FSOC

FINANCIAL STABILITY OVERSIGHT COUNCIL

2013 ANNUAL REPORT

Financial Stability Oversight Council

The Financial Stability Oversight Council (Council) was established by the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) and is charged with three primary purposes:

1. To identify risks to the financial stability of the United States that could arise from the material financial distress or failure, or ongoing activities, of large, interconnected bank holding companies or nonbank financial companies, or that could arise outside the financial services marketplace.
2. To promote market discipline, by eliminating expectations on the part of shareholders, creditors, and counterparties of such companies that the U.S. government will shield them from losses in the event of failure.
3. To respond to emerging threats to the stability of the U.S. financial system.

Pursuant to the Dodd-Frank Act, the Council consists of ten voting members and five nonvoting members and brings together the expertise of federal financial regulators, state regulators, and an insurance expert appointed by the President.

The voting members are:

- the Secretary of the Treasury, who serves as the Chairperson of the Council;
- the Chairman of the Board of Governors of the Federal Reserve System;
- the Comptroller of the Currency;
- the Director of the Bureau of Consumer Financial Protection;
- the Chairman of the Securities and Exchange Commission;
- the Chairperson of the Federal Deposit Insurance Corporation;
- the Chairperson of the Commodity Futures Trading Commission;
- the Director of the Federal Housing Finance Agency;
- the Chairman of the National Credit Union Administration; and
- an independent member with insurance expertise who is appointed by the President and confirmed by the Senate for a six-year term.

The nonvoting members, who serve in an advisory capacity, are:

- the Director of the Office of Financial Research;
- the Director of the Federal Insurance Office;
- a state insurance commissioner designated by the state insurance commissioners;
- a state banking supervisor designated by the state banking supervisors; and
- a state securities commissioner (or officer performing like functions) designated by the state securities commissioners.

The state insurance commissioner, state banking supervisor, and state securities commissioner serve two-year terms.

Statutory Requirements for the Annual Report

Section 112(a)(2)(N) of the Dodd-Frank Act requires that the annual report address the following:

i. the activities of the Council;
ii. significant financial market and regulatory developments, including insurance and accounting regulations and standards, along with an assessment of those developments on the stability of the financial system;
iii. potential emerging threats to the financial stability of the United States;
iv. all determinations made under Section 113 or Title VIII, and the basis for such determinations;
v. all recommendations made under Section 119 and the result of such recommendations; and
vi. recommendations—
  I. to enhance the integrity, efficiency, competitiveness, and stability of United States financial markets;
  II. to promote market discipline; and
  III. to maintain investor confidence.

Approval of the Annual Report

This annual report was approved unanimously by the voting members of the Council on April 25, 2013. Except as otherwise indicated, data cited in this report is as of March 25, 2013.

Abbreviations for Federal Member Agencies of the Council

- Department of the Treasury (Treasury)
  - Office of Financial Research (OFR)
  - Federal Insurance Office (FIO)
- Board of Governors of the Federal Reserve System (Federal Reserve)
- Comptroller of the Currency (OCC)
- Bureau of Consumer Financial Protection (CFPB)
- Securities and Exchange Commission (SEC)
- Federal Deposit Insurance Corporation (FDIC)
- Commodity Futures Trading Commission (CFTC)
- Federal Housing Finance Agency (FHFA)
- National Credit Union Administration (NCUA)

Contents

1 Member Statement

The Honorable John A. Boehner
Speaker of the House
United States House of Representatives

The Honorable Nancy Pelosi
Democratic Leader
United States House of Representatives

The Honorable Joseph R. Biden, Jr.
President of the Senate
United States Senate

The Honorable Harry Reid
Majority Leader
United States Senate

The Honorable Mitch McConnell
Republican Leader
United States Senate

In accordance with Section 112(b)(2) of the Dodd-Frank Wall Street Reform and Consumer Protection Act, for the reasons outlined in the annual report, I believe that additional actions, as described below, should be taken to ensure financial stability and to mitigate systemic risk that would negatively affect the economy: the issues and recommendations set forth in the Council's annual report should be fully addressed; the Council should continue to build its systems and processes for monitoring and responding to emerging threats to the stability of the United States financial system, including those described in the Council's annual report; the Council and its member agencies should continue to implement the laws they administer, including those established by, and amended by, the Dodd-Frank Act, through efficient and effective measures; and the Council and its member agencies should exercise their respective authorities for oversight of financial firms and markets so that the private sector employs sound financial risk management practices to mitigate potential risks to the financial stability of the United States.

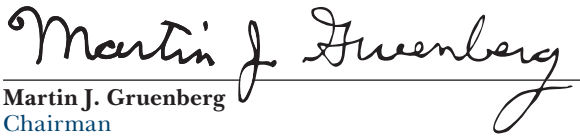
Jacob J. Lew
Secretary of the Treasury
Chairperson, Financial Stability Oversight Council

Ben S. Bernanke
Chairman
Board of Governors of the Federal Reserve System

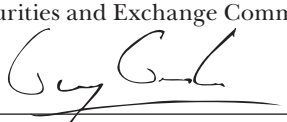
Thomas J. Curry
Comptroller of the Currency
Office of the Comptroller of the Currency

Richard Cordray
Director
Bureau of Consumer Financial Protection

Mary Jo White
Chair
Securities and Exchange Commission

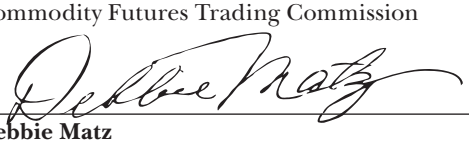


Martin J. Gruenberg
Chairman
Federal Deposit Insurance Corporation

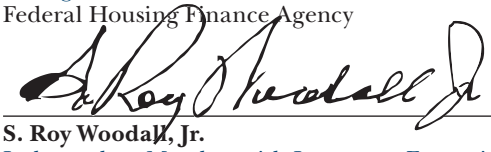


Gary Gensler
Chairman
Commodity Futures Trading Commission

Edward J. DeMarco
Acting Director
Federal Housing Finance Agency



Debbie Matz
Chairman
National Credit Union Administration



S. Roy Woodall, Jr.
Independent Member with Insurance Expertise
Financial Stability Oversight Council

2 Executive Summary

Since the Council's last annual report, the U.S. financial system has continued to strengthen, with increased capital and liquidity levels for core financial institutions and further improvements in financial market infrastructure. Market discipline has provided a tailwind for regulatory efforts to promote the conduct of financial transactions in a transparent and standardized fashion, particularly when compared to the opaque securitization techniques used in the run-up to the financial crisis. Investor confidence has also risen, as seen in further improvements of equity, fixed income, and housing markets. In addition, implementation of the Dodd-Frank Act and international coordination on G-20 reform priorities have brought significant progress towards establishing a more resilient and stable financial system, both domestically and globally. Despite these positive developments, significant risks to the financial stability of the United States remain. This year's annual report is organized around seven themes, which recur throughout the sections of the report.

The first theme concerns vulnerability to runs in wholesale funding markets that can lead to destabilizing fire sales. In the past year, the Council took concrete steps in supporting the implementation of structural reforms to reduce the likelihood of run risks of money market mutual funds (MMFs) by issuing proposed recommendations for reform under Section 120 of the Dodd-Frank Act. There has been some progress in reforming the tri-party repo market, though vulnerabilities to fire sales remain. Secondly, the housing finance system continues to rely heavily on government and agency guarantees, while private mortgage activity remains muted. The third theme concerns operational risks, which can cause major disruptions to the financial system. Such risks include technological and operational failures, natural disasters, and cyberattacks, and can arise from external or internal sources. The fourth theme consists of the reliance on reference interest rates, which recent investigations have demonstrated were manipulated, particularly in the case of the London Interbank Offered Rate (LIBOR). The international regulatory community is moving forcefully to reform the governance and integrity of LIBOR and to consider transitions towards alternative benchmarks. The fifth theme concerns the need for financial institutions and market participants to be resilient to interest rate risk. Yields and volatilities in fixed income markets are very low by historical standards, providing incentives for market participants to "reach for yield" by increasing leverage, by engaging in maturity transformation, or by investing in less creditworthy assets, thus potentially increasing exposure to risks of sudden spikes in yields. The sixth theme concerns long-term fiscal imbalances, as the absence of bipartisan agreement on U.S. fiscal adjustment has raised questions about whether long-term fiscal problems may be resolved smoothly. The seventh theme is about the United States' sensitivity to possible adverse developments in foreign economies. Throughout the remainder of this executive summary, these seven themes are discussed in more detail.

Fire Sale and Run Vulnerabilities

Although many of the least stable funding structures that failed in the crisis have disappeared, important run risks in the financial system persist. The risks have been reduced in recent years due to regulatory action and the still relatively recent memories of the crisis: wholesale funding market activity is generally reduced, securities broker-dealers have markedly reduced leverage, and regulations have diminished sponsorship of off-balance sheet vehicles by large financial institutions. In other instances, severe investor losses during the crisis extinguished demand for some products and structures. However, run risks in sectors such as MMFs and broker-dealers continue to persist. As witnessed in the financial

crisis, susceptibility to runs and reliance on confidence-sensitive funding by these entities can induce fire sales in times of market stress.

MMFs' susceptibility to runs could trigger fire sales of assets, impair the flow of short-term financing, and propagate strains throughout the financial system. In the past year, the Council took concrete steps in supporting the implementation of reforms to mitigate structural vulnerabilities of MMFs. In November 2012, the Council proposed recommendations for public consideration regarding MMF reform, under Section 120 of the Dodd-Frank Act, with three alternatives: (1) a floating net asset value (NAV) for MMFs; or (2) the introduction of a NAV buffer and a minimum balance at risk (MBR) for investors; or (3) a risk-based NAV buffer of 3 percent in addition to other measures. The public comments on this proposal are currently under review by the Council and the SEC, which is also examining the characteristics of MMFs' susceptibility to runs.

The tri-party repo market remains vulnerable to runs by lenders in the event that concerns emerge regarding the financial condition of borrowers such as securities broker-dealers, who depend heavily on this channel for short-term funding. Additional risks stem from the continued heavy reliance on discretionary intraday credit in the settlement process, and the limited capacity of lenders to manage the ramifications of a default by a major borrower. Some progress has been made in increasing the resiliency of the tri-party market. The reliance on intraday credit extended by the clearing banks has begun to decline and, as additional changes are made to the settlement process, should be largely eliminated by the end of 2014. Nonetheless, a default of a large broker-dealer or other large borrower would leave lenders with large volumes of collateral that they would likely seek to liquidate quickly.

Housing Finance Reform

Housing market developments in 2012 were generally positive, with indicators showing a fragile but steady recovery. For example, housing prices have continued to rise since early 2012, while the percentage of properties with negative equity has declined. Mortgage delinquencies have also declined, as has the rate of new delinquencies and the inventory of properties in foreclosure, suggesting a slow return to a firmer market. However, the housing market remains vulnerable to macroeconomic trends, and a fair number of potential borrowers remain unable to obtain mortgage credit because of conservative underwriting standards with respect to low or negative equity or relatively low credit scores. Finally, though the inventory of bank-owned properties is generally declining, foreclosure timelines in some states remain extraordinarily long, resulting in a continued overhang of distressed properties.

The housing finance system continues to draw on significant federal government support. Increasing the presence of private capital in assuming credit risk in housing finance remains a priority. In spite of the apparent stabilization in U.S. housing markets, both new loan origination volumes (loans used to purchase homes, as opposed to refinancing existing loans) and the appetite to assume credit risk in mortgage markets remain quite subdued post-crisis. There is very limited new private mortgage securitization activity other than small-scale issuance of very-high-quality jumbo prime loans. Reduced purchase loan origination volumes in the wake of the crisis may be due, in part, to constraints on origination capacity, continued uncertainty over mortgage put-backs to lenders as litigation over legacy originations has increased the risk and cost to both originators and issuers, and some market participants' unwillingness to provide capital except for agency- and government-guaranteed entities until certain regulations take effect.

In 2012, steps were taken towards establishing a new framework for housing finance and providing more clarity to market participants, though much remains to be done. The Treasury and FHFA announced new steps to expedite the wind-down of Fannie Mae and Freddie Mac, two government-sponsored enterprises (GSEs). The GSEs continued to increase their guarantee fees, or the price of insurance that they provide to protect bondholders from credit risk, in an effort to encourage private capital participation in the market.

Keeping with this trend, the Federal Housing Administration (FHA) increased its mortgage insurance premia in 2012. The FHFA and the GSEs also announced a new representations and warranties framework to clarify originators' purchase exposure and liabilities on new loans sold to the GSEs. The CFPB finalized the following significant rules: the loan originator compensation rule, the mortgage servicing rules, and the ability-to-repay rule, including the definition of a qualified mortgage (QM). These rulemakings represent first steps towards removing uncertainty surrounding underwriting and servicing practices and representations and warranties, which are critical to improving mortgage origination and securitization issuance volumes.

Operational Risks

Major disruptions to the financial system can also arise from operational risks. Technological failures, natural disasters, and cyberattacks can emanate from anywhere, at any time. Preparation and planning to address these potential situations are essential to maintain the strength and resilience of our financial system.

One area of particular concern is the potential for systems failures in an environment where trading activity is more dispersed and automated. The extremely high speeds at which markets operate today can compound the overall impact of even small operational failures by propagating errors quickly and widely. In 2012, equity markets experienced a number of control problems, highlighting the fragile relationship between technological infrastructure and market stability. While bringing many advantages, technological advances are not without risks. Recent significant systems issues include malfunctions in connection with the initial public offerings of BATS Global Markets, Inc. (BATS) and Facebook, Inc., as well as losses suffered by Knight Capital Group Inc. (Knight Capital) caused by errors in its systems related to routing orders. These events have occurred notwithstanding current regulatory requirements and oversight programs relating to technology standards and safeguards. The SEC is moving to help ensure robust system controls and, in March 2013, proposed Regulation Systems Compliance and Integrity (Regulation SCI) to strengthen the automated systems of important market participants in the securities markets.

Financial infrastructure was also tested in 2012 by the impact of Superstorm Sandy. While the storm caused severe damage to energy, telecommunications, and transportation infrastructures upon which markets depend, critical post-trade financial utilities, including core settlement and clearing functions, operated normally from their primary or contingency sites. Certain trading venues, such as the New York Stock Exchange (NYSE) and NASDAQ, as well as over-the-counter (OTC) money and fixed income markets, were closed for various periods on October 29 and 30, 2012. On the retail services side, currency inventories were adequate, and ATMs generally were available outside the hardest hit areas. At the individual firm level, the majority of institutions successfully employed their contingency plans and disaster recovery vendors, and most contingency sites worked well. Effective governmental assistance through federal interagency coordination, federal-state coordination, public-private partnerships, and targeted financial regulatory relief helped to resolve issues and ensure adequate communication among affected parties. Despite the limited impact on the financial sector, post-Sandy assessments still identified a number of potential improvements in the areas of contingency planning and testing, incident management around market closures, and positioning of key management and staff, and improvements to further mitigate dependencies on power, transportation, and communications infrastructures.

During 2012, more than a dozen financial institutions were subject to sustained and persistent cyberattacks. These attacks disrupted online access to consumer websites, causing inconvenience and annoyance to customers, increased costs, and significantly elevated demand for mitigation service providers. To date, we have not seen disruptions to market functioning or the health of the financial system from these attacks; ongoing vigilance is required, though. In addition, improved cooperation across firms and industries is necessary as the volume and sophistication of attacks increase. Public-private partnerships could further

improve the analysis and dissemination of robust information to facilitate real-time responses to cyberattacks. Furthermore, enhanced cybersecurity education directed to employees and consumers could improve protection, mitigation, and responses.

Reforms of Reference Rates

Investigations by regulators across the globe concerning manipulations of LIBOR have exposed the structural vulnerabilities of a voluntary and self-regulated regime for self-reported rates, particularly where underlying transactions are limited or nonexistent. These benchmark interest rates in various currencies are the basis for hundreds of trillions of dollars of swap transactions in notional amount, commercial and consumer loans, futures contracts, and other financial derivatives products traded in OTC markets and exchanges around the world. Approximately $350 trillion notional amount of interest rate swaps and $10 trillion of loans are indexed to LIBOR alone. Given the number of transactions that rely on LIBOR and similar rates, problems with these rates can more broadly threaten public confidence in the integrity of markets.

Recent investigations uncovered systematic manipulations of reference rate submissions, designed to increase potential profit and signal relative financial health by submitting firms. These schemes affected LIBOR submissions as well as similar rates such as the Euro Interbank Offered Rate (EURIBOR) and the Tokyo Interbank Offered Rate (TIBOR). In the United States, the CFTC issued orders against Barclays, UBS AG, and the Royal Bank of Scotland. The orders charged the banks with manipulating, attempting manipulation, and false reporting, resulting in penalties of more than $1.2 billion in the United States, and over $2.5 billion globally. These manipulations were made possible in part by a decline in eligible transactions used to support rate submissions in recent years, most notably as short-term funding markets have moved away from unsecured lending between banking institutions.

The international regulatory community is moving forcefully to reform the governance and integrity of LIBOR and to consider transitions towards alternative benchmarks. The CFTC and Department of Justice (DOJ) settlement included requirements for banks to take specified steps to ensure the integrity and reliability of their LIBOR and other benchmark interest rate submissions. In the United Kingdom, the Financial Services Authority (FSA) has implemented reforms of LIBOR based on the recommendations of the Wheatley Review, which include a number of major revisions to the system of governance, calculation, and oversight. Committees across multiple international regulatory agencies are further engaged in developing improved governance and reporting frameworks for reference rates and considering alternative benchmarks. These international groups include organizations spanning central banks and regulators, such as the Bank for International Settlements (BIS) and the International Organization of Securities Commissions (IOSCO).

Fixed Income Valuations and Low Interest Rate Environment

Fixed income markets are currently characterized by low yields across the maturity and credit spectrum. In addition, realized and implied volatilities in fixed income and equity markets are subdued and have reached levels not seen since early 2007. The current low level of yields reflects three underlying factors. The first factor is the market expectation of future short-term interest rates, which is driven by expected monetary policy. Globally, central banks have been easing monetary policy in order to aid recovery from the global financial crisis, and the Federal Reserve has provided explicit short-term rate guidance tied to economic conditions. The second factor keeping yields low is related to the pricing of interest rate risk. The pricing of risk can be gauged by term premia for Treasury securities, which are estimated to be at their lowest since the early 1960s. The pricing of risk reflects a gradual shift in the composition of buyers towards those who are less risk-sensitive, particularly due to the large-scale asset purchase programs of the Federal Reserve and other central banks. Finally, the third factor contributing to low yields is that investor appetite for credit risk in fixed income markets has been increasing, albeit from a low level. Credit losses and provisions have been

declining over many months. Credit yields are thus low due to the low Treasury yields and the improved outlook for solvency risk.

The implications of changes in asset prices for financial stability depend on how these assets are funded, the extent to which valuations are accompanied by leverage or maturity transformation, and whether investors have sufficient information about the risk-return tradeoffs in their decisions. Recent changes in asset prices have not been accompanied by the broad-based increases in leverage and maturity transformation that took place prior to 2007. Nevertheless, yield-seeking behavior, which is supported by low levels of market volatility, is apparent in several markets. In credit markets, the issuance of high-yield bonds reached a historical high in the fourth quarter of 2012, and leveraged loan issuance was also elevated. While underwriting standards remain conservative in many markets, there are some examples of loosening standards. For example, there are signs of weakening underwriting standards in the types of covenants employed in certain newly issued bonds and loans. The issuance of collateralized loan obligations (CLOs) is similarly close to peak levels, coinciding with the rise in high-yield loan and bond issuance. CLOs provide investors with leveraged exposure to non-investment grade corporate credit. In addition, assets under management for corporate bond mutual funds and exchange-traded funds have grown rapidly. Other investors, such as pension funds and hedge funds, have also absorbed much of the new supply in credit markets.

Adding duration risk by investing in longer-maturity assets is another form of yield-seeking behavior. In the commercial banking sector, publicly available data indicate that the mismatch between the average maturity of assets and average maturity of liabilities has increased recently at smaller banks, though not at large institutions. Insurance companies and pension funds are also exposed to interest rate risk. Certain real estate investment trusts (REITs), known as agency REITs, are REITs that invest in agency mortgage-backed securities (MBS) and are primarily funded through repo markets. Agency REITs are actively engaged in leveraged maturity transformation. While the sector has reduced leverage somewhat since the crisis and, at present its holdings are not very large compared to the overall MBS market, it has grown considerably in recent years. A shock to agency REITs could induce repo lenders to raise margins or pull back funding, which in turn could compel agency REITs to sell into a declining market, potentially impacting MBS valuations significantly.

Yields and volatilities are expected to return to more normal levels over the long term. A gradual normalization in the context of a strengthening recovery does not pose a significant threat to financial stability. By contrast, a sudden spike in yields and volatilities could trigger a disorderly adjustment, and potentially create outsized risks. The threats to financial stability posed by reaching for yield are mitigated by the same improvements in the resiliency of the financial system that reduce vulnerability to other potential dangers. Greater resilience is the result of strong reform efforts in recent years, as well as still subdued risk taking by some market participants in the aftermath of the events of 2008. The capital and liquidity buffers of the banking system have continued to grow over the past year, and nonbank credit intermediation activity has declined since 2008. Overall, both the willingness and the ability of investors to take on leverage have been reduced for a variety of reasons.

Market and Economic Impact of Fiscal Policy

Notwithstanding the overall improvement in the U.S. financial system, concerns persist about economic and financial market impacts of long-term fiscal imbalances. In particular, the process of U.S. fiscal adjustment has raised questions about the manner in which long-term fiscal issues will be resolved. In 2012, financial markets continued to respond to fiscal and political uncertainty, though market volatility was impacted less than was the case during the debt ceiling crisis in 2011.

A series of automatic tax increases and spending cuts, the so-called fiscal cliff, were set to take effect at the start of 2013. In addition, the statutory debt ceiling was reached on December 31, 2012 (although extraordinary measures authorized by law were available to postpone the date that the United States would otherwise default on its obligations by about two months). The passage of the American Taxpayer Relief Act of 2012 (ATRA) on January 1, 2013 reduced uncertainty for market participants by cancelling the tax increases for most U.S. households and deferring the budget cuts for several months. Furthermore, a number of business and personal tax measures were put in place, including a permanent resolution for Alternative Minimum Tax provisions. In February, the debt ceiling was suspended until mid-May. After the initial response to the legislation, the financial market impact of these fiscal developments has been minimal so far.

In financial markets, the consequences of failing to increase the debt ceiling were generally seen as distinct from and more immediately serious than the effects of the fiscal cliff. In particular, the effects of the fiscal cliff would accrue over time as households, businesses, and governments adjusted their spending and investment decisions. However, the inability of the Treasury to borrow might cause an interruption of principal and interest payments on U.S. sovereign debt, which financial markets regard as one of the safest assets. With these "flight to quality" characteristics in mind, the approach of the fiscal cliff had mixed effects on financial markets. Downside concerns increased the volatility of certain Treasury bills considered at risk for extension or missed payments. However, the prices of safe haven assets rose, including longer-dated Treasury securities, though to a lesser extent than in August 2011, when Standard & Poor's (S&P) downgraded its rating of U.S. debt.

Foreign Financial Developments

While sentiment in U.S. financial markets has improved, United States financial stability remains sensitive to possible adverse developments in global markets and among our major trading partners. Threats to financial stability in the United States from developments related to the euro area decreased in the latter part of 2012, although recent developments in Cyprus indicate that significant downside risks remain. The markets' perception of reduced tail risks relative to early 2012 is partially due to policy efforts in the euro area to restore financial stability. These actions have, at least temporarily, been successful in preventing significant dislocations in financial markets.

Notably, the European Central Bank (ECB) created the Outright Monetary Transactions (OMT) program, allowing the ECB to purchase sovereign debt of member states that are in compliance with a reform program at the European Financial Stability Facility (EFSF) or the European Stability Mechanism (ESM). The OMT helped to reverse the steep rise of peripheral sovereign debt yields, which have declined markedly since the program's announcement. The European Union (EU) reached a political agreement to place euro-area banks, as well as banks in non-euro countries that opt in, under the overarching supervision of the ECB. Together these efforts helped to improve bank access to market funding and reduced reliance on ECB funding. Governments of vulnerable countries undertook important efforts to consolidate fiscal positions, strengthen banking systems, and advance reforms to boost growth prospects, and received support from the ESM and the International Monetary Fund (IMF). The Spanish government narrowed its fiscal deficit and made progress toward recapitalizing its banking system, while European authorities took additional actions to support Greece. However, Cyprus' recent difficulties serve as a reminder that many countries within the euro area remain in a vulnerable position, and underscore the importance of moving forward with efforts to strengthen the foundations of a monetary union. Despite these aggressive policy actions and financial market recovery, substantial challenges remain. While fiscal austerity has narrowed euro-area countries' deficits, this same fiscal austerity has contributed to a contraction in euro-area economies. Moreover, access to credit remains highly constrained across many vulnerable countries, as financial markets across the euro area remain fragmented. Many countries in Europe remain in the midst of deep and prolonged recessions. The

European Commission forecasts reflect an anemic economic outlook, predicting a GDP contraction of 0.3 percent across the euro area in 2013, following a contraction of 0.6 percent in 2012.

Countries outside the euro area also face tough policy tradeoffs. Confronted with recession, many governments face an uphill battle to reduce budget deficits and maintain the social consensus necessary to advance fiscal reforms. Such fiscal tightening may leave advanced economies vulnerable to new financial shocks and to slower economic growth. Just as in the euro area, real GDP also contracted in Japan and the United Kingdom. In Japan, the central bank adopted a 2 percent inflation target in coordination with the Ministry of Finance, as advocated for by the newly-elected Prime Minister, Shinzō Abe, who pledged to enact stimulus to boost growth and end deflation. The yen depreciated by 8.7 percent against the dollar to ¥/$ 86.7 during the second half of 2012, and depreciated by an additional 12.5 percent to ¥/$ 97.6 in 2013 through early April. The U.S. has a strong financial stability interest in Japan finally escaping from deflation and securing more robust growth. Japan's fiscal outlook remains challenging. Japan's fiscal deficit is likely to remain at 10 percent of GDP in 2013, the same as 2012, as the fading of reconstruction spending is roughly offset by the Abe Administration's fiscal stimulus. Foreign developments require continuous monitoring of the U.S. financial sectors' vulnerabilities, capital and liquidity reserves and risk management practices.

Outline

The remainder of the report is organized in five sections. Section 3 presents the recommendations of the Council. Section 4 reviews recent macroeconomic developments. Section 5 provides an update of financial developments, including asset valuations, wholesale funding, bank holding companies and depository institutions, nonbank financial companies, investment funds, and financial market infrastructures. Section 6 reviews regulatory developments and summarizes Council activity since the 2012 annual report. Section 7 discusses potential emerging threats, including threats from fire sale and run risk vulnerabilities, operational risks, reliance upon reference rates as a vulnerability, financial system vulnerability to sudden spikes in fixed income yields, foreign economic and financial developments, and risk-taking incentives of large, complex, interconnected financial institutions.

3 Annual Report Recommendations

The Dodd-Frank Act requires the Council to make annual recommendations to: (1) enhance the integrity, efficiency, competitiveness, and stability of U.S. financial markets; (2) promote market discipline; and (3) maintain investor confidence. In this section, we discuss the ongoing work of the Council, its members, and the private sector to address these important mandates and lay out concrete recommendations.

3.1 Reforms to Address Structural Vulnerabilities

3.1.1 Reforms of Wholesale Funding Markets

Money Market Funds

The Council took concrete steps to support the implementation of structural reforms to mitigate the vulnerability of money market mutual funds (MMFs) to runs, a recommendation made by the Council in its 2011 and 2012 annual reports. In November 2012, the Council issued Proposed Recommendations Regarding Money Market Mutual Fund Reform, under Section 120 of the Dodd-Frank Act.[1] This action followed the decision by SEC Commissioners not to move forward with the MMF reforms as proposed by their staff in August 2012.

The Council's proposed recommendations included three alternatives for public consideration:

- **Alternative One: Floating Net Asset Value.** Require MMFs to have a floating net asset value (NAV) per share by removing the special exemption that currently allows MMFs to utilize amortized cost valuation and/or penny rounding to maintain a stable $1.00 NAV.
- **Alternative Two: Stable NAV with NAV Buffer and Minimum Balance at Risk.** Require MMFs to have a NAV buffer with a tailored amount of assets of up to 1 percent to absorb day-to-day fluctuations in the value of the funds' portfolio securities and allow the funds to maintain a stable NAV. The NAV buffer would be paired with a requirement that 3 percent of a shareholder's highest account value in excess of $100,000 during the previous 30 days—a minimum balance at risk (MBR)—be made available for redemption on a delayed basis. In the event that an MMF suffers losses that exceed its NAV buffer, the losses would be borne first by the MBRs of shareholders who have recently redeemed, providing protection for shareholders who remain in the fund.
- **Alternative Three: Stable NAV with NAV Buffer and Other Recommended Measures.** Require MMFs to have a risk-based buffer of 3 percent of NAV to provide explicit loss-absorption capacity that could be combined with other measures to enhance the effectiveness of the buffer and potentially increase the resiliency of MMFs. The other measures include more stringent investment diversification requirements, increased minimum liquidity levels, and more robust disclosure requirements.

The public comment period on the Council's proposed recommendations closed on February 15, 2013. The Council received approximately 150 comment letters on its proposed recommendations and is in the process of reviewing those comments. The SEC, by virtue of its institutional expertise and statutory authority, is best positioned to implement reforms to address the risk that MMFs present to the economy.

If the SEC moves forward with meaningful structural reforms of MMFs before the Council completes its Section 120 process, the Council expects that it would not issue a final Section 120 recommendation to the SEC. The Council understands the SEC is currently in the process of considering further regulatory action. To inform this examination, SEC staff produced a report, requested by certain SEC Commissioners, on the causes of investor redemptions in prime MMFs during the 2008 financial crisis, on changes in certain characteristics of MMFs before and after the SEC's 2010 modifications to MMF regulation, and on the potential effect of further reform of MMFs on investor demand for MMFs and alternative investments.[2]

The Council also recommends that the SEC consider the views expressed by commenters on the Council's proposed recommendations and by the Council as the SEC considers any regulatory action to improve loss-absorption capacity and mitigate MMFs' susceptibility to runs. The Council further recommends that its members examine the nature and impact of any structural reform of MMFs that the SEC implements to determine whether the same or similar reforms are warranted for other cash-management vehicles, including non-Rule 2a-7 MMFs. Such an examination would provide for consistency of regulation while also decreasing the possibility of the movement of assets to vehicles that are susceptible to large-scale runs or otherwise pose a threat to financial stability.

