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The Financial Instability Hypothesis and Recent Business Cycle Experience

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THE FINANCIAL INSTABILITY HYPOTHESIS

AND RECENT BUSINESS CYCLE EXPERIENCE

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I. Introduction

Over the past decade the economy has gone through three episodes in which financial markets were taut, i.e. during which the authorities and observers felt that there was a significant danger that a debt-deflation process would be set off. These three episodes are the credit crunch of 1966, the liquidity squeeze of 1970, and the as yet unlabeled banking and financial trauma of 1973 to date. The first of these episodes was associated with a pause in economic activity and the next two with declines in income. During each episode the Federal Reserve System engaged in operations that were designed to "shore up" some threatened financial markets, even if such shoring implied Federal Reserve actions that were inconsistent with the thrust prescribed by the needs of economic stabilization. That is if we distinguish between Federal Reserve control and support functions - where the control functions are aimed at affecting income, prices, and the foreign exchanges and the support functions are aimed at maintaining orderly conditions in financial markets and aborting incipient financial crises - then during these episodes the support functions called for actions that went counter to the perceived policy thrust which followed from the control/functions. Furthermore the support responsibilities dominated the control functions in determining Federal Reserve behavior.

The Financial Instability Hypothesis, which is a particular interpretation of Keynes's General Theory, views the instability so evident during the past decade as a natural, systemic result of fundamental financial factors that operate in a capitalist economy. The theory views the economy as having a number of possible system states

and each system state has its characteristic equilibrium. As the economy "resides" within a system state, cumulative changes take place which change the variables which determine the economy's system state. Thus the development of the economy over time can be broken into two parts; the behavior within a system state and the ongoing cumulative changes which in time will lead to a change in the "state" of the economy.

As is evident from its name, the Financial Instability Hypothesis views cumulative changes in the financial structure and arrangements of an economy as the major determinants of both which system state the economy is in and the changes from one system state to another. Basically it is held that once the financial arrangements typical of a capitalist economy exist, the economy will have a number of different possible ways of working and each of these ways implies cumulative changes mainly but not exclusively in financial variables which bring the dominant ongoing process to a halt; each system state breeds the seeds of its own destruction. Thus we live out our lives in a transition among system states, and it is the transit among these various system states that yields the business cycle of experience.

It is of course understood that the breakdown of experience into behavior within a system state and the accumulation of changes which lead to a change of system state is an analytical convenience imposed upon reality for purposes of argumentation.

There are four basic premises underlying the financial instability hypothesis. These are: uncertainty, cyclical perspective, money contracts that imply cash flow commitments, and the existence of disequilibrating forces. The aspect of the economy that the financial

instability hypothesis emphasizes, which is neglected in standard neo-classical economics, is the existence of a sophisticated, complex financial system. That is whereas standard economic theory is the economics of an abstract economy, the financial instability hypothesis claims to be the economics of the economy in which we live out our lives. Whereas standard economic theory insists that the basic features of economic life are revealed by the workings of a pure exchange economy i.e. a Village Fair - the financial instability hypothesis takes the position that a capitalist economy with money, finance, and long lived, expensive capital-assets behaves differently than an exchange economy. Whereas a Village Fair is a market that if displaced tends towards equilibrium, the Wall Streets of the world are markets that are hospitable to strong disequilibrating forces.

II. The Basic Premises

Uncertainty is perhaps the critical concept for the financial instability hypothesis, and incidently for an understanding of Keynes. Uncertainty has to be distinguished from risk. A risk situation is one in which the set of possible outcomes and the relative frequency of the coutcomes is known. Gaming tables at Las Vegas, the mortality tables of insuranca and annuities and weather forecasting are examples of risk situations. Uncertainty deals with those classes of non-determinant phenomena in which the set of outcomes and the relative frequency with which various outcomes can be expected to occur are not known. We really do not know whether the demand for electricity, or population, will grow at the specific rates that are factored into the formulas of decision makers. We do know that small differences in assumptions about rates of growth cumulate to large differences in totals over a decade or two. We do not know the course of economic, social, and political developments over the useful life span of equipment that we may purchase or order today. Uncertainty is an inherent characteristic of the future, and to quote a well known football pundit "The future is now."

Yet the necessity for decision and action remains even in the face of uncertainty. In treating decision making under uncertainty three elements can be separated - the decision makers views as to the relevant outcomes, his attachment of likelihood - or probabilities - to these outcomes, and the ruling set of preferences with respect to risk (uncertainty) taking. In the circumstances where uncertainty is relevant, both the decision makers views as to what might occur and the

weights attached to the likelihood of alternative outcomes occuring are subject to sharp changes with the unfolding of history. In situations characterized by uncertainty what happened and what is happening affects what is considered possible and the weights attached to possible alternatives. Furthermore, the subjective preferences for risk (uncertainty) are affected by the history of the "preferer"; experience rather than genes determine the chances one is willing to take. Thus unexpected or unusual events can strongly affet the set of alternatives that are deemed relevant, the subjective views as to the likelihood of alternatives occuring, and the attitude toward the various possible outcomes. Decisions which reflect ruling views about uncertain outcomes will be strongly affected by events and as a result the variables such decisions affect can change rapidly. Thus instability is an attribute of a world with uncertainty.

Of all the facets of economic life it is investment, the ownership of capital-assets, and the way in which these activities are financed which most embody existing felt uncertainty. There is a symbiotic relation between any view of the economic process that emphasises investment, capital assets, and finance on the one hand and uncertainty on the other.

An economy's cyclical experience both reflects felt uncertainty and influences, felt uncertainty. Basic to the financial instability view is the prior observation that business cycles of various kinds exist. In fact the financial instability hypothesis takes the need to explain and understand business cycles as its starting point. Once business cycles are taken to exist and are shown to affect felt uncertainty, then

the historical cyclical path of the economy affects those aspects of behavior that reflect existing views about the uncertainty that is relevant.

