

*Hyman P. Minsky*

## Global Consequences of Financial Deregulation

The regulations and institutions that constrain the financial systems of the capitalist world were put in place largely in response to the Great Depression. The Bretton Woods system was constructed in response to the breakdown of the international financial system. Similarly, many of the governmental interventions in product markets, labor relations, and industrial structure were introduced to contain "cut-throat competition," once thought to be a cause of the Great Depression.

Perspectives on the effect of financial and other deregulation on the world economy depend on whether one views our complex financial and production systems as equilibrium-seeking, or whether one views them as intermittently producing chaos. Do market systems produce order, anarchy, or perhaps sometimes one and sometimes the other?<sup>1</sup>

The view that it is the duty of government to contain potential chaos, and that an unconstrained market economy is not an equilibrium-seeking and sustaining system, served as a rationale for creation of the institutions, regulations, and interventions that were in place by 1950. The very successful epoch from the end of World War II to the early 1970s took place in a highly regulated financial environment where major government interventions were routine matters. One certainly cannot, therefore, endorse a blanket rejection of what was put in place in the 1930s and at Bretton Woods.

Instead of Adam Smith's invisible hand determining the course of the economy, the visible hands of treasuries, central bankers, refinancing consortia, and monetary funds have intervened to keep business cycles

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within bounds. As a result of successful interventions, the world economy has generated an approximation to well-ordered behavior, punctuated only by minor recessions, over the past twenty years. This happened even though underlying conditions might have permitted another Great Depression.

To understand economic experience since World War II, it is necessary to break with key abstractions that underlie the dominant strains of economic theory.<sup>2</sup> We cannot accept the neoclassical or monetarist convention that there exists a real economy that grinds out full employment, and that there exists a separate monetary system that autonomously misbehaves, or perhaps is mismanaged, so that crises and disasters, such as deep and long depressions or run-away inflation, occur.<sup>3</sup> If we link money to banking, and banking to the financing of activity and the holdings of assets, then the determination of both total output and the composition of production cannot be divorced from the monetary system.

In a monetary economy, money is the liability of banks, while the assets of banks are debts of firms, households, and governments. Such an economy has distinct price levels for capital assets and current outputs. Under conditions that are likely to occur, reactions to price changes that are not constrained by regulations or offset by interventions will make an initial disequilibrium worse, not better.<sup>4</sup> In other words, what happened between 1929 and 1933 resulted from endogenous reactions.<sup>5</sup>

But the economy is not always flying off towards disaster, so we need to explain how disaster-prone conditions can develop and how interventions and regulations can contain or abort the thrusts toward instability. This approach makes history the result of piecing together constrained runs of dynamic processes which, if left alone, would produce chaotic behavior.<sup>6</sup>

An analysis of the latest financial innovations would be intellectually akin to carrying coals to Newcastle.<sup>7</sup> An academic economist's knowledge of financial market and banking usages is many paces behind events. This paper will, instead, put forth a general view of financial fragility and system instability, and examine how both fragility and instability emerge from the normal functioning of markets in our intensely financial economies. Furthermore, it will try to explain why the repercussions of fragility have been contained since the 1960s, and speculate about whether the past success in containing instability will be repeated the next time a crisis occurs. The possibility of carrying coals to Newcastle is, however, too attractive to wholly resist. Therefore I will use one "hot" financial development—securitization—to illustrate the concepts of the *financial instability hypothesis*.

## THE FINANCIAL INSTABILITY HYPOTHESIS

Contrary to conventional economic theory, the financial dimensions of market economies work in full partnership with consumer preferences and production possibilities in determining economic activity. This view is an outgrowth of Keynes's analysis, which integrated the financial as-

pects of capitalist economies with the explanation of employment, relative prices, and output.<sup>8</sup>

In Keynesian theory, negotiations between bankers and businessmen about the financing of asset holdings and investments provide the starting point for understanding capitalism. This starting point is far removed from the point of departure of orthodox theory, which begins with individuals possessed of initial bundles of goods who meet to exchange their assorted products. Both models have one point in common: they examine moves from each player's initial position to a new, preferred position. The difference between the models lies in the subject matter of the decisions. In the orthodox view, the subject is consumption now. In the Keynesian case the subjects are asset holdings, investment, and liability structures over a time horizon.

The end products of negotiations between bankers and businessmen are:

1. an exchange of money today for promises to pay money in the future;
2. the spending of money today in an agreed fashion; and
3. a program for the business that is expected to yield the future money to pay the banker.

A nonfinancial business obtains cash flows from operations in the economy and from financial assets, and uses the cash to fulfill commitments. A financial business obtains cash flows from earnings on its assets and from selling or refinancing its assets. The economy may thus be depicted as a complex set of cash payments that are inherited from the past, modified by today's activities, and stretch forward into the future.

The financial structure leads to the prior allocation of cash flows. These prior allocations are a commitment that operations should cover, hopefully with a margin of safety. Payments due on household debts are a prior allocation of wages; payments due on government debts are a prior allocation of taxes; and payments due on business debts are a prior allocation of gross profits after taxes.

Business profits serve three functions: they do (or do not) validate past financing and investment decisions; they determine the internal funds available for investment today; and they affect the way decision makers view the future.