Tri-Party Repo

In its 2012 annual report, the Council highlighted the tri-party repo market's vulnerabilities and noted a lack of progress in addressing them. The vulnerabilities are as follows:

- Heavy reliance by market participants on intraday credit extensions from the clearing banks.
- Weakness in the credit and liquidity risk management practices of many market participants.
- Lack of a mechanism to ensure that tri-party repo investors do not conduct disorderly, uncoordinated sales of their collateral immediately following a broker-dealer's default.

Reliance on intraday credit is beginning to decline. Two government securities clearing banks, JPMorgan Chase (JPM) and Bank of New York Mellon (BNYM), have made operational and technological changes that reduce the intraday credit they extend. As a result of these efforts, market participants have begun to adjust their behavior in ways that reduce market demand for intraday credit. Consequently, intraday credit has declined to approximately 80 percent of market volume, down from 100 percent as of the Council's 2012 annual report.

JPM and BNYM plan to implement further technology and operational changes through 2013 and 2014. These changes will improve the resiliency of tri-party settlement by making clearing bank intraday credit available only on a pre-committed basis, and by reducing the intraday credit supplied by the clearing banks to no more than 10 percent of volume by late 2014.

Some signs of improvement in broker-dealer liquidity risk management practices. With the active encouragement of relevant supervisors and regulators, broker-dealers have made progress in reducing their reliance on short-term secured funding. The proportion of overnight funding fell from 64 percent in December 2011 to 59 percent in December 2012 (non-government assets shifted from 41 percent to 33 percent).

The risk of fire sales in the event that a major broker-dealer faces default remains a financial stability concern. Reforms made since the financial crisis, such as higher capital and liquidity requirements, have reduced the risk of a dealer default. However, the Council recognizes that a major broker-dealer's default could threaten financial stability as the broker-dealers' creditors liquidate the collateral pledged against their

tri-party repo lending. The fire sales of this collateral could destabilize financial markets and amplify the negative consequences of such a default.

The Council acknowledges the work that has been done in the past year to reduce reliance on discretionary intraday credit extended by the clearing banks. The Council emphasizes the importance of the commitment on the part of all market participants toward achieving the longer-term goals in this area in accordance with the published timelines. However, the Council urges continued coordinated efforts by market participants and financial regulatory agencies with relevant authority to address the remaining risks associated with the tri-party repo market, notably by better preparing investors and other market participants to deal with the consequences of a dealer's or other large borrower's distress or default.

3.1.2 Housing Finance Reform

Last year saw signs of improvement in the residential housing market. Home prices increased, delinquency rates declined, and home sales reached 3-year highs. Despite these improvements, the housing finance system remains highly reliant on federal government support, with nearly 90 percent of newly originated mortgages carrying some form of government backing in 2012. Given this, the development and implementation of a broad reform plan for the housing finance system that supports the central objectives of bringing more private capital back to the housing finance market is critical. The Council recommends that the Treasury, HUD, and FHFA continue to work with Congress and other stakeholders to develop and implement a broad plan to reform the housing finance system. With this work ongoing, member agencies have advanced reform by taking initial measures to expedite the wind-down of the government-sponsored enterprises (GSEs), encourage private capital to take mortgage credit risk, improve borrower and investor protections, and help develop a new housing finance infrastructure.

Review of 2012 Recommendations and 2013 Goals

In the 2012 annual report, the Council recommended that member agencies continue to work on the development of a long-term housing finance reform framework that supports the central role of private capital while improving borrower and investor protections. Progress has been made and is highlighted by the following key actions:

- Modification of the Treasury's Preferred Stock Purchase Agreements (PSPAs) with the GSEs to expedite the wind-down of the retained portfolios of Fannie Mae and Freddie Mac.
- Development and implementation of FHFA's Strategic Plan for the operation of the GSE conservatorships.
- Publication by the CFPB of final regulations under the Real Estate Settlement Procedures Act (Regulation X) and the Truth in Lending Act (Regulation Z), which set forth standards for servicing mortgage loan accounts and additional protections for borrowers who are delinquent.
- Finalization of the CFPB's ability-to-repay/qualified mortgage rule.

Notwithstanding the above, further progress needs to be made in 2013. Outlined below are steps Council member agencies plan to take in 2013 in order to help meet the Council's housing finance goals.

Reducing the GSEs' Footprint

Under its Strategic Plan, the FHFA announced priorities for 2013 of contracting GSE operations by setting objective targets. In particular, each GSE will provide an opportunity for private capital to re-enter the market through risk-sharing transactions and through further reductions in its mortgage investment portfolios. These efforts, combined with higher guarantee fees, are expected to help facilitate increased participation by the private sector in the mortgage markets. The Council recommends that the FHFA continue these efforts in order to help bring more private capital back into mortgage finance.

participation by the private sector in the mortgage markets. The Council recommends that the FHFA continue these efforts in order to help bring more private capital back into mortgage finance.

Facilitating Increased Private Mortgage Market Activity

A significant amount of work remains to foster increased levels of private activity in the mortgage finance market. To help facilitate this, the Council recommends that the relevant agencies continue their work to resolve the risk-retention rule, including the qualified residential mortgage (QRM) definition, to further encourage private capital to re-enter the mortgage finance market. More broadly, the FHFA, Treasury, HUD, CFPB, and Congress must continue to address the weaknesses that became evident in the recent housing crisis by promoting the development of standards and best practices in the mortgage market.

Building a New Housing Finance Infrastructure

The FHFA announced in March 2013 that a business entity would be established jointly by the GSEs to build a new secondary mortgage market infrastructure, including the development of a common securitization platform designed to function as an independent market utility. The Council recommends that the FHFA continue to explore changes to the country's housing finance infrastructure that would lead to a more efficient and sustainable mortgage market. In addition to the work on the common securitization platform, this should include model legal agreements, improvements to the mortgage transfer system, and an improved compensation system for mortgage servicers. These processes should be coordinated with the measured wind-down of the GSEs and the implementation of a more sustainable structure for the government's role in the housing finance system.

3.1.3 Reforms Relating to Reference Rates

The Council recommends international cooperation for the development of high-level principles for financial benchmark governance, controls, data sufficiency, and oversight. Current efforts include the U.K. authorities' work on the London Interbank Offered Rate (LIBOR), the International Organization of Securities Commissions' (IOSCO) work on principles for financial benchmarks and transition to alternative benchmarks, and the Bank for International Settlements' (BIS) Economic Consultative Committee's work on the need for a reliable and robust framework for producing reference rates. Relevant member agencies should also cooperate with the Financial Stability Board (FSB) in any related work it may undertake.

The small number of transactions in the unsecured, interbank lending market underpinning reference rates like LIBOR and weak governance structures undermine market integrity and raise financial stability concerns. While ongoing international efforts are necessary to remediate deficiencies in governance, they cannot address the insufficient number of transactions, particularly in longer tenors, in the unsecured, interbank lending market. Investigations by regulators and law enforcement agencies across the globe concerning manipulations and false reporting of LIBOR and similar rates have exposed the structural vulnerabilities of these benchmarks. The shift away from banks funding each other in an unsecured market has led to a scarcity or outright absence in longer tenors of real transactions underpinning these benchmark rates and has exacerbated vulnerabilities of these benchmarks. Yet currently, hundreds of trillions of dollars in derivatives, loans, and other financial instruments reference these benchmarks. This situation leaves the financial system with benchmarks that are prone to and provide significant incentives for misconduct.

Given these vulnerabilities and the real risk that they will remain, in order to ensure market integrity and support financial stability, the Council recommends that U.S. regulators cooperate with foreign regulators, international bodies, and market participants to promptly identify alternative interest rate benchmarks that are anchored in observable transactions and are supported by appropriate governance structures, and to develop a plan to accomplish a transition to new benchmarks while such alternative benchmarks are being identified. The Council further recommends that steps be taken to promote a smooth and orderly transition

to alternative benchmarks, with consideration given to issues of stability and to mitigation of short-term market disruptions.

3.2 Heightened Risk Management and Supervisory Attention

3.2.1 Operational Risk

Internal Controls

Strong internal control systems and processes for financial institutions and market utilities are essential safeguards against business disruptions and system failures that could adversely affect the flow of financial transactions among financial institutions, markets, consumers, and businesses. Failed operational processes were the root of many recent, high-profile problems within the financial system. The Council has previously highlighted the importance of improved risk management and controls in the context of high-speed and automated trading activities. The SEC has responded to these concerns in securities markets with a proposed rule to strengthen the automated systems of important market participants. The Council recommends continued engagement by regulators, market exchanges, and participants to explore durable solutions to the challenges of managing complex technology in trading environments and the vulnerabilities exposed by the operational malfunctions in 2012. In addition, the Council recommends that regulators continue to monitor the adequacy of internal control and corporate governance processes of financial institutions and market utilities.

Cybersecurity

Since the summer of 2012, financial services companies have experienced a series of coordinated distributed denial-of-service (DDoS) attacks against their public-facing websites. Among other things, the Treasury and financial regulators have facilitated the sharing of information between the government and the financial services sector in response to these attacks. The Council has received reports on the nature of these attacks and the threat posed to the financial system. The Council recommends that senior management at financial institutions remain engaged on these issues and commit to improve the flow of information both within individual firms and between firms, through appropriate channels. The Council recommends that government agencies enhance information sharing between the public and private sectors and work with the private sector to assess the effects of cyberattacks on business continuity and recovery. Financial regulators should continue to review and update their examination policies and guidance for information security in light of the evolving threat environment.

Infrastructure

Superstorm Sandy underscored the interdependencies between our nation's financial system and other key infrastructures. The Council recommends that regulators assess their policies and guidance in the areas of contingency planning and testing, incident management around market closures, and positioning of key management and staff, and improvements to further mitigate dependencies on power, transportation, and communications infrastructures. Regulators should assess whether examinations are appropriately ensuring conformance with these requirements.

3.2.2 Risk of Prolonged Period of Low Interest Rates

Depository Institutions, Broker-Dealers, and Bank Holding Companies

Sustained low levels of interest rates, combined with ample deposit and wholesale funding liquidity as well as low loan demand, may have led some firms to reach for yield without sufficient attention to the risk-return tradeoff. Supervisors and market participants should be particularly attuned to signs of heightened interest rate and credit risk at depository institutions, credit unions, broker-dealers, and bank holding companies

(BHCs). While duration extension and increased credit risk taking may boost near-term earnings, it could significantly increase losses in the event of a sudden yield curve steepening, a large rise in rates, or a significant widening of credit spreads. In addition, excessive risk posed by such strategies could be masked if an institution does not have appropriate risk management controls in place. The Council recommends that regulatory agencies and private sector risk managers continue their scrutiny of the ways in which potential changes in interest rates could adversely affect the risk profiles of financial firms. This should be done with regular assessments of interest rate and credit risk management strategies, including thorough assessments of how institutions will perform in a stressed or rapidly changing market environment. Established supervisory guidance by the prudential banking and credit union regulators directs that financial institutions have interest rate and credit risk management and measurement systems commensurate with the level and complexity of their risk profiles.

Insurance Companies

Insurance companies are generally subject to interest rate risk, given their investments in fixed income assets; however, the life insurance sector is particularly sensitive to interest rate risk, as a result of its investment in longer-duration fixed income assets, which are typically held to maturity in order to match their long-tail liabilities. Particular insurance products are more sensitive to interest rate risk, such as whole life, fixed annuities, and products with explicit guaranteed returns.

State insurance regulators require life insurance companies in their states to perform annual asset adequacy testing to determine whether the assets backing liabilities provide sufficient cash flow to meet future contractual payments to policyholders and other expenses. As part of asset adequacy testing, life insurance companies are required to test the sensitivity of assets and liabilities to changes in interest rates and to adverse economic scenarios.

The Council recommends that FIO and state insurance regulators continue to be vigilant in monitoring the impact of the low interest rate environment **(see Section 5.4.2)** on insurance companies and that state insurance regulators continue to ensure that the economic scenarios run by insurance companies are sufficiently robust and appropriately capture interest rate and other economic risks.

Pension Funds

The current interest rate environment presents challenges for pension funds. Both public and private defined benefit (DB) pension plans remain significantly underfunded relative to the present value of their liabilities due to inadequate contributions, losses incurred in 2007 and 2008, and, in the case of corporate plans, declines in liability discount rates. Low financial market returns have exacted a heavy toll on funding levels, while at the same time benefit costs have continued to rise. The Council recommends that appropriate authorities continue their scrutiny of the ways in which low interest rates could adversely affect the risk profiles of pension funds and continue to address the funding status of pension funds. A recent notable SEC enforcement case against the State of Illinois's pension funds underscored the importance of greater transparency and accuracy in disclosures about risks associated with funding levels of pension funds.

3.2.3 Capital, Liquidity, Resolution

Capital and Liquidity

Capital and liquidity buffers form the most fundamental protection for the broader financial system and the economy against unexpected risks or failures of risk management at financial institutions. Considerable progress is being made on robust capital and liquidity planning at U.S. financial institutions. The Federal Reserve has conducted its Dodd-Frank Act-mandated supervisory stress tests and the 2013 Comprehensive Capital Analysis and Review (CCAR) exercise to ensure that the largest U.S. BHCs have sufficient capital and

rigorous, forward-looking capital planning processes to allow these organizations to continue operations throughout periods of severe stress. The Council recommends that the Federal Reserve continue its efforts to promote forward-looking capital and liquidity planning. The Federal Reserve has proposed enhanced prudential standards, including capital and liquidity planning requirements, for the largest domestic BHCs, foreign banking organizations (FBOs) with a U.S. banking presence, and nonbank financial companies designated by the Council. In June 2012, the federal banking agencies invited public comment on proposed regulatory capital rules that, in part, would implement Basel III reforms that seek to improve the quantity, quality, and risk sensitivity of regulatory capital. The Council recommends that agencies continue coordinating their development of regulations to help ensure enhanced capital planning and robust capital for financial institutions.

On liquidity planning, the Council recommends that supervisors and private sector risk managers closely monitor the risks inherent in short-term funding of longer-term assets. While some forms of maturity transformation are an integral part of the traditional banking model, such as using retail deposits to fund commercial loans, firms should diversify their funding base and place prudent limits on the volume of credit-sensitive, short-term liabilities in order to reduce funding vulnerabilities. In October 2012, the SEC proposed a rule that would require the largest broker-dealers to perform a liquidity stress test at least monthly and, based on the results of that test, maintain liquidity reserves to address potential funding needs during a stress event. Furthermore, in July 2012, the NCUA issued a proposed rule on the need for federally insured credit unions to have contingency funding plans that clearly set out strategies for addressing liquidity shortfalls in emergency situations. Other agencies have also issued additional guidance regarding these issues. The Basel III liquidity framework, which the federal banking agencies expect to implement domestically through the rulemaking process, supplements the Federal Reserve's recently proposed enhanced prudential standards for liquidity with quantitative measures of an institution's liquidity position under a short-term period of liquidity stress.

Resolution Plans

Resolution plans and the orderly liquidation authority, in conjunction with enhanced prudential standards, are critical elements of Dodd-Frank Act reform. Effective resolution planning for the largest financial institutions is an important tool to address the operational and legal complexity of these firms on an ongoing basis. All BHCs with total consolidated assets of $50 billion or more and nonbank financial companies designated by the Council for supervision by the Federal Reserve are required to develop, maintain, and periodically submit resolution plans, also known as living wills, that would facilitate these entities' resolution under the Bankruptcy Code. Additionally, the FDIC requires FDIC-insured depository institutions with assets of $50 billion or more to file plans for their orderly resolution under the Federal Deposit Insurance Act.

The overarching goal of these resolution plans is to better prepare firms, supervisors, and resolution authorities for a potential firm resolution and to foster sound resolution-related contingency planning. If the Federal Reserve and the FDIC jointly determine that a resolution plan is not credible or would not facilitate orderly resolution under the Bankruptcy Code, then the company must resubmit the plan with revisions, including, if necessary, proposed changes in business operations or corporate structure. If the company fails to resubmit a credible plan that would result in orderly resolution under the Bankruptcy Code, the Federal Reserve and the FDIC may jointly impose more stringent capital, leverage, or liquidity requirements; growth, activities, or operations restrictions; or, after two years and in consultation with the Council, divestiture requirements.

In 2012, 11 financial institutions, including those with nonbank assets greater than $250 billion, submitted their initial resolution plans. The Federal Reserve and FDIC are reviewing and analyzing those submissions.

In 2013, over 100 additional firms are expected to submit their initial resolution plans. Additionally, the 11 financial firms that submitted initial plans in 2012 will be expected to refine and clarify their submissions in 2013. The Council recommends that the Federal Reserve and FDIC implement their authority in a manner that fosters sound resolution planning and better prepares firms and authorities for a rapid and orderly resolution under the Bankruptcy Code.

3.3 Progress on Financial Reform

International coordination of financial regulation and macroprudential surveillance is essential to mitigate threats to financial stability by containing regulatory arbitrage and by formulating policies to preempt emerging risks to financial stability. Directly, and through its members and member agencies, the Council has pursued international financial regulatory coordination to promote regulatory consistency and financial system stability, with the aim of supporting sustainable real economic growth. The Council, its members, and its member agencies will continue to strengthen coordination of financial regulation both domestically and internationally.

In recent years, the Group of 20 (G-20), a forum of 19 countries plus the European Union (EU), has led international economic policy coordination. In 2009, in the midst of the global financial crisis, the G-20 outlined major pillars of a new international financial regulatory system. This agenda has been advanced by the FSB, which has worked closely with international standard-setting bodies and national authorities. Three Council member agencies represent the United States at the FSB: the Treasury, the Federal Reserve, and the SEC. In developing and implementing the international financial regulatory reform agenda, the Council supports the development of policies that promote a level playing field, mitigate regulatory arbitrage, and address the treatment of regulatory gaps.

Assuring that banks are adequately capitalized, U.S. regulators are continuing to make significant progress in implementing capital and liquidity standards for large, complex financial institutions through the Dodd-Frank Act and the Basel III reforms. The Basel III accords, which are currently expected to be fully phased in by 2019, will set internationally agreed heightened capital and liquidity requirements. Basel III will also ensure far more consistency in the manner by which countries define capital for the purposes of measuring risk-weighted assets. The uniform application of these rules by supervisors is as important as the development of consistent rules. In 2013, the Council is particularly interested in the Basel Committee on Banking Supervision's (BCBS) study on the consistency of measurement of risk-weighting practices in banking and trading portfolios. The results of the study will help regulators to standardize the currently disparate risk-weighting practices across jurisdictions. The BCBS's broader goal of simplifying and improving the comparability of regulatory capital requirements for banking firms should remain a top priority.

Strengthening the Regulation of Large, Complex Financial Institutions

The FSB, in consultation with international standard setters, is in various stages of developing methodologies to identify financial institutions whose distress or disorderly failure, because of their size, complexity, and systemic interconnectedness, would cause significant disruption to the wider financial system and economic activity. The FSB, in consultation with IOSCO, plans to present a methodology to determine global systemically important nonbank non-insurers by the end of 2013. The FSB has established a comprehensive policy framework for global systemically important banks (G-SIBs) that includes: (1) a new international standard for resolution regimes; (2) more intensive and effective supervision; (3) requirements for cross-border cooperation, recovery, and resolution planning; and (4) additional loss absorbency for those banks determined to be G-SIBs. The FSB, in consultation with the BCBS, designates global systemically important financial institutions (G-SIFIs) for heightened supervision, including capital surcharges. Accordingly, the ability of G-SIBs to absorb losses will be increased, helping to reduce the probability of failure

and internalizing the negative cross-border externalities not addressed by existing regulatory policies. The Council supports the G-SIB policy framework and encourages its consistent implementation across jurisdictions.

The Dodd-Frank Act provides for the application of enhanced prudential standards to BHCs with $50 billion or more in total consolidated assets. In addition, the Council has authority to designate nonbank financial companies for Federal Reserve supervision and enhanced prudential. The Council currently is in the final stages of evaluating an initial set of nonbank financial companies for potential designation—an important priority for the Council in 2013.

Developing a Framework for the Supervision of Large, Global Systemically Important Insurers

The FSB, in consultation with the International Association of Insurance Supervisors (IAIS), is continuing to create a new framework for the identification and effective supervision of large, global systemically important insurers. In addition, the IAIS is continuing to work on an integrated, multilateral, and multidisciplinary framework for the group-wide supervision of internationally active insurance groups (IAIGs), called the Common Framework for the Supervision of Internationally Active Insurance Groups, which is expected to be adopted by 2018. The Council recommends that FIO, representing the United States, and state insurance regulators, through the National Association of Insurance Commissioners (NAIC), continue to play their respective roles in international insurance matters.

Developing an International Framework to Resolve Global Financial Institutions

The international benchmark for resolution regimes is the FSB's 2011 Key Attributes of Effective Resolution Regimes for Financial Institutions. The United States has been working diligently with international counterparts to ensure that cross-border recovery and resolution plans are developed for major global financial institutions, that international authorities develop criteria to improve the "resolvability" of G-SIFIs, and that institution-specific, cross-border resolution cooperation arrangements are negotiated. The Council acknowledges that international coordination is particularly important in this area, and the Council welcomes the joint policy paper released by the FDIC and the Bank of England (BOE) in December 2012. The Council also welcomes the establishment of a joint working group between the European Commission and the FDIC to discuss issues related to deposit insurance and the resolution of large banks and systemically important financial institutions (SIFIs). In addition, the Council looks forward to the results of the FSB's first peer review of existing resolution regimes led by the FDIC, evaluating FSB jurisdictions and their existing resolution regimes using the Key Attributes as a benchmark.[3] The report of this review has recently been issued, and provides recommendations for future work by the FSB and its members in support of effective and credible resolution regimes for SIFIs. Effective cross-border cooperation will be essential to implementing the FDIC's orderly liquidation authority under Title II of the Dodd-Frank Act.

Increasing the Transparency and Regulation of Over-the-Counter (OTC) Derivatives

The United States, along with Japan, has led the way on implementation of the G-20 leaders' commitment to centralized clearing and exchange trading of standardized derivatives contracts. The G-20 also called for the reporting of all derivatives contracts to trade repositories, as well as the application of higher capital requirements for non-centrally cleared contracts. While no jurisdiction met the end of 2012 deadline, the CFTC has already begun implementing its OTC derivatives rules, including certain registration and reporting requirements and limited clearing requirements. In parallel with continued coordination between the CFTC and SEC on domestic implementation of derivatives rules, the United States continues to work with other jurisdictions to build the internationally cohesive regulatory framework necessary to effectively reform this cross-border market. The Council encourages continued development of these reforms, as they are essential to increase transparency and to mitigate risk that could arise from the OTC derivatives market.

Improving the Oversight and Regulation of Nonbank Intermediaries

There is a considerable amount of work in progress to address potential risks in the area of shadow banking, a term that is often used to refer to the system of financial intermediaries and activities that conduct maturity, credit, and liquidity transformation without access to the Federal Reserve's and FDIC's backstops. Given the role nonbank financial intermediation played in amplifying the financial crisis, the FSB is developing an integrated framework of recommendations to strengthen oversight and regulation of the shadow banking system. In the United States, significant steps have already been taken to mitigate these potential risks. These steps include reforms to improve the resilience of MMFs, the tri-party repo market, and securitization. The Council, through its authority to designate nonbank financial companies for supervision by the Federal Reserve and enhanced prudential standards, can expand the regulatory perimeter to certain activities and entities in the shadow banking system.

Data Resources and Analytics

The Council continues to recommend that improvement in data standards should be a high priority for financial firms as part of their risk management process and for the regulatory community—not just in the United States, but globally. The development and forthcoming implementation of the Legal Entity Identifier (LEI) is a valuable first step, one that will help to precisely identify the parties to particular financial transactions. It will also enable a more accurate and consistent understanding of legal entity hierarchies, which is essential for effective counterparty risk management. The Council recommends that the OFR continue to work with the Council's member agencies to promote the use of, and establish where necessary, data standards for identification of legal entities, financial products, and transactions, and to improve the quality of and facilitate the access to standardized, aggregate data by the regulators. Finally, the Council recommends that cross-border exchange of supervisory data among supervisors, regulators, and financial stability authorities be facilitated in a manner that safeguards the confidentiality and privilege of such information. This will help provide comprehensive oversight of financial institutions and markets with a global reach and improve coordination on financial stability.

Since the 2007 to 2008 financial crisis, the United States has worked effectively through the G-20 and FSB to develop and implement a new global financial regulatory architecture designed to enable a more stable, robust, and transparent financial system. Considerable progress has already been made, but much more work remains to be done. The Council will continue to pursue a reform agenda, both domestically and internationally, to support these goals.

4 Macroeconomic Environment

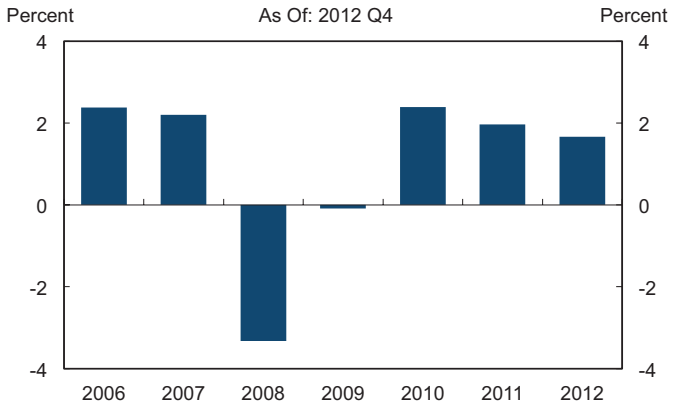
This section provides an overview of macroeconomic developments since the start of 2012, by reviewing (1) U.S. economic activity; (2) nonfinancial balance sheet developments; (3) government finance; and (4) the external economic environment. Furthermore, the macroeconomic and financial market impacts of the fiscal cliff and debt ceiling are discussed.

4.1 U.S. Economic Activity

4.1.1 Real Gross Domestic Product

Economic growth was moderate in 2012, with real GDP expanding 1.7 percent **(Chart 4.1.1)**. Concern about the future pace of the economic recovery and the sustainability of fiscal policy likely restrained the demand of businesses and households. Tighter underwriting standards in some sectors, especially in home mortgage lending, together with the overhang of foreclosed and underwater mortgages, weighed on the recovery of the housing sector and consumer spending. Reductions in government spending negatively affected domestic demand, and the fiscal and financial difficulties in Europe weighed on external demand. Economic activity was held down in the second half of the year by some temporary factors including a severe drought in much of the country and the disruptions caused by Superstorm Sandy.

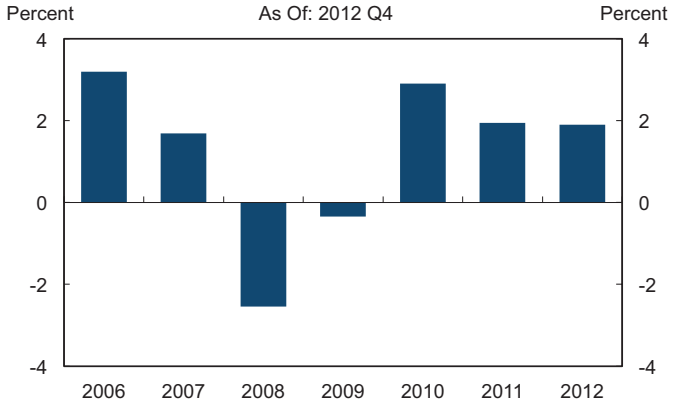
Chart 4.1.1 Change in Real Gross Domestic Product



Source: BEA, Haver Analytics

Note: Annual changes are Q4/Q4.

Chart 4.1.2 Change in Real Personal Consumption Expenditures



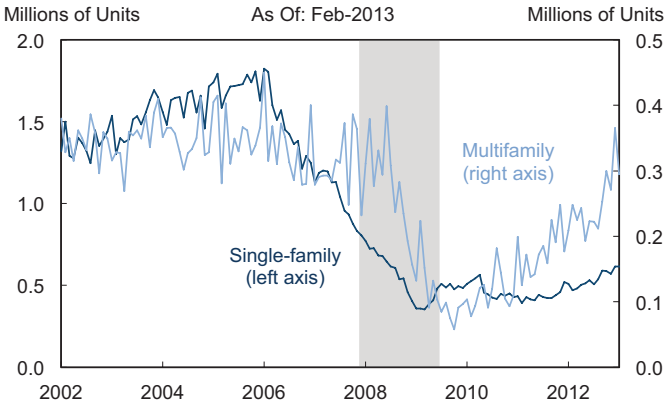
Source: BEA, Haver Analytics

Note: Annual changes are Q4/Q4.

Consumption and Residential Investment

Real personal consumption expenditures (PCE) increased at a moderate pace of about 2 percent in 2012 **(Chart 4.1.2)**, supported partly by growth in household net worth and some improvement in labor market conditions and consumer sentiment. However, consumer sentiment remains below pre-crisis norms, weighed down by concern about the economic environment and limited access to credit for many households. Growth in real disposable income was modest over most of the year,

Chart 4.1.3 Private Housing Starts



Source: Census Bureau, Haver Analytics

Note: Seasonally adjusted at an annualized rate. Gray bar signifies NBER recession.

before jumping in the fourth quarter, when a large number of firms issued special or accelerated dividends and employee bonuses in anticipation of higher marginal tax rates on high-income households in 2013.

Housing activity continued to show signs of gradual improvement last year, but remained weak relative to longer-run norms. Housing starts **(Chart 4.1.3)**, sales of new and existing homes, and home prices all increased, spurred in part by historically low mortgage rates. However, tighter underwriting standards on mortgages, especially for individuals with lower credit scores **(see Section 4.2.3)**, low or negative levels of home equity among many households, and elevated unemployment continue to restrain the demand for housing. Moreover, the shadow inventory of homes held off the market due to vacancy or reduced homeowner's equity remained elevated.

Business Fixed Investment

Real business fixed investment (BFI) rose at a moderate pace in 2012, following rapid growth in 2010 and 2011, while BFI as a share of GDP remained below its pre-recession level. Business investment in equipment and software (E&S) decelerated in 2012 as the pent-up demand for investment projects deferred during the recession has diminished since the earlier stages of the recovery. E&S investment is likely further restrained by concerns about the pace of global economic growth. Meanwhile, investment in nonresidential structures remained subdued, as high vacancy rates, low commercial real estate prices, and tighter credit for builders continued to hamper growth. However, there were some gradual signs of improvement in the commercial real estate (CRE) sector **(see Section 5.1.4)**.

Government Purchases

On net, real government expenditures at the federal, state, and local levels continued to contract in 2012. Real state and local government purchases fell at an annual rate of about 1.5 percent in the first half of the year and were about flat in the second half, held down by ongoing budgetary pressures, though those pressures appear to have lessened since earlier in the recovery as state and local tax revenues have increased. Real federal government purchases fell almost 3 percent during the year, reflecting large declines in federal defense spending at the end of the year and the wind down of the fiscal stimulus provided during the recession.

