The 2008 Financial Crisis and Its Aftermath: Addressing the Next Debt Challenge

Thomas A. Russo
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Group of Thirty, Washington, DC

Occasional Paper 82

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The views expressed in this paper are the authors' personal opinions and do not necessarily reflect the views of their employer, American International Group, Inc., any of its stakeholders, or the Group of Thirty. This paper examines the prospects for certain areas in the world economy. However, it is not intended as investment advice, and no reader shall have any right or remedy against the authors or their employer as a result of the occurrence or nonoccurrence of any event. This paper has been prepared solely for educational purposes as a means of raising awareness and stimulating discussion of the issues it addresses.

ISBN I-56708-153-3
Copies of this paper are available for $30 from:

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Occasional Paper
No. 82

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Published by
Group of Thirty©
Washington, DC
2011

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Abstract

We continue to struggle with the legacy of the 2008 financial crisis, which was fundamentally caused by the incurrence of too much leverage on the part of all economic participants, including individuals, financial institutions, other private businesses, and governments. Despite continued high unemployment and slow economic growth throughout the advanced economies, evidence shows that unprecedented government stimulus and monetary easing succeeded in preventing a far worse outcome: a second Great Depression.

The government response to the crisis was predictable, based on historical precedent, but inadequate to compensate for the dramatic decline in private demand. As a result, while certain developing economies are likely to continue to experience strong growth, the developed world will struggle with high unemployment and slow growth for years to come.

Moreover, the 2008 crisis and ensuing recession have contributed to another significant challenge facing the developed world in the coming years: an unprecedented level of government indebtedness, which is only partly reflected on governments' balance sheets. While governments typically experience spikes in sovereign indebtedness following financial crises, the government debt problem today is made worse by looming demographic challenges in the developed world. Amid declines in working-age populations across the West, the retirement of the baby-boomer generation will increase demands on government pension and health programs at the worst possible time. Governments in the developed world, therefore, must balance the short-term need of providing stimulus to support continued economic growth, against the long-term necessity of mapping a credible course for future debt reduction.

In the United States, unfortunately, the government has so far proved unable to address this challenge. While there are many bipartisan and nonpartisan sources of credible potential solutions, including recent reports by President Obama's Commission on Fiscal Responsibility and Reform, the Bipartisan Policy Center, and the Congressional Budget Office, there is a risk that short-term thinking and partisan politics may prevent Congress and the White House from engaging in the leadership required to implement the necessary long-term solutions.

To increase the prospects for success of the U.S. government's efforts to devise and agree on a plan for fiscal solvency, this paper proposes that Congress adopt procedures that would require it to act on the Commission on Fiscal Responsibility and Reform's recommendations, unless it agrees on alternative proposals to address the deficit and debt within a limited time frame.

Acknowledgments

The authors would like to express their deep gratitude to Ilgyzia Briskie, Ardavan Mobasheri, and the rest of the AIG Global Economics Department for their assistance in collecting the data and creating the charts used in this paper. Without their dedicated and gracious support, this work would not have been possible.

We would also like to acknowledge the help provided by Katina Archibald and Charmian Smith. Their continuous enthusiasm in the face of many long hours of technical projects was critical in enabling us to put together a reasonably timely, data-driven analysis of the financial crisis.

We would never have been able to complete this project without the patience and support of our families, who tolerated many late nights away from home, a few interruptions to vacations, and countless speeches on the hazards of too much leverage. Ultimately, this paper is for you, in the hope that future generations will learn from, and avoid repeating, our mistakes.

Additionally, we thank the leadership of the Group of Thirty for publishing this paper as a part of their contribution to the debate over, the causes of, and lessons to be learnt from the financial crisis.

Abbreviations

ABX	Asset-Backed Securities Index
AIG	American International Group
CBO	Congressional Budget Office
CDS	Credit Default Swaps
CFTC	Commodity Futures Trading Commission
CPFF	Commercial Paper Funding Facility
ECB	European Central Bank
EESA	Emergency Economic Stabilization Act
EU	European Union
FOMC	Federal Reserve Board's Open Markets Committee
GDP	Gross domestic product
GSE	Government Sponsored Enterprise
IMF	International Monetary Fund
LIBOR	London Interbank Offered Rate
NFIB	National Federation of Independent Business
OECD	Organisation for Economic Co-operation and Development
OTC	Over-the-counter
PIMCO	Pacific Investment Management Company
PPIP	Public/Private Investment Program
QE2	Second round of quantitative easing
RFC	Reconstruction Finance Corporation
SEC	Securities and Exchange Commission
TALF	Term Asset-Backed Securities Loan Facility
TARP	Troubled Asset Relief Program
TSLF	Term Securities Lending Facility
VAT	Value-added tax

I. Origins

The 2008 financial crisis and its aftermath was a once-in-a-generation event that will continue to broadly affect the U.S. and global economies for years to come. In the depths of the crisis during the fall of 2008, a complete collapse of the global financial system and world economy was imminent. Global credit markets had almost completely ceased functioning amid an unprecedented spike in the London Interbank Offered Rate (LIBOR)[1]; real gross domestic product (GDP) in the United States was falling at an annual rate of nearly 7 percent, accompanied by severe drops in domestic demand and industrial production[2]; the S&P 500 index had fallen 40 percent[3]; American households lost trillions of dollars of wealth in a matter of weeks[4]; and the U.S. economy was hemorrhaging jobs at a rate in excess of 630,000 per month.[5] Money market funds and many of the world's largest financial institutions teetered on the brink of collapse, with at least "36 of the 100 largest U.S. prime money-market funds [having] to be propped up in order to survive"[6] and avoid "breaking the buck."

Federal Reserve Chairman Ben Bernanke captured the seriousness of the crisis when he noted in testimony to the U.S. Financial Crisis Inquiry Commission that, "[a]s a scholar of the Great Depression, I honestly believe that September and October of 2008 was the worst financial crisis in global history, including the Great Depression. If you look at the firms that came under pressure in that period…out of…13 of the most important financial institutions in the United States, 12 were at risk of failure within a period of a week or two."[7]

As shown in Exhibit 8,* the financial crisis caused similarly severe drops in economic activity among other major economies throughout the world. In addition, the global seizure of credit and the dramatic decline in economic activity predictably caused global trade to contract sharply in 2008 and 2009.[8]

In response to the crisis, governments and central banks worldwide undertook extraordinary fiscal and monetary measures to restore liquidity and stimulate the economy on a level not seen since the Great Depression. Due in large part to these measures, Federal Reserve

* Please note that all exhibits appear in sequence at the end of the document. Exhibits 1–7 are cited in the endnotes and subsequent exhibits are cited in the endnotes, the text, or both.

Chairman Ben Bernanke was able in July 2010 to cite substantial progress in stabilizing the financial system and economy, observing that the functioning of global financial markets and "financial conditions generally, [as well as] the state of the U.S. banking system [have] improved significantly since the worst of the crisis."[9] However, as Chairman Bernanke observed, the recovery from the crisis has not been an unalloyed success, with economic growth outside of Asia expected to remain subdued for the foreseeable future, and "a significant amount of time [to] be required to restore the nearly 8-½ million jobs that were lost [in the United States] over 2008 and 2009."[10]

The crisis was many years in the making, and was fueled by a number of factors, but fundamentally it was caused by excessive leverage at each level of the economy. As noted in August 2010 by Federal Deposit Insurance Corporation Chairman Sheila Bair, "Of all the lessons learnt in the recent financial crisis, the most fundamental is this: excessive leverage was a pervasive problem that had disastrous consequences for our economy."[11] The focal point of this leverage was the residential mortgage market in the United States and other countries, with nearly $11.9 trillion in aggregate U.S. mortgages outstanding by the end of 2008.[12] However, during an extended period of historically low sovereign and corporate interest rates, nearly every participant worldwide indulged in overleveraging, from consumers to industry to financial institutions to government entities.[13]

This widespread appetite for debt in the United States is shown dramatically in Exhibit 10, which depicts the increase in aggregate U.S. indebtedness between 2000 and 2010. At the same time, Exhibit 11 shows that desire for leverage was not limited to the United States,[14] or to the private sector, but rather extended across countries worldwide and included governments as well.

William White of the Organisation for Economic Co-operation and Development's (OECD's) Economic and Development Review Committee captured this phenomenon in May 2010 when he observed that the chief cause of the crisis was "an explosion of private sector credit, driven by excessively easy monetary policies and declining credit standards [which] led, in turn, to various 'imbalances', including inexplicably high asset prices, sharp increases in the risk exposure of financial institutions, unprecedented spending excesses in many countries…global trade imbalances, and a marked shift of factors of production into sectors like construction likely to suffer from excess capacity going forward."[15] Understanding the role that this excessive indebtedness played in causing the crisis is essential in order to evaluate the effectiveness of responses from government and the private sector, and the likely future direction of global economic and financial developments.

Much as excessive leverage was borne by different actors throughout the global economy, responsibility for the crisis was also widely shared. An honest assessment shows that responsibility extended from individuals who bought and borrowed more than they could afford, to the executive and legislative branches in government which promoted significant increases in credit, to regulators who failed to reduce systemic leverage and curb inappropriate underwriting practices, to financial institutions that both sold exotic products which often created little, if any, economic benefit, and also eroded their capital bases in the interest of increasing short-term profits and compensation.

Furthermore, the period leading to the financial crisis was marked not only by an unprecedented increase in the amount of leverage, but also by an increasing concentration of sectoral and counterparty risk, and an expanding reliance on short-term indebtedness to finance long-term assets. Securitization, although originally intended as a means of diversification,

instead combined with the booming credit default swap (CDS) market to magnify leverage and concentrate risk.[16] Moreover, financial and nonfinancial companies that had grown accustomed to the historical availability of short-term funding sources such as commercial paper and the repo market grew ever more dependent on them to fund ordinary operating expenses and long-term, illiquid assets.[17]

As shown in Exhibit 13, the decade leading to 2007 saw the emergence of one of the key factors contributing to the crisis: a dramatic growth in aggregate household indebtedness, in the United States and other parts of the world, both on an aggregate basis and relative to household income.[18] This growth in household indebtedness was the result in large part of a significant and sustained expansion in residential mortgage lending, illustrated in Exhibit 14.[19]

The growth in residential mortgage lending was facilitated, in turn, by a significant loosening of underwriting standards, including a dramatic lowering of the average amount of down payment required.[20] The mortgage lending boom was also supported by a proliferation on bank and nonbank balance sheets of structured mortgage-backed securities, whose perceived low level of risk and preferred bank regulatory capital treatment made them an appealing investment.[21] Unsurprisingly, this combination of factors contributed to a massive bubble in the value of residential real estate,[22] both in the United States and a number of residential real estate markets outside the United States.[23] The combination of sustained low interest rates and the residential real estate bubble in turn supported a significant increase in consumption in the United States, as borrowers used refinancing to extract equity from their homes, using the proceeds to fund personal consumption.[24] This trend was brought to a dramatic halt during the 2008 crisis as home prices fell and mortgage lending tightened.[25]

The real estate bubble was supported by an enormous glut in worldwide liquidity, estimated to consist of approximately $70 trillion in investible funds by 2007.[26] The product of the significant increase in global wealth following World War II and the rapid growth of the economies of emerging markets and commodity producers following the 1997 Asian crisis,[27] much of this $70 trillion in investible assets was held by institutions seeking "low risk" investments that could provide returns in excess of U.S. Treasuries.[28] Although this enormous amount of capital also contributed to stock price inflation,[29] highly rated mortgage-backed securities, which were granted favorable capital treatment under international bank regulations, proved to be an extremely attractive place to invest this "Giant Pool of Money."

The growing investment of this liquidity glut in real-estate-backed debt securities was also supported by two significant broader trends: the approaching retirement of the baby-boomer generation and the significant growth in large developing economies following the 1997 Asian crisis. As noted by Barclays Capital, "[s]uch a shift in the demographic background was always likely to reorient savings flows away from equities and into bonds, as ageing savers tend to require higher weightings in bonds relative to more risky equities."[30] Furthermore, "the rise of the large developing economies [was] accompanied by an unprecedented increase in the stock of global foreign exchange reserves, the bulk of which is typically invested in government and AAA debt securities in the older industrialized economies. Between 2000 and 2007, total world foreign exchange reserves rose by $4.6 [trillion], 72% of which was attributable to the developing economies."[31]

In essence, "[b]y the early 2000s, a vast international scheme of vendor financing had been created. China and the oil exporters amassed current-account surpluses and then lent the money back to the developed world so it could keep buying their goods."[32] Ultimately, as noted by Barclays Capital, "[u]nder such circumstances, it would have been odd indeed if

borrowing had not been stimulated by the fall in the cost of debt. The global elevation of real estate prices was equally inevitable under these conditions."[33]

Finally, certain features of the investment banking marketplace in the 2000s facilitated the boom in residential mortgage securitization. The added yield over Treasuries earned by institutions investing in structured products increased pressure on their competitors to invest their assets in similar securities, so they could show investors an attractive return on their institution's own equity, or in certain cases to make their third-party fund products competitive in the low-interest rate environment that followed the bursting of the tech bubble of the late 1990s.[34] At the same time, structured real-estate-backed securities offered financial institutions at each level of a transaction the opportunity to earn fees, from origination and servicing on the real estate side, to structuring and underwriting on the securities side.[35]

Moreover, as some commentators have persuasively argued, the conversion of most Wall Street investment banks from partnerships owned by senior management to publicly owned institutions that began in the late 1980s facilitated a culture that rewarded increasingly risky activities.[36] Because compensation frequently became based on annual returns, without consideration of future losses, and the risk of losses (and bankruptcy) had shifted from management owners to public shareholders, management became incentivized to boost short-term returns through increased leverage and riskier trading and investment strategies.[37]

As in all bubbles, eventually scrutiny of the values of the underlying assets increased, and by the summer of 2007, continued deterioration in the U.S. home mortgage market led to deterioration in credit markets. In July 2007, significant increases in the implied spread in the Asset-Backed Securities Index (ABX) over LIBOR (with further spikes following in November 2007), provided growing signs that the U.S. residential mortgage market was in serious trouble. From nearly zero in July 2007, the spread in the ABX AAA tranche over LIBOR increased to over 1,000 basis points by July 2008.[38] On August 9, 2007, BNP Paribas announced that it was halting withdrawals from three funds to allow it to assess their value, amid the disappearance of liquidity in certain U.S. securitization markets.[39] The Federal Reserve responded to this development by cutting the discount rate by 50 basis points and added a 30-day term loan to the customary overnight discount window loan.[40] In many commentators' eyes, these events marked the beginning of the crisis.[41]

Throughout early 2008, the Federal Reserve continued to deploy a range of both customary and creative measures in an attempt to stem the crisis. These included two cuts to the federal funds target rate in January, and the creation of the Term Securities Lending Facility (TSLF) in March 2008 in an effort to mitigate what was at that point still widely viewed as a liquidity crisis.[42] With the collapse of Bear Stearns just two days after the introduction of the TSLF, the U.S. government began to recognize that it needed to act to prevent a wider financial crisis from erupting. Nonetheless, the Bush administration's efforts continued to be marked by a laissez-faire-driven fear of "too much government." At the same time, the failure of Bear Stearns showed that the concerns underlying the crisis were spreading. They had expanded beyond the worries about weakness in the U.S. residential mortgage market and a concern over the liquidity of special purpose investment vehicles that marked initial stages of the crisis. Now they had transformed into wider fears over the valuation of illiquid securities on the balance sheets of banks and nonbank financial institutions.[43]

Rooted in part in the implications of mark-to-market accounting, fear began to spread among lenders and other counterparties of financial institutions about how to properly value

illiquid assets generally, and the implications for the liquidity of the banks and the nonbank financial institutions that held those assets.

Beginning in the summer of 2008, liquidity evaporated worldwide as these concerns over asset valuations led to widespread panic over counterparty risk throughout the global financial system. This stage in the crisis was marked by what one Fed economist has referred to as the "self-fulfilling prophesy dynamic" associated with spreading concerns about the solvency of financial institutions: "it became apparent that much of the supposed ample capital in the U.S. financial system was not an effective bulwark against insolvency or the perception of possible insolvency. The latter possibility, whether true or not at its inception, can ultimately become a self-fulfilling prophesy if it results in a run on the financial system."[44]

As these concerns about asset valuations and solvency became more widespread during 2008, the inability to roll commercial paper that had led in earlier stages of the crisis to the collapse of the structured finance markets now spread to once highly rated financial and industrial firms. What began as a freezing of the "shadow banking system" rapidly escalated into the collapse of the traditional banking system, with depositors making bank runs and institutions refusing to lend to each other, even on an overnight basis. Previously longstanding benefits of diversification vanished as the widespread fear stemming from the global inability to determine counterparty valuation and risk led to a massive flight from all asset classes to safety. This drained liquidity universally from asset classes across the spectrum and drove a global shift of correlations among asset classes to nearly 1.[45] With a worldwide financial meltdown looming, systemically important institutions scrambled to obtain financial support from government "lenders of last resort."

Thus, in late 2008, overleveraging and its effects ultimately led to a rapid loss of liquidity and a widespread run on the global financial system because:

- Borrowers who financed the expansion in long-term, illiquid assets through the use of commercial paper, securities lending, repos, and the off-balance-sheet structured financing vehicles that comprised the shadow banking system faced significant ongoing needs for short-term refinancing;[46]

- As it became increasingly difficult to price these long-term, illiquid assets, financial institutions were forced to repair their own balance sheets, depleting the markets of liquidity that could otherwise have been made available to other financial market participants;

- Amid growing questions on asset valuations and their effects on counterparty liquidity and solvency, potential lenders also hoarded liquidity as they became increasingly concerned about counterparty leverage and risk;[47]

- This vicious cycle of decreasing asset values and vanishing liquidity continued as depositors and other sources of credit to potential lenders deprived them of liquidity by withdrawing funds to protect against counterparty risk, engaging in a "flight to quality" of assets seen as safer (for example, U.S. Treasuries), or to address their own liquidity needs.[48]

By September 2008, the Bush administration had abandoned its previous concerns about the risks of government intervention and embraced the roles of the U.S. Treasury and the Federal Reserve Bank of New York as "lenders of last resort" through the adoption of a

multifaceted series of monetary and fiscal rescue efforts. Following the further loss of market confidence that accompanied the collapse of Lehman Brothers, the Bush administration deployed an ever increasing arsenal of monetary and fiscal tools to prevent the collapse of the money market system and avert further damage to the economy, including the provision of temporary money market insurance, the rescue of AIG, and the adoption of the Troubled Asset Relief Program (TARP), the *Emergency Economic Stabilization Act* (EESA), and the Term Asset-Backed Securities Loan Facility (TALF).

At the same time, as shown in Exhibits 21 and 22, the Federal Reserve undertook a stunningly massive and diverse set of initiatives to ease monetary conditions, offering an array of liquidity facilities and dramatically expanding its balance sheet through the purchase of Treasuries, agency debt, mortgage backed securities, and other assets.[49] While most of the credit provided through the Federal Reserve liquidity facilities during the height of the crisis has been reduced as the financial system stabilized, the breadth of emergency measures taken by the Fed as a result of the crisis expanded its balance sheet dramatically into assets and liabilities that differed significantly from those in its traditional portfolio, which the Fed continues to hold to this day.[50]

Following the change in administrations in January 2009, the Obama administration continued to introduce a number of significant new measures designed to stimulate the economy and restore the functioning of the financial system. These included the passage in February 2009 of $787 billion in additional stimulus included in the *American Recovery and Reinvestment Act*, and the announcement of the administration's Financial Stability Plan, which included a series of measures intended to address various aspects of the crisis. In addition to efforts to improve access to consumer finance (the Consumer Business Lending Initiative), reduce the wave of residential foreclosures (the Home Affordable Modification Program, HAMP), and stimulate the market for "toxic" assets (the Public/Private Investment Program, PPIP), this initiative also involved the imposition of bank "stress tests," followed by required capital increases for those banks found to have insufficient capital.

By giving lenders, investors, depositors, and other transacting parties additional comfort in the solvency of their financial institution counterparties, the bank stress tests (subsequently conducted in Europe in July 2010) played a critical role in restoring confidence in U.S. financial institutions, analogous to that played by the banking "holiday" unilaterally imposed by FDR following his inauguration.[51] Although the plans differed in their details and scope of coverage, the broad outlines of Obama's Capital Assistance Program, which subjected U.S. financial institutions with more than $100 billion in assets to stress tests and mandatory capital increases where needed, are remarkably similar to the process deployed in FDR's Bank Holiday, under which the U.S. Treasury examined banks, which were then subjected to Reconstruction Finance Corporation (RFC) conservatorship or made eligible for RFC capital investment.[52] Like FDR's Bank Holiday, although the Obama administration's stress tests were initially criticized as lacking in rigor, they succeeded in restoring confidence in, and the normal functioning of, the U.S. financial system.[53]

While this combination of measures did not immediately restore market confidence and economic growth, as a result of these and other sustained efforts in the United States and other countries,[54] by the fall of 2010 notable progress had been made in many areas. As shown in Exhibit 25, by the time the results of the bank stress tests were released, the combination of efforts taken by the Federal Reserve and the Bush and Obama Administrations had contributed to stabilization of the U.S. financial system.

However, while progress since 2008 allowed the International Monetary Fund (IMF) to conclude in early 2011 that "[b]anking system health is generally improving alongside the economic recovery, continued deleveraging, and normalizing markets,"[55] significant risks remain for the financial system, particularly in Europe where "some euro-area banking systems are particularly vulnerable to deterioration in the credit quality of their sovereign debt holdings."[56] As shown in Exhibit 26, with significant levels of federal government support in various forms, prodded by the stress tests, U.S. banks have dramatically improved their capital buffers.[57] The added transparency and increased bank capital levels brought about by the stress tests reduced the counterparty solvency concerns that had contributed to the 2008 crisis, thereby improving bank liquidity. Capital markets also stabilized, in part due to government support through measures such as the Fed's TALF.[58]

By early 2010 (or in certain cases beforehand), confidence in private capital markets had been sufficiently restored to allow the U.S. Treasury Department and the Federal Reserve Bank of New York to cease providing certain emergency measures, such as the guarantee of $3 trillion in money market funds, the Federal Deposit Insurance Corporation's guarantee of private-bank-issued debt obligations, and the TALF program to support the issuance of certain asset-backed securities. In addition, as shown in Exhibits 27 and 28, the real economy has showed demonstrable, although often less than vigorous, signs of improvement since the crisis, with resumption in economic growth and industrial production.[59]

Similar progress in stabilizing the financial system and reviving economic growth has been seen throughout the global economy, as shown by the IMF's analysis of recent economic and financial market indicators.[60] Although the measures taken by governments throughout the world in response to the crisis differed, they have had a remarkably similar effect in improving liquidity and promoting economic recovery, as shown in Exhibit 33. At the same time, while U.S. businesses are no longer hemorrhaging jobs at the rates seen in 2008 and 2009, as shown in Exhibit 34, employment growth remains weak, with insufficient jobs being created to reduce an unemployment rate that remains stuck near a postwar high.[61]

In addition, despite some progress in reducing their leverage, U.S. households continue to struggle with significantly higher-than-average debt loads.[62] When considered in light of the high levels of negative home equity[63] and a still high unemployment rate that U.S. homeowners continue to struggle with, it is not surprising that the United States continues to experience residential foreclosures at rates far higher than the historical average. Because 70 percent of the nation's economy is driven by domestic consumption, these factors also raise questions about the ultimate sustainability of the U.S. recovery.

Nonetheless, although the U.S. economic recovery has been uneven and unemployment remains stubbornly high, and public opposition to "bank bailouts" and the government's increased role in the economy has grown since 2008,[64] nonpartisan economists agree that the combination of massive monetary easing by the Federal Reserve and the enormous financial system support and government stimulus adopted by the Bush and Obama Administrations averted what would otherwise have been a collapse of the global financial system and severe economic depression.[65] Even the *Wall Street Journal*, hardly a traditional supporter of government economic intervention, conceded in August 2010 that "Government, which did fail to head off the crisis, saved us from an even worse outcome.… [W]e know now that the economy was imploding in late 2008. We know now with detail how paralyzed financial markets were, and how rotten were the foundations of some big banks. We know now that even after all the

Fed has done, we still risk devastating deflation. So the short answer has to be: Yes, it would have been far worse had the government failed to act."[66]

Notwithstanding the significant progress in resuscitating the global economy and strengthening the financial system since 2008, a number of darkening clouds on the horizon have begun to threaten continued economic growth and financial stability. Chief among these threats is the risk that overextended sovereign borrowers may pitch the economy back into recession, by reducing stimulus in attempts to restore fiscal balance, or that they spark a new financial crisis, as worries about the value of sovereign debt held on financial institutions' balance sheets trigger another adverse feedback loop of declining asset values contributing to evaporation of liquidity. In fact, increasing signs of the danger associated with these risks has already emerged in the eurozone sovereign debt scare that erupted in the spring of 2010 and which continues to threaten a growing number of countries.

These concerns have, in turn, aggravated fears about the creditworthiness of European financial institutions that hold significant amounts of those countries' sovereign debt. In the wake of that scare, many overleveraged sovereign borrowers have imposed austerity measures that may actually exacerbate the threats to the economy and financial system by contributing to high unemployment.[67] By undermining states' ability to obtain the improved tax revenues needed in part to alleviate sovereign debt concerns, high unemployment has increased the risks of sovereign default, which ripples through to concerns about the stability of the institutional holders of that sovereign debt. As noted in October 2010 by the IMF, the challenges presented by high unemployment, weakening sovereign fiscal balances, preventing a return to recession, and bolstering the financial system "are interconnected. Unless advanced economies can count on stronger private demand, both domestic and foreign, they will find it difficult to achieve fiscal consolidation. And worries about sovereign risk can easily derail growth."[68]

Due to these risks, and to significant short- and medium-term bank refinancing needs, although the global economy is likely to experience further moderate growth, the IMF believes that this growth will continue to be marked by a distinction between developed economies, where "recoveries are proceeding at a sluggish pace, and high unemployment poses major social challenges[, on the one hand, and]…emerging and developing economies [which] are again seeing strong growth, because they did not experience major financial excesses just prior to the Great Recession."[69] In addition, the IMF expects that the private "credit recovery will be slow, shallow, and uneven as banks continue to repair balance sheets" and struggle with a number of downside risks.[70] These risks principally include the possibility of slower economic growth, as fiscal and monetary support is withdrawn in the face of the realization "that room for policy maneuvers in many advanced economies has either been exhausted or become much more limited[, as well as] sovereign risks in advanced economies [which] could undermine financial stability gains and extend the crisis [through their transmission] back to banking systems or across borders."[71]

To support the economic recovery and bolster the financial system, the IMF recommends a series of policy actions, which are principally comprised of additional, coordinated reform to the financial system, and reducing "the detrimental interaction between sovereign and financial sector risk [through] a sufficiently comprehensive and consistent strategy to repair fiscal balance sheets and the financial system [by making] further medium-term, ambitious, and credible progress on fiscal consolidation strategies."[72] However, as we explore in later sections of this paper, the dilemma facing many policy makers today is how to balance the need to support the recovery through short-term economic stimulus against these growing

demands to restore sovereign balance sheets. Compounding this challenge is the probability that, in an era widely marked by low or zero interest rates and already overleveraged private borrowers, further monetary policy efforts are less likely to be effective. As the IMF recently observed, while "central banks should continue with accommodative monetary policy[,]... one should be realistic. Not much more can be done and one should not expect too much from further quantitative or credit easing."[73]

The situation is made even more difficult by a number of other urgent priorities that the IMF argues policy makers must address to improve the prospects for future growth and reduce financial system risk, including adoption of measures to combat unemployment (especially to avoid letting unemployment become long-term or structural), quick resolution of insolvent financial institutions, coordination of regulatory reform, and rebalancing global demand.[74] Thus, while meaningful and significant progress has been made since 2008, policy makers must continue to navigate multiple challenges to find ways to support the economic recovery while addressing the need to ultimately reduce unsustainable levels of government debt.

II. Causes

Commentators have assigned responsibility for the crisis to any number of parties, from underregulated Wall Street firms to overeager U.S. subprime borrowers. Given the significant economic pain and disruption that so many people continue to experience two years after the onset of the crisis, it is understandable that some would seek a simple explanation and a single group to blame. However, analysis of each of the participants in the credit cycle shows that no one party was solely responsible, and that instead each bore some level of blame for the historic increase in leverage in the years leading to 2008.

A. Overleveraged Individuals

Individual borrowers cannot escape responsibility, of course. The record-high levels of default in residential mortgage and other personal indebtedness themselves demonstrate that individuals incurred indebtedness beyond their ability to pay.

A 2010 report by McKinsey shows that household leverage significantly increased in developed countries worldwide between 2000 and 2008, growing from 96 percent to 128 percent of disposable income during this period in the United States.[75] Increased mortgage debt comprised a significant part of this surge in household debt in the United States, where according to the Financial Crisis Inquiry Commission "from 2001 to 2007, national mortgage debt almost doubled, and the amount of mortgage debt per household rose more than 63% from $91,500 to $149,500, even while wages were essentially stagnant."[76]

Interestingly, notwithstanding widespread criticism of low-income borrowers as a leading cause of the crisis, the greatest increase in U.S. individual leverage actually occurred among middle-class, not lower-income, borrowers.[77] Although U.S. consumers have made some progress in reducing this debt since 2008, Exhibit 38 shows that individual indebtedness has declined only modestly in the United States, raising questions about U.S. consumers' ability to continue to engage in levels of consumption necessary to support the recovery.

This dramatic increase in individual leverage was attributable in part to a widespread shift in consumer attitudes toward indebtedness over the past 60 years. As noted in a special

report by *The Economist*, the "idea that debt is a shameful state to be avoided has been steadily eroding since the 1960s, when a generation whose first memories were of the Depression was superseded by one brought up during the 1950s consumer boom.... Buyers no longer had to scrimp and save to get what they wanted; they could have it now.... [T]his meant that growth in consumer credit regularly outstripped growth in GDP in the Anglo-Saxon countries and savings ratios fell to historic lows."[78]

Facilitated by this shift in consumer attitudes, growing leverage significantly increased consumers' purchasing power prior to 2008 and, thus, their perceived wealth. This "wealth effect" in turn spurred a dramatic (but ultimately unsustainable) increase in consumption.[79] By supporting this increase in consumption, the combination of increased leverage and the housing boom of 2000–07 allowed U.S. consumers to overcome the negative impact on individual wealth that followed the technology bubble collapse in the early 2000s. Consumers did this by first improving their quality of life through increasing levels of homeownership (which they financed with more readily available mortgages), and then by funding otherwise unaffordable levels of consumption by extracting equity from their homes through refinancing and home equity loans.

As noted by *The Economist*, in the United States, home "[m]ortgage equity withdrawal rose from less than $20 billion a quarter in 1997 to more than $140 billion in some quarters of 2005 and 2006."[80] However, once housing prices began to fall, net mortgage equity extraction turned negative in 2008 and the consumer spending that was previously financed by home equity debt also declined precipitously, seriously eroding homeowners' quality of life.[81]

The decline in home prices and related decline in consumption was particularly important because, historically, residential real estate accounted for approximately 30 percent of U.S. household net worth, and consumption represented nearly 70 percent of U.S. GDP.[82] This explains why plummeting residential real estate values and the related drop in consumption caused U.S. GDP to suffer a significant decline beginning in the fourth quarter 2008 and continuing throughout 2009.[83]

B. Overeager Lenders and Financial Institutions Searching for Yield

Debt, however, requires the participation of both a borrower and lender. While ultimately a borrower always has the freedom (and thus the responsibility) to choose whether to incur debt, in the absence of easy credit, in the form of low interest rates and reduced underwriting standards, U.S. individual borrowers would not have had the opportunity to indulge in the excessive leverage that supported the unprecedented issuance of asset-backed securities between 2000 and 2008. Thus, while borrowers bear a share of the responsibility for the crisis, we cannot ignore the corresponding role played by their enthusiastic lenders, who competed for access to the fees and income made available by the expanding borrower universe, and the central bankers and other government officials who made borrowing artificially accessible and affordable.

Banks were indeed enthusiastic about residential real-estate-based lending, with the growth in their lending between 2000 and 2007 concentrated in this area, rather than nonresidential consumer or commercial loans.[84] Moreover, as observed by the U.S. Financial Crisis Inquiry Commission, "[l]enders made loans that they knew borrowers could not afford and that could cause massive losses to investors in mortgage securities.... Many mortgage lenders set the bar so low that lenders simply took eager borrowers qualifications on faith, often with a willful disregard for a borrower's ability to pay."[85]

In addition to being a ready source of leverage to borrowers, the financial sector enthusiastically incurred debt as well, with U.S. investment banks and the government-sponsored enterprises Fannie Mae and Freddie Mac becoming particularly overleveraged prior to the crisis.[86]

As observed in January 2011 by the U.S. Financial Crisis Inquiry Commission, "[f]rom 1978 to 2007, the amount of debt held by the financial sector soared from $3 trillion to $36 trillion, more than doubling as a share of gross domestic product.... In the years leading up to the crisis, too many financial institutions...borrowed to the hilt, leaving them vulnerable to financial distress or ruin if the value of their investments declined even modestly. For example, as of 2007, the five major investment banks—Bear Stearns, Goldman Sachs, Lehman Brothers, Merrill Lynch, and Morgan Stanley—were operating with extraordinarily thin capital. By one measure, their leverage ratios were as high as 40 to 1.... To make matters worse, much of their borrowing was short-term, in the overnight market—meaning the borrowing had to be renewed each and every day."[87]

This combination of high leverage and short-term borrowing made the U.S. financial sector particularly vulnerable to the 21st century equivalent of a bank run: their thin levels of capital meant that even modest declines in the asset values of financial institutions were sufficient to cause investors in their sources of short-term funding to withdraw their support.

What encouraged the growth (and growth in leverage) of the financial sector? As discussed earlier, the combination of low interest rates that prevailed after 2000, the significant growth in worldwide wealth during the post-World War II era, and the related accumulated earnings of emerging markets and the "baby boomer" generation combined to create a global liquidity glut amounting to approximately $70 trillion worldwide—one of the most significant factors contributing to the debt crisis. Financial institutions responsible for deploying this nearly inconceivable amount of clients' funds were driven by a shared desire to find investments yielding returns higher than U.S. Treasuries.[88] This massive demand for yield in turn contributed to a correspondingly massive mispricing of risk by driving up prices of debt instruments (and therefore lowering yields) while driving down underwriting standards.

A significant element of these reduced underwriting standards was that lenders significantly "underestimated the put option [associated with highly levered residential mortgages], and failed to ask for enough collateral."[89] At the same time, the institutions that purchased and packaged these undercollateralized mortgages and other consumer debt into structured securities knew, amid a steady and apparently limitless level of demand for "safe" debt assets, that they had ready and willing buyers for debt backed by ever riskier borrowers.[90] Ultimately, however, the massive expansion of residential mortgage debt that supported the securitization boom (and the growth, and growth in vulnerability, of the financial sector) would not have been possible without both the active and passive support of government.

C. Complicit Governments: Central Banks, Regulators, and Legislatures

Governments throughout the world contributed in a variety of ways to the expansion of leverage. As we have seen, central banks played a significant role through their control of interest rates (at least at the short end of the yield curve). However, governments contributed to the crisis at the legislative, executive, and regulatory levels, as well. By holding interest rates at abnormally low levels during the extended period between 2000 and 2008, central banks encouraged the massive glut in worldwide liquidity and the corresponding asset price inflation

that characterized those years.[91] Faced with the collapse of the technology stock bubble and the risk of downward pressures on the financial markets and the economy following the September 11, 2001, terrorist attacks, in January 2002 the Federal Reserve began to implement a series of reductions to the federal funds rate, lowering it from 6.25 percent to 1 percent by June 2003. The Fed then held rates at 1 percent until June 2004.[92]

According to some, including noted economist John Taylor,[93] interest rates were held far below appropriate levels for too long. This contributed to the crisis because, as observed by Berkeley Professor Pierre-Olivier Gourinchas, low "real rates can be dangerous in a rapidly expanding economic environment because they relax long-term budget constraints, allowing households, governments and firms to be lulled into a false sense of financial security and leading to dangerous increases in leverage and potential misallocation of capital."[94] Or, as explained by Barclays Capital, "[p]eriods of very easy monetary policy are typically followed by a relaxation of lending standards.... [I]f monetary policy is unusually easy, as it was around the world in the 2002–2006 period, the natural tendency for economic forecasts will be to move in a positive direction and the odds of a near-term recession will tend to decline. This shift in the balance of economic probabilities will encourage all economic agents, bankers included, to assume more risk. This natural process has been very much strengthened in recent years by central bankers' asymmetric approach to asset price bubbles. The conventional wisdom that central banks should not attempt to lean against asset price bubbles, confining their response to reflationary policies once the bubble bursts, serves to unbalance the risk-reward calculation."[95] While Professor Gourinchas believes it would have been inappropriate (and possibly ineffective) for the Fed to have increased the federal funds rate as a means of proactively halting real property inflation, he does agree that the Fed had (but unjustifiably failed to deploy) other, more appropriate and potentially effective tools to prevent the growth of the housing bubble.[96]

Furthermore, central bankers delivered clear signals to the market that they would not intervene to prevent asset price inflation, such as in former Federal Reserve Chairman Alan Greenspan's famous 2002 speech in Jackson Hole, Wyoming, which gave rise to the notion of a "Greenspan Put." In this speech, Greenspan argued that the Federal Reserve could not recognize or prevent an asset-price boom, only "mitigate the fallout when it occurs and, hopefully, ease the transition to the next expansion."[97] As noted by former IMF Chief Economist Raghuram Rajan, this "logic was not only strangely asymmetrical—why is the bottom easier to recognize than the top?—but also positively dangerous[, in that it] fueled the flames of asset-price inflation by telling Wall Street and banks across the country that the Fed would not raise interest rates to curb asset prices, and that if matters went terribly wrong, it would step in to prop prices up."[98]

Moreover, in addition to providing liquidity by keeping interest rates low, central banks and other bank regulators allowed higher levels of effective leverage to arise throughout the financial system by granting unwarranted credit to risky assets on bank balance sheets. Thus, for example, banks were encouraged to purchase highly rated tranches of subprime mortgage-backed securities because they were granted favorable capital treatment under Basel II and related bank regulatory regimes. Through their roles in increasing liquidity and encouraging it to be directed to risky real estate assets, central banks and bank regulators cannot escape their share of blame for the crisis—as noted by John Taylor, who observes that the "New York Fed had the power to stop Citigroup's questionable lending and trading decisions and, with hundreds of regulators on the premises of such large banks, should have had the information

to do so. The…SEC…could have insisted on reasonable liquidity rules to prevent investment banks from relying so much on short-term borrowing through repurchase agreements to fund long-term investments."[99]

Taylor's view is echoed by the Financial Crisis Inquiry Commission, which observed that among U.S. regulators "there was pervasive permissiveness; little meaningful action was taken to quell the threats in a timely manner. The prime example is the Federal Reserve's pivotal failure to stem the flow of toxic mortgages, which it could have done by setting prudent mortgage-lending standards. The Federal Reserve was the one entity empowered to do so and it did not."[100]

The legislative branch also bears some level of responsibility for the crisis, at least in the United States. This responsibility derives in significant part from various forms of congressional support provided to Fannie Mae and Freddie Mac since their formation in the post-World War II era, which distorted mortgage interest rates, thereby increasing leverage throughout the economy by facilitating increased lending to homebuyers, and allowed the Government Sponsored Enterprises (GSEs) to conduct business at an inadequate level of capitalization that would not have been possible without their implicit government guarantee.[101]

This begs the question, however, of why the government promoted increased lending to consumers, especially to groups that did not have extensive previous experience with homeownership or debt management. Some commentators believe that government promoted residential real estate lending as a way that both major political parties could accept to increase the middle class's perception of wealth during an extended period of stagnant wage growth. As noted by the former chief economist of the IMF, "We have long understood that it is not income that matters, but consumption. A smart or cynical politician knows that if somehow the consumption of middle-class householders keeps up, if they can afford a new car every few years and the occasional exotic holiday, perhaps they will pay less attention to their stagnant monthly paychecks. Therefore, the political response to rising inequality—whether carefully planned or the path of least resistance—was to expand lending to households, especially low-income ones."[102]

In addition, Congress's decision to exempt over-the-counter derivatives from regulation allowed for the rapid growth of a product that played a critical role in the crisis by magnifying the risks presented by mortgage-backed securities, while increasing the interconnectedness of financial institutions and decreasing transparency. As noted by the Financial Crisis Inquiry Commission, the "enactment of legislation in 2000 to ban the regulation by both the federal and state governments of over-the-counter (OTC) derivatives was a key turning point in the march toward the financial crisis.… [W]ithout any oversight, OTC derivatives rapidly spiraled out of control and out of sight, growing to $673 trillion in notional amount.… They amplified the losses from the collapse of the housing bubble by allowing multiple bets on the same securities and spread them throughout the financial system.… [T]he existence of millions of derivative contracts of all types between systemically important financial institutions—unseen and unknown in this unregulated market—added to the uncertainty and escalated panic, helping to precipitate government assistance to those institutions."[103]

Yale economist John Geanakoplos explains how one type of OTC derivative, credit default swaps, contributed to making the financial crisis and recession "more violent because…the

creation of the derivative credit default swap (CDS) market for mortgages [occurred] in 2005, just at the top of the leverage cycle."[104] This exacerbated the crisis because:

- "CDS allowed pessimists to leverage at just the worst time[, as]…they were bound to put downward pressure on prices, because they allowed pessimists to express their views and indeed leverage those views…at the very top of the cycle."[105]

- "CDS…allowed optimists to leverage even more…because leveraged optimists [often] increased their leverage by taking the other side of the CDS, on top of their leveraged purchases of the underlying assets."[106]

- "[T]he optimistic writers of [CDS] insurance are very different from the pessimistic buyers of insurance[, because w]hen the bad news hits, the former lose and must reduce their purchases of assets; the latter gain, but still won't buy the assets."[107]

- Many issuers of CDS were able to incur leverage in excess of that of typical asset buyers (who have down-payment requirements) because they were not required to make "any credible showing of collateral to back up their promise to pay."[108]

- The inability to net gains and losses from CDS meant that firms attempting to hedge their exposures through purchases of CDS might not actually be hedged, because an issuer of CDS attempting to hedge its own exposure to the risks covered by the CDS could instead face a liquidity shortfall if the issuer of the hedging CDS became unable to meet its obligations.[109]

Thus, critical decisions by the U.S. government laid the foundations for the crisis by facilitating the growth of two of the principal markets behind the precrisis leverage boom: the residential real estate market and the OTC derivatives market. However, in order for indebtedness to reach the levels it did before the crisis, consumers, the financial sector, and government needed the support of a final participant: the U.S. credit rating agencies.