Financial contracts, asset values, and investments are based upon expectations about the future. Since the future cannot be known and cannot be reduced to a known probability distribution, investment and financing decisions must be made under conditions of uncertainty. If present cash flows from business profits do not validate commitments made in the past, disappointed firms and their bankers will likely take a dim view of the future.

Because of uncertainty, the prices of assets whose cash flows are assured will rise or fall relative to the prices of assets whose cash receipts depend upon the future performance of the economy. This change in relative prices is the substance of Keynes's theory of liquidity preference. In Keynesian theory, the relative price of capital assets can change mark-

edly and rapidly and thereby "call the tune" for investment demand and economic activity.<sup>9</sup> Because of uncertainty, borrowing and lending take place on the basis of margins of safety that reflect general views of the future. Disquieting events can make firms demand higher margins of safety and therefore invest less than their current cash flows. When this happens, the pace of investment can collapse.

A profound insight, the explicit statement of which we owe to Kalecki, is that changing investment levels are the main determinant of changing aggregate profits in a closed capitalist economy with a small government.<sup>10</sup> A collapse of investment in these countries meant more than a collapse in output and employment; it also caused a collapse in profits. The burden of inherited debts therefore increased, the price of capital and financial assets fell, and the ability and the willingness to undertake new investment drastically declined.

### TYPES OF FINANCE

A taxonomy is needed to describe the various types of financial structures that result from negotiations between bankers and businessmen. The classification that follows, couched in fanciful language, is best viewed as what the negotiators of financial structures have in mind when they work out their deals.

**Hedge finance.** A firm is engaged in hedge finance if the expectation is that gross profits after taxes, for each and every period contemplated, will exceed gross payments on debts. The liability structure is fully covered by receipts that will occur in the normal course of producing goods and services. The larger the equity in a firm relative to its debt, the greater the likelihood that the firm is engaged in hedge finance. It is interesting to observe that "real bills" financing, which was looked upon with favor in the original Federal Reserve Act of 1914, contemplated operations that yielded sufficient cash to repay debts.

**Speculative finance.** A firm is engaged in speculative finance if the expectation is that, in the long term, gross profits after taxes will exceed by a margin of safety the sum of total payment commitments; and that, on a year-by-year basis, gross profits after taxes will exceed the interest portion of payments coming due; but that, in the near term, total payment commitments for principal and interest will exceed cash flows. In the near term this firm and its bankers expect payment commitments to be fulfilled by borrowing. The viability of a speculative financing structure depends upon the continued well-behaved functioning of particular financial markets. Commercial banks that roll over certificates of deposits, and treasuries that roll over their bills, are examples of speculative finance.

**Ponzi finance.** The third type of financing is Ponzi finance, or the capitalization of interest.<sup>11</sup> In this case, payment commitments exceed the firm's cash flows, and the firm does not earn enough to meet annual

interest payments. Firms engaged in Ponzi finance capitalize interest and thereby add to their total debt. The capitalization of interest may occur because (1) firms are engaged in long-term investment programs which are expected to yield positive cash flows at some future date; (2) interest rates have risen on speculative finance; or (3) the returns from operations are significantly below expectations. Increased debts resulting from Ponzi finance are offset by reduced equity accounts. In balance-sheet terms, Ponzi finance leads to an erosion of equity and a decrease in margins of safety.

The modern capitalist economy consists of a mixture of hedge, speculative, and Ponzi financing units. A hedge financing unit can fail to meet its obligations only if its gross profits after taxes fall below expectations. In the aggregate this can happen only if there is a sharp fall in total demand. A speculative financing unit can fail to meet its obligations if its income falls below expectations, if interest rates rise too much, or if there is a breakdown in the normal functioning of financial markets. A Ponzi financing unit can run into troubles for all the reasons a speculative unit can and, in addition, the capitalization of interest can so erode margins of safety that lenders become unwilling to provide additional finance.

If the dominant financing form is hedge financing, the economy will be financially robust. The greater the proportion of firms engaged in speculative or Ponzi financing, the more fragile the financial structure.

The basic theorem of the financial instability hypothesis is that, over an extended period of prosperous times, the weight of speculative and Ponzi finance increases, so the economy migrates from being financially robust to being financially fragile.

The logic for this theorem is twofold. First, within a financial structure that is dominated by hedge finance, there will be a plentiful supply of short-term funds, so that short-term financing is "cheaper" than long-term financing. Accordingly, firms will be tempted to engage in speculative finance. Second, over a period of good times, the financial markets will become less averse to risk. This leads to the proliferation of financing forms that involve closer coordination of cash flows out with cash flows in—that is, narrower safety margins and greater use of speculative and Ponzi financing. These ingredients make the financial system fragile and the economy subject to financial instability.

## **EXTENSION TO INTERNATIONAL FINANCIAL RELATIONS**

Every liability of a firm, household, government or financial institution, and every instrument traded in a financial market, must be supported by cash flows. These cash flows are derived from participation in productive activity that generates wages, profits, and taxes.

The same requirement that cash flows support asset values holds for international indebtedness, the only difference being that the supporting cash flows may be derived from income denominated in one currency while the payments are denominated in another. The peso-denominated

income of a Mexican entity may need to be exchanged into dollars for a commitment to be validated. The terms upon which dollars are available for pesos then determines whether commitments can be fulfilled.

