing, lending or endorsing (extending "protection to" or "blessing"). The Federal Reserve wears two hats: it is part of the government apparatus that attempts to put overall income, employment and prices on track and it is the key organization that is responsible for the normal functioning of the financial system. This responsibility for normal functioning has two aspects: 1) to assure that financing is available for well-structured projects at terms that are consistent with the prospective cash flows; and 2) to abort any iterative debt deflation process that may be triggered. But the only way it can assure the availability of financing or abort a debt deflation process is by either investing or lending; i.e., by increasing bank reserves.

The Federal Reserve has allowed its mission to cooperate in trying to keep the economy on path to dominate its responsibility to assure that financing is available at terms that are consistent with cash flows during the inflationary expansions that led up to the recessions of 69-70, 74-5 and 1979 to date. But this implies that interest rates rise to extreme heights so that the ratio of interest payments to capital income rises. A rise in interest rates leads to a breakdown in long-term debt markets. As a result both interest rates and the ratio of short-term debt in total debt increases. These changes will transform hedge financing units into speculative financing

units and speculative financing units to Ponzi units. With sufficient capitalizing of interest, the equity protection to lenders disappears: As this happens to a bank, a savings intermediary or a business organization maturing short-term liabilities cannot be rolled over.

At this stage, for banks and thrift institutions, the F.D.I.C., the F.S.L.I.C. or the Federal Reserve steps in and refinances the organizations. Using discretion, which reflects its evaluation of the seriousness of the situation, the Federal Reserve will move to facilitate the refinancing of exposed positions by either lending to exposed institutions or by buying securities on the open market. When the Federal Reserve does this it drops its presumed responsibility for constraining or inducing monetary growth (whatever that may be). At this stage the Federal Reserve has only two interests:

a. to assure that refinancing is available to markets that are threatened;

b. to set financing terms at levels that will reverse the shift towards the Ponzi end of the financing spectrum.

But the only ways the Federal Reserve can achieve their objectives is by acquiring assets or extending guarantees that if necessary it will acquire assets. But if the Federal Reserve needs to acquire assets either by open market operations or through the discount window (omitting the extension of guarantees technique which really only postpones the need to increase reserves) the Federal Reserve has given up control over the reserve base. Even if we ignore the impact of international finance and the currency ratio, the Federal Reserve, over the period in which it is acting as lender of last resort has no effective control over the volume it creates of its own liabilities.

In the era since 1966 Federal Reserve interventions as a lender of last

resort, combined with the effect of government deficits in sustaining cash flows to business, have succeeded in containing the impact of financial dislocation and incipient crises. However this success has not been a free good. Whereas profit sustaining private investment leads to increases in production capacity, profit sustaining government deficits support consumption expenditures and defense spending--neither of which create resources. The lender of last resort-massive government deficit in the aftermath of a crunch combination has succeeded in constraining debt deflation--but only at the price of setting the stage for inflation.

VII. Conclusion

To the extent that financial crises occur and the Federal Reserve acts as a responsible lender of last resort when such events occur; the Federal Reverse cannot control the creation of high powered or reserve money. To the extent that financial innovation leads to increases in the amount of financing available for any given reserve bank and inasmuch as the instruments created as a result of financial innovation act as a money asset, the Federal Reserve cannot control the money supply. Furthermore the reaction of banks and other financial institutions in the aftermath of a crisis that triggers lender of last resort interventions can be characterized as "setting up" a structure of asset holdings that will enable these institutions to finance a subsequent inflationary expansion.

Once it is recognized that intervention is necessary to prevent a capitalist economy from intermittently degenerating into chaos, then it is possible to devise systems of intervention that are more efficient than our present system. My view is that "we lucked out"--the structure of big government and Federal Reserve actions that combined to prevent debt deflations and deep depressions after the mid-sixties was not consciously put

in place to perform these functions. I like to characterize the system that ruled in the past 37 years as "better in the whole than in its parts". No detail of what was in place in January 1981 may have been defensible but the totality was workable.

The function of Central Banking is to assure that financing is almost always available on terms that are consistent with the profits earned from using capital. This implies that the Federal Reserve should be more closely integrated into the financing of business than is true for a Central Bank whose assets are almost entirely government securities. We should once again try to move to a Central Bank-member Bank structure in which a major part of Central Bank assets are of business related paper. The discount window should be a normal functioning source of a large portion of bank reserves. The use of the discount window, and the borrower-lender relation this implies, should enable the Federal Reserve to know more about financing developments than it now does.

Given that interventions to prevent the economy degenerating into chaos are both necessary and successful, the question arises whether the techniques of Central Bank and Government fiscal management that are designed to constrain inflation but in truth repress output and employment are apt. During the interval when the economy is expanding after the rescue from the chaos of a debt deflation, inflationary pressures will be minimized if productive use of existing capital assets and labor to produce consumption output is facilitated. Policy can "attenuate" but not eliminate the thrust toward an accelerating investment boom if policy is oriented towards facilitating consumption output with existing resources - i.e. the policy objective is full employment. The policy measures taken to expedite economic growth are counterproductive for they speed up the process that results in the chaos of "accelerating inflation".

Although we cannot **fine** tune a capitalist economy with sophisticated financial institutions - it will always move towards fragility and to the edge of a debt - deflation-we can,by emphasizing consumption rather than investment,achieve a higher level of employment and output in the intervals between "crises" than we now do and we may even extend the time between crises. Although Capitalism is constrained to performing poorly - in the sense that situations conducive to crises are normal developments, there is no need for American Capitalism - and with Americam Capitalism World Capitalism-to perform as poorly as it now does.