March 4, 1991

Fragility and Resilience of the International Financial Structure: Some General Conditions and their Applicability to Current Conditions

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Remarks prepared for a round table on "How Robust is the International Trade and Financial System?" American Economic Association and The International Trade and Financial Association., Saturday Dec 29, 1990: 2:30 PM

I. Introduction

The fragility and resilience of financial structures reflect the same fundamental relations, whether the structure be of an agent, (such as a household, a firm or a financial institution), a national economy, or the international financial order. These fundamental relations are the structure of payment commitments on liabilities, the normal sources of the funds with which these payment commitments are expected to be validated, and the provisions
for refinancing, working out or repudiating payment commitments when the contingency, that the normal sources do not yield sufficient funds to meet commitments, becomes the reality.

The units of the international financial structure we are dealing with are economies in which there are national systems of borrowing and lending based, as Keynes put it, upon margins of safety. These borrowings and lendings are devices by which control over resources, in excess of those which the borrower's own resources can command, are achieved. In exchange for financing such control "now" the borrower makes a commitment to make payments to the lender in the future.

In the fundamental borrowing-lending exchange the extra resources which the borrower controls, as a result of the financial transaction, are capital assets. In the modern world, in addition to being used to finance capital asset control, borrowing on a large scale is used to finance household consumption and household capital asset holdings, government deficits and deficits in international payments. Furthermore there is a complex of financial institutions and arrangements of various kinds which issue financial instruments (borrow) in order to hold portfolios of financial instruments. Such financial institution borrowing and lending gives rise to financial layering.¹

¹. Raymond Goldsmith tended to view such layering as benign. Our perspective is
Whether the international financial order is fragile or resilient depends upon the structure of financial commitments within and among the set of capital using capitalist economies, each of which has a sophisticated, complex and evolving financial structure and the determinants of the cash flows from the income generating system. At any time each of these national financial structures are more or less fragile or resilient, and the fragility or resilience of a national financial structure evolves as institutions, usages and structural relations change. The great increase in international portfolio diversification and the impact of modern communication technology has increased the interdependence of financial structures and diminished the force of national institutions in determining the relative robustness and fragility of both the national financial institutions and the international financial system.

In the economies being considered the capital assets, labor force characteristics and the financial structures link every today to yesterdays and tomorrows. George Allen, the late great coach of American football, stated the principle that "The future is now": this is one guiding principle for understanding economies in which decisions to invest are driven by expected gains. Investment decisions that "It ain't necessarily so.", layering can be carried to the point where the system becomes critical so that a continuation of the process that leads to layering can have strong consequences.
depend upon comparing the payment commitments through time required by the financing, which is made now, with concurrent views about a time series of cash flows that the project is expected to yield.

For a capitalist economy Allen’s dictum needs to be expanded to allow for "The past is now": payment commitments entered upon in the past come due and investments made in the past are the capital assets which now participate in producing cash flows by being used in production. Furthermore even economists recognize that "Now is now". The behavior through time of a capitalist economy depends upon the evolution of financing commitments, and this evolution is the result of decisions made yesterday and today which reflect expectations of what will take place over a run of tomorrows.

These complex time considerations mean that the formal representation of capitalist economies takes the form of nonlinear equation systems which are multidimensional and time dependent. Such equation systems generate paths through time which are not well behaved: periods of apparently coherent macroeconomic behavior are interrupted by periods of apparently incoherent macroeconomic behavior.\(^2\) The economic meaning of the alteration of coherent and incoherent behavior is that there are endogenous relations within economies which tend to organize behavior - lead to

\(^2\) Richard Day, Bauml and ...
coherent outcomes - even as there are relations which tend
to disorganize behavior - lead to incoherent or disorganized
behavior. Furthermore the path through time that such
systems generate, the transitions from coherence to
incoherence and back again, as well as the time spent in
each type of behavior, are not predictable and no unusual
event is need occur trigger transitions. This is not
because our analytical systems are not able to specify all
relevant relations but rather because the fully specified
process contains what can best be interpreted as erosion
processes. ³

The implication of these considerations is that the
traditional view of economies as equilibrium seeking and
maintaining systems needs to be abandoned. ⁴ Economies need
to be considered as systems which move through time where
the path depends upon the endogenous dynamic generating
system and the impact of institutions, economic policies and
random events.

