

The Great Destruction: Causes of The Global Financial Crisis in 2008

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Abstract

This chapter summarizes the causes of the global financial crisis in 2008, which is called “Great Destruction”, with the emphasis on the US. The causes could be divided into three interconnected categories. First, the US housing price speculative bubble and its bursting. Second, the credit bubble leveraged with complex financial instruments which accompanies and reinforces the housing bubble under a lax financial regulatory system based on the self-regulatory belief. Third, the global imbalance. The global savings glut crowding into the US provided the fundamental sources of bubbles. This chapter also discusses the consequences of the Great Destruction as well as policy responses.

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I. Introduction

On September 15, 2008, the Treasury Secretary of the United States, Henry Paulson, decided not to use government resources to save Lehman Brothers, the fourth largest investment bank, and it went bankrupt. The financial market and system in the US and around the world were shaken to its core. On the same day, Merrill Lynch, the third largest investment bank, agreed to be sold to Bank of America. On September 17, the US Treasury seized control of American International Group (AIG), one of the largest insurance companies in the world. On September 22, the Federal Reserve (Fed) of the US agreed to convert the last two major investment banks, Goldman Sachs and Morgan Stanley, into traditional bank-holding companies, ending the era of independent investment banks on Wall Street. On September 26, Federal regulators forced Washington Mutual to be sold to J.P. Morgan Chase and became the largest bank failure in the U.S. history. The outbreak of the financial crisis in September 2008 could be traced back to July, 2007, when two hedge funds from Bear Stearns, the fifth largest investment bank, collapsed because of their investment exposure on subprime mortgage securities. On the brink of collapse, Bear Stearns, with the bailout assistance of the Fed, was forced to be sold to J.P. Morgan at a fire-sale price in March 2008.

At that point, the meltdown of Wall Street started spreading to Main Street. The Business Cycle Dating Committee of the National Bureau of Economic Research determined that the US had entered a recession in December 2007, ending the expansion that began in November 2001. The expansion under the George W. Bush Administration lasted 73 months while the previous expansion in the 1990s lasted 120 months. The current recession is deeper than the previous two recessions: 1990-1991 (8 months) and 2001 (8 months). If the current recession continues to May 2009, it will be the longest continuous downturn since the Great Depression (from 1929

through 1933, 43 months). The Standard & Poor's 500 dropped 39% in 2008, which is the largest annual decline in stock market since the Great Depression.¹ The unemployment rate reached 7.2% in December 2008 and is projected to increase in 2009. 2.5 million American jobs were lost in 2008, the largest loss since the Great Depression.²

The financial turmoil erupted in the US but did not stop at its border. The US financial crisis in 2008 became a global crisis; and the US recession extended to a global recession. The “decoupling” hypothesis suggests a declining correlation between the US and the emerging country economies. The wild-fire expansion of this crisis around the globe suggests this hypothesis is false. In 2008, the United Kingdom FTSE 100 stock index price declined by 31%; the German DAX stock index price declined by 40%; the Japan Nikkei 225 stock index price declined by 42%, the France CAC 40 stock index price decreased by 43%; the India BSE 30 stock index price dropped by 52%; and the China Shanghai stock index declined 65%.

The global economic recession triggered by the destruction of the financial system is the worst since World War II. The International Monetary Fund (IMF) predicts that in 2009, the global economic growth rate³ will be 0.5%, the lowest in the postwar period. The economic growth rate in the US is predicted to be -1.6%, the Euro area -2%, Japan -2.6%, UK -2.8%, China 6.7%, and India 5.1%.

What caused this sudden widespread global financial crisis? First, the event that exposed the incredible financial risks that were being taken was the bursting of the US housing bubble beginning in mid 2006. Both naïve individual investors and sophisticated institutional investors

¹ The largest six annual declines of S&P 500 stock index prices is as follows: 1931 (-47%), 1937 (-39%), 2008 (-39%), 1974 (-30%), 1930 (-28%), and 2002 (-23%).

² In February 2009, the US unemployment rose to 8.1%. By the end of February, the economy has shed 4.4 million jobs since the recession began in December 2007.