The availability of foreign currency depends upon the balance of payments of the country and the character of national assets that can be sold or pledged to foreigners. To examine the problem of availability, it is convenient to divide the balance of payments into tiers that reflect sources and uses of foreign exchange.<sup>12</sup> This can be illustrated by British experience before the First World War, using R.S. Sayers as our guide.<sup>13</sup> The gold standard that Sayers studied was characterized by the Bank of England holding little gold relative to payment flows and by large-scale financial links among countries. In this period, Britain earned a great deal of income from its foreign investments.

If we accord the balance of trade the honor of occupying tier 1, then we can place the income received from international debts as tier 2. Before World War I, Britain had a chronic deficit on trade account (tier 1) which was more than offset by a large net income on asset account (tier 2).

Tier 3 represents net new investments abroad. In the 25 years before World War I, Britain normally invested more abroad each year than the surplus from the sum of tiers 1 and 2. Tier 4 represents net short-term capital movements, or the balancing item. Since the sum of the first three tiers was usually negative, Britain normally borrowed the balancing amount on short-term. These short-term debts were treated as the equivalent of gold by offshore holders. They were desirable because offshore holders needed sterling balances to meet their payment commitments.

Thus, between 1890 and 1914, Britain normally invested abroad on long-term even as it borrowed on short-term. As a result, the reserve assets of offshore banks and debtor countries rose. There was harmony in the international financial structure. Britain ran a chronic balance of trade deficit, which depressed employment and profits in Britain and augmented employment and profits in the rest of the world. What Britain lost in the trade account was gained back in the investment income account. Investment income made Britain's income higher than it otherwise would have been. This supported British demand for luxury services and created the "upstairs-downstairs" world.

By using part of the income from abroad to finance investment abroad, Britain supported the capital development of the world. By financing these investments with short-term borrowings, Britain created monetary reserves that were used as the basis of credit expansion and therefore investment financing.

The harmonious balance of payments relationships of 1890-1914 are absent today. Disharmony in the early 1980s grew out of the necessity for the United States to run a large trade deficit so that the dollar-denominated debt of the Third World could be serviced, even as a good part of income from this indebtedness accrued to the OPEC oil-exporting countries. In the mid-1980s, the United States endured the burden of maintaining the international financial structure through its trade deficit, even as it did not fully enjoy the benefits from receiving investment income from abroad.

Smooth functioning of the international trade and financial system depends upon the reciprocal discharge of their responsibilities by countries with different balance of payments positions. Generally speaking, countries with investment income surpluses (tier 2) need to operate their economies so as to have deficits in their trade accounts (tier 1). This is not now taking place. Important countries with tier 2 surpluses, namely Japan and Germany, persist in running trade surpluses.

## REGULATION AND INTERVENTION

The regulation of banking and finance has undergone great and rapid change in the 1980s. The tendency has been to ease or eliminate regulations that once restricted competition among institutions, instruments, and markets. Innovation has greatly increased the kinds of assets and liabilities available to banks, other financial institutions, and financial markets. As a result, the connections between financing instruments, prudential regulations, and the support activities of central banks and deposit insurance organizations have changed. If there is a financial safety net, its texture has become more open.

Deregulation is, in part, motivated by ideology. The belief that "the market knows best" is extended by sheer faith to systems that violate the stability assumptions of standard economic theory. If the market truly knows best, regulation is always counter-productive. Even the abstract market systems studied by mathematical economists are not globally stable. If instability is an inherent property of market economies, then apt systems of regulations and interventions can surely improve matters.<sup>14</sup>

Policy makers who wish to err on the side of prudence should assume that economic systems with complex intertemporal and financial linkages are unstable. Nothing in economic or banking theory demonstrates that an unconstrained banking system will not break down. Indeed, observations from history indicate that the management of financial markets cannot be left to market forces. If those who introduced and developed the regulatory system were responding in a rational way to market events, changes that are driven by a simple deregulation ideology, and which ignore the possibility of instability, will eventually prove counterproductive.

The deregulation movement reflects not only ideology but other forces as well: (1) unsatisfactory experience with regulations that were poorly designed or which became obsolete with market evolution; (2) new computing and communication capabilities; (3) changing relative interest rates; (4) greater variance of interest rates; and (5) floating exchange rates. The deregulation movement of the 1980s is as much, or more, a question of adapting to changing markets as an example of changed ideology. As Richard Aspinwall has noted:

Generally speaking, regulatory changes follow, rather than lead, changes in market practices. Successful avoidance of old regulations is usually a prerequisite to the promulgation of new (and more liberalized) ones. The

experiences with deposit ceilings and the interstate positioning of banks and their holding company affiliates are prominent examples in the United States.<sup>15</sup>

Even as deregulation was proceeding, a series of financial crises led to large-scale interventions by central bank authorities. Central bank activities may be separated into those which aim at demand management—e.g., policies which affect income, employment, and the general price level—and activities which entail lender of last resort interventions, such as measures designed to maintain the nominal value of assets and liabilities of financial institutions. In the 1980s, lender-of-last-resort activity became more frequent.

The credit crunch of September 1966 was the first, serious post-World War II episode in which the Federal Reserve intervened as a lender of last resort. Since then, there have been several lender-of-last resort interventions, such as in the liquidity squeeze of 1970, the Franklin National-REIT debacle of 1974–75, the Hunt/Bache silver affair, the collapse of Penn Square and Mexico, the failure of Continental Illinois, and measures to contain the impact of disinflation since 1984. In these various episodes, the central banks have shown that they regard their first priority as fulfilling the role of lender of last resort.

