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Finance and Profits: The Changing Nature of American Business Cycles

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ase or reduce the degree of automatic stability. To
ncrease in aggregate demand, say from an increase
es, which results in an output increase and a
rice level. The positive responsiveness of the tax
se will decrease real disposable income and thereby
d serve as an automatic stabilizer, just as in the
iveness of the real tax burden to the price rise may
ro. A tax system fully indexed to the price level
erefore, the earlier analysis (equations 8 and 9)
real tax burden increases in response to the price
eal disposable income and consumption, and adding
on property. If $m_p<0$, the real tax burden would
e rise thereby increasing real disposable income and
the price responsiveness of the income tax would
detract from automatic stability.

ilizer can also, under some circumstances, operate
abilizer. If an economic disturbance originates on
omy, then a tax system with $m_y>0$, $m_p=0$ will serve
stabilizer, since the original demand shift will be
ever, if the disturbance arises on the supply side
tax system will be output *stabilizing*, but price
utput effect of the supply shift will be reduced by
om a change in after tax disposable income) which
the supply shift but reinforces the price effect.

system with $m_p\neq0$, even the output stabilization
becomes uncertain. As mentioned above, if $m_y>0$,
veness and price responsiveness of the tax system
response to a demand shift. In this case the net
anges in price and output caused by the demand
es of m_y and m_p. The same uncertainly exists if
stabilization in response to a shift in supply. The
e tax system will push aggregate demand toward
esponsiveness will push aggregate demand toward
sult will depend on the relative magnitudes involved.

V. MONETARY MANAGEMENT AND INSTITUTIONS

FINANCE AND PROFITS: THE CHANGING NATURE OF AMERICAN BUSINESS CYCLES

By Hyman P. Minsky

I. Historical Perspective

The great contraction of 1929–33 was the first stage of the Great Depression that continued until the end of the 1930s. Although economic turbulence has been evident since the mid-1960s, nothing that has happened in recent years even remotely resembles the economic disaster of the Great Depression. Furthermore, the first part of the era since World War II—the years between 1946 and the middle of the 1960s—were a great success. Between 1946 and 1965 the American economy exhibited consistent and fundamentally tranquil progress; these years were characterized by a close approximation to both full employment and price level stability. Although it was far from a utopia, during these twenty years the American economy was successful, in that substantial and widespread improvements in the economic dimensions of life were achieved. Furthermore similar economic progress took place in the other "advanced" capitalist economies during these years.

Since the middle 1960s the economy has been much more turbulent, and the turbulence seems to be increasing. Both unemployment and inflation showed an upward trend through the 1970s. Measures to manage demand which were deemed responsible for the success of the tranquil years have not been successful in containing the turbulence of the 1970s. Furthermore since the mid-1960s crises have occurred quite regularly in financial markets, and the dollar-based international monetary system set up after World War II has been destroyed. In the mid-1960s an era of mild cycles in income and employment, general price stability, financial strength, and international economic tranquility came to an end. It has been followed by an era of increasingly severe business cycles, growth retardation, accelerating inflation, financial fragility and international economic disarray. However, even though the American economy has performed poorly in recent years, in comparison with what happened in the 1930s this performance is "not bad": we have not had another "great" or even serious depression.

Over the twenty or so years of on the whole tranquil progress after World War II cumulative changes in the financial structure occurred. In 1966–67 the stability of the financial structure was tested and the Federal Reserve found it necessary to intervene as a lender-of-last-

resort. Since the middle 1960s two additional episodes occurred—in 1969–70 and 1974–75—in which the Federal Reserve intervened as a lender-of-last-resort. In early 1980 the Bache/Hunt silver crisis showed that there were serious domains of potential instability in the economic structure.

The thesis underlying this paper is that an understanding of the American economy requires an understanding of how the financial structure is affected by and affects the behavior of the economy over time.

The time path of the economy depends upon the financial structure. The financial relations that generated the instability of 1929–33 were of minor importance during 1946–65—hence the economy behaved in a tranquil way. However over 1946–65 the financial structure changed because of internal reactions to the success of the economy. As a result of cumulative changes, financial relations became conducive to instability. The dynamic behavior of the American economy since the middle 1960s reflects the simultaneous existence of a structure of financial relations conducive to the generation of instability such as ruled after 1929, alongside a structure of government budget commitments and Federal Reserve interventions that prevent the full development of a "downward" cumulative process. The result has been a business cycle characterized by six stages:

(1) An accelerating inflation,
(2) A financial crisis,
(3) A sharp thrust toward lower income,
(4) Intervention (automatic and discretionary) by the Government through its budget and the Federal Reserve (and other financial agencies of Government) through lender-of-last-resort action,
(5) A sharp braking of the downturn, and
(6) Expansion.

Stage 6, expansion, leads to stage 1, accelerating inflation. Since 1966 the cycle seems to take from three to six years and economic policy seems able to affect the duration and severity of particular stages but only at a price of exacerbating other stages.

In this paper I will address the following questions that arise out of the above broad brush perspective:

(1) Why haven't we had a great or even a serious depression since 1946?

(2) Why was 1946–66 a period of tranquil progress and why has it been followed by turbulence?

(3) Is stagflation, as characterized by higher unemployment rates associated with a trend of higher rates of inflation, the price we pay for success in avoiding a great or serious depression?

(4) Are there feasible policies short of accepting a deep and long depression that will lead to a resumption of tranquil progress such as took place in the first post-World War II epoch?

II. Financing and Instability

The above questions deal with the overall stability of our economy. To address these questions we need an economic theory which explains why our economy is sometimes stable and sometimes unstable. In

recent years the discussion about economic policy for the United States has been dominated by a debate between Keynesians and monetarists. Even though Keynesians and monetarists differ in their policy proposals, they use a common economic theory; they are branches of a common economic theory, which is usually called the neoclassical synthesis. Instability, of the kind that we have identified and which leads to the questions we are aiming to answer, is foreign to the economic theory of the neoclassical synthesis; it cannot happen as a normal result of the economic process.

It is self-evident that if a theory is to explain an event, the event must be possible within the theory. Furthermore if a theory is to guide policy that aims at controlling or preventing an event, the event must be possible within the theory.

Within the neoclassical synthesis a serious depression cannot occur as a result of internal operations of the economy. In this theory a serious depression can only be the result of policy errors or of non-essential institutional flaws. Thus a monetarist explanation of the Great Depression holds that it was the result of Federal Reserve errors and omissions and a Keynesian explanation holds that it was the result of an exogenously determined decline of investment opportunities or a prior unexplained decline in consumption activity.[1,2]

The neoclassical synthesis treats the complex system of financial institutions and instruments that are used to finance ownership of capital assets in a cavalier way. A detailed analysis of the behavior of financial institutions and the way the interrelations between financial units and operating units affect the performance of the economy is absent from the core of standard theory. Neither the standard Keynesianism nor any of the varieties of monetarism integrate the financial structure of our economy into the determination of income, prices, and employment in any essential way.

In both variants of the neoclassical synthesis the financial structure is represented by "money". Monetarists use money as a variable that explains prices and Keynesians use money as a variable that affects aggregate nominal demand, but in both money is an outside variable; the amount of money in existence is not determined by internal processes of the economy.

In our economy money is created as bankers acquire assets and is destroyed as debtors to banks fulfill their obligations. Our economy is a capitalist economy with long-lived and expensive capital assets and a complex, sophisticated financial structure. The essential financial processes of a capitalist economy center around the way investment and positions in capital assets are financed. To the extent that the various techniques used to finance capital asset ownership and production lead to banks acquiring assets, money is an end product of financial arrangements. In a capitalist economy investment decisions, investment financing, investment activation, profits and commitments to make payments due to outstanding debts are linked. To understand the behavior of our economy it is necessary to integrate financial relations into an explanation of employment, income, and prices. The performance of our economy at any date is closely related to the current success

[1] Milton Friedman and Anna J. Schwartz, "A Monetary History of the United States 1867–1960." Princeton: National Bureau of Economic Research, 1963.
[2] Peter Temin, "Did Monetary Forces Cause the Great Depression?" New York: W. W. Warton & Co. Inc., 1976.

of debtors in fulfilling their commitments and to current views of the ability of today's borrowers to fulfill commitments.

Financing arrangements involve lenders and borrowers. The deals between lenders and borrowers are presumably a good thing for both. In our economy the proximate lender to an owner of capital assets and to investing units is a financial institution. Financial institutions are typically highly levered organizations. This means that any loss on the assets owned will lead to an amplified loss of the owner's investment. Because of leverage and the obvious desire of lenders to protect their capital, loans are made on the basis of various margins of safety. To understand our economy we need to know how an economy behaves in which borrowing and lending take place on the basis of margins of safety. The borrowing and lending of particular concern is used to finance investment and the ownership of capital assets.

Borrowing and lending also take place to finance household spending and asset holdings. From time to time governments run deficits. Thus there are household and government debts in portfolios that need to be serviced by cash from household income and government taxes. In what follows it will become evident that household and government borrowing is not the critical element making for instability, although the overall stability of an economy can be affected by household and government borrowing.

To borrow is to receive money today in exchange for promises to pay money in the future. As a result of past borrowing, there are payments which have to be made over every short period. Furthermore, if the economy functions well during every short period, new borrowings take place which become promises to pay in the future. Our economy has a past, which is present today in maturing payment commitments, and a future, which is present today in debts that are created.

III. The Significance of Finance

The framework for analyzing relations between cash payment commitments due to financial instruments that are outstanding at any time and the cash receipts of organizations with debts is needed if financial relations are to be fully integrated into the theory of income and price determination. Financial instability is a fact and any theory that attempts to explain the aggregate behavior of our economy must explain how it can occur. As financial instability is one facet of the serious business cycles of history, a theory that explains financial instability will enable us to understand why our economy is intermittently unstable.

Cash payment commitments on outstanding instruments are contractual commitments to pay interest and repay the principal on debts and to pay dividends—if earned—on equity shares. These cash payment commitments are money flows set up by the financial structure. A structure of expected money receipts underlies the various commitments to make payments. Each economic unit—be it a business firm, household, financial institution, or government—is a money-in-money-out device. The relation among the various sources and uses of cash for the various classes of economic units determines the potential for instability of the economy.

Our economy is a capitalist economy that employs complex, expensive, and long-lived capital assets and which has a sophisticated and complex financial structure. The funds that are needed to acquire control over the expensive capital assets of the economy are obtained by a variety of financial instruments such as equity shares, bank loans, bonds, mortgages, leases, and rentals. Each financial instrument is created by exchanging "money today" for commitments to pay "money later". The payments during any period on outstanding financial instruments are the "money later" parts of contracts entered into in prior periods. We can summarize the above by the statement that firms may and do finance positions in capital assets by complex sets of financial obligations. The financial obligations outstanding at any date determine a series of dated cash payment commitments.

The legal form that business takes determines the debts that can be used to finance ownership of capital assets. The modern corporation is essentially a financial organization. The alternatives to using corporations as the legal form for private business are sole proprietorships and partnerships. In these alternatives the debts of the organization are debts of the individual owner or partners and the life of the organization is limited to the life of the partners. As a result of their limited lives and constrained debt-carrying powers, proprietorships and partnerships are poor vehicles for owning and operating long-lived and special purpose capital assets. There is a symbiotic relation between the corporate form of organizing business and the emergence of an industrial and commercial structure in which debt is used to finance the construction and the control of complex, special purpose and long-lived capital assets.

