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The Potential for Financial Crises

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by

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"The Potential for Financial Crises"

I. Introduction

The title The Potential for Financial Crises can be interpreted as signalling a discussion of the current (late 1982) status of our economies or an analysis of the determinents of the potential for crises. The former interpretation leads to a review of the current weak spots in the national (U.S.) and international economy, whereas the latter requires us to examine what there is about capitalist economies that makes an "embryonic" financial crisis occur with some regularity and how such "embryos" can be aborted. Therefore, the title leaves me with an option. What follows will lean towards the development of a theory of financial crises in an open economy with the institutional structure that now rules. However, this exercise in theory will be related to stylized facts about our economies in this epoch.

I will first examine the determinants of the potential for financial crises within a closed economy that has institutional features like the United States. At this stage financial instruments that cross national lines will be ignored. I will then expand the domain to include international financial connections. This initial emphasis upon a closed "United States" makes sense, even in the context of an argument that looks towards an examination of the stability of the international financial structure, because the United States dollar is the dominant currency of denomination for international debts.

II. Stylized Facts about Financial Crises

To develop a theory to explain the potential for financial crises and why the potential may not lead to a realized crisis we need to agree on what has to be explained. What we have to explain is the emergence of intermittant

threats of financial crises since the mid 1960's after a lengthy period in which such threats did not occur.

Since the middle 1960's we have experienced the following embryonic financial crises:

1) The Credit Crunch of 1966

2) The Penn Central/Commercial Paper liquidity squeeze of 1969/70

3) The Franklin National/Commercial bank Real Estate Investment debacles of 1974-75

5) The summer and autumn of "82" with continuing perils of the thrifts, the drama of "the Mexico's," problems of domestic banking (of which Penn-Square is a dramatic example) and widespread deterioration of corporate financial strength.

Each episode is associatd with (1) the Federal Reserve fighting inflation by taking steps to constrain monetary growth (2) financial innovations that, for a time, offset the impact on the flows of credit of Federal Reserve acts aimed to contrain inflation, (3) a threatened financial crisis and (4) Federal Reserve intervention (as a lender of last resort), which aborts the embroyonic financial crisis.

The first twenty years after World War II were an era of financial tranquility and economic expansion. During these years the Federal Reserve (and other Central Banks) did not need to intervene as a lender of last resort. Since 1966 a pattern has developed in which accelerating inflation leads to Federal Reserve efforts to constrain growth of the money supply. This results in a credit crunch, liquidity squeeze, financial debacle or what, i.e., a breakdown of financing and refinancing through normal channels either takes place or seems imminent. This, in turn, leads the Federal Reserve to intervene as a lender of last resort by either refinancing endangered units on concessionary terms or announcing that such refinancing is available. In as

much as the breakdown of market refinancing takes place because "high" interest rates weaken financial structures, the Federal Reserves accompanies its spot interventions to refinance particular organizations with general market interventions that increase the availability of credit through ordinary financing channels. In the aftermath of a crisis the Federal Reserve abandons monetary constraint and shifts to accommodating market needs.

An apparent change in the economy's behavior took place in the mid 1960's, which was related to changes in underlying financial relations. These underlying conditions, which determine whether financial tranquility (such as ruled between 1946 and 1965 or so) or financial turbulence (such as has ruled since 1966) dominates, are the cash flow commitments in the debt structure.

United States economic histosry since 1966 can be represented by a six stage cycle: 1) accelerating inflation, 2) monetary fiscal constraint leading to a financial-crisis, 3) a sharp downturn, 4) intervention, 5) a bottoming out and 6) recovery.[1] The liability structures that are conducive to the periodic emergence of a financial crisis still exist and the capacity to innovate in finance, that makes for inflationary expansions, is still in place.[2] We must emphasize that the prerequisites for "cycles with crises" are in place.

There is a coincidence in time that is really not a coincidence, once financial relations are integrated into the theory of system behavior. Since 1966 staflation, as well as financial and economic turbulence have "characterized" the economy's performance. In good part the inflation has been fueled by financial innovations. The climate for such innovation is favorable partly because lender of last resort interventions by the Federal Reserve have effectively containt the "downside systemic risks" from exposed financial

positions. A Federal Reserve policy dilemna is to effectivley increase the downside risk from financial adventuring without simultaneously taking unacceptable risks that a serious or even a run away, systemic debt 'deflation' will be triggered.

III. Robust and Fragile Financial Structures

Our economy is a capital using capitalist economy with a complex and evolving financial structure. As such there are two sets of interrelated linkages among our yesterdays, today and tomorrows. One set is the relations among the capital stock, investment and profits; the second set is the commitments stated in the outstanding financial instruments and those being created. Linkages between the two sets of interrelations are found in the way financial instruments finance investment spending and affect asset prices and in the relation between business profits and the validation of business debts.[3]

If we add an evolving structure of financial institutions that sit between and among households, businesses, government units and other financial institutions and which borrow, endorse, lend and invest to the linkages in production and finance we have a "picture" in which the financial structure and financing activity are essential determinants of the performance of the economy. In our economy only that which is financed takes place; the level of employment is what it is because only so much demand for labor was financed.

