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Is a Plumber or a New Financial Architect Needed to End Global International Liquidity Problems?*

How one interprets volatility in the international financial markets and therefore chooses a policy stance regarding these markets depend on the underlying economic theory that one explicitly, or implicitly, utilizes to explain the role of financial markets in a market-oriented entrepreneurial economy. There are two major alternative theories of financial markets: (1) the classical efficient market theory (hereafter EMT) and (2) Keynes's liquidity preference theory (hereafter LPT). Each produces a different set of policy prescriptions. EMT advocates call for a liquidity plumber to patch up some short-run stresses in today's efficient international financial flow system. LPT proponents believe that the current system is structurally flawed. Consequently, it will require an architect to build a new international financial structure on more solid foundations.

EMT is the backbone of conventional economic wisdom. The mantra of EMT is "the market knows best" how to optimally allocate scarce capital resources and promote maximum economic growth. This EMT view was succinctly epitomized in U.S. Treasury Secretary Summers's statement: "the ultimate social functions [of financial markets are] spreading risks, guiding the investment of scarce capital, and processing and disseminating the information possessed by diverse traders … prices will always reflect fundamental values . … The logic of efficient markets is compelling" (Summers and Summers, 1989, p. 166).

In contrast, the logic of Keynes's LPT indicates that the primary function of financial markets is to provide liquidity, not efficiency. (And a liquid market requires *orderliness*.) If Keynes's LPT of orderly financial markets is relevant, then the real world's international capital markets may never deliver, in either the short-run or the long-run, the results claimed by EMT.

Peter L. Bernstein, the author of the best-selling book entitled *Against the Gods* (1996), a treatise on risk management, probability theory, and financial markets, argues that the LPT and not the EMT is the relevant theory for the world in which we live. He states, "The fatal flaw in the efficient market hypothesis is *that there is no such thing as an* [*efficient*] *equilibrium price* … a market can never be efficient unless equilibrium prices exist and are known" (1998b, emphasis in original).In other words, in Bernstein's view, EMT is not applicable to real world financial markets.

If EMT is not applicable to the real world, then there is an important role for rebuilding the system to permit some degree of international capital flow regulation as a necessary but not sufficient condition for producing a golden age of economic development for the global economy of the 21st century. Since the 1970s, however, the compelling logic of EMT has provided the rationalization for nations to dismantle most of the ubiquitous regulations of postwar international financial markets. The justification for this "liberalization" of financial markets is that it will produce lower real costs of capital, greater growth rates of output and productivity, and more employment opportunities compared to the rates experienced between World War II and 1973 when international capital flow controls were practiced by most countries of the world, including the United States.[1]

What are the facts and do they support this EMT argument for financial liberalization? Section I provides evidence showing that the post-1973 period of capital market liberalization has not delivered what efficient market theorists claimed it would. Sections II to V explain why, if we use Keynes's LPT instead of EMT for understanding real world financial markets, this evidence should not surprise us. Section VI explains why the EMT's recommended plumbing solutions will not solve the growing global liquidity problems. Section VII provides an architectural solution to the problem.

I. The facts

In these days when Asian tigers collapse, Russian bears default, and the Brazilian "real" reels and menace our global economy, we are being haunted by Minsky's (1982) frightening financial fragility question: "Can 'it' happen again?" Can we have another Great Depression at the beginning of the 21st century? Bernstein, on the other hand, has noted that since World War II, "the number of stock markets around the world has grown from 50 to just over 125 – even the Chinese,

nominally still socialists have seen fit to establish stock markets on their territory". Accordingly, if financial markets are, as Minsky (1978) suggests, so fragile and destabilizing, why are so many emerging economies using them?

Writing in 1936, Keynes noted, "It is enterprise which builds and improves the world's possessions. … Speculators may do no harm as bubbles on the steady stream of enterprise. But the position is serious when enterprise becomes the bubbles on a whirlpool of speculation". The historical record (see Table 1.1) indicates that, since 1973, enterprise has slowly become enmeshed in an ever-increasing whirlpool of speculation. The quarter century ending in 1973, on the other hand, was an era of unsurpassed economic global prosperity that Adelman (1991) has characterized as a "Golden Age of Economic Development … an era of unprecedented sustained economic growth in both developed and developing countries".

Table 1.1 provides the statistical evidence (augmented by more recent data) that Adelman used in reaching her golden age conclusion. Adelman (1991, p. 15) found that the *average* annual growth rate of

Table 1.1 Real GDP (Annualized Growth Rate)

Years	**Real GDP Per Capita**		
	World	**OECD Nations**	**Developing Nations***
1700–1820	na	0.2%	na
1820–1913	na	1.2%	na
1919–1940	na	1.9%	na
1950–1973	na	4.9%	3.3%
1973–1981	na	1.3%	na
1981–1990	1.2%	2.2%	1.2%
1991–1993	−0.4%	0.6%	2.6%
1994–1995	1.3%	2.3%	2.9%
	Total Real GDP		
	World	**Industrial Nations**	**Developing Nations***
1950–73	na	5.9%	5.5%
1966–73	5.1%	4.8%	6.9%
1974–80	3.4%	2.9%	5.0%
1981–90	2.8%	2.9%	2.4%
1991–97	2.2%	1.9%	5.0%
1997–99 (est.)	3.0%	2.4%	4.0%

* Excluding Eastern and Central Europe and the former Soviet Union
Sources: Adelman (1991); IMF(1999); United Nations (1999)

OECD real GDP per capita from 1950 till 1973 was "almost precisely double the previous *peak* growth rate of the industrial revolution period. Productivity growth in OECD countries was more than triple (3.75 times) that of the industrial revolution era".

The resulting prosperity of the industrialized world was transmitted to the less developed nations through world trade, aid, and direct foreign investment. From 1950 to1973, *average* growth in per capita GDP for *all* less developed countries (LDCs) was 3.3 percent, almost triple the *average* growth rate experienced by the industrializing nations during the industrial revolution. Aggregate GDP of the LDCs increased at almost the same rate as that of the developed nations, 5.5 percent and 5.9 percent, respectively. The higher population growth of the LDCs caused the lower per capita income growth.