Imports and Exports

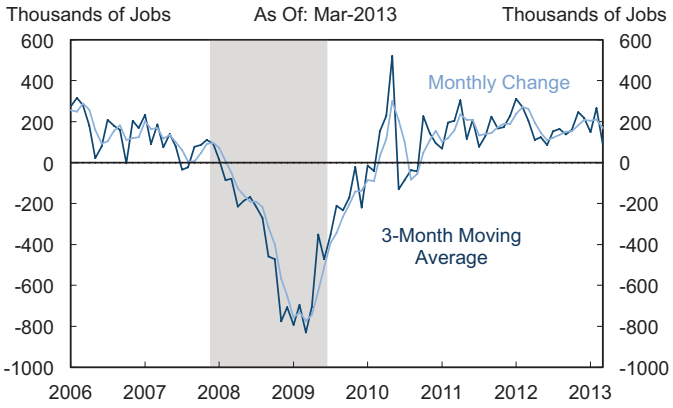
Real exports of goods and services rose very modestly last year, held down by a fall off in demand from the euro area. Imports of goods and services were about flat, consistent with the pace of final aggregate demand and the rise in the dollar. Altogether, net exports made a very small but positive contribution to real GDP growth last year.

4.1.2 The Labor Market

The labor market improved slowly in 2012, but remains weak. Nonfarm payroll employment increased at an average monthly rate of about 159,000 jobs in the 12 months ending March 2013 **(Chart 4.1.4)**. The private sector added 166,000 jobs per month, while government payrolls dropped at an average rate of about 6,000 per month.

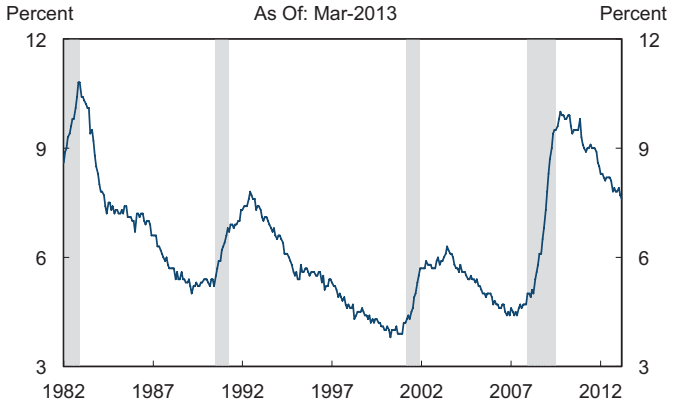
These job gains helped reduce the unemployment rate from 8.5 percent at the end of 2011 to 7.6 percent in March 2013 **(Chart 4.1.5)**. However, the unemployment rate continues to be much higher than it was before the crisis, and long-term unemployment remains elevated. In March 2013, about 40 percent of unemployed workers had been out of work for more than six months **(Chart 4.1.6)**. Meanwhile, labor force participation edged down 0.5 percentage point in the 12 months ending March 2013, and has fallen 3.1

Chart 4.1.4 Net Change in Nonfarm Payroll Employment



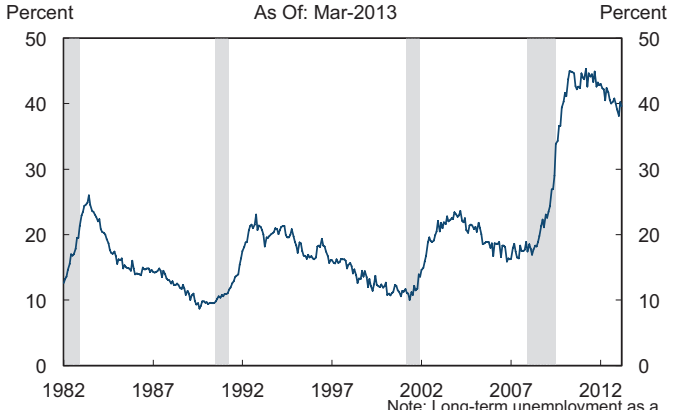
Source: BLS, Haver Analytics Note: Gray bar signifies NBER recession.

Chart 4.1.5 Civilian Unemployment Rate



Source: BLS, Haver Analytics Note: Gray bars signify NBER recessions.

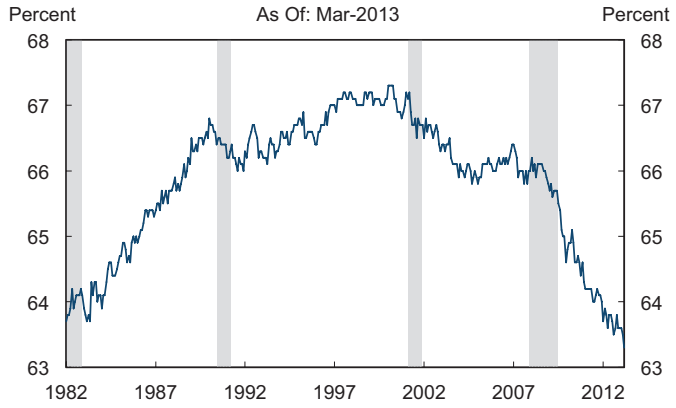
Chart 4.1.6 Long-Term Unemployment



Source: BLS, Haver Analytics

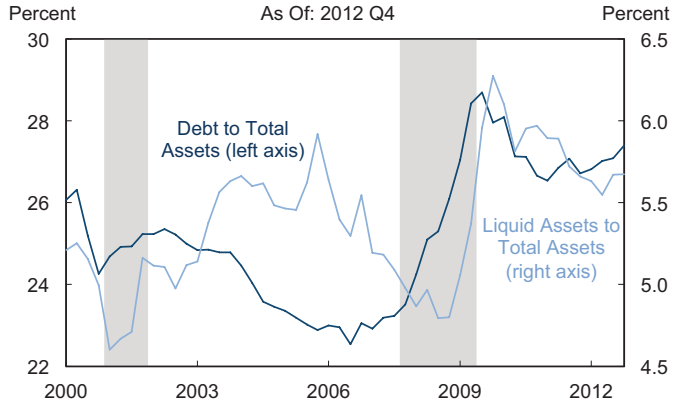
Note: Long-term unemployment as a percent of total unemployment. Gray bars signify NBER recessions.

Chart 4.1.7 Labor Force Participation Rate



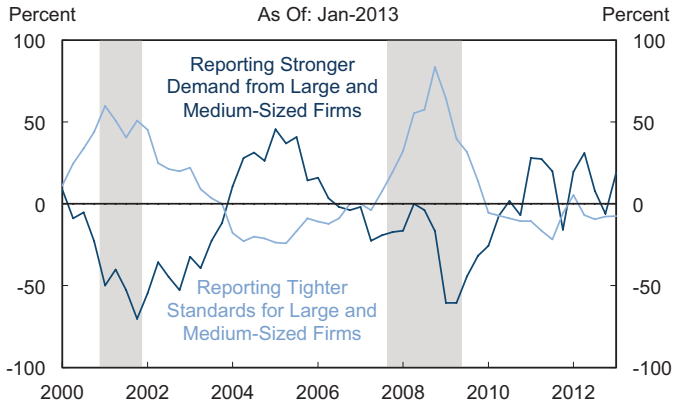
Source: BLS, Haver Analytics Note: Gray bars signify NBER recessions.

Chart 4.2.1 Financial Ratios for Nonfinancial Corporations



Source: Flow of Funds, Haver Analytics Note: Gray bars signify NBER recessions.

Chart 4.2.2 Bank Business Lending Standards and Demand



Source: SLOOS, Haver Analytics Note: Gray bars signify NBER recessions. Data includes firms with annual sales of $50 million or more.

percentage points since the beginning of 2007 **(Chart 4.1.7)**, in part due to ongoing demographic change as the baby boomers retire. Wage growth for those employed remains subdued.

The high rate of unemployment in the current economic expansion has raised concerns that the level of structural unemployment has risen over the past few years in the United States. However, recent research suggests that the rise in structural unemployment is modest.[4]

4.2 Nonfinancial Balance Sheets

4.2.1 Nonfinancial Corporate Sector

Corporate balance sheets remained strong in 2012. The ratio of liquid assets to total assets of the sector was near its highest level in more than 20 years, and debt has declined significantly relative to total assets over the past few years **(Chart 4.2.1)**. Cash flows were solid, helping to support further increases in the equity market valuations of nonfinancial corporations and allowing them to boost capital through retained earnings **(see Section 5.1.3 for equity market valuations)**.

Robust credit quality and corporate profits, as well as the low level of interest rates and declining spreads on corporate debt, supported substantial gross borrowing in corporate bond markets by nonfinancial firms **(see Section 5.1.1)**. Total outstanding loans to the nonfinancial corporate sector, which includes loans from bank and nonbank sources, increased modestly in 2012. Commercial and industrial (C&I) loans funded by banks continued to rise, and over the course of 2012, respondents to the Federal Reserve's Senior Loan Officer Opinion Survey on Bank Lending Practices (SLOOS) reported less stringent underwriting standards and increased demand for C&I loans to large and medium-sized firms **(Chart 4.2.2)**.

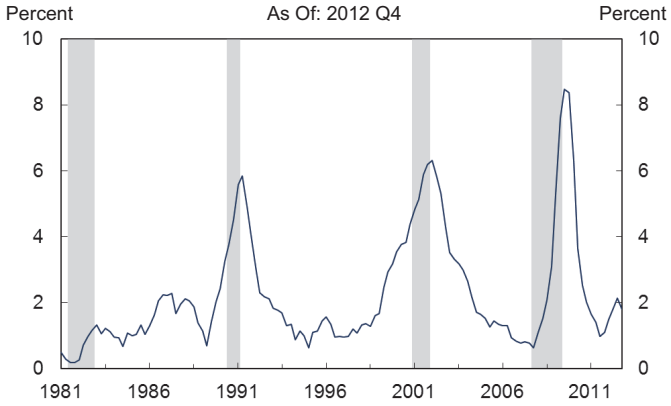
Available indicators of corporate credit quality point to further improvement. The default rate on nonfinancial corporate bonds fluctuated in 2012 at low levels by historical standards **(Chart 4.2.3)**, and delinquency rates on C&I loans declined further last year **(Chart 4.2.4)**. As will be discussed in **Section 7.4**, other indicators, such as the prevalence of more relaxed underwriting and covenants in recent leveraged lending originations, suggest that investors and lenders have begun to take on more risk.

4.2.2 Noncorporate Business Sector

Compared to conditions in the nonfinancial corporate sector, conditions in the nonfinancial noncorporate business sector have improved at a much slower pace. This sector, composed primarily of small businesses, accounts for slightly less than one-third of total nonfinancial business debt outstanding. However, since small businesses generally have access to a narrower range of financing options than corporations, the majority of small business debt is composed of bank loans, usually tied to the personal credit score of the owners or secured by real estate. Therefore, developments in the noncorporate business sector are especially important for the health of many banks' balance sheets, especially at smaller banks.

Real estate represents the majority of assets owned by noncorporate businesses **(Chart 4.2.5)**, and since the beginning of the financial crisis, lower real estate collateral values and stress in the banking sector have constrained credit availability to the sector. However, there are signs that credit conditions for small businesses are gradually improving. Net borrowing by nonfinancial noncorporate businesses, which had dropped dramatically through 2010, was slightly positive in 2012 **(Chart 4.2.6)**. Small loans to businesses on bank balance sheets grew modestly in 2012, but much of this growth, concentrated at the end of the year, may have been transitory in nature due to an increase in bonuses and other special distributions before higher tax rates took effect for some households in 2013. Respondents to the SLOOS noted some easing

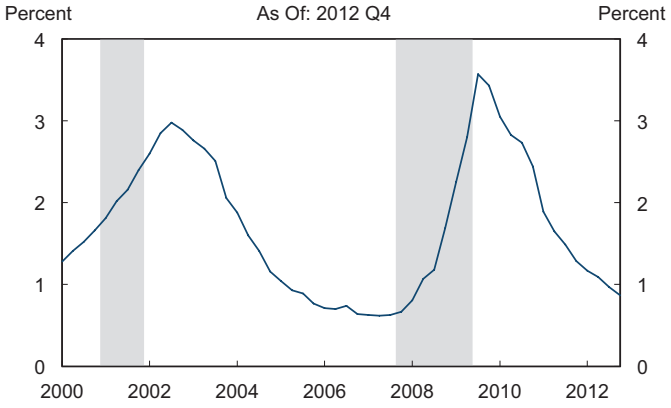
Chart 4.2.3 Nonfinancial Corporate Bond Default Rate



Source: Moody's Investors Service

Note: Default rates are annual rates calculated on a quarterly basis. Gray bars signify NBER recessions.

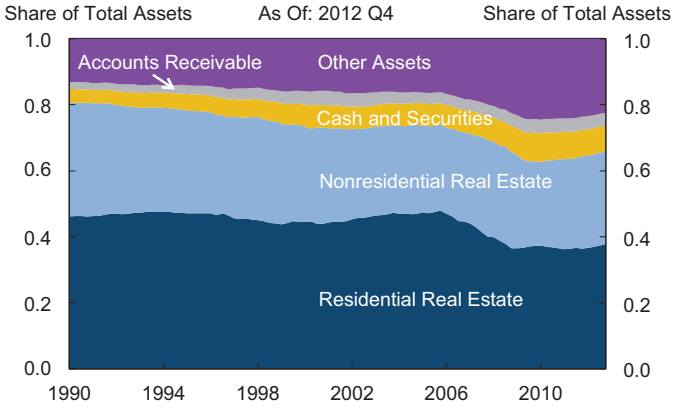
Chart 4.2.4 Noncurrent Commercial and Industrial Loans



Source: FDIC, Haver Analytics

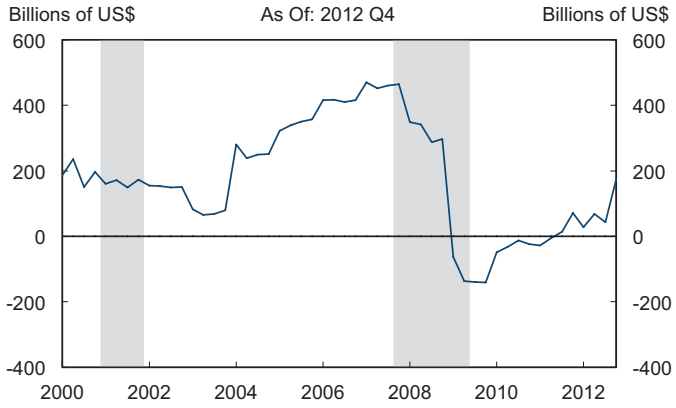
Note: Percent of total C&I loans. Gray bars signify NBER recessions.

Chart 4.2.5 Noncorporate Assets



Source: Flow of Funds, Haver Analytics

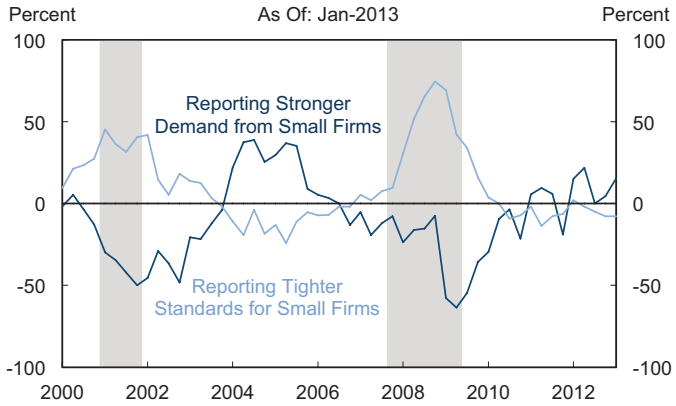
Chart 4.2.6 Net Borrowing by Nonfinancial Noncorporate Businesses



Source: Flow of Funds, Haver Analytics

Note: Seasonally adjusted at an annual rate. Gray bars signify NBER recessions.

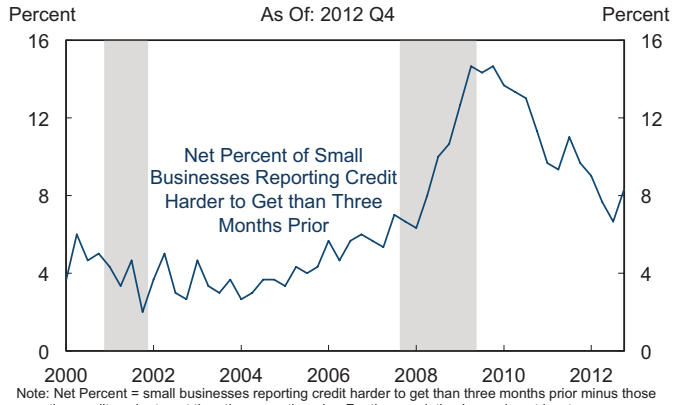
Chart 4.2.7 Bank Business Lending Standards and Demand



Source: SLOOS, Haver Analytics

Note: Gray bars signify NBER recessions. Data includes firms with annual sales of less than $50 million.

Chart 4.2.8 Small Businesses' Difficulty Obtaining Credit



Note: Net Percent = small businesses reporting credit harder to get than three months prior minus those reporting credit easier to get than three months prior. For the population borrowing at least once every three months. Depicts quarterly averages of monthly data. Gray bars signify NBER recessions.

Source: NFIB, Haver Analytics

on loan standards and spreads, and stronger demand for C&I loans last year **(Chart 4.2.7)**. The fraction of firms surveyed by the National Federation of Independent Businesses (NFIB) which reported that credit had become more difficult to obtain also trended down in recent years, despite an uptick at the end of 2012 **(Chart 4.2.8)**, and less than 5 percent of respondents reported that financing was their top problem. That said, the fraction of firms that reported difficulty in obtaining credit remained elevated relative to the pre-crisis period.

4.2.3 Household Sector

Household debt increased sharply in the years leading up to the financial crisis, reaching a high of 130 percent of disposable personal income in the third quarter of 2007. Since then, households have been deleveraging. By the end of last year, the ratio of household debt to disposable income declined to its 2003 level **(Chart 4.2.9)**, largely due to lower mortgage debt outstanding.

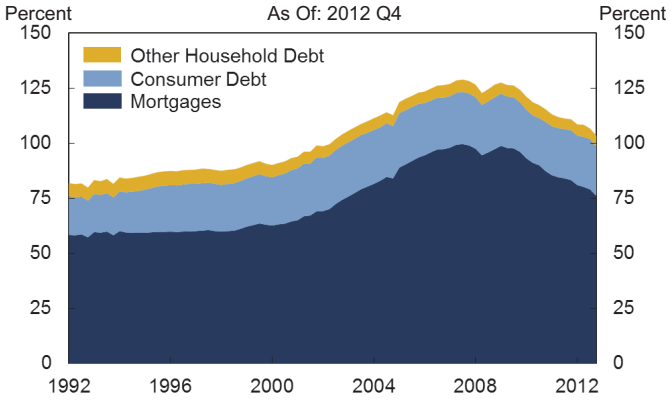
Continuing reductions in home mortgages, which account for about three-fourths of outstanding household debt, more than offset an increase in consumer credit last year **(Chart 4.2.10)**. The reduction in outstanding mortgage debt reflects a low volume of mortgage originations for new home purchases, household efforts to pay down their existing debt, and the effects of foreclosures and short sales. Despite a pick-up in housing activity and low mortgage rates, the volume of new mortgage originations remained subdued, largely due to tighter underwriting standards, including lower loan-to-value ratios, as will be discussed in **Section 5.1.4**. In particular, reduced origination capacity and continued uncertainty over mortgage put-backs to lenders contributed to reduced access to mortgage credit. More conservative underwriting standards and depressed home values have also resulted in a low volume of cash-out refinancings.

Household deleveraging, low interest rates, and modest increases in employment and income reduced the household debt service ratio (the ratio of debt service payments to disposable personal income) to a historic low **(Chart 4.2.11)**. Reduced debt burdens allowed households to slowly but steadily become more current on their debts. Since 2009, the percentage of delinquent household debts has decreased from 11.9 percent to 8.6 percent, but remains significantly above pre-crisis levels; however, the share of seriously delinquent debts remains stubbornly high **(Chart 4.2.12)**. While aggregate measures of the debt burden improved, many households continue to struggle to meet their financial obligations and many are still underwater on their mortgages.

Looking at the entire balance sheet of the sector, aggregate household net worth (the difference between assets and debts) rose about $5.5 trillion in 2012, to an estimated $66.1 trillion **(Chart 4.2.13)**, and the ratio of household net worth to disposable personal income increased over the year. Price increases of corporate equities, and to a lesser extent of homes, accounted for most of the increase in net worth. Active saving, and the declines in outstanding debt discussed above, also contributed in smaller part. Due to reductions in mortgage debt and increases in home prices, the share of owners' equity in housing started to move up last year, although it still remains very low: roughly 13 percentage points below its 1990 to 2005 average **(Chart 4.2.14)**. However, renters and lower-income households with smaller exposures to the stock market have not benefitted much from the recovery in equity and home prices over the past few years.

Unlike mortgage debt, non-mortgage consumer credit, which accounts for slightly more than 20 percent of total household debt, has been growing over the past two years. During 2012, non-mortgage consumer credit outstanding increased nearly 6 percent to $2.8 trillion. Non-revolving credit, which consists primarily of auto loans and student loans and is over two-thirds of total consumer credit, accounted for

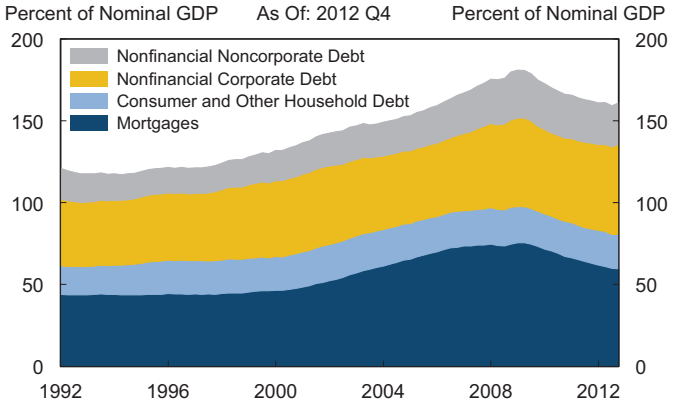
Chart 4.2.9 Household Debt as a Percent of Disposable Personal Income



Source: BEA, Flow of Funds, Haver Analytics

Note: Other Household Debt includes debts of both households and nonprofits.

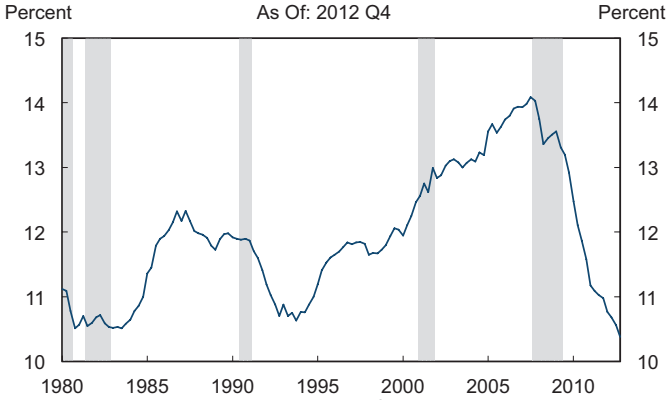
Chart 4.2.10 Private Nonfinancial Debt



Source: BEA, Flow of Funds, Haver Analytics

Note: Other Household Debt includes debts of both households and nonprofits.

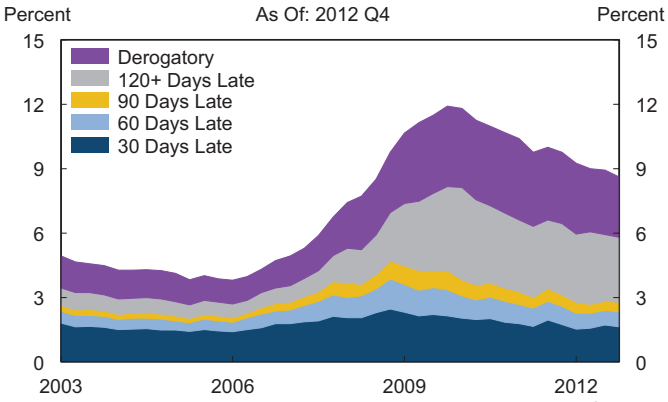
Chart 4.2.11 Household Debt Service Ratio



Source: Federal Reserve, Haver Analytics

Note: Ratio of debt service payments to disposable personal income. Seasonally adjusted. Gray bars signify NBER recessions.

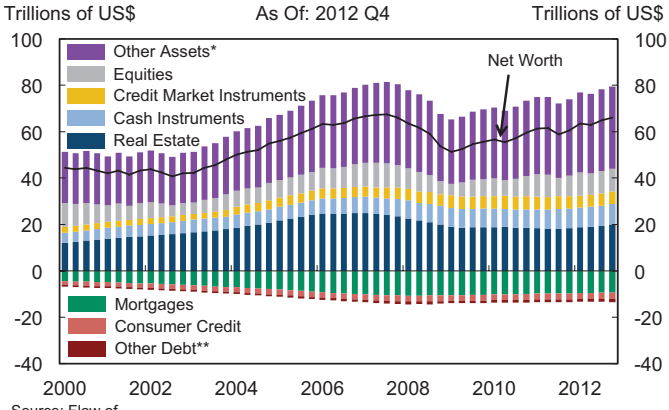
Chart 4.2.12 Share of Household Debt by Delinquency Status



Source: FRBNY Consumer Credit Panel, Equifax, Haver Analytics

Note: Derogatory loans are loans for which there are reports of a repossession, charge off to bad debt, or foreclosure.

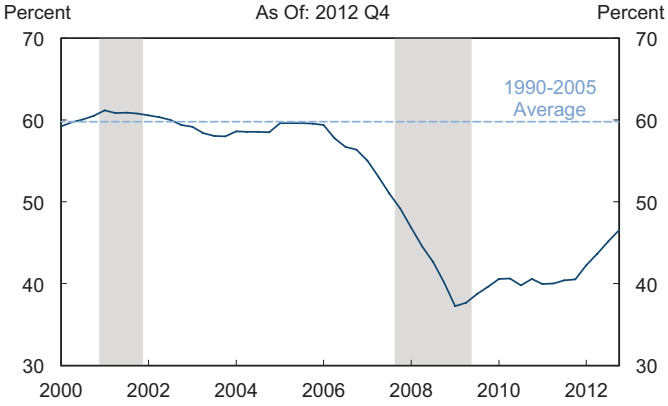
Chart 4.2.13 Household and Nonprofit Balance Sheets



Source: Flow of Funds, Haver Analytics

Note: *Noncorporate equities, mutual fund shares, security credit, life insurance and pension fund reserves, tangible assets excluding real estate, miscellaneous assets. **Security credit, trade payables, unpaid life insurance premiums, other credit market instruments.

Chart 4.2.14 Share of Owners' Equity in Household Real Estate



Source: Flow of Funds, Haver Analytics

Note: Gray bars signify NBER recessions.

most of this increase. Federal student loans are the dominant source of student loans, which continue to expand at a rapid pace **(Chart 4.2.15)**. Federal student loans are administered based on statutory eligibility criteria, and origination decisions are generally not based on a borrower's credit characteristics. Interest rates on new federal student loan issuance are currently fixed in statute and generally range from 3.4 percent to 7.9 percent, depending on the federal loan program for which the student or their parents are eligible. Federal student loans currently comprise over 90 percent of annual issuance and approximately 85 percent of the outstanding portfolio of student loans.

Growth in auto loans also picked up last year, reflecting widespread availability of credit and rising consumer demand for motor vehicles. About $90 billion of auto loan asset-backed securities (ABS) were issued in 2012—the most since 2006. Subprime auto loan ABS issuance reemerged, although reportedly with stronger credit support than in most pre-crisis structures.

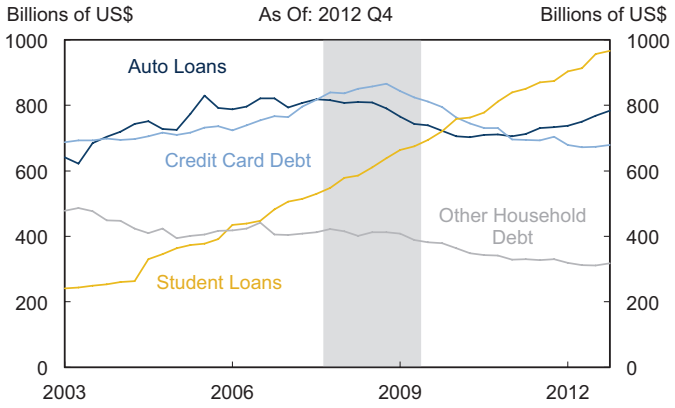
Indicators of changes in the demand for credit were mixed last year. Respondents to the SLOOS reported stronger demand for credit by consumers, on net, especially for auto loans. However, credit applications decreased slightly over the past year and remained largely subdued relative to the pre-crisis period **(Chart 4.2.16)**.

Delinquency rates for most types of consumer credit continued to decline from the high rates experienced during the crisis. In particular, the increases in delinquency rates on credit card and auto loans during the crisis were largely driven by a sharp rise in the delinquency rate of subprime borrowers, which remains significantly above historical levels. Lower delinquency rates for revolving credit and auto loans in 2012 likely reflected, in part, the composition shift toward higher-quality borrowers. The delinquency rates on these loans to super prime and prime consumers were

more stable through the crisis and are currently near their historical averages.

While households are becoming more current on most types of debt, the propensity for student loans to become delinquent increased in 2012, with 11.7 percent of student loans more than 90 days delinquent at the end of the year **(Chart 4.2.17)**. Large and growing student debt burdens and a poor job market have pushed many borrowers into delinquency, especially among younger borrowers. About half of all loans to borrowers under 30 years old are in periods of payment deferral or forbearance and cannot become delinquent, but 35 percent of borrowers under 30 who are required to make principal-reducing payments are more than 90 days delinquent on their student loans. However, risk to lenders is mitigated by the fact that both federal and private student loans are difficult to discharge in bankruptcy, and that the federal government has extraordinary collection authorities. Federal student loans also have a number of flexible payment terms that act as loan modifications for distressed borrowers. High student debt burdens may impact demand for housing, as young borrowers may be less able to access mortgage credit. Student debt levels may also lead to dampened consumption.

