Consumer Debt and Financial Fragility

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During the summer of 2007 the US housing crisis morphed into a global credit crunch disrupting the world economy. We are now (April 2009) facing the worst financial crisis since the Great Depression, followed by possibly prolonged recession. This dramatic turn has put into question the long-term viability of a global growth pattern which for the last couple of decades has heavily relied on America as the world's "buyer of the last resort." In this paper we wish to explore this central pillar of the global economy and why it has caved to such horrible effect.(1)

1. Debt-Fuelled Growth

Debt accumulation by the economy's principal actors – governments, corporations, households, and the financial institutions themselves - has now for quite some time constituted a key element in the growth dynamic of capitalist economies. The composition of debt has evolved continuously as each of these key sources of aggregate demand used debt financing to turn itself into a unique engine of growth.

1.1. The Changing Composition of Debt: Propelled to a much greater role in the economy by the Great Depression of the 1930s and World War II, counter-cyclical government spending anchored itself at the center of our economic system as the "Welfare State" came to maintain minimum income levels across all levers of the economy (unemployment benefits, farm subsidies, corporate tax breaks, loss guarantees for banks, etc.). Public sector spending came under increased upward pressure during the stagflation crisis of the 1970s, matched by inflation-induced intensification of tax burdens. This confluence set the stage for the conservative counter-revolution under Reagan and Thatcher, later extended to continental Europe, which aimed to limit the role of government and reduce its deficit-spending proclivities. While public debt rose from 20.5% of GDP in 1980 to 42% in 1995 in the major OECD countries, it actually fell proportionately during the subsequent decade (e.g. from 50% to 38% of GDP in the USA). Overall, government has actually ended up absorbing a

progressively smaller share of the total U.S. debt (i.e. from 44% of the aggregate in 1958 to just 17% in 2008).

The corporate use of debt also came to play an important role in the post-war growth dynamic, first to fund mass-production technology and international expansion among multi-nationals, then (from the mid-1980s onward) to launch a boom in mergers and acquisitions. Under the new dictum of shareholder value maximization firms extended this growing reliance on external growth to *financialization*, the growing accumulation of financial assets and liabilities. The 1990s saw massive amounts of (debt-fuelled) capital directed toward the "New Economy" bubble until its demise in 2000. At the same time European and American firms managed in the early 1990s and early 2000s to come out of relatively short downturns by restoring their profitability to respectable levels without boosting investment spending proportionately. This disconnection boosted their self-financing capacity and made them less dependent on debt-financing of production, with corporate US debt declining from 67% of GDP in 1991 to 55% in 1995 and from 69% of GDP in 2001 to 64% in 2004.

Following deregulation of banking activities (EU's Second Banking Directive 1989, Financial Services Modernization Act of 1999 in US), banks had much greater scope for innovation and so transformed the credit system away from loans and toward securities. This already started in the US with the emergence of junk bonds in the 1980s, but reached a whole new dimension when banks began to pool together loans and turn those into securities. Such securitization transformed the traditional "indirect finance" model of taking deposits and making loans into an "originate & distribute" model, which enabled the banks to earn huge flows of fees and commissions while dramatically boosting their funding volumes. Centered around an unregulated and highly leveraged shadow-banking network, the banks built in the process a multi-layered system tying loans, short-term money-market instruments, long-term securities, and various derivatives together. A dollar of traditional debt funding productive spending thus came to be carried afloat by four, five, six, perhaps even more dollars of purely self-enclosed financial transactions. Underlying this profound transformation of our credit system was a huge expansion of the financial sector, especially in the United States where financial institutions' share in total U.S. profits grew from a stable 16% share in the 1973-85 period to a range of 21% to 30% in the 1990s all the way to a peak share of 41% in 2007. Even more impressively, financial sector debt in the United States grew from 25% of GDP in 1982 to 49% in 1991 and an astoundingly high 121% in 2008.

Much of the financial sector's extra-ordinary expansion occurred from the mid-1990s onward when banks extended their new securitization-based funding machine to consumer debt, in particular the funding of housing by means of mortgage-backed securities. This fuelled one of history's great boom periods, but also set the state for a great crisis when an excessively speculation-prone financial sector got rendered dangerously fragile by the overextended American consumer. It is this interaction that we want to highlight in our paper to get a better understanding of the systemic crisis we face today.

