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Working Paper

Old wine in a new bottle: Subprime mortgage crisis - causes and consequences

Working Paper, No. 532

Provided in Cooperation with:

Levy Economics Institute of Bard College

Suggested Citation: Lim, Michael Mah-Hui (2008) : Old wine in a new bottle: Subprime mortgage crisis - causes and consequences, Working Paper, No. 532, Levy Economics Institute of Bard College, Annandale-on-Hudson, NY

This Version is available at:

<https://hdl.handle.net/10419/31488>

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Working Paper No. 532

**Old Wine in a New Bottle:
Subprime Mortgage Crisis—Causes and Consequences**

by

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April 2008

Revised version of a paper presented at the 32nd Federation of ASEAN Economics Associations (FAEA) annual conference in Bangkok, Thailand, December 7–8, 2007. The author wishes to thank Michael Anderson, Khor Hoe Ee, and Douglas Porpora for their comments on an earlier draft; Charlie Chan, Siantoro Goeyardi, and Victor Wee, for their professional views on the financial products outlined herein; and the Nippon Foundation, for the academic fellowship under which this research was undertaken.

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ABSTRACT

This paper seeks to explain the causes and consequences of the U.S. subprime mortgage crisis, and how this crisis has led to a generalized credit crunch in other financial sectors that ultimately affects the real economy. It postulates that, despite the recent financial innovations, the financial strategies—leveraging and financial risk mismatching—that led to the present crisis are similar to those found in the U.S. savings-and-loan debacle of the late 1980s and in the Asian financial crisis of the late 1990s. However, these strategies are based on market innovations that have heightened, not reduced, systemic risks and financial instability. They are as the title implies: old wine in a new bottle. Going beyond these financial practices, the underlying structural causes of the crisis are located in the loose monetary policies of central banks, deregulation, and excess liquidity in financial markets that is a consequence of the kind of economic growth that produces various imbalances—trade imbalances, financial sector imbalances, and wealth and income inequality. The consequences of excessive risk, moral hazards, and rolling bubbles are discussed.

Keywords: Subprime Mortgage Crisis; Credit Crunch; U.S. Housing Bubble; Collateralized Debt Obligations; Credit Default Swaps; Wealth and Income Inequality; Leveraged Buyout; Conduits; Mortgage-backed Securities; Current Account Imbalance; Credit Risks; Financial Innovations; Moral Hazard; New Monetarism

JEL Classifications: F330; F559

INTRODUCTION

This paper has four sections. Section I gives an overview of the subprime mortgage crisis, the recent financial instruments and innovations related to it, and how the crisis led to a generalized credit crunch in the financial industry. Section II discusses the causes of the crisis, which are located in the loose monetary policies of central banks, the global trade imbalance, wealth and income imbalance, and financial sector imbalance. Section III examines the reasons for the financial imbalance, which are found in financial deregulation, and financial and technological innovations. A discussion then follows on whether these innovations have reduced or increased risks and instability in the financial system. Section IV looks at the consequences of the crisis and what lies ahead.

1. U.S. HOUSING INDUSTRY AND SUBPRIME MORTGAGES

The U.S. housing mortgage party is over. Investment and mortgage bankers made millions, some billions, from the party. Wall Street took in \$27 billion in revenue from selling and trading asset-backed securities (Farzad 2007). Many middle class families saw their home equity rise and felt rich. Even those from lower classes “benefited” temporarily. They were able to own houses with minimal down payment. As house prices rose, they borrowed more on home equity. Everyone was having a good time; median house prices in the U.S. shot up 40% between 2000 and 2006 to a high of \$234,000. The ratio of median house price to median household income rose from a historically stable ratio of three times (from 1970–2000) to five times in 2006 (Leonhardt 2007). This was unsustainable (Papadimitriou, Chilcote, and Zezza 2006). House prices tapered off and started to decline by early 2006 and are expected to fall sharply in 2007 and 2008. With a \$20 trillion housing sector, every 10% fall shaves off \$2 trillion in household wealth. Concomitantly, default and foreclosure rates began to climb. In 2006, 1.2 million household loans were foreclosed, up 42% from the previous year. It is expected that two million homes will be foreclosed on in 2007 and even more in 2008 when 2.5 million adjustable rate mortgages will reset higher (Schwartz 2007; Eoin 2007).

Subprime mortgages simply mean lending to house borrowers with weak credit. Lenders did so by providing teasers like minimal or zero down payment, and low introductory adjustable rate mortgages, as well as lax documentation and credit checks. Between 2004 and 2006, \$1.5 trillion (15% of the total U.S. housing loans) of subprime

mortgages were booked (Brooks and Mitchell 2007). Total subprime loans form 25% of the housing mortgage market (Capell 2007); these subprime loans were fine as long as the housing market continued to boom and interest rates did not rise. When these conditions disappeared, the first to default were subprime borrowers. These defaults caused an implosion of the mortgage-backed securities (MBS) and the collateralized debt obligations (CDOs) industry. The blow out surfaced in June 2007 with the collapse of two subprime mortgage hedge funds managed by Bear Stearns, quickly followed by the suspension of three other funds managed by BNP Paribas.

1.1 Mortgage-Backed Securities (MBS)

The securitization of housing mortgages into mortgage-backed securities (MBS) has enabled banks and mortgage companies to increase the velocity and turnover of loans as banks and mortgage companies securitized and sold off these loans. This is known as the “origination-distribution” model. The volume of MBS originated and traded reached \$3 trillion in 2005 in a U.S. housing mortgage industry of \$10 trillion (Farzad, Goldstein, Henry, and Palmeri 2007b). Securitization enabled banks and mortgage companies, the originators of these loans, to take on more loans as they moved the securitized loans off their books. In fact, mortgage companies and real estate developers who entered the fray have overshadowed banks that were the traditional home loan providers. Many large housing developers aggressively pushed mortgages to borrowers in order to boost sales. For example, Pulte Home (the country’s largest developer by market capitalization) provided mortgages for 90% of the houses they built. These new players have neither the credit skills nor the interest to conduct proper due diligence of potential homebuyers. Their interest is in pushing out the houses as fast as they are built. The MBS instruments allowed all these institutions to transfer the risks to other investors. The dissociation of ownership of assets from risks encouraged poor credit assessment and was fundamental in reducing the margin of safety and increasing the margin of risks.

