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THE SOURCE OF FINANCIAL CRISIS

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INTRODUCTION This note summarizes some of the key arguments in the book that is now in draft.

There have been four waves of financial crisis in the last thirty years, involving more than forty countries. Each of these countries experienced an economic boom in the several years prior to the crisis, and each of these booms was a response to an increase in investment inflows, which together with increases in domestic credit led to higher prices for securities and to surges in household wealth and usually to increases in the prices of their currencies. The increases in the prices of securities was an integral part of the adjustment process to ensure that their were increases in their current account deficits that matched the increase in their capital account surpluses.

The trigger for each of the four waves of crisis was idiosyncratic but each involved a slowdown in the investment inflows, which led to declines in the prices of both the currencies and the securities. The cause or source of the crisis was the variability in the cross border investment flows, which was especially sharp when currencies were floating because of the impact of the changes in these flows on the prices of currencies and securities. When the inflows accelerated, the national economies were pumped up, and when they slowed, some of the borrowers that had been relying on money from new loans to pay the interest on their outstanding loans faced a cash crunch and the economies were deflated.

The measures that the U.S. government has been adopting to avoid a financial meltdown like the one in 2008 have been directed at the symptoms of the crisis rather than at its cause, and hence it is unlikely that they will forestall the next crisis. But in the meantime, year-in and year-out, the banks and the economy will carry incur the costs of these measures even though they will prove ineffectual. The symptoms of these booms include extensive leverage, excessive risk taking, faulty regulatory oversights, etc. Countrywide Financial, Northern Rock, Glitnir, Fuji Bank et al were responding to attractive profit opportunities; they could buy sub-prime mortgages and similar instruments only because they could sell their IOUs at very low interest rates.

Financial crisis occur when currencies both when currencies are pegged and when they are floating and even when a country is a member of a monetary union. Yet these cross border flows are significantly different when currencies are floating; the immediate impacts of these flows is to cause the prices of the currencies and the securities to increase above their long run equilibrium prices. The cross border flows then accelerate, even as the currencies become increasingly overvalued.

The inference from these waves of boom and bust cycles is that there is market failure, and that the lenders fail to foresee the long run consequences of their purchases of foreign securities. Moreover the regulatory community--the central banks, the bank regulators, the stock market analysts, the International Monetary Fund, the OECD--fail to recognize that the borrowers are on a non-sustainable trajectory, and that a crisis is likely or inevitable when the lenders slow their purchases of the borrowers IOUs.

The monetary constitution for the international currency arrangement that has prevailed since the early 1970s is the set of arguments advanced by Milton Friedman, Gottfried Haberler, Harry G. Johnson, and other giants of the economics profession in the 1950s and the 1960s. This set of the arguments is the monetary constitution of the currency arrangement of the last forty years, the counterpart of "the rules of the game" of the gold standard. They suggested that changes in the prices of currencies would be benign, focused on the impacts of shocks on cross border trade in goods; they neglected the impact of shocks on cross border trade in securities, which has negated most of the advantages claimed for a floating currency arrangement.

One of the major points in the book that is in progress centers on the distinction between the factors that are associated with the distribution of credit by various lenders and the factors that determine the total supply of credit in a country.

1 The analysis of the market developments in Iceland has had a major impact on analysis of similar events in the United States and other countries. The surge in cross border investment flows to Iceland began in 2002 and led to a rapid increase in the nominal and real prices of the Icelandic krona; Iceland had a small trade surplus in 2002 and then developed a massive trade deficit as a share of its GDP as the price of the krona increased in the next six years. The prices of the stocks of the three Icelandic banks and their assets and liabilities surged. About ten to fifteen percent of the assets of each bank consisted of the stocks of Icelandic firms including those of the two other banks; as stock prices surged, the capital of the banks increased. (The same process had been at work in Japan in the second half of the 1980s; it seemed like there was perpetual motion machine in Tokyo, as stock prices increased, bank capital increased, and banks were able to grow their loans which led some borrowers to buy more stocks which led to further increases in stock prices.) The arithmetic was that when stock prices stopped increasing, bank capital would stop increasing or increase far less rapidly, and the price-earnings ratios of the stocks of the banks would be phenomenally high--or perhaps infinitely high.