1.2. Consumer Debt and Wage Stagnation: Any economy's increase in production capacity, which firms can fund beyond earnings through bank loans, corporate bonds, and new equity shares, has to be accompanied by proportionate increases in demand on the other side of the market equation. While those can come about from business spending itself or government spending, we are more likely – especially when looking at this in the aggregate – to get these demand-side boosts from household consumption (which in most economies marks by far the largest component of demand, a staggering 72% of total GDP in the United States). But during the last three decades we have seen stubborn wage stagnation in the industrial nations. That trend first appeared in the 1970s when industrial wages could not keep pace with accelerating inflation, then intensified during the extensive corporate restructuring of the 1980s, and finally extended even further with the sudden entry of 3 billion new humans into the world economy following the collapse of communism in 1991. According to IMF (2007), labor's income share in the advanced capitalist countries fell from 68% in 1980 to 61.5% in 2005. This erosion was further compounded by widening inequality between a minority of globalization winners and majority of globalization losers. All this threatens domestic economic stability by fostering the possibility of overproduction conditions necessitating recessionary adjustments (to restore the balance between supply and demand).

Many countries, especially the emerging-market economies and such traditional industrial power-houses as Japan or South Korea, have been able to escape such an imbalance by launching export-led growth strategies, often fuelled by keeping the domestic currency undervalued through active exchange-rate management. Obviously not everyone can run current-account surpluses. Some countries must absorb all those products from surplus countries by running deficits in their trade balance. Consumers in those countries can, of

course, contribute to such absorption even in the wake of stagnant wage incomes by saving less and/or working more (as has happened with the United States especially and, to a lesser extent, also in Europe). In the end, however, either of these responses has its physical limits. In that context the facilitation of adequate household spending in the face of stagnant income is more effectively assured by access to consumer debt whereby household spending can be decoupled within limits from consumer income.

We see this trend play out in all major advanced capitalist economies. Everywhere in the industrialized world we observe over the last couple of decade a correlation between stagnant, even falling wage shares and rising use of consumer debt. We suspect that there may even be a symbiotic relationship between the two in the sense that thereby debt-boosted consumption levels stayed high enough and thus helped boost growth of domestic GDP sufficiently to sustain in turn the growing use of debt by households over a long period of time. Table 1 shows the rise in consumer debt as a percentage of disposable income in the United States and France between 1975 and 2006 – a trend confirmed by several recent studies (e.g. ECB, 2007b).

Table 1: Household debt as % of disposable income

	1975	2006
United States	62	127
France	33	68

Source : OECD

The overall trend notwithstanding, we have to ask ourselves why American families have taken on so much more debt than their European counterparts. A constellation of institutional complementarities have together created that bias in favor of higher levels of indebtedness among Americans. For one, there is a national consensus, rapidly adopted even by the most recent immigrant wishing to integrate, of pursuing the American Dream which, for all practical purposes, translates into enjoying home ownership and a rising capacity to spend. A powerfully entrenched get-rich-quick mentality, barely restrained by organized religion and/or anti-capitalist traditions found elsewhere, allows the rich to set the social norms of consumption for the rest of America. Ideological preferences in favor of small government have also led Americans to entrust certain necessities, which in the rest of the world are provided as public goods by the government itself, to market regulation and hence

end up paying a lot for those - education, health, transportation, et cetera. Much of this is financed by debt, such as student loans or car loans. These widely available channels of specialized loans are one expression of a highly developed system of consumer debt. This popular segment of the U.S. credit system, pushed aggressively by commercial banks and more specialized lenders (e.g. credit unions, finance companies) in a very competitive environment, has been supported for many decades now by the U.S. government with a combination of tax breaks, regulatory relief, and government-sponsored concessionary lenders assigned to promote their segment of consumer debt (e.g. Fannie Mae and Freddie Mac for mortgages, Sally Mae for student loans). In the end the U.S. has built a whole economy around consumer debt, including credit bureaus evaluating the creditworthiness of every American household, debt counselors, collection agencies, and financial advisors. Americans have increasingly matched their proclivity for debt with a low regard for saving, the exact opposite preference profile from that of most Europeans and East Asians.

2. Financial Innovations and the U.S. Housing Bubble

The trend towards higher levels of debt is fuelled by lenders finding new ways to entice more borrowing and the funding thereof. Financial innovation is a crucial aspect of finance-led capitalism. An endogenous force within any credit system, it is initiated by financial institutions responding to specific constraints for which they seek new escapes and solutions. A lot of innovations are aimed, for instance, at bypassing regulatory restrictions or other types of institutional barriers to the growth of financial transactions. And most of this activity ends up facilitating the banks' extension of credit. We can see this trend clearly with regard to mortgages.