D. The Role of the Rating Agencies

The credit rating agencies played a critical role in facilitating the leverage boom. Their AAA ratings were necessary in order for many financial institutions to invest in (and, under Basel II, receive preferential capital treatment for) the complex subprime mortgage-backed securities they reviewed. Even where investors did not require the agencies' AAA ratings, many derived comfort that the high ratings meant they could earn a premium to U.S. Treasuries at a similarly negligible risk of default by investing in subprime debt.[110] Thus, the rating agencies served as the final gatekeeper that could have prevented, but instead facilitated, the dramatic increase in risky indebtedness in the years leading to 2008. In so doing, they were shockingly cavalier in issuing their coveted AAA ratings.

The Financial Crisis Inquiry Commission observes that during the period from "2000 to 2007, Moody's rated nearly 45,000 mortgage-related securities as triple-A. This compares with six private-sector companies in the United States that carried this coveted rating in early 2010."[111] Moreover, as noted by Yale economist John Geanakoplos, "[a]ccording to Moody's,

AAAs are supposed to have a 1 in 10,000 risk of default over a 10 year period. We are now seeing over 50% of all Alt-A and subprime AAA bonds partially defaulting, and we will see virtually 100% of all AAA CDOs partially default."[112] This record alone demonstrates that by their own standards the rating agencies failed in their role of properly evaluating the credit risks presented by the securities they undertook to review.

Moreover, some commentators argue persuasively that the rating agencies fundamentally did not understand basic aspects of the risks associated with subprime asset-backed securities, particularly the more complicated structured synthetic CDOs.[113] In part, this lack of understanding resulted from a dangerous overreliance on oversimplified models, which allowed the financial institutions involved in creating mortgage-backed securities to base those securities on increasingly risky assets while maintaining AAA credit ratings.[114] In addition, as in other industries, the compensation structure of the rating agencies encouraged the issuance of more debt, with no economic incentive to account for the debt's postissuance performance.[115]

By relying on fees from the potential issuers of the very securities they were charged with evaluating, the agencies were thus incentivized to issue the highest rating to as much debt as possible. Because the rating agencies derived an increasingly large percentage of their revenues from rating asset-backed securities during the years leading to 2008, they became hostages to a perverse cycle in which their willingness to rate subprime mortgage-backed securities was to a large degree influenced by concerns about their bottom line, rather than the credit risks they were charged with evaluating.[116]

E. Nonfinancial Businesses Also Indulged in Debt

Although they have not received as much attention in coverage of the crisis as consumers, the real estate industry and financial institutions, nonfinancial businesses in the U.S. and worldwide also greatly increased their indebtedness in the years leading to the financial crisis.

A particularly noteworthy aspect of this increase in leverage is that companies used a significant portion of the debt for nonproductive purposes, such as stock buybacks and leveraged buyouts. As noted by Barclays, "the non-financial corporate sector has spent considerable sums—over $2 trillion since the end of 2001—on purchasing equities.... [D]uring the most recent business cycle expansion, a much larger portion of the overall increase in corporate borrowing was attributable to equity purchases than capital expenditure.... The leveraging of the corporate sector has a variety of underlying causes, including an agency problem with management incentive structures, pension fund disenchantment with quoted equity returns after the 2002–3 bear market, a confusion of the financial results attributable to leverage and attributable to better management and last, but not least, sheer bullish sentiment on the part of many CEOs. Regardless of the multiplicity of causes, the macroeconomic impact is clear. [T]he recent boom in debt-equity substitution has left the corporate sector in its worst shape—from a credit perspective—of the entire post-war period."[117]

In addition, prudent treasury management through matching of asset and liability terms was ignored as companies financed ever more of their long-term assets and operating expenses through the issuance of commercial paper and other short-term forms of borrowing.[118] This trend was encouraged not only by easy credit and the market's tolerance of higher levels of corporate leverage, but also by management compensation practices, which were often tied to a company's return on equity, irrespective of the implications on a company's liquidity and solvency. Although this corporate overleveraging has been mitigated somewhat in recent

years as businesses have increased their levels of retained cash and refinanced existing debt at historically low interest rates, to a large degree the recent improvement in corporate solvency has come through cost reductions.[119] Because these reductions have included significant layoffs, repairing corporate balance sheets has had the perverse effect of harming the economic recovery by increasing the likelihood of reductions in short-term demand.

Like mortgage-seeking consumers, industry benefitted from the global demand for debt instruments yielding more than Treasuries, and contributed to the crisis by increasing its effective leverage in a variety of ways, from increasing corporate gearing by taking advantage of "covenant lite" debt issuances, to stock buybacks that reduced equity capital. While U.S. business increased its leverage across the board, as we saw earlier the financial services industry took on a disproportionately large share of debt, which had profound implications for the U.S. economy when the real estate asset bubble burst. As observed by *The Economist*, "the non-financial corporate sector increased its debt-to-GDP ratio from 58% in 1985 to 76% in 2009, whereas the financial sector went from 26% to 108% over the same period. It was that leverage that made the banks so vulnerable when the subprime market collapsed in 2008; the assets they [owned] were illiquid, difficult to value and even harder to sell. Banks…made the fatal mistake of assuming that the markets (often their fellow banks) would always be willing to roll over their debts, but they suffered a bank run. The only difference was that the charge was led by institutions instead of small depositors."[120]

One significant consequence of this concentration in leverage in the financial services industry is that adopting measures to resolve it in order to prevent future crises in some ways inherently conflicts with the efforts needed to revive economic growth. The quandary faced by governments is that "[t]hey want to increase banks' capital ratios to avoid future financial crises. But that will cause bank lending to grow more slowly or even contract, an outcome they are equally wary of"[121] because of its negative effect on economic activity.

III. The Response

Although frequently chaotic, the reaction by governments to the 2008 financial crisis was ultimately predictable based on responses to prior crises.[122] As noted by William White, "it is indeed striking that policy makers have generally responded in traditional, if much exaggerated, ways."[123] As in previous crises, governments stepped in to replace frozen private sector liquidity by serving as the fiscal and monetary "lender of last resort" through injections of massive amounts of liquidity into the financial system.

In the United States, these efforts took both the form of providing capital support to significant financial institutions whose failure was seen as severely disruptive of global liquidity,[124] and programs designed to encourage the revival of markets for specific types of liquidity. Examples of the former include the support provided in the cases of the nationalizations of Fannie Mae and Freddie Mac, the TARP bailouts of AIG, Bank of America / Merrill Lynch, Citibank, and others, and the implicit support provided to Goldman Sachs and Morgan Stanley through the government's accelerated conversion of those entities to bank holding companies.[125] Efforts to unfreeze specific areas of private sector lending and the shadow banking system included programs such as the TALF (designed to support the revival of securitization markets for certain assets), the Commercial Paper Funding Facility (CPFF) (designed to unfreeze the market for commercial paper), and the PPIP (designed to resuscitate trading in the complex, illiquid, difficult-to-value assets remaining on the balance sheets of financial institutions).[126]

In addition to their efforts to revive financial markets, governments throughout the world also predictably engaged in massive efforts to revive private consumption through the adoption of widespread stimulus measures and monetary easing. In the United States, these measures included not only the $787 billion in stimulus and infrastructure investment provided under the 2009 *American Recovery and Reinvestment Act*, but also the earlier tax cuts and extensions of unemployment benefits undertaken during the Bush administration.[127]

On the monetary side, beginning in late 2008, the U.S. Federal Reserve Bank began to rapidly reduce interest rates to near zero terms, where they have remained to the present. In addition, as shown in Exhibit 21, at the same time, the Fed commenced a significant program

of "quantitative easing," under which it further sought to stimulate investment and risk-taking activity by keeping interest rates on U.S. Treasuries and certain other securities low through significant open-market purchases.

In the face of continued slow economic and employment growth in the United States, in November 2010 the Fed expanded its quantitative easing efforts by announcing plans to purchase an additional $600 billion in U.S. Treasury bonds through June 2011, a measure widely known as "QE2." In December 2010, the Obama administration followed this additional monetary stimulus with further fiscal stimulus by reaching a compromise agreement with congressional Republicans to extend the 2001 and 2003 Bush tax cuts and emergency unemployment benefits.

Although the U.S. economic recovery has been uneven and continues to be "modest by historical standards,"[128] authorities ranging from the IMF,[129] to former Federal Reserve Vice Chairman Alan Blinder,[130] to former economic adviser to Senator John McCain (and current Moody's Analytics Chief Economist) Mark Zandi[131] have concluded that, absent the extraordinary monetary and fiscal measures undertaken by the Federal Reserve and the Bush and Obama Administrations, the economic situation would be far worse.

As the IMF observed, "[t]hanks to a powerful and effective policy response, the [United States'] recovery from the Great Recession has become increasingly well established. Since mid-2009, massive macroeconomic stimulus and the turn in the inventory cycle have overcome prevailing balance sheet strains, and—aided by steadily improving financial conditions—autonomous private demand has also started to gain ground."[132] These developments led the IMF to conclude that "the recovery has proved stronger than we had earlier expected, owing much to the authorities' strong and effective macroeconomic response, as well as the substantial progress made in stabilizing the financial system. Important steps have also been taken to sustain growth and stability over the medium term, including through landmark health-care legislation and…significant progress toward reform of financial regulation."[133]

Similarly, Blinder and Zandi conclude that the "effects of the government's total policy response…on real GDP, jobs, and inflation are huge, and probably averted what could have been called Great Depression 2.0."[134] Based on their analysis, Blinder and Zandi "estimate that, without the government's response, GDP in 2010 would be about 11.5% lower, payroll employment would be less by some 8½ million jobs, and the nation would now be experiencing deflation"[135] Although Blinder and Zandi argue that "financial-market policies such as the TARP, the bank stress tests and the Fed's quantitative easing…[were] substantially more powerful than [the Bush and Obama Administration fiscal stimulus measures,]" they conclude that "the effects of the fiscal stimulus alone appear very substantial, raising 2010 real GDP by about 3.4%, holding the unemployment rate about 1½ percentage points lower, and adding almost 2.7 million jobs to U.S. payrolls."[136]

Financial Times columnist Martin Wolf agrees that the Obama stimulus efforts have had a positive (although insufficient) impact, noting that the conclusion that "the modest stimulus package of February 2009—a mere 5.7 percent of 2009 GDP, spread over several years—made a positive contribution [is] supported by the analysis of the Congressional Budget Office: it argues that in 2010, U.S. GDP will be between 1.5 percent and 4.1 percent higher and the unemployment rate between 0.7 and 1.8 percentage points lower, as a result of the package."[137]

Notwithstanding the positive impact that the federal stimulus has had to date, recent economic developments indicate that the stimulus efforts may have been too small to promote a sufficient reduction in unemployment in order to sustain continued economic growth. As

observed by Nobel Prize winning economist Paul Krugman, "in February 2009, the Congressional Budget Office was predicting a $2.9 trillion hole in the economy over the next two years; an $800 billion program, partly consisting of tax cuts that would have happened anyway, just wasn't up to the task of filling that hole."[138] Or, as observed by Wolf, the "direction of policy was not wrong: policy makers—though not all economists—had learnt a great deal from the 1930s. Sensible people knew that aggressive monetary and fiscal expansion was needed, together with reconstruction of the financial sector. But, as Larry Summers, Mr Obama's former chief economic advisor, had said: 'When markets overshoot, policy makers must overshoot too.' Unfortunately, the administration failed to follow his excellent advice. This has allowed opponents to claim that policy has been ineffective when it has merely been inadequate."[139]

Moreover, as noted by Krugman, ultimately the "important question is whether growth is fast enough to bring down sky-high unemployment. We need about 2.5 percent growth just to keep unemployment from rising, and much faster growth to bring it significantly down."[140] As a result, notwithstanding several recent reports with positive news on consumption,[141] manufacturing,[142] and economic growth,[143] unemployment remains at a painfully high official level of 8.8 percent, with the "underemployment" rate hovering near 15.7 percent.[144]

As in past crises, the third prong of government's response to the financial crisis involved the adoption of widespread regulatory and legislative changes in an attempt to respond to the "lessons learned" in 2008 and to avoid future crises.[145] Internationally, these changes include the new Basel III rules that were recently agreed to by the 27 member countries of the Basel Committee on Banking Supervision and will over time strengthen capital and liquidity requirements for financial institutions.[146] In addition to the new rules on capital and liquidity, in October 2010 the Basel Committee on Banking Supervision issued final principles designed to further limit financial institution risk through improved corporate governance practices (including improved board oversight of risk management and compensation), and the strengthening of qualifications for financial institution directors and chief risk officers.[147]

In the United States, the legislative and regulatory response to the crisis culminated in the adoption of comprehensive financial services reform legislation in July 2010. The details of U.S. financial services reform have been covered widely elsewhere, but interesting aspects of the law include measures:

- To limit the need for future government support of failing financial institutions by providing a mechanism for an orderly "wind-down" of systemically important financial institutions through living wills;

- To ensure the consolidated monitoring of systemic risk in the United States through the establishment of a Financial Stability Oversight Council;

- To limit the risk that banks experience liquidity shortfalls due to derivatives, private equity, or hedge fund exposures by requiring them to partly divest those businesses and by requiring that most types of derivatives transactions be conducted through exchanges;

- To limit the risk of "regulatory arbitrage" by significant financial institutions by consolidating their oversight within the Board of Governors of the Federal Reserve System; and

- To reduce the prevalence of risky financial products through the creation of a Consumer Financial Protection Bureau.

It is interesting to note that in the U.S. drive to legislate, Congress, the President, and the public failed to explore a fundamental question: was more or different regulation really needed or, rather, did government already have enough power in 2007 and 2008 to prevent the crisis?[148] Although certain gaps existed, overall it appears that even prior to the passage of the *Dodd-Frank Act*, in the United States the various branches of government had the power to prevent, or at least substantially limit the effects of, the 2008 crisis. In fact, certain prominent critics contend that the legislative response was fundamentally misdirected, because "it is based on a misdiagnosis of the causes of the financial crisis, [with the] biggest misdiagnosis [being] the presumption that the government did not have enough power to avoid the crisis."[149] This view is supported by the Financial Crisis Inquiry Commission, which bluntly concluded that "we do not accept the view that regulators lacked the power to protect the financial system. They had ample power in many arenas and they chose not to use it."[150]

First, the Federal Reserve could have done much to prevent the crisis by exercising its power to set higher interest rates in the mid-2000s as it became clear a bubble was growing in U.S. housing prices. Higher interest rates also would have slowed the growth in financial sector leverage, which proved so damaging in 2008. As noted by John Taylor, "the Federal Reserve had the power to avoid the monetary excesses that accelerated the housing boom that went bust in 2007."[151] The Financial Crisis Inquiry Commission went even further, concluding that "the monetary policy of the Federal Reserve, along with capital flows from abroad, created conditions in which a housing bubble could develop. However, these conditions need not have led to a crisis. The Federal Reserve and other regulators did not take actions necessary to constrain the credit bubble. In addition, the Federal Reserve's policies and pronouncements encouraged rather than inhibited the growth of mortgage debt and the housing bubble."[152]

Thus, while government regulators, such as the Federal Reserve, the Securities and Exchange Commission (SEC), and the Commodity Futures Trading Commission (CFTC) could have reduced indebtedness and liquidity risk in the financial sector by exercising their powers to require banks and investment banks to have less leverage, by issuing rules to limit the risky asset-liability term mismatches associated with the financial sector's reliance on short-term funding, and by raising margin requirements for off-exchange instruments, they failed to do so, notwithstanding an abundance of warning signs of the growth of an asset price bubble and dangerous levels of risk in the financial system.[153]

Of course, certain deficiencies in the precrisis regulatory framework did contribute to the crisis. For example, by excluding credit default swaps from regulation, the financial services reforms carried out under the *Gramm-Leach-Bliley Act* in 1999 played an important role first in the growth of the real estate and asset-backed debt bubbles, and thereafter in the collapse of significant CDS issuers such as AIG.[154] Moreover, the dispersal of regulatory authority for insurance, banking, and other financial services among a variety of state and federal regulators increased the difficulty of consolidated oversight of systemically important financial institutions such as AIG, even if in many cases there were federal regulators with oversight authority who had the ability to act more aggressively to reduce leverage and risky activity. That being said, the problems stemming from these regulatory gaps ultimately compounded, but did not cause, the problems created by the entirely preventable explosion and concentration in indebtedness between 2000 and 2008.

Moreover, while certain reform measures have been advanced since 2008 to address systemic risk and the "too big to fail" phenomenon, as observed by the IMF, "adding a systemic risk monitoring mandate to the regulatory mix without a set of associated policy tools does not alter the basic regulator's incentives that were at the heart of some of the recent regulatory shortcomings.… [I]n the absence of concrete methods to formally limit a financial institution's systemic importance—regardless of how regulatory functions are allocated—regulators may tend to be more forgiving with systemically important institutions compared to those who are not."[155] Given that government had the power to prevent or at least seriously mitigate the credit crisis even before the adoption of financial services reform, but failed to use it, is it plausible that government's recently increased powers under *Dodd-Frank* will result in identification and prevention of the problems likely to lead to future crises?

Even after failing to use its existing powers to prevent the financial crisis, when the crisis did occur in 2008, for the most part the U.S. government also had the necessary emergency powers to respond when it needed to act quickly under existing law, particularly under Section 13(3) of the *Federal Reserve Act*.[156] For example, the U.S. government did not require changes to existing law in order to rapidly bail out Citigroup and AIG, and to give Goldman Sachs and Morgan Stanley access to the discount window by allowing them to become bank holding companies. As Taylor observes, "the Treasury working with the Fed had the power to intervene with troubled financial firms, and in fact used this power in a highly discretionary way…in the fall of 2008."[157]

Notwithstanding Professor Taylor's view, former Treasury Secretary Hank Paulson in July 2010 implied that certain provisions of the reform legislation would have allowed the Bush Administration to prevent, or at least mitigate, the 2008 crisis. In an interview with the *New York Times*, Paulson noted that "'We would have loved to have [resolution authority] for Lehman Brothers,'" arguing that "if the government had had the authority to take over Lehman and A.I.G., it would have stopped the panic endangering other firms."[158] Although providing the executive branch with the clear rules associated with *Dodd-Frank*'s resolution authority undoubtedly will make any future wind-down of a large financial institution less chaotic, it is difficult to understand how a clearly authorized and efficient U.S. government seizure of AIG and Lehman Brothers in the fall of 2008 would have prevented the crisis from deepening. Even a predictable, orderly unwinding of the two firms under the *Dodd-Frank* resolution authority would not, ultimately, have addressed the underlying problem of the crisis: the significant levels of individual, business, and government indebtedness incurred in the years leading to 2008.

In fact, Paulson essentially concedes as much when he acknowledges that "to fully prevent the crisis of 2008…the *Dodd-Frank Act* would have needed to have been in place not just before September 2008, but years earlier."[159] Because Paulson believes that the most compelling benefit of the legislation is the creation of a systemic risk regulator, he argues that the Bush Administration would "'have needed the systemic risk regulator up and running by 2005 or so, to recognize the dangers of ever more lax underwriting and intervene.'"[160]

Ultimately, Paulson appears to reach the same conclusion as those commentators who are skeptical of the merits of financial services reform when he observes that the most important factor remains "the people who have the responsibility for the regulation when there isn't a crisis and the people who have the responsibility during a crisis."[161] In other words, the willingness to use the enhanced powers provided by financial services reform is at least as, if not more, important than the additional powers themselves. In light of the fact that regulators and

central bankers failed to use the powers they did have to restrain the unsustainable increase in indebtedness and asset price bubbles in the years before 2008, and given the resulting amount and terms of the indebtedness that existed in 2008, it does not appear that the government's fundamental responses to the 2008 financial crisis would have been made substantially easier by the clarifications and enhanced powers provided under the *Dodd-Frank Act*.

Moreover, recent events demonstrate the risks and unintended consequences presented by the hurried enactment of the *Dodd-Frank Act*, which in at least one case briefly undermined the Administration's postcrisis efforts to unfreeze the capital markets. For example, as observed in the *Wall Street Journal*, prior to the SEC's recent temporary exemption on certain prospectus requirements, the law's imposition of increased liability on credit rating agencies resulted in "a shut-down of the market for asset-backed securities, a $1.4 trillion market that only recently clawed its way back to health after being nearly shuttered by the financial crisis."[162]

Notwithstanding its flaws, certain industry observers, such as recognized banking lawyer H. Rodgin Cohen, believe that on the whole the *Dodd-Frank Act* is likely to ultimately reduce risk in the financial system, and thereby reduce the funding costs of U.S. financial institutions.[163] The benefits of the Act in Cohen's view include a reduced risk that certain institutions will be considered "too big to fail," a reduced risk of an uncoordinated, chaotic collapse of nonbank financial institutions (as a result of the new resolution authority), and reduced abuse of consumers of financial services.

Former Federal Reserve Chairman Paul Volcker also believes the reform legislation represents an improvement over prior industry regulation, stating that, "'[w]e are much better off with [the *Dodd-Frank Act*].… It does show leadership in the United States, which will help encourage actions abroad. Without the U.S. stepping up, you'd never get a coherent response.'"[164]

Volcker's view seems to have been borne out by the relatively quick agreement on the Basel III capital and liquidity rules that followed adoption of *Dodd-Frank*. According to a July 2010 *New Yorker* article, Volcker also sees improvements in that "the language banning proprietary trading was strong and that even the much weaker language on hedge funds and private-equity funds still contained some safeguards that would force big banks to change how they do business[, as well as] the crackdown on derivatives trading and a clause, which he had campaigned for, that creates a position for a second vice-chairman of the Fed, who will be explicitly responsible to Congress for financial regulation."[165]

The IMF takes a similar view on the benefits of *Dodd-Frank*, while noting that ultimate judgment must be withheld pending the results of the regulatory rulemaking process currently underway. It recently observed that "[a]lthough bolder action could have been envisaged, most of the major provisions of the Dodd-Frank regulatory reform are in line with [the IMF's] Financial Sector Assessment Program recommendations. Less than three years after the beginning of the crisis, the U.S. authorities signed into law a comprehensive package of reforms that addresses many of the exposed weaknesses and gaps, even if it missed the opportunity for streamlining the complex regulatory architecture. If well implemented, it could address many of the issues that left the system vulnerable, bolstering market discipline and stability through better transparency and less complexity. The priority now is to ensure effective implementation…."[166]

The changes to the capital and liquidity requirements adopted by the Basel Committee on Banking Supervision on September 12, 2010, include further helpful, although probably insufficient, reform measures. Some of the new rules that will ultimately mitigate risks at financial institutions include an increase of the minimum common equity requirement from 2

percent to 4.5 percent and a new "countercyclical" capital conservation buffer of 2.5 percent.[167] In addition, following multiyear "phase-in" periods, a new leverage ratio and a new global liquidity standard with a liquidity coverage ratio designed to ensure sufficient liquidity during "stress situations" will be implemented.[168] However, in part because of pressures from the banking industry, but also due to regulatory concern about the negative effects of requiring rapid improvements to bank capital and liquidity during the weak economic recovery, the Basel III capital and liquidity rules are less stringent in certain important respects than the December 2009 framework that preceded them.[169]

The weakening of the Basel III rules from the earlier proposal increases the likelihood that they will fail to reduce financial sector risk in certain critical ways.

First, as noted by many observers, when considered in light of the losses experienced by banks in the 2008 crisis, even the higher minimum capital requirements appear insufficient, and in any event invite regulatory arbitrage by failing to account for the shadow banking system.[170]

Second, by allowing several categories of illiquid assets, such as deferred tax assets, private company securities, and mortgage servicing rights, to be counted partially toward capital for purposes of evaluating liquidity risk, and by weakening "the assumptions the previous rules made about how severe a crisis might be, [the changes to the proposed liquidity rules]…make it easier for banks to appear to be perfectly liquid" when in fact they may face significant liquidity challenges.[171]

Third, of concern is that Basel III's "planned leverage ratio, which would set an absolute cap on the amount of borrowing a bank could do, won't be in effect until 2018."[172] Considered in conjunction with the delay in implementing certain elements of *Dodd-Frank* until associated rulemaking is completed, the gradual phase-in of Basel III's capital, leverage, and liquidity enhancements raises concerns that meaningful reductions to risk in the financial system may not take effect until after the seeds for the next financial crisis have been sown.

As observed in an August 2010 article on Bloomberg.com, if the financial system holds to its prior pattern of experiencing a crisis every five to seven years, "the next crash could come by 2015—years before new banking reforms are in place."[173] Or, as the IMF's former chief economist Simon Johnson argued in the same article, "[d]elaying reform until '2018 is like doing nothing because you know the world will change many times between now and 2018,'…'You should worry a lot about the next round of the cycle.'"[174] Thus, as with *Dodd-Frank*, while the Basel III rules do improve current regulation in several important ways, whether they ultimately reduce risk will depend to a large extent on how willing regulators are to limit leverage and enhance liquidity during the phase-in of the new rules, and whether financial institutions prospectively reduce their risk as new rules are phased in, or use the interim period as an opportunity to maximize profits.[175]

IV. So Where Are We Today?

As we explored in the prior discussion, the fundamental problem that led to the 2008 financial crisis was leverage. In the 2008 crisis, this leverage existed fundamentally in the private sector at the consumer and corporate levels. However, as several observers have pointed out, the private leverage crisis from 2008 contained the seeds of a future leverage crisis on the *government* level, the beginning of which certain countries are already experiencing.[176] In fact, as observed by Professors Reinhart and Rogoff in their 2010 study, this pattern of evolution from banking crisis to sovereign debt crisis to serial sovereign defaults is not at all unusual during the last two hundred years. This is because in order to prevent a collapse of the financial system and recession, government must almost inevitably respond to financial crises first by supporting weakened financial institutions (either directly, through capital infusions or financing, or indirectly, through market liquidity-enhancing measures), and thereafter by (a) stimulating private consumption through reductions in interest rates, tax cuts, or other wealth transfers, and / or (b) substituting weakened private consumption with increased public consumption through government stimulus measures.[177]

Depending on the severity of the crisis, the need for financial system support, and the drop in economic activity, these efforts can involve significant increases in government spending, thereby increasing sovereign debt. In other words, the "U.S. government, like others around the world, has solved the post-housing-bubble banking crisis by issuing debt—in effect trading one set of problems for another to create 'an illusion of normalcy.' But…history shows that waves of banking crises are typically followed by waves of debt crises two or three years later."[178] Put another way, "[b]anking [crises] are importantly preceded by rapidly rising private indebtedness. But banking crises (even those of a purely private origin) directly increase the likelihood of a sovereign default in their own right…and indirectly as public debts surge. There is little to suggest…that these debt cycles and their connections with economic crises have changed appreciably over time."[179]

This development led the IMF in April 2010 to conclude that excessive sovereign debt has supplanted excessive private debt as a cause for concern when it wrote that, "the deterioration of fiscal balances and the rapid accumulation of public debt have altered the global risk

profile. Vulnerabilities now increasingly emanate from concerns over the sustainability of governments' balance sheets."[180]

An example of this cycle can be seen in Exhibit 42, which is based on analysis included in an IMF report and shows the evolution of the 2008 private sector debt crisis into the 2010 eurozone sovereign debt crisis by tracking 10-year sovereign debt yield spreads over U.S. Treasuries. The sovereign debt challenge is compounded by the increases in unemployment and decreases in consumption associated with the post-2008 recession, which resulted in lower government tax revenues and thereby, absent spending cuts, further increases in government debt.

A June 2010 Merrill Lynch research report captured this phenomenon when it observed that in the United States, "since the recession began, government transfers to households have surged to the highest level on record while taxes paid by households have dropped to the lowest level as a share of income in decades. For the first time since at least 1947, households now receive more in transfer payments (which include Social Security payments, unemployment benefits, veterans' benefits, healthcare benefits, etc.) from the government than they pay in income and payroll taxes."[181] More specifically, as reported in the *Wall Street Journal* in September 2010, approximately "41.3 million people were on food stamps as of June 2010… up 45% from June 2008. With unemployment high and federal jobless benefits now available for up to 99 weeks, 9.7 million unemployed workers were receiving checks in late August 2010, more than twice as many as the 4.2 million in August 2008."[182]

This surge mirrors recent U.S. Census information showing a dramatic increase in poverty (especially among children) since the 2008 crisis. As reported by the *New York Times*, "[f]orty-four million people in the United States, or one in seven residents, lived in poverty in 2009, an increase of 4 million from the year before…. The poverty rate climbed to 14.3 percent—the highest level since 1994—from 13.2 percent in 2008. The rise was steepest for children, with one in five residents under 18 living below the official poverty line…."[183]

The increase in government support to individuals sparked by the recession has dovetailed with the demographically linked increases in Social Security and Medicare obligations to dramatically push up federal government spending on social welfare. As noted by the *Wall Street Journal*, "[p]ayments to individuals—a budget category that includes all federal benefit programs plus retirement benefits for federal workers—will cost $2.4 trillion this year, up 79%, adjusted for inflation, from a decade earlier when the economy was stronger. That represents 64.3% of all federal outlays, the highest percentage in the 70 years the government has been measuring it. The figure was 46.7% in 1990 and 26.2% in 1960."[184]

The effects of this development on the U.S. fiscal situation are both dramatic and troubling. According to the nonpartisan Congressional Budget Office (CBO), the U.S. federal budget deficit for fiscal year 2010 reached approximately $1.294 trillion (or about 8.9 percent of GDP), second only to $1.416 trillion for fiscal year 2009.[185] The CBO estimates that interest payments on the national debt alone amounted to approximately 1.4 percent of GDP in 2010.[186] The deficit between 2010 fiscal year federal government spending and revenues is dramatically shown in Exhibit 43, which uses CBO data to update an earlier analysis by The Concord Coalition.

With the country's budget on track to have an annual shortfall equal to approximately 10 percent of U.S. GDP, it is not surprising that Federal Reserve Chairman Ben Bernanke in June 2010 testified that the U.S. "federal budget appears to be on an unsustainable path."[187] With little foreseeable prospect of a balanced federal budget in the near term, U.S. government debt will continue to increase dramatically on both an absolute basis and relative to GDP, as shown in the CBO's projected long-term alternative fiscal budget scenario included in Exhibit 44.

As observed by *Financial Times* correspondent Tony Jackson in June 2010, U.S. public sector debt relative to GDP has increased by a factor of five since the 1950s.[188] A significant portion of this increase has occurred as a result of the 2008 financial crisis, as reported in June 2010 by the IMF: "Since 2007, the debt held by the public has almost doubled to 64 percent of GDP—the highest level since 1950—and under current policies could reach 95 percent of GDP by 2020. Thereafter, as the impact of the aging population and rising health care costs is increasingly felt, debt will rise further to over 135 percent of GDP by 2030 and continue to increase thereafter."[189]

Although this increase in government debt has so far taken place in a period of historically low interest rates, the CBO recently observed that "[i]nterest rates are expected to rise noticeably in the next few years [and, a]s a result, over the next decade, the government's annual net spending for interest is projected to more than double as a share of GDP, increasing from 1.5 percent in 2011 to 3.4 percent by 2020."[190] These developments have led the IMF (and other observers) to conclude that "the central challenge is to develop a credible fiscal strategy to ensure that public debt is put—and is seen to be put—on a sustainable path without putting the recovery in jeopardy."[191]

One of the principal dangers associated with America's ballooning national debt is that research shows that developed economies' growth rates tend to decrease by half when the debt-to-GDP ratio rises above 90 percent.[192] While some economists contend that many countries can support higher levels of debt relative to GDP,[193] there are a number of reasons to nonetheless be concerned about rising levels of U.S. government debt.

As observed by the CBO in a July 2010 report, too much government debt ultimately threatens any country's growth prospects through the higher taxes and reduced discretionary spending needed in order to support debt maintenance.[194] Moreover, while governments were able to respond to the worldwide private sector financial crisis and recession in 2008 and 2009 by acting as "lenders of last resort" through coordinated reductions in interest rates and other creative monetary and fiscal policy measures, there is no clear "lender of last resort" to provide both fiscal and monetary relief when governments worldwide face collective overleveraging.[195] While some might argue that the IMF can play this role (as it did in the recent Greek and Irish sovereign debt crises), it is not a credible "lender of last resort" in a crisis involving multiple large sovereign borrowers because, lacking the ability to issue debt, it must rely on contributions from the same government members that would look to it for support in such a situation.

In the United States, this problem extends beyond the issues presented by the need to support the federal government's on-balance-sheet obligations of $14.7 trillion[196] with approximately $14.6 trillion in U.S. GDP. To get a true perspective on the problems presented by government indebtedness, one must also consider the off-balance-sheet obligations of the U.S. government, which are in the neighborhood of $132.8 trillion on a gross basis (or approximately $66.3 trillion, net of related allocated revenues such as Medicare and Social Security taxes and revenues associated with the assets of Fannie Mae and Freddie Mac),[197] as well as the debt obligations of state and local governments (totaling approximately $2.8 trillion, excluding pension obligations).[198] Thus, while the U.S. federal government cites only "debt held by the public" for purposes of its budgeting and accounting, this approach does not reflect the true long-term challenges presented by the government's overall indebtedness, which should also account for off-balance-sheet obligations such as Social Security and Medicare.

The Office of Management and Budget justifies the off-balance-sheet approach in part by arguing that the government debt allocable to Social Security and Medicare is an obligation by the U.S. government to pay itself, not third parties. However, as observed by *Frontline* in March 2009, this argument makes little sense because "if the publicly held debt represents the impact of government borrowing on the current economy, then intra-governmental debt represents the future promises we have made. Due to the retirement of the baby boomers and rising health care costs, under some projections Medicare and Social Security will run out of money. If this happens, the trust funds for those programs will have to start cashing in those I.O.U.s [represented by the U.S. Treasuries held in the trust funds], and to pay them the government will need to borrow more from the public. Or it could raise taxes to cover the shortfall, or it could make cuts to the programs to make them less expensive. If our future economy grows more robustly than expected, it will be easier to pay for these commitments, but the intra-governmental debt is not simply going to evaporate."[199]

In essence, the fundamental challenge for the United States is that approximately $14.6 trillion in U.S. annual GDP must support total indebtedness of approximately $175 trillion, consisting of about $39.4 trillion in private sector indebtedness owed by U.S. businesses and individuals[200] in addition to the approximately $135.6 trillion in combined government obligations. Even assuming that U.S. GDP can support the regular maintenance of such a huge amount of debt, the implications for the U.S. economy are enormous. With such a large portion of economic activity devoted solely to payment of principal and interest on existing obligations, "crowding out" of private investment will occur as less capital is available to invest in growth-creating endeavors, such as the development of new technologies or launching of new businesses.[201]

In order to meet its obligations, the federal government will almost certainly need to increase federal taxes and reduce government spending, both of which will impact the U.S. economy by reducing the quality of life for U.S. residents, while driving capital and business to lower tax jurisdictions. Or, as observed in July 2010 by the CBO, "[u]nless policymakers restrain the growth of spending, increase revenues significantly as a share of GDP, or adopt some combination of those two approaches, growing budget deficits will cause debt to rise to unsupportable levels."[202]

Given the long-term fiscal challenges facing the United States, a slightly unusual anomaly emerged in July 2010 when, despite "all the criticism of record budget deficits…for the first time in half a century, government bond yields are declining during an economic expansion and Treasury Secretary Timothy F. Geithner is selling two-year notes with the lowest interest rates ever."[203] Although counterintuitive, the reasons behind continued low U.S. borrowing costs are not difficult to understand: in a situation reminiscent of that leading up to the mortgage-backed securities boom, investors worldwide are again faced with an abundance of cash and few "low risk" alternative destinations for their money. As observed by the *Financial Times*, "a familiar pattern of risk aversion has re-emerged. Credit spreads of indebted [eurozone] countries [have] widened as investors fretted about the solvency of governments; equities dropped; the dollar and U.S. Treasury bond prices rose as investors sought safe havens."[204]

In addition, increased capital requirements on banks and the favorable treatment of U.S. Treasuries under bank capital regulations have incentivized banks to buy long-term Treasuries.[205] These factors have (at least for the short term) allowed the U.S. to benefit from historically low interest rates spurred by excess liquidity and a flight to "quality." However, as experiences in the markets for mortgage-backed securities and commercial paper and repo

financing prior to 2008 show, issuers that come to rely on the cheap funding that results when excess liquidity searches for "safe" investments face serious perils when that liquidity dries up once questions on asset valuations begin to emerge.

Indeed, certain signs indicate that low U.S. borrowing costs may already be reaching an end, as the Fed's imminent wind-down of QE2 removes the largest single buyer of Treasuries from the market,[206] and amid signals that investors are already seeking higher-yielding alternative "safe havens" through expanded investments in commodities and emerging markets. Increases in commodities prices[207] and fund flows to emerging markets[208] support this view. These trends, however, also point to potentially troubling side effects of the long period of loose monetary policy that has existed since the 2008 crisis. For example, capital flows into emerging markets have already reached levels that have led the IMF and other institutions to express concerns about the possible emergence of another asset bubble and increasing private sector leverage.[209] Moreover, the growth in commodities investing has already begun to spark increases in headline inflation which, troublingly, could combine with slow economic growth to trigger an experience resembling the "stagflation" of the 1970s, where increases in commodities prices led to reduced economic activity (and thereby higher unemployment).[210]

Government responses to the recent surge in capital flows to emerging markets, growing investor awareness of the potential growth of an emerging market asset bubble, and corporate and public sector governance concerns may prevent emerging markets from becoming a "safe haven" to challenge U.S. Treasuries in the near term. However, in the longer term it is hard to see why the credit risk of emerging markets should not be considered favorably relative to developed markets, given that by and large emerging markets have significantly lower debt burdens than developed economies, higher growth rates, and more attractive long-term economic prospects than the developed world.

These trends and increasing market criticism about the United States' long-term fiscal situation support the view that, although investors have flocked to U.S. federal government debt as a "safe haven" since the 2008 financial crisis, if the United States' public and private sector balance sheets continue on the current path, ultimately U.S. business and government borrowers will be faced with the prospect that investors no longer want to own their debt. Indeed, recent expressions of concern about the United States' long-term fiscal stability by representatives of significant U.S. debt holders such as China and bond investor Pacific Investment Management Company (PIMCO) signal that this prospect may already be coming to pass.[211] And once the investors who have historically funded the United States become nervous about the long-term prospects for debt, interest rates will increase, forcing a slowdown in economic activity as credit contracts.

V. The Future: What Can Be Done?

Notwithstanding the gloomy picture emerging from the foregoing discussion, the IMF in October 2010 revised its forecast to project improved worldwide economic growth, forecasting that "global output is projected to expand by 4½ percent in 2011…[reflecting] stronger-than-expected activity in the second half of 2010 as well as new policy initiatives in the United States that will boost activity this year." [212] However, it is important to bear in mind that this optimistic forecast is highly dependent on the success of European efforts to "keep the financial turmoil and its real effects contained in the periphery of the euro area…[and] policymakers in emerging markets respond[ing] in a timely manner to keep overheating pressures in check,"[213] and on medium-term efforts by governments in advanced economies to restore fiscal balance.

As the IMF observed: "[a] host of measures are needed in different countries to reduce vulnerabilities and rebalance growth in order to strengthen and sustain global growth…. In the advanced economies, the most pressing needs are to alleviate financial stress in the euro area and to push forward with needed repairs and reforms of the financial system as well as with medium-term fiscal consolidation."[214] To put the IMF's concerns in context: approximately $4 trillion of financial institutions' indebtedness will mature over the next two years, and developed sovereign borrowers face financing needs ranging from 5 percent to nearly 60 percent of their GDP before the end of 2011, with France, Italy, and the United States needing to finance amounts in excess of 20 percent of GDP, and Japan's government requiring financing of over 40 percent of GDP during that period.[215]

The double-edged challenge presented by the huge refinancing needs of financial institutions and sovereign borrowers informs the IMF's belief that positive global economic growth depends on implementing internal and external "rebalancings," through a series of policy efforts:

- Maintaining loose monetary policies in advanced economies to support continuation of the recovery;

- Restoring credit and confidence in fragile banking systems by conducting credible follow-up stress tests in the eurozone, further strengthening bank capital, reviving securitization markets, and implementing financial services reform;

- Implementing tighter monetary policy in the rapidly growing Asian and South American emerging economies to prevent the emergence of asset price bubbles and excessive leverage, while accelerating efforts there to increase internal consumption and investment; and

- Critically, managing the tricky balance between implementing measures to achieve medium-term fiscal consolidation in the overleveraged advanced economies without harming the transition from a government stimulus-backed recovery to one based on private demand.[216]

According to the IMF, the right mix of stimulus and fiscal consolidation will depend on the unique situation of individual sovereign borrowers: "[i]n the near term, the extent and type of fiscal adjustment should depend on country circumstances, particularly the pace of recovery and the risk of a loss of fiscal credibility."[217] Although the IMF believes that existing "fiscal consolidation plans [of advanced economies] for 2011 strike a broadly appropriate balance between progress toward stabilizing public debt and continued support for recovery…[l]ooking further ahead, advanced economy governments need to begin legislating the consolidation measures they intend to implement in the future to achieve their medium-term fiscal objectives.… Moreover, more could be done to secure long-term fiscal sustainability. This can help build confidence in public finances without necessarily detracting from demand today."[218] Or, as *The Economist* observed in October 2010, advanced economies "should tread carefully with fiscal consolidation: sensible budget repairs should be less about short-term deficit-slashing and more about lasting fiscal reforms, from raising pension ages to trimming health-care costs."[219]

A. Europe

Experiences in Europe since the spring of 2010 have vividly demonstrated both the transformation of the 2008 financial crisis into a sovereign debt crisis and the dangers of excessive sovereign indebtedness. Since the emergence of concerns about European public debt, Europe has also shown both how quickly pressures for fiscal consolidation can emerge for vulnerable sovereign issuers, and the risks associated with imposing austerity on a recovering economy.