In many ways the existence of business cycles is the "fact of life" that makes for the paradigmatic shift in economic theory that the financial instability hypothesis embodies. From the point of view of neo-classical theory the business cycles of experience are "anamolies". There is no way to derive an explanation of what happened during business cycles from within the market mechanisms detailed in neo-classical theory. In the 1930's the major research problem was to explain the fact of business cycles - either by "giggling" neo-classical theory or by abandoning neo-classical formulations and making a paradigmatic shift and developing a theory in which the anamoly becomes the usual. One contention of the financial instability hypothesis is that Keynes's General Theory, properly interpreted, involved such a paradigmatic shift. We expect that an economic theory which endeavors to make the anomaly of an older theory the usual of the new theory will have different fundamental concepts and constructs. So the financial instability hypothesis starts with uncertainty and the sharp pencils of "Wall Street" speculators, and in principle gets to an explanation of the details of outputs and relative prices. On the other hand the neo-classical theory starts with the details of outputs and relative prices and never gets to "Wall Street".

Another basic premise of the financial instability hypothesis is that the economy is a sophisticated, advanced capitalist economy in which debts exist, the structure of debts changes in association with

income generation and financial institutions and usages evolve. In fact innovation in financial markets, usages, and institutions is taken to be a striking characteristic of our economy. As a result of innovation in financial usages a wide and changing array of profit seeking financial institutions exist. The profit seeking activity of financial market operators introduces a destabilizing force in the market mechanism that is above and beyond that which follows from the way in which history affects the spectrum of outcomes considered possible, the likelihood attached to these outcomes, and attitudes towards risk (uncertainty).

The existence of debts, and financial intermediaries which issue and own debts, means that there is a network of financial commitments to pay cash that exists side by side with the cash payments that reflect the production and sale of current output. To use rather old fashioned language there is a financial circuit as well as an income circuit around which money flows. However these two circuits are not independent because ultimately some of the receipts from the financial circuit are income receipts and there are flows of money from the income circuit to the financial circuit.

An important flow of money from the income circuit to the financial circuit results from the use of financial instruments (debts) to finance positions in capital assets. A substantial portion of the cash needed for investment expenditures - as well as for the purchase of items in the inherited stock of capital assets - is obtained by making promises to pay cash in the future. The expectation of those who make this promise - as well as of those who accept it - is that the cash to honor this commitment will be obtained from the income

imputed to these capital assets as they are used in the production of income. The income imputed to capital assets are what Keynes called quasi-rents. The price system of a capitalist society must be such that the quasi-rents that are generated are large enough to validate debts and yield a price level of capital-assets that leads to sufficient investment.

Debts can be validated by cash flows from operations or quasi-rents, either by the cash flow being large enough to repay the debt or by the cash flow being large enough so that new debt can be assumed to pay off due debts. Such rolling over or refunding of debts is the usual practice of banks and financial intermediaries. For such refunding to be possible and reliabile it is necessary to have financial or money markets in which debts of various kinds are readily negotiated. Thus in an economy with the complex financial relations that characterize advanced capitalist economies some units will be doubly vulnerable, in that their continued ability to fulfill their obligations depends upon the normal functioning of both an income circuit and of financial markets.

A usual analytic exercise in neo-classical theory is to posit the existence of an "initial" disequilibrium situation and then inquire into the market processes that assure the "movement" of the system to a new equilibrium. The initial displacement from equilibrium is either unexplained or imputed to an exogenous change. The faith in the validity of equilibrium analysis and the strength of equilibrating process is so strong, that neo-classical economics does not investigate whether dis-equilibrating forces are at work during the equilibria analysed in neo-classical theory. Thus neo-classical theory asks - "What are the

equilibrating processes at work?" - but it does not ask the follow up question - "What disequilibrating forces are at work?"

The Financial Instability Hypothesis does ask that second question, and finds, that in a world of uncertainty, equilibrium itself is destabilizing. This is so because the valuation of capital assets and the determination of acceptable debt structure for financing positions in capital assets depends upon how experience is interpreted as evidence of what will be. A run of success with respect to price stability and full employment increases the confidence with which a view is held that the future will be "stable". Such confidence means that positions in capital-assets can be financed safely with larger doses of debt financing than hitherto. An expansion of debt financing of capital-asset ownership raise the prices of capital assets relative to current output and tends to increase investment, output, and price. However increases in investment leads to a rise in quasi-rents, which tends to raise capital-asset prices, which in turn means a greater acceptable debt financing of positions and expenditures. That is the fundamental instability of a modern capitalist process is upward, so that a full employment stable price equilibrium is transitory. It is transformed into an expansionary, inflationary boom. Once a boom is triggered the likelihood is that the financial circumstances conducive to debt-deflations will in time emerge.

III. Hedge, Speculative and "Ponzi" Finance

An analysis of the cash flow commitments embodied in any period's inherited structure of financial commitments is fundamental to the Financial Instability Hypothesis. Cash flow commitments are as both principal and interest, they are the money flows set up by the financial structures.

Positions in the collection of capital assets owned by firms that yield quasi-rents, Q_{ij} are financed by some combination of equity shares and debts. Similarly, positions in collections of financial instruments owned by financial institutions are financed by some combinations of 'capital and surplus' and debts. Debts are best characterized by the cash payment commitment as stated in the contract. These cash payment commitments can be demand, dated, or contigent. For every demand or contingent cash payment commitment there is a frequency distribution of the expected cash payments at every date in the future. This distribution is a function of the way the economy is expected to behave, and becomes vaguer the further in the future we look. Thus with greater or smaller certainty, the liability structure of an economic unit can be translated into a time series of expected cash payments. These cash payments are an account of both "interest" and "principal." A given amount of debt in the form of a six month note requires a payment of the face amount and interest in six months, a fifty year bond requires only the payment of interest for fifty years as the principal is not due until the final date.