Central banks, deposit insurance organizations, and treasuries have a responsibility to assure that the banking and financial system functions in a normal way. For this to happen, there cannot be a precipitous drop in asset values. This implies that the central bank and deposit insurance organizations must assure the refinancing of specified organizations and markets.

The central bank, therefore, stands in a banker relation to ordinary banks and other financial institutions. By providing a guaranteed line of credit to protected institutions, the central bank has the banker's right to set standards for borrowing. Thus central banks and depository insurance organizations set standards for assets, liabilities, equity, and reserves of their potential borrowing clients. Prudential regulation represents an extension of normal business practice.

Regulation and intervention always create a dimension of moral hazard. In the absence of deposit insurance, a bank would be subject to depositor surveillance, and a run would occur if the bank lost the confidence of its depositors. With deposit insurance, the need for depositor surveillance is much diminished. This may mean that banks and other financial institutions will take more adventuresome positions. The central bank and the deposit insurance organization must therefore contain the exposure of banks. Regulation becomes the other side of the coin of deposit insurance.

In financial markets, success can breed behavior that leads to failure. In other words, stability induces instability. The pattern of financing after a period of success can induce a thinning of the margins of safety between cash flows in and cash flows out. It can also lead to patterns of borrowing that assume asset values will appreciate and that reflect optimistic views about cash receipts. In such a setting, speculative and Ponzi finance become more important.



Regulation to limit speculative and Ponzi financing would be desirable. But it is very difficult to set up a regime of regulation that long remains effective. This is particularly true as the regulators live in the same environment as the regulated. The decrease in risk aversion by financiers is accompanied by greater permissiveness by regulators.

In the 1980s, the attenuation of regulation has been accompanied by an increase in lender-of-last-resort interventions. It is a mistake to equate deregulation with a shift to the market determination of outcomes. Instead, constraint by regulation has been supplanted with protection by refinancing.

## **LENDER-OF-LAST-RESORT INTERVENTIONS**

Lender-of-last-resort intervention by central banks and deposit insurers are important determinants of system behavior. These interventions guarantee the refinancing of some institutions and maintain prices of select financial instruments. The result is that losses of protected institutions are not passed through to their creditors, and that market values of protected assets do not collapse.<sup>16</sup>

The economy's assets, both financial and real, consist of instruments that can be readily sold or pledged as collateral for loans (their markets are wide, deep, and resilient) and instruments that can not be readily sold or pledged (their markets are poor).<sup>17</sup> The market is poor for assets like steel mills, office buildings, oil rigs, and bank loans; the market is good for Treasury bills, commercial paper and some listed securities. The distinction is between liquid and illiquid assets, where the liquidity or illiquidity of an asset depends upon the existence and characteristics of financial markets.

Assets that are readily marketable carry returns that are comparable to the cost of money to financial institutions; accordingly, these assets cannot be the source of considerable income to financial institutions. Only assets with poor markets carry expected returns that exceed the market cost of money by a good margin. Such assets constitute the portfolio positions of banks and financial institutions and the capital assets of business firms.

Business firms engaged in speculative and Ponzi finance are always borrowing in order to pay the principal on maturing debts; Ponzi debtors also need to borrow to pay their interest obligations. If lenders believe that risk-return relations have turned unfavorable (perhaps because of a rise in nonperforming assets), and if borrowers are not able to change these perceptions, and if offers by the borrowers to pay higher interest rates adversely affect the risk perceptions held by the lenders, then refinancing will not be forthcoming. When this happens, the speculative or Ponzi borrower will need to sell or pledge assets to acquire cash.

If a sizeable number of units find themselves in the same predicament, a large fall in the market value of the assets being used to restore the cash positions is likely. This will compromise the net worth of firms forced to sell their assets, above and beyond losses due to any nonperforming

assets. There will be a double impact on the equity account, the first from nonperforming assets and the second from the falling price of assets used to make good the cash position.

As initially unaffected business firms mark their assets to market (or find their shares marked down by the market), a contagious decline in equity occurs. If some of these organizations are engaged in speculative or Ponzi finance, they too will experience refinancing difficulties. The possibility of an epidemic exists. This is when lender-of-last-resort interventions are called for.

Lender-of-last-resort interventions arrest two pass-throughs that would otherwise result from declining profits and falling assets values. These pass-throughs are first to the broadly distributed liabilities of financial institutions (demand deposits and deposits at thrift institutions), and second to the market values of performing assets. The essence of lender-of-last-resort interventions is to obviate the need for protected institutions or participants in protected markets to restore their cash position by selling out assets. Such intervention acts as a major stabilizer of the economy.

The emergence of flexible and discretionary lenders of last resort ensures that assets need not be dumped on falling markets in times of crisis. The formation of the Federal Reserve System in 1914; the reforms of the 1930s that broadened the Federal Reserve's ability to intervene and introduce deposit insurance; and the financial system of the 1940s and early 1950s based upon a thick Treasury debt that was supported by the Federal Reserve—all these arrangements minimized the likelihood that a significant set of business firms would be forced to sell assets to restore their cash positions.