³ According to IMF World Economic Outlook Update released in January 28, 2009.

underestimated their risk exposure and the probability of a housing price decline. Second, even though the US had low and sometimes negative savings rates, there was a “global savings glut” coming from the savings of China, Japan, the Middle East, and Europe. How can savings excess in one part of the world fuel a housing boom in another part of the world? The third cause was the creative financial intermediation made possible by innovative, but complex, mortgage securities. These securities were sold globally under a lax financial regulatory system with the promise of stable and generous long-term returns.

Because of its catastrophic effects on global financial systems and economies, we refer this financial crisis as the “Great Destruction.” The Great Destruction basically ended the era of the Great Moderation in 2007. The Great Moderation began in 1984 after the Fed successfully beat the double-digit inflation which haunted the US economy in the “Great Inflation” of the 1970s. During the Great Moderation, the major developed countries, except Japan, experienced low inflation, stable economic growth, and smaller and less frequent recessions.

Why can't the two-decade long Great Moderation in the real economy help lower the volatilities of financial markets or even avoid the Great Destruction? Yu (2008) suggests that financial market fluctuations are not stabilized like the real economy because they are driven by different factors. For example, lightly regulated institutions such as investment banks, hedge funds, and private equity, were heavily involved in derivatives trading and leverage and became increasingly influential in the financial markets.

What will be the economic consequences of the Great Destruction? The “invisible hand” of the classical school did not function well and caused the Great Depression in the 1930s. Keynesian theory dominated economic thinking and policy making after the Great Depression.

Government implementing of Keynesian theory saved teetering Capitalism and prevented the expansion of Communism.

However, in the chaotic 1970s, the laissez faire classical theory regained influence when Keynesian inspired economic policies caused stagflation. The pro-market policies spread with the election of Reagan as US president and Thatcher as UK prime minister. China shifted from central planning to a quasi-market economy under Deng Xiaoping. The Soviet Union collapsed and India ended its inward-looking economic policies.

Classical Theory's modern influence, however, came to an end in 2008 with the onset of the Great Destruction. It is likely that the Keynesian prescription for an active government role will be influential again in at least two ways. First, government will increase regulation of the financial markets to prevent the principal-agent problem and mania in the asset and financial markets. Second, government will use active fiscal and monetary policy to maintain full employment.⁴

The rest of the chapter is organized as follows: Section 2 explores the causes and consequences of the Great Destruction. Section 3 discusses policy responses and concludes.

II. Causes and Consequences

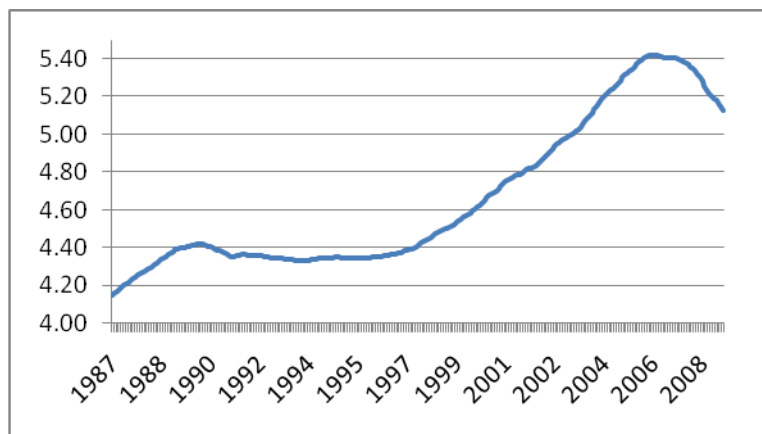
There are both direct and indirect reasons for the Great Destruction of 2008. Most of them are interdependent and reinforcing. We provide the possible causes and analyze them as follows.

Housing Bubble and Bust

⁴ For details, see "A Failure to Control the Animal Spirits" by Robert Shiller at Financial Times on March 8, 2009.