Three types of financing units are distinguished: units which hedge, those that speculate, and those that engage in "Ponzi" finance.

The hedge finance unit and its banker expects the cashhflow from operating capital assets (or from owning financial contracts) to generate more than sufficient cash to meet contractual commitments. The term "banker" is used generically to characterize both lending financial institutions and selling organizations that underwrites issues and advises both borrowers and potential buyers of instruments. If "CC" are the contractual cash commitment on debts, Q_i are the expected quasi-rents, and $\sigma^2_{\bar{Q}_i}$ is the variance of the expected cash flows, then for a hedge investor we have that

1) $CC_i < \bar{Q}_i - \lambda\sigma^2_{\bar{Q}_i}$ where λ is sufficiently great so that the subjective probability of an actual $Q_{iR} < CC_i$ is acceptably small.

Equation 1 can be rewritten as

2) $CC_i = \tau(Q_i - \lambda\sigma^2_{\bar{Q}_i})$, $\tau < 1$

If we capitalize the cash flow commitments, written as K(CC), and the quasi-rents that capital assets are presumably "assured" of earning, $\bar{Q}_i - \lambda\sigma^2_{\bar{Q}_i}$ at the same rate, so that $P_{k,i} = K(\bar{Q}_i - \lambda\sigma^2_{\bar{Q}_i})$, we have that $K(CC_i) = \tau(P_{k,i})$ $\tau < 1$ so that $K(CC_i) < P_{k,i}$. There is a margin of safety in the presumed market value of assets over the face value of the debts. ($P_k < K(CC)$ is a condition for insolvency.) We can write this as

3) $P_k = \mu K(CC)$; $\mu < 1$ implies insolvency.

We can assume that the cash payment commitments on debts are taken to be more certain than the cash flows from the capital assets, and that the "owners" of the debts also assume greater variability in the Q_i than they are willing to tolerate in the cash they receive on the debts. As a result, the capitalization rate for the cash commitments on debts by both the borrowers and the lenders will be greater than on the cash flows

from capital assets, so that the need for a margin of safety on presumed market value of capital-assets over debts implies that the $\bar{Q}_i > CC_i$ by some margin.

A hedge financing unit and its bankers expect that the cash flow from operations will generate sufficient cash to meet payment commitments on account of debts. However, further protection is possible by having a unit own excess money or marketable financial assets -- i.e. it is convenient (as an implicit insurance policy) to hold assets in the form in which debts are denominated. Thus a balance sheet of a hedge investor will include $\eta K(CC)$ of money or bonds in addition to the P_k of capital assets. Thus we have the balance sheet

4) $P_k + \eta K(CC) = K(CC) + Eq$, $\eta < 1$, where Eq is the equity.

Thus there are three parameters which determine desired portfolios: the margin of safety in asset values, μ, the cash flow margin, τ, and the liquid asset kicker η. For a hedge unit $\mu > 1$, $\tau < 1$ and $0 < \eta < 1$.

A unit speculates when CC_i for some periods is greater than expected $\bar{Q}_i$. In particular, a unit is speculating when CC_i exceeds the expected $\bar{Q}_i$ because the CC_i includes the repayment of principal. Thus a speculator can be defined as a unit in which for some near term i, $CC_i > \bar{Q}_i$ and for which the capitalized value of $\bar{Q}_i$ exceeds the capitalized value of CC, i.e. $P_k > K(CC_i)$. Banks and other financial intermediaries such as Savings and Loan Associations are organizations whose normal functioning involves speculative finance.

$P_k > K(CC_i)$ is true because once the early CC_i's are 'paid' they do not reenter into the debt capitalization formula. The earnings of the capital-assets beyond the date of the speculative debts yield the margin

of safety in capitalized values which induces both the debt owner and the capital owner to engage in speculative finance. Thus the presumed value of a "bank's" holdings of longer term assets exceeds the value of its demand and short term liabilities; similar relations hold for an operating firm.

For a speculative finance unit, debt is paid off by the proceeds of new debt; thus, the conditions that $CC_1 > \bar{Q}_1$ and $P_k > K(CC_1)$ hold as a process in time. A restructuring of debt may transform a unit which engaged in speculative finance into one that is hedge financing. Presumably, such a transformation of debt is what banks and other creditors are now doing with the REIT's.

For a unit engaged in speculative finance, the difference between CC_1 and $\bar{Q}_1$ for these 'early on periods' has to be met by refinancing. Thus a prerequisite for speculative finance to exist is for markets to exist in which both the borrower and lender believe that the firm can raise $CC_1 - \bar{Q}_1$ of cash without negotiating the sale of assets.

Note that if $CC_1 > \bar{Q}_1$ for near term i's and nevertheless $P_k > K(CC)$ at some initial set of capitalization rates, then there exists another set of capitalization rates, associated with higher interest rates, which yield $K(CC) > P_k$. Thus for a speculative finance organization solvency (the excess of P_k over $K(CC)$) depends upon ruling interest rates. Inasmuch as the viability of speculative finance depends upon the existence of a margin of safety in the value of capital assets over the value of debts, rising interest rates will decrease the margin of safety of a speculative firm simply because the expected Q's are later dated than the contractual payments on debts.

The need for a speculator to regularly raise CC - Q of cash through some set of money markets implies that the operations of a speculator depends upon the normal functioning of these financial markets. Thus, whereas a hedgeing unit is dependent only upon the normal functioning of product oriented markets (or upon the fulfillment of contracts for a financial unit) a speculative unit is dependent upon the normal functioning of both product and money markets. A speculator has a dual dependency.

