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The Financial Instability Hypothesis: A Clarification.

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The background papers refer to Minsky's financial instability hypothesis without filling in the details.<sup>1</sup> I thought that we might as well hear about the hypothesis from the Horse's mouth, although we all know that an author is not necessarily an authentic interpreter of a work.

The financial instability hypothesis was advanced as an interpretation of Keynes's General Theory when issues of interpretation were deemed important. (Minsky 1975, 1982, 1986) The conceit is that Keynes was aware of the great contraction and wholesale collapse of the financial and economic system of 1929-33 as he was developing The General Theory. In particular I assumed that Fisher's Debt-Deflation Theory of Great Depressions (Fisher) was known to Keynes.

The Financial Instability Hypothesis is addressed to this, our economy, rather than to an abstract economy. Our economy is taken to be a capital using capitalist economy with complex, sophisticated and ever evolving financial institutions and usages. The model focuses on the relations between finance, asset values and investment. It can be characterized as a Wall Street view of the world: the principle players are profit seeking bankers and business men.

I will briefly examine how the financial instability hypothesis addresses five issues: asset pricing, financial flows, the relation between financial and economic crises, why it hasn't happened yet, and what it might take for it to happen.

### Asset Pricing

In Chapter 17 of the General Theory, in the rebuttal to Viner's incisive review (Viner 1936, Keynes 1937a), and in the contribution to the Fisher festschrift (Keynes

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1. The background papers were by Benjamin Freidman, Lawrence Summers, and Paul Krugman.

1937b) Keynes treated liquidity preference as determining the price level of capital and financial assets.<sup>2</sup>

I take Keynes's fundamental insight to be that there are two price levels in a capitalist economy and that the proximate determinants of these price levels are quite different. One is of current wages and output which, when combined with financing conditions, yields the supply conditions for investment output. The other is of capital and financial assets which, when combined with financing conditions, yields the demand for investment output. The supply prices of investment output can best be viewed as a mark up on labor costs whereas the prices of capital and financial assets are capitalizations of future expected cash flows, of future gross profits in an uncertain world.

For a skeletal no government capitalist economy to be prosperous the price of large enough set of capital assets needs to be greater by a large enough margin than the price at which similar assets can be produced so that enough investment takes place to sustain an acceptable level of profits and thus of employment and output.<sup>3</sup> Financial mechanisms enter into determining investment by affecting the prices of capital assets, production costs of investment output and the leverage on internal finance.

Following Keynes each asset yields expected, though uncertain, cash flows through time, "q", has expected carrying costs, "c", and has a liquidity premium, "l", which will vary as institutions and circumstances change.<sup>4</sup> The "l" of a particular asset reflects the ease with which it can be turned into money either by being pledged for

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2. Jan Kregel traces Keynes's treatment of money as determining capital asset prices to Sraffa's discussion of own rates of interest in his refutation of Hayek's natural rate of interest argument.

3. In a complex big government capitalist economy investment can be supplemented by a government deficit to yield an acceptable level of profits.

4. The "q's" that capital assets as collected in firms yield are gross profits. The "q's" that financial instruments yield are stated in the contracts. What are "c" carrying costs to debtors are "q" expected cash receipts to creditors

loans or by being sold; this "I" depends upon the structure and performance of markets and institutions. Developments which impact upon the way markets and institutions function change the "I" embodied in any particular asset. Thus at any time the future value of the "I" embodied in any asset is uncertain.

Money is the asset that is transferred when financial commitments are fulfilled. In this construct money does not yield a cash flow, has minimal carrying costs, and has the maximum present and expected liquidity. The price per unit of money is always 1. Money prices of other assets are such that the utility of the expected cash flows net of the carrying costs plus the utility of the liquidity of the asset, as conditioned by the ever evolving financial system, are equal on the margin to the utility of the liquidity embodied in money.

An increase in the quantity of money lowers on the margin the utility of a dollar. In order to lower on the margin the utility of a dollar invested in assets whose value is derived mainly from the expected "q's", the dollar price of such "q" yielding assets needs to rise. As assets possess different mixes of "q", "c", and "I" a change in the quantity of money will change the relative prices of assets and the price levels of assets and investment output: both the amount and the composition of investment will be affected. In this construct money is never a mere veil, it is never neutral.