In addition to the ordinary business firms that own the capital assets of our economy there are financial firms (banks, etc.) that mainly own financial instruments. These financial institutions finance the assets they own (what will be called their position) by some combination of equity (capital and surplus) and debts. The typical position of the various types of financial institutions will include debts of capital-asset owning firms, households, governments, and other financial institutions; in addition some financial institutions own equity shares.

Thus there exists a complex network of commitments to pay money. The units that have these commitments must have some sources of money. When a financial contract is created, both the buyer (lender) and the seller (borrower) have scenarios in mind by which the seller acquires the cash which is needed to fulfill the terms of the contract. In a typical situation there is a primary and some secondary or fallback sources of cash. For example in an ordinary home mortgage the primary source of the cash needed to fulfill the contract is the income of the homeowner. The secondary or fallback source of cash is the market value of the mortgaged property. For an ordinary business loan at a bank, the expected difference between gross receipts and out of pocket costs is the primary source of cash; a secondary source would include the value of collateral, borrowings, or the proceeds from selling assets. Expected cash receipts are due to contributions to the production and distribution of income, the fulfillment of contracts, borrowing and selling assets; in addition payment commitments can be fulfilled by using what stocks of cash a unit may have on hand.

Our economy therefore is one in which borrowing and lending on the basis of margins of safety occur. Today's payments on outstanding financial instruments are the result of commitments that were made in the past even as today's transactions create financial contracts which commit various organizations to make payments in the future. The balance sheets at any moment of time of units that make up the economy are "snapshots" of how one facet of the past, the present, and the future are related.

Commercial banks are one set of financial institutions in our economy. Demand deposits, which are part of the money stock, are one of a number of liabilities that commercial banks use to finance their position in financial assets. In turn the financial assets of banks are debts of other units, which use these debts to finance positions in capital assets or financial instruments. As we peer through the financing veil of the interrelated set of balance sheets it becomes evident that the money supply of the economy is like a bond in that it finances positions in capital assets. Before one can speak securely of how changes in the money supply affect economic activity it is necessary to penetrate the financing veil to determine how changes in the money supply affect the activities that are carried out.

Each financing transaction involves an exchange of money today for money later. The parties to the transaction have some expectations of the uses to which the receiver of money today will put the funds and how this receiver will gather the funds by which to fulfill the money-tomorrow part of the bargain. In this deal the use by the borrower of the funds is known with a considerable assurance; the future cash receipts which will enable the borrower to fulfill the money tomorrow parts of the contract are conditional upon the performance of the economy over a longer or shorter period. Underlying all financing contracts is an exchange of certainty for uncertainty; the current holder of money gives up a certain command over current income for an uncertain future stream of money.

Just as there is no such thing as a free lunch there is no such thing as a certain deal involving the future. Every investment in capital assets involves giving up of something certain in exchange for some conjectural returns. In particular any set of capital assets acquired by a firm is expected to yield cash flows over time whose sum exceeds by some margin the cash paid for the capital asset. These expectations are, however, conditional upon the state of particular markets and of the economy in the various futures in which cash receipts are to be collected. In making money today-money tomorrow transactions, whether the transaction be a financial transaction, such as issuing or buying bonds, or an investment transaction, in which current resources are used to create capital assets, assumptions about the intrinsically uncertain future are made. The assumptions often are that the intrinsically uncertain future can be represented by a probability distribution of, say, profits, where the probability distribution is assumed to be like the probability distributions that are used to represent outcomes at a roulette table. However, the knowledge of the process that determines the probabilities is much less secure for economic life than it is for fair roulette wheels. Unforeseen and unlikely events occur in

gambling games and in economic life. Unlikely events will not cause a radical change in the estimates of the frequency distribution of outcomes at the roulette table whereas they are quite likely to cause marked change in the expectation of the future that guides economic activity.

The financial structure of our economy can be viewed as apportioning among various units the potential gains and losses from various undertakings in which the outcome is uncertain. By the very nature of uncertainty the actual results are quite likely to deviate markedly from anticipated results. Such deviations will lead to capital gains and losses. Experience with capital gains and losses will lead to changes in the terms upon which a certain command over resources will be exchanged for a conjectural future command over resources; the prices of capital assets and financial instruments will change as history affects views about the likelihood of various outcomes.

Households, businesses, government units, and various types of financial institutions issue financial liabilities. Each issuer of financial instruments has a main source of cash which is expected to accrue so that the financial instruments it has outstanding can be validated. The primary source of cash for households is wages, for business firms it is gross profits, for government units it is taxes, and for financial institutions it is the cash flow from owned contracts. In addition each unit can, in principle, acquire cash by selling assets or by borrowing. Although the normal economic activity of many units depends upon borrowing or selling assets to obtain cash we will consider such financial transactions as a secondary source of cash—where the term secondary does not necessarily carry any pejorative connotations.

Household wage income, business profit flows, and government tax receipts are related to the performance of the economy. The primary cash flows that validate household, business, and government debts depend upon the level and distribution of nominal income. In our type of economy one link between financial markets and income and output production is that some of the demand for current output is financed by the issuance of financial instruments, and a second is that wage, profit, and tax flows need to meet a standard that is determined by the payment commitments on financial instruments if financial asset prices and the ability to issue financial instruments are to be sustained. A capitalist economy is an integrated financial and production system and the performance of the economy depends upon the satisfaction of financial as well as income production criteria.

IV. Hedge, Speculative and Ponzi Finance

Three financial postures for firms, households and government units can be differentiated by the relation between the contractual payment commitments due to their liabilities and their primary cash flows. These financial postures are hedge, speculative and "Ponzi". The stability of an economy's financial structure depends upon the mix of financial postures. For any given regime of financial institutions and government interventions the greater the weight of hedge financing in the economy the greater the stability of the economy whereas an increasing weight of speculative and Ponzi financing indicates an increasing susceptibility of the economy to financial instability.

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For hedge financing units, the cash flows from participation in income production are expected to exceed the contractual payments on outstanding debts in every period. For speculative financing units, the total expected cash flows from participation in income production when totaled over the foreseeable future exceed the total cash payments on outstanding debt, but the near term payment commitments exceed the near term cash flows from participation in income production, even though the net income portion of the near term cash flows, as measured by accepted accounting procedures, exceeds the near term interest payments on debt. A Ponzi finance unit is a speculative financing unit for which the income component of the near term cash flows falls short of the near term interest payments on debt so that for some time in the future the outstanding debt will grow due to interest on exising debt. Both speculative and Ponzi units can fulfill their payment commitments on debts only by borrowing (or disposing of assets). The amount that a speculative unit needs to borrow is smaller than the maturing debt whereas a Ponzi unit must increase its outstanding debts. As a Ponzi unit's total expected cash receipts must exceed its total payment commitments for financing to be available, viability of a representative Ponzi unit often depends upon the expectation that some assets will be sold at a high enough price some time in the future.

Every cash flow can be transformed into a present value by discounting the dated expected cash receipts at appropriate interest rates. Thus from any structure of expected cash receipts and payment commitments a balance sheet can be constructed. In this balance sheet the present value of the unit's assets and liabilities are entered. Furthermore because payment commitments are denominated in money, units with payment commitments keep some assets on hand which are quickly transformable into money and which are not essential inputs to the unit's production process; in part such assets are valued because they insure against some of the possible consequences of unfavorable events.[3]

We will first examine the cash flow, present value and balance sheet implications of hedge, speculative and Ponzi financial postures for business firms. The financing of investment and positions in capital assets by debts is a distinguishing attribute of our type of economy. This makes the cash flows and balance sheets of business of special importance. As our focus is upon the payment commitments due to business debts, the cash receipts of special interest are the gross profits net of taxes but inclusive of interest payments, for this is the cash flow that is available to fulfill payment commitments. The generation and distribution of this broad concept of profits is the central determinant of the stability of an economy in which debts are used to finance investment and positions in capital assets.

The validation through cash flows of the liabilities of households and governments is of great importance to the operation of today's capitalist economics. Household and government financing relations affect the stability of the economy and the course through time of output, employment and prices. However, the essential cyclical path of capitalist economies was evident when household debts were small and

[3] H. P. Minsky, "John Maynard Keynes." New York : Columbia University Press, 1975.

government, aside from times of war, was small. Household and government debt creation and validation modify but do not cause the cyclical behavior of capitalist economies. It will be evident in what follows that if the debt generation and validation by government becomes large relative to the debt generation and validation by business the basic path of the economy is likely to be affected.

The fundamental variables in analyzing the financial structure are the cash receipts and payments of economic units over a relevant time period. The total receipts of a business firm can be divided into the payments for current labor and purchased inputs and a residual, gross capital income,[3a] that is available to pay income taxes, the principal and interest on debts and for use by the owners.

We therefore have:

Gross Capital Income = Total Receipts From Operations − Current Labor and Material Costs

and

Gross Capital Income = Principal and Interest Due on Debts + Income Taxes + Owners "Income".

In terms of the data available in National Income and Flow of Funds accounts gross capital income equals gross profits before taxes plus interest paid on business debts. In analyzing the viability of a financial structure and the constraints it imposes, gross capital income as here defined is the key receipts variable.

The cash payments made by a unit over a relevant time period equal the spending on current labor and purchased inputs, tax payments, the remittance due to debts that fall due and dividends. Over any particular interval cash payments may exceed, equal or fall short of cash receipts. Of the payments the critical items are current input costs, taxes and payments required by outstanding debts. As current costs and taxes are subtracted from current receipts to yield after tax capital income the key relation becomes that between after tax capital income (or gross profits after taxes broadly defined) and the payment commitments on debts. The relation has two facets:

(1) Each relevant period's (quarter, month, year) relation between gross capital income and payment commitments due to debts.

(2) The relation over an open horizon of the sum of expected gross capital income and the sum of payment commitments now on the books or which must be entered on the books if the expected gross capital income is to be achieved.

A necessary though not sufficient condition for the financial viability of a unit is that the expected gross capital income exceed the total payment commitments over time of debts now on the books or which must be entered upon if this capial income is to be forthcoming.

Gross capital income reflects the productivity of capital assets, the efficacy of management, the efficiency of labor and the behavior of markets and the economy. The debt structure is a legacy of past financing conditions and decisions. The question this analysis raises is whether

[3a] In the economic literature, following Marshall and Keynes, this residual is called quasi-rent.

the future profitability of the business sector can support the financial decisions that were made as the current capital-asset structure of the economy was put into place.

Hedge Financing

A unit is hedge financing at a particular date when at that date the expected gross capital income exceeds by some margin the payment commitments due to debts in every relevant period over the horizon given by the debts now on the books and the borrowings that must be made if expected gross capital income is to be earned. The liabilities on the books at any time are the result of past financing decisions. As such they are entered into on the basis of margins of safety. One of the margins of safety is an excess of anticipated receipts over cash payment commitments. However the anticipated gross capital income for any date is uncertain. The holder and user of capital assets, the banker who arranges the financing and the owner of the liabilities expect the actual receipts to exceed the payment commitments due to debt by a substantial margin. One way to treat this is to assume that the owners of the capital assets, the bankers, and the owners of the debt assume there is a lower limit of the gross capital income which is virtually certain and that financing decisions and capitalized values are based upon this lower limit to earnings which are deemed to be virtually certain.