2.1. Mortgage Innovation: Banking deregulation in the early 1980s (Depository Institutions Deregulation and Monetary Control Act of 1980, Depository Institutions Act of 1982) enabled U.S. banks to move away from the Depression-era mortgage standard (30-year maturity, fixed interest rate with maximum ceiling, 20% down payment), which for so long had served U.S. home-owners well. Instead the banks began to introduce adjustable-rate mortgages where the price risk would be borne by the borrower rather than the lender. To make these more appealing, banks would charge artificially low interest rates at the beginning of the loan contract that would be reset to higher levels

later. From there it was only a small step to “balloon” mortgages, which postponed most of the debt-servicing charges until much later, or “negative-amortization” loans where a portion of the interest payments would be added on to the principal rather than be paid concurrently.

The increased pace of mortgage-related innovation led banks in the mid-1990s to make two crucial changes in their home-loan practices. With interest rates finally coming down from their high levels of the 1980s, bankers made it easier and cheaper to *refinance*. Millions of American home-owners were given a chance to replace an old mortgage before maturity with one carrying lower interest rates and, corresponding to the increased value of the home serving as underlying collateral, also a larger principal. The other change concerned the introduction of *home-equity loans*, a kind of second mortgage that could be used for any spending purpose while still affording borrowers the advantage of tax-deductible interest payments. Both of these innovations made it possible for American home-owners to cash in on the appreciation of their home equity. The beginning of the housing boom in the mid-1990s provided an extra stimulus for household consumption which pushed the U.S. economy onto a higher growth path for years to come.[(2)]

2.2. Securitization: The rapid spread of re-financings and home-equity loans resulted from a massive shift in the supplies of funds towards real-estate investments as yet another key financial innovation came to revolutionize the funding of American home ownership in the early 1990s. The innovation we are referring to here is the *securitization* of loans, in particular the issue of mortgage-backed securities. Those MBS are created when similar types of mortgages are pooled together and used as collateral for the issuance of securities. Investors in those securities receive payments of principal and interest of the underlying loans in the pool, which are “passed through” (minus payment of servicing and guaranty fees). Such repackaging of mortgage loans into marketable securities allowed banks to recuperate loaned-out funds quickly for additional lending rather than be stuck with an illiquid loan asset for many years. The much-accelerated turnover made it possible for banks to increase their lending volume greatly while transferring default risks to investors and earn a whole lot of fees associated with

securitization. Initially launched already in the early 1980s by government-sponsored entities (GSE) like Freddie Mac, Fannie Mae and Ginnie Mae, it took a while for this new financial product to catch on. By the mid-1990s, however, MSB started to attract a much larger community of investors because of their relatively high yields in a low-interest environment, especially when considering a widespread perception of their low risk because of their implicit government backing.[(3)] While total annual MSB issues averaged about $500 billion during the 1990s, that average tripled after 2002 to $1500 billion – a figure implying the securitization of about 80% of all new U.S. mortgages over the last five years.

2.3. Home Equity Withdrawals: Combined with the Fed keeping interest rates very low in the early 2000s, ample funding provided by mortgage securitization set off a major housing boom in the United States. As the boom took hold after 2002, re-financings and home-equity loans enabled U.S. homeowners to borrow against the soaring values of their homes and so boost their spending capacity considerably. Amounting to 9% of disposable income and averaging $840 billion p.a. at the peak, such home-equity withdrawals increased consumption by 3% p.a. in the 2002-05 period, equivalent to an annual spending boost of about $300bn., compared to 1.1% p.a. during the 1990s (Greenspan & Kennedy, 2005).

Eager to expand markets, lenders accelerated the boom after 2004 by pushing new mortgage products, such as piggy-backs covering down-payment requirement (for effective 0% self-financing), Alt-A loans carrying higher rates in return for relaxing income verification and other requirements for proof of creditworthiness, and subprimes to borrowers with troubled credit histories. These non-traditional loans were attractive, since they carried much higher rates and earned loan officers also higher commissions. Banks, now much more heavily involved in loan securitization themselves and issuing after 2004 more than half of all new MSB, bundled these non-traditional mortgage products (including so-called “jumbo” mortgages too big for FHA insurance) into high-yielding loan-pool combinations whose securitization would still earn investment-grade ratings and so prove irresistible to investors. Such high-yielding “non-agency” MSB

issued by the banks were also gobbled up by foreign investors, up to $500bn. in 2005 alone.[4]

2.4. Structured Finance: From 2005 onward the securitization machine shifted toward non-agency MBS with laxer underwriting standards and comprised a rapidly growing share of subprimes and Alt-As. Around that time banks developed an ingenious way to maintain triple-AAA ratings for the bonds backed by pools of inherently riskier loans. Rooted in the logic of risk reduction by diversification, they further securitized MBS into so-called collateralized debt obligations (CDOs) which they sliced into tranches with different default risks based on their spot in the loss pay-off hierarchy.