If we ask why the financed demand for labor falls short of the full employment level, the answer is that bankers and business persons do not viusalize sufficient profit opportunities in the economy to warrant financing any greater demand for labor. The question of the economy's ability to

provide full employment comes down to the existence, in the projections that guide business persons and bankers, of sufficient profitable investment opportunities to generate "full employment." The "profitable" investment opportunities need to be viable at available and anticipated financing terms.

Financing contracts were entered upon in the past, and these past contracts determine payments that have to be made today. The payment commitments falling due today are on account of both principal and interest. The funds to fulfill these commitments can be obtained by a) cash on hand or from the sale of superfluous assets, b) gross profit flows and c) issuing new debts i.e., refinancing.

The key relations in a similarily sophisticated system are between gross profit flows and maturing cash payment commitments over a relevent (short) time period. If gross profit flows (defined as gross capital income net of taxes on income) exceed maturing cash payment commitments, then, in the terminology I have been using, the unit is a hedge financing unit. If gross profit flows fall shoft of maturing cash payment commitment, but the interest portion of the cash payment commitments are equal to or less than the non-depreciation part of the gross profit flows, then the unit is a speculative unit. if the gross profit flows fall short of the maturing cash payments and the interest due exceeds the "net income" part of gross profits, then the unit is a "Ponzi" unit. Whereas speculative units roll over their debt, Ponzi units both roll over the principal of maturing principal and capitalize at least part of the interest that is due.[4]

If a unit is a hedge unit then the cash flow to-cash payment commitments on account of debt relations can deteriorate only if the cash flow to (gross profits) deteriorate. If a unit is a speculative unit then its financial position can deteriorate either because interest rates rise or because gross

profits deteriorate. If a unit is a Ponzi unit then its financial position can deteriorate either because interest rates rise, gross profits deteriorate, or the "capitalization of interest" leads to a sufficient deterioration in the margin of safety provided by equity so that the unit's credit worwthiness evaporates.

It is clear that the overall robustness or fragility of the financial structure--where robustness or fragility reflect the magnitude of the cash flow shortfalls or interest rate changes that can be absorbed without causing a rupture in financing channels--depends upon the mix of hedge, speculative and Ponzi units. The aggregate debt/profit flows of business, the mix of short and long term debts, the holding of cash and liquid assets relative to debts and the trend of interest rates show that the weight of speculative and Ponzi finance has increased since World War II. has increased. In addition to the evidence from corporate and household finance, non-performing loans at financial institutions and the high cost of funds to the thrifts have made many banks and thrifts "Ponzi" financing organizations. The growth of the commercial paper market and the shutting down of the new issue market for long term bonds by interest rate "peaks" imply a systemic shift towards speculative finance. Market evolution provides evidence that a shift towards fragility in financial markets has taken place.[5]

The data on financial institutions that "stand between" business as debtors and households as asset owners, shows that there has been an increase in intermediate layering (REIT's, money market mutuals, futures and options markets). One of the important changes is the decreasing weight of core (demand and passbook savings) deposits relative to bought money in banks and thrift institutions. This implies that the vulnerability of financial

institutions to money market changes has increase. Furthermore the leverage on equity of major financial institutions increased even as the apparent need for equity rose because of the greater volatility of interest rates and the increased exposure to intermittent losses of liquidity. The implicit dependence of financial institutions upon supportive behavior from the central bank increases as their equity ratio decreases.

We have ignored households in this quick survey of the determinants of the robustness or fragility of the financial structure, even though a not insignificant proportion of households are now vulnerable to a deflation of asset values. Ignoring households is apt for, on the whole, household "fragility" rests upon the sensitivity of households to a decline in income, rather than to adverse financial market developments.

The significant difference between hedge financial units and speculative and Ponzi financial units is that the viability of a hedge unit--i.e., its ability to meet financial commitments--will not be directly affected by financial market developments that lead to run ups of interest rates whereas the viability of speculative and Ponzi units will be affected. For hedge units a run up of short and long term interest rates can only affect the willingness to plan expenditures that involve debt financing, whereas for speculative and Ponzi units, a run up of interest rate affects the ability of such units to fulfill payment commitments. The cash flow on debts for speculative and Ponzi units can rise relative to the cash receipts on account of assets because of financial market developments.