Since 1973, when the free world changed from a fixed to a flexible exchange rate system, the annual growth rate in investment in plant and equipment in OECD nations fell from 6 percent (before 1973) to less than 3 percent (since 1973). Less investment growth meant a slower economic growth rate in OECD nations (from 5.9 percent to 2.8 percent), while labor productivity growth declined even more dramatically (from 4.6 percent to 1.6 percent). Although experiencing slower growth rates than in the 1950–73 period, LDCs on average did better than the industrialized nations since 1973, in no small measure due to the now-ended "economic miracle" of Southeast Asia.

Today's world unemployment situation is very grim. According to the ILO (1998), the number of unemployed and underemployed workers – approximately one billion or 1/3rd of the global labor force – has never been higher. There are 150 million workers involuntarily unemployed globally. Although the unemployment rate in the European Union (EU) has declined since 1996, the ILO estimates there are still 18 million unemployed in the EU. In the 1990s, unemployment rates in many industrialized nations reached and remained close to historical highs not seen since before World War II; only the United States seems to have snapped back vigorously from the recession of 1991. Nevertheless, the Federal Reserve chairman, Alan Greenspan, has indicated that the United States cannot remain an island of prosperity in the global sea of recession and depression.

What can we conclude from these facts? First, financial liberalization since 1973 has not produced the achievements its advocates claimed it would. Table 1.1 clearly demonstrates that during the post-war period, until 1973, global economic performance was nothing short of spectacular. Since then global economic performance has been comparatively worse as the system stumbled from one economic

liquidity crisis to another, e.g., stagflation in the 1970s, the Latin American and African Debt problems of the 1980s, and the international currency crises of the 1990s. In the 1990s, there has been a major financial crisis every two to three years: the 1992 EMS currency crisis, the 1994–5 Mexican pesos crisis, the 1997 Asian crisis, the 1998 Russian debt default, and the 1998–9 Brazilian real crisis. Economics has once more become the dismal science.

II. Explaining the facts

Until 1973, the postwar international payments system was, in large measure, shaped by Keynes's thesis that flexible exchange rates and free international capital mobility are incompatible with global full employment and rapid economic growth in an era of multilateral free trade (Felix, 1977–8). Until 1973 the international payments system accommodated Keynes's "incompatibility thesis". This accommodation occurred when a fixed exchange rate system with widespread international capital-flow regulations was combined with a civilizing principle that Keynes had emphasized, namely, that creditor nations must accept a major responsibility for solving persistent international payments imbalances.

Unfortunately, the essence of Keynes's *General Theory* analysis of a money-using, market-oriented, entrepreneurial economy was never incorporated into orthodox economic theory. Accordingly, by the 1960s, mainstream classical economists were developing closed and open economy models based on three classical axioms that Keynes had overthrown.[2] These classical (supply-side) models "demonstrated" that Keynes's incompatibility thesis was wrong. These classical models "proved" that free trade and optimum global economic growth required flexible exchange rates, free international capital mobility, and flexible domestic labor markets. In these classical models, regulation to limit financial flows (whether cross-border or within a nation) imposed huge costs on society. Free the banking system and financial markets from "onerous" government oversight and regulation, permit unregulated off-shore banking, and, policy makers were assured, a world of heavenly economic bliss would envelop the planet. Only the supply-side limitations of available resources and the level of technical progress would prevent the immediate achievement of a Garden of Eden on Earth.

Samuelson's formalization of the *Foundations of Economic Analysis* (1947) hamstrung the "Keynesian" response to this classical counter-revolution. Samuelson's book, which provided the microfoundations

for Neoclassical Synthesis Keynesianism, imposed on all economic theorizing the three classical axioms that Keynes had rejected (Davidson, 1984). This unfortunate marriage of classical axioms with Keynesian macro policies was dubbed "Bastard Keynesianism" by Joan Robinson. The logical inconsistency between their micro- and macroeconomic models made these Neoclassical Synthesis Keynesians easy prey for the classical counterrevolution. Nevertheless, this successful academic resurrection of the classical system would have not been sufficient to alter the policy mix if it were not for events of the 1970s.

The 1973 oil price shock created huge international payments imbalances and unleashed inflationary forces in oil-consuming nations. Politicians found irresistible the allure of the Panglossian siren song that "all is for the best in the best of all possible worlds provided we let well enough alone". Without having to admit that they did not know what to do, policy makers used the conclusions of the 1960s classical counterrevolutionary theories to justify their abandonment of Keynes's international policy prescriptions to constrain "hot money" international capital flows and to maintain fixed, but adjustable, exchange rates. Instead, a "leave it to the efficient marketplace" philosophy was adopted. Then, if anything went wrong, policy makers could suggest that they could not be blamed – for, after all, the market "knows" best, as Nobel prize winners Friedman,[3] Lucas, Merton, and Scholes continually assure us.

The resulting new international world of finance made the exchange rate itself an object of speculation. Utilizing new computer technology, financial capital could speed around the globe at the speed of light. Since the mid-1970s, international financial transactions have grown 30 times as fast as the growth in international trade (Felix, 1997–8). International financial flows now dominate trade payments. Exchange rate movements reflect changes in speculative portfolio positions rather than changes in patterns of trade.