For the purposes of the financial instability hypothesis the "c's", the carrying costs, incorporate the cash costs imposed by the liabilities that are used to finance positions in capital and financial assets. As the liabilities of a unit are financial assets of other units the prices of the "c" yielding instruments, that are used to finance positions, are determined by the same expected cash flows, carrying costs, and liquidity concerns that determine the values of "q" yielding instruments. A rise in the subjective valuation of liquidity, a fall in the expected profit flows, or a rise in the carrying costs of capital and financial assets will lower the prices of capital and financial assets.

## Financial Flows

Liabilities are commitments to pay money at some date, on demand, or if specified contingencies occur. These payment commitments are for both the repayment of principle and income. Cash to meet these payment commitments is obtained either as

1. income due to contributions to production (gross profits) [profits, wages and taxes when the model is opened],
2. the fulfillment by some other agent of contractual commitments,
3. the result of borrowing or selling assets, or, trivially,
4. initial cash on hand.

Liabilities in a balance sheet can be read as generating a time series of cash payments and assets as generating a time series of expected receipts. I classified the structure of these time series as hedge, speculative and Ponzi finance.<sup>5</sup>

A unit is hedge financing if the expected cash flows from operations or from contract fulfillment over the relevant horizon always exceeds, with some margin of safety, the expected contractual, demand and contingent payments. A firm whose liability structure is heavily weighted by equities is almost always hedge financing. Only if a large shortfall of income below expected income occurs will a hedge unit have difficulty meeting its payment commitments.

A unit is engaged in speculative finance when its expected cash receipts on income account and contract fulfillments exceed the income (interest) payments but it is not able to pay all of the principle due on its debts. A speculative unit needs to roll over some of its debts, to issue new debts in order to repay maturing debts. Speculative financing units have a position which they have to refinance periodically. A bank has to continually refinance its position.

5. I have been criticized for this terminology, especially for the use of the label "Ponzi" for a financing posture that can be the result of honest error.

A "Ponzi" financing unit does not earn enough on its income account to fulfill its income account payments and issues debts to meet these payments: its deficit is capitalized. A "Ponzi" financing unit debits its equity account even as it increases its indebtedness. As experience with S&L's has shown, sharp increases in financing charges can transform speculative units into "Ponzi" units. The present budget position of the United States can be interpreted as an example of "Ponzi" financing.

"Ponzi" financing can be accepted as long as it is believed that the situation is transitory and that projected incomes will make the present value of the entire stream of earnings positive. "Ponzi" units are vulnerable to changes in what is believed about future income prospects and to increases in the cost of funds.

#### Financial and Economic Crises

This meeting is a roundtable on Reducing the Risks of Economic Crisis. The three background papers are on financial not economic crisis: furthermore the papers are not clear on how financial and economic crises are related. The financial instability hypothesis is designed to throw light on the relation between financial and economic crises.

The financial instability hypothesis relates finance and aggregate demand through the impact of financial market events upon investment and the impact of investment upon income and on the flows that are capitalized into the price level of capital and financial assets and that are used to fulfill payment commitments.<sup>6</sup>

One way financial market events impact upon investment is by affecting the subjective valuation placed upon "I". A rise in the subjective value of "I" leads to a decline in the money price of capital and financial assets which are valued mainly for

6. In the version I prefer investment leads to an aggregate of profits and the competition of firms for profits leads to output, employment and the wage bill. Alternatively output and wage and profit incomes can be considered as the result of a multiplier process upon investment and other autonomous spending.

their "q's", the money income they yield. A fall in these prices lowers the difference between the prices of capital assets and the supply prices of investment output. This will tend to lower investment. Furthermore a fall in the price of financial assets means that investing units will have to pledge larger future payments in order to obtain a given amount of investment financing. Such a change in the terms of financing tends to constrain investment.

There are two sources of liquidity. One is the cash flows from operations or the fulfillment of contracts. The second is the cash flows that can be generated by selling or pledging assets: those assets which it is believed can be readily sold or pledged to raise cash in case the need arises carry lower interest rates.

When the successful performance of the economy increases the subjective assuredness of the cash flows from operations the felt need by business men and bankers for liquidity through asset holdings decreases. A lower valuation of liquidity in assets leads to a rise in the price of assets which are valued for the "q's" they yield. Similarly if the felt "unsuredness" of the flow of "q's" increases bankers and business men will move to increase the assets they hold that are valued for the "l" they yield.