A speculative unit will also carry a liquid asset kicker $\eta K(CC)$ in order to protect the unit against transitory quasi-rent or money market difficulties. We would expect η to be greater for a speculative unit than for a hedge unit, but as the difference between a speculating and a hedging unit may reflect preferences, the speculator may feel comfortable with a smaller η than a hedger.

Thus for a speculative unit to be viable we have

5) $P_k > K(CC)$; $P_k = \mu K(CC)$, $\mu > 1$

6) $CC_1 > \bar{Q}_1 + \lambda\sigma^2_{\bar{Q}_1}$; $CC = \tau(\bar{Q}_1 + \lambda\sigma^2_{\bar{Q}_1})$; $\tau > 1$ for some near term i, $\tau < 1$ for later dated i, and

7) $P_k + \eta K(CC) = K(CC) + Eq$, $0 < \eta < 1$.

Once again we have parameters which measure the balance sheet, cash flow, and portfolio margins. The initial difference between hedge and speculative finance conditions is in the size of τ, a secondary characteristic is in the size and composition of $\eta K(CC)$. A third difference is that whereas for a hedge unit $P_k > K(CC)$ for all capitalization rates, for a speculative unit there exist some rates for which $K(CC) \geq P_k$: i.e. a change in interst rates can lead to $\mu \leq 1$.

It is important to note that a unit which initially is a hedge financing unit may be forced into becoming a speculative financing unit when either the quasi-rents fall "way below" expected values or changing short term rates or unsatisfactory conditions in long term financing markets leads to a rise in the terms upon and amount of short term debt.

For a "normal" speculative unit we have that the $CC_c < \bar{Q}_i$ for some i, but the $\bar{Q}_i > R_{CC_i}$, where R_{CC_i} is the interest component on the debt that is falling due during the i^{th} period. A unit engages in pure "Ponzi" finance when current quasi-rents fall short of the interest payments on the debt, so that either liquid assets are drawn down or a debt is issued in order to meet interest payments. Units may very well normally engage in "Ponzi" finance for a part of a year but such seasonal imbalances are not at issue in this discussion. A unit that engages in "Ponzi" finance is likely to be a unit which initially engaged in speculative finance but found that its cash flows from operations, the quasi-rents, fell below the interest payments on its accumulated debt. In these circumstances if the presumed capitalized value of its assets exceeds the capitalized value of its debts, it might well engage in additional borrowing to meet debt charges.

"Ponzi" finance is a quite natural development when a unit is engaged in some major, long gestation period construction project. In these circumstances a unit will increase its borrowings in order to meet financial commitments.

In addition to the units that engage in "Ponzi" finance while long gestation investment projects are under way, units may have "Ponzi" finance thrust upon them as the cash receipts of a unit that is engaged

in speculative finance experience a shortfall in its quasi-rents. Inasmuch as a unit which engages in speculative finance normally had $P_k > K(CC)$, a period in which $Q_i < R_{CC_i}$ will lead to a rise in K(CC) relative to the presumably unchanged Q_i and thus P_k. In time a unit engaged in "Ponzi" finance might find $P_k < K(CC)$.

Thus for a "Ponzi" finance unit we have that

8) $P_k \lessgtr K(CC)$; $P_k = \mu K(CC)$, $\mu > 1$

9) $CC > R_{CC} > \bar{Q}_i + \lambda\sigma^2_{\bar{Q}_i}$; $R_{CC} = \tau(Q_i + \lambda\sigma^2_{\bar{Q}_i})$, $\tau > 1$

10) $P_k + \eta K(CC) = K(CC) + Eq$, $0 < \eta > 1$.

A unit that engages in "Ponzi" finance while hoping that something will turn up so it can become a respectable speculator will keep large cash kickers so it can meet its obligations. Runs might well occur on a "Ponzi" finance unit which will run η down towards 0.

Of course a "Ponzi" financing scheme may be a pure "fraud" where the unit is exploiting its ability to sell liabilities that promise high yields. In this case the "game" is to convey the proceeds of the sale of liabilities minus the "dividend" payments necessary to induce purchase of liabilities to the private purposes of the promoters. In various guides fraudental "Ponzi" schemes have appeared in the 1970's.

We have detailed the general characteristics of different financial regimes. When hedge finance dominates, i.e. the cash flows to exceed payment commitments, P_k exceeds the capitalized value of debts by a good margin, and the cash kickers are large relative to debts, then the financial system is robust. The larger the admixture of units engaged in speculative finance the greater the fragility of the financial system. Any sector that engages in "Ponzi" finance is truly vulnerable

to changing financial market conditions. In particular the involuntary "Ponzi" finance that can be thrust upon a unit by rising interest rates and shortfalls of quasi-rents makes an economy in which speculative finance is prevalently vulnerable to financial market developments. This existence of a large set of financial relations that either can be characterized as "Ponzi" finance or which can be thrust into "Ponzi" finance by a rise in interest rates, a tightening of financing terms, or a decline in quasi-rents means that fragility has gone so far that the system is crisis prone.

IV. System States

The various system states that an advanced capitalist economy can be in can be characterized as expansion, boom, crisis, debt-deflation, recession, depression, stagnation, and recovery. A business cycle consists of a transit of the economy among several of these system states, Not each state need be present in each cycle. In particular in a regime of robust finance the crisis and debt deflation stages will be missing from the business cycles. Because business cycles without these stages are typically mild, if crisis and debt-deflation stages are absent so will depression and stagnation stages. Thus the largely inventory cycles of the first fifteen or so years after World War II had neither strong booms nor anything that really resembled a financial crisis or a debt-deflation. Even though the Eisenhower years were characterized by incomplete expansions and a rising trend in unemployment, they were years of tranquility in financial markets. Fiscal drag and monetary constraint explanations of the cycles that were experienced have a good deal of validity.