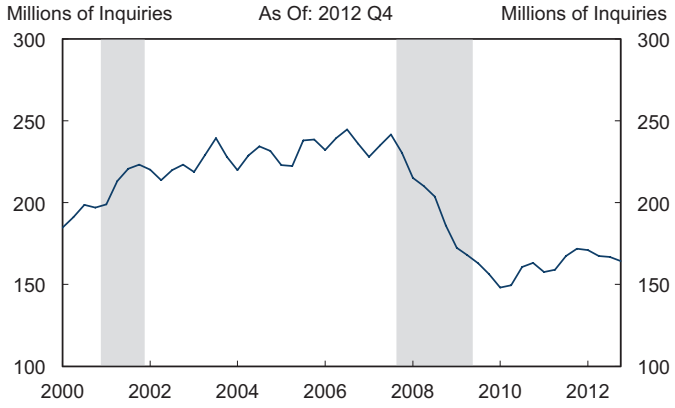
Chart 4.2.15 Components of Consumer Credit



Source: FRBNY Consumer Credit Panel, Equifax, Haver Analytics

Note: Gray bar signifies NBER recession.

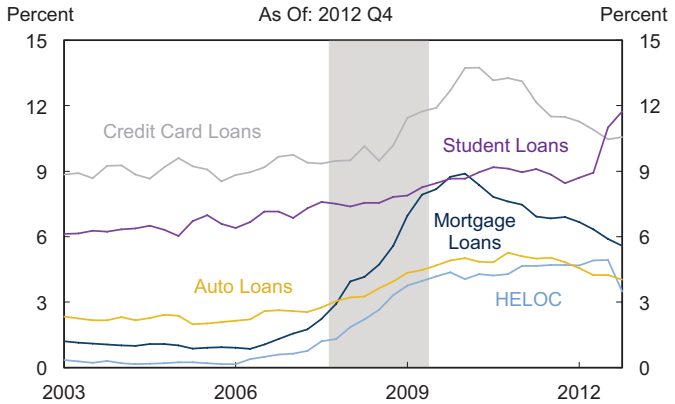
Chart 4.2.16 Applications for Credit



Source: FRBNY Consumer Credit Panel, Equifax, Haver Analytics

Note: Number of Equifax inquiries within 6 months. Gray bars signify NBER recessions.

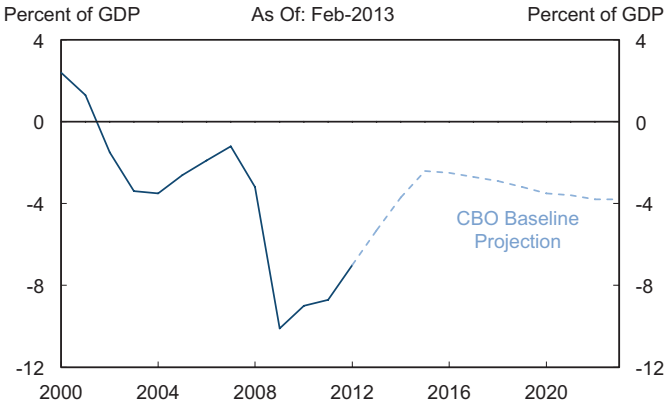
Chart 4.2.17 90+ Day Delinquency Rate by Loan Type



Source: FRBNY Consumer Credit Panel, Equifax, Haver Analytics

Note: Gray bar signifies NBER recession. Student loan delinquency rates in 2012 Q3 are inflated by the reposting of a large number of delinquent loans by a single servicer.

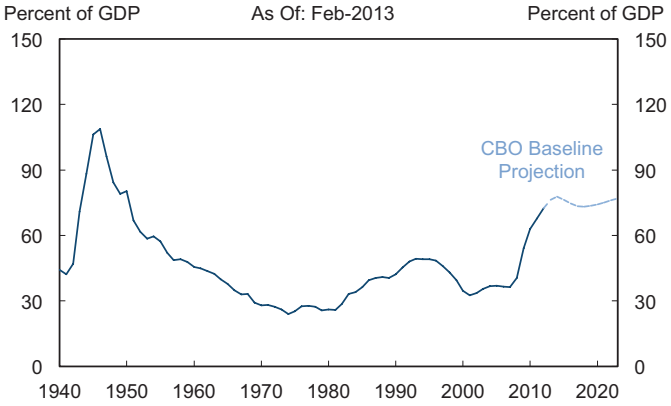
Chart 4.3.1 Federal Unified Budget Surplus/Deficit



Source: CBO, Haver Analytics

Note: Negative values denote a deficit. Data for fiscal years. Years after 2012 are projected.

Chart 4.3.2 Federal Debt Held by the Public as a Percent of GDP



Source: CBO, Haver Analytics

Note: Data for fiscal years. Years after 2012 are projected.

4.3 Government Finance

4.3.1 Federal Government

The deficit in the federal unified budget widened significantly during the recession and has since gradually narrowed. In the 2012 fiscal year, the deficit was 7 percent of nominal GDP—1.7 percentage points lower than in 2011 but substantially above the average value of 1.3 percent of GDP during the pre-crisis fiscal years of 2000 to 2007 **(Chart 4.3.1)**. This appreciable increase in the deficit mostly reflects the usual cyclical response of revenues and spending to a weak economy, as well as the fiscal actions taken to ease the effects of the recession and aid the recovery.

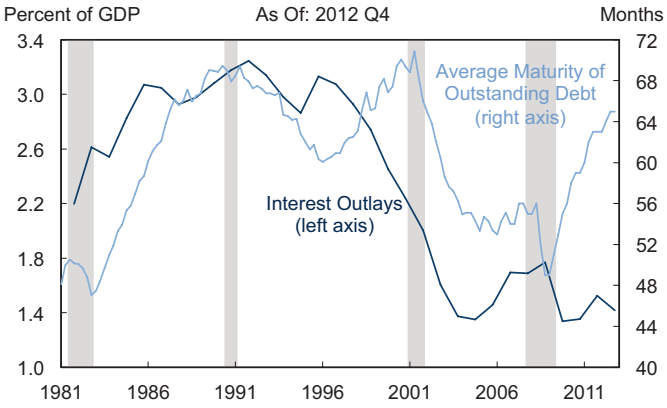
The budget outlook over the medium term is subject to considerable uncertainty with respect to both the performance of the economy and the path of future fiscal policy. In the Congressional Budget Office's (CBO) February 2013 baseline projection, which assumes current laws generally remain unchanged, the deficit shrinks appreciably over the next several years. The deficit is then forecasted to drift up through the end of the projection in 2023, as federal health care and entitlement spending increase, along with the number of retirees. Consistent with this projection for the deficit, federal debt held by the public is expected to move in a fairly narrow range, hovering around 75 percent of GDP through 2023 **(Chart 4.3.2)**.

Rating agencies' assessments of Treasury debt are unchanged since late 2011. Moody's and Fitch give U.S. sovereign debt their top ratings, while Standard & Poor's (S&P) issued a one-notch downgrade in mid-2011. All three ratings agencies have negative outlooks on U.S. sovereign debt. Demand for Treasury securities appears well maintained, as market participants continue to purchase U.S. debt for its relative safety and liquidity. Bid-to-cover ratios at auctions of Treasury securities remain at the top end of historical ranges, and indicators of foreign participation have remained on trend with recent years.

Despite the sizable increase in public debt outstanding, net interest costs have only amounted to about 1.5 percent of GDP in recent years, in line with their average over the past decade, but considerably lower than during the 1990s, when net interest costs were about 3 percent of GDP **(Chart 4.3.3)**. Historically low interest rates have allowed net interest costs to decline relative to GDP even as outstanding federal debt grew rapidly. The average maturity of public debt outstanding has risen sharply since late 2008 and is close to its 30-year average, although the Federal Reserve has taken on an increasing amount of longer-term debt since the initiation of its Treasury Large-Scale Asset Purchase programs (LSAPs) in March 2009.

The economic and financial market impacts of the fiscal cliff and debt ceiling are discussed in **Box A**.

Chart 4.3.3 Interest Outlays and Average Maturity of U.S. Public Debt



Source: BEA, OMB, Haver Analytics

Note: Gray bars signify NBER recessions.

BOX A: MACROECONOMIC AND FINANCIAL MARKET IMPACTS OF THE FISCAL CLIFF AND DEBT CEILING

Last year, a series of automatic tax increases and spending cuts—referred to as the fiscal cliff—were set to take effect at the start of 2013; it is likely that the magnitude of this fiscal retrenchment would have been sufficient to send the economy into recession. Specifically, income tax rate reductions enacted in 2001 and 2003, the payroll tax cut authorized in late 2010, extended unemployment benefits, and a number of other tax provisions were all scheduled to expire on December 31, 2012. In addition, the Budget Control Act of 2011 put in place $85 billion in across-the-board spending cuts to the federal budget for fiscal year 2013, effective January 2, 2013. Taken together, the CBO estimated that the fiscal tightening resulting from these policies was close to $500 billion in fiscal year 2013, or roughly 3.25 percent of GDP. Complicating matters, the statutory debt ceiling was reached on December 31, 2012, although extraordinary measures authorized by law were available to postpone the date that the United States would otherwise default on its obligations by about two months.[5]

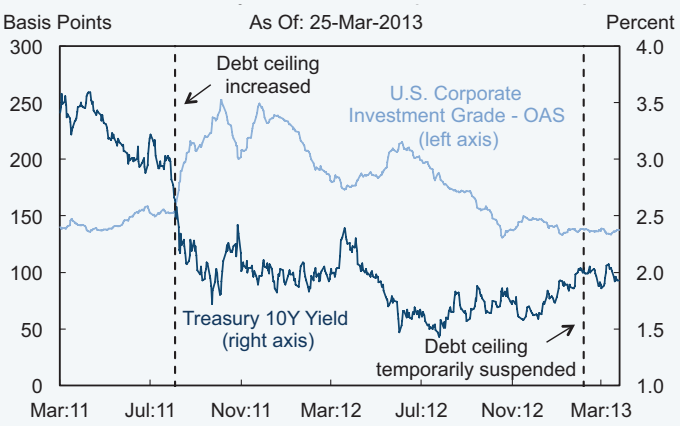
Last-minute legislation mitigated the full impact of the fiscal cliff; the passage of the American Taxpayer Relief Act of 2012 (ATRA) on January 1, 2013, extended existing tax rates for the majority of taxpayers while raising rates on the highest earners. ATRA also delayed the federal budget cuts until March 1. Separately in February, legislation suspended the federal debt ceiling through May 18. Because the public and financial markets largely anticipated the emergence of similar policy solutions, the observable effects of these fiscal developments on the economy and financial markets have so far been minimal; however uncertainty about the resolution of budget cuts and the debt ceiling remains.

The observable economic impact of the fiscal cliff negotiations was limited. The average pace of growth of real, seasonally adjusted personal consumption expenditures in the second half of the year was roughly unchanged from the first half, suggesting households did not significantly adjust their spending habits in advance of the fiscal cliff. Business investment in E&S was also roughly unchanged over 2012. However, increased tax rates on higher-income households may have accelerated some economic decisions. For example, corporate dividend payments increased 20 percent in the fourth quarter, likely in an effort to bring forward tax liabilities before higher rates became effective in 2013.

The consequences of failing to increase the debt ceiling were generally seen by financial markets as more immediately serious than the effects of the fiscal cliff, largely because the effects of the fiscal cliff would accrue over time whereas the inability of the Treasury to borrow after extraordinary measures were exhausted would be felt in markets immediately. Moreover, a failure to increase the debt ceiling would have called into question the U.S. government's ability to honor its existing obligations.

Market reaction to the political uncertainty surrounding the debt ceiling was more sanguine in 2012 than during the previous episode in the spring and summer of 2011. At that time, an S&P downgrade of the U.S. sovereign credit rating in the context of the escalating European debt crisis caused substantial market impacts: risk assets sold off dramatically, while Treasury securities rallied in a flight-to-quality trade **(Chart A.1)**. By contrast, in the more recent episode in 2012, the movements in Treasury yields and credit spreads were not nearly as dramatic, in part because the debt ceiling was suspended well before the Treasury had exhausted its extraordinary measures.

Chart A.1 10-Year Treasury Yield and Corporate Bond Spreads



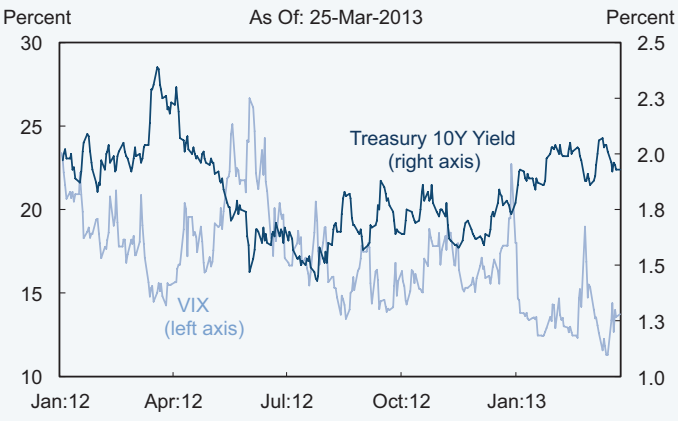
Source: U.S. Department of Treasury, Barclays

Note: Debt ceiling increased on 2-Aug-2011 and temporarily suspended on 4-Feb-2013.

Nevertheless, asset prices reflected a small probability that Congress might not raise the debt ceiling before the Treasury's extraordinary measures were exhausted. Prices on Treasury bills perceived to be at risk for extension or missed payments declined relative to other Treasury bills. Some market participants avoided these specific securities in the weeks leading up to the debt ceiling deal in the House—a similar dynamic took place in July 2011. These movements gave clear indications that segments of the market were concerned about the debt ceiling, although the price action was relatively muted.

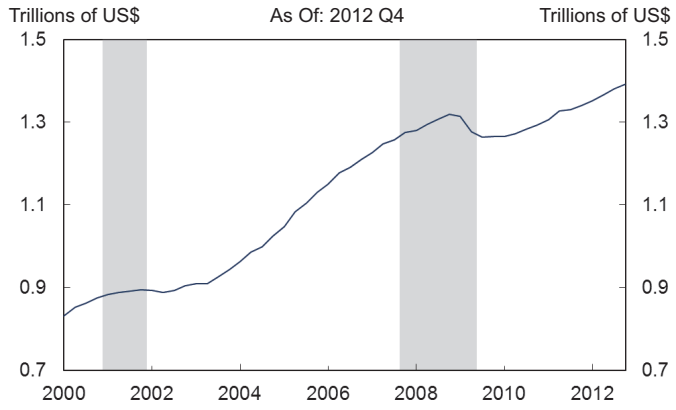
The approach of the fiscal cliff also had a transient effect on financial markets. During the last week in December, the implied volatility on S&P 500 futures contracts (the VIX) spiked to a level not reached since the first half of the year, and the prices of safe haven assets rose, including longer-dated Treasury securities and agency mortgage-backed securities (MBS) **(Chart A.2)**. Over three trading days surrounding passage of the ATRA on January 1, 2013, the S&P 500 rose 4 percent and the yield on 10-year Treasury securities jumped 21 basis points, as the threat of widespread tax increases was averted.

Chart A.2 10-Year Treasury Yield and Market Volatility



Source: U.S. Department of Treasury, Capital IQ

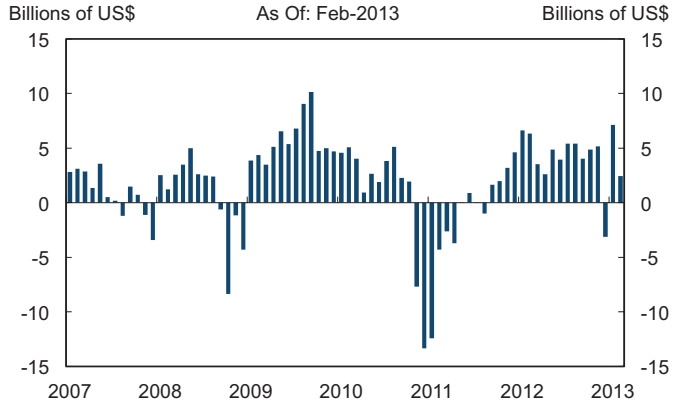
Chart 4.3.4 State and Local Government Tax Revenues



Source: Census Bureau

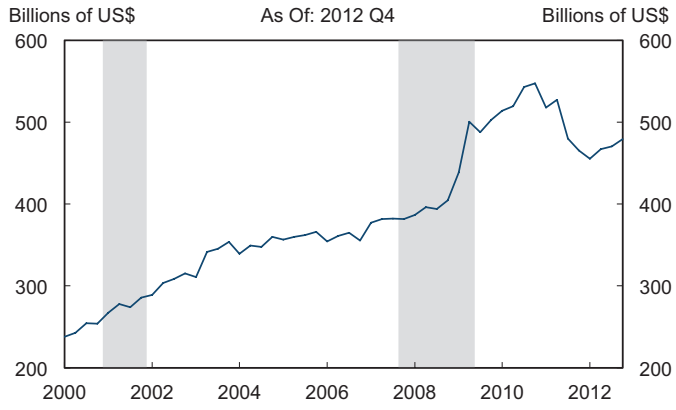
Note: Gray bars signify NBER recessions.
Revenue shown represents the trailing 4 quarters.

Chart 4.3.5 Long-Term Mutual Fund Flows: Municipal Bonds



Source: ICI, Haver Analytics

Chart 4.3.6 Federal Grants-in-Aid to State and Local Governments



Source: BEA, Haver Analytics

Note: Gray bars signify NBER recessions.

4.3.2 State and Local Governments

The fiscal position of state and local governments continues to improve, although many budgets are still strained. State and local governments are replenishing their cash reserves, and aggregate nominal tax revenues continued to grow modestly after declining in the aftermath of the financial crisis **(Chart 4.3.4)**. Net credit flows to state and local governments were also mostly positive in 2012. Long-term municipal bond funds experienced inflows 49 weeks out of the year in 2012 **(Chart 4.3.5)**, and long-term bond issuance was up 31 percent to $376 billion in 2012—the highest level since 2010, when the Build America Bond program expiration led to a wave of new issuance.

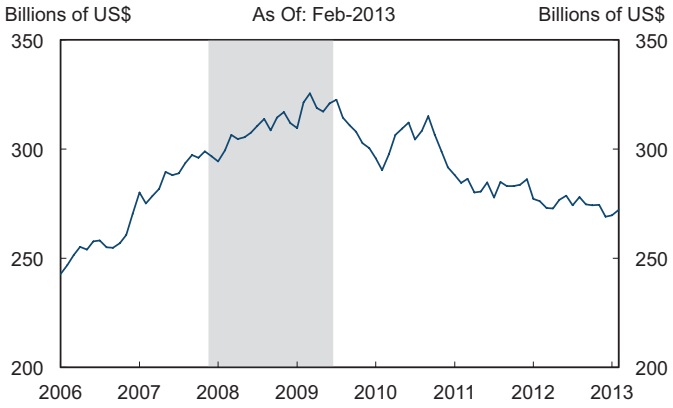
However, the resources available to state and local governments to finance their spending remain constrained. An uneven level of unemployment, disparate property tax revenue, and ongoing spending pressure from Medicaid and pension liabilities continue to challenge the outlook at the state and local level. Additionally, the federal stimulus grants provided under the American Recovery and Reinvestment Act of 2009 have largely wound down, leading to a substantial decline in nominal federal transfers to state and local governments **(Chart 4.3.6)**. States have also reduced capital expenditures, which have fallen to their lowest levels since the late 1990s. The reduction in real capital expenditures can be seen in declining public construction spending, the vast majority of which is undertaken by state and local governments **(Chart 4.3.7)**.

Ongoing fiscal challenges have also led to a rising number of municipal defaults and Chapter 9 bankruptcy filings in 2012. However, the number of Chapter 9 filings remains very low and recent bankruptcies have been caused by a variety of challenges, such as regions hit hard by the financial crisis, poorly planned financing of public works projects, one-time legal judgments, or obligations related to large unfunded pension liabilities. While total municipal bond issuance was robust in 2012,

net new municipal bond issuance remains well below historical averages **(Chart 4.3.8)**. Net new issuance is depressed due to decreased issuer appetite for debt following the financial crisis and expectations that interest rates will remain low for the foreseeable future, allowing issuers to delay financing. Municipal interest rates also reached historic lows in 2012, which bolstered incentives to refinance. This is seen in the cost of municipal bonds—as measured by the yield ratio to similar maturity Treasury securities—which has been falling across the credit spectrum since the summer of 2012 **(Chart 4.3.9)**.

Finally, state and local governments will need to continue addressing the underfunded status of their pension plans. A decade of low financial market returns and low economic growth since 2008 has exacted a heavy toll on funding levels, while at the same time benefit costs have continued to rise. Greater transparency in this area is also needed, as exemplified by the SEC's recent enforcement case against the State of Illinois. A similar challenge applies to other post-employment benefits, as many municipalities have not yet set aside funding for their ongoing obligations to provide health care to retired state and local municipal employees.

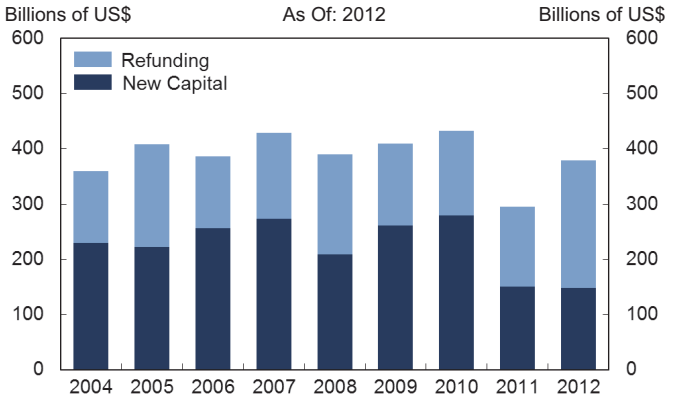
Chart 4.3.7 Total Public Construction Spending



Source: Census Bureau, Haver Analytics

Note: Gray bar signifies NBER recession.

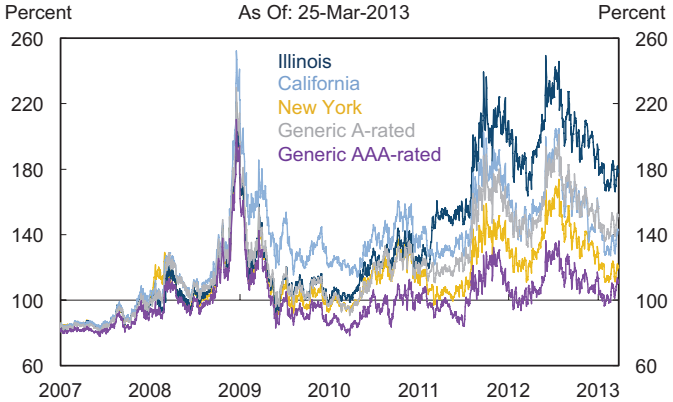
Chart 4.3.8 Municipal Bond Issuance



Source: Thomson Reuters, SIFMA

Note: Excludes maturities of 13 months or less and private placements.

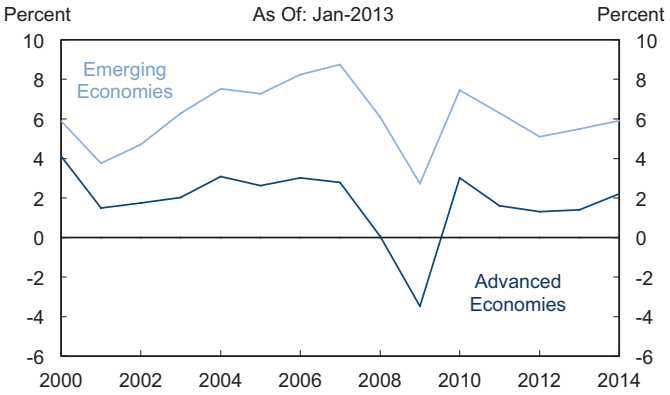
Chart 4.3.9 Municipal Tax-Exempt Bond Yield Ratios



Source: Bloomberg, L.P.

Note: General obligation 10-year municipal bond yields to 10-year Treasury yields.

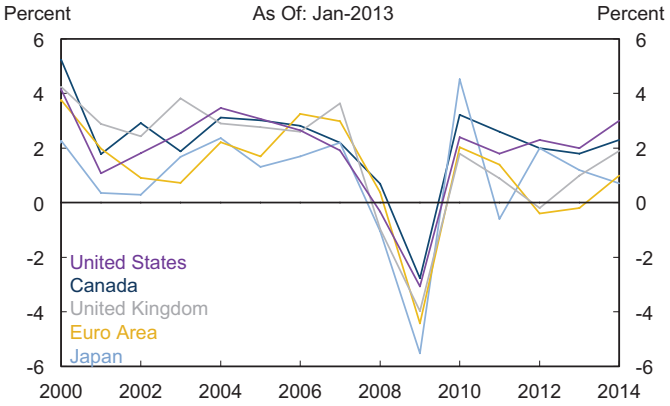
Chart 4.4.1 Real GDP Growth



Note: IMF estimates are used when actual data is unavailable. Year-over-year percent change. Data after 2012 is projected.

Source: IMF, Haver Analytics

Chart 4.4.2 Advanced Economies Real GDP Growth



Note: Year-over-year percent change. Data after 2012 is projected.

Source: IMF, Haver Analytics

4.4 External Environment

4.4.1 Advanced Foreign Economies

In the aggregate, GDP growth in the advanced economies slowed in 2012 **(Chart 4.4.1)**. The euro area fell back into recession, and growth was subdued in other advanced economies. Among the major foreign advanced economies (the euro area, Japan, the United Kingdom, Canada), real GDP is estimated to have contracted 0.3 percent from the fourth quarter of 2011 to the fourth quarter of 2012 on a GDP-weighted basis. Severe financial stress in the euro area over the summer restrained business and consumer spending in the core and periphery, and weighed on global growth more broadly. In Japan, exports and industrial production slumped in the third quarter of 2012, producing a sizeable contraction in output.

Foreign economic activity appears to have stabilized in early 2013, reflecting an easing of financial stresses in the euro area, signs of stable trade flows among major economies, and ongoing accommodative monetary policies **(see Box B: Global Monetary Policy Actions)**. The International Monetary Fund (IMF) projects major foreign advanced economies to expand a modest 1.2 percent from the fourth quarter of 2012 to the fourth quarter of 2013 on a real basis. Growth in the foreign advanced economies is expected to remain sluggish over the medium term, reflecting fiscal consolidation and deleveraging in the wake of the global financial crisis **(Chart 4.4.2)**.

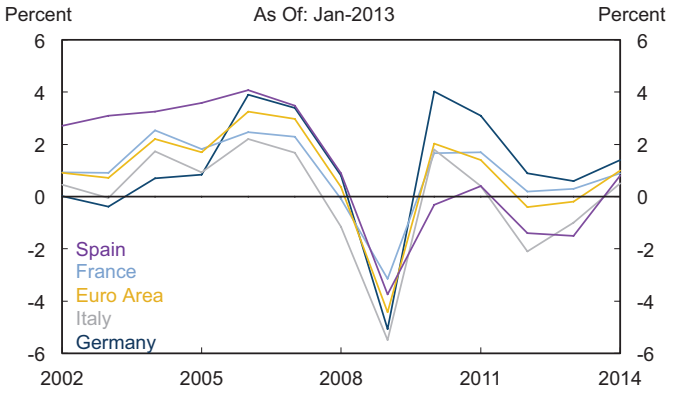
European authorities at the country and regional level responded to the crisis in 2012 through ongoing policy reform; actions to provide financial support to countries under stress pursuing reform and adjustment policies; establishment of the Single Supervisory Mechanism (SSM); and from the European Central Bank (ECB), the creation of a program to reduce financial fragmentation by purchasing sovereign debt. Cumulatively, these policy actions have served to reduce concerns about a systemic event in the euro area and

have substantially eased severe market pressures since mid-2012. Sentiment particularly turned in August, after the ECB announced its willingness to purchase sovereign debt (subject to a formal request and policy conditionality), through the Outright Monetary Transactions (OMT) program. Although the OMT has not been utilized, periphery sovereign debt spreads have narrowed sharply, equity markets have rebounded, and bank debt markets have partially reopened **(see Section 5.1.2 for a discussion of sovereign markets)**. Improved confidence and the return of some private capital is expected to gradually ease the deep recession in the periphery over the course of this year, along with a modest easing in the pace of fiscal tightening and strengthened external demand, though downside risks to the economic forecast remain **(Chart 4.4.3)**.

At the same time, countries across the euro area periphery continued to implement fiscal consolidation to shrink their fiscal deficits and reduce public debt burdens, structural reforms to reshape their economies and improve competitiveness, and banking sector repair and restructuring. Altogether, governments are estimated to have reduced fiscal deficits by 2.5 to 8.0 percentage points of GDP from 2009 peak levels by the end of 2012, demonstrating meaningful progress on their medium-term adjustment plans. Euro area periphery public debt levels are now projected to peak over the period from 2013 to 2015 **(Chart 4.4.4)**.

In the case of Greece, after political uncertainties and plunging output pushed the adjustment program off-track in mid-2012, European Union (EU) and IMF lenders agreed at the end of 2012 to provide Greece with two extra years to build to a primary budget surplus of 4.5 percent of GDP, and to a number of initiatives to ease the terms of official loans to Greece. Greek sovereign debt sustainability was enhanced through a debt buyback in December, which followed its debt exchange in March. Ireland and Portugal continued to make progress implementing their EU/IMF programs and both countries

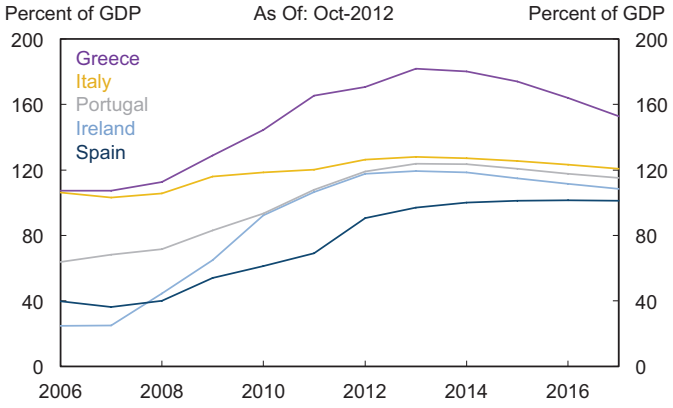
Chart 4.4.3 Euro Area Real GDP Growth



Source: IMF, Haver Analytics

Note: Year-over-year percent change. Data after 2012 is projected.