IV. The Determinants of the Position and the Shape of the Demand for Financing (and Refinancing)

One characteristic of the "financial crises" of the turbulent era that began in the mid-sixties is the "peaks" of both short and long term interest

rates. These peaks occurred even though at times the supply of finance, from the evolving institutional structure as well as from the banking system, increased rapidly. As every one knows an economist is a parrot who has been taught to say supply and demand, so that the analysis of any price is reduced to the behavior of supply and demand in markets. Thus to explain interest rate peaks we have to examine the demand and supply for the financing and refinancing of positions and activity.

Demand for financing had to be shifting outward and be inelastic with respect to interest rates for the observed explosion of interest rates to occur. As current market demand for financing is a summation of various demands, the behavior of market demand depends upon the behavior of particular demands. Among the component demands for financing are the demands because of

1) ongoing investment

2) current losses

3) the rolling over of maturing debt (refinancing speculative positions) and

4) capitalization of interest (Ponzi finance).

Since World War II the weight of these components in the aggregate demand for finance has changed as the structure of business liabilities changed. A rise in the weight of short term debt financing in total financing increases the weight of items 2, 3, and 4 in determining the demand for financing. Furthermore, changes in the composition of the demand for financing, between long and short term financing, occurred. The peaks in long and short term interest rates in the financing cycles since 1966 have been accompanied by a decrease in new issues of long term private debt. During the recessions that followed the various credit crunches, the volume of private long term debt

that was issued increased very rapidly, exceeding the current pace of external financing of investment. As a result of these shifts the liability structure of business deteriorated by more than the current demand for financing indicated during high interest rate periods and improved by more than the flow of internal funding during the lower interest rate periods that follow credit crunches.[6]

Contribution of the components of the demand for financing to the total demand depend upon the liability structure. The relative significant of the components has varied over the post war era. The particular financial problems of the 1980's will center around the impact of debt burdens and the increase in speculative and Ponzi finance in liability structures upon the economic system. We will examine each of the above components separately.

A. "Investment Programs as Payment Commitments"

The creation of capital assets is a time consuming process, especially as technology has evolved so that expensive special purpose plant and equipment is a large proportion of investment. Each step in an investment program involves costs--not only on the site of the prospective "plant" but also for the inputs manufactured off the site. These costs have to be financed. Some of the finance comes from external sources. An investment boom is accompanied by a demand for finance. The total demand for finance due to investment increases even after new starts decrease.

The putting together of investment outputs is a "sequential" affair. Each step in the process involves interest inelastic demands for finance. Furthermore, the total amount tied up in financing investment increases as an investment boom matures because of new expenses and the compounding of

interest on prior debt financed expenses. Demand for finance because of investment in process is inelastic with respect to current short term interest rates.

The financing of investment can be visualized as a two step process, in which short term borrowings are used to finance investment in process and internal funds and longer term debts are used to finance the holding of the capital assets that result from investment. (This generalizes the construction financing/take out financing relations of the construction industry.) If an investment boom is associated with high and rising short and long term interest rates, the borrowers reluctance to fix high interest rates into their payment commitments and lenders reluctance to take long positions in the light of the capital losses they experience as interest rates rise, lead to a decrease in the funding of short term debt into long term debt. Thus the component of demand for financing in short term markets due to investment will be both increasing and inelastic. An implication of an investment boom for financial markets is that any shortfall of the rate of increase of available short term financing below the accumulating demand for financing because of investment will lead to sharp increases in interest rates. Such a shortfall can occur either because an inflationary expansion leads to the demand for financing outrunning a growing supply of finance or because the Central Bank constrains the rate of growth of bank reserves.[7]

B. The Cost of Corporate Bureaucracy as a Financial (Payment) Commitment

A shortfall of busines receipts relative to costs leads to a need to borrow or sell assets to acquire cash to meet payments. Recent experience includes examples of firms which made enormous losses even though they were not initially burdened with debt. The need to make payments on investment is

not the only income related payments which are not readily adjustable as output and sales revenue decrease.

Professor Myron J. Gordon recently examined the "cost of corporate bureaucracy" over the post war period.[8] Although issue can be taken with some details of Gordon's analysis, his data indicates that the cost of corporate bureaucracy as a ratio to the nominal value of output has risen from 14.6% in 1942 and 13.2% in 1950 to 26.5% in 1972 and 26.2% in 1977.[9]

In the United States, management is able to lay off blue collar workers and decrease the inflow of purchased materials quite rapidly when sales decrease. Management, however, does not shrink [or increase] corporate bureaucracy with every change in sales proceeds. In fact, some dimensions [sales efforts, advertising and product development] of what the corporate bureaucracy does seem to react perversely when decreases, that are deemed transitory, in sales proceeds take place. The multimillion dollar losses that lightly indebted corporations thave experienced are mainly due to a decline in sales receipts, even as the payroll and purchased services that are not directly due to the production of output do not decrease. For a firm costs due to corporate bureaucracy and business style are determinants of the potential for large scale losses. With large scale losses a quick deterioration of the liability structure may occur, i.e, debts, specially short term debts, can rise rapidly. In the aggregate the greater the proportion of costs that are not readibly adjustable downward, the greater the likelihood that a systematic deterioration in financial positions will occur when sales proceeds decline. Business style, which is reflected in the cost of corporate bureaucracy, can lead to rising and interest inelastic demands for short term financing when sales proceeds fall.