Of major importance for the Financial Instability Hypothesis is the proposition that the first stage on our list, expansion, is unstable upwards. This upward instability leads to a speculative and inflationary boom. Such upward instability depends in part upon the development of euphoric expectations, which feed upon the success of the economy and of financial experimentation.

A euphoric boom leads to an increase in the ratio of units whose finances can be characterized as speculative. In particular successful functioning of the economy over a protracted period means that the

expected value of the quasi-rents and the subjective estimate of the possible downside variance in quasi-rents change: the expected quasi-rents become on the whole larger and the expected downside variations become smaller. This leads to an upward revision of capital asset values, and increases the excess of capital-asset values (P_k) over the capitalized value of the payments on inherited debts (K(CC)). Thus a period of success uncovers unused borrowing power. This is evident not only to the borrowers who own capital-assets but also to the investment and commercial "bankers" who finance both positions in capital-assets and investment. Thus success for the economy will lead to an improvement in financing terms for capital-asset prices relative to wages, and a rise in the leverage that is available to investing units.

Furthermore the rise in the expected quasi-rents and the decrease in the expected downside variance of quasi-rents leads to a decrease in the cash kicker per dollar of cash payment commitments on outstanding debts. Success leads to a willingness to thin out the holdings of money and secure marketable financial assets per dollar of debt. Thus the initial money and secure asset holdings of economic units will be a source of funds for the financing of capital asset holdings and investment. We have an economy in which success breeds the financial conditions for an upward and accelerating movement from steady expansions.

A regime in which the quasi-rents have been secure and in which downside risks have apparently been attenuated is a regime in which financial markets work smoothly. As a result the subjective evaluation of the dangers of speculating by going relatively short on debt are eased. If the structure of interest rates are such that short term financing

seems advantageous, a period of favorable functioning of the economy will lead to a rise in the proportion of speculative to hedge financing. Dependence upon the normal functioning of financial markets increases.

During a period of protracted relatively good times - such as existed for the end of World War II to the middle 1960's - the subjective valuation of the uncertainties and risks involved in speculative finance decreased even as the objective safety, which is embodied in the excess of current quasi-rents over current payment commitments on debts and in the cash kickers in portfolios, decreased.

As the liquidity due to cash kickers in portfolios decreases interest rates on short term debt tends to rise relative to that on longer term debt. For a while - as is evidenced by the development of markets for Federal Funds, bank negotiable certificates of Deposits, commercial paper, and Euro-dollars - the liquidity effect can be offset by financial innovations. Similarily new financial institutions - the R.E.I.T.'s of the 1970's are an example that come to mind immediately - can enter the economy and introduce new, apparently secure, short term assets. Eventually however short term rates begin to catch up with long term rates, especially if the monetary authorities try to restrain inflationary pressures that result from increases in capital asset prices and the proportion that investment is of income. Rising interest rates increases the cash commitments of units engaged in speculative finance without any accompanying increase in current or expected cash flows imputed to capital-assets. Furthermore any rise in longer term interest rates means that for units that engage in speculative finance the margin of protection in the excess of asset values over the capitalized value

of the commitments on debts diminishes. Negative net worths, i.e. insolvent organizations, may result from rising interest rates in a regime with speculative finance.

In a world with a stock market, a first impact of success is a rise in share prices. A stock market boom leads to a lowering in financing terms for capital-asset ownership by units whose share prices have risen and an uncovering of unused financing capability. In a world where almost all firms are traded on the exchanges, it does not avail a management not to participate in the expansion leverage game, for cash-rich unlevered firms become prime targets for takeovers.

Takeovers and refinancing of existing firms leads to debt-equity ratios for corporations that are equivalent to that which is available for the financing of new investments. A euphoric boom -- with or without inflation -- leads to a rise in debt commitments relative to both the quasi-rents and the residual cash kicker. The economy becomes vulnerable to the net worth inversions that occur with rising interest rates. Walking and actual bankruptcies increase.

We understand that a not unusual event in a taut financial situation can trigger a debt deflation process. A debt deflation process is a situation in which debts are written off and either "lost" or transformed into equity positions. In our recent experience debt-deflation processes have been aborted by Federal Reserve actions. Our current (1966 to date) business cycles missed the debt-deflation, depression and stagnation states because the Federal Reserve intervened to halt the threatened debt-deflation. However the process of halting a debt-deflation threat

requires the validation of speculative practices as well as the feeding of bank reserves into the economy.

A threatened debt-deflation, even if aborted by Federal Reserve action, leads to a pause or decline in income. As a debt-deflation threat leads to a reconsideration of desired liability structures, the fall in investment, particularly in inventories, after a financial trauma can be quite quick and sharp. However in a world where the Federal Government is 25% or more of G.N.P. the floor to incomes is high. An economy in which government transfer payments are 16% of disposable income, which is now true in the United States, will not fall into a deep and protracted recession.

Furthermore the very size of a deficit that is generated when income falls means that an enormous volume of government debt is fed into the economy. If the "real demand" component which declines is largely made up of inventories, then a transition in which banks and other financial institutions add government debt to their portfolios even as they run off private debt will take place. The Federal deficit not only sustains income and profits but in addition the rise in government debt that results leads to an improvement in the robustness of the financial system. That is a large government which increases during periods of slack stabilizes the economy in two ways: income is stabilized by constant or increasing government purchases and transfer payments and the financial system is stabilized by the introduction of additional default free instruments into the portfolio's of banks, households, and businesses.