1.2 Collateralized Debt Obligations (CDOs)

In the early nineties, financial innovation took these MBS to a higher level in terms of complication and leverage with the introduction of collateralized debt obligations (CDOs). CDOs are simply the bundling of a class of asset-backed securities into a special purpose vehicle and then rearranging these assets into different tranches with different credit ratings, interest rate payments, and priority of repayment. For example, a CDO could consist of 100

subprime MBS. Using historical rates of default and recovery, let us assume that in an extreme case of default, the loss ratio is no more than 10%. These subprime MBS are then divided into AAA tranche (70%), mezzanine tranche (20%), and subordinated tranche (10%). An investor, depending on his risk appetite, can choose which tranche to invest in. The AAA tranche pays lowest interest rate, but provides highest priority in terms of debt repayment. To further complicate matters, these CDOs were used as underlying assets and repackaged to the next level of CDOs. This is referred to as CDO squared and after another round, it becomes CDO cubed. Layered on top of these are CDOs of credit default swaps (CDS) that multiplied the risks further. The defaults are confined not only to the underlying securities, but also the contracts written (CDS) on the traded securities. Often these CDOs cross-hold each other. The higher the level of CDO, the more removed it is from the actual underlying security, complicating the pricing of these CDOs. The volume of CDOs issued tripled between 2004 and 2006 from \$125 billion to \$350 billion per year. These CDOs were distributed far and wide. It was not only banks throughout the world that bought these CDOs, but also staid establishments such as town councils in far flung places like Australia that were chasing for higher yields. Bank of China alone is exposed to \$9 billion of subprime CDOs. Two German state banks investing in CDOs went bankrupt and had to be bailed out by the government.

These CDOs resemble a house built on a deck of cards; when the cards slip, the house falls apart. As subprime borrowers began to default, investors in the subordinate tranche of the subprime CDOs took the first hit. This led to a loss of confidence even among investors in the safer tranches who had not suffered any losses. Panic ensues as they head for the exit door together. The fire sale of assets led to a downward spiral of prices and a freeze in funding for these CDOs.

1.3 Credit Crunch Spreads to Other Sectors

1.31 Conduits and Structured Investment Vehicles (SIVs)

What began as a credit squeeze in the subprime mortgage sector quickly spread to other areas, particularly to conduits and leverage buy-out transactions initially and later to monoline bond insurers, credit default swaps, and finally rippling out to consumer loans (credit cards and auto loans).

Conduits and SIVs have become a large part of the banking industry. Banks set up conduits as special-purpose vehicles to hold assets such as MBS or CDOs for their clients in exchange for hefty fees. While banks do not own or control these conduits, they are exposed

to them through the provision of back-up credit lines to these conduits. Because these exposures are off balance sheet, banks are able to circumvent the capital adequacy ratio. To further muddy the waters, most conduits are set up in tax haven territories to avoid tax and to circumvent banking regulations and governance. Conduits engage in funding mismatch, i.e., they borrow short term in the commercial paper market to invest in long-term, higher-yielding assets like CDOs and MBS. The size of the conduit market is huge, although there is no accurate way to gauge it. Citibank disclosed in its second quarter of 2007 results that it had \$77 billion of assets and liabilities in conduits. J.P. Morgan had issued \$54 billion in commercial paper for conduits. Of the \$3 trillion global commercial paper market, banks provided \$1.1 trillion of back-up credit lines to conduits (Reilly and Mollenkamp 2007).

In other words, since these conduits can draw on the banks' credit lines, the risks that went out the front door have found their way back through the back door. This is the primary reason why the money market froze up in September. Banks were hoarding cash to meet their credit obligations in case the conduits knocked on their doors. Hence, despite the ECB and the Fed pumping in close to \$100 billion of liquidity into the system, the London Interbank Offer Rate (LIBOR) climbed to a high of 6.88% (Giles 2007a). In December 2007, five central banks launched a coordinated effort to pump in hundreds of billions of liquidity into the banking system to calm the money market (Giles 2007b).

1.32 Leverage Buy Out (LBOs)

Leverage buy outs (LBOs) are usually associated with private equity that has exploded in recent years. Private equity funds are closely held by high net worth individuals and large institutions that are not listed on stock exchanges. They are set up as partnerships to minimize taxes; they are unregulated, have no disclosure requirements, and are often established in tax haven territories.

In an era of loose credit, excess liquidity, and rising asset prices, these funds were able to mobilize billions of dollars from the rich, as well as institutions such as pension funds, insurance companies, university endowment funds, and government investment vehicles. Private equity funds raised \$232 billion in 2005, \$459 billion in 2006, and \$240 billion in the first half of 2007 (Berman 2007; Economist 2007b).

The huge capital at their disposal gives them clout in the market to borrow many times over their capital base to take over companies. These transactions are known as LBOs. The size of recent LBOs are mind boggling: \$32 billion for TXU, a Texas utility company; \$26 billion for First Data, a credit card processor; \$49 billion for BCE, a Canadian telecoms

provider (Berman 2007; Economist 2007b). Typically, in LBOs private equity funds put up less than 30% of the money themselves. The rest is borrowed from banks and investors through the issuance of collateralized loan obligations.

The most recent wave of LBOs was fuelled by cheap credit and excess liquidity. From 2003 to the first half of 2007, \$13.3 trillion (equivalent to the GDP of the United States) of LBOs were booked, with \$2.7 trillion alone in the first half of 2007, accounting for 37% of all investment banking transactions. After the subprime mortgage crisis, LBO deals plummeted to \$222 billion in August, compared to \$579 billion in July and \$695 billion in April of the same year (Berman 2007). Many of these LBOs were funded by bridge loans from banks. Banks have over \$300 billion of these bridge loans that they have difficulty selling or have to sell at a discount (Politi 2007; Ng 2007). Deutsche Bank chief Josef Ackermann called on banks to value these securities transparently to restore market confidence (Larsen and Simensen 2007). By early October, investment and commercial banks lined up to announce their losses. Big players like Citibank, Merrill Lynch, UBS, and Deutsche Bank posted close to \$20 billion in losses for their third quarter results (Enrich 2007; Singer, Mollenkamp and Kennedy 2007; Taylor, E. 2007). Three months later, many of these same banks had to more than double their initial write down. Banks like Merrill Lynch, Citibank, and UBS posted losses of close to \$20 billion each.