For a quarter century, Tobin (1974) has been almost the only voice with significant visibility in the economics profession warning that free international financial markets with flexible exchange rates can be extremely volatile and can have a "devastating impact on specific industries and whole economies" (Eichengreen, Tobin, and Wyplosz, 1995). Significant exchange rate movements affect the international competitive position of domestic vis-à-vis foreign industries and therefore tend to depress the inducement to invest in large projects with irreversible sunk costs.[4] In an uncertain (nonergodic) world where the future cannot be reliably predicted from past and present

price signals, volatile exchange rates undermine entrepreneurs' confidence in their ability to appraise the potential profitability of any large investment project. Every exchange rate increase threatens domestic industries not only with significant loss of export-market share but also with loss of home-market share, as imports become less expensive. Managers realize that any upward blip in the exchange rate during the lifetime of any contemplated real investment project can saddle their enterprises with irreversible, costly idle capacity. Consequently, the marginal efficiency of investment is reduced. The greater the uncertainty regarding future exchange rates, the less the investment globally – just as Keynes's (1936, ch. 17) analysis of liquidity preference and investment predicted. As a result, trade and real investment spending in open economies have become the tail wagged by the international speculative exchange rate dog.

In sum, instead of producing the utopian promises of greater stability, more rapid economic growth, and full employment claimed by classical economists, liberalization of capital flow regulations has been associated with exchange rate instability, slower global economic growth, and higher global unemployment. Liberalization drove the final nail into the coffin of the postwar golden age of economic development. The post-1973 international payments system did not serve the emerging global economy well. The *Financial Times* of London and *The Economist*, both early strong advocates of the post-1973 floating rate system, acknowledged that this system is a failure and was sold to the public and the politicians under false advertising claims.[5] In its September 26, 1998 (p. 80) issue, *The Economist* concluded that a pure floating rate or a dirty (semi-fixed) floating exchange rate was of "no use".

The issues of trade, debt, and currency exchange rates are intertwined, and today's liberalized international financial system is on a course that could lead to an economic calamity.[6] Yet no governmental policy maker or IMF and/or World Bank official wants to speak out and be accused of setting off a panic. The most sober judgment of these officials is that the best thing that can be done now is to buy more time by making plumbing adjustments to head off a crash and hope for the global economy to right itself in the long run, as the EMT theory predicts. Apparently, those decision makers in power are not going to take on fundamental reform measures until they are forced to by crisis. It appeared that the Asian financial crisis and the 1998 Russian debt default that led to the paralysis that seized financial markets in the late summer-early fall of 1998 were sufficient events to finally galvanize public opinion and political leaders in favor of the need for major international monetary

institutional reforms. Even the advisers to President Clinton were perturbed enough to encourage the president to speak out for the need for a new international financial architecture.

But as Garten (1999) noted, the global economy stepped back too quickly from the brink in 1999. The crisis receded and no reforms were launched. Instead, Keynes's (1936, p. 158) aphorism "Worldly wisdom teaches that it is better for reputation to fail conventionally than succeed unconventionally" again seems to rule the day. There is no national leader willing to challenge conventional economic analysis and call for a *complete* and *thorough* overhaul of an international payments system that is far worse than the one we abandoned in 1973. Instead there are calls for plumbing patches on the current payments system in terms of a marginal transactions tax here and/or a marginally larger lender of last resort (LOLR) there, and/or marginally higher capital adequacy ratios for banks as part of a package for more "transparency", and even inconsistent calls for Keynesian spending in Japan while lauding fiscal budget surpluses in the United States and reducing government deficits in the EU. There is no one with significant media visibility who has the courage to speak out in public forums and suggest that the classical economic philosophy that has rationalized our international macroeconomic affairs in recent decades is a formula for potential economic disaster at worst and modest global economic growth at best.

Until we reform the basic architecture of the world's international payments system it will be impossible for any individual nation, except perhaps the United States, to undertake national macro policies to maintain high levels of aggregate demand internally without fear of a balance of payments constraint. As long as the U.S. dollar is the main form of foreign reserves, only the United States does not have to worry about a balance of payments constraint. Accordingly, since 1981, the United States has run large trade deficits with impunity. Because of the United States' large trade deficit in 1998, the effective demand of the global economy is $200+ billion higher and the global economy is better off than it would have been if the U.S. was constrained by its huge current account deficit.[7]

With the introduction of the euro in 1999, however, if international liquidity holders reveal a strong preference for the euro over the dollar as a *global* liquid store of value, then Gresham's Law will come into play and the global stimulus that has been coming from the United States in the last decade could readily disappear in the early years of the 21st century. The result will be an additional deflationary force unleashed on the global economy. And yet it is only through a significant stimulus to

global effective demand that we can restore a golden age of economic growth for the 21st century similar to what the global economy experienced between 1950 and 1973.

This post-Keynesian message is contrary to the conventional wisdom of mainstream economic theory, which attributes the cause of persistently high unemployment to labor market rigidities (in closed economic models) and, in an open economy context, government interference in exchange rates, capital flows, and investments (via crony capitalism). Since the late 1960s, the conventional wisdom of economists has been to advocate micro-policies to free-up both labor and capital markets.

I call this belief in a policy to loosen labor and international capital movements "the laxative theory to economic bliss". If such purgative capital and labor market medicines succeed in increasing employment and growth in any one country, they do so only by exporting some of that country's unemployment to its trading partners. The pursuit of these purgatory prescriptions by several core nations simultaneously will invoke a negative-sum game that unleashes deflationary forces around the globe.

III. A lesson from the gold standard era

It is said, "Those who do not study history are doomed to repeat its errors". The gold standard provided the world with a fixed and credible exchange rate system. From 1880 to 1914, however, there were many banking crises, "but they rarely turned into currency crises, except at the Latin American periphery … despite very large international capital flows" (Skidelsky, 1999, p. 3). Even though defaults occurred, global investment continued as London, acting as the clearinghouse for international trade, made "sterling the main vehicle currency in both international payments and investments. *It was the absence of alternative currencies to hold that reduced the speculative element in short-term money flows*" (p. 5, emphasis added).

In this gold standard era, bouts of inflation, unstable political conditions, revolution, or a collapse of export (commodity) prices led to recurrent currency crises in the Latin America periphery. But "debt collectors moved in, with rescheduling and fresh loans...as soon as service on the bonds was resumed, the investors came back. … The crucial point in all this was that the gold standard was stable at the centre, unstable at its Latin American periphery. … As a rule, currency crisis hit second class countries, not first class ones" (pp. 8–9)[8].