Chart 4.4.4 Peripheral Europe: Gross Public Debt



Source: IMF, Haver Analytics

Note: Data after Oct-2012 is projected.

have issued their first long-term bond offerings since they lost international market access in late 2010 and early 2011; however, a recent court decision striking down part of Portugal's deficit reduction program for 2013 could complicate the process in that country. The Spanish and Italian governments have pressed on with their fiscal and structural reform agendas and, to support the Spanish bank restructuring, the EU approved a bank recapitalization program covering financing needs of up to €100 billion. At year end, Spain's weakest state-controlled banks (holding 18 percent of bank assets) were recapitalized with €37 billion (equivalent to 4 percent of GDP) of European Stability Mechanism (ESM) funding, and their real estate-related assets were transferred to a centralized asset management company. As will be discussed in **Section 5.1.2**, the Cypriot government restructured its two largest banks, forcing losses on their senior bond holders and uninsured depositors, in order to meet the requirements for a loan package.

Meanwhile, European authorities pledged to pursue deeper financial, economic, fiscal, and political integration to enhance the resilience of the monetary union. Leaders agreed to establish a SSM for banks by mid-2014, housed at the ECB, and to consider a proposal for a single bank resolution mechanism applicable to the member states participating in the SSM. Under this agreement, the ECB—working with national supervisory authorities—would have direct oversight responsibilities for the largest financial institutions and for those institutions receiving official sector support. The European Council has called for legislators to further advance proposals for a single resolution mechanism in 2013, although progress toward a legislative agreement is expected to be challenging. With respect to fiscal and economic integration, the focus has been on strengthening the EU's governance framework through enhanced rules, stronger euro-level enforcement authority, and ex-ante policy coordination. In December 2012, the President of the European Council was charged with preparing proposals for the June 2013

summit to explore modest financial incentives to support contractually agreed competitiveness reforms.

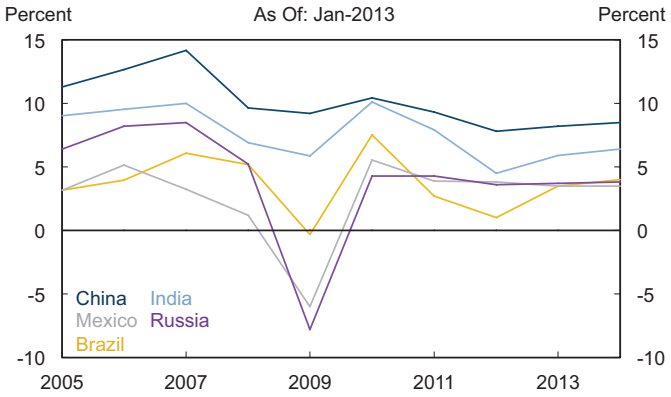
4.4.2 Emerging Market Economies

In 2012, economic growth across the emerging market economies (EMEs), including China, India, Brazil, and Russia, slowed as earlier policy tightening and weakened external demand for exports weighed on performance **(Chart 4.4.5)**. Indeed, 2012 EME growth was the lowest since 2002, with the exception of the 2008 to 2009 crisis period. A gradual recovery now appears underway across the EMEs, according to recent high frequency indicators, such as exports, industrial production, and purchasing manager surveys. This year, the IMF forecasts a modest acceleration in EME growth to 5.9 percent (Q4/Q4) from 5.5 percent in 2012.

The EMEs continue to be a significant source of global growth. Over the past year, EMEs contributed four times as much to world growth compared to advanced economies **(Chart 4.4.6)**. Chinese growth remains a critical factor, contributing 37 percent alone to total real global growth in 2012. Indications that trend growth has slowed across the largest EMEs are of potential concern for the medium term: the IMF now forecasts EME real GDP trend growth at 6 percent. In this context, structural reforms, such as measures to improve the investment regime for infrastructure, improvement of public services and the business climate, and efforts to overhaul tax systems, could enhance medium-term growth prospects.

EME inflation pressures eased modestly in 2012. Most recent inflation prints remain well below 2008 and 2010 peaks, but still stand above inflation in the advanced economies **(Chart 4.4.7)**. Moreover, inflation generally remains near the upper end of emerging market (EM) monetary authorities' inflation targets or tolerance zones. Food prices, given their large weight in EME CPI baskets, remain a risk for inflation dynamics and have social ramifications. India, in particular, has to

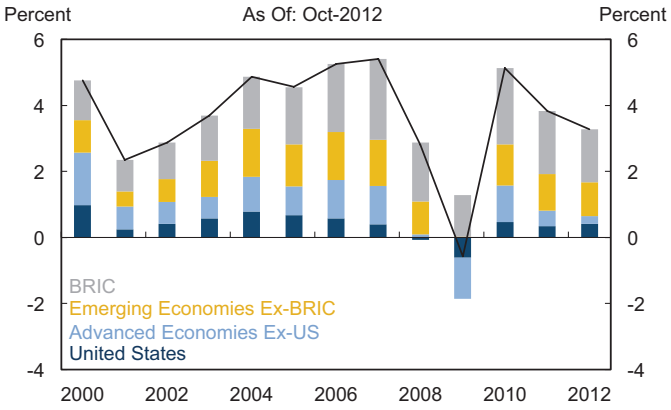
Chart 4.4.5 Emerging Market Economies Real GDP Growth



Source: IMF, Haver Analytics

Note: Year-over-year percent change. Data after 2012 is projected.

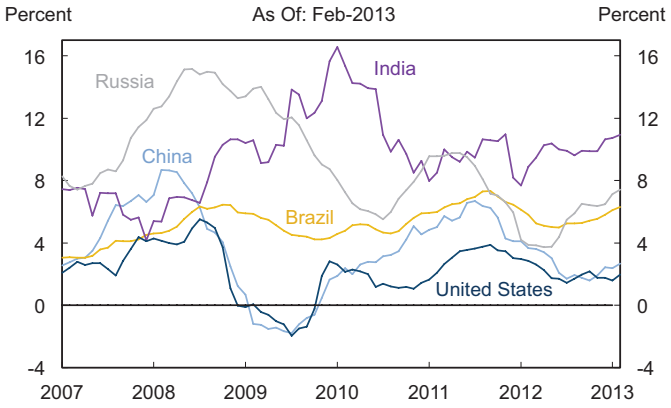
Chart 4.4.6 Contribution to World GDP Growth



Source: IMF

Note: IMF estimates are used when actual data is unavailable. Data after Oct-2012 is projected.

Chart 4.4.7 BRIC and U.S. Inflation Rates



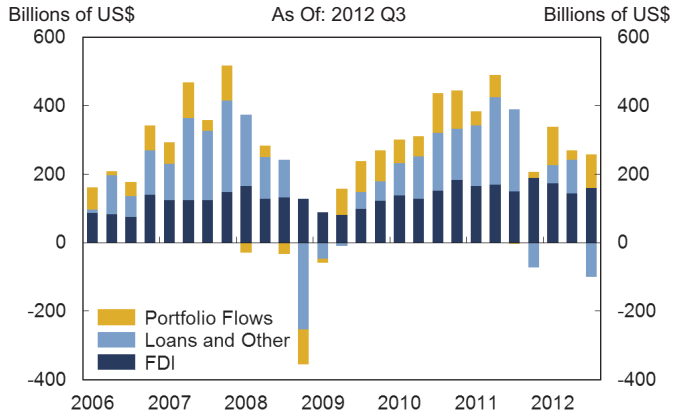
Source: Haver Analytics

cope with elevated inflation at the same time economic growth has slowed to its weakest pace in a decade. Additionally, property sectors in some Asian EMEs are undergoing sharp price increases, which policy makers are attempting to contain via imposition of macroprudential measures. Given the forecasts for only modest growth rebounds and elevated inflation, market expectations generally forecast limited shifts in EM monetary policy stances this year.

Capital flows to the EMEs have rebounded substantially from the 2008 to 2009 crisis lows, attracted by higher EME growth rates and a large interest rate differential with advanced economies. Foreign direct investment (FDI) inflows into EMEs remained relatively robust. Beginning in late 2011, however, portfolio capital flows were volatile, reflecting sudden reversals in risk appetite due to concerns about the euro area and the strength of the global recovery. Pullbacks were evident in portfolio inflows to EMEs as well as reduction in European bank lending, stemming from home-market liquidity and capital pressures. Still, many of the larger EMEs possess ample reserve cushions, partially mitigating risks associated with capital flow volatility **(Chart 4.4.8)**. Currency appreciation pressures also moderated across EMEs and the pace of reserve accumulation slowed.

Despite the reductions in European bank lending, short-term trade finance appears to have held up, due in part to increased lending activity by local EM banks. Financing availability has been reduced for longer-term trade and commodity transactions, and for project finance, but increased bond financing has helped EM corporations meet longer term financing needs. The volume of foreign currency bonds sold by EM companies and banks reached more than $360 billion in 2012—a nearly 65 percent increase over 2011 issuances. This trend could create risks of currency mismatch if EM borrowers fail to place prudent limits on their currency risk exposures.

Chart 4.4.8 Inflows to EMEs



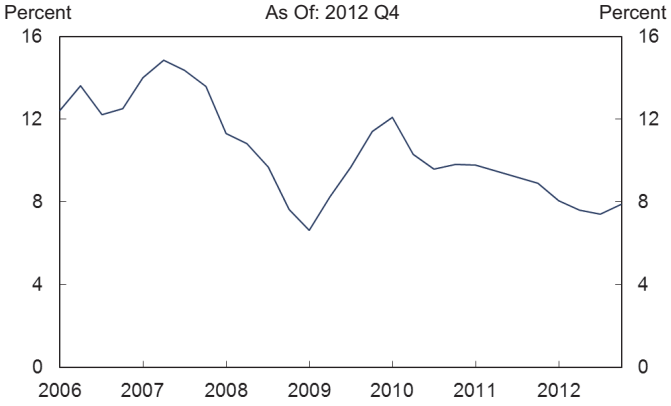
Source: EMED

China

The Chinese economy appears to have experienced a soft landing in 2012, with average annual growth slowing to 7.8 percent from 9.3 percent in 2011. Contributing factors include the lagged effects of prudential tightening in 2010 and 2011 targeting speculative property and local government infrastructure investment which continued to filter through the economy, and sluggish external demand in the advanced economies (particularly Europe) which contributed to lower growth via weakened exports **(Chart 4.4.9)**. China's current account surplus declined from 10.1 percent of GDP in 2007 to under 3.0 percent last year, driven by factors such as exchange rate appreciation, weak external demand, and increased imports for domestic investment purposes. Faced with the risk of a sharper-than-expected growth downturn in the first half of 2012, the authorities shifted footing by mid-year, lowering administered interest rates, and accelerating the pace of new infrastructure project approvals. These measures effectively placed a floor under Chinese growth and contributed to a modest growth re-acceleration toward year end, following seven consecutive quarters of slowdown. Signs of a growth re-acceleration also appear to have firmed external market sentiment towards China, with the pace of net non-FDI financial outflows abating in the fourth quarter of 2012.

A source of concern related to China's domestic economy is the flow of new credit, which has increased notably in recent years. Growth in nonbank financing channels (off-balance sheet lending, trust loans, and corporate bond issuance) has comprised an increasing share of the flow of new credit **(Chart 4.4.10)**. Moreover, incremental increases in new credit have significantly outpaced increases in nominal GDP growth, raising questions about the efficiency of credit allocation and the potential for defaults over the medium term. The rise in nonbank finance in China has also coincided with the rapid proliferation of wealth management products and the potential risks associated with new financial innovation.

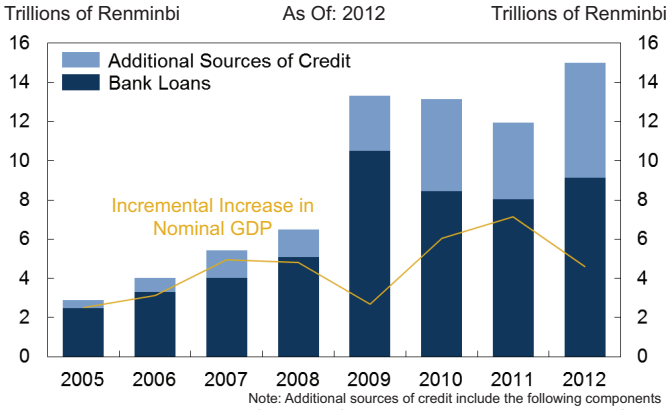
Chart 4.4.9 China Real GDP Growth



Source: CEIC Data

Note: Quarterly data. Percentage change on the same quarter of the previous year.

Chart 4.4.10 China: Annual Increases in Credit and GDP



Source: Haver Analytics, CEIC Data

Note: Additional sources of credit include the following components of "total social financing" as reported by the People's Bank of China: trust loans, entrusted lending, undiscounted bankers' acceptances, and net new corporate bond issuance.

5 Financial Developments

This section provides an overview of financial market developments by reviewing (1) asset valuations; (2) wholesale funding markets; (3) bank holding companies and depository institutions; (4) nonbank financial companies; (5) investment funds; and (6) financial market infrastructure. Special topics in this section include global monetary policy actions, convexity event risks, and collateral availability.

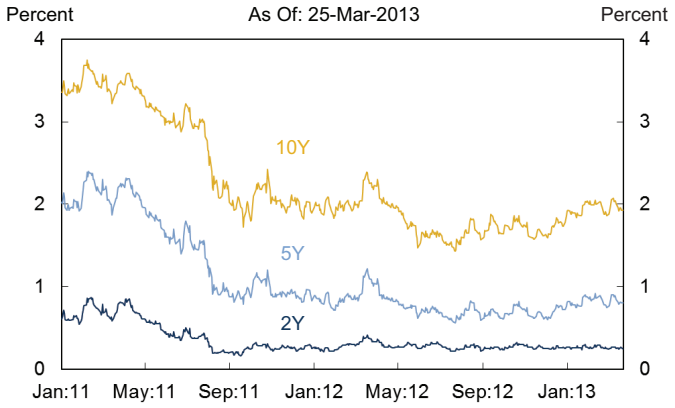
5.1 Asset Valuations

5.1.1 Fixed Income Valuations

Across many of the fixed income markets, benchmark rates, spreads, and volatilities have remained low and tended to decline, including investment grade corporate, high-yield corporate, and mortgage-backed (CMBS and MBS) securities. Asset purchases by the Federal Reserve and lowered investor perceptions of solvency risk for credit products led to further declines in Treasury and credit yields. Fixed income valuations were also supported by improved performance amongst financials and corporates, and changes in demand and supply across the credit and interest rate spectrum.

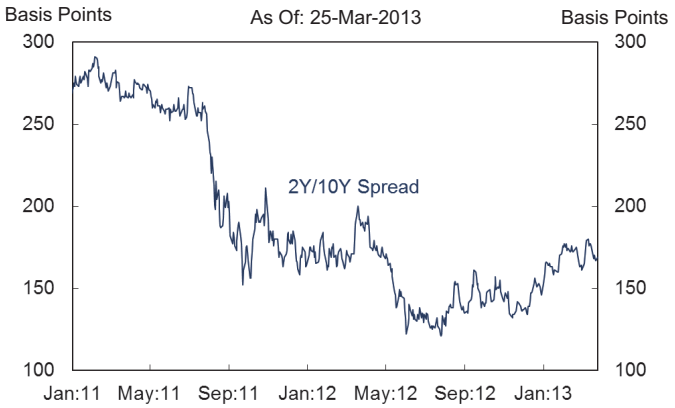
The level of U.S. 10-year Treasury yields averaged 1.8 percent during the past year, down from its 2011 average of 2.8 percent **(Chart 5.1.1)**. While the slope of the 2- year to 10-year Treasury curve remains upward sloping at around 165 basis points, it is below the recent historical average of 205 basis points **(Chart 5.1.2)**. Corporate bond yields are also quite low relative to longer-run historical averages. As of March 2013, investment grade debt (rated BBB- and above) traded at a spread of 175 basis points, while speculative grade spreads (rated BB+ and lower) exceeded 500 basis points. Although spreads on these instruments relative to Treasury securities are not excessively narrow, the low base level of yields suggests institutions can obtain funding

Chart 5.1.1 Treasury Yields



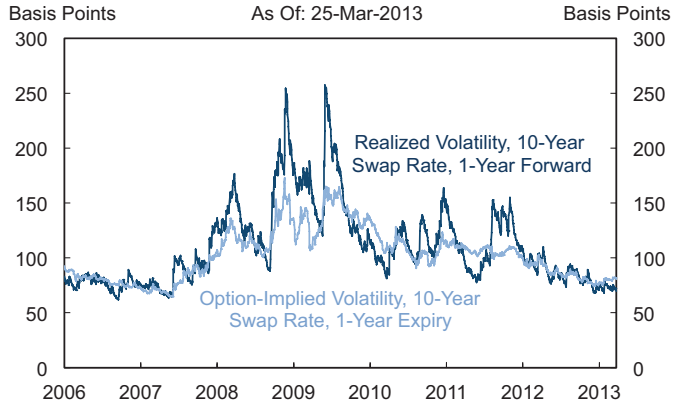
Source: U.S. Department of Treasury

Chart 5.1.2 Slope of the Treasury Yield Curve



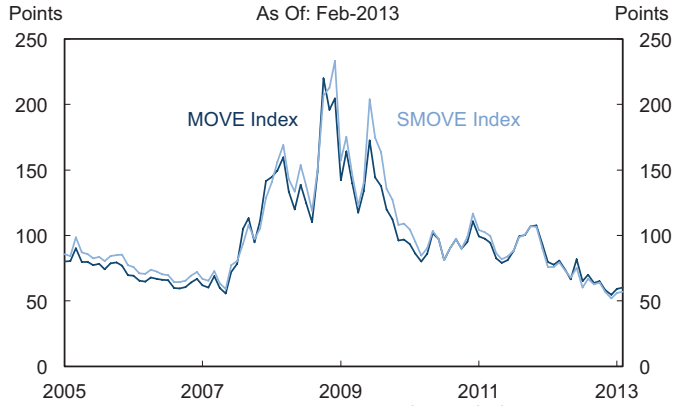
Source: U.S. Department of Treasury

Chart 5.1.3 Realized and Implied Interest Rate Volatility



Source: JP Morgan estimates

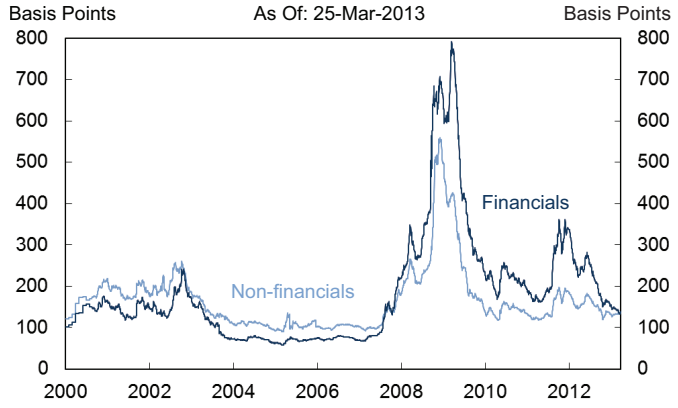
Chart 5.1.4 Implied Volatility



Source: Bank of America Merrill Lynch, Haver Analytics

Note: MOVE and SMOVE are the yield curve weighted indices of the normalized implied volatility on 1-month interest rate options.

Chart 5.1.5 U.S. Corporate Bond Spreads – Investment Grade



Source: Barclays

on relatively inexpensive terms. At the same time, the low rate environment might constitute a risk for investors **(see Section 7.4 for elaborations on these risks)**.

Interest rate volatility, both implied and realized, have continued to decline towards pre-2008 levels in spite of the range of uncertainties faced by market participants in recent years **(Chart 5.1.3)**. There are several factors contributing to the decline in volatility. First, the Federal Reserve's asset purchases reduced the amount of aggregate duration risk held by the public. Second, communications by the Federal Reserve's Federal Open Market Committee (FOMC) around its forward rate guidance might contribute to reduced market volatility and hedging activity on short-term interest rates. Third, nominal yields are close to the zero lower bound, which limits downside volatility. An important driver of implied volatility is the reduced hedging activity of government-sponsored enterprises (GSEs) and mortgage originators—traditional natural buyers of rate volatility—who have reduced demand significantly. Active selling of volatility by hedge funds, money managers, and banks for yield enhancement, and the perception of decreased tail-risk emanating from Europe, also contributed to downward pressure on implied volatility. Implied volatility can be gauged from the Merrill Lynch Option Volatility Estimate Index (MOVE), which measures market sentiment of future interest rate volatility. In October 2008, at the height of the financial crisis, the MOVE reached its historical peak in excess of 200 basis points. Currently, the MOVE is at about 60 basis points, a level last seen in spring 2007. A similar decline in market expectations of future volatility is apparent for options on interest rate swaps as gauged by the Merrill Lynch Swaption Volatility Estimate Index (SMOVE) **(Chart 5.1.4)**.

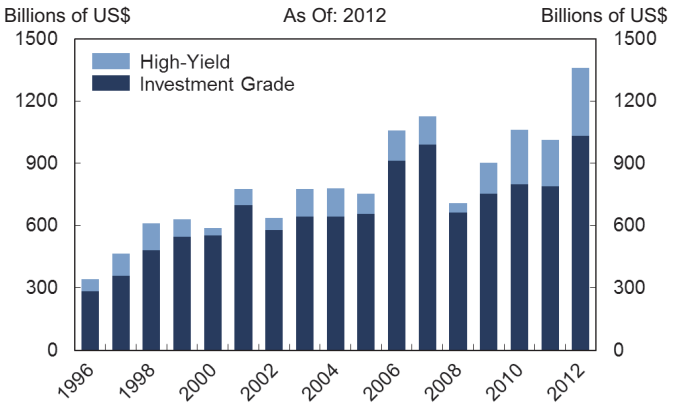
Credit markets experienced strong issuance and declining spreads **(Charts 5.1.5)**. Declining solvency risk and greater demand for investment and speculative grade credit products contributed to the strong

performance. Corporate bonds and leveraged loans (loans provided to companies with non-investment grade credit metrics) experienced record or near-record issuance **(Charts 5.1.6, 5.1.7, and 5.1.8)**, while issuance of collateralized loan obligations (CLOs) picked up markedly **(Chart 5.1.9)**. Simultaneously, market sentiment over tail risks in the second quarter improved considerably following actions by the Federal Reserve, the European Central Bank (ECB), and other central banks in response to weak economic growth. That is, yield differentials between these credit instruments and risk free equivalents have fallen.

The consequences of a search for (and compression of) yield manifested in a variety of ways. In some cases, investors shifted down the credit spectrum, from AA- to BBB-rated bonds, or increased duration through investment in longer maturity bonds. In recent quarters, credit terms and conditions for newly issued institutional loans and high-yield bonds loosened further along certain dimensions. The share of loan issuance without financial maintenance covenants, known as covenant-lite loans, has risen steeply over the past two years, accounting for about 30 percent of institutional loan issuance in the fourth quarter of 2012. For loans with maintenance covenants, looser terms and conditions were evident in the persistent decline in the average number of covenants. As an additional consequence of the search for yield, issuance of Payment-In-Kind (PIK) bonds—which allow the issuer to capitalize and defer interest through an increase of face value—increased sharply in 2012, though levels are still noticeably lower than those seen in 2007. Reach for yield also expanded to peripheral credits, such as in CMBS, where issuance increased from $30 billion in 2011 to $45 billion in 2012. Such compensatory shifts by investors imply a trade-off between increasing near-term income and more severe price risk to their portfolios in the event of a steep increase in yields.

Changes of pricing across other asset classes were attributable to demand and supply factors.

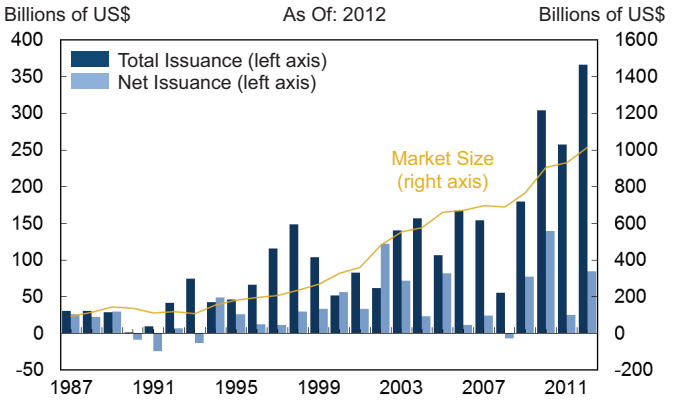
Chart 5.1.6 U.S. Corporate Bond Issuance



Source: Thomson Reuters, SIFMA

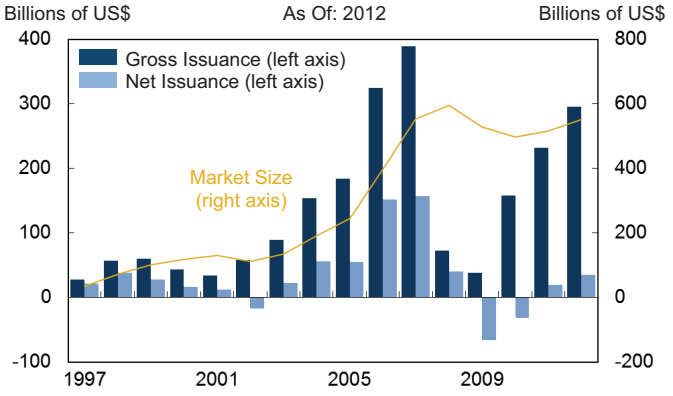
Note: Includes all non-convertible corporate debt, MTNs, and Yankee bonds, but excludes all issues with maturities of one year or less and CDs.

Chart 5.1.7 High-Yield Bonds: Issuance and Market Size



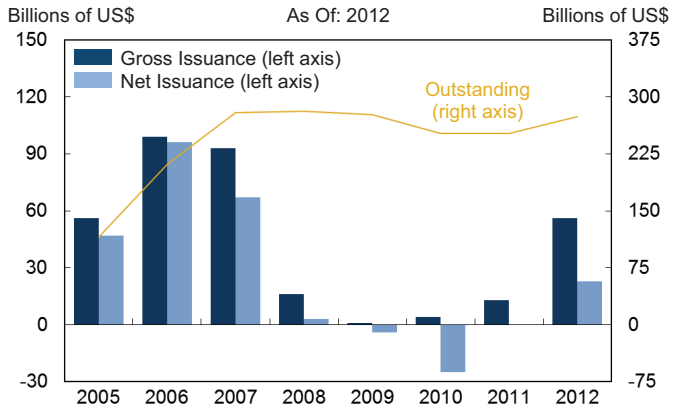
Source: Bank of America Merrill Lynch Global Research, S&P LCD

Chart 5.1.8 Institutional Loans: Issuance and Market Size



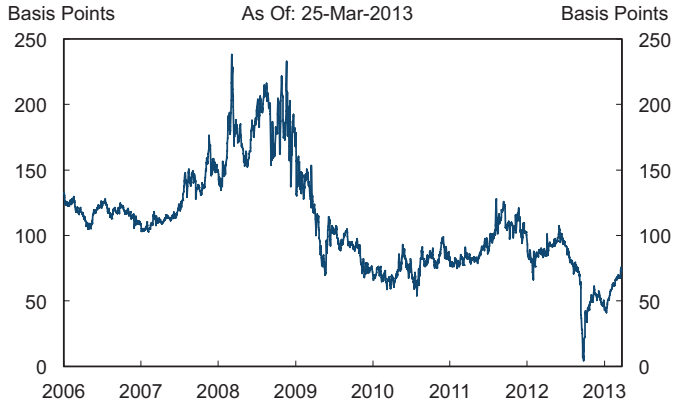
Source: Bank of America Merrill Lynch Global Research, S&P LCD

Chart 5.1.9 CLOs: Issuance and Market Size



Source: Bank of America Merrill Lynch Global Research, Intex

Chart 5.1.10 Agency MBS Spreads to Treasuries



Source: Bloomberg, L.P.

Note: Fannie Mae 30-year MBS spreads to 10-year Treasuries.

The primary investors in CLOs, particularly for AAA tranches, are currently Japanese and U.S. banks. Other CLO investors include large financial accounts such as money manager, insurance companies, and pension funds. Hedge funds and private equity funds as well as specialized CLO managers are primarily reported to be buying mezzanine and equity tranches. Spreads also fell for MBS as the Federal Reserve's renewed purchases of MBS sharply reduced the available supply, causing the spread between yields on MBS and 10-year Treasury notes to narrow significantly **(Chart 5.1.10)**. Within corporate credit, cash bond spreads decreased significantly as the result of strong investor demand against the expectation of little downside risk. Evidence of this appetite is found in the CDS-bond basis, the spread of credit default swaps over comparable cash bonds, which has tightened recently. Although the basis was strongly negative during the financial crisis, reflective of financial intermediaries' unwillingness to hold corporate bonds, it has since returned to nearly zero. U.S. dollar interest rate swap rates, at maturities greater than 10 years, remained negative to Treasury yields over the course of 2012. Market participants attribute these negative swap spreads to overwhelming demand by both investors and corporate issuers to receive fixed rates on interest rate swaps.

5.1.2 Sovereign Debt and Foreign Exchange

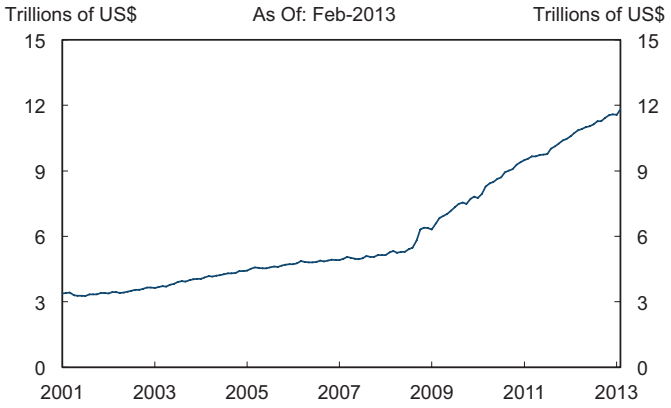
U.S. Sovereign Debt

The total amount of outstanding U.S. sovereign debt held by the public, (including Federal Reserve holdings, but not other intragovernmental debt), rose to $11.8 trillion as of February 28, 2013 **(Chart 5.1.11)**. Despite this increase in supply, long-term Treasury yields declined in the first half of 2012. Long-term yields, at historical lows, are a reflection of both residual flight to quality and continued monetary policy accommodation associated with the below-trend pace of economic growth. The Federal Reserve's flow-based purchases of both agency MBS and Treasury securities, and the introduction of language in the FOMC statement linking changes in the federal funds rate to economic variables, are reflective of accommodative monetary policy.

Longer-term Treasury yields have risen since the summer of 2012 against a backdrop of factors relating to European sovereign and U.S. domestic considerations. Specific factors include the ECB's announcement of the Outright Monetary Transactions (OMT) program to purchase European sovereign debt, a somewhat improved outlook for U.S. growth, and the passage of the American Taxpayer Relief Act of 2012 (ATRA), which prevented substantial tax increases for most U.S. households.