Because of the size of LBO deals and the high level of leverage, defaults in the LBO market will be more destabilizing to the financial market than defaults in the subprime mortgage market. It was estimated that the recovery rate for distressed LBOs of the early 2000s was about 75%. Between 2004 and 2007, the leverage (debt to operating profit) of the acquired companies rose from 4.8 times to 7.0 times, while their debt servicing capacity (operating profit to debt repayment) fell from 3.4 times to 1.8 times (Farzad et al. 2007). Some individual deals have leverages as high as ten times. Such high leverage is inherently risky in the face of a decline in credit cycle or missed targets in business plans. Rating companies are expecting a rise in corporate defaults and reviewing hundreds of thousands of bond issues and leveraged transactions (Cookson, O'Connor, and Davies 2008; Saft 2008).

Lax credit criteria found in subprime loans are repeated in LBO deals. Until August 2007, banks offered goodies to the borrowers in the form of “covenant lite” loans (banks waived traditional monitoring rights and financial covenants) and payment-in-kind notes (borrower need not pay in cash but in-kind using another credit note). In other words, debt is piled upon debt. A new covenant known as “you snooze, you loose” is found in LBO deals (i.e., borrowers who remain silent are deemed to have given their consent). Many LBO deals

struck in the first half of 2007 are now delayed or renegotiated after investors lost their appetite for them, prompting law suits against banks who underwrote the deals (Cimilluca and Enrich 2007).

1.33 Summary

While the trigger for the present financial crisis is the collapse of the housing bubble beginning with defaults in subprime mortgages, it is the financial bubble that resulted from financial innovations over the last three decades that is the fundamental cause of the present crisis. Minsky (1986) postulated that the financial system has become more unstable and fragile since the sixties, as financing moved increasingly from hedge financing to speculative and Ponzi financing. What we witnessed in the subprime and LBO financing is nothing short of Ponzi financing. Added to this are the advent of derivative transactions and financial products that are so closely interlinked that disruption in any one part has immediate knock-on effects on the other parts. These have multiplied the risks and made the financial system even more fragile and unstable than it was at the time Minsky wrote about it.

2. WHAT CAUSED THE BUBBLE?

Moving beyond the financial practices, we examine the structural causes of the bubble and the role of human agency, in particular hubris and herd mentality. The structural causes are located in three types of imbalances—current account, wealth and income, and sectoral—that are a consequences of modern capitalist growth.

2.1 Hubris

With great prescience, Minsky (1986) wrote, “ Success breeds a disregard of the possibility of failure....As a previous financial crisis recedes in time, it is quite natural for central bankers, government officials, bankers, businessmen, and even economists to believe a new era has arrived.”

This sentiment is echoed in a recent quote by Elizabeth Woyke (2007): “As with the current subprime saga, past upheavals in the financial markets have typically been preceded by talk of new paradigms, perfect models, and fail-safe strategies—a ‘this time it’s different’ attitude.”

Typical of this hubris are statements that herald the end of financial history, in the same way Francis Fukuyama proclaimed (prematurely) the end of history a decade ago. Consider the statements of the following major players.

David Rubenstein of the Carlyle Group, one of world's the largest private equity funds, told Financial Times last December, "I don't think it's a bubble. I think really what's happening now is that people are beginning to use a different investment technique, and this investment technique, private equity, adds real value" (Farzad et al. 2007).

Or in the words of Joe Anderson of Countrywide Mortgage, who boasts of their ability to understand underwriting risk: "We have a wealth of information we didn't have before. We understand the data and can price the risk" (Farzad et al. 2007).

Finally, ponder the wisdom of the guru of the U.S. economy, Alan Greenspan, who in 2004 praised the virtues of adjustable-rate mortgages and said of fixed-rate mortgages that they "effectively charge homeowners high fees for protection against rising interest rates and for the right to refinance" (cited in Authers 2007). In April 2002, just before the economic downturn, Greenspan extolled the new financial innovations and confidently talked about the "dispersion of risk to those willing and able to bear" it and how this acts like a shock absorber to prevent "cascading failures" (cited in Wehrfritz 2007; Federal Reserve Board 2002).

2.2 Loose Monetary Policies

With Wall Street and Main Street feeling the pain now, the blame game is on. In his recent memoir, Greenspan is quick to blame everyone except himself, even the last President he served. Yet while bubbles burst overnight, they are always preceded by a long gestation period. Booms and busts are like feasts and famines—they follow one on the other. Bubbles build up slowly, they do not balloon overnight. The loose monetary policy of the Federal Reserve Bank beginning in late 2001 (under the watch of Greenspan) that was intended to pull the U.S. economy out of recession contributed to the continued boom in the housing market. With super low interest rates, builders built and buyers bought like there was no tomorrow. House prices escalated and values became detached from the underlying rental values (Papadimitriou, Chilcote, and Zezza 2006). Professor John Taylor of Stanford blames the Fed for loose monetary policy between 2002 and the end of 2004 (Wolf 2007b). He argued that interest rates should have risen from the low of 1.75% in 2001 to 5.25% in 2005 rather than it being pushed down to 1% in 2003 and then raising it slowly (Economist

2007d). The Bank of England pursued the same loose monetary policy; it egged on the U.K. housing boom and price inflation with rate cuts in 2005.

The loose monetary policies of the Fed and the flow of foreign funds into the United States encouraged excessive consumption there. Household consumption was the main engine of growth, accounting for two-thirds of its GDP growth. This personal consumption was, in turn, fueled by rising house prices that made owners feel rich and enabled them to draw on home equity loans, which reached a high of \$700 billion or 5% of the U.S. GDP in 2004 (Duncan 2007).

2.3 Global Current Account Imbalances

A decade ago, the Asian financial crisis of 1997 was caused by the gaping current account deficits of emerging countries, mostly financed by private capital inflows that gushed out as quickly as they rushed in. Today, most Asian countries have large current account surpluses and foreign exchange reserves. Ten Asian countries hold \$3.4 trillion or 59% of the world's foreign reserves. China alone has \$1.3 trillion (22%) of the world's reserves.

Today, the export surplus and excess savings in other parts of the world—most notably the Asian countries—support the consumption habits of the U.S. households and government. In 2006, U.S. public debt (excluding the government's intragovernment debt of another \$3.8 trillion) stood at \$5 trillion, of which \$2.2 trillion (44%) was held by foreigners. Foreign central banks with huge reserves owned 64% of this \$2.2 trillion. The country holding the most U.S. public debt was Japan (\$612 billion), followed by China (\$420 billion). (Wikipedia from www.federalreserve.gov) This does not include the private debt of households in the United States, which totaled \$12.8 trillion (\$9.7 trillion in housing loans and \$2.4 trillion in credit card loans). Corporate debt was \$9 trillion and financial sector debt was \$14.2 trillion (Hodges 2007). According to the same report, foreign investors accounted for 46% of U.S. Treasury bonds, 27% of corporate bonds, and 14% of government agency bonds. In 2007, the U.S. current account deficit of \$790 billion was 93% financed by the combined current account surpluses of China, Japan, Germany, and Saudi Arabia (Economist 2007e). In other words, ironically, the poorer nations are financing the spending habits of U.S. households, corporations, and the government. Since 2004, much of the capital inflow has funded asset-backed securities issues, while the volume of government-agency issues dropped (Duncan 2007).