A special proposition of the financial instability hypothesis is that over a protracted period of good times, when the aggregate of the cash flows from operations (aggregate profits) continuously increases, the value of portfolio liquidity declines. Both borrowers and lenders feel that they can safely decrease their holdings of assets that are valued for their liquidity through marketability. In particular, if hedge financing dominates then as good times roll along financing costs become such that profit seeking units that were hedge financing will introduce speculative or roll over financing into their liability structures. The mix of hedge and speculative financing shifts over protracted periods of good times so that the weight of hedge financing decreases and the weight of speculative financing increases. Income shortfalls and interest rate increases transform speculative financing units into Ponzi financing units. In addition the



"euphoria" induced by protracted good times leads to de nova Ponzi financing arrangements that can be validated only if rather optimistic prices can be obtained for assets. As a result the vulnerability of the financial structure to rising interest rates and to shortfalls in gross profits increases with protracted good times.<sup>7</sup>

A concept worth introducing is the making of position by selling out position. When a unit has payment commitments and has been stripped of the assets that can readily be sold or pledged to acquire cash a shortfall of income from operations or a rise in market interest rates can lead to an attempt to make position by selling or pledging assets that are not usually sold or pledged. The making of position by selling position may be feasible as an isolated incident, but any generalized attempt to make position by selling position leads to a collapse of asset values. A financial crisis occurs when there is a generalized need to make position by selling position which results in a wide and large fall in asset values. As a result the solvency, on a mark to market valuation, of a wide array of financial institutions is compromised. This leads to a spread of refinancing problems.

A financial crisis leads into an economic crisis when investment declines so that a decline in profits as well as output, employment, and wages takes place. The decline in profits leads to both a further fall in asset values (the numerators in the capitalization relation fall) and a further decline in the ability of units to meet their financial commitments. In such an environment a sharp fall in commitments for the financing of investment takes place. Further declines in employment, output, wage incomes and profits follow.

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7. In early versions I had a "nice" accelerator-multiplier process always working. When the financial structure was robust the normal cyclical pattern took place. As the time without a deep and long depression increased, the financial system evolved and became fragile so that a normal downturn was amplified by financial repercussions.

With a lag unemployment and idle capacity lead to a fall in wages and the prices of investment output. But in a world where debts denominated in money are large declines in wages and prices may make things worse, not better. (Caskey and Fazzari)

#### Why "It" Hasn't Happened Yet

Apt intervention can abort the process I have sketched at two points. One is that units can be refinanced, so they have no need to try to make position by selling out position. This prevents a sharp and generalized fall in asset prices. The spread of mark to market insolvency to units that are not in an immediate need for refinancing will not take place. Refinancing banks and key financial market players that are having trouble making position is the basic Central bank lender of last resort operation. Presumably such refinancing takes place when dire system wide repercussions are believed to be imminent if refinancing is not undertaken.

In various embryonic financial crises since the 1960's the Federal Reserve, specialized agencies such as FDIC and FSLIC, and the U.S. Treasury have refinanced units which otherwise would have had to make position by selling position. Furthermore in the incipient crises the Federal Reserve has furnished reserves on a generous scale to markets. (Giordano). Because of these measures no generalized or long lasting interactive process that led to a wide and deep decline of asset prices has taken place during the post war period.

The second intervention point is profit flows, the aggregate of the "q's" that come from the income generating and production system. The model for aggregate profits that I use is derived from Kalecki. In the simple heroically abstract version aggregate profits equals investment; in a version that is a bit less heroic aggregate profits equals investment plus the government deficit.

The Federal Government was some 3% of GNP in 1929. The Federal Government is say 25% of GNP now. The 1929 government was not large enough to run a deficit that would offset the impact that the massive decline of investment between 1929 and 1933 had upon aggregate profits.<sup>8</sup> Today's government is large enough so that the automatic and policy response increases in deficits that occur when income decreases sustain aggregate profits.

The combination of lender of last resort interventions which abort the development of debt deflation processes, the generalized increase in liquidity as the Federal Reserve reacts to an embryonic crisis and the deficits that big government runs when income turns down explains why a serious long lasting and deep depression has not taken place up till now. Big government and a central bank that is willing and able to intervene explain why it hasn't happened yet.

#### What It Might Take For It To Happen

The United States had a great deal of what we can call fiscal autonomy over almost all of the post war period: there was no need for American policy makers to be much concerned about adverse foreign reactions to the steps that were taken to contain and reverse episodes of embryonic financial instability and to the deficits that sustained domestic profits.

The situation may well be different now. The United States no longer is as autonomous or as powerful as in the past. Scenarios in which cooperation in maintaining global asset values and profit flows is necessary and is not forthcoming can be sketched.