C. The Impact of Liability Structures

The roll over demand for financing due to maturing debts for units in speculative and Ponzi financial postures constitutes an inelastic demand for short term finance. The net interest that is capitalized by Ponzi finance units constitute a rising and interest inelastic demand for finance. This net interest component of the demand for financing is perverse, inasmuch as higher interest rates increases the need for such financing. A rise in interest rates will increase the demand for financing due to speculative and Ponzi liability structures so that a further rise in demands, which implies a further rise in interest rates, will take place.

Ongoing investment projects are financed by a mixture of internal funds and borrowings. Whereas unfavorable financing conditions affect current decisions to start investment programs, they do not affect investment programs that are under way, unless they force the abondonment or delay of projects in which "costs have been sunk." Inasmuch as investment programs are financed by a combination of internal and external funds, if units that are engaging in investment programs are also speculative or Ponzi financing units then a run up of interest rates will lead to a decrease in the availability of internal funds to finance ongoing investment programs; this will lead to a rise in external financing required by investing units. The higher the interest rates the greater the upward shift in the demand for financing.

Losses due to business style or corporate overhead lead to an inelastic demand for finance. Such losses occur when sales revenues fall. A decline in sales revenue leads to an interest inelastic and rising component to the demand for financing.

It is the existence of inelastic and upward shifting demands for finance that can transform a decrease in the rate of increase of financing available through banks, which the Federal Reserve can induce, into a sharp run up of interest rates. Volatility of interest rates depends upon the mix of liability structures, the pace of ongoing investment activity and the potential for an explosive increase in business losses when sales revenue decrease.

The extent to which interest rates are volatile depends upon the mix of hedge, speculative and Ponzi finance. The mix of hedge, speculative and Ponzi finance depends upon voluntary decisions and the volatility of interest rates, expecially their volatility in response to monetary constraints. This is so because the mix of financial structures determines the extent to which there are borrowers who cannot reduce their demand for credit as interest rates rise and because "high and rising interest rates" that shut down the long market lead units that prefer to be hedge financing to be speculative, speculative financing units to be Ponzi, even as Ponzi units exhaust their capacity to borrow. Once the ability to borrow is exhausted then nonperforming loans on the books of financial organization grow rapidly. "Non-performing loans" shift the impacted financial organizations towards the "Ponzi" end of their financing spectrum. Unless government or central bank intervention (such as "deposit insurance) takes place, non-performing assets lead to 'refinancing crises' for financial institutions.

The structure of financial relations in the 1950's was such that as an increase in the demand for or a fall in the supply financing and an initial rise in financing terms did not lead to further increases in the demand for financing and in financing terms, the "system" of financial relations was not conducive to

instability. The structure of financial relations in recent years is such that an increase in the demand for financing and a rise in financing terms are likely to lead to further increases in the demand for financing and further rises in financing terms, the system is unstable. In the structure that ruled in the 1950's movements are damped out; in the structure that now rules movements tend to feed upon themselves until barriers, such as are exemplified by refinancing crises and threats of widespread default, are reached. The reaction by governments and central banks at the "barrier" determines what follows; these reactions are "policy" reactions that matter.

Sometime between the 1950's and today, the financial structure passed an imprecisely demarcated border between a structure in which initial deviations are offset and damped out and a structure in which initial deviations are amplified. Hindsight enables us to place the "border" in the mid-1960's.

V. Lender of Last Resort Interventions

Ponzi financing means that the margin of safety provided to lenders by equity decreases; furthermore, with high and rising interest rate, the capitalization of interest becomes an "open ended sink" of lender's funds. The ability of private lenders to carry units that are in Ponzi predicaments is limited. Furthermore, because "lenders" buy their funds on markets they are vulnerable to runs. Even as deposit insurance protects "eligible" deposits in banks, the dependence of banks on funds that exceed the insured limits, or which yield market determined rates even if insured, has increased. Knowledge that the asset structure is heavily weighted with non-performing or concessionary loans results in either runs or interest rate premiums on liabilities. Even as financial positions in general deteriorate, a small rise in interest rates above market will push some particular set of financial institutions, where equity or profitability has been largely

compromised, into an acknowledged liquidity or equity shortfall. For such units the ordinary channels for refinancing positions and placing new debts are closed.