The United States is the largest debtor nation in the world. It has been able to suck in all these funds from abroad primarily because the U.S. dollar is still the foremost

international currency. This financial privilege stems from its economic, political, and military clout and has enabled the United States to enjoy both its guns and butter at the same time. How much longer this will last is an open question.

There are different views on the causes of this global imbalance. Establishment economists like Greenspan and Bernake attribute the problem to excess savings by the emerging countries. This sounds strange given the admonishment by Washington and IMF to these same countries to live within their means (i.e., to wipe out persistent current account deficits during the Asian financial crisis). Today, they call for these same countries to wipe out their current account surpluses.

2.4 Wealth and Income Imbalance

By accounting definition, current account deficits in some countries must be related to current account surpluses in other countries, but for the world as a whole, the deficits must balance the surpluses. Hence, there is no one-way causation. The problem is similar to deciding whether a glass is half full or half empty. The more interesting question is “What causes excessive savings and spending?” Excessive savings and underconsumption are two sides of the same coin. Why are there excessive savings in some of these emerging economies like China and India that have witnessed spectacular yearly growth of about 10%?

One view is that there are not enough profitable investment opportunities or attractive financial assets in these economies, or the bond markets are not developed. While some of these factors may play a part, an equally (if not more) cogent phenomenon that is often overlooked is underconsumption, which is the result of a kind of market-driven growth where income and resources are increasingly unequally distributed, notwithstanding the claims of Kuznet curve. Hence, in many of these countries, income and wealth inequality disparity have worsened, as has been admitted by establishment institutions like the IMF (Davis 2007) and the Asian Development Bank (ADB).

Recent studies of China have shown that income inequality has increased markedly over the last two decades despite its phenomenal growth (Yang 1999; Chang 2002; Wu and Perloff 2004). Wu and Perloff show that between 1985 and 2001, China’s Gini coefficient rose from 0.310 to 0.415 (equivalent to that of the U.S. in 1999), and its mean logarithmic deviation (MLD) doubled from 0.164 to 0.317. Yang (1999) and Chang (2002) argue that this rising inequality is not about to disappear soon due to the bias against the rural area and

rural migrant population. Chen and Wu (2006) provide a detailed anthropological study of the bias against the rural peasantry.

This inequality is also evident from the disproportionate share of income due to capital and labor. The majority who contribute to production do not get a proportionate share of the increased productivity, most of it going to capital rather than labor. The World Bank estimates the share of China's GDP to labor fell from 53% in 1998 to 41% in 2005; private consumption as a percentage of GDP likewise declined from 47% (1992) to 37% (2006) (Economist 2007f). In the United States, the share of GDP going to labor in 2006 was 56%, down from 60% in 1970, while the share going to capital rose to 43% from 27% over the same period (Bureau of Economic Analysis, GDP data 1970–2006). This imbalance worsened drastically under President Reagan who dismantled the National Relations Board, broke the back of the air traffic control labor union, and renegotiated the accord between labor and capital in favor of the latter (Bowles, Gordon, and Weisskopf 1986). Capital's share of income rose with successive tax cuts in dividends, capital gains, corporate earnings, estate duties, and the like. In other words, the share of GDP going to labor versus capital is more a product of political contest and less a result of marginal productivity.

Inadvertently, Greenspan alluded to this problem in his interview with Krishna Guha (2007), but says he is puzzled by it. He admits that profits are much higher than should be in a competitive world and says, "We know in an accounting sense what is causing it"—the share of worker compensation in national income in the United States and other developed countries is unusually low by historical standards—"but we don't know in an economic sense what the processes are." He continues that in the long run, real wages should parallel increases in productivity, but for now it has veered off course for reasons he is not clear about. He worries that if wages for the average U.S. worker do not start to rise more quickly, political support for free markets may be undermined (cited in Guha 2007). In contrast, Henry Ford, the 20th century consummate capitalist, understood this conundrum a hundred years ago and called for higher wages for the ordinary workers so that they also could buy the cars produced.

Coming from a Wall Street background, it is strange that Greenspan is hazy about this "puzzle." Perhaps the earnings of Wall Street kids and the tax breaks enacted by his last president (G.W. Bush) that he tacitly supported might provide a jolt to his amnesia (Krugman 2007). A New York Times study based on the U.S. Treasury computer model showed that under the G.W. Bush tax cuts, the 400 taxpayers with highest incomes—a minimum of \$87 million in 2000—paid the same percentage of taxes as a proportion of their

income as people earning \$50,000 to \$75,000. And 53% of the tax cuts went to people in the top 10% income bracket, with 15% going to the top 0.1% or 145,000 tax payers (Johnston 2005). It is common knowledge that despite the rapid economic growth in the U.S. over the last three decades, income and wealth disparity is at its highest. The incomes of many two-income earner households are less than what they received as one-income earner household two decades ago.

Even within the private sector, a recent study showed that investment banks pay, on average, ten times the average salary in the private sector. On average, an employee in an investment bank earns \$8,367 per week (\$435,084 per year) compared to \$841 per week (\$40,368 per year) for the average worker in the private sector (Johnston 2007). This annual salary of \$435,084 for the average investment banker, however, pales by comparison to the millions and billions earned by the big boys and girls in this industry. In 2006, the CEOs of Morgan Stanley and of Goldman Sachs received \$40 million and \$53 million, respectively; that is over one thousand times the median household income. The incomes of hedge fund managers are astronomical by comparison. Alpha Magazine (published by Institutional Investors) tracks the income of hedge fund managers. The top twenty-five hedge fund managers earned an average of \$570 million in 2006, with the top three earning over \$1 billion each (Taub 2007). The total earnings of these twenty-five hedge fund managers add up to \$14 billion, equivalent to the GDP of Jordan, which is ranked as the world's 95th largest economy. Interestingly, in 2005, six of the top twenty-five managers posted returns in the single digits and the hedge fund investment returns for the past few years are only half of what they were during the 1990s, while their remuneration has soared (Finfacts Team 2006).