These considerations imply that capitalist economies
are likely to spin out of control from time to time.
Empirically the production capacity and human
characteristics of economies are likely to be slow moving
relative to the pace of change that financial, output and

³. See Peter Bak and Kan Chen "Self Organized Criticality:
⁴. Bruna Ingrazio and Giorgio Israel The Invisible Hand:
Economic Equilibrium in the History of Science, 1990, the
price variables attain as the economy spins out of control. For example the production potential and human characteristics of the American economy were substantially the same 1933 as in 1929 but the financial and price level variables - in particular the prices attached to capital assets and the level of aggregate demand - were substantially different. The hypothesis underlying this paper is that the financial characteristics of capitalist economies introduce the incremental complexities that lead to the observed intermittent incoherence.5


Every unit in a capitalist economy can be characterized by an income statement and a balance sheet. The balance sheet states the units assets and liabilities as of some date in a common denominator. The income statement states the receipts and spending and therefor the net profits or savings over some period in the same common denominator. It is important to note that these common denominators are national monies.

The liabilities on a balance sheet which appear as a dollar amount as of a date are in fact commitments to make payments either on demand, when some contingency occurs or

5. The fundamental Keynes proposition is Capital development as the side show to the activities of a casino etc.
at specified dates. Furthermore there are meaningful penalties for not fulfilling payment commitments: in particular the residual claimant to the underlying cash flows, which provides the margin of safety on which the borrowing takes place, may find his claim to future incomes wiped out. A balance sheet, which states the prior commitments of future cash flows to make payments, acts as a constraint that is more or less binding upon current financing behavior.⁶

The normal sources of funds to fulfill payment commitments are income cash flows. For business firms these income cash flows are the gross profits before taxes, for households they are wages, for national and local governments they are tax revenues and for countries they are net trade receipts. These income cash flows may or may not be sufficient to fulfill the payment commitments on debts. If they are insufficient, then various balance sheet operations can be undertaken in an attempt to fulfill payment commitments: these operations include refinancing, working out debts and the sale of assets. A cliche of the street which has relevance warns of the potential for disaster when units need to make position - fulfill payment commitments - by selling out position. Unless there is a lender or buyer of last resort a generalized need to sell

⁶ Steve Fazzari has addressed this question with various coauthors: Fazzari, Hubbard and Petersen, Financing Constraints and Corporate Investment, Brookings Papaers on Economic Activity Fazzari, and Mott Investment Theories of Kalecki and Keynes, JPKE, winter 86,87
out position can lead to a sharp fall in the market price of the assets that make up the position. In a world where marking to market by financial analysts is pervasive, even if the books that are kept do not reflect such pricing, the impact of a need to make position by selling out position that is large enough to move the market will adversely affect the operations of many units: the phenomena of marking to market leads to strong contagion effects from adverse developments.

A unit is a hedge financing unit when the income cash flows are sufficient in the current period and over the foreseeable future to fulfill all of the legally committed payments. Firms which are mainly equity financed are always hedge financed units because dividend payments are conditional upon future income and equities imply that there are no commitments to repay any principle sum. For hedge financed firms the threat of disruption of operations because of pressures arising in the liability structure are not large: the only vulnerability of hedge financing units is to falls in income.

A second type of financing posture is what I called speculative finance, in that the unit's income flows can fulfill the interest payments on its indebtedness but are not large enough to fulfill commitments to repay principle. Furthermore the prospects are that the unit will be able to pay interest at the same level over the foreseeable future.
This cash flow situation means that the unit can roll over its outstanding debts, it can issue new debt to raise funds to pay the principle due on maturing debts, as long as financial markets are functioning normally. Speculative financing units finance long positions with short debts: Governments that use Treasury Bills, Savings and Loan Associations and Commercial Banks are examples of units that speculative finance at least part of their positions.\textsuperscript{7} Speculative financing units are vulnerable to declines in income, to increases in interest rates and to shifting preferences and outright disruption in financial markets and financial firms.