As a result of this protective apparatus, the value of demand deposits, certificates of deposit, notes, and bonds of the protected organizations do not fall. Hence there is no widespread need by households and firms to write down the value of their own assets. Losses are not passed through because losses are not allowed to happen. As this becomes known, players in markets adjust their behavior, which may in turn lead to the creation of crisis-prone financial structures.<sup>18</sup> In particular, financial innovations that enhance financial fragility and place new demands on lenders of last resort may well be stimulated by past success in lender-of-last-resort interventions.

## STABILIZING PROFITS

The critical decisions in an economy are those that lead to the creation of resources. Resource creation in a capitalist economy involves decisions about physical investment and financing. Both investment and financing involve intertemporal exchanges in which money "now" is exchanged for money over a run of "tomorrows." The money tomorrow may be called the validating cash flows.

The questions that cash flows raise and answer are: "Did we pay too much for the investments we made yesterday?" and "Should we have

financed these operations in the way we did?" If the validating cash flows are sufficient, then the prices of capital assets purchased in the past were not too high, and the payment commitments on financial instruments are fulfilled.

In the capitalism of the era before World War I and the 1920s, national governments were small and consumer debts were trivial. Debts were mainly owed by private business, and the validating cash flows were business gross profits. In these economies, almost all wages were used for current consumption. The total wage bill was approximately the sum of the wage bills in the production of consumption goods and investment goods.

Assuming that the total wage bill, and only the wage bill, is used to buy consumer goods, certain key relationships can be derived:

1. Wages plus profits in consumer goods production equal the sum of wages generated in the production of both investment and consumer goods (because the total wage bill represents the amount spent on consumer goods).

This relationship leads to the result that:

2. Profits in consumer goods equal wages in investment goods.

Moreover:

3. Wages plus profits generated in the production of investment goods equal spending on investment.

Therefore:

4. Profits equal investment.

In this argument, profits and investment are gross, inclusive of capital consumption allowances and replacement investment.

This framework yields a macroeconomic theory of profits in which profits exist not because capital is productive but because investment demand makes consumption output scarce. A decline in investment demand causes profits to fall; an increase in investment demand causes profits to rise.

Between 1929 and 1933, a recursive set of interactions led to a sharp decrease in asset values, investment demand, gross business profits, employment, output, and prices. On very broad fronts, business firms were not able to fulfill commitments on debts, and new financing for investment virtually vanished. Out of this experience the concept of stabilization policy was developed.

The critical task of stabilization policy is to prevent sharp decreases in profits. In the simple, small-government economy that existed through the 1920s, this required that investment demand not collapse. One way to maintain investment is to remove investment decisions from the realm of private profit maximization and to socialize those decisions with a view to stabilizing gross investment.

When we look deeper, other possibilities exist for maintaining the level of profits. Profits arising in the production of consumer goods are due to spending on consumer goods in excess of the wage bill generated by the

production of consumer goods. Wages paid by government are just as effective as wages paid by producers of investment goods in financing the demand for consumer goods. With certain heroic assumptions, the simple profits-equals-investment equation can be transformed into:

5. Profits equals investment plus the federal deficit.

In other words, government deficits tend to "show up" in business gross profits. If the government enacts spending and taxing programs that enlarge the deficit when private investment declines, then gross profits will not fall by as much as investment. Furthermore, if the reactions of spending and taxing are strong enough, either because of inherited laws or because of new legislation, gross profits might increase even as investment decreases.

The profits formula can be further expanded to allow for trade deficits, which decrease profits, and for trade surpluses, which increase profits. The "imperialist" pattern, in which the center runs a trade deficit even as the periphery runs a trade surplus, boosts profits in the periphery and contains them in the center.

Traditionally, government debt has provided a higher grade asset than private debt. Government deficits feed default-free assets into bank and other portfolios.<sup>19</sup> As the proportion of government debt in portfolios increases, a greater overall exposure to higher-risk private debt can be maintained. Thus a government deficit associated with sustained profits will prompt lenders to return to the market for private debt.

For government to act as a profit stabilizer, government spending and tax revenues must be large enough so that variations in the deficit can approximate the magnitude of declines in gross investment. In practical terms, government must be big enough to generate deficits of as much as 5 percent of GNP when output, income, and employment fall.

This analysis suggests that two pillars stabilize our unstable economies. One is lender-of-last-resort operations that assure that, for protected institutions, there is no pass-through from the failure of assets either to the market value of their liabilities or to the market value of performing assets.

The second is the stabilization of profits through government deficits. If aggregate profit flows are sustained, capital assets prices will be maintained, and investment, profits, and employment will not collapse.

## SECURITIZATION

Securitization is now hailed as the wave of the future, despite the absence of supervision and disclosure.<sup>20</sup> It is instructive to examine the impact of securitization on the lender-of-last-resort function, using United States experience and institutions as the example.

Securitization is a flexible financing technique that keeps taking new forms. One form is that bonds or marketable notes are collateralized by financial assets that are physically in the possession of a trustee. The purchasers of the securities are protected either by insurance or by over-collateralization, but not by an issuer's guarantee.<sup>21</sup>

The trustee is committed to sell out the collateral and pay off the securities when the cash flow from the items in the body of the collateral falls short of the amount required to service the securities.