In these circumstances the Federal Reserve (or any central bank) is confronted with a choice of letting liability holders suffer losses or of refinancing the threatened institution on concessionary terms (i.e., below market rates). Deposit insurance organizations are best considered as a part of the Central Bank]. The decision is presumably based upon whether the problem is systemic or special to the unit. If it is special to the unit the Federal Reserve is supposed to stand aside and allow the individual unit and its uninsured creditors to take their losses; if the problem is systemic the Federal Reserve is supposed to intervene. The decision is a judgement call.

Intervention as a lender of last resort by a central bank has three aspects:

1. the refinancing of threatened units
2. fixing "money markets" so that financing terms ease for all units
3. setting regulations and proposing legislation that imposes serious barriers to financial developments deemed disruptive, so that they will not occur again.

The financial crises of the era since 1966 have not led to a debt deflation because the Federal Reserve and cooperating agencies (F.D.I.C., giant banks, etc.) have intervened as a lender of last resort at such times to refinance threatened organization and to ease general financing conditions. However, the embryonic crises did lead to declines in investment and therefore to prospective declines in profits. In the postwar experience the prospective decline in profits was not fully realized because the effect of investment on profits was offset by government deficits.

VI. Profit Flows: The "Other" Side of Liability Structures

A liability structure of any date can be separated into dated, demand and contingent payment committments. The dated and demand committments can be transformed into a time series of payment commitments. Offsetting these payment commitments are "sources" of cash. These sources are cash on hand, profit flows (the profit concept has to be made precise) and the sale of assets or new borrowing.

Inasmuch as the price that can be obtained by selling "capital assets" depends upon the profits these assets are expected to yield and borrowing ability depends upon expected future profits, the ability to pay debts depends upon cash on hand, current profits and expected future profits. The "renewable" or "roll over" part of the ability to pay debts is determined by profit flows and the synchronization of profit flows with payment commitments determines where an economy is on the "hedge," speculative and Ponzi axes. What determines profit flows is the question we now address.

"Profits are earned by capital assets not because they are productive but because they are scarce" is a paraphrase of a view central to Keynes' theory. It is demand relative to "productive capacity" that makes business profitable and capital assets valuable. Steel and automobile plants and airlines would be more profitable now (1982) if the financed demand for their outputs were such that they were producing at or close to capacity levels. It is insufficient demand for output that has led to the low profits of industry. Supply side economics fails because investment does not take place unless it is deemed profitable and the profitability that guides investment depends upon expected future demands as well as on the anticipated tax laws and financing situation.

What determines the scarcity, i.e., the profitability, of capital assets? Here Keynes and Kalecki, rather than neo-classical theory, are helpful.[10]

Neo-classical theory tells us that capital's income is the marginal productivity of capital times capital. As every economist who has ever understood Joan Robinson knows the concept of capital in that neo-classical phrase is obscure and hazy: The neo-classical synthesis only makes sense if the economy is assumed to be in equilibrium yesterday, today and tommorow.[11]

Thus neo-classical theory has nothing to say about the shifting aggregate profitability of business. But--and I will not do the demonstrations--the Kalecki view does have something to say. In the Kalecki view gross capital income, or profits for short, under strict limiting assumptions, equals investment. Under looser assumptions, profits equals investment plus the government deficit; and under quite general conditions profits equals investment plus the government deficit plus the balance of trade surplus plus consumption financed by profit income minus savings financed by wage income.[12]

These "Kalecki" equations reflect quite simple ideas such as that the workers who produce investment goods have to "eat." The output of consumer goods has to be allocated by price among the workers who produce consumer goods and those who produce investment goods. This implies that there will be an aggregate mark up on labor costs in the sales proceeds of consumption producers equal to the wage bill in investment goods production. The Kalecki equations also reflects a well known phrase: Workers (in consumption goods production) cannot buy back what they produce.

The validation of business liability structures--i.e. the fulfillment of expectations about both the ability to meet payment commitments and the ability to refinance (fund or roll over) debts--depends upon current and expected profit flows. If the economy has no or a small government the potential for a profit sustaining government deficit is small. If we

ignore the "looser" or more "realistic" Kalecki profit equations, a decline in investment leads to a fall in profits.

In a no or small government capitalism, where the consumption coefficient out of profits is zero, the saving coefficient out of wages is zero and international trade is small (this roughly conforms to the US economy in the 1920s) a fall in investment leads to an equivalent fall in profits. But profit flows are allocated by the liability structure and dividend conventions to debt validation, dividends and retained earnings. In a system with "momentum" dividends are maintained so a shortfall of profits mainly results in a squeeze on retained earnings. If the system is highly indebted, with debt coverage deteriorating, the planned leverage on retained earnings in the financing of new investment programs will decrease. As a reults, with a lag, investment activity and, with investment activity, profits will decrease. Deteriorating financial coverages will lead to increasing rollover and new external debt; the burden of outstanding debt, i.e. the ratio of debt servicing charges to cash flows, increases. This is a broad brush characterization of one aspect of the interactions that lead to a deep depression.

