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The Potential for Financial Crises

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The Future of the International Monetary System

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The topic of this chapter, the potential for financial crises, could suggest either a discussion of the current (late 1982) status of world economies or an analysis of the determinants of the potential for crises. The former interpretation of the topic would lead to a review of the current weak spots in the national (U.S.) and international economy, whereas the latter would require an examination of what there is about capitalist economies that makes an embryonic financial crisis occur with some regularity and how such embryos may be aborted. Therefore, the topic is two sided and provides the option of choosing one side over the other. What follows will lean toward 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 world economies in this epoch.

First, the chapter will examine the determinants of the potential for financial crises within a closed economy that has institutional features (such as the United States's). At this stage of the discussion, financial instruments that cross national lines will be ignored. However, the chapter will go on to include international financial connections. This initial emphasis on a closed United States makes sense, even in the context of an argument that looks toward an examination of the stability of the international financial structure, because the U.S. dollar is the dominant currency of denomination for international debts.

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-1960s, after a lengthy period in which such threats did not occur.

Since the middle 1960s, 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 Trust (REITs) debacles of 1974–75.
4. The summer and autumn of 1982, with continuing perils of the savings and loan associations (the thrifts), the drama in Mexico, problems of domestic banking (of which Penn Square is a dramatic example), and widespread deterioration of corporate financial strength.

Each episode is associated 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 the Federal Reserve's acts aimed to constrain inflation; (3) a threatened financial crisis; and (4) the Federal Reserve's intervention (as a lender of last resort) to abort the embryonic 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 has led to the Federal Reserve's efforts to constrain growth of the money supply. This has resulted in a credit crunch, liquidity squeeze, financial debacle or the like, that is, a breakdown of financing and refinancing through normal channels has either taken place or has appeared to be imminent. This, in turn, has led 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 has taken place because high interest rates weakened financial structures, the Federal Reserves has accompanied its spot interventions to refinance particular organizations with general market interventions that increased the availability of credit through ordinary financing channels. In the aftermath of a crisis, the Federal Reserve has abandoned monetary constraint and shifted to accommodating market needs.

An apparent change in the economy's behavior took place in the mid-1960s, a change that 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.

U.S. economic history 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, which makes for inflationary expansions, is still in place.[2] It must be emphasized 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, stagflation as well as financial and economic turbulence have characterized the economy's performance. The inflation has been fueled, in good part, by financial innovations. The climate for such innovation has been favorable partly because the lender-of-last-resort interventions by the Federal Reserve have effectively contained the downside systemic risks from exposed financial positions. A dilemma for Federal Reserve policymakers has been to effectively increase the downside risk from financial adventuring without simultaneously risking the triggering of a serious or even a runaway systemic debt deflation.

Robust and Fragile Financial Structures

Our economy is a capital-using capitalist economy with a complex and evolving financial structure. Because of this, 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 relationship between business profits and the validation of business debts.[3]

We also have an evolving structure of financial institutions that sit between and among households, businesses, government units, and other financial institutions and that borrow, endorse, lend, and invest to the linkages in production and finance. Considered as a whole, then, what we have are a financial structure and financing activity that 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 has been financed.

If we ask why the financed demand for labor falls short of the full-employment level, the answer is that bankers and businesspersons do not visualize 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 businesspersons 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 the 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 (1) cash on

hand or the sale of superfluous assets, (2) gross profit flows, and (3) issuing new debts (that is, refinancing).

The key relations in a similarly sophisticated system are between gross profit flows and maturing cash-payment commitments over a relevant (short) time period. It is useful to distinguish three cases. If gross profit flows (defined as gross capital income net of taxes on income) exceed maturing cash-payment commitments, then in the terminology being used here, the unit is a "hedge" financing unit. If gross profit flows fall short of maturing cash-payment commitment, but the interest portion of the cash-payment commitments are equal to or less than the nondepreciation 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 relations between cash flow and cash-payment commitments on account of debt can deteriorate only if the relation between cash flow and gross profits deteriorates. 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 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 worthiness evaporates.