The third financing posture is Ponzi finance. In this posture cash flows are not large enough to meet the interest payments due on debts. Interest payments are made by increasing indebtedness. Inasmuch as indebtedness is increased even as there is no increase in assets, Ponzi finance involves a decrease in the equity account and an increase in the future interest and principle payments. Furthermore the increase in debt and interest commitments take place even as there is no increase in the unit's capacity to produce profits. Ponzi financing decreases the margin of safety that underlays borrowing and lending. The

\textsuperscript{7} The credit crunch of 1990-91 centered around the raising of credit standards by banks as a result of their credit experience over the late 1980's. As a result units that had normally rolled over debts (engaged in speculative finance) were adversely affected not by a change in their own prospects but by a change in the way markets evaluate prospects.
ability of a unit to Ponzi finance is limited, for eventually equity becomes negative and payment commitments exceed expected cash flows.

In the transformation of the financial structure of the American economy of the 1980's Ponzi financial postures became common. In the 1990's reports of unravelling Ponzi schemes are reported in the business press almost every day. The payment in kind bonds of leveraged buy outs is one are example of Ponzi finance. If one doesn't like the term Ponzi finance, the term "capitalizing interest" can be substituted.8

The robustness or fragility of a financial structure can be measured by the ratios of hedge, speculative and Ponzi financial structures in the economy relative to the size, expected increase and assuredness of cash flows. The fundamental propositions of the financial instability hypothesis interpretation of Keynes that I put forth more than 15 years ago are:

If finance is integrated into the multimarket equilibrium of Keynes
1. There are financial regimes in which a stable equilibrium is generated and there are regimes in which the equilibrium is unstable.
2. Over an extended period of good times the financial

8. Davidson
.. Exchange with Goldsmith in Kindleberger.
regime migrates from being conducive to stability to being hospitable to instability. The concrete manifestation of this transit is that the ratio of units that engage in speculative and Ponzi financing to those that engage in hedge financing increases.  

The merger and take over movement of the 1980’s clearly led to a sharp increase in speculative and Ponzi finance. This followed a powerful demonstration, in the quick recovery from the recession of 1981-2, that effective government action can contain a recession.  

III. Refinancing positions: the normal functioning of financial markets and institutions.

10. The Reagan fiscal policy, of sharp decreases in taxes along with a strong rise in defense spending, made the recovery from the recession of 1981-82 a textbook case of a "Keynesian" stimulus. This objective use of orthodox Keynesian measures was combined with an anti-Keynesian rhetoric. The administration may have appeased their followers and perhaps even fooled themselves by this rhetoric, but the operators in Wall Street extracted a Kaleckian message from the Reagan policy stance: henceforth fiscal policy interventions will assure that the aggregate of profits will not fall. This means that the debt carrying capacity of any firm that has a strong protected position in the competition among firms for profits is greater than the same firm and protected position would have in an economy where there was a significant chance that the aggregate of profits would fall. The way the recession of 1981-82 was quickly turned around by massive government deficits changed expectations about the downside vulnerability of future aggregate profits and therefore helped trigger the leveraged buy out boom that characterized the second half of the 1980’s.
Not all units can meet their payment commitments on debt by their income receipts, this is what happens when institutions finance long positions by short term liabilities. Banks and other depository institutions as well as organizations that use the modern commercial paper market are in the position that they cannot meet their commitments on liabilities by cash flows from the income generating system. Such units expect to meet a portion of their payment commitments out of funds that they borrow from institutions or raise in markets.

This means that their normal functioning depends upon the continued availability of funds from the markets in which they expect to do this refinancing. It is a major concern of policy that the continued availability of funds for refinancing short term debt that finances long term positions be available. Interventions that contain and offset financial market disruptions need to be flexible so that adjustments to what is will take place. Central Banks are given wide discretionary powers because they have a responsibility to assure that financial markets function well.

IV. Fragility as the result of normal functioning.

In an economy dominated by hedge financing units the financial system is robust and there are a great deal of
short term and therefore liquid funds in business portfolios. Banks are also liquid in that the weight of assets in their portfolios that are negotiable in markets and that the central bank is committed to protect is large. In these circumstances short term rates will be substantially lower than long term rates. This term structure means that banks and other financial markets or institutions will be ready to advance short term funds to finance longer term positions if the premium in rates is large enough. This same term structure leads to an incentive for profit seeking business to finance long positions with short liabilities: The term structure may even allow households to make on the carry.