According to the S&P/Case-Shiller composite housing price index⁵, US housing prices increased from July 1996 to April 2006, with a consecutive 118 months run-up of prices as shown in Figure 1. The average annual return on investment in housing was 11% during this period. On the supply side, privately owned housing units starts gradually increased from 798,000 units in January 1991 to 2,273,000 units in January 2006.⁶ There is no evidence of surging building costs. This suggests that rising housing prices were mainly driven by demand. For reasons discussed later, expectations of persistent housing price appreciation prevailed during this housing bubble. Lenders viewed their loans as highly-secured by the rising value of their collateral and ignored borrowers' ability to repay. Therefore, lending to risky borrowers grew significantly from 2003 to 2005.

Figure 1



Subprime Mortgage Lending

⁵ The S&P/Case-Shiller Home Price Composite Index measures the residential housing market, tracking changes in the aggregate value of the residential real estate market in 10 metropolitan regions across the United States since 1987. The index uses the repeat sales pricing technique to measure housing markets. First developed by Karl Case and Robert Shiller, this methodology collects data on single-family home re-sales, capturing re-sold sale prices to form sale pairs. The data is seasonal adjusted.

⁶ The data is seasonally adjusted from US Census Bureau.

Risky mortgages can be classified into two groups: “subprime⁷” and “near-prime⁸” (Mayer et al. 2008). Originations of subprime mortgages increased from 1.1 million in 2003 to 1.9 million in 2005. Near-prime mortgages grew from 304, 000 in 2003 to 1.1 million in 2005. In total dollar terms, subprime and near-prime mortgages accounted for 32 percent of all mortgage originations in 2005 compared to only 10 percent in 2003.

Over 75 percent of subprime mortgages originated from 2003 to 2007 were “short-term hybrid” mortgages. Rates on these mortgages are fixed for two or three years and then become adjustable. Interest rates were low in 2003 and 2004 because of Fed expansionary monetary policy to fight the 2001 recession after the technology stock bubble broke. Then the Fed began to tighten monetary policy in mid 2004. The hybrid subprime mortgages have a fixed rate for the first two or three years and then adjust with changes in the six-month London Interbank Offered Rate (LIBOR). Subprime mortgage rates increased from 8 to 11.5 percent from mid 2004 to mid 2006 resulting in a 25 percent increase in mortgage payments. When housing values were rising, borrowers could avoid this 25 percent increase by refinancing into another short-term hybrid with positive home equity. When housing prices stopped rising, refinancing opportunities diminished. Subprime borrowers had to either pay the adjusted rates or default.

Furthermore, we find the loan-to-value ratio of subprime mortgages has typically been higher than for other types of mortgages. This includes combined loan-to-value ratios of first and second mortgages (called piggyback mortgages). The median combined loan-to-value ratio for subprime loans rose from 90 percent in 2003 to 100 percent in 2005. Since housing values

⁷ Subprime loans are categorized to borrowers who have bad credit histories and little savings available for down payments

⁸ Near-prime loans are made to borrowers with more minor credit quality issues or borrowers who are unable or unwilling to provide full documentation of assets or income. Near-prime mortgages are often pooled into securities called “Alt-A.”

were still rising, a 100% ratio suggests little if any down payment when the mortgages were originated. Obviously, subprime borrowers are more likely to default on their mortgages when the housing prices decline. This leads to negative home equity with no cushion. Therefore, the fall in housing prices after the housing bubble broke in mid 2006 came with a rapid rise in delinquency and foreclosure rates.⁹

From April 2006 (the peak in housing prices) to October 2008, S&P/Case-Shiller composite housing price index declined 25%. Additionally, as the economy slows and unemployment increases, borrowers are finding it more difficult to make their mortgage payments. According to the national survey from the Mortgage Bankers Association, delinquent mortgages have risen to 7.88 percent of all loans outstanding at the end of 2008 from an average 1.7 percent rate from 1979 to 2006. The percentage of loans in the foreclosure process is 3.3 percent in 2008, an increase of 1.26 percent from one year ago. In the pool of subprime loans, the rates are much higher. The share of subprime mortgages that were delinquent increased to over 21.88 percent¹⁰ in 2008 from 5.6 percent in mid 2005. With the surging delinquency and defaults on mortgage payments upstream in the payment process, the values of corresponding products from mortgage securitization collapsed downstream.