Most of the wealth generated does not reach the vast majority of population, whilst a small minority with excess wealth can only consume so much. This excess wealth must be reinvested. In any event, the *raison d'être* of capitalism is not consumption but investment to yield ever higher profits. The billions and trillions of excess income of rich individuals, institutions, and sovereign states has no option but to chase for higher yields. Financial institutions and innovations exist to meet these demands, hence, in the midst of today's credit crunch, there is excess liquidity in the financial system looking for profitable investment opportunities. For example, sovereign states with an estimated \$3–\$4 trillion of funds are desperately seeking higher yields.

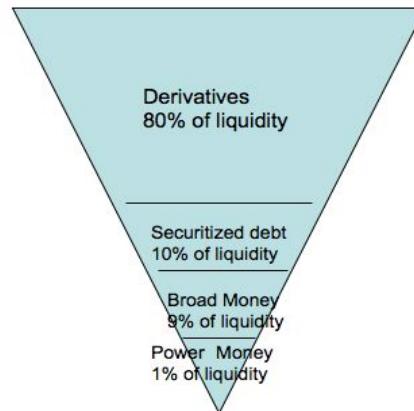
2.5 Sectoral Imbalance between Finance and Real Economy

Of the different types of imbalances and misallocation of resources, the amount of financial and human resources pumped into the financial sector and the rewards reaped by its titans must count as one of the more serious imbalances. The volume of financial transactions has dwarfed the value of productive investments worldwide, as evidenced by various indicators. The ratio of global financial assets to annual world output used to be about equal (109%) in 1980, but by 2005 it was three times larger (316%). In terms of value, global financial assets were \$140 trillion (Wolf 2007a). In comparison, the world's total GDP stood at \$48 trillion in 2006 (World Bank 2007).

Another indicator is the foreign exchange market. Turnover in traditional foreign exchange markets (spot, forward, and swaps) increased to an unprecedented level of \$3.2 trillion a day, while activity in the over-the-counter derivatives markets reached \$2.1 trillion per day (Bank International Settlement 2007). This is compared to the volume of world trade at \$12 trillion per year.

The concept of liquidity is indeed quite liquid. The traditional idea of M1, M2, and M3 as the core of liquidity is no longer valid, given financial innovations that have resulted in an explosion of other forms of liquidity, like derivatives, that have truly escalated leverage. David Roche of Independent Strategy has put forward the concept of the liquidity pyramid in which power money (M1 and M2), at the base of this inverted pyramid, forms only 1% of the global liquidity pyramid. The next level is broad money, which accounts for 9%, then securitized debt at 10%, and finally, sitting at the apex are derivatives that account for 80% of global liquidity. The global liquidity market is estimated at \$607 trillion or 12.5 times global GDP (Independent Strategy 2007). Given this scenario, central banks have little control over the global liquidity market and are hard pressed to influence the cost of capital that has been at historic lows with low volatility. This is sometimes known as the new monetarism. We have arrived at the stage where what happens in the financial markets affects, or perhaps dictates, what happens in the real economy. It is the case of the tail wagging the dog.

Figure 1 Global Liquidity Market \$607 Trillion



Source: Independent Strategy (2007)

3. DEREGULATION, LIBERALIZATION, AND FINANCIAL INNOVATIONS

How does one explain the explosion of financial markets? There are structural forces at work causing this phenomenon. We have discussed the loose and stable monetary framework, and the excess liquidity in the world that has caused investors to chase higher yields and loosened credit standards. This explosion has also been enabled by technological innovations and financial innovations that occurred with the rolling back of regulations (i.e., liberalization and deregulation of the markets). After the Great Depression of the thirties, the U.S. government tightened anti-trust laws and banking regulations to protect and stabilize the financial system. One of the important pieces of legislation was the Glass-Steagall Act, which separated commercial from investment banks and prohibited interstate banking. The Act also regulated the activities of commercial banks, including interest rates charged and the restricted entry into riskier investments.

Beginning in the seventies, commercial banks lobbied hard for the dismantling of the Act. This picked up pace under Reagan and, by 1999, the last vestige of the Act was scrapped under President Clinton. Commercial banks could now engage in investment banking activities that included not only trading bonds and other types of securities, but also

underwriting them. The fact that this often created conflicts of interest did not bother them. For example, there is supposed to be a “Chinese wall” separating the commercial lending department of a bank that provides traditional loans to a company and the investment banking department of the same bank that issues and underwrites corporate bonds. While this Chinese wall may prevent lower-level bank officials from knowing what the other departments do, this is often not the case with highly placed bank officials like the Chief Executive Officer who has access to all information in the bank. Often banks receive heftier fees for investment banking activities over commercial loans, hence, the latter are sacrificed (e.g., relaxing credit standards for investment banks).

The decline of lending activities and the rise of investment banking activities in commercial banks can be seen from the data collected by FDIC for all U.S. commercial banks. The ratio of noninterest income (from investment banking) to net interest income (from lending) has risen from 0.25% to 0.75% between 1980 and 2005 (Federal Deposit Insurance Corporation 2007). In 1980, net interest income was \$56 billion, compared to \$14 billion for noninterest income. By 2005, net interest income was \$270 billion versus \$201 billion for non-interest income. In other words, income from investment banking (fee income and trading income) has risen much faster than income from traditional loans. By nature, investment banking activities are riskier and the profits more volatile than those from commercial banking activities.

Advances in telecommunications and computers have simultaneously globalized and shrunk banking, particularly in foreign exchange trading where billions of dollars are transferred instantaneously across the globe and the market operates world-wide, 24-hours a day. Advances in financial theories, particularly with the advent of pricing options, have pushed trading to higher levels. Trading originally involved only the underlying assets, for example, stocks, bonds, real estate, commodities, etc., but the introduction of derivatives heralded the trading of new securities that were not the underlying assets, but were based on (or derived from) the underlying assets. Such derivative transactions are often highly leveraged. The buyer puts up only a small percentage of capital to buy the option. While the risks to the buyer of the option are limited to the loss of his capital, the risks to the seller of the option are unlimited, unless he is hedged.

There are differing views on the reasons and consequences of financial innovations. Advocates see financial innovations as democratizing credit, making funds available to those who once could not afford it, reducing credit risks by spreading risks to a larger community of investors, increasing efficiencies by merging and taking over companies, and making

better use of capital through leverage, as well as better allocation of resources by deploying them to where they can earn higher profits.