Hence the investment inflows led to higher prices for both the currency, and the prices of securities, and the increase in the price of securities and in household wealth was humongous because Iceland needed to develop a current account deficit that corresponded with the massive increase in its capital account surplus.

When I first visited Iceland in 2007, I had not appreciated that the agents involved in bringing investment money to Iceland were rogues. But it was obvious that the surge in

stock prices in Iceland was related to the investment inflows and to the boom in real estate prices in the United States and Britain and a few other countries.

2. One of the shortcomings in the analysis of the U.S. financial crisis of 2008 is its US-centric bias, and the failure to link the market developments in the United States with those in Britain, Iceland, Ireland, Spain, and other countries that were occurring at the same time--and to understand the similarity between these market developments with those in Mexico and Brazil and other developing countries in the 1970s and with those in Asia in the first half of the 1980s.

The second shortcoming is the confusion in the popular description between the factors that limit the supply of credit in a country with the factors associated with the distribution of credit. S.C. Gwynne wrote *Selling Money* in 198x; he was a young banker in Cleveland and his assignment was to grow the international department of his bank. He traveled to Latin America and the Philippines in search of borrowers, the Cleveland bank could readily source the money for loans if it could identify borrowers. Someone in Cleveland had calculated, if we can earn X percent on the loans we buy, and pay Y percent when we sell our IOUs to others, the spread X-Y will be large enough to compensate for the risks. The Cleveland bank was involved in both the creation of credit and the distribution of credit, and it sought to increase its market share. The Cleveland bank could not have bought the IOUs of the borrowers in Latin America if it could not have sold its own IOUs. The limits to the supply of credit in each country is set by the sum of investment inflows and the creation of credit by its domestic banks.

The counterpart of the observation that three, four, or more countries experience financial crisis at the same time is that these countries previously experienced economic booms at the same time. The intuition is that the shocks that lead to these booms are external to these countries.

The list of the "causes" of the U.S. crisis in 2008 includes excessive leverage, faulty compensation practices, sloppy or casual regulation, etc. These factors are symptoms of an expansive supply of credit, but they do not provide an understanding of why the credit supply increased rapidly.

The questions that must be answered include why the supplies of credit to the Government of Mexico and the governments in many other developing countries increased rapidly in the 1970s, and why the supply of credit to real estate investors in Japan increased rapidly in the second half of the 1980s. Similarly why did the supply of credit to U.S. real estate investors increase so rapidly after 2008.

3. Ragnar Nurkse in his classic *The International Currency Experience* concluded that speculation in the French franc in the 1920s had been de-stabilizing. He meant that there was a feedback effect from investor sales of the franc in anticipation that its price would decline further to an even higher inflation rate in France that would lead to an increase in

investor sales of the French franc. Nurkse's view is captured in the cliché of "vicious and virtuous cycle."

The model that was implicit in Nurkse's discussion linked changes in the nominal and real price of the currency to changes in France's trade balance, and to domestic prices and incomes in France.

4. Milton Friedman responded to Nurkse's statement that speculation would be destabilizing in his classic 1950 essay, "The Case for Flexible Exchange Rates." Friedman restated his position in a debate with Robert Roosa at the American Enterprise Institute in 1966, and in a debate with Charles Kindleberger at the Melvin Village Conference sponsored by the Federal Reserve Bank of Boston in October 1971. The gist of the Friedman response was that if speculation were destabilizing, the speculators would lose money and go out of business and be replaced by stabilizing speculators. At the AEI debate, Friedman said there was no evidence of destabilizing speculation, he viewed Nurkse's argument as a special case because the finances of the French government were in a precarious state. Moreover Friedman said that speculation had not been destabilizing in the Canadian dollar in the 1950s.

Friedman believed that the currency market was rational, or that it would be rational in the long run, and that the lenders and the borrowers engaged in cross border investment flows could foresee the consequences of their choices.