However, if government is big--so that the potential for a large government deficit is built into the economy-then a deterioration of profits need not occur when investment declines. The automatic stabilizers built into the tax and spending programs as well as discretionary fiscal policy actions along orthodox Keynesian lines can sustain and even increase profit flows during a recession. The burden of the debt does not rise because a decrease of investment does not lead to a profit decline when an offsetting increase in the deficit sustains profits.

The viability of business liability structures depends upon the behavior of the determinants of the flow of profits. If the reaction of the flow of profits to a run up of the carrying costs on debts and mounting debts is such that profits decline, then initial problems in validating debts will lead to a cascading of problems. But big government and the deficits it can generate provides support for profits when investment declines. Our ability to contain and control financial crises is due to the stability of profits, in the face of the financing problems that led to lender of last resort interventions, and the stability of profits reflects the offsetting effect that big government has on profits.

VII. Financial Relations of an Open Economy

For the first twenty years after 1946 financial stability and economic expansion in the United States were sufficient to assure the stability of the international financial and monetary system. This was so because of three factors:

(1) The American economy was open and able to maintain a close approximation of full emlpoyment in spite of rising imports. Sustained American demand assured markets for the rest of the world and made for favorable profits in the export surplus economies.

(2) The American financial system was robust in the sense that overall private indebtedness was low; this meant that the speculative and Ponzi components of the financial structure were of minor importance. This robustness also meant that the interest rate response to monetary constraint was not unstable, so that explosively high interest rates did not occur. Moderate interest rates were the rule.

(3) The rest of the world had a relatively low level of international indebtedness. Only a small portion of export earnings went to debt servicing.

Furthermore, any shortfall of revenues to finance debt servicing or imports could be offset by additions to debt.

Today each of these factors has changed. For almost a decade the American economy has not been able to achieve the low rates of unemployment that characterized the 1950's and 1960's. Twice in the past decade the United States financial system has experienced serious threats to its stabily. Financing charges on the external debts of many countries are now a large ratio to exports; this means that for these countries the usual bundle of imports can be financed only if much of the interest due is capitalized.

The main problem that "opening up" the analysis to international financial relations brings to the fore is that large external debts now rule for much of the world, these debts are to a large extent to banks, and they are to a large extent denominated in dollars. For some of the bank debts denominated in dollars neither the debtors, the banks, nor the owners of the bank's liabilities are American.

Banks manage their books so as to avoid open positions. If a bank has dollar liabilities it aims to have dollar assets; however, the dollar assets of banks include dollar demoninated debts of businesses and governments that earn their income or collect taxes in a currency other than the dollar. The owners of capital assets that will be used to earn profits in say pesos may have dollar denominated debts. Similarly taxes are collected in local currences and the servicing of government debts may call for dollars. Even though bankers do not have open positions, their debtors do. The cash flow commitments by such debtors to banks can be fulfilled only if their "profits" and "taxes" in the local currency can be transformed into dollars at favorable terms.

In a closed economy if liability structures impose payment commitments that are too great for profits flows then, in the aggregate, the situation can be

resolved by a combination of government deficits and Central Bank interventions to refinance defaulting institutions. But in an open economy such interventions by a "local" central bank and treasury cannot assure adequate profit flows and refinancing in the "foreign" currency in which debts are denominated. Only the Federal Reserve can refinance dollar debts without limit and only the United States Treasury can sustain dollar profits by its deficits.

Today's main problem of the international financial structure is that a great deal of debt is denominated in dollars. It takes dollars to validate dollar debts. But the sources of dollars to units outside the United States are existing dollar balances, the trading balance, and additional loans and investments by holders of dollars.

The existing dollar balance of the critical debtors are low relative to their overall debt positions, so the existing holdings are not a meaningful source of dollars. International investments and loans depend upon the perceived prospects of payments, which mean that they reflect expectations of future dollar earnings. The ability to borrow dollars depends upon the belief that the dollars will be repaid; i.e., the borrower will earn dollars. A combination of current and expected deficits in the United States balance of trade is necessary if current debts are to be serviced by a combination of dollar surpluses on trade account and new loans denominated in dollars.

The balance of payments of a country can be concieved as consisting of 4 tiers.[13]

Tier I: The current balance of trade

Tier II: Tier I plus interest and dividends on financial assets

Tier III: Tier II plus capital movements (loans)

Tier IV: Tier III plus equilibrating flows of international monetary reserves (dollars)

In a world where there is a large amount of international debts denominated in dollars, the willingness of creditors to hold such debts depends upon the debtor being able to earn dollars or to earn something which can be exchanged for dollars: The United States must run a global deficit on tier one.