Critics view financial innovations as strategies to enhance profits and to run one step ahead of regulations. As early as in the fifties, Minsky had written about this and postulated that the financial industry undergoes waves of innovation, regulation, deregulation, and periods of stability and instability (Minsky 1957; 1986). Each wave is marked by some new product or technique, be it junk bonds, LBOs, dotcom and, more recently, subprime loans and CDOs. Human greed is part of nature and as long as the environment and system allow and encourage such behavior, the consequences are predictable. For example, a major reason for the popularity of structured investment vehicles and private equity funds is to avoid disclosure, regulation, monitoring, and taxes. Financial regulators and legislators have woken up to this and at the recent meeting of central bankers in Jackson Hole, European Central Bank chief Jean-Claude Trichet, called for tackling unregulated entities that have contributed to the upheaval (Eoin, Grant, Barber 2007). Barney Frank, a United States Senator, said that innovation has outstripped regulation and called for better regulations (Washington 2007).

3.1 Economic Value Added (EVA) School

It is often said that bankers and financiers have short memories and tend to repeat their poor lending or trading habits. The issue is not the individual memory of these financiers, but the system that demands profit maximization. They operate in an institution where their individual performance is measured by the profits they bring—nothing else. In the last few decades, the Economic Value Added (EVA) school of thought has provided even greater ideological and theoretical underpinning to this behavior. It has been wholeheartedly embraced by the captains of industry and finance, and has even spread to the public sector. Put simply, EVA states the primary, if not the sole, objective of a company or economic enterprise is to maximize shareholders' value, treating other stakeholders like employees and the public as irrelevant. EVA is the criterion used to measure the performance of every institution, every department, and every individual. EVA is calculated using the net present value of the cash flow of the activity discounted by the weighted average cost of capital. Every activity and individual is compared against this yardstick and the ones with the highest EVA are rewarded. Hence, within the banking system itself, one finds that traditional lending is out of favor as it consumes too much capital and results in lower EVA, whilst activities such as trading in securities and derivatives that use less capital and produce higher

EVA are promoted. It then becomes rational for every individual pursuing his or her own interest to push the edge of the envelope, maximize her returns, and worry about the consequences later. A banker who brings in loans of the highest value is rewarded the same year, but if and when the loans turn bad a few years later, she/he has already moved on. This incentive structure invites the banker to take on extra risks, reap the rewards, and move on. There are recent calls for bankers' compensation to be restructured into long-term contracts to take account of eventual risks and failures down the road (Wolf 2008).

3.2 Old Wine in a New Bottle

Applied collectively then, it is not irrational for each individual and each institution to push the edge of the envelope. What is in the interest for an individual or a bank may, however, not be in the interest of the whole, as it creates stresses in the system that results in crisis. Viewed from a systemic and historical perspective, the present subprime mortgage crisis is simply a variant of previous crises with new features that have multiplied the risks. It is as the title implies—old wine in new bottle. As a matter of fact, given all the new financial innovations, the underlying cause is not very new. It is no different from the problems of the savings and loan crisis in the eighties or the Asian financial crisis of the nineties that resulted from funding mismatch. This can take the form of funding on a short-term, variable basis and investing on a long-term, fixed basis to capture the interest rate differential, as in the case with the savings and loan associations and the mortgage lenders for today's subprime loans. It can also take the form of borrowing short term in a currency that charges low interest and investing long term in another currency with higher yields, as in the case of Asian banks and companies caught in the financial crisis of the nineties or the prevalent carry trades of today.

Much of the blame in the Asian financial crisis was laid on crony capitalism and poor corporate governance in the emerging-market countries. There was much talk of a new international financial architecture to avoid a repeat crisis. Basel II worked to strengthen the capital base of banks and to enhance risk control by having banks take account of not only credit risks but also market and operational risks. However, the international financial structure has changed quite dramatically, pulling in many nonbank financial institutions as major players into the financial markets, whose combined capital could be larger than that of banks. Prominent among these are hedge funds, investment banks, private equity funds, mutual funds, pension funds, insurance companies, finance companies, etc. Many of these latter institutions are outside the regulation of banking regulators, although some (like

pension funds and insurances) have their own set of regulators. Furthermore, banks are closely linked and exposed to these nonbank financial institutions through credit lines, bridge loans, trading lines, standby letters of credit, repo lines, etc. In other words, even as banks securitize and sell off their assets and loans, they still retain credit exposure through these mechanisms.

3.3 Risks

The dispersion of risks has been touted as a financial innovation that has transformed the credit and risk terrain, as exemplified in the earlier quote of Greenspan, and is believed by optimists to bring about the end of financial history. Or are they “financial weapons of mass destruction” in the words of Warren Buffet? (Economist 2007a). As we have recently discovered, the dispersion of risks may not even be the reduction of risks, let alone their elimination. Theoretically, if credit risk is spread around rather than concentrated in banks, the chances of bank failures and financial instability are lessened. As the proliferation of CDOs and credit default swaps illustrate, because banks are able to separate credit risk from market risk and to sell these risks away, the tendency is for investors to take on bigger bets with less down payment and for banks to issue more loans and other securitized assets (Anderson and Timmons 2007; Economist 2007c; Tett 2007). Hence, the system takes on more risks. While risk is dispersed for the individual players, it is amplified for the system. As David Roche (*Independent Strategy* 2007) argues, the perceived reduction of risks causes lower asset price volatility that in turn encourages players to take on more leverage to buy assets, thus driving up financial asset prices. Leveraging is great as long as volatility and capital costs are low and prices rise; once capital costs increase and liquidity contraction occurs, the process of de-leveraging kicks in and the downward spiral can be quick and painful. We are witnessing the beginning of this process, with bumps along the way. Furthermore, as risk is spread far and wide, little is known about who hold these risks and whether these investors understand the nature of the risks. Again, as Buffet puts it graphically, we do not know who is naked until the tide begins to recede.

In a recent article, Jan Kregel (2008) has argued that the replacement of traditional banking methods of credit assessment based on personal, cumulative knowledge of the credit history and character of borrowers has been replaced with impersonal statistical methods of credit assessment used by rating agencies in rating CDOs. This fundamental shift in credit assessment has dramatically undervalued and mispriced risks.