It is clear that the overall robustness or fragility of the financial structure—when robustness or fragility reflects the magnitude of the cash-flow shortfalls or interest-rate changes that can be adsorbed without causing a rupture in financing channels—depends on 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. In addition to the evidence from corporate and household finance, nonperforming 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 toward speculative finance. Market evolution provides evidence that a shift toward fragility in financial markets has taken place.[5]

The data on financial institutions that stand between business as debtors and households as asset owners show that there has been an increase in intermediate layering (REITs, money-market mutuals, futures and options

markets). One of the important changes has been 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 increased. Furthermore, the leverage on equity of major financial institutions has increased even as the apparent need for equity has risen because of the greater volatility of interest rates and the increased exposure to intermittent losses of liquidity. The implicit dependence of financial institutions on supportive behavior from the central bank has increased as their equity ratio has decreased.

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 appropriate because, on the whole, household fragility rests on 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—that is, 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 so affected. For hedge units, a run up of short- and long-term interest rates can affect only the expenditures (if any) 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.

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 everyone knows, an economist has been taught to say supply and demand in response to any question, so the analysis of any price is reduced to the study of 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 have been shifting outward and have been inelastic with respect to interest rates for the observed explosion of interest rates to have occurred. Because 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 has changed. A rise in the weight of short-term debt financing in total financing has increased 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, has 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 has deteriorated by more than the current demand for financing indicated during high interest-rate periods and has improved by more than the flow of internal funding indicated during the lower interest-rate periods that followed the credit crunches.[6]

The contribution of the components of the demand for financing to the total demand depends on the liability structure. The relative significance of the components has varied over the postwar era. The particular financial problems of the 1980s will center around the impact of debt burdens and the increase in speculative and Ponzi finance in liability structures on the economic system. Each of these components will be examined separately.

Investment Programs as Payment Commitments

The creation of capital assets is a time-consuming process, especially because 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 process. 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 relationship between construction financing and take-out financing in 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 the 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]

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

A shortfall of business receipts relative to costs leads to a need to borrow or sell assets to acquire cash to meet payments. Recent examples include firms that made enormous losses even though they were not initially burdened with debt. The necessary payments on investment are not the only income-related payments that are not readily adjustable as output and sales revenue decrease.

Myron J. Gordon recently examined the cost of corporate bureaucracy over the postwar period.[8] Although issue can be taken with some details of Gordon's analysis, his data indicate that the cost of corporate bureaucracy as a ratio to the nominal value of output has risen from 14.6 percent in 1942 and 13.2 percent in 1950 to 26.5 percent in 1972 and 26.2 percent 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 in response to a drop in sales that is deemed transitory. The multimillion-dollar losses that lightly indebted

corporations have experienced are due mainly to a decline in sales receipts, because 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; that is, debts, especially short-term debts, can rise rapidly. In the aggregate, the greater the proportion of costs that are not readily adjustable downward, the greater the likelihood that a systematic deterioration in financial positions will occur when sales 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 fall.

The Impact of Liability Structures

The roll-over demand for financing due to maturing debts for speculative and Ponzi financial units constitutes an inelastic demand for short-term finance. The net interest that is capitalized by Ponzi financing units constitutes a rising and interest-inelastic demand for finance. This net-interest component of the demand for financing is perverse, inasmuch as higher interest rates increase 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 demand, 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 abandonment or delay of projects into which costs have been sunk. Inasmuch as investment programs are financed by a combination of internal and external funds, if units that are part of 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 the external financing required by investing units. The higher the interest rates, the greater 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 in 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 on the mix of liability structures, the pace of ongoing investment activity, and the potential for an explosive increase in business losses when sales revenues decrease.

The extent to which interest rates are volatile depends on the mix of hedge, speculative, and Ponzi financing. The mix of hedge, speculative, and Ponzi financing depends on voluntary decisions and the volatility of interest rates, especially 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 rates that shut down the long market cause units that prefer hedge financing to be speculative and 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 a financial organization grow rapidly. Nonperforming loans shift the affected financial organizations toward the Ponzi end of their financing spectrum. Unless government or central-bank intervention (such as deposit insurance) occurs, nonperforming assets lead to refinancing crises for financial institutions.