The higher-risk tranches were placed with hedge funds, structured investment vehicles (SIVs), and other off-balance-sheet entities tied to banks and funded by them. Much of that funding came from a rapidly growing short-term securitization pillar, so-called asset-backed commercial paper (ABCP) backed by bundles of short-term debts (e.g. student loans, car loans, credit-card debt), where these intermediaries could fund their purchases of longer-term CDOs.

Thus emerged a self-enclosed financial-intermediation alternative. This system of so-called *structured finance* bundled loans into securities, sliced and diced those into tranches, and sold said tranches off to a new network of opaque, highly leveraged, and risk-prone intermediaries. The banks were centrally involved in every step of this "shadow-banking" circuit. They issued the loans, earned fees from their securitization, and set up the funds making the market for these securities. Since much of this activity occurred outside the banks' balance sheets, they never provided adequate capital for it. Instead they tried to manage the risk by insuring those securitization instruments with credit-default swaps (CDS) whose extensive use greatly boosted the issue- and trading-capacity of this new funding system (see IMF, 2008).

3. Excess U.S. Consumption and Global Imbalances

By securitizing the entire array of household loans into a self-enclosed circuit (ABCP -> CDOs + MBS => consumer lending), the world's leading banks propelled consumer debt into the center of finance-led capitalism. What we see here unfold is a consumer-led growth pattern in the United States where household consumption has recently made up an astounding 72% of GDP, far higher than elsewhere. With America's share of wages and salaries hovering in the 65%-68% range throughout the 1990s and 2000s, such proportionately high consumption levels necessitated sharp declines in America's personal savings rate (from an average 8% of disposable income at the beginning of this period to a negative 2% fifteen years later, in 2006) as well as increasing reliance on consumer debt. The latter experienced a significant boost when American homeowners were allowed to borrow massively and cheaply against their rapidly rising housing capital. Home-equity withdrawals provided more than half of America's nominal GDP growth during the post-2001 recovery. The ability to boost debt-financed consumption in line with rising housing prices makes it less urgent to save. We can observe a steady decline in household net saving in the US since the early 1980s. Our hypothesis is that there is a close connection between the rise in US current account deficit and the fall in domestic net savings in the household sector. While both government and the corporate sectors may also contribute to the overall decline in domestic saving, their role seems to have been less predominant in the long run. Empirical evidence suggests that the link between household net saving and current account balance, most likely mediated through the evolution of asset prices (in particular housing), is in fact not limited to the US and prevails in several other OECD countries (ECB, 2007a).

The boost in US consumption from the housing boom carried major spillover effects to the rest of the world. The U.S. economy, finding itself once again with significant budget deficits after 2001, had to compensate for a growing imbalance in private net saving with a relentlessly rising deficit in net exports which by 2006 had grown to over $800bn. or 7% of GDP. In other words, the United States spends collectively 7% more than it earns in any given period of time, with that gap being largely financed by imports of capital from countries running chronic current-account surpluses, notably the oil-exporting nations of OPEC, Japan, and the emerging-market economies (EMEs) of, above all, Asia (i.e. China, India). The recycling of these surpluses has occurred more or less automatically over the last decade to the extent that those countries have pegged their

undervalued currencies to the dollar, which obliges them to buy up dollar-denominated assets (in the process of selling their own currencies) when defending their pegs against surplus-induced currency-appreciation pressures.

3.1. The US-Dollar as World Money: Surplus countries – a collection of commodity producers, emerging-market economies, and industrial nations - have thus been able to pursue export-led growth strategies, rooted in consciously undervalued currencies, and sustain those by lending their surpluses to the one country willing and able to act as the world's "consumer of the last resort." The United States, in turn, has been able to live consistently beyond its means with the help of the surplus nations' savings, thereby ending up absorbing 75% of the world's aggregate trade imbalances. It should be noted that this symbiotic relationship underlying the global growth dynamic of the last couple of decades has been supported by a crucial asymmetry in the world economy stemming from the use of the leading power's national currency as international money in cross-border transactions. That money, since 1945 the U.S. dollar, is created within the leading country's banking system and gets transferred by continuous net outflows from the country of issue to the rest of the world. In other words, the creation of international liquidity rests on chronic balance-of-payments deficits of the United States which other countries automatically finance to the extent that they hold $-reserves or use dollars in international circulation. The United States, to put that same advantage in different terms, is the only country capable of borrowing from abroad in its own currency and of doing so indefinitely. It can therefore accumulate larger foreign debts without feeling the same kind of debt-servicing burden and in this fashion pursue much more stimulative economic policies for far longer than other countries would be able to. This relaxation of its external constraint has allowed the United States to run up huge current-account deficits, have those automatically financed at low cost by the surplus countries, and live with a negative savings rate even though it is the richest country in the world.