Thus successful intervention by the Federal Reserve to prevent debt-deflations in the past decade, together with the impact of a large Federal Government upon the economy has eliminated or greatly reduced the debt-deflation, depression, and stagnation states of the economy. However this change in the shape of the business cycle was not a free good. The expansion that follows upon the recession is now accompanied by accelerating inflation, because the combination of a high floor to income and the apparent ability of speculators to weather the storm of a near financial crisis leads to a cumulative validation of speculative finance. Thus each of the post 1965 threats of a financial crisis has been aborted and each has been followed by an acceleration of inflation. If we consider 1966, 1970, and 1974, it is true that the near financial crisis have been getting worse - the threat of a debt-deflation was much more serious in 1970 than in 1966, and in 1974 than in 1970 (the 1974 trauma is not over as this is being written). Furthermore the inflation in the "inter crises" periods has been getting worse. It really seems as if the price that is paid for avoiding a debt-deflation and a deep depression is accelerating inflation. The economy seems to be poised on a knife edge, where on one side it can fall into a debt-deflation followed by a deep depression and on the other it can take off into accelerating inflation.

V. Some Evidence and A Current Problem

In Charts 1 through 10 time series data from the Flow of Funds accounts for the Years 1950-1974 are presented. In each series one or more changes in leads or trends occurred: these changes usually took place in the early 1960's. From the unprocessed observations of the time series, it is evident that something happened to the portfolio of corporations, households, and banks in the early 1960's. This unprocessed evidence is strong enough to make any argument which cavalierly combines data from 1950-196_ and 196_ to 1975 suspect.

In Chart 1 through 4 some information on non-financial corporations is presented. The chart on total liabilities ÷ gross internal funds understates the rise in the payment commitments due to liabilities relative to gross profits after taxes, i.e. the relation between the Q_i and the CC_i, for it omits the impact of the rise in interest rates and the shortening of maturity upon the cash payment commitments. In spite of this shortcoming, it shows that the ratio of Q_i to CC_i has fallen; τ has decreased. Furthermore total liabilities of corporations relative to corporation holdings of demand deposits "took off" in the 1950's; the ratio nearly trippled. Thus η has decreased. Corporations have been stripping themselves of cash, even as the rise in liabilities relative to gross internal funds points to a need for a higher ratio of cash to debts.

The picture that emerges in Charts 5 and 6 is that the 50's trend in household portfolios was broken around 1965. Household liabilities relative to disposable income and the ratio of liabilities to cash increased in the 1950-65 period and seemingly have stabilized since then.

Chart 1

Fixed Investments ÷ Gross Internal Funds, Nonfinancial Corporations, 1950-74

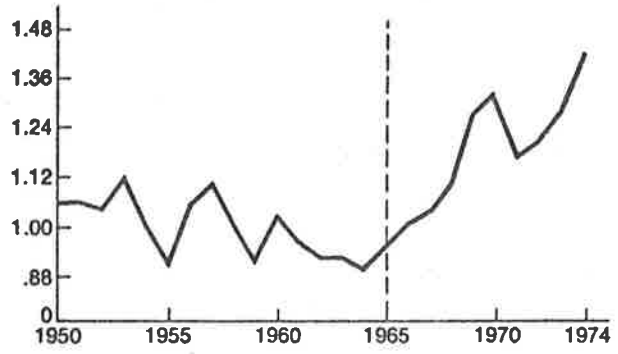


Chart 2

Total Liabilities ÷ Gross Internal Funds, Nonfinancial Corporations, 1950-74

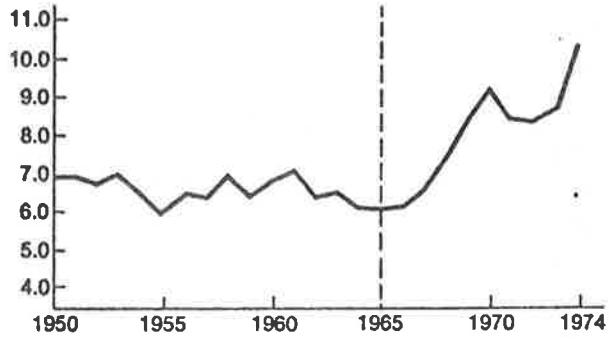


Chart 3

Total Liabilities ÷ Demand Deposits, Nonfinancial Corporations, 1950-74

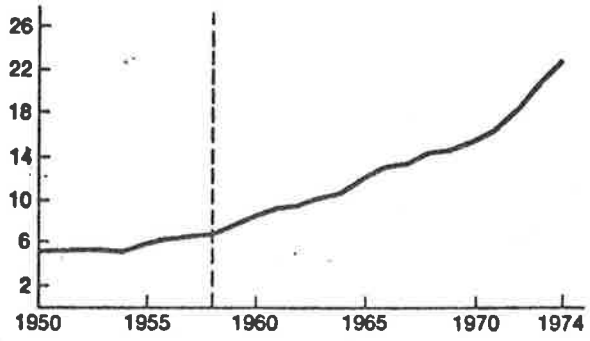


Chart 4

Open Market Paper and Borrowings from Finance Companies ÷ Total Liabilities, Nonfinancial Corporations, 1950-74