If the United States were to conform to the pattern of international financial relations that ruled when Britain was dominent,[14] then there would be a U.S. deficit in Tier I, a surplus after Tier II, and a deficit after Tier III (capital exports lead to a deficit). The deficit of Tier III becomes an increment in the holdings of the rest of the world in the New York money market, i.e., a rise in the rest of the world's liquidity. This final deficit in the United States balance of payments is a "desired" increase in liquidity, for if it was not desired the holders of money markets assets can reduce the incremental debt component used to finance their long term capital inputs.

VII. Implications of International Financial Linkages

The existence of a significant body of debts denominated in dollars sets the "problem" that the international financial system must resolve. The basic open positions in the international economy are of those units--be they governments or businesses--which earn their "profits" in a "local" currency and need to make payments in dollars on account of debts. These units need earn a sufficient income in their domestic currency and they need to be able to exchange these profits for dollars at an exchange rate that is consistent with the profitability of their business. An immediate implication of the dollar debt-local currency earnings relation is that the price of dollars cannot rise significantly faster than the domestic inflation rate allows profits in the local currency to rise. If a "depreciating" local currency leads to monetary-fiscal poliices that depresses

activity and therefore profits, then the ability of debtors to meet their obligations can be impaired because of the course of aggregate profits. Sustained aggregate profits in the domestic currency plus a dollar that is not appreciating "too fast" are required if the offshore dollar denominated indebtedness is to be "validated."

For the dollar not to appreciate too rapidly it is necessary that the supply of dollars on exchange markets equals the demand for dollars due to the sum of trade and financial payments. A creditor country in whose currency debts are denominated needs to run a deficit on trade account. One obstacle to the United States running a large enough trade account deficit is that the imports "hurt" U.S. domestic employment. A trade account deficit lowers profits in the United States even as it raises profits in the countries with a trade surplus. After the scare of 1978/79 the United States is afraid of the potential for financial instability due to a large scale balance of payments deficit. The distinction between a necessary deficit level and an excessive deficit level has to be drawn--and the measure of the necessary deficit is found in the interest servicing "nut" that the rest of the world has to make.

The institutional "fact" that a large part of the dollar denominated debts are at floating interest rates together with the present size of international indebtedness has implications for the operations of monetary policy within the United States. It was argued earlier that if there are (1) large scale ongoing investment programs, (2) a large speculative and Ponzi component to the financial structure and (3) significant and growing non-financial corporate overhead costs then rising interest rates will tend to increase rather than decrease the demand for financing. This implies that a program of monetary constraint to contain inflation will lead to explosive interest rate increases.

The Euro dollar interest rate moves with the United States interest rate, for each holder of Eurodollars has the option of investing in domestic U.S. assets; An explosion of U.S. interest rates will lead to a large increase in the dollars needed to service dollar denominated debt. If the sum of dollars earnings minus the non-financial "need" for dollars are not sufficient to meet debt servicing charges then the amount of the current account that needs to be capitalized into debt increases as interest rates increase: International indebtedness denominated in dollars exacerbates the instability of interest rates. If borrowing in order to fulfill financial contracts continues for several years then there will be a large increase in dollar denominated debt, even as no acquisition of "productive assets" are financed by the additional debt. One "side effect" of the experiment with monetarist precepts by United States authorities was a sharp increase in the burden of debt for economies that had significant quantities of dollar denominated debt: Mexico, Brazil, etc. are paying part of the price for the United States' experiment with monetarism.

If the current monetary system is to be viable in the sense that 1) no large volume of international debt repudiation takes place and 2) the international financial and trade system is not repressed by variants of beggar my neighbor policies then the United States must maintain a large deficit on trade account even as the trade deficit is "palatable" because a close approximation to full employment exists in the United States. Furthermore, United States monetary policy must be sensitive to the level of interest rates. Explosive interest rates such as ruled over almost all of 1979-82 increase the absolute burden of indebtedness of the rest of the world even as there is no improvement in the capability of the rest of the world to improve their net dollar earnings. This implies that Federal Reserve policy must always accommodate markets, which means

that monetary policy is available to fuel an expansion but not to constrain an inflation. Inflation must be constrained by other than monetary measures.

The massive indebtedness denominated in dollars that now exists has a "special" property that the ultimate owners, of much of the international dollar indebtedness, are not United States citizens. In the 19th century, when Britain was the center of the Word's financial system, the ultimate holders of pound denominated debts were British to a larger extent than United States citizens are the holders of today's dollar denominated debt. Whereas the "profits" in offshore countries that the British trade deficit engendered became in good measure income of British subjects, the profits that a "responsible" American policy would engender around the world would not, to the same extent, become incomes of American citizens. This may make the United States less willing and perhaps less able to cope with the unemployemnt and lower domestic profits that the necessary chronic trade deficit implies. New dimensions in United States domestic policy as well as new levels of international understanding are necessary if the current international financial structure is not to lead to a serious crisis.