If we capitalize the cash payment commitments and the receipts that capital assets are deemed to be assured of earning at common interest rates we will get the present value of the enterprise that is expected to yield the specified gross capital income. In the case of the hedge unit the difference between these assured receipts and the payment commitments is positive in every period. Thus the capitalized value of the flow of gross capital income will exceed the capitalized value of payment commitments at *every* interest rate. Inasmuch as a unit is solvent only as the value of its assets exceeds the value of its debts, changes in interest rates cannot affect the solvency of a unit that hedge finances.

It is important to emphasize that, for a hedge unit, conservatively estimated expected gross capital income exceeds the cash payments on debts from contracts for every period in the future. The present value of this stream is the sum of the capitalized value of the cash flows net of debt payments for each period; inasmuch as each period's net cash flow is positive the sum will be positive. In particular a sharp rise in interest rates cannot reverse the inequality in which the present value of capital assets exceeds the book value of debts. For hedge finance units insolvency cannot result from interest rate increases.

Even though a hedge financing unit and its bankers expect that cash flows from operations will generate sufficient cash to meet payment commitments on account of debts, further protection for borrowers and lenders can exist 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. A balance sheet of a hedge investor will include money or money market assets in addition to the capital assets.

A hedge unit's financial posture can be described by the excess of cash receipts over contractual payment commitments in each period, an excess of the value of capital assets over debt and the holding of cash or liquid assets. We can further divide the assets and liabilities. In particular we can note that the cash can be held in the form of various financial assets such as Treasury debt, commercial paper and even open lines of credit. Similarly the debts of a unit can be short term, long term, or even non-debts like commitments on leases.

A unit that has only equities on the liability side of its balance sheet or whose only debts are long term bonds with a sinking fund arrangement where the payments to the sinking fund are well within the limits set by expected cash flows is engaged in hedge financing. A hedge financing unit is not directly susceptible to adverse effects from changes in financial markets. The only way a hedge financing unit can go bankrupt is if its revenues fall short of its out of pocket costs and commitments.

Speculative Financing

A unit speculates when for some periods the cash payment commitments on debts exceeds the expected gross capital income. The speculation is that refinancing will be available when needed. This speculation arises because the commitments provide for the repayment of debt at a faster rate than the gap between revenues and costs allows for the recapturing of the money costs of capital assets. We restrict the term speculative to a liability structure in which the income portion of gross profits exceeds the income portion of payment commitments.

The liability structure of a speculative unit leads to a series of cash payments and the operations of the unit will lead to a series of cash receipts. The sum of the payment commitments is less than the sum of the cash receipts *but* in some periods the payment commitments are larger than the expected cash receipts; there are deficits. These "deficit" periods are typically closer in time from the "today" at which the balance sheet is being characterized; the deficits for the speculative unit are mainly because the unit has engaged in short term financing so that the principal of debts falling due exceeds the recapture of capital-asset commitments in these early periods. Even as the debt is being reduced in these early periods, the cash flow prospects of later periods include receipts due to the recapture of principal even as there is no need to reduce the principal of outstanding debts. Thus a speculative unit has near term cash deficits and cash surpluses in later terms.

The present value of an organization equals the present value of the gross capital income minus the present value of the cash payment commitments. This is equivalent to the present value of the series of cash deficits and surpluses that a speculative unit is expected to earn. For a speculative unit the shortfalls of these receipts relative to payment commitments occur early on in the future and the positive excess of receipts over payments occurs later: a speculative unit finances a long position in assets by short run liabilities. Higher interest rates lower the present value of all cash receipts, however the decline is

proportionately greater for the receipts more distant in time. Thus a dated set of cash flows which yields a positive excess of asset values over the value of debts at low interest rates may yield a negative excess at high interest rates: a present value reversal, from positive to negative present values, can occur for speculative financing relations and not for hedge financing units.

In a speculative financing arrangement the unit, its bankers and the holders of its debts are aware that payment commitments can be fulfilled only by issuing debt or by running down cash balances during periods in which the payment commitments exceed the relevant receipts. The financing terms at those dates when it is necessary to borrow to pay debts can affect the spread between gross capital income and cash payment commitments. In particular refinancing can make cash commitments at some later date, which initially were expected to be positive, negative. The ability of a firm that engages in speculative finance to fulfill its obligations is susceptible to failures in those markets in which it sells its debts.

A speculative unit will also carry cash kickers. As the near term payments exceed the expected cash flows from income, for a given value of debt the cash balance of a speculative unit can be expected to be larger than that for a hedge unit. However because speculative units are active borrowers it is likely that lines of credit and access to markets will be a part of the cash position of such units, albeit this part will not be visible on the balance sheet.

The gross cash flows due to operations that a unit receives are broken down by accounting procedures into an income portion and a recapture of the value of the investment in capital-assets; the recapturing is called depreciation or capital consumption. The payment commitments on debts are usually separated into the interest due and the repayment of principal. For a speculative financing unit in the periods when there is a cash flow deficit the receipts allocated to income exceed the interest payments even as the receipts allocated to the repayment of principal fall short of the principal amount due on the debt. Thus the speculative unit is earning a net profit and is in a position to decrease its indebtedness by allocating a portion of the excess of income over debt payments to lowering the debts.

Ponzi Financing

Ponzi units are speculative units with the special characteristic that for some if not all near term periods cash payment commitments to pay interest are not covered by the income portion of the expected excess of receipts over current labor and material costs. These units must borrow in order to pay the interest on their outstanding debt: their outstanding debt grows even if no new income yielding assets are acquired.

Obviously asset owners, bankers and debt holders participate in Ponzi finance only if the present value of the sum of all future expected cash receipts and payments is positive. Therefore the positive present value of cash receipts minus payments in later periods must offset the negative present value of cash receipts minus payments in early periods. An extreme example of Ponzi finance is borrowing to

hold assets which yield no or little income in the expectation that at some date the market value of the object held will yield enough to clear debt and leave a sizeable gain. The low margin stock exchange of the 1920s and the margin financing of the Hunt position in silver in 1980 are examples of Ponzi financing.[4] The REITs of the early 1970s, which paid dividends on the basis of interest accruals, were engaging in Ponzi finance. A unit that is heavily involved in building capital assets can be engaging in Ponzi finance.

It is obvious that a Ponzi finance unit's present value depends on interest rates and the expectations of cash flows in the future. Rising interest rates increase the rate of increase of outstanding debts and can transform positive present values into negative present values. Inflation will often lead to financing relations which can be validated, only if inflation continues. Acquiring assets because of inflationary expectations bids up the price of favored assets and the financing bids up interest rates. A decline in inflation expectations will lead to a drop in these asset prices which can lead to the debts exceeding the value of assets.

The stability of an economy depends upon the mixture of hedge, speculative and Ponzi finance. Over a period of good years the weight of short term debt in the business financial structure increases and the weight of cash in portfolios declines. Thus there is a shift in the proportion of units with the different financial structures—and the weight of speculative and Ponzi finance increases during a period of good years.

It should be noted that a decline in expected gross capital income, or a rise in the income protection required for hedge financing can make hedge units speculative units; and a decline in expected gross capital income, a rise in the income protection required for speculative financing or a rise in financing costs can make speculative units Ponzi units. Such changes can lead to the value of debts exceeding the capitalized value of these excess receipts. There are two facets to financial instability. In the first the cost of debt and the need to roll over ever larger debt structures leads to a break in asset values as units try (or are forced to try) to decrease their debt dependency; the second is when gross capital income falls because the determinants of profits have fallen. A deep recession requires that such financial markets and cash flow effects occur.

At this point it is worth noting that the level and pattern of interest rates do not affect the solvency even though it affects the size of the positive net worth of a hedge finance unit. However the solvency—i.e., a shift of net worth from positive to negative and back again—of speculative and Ponzi finance units is affected by interest rate changes. In a world dominated by hedge finance the authorities can disregard the course of interest rates. But in a world dominated by hedge finance, the interest inelastic demand for finance from units that must refinance positions and finance commitments will not exist—i.e., in a world dominated by hedge finance interest rates do not change by much.

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[4] As this was being prepared a magnificent example of Ponzi financing became "public property" in the problems of the Hunts and their margin financing of positions in silver.

On the other hand, for speculative and especially for Ponzi finance units a rise in interest rates can transform a positive net worth into a negative net worth. If solvency matters for the continued normal functioning of an economy, then large increases and wild swings in interest rates will affect the behavior of an economy with large proportions of speculative and Ponzi finance. Furthermore speculative and especially Ponzi finance give rise to large increases in an interest inelastic demand for finance, i.e., speculative and Ponzi finance create market conditions conducive to large swings in interest rates. In a world where speculative and Ponzi finance is important the authorities cannot disregard the effect of policies on the level and volatility of interest rates.

Households

For households, the cash flow income that is mainly relevant to the financial structure is the difference between wage income as the major component of household disposable income and cash payment commitments on household debt.[5] The secondary household financial relation of importance, which is especially relevant for the various forms of "to the asset" (mortgage, conditional sales) contracts, is between the value of the hypothecated asset and the face or book value of the outstanding debt.

Household debts are either fully amortized, partially amortized or unamortized. In a fully amortized contract a series of payments is specified and at the end of the time the contract is fully paid. In a partially amortized contract there is a payment due at the end of the contract which is a portion of the original principal. An unamortized contract has the full original principal due at its end.

The cash flow relation for a fully amortized contract assumes that the payment commitments are less than the expected wage incomes. Thus a fully amortized contract conforms to the definition of hedge financing. Partially amortized and unamortized contracts can have payments due at some dates that exceed the anticipated wage incomes. The cash flow relations for partially amortized contracts conform to that of speculative financing except that the cash deficit comes late in the sequence of payments rather than early.

Consumer and mortgage debt can become Ponzi-like only if actual wage income falls short of anticipated and other sources of disposable income, for example, unemployment insurance, do not fill the gap. Such shortfalls can occur because of personal events or overall economic events. Various types of insurance premiums added to the cash payment commitments take care of the health and accident portions of the personal risk. Large scale and persistent unemployment can lead to reversal of the inequality for a substantial number of initial hedge units and the subsequent foreclosures and repossession of the hypothecated asset can lead to a fall in asset prices relative to the outstanding debt. This can occur only if a substantial decline in income and employment has taken place. The typical financing relation for consumer and housing debt can amplify but it cannot initiate a downturn in income and employment.

However a part of household financing is often Ponzi; this is the financing of holdings of securities and some types of collectable assets. A typical example is the financing of ownership of common stocks or other financial instruments by debts. In principle a separate cash flow account for such assets within the household accounts could be set up. Debts for carrying a fixed portfolio of securities would increase whenever the income earned by the securities falls short of interest payments on the debt. If we set up the cash flow relation for a margin account for common stock we find that if the dividend/price ratio exceeds the interest rate then the financing is speculative, mainly because the underlying debt is nominally short term. If the interest payments exceed the dividend then the financing is Ponzi. Hedge financing disappears as a classification for stock market financing except if the term to maturity of the debt is so long that the borrowing unit does not have to refinance its positions.

Why would any rational man enter upon and a rational banker finance a security holding in which the carrying costs exceed the cash flow from dividends? The obvious answer is that the dividend yield is not the full yield; the full yield will include appreciation (or depreciation) of asset values. Thus in household finance we find that the payment commitments can exceed the dividends and be less than the total asset return including the appreciation of the price of the assets. In the extreme case—which applies to stock market booms and speculative manias (such as the 1979–80 Gold and Silver episode), the cash income from assets approaches zero; the only return is from appreciation. In these cases, if there is a margin between the price in the market of the assets and the value of the debt used to carry the assets, the cash due on debt is acquired by a rise in debt. This rise in debt finances the interest income of the lenders (bankers). Income is earned even though the payor pays no cash.