How successful Europe is in addressing its challenges is critical for the continued recovery of the global economy, because the eurozone countries together, not the United States, comprise the world's largest economy.[220] While circumstances throughout Europe vary, prior to 2008 banks in a number of European countries, including the United Kingdom,[221] Ireland,[222] and Spain,[223] acted much like their U.S. counterparts in enthusiastically supporting debt-fueled real property booms by loosening their underwriting standards and ignoring concerns about growing leverage. Or, as Krugman observed in January 2011, the 2008 financial crisis "was, if you like, a North Atlantic crisis, with not much to choose between the messes of the Old World and the New. We had our subprime borrowers, who either chose to take on or were misled into taking on mortgages too big for their incomes; they had their peripheral economies, which similarly borrowed much more than they could really afford to pay back. In both cases, real estate bubbles temporarily masked the underlying unsustainability of the borrowing: as

long as housing prices kept rising, borrowers could always pay back previous loans with more money borrowed against their properties."[224]

As in the United States, when the prices of the assets they lent against declined precipitously, European banks faced significant liquidity, and ultimately solvency, challenges. However, in contrast to the United States, where the government's stress tests and subsequent capital raisings stabilized the banking system, in Europe the financial sector continues to struggle with widespread liquidity and solvency concerns notwithstanding an initial round of stress tests and subsequent government rescues.[225] The resulting tightening of credit has exacerbated the economic slowdown in Europe, and subsequent concerns about the sustainability of sovereign indebtedness have led to austerity measures that have contributed to further declines in economic activity. While the U.K.'s retention of its own, separate currency has given it greater flexibility in responding to the crisis than countries within the eurozone, ultimately the fiscal situations in Greece, Ireland, Portugal, and Spain raise significant concerns for future economic growth in Europe and the stability of the euro and the European (and potentially global) financial system.

Due to the different characteristics of the European economies, the European economic recovery has been uneven, with certain countries, such as Germany, experiencing vigorous recent growth while others, such as Ireland and Spain, will struggle for years with the legacies of burst real estate bubbles and overleveraged banking sectors. Thus, while the euro area economic data in Exhibits 45 and 46 appear to show positive recent trends, they fail to give a complete picture of the region's difficulties, which vary significantly by country. Similarly, eurozone economies have had dramatically different experiences with unemployment in the aftermath of 2008, as shown in Exhibit 47.

Europe's challenges are compounded by the fact that eurozone sovereign issuers and financial institutions face substantial refinancing requirements in the coming years.[226] Apart from the non-euro United Kingdom, which has an unusually long debt maturity profile, European sovereign borrowers will confront significant maturities mostly in the next four to eight years.[227] In addition, European banks have sizable medium-term funding needs and comparatively low capital buffers, and many continue to have difficulty obtaining access to private funding at competitive rates.[228] In part, these difficulties stem from an ongoing lack of transparency regarding European banks' assets and capital requirements following the widely criticized 2010 stress tests.[229] Nonetheless, the situation in Ireland, where the government won praise for conducting in March 2011 a credible stress test for Irish banks, highlights one of the dilemmas for European regulators in considering how to address the region's financial sector difficulties.

By running a credible stress test, Ireland demonstrated that its banks needed an additional €24 billion in capital, bringing the total cost of the Irish government bailout of the financial sector to as much as €100 billion.[230] However, in the absence of private sources that are willing (or able) to provide such enormous amounts of capital to Irish lenders, the state has had to bear the costs alone, causing its sovereign debt to balloon.[231] Yet concerns among Irish bond investors, and subsequently the European Union (EU) and IMF sponsors of Ireland's bailout package, about the sustainability of this explosion in Irish sovereign debt have led the government to impose severe austerity measures, which contributed to significant declines in economic activity. This decline has led, in turn, to further questions about the government's ability to support its sovereign debt, given the decline in tax revenues associated with reduced economic activity.[232] Meanwhile, in rejecting Ireland's proposal to limit the public cost of the bailout by imposing losses on unsecured bank bondholders, the European Central Bank has

fueled growing Irish public resentment that taxpayer funds are being used to make bank bondholders whole in the wake of reductions in government services.[233]

In light of these consequences, it is perhaps not surprising that European regulators have so far chosen to conduct less rigorous stress tests and hope that moderate amounts of private capital raising can avert the need for further state bank bailouts. As Merrill Lynch observed prior to the stress tests in a prescient comment, the "problems facing Europe in establishing a stress test in our view are twofold. First, a similar backstop mechanism for capital support [at the time did] not currently exist. And second, establishing one, given that support would need to come from sovereigns[,] has the potential to exacerbate the [sovereigns'] own credit risk."[234] However, the less rigorous stress tests conducted for European banks in 2010 have had lasting negative implications, as investors used the disclosures to run their own stress scenarios, reaching their own conclusions regarding the adequacy of European banks' capitalization and leaving those considered undercapitalized struggling to obtain private market financing at competitive rates.[235]

Europe's difficulties are further exacerbated by rapidly aging populations and declining birthrates, inflexible labor forces, and already high tax burdens in the countries with the most significant debt problems.[236] These factors make it difficult to envision how Europe might manage to generate the sustained, long-term growth needed to fund its rapidly expanding sovereign debt. Moreover, amid distressingly high levels of long-term unemployment,[237] the potential for flare-ups in social tensions remains high, as shown by protests in France, Greece, Spain, and the United Kingdom against austerity measures and German protests against the Greek bailout.

The resignation of Portuguese Prime Minister Jose Socrates is another sign of the challenges facing Europe in balancing the need for efforts to reduce unemployment and promote economic growth against market and European Central Bank demands for austerity. Moreover, Germany's confused and evolving reaction to the deployment of the EU / IMF European Financial Stability Facility in support of Greece and Ireland shows that European governments burdened by excessive indebtedness and restraints on spending will face a conundrum. The natural candidates to provide relief—other European countries with less indebtedness or more productive economies—will be hard pressed to help others when their populations expect their governments to focus on narrower national priorities, such as local unemployment or the need to finance their own safety nets amid aging populations and declining birthrates.

In many ways, the concerns regarding sovereign debt risks that emerged with the Greek (and now Irish and Portuguese) crisis bear parallels to the concerns about private sector indebtedness that began to appear in August 2007. Whereas in 2007 the lack of confidence translated into increased funding costs and stock price declines for private sector financial institutions, today it translates into an increase in the interest rate payable on sovereign debt (and difficulties in raising that debt) and pressure on the pricing of the euro. While the United States has been the beneficiary of a resultant short-term "flight to safety," it too will ultimately need to address concerns about its ability to maintain its sovereign debt.

In another parallel to 2008, growing concerns about exposure to eurozone sovereign debt have led to a lack of confidence in counterparties and increasing concern regarding counterparty risk. As in 2008, this has translated into reduced liquidity and increased funding costs for many European banks.[238] Although vulnerable banks have benefitted from emergency funding facilities provided by the European Central Bank (ECB), recent reports indicate that banks based in the European countries with the most serious sovereign debt concerns have become either completely reliant on emergency funding from the ECB to meet their short-term

liquidity needs, or are supplementing ECB liquidity with borrowing at punitive rates in the private repo markets. As reported by Reuters in April 2011, "[c]ash starved Irish, Portuguese and Greek lenders have turned to punitive private borrowing facilities over recent months after maxing-out on official European Central Bank help, in an indication that some 400bn euros of emergency funding is no longer enough to keep the European banking system above water."[239]

The dangerous negative feedback loops arising from concerns about eurozone sovereign debt and the solvency of European banks also bear a striking resemblance to the adverse feedback loops that existed between residential mortgage (and other) asset-backed securities and the financial institutions that held them prior to the 2008 credit crisis. In Europe, as in the United States following the 2008 credit crisis, the banks whose credit was necessary to finance economic activity themselves faced liquidity constraints that prevented them from lending, thereby exacerbating the downward pressure on their balance sheets and their liquidity problems.[240] As the IMF observed in the summer of 2010, when the initial wave of eurozone sovereign debt concerns surged, "[u]ncertainty about bank exposures to sovereign debt of the countries facing policy challenges has led to significant interbank funding strains.... Despite... efforts to improve the functioning of the interbank market, euro area banks are still hoarding liquidity and putting those funds in the ECB's deposit facility[,]"[241] thereby threatening eurozone recovery efforts. Efforts to encourage lending in Europe and the United States are also threatened by the "wall of [bond] maturities [faced by financial institutions] in the next few years, especially in the euro area, and the recent turbulence has at least temporarily dampened the primary market for financial institutions' bond issuance."[242]

Amid the imposition of widespread austerity measures and the prospect of future credit contractions as European financial institutions assess their need for additional capital, the employment situation in Europe is likely to remain startlingly weak, further slowing the recovery of eurozone economies and sovereign finances. Unemployment in Spain is now approaching 21 percent, and accounts for a significant portion of the increase in unemployment in developed countries that resulted from the crisis.[243] Moreover, experiences in Greece and Ireland show the risks associated with imposing austerity measures before economic recovery takes hold: lengthy recession and widespread unemployment.

Although some commentators have cited Germany's 2010 GDP growth[244] as evidence that austerity measures can promote growth, the record in Europe shows that Germany is likely to remain the exception, rather than the rule.[245] As reported in the *New York Times*, "[l]acking stimulus money, the Irish economy shrank 7.1 percent last year and remains in recession. Joblessness in this country of 4.5 million is above 13 percent, and the ranks of the long-term unemployed—those out of work for a year or more—have more than doubled, to 5.3 percent."[246] Moreover, Ireland demonstrates that the bond markets may in fact penalize, rather than reward, sovereign borrowers for austerity programs if the measures appear to threaten economy recovery. Ireland's high sovereign debt yields have arisen "in part because investors fear that the austerity program, by retarding growth and so far failing to reduce borrowing, will make it harder for Dublin to pay its bills rather than easier."[247] In Greece, meanwhile, austerity measures contributed to an economic contraction of 4.8 percent in 2010,[248] and in Spain the economy shrank by 0.2 percent in 2010.[249]

The Irish experience reveals another negative feedback loop emerging from this crisis. In this case, the negative synergy arises from the public need for government to continue to provide a "safety net" for the unemployed, on the one hand and, on the other, government's

growing inability to fund that safety net, as large-scale unemployment increases the aggregate cost of unemployment benefits while reducing the available taxes used to fund them.

At the same time, without some level of unemployment benefits funded by deficit spending, consumption inevitably decreases, contributing to continued recession, reduced tax revenues and, potentially, deflation. As the Irish experience shows, this cycle is exacerbated by the current scrutiny of government finances, placing the sovereign borrower in a "Catch-22" dilemma. On the one hand, the sovereign borrower must decide how to deploy sufficient levels of "safety net" stimulus in order to support economic recovery, while on the other maintaining its ability to finance its sovereign debt at rates that do not jeopardize the country's ability to fund other government priorities. The difficulties presented by these conflicting pressures make it hard to see how European economies will be able to escape an extended period of high unemployment and slow growth for the foreseeable future.

The combination of economic contraction, painfully high levels of unemployment, surging sovereign debt levels, and continued demand for austerity points toward an extended period of difficulty for Europe. Moreover, through its recent rate increase, the European Central Bank has increased borrowing costs and the likelihood the euro will appreciate, making it harder for Europe's most challenged economies to increase their competitiveness and growth and reduce unemployment.[250]

For Greece, Ireland, Portugal, and Spain the outlook is particularly bleak. Each of these four countries faces some possibility of further economic contraction, deflation, sovereign default, and potentially even abandonment of the euro.[251] As observed by *The Economist*, "[b]ecause all four countries suffer from a lack of competitiveness, a recovery in real GDP in the face of fiscal austerity will probably require a drop in wages and prices."[252] Meanwhile, it is difficult to envision how Greece, and probably also Ireland, can emerge from their current difficulties without some default or restructuring of their sovereign debt. As noted by Krugman, "even if the [Greek] government were to repudiate all its debt, it would still have to slash spending and raise taxes to balance its budget, and it would still have to suffer the pain of deflation. But a debt restructuring could bring the vicious circle of falling confidence and rising interest costs to an end, potentially making internal devaluation a workable if brutal strategy."[253] Although *The Economist* argues that Ireland may be able to avoid a default if the EU and IMF reduce its interest costs, many commentators conclude that it is also likely to default on its sovereign debt, with its deficit and debt surging as the costs of its financial bailout escalate.[254]

While the difficulties of Greece, Ireland, and Portugal present challenges for Europe and the euro, they pale in significance compared to the risks presented by Spain. Spain's economy is more than four times the size of Greece's, and is the fourth largest in Europe and the ninth largest in the world.[255] Although its ratio of public debt to GDP, at approximately 64 percent, is notably lower than that of Greece and Ireland, Spain's economic growth in the period leading to 2008 depended largely on growth in real estate and construction—two industries with no near-term prospects of recovery. Moreover, as in Ireland, Spain faces a potentially significant increase in its sovereign debt due to the growing capital needs of its banking sector, which financed the country's real estate and construction boom and is now struggling under the burden of bad real estate loans.[256]

A Spanish rescue would have significant implications for the rest of Europe, and thereby the global economy, because Spain has a much larger amount of sovereign debt outstanding than Greece and Ireland, with €150 billion in debt rolling over in the coming year, €300

billion in the next three years, and much of it held by foreign investors.[257] Analysts estimate that any EU / IMF rescue of Spain could cost as much as €500 billion, which would require a substantial increase in the size of the European Financial Stability Facility, in light of the demands already placed on it by Greece, Ireland, and now also Portugal.[258]

Interestingly, in a number of ways the euro both contributed to the emergence of the European sovereign debt crisis and is also making it more difficult for Europe to address its current challenges. As the Institute of International Finance has noted, "the origins of Europe's current crisis lie in the weaknesses resulting from the incompleteness of the common currency project itself."[259] Of these weaknesses, two played particularly significant roles in the years leading to the crisis.

First, although the eurozone had a centralized monetary policy, each eurozone country retained the ability to conduct its own fiscal policy. This contributed to the growth in eurozone sovereign debt by allowing countries that previously suffered from high interest costs, such as Greece and Portugal, to take advantage of the low interest rates that followed introduction of the euro and incur higher levels of debt than previously possible, despite running regular deficits prior to 2008.[260]

Second, in the absence of a strong common regulator for the eurozone's financial sector, private borrowers and financial institutions in countries such as Ireland and Spain were also able to take advantage of the low interest rates that accompanied monetary union and became overleveraged because "nobody paid enough attention to the large macroprudential risks that had built up."[261]

In addition to contributing to the eruption of the crisis, the existence of the euro has also made it more difficult for countries such as Greece, Ireland, and Spain to emerge from the crisis. This is in part because monetary union means those countries cannot engage in the devaluation that allows countries with their own currencies to make their goods more competitive. As Krugman observes, this means that "these countries have to deflate their way back to competitiveness, with all the pain that implies. [However,] the collision between deflating incomes and unchanged debt can greatly worsen economic downturns [because] debtors have to meet the same obligations with a smaller income; to do this, they have to cut spending even more, further depressing the economy."[262]

Moreover, currency union in the eurozone, unlike in the United States, was not accompanied by the creation of a strong central government. This means that significant costs of the crisis, such those associated with austerity measures and bank bailouts, are borne locally to a much greater degree than is the case in countries like the United States.[263] The local concentration of these costs contributes to increases in unemployment and sovereign debt, and decreased economic activity in Europe, thereby prolonging the crisis in countries such as Greece, Ireland, and Spain. Or, to use an example cited by Krugman, "[i]t's true that budgets in both Ireland and Nevada have been hit extremely hard by the slump. But much of the spending Nevada residents depend on comes from federal, not state, programs.… In Ireland, by contrast,…pensions and health spending are on the cutting block. Also, Nevada, unlike Ireland, doesn't have to worry about the cost of bank bailouts, not because the state has avoided large loan losses but because those losses, for the most part, aren't Nevada's problem [because they] will be covered by Washington, not Carson City."[264]

While the unique factors surrounding European monetary union add complications missing from considerations about the United States, it would not be surprising if the public opposition observed in Europe to austerity measures and to bailouts of states perceived as less

disciplined eventually appear in the United States. As we will explore in further detail later in this paper, given the worsening federal deficit, and the deteriorating solvency prospects for both U.S. state and local governments and the Social Security and Medicare trust funds, it is only a matter of time before the federal government faces a similar set of difficult choices.

B. United States

Notwithstanding a host of vexing medium- and long-term challenges, the U.S. faces a less daunting situation in the near term than Europe. In addition to the historically low interest rates resulting from continued high demand for U.S. Treasuries,[265] there are a number of reasons this is the case. These include the status of the U.S. dollar as the global reserve currency, the comparative flexibility of the U.S. workforce and its traditionally high level of productivity, the fact that the U.S. population, supplemented by immigration, does not face negative demographic trends to the same degree as Europe and Japan, the strength of the U.S. military, and the steady increase in corporate profits during the past two years, which has resulted in U.S. businesses holding significant cash stockpiles.[266] While some companies are returning the cash to shareholders, recent data indicate that businesses have begun to invest at least a portion of this cash in productive areas, which is contributing to economic and employment growth.[267] Moreover, significant cash stockpiles give U.S. businesses some flexibility, should sources of liquidity dry up in a renewed "flight to safety" by banks.

However, economic recovery in the United States is likely to remain slow and uneven, because it appears unlikely to be consumer driven in a meaningful way, given the continuing high levels of consumer indebtedness and unemployment.[268] In the United States, consumer spending accounts for about 70 percent of economic activity,[269] and therefore must play a critical role in the economic recovery. However, notwithstanding a recent uptick, real consumer spending has grown at only a modest pace since recovering from declines in 2008 and the first half of 2009.[270] As shown in Exhibit 49, one reason behind the weakness in consumer spending is the dramatic increase in the personal savings rate that followed the 2008 crisis, amid stagnant growth in disposable income. It is worth noting, moreover, that the recent increase in consumer spending has resulted in large part from a slight decline in the savings rate, not because of growth in income or employment.[271] This indicates that any further increase in consumption (and thus U.S. economic growth) is likely to be modest, at least until employment increases meaningfully.

Unfortunately a number of factors indicate that U.S. unemployment will probably remain stubbornly high in the near term, despite recent signs of improvement.[272] As noted by the Center for Economic and Policy Research, since the start of the recession, "the U.S. economy lost more than eight million jobs. Even if the economy creates jobs from now on at a pace equal to the fastest four years of the early 2000s expansion, we will not return to the December 2007 level of employment until March 2014. And by the time we return to the number of jobs we had in December 2007, population growth will have increased the potential labor force by about 6.5 million [potential] jobs."[273] This projection, shown dramatically in the chart from the Center for Economic and Policy Research included in Exhibit 51, is consistent with the recently expressed view of the Federal Reserve Board's Open Markets Committee (FMOC) that it "may take as long as five or six years for unemployment to return to its longer-run rate."[274]

While the FOMC predicted the unemployment rate "would still exceed 7 percent in 2012, more than the 5 percent to 5.3 percent they consider full employment[,]" the Fed continues

to face internal and external pressure to end its current stimulus efforts, such as QE2.[275] Still, Fed Chairman Bernanke recognized the implications of the negative employment outlook for the economic recovery when he observed in July 2010 testimony that an "important drag on household spending is the slow recovery in the labor market and the attendant uncertainty about job prospects."[276]

According to the March 2011 employment report from the U.S. Bureau of Labor Statistics, the overall official unemployment rate remains close to 9 percent,[277] while persons experiencing long-term unemployment (meaning those out of jobs for at least six months) comprise a troubling 45 percent of all jobless workers in the United States.[278] As shown in Exhibit 52, unemployment in this recession has increased dramatically irrespective of age group, and has only recently recovered from a post-World War II high.

Notwithstanding arguments by some commentators that extended unemployment benefits may contribute to higher levels of unemployment by discouraging job seeking, the period since 2008 has seen a dramatic decrease in the number of positions available relative to unemployed workers.[279] Moreover, the fact that almost half of the unemployed have been out of work for at least six months indicates that unemployment is becoming a serious structural problem. As noted by the *Financial Times*, the "likelihood of finding a job shrinks as the duration of unemployment rises—the Bureau for Labor Statistics calculates that a member of the long-term unemployed this month has a one-in-10 chance of finding a job next month, three times worse than the recently redundant. Skills and confidence fade, as do funds for searching or relocating."[280] In addition, the emergence of a class of the long-term unemployed (and, potentially, unemployable) reduces the potential size of the economy, reducing tax revenues, and potentially promotes wage-price inflation, leading to the prospect of stagflation.[281]

Moreover, as observed in a 2010 joint study by the IMF and the International Labour Organization, unemployment has long-term consequences on laid-off employees' health and earnings potential: "Studies for the United States show that even 15–20 years after a job loss in a recession, the earnings loss amounts, on average, to 20 percent. The adverse effects on lifetime earnings are most pronounced for unemployed spells experienced in youth, especially upon college graduation. [Moreover, l]ayoffs are associated with a higher risk of heart attacks and other stress-related illnesses in the short term. In the long term, the mortality rate of laid-off workers is higher than that of comparable workers who kept their jobs[, with]… an average loss of life expectancy from 1 to 1.5 years."[282] The heightened negative impact of long-term unemployment on younger workers is particularly troubling in today's economy, given that young workers comprise more than 25 percent of the current unemployed population in the United States.[283]

Recent unemployment data show that the crisis and recession may also be having broader, potentially serious impacts on the composition of America's workforce, both in terms of its makeup by age and type of employment.[284] Statistics on the unemployment rate by age reveal that younger workers are suffering official unemployment rates of approximately 22 percent,[285] with at least 23 percent of young workers having given up searching for employment.[286] Although traditionally younger workers have a higher level of unemployment than older workers,[287] unemployment rates for workers under 24 now approach levels reached in the Great Depression for this age group.[288] Because they will have reduced chances to develop job-related skills during critical early periods in their careers, the significant number of younger workers among the unemployed presents the prospect of an entire generation of workers fac-

ing limited long-term employment prospects, thereby placing greater stress on social safety nets, which will increase government costs while reducing revenues.[289]

While the phenomenon of decreasing employment rates among the young is part of a broader trend,[290] it is plausible that younger workers' employment difficulties have been caused at least in part by the significant growth in the percentage of older Americans remaining longer in the workforce. Data from the Bureau of Labor Statistics show that, after years of decline, the percentage of Americans over age 55 remaining in the workforce has steadily increased from an average of approximately 30 percent in the 1990s to approximately 40 percent today.[291] Moreover, this trend is projected to intensify in the coming years.[292] A number of reasons have been attributed to this trend, including a shift by employers to defined contribution pension plans and older employees' need to supplement reduced retirement or pension funds that were negatively impacted by the credit crisis and the earlier technology bubble collapse.[293] Moreover, even before the 2008 credit crisis, projections from the Bureau of Labor Statistics predicted this trend was almost certain to accelerate.[294]

When considering the current employment situation, it is also worth noting that certain categories of employees are likely to experience more difficulty than others in finding work, even as economic growth resumes in earnest. Because the recession was caused principally by a housing-related leverage boom, job losses have been heavily concentrated in construction and other industries whose growth was fueled by that leverage. As observed in August 2010 by the *Financial Times*, "the decline in housing-related employment was the biggest weight on private sector job creation[, with c]onstruction and associated businesses…among the hardest hit sectors in the recession, accounting for about 3m of the…jobs lost after the collapse of the housing bubble in 2006."[295] Although the "manufacturing sector lost more than 2m jobs in the same period, [it] appears to be emerging from the downturn in a healthier state,"[296] with recent months marked by particularly strong growth in manufacturing output and employment.[297]

During the same period construction and related businesses showed little hope of recovery, adding few, if any, workers on a net basis.[298] This may mark the beginning of a long-term relative decline of the U.S. construction industry, with "[c]onstruction's contribution to overall U.S. employment—measured by private nonfarm payrolls—[moving] from about 6 percent between 1980 and the early part of [the 2000s, before] peaking at 6.7 percent in October 2006 [and then declining to its current level of] just 5.1 percent of private sector jobs."[299]

Although the reorientation of the U.S. economy toward industries with greater long-term growth and export potential would be welcome, this trend has potentially painful consequences in the short term. As observed by the *Financial Times*, the prospect of a prolonged slump in the construction and real estate markets is likely to mean an increase "in long-term unemployment, as many of these workers struggle to find jobs in different industries or locations."[300] A permanent loss of construction-related employment also implies greater burdens on government, as workers move off taxpayer rolls during periods of retraining, and onto the rolls of those requiring government assistance. Although the Obama administration has indicated that it understands the need to retrain unemployed workers for new careers in sectors with better growth prospects,[301] it is to be expected that initiatives in this area will need time to take effect.

As with the case of uneven job growth, the U.S. economy is also currently experiencing a mixed recovery in the area of restoring credit. While Fed and Treasury efforts so far have demonstrably helped to restore credit markets for large firms and allow banks to rebuild their balance sheets,[302] with a few exceptions the programs have tended to focus more on the needs

of large financial institutions and big companies, and have been less successful in assisting small business and individuals. As a result, the second half of 2010 saw only a slow, and fitful, recovery in most categories of credit to individuals and small business—the sectors of the economy that need it the most, and which are most likely to be responsible for generating economic growth and jobs.[303]

Moreover, the slow resumption in credit generally in 2010 was in most cases insufficient to overcome the significant decline in overall lending since 2008, with aggregate commercial and industrial lending and consumer residential mortgage lending down from their levels of one year ago. In fact, among the major categories of bank lending, only consumer loans witnessed significant growth in 2010, supported by a nearly 84 percent increase in credit card lending.[304]

One reason government efforts to revive credit have so far failed to provide significant relief to individuals is that lower mortgage rates (without a reduction in principal) cannot help borrowers with negative equity in their homes. Put another way, "[n]o mortgage lender wants a new mortgage that is worth more than the home."[305] Moreover, the challenges plaguing the residential lending and housing markets are immense and unlikely to be resolved soon. As reported by *The Economist*, "[a]round 2.5m homes are in the process of repossession, and 11m (or nearly 25% of all homes with mortgages) are 'underwater'…."[306] This has at least two broader implications for the U.S. economy.

First, in contrast to prior periods, it is extremely unlikely that a wave of home mortgage refinancing will spark an increase in U.S. consumer spending by facilitating a corresponding increase in home equity withdrawals. As reported in the *Financial Times*, "[r]efinancing is still taking place, but it is so reduced that it will not trigger enough consumer spending to turn the economy round.… The ability of housing to power U.S. economic growth has, at least temporarily, gone."[307] This appears to remain the case, notwithstanding a recent increase in refinancings by borrowers seeking to take advantage of mortgage rates at levels near record lows. As reported by Bloomberg, "[n]ot all applications are turning into new loans. Many consumers can't qualify because of tightened lending standards or because their homes are valued at less than their existing mortgages, a situation…that is a major obstacle to a real estate recovery."[308]

Second, the housing foreclosure crisis, and its collateral impact on housing prices, state tax revenues, and community social fabrics, is not likely to subside in the near term. This can be seen in Exhibit 54, which shows that foreclosure rates remain at levels significantly higher than normal, notwithstanding historically low interest rates.[309]

Even in housing markets that are experiencing milder slowdowns than those of the sun-belt bubble states, reductions in interest payments alone may be insufficient to keep borrowers in their homes. Instead, as noted by Yale economist John Geanakoplos, in order to avoid default, individual borrowers also frequently need principal relief, not the reduced interest payments promoted by the efforts of the Fed and the Obama administration to date. According to Geanakoplos, "The single most important reason homeowners are defaulting is not job loss; it is that their houses are underwater.… The conclusion is an inescapable matter of incentives. It is economically foolish for a homeowner to continue to pay off a $160,000 loan when his house is only worth $100,000. Mortgage loans have turned out to be no-recourse—after seizing the house, the lender almost never comes after the borrower for more payments."[310] The upshot, as noted by *The Economist*, is that despite historically low mortgage rates, and although the "Obama administration, like George Bush's team before it, has tried schemes to encourage lenders to keep people in their homes by reducing their monthly mortgage payments…these have not worked well, mainly because reducing payments does little to prevent default when

houses are worth a lot less than the outstanding debt. A better route would be to reduce the mortgage principal, giving borrowers a bigger incentive to pay their debt."[311]

Low interest rates have also been less successful in prompting business activity than one might hope. This is in part because unlike larger companies, which have benefited from the Fed's efforts through a surge in demand for corporate bonds as a higher-yielding investment alternative to Treasuries,[312] small businesses generally do not have access to financing through the capital markets, and must instead rely on bank lending.[313] Thus, the low interest rates resulting from Fed efforts can only help small businesses if banks are prepared to lend to them. This is significant because much of the job creation in the United States historically tends to be generated by small businesses.[314]

Other recent trends have also increased the pressure on lending to small business. For example, the combination of a "flight to safety" and increasing demand by banks for U.S. Treasuries due to stricter capital requirements may make less money available for lending to small businesses, as banks reduce their risk-taking and fill their balance sheets with assets that will help them satisfy their regulatory capital requirements. Thus, the very businesses that the country needs to grow to create jobs are likely to face credit constraints at least in part because banks are investing much more in Treasuries than they have in the past.

This trend has been aggravated by changes in the banking landscape (some of which predated, but many of which have been further encouraged by, the credit crisis), which have increased pressure on sources of small business funding. Whereas, "[i]n the past, lending to small businesses has been the province of small banks, as these banks possessed a comparative advantage in [allowing them]…to overcome the greater information asymmetries inherent in small firm financing…[, today due to banking industry consolidation] large banking organizations [have] become more prominent in this market through standardized lending practices."[315] However, these changes in the banking industry seem to have made it more difficult for small businesses to obtain funding. Precrisis studies show that banking consolidation involving community banks and large banks frequently tends to reduce access to small business lending because large banks are less enthusiastic lenders to small business.[316]

The challenges facing small businesses seeking credit have prompted the Obama administration to promote small business finance through the expansion of the Small Business Administration and other small business lending initiatives.[317] Federal Reserve Chairman Ben Bernanke has also sought to encourage lenders to make additional credit available to small businesses. As Chairman Bernanke observed in August 2010, the Fed has "been working to facilitate the flow of funds to creditworthy small businesses[, in part by] emphasiz[ing] to banks and examiners that lenders should do all they can to meet the needs of creditworthy borrowers, including small businesses[, and also through] extensive training of [Fed] bank examiners, with the message that lending to viable small businesses is good for the safety and soundness of our banking system as well as for our economy."[318] However, while Chairman Bernanke's efforts to spur small businesses lending are encouraging, it remains unclear whether this effort is likely to have any significant impact. As noted in a July 2010 *Financial Times* report, "the Fed has limited tools to help and after a series of meetings with small businesses Mr. Bernanke resorted to urging banks to do all they could to get credit flowing to worthy borrowers."[319]

Reduced levels of small business lending may seem puzzling in light of Federal Reserve data showing that U.S. banks have accumulated substantial excess reserves since the onset of the crisis in 2008.[320] As noted in a Federal Reserve Staff Report by Todd Keister and James McAndrews issued in 2009, "[p]rior to the onset of the financial crisis, required reserves were

about $40 billion and excess reserves were roughly $1.5 billion.… Following the collapse of Lehman Brothers, however, total reserves began to grow rapidly, climbing above $900 billion by January 2009[, with] almost all of the increase…in excess reserves."[321] Thus, it would appear that U.S. banks should have more than adequate capital and liquidity to engage in further lending to U.S. business (including small business). Instead, the data on excess reserves appear to confirm that banks are simply hoarding these funds.

In their report, Keister and McAndrews argue that a large quantity of excess reserves is a natural "byproduct of [the Fed's] lending policies designed to mitigate the effects of a disruption in financial markets"[322] where interest rates are low or near zero. However, they also concede that the significant levels of excess reserves currently held in the U.S. banking system are in part a consequence of the fact that, in the current low interest rate environment, where the Fed is paying banks interest on their reserves, "banks no longer face an opportunity cost of holding reserves and, hence, no longer have an incentive to lend out their excess reserves."[323] In other words, in attempting to balance the somewhat conflicting goals of stabilizing the banking system and promoting economic growth, the Fed has created an environment where banks seeking to rebuild their balance sheets may be tempted to hold their cash safely with the Fed rather than engage in the added risk of lending it to U.S. businesses (especially when economic recovery remains uncertain).

However, when considering the challenges faced by U.S. small business, one must also take account of recent studies indicating that reduced lending to small business may in part be a sign of softening *demand* for small business credit by small business owners, in addition to reduced supply of credit by lenders.[324] As noted by the National Federation of Independent Business (NFIB) Research Foundation, "[m]any policymakers misidentify the fundamental bases of small business problems, leading to promotion of faulty policy."[325] According to the March 2011 NFIB small business survey, the principal problem cited by small business owners remains slow or declining sales, not access to credit.[326]

Meanwhile, "92% [of small business owners] reported that all their credit needs were met or that they were not interested in borrowing. 8% reported that not all of their credit needs were satisfied, and 51% said they did not want a loan.… The historically high percent of owners who cite weak sales means that, for many owners, investments in new equipment or new workers are not likely to 'pay back.' This is a major cause of the lack of credit demand observed in financial markets…"[327] Stated another way, "[c]redit demand falls when balance sheets deteriorate and comparatively few investment opportunities exist. Credit access falls when financial institutions are financially weak and lack confidence. The basis of any small business credit problem, therefore, lies in the broad sweep of the American economic and financial performance…."[328] This situation was captured when a July 2010 *Financial Times* report observed that "more than America needs cheaper money, it needs businesses and consumers to be optimistic.… [N]o amount of monetary easing will help if banks do not extend credit because consumers do not want to spend nor companies to invest."[329]

Moreover, it is important to also bear in mind that one important reason underlying reduced small business credit is that small business in the United States is disproportionately concentrated in the areas hardest hit by the recession: real estate and construction.[330] As noted by the NFIB, "[f]alling real estate values (residential and commercial) severely limit small business owner capacity to borrow and strains [*sic*] currently outstanding credit relationships…. Broad and deep real estate ownership is a major reason why small businesses have not yet begun to recover, why larger businesses have been able to recover more quickly than small businesses,

and why this recession is different, at least for small business owners, from recent ones."[331] Considered together, these factors indicate that despite government efforts to expand small business credit, the challenges facing small business in the United States are unlikely to recede until the economy experiences notable improvement in the employment and housing markets.

C. Emerging Markets

In contrast to the gloomy prospects of the developed western economies, emerging markets, especially those in China, India, and Brazil, appear likely to continue to experience significant growth in coming years, bolstered by relatively low levels of indebtedness, growing populations, access to ready finance, and increasingly sophisticated economies.

China

China's government helped its economy quickly overcome the downward economic pressures from the 2008 financial crisis through significant stimulus efforts (including a dramatic increase in infrastructure investment) and by encouraging looser bank lending.[332] As reported by *The Economist*, "[t]he banks of China did their duty by supporting the government's stimulus efforts last year. Lending soared by a frenetic 32% in 2009; growth [in lending] has slowed this year, but remains a robust 18%."[333] Under the stimulus measures, aggregate lending by Chinese banks reached a staggering $2.7 trillion in 2009 and 2010.[334] However, looser bank lending has prompted concerns that China's economy and banking sector are experiencing the growth of a debt and asset price bubble similar to the one that prompted the 2008 financial crisis. In response, in 2010 China started to tighten lending again and increased bank reserve requirements multiple times in an attempt to restrain inflation in its residential real estate market.[335]

In addition, China has sought to limit increasing consumer and producer price inflation by raising interest rates four times in recent months.[336] China has also sought to prevent the occurrence of a 2008-style financial crisis by conducting stress tests on its banks that assumed a 60 percent decline in housing values.[337] China's biggest lenders responded by raising $56 billion in additional capital in 2010.[338] However, low current market valuations of China's banks indicate that investors may still harbor suspicions about bad assets and a lack of transparency in the Chinese banking sector, in addition to concerns about growing Chinese inflation.[339] Such concerns appear to be supported by a March 2011 Fitch analysis that indicates that China faces a "60 percent risk of a banking crisis by mid-2013 in the aftermath of record lending and surging property prices."[340]

Some commentators have also expressed concerns about whether China can sustain its recent growth rates absent continued growth in its real estate market. As reported in the *Financial Times*, Yi Xianrong, director of the Finance Institute at the Chinese Academy of Social Sciences has observed that "[s]ince 2003, China's economic growth has relied on two pillars: exports and real estate, and while the former brought China some benefits in terms of modernisation, the latter has caused many serious problems.... The growth in the real estate market is based on the mismanagement of land resources and property speculation, leading to skyrocketing house prices and a real estate bubble that must eventually be deflated." [341]

Hedge fund manager Jim Chanos is equally skeptical of China's ability to sustain its record of economic success amid growing signs of ill-conceived investment and real property speculation. As reported in Bloomberg, the "costs of wasteful investments in empty offices and

shopping malls and in underutilized infrastructure will weigh on China, Chanos…said in a speech at the London School of Economics. 'We may find that that's what pops the Chinese bubble sooner rather than later.'"[342] Amid such signs it remains to be seen whether China can achieve the balance that eluded the West in the years leading to the 2008 financial crisis between economic growth on the one hand, and restraint on leverage and real property inflation on the other.

Notwithstanding these potential clouds on the horizon, China's growth recently enabled it to overtake Japan as the world's second-largest economy.[343] An interesting statistic cited by *The Economist* brings home just how remarkable this record is: "Five years ago China's economy was half as big as Japan's."[344] China's ascent to the number two position provides a fitting opportunity to reflect on both the similarities between China today and Japan in the late 1960s when it became the world's second-largest economy, but also on the significant differences between the two countries, which in many ways allude to the challenges China will have in matching Japan's postwar development experience.

For example, as observed in August 2010 by *Financial Times* contributor David Pilling, "[b]y 1968, Japan had more world-class companies in the making than China does now. It was already on the way to becoming a rich country. Today China has a nominal per capita income of $3,867, almost identical with that of El Salvador." [345] While China's official poverty rate of 2.8 percent and unemployment rate of 4.3 percent appear enviable, they seem inconsistent with the mass migration of nearly 200 million rural laborers and their families who have relocated to booming coastal areas in search of work, and increasingly public and aggressive labor demonstrations.[346] In fact, according to a July 2010 study conducted by the Oxford Poverty and Human Development Initiative, China's relative poverty rate is closer to 12 percent, based on the access of its population to basic needs such as clean drinking water, cooking fuel, child mortality, sanitation, and electricity.[347]

With an estimated population of approximately 1.34 billion people, this implies that nearly 161 million people in China live in near-subsistence conditions, making continuation of the country's rapid economic development an urgent and challenging government priority. As the *Financial Times* observed: "[t]he most important difference [between China and Japan] is the most obvious. China's population of 1.34bn—one person for every five on the planet—is 10 times that of Japan. That makes it 10 times harder for China to feed its industrial habit, to re-create an American standard of living or to pour out exports without clanking against big resource and political constraints."[348]

Considered in light of its recent history, China's size and relative poverty point toward another way in which China's growth as an economic power will differ from Japan's. In contrast to Japan, which, like Germany, was content limiting its role in postwar global affairs to that of a reliable ally of the West following its previous history of aggressive imperial expansion, China emerged from its 20th-century experiences with European colonialism, Japanese occupation, and Communist revolution more inclined to assert its interests on the world stage. Thus, it is taking a much more active, and confrontational, role in world diplomacy, shaped in part by its urgent need to help a significant portion of its population out of poverty through dramatic economic growth.

As observed by the *Financial Times*, "China is far less inhibited [than Japan]. Its rapidly modernising military, its web of trade and investment links and its sense of national interest—whether in the South China Sea or in Sudan—set it apart from a Japan still hiding behind U.S. skirts.… For the first time in the modern era, a relatively poor country has enormous

global clout, exerting influence through investments in Africa and votes at climate change conferences.... [Thus,] scale confers on China the potential to mould the world it inhabits, whether by challenging the supremacy of the U.S. dollar or by imposing its national interest on others, by force if necessary."[349]

An example of the dangers associated with China's combination of enormous economic power and assertive foreign policy manifested itself in its decision in 2010 to halt rare earth exports in the wake of a dispute with Japan involving a Chinese fishing trawler. As Japanese and other manufacturers of high-technology devices faced the prospect of production interruptions, the world was starkly reminded that China is not inhibited about using its economic power to further its policy goals.[350] China's more aggressive approach to international affairs is also reflected in its high level of military spending. While Japan's economy benefited during its developing stage from the higher rates of internal investment enabled by its postwar pacifism, China has been diverting an enormous share of its GDP into strengthening its military.[351]

China's assertiveness in the international arena also manifests itself in a consistent willingness to pursue its narrowly defined self interests, regardless of long-term regional (or even national) consequences. For example, in its quest to meet its growing energy and other resource needs, China flouts western trade restrictions on pariah states such as Iran, Myanmar, and Sudan, thereby indirectly (and occasionally directly) impeding western efforts to prevent nuclear weapons proliferation and oppression of democratic rights by autocratic regimes.[352]

In order to support the growth it needs to continue raising its living standards, it is reasonable to expect that China will become increasingly aggressive in seeking access to the resources needed to fuel that growth, regardless of the political consequences. In addition, China frequently engages in nationalistic business and economic policies in support of local businesses,[353] including disregard of intellectual property rights and engaging in corporate espionage and trade policies designed to promote national champions in the marketplace at the expense of non-Chinese firms. While western companies have so far muted their criticism of these practices in exchange for access to China's growing markets, established companies as varied as General Electric and Google have recently become more outspoken in opposing Chinese business practices.