While the massive growth of dollar denominated debts does constrain United States policies it is also true that these massive debts have given the United States a very large degree of fiscal autonomy. Monetary and fiscal policies to achieve and sustain full employment can be undertaken without fear that they would now trigger a run from the dollar such as seemed immanent in 1979. In particular the aggregate validation of the international financial structure, i.e., the avoidence of an international financial crisis--depends well nigh exclusively on United States poliices. An adequate flow of dollars through a deficit on the trade account should be sufficient to avoid a generalized crisis, especially if the Federal Reserve stands ready to offer sufficient dollar

accommodations to the central banks of the home countries of banks that have significant dollar denominated liabilities.

While the potential for a financial crisis exists, a financial crisis is not inevitable. The avoidence of a crisis depends upon the rest of the world earning sufficient dollars to fulfill their financial commitments. For United States politics to tolerate such "permanent" deficits on trade account, trade deficits have to be compatable with first achieving and sustaining a close approximation to full employment. Any effective action by the United States to close United State markets to the rest of the world will only increase the potential for a full fledged crisis.

Thus while the international financial situation is serious it is not hopeless. All that is needed for stability to be sustained is for the United States to devise and effect policies that achieve and sustain full employment with relatively stable prices, even as the United States accepts a large deficit in its balance of trade and keeps its interest rate high enough so potentially "hot" balances stay invested in dollars. Now that we can identify what needs to be achieved, all we need to do is set up a structure with which what needs to happen is allowed to happen. Putting it into place is admittedly more difficult than knowing what needs to be: As Portia remarked, "If to do were as easy to know as what were good to do, chapels had been churches and poor men's cottages prince's palaces."

FOOTNOTES

[1]Hyman P. Minsky, Can "It" Happen Again, Armonk, New York; M.E. Sharpe & Co. 1982, Chapter II. Finance and Profits (Initially Published in joint Economic Committee Congress of the United States, "The Business Cycle and Public Policy 1929-80, U.S. Government Printing office, Washington, D.C. 1980.

[2]Henry Kaufman A Difficult Transistion, Salomon Brothers, Inc., New York, New York. October 1982.

Forces Affecting the Near-Term Financial Behavior, Salomon Brothers, New York, New York. November 15, 1982.

[3]Can "It" Happen Again, op cit. Chapter 10 "An Exposition of a Keynesian Theory of Investment."

[4]Can "It" Happen Again, op cit. pp. 22-33.

[5]Committee on Banking, Finance and Urban Affairs, Subcommittee on Domestic Monetary Policy House of Representatives (ninety-seventh Congress, second session) Employment Risks from Present Credit and Business Liquidity Conditions, U.S. Government Printing Office 1982, Statements by J. Charles Partee Governor, Federal Reserve Board, pp. 81-18.

[6]Allen Sinai, "Economic Policy and Business Liquidity," in Committee on Banking, Finance and Urban Affairs, op cit. pp. 91-123.

[7]In "older days" the constraint on the supply of bank credit would result from an 'external drain" or an internal drain of reserve money. See J. Viner, Studies in the Theory of International Trade, Harper and Brothers, New York, 1937, Chapters VI and VII.

[8]Myron J. Gordon, "Corporate Beurocracy, Productivity Gains and Distribution of Revenues for U.S. Manufacturing 1947-77," J.P.K.E., Summer '82.

[9]Similar results were reported by P. Sylos-Labini "Prices and Income Distribution," J.P.K.E., Fall 1979, pp. 3-24.

[10]M. Kalecki, Essays in the Theory of Economics Fluctuations, London Allen and Unwin, 1939.

[11]J. Robinson, "The Production Function and the Theory of Capital," Review of Economic Studies, XXI pp. 81-106, (1953,4)

The Accumulation of Capital, (London: Macmillan, 1956)

G. C. Harcourt, Some Cambridge Controversies in the Theory of Capital, (Cambridge: Cambridge University Press, 1972.)

[12]H. P. Minsky, Finance and Profits, p. cit. pp. 37, 38.

See also Robert Dixon Aggregate Non-Wage Income in the U.S., 1948-1980, [Mimeo Department of Economics University of Melbourne, Australia: this paper is to be presented at the Annual Meetings American Economic ASsociation, Dec. 27-30, 1982].

[13]H. P. Minsky, Financial Interrelations, the Balance of Payments and the Dollar Crisis," in Jonathan Aranson's Debt and the Less Developed Countries, Westview Press, Boulder, Colorado 1979.

[14]R.S. Sayers, Bank of England Operation 1890-1914, (London: P.S.King and Sons, 1936).