Examining 22 countries, both developed and emerging, over the past three decades, Reinhart and Rogoff (2008) found an apparent causality relationship between housing bubble-bust cycles and the financial crises. They suggest that the financial crises tend to occur either at the peak of a housing price boom, or right after the bust.

⁹ The delinquency rate includes loans that are at least one payment (30 days) past due but does not include loans somewhere in the process of foreclosure.

¹⁰ The delinquency rate increased to 5.06 percent for prime loans.

The Community Reinvestment Act (CRA) has been blamed as a principal cause of the subprime crisis. CRA, passed by Congress in 1977 and changed later, encourages financial institutions to extend mortgage and other types of credit to low-income neighborhoods and households. Federal Reserve staff found that delinquency rates were high in all neighborhood income groups, and that CRA-related subprime loans performed similarly to other subprime loans (Kroszner 2008). Consequently, there is no evidence that CRA caused the subprime bubble and consequent turmoil.

Driving Factors of The Speculative Bubble

Robert Shiller (2005) points out the process of a speculative bubble and its driving factors. Basically, overall investor confidence increases in a feedback loop. Initial price increases lead to more investor demand and borrowing for speculation, which drives up prices (explained in a later section). The second round of rising prices feed back again into the third round and so on. This eventually causes prices to deviate far from fundamental values. The feedback caused by this adaptive expectation of the investor when prices are climbing generates expectations of further price increases—a “price effect”. In the case of housing, there is another feedback loop--the “wealth effect”. As the value of houses increase, the now wealthier homeowners increase their expenditures and boost GDP. This has a multiplier effect by increasing incomes and encouraging more housing purchases.

Like Ponzi schemes, a speculative bubble does not grow forever both theoretically and historically. Once prices stop rising, the bubble bursts. Then a negative bubble may occur in the opposite direction, which is what we have seen in the collapsing housing market after mid 2006.

Why are investors exhibiting a number of predictable irrational financial biases, contrary to the rationality assumption of the efficient market hypothesis? Many researchers document that there are psychological factors leading to overconfident investors' irrational behaviors. One such example is herd behavior. Investors believe the majority view so they take into account the judgments of others even though they know the asset is mispriced. By conducting an experiment, Lo et al. (2005) suggest that significant emotional responses exist among traders, even the most experienced ones. They also find that emotional reactions are apparently counterproductive for trading performance. Generally speaking, we attribute these psychological factors to "animal spirits", suggested by John Maynard Keynes. Animal spirits and their self-fulfilling dynamics are increasingly active research areas in the fields of economics and behavioral finance.

Securitization and Derivatives

How could rising defaults of mortgage payments in California, Arizona, and Florida cause destruction on Wall Street and the global financial markets? Securitization links the home mortgage market with the global financial system.

Before 1970, mortgage lenders were mostly local banks and thrifts that served local borrowers. However, the localized system of providing mortgages is less efficient than a global system in matching the global supply of funds with the global demand for funds. In 1968, to develop a national secondary mortgage market the federal government re-chartered the Federal National Mortgage Association¹¹ (Fannie Mae) to become a privately owned government-sponsored enterprise (GSE). In 1970, to compete with Fannie Mae in the secondary market, another GSE was founded – the Federal Home Loan Mortgage Corporation (Freddie Mac).

¹¹ It was created in 1938 and authorized to issue bonds and use the proceeds to purchase Federal Housing Administration (FHA) mortgages from lenders.

Generally, local lenders (originators) sell their loans to the GSEs or private sector financial institutions, such as Countrywide and Washington Mutual. The GSEs or other financial institutions pool and package these mortgage payments as mortgage-backed securities (MBSs) and sell them to investors all over the world.

The outstanding volume of MBSs created by GSEs has risen from less than \$200 billion in 1980 to over \$4 trillion today. These agency securities are backed by collateral and receive mortgage payments from the prime borrowers. Over the past decade, private sector financial institutions, as mentioned, have competed with GSEs in the booming housing market. In particular, they bundled loans which did not meet GSE's criteria, including subprime, near-prime, and Jumbo loans. The Jumbo asset class includes loans to prime borrowers with an original principal balance larger than the limit imposed on the GSEs. These private pools account for about \$2 trillion in the residential mortgage market.