Of course, China's importance to the U.S. and global economy extends beyond its significant impact on global demand as a rapidly growing exporter of, and market for, goods and services. In addition, through its enormous global holdings of currencies and government securities, China has the ability to exert great influence on the value of the U.S. dollar (and that of other currencies) and the pricing of debt issued by the federal government and agencies of the United States and other countries. As reported by Bloomberg, "Long-term U.S. rates would be about a percentage point higher without foreign investment and central bank buyers."[354] China is reported to hold more than $2.5 trillion in reserves.[355] This includes at least $900.2 billion in U.S. Treasury notes and bonds, up dramatically from $58.9 billion in 2000, making China the largest foreign holder of U.S. government debt.[356] Moreover, China has continued to increase its holdings, purchasing "at least $80 billion of U.S. government debt each year since 2005...."[357]

Because any significant change by China in its purchases of U.S. government and agency debt has the ability to dramatically increase interest rates, and thus potentially limit U.S. growth, recent expressions of concern by Chinese officials over U.S. fiscal policies have received much attention.[358] However, although China in July 2010 diversified its portfolio by increasing purchases of yen- and euro-denominated assets,[359] analysts believe China is likely

to continue to remain a significant buyer of U.S. government securities for the foreseeable future. As reported by Bloomberg, George Goncalves, head of interest rate strategy at Nomura, recently observed that, "[i]f history's any guide, they will keep buying [U.S. securities.]… Global imbalances don't turn on a dime. We don't know how robust this recovery is. There are only so many places China can put its money."[360] Similarly, Carl Lantz, head of interest rate strategy at Credit Suisse, in June 2010 noted that "I don't think it's really in China's economic interest to distance itself from its economic ties with the U.S.… We borrow pretty cheaply from them, we buy their goods. Our country, despite some of the turmoil, still offers deep and liquid capital markets."[361]

However, as we have seen from the discussion above, the United States will eventually need to move away from a consumption-oriented economy based on the purchase of Chinese goods with borrowed money as its consumers deleverage. If this movement, or some other cause such as imposition of tariffs on Chinese products or increased military tension, results in a reduction of U.S.-Chinese trade flows, the United States will need to come to terms with the prospect of higher interest rates once China begins to exert its influence as the country's largest foreign bondholder. Given its willingness to aggressively promote its self-interest in other areas, we should not be surprised if it chooses to do so under the right circumstances in this area too.

The growth of China's economy has been accompanied by a more gradual development of its capital markets and efforts to relax the controls on its currency. In the most recent development in this area, a "number of the world's biggest banks have launched international roadshows promoting to corporate customers the use of the renminbi, instead of the dollar, for trade deals in China.... The move aligns the banks favourably with Beijing's policy priorities and positions them to profit from what is expected to be a rapidly growing line of business in the future."[362] As reported in the *Financial Times*, this expansion of a previous pilot program marks an effort by China to gradually make the renminbi a global reserve currency: "Dominance of the global economy, Beijing believes, goes hand in hand with dominance of the global monetary system."[363]

Although China has been gradually introducing measures to increase international use of the renminbi over the past several years, it has expanded those efforts significantly over the past year, including through the expansion of the previously described pilot program for settlement of cross-border trade, an easing of restrictions on offshore transfers, and, most recently, allowing non-Chinese companies the ability to issue and purchase renminbi-priced bonds in Chinese domestic bond markets.[364] As noted by the *Financial Times*, China's opening of its renminbi-denominated bond markets is particularly significant because "[u]ntil then there were few investment opportunities for international holders of renminbi."[365]

Notwithstanding these steps, it remains unclear whether China's government will accept the consequences of making the renminbi a true reserve currency, including full convertibility. While convertibility would doubtless increase global holdings of the currency, it would also "imply opening up China to the whims of global capital—precisely what it has been protecting itself against…. Freer capital flows may…prove destabilising for domestic banks, creating liquidity bubbles in good times and choking off the credit supply as conditions deteriorate. No longer would the banking sector be an effective instrument of macroeconomic policy, as it has been during the crisis with government-induced lending sprees. It would be a source of, and not a remedy to, increasing economic volatility."[366]

Moreover, by making the renminbi fully convertible, China's government would lose some of its ability to engage in the mercantilist support of its export industries it has conducted in the past. Because the widespread improvement in living standards resulting from export-driven growth has become a key justification for continued Communist Party rule, it seems unlikely that China's government will quickly relinquish the control over its currency that has in part allowed it to achieve that growth.

Two other challenges to continued Chinese growth bear mentioning.

First, as observed by the Central Intelligence Agency, "[o]ne demographic consequence of the 'one child' policy is that China is now one of the most rapidly aging countries in the world."[367] China's current working-age population of citizens between 15 and 64 years old accounts for 72 percent of the country's entire population.[368] In contrast, only 20 percent of China's people are younger than 14. As a result, it is only a matter of time before China confronts the same issues that will shortly challenge Europe and the United States: wage inflation and difficulties supporting government social welfare spending as an ever larger population of retirees is supported by a smaller labor force.

Separately, as in other significant emerging economies such as India and Russia, widespread official corruption presents another challenge to continued strong Chinese economic development.[369] As reported by Transparency International, "[c]orruption in the private sector in China has traditionally been severe and it remains one of the most commonly found forms of corruption."[370] However, in contrast to Russia and India, where corruption, even if officially illegal, is publicly tolerated, China appears to be taking steps to limit it.[371] For example, Reuters in August 2010 reported that "[o]fficial corruption and abuses are among the most widely voiced complaints of Chinese citizens, and leaders of the ruling Communist Party regularly warn that discontent over the problem could erode party rule. Chinese Premier Wen Jiabao said…that failure to reform the top-down government could undermine the country's economic growth and feed official abuses."[372]

As observed by Transparency International, "corruption in the private sector has gradually become better recognised as a challenge to the further development of China's economy. Previously, China put emphasis on fighting the demand side of corruption—generally public officials—while ignoring the role of suppliers, which were often private and multinational enterprises.… [However,] China's [recent] anti-business bribery work shows that it has begun to fight against corruption from both the supply side and the demand side, and in a more balanced way."[373]

India

Like China, India has recently succeeded in lifting a significant portion of its enormous population out of poverty through dramatic economic growth. In fact, in the next year or two, India's rapid growth is expected to allow it to overtake Japan as the world's third-largest economy on a purchasing power parity basis.[374] Also, like China, India's growth rate was not significantly impacted by the 2008 financial crisis. In 2010, India's GDP grew by an estimated 8.3 percent, following 7.4 percent growth in both 2009 and 2008.[375] However, the significant differences between India and China have important implications for world affairs and the global economy. As a democracy sharing a border (and a history of military conflict as recently as 1962) with China, India is a natural ally to the West and a counterweight to China in world affairs. Moreover, in contrast to China's manufacturing-based, export-driven economy,

Indian growth is being driven by "a young and growing workforce, rising income levels and a domestic driven economy.... [However, Indian] exports [account] for just 20% of GDP. In comparison, China's exports account for roughly 40% of GDP."[376]

The differences in the Chinese and Indian economies manifest themselves in the growing bilateral trade between India and China, which has increased from $270 million in 1990 to $60 billion in 2010.[377] Due to their differing economic strengths (China has a well developed manufacturing sector, whereas India's strength is in services, with an underdeveloped manufacturing sector), "[o]ver 70% of India's exports to China by value are raw materials, chiefly iron ore, bespeaking a colonial-style trade relationship that is hugely favorable to China."[378]

This illustrates one of the key challenges facing India: in order to continue improving its standard of living, India will need to strengthen its manufacturing sector, to increase the job opportunities available to lower-skilled, less-educated workers. Although India has achieved enormous economic growth through its development of a services-based economy, as observed by *The Economist*, "India's great priority is to create millions of jobs for its young, bulging and little-skilled population, which will be possible only if it makes huge strides in manufacturing."[379]

The importance of this need is brought home by comparing the relative wealth of India's and China's populations, which shows that India still has "relatively low household incomes.... In 2009, India's annual income per person was $1,031, compared to $3,678 in China...."[380] In addition, India's official unemployment rate and poverty rates are still high at 10.7 percent and 25 percent, respectively.[381] While Brazil has a similarly high portion of its population in poverty at 26 percent, its unemployment rate of 8.1 percent is dramatically lower.[382] Moreover, when measured by the more revealing Oxford Multidimensional Poverty Index, India's relative poverty rate soars to 55 percent of the population, compared to only 9 percent for Brazil.[383]

India's relatively higher rate of poverty and lower level of manufacturing highlight another important challenge, which could be transformed into a striking asset: its high rate of population growth. As noted by the Schwab Center for Financial Research, "India's working-age population is expected to grow by 46%, or 275 million, from 2000 to 2025, while China and the United States are forecast to grow 10% and 12% respectively, and Europe and Japan to decline by 13% and 17% respectively."[384] India's dramatically growing population offers the potential for either a decline in its overall standard of living, if it fails to develop its manufacturing sector, or the promise of a more stable long-term economy, in which government spending on retirement, health care, and debt maintenance is supported by a growing working population. Because India's "dependency ratio—the proportion of children and old people to working-age adults—is one of the best in the world and will remain so for a generation," *The Economist* argues that "India's economy will benefit from this 'demographic dividend', which has powered many of Asia's economic miracles" and may begin to experience higher growth than China by as soon as 2013.[385]

In an effort to provide the foundation for long-term economic growth to support its expanding population, India's "government is targeting a doubling of infrastructure spending. It plans to spend $1 trillion between 2012 and 2016, which could be a significant contributor to growth."[386] This massive investment should help India overcome the obstacles to reaching its full economic potential presented by its underdeveloped infrastructure. As observed by the Schwab Center for Financial Research, India's infrastructure is "in desperate need of repair and upgrade. According to the Indian highways minister, 40% of what farmers produce will spoil before it gets to market, because of factors such as bad roads, lack of warehousing and a shortage of cold storage. The nation produces less electricity than it needs, resulting in frequent

power outages, and the usage of generators is prevalent. According to the Indian government, the average turnaround time to unload and reload a ship's cargo is 3.8 days at India's major ports, versus 10 hours in Hong Kong."[387]

While India's planned infrastructure investment should help create jobs for its growing workforce, in addition to improving the country's long-term economic productivity, in order to do so, India will need to begin confronting one of its biggest challenges to continued economic development: its overly bureaucratic and inefficient government and the widespread official corruption that pervades all levels of its government and economic activity. As noted by the Schwab Center for Financial Research, "India's bureaucratic and protectionist government is a significant hurdle to growth. The list of concerns includes red tape, overbearing and ever-changing regulations, lack of coordination among government agencies, restrictive and complex labor laws, and lack of accountability."[388] Bribery and an ineffective judicial system also constitute serious impediments to India's continued economic development.[389]

Although India has a "relatively strong anti-corruption legal framework,…[c]itizens face obstacles in accessing the anti-corruption agency for support," and anti-corruption laws are weakly enforced.[390] Moreover, the tremendous backlog of cases in the Indian judicial system that inhibits enforcement of India's anticorruption laws also detracts from India's economic competitiveness more generally, by undermining business certainty in property and other legal rights. As reported in *The Times of India*, there are currently over 31 million pending cases being considered by a total of 14,576 judges in Indian courts.[391] Based on an average workload of 2,147 cases per judge, Indian High Court Justice VV Rao in March 2010 estimated that it would take 320 years to clear the existing backlog of cases.[392] The widespread perception of an ineffective judicial system, combined with poorly paid judges, "prompts people to pay to speed up the process…. The degree of delays and corruption has led to cynicism about the justice system. People seek shortcuts through bribery and favors, leading to further unlawful behavior."[393]

According to the *New York Times*, "[c]orruption in its many forms costs India an estimated $170 billion annually…[, and i]f India were to improve on world corruption scales to, say, the level of the United States, per capita incomes would rise to $25,000 in purchasing power parity, from $3,800…."[394] These statistics speak for themselves in showing both the enormous challenge, and huge potential, for India in combating corruption.

Brazil

Amid weak recoveries in the United States and Europe, Brazil represents another bright spot in the global economy. As reported in August 2010 by the IMF, "Brazil has recovered from the global crisis sooner and faster than most other economies, and has already registered a full year of strong growth…reflecting brisk growth in domestic investment, resilient consumption, and stronger-than-expected demand for commodity exports."[395] Amid these strong fundamentals, Brazil experienced growth of 7.5 percent in 2010,[396] and the country's central bank predicts its economy will grow at a rate of 7.3 percent in 2011.[397] Brazil's extraordinary recent growth has already made it the world's ninth-largest economy, measured on a purchasing power parity basis, with GDP of $2.025 trillion.[398]

Brazil's economy has benefited from its wealth of natural resources and land, which has made the country "a leading exporter of iron ore, steel, coffee, soybeans, sugar and beef, [with] the largest farmable area in the world."[399] In fact, according to *The Economist*, "Brazil is now the world's biggest exporter not only of coffee, sugar, orange juice and tobacco but

also of ethanol, beef and chicken, and the second-biggest source of soya products."[400] In light of this, it is perhaps somewhat surprising that agriculture plays a relatively small role in the country's economic activity, accounting for only 6.1 percent of GDP, compared to 25.4 percent for industry and 68.5 percent for services.[401] In comparison, agriculture accounts for 10.6 percent of China's GDP and 17 percent of India's GDP.[402] Brazil's wealth in natural resources also extends to oil, with it being "one of only a few countries that are self-sufficient in oil, and recent offshore discoveries have the potential to double Brazil's output in the coming years."[403]

Brazil also boasts the sixth-largest labor force in the world, at 101.7 million.[404] Moreover, in contrast to China and developed western economies, "its population of more than 190 million is relatively young, creating a workforce that can help drive the nation's growth.... Brazil ranked second only to India in the ratio of working population to retired population in 2009."[405] As a result, Brazil will not face the challenges posed by shrinking domestic demand and the need to support increased social spending with a smaller workforce that will confront China and the developed world in the medium term. This young, large working population means that, like India's economy, "Brazil's economy is driven by consumer spending, which accounts for 62% of gross domestic product...."[406] In contrast to the United States, recovery in Brazil's consumer-driven economy has been supported by "a low unemployment rate of 7%—the lowest on record since data began in 2001—as well as continued improvement in wages."[407] This continues a recent trend in which "household incomes have doubled over the past decade...[and i]ncomes are expected to continue to rise, creating a growing middle class with the ability to spend on discretionary items."[408]

Brazil's strong economic growth, relatively young and increasingly wealthy population, and abundance of natural resources allowed it to weather the 2008 crisis without resorting to the levels of deficit spending conducted by developed economies. While the country ran a nominal deficit of 2.3 percent in 2010, it had a primary surplus before interest costs in both 2009 and 2010, and is targeting reduction of its nominal deficit in 2011.[409]

Moreover, in contrast to other countries, where weakened banks have limited the possibility for economic recovery, "[t]he Brazilian financial sector is supporting the economic expansion. During the crisis, as the supply of new credit from private banks to the economy fell significantly, the expansion of credit by public banks played a critical role in preventing a potentially large output loss. Banking sector vulnerability indicators have improved in recent months."[410] Amid this background, the IMF noted that "the financial system has provided a strong pillar supporting the economic expansion and supported the plans to reverse emergency liquidity measures."[411]

Despite the recent increase in credit, Brazil has made significant progress in combating inflation—historically one of its greatest challenges. As observed by the Schwab Center for Financial Research, "[j]ust 15 years ago, inflation stood at an astounding 1,000%. Today, the country has an inflation rate of 5%, as well as lower government debt and a more stable political system.... Brazil is now rated investment-grade by all three major credit rating agencies."[412] Brazil's vigilance in fighting inflation has continued notwithstanding the global recession, as "authorities have taken steps to contain inflationary pressures. In recent months, the central bank has raised the policy rate by a total of 200 basis points, to 10.75 percent."[413]

Notwithstanding these strong fundamentals, Brazil's economy faces several challenges. First, although the economy is predominantly consumer-driven, "China is Brazil's top export market. As a result, Brazil could be impacted by any slowing of growth in China."[414] Second, like India, Brazil needs to increase investment in its infrastructure to improve economic

productivity. As noted by the Schwab Center for Financial Research, "Brazil suffers from congested highways, airports and seaports…. Roads are also in poor shape, with only 12% of them being paved, which means the cost to transport crops is often as much as three times as in the United States…."[415]

However, as in India, "the need for improved infrastructure could also become a source for growth. In July 2010, the government announced a program to invest $3 billion in airports and $400 million in seaports."[416] In addition, business in Brazil suffers from a high regulatory burden, with restrictive employment rules that contribute to labor inflexibility, and "high taxes and social security contributions to keep workers on payrolls."[417] This has resulted in an enormous black market economy, estimated by the World Bank to comprise an astounding 40 percent of Brazilian GDP, and which the Schwab Center for Financial Research believes accounts for "nearly fifty percent of all urban jobs."[418]

A further concern is tied to Brazil's growing strength as a commodities producer. As noted by *The Economist*, "relying on raw materials carries a series of risks. One is volatility: their prices are more variable than those of manufactures. Second, many economists worry about 'Dutch disease', [which] involves commodity exports driving up the value of a currency, making other parts of the economy less competitive, leading to a current-account deficit and even greater dependence on commodities."[419] In the light of significant recent commodity price inflation, government measures to counteract currency appreciation and the country's growing current account deficit should be a priority to ensure Brazil's continued economic success. As noted in a recent Deutsche Bank analysis, Brazil's "widening current account deficit has…made Brazil more sensitive to a precipitous decline in commodity prices…. If it were not for a further projected rise in commodity prices, Brazil would be registering a trade deficit this year for the first time in a decade on the back of an appreciated exchange rate and burgeoning domestic demand. [Furthermore, t]he value of non-manufacturing exports as a share of total exports has risen to 60% against 40% a decade ago."[420]

Finally, although Brazil has recently made enormous progress in growing its middle class, it still suffers from a highly unequal distribution of wealth, which has contributed to a continuing high rate of crime.[421] Widely reported kidnappings of business executives and other incidents of violent crime have the potential to deter business investment and slow Brazil's enviable economic growth.

Russia

While Russia is the seventh-largest economy on a purchasing power parity basis, with $2.12 trillion in GDP, it "was hit harder than any other G20 economy by the financial crisis,"[422] and its economy is experiencing the weakest recovery of the significant emerging economies, due in part to certain critical differences from them.[423]

The IMF observed in August 2010 that, "[f]ollowing a deep recession, the Russian economy has improved, but the recovery remains fragile."[424] In 2010 Russia experienced 3.8 percent GDP growth, recovering from an economic contraction of 7.9 percent in 2009.[425] Primarily as a result of "a recent 45 percent cumulative increase in pensions and other policy support," the IMF believes Russia is likely to experience a consumption-driven "moderate recovery."[426] While recovery in Russia has suffered in part because its "banking system is still under strain and credit is likely to recover only gradually…amid weak demand for credit and the continuing efforts by banks to restructure their balance sheets,"[427] Russia's natural-resource-oriented economy will benefit in 2011 from the recent surge in commodity prices.

Official figures make Russia's economy appear to be well developed and diversified, with agriculture accounting for only 4.7 percent of Russian GDP, and industry and services, respectively, comprising almost 32 percent and 58 percent of economic activity.[428] However, according to the *CIA World Fact Book*, the Russian economy is in many ways less developed than those of Brazil, China, or India, as "Russian industry is primarily split between globally-competitive commodity producers—in 2009 Russia was the world's largest exporter of natural gas, the second largest exporter of oil, and the third largest exporter of steel and primary aluminum—and other less competitive heavy industries that remain dependent on the Russian domestic market."[429]

As one would expect, Russia's "reliance on commodity exports makes Russia vulnerable to boom and bust cycles that follow the highly volatile swings in global commodity prices. The government since 2007 has embarked on an ambitious program to reduce this dependency and build up the country's high technology sectors, but with few results so far."[430] With an economy significantly more dependent on commodities than Brazil's, Russia faces an even greater risk of its manufacturing sector becoming uncompetitive due to commodity price inflation in 2011 through currency appreciation as a result of Dutch disease. Finding ways to successfully invest the proceeds of its commodities sales in development of a more competitive industrial sector is one of the key challenges Russia faces.

However, Russia's ability to succeed in developing a competitive industrial economy is undermined by its other principal challenge: strengthening the rule of law and reducing endemic corruption. In addition to the widespread bribery that affects other emerging markets,[431] Russia's economy has suffered from numerous high-profile cases of asset expropriation and politically motivated imprisonment of corporate executives since Vladimir Putin's ascent to power in 2000.[432] As observed by *The Economist*, the Russian government and economy under Putin has evolved into an autocratic oligarchy, marked by "hostage-taking, corporate raids by state agencies, rent-seeking and corruption."[433]

This lack of respect for basic civil and human rights or property rights for businesses that lack strong connections to the ruling class has created an atmosphere of unpredictability that undermines business confidence. Although "President Medvedev has declared corruption to be a key threat to Russian modernization and social stability,"[434] and has presided over the adoption of numerous anticorruption laws,[435] his anticorruption efforts appear to be limited to simply giving the appearance of addressing the issue in a coordinated act with Prime Minister Putin in which "[e]ach plays his part. Mr Medvedev is the good cop who talks up modernization, meets human-rights groups and negotiates nuclear-arms treaties with [President] Barack Obama. Mr Putin, the bad cop, runs Russia and distributes the money."[436]

As noted by Transparency International, "'The severity of Russian laws is balanced by the fact that *their enforcement is optional*' (emphasis added). Whether the country is genuinely committed to a sustained attack on corruption will be seen only if it becomes clear that enforcement and implementation are rigorous."[437] Thus, while Russia has recently taken official measures designed to limit corruption, it appears unlikely that they will result in significant change because, as *The Economist* notes, "[u]nder Mr Putin the political system is held together by the collective interest of those who divide up rents, combined with occasional repression."[438]

Russia thus appears to be following the path of certain resource-rich African, Middle Eastern, and Central Asian states. In this model, an autocratic regime is supported by a combination of political oppression and a corrupt sharing of commodities-based wealth among the ruling elite and favored business. However, because such a system depends on continued extraction of wealth from the country's natural resources, there are inherent limits on its

stability. As observed by *The Economist*, "[i]f the oil price stays flat or falls, that formula may keep working only if the repression is stepped up. Even that could be problematic: an epidemic of confessions on the internet by disgruntled and badly paid Russian policemen, plus a wave of police violence, point to a corrupt and uncontrollable force."[439] In light of these challenges, it is difficult to maintain a positive outlook for sustained economic growth in Russia.

VI. U.S. Outlook

As indicated by the earlier discussion, economic recovery in the United States faces a number of significant and vexing challenges. Although the IMF believes that "[t]he outlook [for the U.S. economy] has improved in tandem with the recovery," it cautions that "remaining household and financial balance sheet weaknesses—along with elevated unemployment—are likely to continue to restrain private spending."[440] As noted by the *Financial Times*, a "self sustaining recovery needs a steady rise in jobs, wages and profits that will allow a steady rise in consumption and investment, feeding back into jobs, wages and profits."[441] But as we have seen, U.S. employment growth, while increasingly positive, has not yet reached the point where this can occur.

Thus, it appears that the U.S. economy is likely to remain stuck for the foreseeable future in a situation that PIMCO's Mohamed El-Erian calls the "New Normal," characterized by slow growth, high unemployment, and above-average volatility.[442] These characteristics are in large part a byproduct of the significant deleveraging occurring at various levels of the private sector, which tends to reduce demand as cash is removed from the economy, and the government's imposition of stricter regulation in response to the 2008 crisis.

A number of observers have pointed out that deleveraging cycles, particularly those that follow financial crises, typically take several years to complete and continue to affect employment and economic growth for a significant period of time.[443] For example, in a January 2010 analysis conducted by McKinsey, the authors found that following a financial crisis, governments have historically effected deleveraging through one or more of four techniques: "belt-tightening" (or austerity), "high inflation," "massive default" (or debt restructuring), and "growing out of debt."[444] Although the economic implications of the different archetypes vary considerably, the duration of the deleveraging experience was found to be a nearly identical—six to seven years regardless of approach.[445]

This is consistent with conclusions reached by PIMCO in its separate analysis: "If history is any guide, the process of de-levering, re-regulation, and de-globalization following a period of significant economic imbalances will take about seven years to complete from the point of

recognition. Depending on your point of view, we are in year two or three."[446] The chart included in Exhibit 56, based on McKinsey's January 2010 study, shows that the United States and other developed world economies remain in the early phase of deleveraging, with little progress having been made to date in reducing aggregate government and private sector indebtedness.

There is also widespread consensus about the implications for deleveraging on the U.S. economy. PIMCO observes that, during the deleveraging period, "U.S. economic growth will be painfully slow and probably more volatile than many expect."[447] An IMF study completed in October 2010 supports these conclusions, observing that in advanced economies, "[f]iscal consolidation typically has a contractionary effect on output. A fiscal consolidation equal to 1 percent of GDP typically reduces GDP by about 0.5 percent within two years and raises the unemployment rate by about 0.3 percentage point[s]. Domestic demand—consumption and investment—falls by about 1 percent."[448] McKinsey similarly found that a "sharp reduction in credit growth has been associated with declining real GDP in the first two to three years of deleveraging. Interestingly, we find that deleveraging typically begins about two years after the start of a financial crisis and economic recession…. In every episode we examined, GDP growth declined in the early years of the process but then rebounded strongly and grew for the next four to five years while deleveraging continued. In the belt-tightening episodes, credit growth also resumed in the later years, although more slowly than GDP, allowing for further deleveraging."[449]

During the extended and intermittent recovery from the Great Depression, the U.S. economy in fact experienced three distinct phases of deleveraging, as policy makers confronted the unprecedented economic downturn with a broad and evolving array of measures.[450] The United States' fitful emergence from the Great Depression, and the negative effects short-term austerity measures have had on the recoveries in Ireland and Spain, demonstrate the risks facing the United States as it determines how to address the next stage of the crisis.

Notwithstanding continued high unemployment and slow economic growth in the United States, in recent months Congress and a growing number of commentators, alarmed by the dramatic increase in government debt since the onset of the crisis, have shifted their focus from measures to stimulate the economy to calls for greater U.S. government fiscal discipline. Despite continued low U.S. core inflation[451] and consistently high demand for,[452] and historically low interest rates on, U.S. Treasury securities, the situation in Europe demonstrates that market favor for sovereign borrowers can shift quickly, and observers correctly point out that the long-term U.S. fiscal outlook is grim. Continued demand for deficit spending on immediate priorities such as extension of unemployment benefits, extension of the Bush-era tax cuts, and funding large military operations in Afghanistan and Iraq, combined with the nearly 10 percent official unemployment rate, means that the federal government's on-balance-sheet indebtedness is continuing to grow.

Furthermore, in the medium to long term, the United States faces the prospect of a significant increase in indebtedness due to the impending retirement of the baby-boomer generation, which will dramatically increase demand for government retirement and health benefits, thereby bringing a significant amount of currently off-balance-sheet government debt onto the federal balance sheet, while at the same time reducing productive economic activity, consumption, and the tax base.[453]

In this context, former Federal Reserve Chairman Alan Greenspan argues that the United States is reaching the limit of national debt that the market will bear.[454] Notwithstanding the critical role his support played in their adoption, Greenspan's call for greater fiscal discipline

even extends to calling for the Bush tax cuts to lapse in order to reduce the deficit.[455] However, certain Wall Street observers disagree with Greenspan's belief that demand for U.S. debt is likely to suffer absent immediate efforts to reduce the deficit: "Treasury investors would accept more stimulus without driving yields higher 'if there's a credible longer-term plan to cut the deficit,' said Christopher Bury, co-head of fixed-income rates in New York at Jeffries & Co."[456]

Moreover, while the IMF also believes greater U.S. fiscal discipline is necessary, unlike some commentators calling for immediate deficit reduction, it acknowledges the importance of balancing medium-term debt reduction with short-term support for the economic recovery.[457] As it noted in a June 2010 report on the U.S. economy, "[o]n the macroeconomic side, the central challenge is to develop a credible fiscal strategy to ensure that public debt is put—and is seen to be put—on a sustainable path without putting the recovery in jeopardy."[458] In July 2010 testimony, Fed Chairman Bernanke adopted a similarly balanced view, warning of the long-term unsustainability of U.S. indebtedness, while also noting that, "This very moment is not the time to radically reduce our spending or raise our taxes, because the economy is still in a recovery mode and needs that support."[459]

The balanced calls by Bernanke and the IMF for medium-term fiscal discipline acknowledge both that the most significant fiscal challenge for the United States is long-term entitlement reform, not reduction of current spending, and that immediate restoration of U.S. fiscal balance would be counterproductive to continued economic recovery. Investor George Soros sounds a similarly cautious note, warning that "'[w]e have just entered Act II' of the [global financial] crisis, as Europe's fiscal woes worsen and governments are pressured to curb budget deficits [in developments] that may push the global economy back into recession."[460] According to Bloomberg, Soros views the "current situation in the world economy [as] 'eerily' reminiscent of the 1930s with governments under pressure to narrow their budget deficits at a time when the economic recovery is weak."[461] Faced with this threat, he strongly argues that the current economic situation calls for further government stimulus, not short-term fiscal tightening, and that immediate austerity measures would in fact be counterproductive.

In an October 2010 *Financial Times* article, Soros observed that "the simple truth is that the private sector does not [currently] employ available resources. Mr. Obama has in fact been very friendly to business, and corporations are operating profitably. But instead of investing, they are building up liquidity.... [I]n the meantime, investment and employment require fiscal stimulus (monetary stimulus, by contrast, would be more likely to stimulate corporations to devour each other than to hire workers)."[462]

Soros's argument that fiscal, rather than monetary, stimulus is more likely to be effective in boosting U.S. economic growth is supported by the IMF[463] and recent U.S. experience, in which growth in individual borrowing and refinancing activity seems to have reached a peak, probably due to the inability of overleveraged borrowers, with little or negative home equity, to obtain further credit or to refinance their mortgages.[464] Economists such as Paul Krugman share Soros's concern about the dangers of imposing short-term austerity amid significant unemployment and a weakening economy recovery.[465]

This is not to say that the U.S. can ignore its deficit and growing public debt. Analysis by the CBO shows that, unless it is soon addressed, the federal deficit and debt are projected to explode during the next 20 years.[466] Moreover, assuming that federal revenues remain at levels near the historical average, rapid entitlement growth means little room is projected to remain for nonmandatory spending in as little as 15 years.[467] The unsustainability of projected entitlement spending trends is illustrated dramatically in Exhibit 58, which shows that government

revenues must increase significantly from present levels (through economic growth, tax increases, or a combination of both), in order to avoid being completely consumed by spending on Social Security, Medicare, Medicaid, and interest by as soon as 2025.

Moreover, at the state and local level, serious strains have already emerged as governments struggle to meet growing obligations while facing significant declines in tax revenues.[468] Aggregate U.S. municipal indebtedness increased from $1.4 trillion in 2000 to approximately $2.8 trillion in 2010.[469] As a percentage of U.S. GDP, state and local borrowing has increased to a record high of approximately 22 percent in 2010 from 15 percent in 2000, and is projected to further increase to 24 percent by 2012.[470]

As municipalities became increasingly indebted and municipalities and their bond insurers lost taxpayer and investor confidence, in 2008 the U.S. federal government was forced to subsidize municipal debt issuance through its Build America Bonds program. In 2009, municipalities issued $58 billion in Build America Bonds, and in 2010 the program experienced a resurgence amid growing concerns about municipalities' solvency, with issuance of $3.98 billion in bonds in one week of June 2010 alone—the fourth-highest amount since the program's announcement.[471] In addition, until recently the federal government significantly supplemented state revenues through massive transfers, in an attempt to overcome plummeting state government tax receipts.[472]

State and local leverage problems have been further exacerbated by the recession and lingering high unemployment, as demand for government services such as unemployment insurance and health care increased, while tax revenues decreased. As noted by Fed Chairman Bernanke, "Medicaid spending is another source of pressure on state budgets. The recession and the weak job market have swelled the rolls of Medicaid participants."[473] Moreover, while federal government revenues were somewhat insulated from the effects of the recession, state and local revenues are generally more susceptible to recession-induced declines, due to their heavy reliance on sales and property taxes. As noted by Chairman Bernanke, state "[s]ales tax revenues have declined with household and business spending, and income tax revenues have been hit by drops in wages and salaries."[474]

Buffeted by these trends, California and Illinois are in desperate shape and other states face similar difficulties in the near term. California is struggling to address a $25.4 billion budget deficit and 12.3 percent unemployment, and, together with Illinois has the lowest credit rating of any state.[475] Although one might find some reason for optimism in California's case, given that its $1.8 trillion economy is one of the world's largest and home to growing, productive, dynamic industries such as media and technology, other states, such as Illinois, lack these advantages and seem to have little choice but significant increases in austerity.[476] This is merely a symptom, however, of a larger trend, with 46 states experiencing budget deficits of a combined total of $112 billion for fiscal year 2011.[477]

Moreover, as observed by Fed Chairman Bernanke, although "[e]stimates of states' unfunded pension liabilities span a wide range,…some researchers put the figure as high as $2 trillion at the end of last year."[478] Amid this bleak picture, it seems inevitable that "'[s]tates are going to have to cut back spending and raise taxes the same way Greece and Spain are,' [as noted by] Dean Baker, co-director of the Center for Economic and Policy Research…'That runs counter to stimulating the economy and will put a big damper on the recovery….'"[479] Moreover, the problems for states are almost certain to worsen in 2011, with the end in January 2011 of funding that supported states from the $787 billion federal stimulus package.[480]

The bleak state and local fiscal situation led Rick Bookstaber, a senior policy adviser to the SEC, to warn in June 2010 that the municipal bond market has the hallmarks of a crisis which could unfold with a "widespread cascade in defaults."[481] Unsurprisingly, the U.S. federal government, already a significant supporter of state and municipal governments, has faced increasing pressure to provide additional support to states and municipalities.[482] As reported in a September 2010 Bloomberg article, the "U.S. government will face pressure to bail out struggling states in the next 12 months, [according to] Meredith Whitney, the banking analyst who correctly predicted Citigroup, Inc.'s dividend cut in 2008. While saying a bailout might not be politically viable, Whitney joined investor Warren Buffett in raising alarm bells about the potential for widespread defaults in the $2.8 trillion municipal bond market."[483]

However, constrained by its own budgetary concerns, the Obama administration in July 2010 indicated that states cannot expect the federal government to provide further assistance: "States expecting Congress to authorize more assistance are 'going to be left with a very large hole to fill,' [according to] Erskine Bowles, co-chairman of the National Commission on Fiscal Responsibility and Reform."[484] Although this position was undermined somewhat by Congressional approval of further state aid in the summer of 2010,[485] ultimately states, just as the federal government, will need to find ways to reduce their budget deficits to avoid significant increases in the interest rates they pay on their debt.

However, increased state and local fiscal discipline is likely to have significant implications for U.S. unemployment (and thus, consumption and the economic recovery) because state and local government employees account for a large percentage of the American workforce. In March 2011, state and local governments in the U.S. employed approximately 19,715,000 full-time-equivalent employees, or approximately 14 percent of the U.S. workforce of active civilian employees.[486] In contrast, the federal government employs only 2,832,000 civilian employees.[487] Moreover, state and local government has become increasingly responsible for providing essential government functions, especially during the past 20 years.[488]

Faced with these pressures, one cannot rule out a dramatic increase in municipal bankruptcies. Although state governments are unable to seek bankruptcy relief, local governments, faced with increasingly unpalatable austerity choices, may find bankruptcy an appealing alternative. In fact, in municipalities where budget deficits stem from excessive debt or underfunded pension obligations, bankruptcy appears likely to offer a more attractive option to government officials than increasing taxes or reducing popular public services. Although there have been only 616 municipal bankruptcies (out of approximately 55,000 distinct issuers) since 1937, it is worth noting that 223 of those occurred in 2010.[489]

Harrisburg, San Diego, and other municipalities have publicly considered bankruptcy, and in a *Wall Street Journal* editorial, former Mayor Richard Riordan voiced his belief that, due to rising pension and postretirement health care costs, "Los Angeles is facing a terminal fiscal crisis: between now and 2014 the city will likely declare bankruptcy."[490] However, as observed by Fed Chairman Bernanke, for municipal pensions, bankruptcy is not necessarily an "easy solution: in particular, proposals that include modifications of benefits schedules must take into account that accrued pension benefits of state and local workers in many jurisdictions are accorded strong legal protection, including, in some states, constitutional protection."[491]

This has not, however, prevented some significant municipalities from beginning to flirt with bankruptcy. In addition to the steps taken by Harrisburg,[492] San Diego in 2010 commenced a formal process to begin consideration of bankruptcy by convening a grand jury, which concluded

that bankruptcy need not be a last resort for cities when it reported that, "[m]unicipalities are not required to raise taxes or cut costs to the bone before filing for reorganization."[493]

This observation by the San Diego Grand Jury highlights an interesting political aspect of the prospect of municipal bankruptcy: if a significant municipality declares bankruptcy without suffering serious adverse consequences, many others would appear likely to follow this path as a relatively easy way to rearrange their debts, reduce pension obligations (where permissible), or renegotiate union contracts without antagonizing taxpayers. Faced with the choice of alienating their constituents through tax increases or reductions in popular government services, it would seem local government officials will most likely be tempted to instead seek state or federal assistance, or force municipal creditors to bear the burdens of deleveraging.

In light of this prospect, it is worth considering the implications of a municipal bankruptcy wave. Municipal bankruptcies would be subject to Chapter 9 of the Bankruptcy Code rather than Chapter 7 or 11. This is noteworthy because under Chapter 9 of the Bankruptcy Code, specific revenue streams that were allocated to the repayment of specified municipal bonds may not be "clawed back" or included in the general municipal revenue pool for repayment of other municipal obligations. Another distinction is that unlike private companies, municipalities cannot be forced into involuntary bankruptcy. In fact, in certain states, municipalities lack the ability to themselves declare bankruptcy. State laws provide varying degrees of authority for municipalities to seek relief, with two states prohibiting municipal filings, 16 states specifically authorizing them, seven states providing "conditional" authorization (in certain cases requiring the municipality to seek state or other permission), and 22 states ambiguous on municipalities' authority.[494]

The economic and financial ramifications of a municipal bankruptcy wave would be enormous, particularly on financial institutions, which hold significant amounts of municipal debt, having purchased it in the belief that it constituted a "safe" asset with little credit risk. The high level of municipal bond ownership among U.S. financial institutions raises a distressing question akin to that confronted by European banks during the eurozone sovereign debt scare: are we facing a potential repeat of the vicious negative feedback loop of declining asset values and liquidity that sparked the 2008 credit crisis? In this case, the previously safe (and widely held) asset class suffering rapid and significant write-downs would be municipal bonds, rather than mortgage-backed securities.

The effects, however, would be the same: financial institutions would face escalating questions as to their creditworthiness as a result of declining asset values, and liquidity would quickly evaporate. In fact, the IMF recognized this risk in the sovereign debt context noting that the "transmission of sovereign risks to banking systems and feedback through the economy could undermine financial stability."[495] The risk, as in the depths of the 2008 crisis, is that another wave of fear overwhelms the market, driving correlations among asset classes to 1 as investors flee to safety amid concern about another collapse of the financial system and a double-dip recession. However, amid growing concerns about levels of U.S. government indebtedness, it is unclear what the market would consider a "safe" investment.

Moreover, if a municipal bankruptcy wave comes to pass, it is difficult to envision who would serve as the "lender of last resort" to municipalities and stressed financial institutions. With interest rates essentially at zero and increasing calls to wind down quantitative easing, the Federal Reserve has limited ammunition remaining. Furthermore, as a result of the massive fiscal response to the 2008 crisis, enormous looming entitlement obligations, and growing

public and Congressional pressure to reduce spending, the U.S. federal government appears to lack further resources of the magnitude that would be needed to stabilize municipalities and banks. Although the federal government has recently enjoyed an extended ability to fund deficit spending at historically low interest rates, further stimulus and government support on the levels seen in 2008 and 2009 would further exacerbate concerns about the level of U.S. indebtedness.