Securitization of financial assets involves five major and two minor players. The major players are (1) the original borrower; (2) the creator of the "paper" (bank, thrift, finance company, security company, lease company, etc.); (3) the underwriter and distributor of the securities; (4) the trustee for the underlying financial assets; and (5) the ultimate holder of the securities. The minor players are credit-rating organizations and makers of the secondary market in the security.

In a bank loan the players are (1) the original borrower; (2) the bank; and (3) the depositors in the bank. In a securitized transaction, the borrower-bank connection remains, but the underwriter-trustee intervenes to facilitate the substitution of external financing for deposits. For securitization to succeed in the financial marketplace, it must have advantages over the banker/borrower/depositor relationship.

A standard argument is that the securitized operation offers cost advantages, primarily because the capital, reserve, and FDIC insurance add 175 or more basis points to the cost of a bank loan.<sup>22</sup> But the 175 basis points pay for the protection provided by the bank's capital and the guarantee of FDIC insurance. To the extent that securitization avoids these costs, it opens up the possibility of losses that insurance and capital might prevent.

Securitization decouples various steps in the debt-financing process. In bank finance, the relationship between lending and borrowing, on the one hand, and between wealth-owning and depositing, on the other hand, are coupled into one organization. The bank is able to interpose a guarantee both because of its own wealth and expertise and because of its ability to add a spread to allow for loan losses.

If the intermediation of banks is eliminated, there still remains a need for an organization that selects, credits, and structures loans. Banks, thrifts, consumer credit organizations, and automobile finance companies are able to create "paper." In many cases, an organization's ability to create paper exceeds its ability to finance positions. The result is the syndication and sale of loans to other institutions whose ability to raise money exceeds their ability to create paper. In other words, securitization emerges out of imbalances between the capacity of some organizations to create paper and the capacity of other organizations to finance holdings of paper.

Huge demand for dollar assets arose out of OPEC surpluses in the 1970s and early 1980s. Massive United States trade deficits in recent years further fed demand for dollar assets. Domestic pension and money market funds also sought dollar assets. These various demands for securitized paper helped create their own supply.

Just like any other asset, securitized instruments derive their value from the size and certainty of supporting cash flows. In a typical over-collateralized contract, the creator of paper agrees to maintain the value of the collateral at all times at some agreed ratio to the value of the securities. This means that, if any of the assets in the collateral cease to perform, the creator of the paper will infuse performing assets into the

corpus of the collateral. If some systemic feature of the economy generates nonperforming assets, there will be a migration of performing assets to trustees and a migration of nonperforming assets from trustees to creators of paper. The concentration of nonperforming assets in creators of paper will rise, and increase the likelihood that these organizations will experience refinancing and net worth problems.

Under contingencies specified in the indenture, the trustee must sell the collateral and pay off the securities. The sale of assets takes place if the creator of paper fails, or if it cannot deliver acceptable assets to maintain collateral. This "selling out" is identical to an attempt to restore a cash position by selling out assets which characterized bank behavior in the absence of central banking. If this happens on a significant scale, the price of assets will fall. Contagion reactions can then occur.

There are other dangers in securitization. Suppose the creator of paper is a protected banking organization. The creation of securities establishes a claim on the organization's assets that stands prior to the depositor's claim. But the depositor's claim is still guaranteed by the insurance fund (FDIC or FSLIC). Hence the lender of last resort is now exposed to greater risk.

Securitized instruments have become international assets. The integrity of the "security" depends upon the wisdom and integrity of the original borrower, the creator of the paper, the trustee, the underwriter, and the ultimate holder. The various parties can be in different countries, with different traditions of regulation, disclosure, and trustworthiness. The possibility cannot be ignored that fraud and incompetence will intrude in the long chain of securitization.

Perhaps securitization is a signal that financial agents no longer recoil in fear when a crisis surfaces. Perhaps success in containing financial crises is now interpreted by financial agents to mean, "They won't let the consequences of fragility emerge," so agents can happily invent new ways of financing activity and new ways of pledging future cash flows.

In the context of 1986, the growth of securitization means that, even as the power and authority of the regulators are attenuated, the scope and dimensions of their task increase.

### **"WHO ARE THEY? WHAT WILL THEY DO?"**

Over the years, as I have discussed the emergence of fragile financial systems out of robust financial relations, I have been told, "They won't let it happen," "it" presumably being another Great Depression. My reply has become, "Who are the *they*?" and "What are *they* going to do?"

The emergence and internationalization of securitized financial instruments, together with the continued growth of offshore banks, means that there is a vast pool of dollar-denominated and other currency-denominated assets which lies outside the formal domain of responsibility of the Federal Reserve or of any other central bank. The question of who is the "they" who will act as lenders of last resort for securitized assets and offshore banks remains entirely open. Before a crisis emerges, this ques-

tion should be answered, and corresponding regulations should be put in place. But there is no indication that the authorities will soon take appropriate steps.

The problem goes deeper than the proper domain of lenders of last resort and their responsibility for financial regulation. It is no longer clear that the United States can act as the guardian angel for stability in the world economy.

To be sure, interventions by the deposit insurance organizations and the Federal Reserve, and automatic and discretionary deficits by the U.S. Treasury, have successfully contained the various crises and recessions of the turbulent era since 1966. Interventions in 1974-75 and 1981-82 contained serious recessions and prevented the financial trauma of bank failures from escalating into a full-fledged international crisis.