The structure of financial relations in the 1950s was such that an initial rise in financing terms (caused by an increase in the demand for or a fall in the supply of financing) did not lead to further increases in the demand for financing. In other words, the system of financial relations was not conducive to instability.

In recent years, the structure of financial relations has been 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 has become unstable. In the structure that ruled in the 1950s, movements were 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.

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

Lender-of-Last-Resort Interventions

With Ponzi financing, the margin of safety provided to lenders by equity decreases; furthermore, with high and rising interest rates, the capitaliza-

tion of interest becomes an open-ended sink of lender's funds. The ability of private lenders to carry Ponzi units is limited. Furthermore, because lenders buy their funds on markets, they are vulnerable to runs. Deposit insurance protects eligible deposits in banks, but banks have become increasingly dependent on funds that exceed the insured limits or that, although insured, yield market-determined rates. When the asset structure is heavily weighted with nonperforming or concessionary loans, either runs or interest-rate premium on liabilities result. As financial positions in general begin to deteriorate, a small rise in interest rates above market will push some particular set of financial institutions, whose equity or profitability has been largely compromised, into acknowledged liquidity or equity shortfall. For such institutions, the ordinary channels for refinancing and placing new debts are closed.

In these circumstances, the Federal Reserve or central bank (and deposit-insurance organizations are best considered as part of the central bank) is confronted with a choice of letting liability holders suffer losses or of refinancing the threatened institution on concessionary terms (that is, below market rates). Presumably, the Federal Reserve's decision is based on whether the problem is systemic or special. If it is special, 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 judgment call.

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

1. 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 that have occurred since 1966 have not led to a debt deflation because the Federal Reserve and cooperating agencies (Federal Deposit Insurance Corporation (FDIC), major banks, etc.) have intervened as a lender of last resort to refinance threatened organizations and to ease general financing conditions. However, the embryonic crises have led to declines in investment and, therefore, to prospective declines in profits. In the postwar era, the prospective decline in profits has not been fully realized because the effect of investment on profits has been offset by government deficits.

Profit Flows: The Other Side of Liability Structures

A liability structure of any date can be separated into dated, demand, and contingent payment commitments. The dated and demand commitments 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 on the profits these assets are expected to yield and borrowing ability depends on expected future profits, the ability to pay debts depends on 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 commitment determines where an economy is positioned on the hedge, speculative, and Ponzi axes. What determines profit flows is the question to be addressed now.

Profits are earned by capital assets, not because they are productive but because they are scarce. This is a paraphrase of a view central to Keynes's 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 (in 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 on expected future demands as well as on the anticipated tax laws and financing situation.

What determines the scarcity, that is, the profitability, of capital assets? Here Keynes and Kalecki, rather than neoclassical theorists, are helpful.[10] Neoclassical theory tells us that capital's income is the marginal productivity of capital multiplied by the stock of capital. As every economist who has ever understood Joan Robinson knows, the concept of capital in neoclassical theory is obscure and hazy. The neoclassical synthesis makes sense only if the economy is assumed to be in equilibrium yesterday, today, and tomorrow.[11]

Thus, neoclassical theory does not deal with the shifting aggregate profitability of business. However, the Kalecki view does deal with this. In the Kalecki view, under strict limiting assumptions, gross capital income (profits, for short) 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: for example, that 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 reflect a well-known phrase: workers (in consumption-goods production) cannot buy back what they produce.