There are also more complex instruments such as collateralized debt obligations (CDOs), collateralized loan obligations (CLOs), and structured investment vehicles (SIVs), which were repackaged similar to MBSs. For example, the Gaussian copula model, based on Li (2000), had been widely adopted by Wall Street banks and ratings agencies because of its simple and elegant mathematical formula. The model estimates the default correlation without checking historical default data of the underlying pool of assets. It simply uses the prices of credit default swaps (explained below). Therefore, investment banks could tranche that pool and create a CDO with an AAA rating even if few of the components are themselves AAA.

In the booming housing market, many problems occurred in the securitization process. First, loan originators have little incentive to scrutinize the credit and repayment ability of borrowers because the risk will soon be transferred. Of course, investors in mortgage securities

care about the risk profile of these complex securities.¹² But it is difficult for them to monitor the risk. Therefore, they relied on credit rating agencies. Unfortunately, professional credit rating agencies, e.g. Moody's and Standard and Poor's, underestimated the risks of these complex securities. For example, according to Fitch Ratings (2007), approximately 60 percent of all global structured products were AAA-rated, compared with less than 1 percent of the corporate bonds. How could they make these mistakes? Haldane (2009) provides three possible explanations. First, they also believed in ever-rising housing prices for reasons mentioned above. The probability of catastrophic outcomes tends to be underestimated. The longer the time period since a catastrophic event, the lower the estimated probability of the event will be. Over a long time period, the estimated probability of a disaster will effectively be set at zero. This is called the "threshold heuristic". Rating agency credit risk models were fed this parameter based on faulty assumptions.

Second, their models underestimated the systematic risks. The probability of correlated default risks and unobservable shocks were set too low in the model. Haldane (2009) points out that the financial system is a network with nodes defined by the financial institutions and links defined by the financial interconnections among institutions. Therefore, it is a complex system and difficult to evaluate risks within these networks. When assessing risk, it is not enough to know your counterparty; you also need to know your counterparty's counterparty. There were also underestimated negative network externalities. The collapse of Lehman Brothers is a painful example. Third, the credit rating agencies get paid by security issuers. Under this principal-agent relationship, their credit report will very likely be biased.

¹² For example, banks can reduce their required capital if they hold higher rated securities. Money-market funds are restricted to buy AAA-rated securities.

Not all investors relied on the credit ratings. Many of them bought default insurance on these securities. This insurance is called “credit default swaps (CDSs)” issued by some insurance companies and investment banks. A CDS is similar to normal insurance: the buyer pays risk premiums to the issuer in exchange for compensation protection if the securities default. However, unlike home insurance, CDSs are not regulated by the US Securities and Exchange Commission (SEC) and there are no capital disclosure requirements for the CDS issuers.

According to the International Swaps and Derivatives Association (ISDA), the total notional value of CDSs in mid 2008 is approximately \$55 trillion, doubling its size from mid 2006.¹³ The MBS, CDO, and CDS markets grew together. When MBSs and CDOs crashed, the CDS issuers, e.g. AIG, did not have enough capital to pay the buyers for their loss, therefore, they crashed as well. Moreover, because the CDS market is not an exchange market but an over-the-counter market with a complex interdependence system, the counterparty risks rose significantly when the CDS market participants did not know the status of the counterparties.

In good times, these complicated financial derivatives generated huge profits for the issuers. However, there were some early warnings. In 2002, Warren Buffett described these derivatives as “financial weapons of mass destruction.”

Bank Leverage

Large banks have been surprisingly vulnerable to the housing bust and exposed to these toxic securities. There are two major explanations. First, mortgage securities in the past have typically been sold by banks to institutional investors with low leverage, e.g. mutual funds or pension funds, which can bear the risk for a longer period of time. But lately highly-leverage

¹³ AIG alone is reported to have sold over \$440 billion of CDSs protection on a notional basis.

investment banks and medium-leverage commercial banks kept substantial amounts of them. Second, these banks financed their purchases of risky mortgage-back securities with short-term borrowing. As the housing bubble broke, the risk of these securities increased. Therefore, the banks had difficulty rolling over short-term loans to stay invested in these toxic securities and some were forced to sell them at fire-sale prices which caused the prices to plummet even further. These depressed assets prices deteriorated the balance sheets of banks under the mark-to-market accounting rule, eroding the bank's capital and leading to insolvency.