This changed in the period between the world wars, when international capital flow crises struck the core countries as well as the periphery. In the 1920s even as core countries attempted to return to the gold standard, the resulting exchange rate peg was not credible. Competition between financial centers in London, Paris, and New York made multilateral clearing cumbersome and difficult, especially when there were persistent imbalances in international payments. Only the continual recycling of the U.S. current account surplus by American banks prevented the collapse of the world economy. Meanwhile, the United States adopted tariffs that made it very difficult for Europeans to run a balanced trade position or to earn dollars to repay postwar dollar loans.

In 1928, when U.S. funds were diverted from international loans to Wall Street speculation, the international payments system started to crumble. Money began flowing from deficit to surplus countries as reserves were liquidated to service debts to the United States. When commodity prices collapsed, the periphery defaulted on these loans – but this time "the contagion spread to Europe" as Germany tried to balance its international payments by severely depressing its economy. As unemployment rose drastically, a German default occurred in 1931. "A deflationary hurricane swept over the world, as investors scrambled for liquidity" (p. 13). Huge speculative waves attacked the core currencies. Interbank credits could not stem these assaults. The result was to end private foreign investment flows for decades.

Can this happen again as the euro and the yen compete with the U.S. dollar as international reserve currencies, especially if the world's largest debtor slips into recession in the near future and the world relies on liberalized financial markets to finance payments imbalances?

IV. Underlying theory: Keynes vs. classical microfoundations

Samuelson (1969, p. 184) has made the explicit acceptance of a basic classical postulate, the ergodic axiom, the *sine que non* of economics as a science. Following Samuelson's ergodic edict, Lucas and Sargent (1981, pp. xi–xvi) made the ergodic axiom not only a necessary and sufficient condition for forming rational expectations but also a necessity for developing economics as an empirically based science.[9] In an ergodic system, estimates of today's objective probabilities calculated from an observed data set provide (statistically) reliable information about the conditional probability function that will govern future outcomes. Accordingly, the future is merely the statistical shadow of the past.

This ergodic axiom is the 20th-century stochastic process equivalent of the perfect certainty assumption of the 19th-century deterministic classical model. This axiom assures us that the future long-run equilibrium path of the economy is immutably preprogrammed and embodied in today's "fundamentals". In such a predetermined system, the market will necessarily optimally allocate capital among projects so long as self-interested agents are free to make market decisions based on statistically *reliable* current information about future rates of return.

The ergodic axiom is one of the three axioms that Keynes rejected[10] when he emphasized the uncertainty that surrounds future outcomes. Keynes's description of uncertainty matches technically what mathematical statisticians call a nonergodic stochastic system.[11] In Keynes's LPT (1936, p. 161–3), the explanation of the long-run persistent existence of self-interested speculators[12] in financial markets makes sense only if one assumes that market participants "know" that it is impossible to calculate any reliable mathematics-based expectation of gain calculated in accordance with existing probabilities. Or as Nobel Laureate Hicks (1979, p. vii) put it: "One must assume that people in one's model do not know what is going to happen. And know they do not know what is going to happen. As in history!" Although in his published papers using nonstochastic modeling, Hicks (p.113n) associated uncertainty and Keynes's liquidity analysis with a violation of the ordering axiom, in a private letter to me, he indicated that he should have labeled his "own point of view as nonergodic".[13]

In other words, if the economic system is nonergodic, then today's (presumed to exist) objective probability conditional distribution is not a reliable actuarial guide to the future. Had Scholes and Merton understood this *General Theory* conception of an uncertain future before they won their Nobel Prize, they and their partners in the Long Term Capital Management hedge fund would not have become *de facto* wards of the state in 1998. As Jamie Galbraith (1998) stated, the fact that Merton and Scholes "may soon seek the protection of the personal bankruptcy laws is almost besides the point; the intellectual bankruptcy of the [EMT] economics underlying their actions is already complete".

In 1937, Keynes emphasized this difference between his LPT and the classical orthodoxy embodied in EMT. In classical theory, Keynes (1937. pp.112–5) wrote,

> [f]acts and expectations were assumed to be given in a definite form; and risks … were supposed to be capable of an exact actuarial computation. The calculus of probability …was supposed capable of

> reducing uncertainty to the same calculable state as that of certainty itself. … I accuse the classical economic theory of being itself one of these pretty, polite techniques which tries to deal with the present by abstracting from the fact that we know very little about the future. … [a classical economist] has overlooked the precise nature of the difference which his abstraction makes between theory and practice, and the character of the fallacies into which he is likely to be led.

In Keynes's *General Theory* (1936, p.159) money is never neutral; therefore, dealings in liquid financial assets can affect real economic outcomes in both the short and long run. In a world of nonergodic uncertainty, *the primary function of organized financial markets is to provide liquidity*. Liquidity involves the ability to buy and resell assets in a well-organized, *orderly* market in order to obtain *the medium of contractual settlement* (i.e., money) to meet one's nominal contractual liabilities when they come due. Orderliness means limiting market movements by controlling the net cash flows into and out of the market, just as a theater owner sells just as many tickets as seats to control crowd inflow into a Broadway hit, and laws preventing shouting "fire" in a crowded theater encourage an orderly crowd outflow, rather than prompting everyone to make a fast and disorderly exit through the doors.

The ability to maintain one's liquidity is important to people in the real world, but it would not be an important social function if market efficiency ubiquitously prevailed. When one presumes markets are efficient, then logical consistency requires the presumption that individuals can plan their future spending on goods and services efficiently by buying and selling financial assets whose maturity date matches the individual's life-cycle spending pattern stream vis-à-vis the individual's income pattern stream (e.g., as assumed in overlapping generation models). Liquidity needs to meet uncertain, unpredictable future contractual obligations when they come due have no role to play in EMT. If, however, agents in one's model believe their world is uncertain (nonergodic) as Keynes *and* later Hicks (1979, p. vii) claim, then decision makers "know" that what others call today's "fundamentals" do not provide a statistically reliable guide to future market valuations.