In a regime of robust finance there are good reasons, in the relative cost of funds, for substituting some short term debt for both equity and long term debt in liability structures. Furthermore the low short term interest rates associated with robust financial structures means that profit maximizing lenders will substitute long term assets for short assets in their portfolio. What is good for a unit, what conforms to a units maximizing under the constraints of some total ability to externally finance or hold assets, may well undermine the very robustness of the financial system which makes markets generate this rate pattern.

The overall profit flows to business are determined by the composition of aggregate demand. In the simplest
statement we have

gross business profits = gross investment.

The implication of this accounting relation is that the ratio of gross cash flows that business in the aggregate receive to aggregate income equals the ratio of gross investment to gross national income.\textsuperscript{11}

An economy that is mainly hedge financed will have a high ratio of equity to debt financing and a high ration of business cash flows to the business commitment to pay on debts. In this situation the liquidity of both business and financial institutions will be high. Short term financing will be cheap relative to long term financing and in general debt will carry low interest rates: interest expense of debt will be low relative to gross profits. The term structure and the risk structure of interest rates makes the payment commitments for financing projects low relative to the cash flows that can be expected from investment projects that are expected to do well in the competition for profits. This cost of finance structure, encourages both lenders and borrowers to debt finance investments.

With debt financing available, investment is maintained and even increased. Increased aggregate investment leads to increased profits. In an economy where bankers know that if they are to make large profits they need to innovate in

\textsuperscript{11} This is the income identity of Kalecki which has been applied in S. J. and David Levy in \textit{and by H. P. Minsky in "Stabilizing an Unstable Economy."}
financing techniques, experimentation with increasing short
term financing of long positions will become the norm as
high and rising gross business profits validates prior
experiments. Emulation of the liability structure of the
experimenters with speculative financing is fostered by the
agents who operate on the lending side of the financial
markets. They see the process raising the demand for
financial products. New forms of financing emerge: Bankers
are merchants of debts and their profits depend upon the
imaginative use of their liabilities to acquire assets and
to generate fees.\textsuperscript{12}

There is an internal inconsistency between financing
terms and profit expectations during a period of mainly
hedge financing: interest rates are low relative to gross
business profits. This internal inconsistency is an
inducement for speculative financing. Speculative financing
absorbs the pockets of idle cash, so short term interest
rates rise. When this takes place heavily indebted
speculative financing units find that they need to bridge
finance payment commitments. Not only do speculative
financing units become Ponzi financing units, but as a new
era thinking takes over de nova Ponzi financing schemes are
accepted as brilliant innovations. As was mentioned earlier
Ponzi financing, whether the result of market forces that

\textsuperscript{12}. The annals of the leveraged buy out of R.J. Reynolds-
Nabisco indicates that the bankers interest was in the short
quick profits associated with fee incomes rather than with
the longer term validation of the instruments issued in the
leveraged buy out.
transform speculative financing into Ponzi financing or as a result of pyramid schemes a la Milken, decreases equity and increases debts without either contributing to the overall availability of profits or to improving a units ability to compete for profits.

A capitalist economy is financially fragile when the system is highly indebted, which implies that the margin of safety between cash flows and payment commitments has been lowered, the debt structure is heavily weighed with short term debt, so that large scale refinancing is necessary, and a substantial portion of units are Ponzi financing, so that a continuous erosion of equity is taking place. The eroding equity positions, associated with Ponzi financing, makes the aggregate of investment subject to sharp declines, which decreases profit flows. This decrease increases the proportion of debtor units that are "Ponzi financing". The financial structure is evolving towards a situation in which the units which need to sell out position in order to make position increases rapidly. This can lead to rapidly declining asset prices, a further decrease in investment and further downside pressure upon business profits.

Lending institutions, such as banks, depend upon debtor’s meeting their payment commitments if they are to acquire new assets, if they are to finance investment. When banks and other creditors fail to extend refinancing loans, heavily indebted units are forced to try to make position by
selling out position. This can be disastrous to asset values.