4. Friedrich Hayek Hayek's view is relevant because some conservative economists have the intuition is that the market in currencies is different from the markets in stocks and bonds and pork bellies.

5. Several observers have noted that my remarks about the source of asset price bubbles are similar to Hy Minsky's statement that the changes in the supply of credit are procyclical; as an economic expansion continues, the lenders become less risk averse. Minsky distinguished among hedge finance, speculative finance, and Ponzi finance on the basis of the relationship between the increase in indebtedness and the borrowers' interest payments on their indebtedness.

My initial response was that I was "internationalizing the Minsky story" about the procyclicality in the supply. Subsequently I have distinguished between the increase in the indebtedness of the borrowers in a country, and the increase in the external indebtedness of the country; thus the Icelandic residents borrowed extensively from the Icelandic banks at the same time that these banks were borrowing extensively from banks headquartered in various European countries.

Moreover I have developed a coherent story that illustrates how an increase in cross border investment flows to a country when its currency is floating (and when its currency leads to an increase in household wealth and an ensuing economic boom like the ones in Iceland; this boom is an integral part of the adjustment process that ensures that the country's current account deficit increases to match the increase in its capital account

surplus. The boom triggers an accelerator that leads to more rapid increases in the borrowers' indebtedness and in the external indebtedness of the country even as the country's currency is becoming increasingly overvalued; the borrowers and the country have primary deficits and they are on non-sustainable trajectories.

6. Each of the forty financial crisis since the early 1980s has followed from the implosion of an asset price bubble. The source of each of these crisis is that the borrowers' indebtedness increased more rapidly than their incomes and than the interest payments on their indebtedness. Similarly the external indebtedness of each country increased more rapidly than its GDP and the interest payments on its external indebtedness. The rapid growth of indebtedness was associated with economic booms. It was inevitable that the lenders would become more cautious and that the borrowers would have to adjust to a slowdown in their ability to borrow. The boom inevitably is followed by the crisis (but not all booms are followed by a crisis).

6. Each of these asset price bubbles since the early 1980s has been associated with an increase in investment flows to a country; if the country's currency is floating, the price of the currency increases. (China is the major exception to this statement.) Moreover the investment flows to a country often accelerate; thus the prices of the currencies of these countries and the ratios of their trade and their current account deficits to their GDPs increase until the onset the crisis.

7. The "overshooting" of currencies in the last forty years--the increase in their prices relative to the prices based on any measure of the long term equilibrium prices--does not have a counterpart when currencies have been pegged. Currencies became overvalued when they were pegged because the domestic price levels in these countries increased more rapidly than those in their trading partners.

8. The Dornbusch story was that the cause of "overshooting" was the sluggish response of importers and exporters to the deviation of the market price of the currency from its long term equilibrium price. This statement cannot be disproved, it is a tautology. The cause of overshooting is that investors want to buy a particular currency because they want to change the currency composition of the securities in their portfolios; the investors need to buy the currency from the goods market traders. If importers and exporters adjusted instantly so that overshooting would not occur, the price of the country's currency would barely change. The cause of overshooting is that the cross border investment flows to a country accelerate, and the pace of the increase in these flows is more rapid than the ability of importers and exporters to adjust to the increase in the divergence of the market price of the currency from its long run equilibrium price.

9. When I review the asset price bubble in Iceland, I ask, "What is the date after which a financial crisis in Iceland was inevitable?" (The question could be re-phased, "What is the date after which a crisis was fifty percent inevitable--or seventy five percent inevitable?") My answer is the Spring of 2005, or thirty months before the crisis. The explanation is that the indebtedness of the Icelandic borrowers to the Icelandic banks had been increasing much more rapidly than their incomes; these borrowers were on a non-