Financial markets provide liquidity as long as market participants accept the convention "that the existing state of affairs will continue indefinitely, except as we have specific reasons to expect a change" (Keynes, 1936, p. 152). Accordingly, "a practical theory of the future [market valuation is] … based on a flimsy foundation. It is subject to

sudden and violent changes. The practice of calmness and immobility, of certainty and security, suddenly breaks down. New fears and hopes will, without warning, take charge of human conduct. The forces of disillusion may suddenly impose a new conventional basis of valuation" (Keynes, 1937, pp. 114–15).

In the real world, protecting the value of one's portfolio of liquid (resalable) financial assets against unforeseen and unforeseeable changes in global financial market values becomes an important economic activity. Every portfolio fund manager must, in an instant, conjecture how other market players will interpret a news event occurring anywhere in the world. With instant global communications, any event occurring in the world can set off rapid changes in subjective evaluation of the market value of one's portfolio. Speculation about the psychology of other market players can result in lemming-like behavior which can become self-reinforcing and self-justifying. In a nonergodic system, if enough agents possess the same "incorrect" expectations (to use a Stiglitz [1988] phrase), the result can be that these faulty expectations actually create future outcomes (cf. Arestis and Sawyer, 1998, pp. 188–9). The first "irrational" lemmings to hit the ocean of liquidity may not drown. They may survive to make more mistakes and lead more leaps into liquidity in the future.

V. The dilemma of liquidity and market orderliness

While Minsky (1978) saw the system as inherently fragile, I have been impressed how robust the system is, provided policy makers do not engage in deflationary policies.[14] The basis for my optimism on this 'financial fragility' question lies in my (and Keynes's) view that policy makers, enlightened by *The General Theory*, can pursue policies persistently that induce a continuous near-full employment level of effective demand and prevent liquidity problems from disrupting a steady stream of enterprise.

Central banker Alan Greenspan once spoke of the "irrational exuberance" underlying the observed rapid movement in financial prices. This phrase was meant to convey the idea that many similar-thinking "irrational" participants suddenly are dominating the market. More generally, if at any time there is a sudden large market swing toward a consensus that the market will be moving in one direction or the other, then there is a bandwagon effect[15] that results in an abrupt lack of market participants with *differing* bull-bear expectations about the future. In these circumstances, liquidity can dry up until there is a sufficiently

large movement in the market price to break down the bandwagon consensus mentality and create a diversity of bull-bear views.

Financial markets furnish liquidity by providing an orderly, well-organized environment where financial assets can be readily resold for cash – while the essential properties of the underlying real capital assets prevent them from producing the attribute of liquidity.[16] Market orderliness requires a private or a public institution that regulates the net flows into and out of the market. Orderly liquid financial markets encourage each investor to believe they can have a fast "*exit strategy for the moments when they are dissatisfied with the way matters are developing*. Without liquidity, the risk of making an investment as a minority owner would be intolerable"(Bernstein, 1998a, p.18). This fast exit strategy potential is inherent in any well-organized financial market, and therefore, it promotes the separation of ownership and management (Keynes, 1936, pp. 150–1; Davidson, 1972; Bernstein, 1998). With a liquid capital market, owners have no legal or moral commitment to stick around long enough to make sure their capital is used efficiently.

If financial markets are primarily organized to provide liquidity, then when bullish sentiment about the uncertain future dominates financial markets, rising capital market prices encourage savers to readily provide the funding that induces entrepreneurial investors to spend sums on new investment projects that (a) far exceed their current incomes and (b) induce exuberant expectations of future returns. The result is an investment boom. If some time in the future, doubts suddenly arise concerning the reliability of these euphoric expectations, then bearish sentiment will come to the fore and the investment boom will turn into a bust.

When the bearish view of the future becomes overriding, an excessive demand for liquidity can develop that will impede the production of new investment capital even when real resources are idle and therefore readily available to produce new real capital goods. The basic message of Keynes's *General Theory* is that too great a demand for liquidity can prevent "saved" (i.e., unutilized) real resources from being employed in the production of investment goods. These resources will be involuntarily unemployed.

Unlike Old and New Keynesians, Keynes explicitly recognized that the introduction of sand in the wheels of liquidity-providing financial markets via a transactions tax is a double-edged sword. Keynes (1936, p. 160) noted that a financial transactions tax "brings us up against a dilemma, and shows us how the liquidity of investment markets often facilitates, though it sometimes impedes, the course of new investment".

If the private sector's "normal" widespread dispersion of bull and bear sentiment suddenly moves to a single side of the market, then the result can swamp any institutional market maker's attempt to maintain an orderly market. To prevent this disorderliness, either the market must be closed (and liquidity disappears) or else some liquidity is maintained by enforcing capital regulations to prevent the bears from liquidating their position too quickly (or the bulls from rushing in) and overcoming any single agent (private or public) who has taken on the socially responsible task of market maker to promote "orderliness". Capital flow controls serve the same function as laws that make it a crime to yell "fire" in a crowded theater. In the absence of such social constraints on free speech, the resulting rush to the exit may inflict more damage than any potential fire. In the absence of laws permitting governments to invoke capital controls to prevent a crush due to fast exit (or entry), unruly financial market behavior can inflict severe damages to innocent bystanders and enterprise then becomes the bubble on the whirlpool of speculation (Keynes, 1936, p. 159).

In the absence of a liquid financial market "[t]here is no object in frequently attempting to revalue an investment to which we are committed" (Keynes, 1936, p. 151) for there can be no fast exit strategy. If capital markets were completely illiquid then there would be no separation of ownership and control. Once some volume of capital was committed, the owners would have an incentive to use the existing facilities in the best possible way no matter what unforeseen circumstances might arise. Perhaps then capital markets might behave more like the efficient markets of mainstream theory. Bernstein's homily that "an efficient market is a market without liquidity" is a lesson that policy makers must be taught. Judicious use of capital controls can promote efficiency by constraining any sudden change in the demand for liquidity that would adversely affect the real economy.

