Introduction

The Great Recession of 2007–2009

The months of August–September 2008 will forever be remembered as the time when the economic tsunami hit Wall Street. On September 7 the venerable "models" of mortgage finance (the government-sponsored enterprises Fannie Mae and Freddie Mac), which together had more than $5 trillion in mortgage-backed securities and debt outstanding, collapsed.[1] The authorities placed both into conservatorship in the hopes of stabilizing the housing and mortgage-finance markets. This clearly did not happen. On September 15, the world witnessed the fire sale of the investment bank and stock-market "bull" Merrill Lynch to Bank of America and, more ominously, the bankruptcy of the 154-year-old investment bank, Lehman Brothers, the largest company ever to fail in the United States.[2] The collapse of Lehman

[1] The Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac) are government-sponsored enterprises (GSEs). They were established by Congress to achieve specific goals set by Congress. Both are privately owned, but as GSEs they enjoy tax and regulatory breaks such as being exempted from state and local income taxes.

[2] Lehman Brothers survived the U.S. Civil War, two World Wars, and the Great Depression. After the Fed and the Treasury failed to find a buyer for the firm, Lehman filed for bankruptcy. Its collapse was the largest corporate bankruptcy in U.S. history. On the other hand, Merrill Lynch was acquired by Bank of America for $50 billion. Allan Meltzer (2009) has argued that allowing Lehman to fail was a "major error" that "deepened and lengthened the current deep recession". A lingering question remains: why was Lehman allowed to fail while AIG and Citigroup were spared? To some, Citigroup had a prominent asset that Lehman did not: Robert Rubin, who was the Treasury secretary under the Clinton administration and executive at Citi. However, a more plausible explanation is that both the U.S. Treasury and the Federal Reserve were concerned about the moral hazard of placing Lehman into a government conservatorship. It should be kept in mind that Lehman was the most leveraged of the major investment banks, and bailing it out would have been costly. Bernanke has noted many times that the Federal Reserve lacked legal authority to bail out Lehman because Lehman did not have good collateral.

(which had more than $600 billion in assets and some 25,000 employees), proved to be a fork in the road – an inauspicious event – that transformed the subprime crisis into a catastrophic global financial crisis and ushered in the "Great Recession."[3]

As Lehman was a counterparty in many financial transactions across several key markets, its failure predictably triggered defaults on contracts all over the world. Lehman's collapse rapidly reverberated throughout the financial system, destroying confidence in money market funds, which in turn, exacerbated problems in the commercial-paper market. Deeply concerned that a massive run on the money markets could destroy the commercial-paper market and thereby bring the entire economy to its knees, the Federal Reserve Board intervened by providing liquidity to money market investors and insured all money market deposits (Allen and Moessner 2011; Mehrling 2011; Wessel 2009). Yet the collateral damage continued unabated. The very next day (September 16), it became public that the nation's largest insurer, American International Group (AIG), could no longer honor the credit-default swaps (CDS) it had sold to banks.[4] Fearful that AIG's collapse

For a range of views, see FDIC (2011); McDonald and Robinson (2009); Paulson (2010); Sorkin (2009); and Zuckerman (2009).

3 The term Great Recession is used to describe the eighteen-month-long global economic downturn officially dated from December 2007 to June 2009.