3.2. Looking at the Other Side of the Coin: We have been witnessing a clear bias among American commentators in favor of explaining the chronic imbalances in the world economy not as a result of the United States abusing its privileged position as issuer of world money, but instead as fostered by policy choices of surplus countries. One

such argument, pushed by current Fed Chair Bernanke (2005) and by former US Treasury Secretary Summers (2006), points to a savings glut among emerging-market economies in the aftermath of their crisis in the late 1990s which caused capital flows to reverse, flowing now from developing to industrialized countries. The EMEs, especially those in Asia, have built up exchange reserves to safeguard against potential future capital outflows. In doing so, government of these nations have ended up channelling domestic saving into international capital markets. This excess saving exerted downward pressure on real interest rates, stimulating borrowing and consequently asset-price inflation in developed economies.

A related view, put forward by M. Bordo & M. Flandreau (2001) or M. Dooley, D. Folkerts-Landau & P. Garber (2003), characterizes the current configuration as Bretton Woods II. This argument views the current situation not unlike the post-war fixed-rate system, which prevailed from the late 1950s to the early 1970s. The periphery once again seeks to maintain undervalued currencies at fixed rates for export-led growth and in the process ends up supporting the core's external deficit.

Both the savings-glut and Bretton Woods II arguments ignore the basic asymmetry in the modus operandi of the dollar standard, the need for chronic American balance-of-payments deficits which today take the form of U.S. current-account deficits automatically financed by the rest of the word. This seigniorage benefit, as pointed out by Eichengreen (2007), puts the United States at the active center of the world economy and renders it fully responsible for its imbalances. Eichengreen's timely analysis ends with the pertinent question whether those symbiotic imbalances can persist indefinitely and, if not, which would be the most likely adjustment scenarios.[(5)]

3.3. Adjustment Options: Any eventual adjustment process in the rebalancing of the world economy would require a steady, significant improvement in U.S. net exports over the next five years. Since Nixon's suspension of Bretton Woods in 1971 successive U.S. governments have proven willing to let the US-dollar depreciate in order to boost its net exports (by rendering US exports cheaper abroad and imports into the United States more expensive for Americans) and to re-value US assets abroad in $-terms. The problem with this type of adjustment is that, with price movements faster than volume changes, any

depreciation raises initially the import bill and so makes the trade deficit worse before it gets better (the so-called *J-curve*). Apart from the delayed reaction, there is also the problem, already violently manifest once in October 1979, of an excessively large dollar depreciation becoming self-feeding to the point of acutely endangering the world-money status of the US-dollar – especially now that it has since 2002 for the first time a serious rival in the euro. Such a crisis may make it impossible for the United States to cover its twin deficits or at least require much higher U.S. interest rates to keep foreign investors attracted.

Another adjustment option would involve corresponding changes in the economic policy postures of the United States and the surplus countries. America's policies to cut its excess consumption, through tax increases or increased forced savings, would have to be matched by exactly opposite policies among surplus countries to boost domestic consumption via currency appreciation, tax cuts, and/or a lax monetary policy. While this kind of symmetric policy-driven adjustment might ultimately be the smoothest, it is also most difficult to implement in the absence of international mechanisms for economic-policy coordination.

Ultimately, despite some persistent dollar depreciation after 2006 rendering its products more price-competitive in global markets, the United States failed to use this opportunity to put its house in order. Necessary macro-economic policy changes proved politically too difficult to carry out both domestically as well as in the rest of the world. U.S. policy-makers made matters worse by invading Iraq and letting the rest of the world pay for the rapidly growing costs of this military adventure. Their lack of concern for orderly adjustments was rooted in optimistic assessments drawn from America's evident strength in trade in services and its comparatively high foreign-investment returns which have kept its net investment income position balanced despite its very large foreign debt in excess of $3000bn.[(6)] The problem here is that, in the absence of any policy-driven adjustments, global imbalances become untenable and trigger acute crisis as a way of enforcing the necessary rebalancing between deficit and surplus countries. This is precisely what has transpired since early 2007.