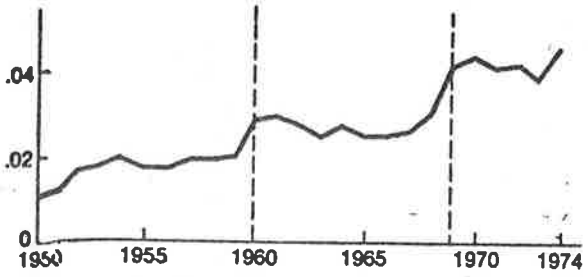


Chart 5

Liabilities ÷ Disposable Personal Income, Households, 1950-74

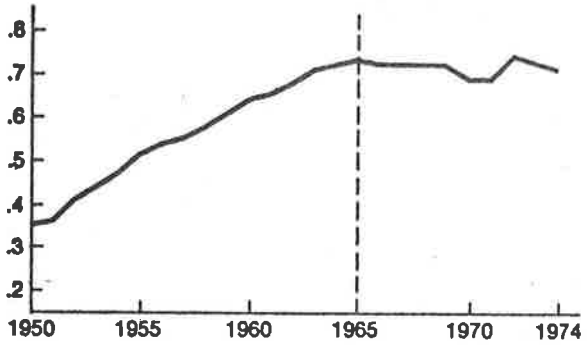


Chart 6

Liabilities ÷ Demand Deposits and Currency, Households, 1950-74

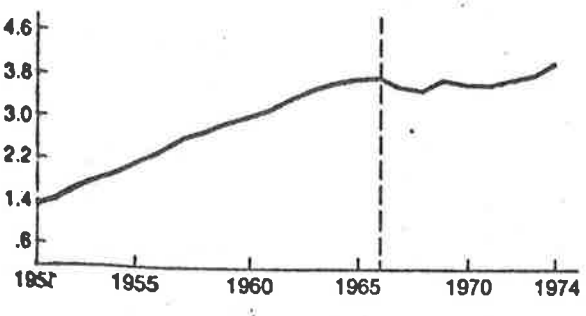


Chart 7

Financial Net Worth ÷ Total Liabilities, Commercial Banking, 1950-74

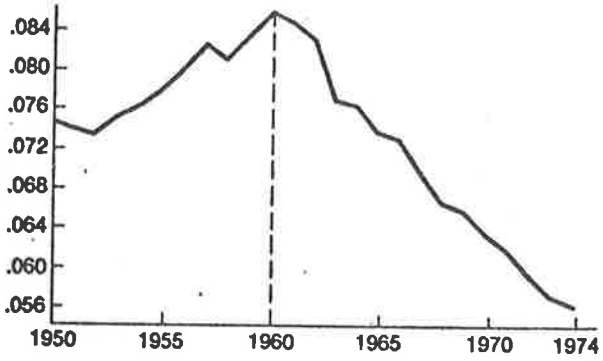


Chart 8

Total Liabilities ÷ Protected Assets, Commercial Banking, 1950-74

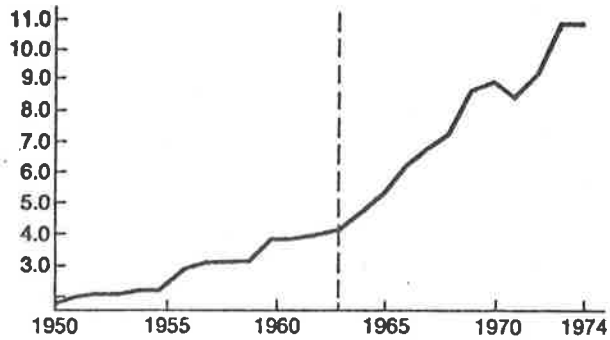


Chart 9

Demand Deposits ÷ Total Liabilities, Commercial Banking, 1950-74

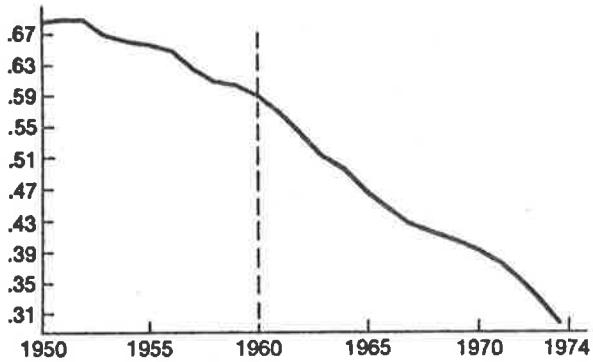
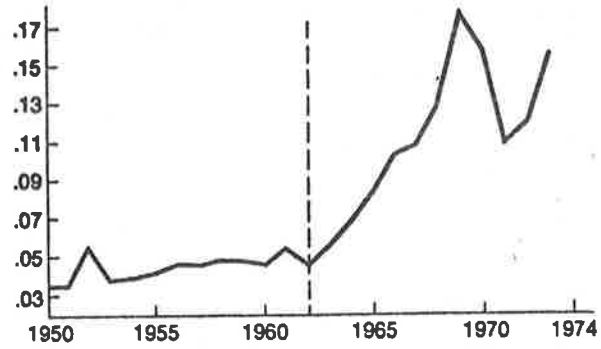


Chart 10

Bought Funds ÷ Total Liabilities, Commercial Banking, 1950-74



Source for charts one through ten: Underlying data from Board of Governors, Federal Reserve System *Flow-of-Funds Accounts.*

The implication that this marks an apparent end to the movement towards increased fragility has to be tempered by the fact that interest rates have risen since the mid 1960's. This rise in interest rates tilts the curve upwards from the slope as given.

The data in Charts 7 through 10 stresses some marked changes that occurred in the early 1960's in various measures of bank portfolio and cash flow relations. In particular banks increased dependence upon bought funds (Chart 10) and the rise in the ratio of total liabilities to protected assets (Chart 8) are worth noting. The decrease in banks holdings of cash kickers and their commitment to speculative finance are evident in the charts.

Of particular importance, especially in the current troubled times with New York City, R.E.I.T's, and major non-financial corporations in danger of default, is the decline in the Financial Net Worth-Total Liabilities Ratio for commercial banks (Chart 7). In Table I the information in Chart 7 is supplemented by data on the equity capital/gross assets ratio for the twenty largest banks in the United States. Whereas Chart 7 indicates that the ratio of net worth to total liabilities for all banks was about 5.6% in 1974, the data for the twenty largest banks indicates that for 18 of the 20 largest banks was below, and for the fifteen largest banks was well below, the 5.6% average that was reported. It is clear that the capital/asset ratio for the giant banks is significantly lower than for both large and small banks. Furthermore the concentration of the largest banks in New York City makes the community of giant banks vulnerable to developments in that troubled city.