4 In essence, credit-default swaps (CDSs) are contracts between buyers and sellers of protection against default. It is a form of debt insurance, or more precisely, derivatives contracts that investors buy to either insure against or profit from a default. In this way CDS contracts act as a form of debt insurance in that they provide a means of protection against credit risk. "Buyers" pay premiums to "sellers" for insurance, and if an insured bond or loan fails or goes into default, the seller is obligated to pay off the value of the debt. More specifically, the buyer of the CDS contract receives compensation by the seller if a "credit event" (which could include default of some underlying assets such as a government bond, bankruptcy, restructuring, and a credit-rating downgrade) occurs to a third party or the "reference entity" within a specified period of time. For credit protection, the CDS buyer pays a fee or "premium," and since CDS contracts are between two parties rather than on an exchange, the CDS contracts are mainly traded over the counter. Reference entities are usually corporations, governments, and asset-backed securities. The CDS concept was first introduced by J.P. Morgan in 1997. Jarrow (2011) points out that the CDS was primarily designed to limit the firm's exposure to billions of dollars in loans it had made to governments and corporations. In 1998, the estimated total size of the CDS market was around $180 billion. However, by June 2008, it had skyrocketed to around $57 trillion (Stulz 2010, 78). The exponential growth of CDSs took place because they proved to be highly profitable; insurers (banks, insurance companies, and other financial institutions) earned hefty fees for insuring "events" they assumed would never occur or that constituted an extremely low risk. For example, banks purchased CDSs from AIG (mainly from its Financial Products division, a noninsurance operation based in London) to hedge the mortgage-backed securities they held, in the case of mortgage defaults. Of course, AIG did not anticipate the total collapse of the market for mortgage-backed securities. When

would have a domino effect and bring down banks and investment firms, the Federal Reserve Board gave AIG an emergency credit line totaling $85 billion to facilitate an "orderly" downsizing of the company.[5]

Yet again, the financial hemorrhaging continued unabated. By the second week of September, funding markets had come to a virtual standstill in the United States (and many other countries), with bank funding markets essentially ceasing to function at terms longer than overnight. As the startled former Federal Reserve chair Alan Greenspan (2010, 18) noted, "Evaporation of the global supply of short-term credits within hours or days of the Lehman failure is.... without historical precedent." The credit panic became self-fulfilling – that is, as the uncertainty among banks and other financial institutions about the creditworthiness of their counterparts grew, it further exacerbated counterparty risk. This was vividly reflected in the soaring rates banks were charging each other for short-term loans. As money market fund managers tightened lending, credit lines to businesses (including healthy ones) dried up, triggering fears of a general liquidity crisis (Paulson 2010). Predictably, the corporate bond spreads widened to all-time highs, equity markets experienced sharp declines, and foreign-exchange volatility increased sharply. On September 19, the Bush administration, led by U.S. Treasury Secretary Hank Paulson, finally abandoned their "hands-off" policy and confronted the spiraling financial conflagration by hastily cobbling together an unprecedented "rescue" plan (to critics, a "bailout" plan) under the aegis of TARP (Troubled Assets Relief Program), a government agency with the authority to purchase some $700 billion of distressed assets from failing and failed private financial companies.[6]

Even as this massive plan was being announced, the economic landscape in the United States was already undergoing irrevocable transformation. Just a few months earlier, in the tightly cloistered world of U.S. banking, there were five major investment banks. By the end of September 2008, there were none (Lowenstein 2010). Bear Stearns, the canary in the coal

these hard-to-price securities (unlike traditional types of insurance, CDSs were unregulated before the crisis, and the market for them so opaque it was difficult to know the extent of the risks) did collapse, AIG (like Bear Stearns) stood exposed. When asset prices fell sharply, and the banks made collateral calls, AIG could not meet them. Burdened with huge liabilities and without sufficient capital to cover its obligations, AIG was forced to seek taxpayer support.

[5] The government loan was in exchange for a 79.9 percent equity stake in AIG.

[6] The Emergency Economic Stabilization Act of 2008 authorized the Treasury Secretary to purchase troubled assets from financial institutions through December 31, 2009. The law also placed limits on compensation and prohibited "golden parachutes" for senior executive officers whose company assets were purchased under the plan.