The validation of business liability structures—that is, the fulfillment of expectations about both the ability to meet payment commitments and the ability to refinance (fund or roll over) debts—depends on current and expected profit flows. If the economy has no government sector or a small government sector, 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-government or small-government capitalism, wherein the consumption coefficient out of profits is zero, the savings coefficient out of wages is zero, and international trade is small (this roughly conforms to the U.S. economy in the 1920s), a fall in investment leads to an equivalent fall in profits. However, 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 results mainly 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 result, with a lag, investment activity will decrease, and then profits also will decrease. Deteriorating financial coverages will lead to increasing roll over and new external debt; the burden of outstanding debt, that is, the ratio of debt-servicing charges to cash flows, will increase. This is a broad-brush characterization of one aspect to 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 on 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 cascade of problems. However, big government and the deficits it can generate provide support for profits when investment declines. The ability to contain and control financial crises is due to the stability of profits, in the face of the financing problems that lead to lender-of-last-resort interventions, and the stability of profits reflects the offsetting effect that big government has on profits.

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 U.S. economy was open and able to maintain a close approximation of full employment in spite of rising imports. Sustained U.S. demand assured markets for the rest of the world and made for favorable profits in the export-surplus economies.
2. The U.S. financial system was robust in the sense that overall private indebtedness was low, indicating that the speculative and Ponzi components of the financial structure were of minor importance. This robustness meant that the interest-rate response to monetary constraint was not unstable, so that explosively high interest rates did not occur. Instead, 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 was offset by additions to debt.

Today, each of these factors has changed. For almost a decade, the U.S. economy has not been able to achieve the low rates of unemployment that characterized the 1950s and 1960s. Twice in the past decade, the U.S. financial system has experienced serious threats to its stability. 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.

Analysis of international financial relations discloses that large external debts now rule for much of the world; these debts are, to a large extent, to banks; and the debts 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 U.S. citizens.

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-denominated 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 currencies, 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 commitment 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. However, 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 U.S. Treasury can sustain dollar profits by its deficit.

Today, the main problem with the international financial structure is that a great deal of debt is denominated in dollars. It takes dollars to validate dollar debts. The sources of dollars to units outside the United States, however, 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 on the perceived prospects of payments, which mean that they reflect expectations of future dollar earnings. The ability to borrow dollars depends on the lender's belief that the dollars will be repaid—that is, that the borrower will earn dollars. A combination of current and expected deficits in the U.S. 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 conceived as consisting of four 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 on the debtor's being able to earn dollars or to earn something that can be exchanged for dollars: the United States must run a global deficit on tier I.

If the United States were to conform to the pattern of international financial relations that ruled when Britain was dominant, 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).[14] The deficit after tier III would result in an increment in the holdings of the rest of the world in the New York money market; that is, there would be a rise in the rest of the world's liquidity. This final deficit in the U.S. balance of payments would be a desired increase in liquidity; if it were not desired, the holders of money-market assets would be able to reduce the incremental debt component used to finance their long-term capital inputs.

Implications of International Financial Linkages

The existence of a significant body of debts denominated in dollars creates 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—that earn their profits in a local currency and need to make payments in dollars on account of debts. These units need to 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 immedite implication of the relationship between dollar debt and local currency earnings 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 policies 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 foreign 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's 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 nonfinancial corporate overhead costs, 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 Eurodollar interest rate moves with the U.S. interest rate, because 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 dollar earnings minus the nonfinancial need for dollars is 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. That is, 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 though no acquisition of productive assets will be financed by the additional debt. One side effect of the experiment with monetarist precepts by U.S. authorities has been a sharp increase in the burden of debt for economies that have significant quantities of dollar-denominated debt: Mexico and Brazil, among others, are paying part of the price for the United States's experiment with monetarism.

If the current monetary system is to be viable in 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-thy-neighbor policies, then the United States must maintain a large deficit on trade account, even after the trade deficit becomes palatable, because of that close approximation to full employment that exists in the United States. Furthermore, U.S. monetary policy must be sensitive to the level of interest rates. Explosive interest rates (such as those that ruled almost throughout 1979 to 1982) increase the absolute burden of indebtedness of the rest of the world, even when there is no improvement in the capability of the rest of the world to increase 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 U.S. citizens. In the nineteenth century, when Britain was the center of the world's financial system, the ultimate holders of pound-denominated debts were, to a large extent, British. Today, U.S. citizens are the holders of dollar-denominated debt to a much lesser extent. 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 U.S. policy would engender around the world would not, to the same extent, become income of U.S. citizens. This may make the United States less willing and perhaps less able to cope with the unemployment and lower domestic profits that the necessary chronic trade deficit implies. New dimensions in U.S. 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.