4. The Makings of a Systemic Crisis

The prevailing global growth pattern could not be re-balanced in time, because it had served both sides of the equation so well for so long. The United States, obliged by the world-money status of its currency to run large external deficits automatically financed by the rest of the world, used this privilege to fund excess levels of consumption that kept Americans happy despite largely stagnant incomes among a majority of them. And the rest of the world, especially the emerging-market economies whose 3 billion citizens had just been allowed to join capitalism after the collapse of the Soviet Union, enjoyed the benefits of export-led growth and transformation into creditor nations with large currency reserves. That mutually beneficial arrangement fuelled a global engine of ample credit supplies at low interest rates. At the center of that engine was a financial innovation, namely securitization, which enabled Americans to borrow ever-growing quantities against their rapidly appreciating homes from the savers of the world.

Such a growth pattern has had the advantage of allowing spending and savings patterns to be separated from income. Americans spent far more than warranted by their income levels while the emerging middle classes in the newly industrializing countries accumulated savings even faster than their already impressive income growth. This separation of income and spending, at the heart of finance-led capitalism's globalization, maintained aggregate demand at sufficiently high levels to forestall recessionary adjustments. Since the last major downturn in the early 1980s the world economy, notably the U.S. economy as its largest component, had experienced only two relatively shallow and short-lived downturns (1990/91, 2000/01). Both of these were overcome relatively swiftly by aggressive monetary policy action pushing interest rates lower, sharply rising budget deficits boosting spending, and continued credit supplies maintaining private sector spending despite stagnant or even declining incomes.

4.1. Financial Fragility: But such long periods of stability carry their own seeds of self-destruction by engendering, as H. Minsky (1964) argued so convincingly, increasingly fragile financial structures, which eventually will lead to major crisis. As deficit-spending units (i.e. businesses, households) experience success with their previous actions, they become more inclined to take on greater risk in their subsequent engagements. The same bias also takes hold among their lenders. In the absence of any major recessionary adjustment economic

actors lose sight of the possibility of failure. They become too optimistic, inclined to downplay risks in the chase for higher returns. Such euphoria is socially constructed, hence widely shared. Over time, usually as a matter of a couple of decades or a quarter of century without major downturns, financing positions of debtors and creditors alike will thus have become progressively more precarious as a result of increased risk-taking.

In this context Minsky distinguished between three financing positions – hedge finance where the net cash-flow position of debtors is sufficiently positive not ever to endanger the servicing of debts; speculative finance where net cash-flow positions can be at times inadequate to meet payment commitments as they accrue, and Ponzi finance where additional debt is necessary to meet existing debt-servicing charges. In the absence of any recessionary adjustments wiping out the most vulnerable debtors and so reminding everyone else of the dangers of excessive risk-taking, the financial structure becomes progressively more fragile by containing a growing proportion of speculative- and Ponzi-finance units in the late phases of a long boom. It is at this point that an (otherwise relatively minor) event can expose the degree of overextension prevalent in the financial structure of the economy and trigger a panic reaction that breaks open a chain reaction of defaults, forced asset sales, financial-market collapses, and generalized shortage of affordable credit – the makings of a financial crisis.

We have good reason to ask ourselves to what extent Minsky's vision of increased financial fragility building up during a long boom over several cycles does not apply also to the average American family and its huge build-up of consumer debt over the last 25 years, with the bursting of the housing bubble serving as the catalyst for a major financial crisis on a global scale. If that is indeed the case, then we have just entered a crisis-driven adjustment process that goes in both length and depth beyond a mere recessionary adjustment.

4.2. The Bursting of the Bubble: Following a two-year period of persistent tightening by the Fed (i.e. seventeen consecutive interest-hikes) in 2004-06, the U.S. housing bubble burst during the second half of 2006 when home sales, construction, and even prices all started to tumble. At that point non-traditional mortgages, especially subprimes, began to see their initially low "teaser rates" (of 1.5% to 3%) reset to much higher levels (usually between 10% and 15%, but in some cases rising to 18%) which immediately caused many of those higher-

risk borrowers to face serious debt-servicing problems. In the spring of 2007 it became clear that up to a third of all subprime mortgages might end up in default once most scheduled interest-rate resets would have run their course by mid-2009, triggering in the process perhaps as much as 5 million foreclosures and thereby assuring a continuously deepening real-estate downturn bound to last over two years. This stark realization put into question the investment-grade ratings of many MSB containing subprimes in their pools. As a result ratings agencies, under pressure to acknowledge their mistake, began to downgrade a lot of MSB below investment-grade level which disqualified them from being bought or held by mutual funds or pension funds.