mine, and which had put its eggs in the mortgage-backed securities basket was pushed into the arms of J.P. Morgan Chase on March 16, 2008 as house prices further tumbled.[7] Lehman simply went bust, Merrill Lynch sold itself to Bank of America, and Morgan Stanley and Goldman Sachs announced on September 22 that they were becoming commercial banks.[8] On September 26, Washington Mutual (a $300 billion thrift), announced that most of its assets would be acquired by J.P. Morgan. On September 29, Citigroup announced that it would acquire the banking operations of Wachovia Corporation in a deal facilitated by the Federal Deposit Insurance Corporation (FDIC). Citigroup agreed to absorb up to $42 billion of losses from Wachovia's $312 billion loan portfolio, with the FDIC covering the remaining losses. With so many of the mighty falling and the era of the independent investment banking coming to an ignominious end, the country that had long prided itself on its unabashedly free-market system and individual enterprise began contemplating what just days earlier had been unthinkable: socialist-style state intervention – wherein the state would pump in huge amounts of monetary and fiscal stimuli and financial institutions would be outright nationalized in order to stabilize the collapsing economy.[9]

On September 29 the markets reacted negatively to Congress's rejection of TARP. The stock market sell-off was dramatic: the Dow fell nearly 7 percent – a one-day drop that has been matched only seventeen times since the index's creation in 1896. With apocalyptic predictions of another Great Depression, growing populist anger, and unrelenting admonition and political arm-twisting by Congressional leaders, the White House, and the two

[7] The investment bank Bear Stearns had not only heavily invested in residential mortgage-backed securities, it was also highly leveraged and depended heavily on overnight loans to fund its investments. In early March 2008, when the firm's creditors refused to provide funding, Bear Stearns found itself on the verge of bankruptcy (it was unable to roll over its short-term financing). The Federal Reserve and the Treasury were forced to arrange the sale of Bear Stearns to J.P. Morgan Chase – but not without first providing government guarantees on some of Bear Stearns' assets. Given Bear Stearns' complex inter-linkages with other financial institutions through derivative trading and loans, the Fed determined that letting Bear Stearns fail would exacerbate the stress in the financial markets.

[8] Both Morgan Stanley and Goldman Sachs have two years to conform to federal supervision and meet capital requirements and other rules that govern such commercial banks as Wells Fargo, Bank of America, and Citigroup.

[9] Cassidy (2009, 4) has captured this well, noting "The Bush administration, after eight years of preaching the virtues of free markets, tax cuts, and small government, had turned the U.S. Treasury into part owner and the effective guarantor of every big bank in the country… it had stumbled into the most sweeping extension of state intervention in the economy since the 1930s."

Table I.1. *Trends in world stock markets*

Index	May 2008	Nov 2008	% Decrease (May to Oct 2008)
DJIA (NY)	12,800	8,693	−68
FTSE (London)	6,200	4,268	−69
Nikkei (Tokyo)	13,750	8,696	−63
Sensex (Mumbai)	17,000	9,956	−56
SSE180 (Shanghai)	8,500	4,076	−48

Source: Bloomberg and Shanghai Stock Exchange, 2008.

presidential candidates (Barak Obama and John McCain), Congress finally passed the $700 billion rescue package on October 3. It was the biggest bail-out in U.S. history.[10] However, even this unprecedented fiscal indulgence underwritten by U.S. taxpayers failed to stop the financial bleeding. In fact, efforts by governments around the world to stem the panic via sovereign guarantees on bank deposits and loans, recapitalizing banks, passing legislation to use public funds to purchase troubled assets from banks, injection by several central banks of massive amounts of liquidity into the banking system, and widespread use of the Federal Reserve's swap networks or "reciprocal currency arrangements" (which at its peak on December 4, 2008 provided US$586.1 billion to other central banks) failed to calm the markets. To the contrary, the credit markets around the world froze. The commercial-paper market shut down, three-month Treasuries yields dipped below zero, and the money market mutual fund "broke the buck" for only the second time in history, precipitating a $200 billion net outflow of funds from that market (Table I.1). In this environment of fast-evaporating investor confidence and the seizing-up of interbank credit markets, fear and panic gripped the world's capitals and financial markets (Brunnermeier 2009).