In normal times, the conventional wisdom is that if the psychology of the market is not changing there will be an inertia in market valuations.[17] Accordingly, a policy designed toward reducing, but not completely eliminating, disorderly speculation must involve building institutions that assure market participants that the "correct" market psychology is a belief in a persistent, stable (moving average) trend in market prices over time.[18] If, for example, market participants believe that a market maker exists who can guarantee an unchanging spot market price (or changing only within very small boundaries) over time under preannounced and readily understood rules of the game, then the existence of this credible market maker provides an anchor

for "market psychology". For participants to believe in the market maker's ability to maintain the target market price trend, however, the market maker must have a sufficient inventory of money and the asset that is being sold in the market. In a foreign exchange market, for example, this implies that the domestic monetary authority has credibility (and a sufficient inventory of foreign reserves or easy access to additional reserves) and has announced that it will use its reserves to maintain an orderly market at the "proper" exchange rate. That is the explanation of why currency boards with reserves equal to the domestic money supply can fix the exchange rate and, in normal times, can maintain the exchange rate.

In abnormal times, however, when fear of the uncertain future grows rapidly, prevention of the resulting disruptive speculation overwhelming the market maker requires someone to have the power to institute financial flow constraints. The majority of market participants must believe in some institution's ability to enforce civilized behavior similar to the prohibition of not yelling "fire" in a theater. Then any speculation that occurs will be small "bubbles on a steady stream of enterprise" (Keynes, 1936, p. 159).

These considerations led Keynes to suggest an outright prohibition of all "hot money" international portfolio flows through the creation of a supranational central bank and his bancor plan. At this stage of economic development and global economic integration, a supranational central bank is not politically feasible. Accordingly what should be aimed for is a more modest goal of obtaining an international agreement among the major trading nations that ensures orderly international monetary markets. To be economically effective and politically feasible, this agreement, while incorporating the economic principles that Keynes laid down in his bancor plan, should not require any nation to surrender control of local banking systems or its domestic fiscal policies.

VI. Plumbing solutions

Despite their willingness to accept the "compelling logic" of EMT, the common sense of Tobin and his New Keynesian followers regarding volatility in international financial markets cannot help but break into their logical models – with injury to their logical consistency. To solve today's international monetary problems, these "Keynesians" advocate a Tobin tax where governments attempt to limit market volatility by

increasing the transactions costs on *all* international payments via a small *ad valorem* tax. Unfortunately, though Tobin's assessment of the problem is correct, the empirical evidence is that any increase in the transactions costs significantly increases rather than decreases measured market volatility (Davidson, 1998). Moreover, a Tobin tax does not create a greater disincentive for short-term speculators, as Tobin has claimed (Davidson, 1997). Hence, the "Tobin tax" solution is the wrong tool to solve the growing international financial speculative market problem.

Since the Mexican peso crisis of 1994, pragmatic policy makers have advocated an LOLR to stop international financial market liquidity hemorrhaging and to buy time to encourage international investors to reschedule existing debts and make fresh loans.[19] In 1994, U.S. Treasury Secretary Rubin encouraged President Clinton to play this LOLR role. When Clinton's liquidity facilities were exhausted, the IMF stepped into this lender role when the 1997 Asian crisis and 1998 Russian default occurred. With the IMF appearing to be approaching the end of its liquidity rope, the IMF director, Stanley Fischer (1999), suggested that the G-7 nations provide additional funding for an international LOLR. Fischer's cry for G-7 collaborative funding is equivalent to recruiting a volunteer fire department to douse the flames after someone has cried "fire" in a crowded theater. Even if the fire is ultimately extinguished there will be a lot of innocent casualties. Moreover, every new currency fire requires the LOLR to pour more liquidity into the market to put out the flames. The goal should be to produce a permanent fire-prevention solution, not to rely on organizing larger and larger volunteer fire-fighting companies after each new currency fire breaks out.

Finally, the man who "broke the Bank of England", George Soros, as well as some economists, have recommended a currency board solution. A currency board fixes the exchange rate so that the domestic money supply does not exceed the amount of foreign reserves a nation possesses. Thus, if and when investors panic and rush to exit from a nation, the currency board maintains the exchange rate by selling foreign reserves and reducing the domestic money supply by an equivalent sum. A currency board solution, therefore, is equivalent to the blood letting prescribed by 17th-century doctors to cure a fever. Enough blood loss can, of course, always reduce the fever, but often at a terrible cost to the body of the patient. Similarly, a currency board may douse the flames of a currency crisis, but the result can be a moribund economy.

Friedman (1998) and many others have suggested a return to completely flexible exchange rates. Unfortunately, whenever there is a persistent international payments imbalance, free market exchange rates flexibility can make the situation worse. For example, if a nation is suffering from a tendency toward international current account deficits due to imports exceeding exports, then free market advocates argue that a decline in the market price will end the trade deficit. If, however, the Marshall-Lerner condition does not apply, then a declining market exchange rate worsens the situation by increasing the magnitude of the payments deficit.[20]

If the payments imbalance is due to capital flows, there is a similar perverse effect. If, for example, country *A* is attracting a rapid net inflow of capital because investors in the rest of the world think the profit rate is higher in *A*, then the exchange rate will rise. This rising exchange rate creates even higher profits for foreign investors and contrarily will encourage others to rush in with additional capital flows pushing the exchange rate even higher. If then suddenly there is a change in sentiment (often touched off by some ephemeral event), then a fast exit bandwagon will ensue pushing the exchange rate perversely down.

VII. The architectural solution

The function of capital flow regulations is to prevent sharp changes in the bull-bear sentiment from overwhelming the market maker and inducing rapid changes in financial market price trends, for such volatility can have devastating real consequences.