Beyond credit, market, and operational risks, there is liquidity risk. The concept of liquidity risk is the most difficult to pin down, quantify, or control. It is essentially a behavioral risk and behavior is not always rational—it is prone to habits like fear, greed, herd mentality, irrationality, loss of confidence, etc. Liquidity is very much a function of confidence, which is the most elusive of all risks. Chris Mahoney, vice chairman of Moody's Rating Agency, says in such a system the weakest link is confidence and that confidence is a state of mind, which is challenging for financial authorities to fix (cited in Scholtes 2007). There are calls for banks to price and charge for liquidity risks.

When a crisis strikes, the effect is contagious and it leads to a crisis of confidence. As we witnessed in the CDO discussion, when investors in AAA-rated tranche of a CDO who have not lost any money have lost confidence, the whole structure collapses. Lenders do not want to fund any more CDOs, even the AAA-rated tranches, as they could be tainted by the mezzanine or subprime tranches; investors rush to redeem funds, sending prices downward. The crisis faced by Northern Rock Mortgage Company in U.K. illustrates how contagious a confidence crisis is. Even though the company was not exposed to subprime mortgages, it got into trouble due to its cost-reduction strategy of depending on the wholesale market and large institutions, rather than small depositors, for funding. While jumbo loans and funds are cheaper, they are more volatile and can quickly dry up, forcing a liquidity crunch for the bank and, in this case, causing a run on the bank by small depositors.

Changes in the international financial architecture have left a few important bastions of poor governance and poor transparency untouched—namely the existence of tax havens, banking secrecy laws, and tax loopholes. This neglect cannot be attributed to sheer oversight; it is more a reflection of the power of vested interests. In his book, Stiglitz recounts how the U.S. authorities, so eager to preach and impose good corporate governance on the rest of the world, balked at the proposal of OECD to improve transparency of offshore banking centers. The Deputy Secretary of the Treasury even rationalized the lack of transparency as having benefits (Stiglitz 2004). These loopholes have enabled and encouraged the big players in the financial industry to reap substantial benefits. The Confederation of British Industry (CBI) director in England has recently called for greater transparency and disclosure by private equity funds and questioned the tax loopholes that allow these funds to make super profits and pay no taxes (Taylor, A. 2007).

4. QUO VADIS?

On September 18, 2007, the Federal Reserve Bank lowered the Fed Fund rate by 0.5% in its attempt to prevent the financial crisis from snowballing into a recession. This cheered the equity markets worldwide initially, but it left concerns about the U.S. fundamentals, as it signaled that the housing slump could lead to a slump in the whole economy. Since the start of the crisis, despite the Fed having aggressively lowered interest rates four times (from 5.25% to 3.5%) in a matter of four months, world equity markets have gyrated violently indicating a lack of confidence in the Fed's ability to avoid a U.S. recession. The long-term rates, over which the Fed has no control, have remained at their previous levels or even edged up, indicating the market's concern over inflationary pressures. This steepening of the yield curve primarily benefits banks and financial institutions and helps repair their impaired balance sheet, as was the case after the savings and loans crisis of the eighties. Whether the lower interest rates translate into benefits for borrowers is doubtful for various reasons. First, consumers are so loaded with debt that they have little capacity to take on anymore loans. Many have resorted to their credit cards as a lender of last resort. Outstanding credit card loans soared in the third and fourth quarters of 2007 and promise to be another bubble on the horizon (Norris 2008). Second, banks have reined in credit not only because of tighter credit lending standards, but also because they can't afford to lend. For the first time in over fifty years, U.S. banks' reserves with the Fed have plunged to negative. As of January 2008, about \$100 billion of losses have been recognized by U.S. banks and financial institutions. It is likely more losses are yet to come. Estimates run from \$200 billion to \$400 billion by Greenspan (cited in Guha 2008), to \$1 trillion by Nouriel Roubini of New York University, who warns that the present \$100 billion recognized could multiply ten-fold if defaults spread to consumer loans, credit cards, and corporate lending (Lohr 2008). This is equivalent to wiping out the total capital of U.S. banks and could represent the biggest banking crisis since the Depression. George Soros even calls it the worst financial crisis in sixty years (Soros 2008).

If history is any guide, the aggressive interest rate cuts by the Fed under Bernanke look quite similar to those undertaken by Greenspan in 2002–3. While this may have a short-term effect on the economy, it could just postpone the problem and pave the way for future bubbles. Adrian Blundell-Wignall, a former Federal Bank economist, warns of the effects of the “rolling bubble,” i.e., each time the Fed responds to a financial crisis with aggressive rate cuts, the liquidity surge just paves the way for a future bubble that collapses and leads to

another round of crises (Tan 2007). This happened in the 1997–98 Asian crisis, which was followed by the Long Term Capital Management blow up wherein Greenspan lowered the interest rate, that then helped to fuel the dotcom crash. In September 2007, the rate cuts sent the stock markets surging all over the world and reignited risky deals associated with leverage buy-outs and CDOs. In Singapore, DBS and OCBC (two major banks) have staged a return to marketing CDOs. The OCBC insurance arm said in a statement that the new CDO fund “aims to take advantage of the current market conditions to offer high credit ratings, reasonably attractive returns, and good insurance cover to policyholders” (Kowsmann 2007).

Market participants cautioned that while the action “will help to get the deals done, it is a bit worrisome because the recent correction in credit was all about getting leverage down” said Chris Towle, a portfolio manager at Lord Abbett & Co. (cited in Sender and Ng 2007). Another article in the AWSJ the following day asked whether an Asian bubble is starting, quoting Michael Hartnert, an emerging market strategist at Merrill Lynch who said, “It’s like 1998 in reverse. A bubble is more likely than not. But I think we’re only at the beginning of that process” (Lahart and Slater 2007).

Standard and Poor’s, a credit rating agency, estimated that companies could default on \$35 billion of their debt, but warned that if the economy and debt market worsen, corporate defaults could reach over \$250 billion, comparable to the level reached in 2001–02 (Guerrera 2007). The same article noted that 40% of U.S. corporate debt outside the financial sector was rated “B,” i.e., as junk bonds. These companies have average debt-to-earnings ratios of six times before interest, tax, and depreciation (EBITDA). We noted earlier that the average leverage ratio of LBO companies was even higher at seven times.