sustainable credit trajectory. Moreover these borrowers had primary deficits; the increase in their indebtedness was larger than their interest payments. The liabilities of the Icelandic banks denominated in the Euro had been increasing more rapidly than Iceland's GDP--and Iceland the country had a primary deficit in its international payments; the increase in its indebtedness was larger than its interest payments. It was inevitable that at some stage the lenders would become more cautious and slow the increase in the borrowers' indebtedness; the price of the Icelandic krona would decline, and probably sharply because the elasticity of Iceland's exports and its imports with respect to changes in the price of the krona was low. At that time some of the borrowers would no longer have enough cash to pay the interest on their indebtedness. Moreover the Icelandic banks would no longer have enough Euros from their new loans to pay the interest on their outstanding loans. The decline in the price of the krona would lead to a proportional increase in the krona equivalent of debt denominated in the Euro; the debt to income ratios of the borrowers and of Iceland the country would spike. The Icelandic banks would be caught between an increase in loan losses as borrowers defaulted, and an increase in the krona required for their debt servicing commitments. Finally each of the Icelandic banks owned stocks--perhaps ten to fifteen percent of their assets were the stocks of the fifteen Icelandic companies including those of the two other banks--and when stock prices declined, bank capital would decline, and banks would have to shrink their balance sheets.

All of this was predictable from the rapid increase in indebtedness and from the standard observation that debt cannot increase more rapidly than income for an extended period.

10. I developed a model to explain the increase in the price of securities in a country stocks in response to autonomous increase in its capital account surplus--or in the case of Japan in the second half of the 1980s, an unanticipated decrease in its capital account deficit-- the economy must adjust to ensure that there is a comparable increase in its current account deficit. This model was inspired by Keynes' analysis of the transfer problem in *The Economic Consequences of the Peace*. My model focuses on "absorption"; when there is an increase in investment flows to a country, adjustments must occur to ensure that the real resources--the goods and services--that are the counterpart of the investment flows are absorbed. The invisible hands are at work, the price of the country's currency increases. and the price of securities increase, and the positive wealth effect leads to a surge in consumption spending. The increase in spending associated with the increase in household wealth must be sufficiently large to more than offset the increase in spending on foreign goods as a result of the increase in the price of domestic currency.

11. The innovation in my explanation is that the asset price booms are an integral part of the adjustment process that ensures that the increase in the demand for imports is sufficiently powerful so that the induced increase in the country's current account deficit continuously corresponds with the autonomous increase in its capital account surplus.

12. The absorption process is symmetric; when the cross border investment flows to a country decline, the price of securities in the country decline, and the price of the

country's currency also declines. Chapter 3 of the book focuses on the relationship between banking crisis and currency crisis (which are subsets of financial crisis); every currency crisis has been associated with a banking crisis and ninety percent of the banking crisis are associated with banking crisis. The pairing between these two types of crisis since the early 1980s does not have a counterpart when currencies were pegged. Japan is an exception to this pairing; it did not have a currency crisis in the early 1990s because it had a current account surplus. The United States did not have a currency crisis even though it had a current account deficit because this deficit was financed by the sale of U.S. dollar securities, and the revaluation losses that resulted from the decline in the price of the U.S. dollar were incurred by foreign residents.

When the money inflows to a country decline, its trade deficit declines, there are fewer resources to be absorbed, the goods price level increases, and prices of securities decline.

13. Japan experienced the "mother of all bubbles" in the second half of the 1980s, stock prices and real estate prices increased by a factor of three. Japan had a current account surplus, in part because the price of the yen declined sharply in the first half of the 1980s. The Japanese authorities were reluctant to allow the price of the yen to increase because of the adverse impact on the competitive advantage that had been gained from the decline in the price of the yen in the first half of the 1980s. During the second half of the 1980s, the foreign demand for Japanese stocks increased because of the combination of the increase in the price of the yen and the increase in the price of Japanese stocks. Japan's capital account deficit declined in response to the purchases of Japanese stocks by American and other foreign investors.

Adjustments were necessary to ensure that Japan's current account surplus would decline and correspond with the autonomous decline in its capital account deficit; in part the adjustments were responses to the increase in the price of the yen and in part to the increase in consumption spending in response to the surge in household wealth. The ratio of Japan's imports to its GDP is much lower than the ratio for Iceland, and most of its imports are primary products. Hence even though the change in Japan's capital account balance was much smaller than the change in Iceland's capital account balance, Japan needed a very large increase in the prices of securities and household wealth to effect the required reduction in its current account surplus.