Moreover, when international indebtedness was at issue, the International Monetary Fund and various creditor committees have transformed crises into workout situations, thereby providing a semblance of protection for bank lenders. Whether or not these operations had substance depended upon the course of underlying cash flows which, for international indebtedness, meant export earnings and long-term capital inflows. Fortunately, economic stability and expansion in the United States and the rich countries of Europe and Asia ensured that, prior to the 1980s, the mass of foreign currency available to validate the external debts of indebted countries displayed a strong upward trend.

But the international crises of the 1980s occurred in a period when prices of raw materials have declined even as downside pressure was felt on many manufactured goods. As a result, the rising export earnings needed to validate LDC debt have not been forthcoming. Nor have long-term capital flows grown. IMF-sponsored refinancings have not bought time for an underlying trend to generate validating cash flows, because there has been no underlying upward trend. Consequently, the refinancings are examples of Ponzi finance; they just delay the day when the value of the assets must be written down to an amount that the underlying cash flows can support.

Whether or not they succeed, it can be argued that the IMF operations are essentially a side show. From the end of the World War II through the Continental Illinois crisis of October 1984, the ability of U.S. authorities to sustain domestic expansion provided a foundation for international financial stability. But the unilateral ability of the Federal Reserve and the Treasury to sustain the world economy by stabilizing and expanding the U.S. economy has probably come to an end.

The objective situation now calls for the United States to share its global responsibilities with other countries. The accumulation of strong positions in foreign assets by Japan and the German-mark bloc means that those nations have to dispose of substantially more than their export earnings through outlays for imports and long-term foreign investments. The time is at hand when the funds to validate the German bloc and Japanese offshore asset holdings can only come from their own trade deficits. Yet those nations seem most reluctant to acknowledge their new role. Bretton Woods can be viewed as a mechanism for passing the re-

sponsibility for the maintenance of international financial stability from Britain to the United States. No such mechanism is now in sight for passing new responsibilities to Japan and the German bloc.

Today the United States is living with two great deficits: a federal government deficit and an annual trade deficit, each of which is pressing 5 percent of GNP. The U.S. trade deficit has not declined in the year since the major powers met at the Plaza Hotel and agreed to bring the dollar down. The dollar's decline, combined with the falling dollar price of oil, should have brought an improvement in the U.S. trade balance. To date this has not happened.

If changing exchange rates cannot cure a trade deficit, then the more powerful effect of income changes may. If the United States were a minor trade-deficit economy with a falling exchange rate and a massive government deficit, then the IMF would call for fiscal responsibility by either cutting spending or raising taxes. We can call this a "Mexican" solution to the emerging international financial crisis.

The formal logic of the Mexican solution is that there exists a United States GNP significantly lower than the current GNP that will eliminate the balance of trade deficit of the United States, if other countries collectively maintain their GNP levels. But exports to the United States importantly determine the GNP of Korea, Taiwan, Hong Kong, Japan and Western Europe, to cite just a few countries. A sharp income-induced drop in U.S. imports would have a serious, depressing effect on the prosperity of many nations. The feedback among these trading partners could be devastating. "International equilibrium" along the lines of the Mexican solution may occur at a disasterously low level of world income.

How to avert the emerging financial crisis? The constructive alternative is for Japan and the German bloc to expand domestic consumption. This means that Japan and the German bloc have to reduce their export dependency. Expansion of consumption involves more than monetary and fiscal policy. It requires a changed perspective on income determination. Over the past decades it has been held that exports are good, government spending is bad, high savings and investment rates are good, and consumption is bad. It needs to be recognized that good and bad depend upon conditions of the day and that these conditions change as trading and investment relations change. What is good for a national economy at an early stage of its accumulation of international assets becomes bad for both the national and the global economy at a later stage.

We are now in an era when the United States, Japan, and the German bloc must all eschew export surpluses as the base for domestic prosperity. This means that, if any one of the three achieves a significant surplus, its domestic monetary and fiscal policies must move to eliminate it. What has traditionally been viewed as a favorable balance of trade is most unfavorable for global prosperity when achieved by a member of the economic triumvirate.

When there is a strong central currency, the international monetary system can operate on the basis of floating exchange rates for all other currencies; the strong central currency provides the world economy with a fixed point. When, as now, there are several strong national currencies, a system is needed in which the managers of the national currencies are



committed to act in concert to constrain the relative movements of their currencies. This can be achieved by a modernized gold standard or a super-snake.

Global financial stability also requires agreed domains of responsibility for each key central bank when it acts as a lender of last resort to the international financial community. The need for a clarification of international lender-of-last-resort responsibilities demands that the development of regulations and interventions required for the proper functioning of a globally integrated financial structure be on the agenda.

In *The Merchant of Venice*, Portia eloquently sums up the problem of economic policy when she notes that "If to do were as easy as to know what were good to do, chapels had been churches, and poor men's cottages princes' palaces." Similarly, we know there is a need for international financial cooperation, but we must recognize that to achieve it may not be easy. What we hold to be self-evident may not be at all evident to the practical men who try to manage affairs. Economies are locked into structures that reflect conditions that used to—but no longer—prevail. It may take a crisis that verges on a disaster before serious moves are made to share responsibilities and accept diminished national autonomy.