Household finance can be destabilizing if there is a significant portion of Ponzi finance in the holding of financial and other assets. A speculative boom exists whenever a substantial and growing portion of outstanding payment commitments can be fulfilled only if an appreciation of asset values takes place. In such a boom the current and near term expected cash flows from participating in the production and distribution of income are not sufficient to meet even the income portion of the payment commitments. In this situation some of the unrealized capital gains are transformed into incomes, thus financing demand for output. A speculative boom, as exemplified by a growth in Ponzi financing of asset holdings by households, can induce a rise in current output prices, even as the basis of the Ponzi financing of asset ownership is the anticipation by debtors and their financing agents of inflation in the prices of the assets being financed.

Debt financing of asset ownership and consumption spending by households has increased over the era since World War II. The increase of the items that can be financed by debt and of the ease with which households can debt-finance has meant that the link between household wage income and household consumption is not as close

[5] In an economy with massive transfer payment schemes, significant dividend and interest income and significantly high income taxes the relevant household income might well be consumer disposable income.

as in the past. When households can readily purchase consumer goods by promising to pay a portion of future wage incomes, a close link between this period's income and demand for output is broken. Symmetrically when a household's payments on debt contracts exceed the interest due, the household "saves". Thus a buildup of consumer debt will lead to a high ratio of consumption to household income; a decrease in the amount outstanding will lead to a low ratio of consumption to household income. The achieved ratio of savings to wage income in a modern economy reflects the course of outstanding household debts.

To recapitulate, household debt financing and cash payment commitments on account of debt can be broken into two categories: the financing of consumption and the financing of ownership of assets, mainly financial assets. [Housing is in part a consumption good and in part an asset; other consumer durables such as automobiles, etc., are not valued as assets even though they may have a resale value.] The cash flows that will validate consumption financing are mainly household disposable income which is largely wages. The cash flows that will validate the debt-financing of assets are either dividends and interest or the result of selling out the position at an appreciated price. Household debt financing of consumption is almost always hedge financing; only a fall in income (wages) can transform such contracts into examples of Ponzi financing. Housing is typically financed by hedge financing. Positions in common stocks and collectables, such as gold, are often financed in a Ponzi fashion.

Because consumption and housing debts of households are primarily hedge financing, the contracts will tend to be validated unless there is a prior fall in wage income. Household financing of asset ownership can be Ponzi in nature. As a result a rise in interest rates applicable to future prices of the assets or to future income can lead to a sharp fall in the price of assets in position. Such a sharp fall in price means that the margin of safety in asset values falls and the expected appreciation of asset values which enable cash to be raised to satisfy payment commitments is not realized. These effects can determine the markets in which changes in relative prices initiate financial and economic stability.

Government

Government units also have payment commitments on debts. These payment commitments will be validated by some combination of an allocation of tax payments and new borrowing. Government units are often speculative financing units which operate by rolling over short term debt. As long as the total future expected cash flows exceed the total future cash payment commitments on the current outstanding debt, this proves no special problem. However if the expected tax take or expected current operating expenses misbehave then roll-over problems can arise. Government financial policies are not typically initiating forces in the instability that is due to market forces. But government units can mismanage their affairs and individually get into trouble. In particular government units with large floating (short term) debts can find the cost of carrying debts rising relative to the taxes net of current expenses available for servicing debt. High interest rates can make government units into Ponzi units.

Summing Up

The distinction between hedge, speculative and Ponzi finance defines both the sets of markets that need to be functioning normally for payment commitments to be validated and the potential sources of difficulty. If units engage in adequately protected hedge finance their financial difficulties cannot be an initiating factor in instability. Units which initially are hedge financing can become speculative and even Ponzi financing units as their income deteriorates, and thus amplify initial disturbances.

Speculative financing units can fulfill their commitments as long as their longer term income prospects are favorable and as long as funds are forthcoming at non-punitive terms from the markets in which they finance and refinance their positions. Speculative finance units are vulnerable to both income and financial market disturbances. Furthermore shortfalls in income and increases in financing charges can transform speculative units into Ponzi units.

The viability of units which engage in Ponzi finance depends upon the current expectations of future prices of capital assets or financial instruments. These future prices depend upon profits in the more distant future. The viability of Ponzi finance units is dependent upon discount rates, on future cash flows and expectations of future profitability and prices. Obviously too great an admixture of Ponzi and near-Ponzi speculative finance is conducive to instability.

We can conceive of a scale of financial robustness—financial fragility which depends upon the mixture of hedge, speculative and Ponzi finance outstanding. As the proportion of hedge financing decreases the financial structure migrates toward fragility.

V. The Level and Distribution of Income and the Validation of the Financial Structure

A debt is validated when maturing commitments to pay are fulfilled and expectations are sustained that future remaining commitments will be fulfilled. By extension a debt structure, either in total or for various subdivisions of the economy, is validated when on the whole maturing commitments to pay are fulfilled and when expectations are that future receipts by debtors will enable payment commitments that extend over time to be fulfilled. The qualifying phrase "on the whole" is needed because a debt structure will be validated even if some payment commitments are not fulfilled. Debt financing organizations anticipate that some (small) percentage of debtors will not fulfill their commitments.

The validation of debt depends upon various components of income being large enough so that the payment commitments can be fulfilled either out of the income flows or by refinancing. Thus for the Flow of Funds category Non-Financial Corporate Business, capital income as measured by the sum of interest payments and gross profits after taxes during any period must be large enough to enable maturing commitments to be satisfied either out of this grossest of profits or out of the proceeds of new debts issued in roll-over or funding operations. But access to roll-over or funding finance depends upon anticipated future cash flows. Therefore at all times the emerging evidence

on business profitability must lead to anticipated profit flows that enable refinancing to take place. In addition business profits have to be large enough so that when current and recent business profits are fed into whatever logic determines expected profits, the capitalized value of such expected profits is large enough to validate the price paid in the past for capital assets and induce current decisions to produce capital assets, i.e., to invest.

Wages and taxes need to meet standards set by household and government spending and payments due on outstanding debts if commitments on household and government debts are to be met and if new debts are to be negotiated. However, the wage bill and the tax take (once the tax schedule is determined) result from rather than determine aggregate demand. There is no link between the current and past levels of wages and taxes as inputs to anticipated future levels, that feeds back and determines a part of current demand, such as exists between current profits, anticipated profits and current investment demand. Profits are critical in a capitalist economy because they are a cash flow which enables business to validate debt *and* because anticipated profits are the lure that induces current and future investment. It is anticipated profits which enable business to issue debts to finance investment and positions in capital assets. Any theory that aims to explain how an investing capitalist economy works must focus upon the determination of total profits and the division of total profits among debt servicing, household disposable income, and retained earnings.

In neoclassical economic theory profits equal the marginal productivity of capital times the quantity of capital. In our economy fluctuations in employment, output and profits occur which cannot be explained by changes in the quantity or productivity of capital. Furthermore the concept of a quantity of capital is ambiguous; it is questionable if any meaning can be given to the concept that is independent of expected future profits and the capitalization rate on profits. There is an unambiguous meaning to the price at which investment output enters the stock of capital assets, but that price has little or no significance in determining the price of that item as a capital asset.

In equilibrium the depreciated value of investment output equals the capitalized value of future profits. In most of economic analysis the depreciated value of investment output is used as the value of capital—therefore implicitly assuming the economy is in equilibrium. But an economic theory that assumes that the economy is always in equilibrium cannot explain fluctuations. If the value of capital always equals the depreciated value of investment goods then even large scale exogenous shocks cannot affect the equilibrium values determined within the system.[6]

In neoclassical theory the price level and money are always outside the system that determines outputs and relative prices. Within this system of thought change in the money supply is an exogenous shock variable that will change money prices without changing relative prices—and price deflated profits. The neoclassical theory cannot be of help in explaining fluctuating profits. Therefore it is of no use in helping us understand how the financial structure of a capitalist economy affects the economy's behavior.

[6] This is a "quick and dirty summary" of a key position in the Two Cambridge Debate. See G. H. Harcourt, "Some Cambridge Controversies in the Theory of Capital." Cambridge University Press, 1972.

In a capitalist economy the total value of output or of any subset of outputs equals the sum of wages and capital income. Thus for consumer goods we find that the value of output (price times quantity) equals the wage bill plus profits. Similarly the value of investment output (price times quantity) equals the wage bill plus profits. Let us make a heroic but not unreasonable "first approximation" assumption that all of wages are spent on consumption and none of profits are so spent. This means that the wage bill in consumption plus the wage bill in investment equals the value of consumption output which in turn equals the wage bill in consumption plus the profits in consumption. The wage bill in consumption enters both demand and costs, subtracting it from both sides of the equation leads to

Profits in consumption goods production = The wage bill in investment goods production

If we add profits in investment goods production to both sides of the above we get

Profits = Investment

These simple formulas, which are true for a model based upon heroic abstractions, tell us a great deal about our economy.[7] The result that profits in consumption goods production equals the wage bill in investment goods production is no more than the proposition that the price system operates so that consumption goods are rationed by price among various consumers. It also asserts that workers in consumption goods production cannot buy back what they produce; if they did then workers in investment goods production would starve.

The "profits equal investment" result is based upon the identity that profits in investment goods production equal profits in investment goods production. To improve upon this tautology it is necessary to integrate the financing of investment goods production into the model of price determination. Investment output is often special purpose and produced to order. The production of an investment good usually takes time and in the case of modern investment output—let us take a jumbo jet plane or a nuclear power plant as our examples—production often takes the form of a sequenced assemblage of specialized components. The production of investment goods typically involves money being spent on a dated schedule and a receipt of money when the investment good is finished and it becomes a capital asset. In the construction industry this payment sequence takes the form of interim or construction financing while the project is being built and permanent or take out financing for the completed project.

In investment production the funds used are often borrowed. When borrowed funds are used both the borrower and lender alike expect sales proceeds to be sufficient to cover payment of the debts with a margin of safety. Given the contingencies that can arise the margins of

[7] The proposition about profits and investment is by Kalecki. See M. Kalecki, "Selected Essays on the Dynamics of the Capitalist Economy 1933–1970." Cambridge: Cambridge University Press, 1971.

safety required by borrowers and lenders can be large. Thus it is the financing conditions for investment in process—and the recognition that owned funds must yield what could be earned in financing other endeavors—that lead to the value of investment exceeding out of pocket labor cost. To the extent that labor costs represents all current costs (purchased materials, etc.) the supply price of investment output is given by a markup on wage costs where the markup reflects interest charges and the margins of safety required by lenders and borrowers.

The supply price of investment goods depends upon conditions in financial markets and various protections desired by producers and lenders. If production takes time and lenders and borrowers recognize that they live in an uncertain world and therefore want protection then the relative prices of different outputs depend upon particular financing terms and protections desired by borrowers and lenders.

It is worth noting that the supply price of the investment goods produced during a period will be paid only if the demand price of the investment good as a capital asset is equal to or greater than the supply price of investment as output. But the demand price is the capitalized value of future profits. We therefore find that investment will take place only if the capitalized value of future profits exceeds the supply price of investment output.