Indeed, the world found itself facing the specter of the worst financial shock since the Great Depression. As 2009 rolled in, some hundreds of billions (if not trillions) of dollars in capital value had already been lost in the stock and equity markets. Still, the crisis showed no signs of abating.[11] In

[10] Milton Friedman and Anna Schwartz (1963) argued in their seminal *A Monetary History of the United States* that the root cause of the Great Depression was not the stock-market crash but a "great contraction" of credit due to large-scale bank failures.

[11] Drawing on data from the IMF and U.S. Federal Reserve, Altman (2009, 5) notes that

> Americans have lost one-quarter of their net worth in just a year and a half, since June 30, 2007, and the trend continues. Americans' largest single asset is the equity in their homes.

the United States, the economy remained in the grips of a sharp contraction with almost two million jobs lost, and the number of home foreclosures and bankruptcies on the rise. With the U.S. budget deficit for 2008 trebling and the ratio of public-plus-private-debt to GDP at more than 300 percent, there was recognition (and palpable anxiety) that the world's economic hegemon was profoundly constrained in what it could do to boost growth. Not surprisingly, observers were generally unanimous in projecting that world economic growth would further contract in 2009 to its lowest rate in sixty years – a projection that came to pass as world economic growth fell at an annual rate of –6.4 percent in the fourth quarter of 2008 and –7.4 percent in the first quarter of 2009 (IMF 2009a; 2009b).

The Focus of this Study

Although there are no recent precedents of an economic crisis of such a catastrophic magnitude, in retrospect, the writing of a financial meltdown was on the wall. In the United States, the signs of speculation and risk had been evident for some time: ubiquitous growth of global economic imbalances, worsening macroeconomic fundamentals, mounting debt levels, low household savings, skyrocketing asset prices, and the proclivity of Americans (presumably blinded by rising wealth effects[12]) to live beyond their means and rely on consumer borrowing to finance hedonistic spending and consumption. Thus, the crisis was hardly a discordant black swan event.[13] Nevertheless, in spite of the growing preponderance of evidence,

> Total home equity in the United States, which was valued at $13 trillion at its peak in 2006, had dropped to $8.8 trillion by mid-2008.... Total retirement assets, American's second-largest household asset, dropped by 22 percent, from $10.3 trillion in 2006 to $8 trillion in mid-2008. During the same period, savings and investment assets (apart from retirement savings) lost $1.2 trillion and pension assets lost $1.3 trillion. Taken together, these losses total a staggering $8.3 trillion.

Drawing on more recent dataset, Emmons and Noeth (2012, 11) point out that

> Household wealth declined almost $17 trillion in inflation-adjusted terms, or 26 percent, from its peak in mid-2007 to the trough in early 2009. Only about two-fifths of that loss had been recovered by early 2012. Looking at individual asset categories between June 30, 2007, and March 31, 2009, the inflation-adjusted value of households' real-estate holdings declined 26 percent ($5.4 trillion), while stock-market equity holdings declined in value by 51.5 percent ($10.8 trillion) after adjusting for inflation.

12 "Wealth effects" means individuals and households feeling wealthier than they actually were because of rapidly rising asset values.

13 Nassim Nicholas Taleb (2007), in the second edition of his best seller, *The Black Swan*, notes that the crash of 2008 was not a "black swan" event. Chapter 1 elaborates.

policy makers and the economists remained blissfully oblivious, if not in denial.[14] The only professional economist prescient enough to warn about the impending danger, the indefatigable Nouriel Roubini, was dismissed as an iconoclast, sarcastically dubbed "Dr. Doom," and ignored.

In hindsight, the reasons behind the existential economic calamity of our times and what must be done to prevent future ones have become more obvious. We now have a more nuanced understanding of the roots of the financial meltdown. The introspection and soul-searching in both the policymaking and academic circles regarding the causes and consequences of the crisis and how best to reduce the financial systems' vulnerabilities in the future have the potential to provide essential lessons (and solutions) regarding how best to mitigate the incalculable economic toll and dislocation the crisis has left (and continues to leave) in its wake. As Milton Friedman (1962, 9) reminded us years ago, "Only a crisis – actual or perceived – produces real change… [when] the politically impossible becomes the politically inevitable." Similarly, Gourevitch (1986, 9) has noted that economic crises can act as potential "critical junctures" where "old relationships crumble and new ones have to be constructed." Whether this rethinking and reevaluation of the prevailing orthodoxies galvanizes action at both the national and global levels and open paths to new possibilities and "new equilibriums," or as Friedman warned, the moment is imperceptibly overtaken by the "tyranny of the status quo" remains an open question.