## NOTES

1. The question of whether decentralized markets produce order, anarchy, or sometimes one and sometimes the other is the critical question in economic theory. For a summary of the present status of economic theory see Bruno Ingrai and Giorgio Israel, "General Economic Equilibrium Theory: A History of Ineffectual Paradigmatic Shifts," *Fundamenta Scientiae*, Vol. 6 No. 1, 1–45 and Vol. 6, No. 2, 89–125 (1985). A view more supportive of general equilibrium theory is found in E. Roy Weintraub, *Microfoundations* (Cambridge, England: Cambridge University Press, 1979). See also F. H. Hahn, *Money and Inflation* (Cambridge, MA: MIT Press, 1983).

2. See H. P. Minsky, *John Maynard Keynes* (New York: Columbia University Press, 1975); H. P. Minsky, *Stabilizing an Unstable Economy* (New Haven: Yale University Press, 1976); and Jan Kregel, *The Reconstruction of Political Economy* (London: MacMillan, 1973).

3. Milton Friedman, *Capitalism and Freedom* (Chicago: University of Chicago Press, 1962), 14, puts the matter this way:

Despite the importance of enterprises and money in our actual economy, and despite the numerous and complex problems they raise, the central characteristics of the market technique of achieving coordination is fully displayed in the simple exchange economy that contains neither enterprises nor money.

4. J. Caskey and S. Fazzari, *Disinflation, Wage Flexibility, and Nominal Debt Commitments*, Working Paper 77, Department of Economics, Washington University, St. Louis, February 1985.

5. See Irving Fisher, "Debt Deflation Theory of Great Depressions," *Econometrica* 1, October 1933; Irving Fisher, *Booms and Depressions* (New York: Adelphi, 1932); and James Tobin, *Asset Accumulation and Economic Activity* (Chicago: University of Chicago Press, 1980).

6. J. M. Blatt, "On the Econometric Approach to Business-Cycle Analysis," *Oxford Economic Papers* (1978); H. P. Minsky, "Monetary Systems and Accelerator Models," *American Economic Review* (December 1957), 859-883; and H. P. Minsky, "A Linear Model of Cyclical Growth," *Review of Economic Statistics* (May 1959), 133-145.
7. This is especially true in the light of the availability of Bank for International Settlements, *Recent Innovations in International Banking* (Basel, Switzerland, April 1986).
8. See H. P. Minsky, *John Maynard Keynes*; Paul Davidson, *Money and Real World* (New York: John Wiley and Sons, 1972); and Victoria Chick, *Macroeconomics after Keynes* (Cambridge, MA: MIT Press, 1984).
9. That Keynes' theory dealt with two price levels—one of current output that is linked to wages and the second of capital assets—stands out clearly in two expositions by Keynes after his *General Theory*: "The General Theory of Employment," *Quarterly Journal of Economics*, (1937); and "The Theory of the Rate of Interest," *The Lessons of Monetary Experience: Essays in Honor of Irving Fisher* (1937), ed. A. D. Gayer.
10. Michael Kalecki, *Selected Essays on the Dynamics of the Capitalist Economy, 1933-1970*, (Cambridge, England: Cambridge University Press, 1971).
11. Raymond Goldsmith has taken vehement exception to this label. See his comments in C. P. Kindleberger and J. P. Laffargue, *Financial Crises: Theory, History and Policy* (Cambridge, England: Cambridge University Press, 1982).
12. H. P. Minsky, "Financial Interrelations, the Balance of Payments, and the Dollar Crisis," *Debt and the Less Developed Countries*, ed. J. A. Aronson (Boulder, Colorado: Westview Press, 1979).
13. R. S. Sayers, *Bank of England Operations 1890-1914* (London: P. S. King and Sons, 1936).
14. See Ingrai and Israel, "Economic Equilibrium Theory"; Weintraub, *Microfoundations*; and Hahn, *Money and Inflation*.
15. Richard D. Aspinwall, "Shifting Institutional Frontiers in the United States," *Shifting Frontiers in Financial Markets*, ed. D. E. Fair (Dordrecht/Boston/Lancaster: Martinus-Nijhoff Publishers, 1986).
16. C. P. Kindleberger has been the key writer emphasizing the importance of lender-of-last-resort intervention. See C. P. Kindleberger, *The World in Depression, 1929-1933* (Berkeley: University of California Press, 1973); C. P. Kindleberger, *Mania, Panics, and Crashes: A History of Financial Crisis* (New York: Basic Books, 1978).
17. Dean Carson, "Recent Open Market Committee Policy and Technique," *Quarterly Journal of Economics* (August 1955), 321-342.
18. Robert Solow, "On the Lender of Last Resort," in *Financial Crises*, ed. Kindleberger and Laffargue, 237-248.
19. Warren McClam, "Financial Fragility and Instability: Monetary Authorities as Borrowers and Lenders of Last Resort," in *Financial Crises*, ed. Kindleberger and Laffargue.
20. Maurice Mann, "Some Neglected Questions about Securitization," *The Vanderwischen Report* (New Hope, PA, February 1986).
21. Two research reports useful in what follows are Jay M. Weintraub and Gioia M. Parente, *Collateralized Thrift Floating-Rate Notes: Structure and Credit*

*Factors*, Salomon Brothers Inc., Research Department, January 1986; Michael Waldman and Thomas Delehanty, *Introduction to Credit Card-Backed Securities*, Salomon Brothers Inc., Mortgage Research, August 1986.

22. *The Vanderwiche Report*, February 1986.