The proposition that profits equal investment can be opened up to allow for demands for consumption goods in addition to that which is financed by wages in the production of consumption and investment goods. It is particularly important to determine how the government budget and the international accounts affect the generation of profits. We first consider only the Federal Government.

The government hires workers, buys outputs and pays transfers. Government spending is equal to the sum of the wage bill for government employees, purchases from private industry and transfer payments (including interest on government debt). As government purchases equals a wage bill and profits, government spending equals the sum of direct and indirect wages, profits on government contracts and transfer payments.

The government collects taxes. For simplicity we assume that all taxes are income taxes and that tax receipts—the tax take—are a percentage of the total wage bill plus a percentage of profits.

The government budget posture is the difference between government spending and the tax take. If the government budget is integrated into the determination of profits we find that

After Tax Profits = Investment + The Government Deficit.

This result is critical in understanding why we have not had a deep depression in the postwar period.

An implication of the result that after tax profits equal investment plus the deficit is that taxes on profits do not affect after tax profits unless such taxes affect the sum of investment and the deficit. However, a shift in taxes from wages to profits can be inflationary. The rise in disposable wage income raises demand and the rise in profit taxes will increase the pre-tax profits needed to achieve equality with investment plus the deficit. Pre-tax profits are the product of per unit profits times

the number of units. A rise in pre-tax profits can be the result of greater output or a higher markup per unit of output. Inasmuch as the greater output response is only possible from the industries in which suppliers have market power and are willing to accept a reduction in their market power, the presumption has to be that prices in all production will tend to rise when taxes are shifted to profits.

The profit generating process can be opened up to allow for exports, imports, savings out of wage income and consumption out of profits income. Imports minus exports equals the balance of trade deficit and if we allow for exports and imports the profits equation becomes

After Tax Profits = Investment + The Government Deficit − The Balance of Trade Deficit.

This equation shows that a trade surplus is good for domestic profits and a trade deficit is bad.

Expanding our analysis to allow for savings out of wages and consumption out of profits the profits equation becomes

After Tax Profits = Investment + The Government Deficit − The Balance of Trade Deficit + Consumption Out of Profit Income − Saving Out of Wage Income.

Profits are positively related to investment, the government deficit, and consumption out of profit income and negatively related to a balance of payments deficit and savings out of wages.[8]

For the purposes of this paper the simple equation

After Tax Profits = Investment + The Government Deficit

is of central importance. To understand how our economy functions we can first explore the meaning of the simple equation and then trace out the impact upon the behavior of the economy due to the initially neglected balance of payments, savings out of wages and consumption out of profits items.

If we are to build a complete model of the economy on the basis of this profit equation, like the various econometric models used by business and government, we need to explain investment and the deficit.

Investment can be explained by interpreting the influence of expected profit flows, existing and anticipated debt servicing flows, the current prices of investment output and financial instruments and the supply price of capital assets. In addition the state of uncertainty that determines the leverage ratios for current interim and position financing needs to be considered. Leverage ratios integrate borrower's and lender's risk (uncertainty) into the determination of current output.

The deficit is the difference between government spending and the tax take. Government spending is a policy variable that takes the form of government employment, transfer payment schemes and

[8] These propositions about profits were in Kalecki, op. cit. See also Hyman P. Minsky, The Financial Instability Hypothesis: A Restatement, Thames Papers in Political Economy: Thames Polytechnic, 1978.

purchases from private industry. The tax take reflects policy decisions as to tax schedules and the operation of the economy.

Total employment (labor demand) is the sum of employment in government, investment goods production and consumer goods production. Inasmuch as government and investment goods production are given, the demand for labor in these two sectors is given. Given investment and the deficit as a schedule of the tax take, after tax profits are known. Profits in producing consumer goods are determined by subtracting profits in investment goods and in producing for government, from total profits.

Consumer goods production is carried to the point where profits in consumer goods production equals total profits minus those in investment goods production and in producing for government. We can think of two types of consumer goods production. In one type the price is fixed (profit margins per unit of output are fixed) and the output and thus employment varies. A second source of profits is from the sales and production of flexibly priced output. In this production the wage bill is fixed and the markup varies. The wage bill is divided by the preference system into spending for fixed price goods and spending for flexibly price goods. Wage income will expand by means of increased employment in fixed price outputs and this wage income will be divided between fixed and flexible-price outputs until the sum of the two types of profits in consumer goods production equals the profits to be earned in consumer goods production.[9]

If there is a deficit in the balance of trade then profits to be earned in consumption goods production need to be adjusted for the deficit (or surplus). As imports may be a function of consumption, the profits to be earned in consumption goods production may decrease as employment increases. Similarly consumption out of profits and savings out of wages will affect the employment in consumer goods production associated with each level of investment plus the government deficit.

The fundamental vision in this argument is that private employment is determined by profit opportunities. The aggregate profit opportunities in the economy are in the skeletal and essential analysis determined by investment and the government deficit. Investment and government spending generate profit opportunities in specific production, and wage income (or more generally consumers' disposable income) generates profit opportunities in the production of consumer goods. Unlike investment goods production, where banking considerations enforce a split of aggregate investment spending between wages and profits, profits in consumption goods production are determined by a variable markup on preestablished wage costs for flexibly priced outputs, and by variable employment and fixed markups for fixed price outputs. The preference systems of households determine how each level of aggregate employment (and total wage bill) is related to profits earned in industries characterized by flexible and fixed prices.

[9] In sundry recent writings J. R. Hicks has been making much about fixed and flexible price outputs. See The Crisis in Keynesian Economics, Basic Books, 1974.

VI. Profit Determination and the Validation of the Financial Structure

Profits are the cash flow that do or do not validate any particular structure of business debt. The expected level and stability of profits determines the debt structure that businessmen, their bankers, and the ultimate holders of the economy's assets will accept. In particular in an economy where there are serious consequences to default on financial obligations the potential downside deviation of profits from expected levels is an important determinant of acceptable debt structures.

The various profit formulas we have identified:

(1) Profits = Investment

(2) After Tax Profits = Investment + the Government Deficit

(3) After Tax Profits = Investment + the Government Deficit − the Balance of Trade Deficit

(4) After Tax Profits = Investment + the Government Deficit − the Balance of Trade Deficit + Consumption Out of Profit Income − Saving Out of Wage Income

are important in determining the currently acceptable debt structure and thus the current debt financing of demand, for they define the potential stability of profits. Each of Equations 1 through 4 represents a different structure of the economy and each structure will have a different expected behavior of profits over time.

The first case, Profits = Investment, represents a closed economy with a small government, an impoverished labor force and a "puritanical" and efficient business class which constrains its consumption, in order to preserve and augment its capital, and runs a "tight ship" insofar as business overheads are concerned. In such an economy the amplitude of fluctuations in profits will be the same as the amplitude of fluctuations in investment.

The second case represents a closed economy with a substantial government in the sense that the in-place government spending and taxing schedules can lead to government deficits that are significant in relation to investment. If such government deficits are negatively correlated with investment, then the amplitude of the variations in after tax profits will be substantially smaller than the amplitude of fluctuations in investment.

The third case represents an open economy with a big government. In such an economy the flow of profits depends upon the course of the balance of trade as well as the course of investment and the government deficit. This indicates that the mercantilist perception—that a favorable balance of trade is good for an economy—has merit.

The fourth case represents an open economy with big government in which workers' income is high and stable enough so that workers can save and finance consumption through debt, and in which the administrative structure of business is bureaucratized and expensive so that a large part of profits is assigned to paying salaries and financing ancillary activities such as advertising. Salaries and advertising,

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in turn, finance consumption. Today's American economy is of this type.

In a closed economy with a small government (the first case) the ability of debtors to validate the debt structure by profit flows depends upon current investment. The use of debt to finance positions in capital assets is constrained by the expected volatility of investment. As investment depends upon the availability of external finance and short term financing is available on favorable terms (because of asset preferences and the institutional (banking) structure), fluctuations in financing terms and in profit expectations will lead to fluctuations in investment and in the validation of debts: an economy of the first type will tend to be cyclically unstable. The evolution of financial markets which facilitate the use of short term debt tends to build liability structures which can be sustained only if total investment increases at a rate that cannot for long be sustained. Frequent mild recessions and periodic deep depressions occur in such an economy. During recessions and depressions, payment commitments on the inherited debt structure are decreased through contract fulfillment, default or refinancing.

The first case can be interpreted as representing the American economy before the Roosevelt era reforms and the Great Depression. The total federal government budget was small relative to the gross national product; working class savings were tiny and business was mainly entrepreneurial rather than highly bureaucratized. In these circumstances the volatility of investment was transformed into the volatility of the cash flows that enable business to validate debts. Whenever profits decreased hedge finance units became speculative and speculative units became Ponzi. Such induced transformations of the financial structure lead to falls in the prices of capital assets and therefore to a decline in investment. A recursive process is readily triggered in which a financial market failure leads to a fall in investment which leads to a fall in profits which leads to financial failures, further declines in investment, profits, additional failure, etc. This process was well described by Irving Fisher in 1933 and economists of the early thirties were aware that such a mode of operation was likely to occur.[10] The Federal Reserve System owes its existence to a felt need for a lender of last resort to prevent such cumulative deflationary processes from operating.

The second case can be considered as the essential or skeletal relation for an economy in which government is so big that the changes in the deficit can offset the effect of swings in investment on profits. In particular if spending increases and revenues decrease when investment falls, then the flow of profits will tend to be stabilized. In such an economy if a financial disturbance leads to changes in acceptable financing terms the resulting fall in investment will lead to a fall in profits. This fall in profits will lead to shifts in inherited financial postures, so that the weight of speculative and Ponzi finance in the financial structure increases. This in turn leads to a further fall in asset prices and investment. However, as this is going on tax receipts decrease and government spending (today largely transfer payments) increase, i.e., the deficit increases. Whereas the decline in investment

[10] Irving Fisher, "The Debt Deflation Theory of Big Depression," Econometrica (I) 1933.

tends to lower profits the rising deficit tends to increase profits. The downside potential for profits is diminished. With profits sustained and increased by the government deficit, the shift of the debt structure towards increased weight of speculative and Ponzi finance ceases and is reversed. With gross profit flows stabilized, the reduction, funding and otherwise restructuring of outstanding debts proceeds.[11]

In standard economic analysis the emphasis is upon how government spending affects aggregate demand and thus employment. Thus in the standard formulation, $Y=C+I+G$, the effects of government spending increasing and taxes decreasing would be felt in higher C, I and G, leading to greater employment than would have ruled if government was small. In the analysis just sketched this income and employment effect of government is reinforced by a profits effect of government, especially big government.[12]

Much has been written of stabilization policy. The question that needs to be addressed is "What is it that needs to be stabilized if a threat of a recession/depression is to be contained and if a cumulative decline is to be halted?" The proposition that follows from the argument is that profits have to be stabilized in the sense that the downside variability of profits must be constrained. Big government and the deficits which can occur in an economy with big government are important in stabilizing the economy because they stabilize profit flows.

It should be noted that this stabilizing effect of big government has destabilizing implications in that once borrowers and lenders recognize that the downside instability of profits has decreased there will be an increase in the willingness and ability of business and bankers to debt-finance. If the cash flows to validate debt are virtually guaranteed by the profit implications of big government then debt-financing of positions in capital assets is encouraged. An inflationary consequence follows from the way the downside variability of aggregate profits is constrained by deficits.