However, it is worth noting that the high leverage ratios of investment banks are not new. Since the abandonment of fixed brokerage fees in the 1970s, investment banks used high leverage ratios to increase their profits and be competitive. Average leverage ratios (debt-to-equity) of investment banks have been rising over time. The leverage ratio was 7.45 in 1975, 11.13 in 1976, 13 in 1980, 17 in 1982, 18 in 1990, and was over 30 between 1994 and 1998, prior to the Long Term Capital Management (LTCM) crisis. The leverage ratio dropped to below 25 after the LTCM crisis and then peaked again to over 30 in 2008. Therefore, it is unfair to attribute the financial crisis to the amendment of the net capital rule in 2004 by the SEC of the US.

Deregulation and Shadow Banking Conglomerates

Since the 1970s, there has been a deregulation tide in the financial markets. Most states repealed branching restriction in the 1970s and 1980s. In 1994, the Riegle-Neal Act allowed bank branching across the country. Until 1999, banks in the US were not allowed to engage in

investment banking under the Glass-Steagall Act of 1933¹⁴ although banks have used many loopholes to participate in nonbanking businesses to some extent. In 1999, President Clinton signed into law the Gramm-Leach-Bliley Act (GLBA) proposed and passed by Congress, also known as the Financial Services Modernization Act. The GLBA removed the independence between commercial and investment banking businesses, creating the era of financial integration and large financial conglomerates. There are two motives for the trend of financial deregulation and consolidation. First, banks can reduce transactions costs and gain from economies of scale. Second, banks are supposed to benefit from diversification of geography and services.

Akhigbe and Whyte (2004), however, document that banks experienced an increase in risk following the passage of the GLBA. They also suggest that regulators carefully monitor and supervise bank activities facing the rise of risk from the expansion of financial conglomerates. The outdated fragmented regulatory framework used for segmented financial-services industry, however, was inappropriate for the integrated banking institutions. On the other hand, since the 1970s, regulators have believed that market participants would self-regulate themselves and the government should not intervene the market. The most famous proponent of this ideology is Alan Greenspan, the former Chairman of the Federal Reserve. On his testimony to the committee of government oversight and reform on October 23, 2008, Greenspan admitted that he had put too much faith in the self-correcting power of free markets and had failed to anticipate the self-destructive power of lending institutions. He further acknowledged that his belief in deregulation had been shaken. He said that the immense and largely unregulated businesses that have spread

¹⁴ It was widely believed that, prior to the Great Depression, that the investment banking division of large financial conglomerates run by high risk takers who gamble away the funds from the savings of the commercial banking division led the serious bank runs and failure and the Great Depression.

financial risk widely, through the use of exotic financial instruments, had gotten out of control.¹⁵ Indeed, deregulation could be a main cause of the financial crises.

Examining 26 financial crises in the post-1970 period, Kaminsky and Reinhart (1999) found that 18 of the 26 occurred after the financial sector had been liberalized. Demirguc-Kunt and Detragiache (1998) also showed that financial deregulation has an independent negative effect on banking sector stability. Eventually, under the GLBA and deregulation beliefs, the traditional financial institutions turned to shadow banking institutions and became too big (and too interconnected) to fail.

Dysfunctional Corporate Governance and Risk Management

Because of the existence of asymmetric information between borrowers and lenders, financial institutions play an important role in facilitating borrowing and lending by gathering information and thereby reducing the principal-agent problem, i.e. adverse selection and moral hazard. Over the past two decades, however, large commercial and investment banks have increased adverse selection and moral hazard problems. The problems could be attributed the lax regulation mentioned above as well as dysfunctional corporate governance. Kashyap, Rajan, and Stein (2008) indicate a distorted incentive scheme as a primary cause. The performance of CEOs is evaluated and compensated based on current earnings and stock prices relative to their competition. This myopic incentive system for CEOs results in “heads I win and tails shareholders lose”. They, therefore, tend to pursue high-return investments but neglect their risks. Moreover, Wall Street has a highly competitive business environment. Other banks had

¹⁵ New York Times, October 24, 2008.