14. The United States experienced a sharp increase in its current account deficit in the first few years of the twenty first century; at the same time, the price of the U.S. dollar decreased. Two factors explain why the change in the price of the U.S. dollar was an outlier to the pattern of an increase in the price of a country's currency and an increase in its trade deficit. The first factor is that the price of the U.S. dollar had peaked in 1999 as investors moved money to the United States to buy stocks; once stock prices declined, it was predictable that these investors would withdraw money from the United States and the price of the U.S. dollar would decline. The second factor is that the U.S. trade deficit began to increase as a result of the surge in Chinese exports and the decision by the Chinese authorities to use part of the increase in their export earnings to finance the purchase of U.S. dollar securities. In this case, the autonomous shock was the increase in

the U.S. current account deficit, and there was an induced increase in the U.S. capital account surplus.

Employment in U.S. manufacturing declined in response to the increase in the U.S. trade deficit; employment in construction and the array of activities associated with home building--appliance manufacturing, landscaping, real estate brokerage, mortgage financing, window treatments, etc--increased as the economy adjusted to the increase in the capital account surplus with increases in the prices of U.S. dollar securities and a housing boom.

15. In virtually all of country episodes the increase in the borrowers' indebtedness was more rapid than the increase in their income and their interest payments; these borrowers had primary deficits. The increase in the external liabilities of these countries (again with the exception of Japan) was more rapid than the increase in their GDPs and their interest payments on their indebtedness; the countries had primary deficits in their international payments. Any shock that led to a slowdown in money flows to these countries or to the borrowers would lead to a decline in the price of the currency; a modest decline might trigger an avalanche because one of the arguments for buying and holding the currency is that its price had been increasing and would continue to increase.

16. The trigger for each financial crisis is an idiosyncratic event that leads lenders to become more cautious in extending credit to the borrowers. The trigger for the early 1980s developing country crisis was the surge in interest rates on U.S. dollar securities following the dramatic change in U.S. monetary policy in October 1979. The trigger for the early 1990s crisis in Japan was the guidance of the governor of the Bank of Japan that the banks should limit the growth of their real estate loans to the growth of their total loans. The trigger for the crisis in Mexico was a series of political incidents that began in January 1994. The trigger for the U.S. financial crisis in 2008 was the decline in the foreign demand for U.S. dollar securities that began toward the end of 2006.

In contrast, the source or cause of each crisis is generic; the borrowers are on a non-sustainable trajectory because their indebtedness had been increasing more rapidly than their incomes and they had primary deficits; they would be moved off the trajectory whenever the lenders became more cautious.

17. The puzzle is that the lenders fail to see that the borrowers almost always are on a non-sustainable trajectory for the increase in their indebtedness and that some of the borrowers will default when they no longer can finance a primary deficit. The regulatory community--the central banks, the finance ministries, the bank regulators, the stock market analysts that focus on banks, the credit rating agencies, the International Monetary Fund, the OECD--also failed to foresee the end game.

The IMF has a larger institutional memory of crisis than any other institution. The Fund still does not understand that it presides over a dysfunctional international monetary arrangement.

18. Banking crisis occurred under the gold standard. Currency crisis occurred under the Bretton Woods arrangement of a pegged currency, yet none was associated with a banking crisis. The adjustment process in response to the autonomous increase in the demand for the securities when the country's currency is pegged differs from when it is floating; the obvious difference is that the price of the currency does not increase. There is no necessity for the country's current account deficit to increase to correspond with the increase in its capital account surplus; instead the central bank's holding of international reserve assets will increase. The price of securities in the country increase in response to the increase in demand, but it is not necessary for the positive wealth effect to motivate an increase in the country's current account deficit. Hence an initial increase in the cross border flows when a currency is pegged is less likely to have a positive feedback

19. The variability in economic activity--the boom and bust cycle so evident in more than forty countries--reflects the variability in cross border investment flows. The stylized fact is that these flows have been much more variable when currencies have been floating, and the evidence is that the deviations between the price of a currency in the market and its long run equilibrium price have been much greater than when currencies have been pegged. The term "overshooting" had no counterpart when currencies were pegged.