The third type of economy is an open economy with a big government. For the balance of payments deficit to be a significant determinant of the course of profits the level of exports or imports must be of the same order of magnitude as investment. If profits determine the willingness of domestic producers to invest and the ability of investors to debt finance then a favorable balance of trade will make for a rapidly developing economy. It should also be noted that an economy whose domestic profits depend upon a large balance of trade surplus is very vulnerable to whatever may cause a reversal of its surplus.

In some ways the Japanese economy is an example of a highly vulnerable open economy. Japanese manufacturing businesses use a great deal of debt financing and export a large proportion of their output. Any reversal of the Japanese balance of trade surplus, unless it is

[11] It is estimated that in the current (1980) United States economy, each percentage point increase in the measured unemployment rate is associated with a $27 to $30 billion increase in the deficit. Thus if the prospective budget is balanced at a 7 percent unemployment rate a 10 percent unemployment rate will be associated with a deficit of $80 to $90 billion even if Congress takes no expansionary tax or spending actions.

[12] The econometric models used in forecasting by the various government departments and private forecasting services are built in $Y=C+I+G$. Once this base is selected then financial considerations can only play a peripheral role in determining system behavior. As far as I know debts, and the need of profits to validate a debt structure and the market price of assets, are not integrated into the structure of existing forecasting and simulation models in any essential way. Such models are at best relevant to an era of financial tranquility like that which ruled in 1946–65.

accompanied by a burst in the government deficit, will lead to failures to validate debt.[13]

It is worth noting that the profit equation of an open economy with small government is

(3a) Profits = Investment − The Balance of Trade Deficit

In such an economy any sharp rise in the balance of trade deficit—or a decrease in the surplus—will lead to a deterioration of profits and the possibility of a deterioration of the financial structure.[14]

Although the fourth case is the most realistic statement of the profit determining relations for the American economy, data on the ratio of savings to wages and consumption to profits are not available. While this is a useful framework for analyzing the behavior of the American economy, its content depends to a large extent upon interpreting consumption out of profit income as largely due to the allocations of profits to salaries, research, advertising and "business style" expenditures. What the full fourth case emphasizes is that the allocation of profits to consumption follows from the building of a bureaucratic business style, which, like inherited debt, may lead to current period "uncontrolled" expenditures.

VII. Some Data

To understand why our economy has behaved differently since 1946 than it did prior to 1939 we have to appreciate how the broad contours of demand have changed. In order to understand why our economy has behaved differently since the middle 1960s than it has earlier in the post-World War II epoch we have to appreciate how the broad contours of the financial structure have changed. The changes in the broad contours of demand have changed the reaction of aggregate profits to a change in investment and therefore have changed the cyclical behavior of the ability of business to validate its debts. The changes in the financial structure have increased the proportion of speculative and Ponzi finance in the total financial structure and therefore increased the vulnerability of the financial system to refinancing and debt validating crises. As a result since the middle 1960s there has been an increased need for Federal Reserve lender of last resort interventions and for contracyclical fiscal policy by which government deficits sustain business profits.

The Broad Contours of Demand

The great contraction of 1929–1933 took place in an environment of small government. In the prosperity year of 1929 gross national product was $103.4 billion and total Federal Government expenditures, combining both the purchases of goods and services and transfer payment to persons, were $2.6 billion. In the same year investment was $16.2 billion. In 1933, the year in which the great contraction bottomed out and in which the New Deal was started (Roosevelt was elected in November 1932 and took office in March 1933) gross national product was $55.8 billion and total Federal Government expenditures were $4.0 billion. Investment was $1.4 billion in 1933.

Recall that profits equal investment plus the deficit. There is no way a Federal Government that spent $4.0 billion in total can offset by its deficit the effect on business profits of a $14.8 billion drop in private investment. In 1929 business gross retained earnings were $11.7 billion. In 1933 they were $3.2 billion. Inasmuch as the debts of 1933 were largely a legacy of earlier years, the financial problem of business was to meet the payment commitments on debts entered into in prosperous years by cash flows generated by recession incomes.

With investment at $16.2 billion and a government of $2.6 billion there was no way an automatic or semi-automatic response of government spending or taxation could offset the drop of investment. Between 1929 and 1933 gross investment fell by $14.8 billion (from $16.2 to $1.4 billion) and government expenditures rose by $1.4 billion (to $4.0 from $2.6 billion). Business Gross Retained Earnings—a measure of the internal funds available to finance investment and meet payment commitments on account of the principal amount due on debts—fell from $11.7 billion in 1929 to $3.2 billion in 1933.

The recession of 1973–75 was the longest and deepest recession of the postwar period. Of course it is not at all comparable to the great contraction of 1929–33, but it is the best we can do for comparative purposes. This contraction took place in the context of big government. In 1973 gross national product was $1306.6 billion and total Federal Government expenditures were $265.0 billion. Federal Government expenditures were some 20.3 percent of gross national product. Investment in 1973 was $220.6 billion.

The behavior of investment, government expenditures and profits over the 1973–75 recession stands in sharp contrast to the 1929–33 behavior. In terms of the index of industrial production the drop from 125.6 in September 1974 to 109.9 in May of 1975 was very steep indeed; the rise in unemployment from about 5 million in July of 1974 to a peak of 8.25 million in May of 1975 was a great shock to the nation—within a year the unemployment rate jumped from the neighborhood of 5 to 9 percent. In spite of the steepness of the decline in industrial production, Business Gross Retained Earnings increased substantially between 1973 and 1975. Between 1973 and 1975 gross investment fell from $220.2 billion to $190.9 billion—a decline of some $29.3 billion. Over the same years government expenditures rose from $265.0 billion to $356.8 billion (mainly but not exclusively in transfer payments), a rise of $91.8 billion. As a result, in spite of the rise in unemployment rates and the substantial decline in industrial production, business gross retained profits rose from $140.2 billion in 1973 to $176.2 billion in 1975—a rise of $36 billion or 25.7 percent.

The budget deficit rather than government spending enters the profit equation. In 1929 the Federal Government ran a surplus of $1.2 billion and in 1933 the deficit was $1.3 billion, a swing of $2.5 billion or 2.4 percent of the 1929 Gross National Product. In 1973 the deficit was $6.7 billion, in 1975 it was $70.6 billion, an increase of $63.9 billion; the swing in the deficit was 4.7 percent of GNP. But more important

[13] This is what happened in 1974–75. The rise in the price of oil and the recession in the United States led to an enormous deficit in Japan's trade balance and a wave of business failures. The Japanese economy was inflated out of that crisis.

[14] The Smoot-Hawley tariff led to change in the balance of payments of many countries with small government and therefor exacerbated the developing international depression. While Smoot-Hawley was not the cause of the Great Depression it was a factor that amplified what, even so, was a large downturn.

the swing in the deficit of $60.7 billion more than compensated for the swing in investment of $29.3 billion.

In standard policy analysis the impact of big government and the government deficit on profits and therefore on the ability of business to fulfill its financial liabilities is overlooked. If business cannot meet its commitments on debts then the financing loop, by which funds are made avialable to business, is broken. Furthermore if the rate at which business fails to meet its obligations increases then the risk premiums that enter into the calculations of business and financial organizations increases. If profits are sustained and increased even as business investment falls then the balance sheets of business are improved at a rapid rate. The quick recovery from the decline of 1973–75 can be in good measure imputed to the enormous government deficit. If in 1973–75 the Congress and the Administration had tried to hold back the explosive growth of the deficit then the recession would have been deeper and longer, and the rate of inflation would have been much lower in 1979 and 1980 than in fact it is.

TABLE I.—GROSS NATIONAL PRODUCT AND ITS MAJOR COMPONENTS, SELECTED YEARS 1929 THROUGH 1979

[In billions of dollars]

Year	Gross national product	Consumption	Investment	Government purchase			Transfer payments to persons	Exports	Federal Government expenditures	Business gross retained earnings
				Total	Federal	State and local				
1929	103.4	77.3	16.2	8.8	1.4	7.4	0.9	7.0	2.6	11.7
1933	55.8	45.8	1.4	8.3	2.1	6.2	1.5	2.4	4.0	3.2
1939	90.8	67.0	9.3	13.5	5.2	8.3	2.5	4.4	8.9	8.8
1949	258.0	178.1	35.3	38.4	20.4	18.0	11.7	15.9	41.3	31.4
1959	486.5	310.8	77.6	97.6	53.9	43.7	25.2	23.7	91.0	58.5
1969	935.5	579.7	146.2	207.9	97.5	110.4	62.7	54.7	188.4	101.7
1973	1,306.6	809.9	220.2	269.5	102.2	167.3	113.5	101.6	265.0	140.2
1974	1,412.9	889.6	214.6	302.7	111.1	191.5	134.9	137.9	299.3	137.9
1975	1,528.8	979.1	190.9	338.4	123.1	215.4	170.6	147.3	356.8	176.2
1979	2,368.5	1,509.8	386.2	476.1	166.3	309.8	241.9	257.4	508.0	276.0

Source: Economic Report of the President January 1980, table B1 p. 203, except Government transfer payments to persons table B18 p. 223, Federal Government expenditures, table B72 p. 288, and gross retained earnings, table B8 p. 213.

TABLE II.—GROSS NATIONAL PRODUCT AND ITS MAJOR COMPONENTS, SELECTED YEARS 1929 THROUGH 1979

[As a percentage of gross national product]

Year	Gross national product	Consumption	Investment	Government purchase			Transfer payments to persons	Exports	Federal Government expenditures	Business gross retained earnings
				Total	Federal	State and local				
1929	100.0	74.8	15.7	8.5	1.2	7.2	0.1	6.8	2.5	11.3
1933		82.1	2.5	14.9	3.8	11.1	2.7	4.3	7.2	5.7
1939		74.2	10.3	15.0	5.8	9.2	2.8	4.8	9.8	9.7
1949		69.0	13.7	14.9	7.9	7.0	4.5	6.2	16.0	12.2
1959		63.9	16.0	20.1	11.1	9.0	5.2	4.9	18.7	12.0
1969		62.0	15.6	22.2	10.4	11.8	6.7	5.8	20.1	10.9
1973		62.0	16.9	20.6	7.8	12.8	8 7	7.8	20.3	10.7
1974		62.9	15.2	21.4	7.9	13.5	9.5	9.8	21.2	9.8
1975		64.0	12.5	22.1	8.1	14.1	11.2	9.6	23.3	11.5
1979		63.7	16.3	20.1	7.0	13.0	10.2	10.9	21.4	11.7

Source: Table I.

The Broad Contours of the Financial Structure, 1950–1975

In order to understand why our economy has been much more unstable in the years since the mid-1960s than earlier in the postwar

era we have to examine the changes in the financial structure. An exhaustive and in detail study of the evolution of the United States financial structure that uses the analytical foundation of this paper would be useful; however this paper is not the place for it.