The following narrative contributes to this discussion by adjudicating and reassessing a number of interrelated questions, namely: Why was the crisis triggered in the United States – a country renowned for its deep, resilient, and innovative financial system that is undergirded by extensive and modern regulatory and supervisory oversight? Why did the crisis, which began with the implosion of a relatively small and ubiquitous part of the U.S. housing market (the so-called subprime residential mortgages), quickly morph into a credit crunch and then a full-blown global financial crisis? How were the problems in the U.S. financial system amplified both domestically and globally? Why did the contagion spread so quickly to all corners of the globe? What were the specific "transmission channels" via which the crisis reverberated and impacted such diverse economies – from the EU (European Union), the eurozone, Russia and Eastern Europe, Asia (including Asia's four largest economies – China, India, Japan, and South Korea), the

[14] Cassidy (2009) compellingly implicates the economics profession for the crisis. He argues that the professions' infatuation with "rational expectations" and "perfect financial markets," led them to downplay the need for government regulation and support of deregulation of financial markets. Krugman (2009b) makes similar charges.

Middle East, and the world's poorest and globally least integrated nations? What explains the rather significant variations across countries in terms of the contagion's reach and impact? What explains why advanced economies (the United States, the EU, and Japan) have been hit particularly hard, and why some countries (notably China, South Korea, and India) seemed better insulated and have rebounded quickly – with China notching an impressive 8.7 percent growth in 2009? How precisely have political leaders and national governments (with focus on the United States and the EU), indeed, public authorities around the world, as well as international organizations, namely the Group of 20 (G-20), and the International Monetary Fund (IMF), dealt with the crisis and resultant economic downturn? How effective have their policies and programs been in responding to the crisis, including their stated goal of creating a "Bretton Woods II" or a new international financial architecture capable of preventing such crises in the future?

As Table I.2 shows, governments of the world's major economies have agreed to implement a wide variety of measures to mitigate the financial crisis.

Although there is broad unanimity that the unprecedented public interventions around the world (including the United States) helped avoid a prolonged worldwide economic depression (Blinder and Zandi 2010), there are also valid concerns regarding why such huge public largess failed to produce the predicted "bang for the buck." Certainly, the compendium of prodigious fiscal stimulus packages, the nationalization of private-sector debt, bailouts, and reduced tax revenues have sharply contracted economic activity, thus worsening debt-to-GDP levels and leaving governments with huge bills. In the advanced economies, especially in the United States, colossal spending has produced only meager results, failing to jump-start economic growth and especially job growth. In fact, in the United States and other advanced economies, budget deficits have already reached a staggering 10 percent of GDP – a figure that will only worsen with the inevitable continued government borrowing and further accumulation of debt. By the end of 2012, U.S. debt passed an astronomical $16 trillion with $1.5 trillion in annual government deficits.[15] According to the

[15] This grim picture does not include the state and local government debt, which at the end of the first quarter of 2010 stood at $2.8 trillion (CRS 2011). Nor does it count the ballooning "unfunded" public-sector pension or retiree health benefit liabilities (an outstanding liability is not covered by an asset of greater or equal value). Recent defaults by a number of cities underscore growing fiscal woes. For example, in June 2012, the city of Stockton, California, filed for chapter 9 bankruptcy as it could not meet its $700 million financial liabilities. This was followed in August 2012 by San Bernardino, California, filing for bankruptcy protection largely because its employee retirement costs in 2012 were double the 2006–07 values.