Even absent a need for further stimulus or support measures, the impending retirement of the baby-boomer generation raises serious questions about the long-term fiscal stability of the United States. As observed by Barclays Capital, the current low interest rate environment enjoyed by the United States "likely…represents a high-water mark, to be followed by an inexorable turn in the demographic tide. Over the next two decades, the boomer generation will age into retirement and run down their accumulated savings. An era of capital abundance will gradually turn into an era of capital scarcity. Government debt burdens will rise sharply, with the risk premium demanded for financing these debts increasing as private sector net savings flows dwindle. Given the broad international context for these trends, with similar developments afflicting almost all the world's major economies, the means by which the government debt burdens are eventually curtailed is unclear. As a result, government bond yields are likely to require a significant rise in risk premia to cover the eventuality of default, either outright or through inflation."[496]

These concerns about the challenges presented by the aging of the baby boomer generation are echoed by PIMCO: "the effects of a waning U.S. demographic are being ignored. Labor force participation is near a cyclical low, under-employment is near a cyclical high, the median duration of unemployment continues to increase, and the U.S. is falling behind in the race to attract the best and the brightest from around the world. The long-term health of the U.S. economy depends on an expanding tax base, and counter-acting waning demographics is critical to this goal."[497]

Taking a pessimistic view of this situation, Barclays believes that long-term yields on U.S. Treasuries are likely to double by 2020 to 10 percent, in part due to a tightening in demand for U.S. debt sparked by worldwide demographic trends: "The common assumption that future savings flows from the large developing economies will be a ready source of finance for the ageing advanced economies is most probably flawed. The projected trajectory for old age dependency ratios in countries like Brazil, China or Russia are as severe as in the US. It is highly implausible to believe that Africa, the Middle East and India will be capable of funding the rest of the world's growing population of retirees."[498]

Looking to history, pessimism seems warranted, as we may be returning to a situation that was not uncommon before World War II, when "***serial banking crises in the advanced economies were the norm***[, and the] world's financial centers, the United Kingdom, the United States and France [stood] out in this regard, with 12, 13, and 15 banking crisis episodes, respectively."[499] The increased strains on government finances resulting from the credit crisis and recession, and the possibility for further strains if banking weakness returns, have led some commentators to conclude that we are currently experiencing a temporary "lull" in a surprisingly frequent cycle of "***long periods where a high percentage of all countries are in a state of default or restructuring***.… ***Public debt follows a lengthy and repeated boom-bust cycle; the bust phase involves a markedly higher incidence of sovereign debt crises. Public sector borrowing surges as the crisis nears.*** [emphasis in original]"[500]

Given the challenging economic and U.S. fiscal situation and the competing pressures on policy makers, there is no simple, readily apparent, set of policy options. As observed by several commentators, FDR in 1938 faced a situation not unlike that confronting the Obama Administration today, confronted by competing pressures between those pressing for a return to budget discipline and those who believed additional deficit spending was needed to support the recovery.[501] In 1938, relying in part on an impression that economic recovery had taken hold, the government implemented "a poorly timed tightening of both monetary policy and fiscal policy[, which] caused a brief recession in 1938 and a small rise in the economy's debt-to-GDP level [before p]olicy makers quickly reversed course and the recovery resumed in 1939."[502]

Two principal lessons emerge from the government's experience in the 1930s: "[f]irst, government policy makers must be careful not to cut back on monetary or fiscal stimulus measures too soon, lest they snuff out a nascent recovery, as occurred in 1938. Second, the right government policies are also critical to maintaining public confidence so that deflation will not occur. If households and businesses think deflation is a real possibility, they will hold off on spending and investment, possibly causing deflation to take hold and economic activity to fall off, which causes debt-to-GDP ratios to soar. The policy mistakes that caused deflation in the early 1930's and a recession in 1938 prolonged the Depression and made the deleveraging process that much more painful."[503]

One important contrast with the situation in 1938 is that the country at that time was experiencing a stronger recovery.[504] It is also worth noting that the government debt-to-GDP ratio of 69 percent in 1938 was actually *higher* than the current debt-to-GDP ratio of approximately 64 percent.[505] As a result, contrary to conventional wisdom, the U.S. federal government should, at least in the short term, have some flexibility to stimulate the economy if necessary in response to any potential further economic slowdown. The trick, as observed by the IMF in its recent *World Economic Outlook*, will be to deploy any stimulus in combination with a credible effort to address the need for medium- and long-term deficit reduction.

The demographic implications of the aging baby-boomer population mean this will not be easy. However, as *The Economist* observes, addressing the country's debt is unlikely to get any easier in the future: "Rising government debt is a Ponzi scheme that requires an ever-growing population to assume the burden—unless some deus ex machine, such as a technological breakthrough, can boost growth.… Faced with the choice between punishing their populations with austerity programmes and letting down foreign creditors, countries may find it easier to disappoint the foreigners.… With luck, today's government deficits will be temporary, gradually disappearing as the private sector comes to the fore again. Countries recovered from even bigger government debt burdens after the second world war. But at that time the personal, industrial and financial sectors of the economy were much less indebted."[506]

A. Solutions, or, How Do You Deal with Debt?

As we saw earlier in this paper, the fundamental problem confronting us today is simply a variation of the problem that caused the credit crisis in 2008: how do you deal with excessive debt? In the first instance, although such measures will reduce short-term growth, to avoid a repeat of the 2008 credit crisis the United States must find ways to limit the incentives and opportunities of individuals and business to incur excessive debt. As observed by Geanakoplos, a "key externality that borrowers and lenders on both the mortgage and repo markets at the

high end of the leverage cycle do not recognize is that if leverage were curtailed, prices would rise less in the ebullient stage and fall much less in the crisis.... Limits to leverage in the good times in effect would provide insurance for investors in the bad times who we could imagine need to sell promises in order to start new building, but who are unable to buy the insurance directly because of the missing markets."[507]

While measures to limit future debt are critical for future economic stability, they do not help address the significant levels of debt already on government and private balance sheets. Whether in the private or public sector, once debt mounts, there are only three things you can do with it:

1. You can pay it off

2. You can default / seek to restructure it (or convert it to equity)

3. You can inflate it—which is what governments have done throughout the ages.

In the United States, given the enormous aggregate amount of debt relative to GDP, paying off combined state and federal obligations without inflation or restructuring seems extremely challenging, especially if you include the cost of off-balance-sheet obligations such as Social Security, Medicare, and Medicaid,[508] and the indebtedness of Fannie Mae and Freddie Mac. However, as observed by *Financial Times* columnist Tony Jackson, the problem for governments, is that "inflation only works if it is unexpected: that is, if governments can persuade lenders to accept interest rates lower than inflation subsequently turns out. That worked in the years after the second world war, and spectacularly in the 1970s. But now, surely, investors are wise to it."[509]

The risk, as pointed out by the CBO, is that although "an unexpected increase in inflation would let the government repay its debt in cheaper dollars for a short time, financial markets would not be fooled for long, and investors would demand higher interest rates going forward. If the government continued to print money to reduce the value of the debt, the policy would eventually lead to hyperinflation (as occurred in Germany in the 1920s, Hungary in the 1940s, Argentina in the 1980s, Yugoslavia in the 1990s, and Zimbabwe today). Such hyperinflation would severely reduce economic efficiency as people moved away from monetary transactions."[510]

Instead, it seems likely that certain government obligations will need to be "restructured" informally. Because they account for the large majority of current and future government spending,[511] government commitments with respect to Social Security, Medicare, and pension benefits are likely to be reduced through increases in the age at which people become eligible for such benefits, as well as reductions in the benefits for future retirees. Although nondefense discretionary spending comprises only 19 percent of current government spending,[512] in order to persuade voters to accept these entitlement changes, government officials are already facing significant pressure to reduce discretionary spending in the medium term. Tax increases also seem inevitable, and in fact have been put forward by some commentators as a way to both reduce the deficit and change economic incentives in ways that are likely to help the economy in the long term. For example, *The Economist* and PIMCO's Saumil Parikh recommend considering adoption of a federal value-added tax (VAT) as a means of reducing dependence on consumption and encouraging investment.[513] As Parikh explains, a VAT would

help the U.S. economy adjust from its current state, which "is dangerously out of balance between over-reliance on consumption and under-reliance on investment as a driver of growth. Consumption's share of gross domestic product has continued to rise even as employment has sagged, and investment has been ignored."[514]

Even assuming the federal government has the willpower to undertake the mammoth task of reforming entitlements, attention has only recently begun to focus on another significant elephant in the room: how to address Fannie Mae, Freddie Mac, and the federal government's role in housing finance. As noted by the *Wall Street Journal*, the "biggest single bill to taxpayers [from the 2008 crisis] will come not from a bank bailout, but from mortgage giants Fannie Mae and Freddie Mac."[515] Unlike other financial institutions rescued by the federal government's support, which in many cases "have paid back taxpayers with interest[,] Fannie and Freddie…burdened by huge mortgage portfolios, have taken $145 billion so far.… Alan Blinder of Princeton University and Mark Zandi of Moody's Analytics put the ultimate price for saving them at $305 billion."[516]

The cost of the rescue of Fannie and Freddie, however, is not reflected in the federal government's budget. As a result, the already staggeringly large official budget deficit is significantly higher when the government's support for Fannie and Freddie is included: "The Congressional Budget Office estimates that if the entities had been included in the 2009 federal budget, they would have added $291 bn to the deficit, pushing it up by 20 percent."[517]

Moreover, in addition to the costs associated with the Fannie / Freddie bailout, there remains the vexing challenge of how to address the government's role in private U.S. residential mortgage finance. Even prior to the bailout, the prime mortgage financing market depended on the critical role played by Fannie and Freddie purchases and securitization of prime mortgage loans, which was in turn supported by the federal government's implicit guarantee and its consent to the GSEs' enormous leverage ratios of nearly 70 to 1.[518] As with other overleveraged financial institutions, in 2008 the GSEs lost liquidity and faced insolvency as asset prices dropped. Unlike other financial institutions rescued by the U.S. government, which in most cases have stabilized since 2008 and have been able to begin to repay government support, the GSEs in 2008 played (and continue to play) an integral and preeminent role in U.S. housing finance. Because a collapse of Fannie and Freddie in 2008 would have threatened the entire system of U.S. housing finance with collapse,[519] the federal government "nationalized the mortgage market and hasn't found a way out. So taxpayers keep pumping money into Fannie and Freddie at a rate of greater than $1 billion a week."[520]

As a result of the GSEs' continued centrality to the U.S. residential real estate market, the *Wall Street Journal* has correctly observed that the "mortgage-finance debate will be highly contentious because it requires a re-examination of just how much the U.S. government should subsidize homeownership."[521] Confronting this issue will force the government to consider politically charged questions such as which socioeconomic segments of the population should be able to purchase homes and what form of mortgage finance best promotes the stability of the U.S. (and international) financial system and the U.S. economy. It will entail confronting hard truths, such as the observation bluntly made by PIMCO's Bill Gross that "'America has been overhoused.'"[522] Fundamentally, as noted by the *Wall Street Journal*, "At the heart of the debate is whether the U.S. should continue to promote a low-cost, 30 year, fixed rate mortgage, which often requires some type of government guarantee to make investors willing to buy mortgage-backed securities."[523]

Although 30-year fixed-rate residential mortgages have been the conventional means of housing finance in the United States for almost 80 years, this was not always the case, and does not hold true in all countries outside the United States.[524] As reported by the *Financial Times*, "in the 1930s, the average [U.S.] home loan was of short duration, typically three to five years; required a large deposit; and carried high interest rates, putting it out of reach of most."[525] While the GSEs are today widely criticized for contributing to the debt-fuelled housing bubble that led to the 2008 financial crisis, it is also worth remembering that, in the 1930s, it was "government agencies [that] developed long-term loans, later followed by fixed rates, lending stability to the market and making mortgages more widely available."[526]

The widespread availability of the 30-year fixed-rate mortgage has contributed in part to U.S. homeownership levels of approximately 67 percent today, higher than the wealthy industrial country average of approximately 60 percent and a significant increase over the approximately 45 percent homeownership rate prior to Fannie's formation in 1938.[527] While other factors also contributed to this increase, in part it occurred because the 30-year fixed-rate mortgage provides undeniably useful benefits to homeowners, such as making monthly payments more affordable and offering protection against interest rate shifts. However, those very benefits make it a troublesome private investment. Indeed, the possibility of borrower prepayment and insulation against increases in inflation and interest rates over a long period of time make it difficult to imagine a vibrant private market in conventional residential mortgages arising without some level of government support.

For example, at the recent GSE summit PIMCO's Bill Gross asserted that "loan rates would be 'hundreds of basis points higher, creating a moribund housing market for years' without government-guaranteed bonds, and that he wouldn't buy securities without such backing unless they contained loans with 30 percent down payments."[528] Thus, while the Obama administration has called for a "process of weaning the markets away from government programs [to] make room for the private sector to get back into the business of providing mortgages,"[529] Treasury Secretary Geithner's remarks at an August 2010 conference on the GSEs "offered the clearest indication yet that the administration's working plans to reinvent mortgage giants Fannie Mae and Freddie Mac—and the entire mortgage-finance system—will almost certainly include some role for government."[530]

In addition to the difficulties in addressing the government's role in the housing market, the enormous capital shortfall of the GSEs significantly complicates efforts to find a solution. As observed by the *Financial Times*, "if the GSEs are privatised, they will be forced to recapitalise.... Given that the GSEs have a combined balance sheet of $5,000 bn, they would need to raise some $250 bn" to have capital levels comparable to private lenders, which under *Dodd-Frank* will be required to have "skin in the game" of 5 percent retained credit risk with respect to mortgages they securitize.[531] Although the Obama Administration in August 2010 convened a multidisciplinary summit on the issue,[532] and has indicated that it will present a detailed proposal to address the GSEs,[533] there is no easy solution to the government's ownership of Fannie and Freddie, or the more fundamental question of their (and the government's) role in U.S. housing finance. As noted by the *Wall Street Journal*, "Fannie and Freddie,...together with the Federal Housing Administration are backstopping nine out of every 10 new [residential mortgage] loans."[534]

The difficulty in extracting the U.S. government from such a dominant role in residential mortgage finance is compounded by the enormous amount of outstanding GSE debt, which is widely held by institutions and foreign governments. This complication was highlighted in

comments in August 2010 by PIMCO executive Bill Gross, "whose firm is among the biggest holders of U.S.-backed mortgage debt[, that]…the U.S. should consider 'full nationalization' of the mortgage-finance system."[535] While PIMCO's position "is at odds with industry and government officials who have urged a smaller federal role,"[536] it reflects the difficult nature of the government's ultimate decision: whether to pursue a more fundamental reform of the housing market that would adversely affect existing bondholders. Given this tension, and the size and importance of the GSE bond markets, although "administration officials have said the previous ownership model for Fannie and Freddie should be discarded[, and have thus]… promised to deliver 'fundamental change,' officials are likely to proceed slowly—focusing as much attention on any transition as they do on the final destination—to avoid rattling the $5 trillion bond market for government-backed mortgages."[537]

Moreover, the size of the GSE bond market and the identities of its largest investors mean that the implications of addressing Fannie and Freddie are not simply limited to its effect on U.S. housing finance. Rather, as noted by the *Financial Times* "a mishandling of the problem would have implications not just for U.S. homeowners, who could face scarcer financing, but also investors the world over, including the Chinese, Japanese and other governments and central banks[, because f]oreign investors own about one-third of Fannie's and Freddie's noncallable notes."[538]

In fact, some market observers believe this dynamic explains the unconventional 2008 "conservatorship" of Fannie and Freddie, in which existing creditors were made whole regardless of the GSEs' insolvency: "The political importance of these institutions created a new world, one in which a bond's performance is determined by the reputation of its holders.… Russia and China were among the largest holders of Fannie and Freddie bonds [in 2008.] Recall in 2008 that Russian tanks were rolling into Georgia, while the U.S. was utterly dependent on China to purchase its debt. So, unusually, the identity of the holders, not the condition of the issuer, determined the bond's fate."[539]

The concept that powerful bondholders can have a greater influence on the result of a restructuring than the issuer's financial condition has important implications for sovereign issuers struggling with their debts. As noted by the *Financial Times*, "the same pattern was seen in Greece, where a rescue came because the debt holders were vulnerable European banks. More typical sovereign debt restructures, as seen in Brazil and Mexico in the 1980s, followed different rules."[540] Because any resolution of Fannie and Freddie will need to address not only the fundamental question of how housing in the United States is financed, but also account for the risks any reform will present to such an enormous, critical market, it is difficult to see how government will find the resolve to address them in a way that allows the United States to limit its role in housing finance while reducing the likelihood of future real estate bubbles.

Resolving the issues presented by Fannie and Freddie takes on additional urgency when considered in light of the potential future strain on the federal budget resulting from the needs of state and local governments and the significant increase in entitlement spending expected from the impending retirement of the baby boomers. Continued funding of the GSEs has the potential to divert federal resources from these other critical priorities amid growing concern over mounting deficits. Given the slow economic recovery, the limited resources the federal government has to respond to a potential municipal crisis, and the need to address growing entitlement demands and the significant amount of federal, state, and local debt, a multifaceted approach is required that includes a combination of short-term, medium-term, and long-term initiatives.

In the short term, government should focus on measures likely to stimulate robust, sustainable consumption-driven economic and business growth, which will reduce demand on government services by generating jobs that would also allow federal, state, and local governments to collect higher tax revenues. At the same time, in order to avoid raising creditworthiness concerns that could stunt future growth through long-term increases in government borrowing rates, the federal government needs to develop a credible medium-to-long-term plan to address the federal debt, including off-balance-sheet obligations such as Social Security, Medicare, and the obligations of Fannie and Freddie. Ultimately, to promote a more stable U.S. economy, the government should implement long-term policies designed to promote better education and training, make the economy less dependent on consumption, and encourage greater exports and higher levels of savings and investment.

Given the negative immediate effect on the economy of austerity measures demonstrated by experiences in Ireland and Spain, economic growth appears to be a better way to balance government budgets than short-term cost cutting, though some degree of both will be needed to restore confidence in sovereign creditworthiness. As noted by PIMCO CEO Mohamed El-Erian, "As a general rule, industrial countries need to adopt both fiscal adjustment and higher medium-term growth as twin policy goals. The balance between the two will vary. Some, like Greece, need immediate fiscal retrenchment. Others, like Germany, the U.S. and Japan, have more room to maneuver. But no one should pursue just one of these objectives."[541]

In addition, El-Erian argues that support for the unemployed, especially in the form of retraining and other efforts to improve labor flexibility, must play a critical role in the effort to restore economic competitiveness: "Squaring the circle of growth and fiscal stability needs policies that focus on long-term productivity gains and immediate help for those left behind. This means first enhancing human capital, including retraining parts of the labor force, and increasing labor mobility."[542]

Because history shows that most job growth in the United States tends to be generated by small business, government's efforts should focus on ways to promote small business growth and success. As noted by the Small Business Administration, "[s]mall businesses—particularly newer ones in the first two years of operation—provide much of the net new job growth in our economy. Between 2004 and 2005, nearly 83 percent of all the net new jobs in our economy stemmed from businesses with fewer than 20 employees…."[543] Moreover, small business growth is also more likely to have an outsized impact on U.S. domestic consumption, because large U.S. businesses frequently have a bias toward hiring cheaper non-U.S. labor. Moreover, their ability to take advantage of integrated global supply and shipping chains, and the frequent pressures on public companies to rein in costs, mean that large businesses have both greater opportunities and motives to take advantage of cheaper labor costs by hiring outside of the United States. Growing small businesses, however, are less likely to have the same pressures or opportunities, and are thus more likely to hire within the United States, thereby stimulating U.S. consumption.

Possibilities to encourage small business growth include incentives to encourage banks to lend to small businesses; restructuring of taxes to encourage investment and hiring by small businesses; a review of regulatory obstacles to small business growth, with an eye to reducing them; and potentially exports to developing countries. Additional measures to support small business were included in the *Small Business Jobs Act* signed by President Obama in September 2010. In addition to tax breaks targeted to small business, these included various measures

to increase small business credit, including the creation of a new $30 billion program that attempts to address the conflicting pressures facing U.S. banks that have hindered small business lending. It does so by providing incentives to banks with less than $10 billion in capital to lend to small businesses through government capital contributions whose repayment terms are eased based on the amount of small business lending undertaken.[544]

However, as noted by the NFIB Research Foundation, ultimately small business growth in the United States would be influenced most by policies to facilitate recovery of the housing and employment markets.[545] Such measures would encourage recovery of the construction industry, facilitate additional small business lending by helping real property values recovery, and promote additional consumption. Thus, while small business has certain unique needs, ultimately the policies most needed to promote economic growth in general in the United States are also the policies needed to encourage small business growth.

Exports to developing countries would at first blush seem to be another promising area for U.S. economic growth by businesses of all sizes, given that the economic recovery in developing countries has been stronger,[546] and due to lower levels of emerging market government and private indebtedness.[547] Developing countries also offer better opportunities for infrastructure investment and increased consumer demand over the developed world. As noted by a July 2010 IMF report, the "[k]ey emerging economies in Asia…and in Latin America continue to lead the recovery."[548] However, any efforts to encourage an export-driven recovery face three significant obstacles.

First, throughout much of 2010, the dollar strengthened as a result of the "flight to quality" discussed earlier, making U.S. exports more expensive. While this trend stopped abruptly in May 2010, and has been followed by a significant decline in the value of the dollar, recent bouts of competitive currency devaluations have made it difficult to predict the relative future cost of U.S. exports.[549]

Second, in China this problem has historically been compounded by a significantly undervalued yuan (although, as observed by *The Economist*, recent pressures toward higher wages hold the promise of future increases in Chinese consumption).[550] While recent appreciation of the yuan has helped in this area, it is unclear whether the Chinese government will allow revaluation to continue if faced with a potential slowdown in the export-driven growth it has depended on to lift its population out of poverty.

Third, and most important, relative to domestic demand, exports represent a relatively small portion of U.S. economic activity. Although the U.S. Commerce Department "estimated that American exports accounted for 7 percent of employment and one in three manufacturing jobs in 2008,"[551] total exports in 2008, 2009, and 2010 were, respectively, approximately $1.84 trillion, $1.57 trillion, and $1.83 trillion.[552] In contrast, U.S. GDP as a whole is approximately $14.6 trillion.[553] Thus, while recent gains in manufacturing and exports are welcome, increased exports can only contribute marginally to economic recovery in the United States, and improved domestic demand must be the driving force of any sustained recovery given its outsized share in GDP, at least until longer-term efforts to increase the role of investment and exports in the economy take hold.

Several potential approaches to stimulate immediate and longer-term domestic demand and growth were suggested in July 2010 by former Fed Vice Chairman Alan Blinder and Moody's Analytics Chief Economist Mark Zandi, who have evaluated the "bang for buck" obtained through various stimulus measures undertaken by the Bush and Obama Administrations.[554]

They found that the most effective measures in generating GDP growth tended to be measures supporting consumption by lower-income persons and the unemployed, such as increasing food stamps, payroll tax holidays, and financing work-share programs.[555] Given that lower-income persons and the unemployed are more likely to spend any funds they receive than those with higher savings, this result seems intuitive. Because they focus on promoting immediate consumption, however, these measures do not offer a long-term solution to the nation's employment crisis or long-term growth.

In this regard, it is promising that Blinder and Zandi also found that infrastructure spending, which has the potential for longer-term economic benefits, delivered a comparatively strong "bang for the buck." More effective support for infrastructure spending would also be encouraged by creating a permanent national infrastructure bank, an idea proposed in 2010 by President Obama and former Lazard banker Felix Rohatyn.[556] As observed by Rohatyn, the advantage of such a bank is that it "could begin to reverse federal policies that treat infrastructure as a way to give states and localities resources for projects that meet local political objectives rather than national economic ones."[557]

In evaluating the longer-term prospects of the U.S. economy, it is also worthwhile to consider a sobering observation made in February 2010 by Barclays: "the ageing of the developed world's boomer generation into retirement will reduce net savings balances in these economies. The slightly later ageing trends in some of the large developing economies such as Brazil and China, point in a similar direction. The upshot is that an era of capital abundance that has generated increasingly frequent financial crises is drawing to a close. On this score, we might expect a decreased frequency of bubbles and busts in the years ahead. Unfortunately, a decreasing savings abundance also generates a less favorable environment for financial assets valuations."[558]

As might be expected, "the ageing trend will lead to an explosion in government debt over the long run. The unfavorable shift in dependency ratios, combined with sharply increased spending on pensions and healthcare is likely to cause a sustained deterioration in primary fiscal balances and a continuous increase in government debt to GDP ratios. Simulations by the IMF and OECD suggest that the effects of ageing alone will increase debt ratios by 50 percentage points of GDP over the next 20 years. For the advanced G20 economies, the government debt/GDP ratio is projected to rise from 100% in 2010 to 150% in 2030.… Although the fiscal costs of counteracting the credit crisis have captured recent headlines, it is the impending impact of ageing on government debt burdens that is by far the more important long run factor. According to the IMF, the net present value of the impact of the credit crisis on fiscal deficits is just 5% of the overall impact from ageing."[559]

Given the partisanship surrounding recent efforts to compromise on matters involving even a single year's discretionary spending in the context of the fiscal year 2011 budget, government today seems politically unable to address the significant long-term challenges such as health care and social security reform presented by an aging U.S. population. A short-term focus on the next election increasingly prevents Congress and the President from addressing medium- or long-term issues. Moreover, government's failure to act to prevent the private sector financial crisis does not bode well for its ability to resolve the coming public debt challenge. Confronted by numerous short- and long-term challenges, we are facing very difficult times. However, unlike in 2008, there is no lender of last resort to save us.

B. Does the Obama Commission on Fiscal Responsibility and Reform Point the Way to a Solution?

As the preceding discussion shows, the problems the United States faces appear in some respects insurmountable. Although the Obama Administration has successfully worked with Congress to address challenges such as the financial crisis, health care reform, and financial services reform, it has prevailed in these efforts only after sustaining ugly partisan attacks and without meaningful Republican support. Against this background, and in light of the 2010 Tea-Party-fueled Republican takeover of the House of Representatives, it is difficult to envision how the executive branch and Congress will be able to deal with the more fundamental and vexing issues presented by skyrocketing federal and municipal debt, entitlement reform, and the structural changes needed to restore American economic competitiveness.

Political gridlock on these critical issues is not a new problem. In fact, Congress has consistently demonstrated its inability to deal with long-term issues such as entitlement reform and deficit reduction. For example, efforts during the Reagan administration to impose automatic discipline on the budgetary process through the *Gramm-Rudman-Hollings Act* resulted in unequivocal failure. Although "[o]n paper, Congress and the president met the deficit targets," contemplated by the Act, "in each case, this goal was accomplished through a remarkable combination of creative accounting and absurdly optimistic estimates about the economy, future demands on federal programs, and the next year's revenues."[560] Thus, by the beginning of the first Bush administration in 1989, "it was clear that the Gramm-Rudman-Hollings procedures had been a failure. Instead of a $100 billion deficit, as targeted in the 1987 *Gramm-Rudman-Hollings Act*, the deficit turned out to be a record $221 billion…."[561]

While President Clinton won approval of a comprehensive package of reforms that brought the federal budget into surplus with passage of the *Omnibus Budget Reconciliation Act of 1993*, it is noteworthy that the bill passed without the support of a single Republican member of Congress. Notwithstanding this lack of bipartisanship, later that year President Clinton created a Bipartisan Commission on Entitlement Reform in an effort to address the long-term challenges to the country's fiscal stability. The Commission, chaired by Senators Bob Kerrey and John Danforth, consisted of 10 senators, 10 congressmen, and 12 representatives of the public (including the Mayor of Tampa; the Governor of Colorado; the President of the United Mine Workers of America, Pete Peterson; and former New Jersey governor Thomas Kean).[562]

The Commission attempted to take a holistic view of the budgetary challenges presented by entitlements, and considered not only Medicare, Medicaid, and Social Security, but also the impact of government benefits as diverse as the home mortgage interest deduction, welfare, and federal pensions.[563] Ultimately, however, it failed to reach consensus on any recommendations to resolve the problems.[564] Rather, its final report merely set forth five competing proposals advanced by individual commissioners, and eight "statements" provided by certain commissioners commenting on those proposals.[565] As such, it could not serve as a basis for facilitating a broader congressional and public consensus on the parameters of entitlement and budget reform, and the issue was not seriously addressed again until the efforts undertaken by the Obama Administration. Moreover, the positive impact of Clinton's budget balancing was subsequently undone by the policies of the second Bush administration, and by the two recessions that occurred under its watch, which resulted in the federal budget moving from a projected $800 billion annual surplus to an approximately $1.3 trillion deficit.[566]

The government's repeated failure to restrain its growing indebtedness and address the long-term challenges presented by entitlements can be understood partly as a byproduct of

the dynamics of American electoral politics. In a system where elected officials face reelection every two, four, or six years, it is to be expected that the driving force behind a large part of government activity is a desire to remain popular with constituents and to raise money to finance the next election campaign. These goals are naturally served better by delivering tax cuts and increased government spending or services, than by cutting spending, raising taxes, or reducing government services, even where such actions are needed for the country's long-term solvency and stability. Indeed, the recent extension of the Bush-era tax cuts, notwithstanding Congressional expressions of concern regarding fiscal discipline and experts' conclusions that significantly more effective economic stimulus could have been obtained at a lesser cost, demonstrates that government is inclined to take the politically popular route over the responsible or ideologically consistent one.

Political challengers, meanwhile, have seen that it is possible to defeat incumbent members of Congress by seeking to portray them as favoring higher taxes or cuts in popular programs, even where they offer no proposals of their own to address the country's growing debt. To borrow a phrase from JFK: sometimes profiles in courage are hard to come by when one's job is at stake. The result, however, is an atmosphere of increasingly bitter partisanship and a failure to address the country's looming long-term challenges. While it is understandable that elected officials are inclined to improve their reelection prospects by avoiding these long-term problems, it is certainly not justifiable.

In light of this record and the stalemate over the 2011 fiscal year budget, it seems implausible to think that Congress will find ways to address the government's growing indebtedness in the current partisan environment. As observed by Democratic Senator Kent Conrad, "Trying to shrink the deficit through the regular legislative process 'has about zero chance of succeeding.'"[567] In this context, the best alternative may be to seek to apply the lessons from the failures of *Gramm-Rudman* and Clinton's Entitlement Reform Commission. A key lesson from *Gramm-Rudman* is that it is exceedingly difficult to achieve deficit reduction through the budgetary process. Regardless of the rules that Congress may seek to impose on itself to encourage fiscal restraint, the process of building a majority in favor of a budget is inherently characterized by compromise and horse trading over the specific taxing and spending priorities of individual members of Congress seeking their constituents' support. As such, it is vulnerable to the kind of budgetary legerdemain that accompanied *Gramm-Rudman*. Moreover, the budgetary process by its nature has a short- or at best medium-term focus.

But the most significant challenges to U.S. fiscal stability involve the long-term costs of our principal entitlement programs: Social Security, Medicare, and Medicaid. As noted by the Congressional Budget Office, "[w]ithout changes in policy, spending on the government's major mandatory health care programs—Medicare, Medicaid, the Children's Health Insurance Program, and health insurance subsidies to be provided through insurance exchanges—as well as on Social Security will increase from the present level of roughly 10 percent of the nation's…Gross Domestic Product (GDP), to about 16 percent over the next 25 years."[568]

Reducing government debt is instead easier when done as part of a single "grand compromise," such as that taken in Clinton's *1993 Budget Reconciliation Act*, in which long-term trends affecting tax revenues and spending are addressed in a comprehensive, negotiated solution that results in a balanced budget over time. However, history shows that such a compromise will have a better prospect for adoption and ultimate success if it follows the outlines negotiated by a bipartisan commission that provides the political cover needed for representatives of both parties to compromise on long-held positions, in the name of serving the nation's best

interest. The lesson, however, from Clinton's Commission on Entitlement Reform is that such efforts will collapse, and further progress on the issue will stall, if politicians sense they have more to gain by promoting their own narrow interests ahead of reaching a comprehensive compromise to resolve the issues.

Although the Clinton Entitlement Reform Commission ultimately failed to achieve its goals, the experiences of the Social Security Reform Commission offer a precedent for how the federal government can successfully address long-term challenges based on the work of a bipartisan commission. This precedent, recent signs of bipartisan support for deficit reduction in the Senate,[569] and the comprehensive competing proposals for long-term deficit reduction offered in April by House Budget Committee Chairman Paul Ryan[570] and subsequently by President Obama,[571] provide some hope that President Obama and Congress may be able to overcome current partisan tensions to act on the proposals of the National Commission on Fiscal Responsibility and Reform.

In December 1981, confronted with projections that Social Security could face insolvency as soon as 1983, President Reagan and Speaker of the House Tip O'Neill agreed to form a bipartisan commission to "provide appropriate recommendations to the Secretary of Health and Human Services, the President, and the Congress on long-term reforms to put Social Security on a sound financial footing."[572] Although the Commission's deliberations reached a stalemate in November 1981, progress continued through secret discussions among a smaller working group, which ultimately formed the basis of a compromise adopted by the full Commission, then subsequently approved by Congress as the *Social Security Reform Act* and signed by President Reagan in 1983.[573] It is noteworthy that the congressional "debate was expedited in the Senate by an informal rule promulgated by Senator Dole[, which] stated that anyone opposing the Commission recommendations was obliged to provide an alternative solution."[574]

Although many of the Act's provisions were unpopular among both Republicans (who were ideologically opposed to its increase in the payroll tax) and Democrats (who objected to changes in benefits such as increasing the retirement age over time), "[d]uring the Congressional debate,…President Reagan and Speaker O'Neill remained steadfast in their support of the compromise."[575] As a result, "the 1983 agreement did succeed in extending the trust fund's solvency for a couple of generations by raising the retirement age to 67 from 65 (to be phased in by 2027); imposing a six-month delay in the cost-of-living adjustment; and requiring government employees to pay into Social Security for the first time."[576]

Observers of the 1983 Social Security reform process cite several factors as contributing to its success. As noted by former CBO director Rudolph Penner, "[f]irst and foremost, something had to be done. The trust fund would have been emptied and full benefits could not have been paid after mid-1983."[577] Another critical factor was Senator Dole's imposition of a process to facilitate the passage of legislation that embodied the Commission's recommendations.[578] Finally, in order to overcome the ideological objections of their respective party members, the process required "a willingness to compromise by the two principal antagonists of the time—Ronald Reagan, the Republican President, and Representative Thomas P. O'Neill, the Democratic House speaker."[579] In other words, without the sustained willingness shown by Reagan and O'Neill to negotiate in good faith and engage in the political compromises required to reach an effective solution, Reagan's Social Security Reform Commission likely would have failed as well.

The experiences of the Reagan Social Security Reform Commission demonstrate that Congress and the President can address long-term challenges involving popular government

programs if (a) there is a critical, obvious threat facing those programs; (b) the solution is based on a set of policy recommendations proposed by a bipartisan commission; (c) the President and Congressional leaders demonstrate leadership in supporting the proposals; and (d) there is a process designed to facilitate adoption of the commission's recommendations by Congress.

In the case of the country's debt, the significance and urgency of the problem have recently been demonstrated by events such as public criticism by significant debt holders such as China and PIMCO, the recent observation by the IMF that notwithstanding a "particularly urgent" need to do so,[580] the United States lacks a "credible strategy" to confront its public debt,[581] and the announcement by Standard & Poor's that it has changed its outlook on U.S. government debt to "negative" from stable."[582] With Congress and the President now beginning to engage in serious discussions about deficit and debt reduction, developments such as these appear to have finally demonstrated to the country's leaders the urgency of the need to address the country's debt.

As we have seen in this paper, addressing the country's debt will require that we confront several previously intractable issues:

1. *The Federal Budget*—how to best balance the budget over the medium term

2. *Off-Balance-Sheet Obligations of the United States*—how to ensure the long-term solvency of Medicare, Medicaid, and Social Security and transition away from government support of the GSEs

3. *Structural Economic Reform*—how to move the United States from a consumption-driven economy to one that encourages individual and business investment and facilitates a competitive export sector

4. *State and Municipal Budgets*—how to resolve the state and municipal budget crisis and move to a "countercyclical" system in which states build reserves during periods of economic growth to support the increased demands on their budgets during recessions.

As we have seen, these four issues are interrelated, and addressing them will require a coordinated, holistic solution. Fortunately, in its December 2010 report the bipartisan National Commission on Fiscal Responsibility and Reform created by President Obama proposed just such a holistic approach that addresses most (but not all) of these issues.[583] Moreover, the November 2010 proposal by the bipartisan Debt Reduction Task Force of the Bipartisan Policy Center, chaired by former Federal Reserve Board Vice Chair Alice Rivlin and former Republican Senator Pete Domenici, provides not only a set of alternative approaches that would also achieve substantial deficit reduction, but serves as further evidence that respected members of both political parties can reach agreement on the causes of, and potential solutions for, the country's growing indebtedness.[584]

The nonpartisan Congressional Budget Office has also helpfully contributed to the consideration of these issues with its March 2011 overview of a range of potential deficit reduction measures that includes 32 options to reduce mandatory government spending, 38 options to reduce discretionary spending, and 35 options to increase government revenues.[585] These three efforts demonstrate that there is no shortage of thoughtful, bipartisan or nonpartisan solutions to the country's growing public debt problem, only a potential lack of political willpower.

Despite their different origins, the efforts of the Obama Deficit Reduction Commission and the Bipartisan Policy Center Debt Reduction Task Force have a number of things in common:

- They recognize that long-term deficit and debt reduction cannot come from reduction in spending alone, but instead must be based on some combination of entitlement reform, containment of health care costs, reduction of discretionary spending, and tax reform to reduce loopholes and tax benefits and increase revenues.

- They provide comprehensive measures that would balance the primary budget by or before 2015 and reduce the debt held by the public to 60 percent of GDP or below by or before 2023.

- They acknowledge that it would be counterproductive to adopt deficit-reduction measures that harm the current economic recovery, and thus focus on medium- and longer-term initiatives.

- They do not spare any "sacred cows" of particular interest groups, and include measures to reduce or contain defense spending, reform Social Security and Medicare, and increase tax revenues, among others.

- They simplify the tax code.

While the Congressional Budget Office's recent set of policy options is not, in contrast to the Commission and Task Force efforts, a comprehensive set of policy recommendations, it does outline a number of potential deficit-reduction measures in the same broad categories of entitlement reform, discretionary spending reduction, and tax reform that are promoted by the two panels. In this way, it is another useful tool that the President and Congress can use in discussions on debt reduction.

Moreover, the April 2011 proposals by Chairman Ryan and President Obama of comprehensive deficit reduction plans[586] indicate that the President and Republicans in Congress may finally be prepared to enter into the all-encompassing negotiations on long-term government revenue and spending policies that are necessary to reach a meaningful, effective plan to reduce the country's deficit and debt. While each of the plans has its shortcomings, both offer some cause for hope in acknowledging a few painful truths that must form the basis of any realistic debt-reduction effort.

First and most important, both plans recognize that the United States must significantly reduce its deficit in the medium term in order for the country to be able to meet the fiscal challenges presented by the upcoming retirement of the baby boomer generation.[587] Thus, the Ryan plan contemplates reducing the deficit by approximately $4.4 trillion over the next 10 years, while the Obama plan proposes about $4 trillion in deficit reduction during the next 12 years. Although the demographically driven need to address the deficit and debt should by now be readily apparent, bipartisan agreement that the challenge must be addressed now is nonetheless encouraging given the general lack of attention paid to the topic since the late 1990s. As observed in April 2011 by Treasury Secretary Tim Geithner, the proposal of the Ryan and Obama plans marks a "'fundamental shift…that makes it very hard for future presidents, future congresses to decide that you can live with the risk of higher deficits in the future.'"[588]

Second, both plans are premised on the recognition that reducing the country's deficit and debt will require changes to the government's health care entitlements, principally Medicare and Medicaid.[589] As we have seen, government spending on health care already accounts for about 10 percent of U.S. GDP, and is projected to increase to approximately 16 percent of GDP

by 2035, and to skyrocket thereafter.[590] Thus, any serious plan to reduce the debt must include measures to restrain health care spending, and it is encouraging that the proposals from the President and Chairman Ryan recognize this difficult truth.

Finally, both plans acknowledge that the complexity of the current tax code detracts from the primary goal of tax policy—to effectively raise revenue for the government—and thus both contemplate some level of tax reform.[591]

Although these shared attributes of the Ryan and Obama deficit-reduction plans are encouraging, a brief examination of their differences indicates the extent of the challenges that Congress and the White House will need to overcome to reach a meaningful agreement on deficit and debt reduction.

First, both plans still contain only the outlines of recommended policy approaches and thereby lack the level of detail required for legislation and to determine whether the proposed solutions are effective and workable. In fact, a closer look at aspects of the plans indicates that much of their effectiveness in deficit reduction is aspirational and based on optimistic assumptions rather than on a realistic projection of the effects of comprehensive policies.[592] Thus, the Ryan plan, for example, reaches its targets for deficit and debt reduction on the basis of assumptions for U.S. economic and job growth so optimistic that they have been widely criticized as implausible.[593] In a similar fashion, the Obama proposal is predicated on the recently created and yet untested Independent Payment Advisory Board achieving a significant reduction in government health care costs.[594] While these aspirations may come to pass, ultimately a credible plan on deficit and debt reduction must be based in large part on detailed, concrete plans with demonstrated histories or track records of success.