There is a spectrum of different capital controls available. At one end of the spectrum are controls that primarily impose administrative constraints either on a case-by-case basis or expenditure-category basis. These controls include administrative oversight and control of individual transactions for payments to foreign residents (or banks) often via oversight of international transactions by banks or their customers. Mayer (1998, pp. 29–30) has argued that the Asian problem was due to the interbank market that created the whirlpool of speculation and that what is needed is "a system for identifying … and policing interbank lending" *and* banks' contingent liabilities resulting from dealing in derivatives. Echoing our nonergodic theme, Mayer (1998, p. 31) declares: "The mathematical models of price movements and covariance underlying the construction of these [contingent] liabilities simply collapsed as actual prices departed so far from 'normal' probabilities".

Other capital controls include (a) policies that make foreign exchange available but at different exchange rates for different types of transactions and (b) the imposition of taxes (or other opportunity costs) on *specific* international financial transactions, e.g., the 1960s United States Interest Equalization Tax. Finally, there can be many forms of monetary policy decisions undertaken to affect net international financial flows, e.g., raising the interest rate to slow capital outflows, raising bank reserve ratios, limiting the ability of banks to finance purchases of foreign securities, and regulating interbank activity, as suggested by Mayer.

The recent experience of the IMF, as LOLR, imposing the same conditions on all nations requiring loans for international liquidity purposes should have taught us that in policy prescriptions one size does *not* fit all situations. Accordingly, the type of capital regulations a nation should choose from the spectrum of tools available at any time will differ depending on the specific circumstances involved. In this brief chapter it would be presumptuous of me to catalog what capital regulations should be imposed for any nation under any given circumstances. Nevertheless, it should be stressed that regulating capital movements is a necessary *but not a sufficient* condition for promoting global prosperity.

Elsewhere (Davidson, 1992, 1997) I have developed in detail a proposal for reforming the entire international payments system via an international clearing union that provides for capital controls and other necessary and sufficient conditions to permit the establishment of a golden age in the 21st century. The main provisos of my proposal are:

1. The unit of account and ultimate reserve asset for international liquidity is the International Money Clearing Unit (IMCU). All IMCUs are held only by central banks, not by the public.
2. Each nation's central bank is committed to guarantee one-way convertibility from IMCU deposits at the clearing union to its domestic money. Each central bank will set its own rules regarding making available foreign monies (through IMCU clearing transactions) to its own bankers and private sector residents.[21] Ultimately, all major private international transactions clear between central banks' accounts in the books of the international clearing institution.
3. The exchange rate between the domestic currency and the IMCU is set *initially* by each nation – just as it would be if one instituted an international gold standard.

4. Contracts between private individuals will continue to be denominated into whatever domestic currency is permitted by local laws and agreed upon by the contracting parties.
5. An overdraft system to make available short-term unused creditor balances at the Clearing House to finance the productive international transactions of others who need short-term credit. The terms will be determined by the *pro bono* clearing managers.
6. A trigger mechanism to encourage a creditor nation to spend what is deemed (in advance) by agreement of the international community to be "*excessive*" *credit balances accumulated by running current account surpluses*. These excessive credits can be spent in three ways: (1) on the products of any other member of the clearing union, (2) on new direct foreign investment projects, and/or (3) to provide unilateral transfers (foreign aid) to deficit members.
7. A system to stabilize the long-term purchasing power of the IMCU (in terms of each member nation's domestically produced market basket of goods) can be developed. This requires a system of fixed exchange rates between the local currency and the IMCU that changes only to reflect permanent increases in efficiency wages.[22] This assures each central bank that its holdings of IMCUs as the nation's foreign reserves will never lose purchasing power in terms of foreign-produced goods, even if a foreign government permits wage-price inflation to occur within its borders.
8. If a country is at *full employment* and still has a tendency toward persistent international deficits on its current account, then this is *prima facie* evidence that it does not possess the productive capacity to maintain its current standard of living. If the deficit nation is a poor one, then surely there is a case for the richer nations who are in surplus to transfer some of their excess credit balances to support the poor nation.[23] If it is a relatively rich country, then the deficit nation must alter its standard of living by reducing the relative terms of trade with major trading partners. If the payment deficit persists despite a continuous positive balance of trade in goods and services, then this is evidence that the deficit nation might be carrying too heavy an international debt service obligation. The *pro bono* officials of the clearing union should bring the debtor and creditors into negotiations to reduce annual debt service payments by (1) lengthening the payments period, (2) reducing the interest charges, and/or (3) debt forgiveness.[24]

It should be noted that proviso #2 permits capital controls. Proviso #6 embodies Keynes's innovative idea that whenever there is a persistent

(and/or large) imbalance in current account flows – whether due to capital flight or a persistent trade imbalance –, there must be a built-in mechanism that induces the surplus nation(s) to bear a major responsibility for eliminating the imbalance. The surplus nation must accept this burden, for it has the wherewithal to resolve the problem.

In the absence of proviso #6, under any conventional system, whether it has fixed or flexible exchange rates and/or capital controls, there will ultimately be an international liquidity crisis (as any persistent current account deficit can deplete a nation's foreign reserves) that unleashes global depressionary forces. Thus, proviso #6 is necessary to assure that the international payments system will not have a built-in depressionary bias. Ultimately then it is in the self-interest of the surplus nation to accept this responsibility, for its actions will create conditions for global economic expansion some of which must redound to its own residents. Failure to act, on the other hand, will promote global depressionary forces which will have some negative impact on its own residents.

Some think that my specific clearing union plan, like Keynes's bancor plan a half century earlier, is utopian. But if we start with the defeatist attitude that it is too difficult to change the awkward system in which we are trapped, then no progress will be made. Global depression does not have to happen again if our policy makers have sufficient vision to develop this Post Keynesian approach. The health of the world's economic system will simply not permit us to muddle through.