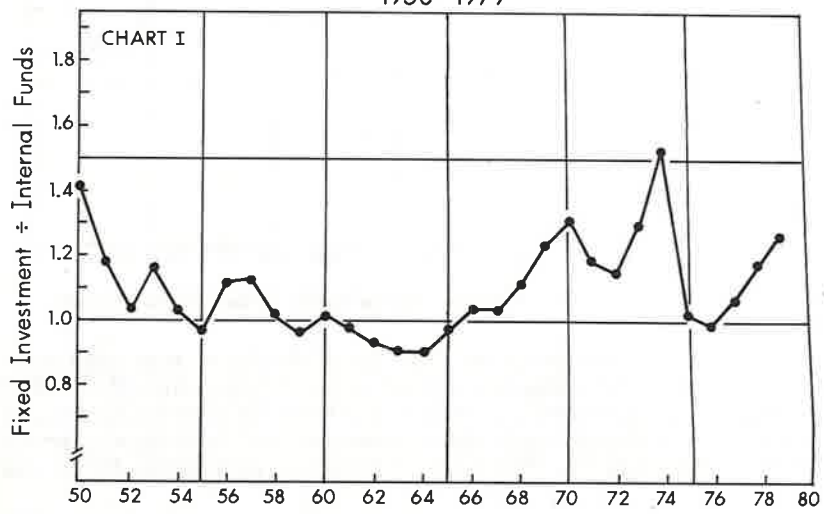
A thorough research study should examine the changing composition of the assets and liabilities of the various sectors and the implications of this changing structure, as well as changes in financing terms, for the cash flows of the various sectors of the economy. The cash flow structure due to liabilities need then be integrated with the cash flow from assets and the various cash flows due to income production. In particular the changing relations between cash receipts and payment obligations and between payment obligations and the margins of safety need be understood.

In the absence of such a thorough study we will examine some time series for nonfinancial corporations, households and commercial banking—the three sectors that would constitute a simple economy with finance. The sectors and the data are from the Board of Governors Flow of Funds Accounts.

Non-Financial Corporations

In Chart I the ratio of Gross Fixed Investment to Gross Internal Funds for nonfinancial corporations for the years 1950–1979 is shown. The data on this chart show the extent to which fixed investment was being financed by gross internal flows and the extent to which there was a dependence on external funds. The evidence from the first fifteen years shows a mild cycle in this ratio, along with a downward trend. Ignoring 1950, the maximum ratio was 1.15 in 1951. If we look at the years 1958–1967 we see that fixed investment was at a maximum 1.05 of internal funds and in 6 of the 10 years fixed investment was less than internal funds.

Non Financial Corporations
Fixed Investment ÷ Internal Funds
1950 - 1979

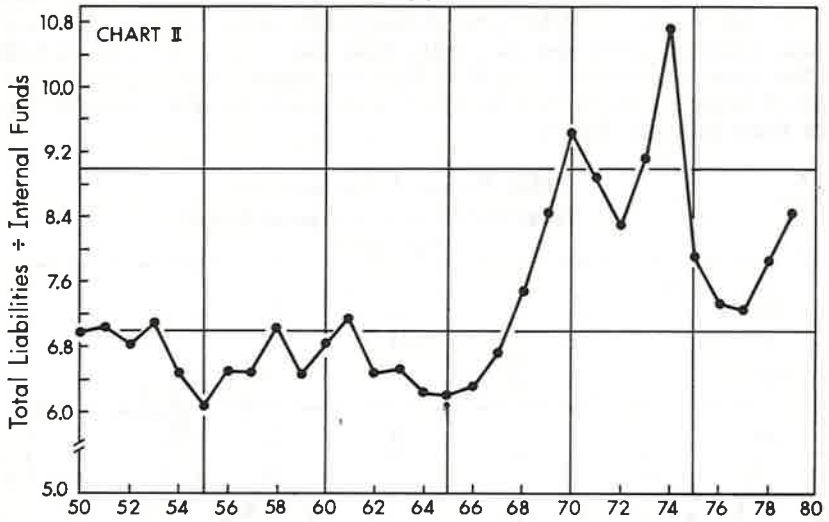


Source: Board of Governors Federal Reserve System – Flow of Funds Accounts

In the years since 1967 this ratio has exhibited both increasing fluctuations and an apparent strong upward trend. The cycles of the period show up strongly in this series. In 1970 the ratio hit 1.30 and dropped to 1.15 in 1972. In 1974 the ratio was greater than 1.5 and in 1975 it barely exceeded 1.0, in 1976 it dropped below 1, and it exceeded 1.25 by 1979. The time series on Fixed Investment/Internal Funds indicates that there was a change in the mode of operation of the economy in the mid-1960s. Prior to the mid-1960s corporations seem to have been internally financing their fixed investment whereas the data indicate that there was an increased dependency on external finance after the middle 1960s.

Chart II measures the ratio of Total Liabilities to Internal Funds of nonfinancial corporations. This chart is indicative of the trend of payment commitments of business on account of debt relative to the funds available to pay such debts. The liabilities are a proxy for the payment commitments; of course the length to maturity of the liabilities and the interest rate on the liabilities would determine the cash flows required per period. Furthermore the internal fluids should be augmented by interest and dividends paid to get a measure of gross capital income after taxes, which is the true variable that measures the ability of cash flows to validate a debt structure.

Non Financial Corporations
Total Liabilities ÷ Internal Funds
1950 - 1979



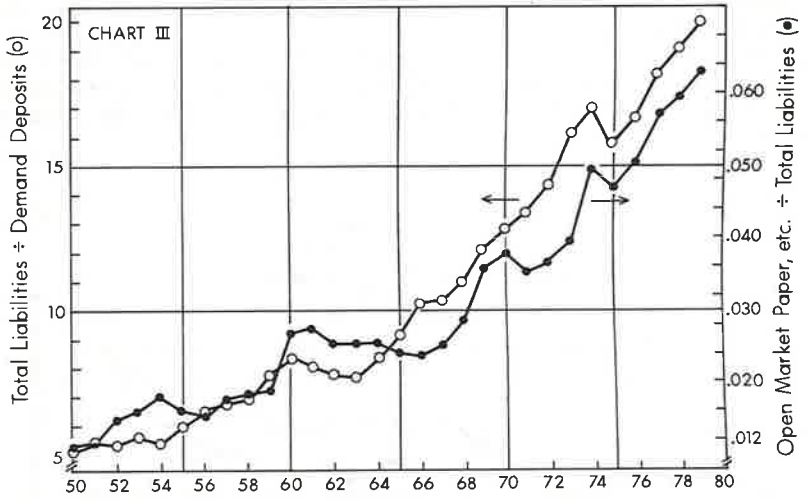
Source: Board of Governors Federal Reserve System – Flow of Funds Accounts

This crude approximation to what truly should be measured indicates that the middle 1960s saw a break in the relationships that determine this data. Up to 1967 the ratio exhibited mild fluctuation around a somewhat downward trend; since those dates the data show a strong cycle and upward trend. The ratio of liabilities to internal funds was

mainly in the range of 6.2 to 7.2 from 1950 through 1967. After 1967 the ratio began to rise and exhibit sharp fluctuation, hitting 9.4 in 1970, 8.3 in 1972 and 10.75 in 1974 before falling to 7.2 in 1977. It then increased to 8.5 in 1979. The high peaks hit in 1970 and again in 1974 indicate that at the tail end of the recent business cycle expansions the ability of business cash flows to sustain debt may well have been under pressure.

Charts I and II showed the ratio of a flow (in Chart I, gross fixed investment) and a stock (in Chart II, total liabilities) to a flow (internal funds) that is one measure of business profitability and ability to meet payment commitments. Chart III shows the time series for total liabilities divided by demand deposits and for open market paper divided by total liabilities. Both series in Chart III measure an aspect of the quality of the balance sheets of nonfinancial corporations. The liability/demand deposit ratio measures the extent to which payment commitments can be met by cash on hand if there is an interruption of cash flows in the form of gross profits. The other ratio reflects an attempt to measure the extent to which business is financing its activities by tapping volatile or exotic sources. The class "open market paper" includes commercial paper—a volatile source—and borrowings from finance companies—a generally expensive source.

Non Financial Corporations
Total Liabilities ÷ Demand Deposits and Open Market Paper, etc. ÷ Total Liabilities
1950 - 1979



Source: Board of Governors Federal Reserve System – Flow of Funds Accounts

Even though the series measure quite different variables they show a remarkably similar pattern: a rather mild upward trend in the 1960s, a pause between 1960 and 1964 or 1966, and then an upward thrust that is stronger than the thrust before the middle 1960s. The first fifteen years of the time series are quite different in the rate of growth they indicate as taking place. It is interesting to note that the break in 1974 shows up in both series.

The data presented for nonfinancial corporations indicate that something changed in the middle 1960s. The ratio of debt to internal funds, of liabilities to demand deposits, and of open market paper to total liabilities indicates that the corporate sector not only now has greater debt payments to make relative to cash flows but also that the margin of safety for debt in cash on hand has decreased, and the reliance by business on volatile and relatively uncertain sources of financing has increased. The difference between the two indicates that the liability structure of nonfinancial corporations can not only amplify but even initiate a disturbance in financial markets.

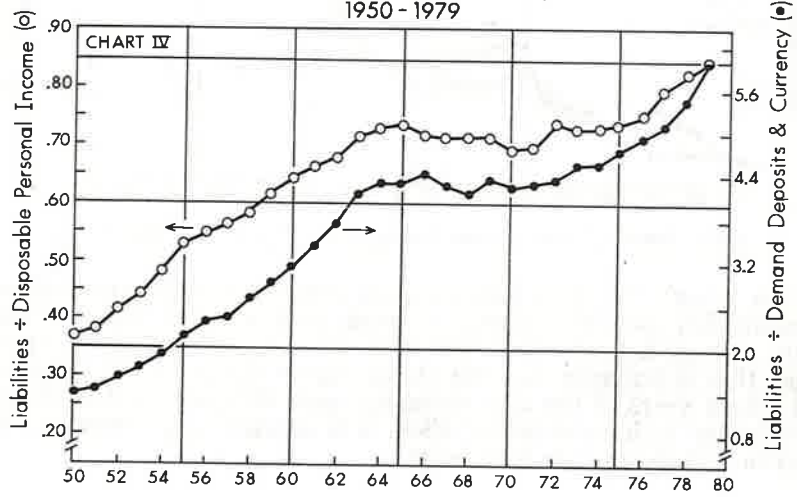
Households

The ratio of liabilities of households to income and to cash on hand (demand deposits and currency) tells a story of something changing in the middle 1970s. Once again the data examined is a proxy for the desired but unavailable data on the payment commitments due to debt.

The payment commitments on household liabilities will typically be paid by disposable personal income. Between 1950 and 1965 the ratio of liabilities to consumer disposable income increased monotonically from .37 to .74—the ratio doubled. From 1965 until 1975, this ratio fluctuated between .74 and .69. In 1976 it stood at .76, in 1977 at .80, in 1978 at .83, and in 1979 at .85. The era of financial turbulence that began in the mid-1960s saw little movement in the ratio of liabilities to disposable personal income until after the mid-1970s when the ratio resumed its rise.

As is evident from Chart IV, the ratio of total household liabilities to demand deposits and currency showed virtual parallel development to that of the ratio of household liabilities to disposable personal income.