In other words, it is possible or likely (depending on one’s views) that despite the recent actions of the Fed and other central banks, Act II of the crisis may unfold (Munchau 2007a and 2007b). Act I is the housing slump that has affected the financial markets and is spreading to other credit markets, including credit cards and auto loans; Act II is the effect on the real economy. Further falls in the U.S. housing market would no doubt affect consumer spending and would drag the economy into recession. This, in turn, affects foreign creditors’ worries about the strength of the U.S. dollar, which has reached a record low of \$1.49 to one euro. If the euro moves higher and stays in that region for a long period, it would no doubt affect European exports and growth. Economists and central bankers are clamoring for Europe, China, and other emerging countries to step up to the plate to increase domestic spending. If that happens, it could stave off a world-wide recession and allow for a gradual reduction, rather than a free fall, of the U.S. dollar with disastrous consequences for

all. However, contrary to the decoupling theories, China has voiced concerns that a U.S. recession would be devastating to her economy. In October 2007, when the first draft of this paper was written and most economists were still optimistic that the U.S. economy would not fall into recession, the author had raised the possibility of stagflation. Today, only the die-hard optimists think the U.S. could avoid a recession. While few, if any, economists in the U.S. talk about stagflation, some in Asia (particularly in China) have raised the specter of stagflation. In China, as in much of the world, the era of disinflation is ending with the rise in oil and food prices, and the pressure for higher wages that is pushing up the price of its exports (Beck 2008). Coupled with that, the financial markets are entering into a new era of repricing risks that could push interest rates higher and make for more expensive borrowing, hence, we could end up having slow or negative growth with rising inflation.

4.1 Moral Hazards

Central banks play a dual role—to maintain price and to ensure financial stability. In the latter objective, they act as lenders of last resort. In fulfilling these objectives, they carry out a balancing act. In theory, central banks are supposed to be neutral actors, free from political and vested interest influence. In practice, they tend to be more biased towards price stability (i.e., prevention of inflation) than meeting employment objectives.

In a modern economy, the financial system is not only integral to the smooth function of the whole economy, it has come to dominate over the productive sectors of the economy. Any financial instability is automatically transmitted to the whole economy and, indeed, globally to the international economy. With mergers and mega-mergers, corporations and financial institutions have become behemoths so that the assets or sales of many of these institutions are bigger than the GDP of most emerging-market countries. The total assets of Bank of America, the second biggest U.S. bank, are \$1.47 trillion. Its total revenue is \$73 billion and net income is \$21 billion (Bank of America 2006). Only ten countries in the world had GDP of over \$1 trillion in 2006. Bank of America's total revenue of \$73 billion places it as the 56th largest economy in the world, behind Kazakhstan at \$77 billion. Size matters. When an institution becomes so large, its bankruptcy sends shock waves through the financial system and ultimately to the economy, so central banks must step in to calm the waters.

Wolfgang Munchau writes that moral hazard is the result of asymmetric expectation, as when the market expects central banks to bail out the financial sector during a crisis (Munchau 2007a). It occurs when banks and other institutions are rescued from their

imprudent actions, either directly through bail-outs or indirectly through rate cuts, because the consequences of not coming to their rescue could result in bigger pain for depositors or for the whole economy. We witness this as the Fed hedges on whether it will further reduce the interest rate while the market has already factored that possibility into market prices. However, the state and, ultimately, the tax payers are paying for the enormous costs associated with such interventions. Moral hazard is the equivalent of the privatization of gains and the socialization of risks. It is a form of what economists term as “externality,” i.e., the costs of one’s actions are passed on the public.

Recent history has shown that every time there is a major financial crisis due to lax credit, excessive risk taking, speculation, and poor corporate governance, central banks and governments have stepped in to pick up the mess. This happened in the 1980s during the U.S. savings and loans crisis that ultimately cost tax payers about \$200 billion or 4% of its GDP. The same happened in the Asian financial crisis. Between 1994–1996, international banks pumped \$264 billion of net funds into twenty-five emerging markets, and the total outstanding foreign obligations in South East Asia stood at \$736 billion (Sachs and Warner 1999). Many international banks lent to and traded excessively with local banks and corporations under the assumption that these institutions were too large and important to fail and the governments would intervene in a time of crisis. And step in they did. Asian governments pumped in billions to bail out banks and to set up asset management companies to purchase bad loans, all at the expense of tax payers. Studies on the cost of such bail-outs for various countries range from a high of 55% of GDP for Indonesia, to 16% of GDP for Malaysia, 34% for Thailand, 13% for the Philippines, and 24% for Japan (Caprio and Klingebiel 2003; Mongid 2007). If losses from the present financial crisis reach \$500 billion to \$1 trillion, it would represent between 4% and 8% of the U.S. GDP. So far, most of the recapitalization of the banks has come from foreign sources, in particular sovereign wealth funds.

Even if the U.S. government does not step in to bail out specific financial institutions, its lack of option to stand by idly when the economy is in a tailspin supports the concern that governments and central banks will step in to protect voters from the consequences of bank failures and the economy from sliding into recession. Such action ultimately encourages risk-taking and bad behavior. The banking and financial sector is about the only sector that has repeatedly gone through one crisis after another where the state has to come to its rescue. This is because the breakdown of a country’s banking and

financial system is too disastrous for a modern credit-driven economy, hence the need for constant bail outs.

5. CONCLUSION

Despite the optimism, or perhaps more appropriately because of the hubris, of market players in the financial system who herald the passing away of booms and busts (i.e., the end of financial history), we witness their increasing regularity. Also, in spite of the latest financial innovations, banks and financial institutions take on the same risks except they are larger in magnitude. In many cases, they employ the classic strategy of leverage and mismatch funding to maximize yields as manifested in the latest round of debacle hitting mortgage banks and structure investment vehicles. This same strategy was employed and accounted for the collapse of the savings and loans association twenty years ago. What is new this round is the “origination and distribution” model that has dispersed and broadened financial risks. To prevent the collapse of the financial industry and its impact of the real economy, the state has stepped in to assist the ailing housing industry, in particular, and the financial industry, in general.

The subprime mortgage defaults did not cause the financial crisis; they only acted as a trigger. The financial crisis is fundamentally a consequence of three types of imbalances: wealth and income imbalance, current account imbalance, and financial sector imbalance that together with financial innovations, has dispersed and magnified risks for the whole financial system. The financial tsunami has spread out worldwide affecting banks in Europe and Asia, though the latter are still relatively contained and healthy enough to withstand the problems. While the initial negative impact on liquidity in the money market system has been alleviated through massive liquidity injection by central banks, the problem may have escalated to one of insolvency.

It is telling that the U.S. Treasury Secretary Paulson, a former Wall Street banker, warned as early as September of last year that the problem is not short term but will be with us for a while (cited in Callan, Grant, and Barber 2007). It remains to be seen how this crisis will be played out.

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