Second, although both plans seek to reduce the deficit by confronting public health spending, they do so in dramatically different ways. The Ryan plan radically changes the approach to health coverage taken by Medicare and Medicaid, by converting Medicare into a program to provide limited vouchers for seniors to purchase private health insurance, and by transforming Medicaid into a block grant by the federal government to the states to support state health care programs for the poor.[595] In so doing, the Ryan plan would shift a significant portion of the cost of health coverage for seniors to individuals, and would move a similarly significant burden for funding health coverage for the poor to state governments.[596] Such an approach would be problematic not only because it fails to address the fundamental problem of controlling rising health care costs, but also because it would *increase* the fiscal burden on already overextended state governments.[597] As noted by the Congressional Budget Office, these features mean that the the Ryan proposal (and the level of deficit reduction it contemplates) "might be difficult to sustain over a long period of time."[598]

In contrast, the Obama plan maintains the essential nature of the existing Medicare and Medicaid health coverage programs, while modifying them in ways to better control health care costs. As observed by some commentators, the President's attempt to control health care costs through the existing Medicare and Medicaid structures may in fact offer a better prospect for success than the Ryan plan's attempt to delegate the effort to private insurers. For example, National Public Radio notes that, "Medicare actually is a fairly efficient program, with administrative costs of about three percent. That compares with administrative costs for private insurance that range from 15 percent to double that."[599] While certain aspects of the President's Medicare reform plan remain untested, such as using the government's bargaining position to reduce prescription drug costs and increasing the powers of the recently created Independent Payment Advisory Board, past experience with areas of Medicare that resemble

the privatization contemplated by the Ryan plan indicate that the President's approach seems to have a better chance at containing health care costs.[600]

However, in this regard it is also worth bearing in mind a cautionary note raised by an April 2011 IMF report on the cost savings actually achieved by various kinds of health care reform efforts.[601] In the report, the IMF observed that, based on an OECD analysis of experiences in several countries, historical efforts to control health care spending, ranging from market mechanisms to measures taken directly by governments, have to date on average only succeeded in limiting spending growth by a range of 0.06 percent to 0.50 percent of GDP over a 20-year period.[602] Given that U.S. health care costs are projected to increase by approximately 5 percentage points of GDP over the next 20 years, it is clear that finding effective measures to contain health care spending, and thus to reduce the U.S. government debt, will need to involve unconventional, challenging, and painful decisions on how we provide health care in this country.[603]

Finally, the biggest difference between the two plans also highlights the most significant challenge the President and Congress will face in negotiating deficit reduction measures: the Republican and Democratic plans embody fundamentally different views on tax policy and the role of the federal government, which simply cannot be ideologically reconciled. For example, the Ryan plan prescribes that federal government spending on all areas other than Medicare, Medicaid, and Social Security would decline from its current level of 12 percent of U.S. GDP to approximately 6 percent of GDP by 2021, and thereafter remain constant in real terms.[604] Because it envisions that defense spending would not be reduced significantly from its current level of approximately 4.5 percent of GDP, the Ryan plan essentially contemplates eliminating nearly all functions of the federal government other than defense and administration of Medicare, Medicaid, and Social Security.[605] This dramatic reduction of the federal government's role is necessary to some extent because the Ryan plan also proposes offsetting any increase in revenues achieved through tax reform with significant tax cuts,[606] principally to corporations and individuals in the top income tax bracket.[607]

In contrast, President Obama's proposal, while envisioning significant cuts in many areas of government spending, contemplates that the federal government will continue to provide essentially the same mix of services it has since the enactment of the Great Society programs.[608] To do so, in addition to the $480 billion in savings through 2023 estimated from the Medicare and Medicaid cost containment efforts described above, President Obama would implement the Deficit Reduction Commission's plan to reduce nondefense discretionary spending in real terms to pre-2008 levels (resulting in savings of approximately $770 billion by 2023), reduce military spending by $400 billion (in addition to any cost reduction resulting from the end of operations in Iraq and Afghanistan), reduce spending on other mandatory programs such as agricultural subsidies by $360 billion, and increase revenues through tax reform by $1 trillion, principally by letting the Bush-era tax cuts lapse for individuals in the highest income tax bracket, by eliminating certain tax expenditures, and by broadening the base of individual and corporate taxpayers through simplification of the tax code.[609] While obtaining Republican support for any proposal to increase government revenues will be challenging, a range of independent and bipartisan sources agree that additional tax revenues are a necessary part of any plausible effort to reduce the deficit and debt at a time when an aging population will present a significant increase in demands for health care and retirement spending.[610]

Although it lacks detail and may be based in part on optimistic assumptions, President Obama's proposal is likelier to bear a closer resemblance than Chairman Ryan's to any arrangement ultimately reached on deficit reduction for several reasons.

First, in contrast to the Ryan plan, which disproportionately places the burden for deficit reduction on beneficiaries of Medicare, Medicaid, and other government programs, the Obama proposal distributes the sacrifice needed to reduce the deficit broadly on typically Democratic and Republican constituents, thereby making it more marketable as a necessary "grand compromise" by members of Congress and the President.

Second, it attempts to reduce the deficit and debt without fundamentally altering the nature of Medicare and Medicaid or changing the postwar role of the federal government. With the imminent retirement of the baby-boomer generation, it seems highly unlikely that government would be able to overcome the almost certain public objection to any fundamental restructuring of the nature of Medicare. Moreover, converting Medicare into an untested private-insurance-based plan just as it faces a significant increase in demand presents tremendous implementation risks, which could well result in significant health care cost increases rather than cost reduction.

Third, the Obama plan, by building at least in part on the work of the bipartisan Deficit Reduction Commission, has the elements of a proposal that has already received support from leaders of both parties across the political spectrum, and that continues to serve as the basis for discussions in the ongoing negotiations of the "Gang of Six," a bipartisan group of Democratic and Republican Senators.[611]

Notwithstanding the recent progress in Washington in taking the first steps to address the deficit and debt, the proposals of the Deficit Reduction Commission, the Bipartisan Policy Center Task Force, the Congressional Budget Office, Chairman Ryan, and President Obama share one fundamental weakness. Although they address critical topics such as entitlement and tax reform and balancing the federal government's budget, they do not address the state and municipal fiscal crisis. As we explored earlier, even if Congress and the President reach agreement to balance the budget and achieve sustainable entitlement spending based on the recommendations of the Deficit Reduction Commission, or the proposals of Chairman Ryan or President Obama, failing to address state and local debt will leave the nation's economy exposed to the risk of another leverage-induced economic crisis.

In addition, as previously noted, the state and municipal workforce represents approximately 12 percent of the U.S. workforce. This implies that not only will there be enormous implications for the U.S. economy if the state and municipal crisis is not addressed, but also that any such effort to do so will be challenging because it will involve addressing matters, including unfunded pensions and other state and local benefits, and creating a more competitive state and local workforce, for which there is a large constituency of (frequently unionized) state and local employees.

Although it is perhaps understandable on some level that the federal government is reluctant to address state and municipal issues, events since 2008 indicate that state and local governments in distress are likely to look to the federal government for support.[612] Thus, managing their debt more effectively is an effort that should involve federal input as well. In addition, the federal government, unlike any individual state, is in a position to take a more holistic, national perspective on the most effective, national allocation of government costs and resources and to establish a generally applicable framework outlining the circumstances under which the federal government will provide support to states and local governments. Because

overleverage on the state level ultimately has the potential to affect the U.S. economy (and thereby the federal budget), the federal government needs to find ways to incentivize state and local governments to act in a fiscally responsible manner. One approach worth considering would be for the federal government to impose restrictions on aid to states where certain budgetary targets are not met.

In addition to taking a substantively more expansive approach by considering the impact of state and local debt on the long-term U.S. economic situation, discussions to reduce the deficit and debt would benefit from additional procedural measures to overcome partisanship and facilitate adoption of a bipartisan plan. The potential need for, and likely benefit to be obtained from, such procedural measures can be seen in the near impasse in negotiations over the 2011 budget and the experience with the *Social Security Reform Act*. In addition, the importance of such a mechanism will increase the longer discussions on deficit reduction take, because the approach of the 2012 elections is likely to quickly increase political incentives to engage in partisan posturing, while reducing the room for compromise.

As we saw in the case of the Social Security Reform Commission, a procedural requirement that would force Congress to take a position with respect to a comprehensive set of deficit reduction measures would help ensure that the problem gets serious and constructive congressional attention. While any comprehensive plan to address the deficit (including Chairman Ryan's or President Obama's recent proposals) could serve as the the basis for congressional consideration under such a procedure, the proposals of the Obama Deficit Reduction Commission have the advantage of already having been considered and endorsed by a bipartisan group of representatives from government and the private sector. However, regardless of the origin and substance of such measures, a procedural resolution that built on the special procedural rule proposed by Senator Dole in connection with the *Social Security Reform Act* would enhance the prospects for successful bipartisan consideration of comprehensive measures to reduce the deficit and debt.

Such a resolution could provide Congress with a prescribed period to consider and adopt legislation based on the Commission's (or other baseline) proposals by majority vote. If Congress is unable to pass alternative legislation within that period, the procedural resolution would provide that it would automatically adopt the proposed legislation based on the Commission's (or other baseline) proposals unless two-thirds of the House and Senate objected. In addition, as in the case of Senator Dole's *Social Security Reform Act* procedure, the resolution should require that any Member of Congress opposing any of the Commission's (or other baseline) proposals offer an alternative proposal that achieves the same level of deficit reduction as the proposal being opposed, based on analysis by the Congressional Budget Office.[613]

The advantage of this approach is that it takes politics out of the process. This is crucial because, given the enormity of the problems facing the country, the solutions will involve extraordinarily difficult and unpopular decisions. Amid the bitter partisanship and short-term politics that prevails today in Washington, a process that provides some degree of political cover and creates incentives to act seems more likely to achieve results than relying on the normal legislative process. Under the proposal outlined above, Congress would have the opportunity to defeat the recommendations of the Commission (or other baseline proposal) if they are unacceptable, but the requirement of a two-thirds majority to do so would limit the likelihood of political posturing. Although critics may claim this process involves an un-American (and possibly unconstitutional) delegation of Congressional authority, the positive

results achieved by the Social Security Reform Commission provides a useful precedent to help deflect this criticism.

C. Concluding Comments

As this paper has shown, the challenges facing the U.S. economy are difficult and interrelated, and addressing them will result in uncomfortable sacrifices across U.S. society. Because interest groups will lobby to promote their narrow, short-term interests and legislators focused on the next election will be vulnerable to a cherry-picking approach, the traditional legislative approach cannot successfully address the country's long-term problems. While a promising start to addressing those problems can be found in the recommendations of President Obama's National Commission on Fiscal Responsibility and Reform, the deficit reduction proposals of Chairman Ryan and President Obama, and the ongoing efforts of the Senators comprising the "Gang of Six," the ability of government to achieve real results in the current partisan environment is uncertain. However, the urgency of the need to confront the country's debt could not be more clear.

Recent developments such as the IMF's recommendation that the U.S. urgently implement medium-term deficit reduction in order "to stem the risk of globally destabilizing changes in bond markets,"[614] Standard and Poor's adoption of a negative outlook on the country's AAA rating, and public criticism by significant debt holders such as China and PIMCO demonstrate that Congress and the President must transcend partisanship and reach agreement in the near term on a credible plan to reduce the government's deficit, and ultimately its debt. Failing to do so would be catastrophic for the U.S. and global economy.

Adoption of the resolution we propose requiring that Congress act on the proposals of President Obama's Deficit Reduction Commission would improve the prospects of reaching an agreement before the 2012 elections make the necessary compromises more difficult. Although it is unpleasant to accept a process in which proposals on a matter as serious as reducing the country's debt are subject to limited opportunity for congressional review and modification, in the face of the unacceptable consequences of failure to address the country's looming debt challenge, it is the better alternative.

Notes

1 "Net lending by the private financial sector fell from more than $3.0 trillion in 2007 to annual rates of about $1.4 trillion in the fourth quarter of 2008 and -$1.8 trillion in the first quarter of 2009." U.S. Congressional Budget Office, May 2010.

2 See Exhibit 1: U.S. Real GDP Growth; Exhibit 2: U.S. Real Domestic Purchases; Exhibit 3: U.S. Real Domestic Final Demand; and Exhibit 4: U.S. Industrial Production.

3 See Exhibit 5: S&P 500.

4 See Exhibit 6: U.S. Household Net Worth.

5 See Exhibit 7: U.S. Nonfarm Payroll Employment.

6 Laise 2010.

7 The Financial Crisis Inquiry Commission 2011 (citing testimony of Federal Reserve Chairman Ben Bernanke).

8 See Exhibit 9: Real U.S. Trade.

9 Bernanke 2010a.

10 Ibid.

11 Bair 2010.

12 Federal Reserve Board of Governors 2010.

13 Roxburgh et al. 2010.

14 See also Exhibit 12: Growth in Private and Public Sector Debt by Country, 1990–2010.

15 White 2010.

16 See, for example, Tett 2009.

17 See, "The U.S. broker-dealers and government sponsored enterprises (GSEs) were pockets of high leverage: Funding profile of selected financial intermediaries, 2006," from Roxburgh et al. 2010.

18 See also "Households in almost all countries increased their debt significantly relative to GDP," from Roxburgh et al. 2010.

19 Contrary to conventional wisdom, in the United States the boom in residential mortgage lending occurred primarily in the "prime" loan market supported by Fannie Mae and Freddie Mac. See, for example, Exhibit 15: U.S. Mortgage Originations by Type; and Financial Crisis Inquiry Commission 2010.

20 Geanakoplos 2009; and Financial Crisis Inquiry Commission 2010a.

21 See Exhibit 16: Agency and GSE Mortgage-Backed Securities by Institution Type; and Exhibit 17: Non-Agency Mortgage-Backed Securities Held, by Institution Type.

22 See Exhibit 18: U.S. Real Home Price Index.

23 See Exhibit 19: International Home Prices.

24 See Mauldin and Tepper 2011 (citing research by Gary Shilling to conclude that, following home equity borrowings of $633 billion in 2004 and $439 billion in 2003, Americans withdrew nearly $719 billion in home equity in 2005, "more than the recent stimulus in 2009 [and] about 5 percent of GDP that went into all sorts of consumer spending. Clearly, the mortgage equity withdrawal was a large part of the growth after the 2001 recession.").

25 Blinder and Zandi 2010a.

26 See, for example, *This American Life*, Episode 355, "The Giant Pool of Money"; and Wessel 2010a.

27 Bond et al. 2010.

28 Gourinchas 2010.

29 Bond et al. 2010.

30 Ibid.

31 Ibid.

32 Coggan 2010a.

33 Bond et al. 2010.

34 Ibid.

35 Lewis 2010.

36 Ibid. See also Financial Crisis Inquiry Commission 2011 (observing that when "the investment banks went public in the 1980s and 1990s, the close relationship between bankers' decisions and their compensation broke down. They were now trading with shareholders' money.").

37 Ibid.

38 Markit Partners 2010.

39 See, for example, Potter 2010.

40 Ibid.

41 Ibid.

42 Ibid.

43 Lewis 2010.

44 Potter 2010.

45 Some commentators argue that the historical benefits of diversification are lessening due to the global trend of increasing institutional investment of significant amounts of third-party funds, which has contributed to a growing herd mentality among investors competing for yield. See, for example, Authers 2010: "News from the 'real world' cannot possibly explain [recent market experience]. Why were markets so much more prone to bubbles?… I suggest it is down to what might be called the fearful rise of markets. Over the decades, the institutionalisation of investment and the spread of markets to cover more of the global economy have inflated and synchronised bubbles."

46 Financial Crisis Inquiry Commission 2011.

47 See, for example, Kroszner 2010.

48 Curiously, although this forced lenders to hoard even more liquidity, it also had the counterintuitive result of driving down U.S. interest rates despite a record peacetime increase in U.S. government borrowing.

49 See also Exhibit 20: Total Assets of the Federal Reserve; and Exhibit 23: Funding Provided through Selected Federal Reserve Programs.

50 See Exhibit 20: Total Assets of the Federal Reserve; and Exhibit 24: Liabilities of the Federal Reserve Banks.

51 Silber 2009.

52 Ibid.

53 "With the benefit of hindsight, the nationwide Bank Holiday in March 1933 ended the bank runs that had plagued the Great Depression.… Together the Emergency Banking Act and the de facto 100 percent deposit insurance created a safety net for banks and produced a regime shift with instantaneous results.…" Ibid.

54 International Monetary Fund 2010a.

55 International Monetary Fund 2011a.

56 International Monetary Fund 2010a.

57 Exhibit 26: Aggregate Reserves of Depository Institutions.

58 Blinder and Zandi 2010b.

59 See also Exhibit 29: U.S. Retail Sales, Excluding Food Services; Exhibit 30: U.S. Real Personal Consumption Expenditures; Exhibit 31: U.S. GDP Growth; and Exhibit 32: U.S. Industrial Production.

60 See International Monetary Fund 2011b (noting that "Global output is projected to expand by 4½ percent in 2011…an upward revision of about ¼ percentage point relative to the October 2010 World Economic Outlook [WEO]."); and International Monetary Fund 2011a (observing that, while "financial market performance has been favorable thus far in early 2011, reflecting the more positive economic climate, ample liquidity, and expanding risk appetite[,]…risks to global financial stability remain.… The current detrimental interaction between financial system stability and sovereign debt sustainability needs to be dealt with in a comprehensive fashion, so as to break the adverse feedback loop that could spread beyond the smaller euro-area countries.").

61 See also Homan 2010a, observing that the "jobless rate in the U.S. is likely to approach 10 percent in the coming months as the economy fails to grow enough to employ people rejoining the labor force"; and Exhibit 35: U.S. Nonfarm Payroll Employment; Exhibit 36: U.S. Average Weekly Hours Worked, Private Nonfarm; and Exhibit 37: U.S. Average Weekly Hours Worked, Manufacturing.

62 Federal Reserve Bank of New York 2011 (observing that although "[a]ggregate consumer debt continued to decline in the fourth quarter [of 2010]…[a]s of December 31, 2010, total consumer indebtedness was $11.4 trillion, a reduction [of only] $1.08 trillion (8.6%) from its peak level at the close of 2008Q3.…").

63 *The Economist* 2011a (noting that "[o]ver a quarter of mortgage-holders in America owe more on their loans than their homes are worth").

64 In this regard, it is worth noting that FDR experienced an initial populist resistance to his administration's recovery efforts remarkably similar to the Tea Party movement confronting President Obama. As noted in Brinkley 2009, "Spurring [FDR] on was a growing and significant opposition. Some of it came from the traditional right: industrialists, bankers, investors, and other mostly wealthy conservatives. A group of such people, led by the du Pont family…established the Liberty League in 1934. They railed against the 'dictatorial' tactics of the New Deal and the intrusion of government into capitalist institutions…. More significant—and more dangerous to Roosevelt's political future—were growing populist protests from people who had once supported him." These included Louisiana Senator Huey Long, who proposed a more radical redistribution of wealth, and Father Charles Coughlin, a firebrand radio preacher who in many ways was a precursor to Rush Limbaugh and Glenn Beck in building a national following by using the media to tap into public frustrations. However, in a parallel to the growing disenchantment with the Obama administration, "[d]isappointment and impatience with Roosevelt were not restricted to wealthy conservatives and populist dissidents. He also faced growing disillusionment from the vast pool of the unemployed, and even from some members of his own administration, who felt he was ineffectively improvising and was in danger of failing."

65 See, for example, Blinder and Zandi 2010c; and International Monetary Fund 2010b (observing that, "Thanks to a powerful and effective policy response, the recovery from the Great Recession has become increasingly well established.").

66 Wessel 2010b.

67 See, for example, Alderman 2010.

68 International Monetary Fund 2010c.

69 Ibid.

70 Ibid.

71 International Monetary Fund 2010a.

72 International Monetary Fund 2011a.

73 International Monetary Fund 2010c.

74 International Monetary Fund 2010a, 2011a.

75 Roxburgh et al. 2010. Measured differently, the McKinsey analysis also shows that "U.S. household debt grew to 96 percent of GDP by 2008." Ibid.

76 Financial Crisis Inquiry Commission 2011.

77 The McKinsey study notes that, in "the United States, contrary to conventional wisdom, the great increase in leverage occurred among middle-income households, not the poorest.… Most borrowers who did not qualify for the prime mortgage category, in fact, were middle- and higher-income households with poor credit histories, or no down payments, or poor documentation of income—not low-income households buying a house for the first time." Roxburgh et al. 2010.

78 Coggan 2010b.

79 Ibid.

80 Ibid.

81 Ibid.

82 Financial Crisis Inquiry Commission 2011.

83 See Exhibit 39: U.S. Real GDP and Personal Consumption Expenditure Growth.

84 Exhibit 40: Composition of Bank Lending and Securitization to Households and Businesses.

85 Financial Crisis Inquiry Commission 2011.

86 See, for example, Roxburgh et al. 2010. See also Testimony of Armando Falcon submitted to the Financial Crisis Inquiry Commission, April 9, 2010: "By statute, the enterprises' minimum capital requirement was set at 2.5%, which permitted them to operate at a highly leveraged level with very little margin for error. We never received the regulatory discretion to raise this standard. Our only opportunity to increase capital and reduce leverage was in connection with the supervisory agreements to remediate the accounting violations."

87 Financial Crisis Inquiry Commission 2011.

88 Ibid. (observing that "[f]oreign investors sought other high-grade debt almost as safe as Treasuries and GSE securities but with a slightly higher return. They found the triple-A assets pouring from the Wall Street mortgage securitization machine. As overseas demand drove up prices for securitized debt, it 'created an irresistible profit opportunity for the U.S. financial system: to engineer 'quasi' safe debt instruments by bundling riskier assets and selling the senior tranches'" (citing testimony of Gourinchas 2010)).

89 Geanakoplos 2009.

90 Lewis 2010.

91 See, for example, Bond et al. 2010; and Financial Crisis Inquiry Commission 2011.

92 For an overview of the implications of the Fed's monetary policy in the years leading to the crisis, see, for example, Gourinchas 2010.

93 Taylor 2009.

94 Gourinchas 2010.

95 Bond 2010.

96 Gourinchas 2010. "The correct [approach] is to deploy *multiple instruments*, to achieve *multiple objectives*.... The overall failure of the Fed—and of most economists—was not one of policy, but one of *imagination*: after it grew increasingly concerned about a possible housing bubble… the Fed failed to stir a debate about the proper regulatory changes that could have made a difference."

97 Greenspan 2002.

98 Gunn 2010 (citing Rajan).

99 Taylor 2010.

100 Financial Crisis Inquiry Commission 2011.

101 See, for example, Pinto 2010a: "The GSEs only needed $900 in capital behind a $200,000 mortgage—many of which had no down payment"; and Pinto 2010b: "In 2007, a combined $71bn in stockholders' equity supported a $5,000bn portfolio—70 times as much."

102 Gunn 2010 (citing Rajan).

103 Financial Crisis Inquiry Commission 2011.

104 Geanakoplos 2009.

105 Ibid.

106 Ibid.

107 Ibid.

108 Ibid.

109 Ibid.

110 See, for example, Lewis 2010; and Financial Crisis Inquiry Commission 2011.

111 Financial Crisis Inquiry Commission 2011

112 Geanakoplos 2009.

113 See, for example, Lewis 2010.

114 Ibid.

115 Collins 2010: "[A]ll participants in the creation of mortgage-backed securities—including lawyers, accountants, underwriters, mortgage brokers and rating agencies—were compensated in cash, often with higher percentages for riskier, high-interest products. But once the security was issued, 'none of the creators retained an interest in how it performed.'"

116 Lewis 2010.

117 Bond et al. 2010.

118 See, for example, Financial Crisis Inquiry Commission 2011.

119 Schwartz 2010.

120 Coggan 2010a.

121 Ibid.

122 It is also worth noting that the responses of other administrations confronting crises of a similar magnitude were also initially seen as chaotic, and uncoordinated. See, for example, Brinkley 2009.

123 White 2010.

124 Compare, for example, the Bush administration's efforts to revive confidence in the banking system by promoting the mergers of Bear Stearns / JPMorganChase, Merrill Lynch / Bank of America, and Wachovia / Wells Fargo; the TARP bailouts of AIG, Bank of America, and Citibank; and subsequent stress testing under the Obama administration with FDR's emergency shutdown of the nation's banks in 1933, followed by the reopening of sound banks under the supervision of the U.S. Treasury and the subsequent closing of unsound banks. See, for example, Brinkley 2009; and Silber 2009.

125 As recently revealed, in the case of Morgan Stanley the support was explicit as well, through the firm's use of the Fed Discount Window on September 24, 2008, three days after its approval to become a bank holding company, to borrow $3.5 billion. Weil 2011.

126 See also Federal Reserve Bank of New York 2009 (setting forth a summary of the various initiatives undertaken by the Federal Reserve Bank of New York to unfreeze the credit markets).

127 See Exhibit 41: Fiscal Stimulus Policy Efforts; and Blinder and Zandi 2010c.

128 International Monetary Fund 2010b.

129 Ibid.

130 Blinder and Zandi 2010a.

131 Ibid.

132 International Monetary Fund 2010b.

133 Ibid.

134 Blinder and Zandi 2010a.

135 Ibid.

136 Ibid.

137 Wolf 2010.

138 Krugman 2010a.

139 Wolf 2010.

140 Krugman 2010b.

141 Chandra 2011a (reporting that "Consumer spending in the U.S…increased 0.7 percent, the most since October, after advancing 0.3 percent the prior month….").

142 See Lahart and Blackstone 2011 (observing that, the "U.S.'s Institute for Supply Management said its index of manufacturing activity—based on a survey of purchasing manufacturers—jumped to 60.8. That's its highest level since 2004, on an index where readings above 50 point to expansion.").

143 *The Economist* 2011b (noting that in "the fourth quarter of last year America seemed at last to shake off the effects of the summers' European jitters," but that final "GDP growth [of] 2.8% [was] scarcely more than the 2.6% performance in the third quarter.").

144 Associated Press 2011.

145 Government's efforts between 2008 and 2010 to apply "lessons learned" through adoption of reform measures such as *Dodd-Frank* should be compared to the adoption of the *Securities Act of 1933* and the *Securities Exchange Act of 1934*, and the *Glass-Steagall Act*, in the wake of the 1929 market crash and Great Depression as a means of curbing some of the capital market and banking practices that led to that crisis. Ironically, a number of commentators argue that one of the principal factors contributing to the crisis in the United States was the repeal of *Glass-Steagall*. See, for example, Stiglitz 2009 (observing that the repeal allowed an "increase in concentration of the banking system, with increasing risks of too-big-to-fail institutions—and increasing systemic risk as a result. [In addition, it contributed to a] transferring [of] the investment banking culture to the commercial banks, who are entrusted with the management of the payment system and ordinary individuals' savings—insured by the government.").

146 Bank for International Settlements 2010a.

147 Bank for International Settlements 2010b.

148 In fact, this question was among the many topics addressed by the Financial Crisis Inquiry Commission. See Financial Crisis Inquiry Commission 2011. However, because the Commission did not issue its findings until several months after adoption of the *Dodd-Frank Act*, at most, the Commission's conclusions may influence the rulemaking currently pending under *Dodd-Frank*.

149 Taylor 2010.

150 Financial Crisis Inquiry Commission 2011.

151 Taylor 2010.

152 Financial Crisis Inquiry Commission 2011.

153 Ibid.

154 Ibid. See also, Tett 2009.

155 International Monetary Fund 2010a.

156 See, for example, Potter 2010.

157 Taylor 2010.

158 Sorkin 2010a.

159 Ibid.

160 Ibid.

161 Ibid.

162 Shrivastava 2010.

163 *Inside Track* 2010.

164 Cassidy 2010.

165 Ibid.

166 International Monetary Fund 2010d.

167 Bank for International Settlements 2010a.

168 Ibid. See also Bank for International Settlements 2009 and 2010c.

169 Masters 2010; Paletta and Wessel 2010.

170 See, for example, Crook 2010 (citing Hanson et al., 2010, in observing that the new Basel III aggregate capital buffers of 7 percent are likely insufficient, given that "to be any use, the regulatory minimum capital ratio in good times must substantially exceed the market-imposed standard in bad times…[but] cumulative credit losses at U.S. banks between 2007 and 2010 were roughly 7 per cent of assets.").

171 Norris 2010.

172 Harper 2010.

173 Ibid.

174 Ibid.

175 On this front, notwithstanding Jamie Dimon's expressed concerns about diminished financial sector competitiveness, it is encouraging to note that Swiss and U.K. banking regulators have indicated their inclination to impose higher capital requirements on financial institutions than those mandated under Basel III. See, for example, Gross 2011.

176 See, for example, Mauldin and Tepper 2011; Reinhart and Rogoff 2010b; Roxburgh et al. 2010; and *The Economist* 2009a.

177 Ibid.

178 Shaw 2010 (citing Harvard Professor of Public Policy Kenneth Rogoff).

179 Ibid.

180 International Monetary Fund 2010a.

181 Bank of America Merrill Lynch 2010.

182 Murray 2010.

183 Eckholm 2010.

184 Murray 2010.

185 U.S. Congressional Budget Office 2011a.

186 Ibid.

187 Bernanke 2010b.

188 Jackson 2010a (citing Reinhart and Rogoff 2010a).

189 International Monetary Fund 2010b.

190 U.S. Congressional Budget Office 2010a.

191 International Monetary Fund 2010b.

192 Jackson 2010a (citing Reinhart and Rogoff 2010a).

193 See, for example, *Frontline* 2009, citing comments of Joseph Stiglitz ("There has been, in my mind, a little bit too much emphasis on the deficit and less emphasis on what is being done with the money.… If the economy is very weak, then deficit spending can help the economy grow."); Greg Ip ("I'm not one of those who thinks that we're going to have a crisis, even in the pessimistic scenario where we take too long to deal with these things. I'm not one of those who thinks that foreign lenders will suddenly abandon the dollar and it will crash and interest rates will go through the roof. I think that we have too many built-in advantages."); Paul Krugman ("The United States has borrowed a lot of money abroad in dollars, and America borrowing dollars is not the same as Argentina borrowing dollars. If the dollar plunges, the capital losses are going to fall on the Reserve Bank of China and Japanese pension funds, not on the United States.… So I don't think we're that vulnerable to a crisis of confidence, although if you stretch it far enough, then you can start to get into trouble."); and James Galbraith ("The total share of debt, [as a share of] U.S. GDP, our national output, held by the public before this crisis was on the order of 40 percent. It is not a big number either by the historical standards of the United States, nor compared to our major industrial democratic partners in Europe and elsewhere, where debt-to-GDP is 60 percent to 100 percent and higher.").

194 U.S. Congressional Budget Office 2010b.

195 See, for example, Mauldin and Tepper 2011.

196 The $14.7 trillion on-balance-sheet figure is based on $9.018 trillion in debt held by the public as of the end of fiscal year 2010, plus approximately $5.7 trillion in federal employee retirement and veterans' benefits.

197 The $132.8 trillion estimate of gross off-balance-sheet obligations consists of $92.8 trillion in aggregate Social Security, Medicare, and Railroad Retirement obligations for current and future participants, plus approximately $35 trillion in aggregate estimated future Medicaid costs, plus approximately $5 trillion in aggregate outstanding loan guarantees by Fannie Mae and Freddie Mac. The $66.3 trillion estimate of net off-balance-sheet obligations is comprised of approximately $7.95 trillion in "unfunded" Social Security obligations, plus $22.8 trillion in "unfunded" Medicare obligations, plus the $35.3 trillion in estimated future Medicaid costs, plus the CBO's current forecast of $160 billion in net costs associated with the bailout of Fannie Mae and Freddie Mac. See U.S. Department of Treasury 2009, 2010a; and Meeker 2011. Of course, proper consideration of long-term obligations such as Social Security and Medicare must include both a discounting of obligations that do not ripen for a significant period of time and the prospect of further economic growth (and an accompanying increase in tax revenues) in the interim.

198 Selway 2010.

199 *Frontline* 2009.

200 Board of Governors of the Federal Reserve System 2010.

201 U.S. Congressional Budget Office 2010b.

202 Ibid.

203 Kruger and Christie 2010.

204 Beattie and Harding 2010.

205 Kruger 2011.

206 Ibid.

207 See, for example, *The Economist* 2010a (showing an increase in 2010 in prices of commodities included in the index of 16.5% in dollar terms, 23.0% in pounds sterling terms, and 31.1% in euro terms).

208 See, for example, International Monetary Fund 2010d (noting that "Custodial flow data, which reflect the activity of institutional global investors, point to an ongoing portfolio reallocation of assets toward emerging markets and away from mature economies.").

209 See International Monetary Fund 2011c (observing that "[t]he renewed surge in capital inflows to some emerging markets, whether driven by stronger fundamentals in the emerging economies themselves or by looser monetary policy in advanced economies, requires an appropriate policy response"); and International Monetary Fund 2011b (warning that capital "[i]nflows can also lead to a rapid increase in private sector indebtedness in recipient countries[, with] nonfinancial private debt…approaching the maximum ratios reached between 1996 and 2010 [in] Brazil, Chile, China, India, and Korea.").

210 See, for example, Chandra 2011b; Davis and Back 2011 (observing that "several [emerging market economies] are deploying a panoply of policies to battle inflation fueled by rising food and commodity prices and growth that is threatening to outstrip their productive capacity"); and Sonders 2011a (noting that while "rising food and energy prices do have an economic impact as they act as a tax on the consumer, which drains discretionary spending power[,] as long as wage and unit labor cost growth is in check, there is unlikely to be widespread ability to pass along rising input costs to the end consumer.").

211 See, for example, Lee and Demick 2009 (citing a statement by Chinese Premier Wen Jiabao that "'We have loaned huge amounts of money to the United States, so of course we have to be concerned. We hope the United States honors its word and ensures the safety of Chinese assets.'"); and Gross 2011 (asserting that **"[u]nless entitlements are substantially reformed, I am confident that this country will default on its debt; not in conventional ways, but by picking the pocket of savers via a combination of less observable, yet historically verifiable policies—inflation, currency devaluation and low to negative real interest rates"** [emphasis in original]).

212 International Monetary Fund 2011c.

213 Ibid.

214 Ibid.

215 International Monetary Fund 2010c.

216 International Monetary Fund 2010c, 2011a, 2011c.

217 International Monetary Fund 2010c.

218 Ibid.

219 *The Economist* 2010b.

220 Krugman 2011a.

221 BBCNews 2009.

222 *The Economist* 2011c.

223 *The Economist* 2011d.

224 Krugman 2011a.

225 See, for example, BBCNews 2009; and *The Economist* 2011c, 2011d.

226 International Monetary Fund 2010e, 2011a.

227 International Monetary Fund 2010f.

228 International Monetary Fund 2010e, 2011a.

229 Enrich 2011 (observing that "last year's stress tests…were widely panned for giving passing grades to almost all banks, including some that subsequently required taxpayer bailouts"). See also Münchau 2010 (observing that, "the Irish banking sector is insolvent, and there are questions about the capacity of the Irish state to absorb those losses. Jürgen Stark, in charge of the monetary policy section of the European Central Bank, last week raised questions about the solvency of the German banking sector.").

230 Doyle 2011.

231 Ibid. (observing that the total cost of the bailout now "equates to about two-thirds the size of the Irish economy.").

232 Krugman 2011a.

233 Doyle 2011.

234 Bank of America Merrill Lynch 2010.

235 See, for example, International Monetary Fund 2010e, 2011a; and Nixon 2010.

236 Coggan 2010a.

237 See Exhibit 48: Long-term Unemployment, 2009.

238 See International Monetary Fund 2011b (observing that, in Europe "[s]maller and more domestically-focused banks in some countries have found access to private wholesale funding sources curtailed. Many banks that have retained access have faced higher costs and are only able to borrow at very short maturities.").

239 Gore 2011.

240 International Monetary Fund 2010g.

241 Ibid.

242 Ibid.

243 International Monetary Fund-International Labour Organization 2010; Ross-Thomas 2010.

244 Meier 2010.

245 In fact, as noted by Paul Krugman, the situation even in Germany is more nuanced than proponents of austerity suggest, because Germany's austerity policies have not yet actually been implemented, and because, due to Germany's deeper recession, America's recession has in fact been less severe and its recovery more rapid than Germany's to date. Krugman 2010c.

246 Alderman 2010.

247 Ibid.

248 U.S. Central Intelligence Agency 2010.

249 Ibid.

250 Thesing 2011.

251 See, for example, Krugman 2011a; and *The Economist* 2011e.

252 *The Economist* 2011e.

253 Krugman 2011a.

254 Krugman 2011a; *The Economist* 2011e.

255 Saraiva and Mnyanda 2011; U.S. Central Intelligence Agency 2010.

256 Taylor 2011.

257 Bryson 2011.

258 Ibid. See also Minder 2011.

259 Institute of International Finance 2010.

260 Institute of International Finance 2010; Krugman 2011a.

261 Institute of International Finance 2010.

262 Krugman 2011a.

263 Ibid.

264 Ibid.

265 See, for example, *Financial Times* 2010a. "The Treasury says foreign holdings of U.S. government securities have risen from $1,015bn at the end of 2000 to $4,010bn in June [2010.] The total is up 15 percent in the past 12 months.... Many economists used to think that lenders would soon tire of supporting the profligate American government. But that particular sky has stubbornly refused to fall.... Loyal buyers, with the Fed thrown in for extra security, could push U.S. bond yields into the Japanese pattern of very low for a very long time."

266 Zeng 2010 (noting that the "median cash-to-assets ratio has risen from around 4% in the late 1990s to more than 12% recently, and it's 50% higher than the pre-credit crunch level" among the 1,500 largest U.S. companies by market capitalization).

267 Reuters 2011 (noting that "[b]usiness investment rose at a 7.7 percent rate [in the fourth quarter of 2010], lifted by spending on equipment and software, as well as on structures.").

268 See, for example, *The Economist* 2010c (observing that the U.S. "recovery is subdued by historical standards[, because] households and banks are working off the excess debts of a reckless decade. Monetary and fiscal easing should make this less painful, but this deleveraging still has years to go. There will be more weak patches like the summer of 2010, when investors' joy may quickly turn to gloom.").

269 See, for example, Homan and Schlisserman 2010.

270 See Exhibit 30: U.S. Real Personal Consumption Expenditures; and Chandra 2011a.

271 Sonders 2011b.

272 See, for example, Exhibit 50: Monthly and Cumulative Change in Employment, December 2007–February 2011 (based on analysis by the Center for Economic and Policy Research).

273 Schmitt and Conroy 2010.

274 Lanman and Zumbrun 2010 (citing minutes of the June 22–23, 2010, meeting of the Federal Reserve Open Markets Committee).

275 Torres 2010. See also Lanman and Zumbrun 2011.

276 Bernanke 2010c.

277 It is noteworthy that the official classification of 13.5 million people as unemployed *excludes* (a) approximately 2.4 million unemployed workers (an increase of 179,000 during the past year) who are considered to have left the labor force because they are no longer actively looking for work, and (b) approximately 8.4 million part-time workers considered "underemployed" because they were unable to find full-time employment. U.S. Bureau of Labor Statistics 2011.

278 Ibid. See also, Exhibit 53: U.S. Long-Term Unemployment.

279 See, for example, Rampell 2010 (citing data from the Bureau of Labor Statistics to show that the number of unemployed workers per job opening remained at levels nearly five times the rate in 2000).

280 *Financial Times* 2010a.

281 Ibid.

282 International Monetary Fund-International Labour Organization 2010.

283 U.S. Bureau of Labor Statistics 2011.

284 U.S. Bureau of Labor Statistics 2010a.

285 U.S. Bureau of Labor Statistics 2011.

286 Uchitelle 2010.

287 See Exhibit 52.

288 Uchitelle 2010.

289 El-Erian 2010a.

290 U.S. Bureau of Labor Statistics 2010a.

291 Ibid.

292 See U.S. Bureau of Labor Statistics 2008a (projecting that "during the period 2006–2016… workers age 55–64 are expected to climb by 36.5 percent[, b]ut the most dramatic growth is projected for the two oldest groups. The number of workers between the ages of 65 and 74 and those aged 75 and up are predicted to soar by more than 80 percent.").

293 U.S. Bureau of Labor Statistics 2010a.

294 U.S. Bureau of Labor Statistics 2008b.

295 Politi 2010.

296 Ibid.

297 See, for example, *The Economist* 2011f (observing that [i]n the past year manufacturing employment has gone up by 189,000, or 1.6%, the biggest gain since the late 1990s. Total employment rose just 1% in that period.").

298 U.S. Bureau of Labor Statistics 2011.

299 Ibid.

300 Ibid.

301 See, for example, Council of Economic Advisers 2009 ("The recession has accelerated the decline of already-contracting industries, such as auto manufacturing, and has led to an extraordinary decline in the financial services industry.... We must therefore improve training and job search assistance policies to facilitate not just re-entry into the labor market for the unemployed, but also entry into jobs that take advantage of growth opportunities.").

302 See Exhibits 25 and 26.

303 Board of Governors of the Federal Reserve System 2011; Keefe 2011; and Maltby 2010.

304 Board of Governors of the Federal Reserve System 2011.

305 Van Duyn 2010.

306 *The Economist* 2010d.

307 Van Duyn 2010.

308 Shenn 2010a.

309 See also Exhibit 55, which shows that while individuals have made some progress in reducing delinquencies during the past two years, levels of default on consumer indebtedness still remain significantly above the historical average.

310 Geanakoplos 2009.

311 *The Economist* 2010d. To avoid the criticism that principal relief provides a "gift" to irresponsible borrowers, it could be structured as a contingent participation right in any subsequent appreciation of the home's value. Under such an approach, the lender would convert a portion of its mortgage loan principal into a right to receive any proceeds in a subsequent sale of the home above the amount of the reduced loan, up to a maximum in the amount of the original loan balance before the reduction in principal. Another option could involve the creation of a "risk-sharing" approach involving the borrower and lender, under which some portion of the mortgage loan above the home's current market value is converted into a right of the borrower and lender to share in any proceeds on a sale on a prescribed basis.

312 Harrington 2011.

313 Hardee 2007.

314 Moutray 2008a.

315 Ibid.

316 Ou 2005. It should be noted, however, that based on Ou's study, a reduction in small business lending does not appear to follow where consolidation is among community banks or in communities where banking consolidation leaves a competitive small business lending market intact.

317 These included a commitment of $15 billion in TARP funds to purchase Small Business Administration-guaranteed loans, an increase of the guaranteed amount to 90 percent, an elimination of certain fees associated with the loans, and additional funding for new 7(a) and 504 loans under the *Small Business Jobs Act of 2010*. See Office of the President of the United States 2009; and Clifford 2010.

318 Bernanke 2010d.

319 Weitzman, Lemer, and Harding 2010.

320 See Exhibit 26.

321 Keister and McAndrews 2009.

322 Ibid.

323 Ibid.

324 Dennis 2011.

325 Dennis 2010.

326 National Federation of Independent Business Research Foundation 2011.

327 Ibid.

328 Dennis 2011.

329 Beattie and Harding 2010.

330 Moutray 2008b.

331 Ibid.

332 Chartis 2010. See also Mellor 2010: "The government has provided 4 trillion yuan in stimulus spending and encouraged banks to lend a record 9.59 trillion yuan last year, trying to bridge the gap until demand for exports rebounds or domestic consumption takes off."