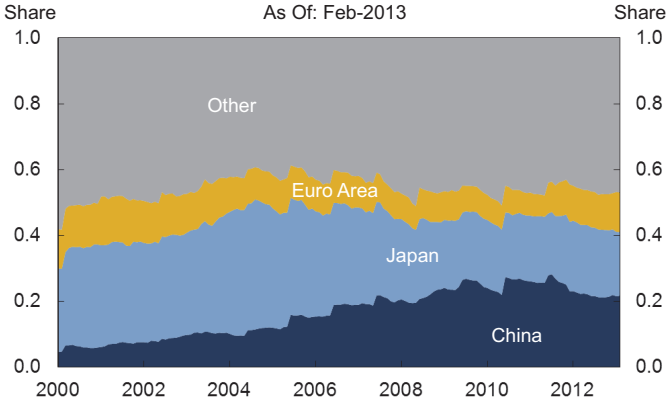
Foreign holdings of U.S. Treasury securities continue to grow, with the largest investors—China and Japan—collectively accounting for $2.3 trillion of U.S. Treasury securities, while other foreign accounts held $3.3 trillion as of February 2013. While the share of Treasury holdings attributed to China and Japan decreased somewhat since year end 2011, as their holdings were roughly flat, other countries added about $540 billion to their stocks of U.S. sovereign debt since year end 2011 **(Chart 5.1.12)**.

Chart 5.1.11 Publically Held Federal Debt Outstanding



Source: U.S. Department of Treasury, Haver Analytics

Chart 5.1.12 Foreign Holders of U.S. Federal Debt



Source: U.S. Department of Treasury, Haver Analytics

BOX B: GLOBAL MONETARY POLICY ACTIONS

The global financial crisis led central banks in a number of the advanced economies to cut their policy rates to near zero. Furthermore, the continued weakness of the global recovery has led many of them to adopt unconventional policies involving asset purchases to further promote economic growth. Monetary policy normally influences longer-term interest rates by affecting market expectations of future short-term rates. Unconventional monetary policies can also affect long-term interest rates through expectations of future short rates, but also lower yields by compressing term premia **(see Section 7.4)**. The purchase of longer-term assets by a central bank increases overall demand for duration and may therefore induce investors seeking duration to accept lower yields on longer-term securities (the duration channel). Another possible channel is through purchases that reduce the supply of specific securities preferred by certain investors (the preferred habitat channel). Unconventional monetary policies have likely worked through all of these channels to lower long-term interest rates, and along with the weak recovery in the many advanced economies and the restrained levels of inflation, have left long-term rates near record lows. Even though low long-term interest rates have helped to support economic growth, they may also encourage investors to reach for yield and take excessive risks in order to increase their investment returns. Accordingly, central banks and other authorities must monitor financial markets and institutions closely to ensure that low rates do not threaten financial stability.

Over the past year, the Bank of England (BOE) increased the size of its asset purchase programs. The BOE expanded its limit for outright purchases under its Asset Purchase Facility from £275 billion to £375 billion. In June 2012, the BOE, in conjunction with the U.K. Treasury, created a temporary Funding for Lending Scheme designed to reduce the cost of funding new net lending to the private sector by banks and building societies.

Throughout 2012, the Bank of Japan (BOJ) increased the size of its Asset Purchase Program from ¥20 to ¥76 trillion and conducted a funds-supplying liquidity operation of ¥25 trillion. In January 2013, the BOJ announced plans to begin a new series of open-ended asset purchases in conjunction with its adoption of a 2 percent price stability target. The BOJ also established a new facility to increase lending more directly, offering long-term funds to financial institutions against new net lending. On April 4, 2013, the BOJ Policy Board approved a new policy framework comprised of four main components: (1) shifting the policy operating target from the overnight call money rate to the quantity of the monetary base, with a target of ¥60 to ¥70 trillion annual growth; (2) expanding the BOJ's purchases of long-term Japanese government bonds (JGBs) to an annual pace of about ¥50 trillion on a net basis (roughly ¥7 trillion in monthly purchases), and extending the average remaining maturity of JGB holdings from the current nearly three years to about seven years; (3) purchasing more risk assets, such as exchange-traded funds (ETFs) and Japanese real estate investment trusts (REITs); and (4) committing to maintain the new policy framework as long as necessary to maintain 2 percent inflation "in a stable manner."

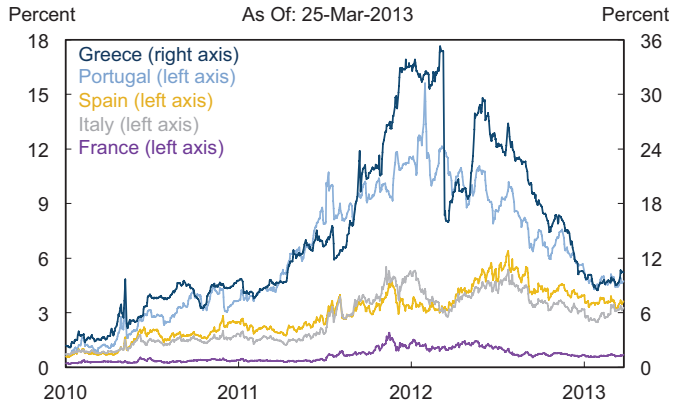
In the United States, the FOMC of the Federal Reserve System provided additional monetary accommodation over the past year by undertaking additional purchases of longer-term assets and by modifying its forward guidance regarding the federal funds rate. The FOMC took these actions to promote its objectives of maximum employment and price stability. With respect to purchases of longer-term assets, the FOMC completed a program that had begun in the fall of 2011, under which it ultimately purchased $667 billion in longer-term Treasury securities, while selling or redeeming an equal amount of shorter-term Treasury securities. In September it announced additional purchases of MBS at a pace of $40 billion per month, and in December it announced additional purchases of longer-term Treasury securities, initially at a pace of $45 billion per month. With respect to forward guidance about the federal funds rate, at the close of its September meeting the FOMC stated that exceptionally low levels for the federal funds rate were likely to be warranted at least through mid-2015, longer than had been indicated in previous FOMC statements. In December, the FOMC dropped the date-based guidance and instead indicated that it anticipates that exceptionally low levels for the federal funds rate would

remain appropriate at least as long as the unemployment rate remains above 6.5 percent, inflation between one and two years ahead is projected to be no more than 0.5 percentage point above the Committee's 2 percent longer-run goal, and longer-term inflation expectations continue to be well-anchored.

The ECB has taken conventional as well as unconventional policy actions. The ECB eased monetary policy by reducing its main refinancing rate by 25 basis points to 0.75 percent in July 2012 and cut its deposit facility rate to zero. The central bank also conducted the second of two 3-year refinancing operations in February, which helped alleviate concerns about liquidity in the context of imminent maturities of bank debt through a significant increase in excess liquidity in the euro area banking system. In 2012, the ECB eased collateral rules in order to maintain or improve counterparty access to the Eurosystem's liquidity-providing operations. To address more directly the financial fragmentation that had developed in the peripheral euro area economies and the resulting fears about the future of the currency union, the ECB announced in August 2012 the Outright Monetary Transactions (OMT) program. Under the program, the ECB would make outright secondary-market purchases of the sovereign debt of any member country establishing and remaining in compliance with a new program with the European Financial Stability Facility (EFSF) and the European Stability Mechanism (ESM) **(see Section 5.1)**. Sovereign debt with maturities up to three years would be eligible for the program, with the majority of purchases concentrated in the 1- to 3-year sector, and all purchases would be sterilized. Although no country has requested support under the OMT, its announcement has helped to significantly lower financial stress within the currency area.

Although central banks in the emerging market economies have not had to resort to unconventional monetary policies, many (notably, the central banks of China, South Korea, and Brazil) cut their policy rates over the last year in response to the weak global recovery.

Chart 5.1.13 Euro Area 10-Year Yield Spreads to German Debt



Source: Bloomberg, L.P.

European Sovereign Debt

European sovereign debt markets dramatically improved following the announcement of the ECB's OMT program. The spreads on Spanish and Italian 10-year government bonds to relatively low yielding German equivalents were respectively 611 and 518 basis points on the eve of a July 26 speech in which ECB President Draghi signaled the creation of the sovereign debt purchase program, and vowed to "do whatever it takes" to prevent the breakup of the euro area. By the end of 2012, Spanish and Italian spreads to German bonds had dropped 210 and 193 basis points, respectively, and other peripheral debt spreads also narrowed substantially **(Chart 5.1.13)**. The response was even more pronounced in OMT-eligible tenors of up to three years. For example, 2-year benchmark spreads fell by 348 and 300 basis points in Spain and Italy respectively.

Additional measures to promote European stabilization further supported European sovereign debt markets **(see Section 4.4.1)**. These measures include a European Council agreement to create a unified banking supervision framework for the euro area, actions to reduce or restructure the sovereign debt of vulnerable countries, and several accommodative monetary policy actions by the ECB **(see Box B: Global Monetary Policy Actions)**. A second extension of 3-year credit by the ECB improved the outlook for French banks, and allowed yields on French 10-year government bonds to fall 98 basis points over the course of 2012. Increased appetite for higher yielding assets broadly attracted investors to peripheral European sovereign debt, as official actions to support European governments reduced the risk of defaults. Finally, TARGET2 balances, which are related to cross-border flows within the euro area and to ECB actions to support the periphery, halted a multi-year increase and began to gradually decline, an indication that capital flight from periphery to core countries has begun to reverse.

Although considerable progress has been made, recent political events in Italy and Cyprus have served to remind markets that the situation in the euro area remains volatile. February elections in Italy resulted in a split parliament that has thus far been unable to form a governing coalition, casting doubt on whether a new government, if formed, would be strong enough to pursue further reforms. More recently, the Cypriot government has agreed to restructure its two largest banks by forcing losses on their senior bond holders and uninsured deposits. It also enacted temporary capital controls in order to stem the potential for widespread deposit flight. Although the restructuring met requirements set by the European Union (EU) and the International Monetary Fund (IMF) for a new aid package and protects insured depositors, the imposition of both capital controls and losses on senior bondholders and depositors may carry lasting implications for the funding costs of other European banks that investors consider vulnerable. At least initially, developments in Cyprus resulted in adverse asset price movements in peripheral European countries for bank equity prices and funding spreads.

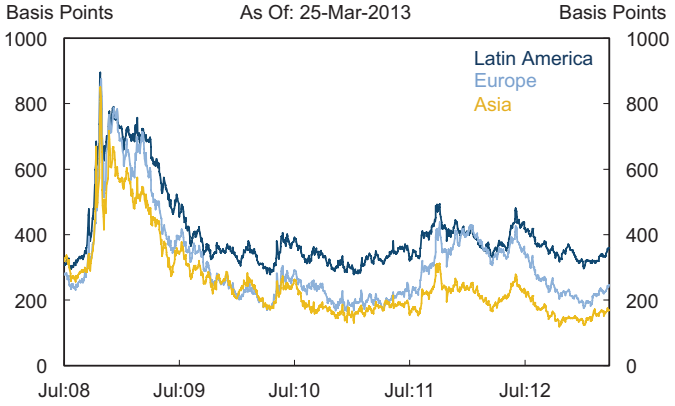
Other Sovereign Debt

Emerging Market sovereign debt spreads to U.S. Treasury yields, as measured by the Emerging Market Bond Index Plus (EMBI+), compressed during the second half of 2012, reflecting reduced risks in emerging markets and the improvement in risk appetite. Given emerging Europe's tight financial and economic links with the euro area, the creation of the OMT and subsequent improvement in euro area market conditions led emerging Europe's sovereign debt spreads to tighten more than in other emerging market regions **(Chart 5.1.14)**.

Foreign Exchange

Changes in the value of the U.S. dollar this year followed themes in other financial markets. While macroeconomic concerns (both foreign and domestic) weighed heavily on markets in the summer of 2012, the U.S. dollar strengthened slightly on a trade-weighted basis,

Chart 5.1.14 Emerging Market Bond Spreads



Source: JP Morgan, Haver Analytics

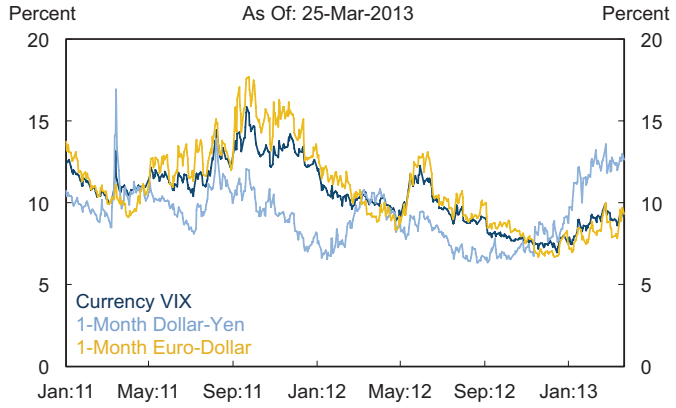
Note: JP Morgan EMBI+ Sovereign Spreads indices for each region.

Chart 5.1.15 Dollar Index Volatility

Source: Bloomberg, L.P.

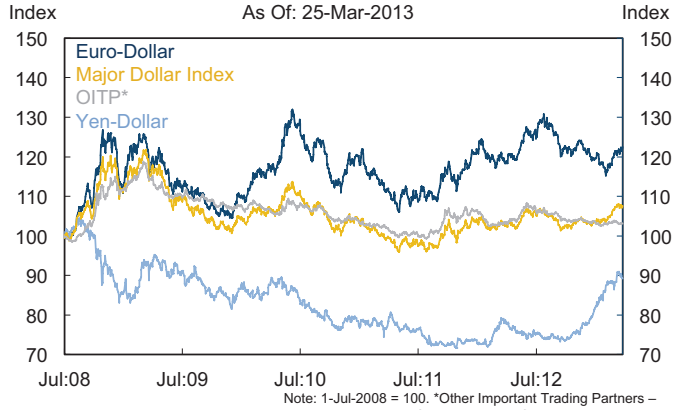
Note: Dollar index represents 30-day historical volatility.

Chart 5.1.16 Currency Implied Volatility



Source: Bloomberg, L.P.

Chart 5.1.17 U.S. Dollar Exchange Rates



Source: Federal Reserve, Haver Analytics

Note: 1-Jul-2008 = 100. *Other Important Trading Partners – a weighted average of the FX values of the dollar against a subset of currencies in the broad index that do not circulate widely outside the country of issue.

while dollar volatility has declined significantly since last summer **(Chart 5.1.15)**. A notable increase in implied volatility occurred recently for dollar-yen **(Chart 5.1.16)**.

Since the Japanese party leadership elections in September 2012, and through mid-April 2013, the yen has depreciated sharply against all major and other Asian currencies, including more than 20 percent against the U.S. dollar **(Chart 5.1.17)**. In January, the BOJ announced three major policy actions: adoption of a 2 percent price stability target, plans to begin a new "open-ended asset purchasing method" starting in 2014, and a joint statement by the BOJ and Japanese government on measures to overcome deflation and achieve sustainable economic growth. In April, the BOJ Policy Board approved a new policy framework comprised of four main components: (1) shifting the policy operating target to the quantity of the monetary base; (2) expanding the BOJ's purchases of long-term JGBs and extending the average remaining maturity of JGB holdings; (3) purchasing more risk assets; and (4) committing to maintain the new policy framework as long as necessary to maintain 2 percent inflation "in a stable manner" **(see Box B: Global Monetary Policy Actions)**.

Between April and late July 2012, the euro depreciated by roughly 9 percent against the dollar on concerns about political uncertainty in the euro area. Since ECB President Draghi spoke in late July about stemming redenomination risk and the ECB's subsequent announcement of the OMT, the euro appreciated by about 12 percent through January 2013, before easing again by the end of the first quarter.

5.1.3 Equities, Commodities, and Agriculture

Equities

Equity markets in the major economies performed well over the past year **(Chart 5.1.18)**. All major indices in developed economies exhibited significant gains, with

only the IBEX in Spain and FTSE MIB in Italy reflecting losses of 2 percent and 5 percent, respectively. The rise in equity markets was bolstered by an improved global outlook and expansionary monetary policy **(see Box B: Global Monetary Policy Actions)**. In the United States, the price performance of equity indices was positive in 2012, with a year-over-year gain of nearly 11 percent for the S&P 500. Corporate equity valuations improved, as the price-to-earnings (P/E) ratio for the S&P 500 rose slightly. Still, valuations remain below historical averages, reflecting geopolitical uncertainty, sluggish economic growth, and event risk related to fiscal concerns **(Chart 5.1.19)**. Equity markets in emerging economies rose considerably through year end 2012, but pulled back at the start of 2013, resulting in substantial year-over-year declines for Brazil and Russia as of March 2013. China experienced mixed results due to economic headwinds and growth concerns. The Shanghai index fell 1 percent, while the Hang Seng returned 8 percent year-over-year through March 2013. Despite the poor performance in emerging markets, the rebound in equity markets for developed economies continues into 2013 **(Chart 5.1.20)**. The S&P 500 has gained over 45 percent since year end 2011, while the Euro Stoxx 50 has gained over 20 percent.

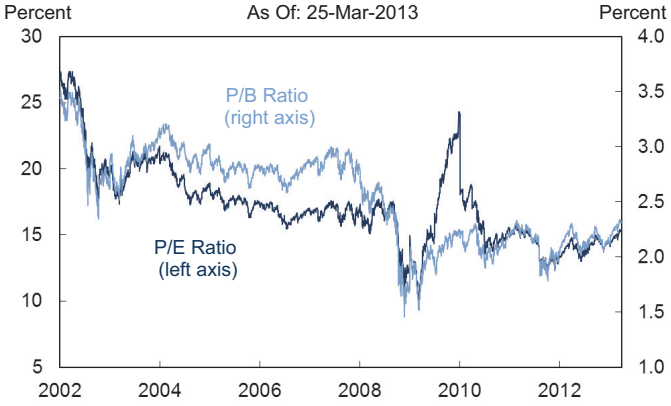
During the first quarter of 2013, expectations of U.S. equity market volatility, as measured by the VIX, fell to levels not reached since April 2007. In 2012, volatility of the major stock indices of developed economies was high during the summer, but fell significantly in early August with the announcement of ECB support for euro area debt markets. Volatility rose again in the fall, before receding significantly at year end following the passage of legislation averting the fiscal cliff **(Chart 5.1.21)**. The term structure of the VIX, which measures the difference between near-term and long-term market expectations of volatility, flattened markedly around year end, in a similar manner

Chart 5.1.18 Returns in Selected Equities Indices

	Change from 25-Mar-2012 to 25-Mar-2013	Change from 5-Year Low to 25-Mar-2013
Major Economies		
U.S. (S&P)	11%	129%
Euro (Euro Stoxx)	5%	46%
Japan (Nikkei)	25%	78%
U.K. (FTSE)	9%	82%
Selected Europe		
Germany (DAX)	13%	115%
France (CAC)	7%	48%
Italy (FTSEMIB)	-5%	27%
Spain (IBEX)	-2%	37%
Emerging Markets		
Brazil (Bovespa)	-17%	86%
Russia (RTS)	-12%	193%
India (Sensex)	8%	129%
China (Shanghai SE)	-1%	36%
Hong Kong (Hang Seng)	8%	102%

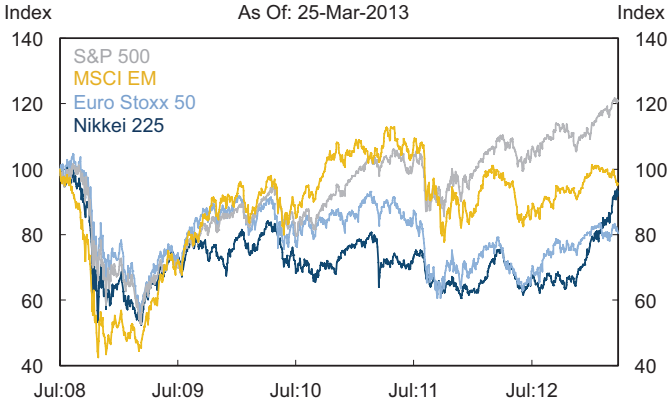
Source: Capital IQ

Chart 5.1.19 S&P 500 Key Ratios



Source: Bloomberg, L.P.

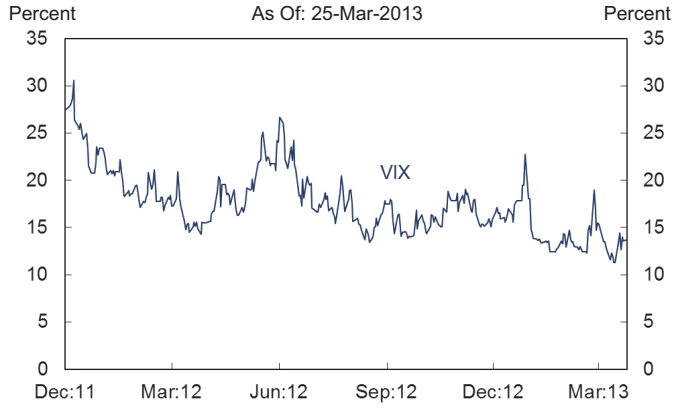
Chart 5.1.20 Selected Equities Indices



Source: Haver Analytics

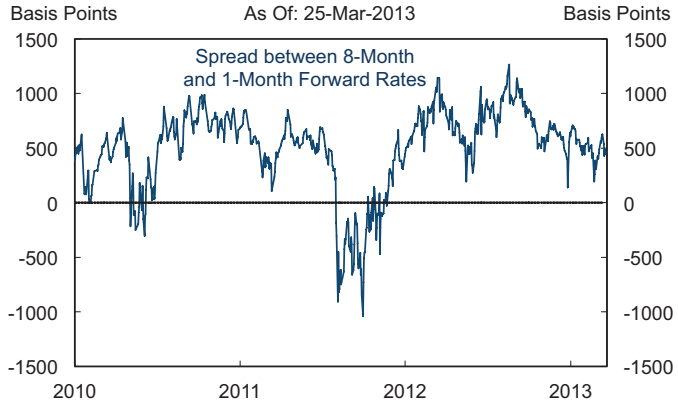
Note: 1-Jul-2008 = 100.

Chart 5.1.21 Market Volatility



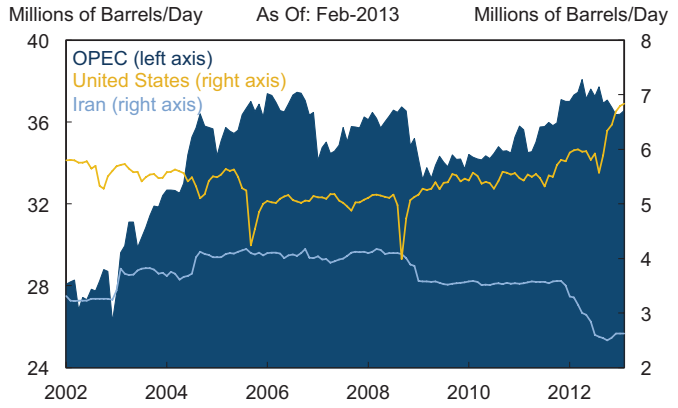
Source: Capital IQ

Chart 5.1.22 VIX Term Premium



Source: Bloomberg, L.P.

Chart 5.1.23 Oil Production



Source: Energy Intelligence, Haver Analytics

as in August 2011 during the height of the debt ceiling debate. This flattening of the term structure suggested that as a result of increased fiscal cliff concerns, expectations of near-term volatility were rising while long-term volatility expectations remained relatively unchanged **(Chart 5.1.22)**. With market expectations of equity volatility declining to pre-crisis levels, investors may take on increased risk that could expose them to significant losses in the event of a severe reversal **(see Section 7.4)**.

Commodities

Oil prices continued to exhibit heightened volatility in 2012, as increasing geopolitical uncertainty in the Middle East caused oil prices to increase significantly early in the year. Specifically, in July the Iran oil sanctions took full effect, sharply reducing oil exports from the country. Later in the year, substantial production increases in the U.S. and in members of the Organization of Petroleum Exporting Countries (OPEC) **(Chart 5.1.23)**, coupled with concerns of decreasing global demand, caused a sharp decline in oil prices in the summer, with prices moderating by year end. Unleaded gasoline prices in the United States also sharply increased in early 2012, and after moderating in December 2012, advanced early this year following sharp increases in crude oil futures prices **(Chart 5.1.24)**. Natural gas and agricultural prices were volatile throughout 2012, but ended the year nearly unchanged and have remained stable in early 2013 **(Chart 5.1.25)**. Industrial metal prices dropped severely around mid-year, only to rise again through the fall, and close the year with only a slight increase. Gold prices rose dramatically early in the year, but eventually subsided, increasing only slightly over the course of 2012 **(Chart 5.1.26)**.

Agriculture

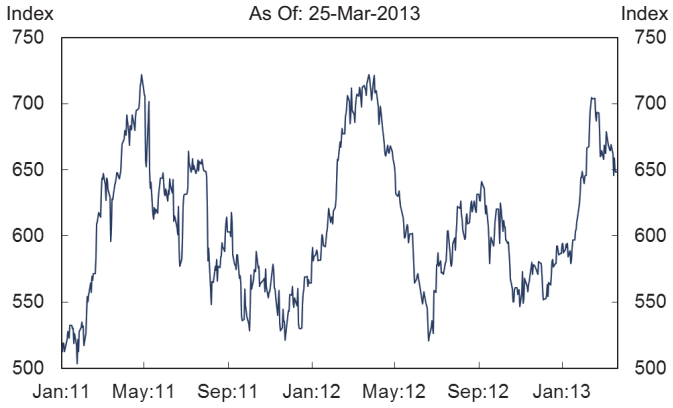
Strong agricultural conditions have spurred farmland values to rise to record levels. Across the United States, the average price per acre of farm real estate increased by 108 percent over the past decade **(Chart 5.1.27)**. The most significant drivers of U.S. agricultural

prosperity, including commodity prices, export levels, and interest rates, have been near cyclical bests for a few years. A number of Corn-Belt and Plains states, where a major stock of corn, soybeans, and wheat are grown, experienced relatively large crop price increases. These crops all experienced price spikes in June and July and remained elevated for most of the year **(Chart 5.1.28)**.

The current high price of farmland raises concerns about a repeat of the early 1980s agricultural crisis, when several hundred farm banks failed. However, compared to the early 1980s, the recent increase in farmland prices have not coincided with a shift towards higher leverage of either lenders or borrowers. Although total agricultural real estate debt outstanding increased by 65 percent over the past decade, it still remains well below the levels seen in the early 1980s **(Chart 5.1.29)**. Moreover, evidence suggests that the most frequent buyers of farmland are farmers who are looking to expand their current capacity, rather than investors who could be speculating on land prices.

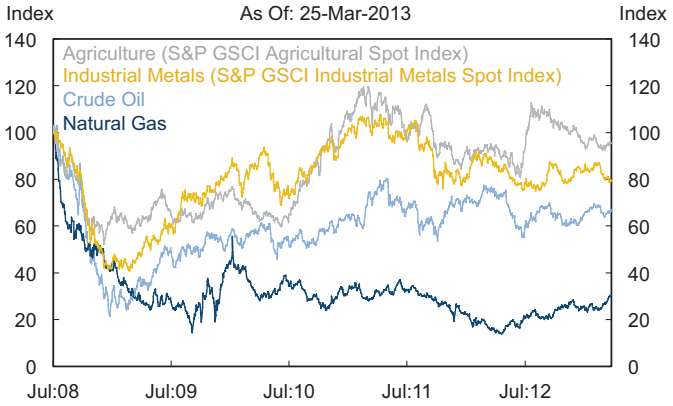
While agricultural debt and farmland lending continues to grow, many of the farm banks operating in the United States that are issuing this debt tend to be small, rural, community-based lenders that have been characterized as more conservative lenders. Many of these banks require that the borrower's existing farmland also be taken as collateral, limiting the potential increase in the borrower's loan-to-value ratio (LTV) and the bank's exposure to a future decline in farmland prices. Although farmland lending is important to a significant number of these rural community banks, it does not represent a significant share of credit in large U.S. banks. Furthermore, various crop insurance programs mostly mitigated crop losses due to the drought during the summer of 2012. Still, increasing farmland values and the willingness of banks to provide financing based on those values, warrants increased monitoring.

Chart 5.1.24 S&P GSCI Unleaded Gasoline Index



Source: Capital IQ

Chart 5.1.25 Commodities



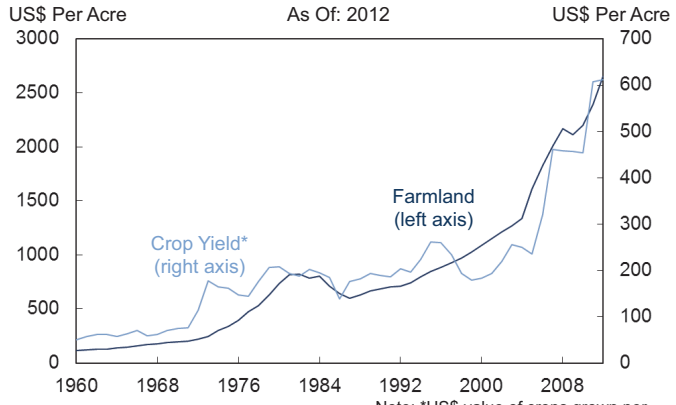
Source: Energy Information Administration, S&P, Wall Street Journal, Haver Analytics

Note: 01-Jul-2008 = 100.

Chart 5.1.26 Gold Prices

Source: Wall Street Journal, Haver Analytics

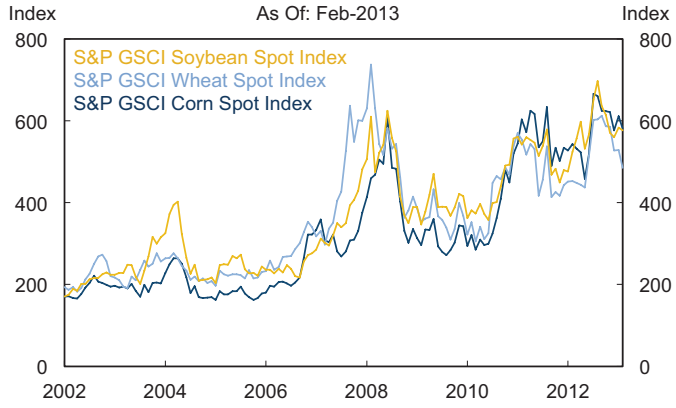
Chart 5.1.27 Farmland Prices and Value of Crop Yield



Source: USDA, FSOC calculations

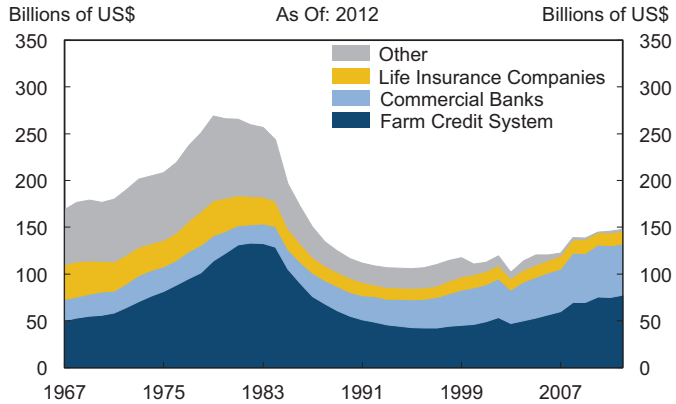
Note: *US$ value of crops grown per acre for corn, wheat, and soybeans. Land values estimated as of Aug-2012.