20. Greece, Portugal, Ireland and Spain have had financial crisis, even though they are parts of a monetary union. The process is similar to that when currencies are floating, there was a massive flow of credit to these countries and they incurred current account deficits that were the counterpart of their large capital account surpluses. The indebtedness of the borrowers was increasing more rapidly than their incomes, they had primary deficits; similarly the countries had primary deficits. Texas had a financial crisis in 1982; all of the large Texas banks failed.

21. The firms that trade currencies have benefited enormously from the variability in the prices of currencies. In 1980 eighty percent of the revenues of Morgan Stanley were from traditional investment banking activities including underwriting securities and providing advisory services, and twenty percent were from trading currencies and securities. In 2006, eighty percent of the revenues were from trading. The ratio of revenues from traditional activities to GDP had not changed; rather trading revenues had surged. Similar statements could be made about Goldman, and Deutsch Bank.

The firms that trade currencies have taken a lot of money "off the table." The source of this money is a puzzle, no one has complained that they are been overcharged. An explanation for the source of the money is provided in chapter 7.

22. The changes in the prices of currencies in the last forty years have been much larger than those promised by Milton Friedman, Gottfried Habeler, Harry G. Johnson, Fritz Machlup and other proponents of floating rates in the 1950s and the 1960s. Their articles are the monetary constitution for the floating currency arrangement that has prevailed since the IMF arrangement of adjustable parities became obsolete in the early 1970s. These articles are comparable to the "rules of the game" of the gold standard--a set of

positive statements about the changes in the prices of currencies. The proponents suggested that changes in the prices of currencies would be gradual and benign, and track the differentials between the changes in price level in a country and changes in the price levels in its trading partners. They argued that the deviations from long term equilibrium prices of currencies would be smaller than when currencies were attached to parities.

The proponents asked rhetorically, "Is it preferable that the prices and incomes in each economy adjust to maintain the parities of currencies, or that the prices of the currencies adjust to reduce the amount of adjustment that is required of changes in prices and incomes?" The question is loaded; the proponents assumed that most observers would conclude that it was less costly if the price of the currency changed rather than if the domestic prices and incomes were to change so the fixed price of the currency would be sustained.

The observed changes in the prices of currencies have been extremely large relative to the changes that would be predicted by the changes in the inflation differentials. Return to the loaded question asked by the proponents, "Is it preferable...?" Because of the large changes in the prices of currencies that result from the cross border investment flows, these various national economies must adjust to high values for their currencies and then to low values for their currencies. Now national price levels and income levels must adjust even as the prices of currencies adjust.

One of the claims of the proponents was that national economies would be more fully insulated from external shocks in other countries because uncertainty about the prices of currencies would deter cross border investment flows. (The proponents were on both sides of the uncertainty issue; their response to the assertion of the critics that uncertainty would trade and investment was that the uncertainty could be hedged, but then uncertainty would not deter cross border money market arbitrage. Nurkse had a brief remark about the cost of hedging, which appears to have been ignored by the proponents, but it is unlikely that hedging would be a free lunch.)

Uncertainty about the prices of currencies might provide greater insulation in one country from a real income shocks in other countries than would occur when currencies were attached to parities. The benefits of increased insulation from shocks in foreign countries should be compared with the costs to national economies as they are jerked around by changes in cross border investment flows, which may or may not be related to these flows.

What remains of the case for a floating currency arrangement? The major advantage is that the changes in the prices of currencies are de-politicized. But the economic advantages of a floating currency arrangement are spurious, while the costs include that prices and incomes in national economies are jerked around by the changes in cross border investment flows. In the gold standard years, the cross border investment flows led to higher levels of investment in the capital importing countries. When currencies have been floating, these flows have led to consumption booms in the countries that

experience the money inflows. The firms that trade currencies have taken a lot of money off the table even as their transactions may cause some of the changes.