In August 2007 this deteriorating situation exploded suddenly into a full-blown global credit crunch. Once the spike of subprime defaults began to spill over into the market for MSB, it spread panicky fear to several other securitization layers. The next market to collapse was that of collateralized debt obligations (CDOs) which bundle different kinds of debt together, including corporate bonds, mortgage-backed securities, and credit-card debt. A number of investors heavily engaged in the now-paralyzed CDO market, notably hedge funds, private-equity funds, structured investment vehicles, and other bank-run special-purpose entities that had been kept off the books, suddenly found that they no longer had recourse to short-term funds mobilized via issue of asset-backed commercial paper (ABCP), the third securitization layer to collapse in the fall of 2007.[7] This forced them to draw massively on emergency bank loans put aside for precisely such eventualities. The sudden hike in demand for such funds put a lot of pressure on the inter-bank market which banks, now suddenly fearful of what losses laid ahead, were not willing and able to respond to meaningfully. As even the shortest-term ("overnight") inter-bank rates shot far above central bank targets once demand for funds started to outpace supply of funds consistently, the world's leading central banks had to step in repeatedly with huge liquidity injections to prevent the inter-bank market, the nerve center of the global economy, from becoming paralyzed.

4.3. Global Credit Crunch: We are now in the midst of an unprecedented global credit crunch. The coordinated and unprecedented lender-of-last-resort interventions of the ECB, the Fed, the Bank of England and other monetary authorities bought he banks some time to cope with the huge trillion-dollar loss from the collapse of the shadow-banking system in August 2007. Being forced by new (mark-to-market) accounting rules to declare losses rapidly, the banks were lucky that the markets no longer functioned to give them any reliable

signals about current "fair-market" prices. They thus could estimate their losses as they saw fit based on their computer models (mark-to-model accounting). Most banks chose to declare their losses gradually on a quarterly basis while at the same time mobilizing recurrent capital injections with which to cover those write-down losses.

The problem with that gradualist strategy was that banks would eventually run out of time. At some point the merciless combination of investor losses and declining share prices would make it increasingly difficult to attract new capital at a time when much more was needed. First to hit this wall, in March 2008, was highly leveraged investment bank Bear Stearns whose Fed-assisted merger with JP Morgan Chase wiped out the firm's shareholders. The panic from this collapse once again sent shudders through the credit markets, prompting the Fed to widen dramatically the range of permissible collateral against which banks could borrow (through the new Term Securities Lending Facility) and to extend that liquidity protection beyond commercial banks to investment banks (the Primary Dealers Credit Facility).

Even though these measures calmed things down for a few months, the psychological damage was done. Shareholder fears of getting wiped out when a failed bank had to be rescued by the government led investors to flee banks, thereby reducing their capital base while making recapitalization more difficult. Banks rumored to be in trouble saw their credit-default swap premia shoot up which, in turn, would spark sell-offs that were further fuelled by short sellers. In September 2008 the deepening U.S. housing crisis finally knocked out the huge government-sponsored mortgage lenders Fannie Mae and Freddie Mac, at the expense of a $200bn. bail-out by the US government. Fearing the moral-hazard implications of its "too big to fail" doctrine, the US government decided to let failing Lehman Brothers go bankrupt barely a week later. That collapse triggered a devastating chain reaction of extreme stress conditions among credit-default swaps, corporate bond markets, money market funds, commercial paper, and then the inter-bank market. More than six months of impaired bank lending and severely depressed capital markets have by now (late April 2009) prompted multi-trillion dollar bail-outs in the United States and European Union while at the same time triggering a globally synchronized recession. With governments obliged to recapitalize banks, guarantee their liabilities, and buy out their toxic assets, they will be inclined to use their dramatically extended powers over banks to impose a new regulatory regime on finance.

5. Exit Strategies

Looking at this crisis, one is tempted to compare its unfolding to a nine-inning baseball game. Using that metaphor, we are probably somewhere in the middle of the fifth inning. The "game" started when the sub-prime bullet went off amidst a bursting U.S. housing bubble in early 2007. As the bullet ricocheted through the credit system, it took down the three principal securitization pillars around which banks had constructed a global shadow-banking system. That collapse (in August 2007) left many of the world's leading banks with enormous losses for which they did not have enough capital on hand. The banks then decided to declare their losses gradually, more or less in proportion to the mobilization of new capital sources with which to write off these losses. This strategy was cut short in March 2008 when the rescue of Bear Stearns wiped out its shareholders and so left potential sources of private bank capital dissuaded. The fourth inning saw a new type of bank run, as rumors of a bank's imminent demise sent its credit-default swap premium shoot through the roof which in turn triggered massive short selling of the bank's bonds and equity shares. In the face of rapidly mounting attacks on the solvency of key financial institutions the U.S. government let Lehman Brothers, Wall Street's fourth-largest investment bank, collapse on 15 September 2008. The explosive fall-out from that bankruptcy, triggering severe panic conditions in several crucial financial markets, morphed very rapidly into a global credit crunch that gripped the entire world economy with paralyzing force. Since then we have experienced a free fall in economic activity across the entire globe, fuelled by collapsing asset values, steep production cutbacks, and enormous destruction of jobs. A confluence of banking crisis, collapsing real-estate markets, and stock market crash since then may lead to a deflationary spiral in the Japanese style (see Boyer, Dehove & Plihon, 2004).