333 *The Economist* 2010e.

334 Hamlin 2011.

335 Wassener 2011.

336 Anderlini 2011.

337 *The Economist* 2010e.

338 Jun 2011.

339 Ibid. (observing that China's banks "trade at an average of 8.6 times forecast profits compared with 10.4 times at the world's 20 largest banks," and an average of 19 times for India's five largest banks.).

340 Hamlin 2011.

341 *Financial Times* 2010b.

342 Mellor 2010.

343 *The Economist* 2010f.

344 Ibid.

345 Pilling 2010.

346 U.S. Central Intelligence Agency 2010.

347 Alkire and Santos 2010a.

348 Pilling 2010.

349 Ibid.

350 See, for example, Areddy 2010; and Krugman 2010d.

351 According to the CIA, China's military expenditures amount to 4.3 percent of GDP. Based on Chinese official GDP in 2009 of $4.9 trillion, China spends approximately $210 billion annually on its military, compared to the 0.8% of GDP (or approximately $40 billion) spent by Japan. U.S. Central Intelligence Agency 2010.

352 U.S. Central Intelligence Agency 2010. See also Chartis 2010: "Iran was the third-largest supplier of crude oil to China during the first half of 2010, behind Saudi Arabia and Angola."

353 Chartis 2010.

354 Kruger 2010 (citing studies done on behalf of the U.S. Federal Reserve in 2006 and 2009 by Professors Francis and Veronica Warnock of the University of Virginia).

355 Rachman 2011.

356 Kruger 2010.

357 Ibid.

358 See, for example, statement by Chinese premier Wen Jiabao in March 2009: "We have lent a massive amount of capital to the United States, and of course we are concerned about the security of our assets.... To speak truthfully, I do indeed have some worries," reported in Kruger 2010.

359 Tachikawa, Li, and Roman 2010.

360 Kruger 2010.

361 Ibid.

362 Cookson 2010.

363 *Financial Times* 2010c.

364 Ibid.

365 Ibid.

366 Ibid.

367 U.S. Central Intelligence Agency 2010.

368 Ibid.

369 Ibid.

370 Yong 2008.

371 See, for example, Buckley 2010.

372 Ibid.

373 Yong 2008.

374 *The Economist* 2010g.

375 U.S. Central Intelligence Agency 2010.

376 Ibid.

377 *The Economist* 2010g.

378 Ibid.

379 Ibid.

380 Ibid.

381 U.S. Central Intelligence Agency 2010.

382 Ibid.

383 Alkire and Santos 2010b, 2010c.

384 Gibley 2010a.

385 *The Economist* 2010h.

386 Gibley 2010a.

387 Ibid.

388 Ibid.

389 See, for example, Luce 2007; Mehta 2005.

390 Global Integrity 2009.

391 *Times of India* 2010.

392 Ibid.

393 Lal 2008.

394 Timmons and Kahn 2009 (citing the Asian Development Bank and Professor C. K. Prahalad of the University of Michigan Ross School of Business).

395 International Monetary Fund 2010h.

396 U.S. Central Intelligence Agency 2010.

397 Bristow and Dantas 2010.

398 U.S. Central Intelligence Agency 2010.

399 Gibley 2010b.

400 Reid 2010.

401 U.S. Central Intelligence Agency 2010.

402 Ibid.

403 Gibley 2010b.

404 U.S. Central Intelligence Agency 2010.

405 Gibley 2010b (citing Ned Davis Research).

406 Gibley 2010b.

407 Ibid.

408 Ibid.

409 Bristow and Dantas 2010.

410 International Monetary Fund 2010h.

411 Ibid.

412 Gibley 2010b.

413 International Monetary Fund 2010h.

414 Gibley 2010b.

415 Ibid. (citing *Financial Times*).

416 Ibid.

417 Ibid.

418 Ibid. (citing the World Bank).

419 Reid 2010.

420 Jaeger 2011.

421 U.S. Central Intelligence Agency 2010.

422 *The Economist* 2009b.

423 U.S. Central Intelligence Agency 2010.

424 International Monetary Fund 2010i.

425 U.S. Central Intelligence Agency 2010.

426 International Monetary Fund 2010i.

427 Ibid.

428 U.S. Central Intelligence Agency 2010.

429 Ibid.

430 Ibid.

431 Panfilova 2008: "the Investigations Committee of the Prosecutor General's Office estimates that businesses in Russia pay up to US$33.5 billion each year in bribes and kickbacks." Given that this is an estimate provided by an official Russian source, the actual number may be significantly higher.

432 *The Economist* 2009b.

433 Ibid.

434 Panfilova 2008.

435 Ibid.

436 *The Economist* 2009b.

437 Panfilova 2008 (citing Mikhail Saltykov-Shchedrin).

438 *The Economist* 2009b.

439 Ibid.

440 International Monetary Fund 2010b.

441 Beattie and Harding 2010.

442 See, for example, El-Erian 2010; and Parikh 2010.

443 See, for example, Reinhart and Rogoff 2010; and Roxburgh et al. 2010.

444 Roxburgh et al. 2010.

445 Ibid.

446 Parikh 2010.

447 Ibid.

448 International Monetary Fund 2010c.

449 Roxburgh et al. 2010.

450 Ibid.

451 Kruger and Christie 2010: "inflation excluding food and energy prices held at a 44-year low since April…"

452 Kruger and Christie 2010: "The U.S. has already begun scaling back debt auctions…. Demand has risen 18 percent this year to a record high, with bidders offering $2.95 for every dollar of debt sold compared with $2.50 last year…."

453 Bond et al. 2010.

454 Greenspan 2010.

455 Dorning 2010.

456 Kruger and Christie 2010.

457 See International Monetary Fund 2010b; and International Monetary Fund 2010c (observing that "[t]he proposed fiscal tightening of about 1 percent of GDP in 2011 implied by the administration's mid-session review strikes the right balance between near-term support for the recovery and medium-term credibility. If downside risks to growth materialize, there is some room to reduce up-front adjustment while strengthening medium-term credibility. This could be achieved by further entitlement spending reforms, which would have little immediate impact on demand.").

458 International Monetary Fund 2010b.

459 Bernanke 2010b.

460 Schneeweiss and MacAskill 2010.

461 Ibid.

462 Soros 2010.

463 International Monetary Fund 2010c.

464 Another, often overlooked, danger of attempting to expand (or even continue) monetary stimulus is the increasing harm imposed on the living standards of individuals relying on fixed incomes, such as retirees. See, for example, *New York Times* 2010a (arguing that "many investors in certificates of deposits, savings accounts and money market accounts are losing money once taxes and inflation are subtracted from today's extremely low yields."); and American Association of Retired Persons 2010 (observing that, "[a]ccording to data from the Social Security Administration, more than half of all married recipients—and nearly three-quarters of unmarried recipients—get more than 50 percent of their income from investments and pensions outside Social Security. These older Americans are especially hurt by low interest rates.").

465 Krugman 2010e.

466 See, for example, Exhibit 57: U.S. Federal Debt Held by the Public Under CBO's Long-Term Budget Scenarios; and U.S. Congressional Budget Office 2011a, 2011b.

467 See, for example, National Commission on Fiscal Responsibility and Reform 2010 (noting that "[b]y 2025 revenue will be able to finance only interest payments, Medicare, Medicaid and Social Security."); and U.S. Congressional Budget Office 2011b.

468 See Boyd 2011 (observing that the 2008 financial crisis and ensuing recession led to the "[w]orst state government tax declines in [over 5] decades—worse than [the] 2001 recession [and] worse than [the] economy suggests….").

469 Selway 2010.

470 Malanga 2010.

471 Bennett and Doom 2010.

472 Blinder and Zandi 2010c.

473 Bernanke 2010d.

474 Ibid.

475 Marois 2010; and Robinson 2010.

476 Coggan 2010a.

477 Ibid.

478 Bernanke 2010d.

479 Robinson 2010.

480 Ibid.

481 Malanga 2010.

482 See Bater 2010, noting that "Concern over the nation's mounting debt could snarl the passage of President Barack Obama's proposal to provide more aid to state and local governments."

483 Liu and Braun 2010.

484 McDonald 2010.

485 See, for example, Herszenhorn and Zeleny 2010.

486 U.S. Bureau of Labor Statistics 2011.

487 Ibid.

488 Gais 2010 (observing that the current ratio of state and local government employees to federal employees is approximately 7 to 1, the highest level since the period before the New Deal and that state and local "direct expenditures rose from 14 to 17 percent of GDP since [the] mid-1980s, while federal domestic direct spending fell from 16 percent in the early 1990s to under 13.6 in 2007.").

489 Bank of America Merrill Lynch 2010; Dugan 2010.

490 Riordan and Rubalcava 2010.

491 Bernanke 2010d.

492 While a recent advance by Pennsylvania of $3.3 million allowed Harrisburg to avoid defaulting on a guaranteed payment of a municipal bond obligation, the advance only provides the city with limited breathing room before it again will be forced to confront a serious fiscal imbalance caused by lower tax revenues, high pension obligations, and a legacy of expensive government-funded infrastructure projects. Moreover, the state relief hints at the pressures that government will face to assist troubled municipalities (and states). See, for example, *Wall Street Journal* 2010 (noting that Pennsylvania's "bridge loan may provide temporary relief for the cash crunch and soothe bond investors[, but that] without reforms that require the city to live within its means, it only postpones the real reckoning.").

493 Mysak 2010.

494 Bank of America Merrill Lynch 2010; Dugan 2010.

495 International Monetary Fund 2010a.

496 Bond et al. 2010.

497 Parikh 2010.

498 Bond et al. 2010.

499 Reinhart and Rogoff 2010b.

500 Ibid. (emphasis in original).

501 See, for example, Krugman 2010e; Roxburgh et al. 2010; and Schneeweis and MacAskill 2010.

502 Roxburgh et al. 2010.

503 Ibid.

504 Ibid.

505 Ibid. See also International Monetary Fund 2010b.

506 The Economist 2010i.

507 Geanakoplos 2009.

508 See Goodman 2011 (citing the observation by PIMCO investment manager Bill Gross that, "[t]he U.S. has unrecorded debt of $75 trillion, or close to 500 percent of gross domestic product, counting what it owes on its bonds plus obligations for Social Security, Medicare and Medicaid….").

509 Jackson 2010b. Interestingly, Jackson also notes that "if governments cannot inflate their way out of trouble, the logical alternative is to keep Treasury yields artificially low. And the way to do that is to stuff the banks with them, under cover of regulatory prudence." In fact, this is precisely what is occurring today through the changes in bank capital requirements adopted since 2008.

510 U.S. Congressional Budget Office 2009.

511 U.S. Congressional Budget Office 2011a.

512 Ibid.

513 See, for example, Parikh 2010; and *The Economist* 2009a.

514 Parikh 2010.

515 Wessel 2010b.

516 Ibid.

517 Kapner 2010.

518 See, for example, Financial Crisis Inquiry Commission 2011; and Pinto 2010b.

519 See, for example, Sorkin 2010b.

520 Wessel 2010b.

521 Timiraos 2010a.

522 Ibid.

523 Ibid.

524 For example, as reported by Kapner 2010 in the *Financial Times*, "countries including Canada, Britain and France survive with variable-rate mortgages or those that are fixed over a shorter period, [even though]…that system injects further uncertainty into the mortgage market and could mean that homeowners will face rising rates at times when they are least likely to be able to afford them."

525 *Financial Times* 2010d.

526 Ibid.

527 See *Financial Times* 2010d; Fisher and Jaffe 2003; and U.S. Census Bureau, *Historical Census of Housing Tables*. When comparing international home ownership rates, it should be noted that dramatic differences exist in what is classified as "ownership." Thus, for example, the official Chinese rate of homeownership of nearly 80 percent includes different levels of restrictions on ownership and possessory rights to property (including underlying long-term land leases, rather than fee ownership, and government rights to capital gains), and also reflects the relatively recent privatization of the previously state-owned housing sector in the 1990s. See Duda, Zhang, and Dong 2005. For these reasons, quoted rates of home "ownership" in China and certain other former Communist countries with similar characteristics tend not to be comparable to those of the United States and other developed industrialized countries.

528 Shenn 2010b.

529 U.S. Department of the Treasury 2010b.

530 Timiraos 2010a.

531 Kapner 2010.

532 U.S. Department of the Treasury 2010b.

533 Timiraos 2010a.

534 Timiraos 2010b.

535 Woellert 2010.

536 Ibid.

537 Ibid.

538 Kapner 2010.

539 Rickards 2010.

540 Ibid.

541 El-Erian 2010b.

542 Ibid.

543 Moutray 2008b.

544 *Financial Times* 2010e.

545 Dennis 2011.

546 See, for example, International Monetary Fund 2010j.

547 Roxburgh et al. 2010.

548 International Monetary Fund 2010j.

549 Kirkland and Gammeltoft 2010.

550 *The Economist* 2010j.

551 Decker 2010.

552 U.S. Bureau of Economic Analysis 2011.

553 U.S. Bureau of Economic Analysis 2010.

554 Blinder and Zandi 2010c.

555 Ibid.

556 See, for example, Rohatyn 2010 (noting that an infrastructure bank could "make strides to meet [the estimated $2 trillion in U.S. infrastructure investment needs] by issuing its own bonds of up to 50 years in maturity and, with a conservative gearing, could initially raise $200 to $300 billion and become self-financing over time.").

557 Ibid.

558 Bond et al. 2010.

559 Ibid.

560 Smith, Roberts, and Vander Wielen 2006.

561 Ibid.

562 Bipartisan Commission on Entitlement and Tax Reform 1994.

563 Ibid.

564 Ibid.

565 Ibid.

566 Leonhardt 2009.

567 Calmes 2010a.

568 U.S. Congressional Budget Office 2010c.

569 *The Economist* 2010g (noting that the Obama deficit reduction "commission's report is showing faint signs of life thanks to a quiet effort by what amounts to a second, stealth deficit commission" in the form of the "Gang of Six," a bipartisan group of Senators led by Republican Saxby Chambliss and Democrat Mark Warner). See endnote 609.

570 U.S. House of Representatives Committee on the Budget 2011.

571 White House Office of the Press Secretary 2011a.

572 National Commission on Social Security Reform 1982.

573 Calmes 2010a.

574 Penner 2001.

575 Ibid.

576 Dallek 2009.

577 Penner 2001.

578 Ibid.

579 Calmes 2010a.

580 International Monetary Fund 2011d (observing that a "credible strategy to stabilize public debt in the medium term, and a down payment on fiscal consolidation in 2011, are urgently needed.").

581 Giles and Politi 2011.

582 Standard & Poor's 2011.

583 National Commission on Fiscal Responsibility and Reform 2010a.

584 Bipartisan Policy Center 2010.

585 U.S. Congressional Budget Office 2011a.

586 U.S. House of Representatives Committee on the Budget 2011 (subsequently adopted by the U.S. House of Representatives on April 15, 2011, as a non-binding budget framework); White House Office of the Press Secretary 2011a.

587 Ibid. See also White House Office of the Press Secretary 2011b.

588 Politi 2011.

589 U.S. House of Representatives Committee on the Budget 2011; White House Office of the Press Secretary 2011a.

590 See, for example, U.S. Congressional Budget Office 2011b; *The Economist* 2011h; International Monetary Fund 2011e.

591 U.S. House of Representatives Committee on the Budget 2011; White House Office of the Press Secretary 2011a.

592 See, for example, Wolf 2011 (arguing that the "Ryan plan is a 'reductio ad absurdum'—a disproof by taking a proposition to a logical conclusion. It would turn the government into a miserly provider of pensions and health insurance. These functions would absorb three-quarters of non-interest spending by 2050. Other functions, including even defence, would collapse. This is most unlikely to happen."); and Krugman 2011b (noting that President Obama's proposal for Medicare cost controls is "probably expecting too much payoff in the near term. And over the longer run,…we'll need modestly higher taxes on the middle class as well as the rich to pay for the kind of society we want.").

593 *The Economist* 2011i (observing that the Ryan plan's projections for deficit reduction are based on a "wildly optimistic analysis of his budget's economic impact…[which] projected an investment boom that would lift output and drive unemployment down to 2.8%, a rate not seen for 57 years.").

594 White House Office of the Press Secretary 2011a.

595 U.S. House of Representatives Committee on the Budget 2011.

596 U.S. Congressional Budget Office 2011c (noting that "[u]nder the proposal, the gradually increasing number of Medicare beneficiaries participating in the new premium support program would bear a much larger share of their health care costs than they would under the traditional program.... That greater burden would require them to reduce their use of health care services, spend less on other goods and services, or save more in advance of retirement than they would under current law.").

597 Ibid. (observing that "federal payments for Medicaid under the proposal would be substantially smaller than currently projected amounts.… Although states would have additional flexibility to design and manage their Medicaid programs…the large projected reduction in federal payments would probably require states to reduce payments to providers, curtail eligibility for Medicaid, provide less extensive coverage to beneficiaries, or pay more themselves than would be the case under current law."). See also *The Economist* 2011j (observing that Medicaid already currently "accounts for about one-sixth of America's health-care spending…is the single largest source of federal revenue to states [and in] 2009 it provided benefits to 63m people.… Medicaid gobbles up more state money than any programme except education.").

598 Ibid.

599 Frank 2011.

600 See, for example, Krugman 2011b (noting that "the Department of Veterans Affairs pays about 40 percent less for drugs than the private plans in [Medicare] Part D [and]… Medicare Advantage, which closely resembles the privatized system that Republicans want to impose on all seniors, currently costs taxpayers 12 percent more per recipient than traditional Medicare.").

601 International Monetary Fund 2011f.

602 Ibid.

603 Ibid.

604 U.S. Congressional Budget Office 2011; U.S. House of Representatives Committee on the Budget 2011.

605 U.S. Congressional Budget Office 2011c; Wolf 2011.

606 See, for example, Krugman 2011b (estimating that the Ryan plan contemplates $2.9 trillion in tax cuts); Citizens for Tax Justice 2010 (asserting that, based on analysis of Chairman Ryan's 2010 budget proposal, the Ryan plan "would reduce revenues by $2 trillion over ten years."); Bixby 2011 (observing that "because the Ryan budget is committed to holding federal taxes to no more than 19 percent of the economy… while eventually balancing the budget[, t]his inevitably produces a squeeze. Without higher revenues than we have typically collected, the growth of programs driven by an aging population and health care costs will consume more of the budget even with the magnitude of cuts proposed by Ryan.").

607 U.S. Congressional Budget Office 2011; U.S. House of Representatives Committee on the Budget 2011.

608 White House Office of the Press Secretary 2011a.

609 Ibid.

610 See, for example, Crook 2011 (observing that "Republicans need to admit that maintaining adequate public provision as the population ages requires, almost as a matter of arithmetical necessity, more revenues. The long-term borrowing problem cannot be solved by cutting spending alone."); National Commission on Fiscal Responsibility and Reform 2010 (noting that to "escape our nation's crushing debt and deficit problem, we must have shared sacrifice—and that means a portion of the savings from cutting tax expenditures must be dedicated to deficit reduction."); International Monetary Fund 2011d (arguing that while deficit reduction will require "[m]easures to trim discretionary spending…to make a sizable dent in the projected medium-term deficits, broader measures such as Social Security and tax reforms will be essential.").

611 Gang of Six members are Senate Democrats Mark Warner (Virginia), Dick Durbin (Illinois), and Kent Conrad (North Dakota), and Senate Republicans Saxby Chambliss (Georgia), Mike Crapo (Idaho), and Tom Coburn (Oklahoma).

612 See, for example, McDonald 2010 (observing that the "governors of New York, Pennsylvania and Michigan on June 30 [2010] led states pressing Congress to extend higher financing for Medicaid, the health-care program for the poor whose use surged during the economic crisis.… Earlier this year, 47 Republican and Democratic governors urged Congressional leaders to extend the Medicaid help, signing a letter asking for a six-month extension.").

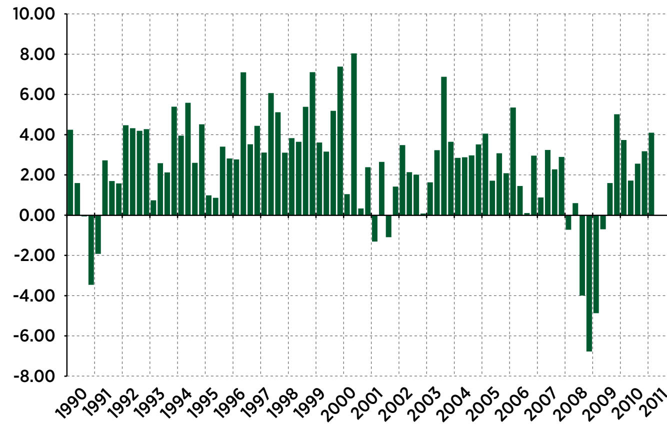
613 In fact, President Obama's deficit reduction proposal contemplates a similar procedural measure to force serious consideration of deficit reduction legislation in its "Debt Failsafe" mechanism, which would "trigger an across the board spending reduction, including on spending through the tax code…[by ensuring] that deficits as a share of the economy average no more than 2.8% of GDP in the second half of the decade," if "by 2014, budget projections do not show that the debt-to-GDP ratio has stabilized and is declining." White House Office of the Press Secretary 2011a.

614 International Monetary Fund 2011g.

Exhibits

Exhibit 1: U.S. Real GDP Growth, 1990–2011

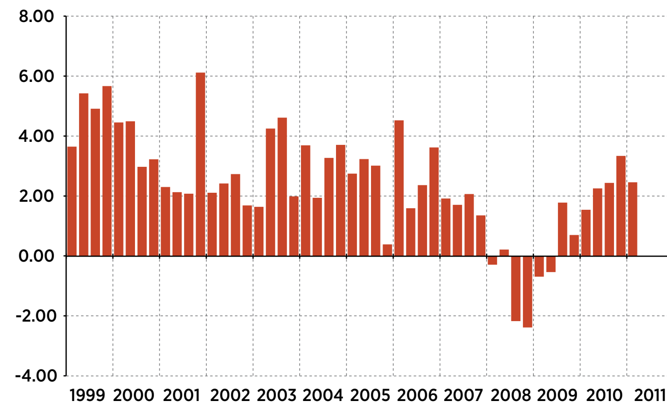
Annualized Percentage Change



Sources: Bureau of Economic Analysis; IHS Global Insight; AIG Global Economics.

Exhibit 2: U.S. Real Domestic Purchases, 1999–2011

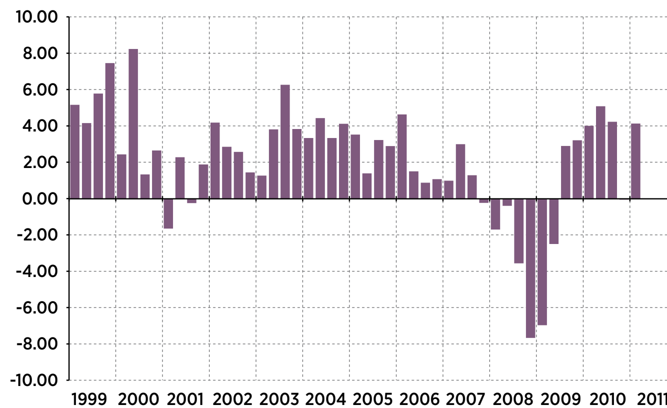
Annualized Percentage Change



Sources: Bureau of Economic Analysis; IHS Global Insight; AIG Global Economics.

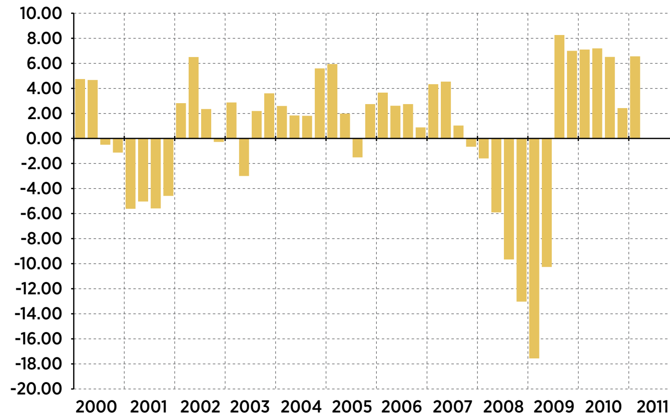
Exhibit 3: U.S. Real Domestic Final Demand, 1999–2011

Annualized Percentage Change



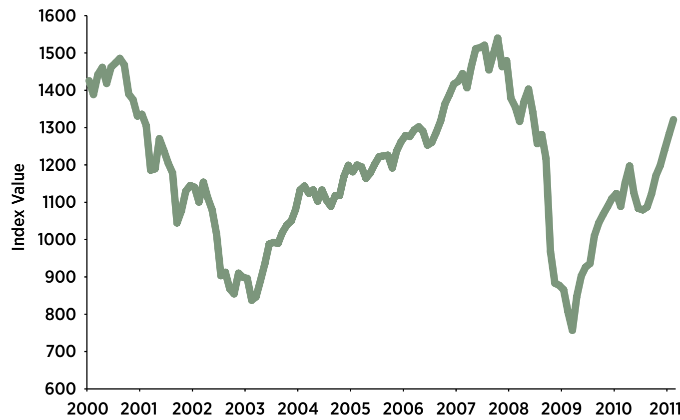
Sources: Bureau of Economic Analysis; IHS Global Insight; AIG Global Economics.

Exhibit 4: U.S. Industrial Production, 2000–2011
Annualized Percentage Change



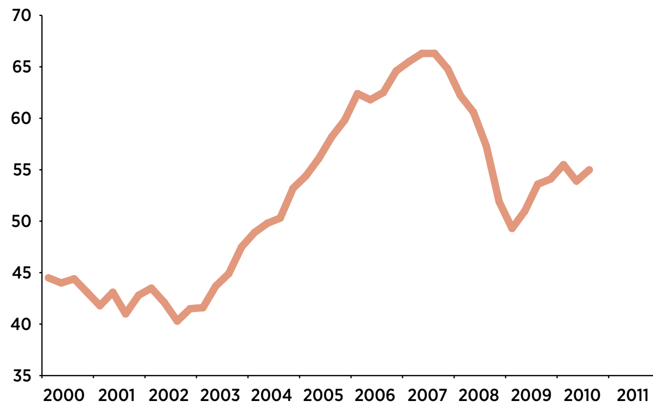
Sources: Federal Reserve Board; IHS Global Insight; AIG Global Economics.

Exhibit 5: S&P 500, 2000–2011



Sources: Standard & Poor's; IHS Global Insight; AIG Global Economics.

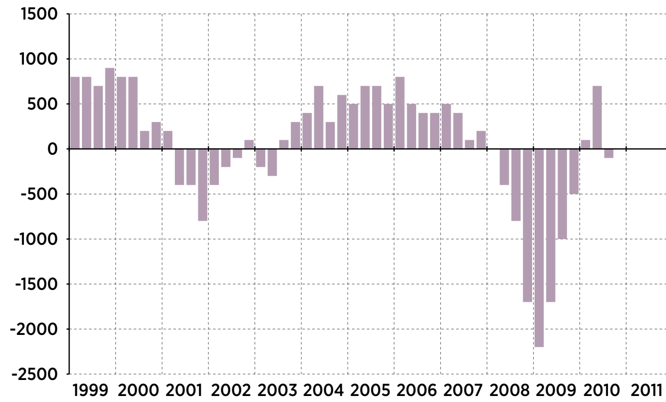
Exhibit 6: U.S. Household Net Worth, 2000–2011
Trillions USD



Sources: Bureau of Economic Analysis; MacroAdvisers; AIG Global Economics.

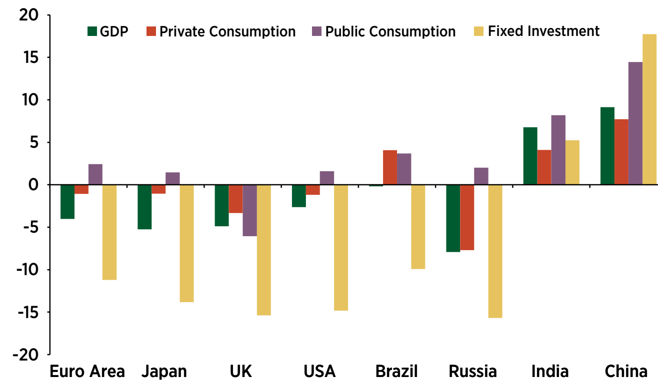
Exhibit 7: U.S. Nonfarm Payroll Employment, 1999–2011

Change, Thousands of Persons



Sources: Bureau of Labor Statistics; MacroAdvisers; AIG Global Economics.

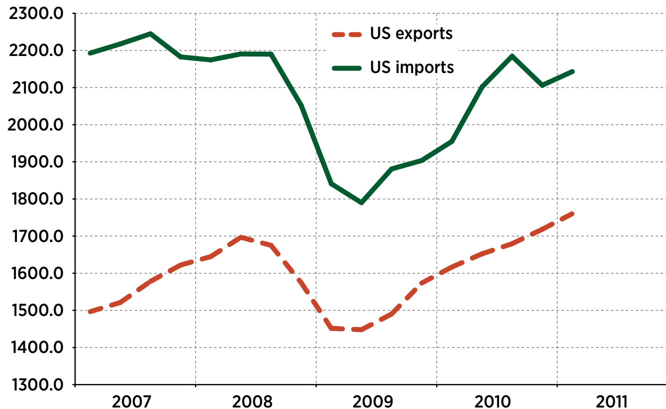
Exhibit 8: Percent Change in GDP and Components, 2008–2009



Sources: IHS Global Insight; AIG Global Economics.

Exhibit 9: Real U.S. Trade, 2007–2011

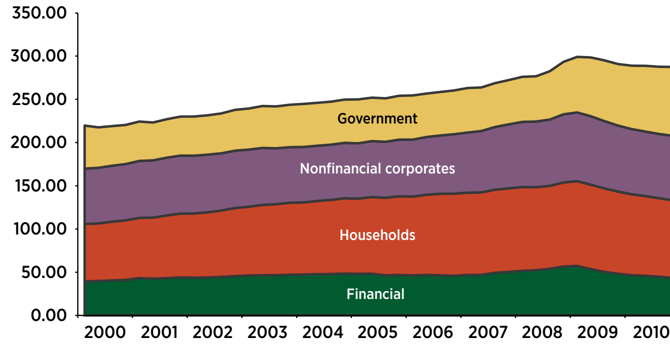
Billions USD



Sources: Bureau of Economic Analysis; IHS Global Insight; AIG Global Economics.

Exhibit 10: Growth in Aggregate U.S. Public and Private Debt, 2000–2010

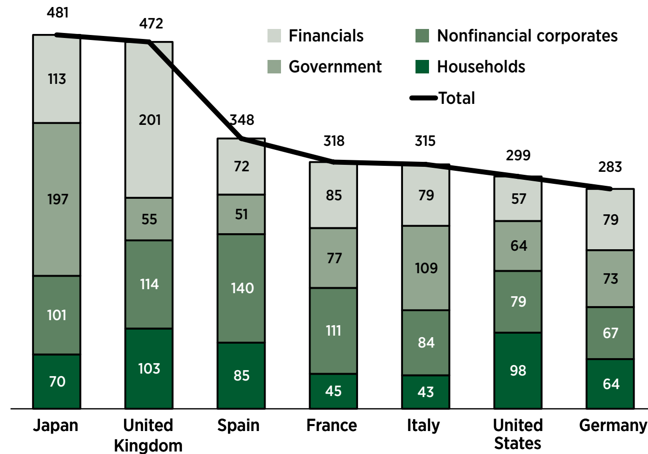
% of GDP



Sources: McKinsey Global Institute; Federal Reserve Flow of Funds; AIG Global Economics.

Exhibit 11: Total Public and Private Debt in Advanced Economies, 2009

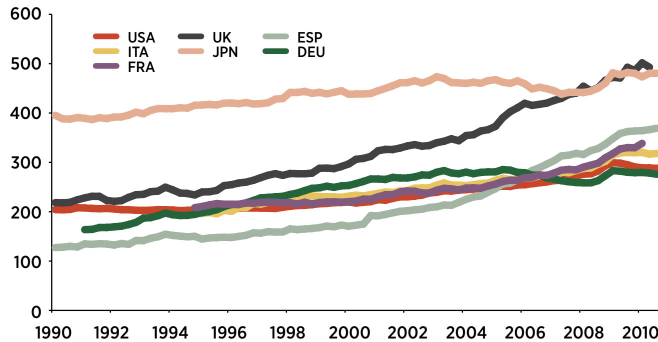
Debt by country, 1Q2009, %of GDP



Sources: Mckinsey Global Institute; Haver Analytics; AIG Global Economics.

Exhibit 12: Growth in Private and Public Sector Debt by Country, 1990–2010

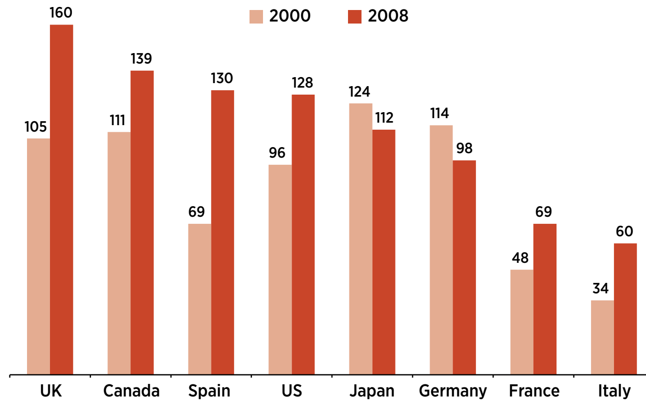
% of GDP



Sources: McKinsey Global Institute; Haver Analytics; AIG Global Economics.

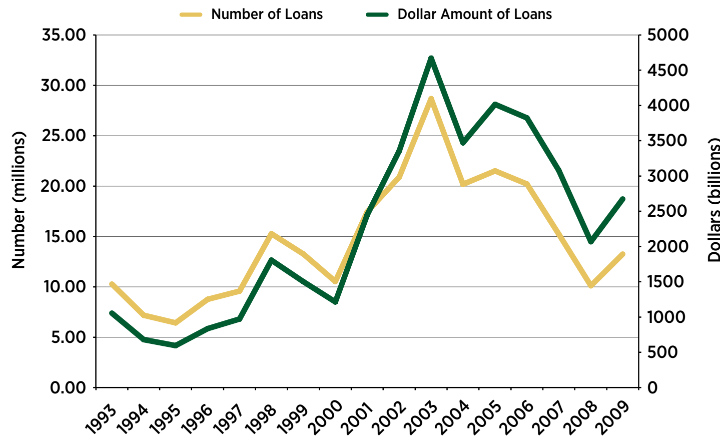
Exhibit 13: Total Household Debt, 2000 and 2008

% of disposable income



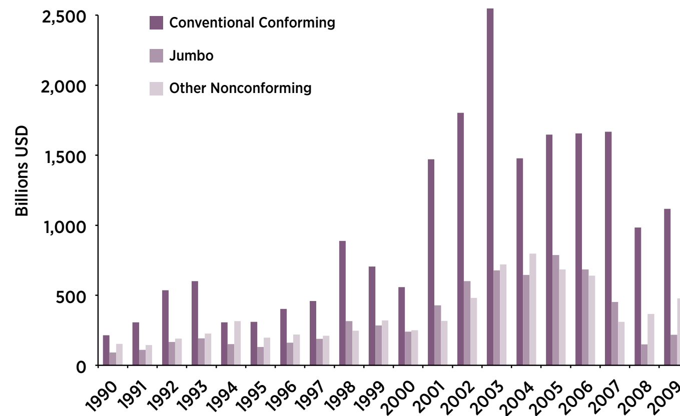
Sources: Mckinsey Global Insitute; Federal Reserve Bank; AIG Global Economics.

Exhibit 14: U.S. Mortgage Originations, 1993–2009



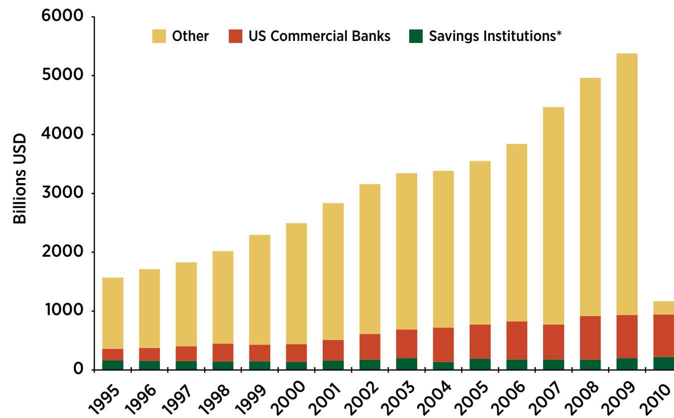
Sources: Moody's Analytics; AIG Global Economics.

Exhibit 15: U.S. Mortgage Originations by Type, 1990–2009



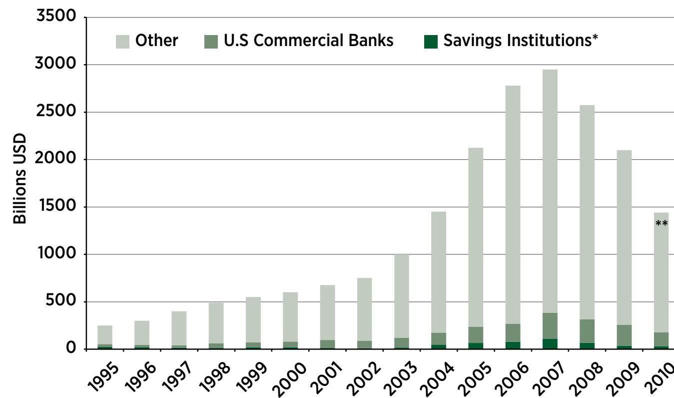
Sources: Office of Federal Housing Enterprise Oversight; Moody's Analytics; AIG Global Economics.

Exhibit 16: Agency and GSE Mortgage-Backed Securities, by Institution Type, 1995–2010



*Savings and Loan Associations, mutual savings banks, and federal savings banks.
Sources: Financial Crisis Inquiry Commission, AIG Global Economics, Federal Reserve Flow of Funds.

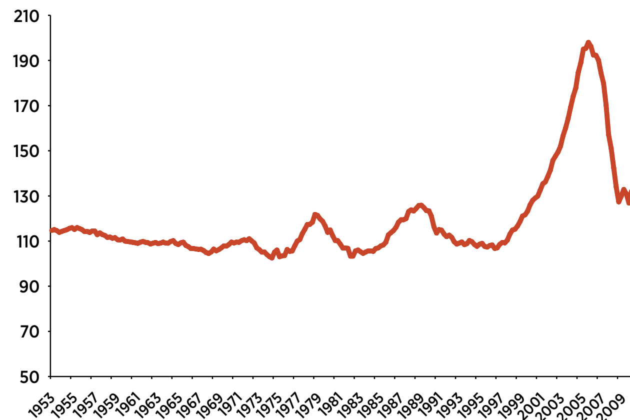
Exhibit 17: Nonagency Mortgage-Backed Securities Held, by Institution Type, 1995–2010



* Savings and loan associations, Mutual Savings Banks and Federal Savings Banks.
**Estimated.
Sources: Financial Crisis Inquiry Commission; Federal Reserve Flow of Funds; AIG Global Economics.

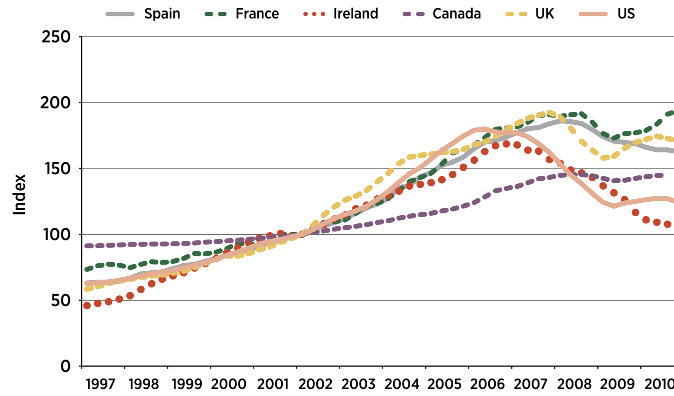
Exhibit 18: U.S. Real Home Price Index, 1953–2009

Case-Shiller Index, 1Q200=100



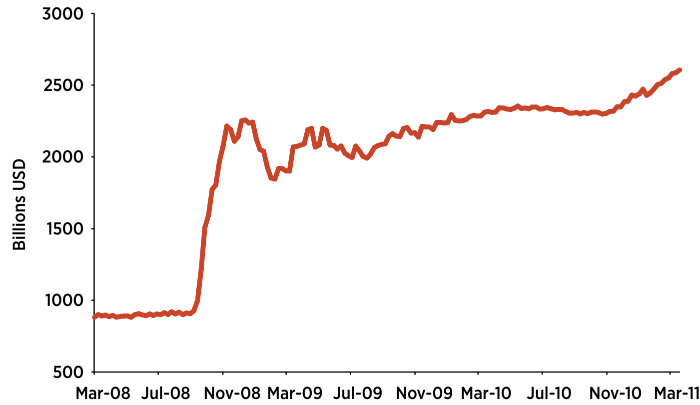
Source: Shiller 2005.