Although the massive growth of dollar-denominated debts does constrain U.S. policies, 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 may be undertaken now without fear that they will trigger a run from the dollar such as seemed imminent in 1979. In particular, the aggregate validation of the international financial structure—that is, the avoidance of an international financial crisis—depends almost exclusively on U.S. policies. An adequate flow of dollars through a deficit on the trade account should 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.

Although the potential for a financial crisis exists, a financial crisis is not inevitable. The avoidance of a crisis depends on the rest of the world's earning sufficient dollars to fulfill their financial commitments. For the United States to tolerate such permanent deficits on trade account, trade deficits must be compatible with the country's first achieving and then sustaining a close approximation to full employment. Any effective action by the United States to close U.S. markets to the rest of the world will only increase the potential for a full-fledged crisis.

Thus, although 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 put into effect policies that achieve and sustain full

employment with relatively stable prices, while accepting a large deficit in its balance of trade and keeping its interest rate high enough so potentially "hot" balances stay invested in dollars. Now that what needs to be achieved has been identified, the next step is to set up a structure that allows what needs to happen, to happen. Putting it into place is, admittedly, more difficult than knowing what needs to be done. As Portia remarked in *The Merchant of Venice,* "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."

Notes

1. Hyman P. Minsky, *Can "It" Happen Again?* (Armonk, N.Y.: M.E. Sharpe and Company, 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* (Washington, D.C.: U.S. Government Printing Office, 1980).

2. Henry Kaufman, *A Difficult Transition* (New York: Salomon Brothers, Inc., 1982). See also Kaufman's *Forces Affecting the Near-Term Financial Behavior* (New York: Salomon Brothers, Inc., 1982).

3. Minsky, *Can "It" Happen Again?*, chapter 10, "An Exposition of a Keynesian Theory of Investment."

4. Minsky, *Can "It" Happen Again?*, 22–33.

5. U.S. Congress, House Committee on Banking, Finance, and Urban Affairs, Subcommittee on Domestic Monetary Policy, *Employment Risks from Present Credit and Business Liquidity Conditions,* 97th Cong., 2d sess. (Washington, D.C.: U.S. Government Printing Office, 1982), see statements by J. Charles Partee, governor, Federal Reserve Board, pp. 81–118.

6. Allen Sinai, "Economic Policy and Business Liquidity," in House Committee on Banking, Finance and Urban Affairs, *Employment Risks,* pp. 91–123.

7. In the past, the constraint on the supply of bank credit would have resulted from an external drain or an internal drain of reserve money. See J. Viner, *Studies in the Theory of International Trade* (New York: Harper and Brothers, 1937), chapters VI and VII.

8. Myron J. Gordon, "Corporate Bureaucracy, Productivity Gain and Distribution of Revenue in U.S. Manufacturing 1947–77," *Journal of Post-Keynesian Economics,* Summer 1982, 483–96.

9. Similar results were reported by P. Sylos-Labini, "Prices and Income Distribution," *Journal of Post-Keynesian Economics,* Fall 1979, 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 (1953–54):81–106. See also Robinson's *The Accumulation of Capital* (London: Macmillan, 1956) and G.C. Harcourt, *Some Cambridge Controversies in the Theory of Capital* (Cambridge: Cambridge University Press, 1972).

12. Minsky, *Can "It" Happen Again?,* 37, 38. See also Robert Dixon, "Aggregate Non-Wage Income in the U.S., 1948–1980" (Paper presented at the Annual Meeting, American Economic Association, December 27–30, 1982).

13. Hyman P. Minsky, "Financial Interrelations, the Balance of Payments and the Dollar Crisis," in Jonathan Aranson, *Debt and the Less Developed Countries,* (Boulder, Colo., Westview Press, 1979).

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