Chart 5.1.28 Agricultural Prices



Source: S&P, Haver Analytics

Chart 5.1.29 Agricultural Real Estate Debt Outstanding



Source: BLS, Federal Reserve, Haver Analytics

Note: Dollars are presented using 2011 prices.

5.1.4 Real Estate Markets

Housing Market Overview

The past year witnessed a fragile, but steady, recovery in the housing market. Home prices rose 5.5 percent in 2012 according to the FHFA **(Chart 5.1.30)**. However, house prices on a national basis remain approximately 30 percent below their 2006 peak, according to the CoreLogic Home Price Index. A number of factors continue to affect the recovery in home prices, including elevated unemployment, large shadow inventories of distressed homes, and lingering concerns about economic growth. At the end of 2012, the fraction of residential properties with mortgages in negative equity declined significantly to 21.5 percent, from over 25 percent at the end of 2011 **(Chart 5.1.31)**. New and existing home sales are rising, though they remain below pre-crisis highs. According to the National Association of Realtors, the seasonally adjusted annual pace of existing home sales was approximately 4.98 million units as of February 2013, up 10.2 percent from one year prior. Census Bureau statistics show the seasonally adjusted annual pace of new single family home sales was 411,000 units in February 2013, representing a 12.3 percent increase from one year prior. These figures suggest that housing is rebounding, albeit off low levels of activity, and contributed to economic growth throughout 2012.

Indicators of credit quality in the residential mortgage sector continue to improve. As of fourth quarter 2012, there was a decline in the number of loans 90 or more days delinquent but not in foreclosure, continuing a trend that began in late 2009. Mortgage delinquencies in this category have declined from a high of 5.1 percent of all mortgages to 3 percent, but the share of mortgages in the foreclosure process has declined only modestly and is currently about 3.7 percent of all mortgages **(Chart 5.1.32)**. Both foreclosures and reductions in newly-delinquent loans during 2010, 2011, and 2012 have contributed to the decline in 90+ day

delinquency rates. Loans originated in 2009 and 2010 experienced much lower rates of early delinquency, compared to loans originated in the middle of the decade. The number of properties in foreclosure is declining, but remains high compared to historical levels.

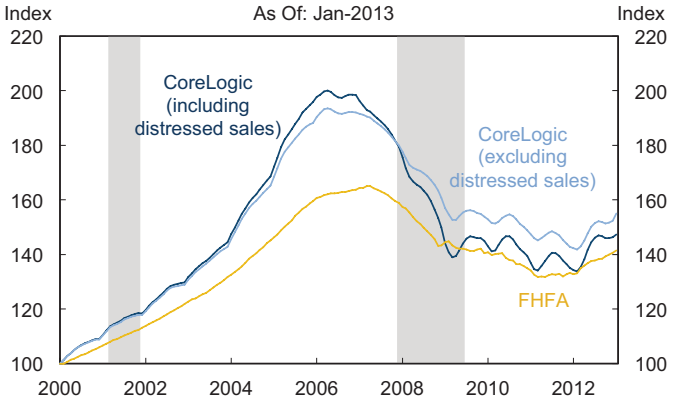
Home Mortgage Originations and Access to Credit

Prior to the financial crisis, private portfolios and securitizations funded more than half of all home mortgage originations. This pattern reversed after the financial crisis, with mortgages eligible for government and agency guarantee programs accounting for no less than three-fourths of annual originations. During 2012, this trend continued with government and agency guarantees backing approximately 89 percent of all originated mortgages **(Chart 5.1.33)**, 69 percent of which were guaranteed by the GSEs.

In 2012, the Federal Housing Administration (FHA) and the Department of Veterans Affairs (VA) guaranteed 20 percent of originated mortgages. FHA- and VA-guaranteed loans make up a majority of Ginnie Mae MBS issuances. Between 2001 and 2007, FHA lending accounted for less than 5 percent of annual originations. The market share for FHA lending was small at the time because eligible borrowers were primarily receiving non-agency loans funded through securitization. After secondary-market investors retreated from private-label securities after the crisis, FHA lending became the dominant avenue for low- to middle-income mortgage market credit.

The private capital assuming credit risk in the marketplace today comes predominantly from depository institutions through portfolio lending in mostly prime credit for jumbo loans, or loans that are larger than conforming limits. There is, however, growing demand amongst non-depository private capital for both new and older issues of non-agency loans and securities. In a related development, many large depository institutions are reducing their mortgage

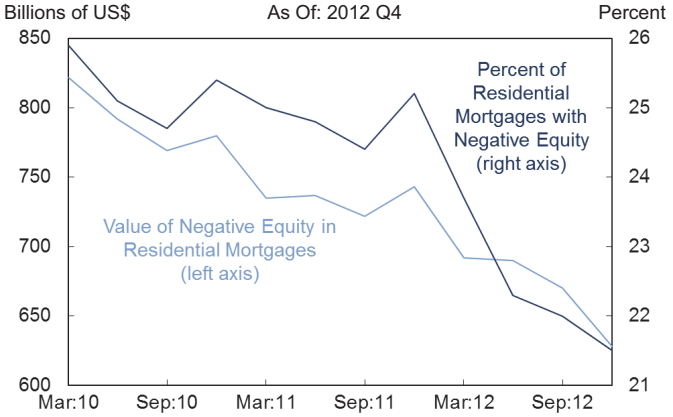
Chart 5.1.30 National Repeat Sales Home Price Indices



Source: CoreLogic, FHFA, FSOC calculations

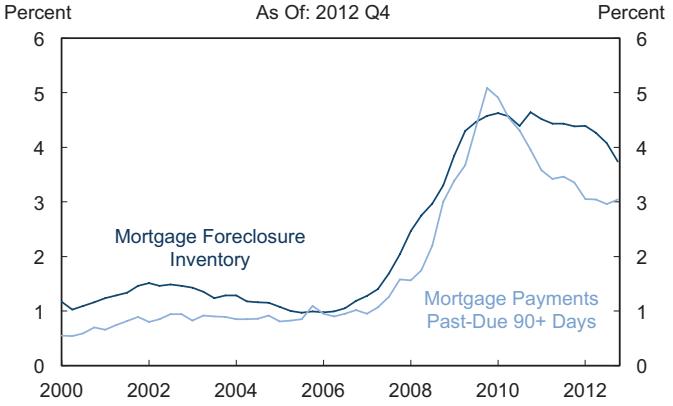
Note: Gray bars signify NBER recessions.

Chart 5.1.31 Mortgages with Negative Equity



Source: CoreLogic

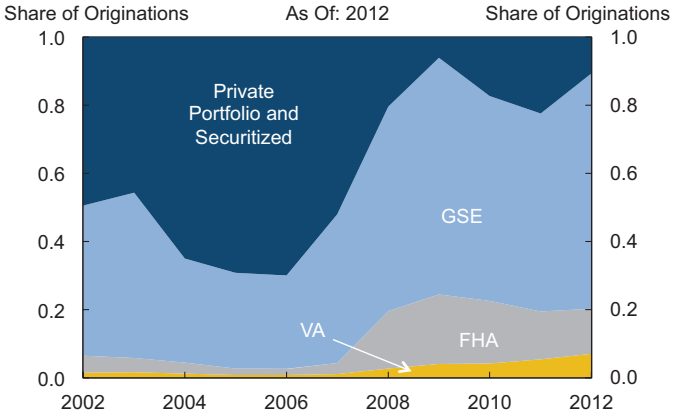
Chart 5.1.32 Mortgage Delinquency and Foreclosure



Source: Mortgage Bankers Association, Haver Analytics

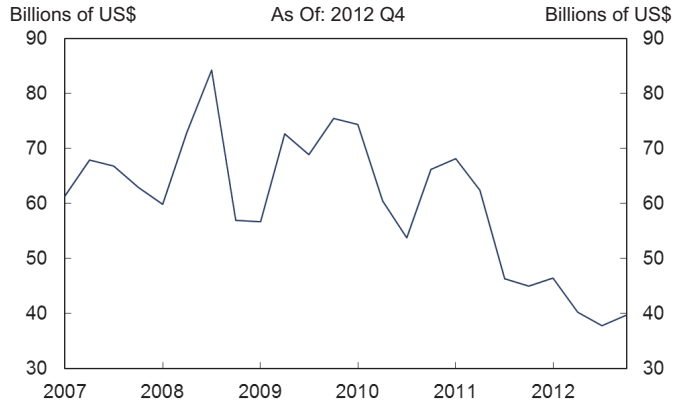
Note: Percent of all mortgages.

Chart 5.1.33 Mortgage Originations by Program



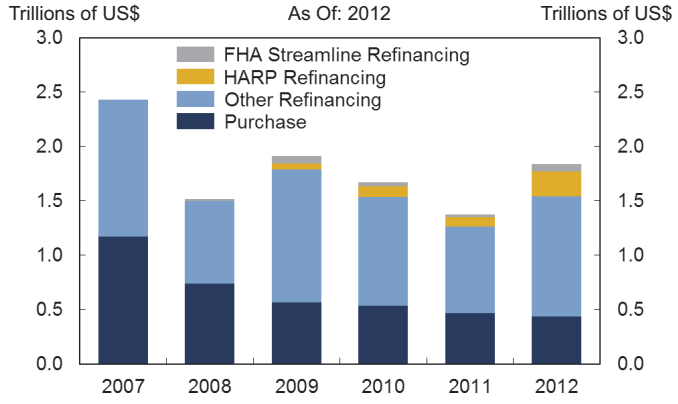
Source: Inside Mortgage Finance

Chart 5.1.34 Mortgage Servicing Rights at U.S. Commercial Banks and Thrifts



Source: SNL Financial

Chart 5.1.35 Mortgage Originations by Type



Source: Inside Mortgage Finance, HUD, CoreLogic

servicing activity and removing potential risk from their balance sheets by selling servicing rights to nonbank servicers, which are not subject to the same capital requirements as banks. Mortgage servicing rights at U.S. commercial banks and thrifts have declined by more than half since their peak in mid-2008 **(Chart 5.1.34)**. Driven by refinancing activity, mortgage origination volumes in 2012 exceeded $1.8 trillion for the first time since 2009. Over the past four years, refinances have accounted for over two-thirds of total originations. With mortgage interest rates at historic lows during 2012, refinance activity increased from $880 billion in 2011 to $1.4 trillion in 2012, which represented over 75 percent of all originations **(Chart 5.1.35)**. Purchase volumes continued to contract during 2012, falling to $437 billion, the lowest level in over a decade.

For the fifth year in a row, the average FICO credit score for borrowers at origination rose in 2012, exceeding 750, with purchase borrowers with FICO scores above 760 accounting for 45 percent of originations **(Chart 5.1.36)**. The share of purchase borrowers with a FICO score below 600 dropped from 14 percent in 2008 to less than 2 percent in 2012.

Back-end debt-to-income (DTI), which is the ratio of all debt payments including the new mortgage payment— inclusive of principal, interest, insurance and taxes— to the borrower's gross monthly income, declined across all major loan programs during 2012 **(Chart 5.1.37)**. The back-end DTI for GSE-guaranteed loans declined from a year end 2007 peak of nearly 39 percent to 33 percent at year end 2012. The average DTI on the smaller set of purchase loans originated and retained in bank portfolios declined from 38 percent in 2011 to 34 percent in 2012.

Overall, current mortgage market conditions indicate reduced access to credit for many potential U.S. borrowers. As average underwriting standards have tightened considerably, the lower bound of credit characteristics on approved loans is much more

stringent than the minimum requirements set by the GSEs and FHA. For example, according to the FHA guidelines for manual underwriting of a loan with the maximum 96.5 percent LTV, borrowers must have a FICO score greater than 580 and a DTI of less than 43 percent **(Chart 5.1.38)**. Despite this minimum requirement, the fifth percentile FICO score of FHA first lien purchase loans originated during 2012 was 635, with the average DTI and LTV associated with those loans at 36 percent and 95 percent, respectively.

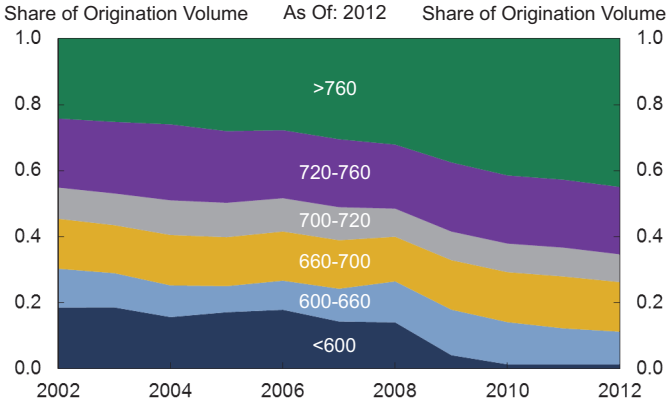
In addition, for manual underwriting of a one-unit, fixed rate loan with no minimum reserves, the GSEs require that borrowers have a minimum FICO score of 620, a DTI of less than 36 percent, and a LTV of less than 75 percent. But during 2012, the fifth percentile of first lien GSE purchase loans by FICO score at origination was 686, while the average DTI on those loans was 35 percent. Current market requirements that exceed the minimums set by the GSEs limit credit availability for borrowers at the lower end of the FICO distribution.

Federal Government Programs to Strengthen the Housing Market

The government has developed a number of programs to strengthen the housing market, primarily by providing relief to struggling homeowners. These programs include Making Home Affordable (MHA), the Home Affordable Refinance Program (HARP), the FHA Streamline Refinance program, and the Hardest Hit Fund (HHF). MHA provides first lien modifications primarily through the Home Affordable Modification Program (HAMP), and also includes a second-lien modification program, an unemployment forbearance program, and a short-sale or deed-in-lieu-of-foreclosure program.

As of December 2012, MHA has granted nearly 1.5 million homeowner assistance actions. HAMP has enrolled over 1.1 million borrowers as of December 31, 2012, and servicers have offered substantial concessions to borrowers through modifications that

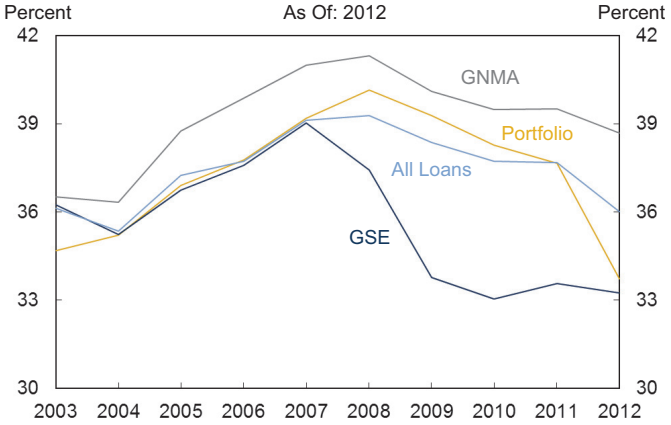
Chart 5.1.36 Origination Volume by Credit Score



Source: CoreLogic

Note: Includes first lien purchases only.

Chart 5.1.37 Average Debt-to-Income Ratio at Origination



Source: CoreLogic

Note: Includes first lien purchases only.

Chart 5.1.38 Minimum Eligibility Standards for Government Purchase Loans

FHA		FANNIE MAE	
Minimum Manual Underwriting Standards		*Minimum Manual Underwriting Standards*	
Purchase, 1-unit, Fixed-rate with No Minimum Reserves		*Purchase, 1-unit, Fixed-rate with No Minimum Reserves*	
FICO*	≥ 580	**FICO**	≥ 620
Debt-to-Income	≤ 43%	**Debt-to-Income**	≤ 36%
Loan-to-Value	≤ 96.5%	**Loan-to-Value**	≤ 75%

*Required for a maximum LTV of 96.5%. FHA will accept FICO scores between 500 and 579 with a maximum LTV of 90%.

Source: HUD Handbook, Fannie Mae Eligibility Matrix

reduce the borrowers' monthly payments. The incidence of principal reduction in HAMP modifications increased in 2012, with approximately three-fourths of eligible underwater homeowners who entered HAMP that year receiving some form of principal reduction. According to the OCC, payment reduction is strongly correlated with permanent modification sustainability, and HAMP modifications exhibit lower delinquency and re-default rates than industry modifications. In addition, the FHA has offered more than 1.5 million loss mitigation and early delinquency interventions. The Administration's programs continue to encourage improved standards and processes in the industry, with HOPE Now (a foreclosure prevention outreach effort) lenders offering more than three million proprietary modifications through November 2012. Since 2009, over six million mortgage modifications have been made, and homeowner assistance actions have outpaced foreclosures by a two-to-one ratio.

The HARP and FHA Streamline Refinance programs, both of which target underwater borrowers, provided approximately $300 billion in refinances during 2012. In early 2012, FHFA expanded HARP eligibility by eliminating the 125 percent LTV cap. As a primary result of this change, HARP originations grew from $85 billion in 2011 to $230 billion during 2012, comprising over 12 percent of all originations. The FHA's Streamline Refinance program, which also aims to help underwater borrowers lock in lower rates, provided an additional $65 billion in originations during 2012.

The Treasury's HHF, announced in 2010, provides $7.6 billion to housing finance authorities in the 18 states and the District of Columbia that were most affected by house price declines and high unemployment. These funds have been used to develop programs tailored to local housing markets, including mortgage payment assistance for unemployed borrowers, reinstatement programs, principal reduction, and transition assistance for borrowers.

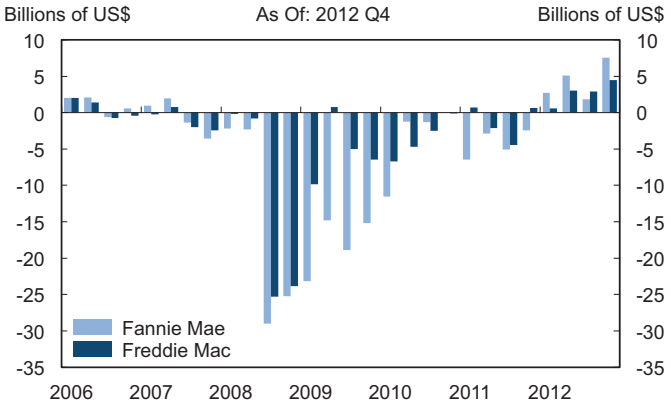
Government-Sponsored Enterprises

As housing and mortgage market conditions improved this past year, the financial strength of Fannie Mae and Freddie Mac increased. For the fourth quarter of 2012, Freddie Mac reported net income of $4.5 billion, the fifth quarter in a row that its net income was positive. Fannie Mae reported significant net income for the fourth quarter of 2012, and net income was positive for each quarter of the year **(Chart 5.1.39)**. In 2012, Fannie Mae did not request additional capital support from the government while Freddie Mac requested additional capital support from the government of $19 million; both institutions have returned to profitability.

The GSEs and Ginnie Mae continued to account for essentially all issuances of residential mortgage-backed securities (RMBS) **(Chart 5.1.40)**. In 2012, the GSEs accounted for 77 percent of RMBS issuances, considerably higher than pre-crisis levels, with almost all of the remaining RMBS issuances coming from Ginnie Mae. As of January 2013, Fannie Mae and Freddie Mac both reported serious delinquency rates for single-family mortgages (90+ day delinquencies and in-process foreclosures) of 3.2 percent, representing their lowest rates since 2009. This decline in serious delinquencies, which has occurred over the past 10 quarters, is driven in part by the reduction in 2005 to 2008 vintage mortgages relative to their portfolios, and is consistent with the decline in delinquencies and new delinquencies seen in the broader mortgage market in 2012.

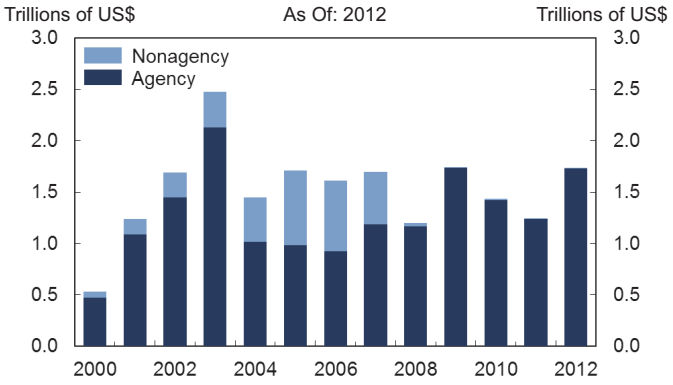
In 2012, the Treasury and FHFA made key changes to support provided under the Senior Preferred Stock Purchase Agreements (PSPAs) between the Treasury and the GSEs. Three key changes were made to the agreements with respect to dividend payments, GSE portfolio reduction, and additional taxpayer protections. First, dividends payable to the Treasury are now a quarterly net worth sweep, or a payment of income earned in the quarter by the GSEs, rather than the original terms, which consisted of a 10 percent dividend on outstanding senior

Chart 5.1.39 GSE Net Income



Source: SNL Financial

Chart 5.1.40 Issuance of RMBS



Source: Thomson Reuters, Dealogic, Fannie Mae, Freddie Mac, SIFMA

preferred stock. This change was made to eliminate the possibility of the GSEs having to borrow from the Treasury to pay dividends, which could have eroded market confidence in the GSEs. Second, the GSEs are now required to contract their portfolios at an annual rate of 15 percent— an increase from the 10 percent annual reduction called for previously. This change implies that the GSEs will reduce their portfolios to $250 billion four years earlier than previously scheduled. Third, each GSE, under the direction of the FHFA, will be required to submit to the Treasury an annual risk management plan that will outline the steps that the GSEs are taking to reduce taxpayer exposure to mortgage credit risk within the GSEs' guarantee books of business and retained portfolios.

In 2012, FHA continued to play a critical role in supporting the ongoing recovery of the nation's housing market and broader economy. FHA insured nearly 1.2 million single-family mortgage loans during the year, with a total dollar value of approximately $213 billion. The services that FHA single-family programs provide to the nation's housing sector are made possible through FHA's Mutual Mortgage Insurance Fund. On November 16, 2012, the U.S. Department of Housing and Urban Development (HUD) released its fiscal year 2012 Report to Congress on the Financial Status of the FHA Mutual Mortgage Insurance Fund. That report summarized the results of an independent actuarial measure of the economic net worth of FHA's portfolio— essentially, the total value of the portfolio after FHA pays all expected claims for the next 30 years in a run-off scenario in which no new loans are insured. According to this Report to Congress, in fiscal year 2012 the capital reserve ratio of the Fund fell to negative 1.44 percent, and the Fund's economic value stands at negative $16.3 billion. Earlier books of business are the primary source of stress to the Mutual Mortgage Fund, with approximately $70 billion in claims attributable to the 2007 to 2009 vintage books alone. While the actuary attests to the high quality and profitability of books insured since

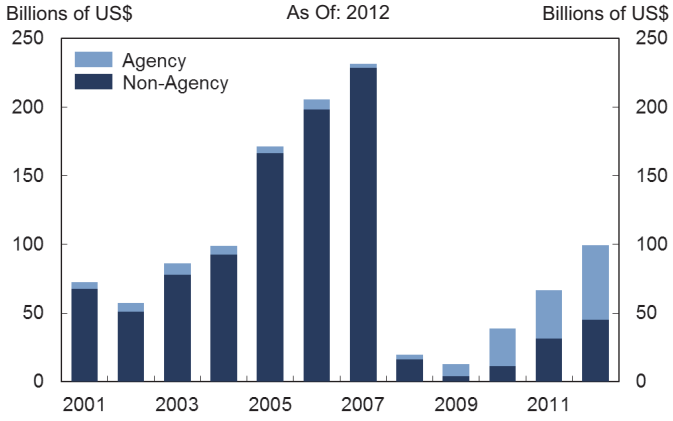
2010, significant unrecognized risks may remain in the portfolio. Work is ongoing to mitigate the impacts to the Mutual Mortgage Fund of losses stemming from the 2007 to 2009 books, which were those most severely impacted by the recession, declines in home prices, and other risk factors.

Commercial Real Estate

The commercial real estate sector has improved, with prices rising slightly and CMBS issuance gaining strength in 2012. The past year witnessed the strongest post-crisis credit flows for commercial real estate (CRE), with almost $100 billion in CMBS issuance **(Chart 5.1.41)**. This amount of issuance represents an increase of approximately 50 percent over the prior year, although these levels are still much lower than pre-crisis amounts. Given the low interest rate environment, investor demand has been quite strong, with non-agency credit spreads for the most senior debt tightening by about 90 basis points in 2012 **(Chart 5.1.42)**. The loans underlying these CMBS are mainly backed by multi-family, office, retail, and other related properties. Credit performance, as measured by the ratio of rating upgrades to downgrades, has risen in recent years. However, the sector remains vulnerable to refinancing risks in the event of a sharp rise in interest rates, in which event some currently-profitable properties might no longer support their financing payments, potentially leading to increased defaults. The greater uncertainty surrounding interest rates in later years is compounded by the fact that over $1.2 billion in CRE loans will be maturing in 2016 to 2018, compared to less than $1 billion in 2013 to 2015 **(Chart 5.1.43)**.

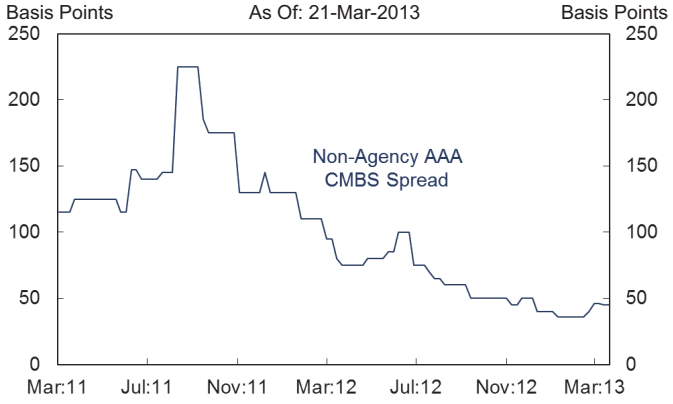
Market participants have expressed concern that most commercial real estate credit flows to date have been concentrated too heavily on the trophy properties in major markets. While possibly reflective of differential demand, this trend is seen in recent commercial property price indices, which reflect moderate improvements on the national level since 2010, but more significant price gains in major

Chart 5.1.41 CMBS New Issuance



Source: Commercial Mortgage Alert

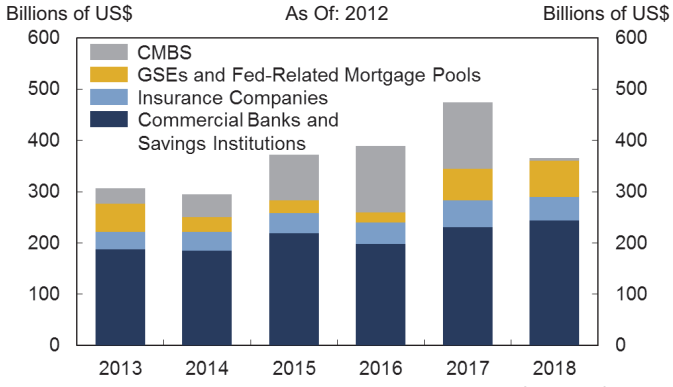
Chart 5.1.42 CMBS Senior Debt Spreads



Source: Barclays

Note: Spread of Non-Agency 3.0 AAA 5-Year CMBS to Swaps.

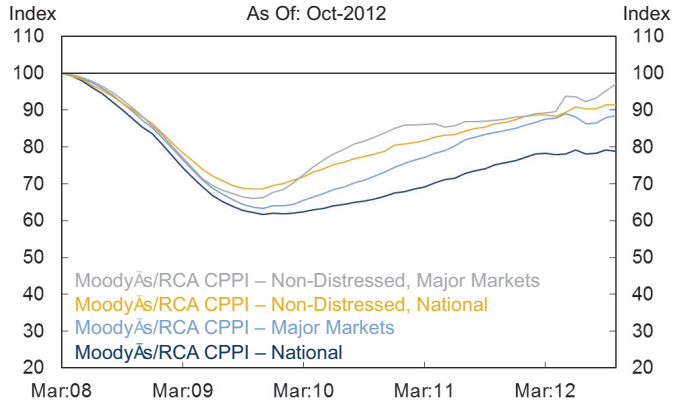
Chart 5.1.43 CRE Refinancing



Source: Flow of Funds, Barclays, Trepp

Note: Issuance and distribution of maturities for commercial banks and savings institutions, insurance companies, and GSEs and Fed-related mortgage pools are estimated.

Chart 5.1.44 Commercial Property Price Indices



Source: Real Capital Analytics, MoodyÃs Investors Service

Note: Mar-2008 = 100.

markets. In 2012, non-distressed markets continued to outperform the national average **(Chart 5.1.44)**. The variation in credit flows to different property types can be seen in the MBA Commercial/Multifamily Bankers Originations Index, which shows that while originations across all types of properties rose in 2012, they rose to significantly different degrees. Hotel originations led all other groups, rising 61 percent over the prior year, followed by multifamily originations, which rose 36 percent over the prior year. In contrast, health care originations, which fell significantly during the crisis, rose only 6 percent over the prior year.