Table I.2. *Classification of events*

Central Bank – Monetary Policy and Liquidity Support
Interest Rate Change • Reduction of interest rates Liquidity Support • Reserve requirements, longer funding terms, more auctions and/or higher credit lines • Domestic system lender of last resort: broader set of eligible institutions, wider collateral rules, and/or eligible collateral • Other liquidity support (e.g., support of money market funds) • Foreign exchange lender of last resort: forex swap lines (with other central banks) and forex repos
Government – Financial Sector Stabilization Measures
Recapitalization • Capital injection (common stock/preferred equity) • Capital injection (subordinated debt) Liability Guarantees[a] • Enhancement of depositor protection • Debt guarantee (all liabilities) • Debt guarantee (new liabilities) • Government lending to an individual institution Asset Purchases[b] • Asset purchases (individual assets, bank by bank) • Asset purchases (individual "bad bank") • Provisions of liquidity in context of bad asset purchases/removal • On-balance-sheet "ring-fencing" with toxic assets kept in the bank • Off-balance-sheet "ring-fencing" with toxic assets moved to a "bad bank" Asset guarantees

[a] Includes the Federal Reserve's liquidity support to AIG for toxic-asset removal to a special-purpose vehicle, coupled with government's loss sharing.

[b] Includes business-loan guarantees as part of financial sector stabilization measures (e.g., the United Kingdom, Germany); for some countries, asset purchases were not conducted by the government, but (also) by the central bank (or a central bank-sponsored) agent, such as in the case of the United States and Switzerland.

Source: *Global Financial Stability Report*, October (IMF 2009a, 120).

Congressional Budget Office (CBO 2012), if the current trajectory is not reversed, by 2020, annual interest owed on U.S. debt will approach $1 trillion or roughly 21 percent of the projected federal revenue for that year. Analysis of how governments around the world have attempted to get their fiscal houses in order and the challenges they face will help shed light on the efficacy of various government policies and programs. Finally, at the 2009 G-20 Summit, President Obama deftly announced that "from now on the Group of 20 will be the primary organization responsible for coordinating global economic policy." Indeed, the G-20 has placed the creation of a bold and forward-looking "new global financial architecture" at the core of its agenda. The concluding chapter will assess the G-20's efforts in creating the so-called new Bretton Woods.

These questions are examined through the prism of a broad political-economic approach that illustrates how mutable human decisions made in response to political calculations and changes in the global and domestic financial systems created perverse incentives to engage in risky economic behavior. Such an inclusive and encompassing approach better captures the subtle nuances and complexities of a prodigiously multifaceted event with a large cast of players and provides an important corrective to the formulaic "economistic" or "market-failure" analysis of the crash of 2008. More specifically, this study goes beyond conventional economic narratives that see the crisis as inadvertently rooted, inter alia in the permeability of and disequilibrium caused by globalized capital, the adoption of flawed fiscal and monetary policies, excessive reliance on technocratic expertise, the procyclicality of the financial system; Wall Street hubris, avarice, financial chicanery, incompetence, excessive risk-taking by market participants due to avowedly perverse incentives (namely, distorted compensation schemes at major financial institutions), inaccurate measures of financial risk exposures due to narrow cost-benefit analysis of complex securities, and the alleged lack of moral guidance in the promiscuously free-wheeling globalized capitalism (Ahmed 2009; Cohan 2009; Farrell 2010; Madrick 2010; Tett 2009; Yavlinsky 2011).

A Political Economy of the Subprime Crisis

To Ben Bernanke (2005), the taciturn (and endlessly introspective) chair of the U.S. Federal Reserve, the real culprit behind the financial meltdown was the pervasive and ubiquitous buildup of the "global savings glut" and the resultant surge in capital inflows from emerging market economies to the United States.[16] These massive inflows contributed to significant declines in

[16] In his important speech "The Global Saving Glut and the U.S. Current Account Deficit," Bernanke (2005) offered a novel explanation for the rapid rise of the U.S. trade deficit in recent years. To Bernanke, the source of the problem was not the United States but China and the other booming economies of East and Southeast Asia. He argued that in the