A reconsideration of credit standards is a corollary of non-performing loans and falling asset values. A decline in financed investment will take place which leads to a decline in profit flows, which diminishes the margin of safety that protects lenders which leads to constraints upon refinancing, which leads to attempts to sell assets, which leads to a decline in investment. A process is at work in which each unit seeking its only its own good ends up contributing to a worsening for all. A market economy can readily spin out of control.\textsuperscript{13}

V. Central Banking and Other Thwarting Devices: Recent Resilience as the Result of the Institutional Structure.

Thwarting devices are structural features of the economy which dominate the internal processes in determining the path of the economy.\textsuperscript{14} Such thwarting devices are most useful when the internal processes are leading to unacceptable results. Central banks are thwarting devices

\textsuperscript{13}. On the first of March 1991 newspapers carried reports that the banking authorities wish banks and examiners to ease up on their definition of performing assets so that banks will not be as constrained as they have been in making loans. There is nothing in the process that will increase the cash flow to banks or to the debtors on the suspect assets. The errors made in credit evaluation in the past will not be erased from the minds of the loan officers.

\textsuperscript{14}. The floors and ceilings that were appended to explosive accelerator multiplier models are examples of thwarting devices. See H.P Minsky
in which are now used whenever the economy seems ready to spin out of control: central banks operate by assuring that refinancing is readily available. Modern capitalist economies have two types of thwarting devices. One is the central bank, which as the lender of last resort tries to contain the need for units and banks to make position by selling out position: such refinancing both puts a floor under asset prices and assures that the financing facilities for banks and businesses do not collapse.

A second is the government demand for goods and services as well as government transfer payments. These can be used to assure that aggregate profits are sustained in the face of a decline in business investment. The profit equation for an economy where government is a substantial part of the economy is:

\[ \text{business profits} = \text{investment} + \text{government deficit}. \]

Central banking and the United States use of fiscal policy measures to sustain an approximation to full employment in the post war era have been able to contain and quickly reverse the recessions of the post war period so that they did not blossom into a full depression. The question in 1991 is whether the United States has the economic power to contain recessions. The distribution of international economic power among the several bloc’s in now radically different than in earlier periods: the United States enjoyed a virtual monopoly of effective policy
discretion earlier in the post war period, today such power is shared with Japan and Germany as the leading power of an increasingly rich Europe.


The first forty years of the post war era can be characterized as an era in which the economic strength of the United States was the essential ingredient for the maintenance of a closer approximation to full employment throughout much of the capitalist world than had ever hitherto been achieved over an extended period of time. In this period the vast edge in productivity and modernization that the American economy held over the economies of western Europe and Asia in 1946 was eliminated and even reversed. In the final burst of the deficit stimulated expansion of the Reagan years, when the American economy acted as a locomotive pulling Europe and Japan out of a recession, the American economy became an international debtor. Tiers argument and a conclusion that the future belongs to international cooperation but there seems to be little real appreciation of this. Therefore the overcoming of the quite apparent fragility of the American financial structure requires that either Europe and Japan go into trade deficit postures or that the United States takes measures to assure
that United States full employment does not lead to great downside pressures on the dollar.

VII. Albin's Proposition: The Agents in the model have a Model of the Model.

VIII. The 1991 power relations: What is the model of the model that the main actors have.

Orwell: All agents are equal but some agents are more equal than others.

Germany's central bank "Fight inflation at all times"

Japan: Export now and forever.

Germany and Japan: Beggar my neighbor policies

The likelihood that policy will be inept in 1991 is too high for comfort An Anxiety Index.
The belief in the self-righting properties of market economies is unwarranted. Nevertheless it pervades economic policy thinking. The American international financial position that enabled it to use the fiscal policy model was undercut in the 1980's. The success of global capitalism in the 1990's depends more upon what form Japanese and German policy take than upon what the United States does unless the United States is willing to hazard an international regime that developed under its auspices in the third quarter of the 20th century.

The formation of expectations is of course critical to both the theorizing about investment and finance and doing investment and finance. The volatility of the terms for financing investment and the margins of safety required by the various players in financing, that have been observed over the past decade, indicate that those models of expectation formation, called rational by their proponents, which relied upon a Walrasian model of the economy to generate the expected profit flows misspecified the model of the model that in fact seems to guide the expectations that lead to investment financing, financing of positions in capital assets and the determination of asset prices. A model of expectation formation for a financially complex capitalist economy needs to allow for euphoria and what Kindleberger called revulsion.\textsuperscript{15}

\textsuperscript{15. Kindleberger}