This decline is driven by two negative feedback loops of systemic-crisis proportions. One, especially pronounced within the United States, combines a depression in real estate with a broad economic downturn to undermine an already much-weakened banking sector. Hence rendered unwilling and unable to lend, the banks are paralyzed. Cut off from credit, heavily indebted actors are obliged to reduce their debt servicing burdens by cutting back spending and selling off assets. The second loop, international in nature, concerns the frightfully rapid and extensive unraveling of the world economy. The global financial crisis has reinforced massive cutbacks in short-term capital flows, which have helped depress longer-term direct investment activity and, by creating a massive shortfall in crucial trade finance, hampered trade. Hopefully, the forthcoming G-20 summits will deal with the reform of the international

monetary system and the question of the future international currency in the context of a multipolar globalization process.

We have to stop these inter-connected spirals of de-leveraging and de-globalization lest we want to find ourselves driven into a global depression, which it will be most difficult to emerge from. Policy-makers all over the world understand this imperative, but it remains to be seen whether they can act accordingly. We have seen a rapid and unified policy response in most industrial and emerging-market economies, consisting of fiscal stimulus, monetary-policy easing, and assistance for their battered domestic banking systems. And a new global-governance structure has emerged to address the international dimensions of this crisis, the G-20. But its London summit in April 2009 has revealed the limits of collective crisis management. While usefully boosting the resources of the International Monetary Fund, the G-20 leaders found themselves divided over further global stimulation. At least they are beginning to map out the broad outlines of a consensus concerning financial re-regulation, helped by significant overlaps between the Obama-Geithner plan, the EU's De Larosière Report, and the UK's Turner Report. There will be many more G-20 summits, each of which having its agenda shaped by the respective phase of the crisis prevailing at the time.

In the meantime we need to pay special attention to the actions of the Federal Reserve. Led by a specialist on debt-deflation crises, Ben Bernanke, the Fed has probably been the most innovative of the crisis-fighting policy-makers. And it also occupies a most strategic position at the apex of both de-leveraging and de-globalization spirals which has enabled it to attack both aggressively. It has tried to tackle the former with an array of new liquidity-injection and asset-swapping schemes to unclog traditional funding channels and rebuild a broken credit system. And it has begun to insert itself more aggressively in managing the dollar-based international monetary system, using in the process a combination of direct monetization of U.S. debt (through its new bond purchases), currency swaps with other central banks, prudential regulation of banks, and global-governance reforms (IMF, Financial Stability Forum, etc.). In that sense it is well positioned to play a crucial role in the unfolding of the crisis and its eventual resolution, dedicating the middle innings of the "game" to the recovery of the financial system and helping to manage the end game's transition to a more multi-polar system that may well require a good deal of global coordination.

Notes

1) See in this context a more extensive version of this paper (Guttmann & Plihon, 2008).

2) See M. McConnell, R. Peach & A. Al-Hashimi (2003) for more details on the effects of refinancing and home-equity loans on boosting consumer spending and depressing the personal savings rate.

3) Three-quarters of the nearly $5000 billion in MSB outstanding in 2006 had been issued by government-sponsored lenders Freddie Mac or Fannie Mae, with a lot of them carrying Ginnie Mae guarantees or FHA insurance. Those kinds of MSB carried at that point a yield 1.5% to 2% above the 4.5% return earned on a 5-year Treasury note whereas the riskiest MSB, composed of subprimes and entirely unsecured, could fetch as much as 15% at the 2006 peak.

4) See R. Simon, J. Haggerty & J. Areddy (2005) for more details.

5) That question has also come to pre-occupy post-Keynesian economists grouped around Wynne Godley at the Levy Institute (www.levy.org) and C. Fred Bergsten at the Peterson Institute for International Economics (www.iie.com). See also the interesting report by European Central Bank (2007a) on that question.

6) This investment-return differential, which goes evidently far beyond obvious differences in the composition of claims and liabilities in the United States capital account (e.g. proportionately larger foreign purchases of low-yielding Treasury securities, more foreign direct investment by US multinationals abroad), has been the subject of much discussion in recent years. See, for instance, Bank for International Settlements (2007) or S. Curcuru, T. Dvorak & F. Warnock (2007).

7) For more on the collapse of the various securitization layers see R. Guttmann (2007).

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