“keeping up with the Jones” pressures to play the same lucrative game with their competitors.¹⁶ Traders also have an incentive to take risks that are not recognized by the system, which is common for some of the new complex financial derivatives. Therefore, they can generate “income” that appears to be based on their abilities and performance when although it is, in fact, a risk premium. In other words, traders are allowed to boost their bonuses by treating the risk premium as income instead of keeping a significant fraction in reserve for the long-term payout. Traders, therefore, have excessive incentive to engage in these products.¹⁷

Every corporation and bank that issues securities has a board of directors elected by shareholders to oversee the company and prevent the moral hazard problems mentioned above. Unfortunately, boards of directors sometimes fail to protect the long-term interests for shareholders because they are not independent members. Often the chairman of the board is also the CEO of the bank or a former CEO of the bank. When the board cannot act independently to monitor management, the shareholder’s interests are compromised. For example, amid massive losses, shrinking capital, and continued private and government capital injections since 2007, Wall Street amazingly still paid out bonuses of \$32.9 billion for 2007 and \$18.4 billion for 2008 to their managers and employees. President Obama called Wall Street’s behavior “the height of irresponsibility” and “shameful.”¹⁸ It is evident that boards of directors did not act for their shareholders’ long-term interests under the distorted incentive system. As Greenspan said in

¹⁶ For example, Citigroup Chairman Chuck Prince explained why Citibank continued financing buyouts despite mounting risks (Financial Times, July 9, 2007). He said, “When the music stops, in terms of liquidity, things will be complicated. But as long as the music is playing, you’ve got to get up and dance. We are still dancing.”

¹⁷ For example, according to *Shareholder Report on UBS Writedowns*: “The CDO desk received structuring fees on the notional value of the deal, and focused on Mezzanine CDOs, which generated fees of 125 to 150 bps (compared with high-grade CDOs, which generated fees of 30 to 50 bps).” The larger fee income earned by traders came from originating CDOs as a performance compensation although this fee income should be a compensation for the greater risk that UBS needs to take in the long run.

¹⁸ Wall Street Journal, January 31, 2009.

testimony on October 23, 2008, “those of us who have looked to the self-interest of lending institutions to protect shareholder’s equity are in a state of shocked disbelief.”

After the stock market crash of October 1987 and the failure of LTCM in September 1998, financial institutions introduced Value at Risk (VaR) as a key internal risk management tool. However, VaR failed to adequately monitor risk. Why? There are two reasons. First, the risk managers and the risk takers may be different people. When returns are high and risks appear low (mentioned above), front-office risk takers always win over back-office risk managers. Second, large financial firms may actually assume that government will step in and bail them out if some catastrophic event occurs. This moral hazard problem might be traced back to the Fed rescue of LTCM in 1998 after the Russian default.

Global Imbalance

It is widely believed that one of the driving forces of over lending and reckless investment in the US housing market came from the global imbalance in savings and investment. The Asian financial crisis occurred in 1997 after some Asian nations suffered seriously from slumping exchange rates because of a lack of foreign reserve. Many of the emerging countries learned the lesson: they needed to accumulate substantial amount of foreign reserves, particularly US dollars, in order to weather the next financial and exchange rate storm. Many of them undervalued their exchange rates to boost their exports and then accumulated US dollars savings. This “global saving glut,” mainly from China, Japan, Russia, Taiwan, India, Brazil and other oil-exporting countries, was used to buy US Treasury bonds and other US securities. The global imbalance reflected the chronic shortage of savings relative to investment in the US and other developed countries, but the substantial savings surplus to investment in emerging countries.

Based on IMF data, emerging countries' savings were around 33% of its GDP, well above the 24% average in the late 1980s and 1990s.

Massive capital inflows into the US lowered US long-term real interest rates, which provided the flood of funds into US residential investment. The famous Taylor rule indicates short-term nominal interest rates are a function of inflation and the output gap. Taylor (2008) suggests that the main reason for the flood of funds is because of loose fitting monetary policy taken by Fed between 2002 and 2005, not because of a global savings glut. Taylor's argument is controversial. Many industrial countries also experienced a housing bubble and it is not clear that all these major central banks were making the same mistake. Thus, a global savings glut would be a more appropriate explanation.