It is only necessary to examine an elaboration of the income accounts a la Kalecki to understand what is at issue. A rather full statement of the profit equation is:

8. It is worth noting that because of the fall in nominal GNP the relative size of government doubled between 1929 and 1933.

Profits equals investment plus the government deficit minus the deficit in international trade plus consumption financed by incomes derived from profits minus savings out of wage incomes.

The United States's deficit on trade account is a drain on domestic profits. Furthermore the accumulated deficits have led to a large foreign holdings of United States financial assets. The large United States government deficit in relatively prosperous times means that the deficit that is needed to sustain profits in the aftermath of even an aborted financial crisis may well be enormous. In the environment that now exists the interventions needed to sustain the economy the next time may well be beyond what the combined efforts of the Federal Reserve and the Treasury can sustain: financial markets may reject even the liabilities of these institutions.

Countries with large positions in offshore assets possess fiscal autonomy. If global profits are to be sustained such countries need to maintain domestic profits even as they run an international trade deficit. This typically requires these countries to be high consumption economies.

Furthermore these countries need to take a leading position in whatever lender of last resort interventions are needed. It may well be that in some next time national responses will not do, and the apt international response may require a profound restructuring of the high saving export based economies. The containment of some future economic and financial crises may depend more on what Japan and Europe do than upon the Federal Reserve and the United States Treasury.

Addendum.

1. The emphasis is upon the behavior of business men who manage the firms that "own" the capital assets of the economy and the banking community that arranges for the liability structure of these firms. Households are in the background although savings out of wages and consumption financed by profit incomes are household behaviors. The view can be expressed by paraphrasing Orwell, "All agents are equal but some agents are more equal than others."
2. The economy is envisaged as a non-linear time dependent system so that endogenous processes can generate "incoherent" states. Cycles and the crises are not the result of shocks to the system or of policy errors, they are endogenous.
3. As Peter Albin put it "Agents in the model have a model of the model; a model of the economy". The agents the financial instability hypothesis emphasizes are profit seeking business men and bankers. The model of the economy they have includes the possibility of financial crisis and economic depressions. However agents recognize that the institutional structure and the structure of possible interventions change, so that the past is an imperfect guide to the present and the future. We can assume that each agent has a contingency plan of how to react to an incipient financial crisis, but is not sure as to when the contingency plan should be put in motion.
4. Success in aborting incipient financial crises and in containing economic declines decreases the value of "I" in the subsequent expansion. If an incipient crisis is successfully aborted then, after a pause, portfolio adjustments that reflect a greater assurance that crises will be contained take place.

5. The "I" of our formulation is a characteristic of both assets and liability structures.

Any change in the view of the future that lowers the value placed upon "I" also increases the willingness of units to lever their position, to increase their payment commitments relative to their expected cash flows, and the willingness of bankers to finance such levered positions.

6. The financial instability hypothesis is pessimistic. Capitalism is flawed in that thrusts to financial and economic crises are endogenous phenomena. An institutional structure and a pattern of intervention may attenuate the thrust to malfunctioning but each success in containment leads to a further elaboration of the financial and economic relations that make the system crisis prone. Success is a transitory phenomena, although as the era since 1946 has shown the time in transit can be quite long.

7. Big government is necessary to contain depressions because only the deficits of big government can prevent a collapse of aggregate profits. Policy needs to be directed to constructing apt government: government that is resource creating and which provides real income outside of the fee for service markets.

We all hope that we are entering a post cold war world. In this world the problem of political economy is to create an effective government tax and spending structure that can do the job of stabilizing profits. Unfortunately successful capitalism requires government to be "big" and this in turn implies a need for taxes to be high.

8. The recent refinancing of the FSLIC shows that lender of last resort intervention ultimately depends upon the faith and credit of the government. This faith and credit is worth something in the market only as government tax and spending programs lead to net cash flows in favor of government when the economy is functioning well. The

government cannot be in a structural "Ponzi financing" posture: the in place tax and spending programs need to show a surplus, not necessarily now but when things are going well.

Thus, while the deficits that big government can run are necessary to sustain aggregate profits and therefore to contain thrusts to depressions, the viability of lender of last resort interventions depends upon government debt being acceptable in national and international portfolios. Such acceptability ultimately depends upon the government's ability to force a net cash flow in its favor, i.e. to run a surplus. Deficits therefore must be transitory and a response to well defined conditions.

9. There is nothing in principle nor in the facts of an economy with public and private debts that says that the United States cannot become an Argentina: a country whose debts, whether denominated in its own or in foreign currency, are not marketable.

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