NOTES

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1. In July 1963, the United States introduced the Interest Equalization Tax (IET) on purchases by residents of foreign (other than Canadian), fixed-rate securities. The tax rate varied from zero to 160 basis points depending on maturity. In August 1971, dollar convertibility was suspended and then Nixon closed the gold window. In 1974 the IET was formally abolished.
2. These classical axioms are (1) the neutrality of money axiom, (2) the gross substitution axiom, and (3) the ergodic axiom (see Davidson, 1984).
3. In a recent article in the *Wall Street Journal*, Friedman (1998) argues that with market-determined exchange rates, exchange rate pressures will always be dissipated, despite the long-known argument that in the absence of the Marshall-Lerner condition, market forces would exacerbate exchange rate problems. For a further discussion see Section IV *infra*.

4. While, at the same time vastly increasing the liquidity demands of entrepreneurs, bankers, and ultimately central bankers in terms of foreign reserve holdings. The results are episodes of international liquidity crises.
5. *The Economist* magazine (January 6, 1990) indicated that the decade of the 1980s will be noted as one in which "the experiment with floating currencies failed". Almost two years earlier (February 17, 1987), the *Financial Times* admitted that "floating exchange rates, it is now clear, were sold on a false prospectus. … they held out a quite illusory promise of greater national autonomy. … [but] when macro policies are inconsistent and when capital is globally mobile, floating rates cannot be relied upon to keep the current accounts roughly in balance".
6. In the summer of 1999, Russia's latest *de facto* default on its international debt was avoided only by the IMF and the "Paris Club" creditors lending Russia sufficient funds in a blocked account to permit the servicing of this "old" debt.
7. Without recognizing that, under the current system, nations have an incentive to pursue export-led economic growth policies, the *New York Times* (August 20, 1999, p. C1) appeared to be surprised that Asia's and Europe's recovery from the economic turmoil of 1998 occurred while there was a sharp growth in U.S. imports from Asia and Western Europe. The growth in U.S. imports, however, is the other side of the coin necessary for the recovery of Asia and Western Europe.
8. Does not this experience appear to have some similarities to events in the post-1973 era when the world was on a dollar standard?
9. While simultaneously, Lucas (1981, p. 563) admits that classical axioms are "patently artificial".
10. By not requiring three classical axioms for his "general" theory, Keynes placed the burden on those who make use of such highly special assumptions to justify them, while those who reject restrictive axioms are not required to prove the general negative (Keynes, 1937, p. 109).
11. In a deterministic (nonstochastic) model, the ordering axiom plays the same role as the ergodic axiom does in a stochastic system.
12. Speculators believe they can secure a "profit from knowing better than the market what the future will bring forth" (Keynes, 1936, p. 170).
13. After reading my paper on rational expectations (Davidson, 1982–3), in a letter (dated February 12, 1983) Hicks wrote: "I just have been reading your RE [rational expectations] paper. … I do like it very much. I have never been through that RE literature … but I had just enough of it to be put off by the smell of it. You have now *rationalized* my suspicions, and have shown me that I missed a chance of labeling my own point of view as *nonergodic*. One needs a name like that to ram a point home" (italics in original).
14. All the postwar recessions in the United States have been precipitated by deliberate deflationary monetary and/or fiscal policy actions.
15. Some speak of a "herd" effect. But except for moments of stampede, herds are usually docile and tend to move slowly from one grazing place to another.
16. Keynes (1936, p. 241n) argues that the "attribute of 'liquidity'" of an asset is by no means independent of the presence of two essential properties, namely, that the asset is not reproducible by the employment of labor in

the private sector and it is not substitutable for the producible output of industry.

17. *Ex post* one can always calculate a moving average for any time series of market prices and, if one accepts what Samuelson has called the ergodic hypothesis, the resulting market valuation over time can be attributed to being determined by some underlying "fundamental".
18. In fact, all markets in liquid assets require the institution of one or more credible market makers" who follow some preannounced rules of the game to assure orderliness in the market. The more orderly the market maker keeps the market, the less the moment-to-moment volatility. It is only when market makers fail in their responsibility to maintain orderly markets that volatility becomes disorderly and speculation can have real disruptive effects.
19. Compare "the lesson for the gold standard" in section III *supra*.
20. The Marshall-Lerner condition requires that the sum of the price elasticities for exports and imports exceed unity for a depreciating exchange rate to reduce the payments deficit. The textbook J-curve for a depreciating exchange rate recognizes that in the short run the payments deficit worsens (the downward part of the J-curve). The J-curve ultimately turns upward because it is *assumed* that in the long run, price elasticities are approximately infinite.
21. Correspondent banking will have to operate through the International Clearing Agency, with each central bank regulating the international relations and operations of its domestic banking firms. Small-scale smuggling of currency across borders, etc., can never be completely eliminated. But such movements are merely a flea on a dog's back – a minor, but not debilitating, irritation. If, however, most of the residents of a nation hold and use (in violation of legal tender laws) a foreign currency for domestic transactions and as a store of value, then this is evidence that the residents are not civil law-abiding and have a lack of confidence in the government and its monetary authority. Unless confidence is restored and residents become law-abiding, all attempts to restore economic prosperity will fail.
22. The efficiency wage is related to the money wage divided by the average product of labor; it is the unit labor cost modified by the profit mark-up in domestic money terms of domestically produced GNP. At this preliminary stage of this proposal, it would serve no useful purpose to decide whether the domestic market basket should include both tradeable and nontradeable goods and services. (With the growth of tourism more and more nontradeable goods become potentially tradeable.) I personally prefer the wider concept of the domestic market basket, but it is not obvious that any essential principle is lost if a tradeable-only concept is used, or if some nations use the wider concept while others the narrower one.
23. This is equivalent to a negative income tax for poor fully employed families within a nation.
24. The actual program adopted for debt service reduction will depend on many parameters, including the relative income and wealth of the debtor vis-à-vis the creditor and the ability of the debtor to increase the per capita real income.

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