III. Policy Responses and Conclusion

Facing the turbulence and challenge created by the Great Destruction all over the world, what should we do in this unprecedented period of global change? One thing is for certain: financial recovery and real economic recovery go together (Romer 2009). UK Prime Minister Brown plans to suggest four actions for a global new deal in the G-20 Leaders summit in April, 2009, which are summarized below.

(1) Universal action to prevent the crisis from spreading, to stimulate the global economy, and to help reduce the severity and length of the global recession.

Most countries have been conducting expansionary monetary policy by cutting interest rates. For example, the US Fed has reduced the federal funds rate from 5.25% in September 2007 to around 0.2% now. Many other countries have also reached the zero-bound of short-term

nominal interest rates; therefore, there is little room for further effective conventional monetary policy. As a result, fiscal stimulus has become relevant and important for the first time in decades. In early 2009, the US passed a \$797 billion fiscal stimulus plan (the American Recovery and Reinvestment Act), which includes increasing spending and a tax cut. Since the onset of the Great Destruction, many countries have announced and implemented a fiscal stimulus package. As Romer (2009) points out, one crucial lesson from the 1930s is that a small fiscal expansion has only small effects. In the Great Depression, fiscal policy failed to generate recovery, not because it doesn't work, but because it was not enough (Brown 1956). The US economy did recover until World War II when federal spending was over 50% of GDP. Therefore, the IMF has been urging nations to increase the amount of fiscal stimulus by at least 2% of their GDP, but until now only five countries (Saudi Arabia, Spain, Australia, US, and China) are expected to reach the goal in 2009.¹⁹

(2) An action to kick-start lending so that families and businesses can borrow again

Bernake (1983) suggests that the collapse of lending in the Great Depression had a devastating result. Facing a serious credit crunch, the US Congress enacted the Emergency Economic Stabilization Act in October 2008, including \$700 billion Troubled Asset Relief Program (TARP), to rescue those banks that are too big to fail. The US Treasury and Fed also had launched the Term Asset-Backed Securities Loan Facility (TALF), which has the potential to generate up to \$1 trillion of lending for businesses and households.

¹⁹ Wall Street Journal, March 9, 2009. Most European nations had smaller stimulus packages than the US for two reasons. First, Europe fears inflation more than the US because of lack of credibility of their newly born European Central Bank. Second, Europe often has richer unemployment and health benefits than the US. These automatic stabilizers will increase when the recession become worsen.

(3) All countries need to renounce protectionism, with a transparent mechanism to monitor commitments

It is widely believed that the US Smoot-Hawley Tariff Act in 1930 and retaliatory tariffs in other countries exacerbated the Great Depression. This protectionist mistake should not be made again.

(4) An international regulation overhaul is needed to close regulatory gaps so shadow banking systems have nowhere to hide. In addition, reform is needed for international financial institutions and an international early warning system should be created.

US Fed Chairman Bernake (2009) has proposed several regulation reforms. First, to avoid systematic risk in a crisis, the government needs to prevent the failure of large financial firms. Therefore, there should be more effective supervision of these “too big to fail” banks. A consolidated supervision should carefully monitor the capital adequacy, liquidity management, and risk management of these large firms with higher standards. This includes all parts of the organization, not just the holding company. Second, regulators should encourage the development of well-regulated and prudently managed central clearing counterparties for OTC financial derivatives trading. Third, the government should introduce a macroprudential approach into the regulatory and supervisory system to access, monitor, and address potential systematic risk to the whole economy.

This Great Destruction has taught us much. Global imbalance between emerging and developed countries cannot be sustained forever. In particular, America needs to reexamine its consumption behavior. Maintaining an appropriate national savings rate is beneficial for financial stability at home and abroad. This Great Destruction will be a creative destruction for

the financial industry and regulatory system. When we rebuild a dynamic and innovative financial system under efficient and effective supervision and corporate governance, we will put the global economy on a sustainable path towards future growth and stability.

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