Exhibit 19: International Home Prices, 1997–2010



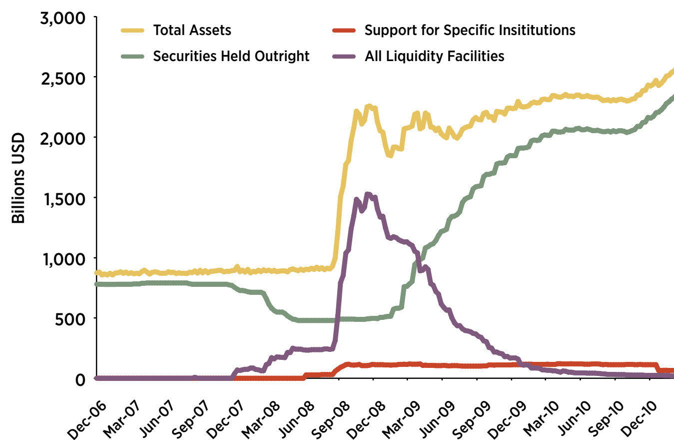
Sources: IHS Global Insight; AIG Global Economics.

Exhibit 20: Total Assets of the Federal Reserve, March 2008–March 2011



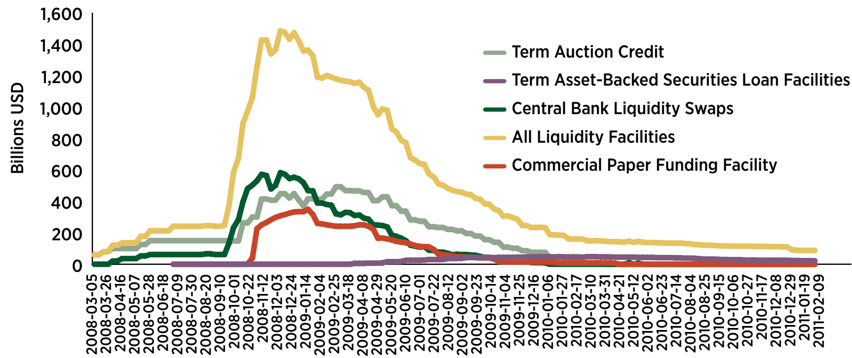
Sources: Federal Reserve Bank of New York; AIG Global Economics.

Exhibit 21: Selected Assets of the Federal Reserve, December 2006–February 2011



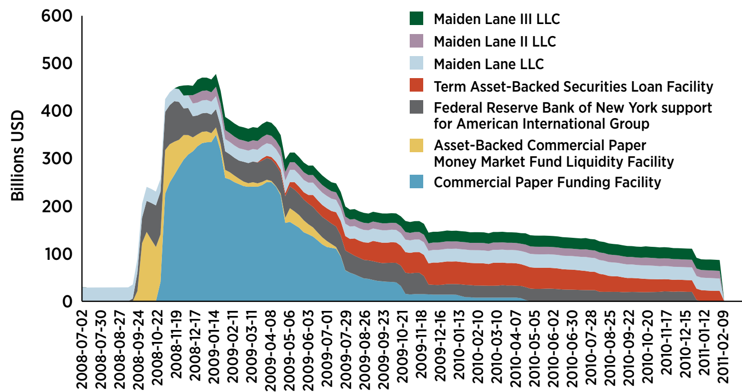
Sources: Federal Reserve Bank of New York; MacroAdvisers; AIG Global Economics.

Exhibit 22: Credit Extended Through Federal Reserve Liquidity Facilities, March 2008–February 2011



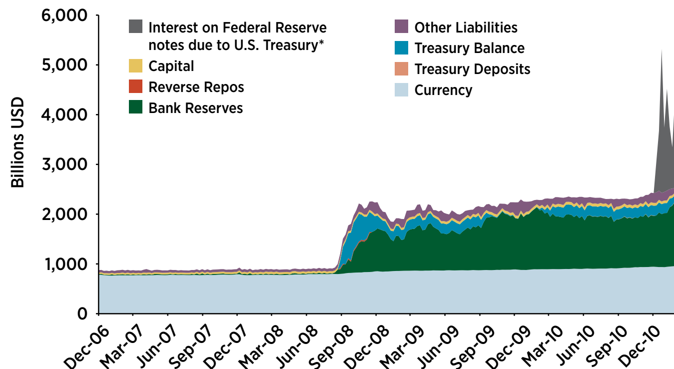
Sources: Federal Reserve Bank of New York; MacroAdvisers; AIG Global Economics.

Exhibit 23: Funding Provided Through Selected Federal Reserve Programs, July 2008–February 2011



Sources: Federal Reserve Bank of New York; AIG Global Economics.

Exhibit 24: Liabilities of the Federal Reserve Banks, December 2006–February 2011

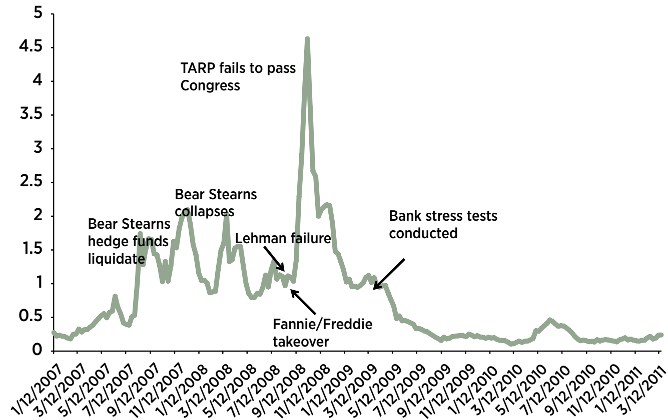


*Reflects Federal Reserve accounting policy change effective January 1, 2011.

Sources: Federal Reserve Bank of New York; MacroAdvisers; AIG Global Economics.

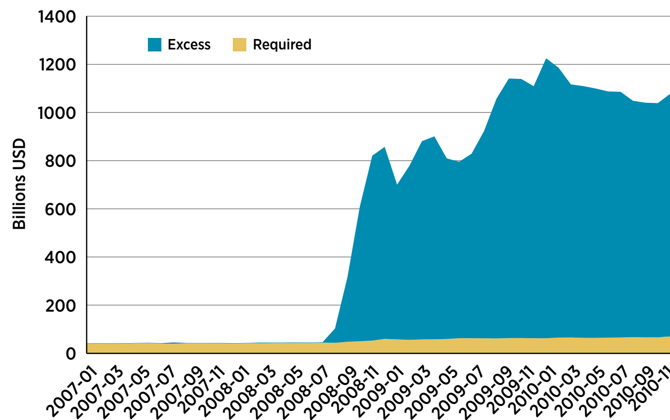
Exhibit 25: Difference Between Three-Month LIBOR and Treasury Bill Yields, January 2007–March 2011

Percentage points



Sources: Blinder and Zandi 2010c; Bloomberg; AIG Global Economics.

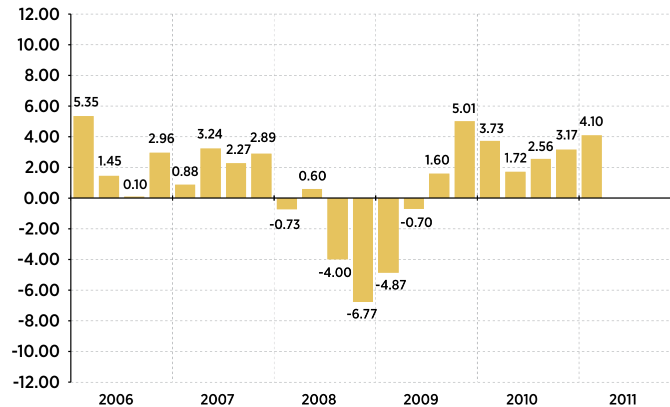
Exhibit 26: Aggregate Reserves of U.S. Depository Institutions, 2007–2010



Sources: Federal Reserve Bank of New York; AIG Global Economics.

Exhibit 27: U.S. GDP Growth, 2006–2011

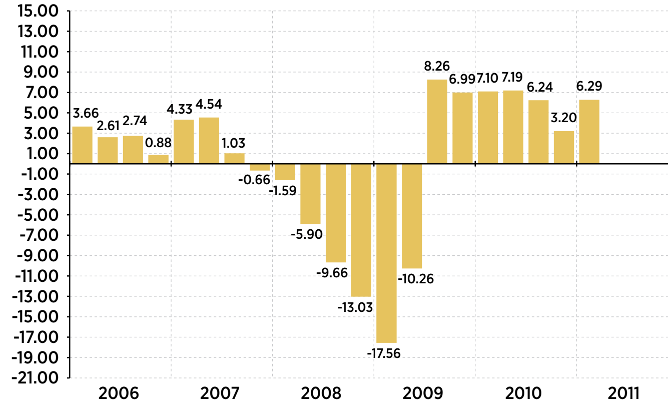
Annualized Percentage Change



Sources: Bureau of Economic Analysis; IHS Global Insight; AIG Global Economics.

Exhibit 28: U.S. Industrial Production, 2006–2011

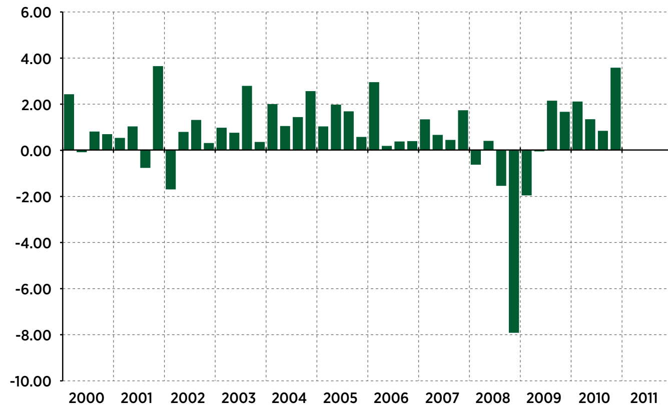
Annualized Percentage Change



Sources: Federal Reserve Bank of New York; IHS Global Insight; AIG Global Economics.

Exhibit 29: U.S. Retail Sales, Excluding Food Services, 2000–2011

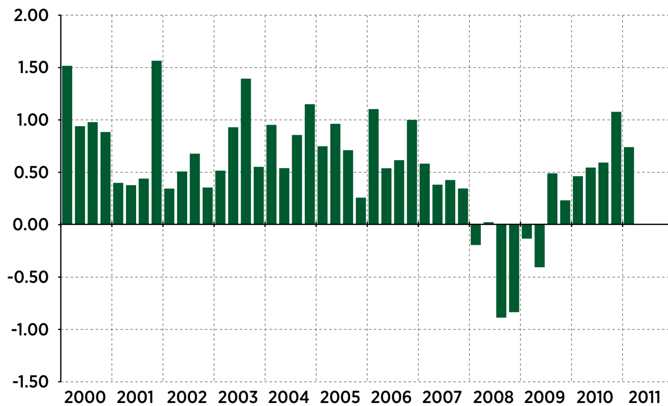
Percent Change



Sources: Census Bureau; IHS Global Insight AIG Global Economics.

Exhibit 30: U.S. Real Personal Consumption Expenditures, 2000–2011

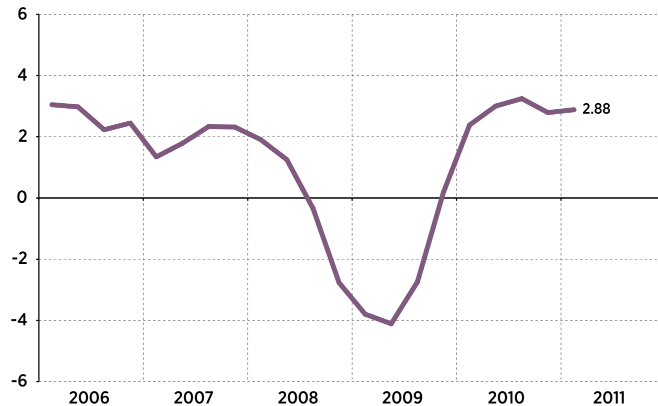
Percent Change



Sources: Bureau of Economic Analysis; IHS Global Insight; AIG Global Economics.

Exhibit 31: U.S. GDP Growth, 2006–2011

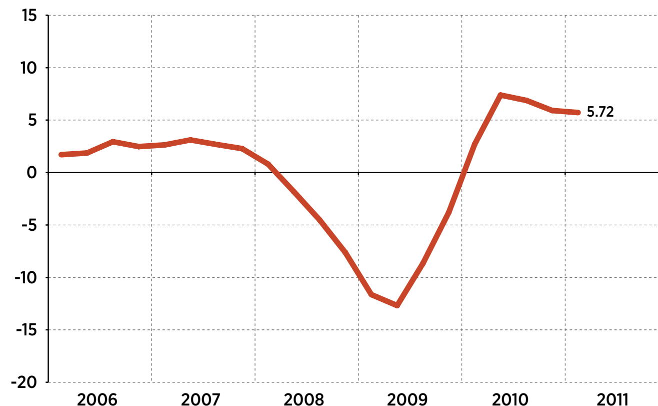
Percent Change Over Year-Ago Level



Sources: Bureau of Economic Analysis; IHS Global Insight; AIG Global Economics.

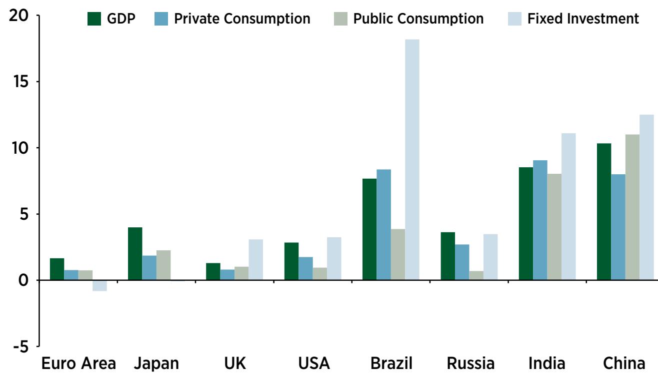
Exhibit 32: U.S. Industrial Production, 2006–2011

Percent Change Over Year-Ago Level



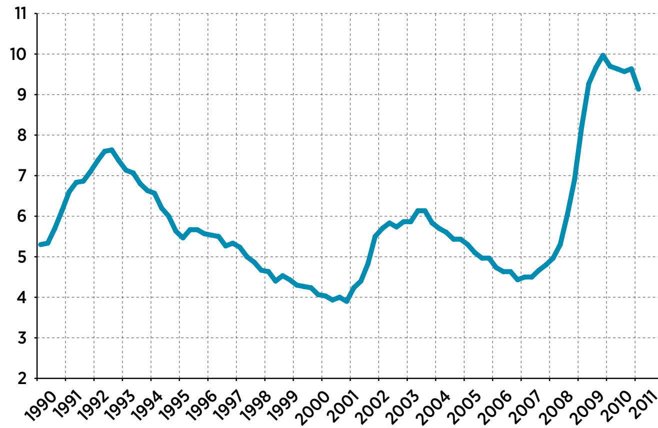
Sources: Federal Reserve Bank of New York; IHS Global Insight; AIG Global Economics.

Exhibit 33: Percent Change in GDP and Components, 2009–2010



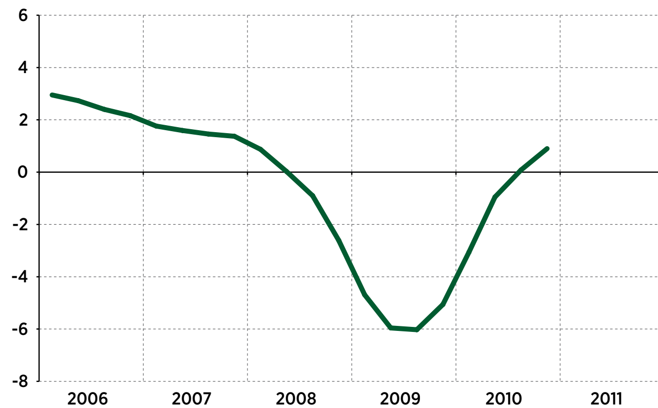
Sources: IHS Global Insight; AIG Global Economics.

Exhibit 34: U.S. Civilian Unemployment Rate, 1990–2011
Percent



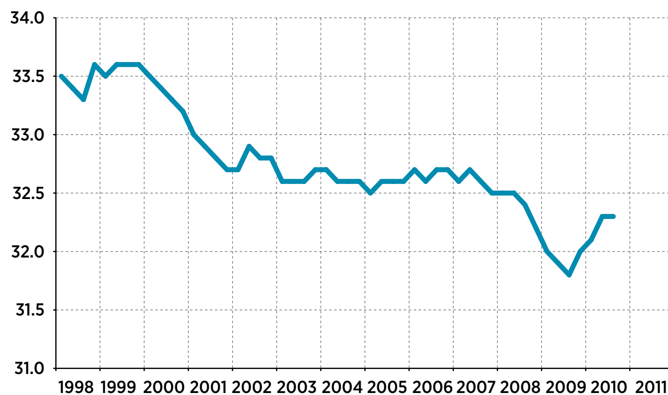
Sources: Bureau of Labor Statistics; IHS Global Insight; AIG Global Economics.

Exhibit 35: U.S. Nonfarm Payroll Employment, 2006–2011
Percent Change Over Year-Ago Level



Sources: Bureau of Labor Statistics; IHS Global Insight; AIG Global Economics.

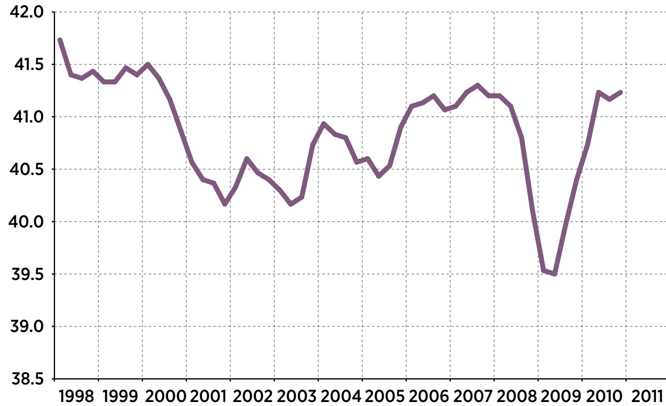
Exhibit 36: U.S. Average Weekly Hours Worked, Private Nonfarm, 1998–2011
Hours



Sources: Bureau of Labor Statistics; MacroAdvisers; AIG Global Economics.

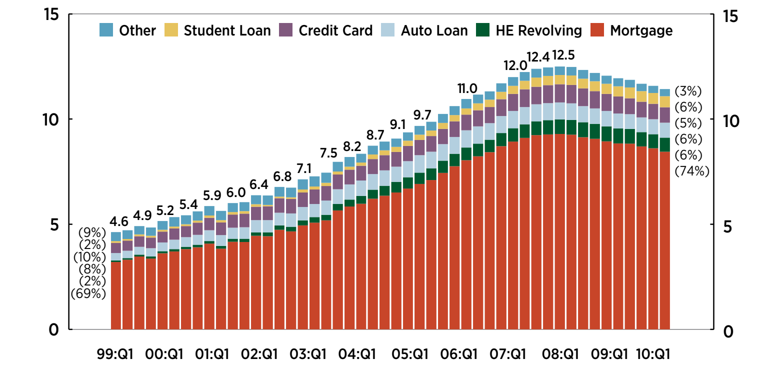
Exhibit 37: U.S. Average Weekly Hours Worked, Manufacturing, 1998–2011

Hours



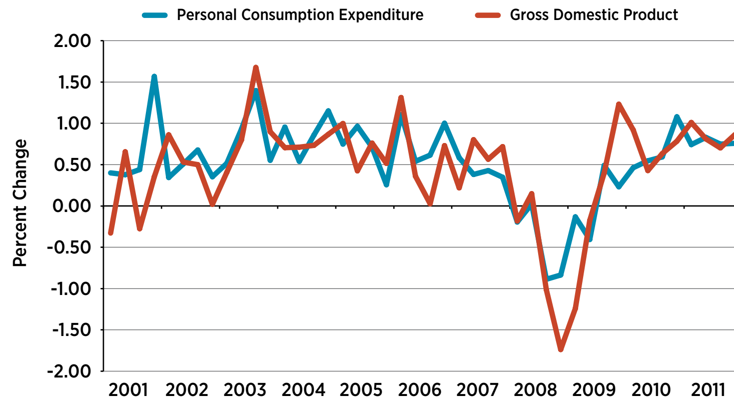
Sources: Bureau of Labor Statistics; IHS Global Insight; AIG Global Economics.

Exhibit 38: Total U.S. Household Debt Balance and its Composition, 1999–2010



Source: Federal Reserve Bank of New York Consumer Credit Panel.

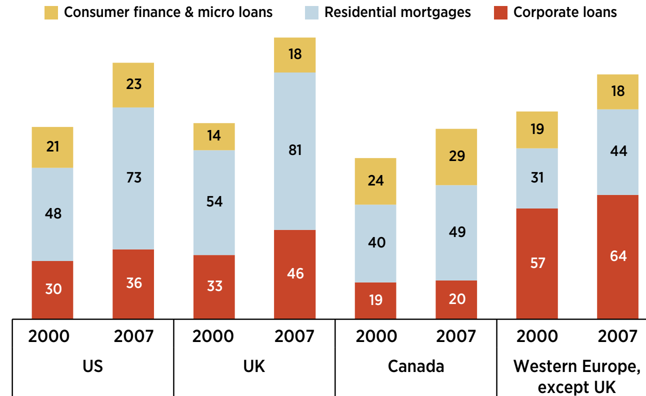
Exhibit 39: U.S. Real GDP and Personal Consumption Expenditure Growth, 2001–2011



Sources: Bureau of Economic Analysis; IHS Global Insight; AIG Global Economics.

Exhibit 40: Composition of Bank Lending and Securitization to Households and Businesses, 2000 and 2007

Percentage of GDP



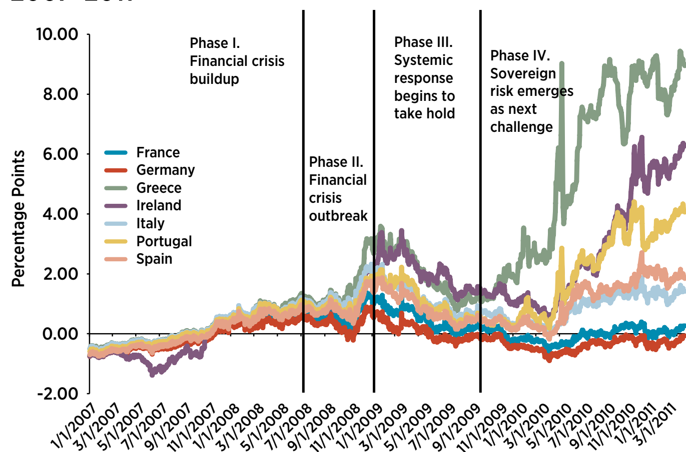
Source: Roxburgh et al. 2010.

Exhibit 41: Fiscal Stimulus Policy Efforts

Billions USD	Ultimate Cost
Total fiscal stimulus	1,067
Spending increases	682
Tax cuts	383
Economic Stimulus Act of 2008	170
American Recovery and Reinvestment Act of 2009	784
Infrastructure and other spending	147
Traditional infrastructure	38
Nontraditional infrastructure	109
Transfers to state and local governments	174
Medicaid	87
Education	87
Transfers to persons	271
Social Security	13
Unemployment assistance	224
Food stamps	10
Cobra payments	24
Tax cuts	190
Businesses & other tax incentives	40
Making Work Pay	64
First-time Homebuyer Tax Credit	14
Individuals excluding increase in AMT exemption	72
Cash for appliances	0.3
Cash for Clunkers	3
HIRE Act (Job Tax Credit)	17
Worker, Homeownership, and Business Assistance Act of 2009	91
Extended unemployment insurance benefits (Mar 16)	6
Extended unemployment insurance benefits (Apr 14)	12
Extended unemployment insurance benefits (May 27)	3
Extended unemployment insurance benefits (July 22)	
Extended/expanded net operating loss provisions of ARRA*	33
Extended/extension of homebuyer tax credit	3
Department of Defense Appropriations Act of 2010	>2
Extended guarantees and fee waivers for SBA loans	>1
Expanded COBRA premium subsidy	>1

Source: Blinder and Zandi 2010c (citing data from the Congressional Budget Office; U.S. Treasury; Recovery.gov; Internal Revenue Service; Department of Labor; Joint Committee on Taxation; Council of Economic Advisors; Moody's Analytics).

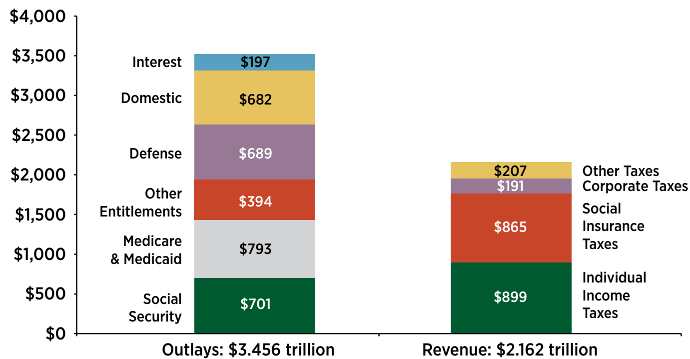
Exhibit 42: Sovereign Yield Spreads over 10-Year U.S. Treasury, 2007–2011



Sources: International Monetary Fund; Bloomberg; AIG Global Economics.

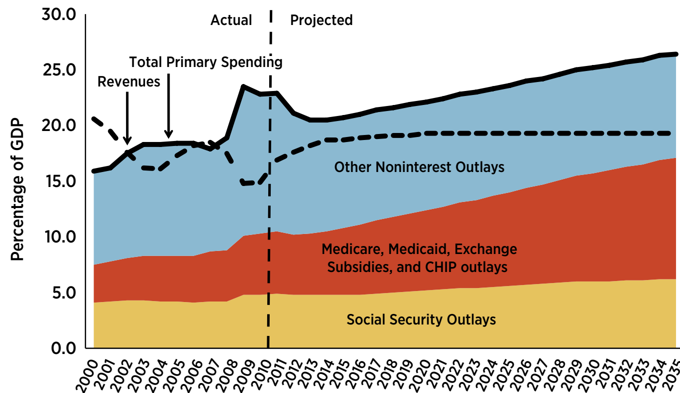
Exhibit 43: Composition of FY 2010 Federal Government—Revenues and Outlays

(Deficit: $1.294 Trillion)



Source: Congressional Budget Office.

Exhibit 44: U.S. Revenues and Primary Spending Under CBO's Long-Term Alternative Fiscal Budget Scenario, 2000–2035

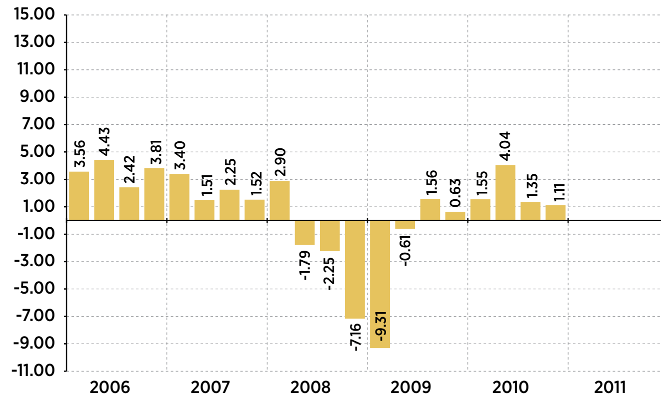


CHIP = Children's Health Insurance Program.

Source: Congressional Budget Office.

Exhibit 45: Eurozone GDP Growth, 2006–2011

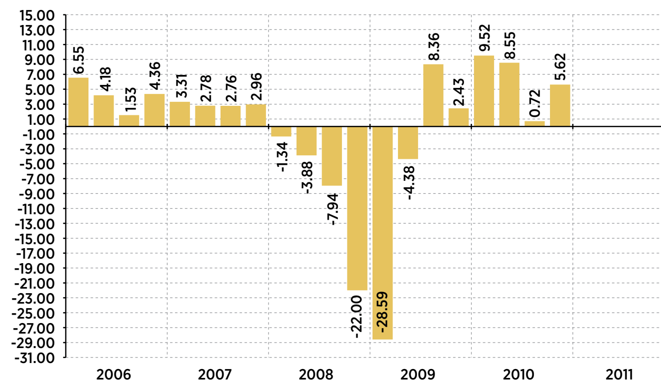
Annualized Quarterly Percentage Change



Sources: IHS Global Insight; AIG Global Economics.

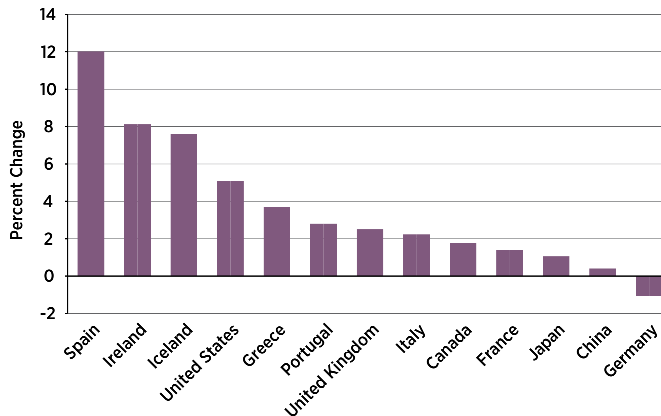
Exhibit 46: Eurozone Real Gross Value Added: Total Industrial Output, Excluding Construction, 2006–2011

Annualized Quarterly Percentage Change



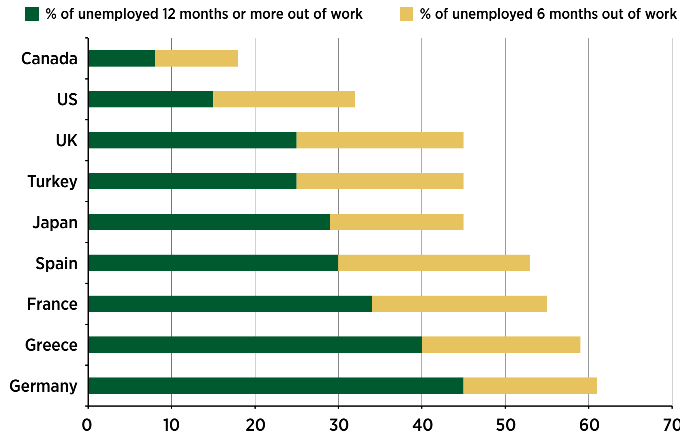
Sources: IHS Global Insight; AIG Global Economics.

Exhibit 47: Change in Unemployment Rate, by Country, 2007–2010



Sources: International Monetary Fund; International Labour Organization; Bureau of Labor Statistics; IHS Global Insight; AIG Global Economics.

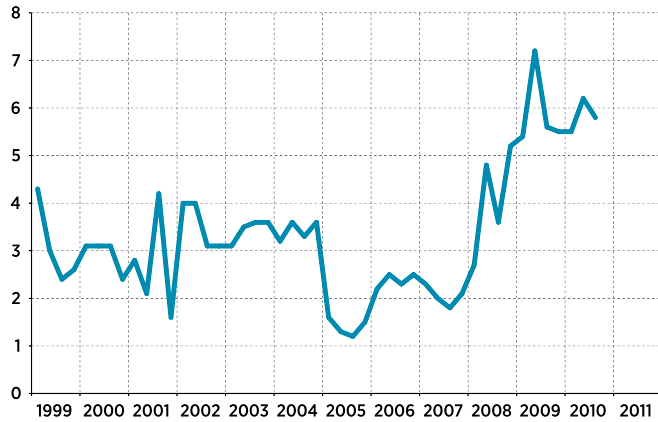
Exhibit 48: Long-Term Unemployment, 2009



Source: *The Economist* citing data from OECD.

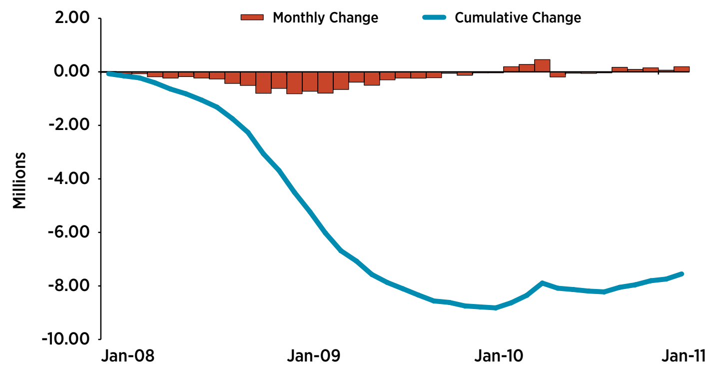
Exhibit 49: U.S. Personal Saving Rate, 1999–2011

Percentage of Personal Disposable Income



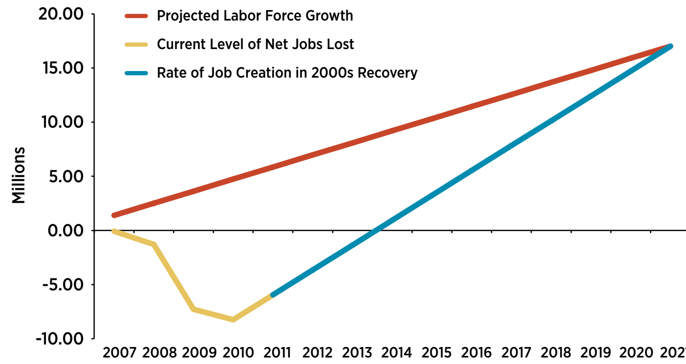
Sources: Bureau of Economic Analysis; MacroAdvisers; AIG Global Economics.

Exhibit 50:Monthly & Cumulative Change in Employment, December 2007–February 2011



Sources: Center for Economic and Policy Research; Bureau of Labor Statistics; IHS Global Insight; AIG Global Economics.

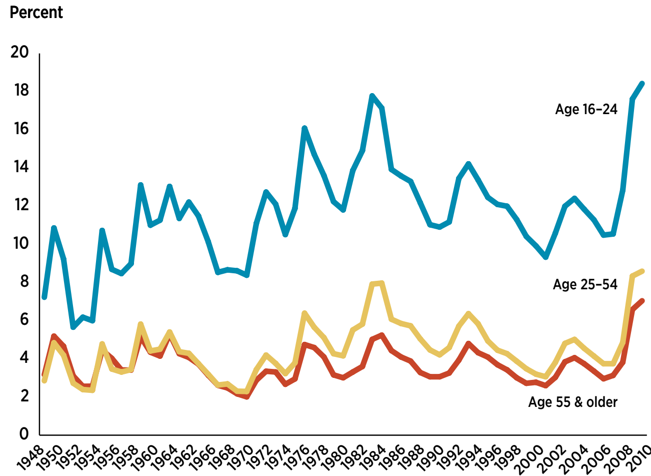
Exhibit 51: Timing of Recovery from Aggregate Net Financial Crisis Job Loss, Based on Rate of Job Creation in 2000s Recovery



Sources: Center for Economic and Policy Research; Congressional Budget Office; Bureau of Labor Statistics; HIS Global Insight; AIG Global Economics.

Exhibit 52: U.S. Unemployment Rates for All Civilian Workers, by Age (Seasonally Adjusted), 1948–2010

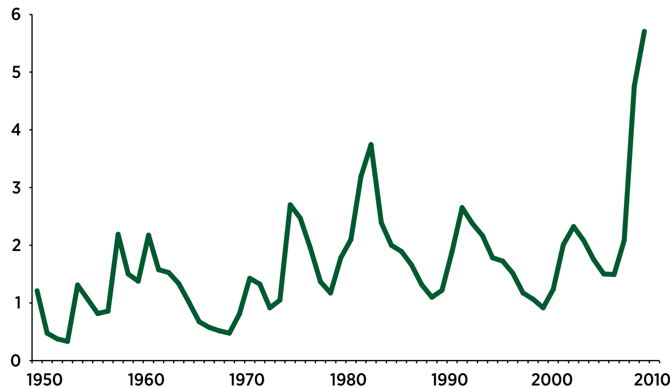
Percent



Sources: Bureau of Labor Statistics; IHS Global Insight; AIG Global Economics.

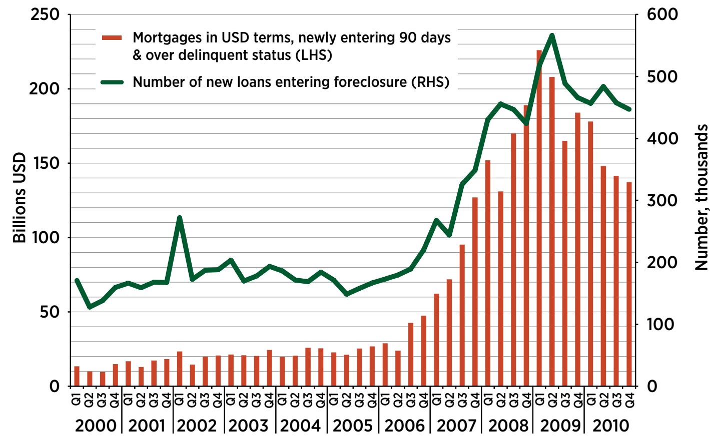
Exhibit 53: U.S. Long-Term Unemployment, 1950–2010

Percent



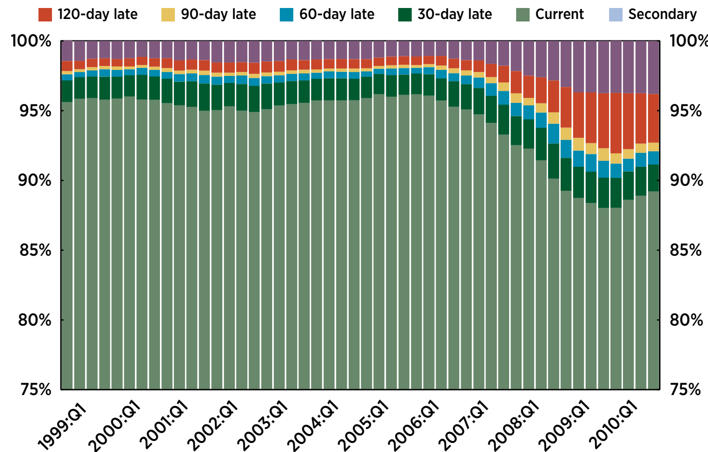
Sources: The Conference Board; Bureau of Labor Statistics; IHS Global Insight; AIG Global Economics.

Exhibit 54: U.S. Residential Mortgage Foreclosures, 2000–2010



Sources: The Federal Reserve Bank of New York; AIG Global Economics.

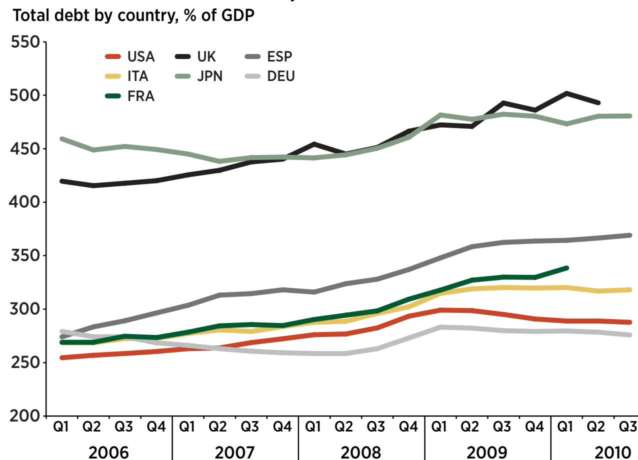
Exhibit 55: Total U.S. Household Balance by Delinquency Status, 1999–2010



Source: Federal Reserve Bank of New York Consumer Credit Panel.

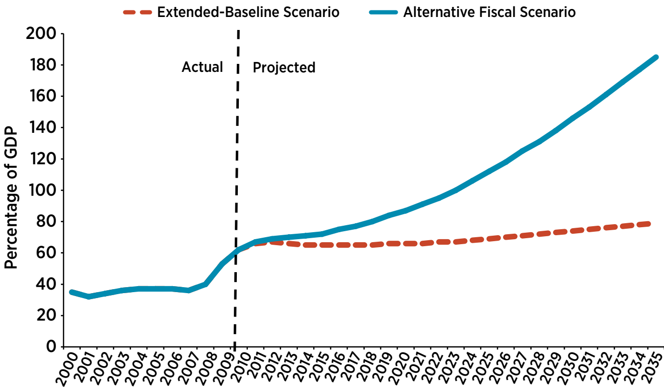
Exhibit 56: Change in Total Public and Private Sector Debt in Advanced Economies, 2006–2010

Total debt by country, % of GDP



Sources: McKinsey Global Institute; Haver Analytics; AIG Global Economics.

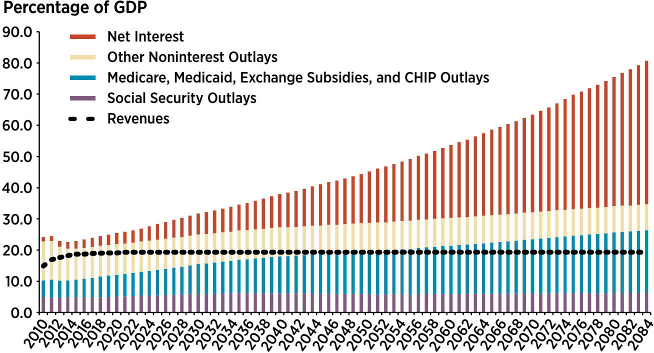
Exhibit 57: U.S. Federal Debt Held by the Public Under CBO's Long-Term Budget Scenarios, 2000–2035



Source: Congressional Budget Office.

Exhibit 58: Projected Growth in Entitlement Spending, 2010–2084

Percentage of GDP



CHIP = Children's Health Insurance Program.

Sources: Congressional Budget Office; AIG Global Economics.

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1726 M Street, N.W., Suite 200
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ISBN I-56708-153-3