The trends in the equity/asset ratios of these banks in the period 1971-74 is shown. It is clear that in the eqrly 1970's the giant banks

TWENTY LARGEST BANKS

Equity Capital / Gross Assets

1971 - 1975

Bank	Assets 1974	Equity/Assets Ratio 1971	1972	1973	1974
1. BANKAMERICA (Calif.)	60.4	.0398	.0356	.0314	.0275
2. CITICORP (NY)	58.3	.0456	.0453	.0413	.0356
3. CHASE MANHATTAN (NY)	42.5	.0480	.0411	.0366	.0340
4. MANUFACTURER'S HANOVER (NY)	25.8	.0490	.0453	.0405	.0336
5. MORGAN (NY)	26.0	.0593	.0535	.0470	.0402
6. CHEMICAL (NY)	22.2	.0513	.0439	.0371	.0324
7. BANKERS TRUST (NY)	20.4	.0440	.0370	.0292	.0282
8. CONTINENTAL ILL. (Chi)	19.8	.0580	.0498	.0401	.0365
9. FIRST CHICAGO (Chi.)	19.1	.0664	.0570	.0449	.0395
10. WESTERN BANCORP (Calif.)	18.7	.0448	.0414	.0385	.0389
11. SECURITY PACIFIC (Calif.)	15.5	.0529	.0456	.0409	.0378
12. MARINE MIDLAND (NY)	12.7	.0420	.0358	.0312	.0337
13. CHARTER NEW YORK (NY)	11.4	.0453	.0398	.0324	.0293
14. WELLS FARGO (Calif.)	12.7	.0436	.0422	.0334	.0336
15. CROCKER NAT. (Calif.)	10.3	.0443	.0405	.0316	.0307
16. MELLON NAT. (Pitt.)	9.9	.0780	.0705	.0579	.0590
17. FIRST NATIONAL (Bost.)	8.7	.0754	.0645	.0541	.0534
18. NATIONAL (Det.)	7.6	.0558	.0550	.0536	.0511
19. N.W. BANCORP (Minn.)	7.1	.0607	.0571	.0555	.0554
20. FIRST BANK SYSTEM (Minn.)	7.2	.0641	.0643	.0593	.0583

Source:

Investors Management Sciences, Inc.
"Bank Compustat" tape. Borrowed from Washington Univ. School of Business Administration, St. Louis, Mo.

'bought' profitability by increasing their leverage on owners investment: rules for "prudent banking" were disregarded in the go-go atmosphere of the early 1970's. It is clear that in 1975 the most vulnerable part of the traditional financial system may very well be the largest banks. The financial system might very well be weakest at the "top"; this is a sharp contrast to the 1929/33 period.

VI. Policy in These Circumstances

When we discuss decision making under uncertainty we should not restrict our domain of reference to private units. Government, and, in particular, Central Bank decisions are made under conditions of uncertainty.

Neo-classical economic theory - the theoretical basis for standard policy analysis and proposals - has suffered crippling blows from both the theoretical critique of the Two Cambridge Controversy and from the behavior of the economy which, from the perspective of strict neo-classical theory, has been erratic and inexplicable.

The above argument emphasized the development of financial fragility as the weight of speculative and "Ponzi" finance in the total financial picture increased. The greater the weight of speculative finance in the total financial structure the more important is the maintenance of orderly conditions in financial markets for the overall stability of the economy. Furthermore the greater the weight of speculative finance in the total financial picture the greater the bite of high and rising interest rates. In fact high and rising interest rates can transform hedge financing units into speculative financing units, and speculative units can find themselves in the unwanted and undesired "Ponzi" situation. High and rising interest rates and higher terms on financial contracts can very well be a selffulfilling prophecy of financial difficulties.

In the current situation the major weight of Federal Reserve policy should be upon stability in financial markets and improvement in the terms available for financing and refinancing speculative liability

positions. In the conflict between the control functions, designed to maintain income, employment, and prices, and the support functions, which are extensions of the Federal Reserves lender of last resort functions, the present emphasis should be upon the support functions. I venture to assert that Federal Reserve control operations are effective and useable only in a regime of robust finance.

At the same time as the Federal Reserve is bailing out the giant banks through its support operations and by maintaining stable conditions in financial markets, policy should be aimed at building the equity base of these banks to a "sounder" basis. I suggest as the minimum equity ratio for the giant banks should be set at 5%; nineteen dollars of other peoples money for one dollar of your own should set an upper limit upon the avarice of bankers. Such a control will put pressures for additional capital upon the fifteen largest banks. To achieve this improvement in equity the total assets of the banks will have to grow at a lower rate than equity. Inasmuch as the equity market is now virtually closed to the giant banks, the only sources of such funds are either an infusion of government equity into the fifteen largest banks or retained earnings. Given the losses that exist in the portfolios of giant banks but which have not been realized in the income statements and balance sheets of banks, in the current situation the rebuilding of equity to a minimum acceptable standard will be a time consuming process.

One implication of the need for equity rebuilding by the giant banks is that unless we are willing to paper over the current situation and go helter skelter to an even worse inflation/crisis situation several years down the pike than we experienced in 1973/75, we need to live

through a period in which financing available from the giant banks increases little, if at all. Such constraint on the giant banks will effectively constrain the growth of the natural customers of the giant banks, the giant corporations.

To my way of thinking, constraint on the "biggies" and the "supper biggies" is good. However such constraint given our present emphasis upon government contracts and private investment to maintain income implies that the economy will be sluggish. We need programs that maintain income and employment even as activity financed by the giant banks is constrained. We need what I have elsewhere called a depression without a depression.