Households
Liabilities Divided by
1. Disposable Personal Income
2. Demand Deposits & Currency
1950 - 1979



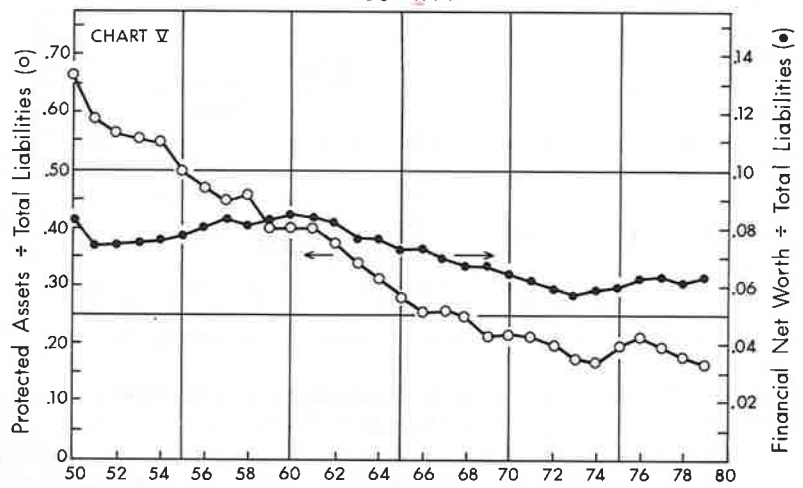
Source: Board of Governors Federal Reserve System – Flow of Funds Accounts

The data for households indicates that the turbulence of the mid-1960s to mid-1970s was not mainly due to household debt being an ever increasing burden. The rise in the ratios in the late 1970s can be interpreted as a reaction to inflationary expectation; however if it is so interpreted then it took a long period of inflation combined with instability to affect expectations.

Commercial Banking

The data for Commercial Banking does not show the sharp changes in the mid-1960s that are so striking for both nonfinancial corporate business and households. In Chart V it is evident that the ratio of financial net worth to total liabilities rose through the 1950s reaching a peak in 1960 and then began a decline which with few interruptions lasted until 1973. The evidence indicates that the difficulties of 1974–75 led to a rise in the ratio, which seems to have been transitory.

Commercial Banking
Financial Net Worth and Protected Assets
as Ratio to Total Liabilities
1950 - 1979



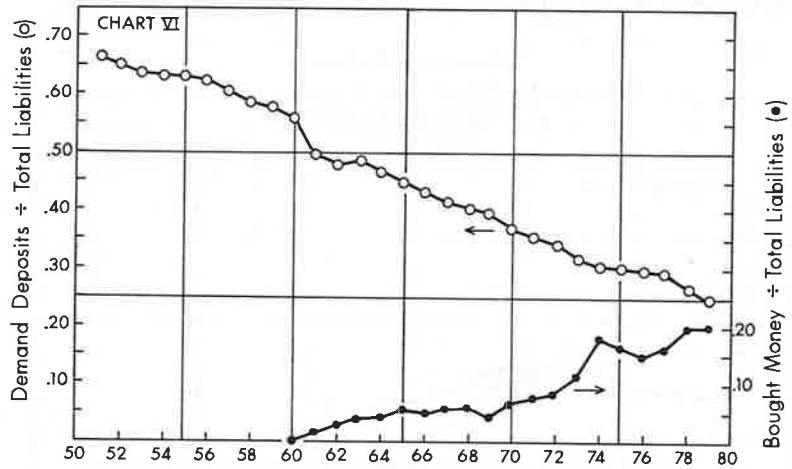
Source: Board of Governors Federal Reserve System – Flow of Funds Accounts

The ratio of protected assets [U.S. government securities, vault cash and member bank reserves] to total liabilities—also in Chart V—shows a steady decline from 1950 to 1974. It appears as if there was a slight decrease in the steepness of the decline in the mid-1960s. The banking trauma of 1974–75 shows up in the rise of protected assets relative to liabilities.

In Chart VI two ratios—that of demand deposits and bought money to total liabilities—are exhibited [brought money is the sum of large negotiable certificates of deposit, deposits at foreign banking offices, Federal funds, security repurchase agreements and open market paper]. The ratio of demand deposits to total liabilities showed a

steady decline from almost .70 to .25 over 1950–1979. The behavior of demand deposits relative to total liabilities is striking evidence of the change in the character of banking that has taken place in the postwar period. In the beginning of the postwar era the commercial banking system mainly owned protected assets and it financed these asset holdings by demand deposits. In recent years the commercial banking system's ownership of protected assets has fallen to below 20 percent of total liabilities even as its demand deposits have fallen to about 25 percent of liabilities. Today the commercial banking system mainly holds private debts and it finances this ownership by liabilities other than demand deposits.

Commercial Banking
Demand Deposits and Bought Money ÷ Total Liabilities
1950 - 1979



Source: Board of Governors Federal Reserve System – Flow of Funds Accounts

Beginning in 1960—and at an accelerating rate after 1969—bought money in the form of large negotiable certificates of deposit (CDs), deposits at foreign banking offices, Federal funds purchased, security repurchase agreements and open market paper became significant bank liabilities. Of these liabilities, deposits at foreign banking offices existed throughout the postwar period but they were a trivial fraction of total commercial bank liabilities in the early years.

The introduction and rapid growth of negotiable CDs after 1960 marked the introduction of bought money and liability management as a significant factor in banking. Since then there has been a virtual proliferation of instruments only a few of which can be identified in the flow of funds data. For example the flow of funds data do not enable us to isolate bankers' acceptances or the money market rate time deposits at commercial banks. Nevertheless even with this truncated list, by 1959 bought money was virtually as significant as demand deposits as a source of bank funds.

VIII. The Answers to the Initial Questions

Our analysis leads to a result that the way our economy functions depends on the level, stability and prospects of profits. Profits are the lure that motivates business and they are the flow that determines whether decisions taken in the past are apt in the light of the way the economy is functioning now. The flow of aggregate profits is the link between the past and the present and the lure of future profits determines the flow of current profits.

The quest for profits has a side effect in that investments result in capital assets and the capital assets that come on stream determine the changes in the production process that are available to produce output. Thus the aptness of the details of the investments undertaken determines the course of useful productive capacity and changes in the ratio of useful output to labor used, i.e., productivity. If on the whole investment is apt then the improvement in techniques that result yield a large enough margin over labor costs to induce sufficient investment to sustain profits. If the incremental outputs—or the outputs that are produced with the inherited capital stock—are not apt then the flow of profits will be attenuated. This tends to decrease investment. Similarly as the foreign balance deteriorates or the savings ratios of households increase the flow of profits decreases. A decrease in the flow of profits can start a recursive process that decreases total investment, profits, etc.

In our current "big government" capitalism, this recursive process is soon halted by the impact of government deficits in sustaining profits. Whenever the deficit explodes (as in 1975 II) the aggregate flow of profits to business increases. Investment turns out to be profitable even if the investments that come on stream are inept. The impact on profits of the deficits that big government generates can override the failure of investments to increase the productivity of labor; big government is a shield that protects an inefficient industrial structure. When aggregate profits are sustained or increased, even as output falls and the ratio of output to man hours worked does not increase, prices will rise. Thus the generation of sustained and rising profits by government deficits is inflationary whereas rising profits that are due to increases in output when labor productivity increases relative to money wages can be associated with falling prices.

Thus the current policy problem of inflation and declining rates of growth of labor productivity are not causally related but rather they are the result of a common cause, the generation of profits by means of government deficits where the government deficits do not result from spending that leads to useful output.

The answer to the first question—why haven't we had a great or even serious depression since 1946?—is that our big government that is in place has made it impossible for profits to collapse as in 1929–1933. As the government deficit now virtually explodes whenever unemployment increases business profits in the aggregate are sustained. The combined effects of big government as a demander of goods and services, as a generator—through its deficits—of business profits and as a provider to financial markets of high-grade default-free lia-

bilities when there is a reversion from private debt means that big government is a three way stabilizer in our economy and that the very process of stabilizing the economy sets the stage for a subsequent bout of accelerating inflation.

There is a second reason for our not having a serious depression since 1946. Once the interrelations involved in financing a sustained expansion led to the emergence of a fragile financial structure in the mid-1960s, the Federal Reserve has intervened strongly as a lender of last resort whenever a financial crisis threatens. This intervention by the Federal Reserve both helps stop the plunge to a deep depression and assures that the subsequent recovery from the rather mild depression that does take place will be inflationary.

The shift from the tranquil progress of 1946–65 to the turbulence of recent years is mainly due to the change in the financing relations of business, households and financial institutions. At the end of World War II the financial structure that was a legacy of war finance and the portfolio preferences that reflected the great depression led to a regime of conservation finance. There is no way that a financial crisis could develop in an economy in which bank protected assets, mainly U.S. Government debt, were 60 percent of total liabilities. Similarly household and business balance sheets and liability-income relations were such that business could readily fulfill its payment commitments.

The analysis indicates that stagflation is the price we pay for the success we have had in avoiding a great or serious depression. The techniques that have been used since the mid-sixties to abort the debt-deflations have clearly been responsible for the stepwise acceleration in the inflation rates. The argument we have put forth indicates that stepwise accelerating inflation has been a corollary of the validation of an inept business structure and poorly chosen investments by government deficits and thus inflation has been associated with a decline in the rate of growth. The continuing taut liability structures due to the ever greater reliance on debt has led to the shortening of business horizons. The very turbulence of the economy operates against prudent investment and finance. The general economic tone since the mid-sixties has been conducive to short-run speculation rather than to the long-run capital development of the economy.

The final conclusion that emerges is that the problems as evident in the American economy since the mid-1960s are not due to vagaries of budget deficits or to errors in controlling the money-supply: the problems reflect the normal way our type of economy operates after a run of successful years. If we are to do better it is necessary to reform the structure of our economy so that the instability due to a financial structure heavily weighted with debt is diminished.

UNDERSTANDING MONETARY POLICY: THE ROLE OF RATIONAL EXPECTATIONS

By William Poole

Business cycle theory and financial market theory have been revolutionized over the past ten to twenty years by the introduction of the rational expectations hypothesis. While it is not yet clear how much of the Keynesian business cycle theory dating from the 1930s will survive, it is clear that few of those who still view themselves as Keynesians have been untouched by the rational expectations revolution. Some of the ideas from this revolution are so obviously correct that the Keynesian theory must at least be modified in important ways.

In contrast to business cycle theory, where the theoretical debate is vigorous and heated, financial market theory is now dominated by the application of the rational expectations hypothesis. Practically all theorists and many practitioners accept the validity of the rational expectations hypothesis applied to financial markets; the basic hypothesis is accepted although there is on-going debate over whether there are certain relatively small departures from a strict version of the hypothesis.

The purpose of this study is to provide a non-technical exposition of the rational expectations hypothesis and especially of its applications to business cycle theory and monetary policy. For reasons made clear below, the business cycle theory built on the rational expectations hypothesis has come to be called "equilibrium" theory and that rather non-descriptive term will be used in this study.

The concept of rational expectations is introduced in the first section and its application to financial markets explained. Section II contains a simple discussion of the older Keynesian views on business cycles and government counter-cyclical policy. Next, in section III, is an overview of economic policy in a rational expectations context with some simple and non-controversial illustrative examples. Later sections treat the application of these ideas to the explanation of business cycle fluctuations and to policy disputes concerning the proper role of government in reducing these fluctuations.

I. Rational Expectations in the Speculative Markets

Prior to the seminal paper by John Muth in 1961, "Rational Expectations and the Theory of Price Movements," [1] most economists shared the popular view that speculative markets were semi-irrational casinos beset by speculative bubbles and waves of optimism and pessimism. J. M. Keynes, in a colorful and widely-quoted passage, shared that view:

[1] Econometrica 29 (July 1961), 315–35.