The costs of the floating currency arrangement to the United States should be distinguished from its costs to the global economy. The absence of "rules" has meant that China, Singapore, Malaysia, and a number of other countries have intervened to maintain low prices for their currencies because they want to achieve trade surpluses to stimulate employment in manufacturing. As a result, and because of their preference for U.S. dollar denominated securities, the U.S. trade deficit increased. The U.S. tradable goods sector and the U.S. economy has been jerked around by the changes in the foreign demand for U.S. dollar securities. The profit rate in the U.S. tradable goods sector has been depressed by the undervaluation of foreign currencies--and because the profits to sales ratio is low, a seemingly small percentage undervaluation can lead to a large decline in the profit rate.

The arguments about the exorbitant privilege that Giscard d'Estaing and General de Gaulle made when foreign currencies were pegged to the U.S. dollar are irrelevant in a world of floating currencies.

23. What explains the chasm between the case for floating rates developed by the proponents and the stylized facts about the pattern of changes in the prices of currencies in the last forty years? Some of the proponents had a strong commitment to free markets, and could not accept the view that the market in national monies is different from the markets in stocks and pork bellies. They believed that the shocks would be primarily in the goods market, and that the transactions of investors would dampen the changes in the prices of currencies. Instead the shocks have been primarily in the financial markets, and have involved surged in cross border investment flows. In retrospect it seems as if the proponents should have analyzed the model that was implicit in Nurkse's evaluation of changes in the price of the French franc in the 1920s rather than treat it as a special case.

24. One chapter in the book deals with policy implications at the international level; the key question is how to reduce the likelihood that national economies will be subject to boom and bust cycle because of the variability in the cross border investment flows. Should there be ad hoc modifications to the floating currency system or instead is it preferable to return some form of pegged rate system--and if so, what would be the features of this system.

This choice is a version of the rules vs. discretion. The modifications would include measures to constrain capital flows while retaining the framework of a floating rate arrangement; the path is one of increasing ad hocery. The alternative is to arrange a new set of commitments that central banks would make about intervention in the currency market to limit the range of movement in the prices of their currencies as a way to moderate the shocks from cross border investment flows.

A floating currency arrangement seems preferable if the shocks are primarily in the goods market; the changes in the prices of currencies would be gradual and continuous and conform to the model that was implicit in the claims of the proponents. A pegged rate

arrangement seems preferable if the shocks are primarily in the financial markets; most of these shocks are short term transient events. The choice is whether the costs of coping with short term transient monetary shocks are worthwhile in the terms of the greater flexibility in dealing with goods market shocks.

25. One chapter focuses on the domestic U.S. policy choices. An array of regulations are being adopted to reduce the likelihood of another financial crisis without any understanding or agreement of the causes of the 2008 crisis. A key question is whether there will be changes in the international currency arrangements that will lead to a significant reduction in the likelihood and severity of external shocks.

One of the primary motives for domestic financial regulation is to reduce the likelihood that the depositors will incur losses if the banks fail. Another motive is to protect the economy from the disruption because banks fail.

One of the recent cliches is "Too Big to Fail". The authorities are embarrassed when a bank fails and public money is necessary to prevent the bank from closing. Citibank and Bank of America failed. AIG failed. The shareholders lost most of their wealth. The managements were replaced.

There are strong arguments for de-consolidating the four largest U.S. banks. The TBTF is a red herring; if there is a large asset price bubble like the one between 2003 and 2007, the immense financial losses when the bubble implodes must be borne by households and then the banks; when the hit to bank capital becomes too large, the government must intervene to prevent the financial system from imploding. The U.S. government would have had to intervene in 2008 under almost any scenario about the size distribution of banks. (And the U.S. government should have intervened on the Monday to save Lehman rather than on Tuesday, when it invested in AIG; that delay of one day was the most costly mistake in U.S. financial history.) The insight from the profits that the U.S. government has achieved on its TARP investment and its investment in AIG is that markets fail when asset prices tumble sharply. If the crisis is large because the massive imbalances had developed in the boom years, the size of the banks will be irrelevant; many banks will have to be saved to prevent the system from imploding. The real issue is not whether they are saved, but how they are saved.