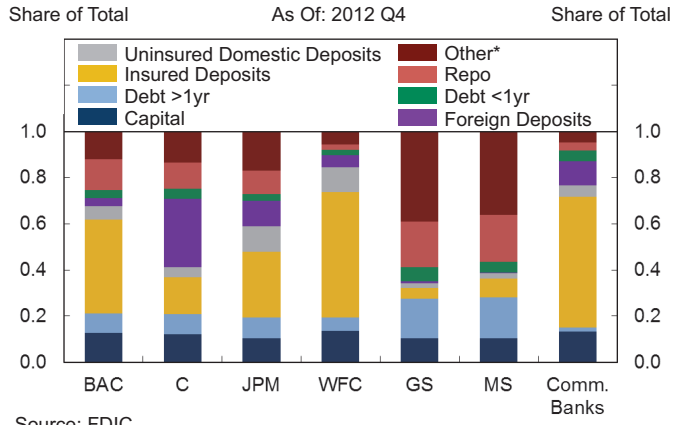
5.2 Wholesale Funding Markets

5.2.1 Interbank Markets

Short-term wholesale funding markets provide financial intermediaries with funds that supplement retail deposits and long-term debt issuance **(Chart 5.2.1)**. These funds include large time deposits, certificates of deposit, repurchase agreements (repos), and commercial paper. Sources of funds in these markets are largely wholesale cash pools, including cash on the balance sheets of nonfinancial companies, reinvestments of cash collateral from securities lending, and cash held by long-term mutual funds, money market mutual funds, pension funds, and sovereign wealth funds. These sources of funds have grown markedly as a percentage of GDP over the past two decades, although this percentage has been declining since early 2008 **(Chart 5.2.2)**. Cash on nonfinancial corporate balance sheets, in particular, has been growing at an accelerating rate, a pattern that continued through the fourth quarter of 2012.

Domestic banking firms' reliance on short-term wholesale funding continued to decline in 2012, as retail deposits grew **(Chart 5.2.3)**. The longer-term stability and cost of deposit inflows during this low interest rate period will be key

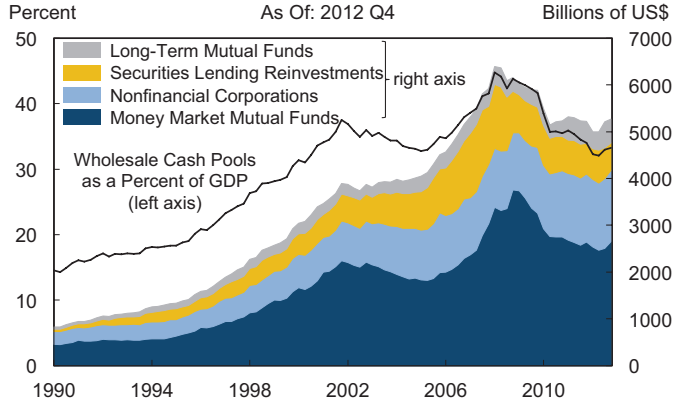
Chart 5.2.1 Large Bank Holding Company Liability Structure



Source: FDIC, FR Y-9C

Note: *Other = commercial paper, derivative payables, securities sold short and everything categorized as "Other reported in FR Y-9C.

Chart 5.2.2 Wholesale Cash Investors



Source: Flow of Funds, ICI, U.S. Department of Treasury, Haver Analytics

to funding and interest rate risk projections in the future.

Enhanced central bank provisions of liquidity, combined with a significant reduction of European banks' dollar funding needs as they deleverage their balance sheets, has contributed to a reduction in the premium for borrowing dollars via foreign exchange (FX) swap markets to the lowest level since early 2011 **(Chart 5.2.4)**. This overall normalization in the FX swap market and the improved access to dollar funding for European banks, was supported by the November 2011 decrease in the interest rate charged on central bank liquidity swaps and the ECB's two 3-year longer-term refinancing operations, along with other actions to strengthen the euro area's institutional and fiscal framework. The decision to include a levy on bank deposits in the Cyprus bailout terms was associated to a modest uptick in the premium for borrowing U.S. dollars against the euro in March 2013.

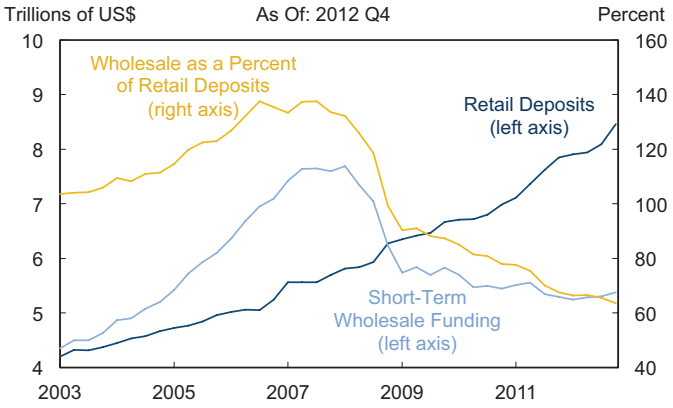
5.2.2 Commercial Paper and Asset-Backed Commercial Paper

Commercial paper (CP) outstanding peaked at $2.2 trillion in July 2007 and stood at $1.0 trillion in February 2013, primarily due to the continuing decline in asset-backed commercial paper (ABCP) outstanding **(Chart 5.2.5)**. As of February 2013, ABCP accounts for 28 percent of all outstanding CP, financial CP accounts for 51 percent, and nonfinancial corporate CP accounts for 21 percent. Financial CP and certificates of deposit (CDs) outstanding are around 40 to 50 percent below their pre-crisis peaks. After contracting sharply in 2011, largely due to investor concerns about European debt, CP outstanding at financial institutions with European parents remained stable in the second half of 2012 and has increased notably in early 2013. Even so, financial CP outstanding with European parents remains well below the levels seen in early 2011.

5.2.3 Repo Markets

A repurchase agreement (repo) is the sale of securities for cash with an agreement to

Chart 5.2.3 Composition of Bank Short-Term Funding

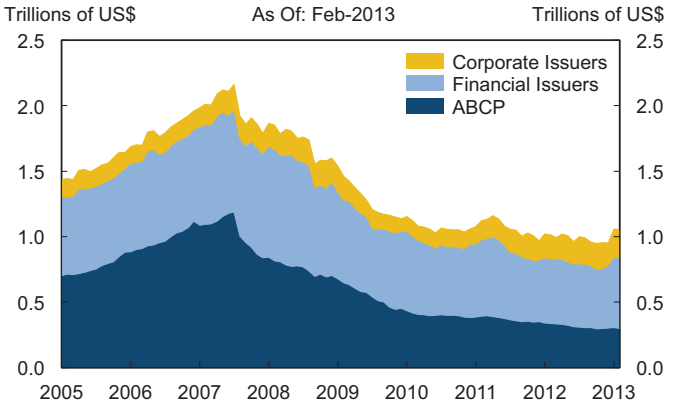


Source: FDIC, Federal Reserve, Haver Analytics

Chart 5.2.4 Premium for Borrowing Dollars for 1 Year

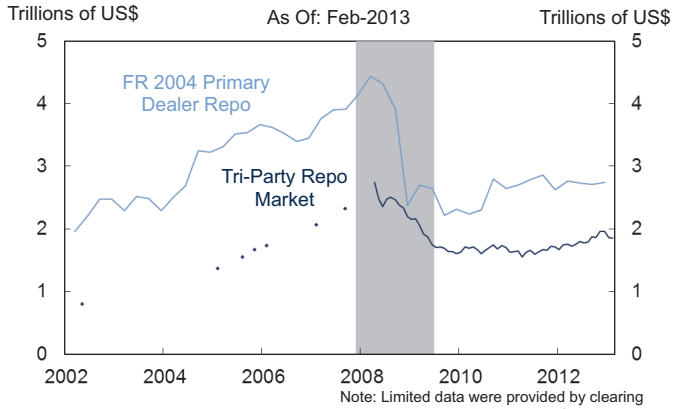
Source: Bloomberg, L.P.

Chart 5.2.5 Commercial Paper Outstanding



Source: Federal Reserve, Haver Analytics

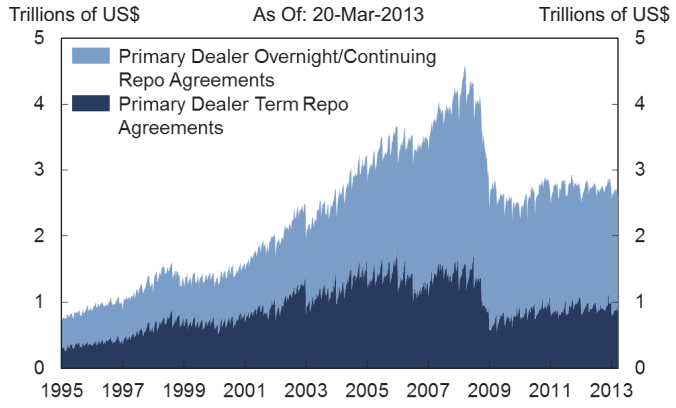
Chart 5.2.6 Value of the Repo Market



Note: Limited data were provided by clearing banks prior to April 2008. These figures are estimates based on the data provided. Gray bar signifies NBER recession.

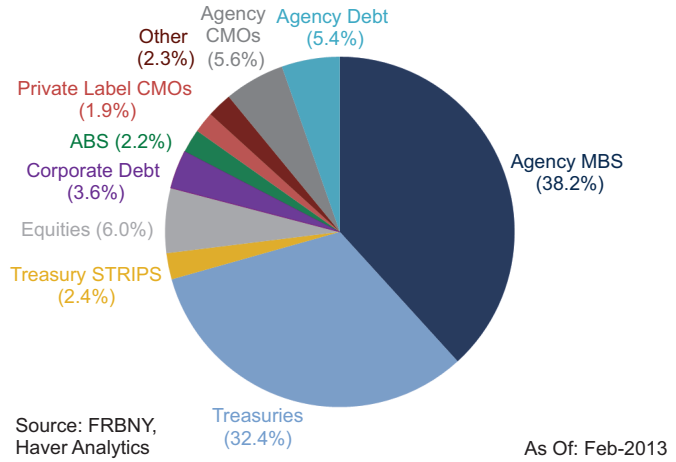
Source: FRBNY, Haver Analytics

Chart 5.2.7 Primary Dealer Repo Agreements



Source: FRBNY

Chart 5.2.8 Tri-Party Repo Collateral Distribution



Source: FRBNY, Haver Analytics

As Of: Feb-2013

repurchase the securities at a specified date and price. This agreement effectively creates a secured loan with securities as collateral. Securities broker-dealers play a significant role in repo markets. There are three repo market segments: the tri-party market, in which broker-dealers obtain funding from cash investors and transact utilizing the collateral management and settlement services of the two tri-party repo clearing banks (JPMorgan Chase and Bank of New York Mellon); the General Collateral Finance (GCF) market, which primarily settles inter-dealer transactions on the tri-party repo platform; and bilateral repo, in which transactions are executed without the services of the two tri-party clearing banks.[6]

Repo activity continued to increase in 2012, both as measured in the tri-party repo statistics and in the primary dealer survey **(Chart 5.2.6)**. Market participants have noted that some firms have extended maturities for certain repo collateral, indicating an increased willingness of some participants to provide longer-term funding in this market **(Chart 5.2.7)**. However, haircuts in the tri-party market on collateral that is not eligible for use in open market operations (OMO) have not declined, indicating an unchanged stance towards collateral quality and potential price volatility.

The majority of tri-party repo financing remains collateralized by Treasury securities, agency MBS, agency debentures, and agency collateralized mortgage obligations (CMOs). As of February 2013, these types of collateral accounted for 84 percent of all tri-party repo collateral **(Chart 5.2.8)**. The other 16 percent of collateral used in tri-party repo includes corporate bonds, equities, private label CMOs, ABS, CP, other money market instruments, whole loans, and municipal bonds. As is true in the securities lending market, repo markets can be used to effect collateral transformation **(see Section 5.2.4 for more detail on collateral transformation trades)**.

5.2.4 Securities Lending

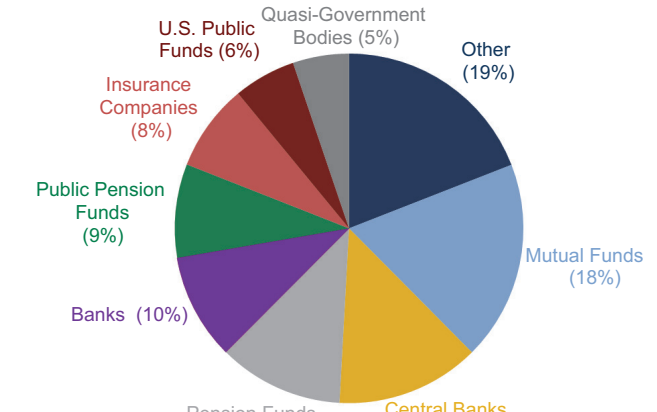
The largest component of securities lending this past year continued to be undertaken by long-term securities holders such as pension funds, mutual funds, and central banks **(Chart 5.2.9)**. The global value of securities lending transactions remained fairly flat through March 2012, at an average value of around $1.7 trillion according to available estimates **(Chart 5.2.10)**.

Reinvestment of cash collateral from securities lending has declined slowly over the past year, from $659 billion in the fourth quarter of 2011 to $591 billion in the fourth quarter of 2012. The weighted average maturity (WAM) of cash reinvestment has also continued to decline, albeit not as markedly as in previous years **(Chart 5.2.11)**. This decline represents a continued trend towards more conservative asset allocation since the financial crisis by cash collateral reinvestment pools.

Securities lending can be used as a vehicle for collateral transformation trades, also known as collateral swaps. In a collateral swap, a participant with the high-quality asset swaps it for a lower-quality one to earn fee income. The participant holding the lower-quality collateral pays a fee to exchange it temporarily for higher-quality collateral that can then be used to meet margin requirements for derivative transactions or other liquidity or capital needs. Demand for high-quality collateral may increase with the implementation of regulatory regimes in different countries that require market participants to hold high-quality collateral for the purposes of margining and liquidity coverage ratios.

These trades present two risks: first, should the value of the lower-quality collateral fall more than anticipated by the haircut in the transaction, the lender of that collateral would have to reduce the size of the collateral swap or provide more collateral. If more collateral is unavailable, they may be forced to rapidly reduce the size of their related positions. Second, broker-dealers entering into collateral swaps might generate additional

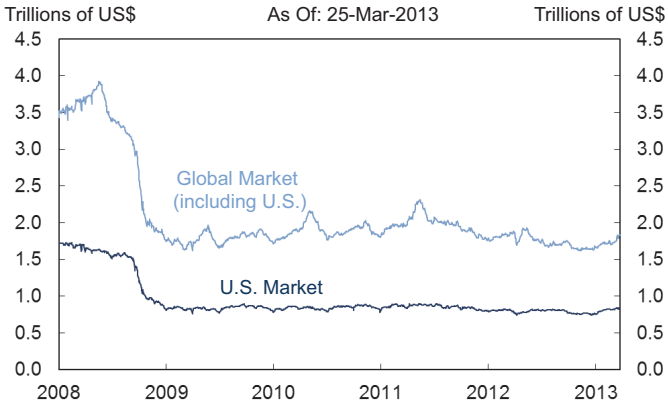
Chart 5.2.9 Securities Lending Loans by Industry



Source: Markit Group Limited

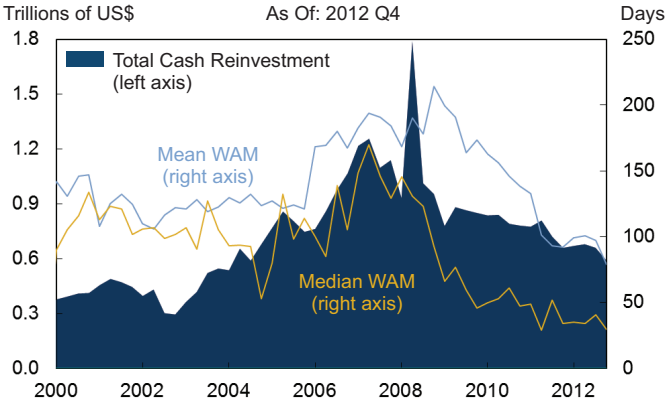
As Of: 25-Mar-2013

Chart 5.2.10 Value of Securities on Loan



Source: Markit Group Limited

Chart 5.2.11 Securities Lending Cash Reinvestment



Source: The Risk Management Association

Note: WAM = Weighted Average Maturity.

layers of counterparty and liquidity risk exposure, potentially mitigating the benefits of conservative collateral requirements.

Despite the increased attention paid to these trades, there is little evidence to suggest that their volume is presently large.[7] For example, consider securities lending activity by pension funds. Pension funds hold large portfolios of high-quality assets, which they use to fund future liabilities. In the meantime, pension funds will lend securities in their portfolio to generate incremental returns on their existing investments, including high-quality Treasury securities. As such, pension funds would be expected to supply high-quality collateral into collateral transformation trades. However, while the volume of pension funds' securities lending activity increased by around 5 percent over the past year, the majority of the increase occurred in lending against cash collateral as opposed to non-cash collateral. In fact, lending of Treasury securities against non-cash collateral by pension funds declined by nearly 8 percent over the past year. Regulatory limits on the types of collateral that pension funds can accept is likely inhibiting the growth of such transactions. In addition, indemnifications provided by securities lending agents, which commonly act on behalf of beneficial owners that lend their securities, are limited to the securities loaned. These indemnifications do not commonly extend to the lower-quality borrowed collateral and such one-sided indemnification might act as a further inhibitor for such activity. While available evidence has yet to suggest that a meaningful volume of collateral swap activity is taking place, it is an area that warrants continued monitoring as market practices and regulatory changes increase demand for high-quality collateral.

5.3 Bank Holding Companies and Depository Institutions

5.3.1 Bank Holding Companies and Dodd-Frank Act Stress Tests

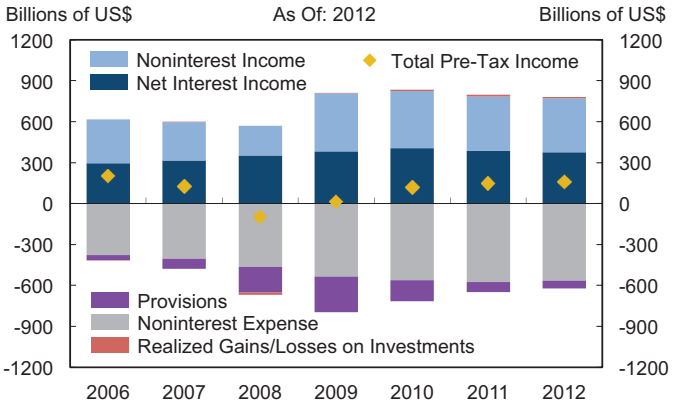
Performance

Bank holding companies (BHCs) are holding companies with at least one commercial bank subsidiary. Subsidiaries of BHCs may also include nonbanks such as broker-dealers, investment companies, or insurance companies. As of the fourth quarter of 2012, there were 1,014 top-tier BHCs in the United States (excluding Puerto Rico), with aggregate assets of about $16.6 trillion. Aggregate pre-tax income of BHCs totaled $159 billion in 2012 **(Chart 5.3.1)**, an increase of 8 percent from 2011.

The domestic banking sector entered 2012 facing revenue pressure from a sluggish macroeconomic environment, new regulatory requirements, legal settlements, the challenging interest rate environment, and risks related to the euro area sovereign debt crisis. Despite the difficult operating environment, most banks grew revenues and earnings in 2012. For the 77 BHCs with assets greater than $10 billion, aggregate pretax income increased 14.2 percent in 2012 to $154.8 billion. Banks boosted earnings through controlled expenses and the release of reserves against losses on loans and leases, as credit quality continued to improve. However, the median growth in total noninterest expense was roughly 3 percentage points higher than the previous year (based on 72 BHCs reporting data for the year end 2012 and 2011). Noninterest income grew during the year led by record debt underwriting and strong mortgage banking revenues. Nevertheless, the return on average assets for BHCs remained lower than the levels that prevailed in the 10 years before the crisis **(Chart 5.3.2)**.

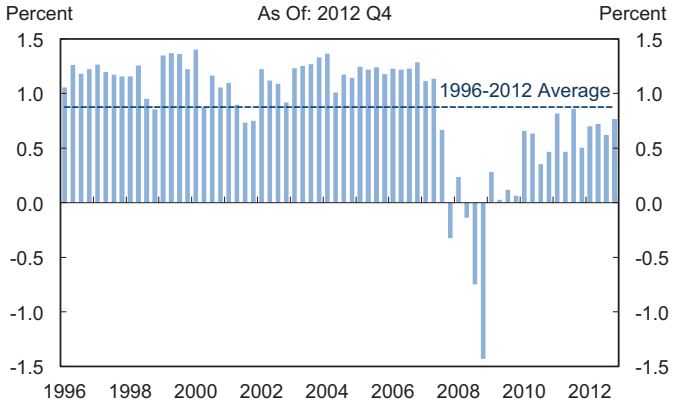
Declining BHC net interest margins (NIMs), defined as net interest income divided by average interest-earning assets, decreased earnings in recent quarters **(Chart 5.3.3)**. NIM

Chart 5.3.1 Aggregate BHC Pre-Tax Income



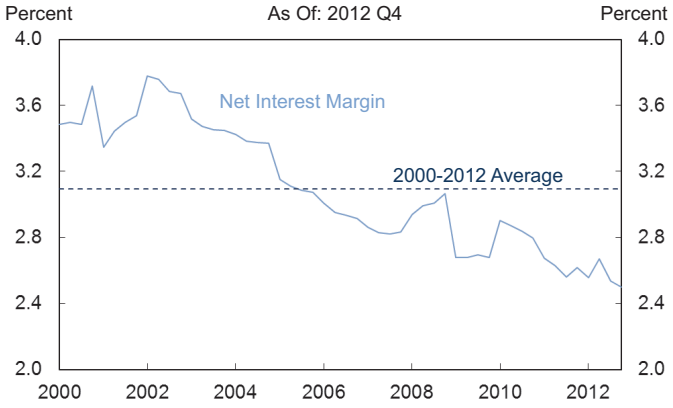
Source: FR Y-9C

Chart 5.3.2 Return on Average Assets for BHCs > $10B



Source: FR Y-9C

Chart 5.3.3 Net Interest Margins for BHCs > $10B



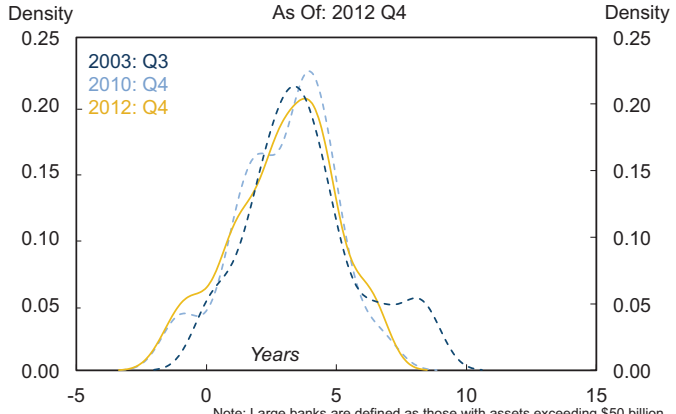
Source: FR Y-9C

compression has been driven by increased competition, as well as cyclical factors including the extended low rate environment across the yield curve and slow loan growth. BHCs are susceptible to maturity mismatch, whereby longer duration assets reprice more slowly than shorter duration liabilities. BHCs typically have lower NIMs than insured depository institutions due to the inclusion of lower interest margin business lines of nonbank subsidiaries, which often rely more heavily on fee income than net interest income.

The low rate environment is particularly acute for NIMs during the current business cycle, as funding costs are near zero. BHCs have mitigated the effects of the compressed rate environment through various non-core revenue and cost cutting measures, including reserve releases, restructurings, and compensation reductions, although there is a limit to the sustainability of these measures. Supervisors are attentive to BHCs assuming additional credit or duration risk, but there does not appear to be evidence of a substantial move in this direction at commercial bank subsidiaries of large BHCs. However, some smaller banks appear to have lengthened the maturity of asset portfolios. Maturity extension at small banks can be observed in the estimates of the asset/liability maturity and repricing interval gap. These estimates do not show material change at large banks from two years ago, and are also not noticeably different from the distribution in the third quarter of 2003, when interest rates were also unusually low **(Charts 5.3.4 and 5.3.5)**.[8] However, at smaller banks, the same distribution has somewhat shifted upward over the past two years, as the average maturity (or next repricing date) of loans and securities has increased (not shown).

Although very low interest rates appear to be contributing to a compression of BHCs' net interest margins, it is unclear whether the eventual reversal of the rate environment will benefit BHC profitability. BHCs have increased their holdings of Treasury and agency securities

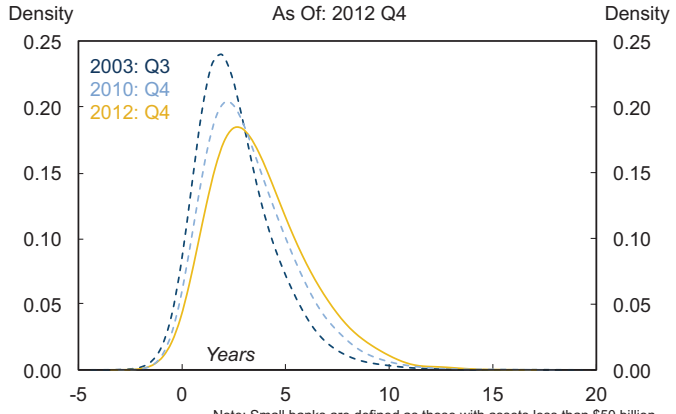
Chart 5.3.4 Maturity Gap at Large Banks



Source: Federal Reserve

Note: Large banks are defined as those with assets exceeding $50 billion. Approximations are based on the midpoint of the ranges available on Call Reports. Liquid deposits are assumed to have a maturity of 1 year.

Chart 5.3.5 Maturity Gap at Small Banks



Source: Federal Reserve

Note: Small banks are defined as those with assets less than $50 billion. Approximations are based on the midpoint of the ranges available on Call Reports. Liquid deposits are assumed to have a maturity of 1 year.

amid historically high deposit inflows, so a rapid rise in rates would decrease the fair value of these securities. In addition, a rise in rates could also cause deposit disintermediation, resulting in higher funding costs pressuring margins. The more recent modest rise in term rates appears not to have boosted BHC NIMs, as growth expectations remain subdued and lending growth challenged.

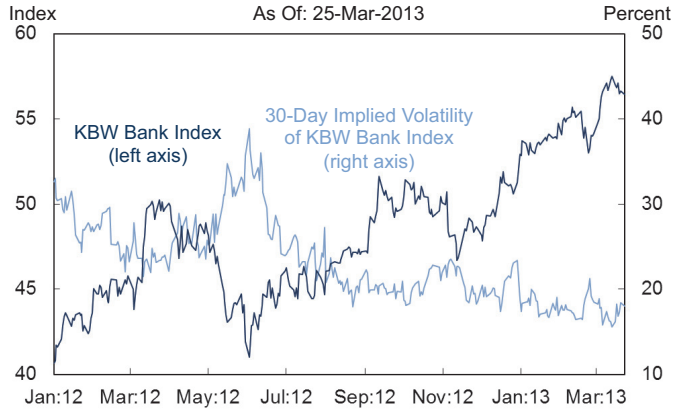
Large BHCs made progress in addressing legal uncertainty last year by settling a number of outstanding legal matters, highlighted by a settlement with the attorneys general and federal banking agencies related to improper mortgage foreclosure practices **(see Section 6.1.5)**. Banks adjusted their MBS repurchase reserves to reflect greater clarity surrounding GSE repurchase obligations, including Bank of America's $4.9 billion agreement with Fannie Mae that resolved substantially all agency mortgage repurchase claims on loans originated and sold directly by Legacy Countrywide and Bank of America to Fannie Mae from 2000 through 2008.

Market Indicators

The heightened level of duress in capital markets that was present throughout the second half of 2011 receded in 2012, reflecting improved investor sentiment and greater risk appetite. Accommodative actions taken by the ECB were largely successful in reducing perceived tail risk from Europe, resulting in a large increase in capital markets activities from the prior year **(see Box B: Global Monetary Policy Actions)**. Moreover, positive U.S. macroeconomic developments, particularly employment and housing data releases late in the year, boosted sentiment and helped drive loan growth. As a result of these positive developments, the outlook for the domestic financial sector improved significantly during the year.

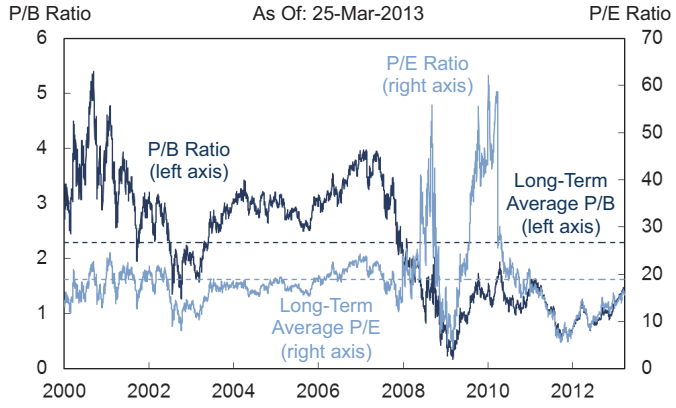
BHC shares, which began the year trading at or near historic low price/tangible book valuations, rallied sharply during the year.

Chart 5.3.6 KBW Bank Index and Implied Volatility



Source: Bloomberg, L.P.

Chart 5.3.7 Average P/B and P/E Ratios of 6 Large Complex BHCs



Source: Bloomberg, L.P.

Note: Market-cap weighted average of BAC, C, GS, JPM, MS, WFC.

Chart 5.3.8 CDS Spreads of 6 Large Complex BHCs

Source: Markit Group Limited

Note: Equal-weighted average of BAC, C, GS, JPM, MS, WFC.

The broad Keefe, Bruyette & Woods (KBW) bank index increased 30 percent and implied volatility steadily declined following a jump in June **(Chart 5.3.6)**. The market capitalization of the six largest BHCs increased 43 percent in aggregate, but market valuations remained at a roughly 20 percent discount to book value in December 2012. This valuation is still below both the pre-crisis level and the average level over the past 12 years **(Chart 5.3.7)**. The average of the 5-year credit default swap (CDS) spreads of the six largest BHCs entered 2012 at very elevated levels, due primarily to euro area sovereign debt fears. Despite these high levels during the first half of the year, CDS spreads narrowed sharply during the second half of the year and ended 2012 at their lowest levels in 18 months **(Chart 5.3.8)**. Academic measures of systemic risk for the six largest BHCs have continuously declined over the past year: these contemporaneous measures are now low by historical standards **(Chart 5.3.9)**.[9]

Capital

In aggregate, capital ratios for BHCs improved from the fourth quarter of 2011 to the fourth quarter of 2012, with the tier 1 common capital ratio under current risk-based capital rules (Basel I) increasing 0.79 percentage point to 11.46 percent. Increases in retained earnings, primarily from positive operating results, contributed to the bulk of this increase, with additional support from capital raising **(Chart 5.3.10)**. In addition, risk-weighted assets decreased slightly, providing additional support to capital ratio trends.

For the 18 largest U.S. BHCs, capital ratios continued to improve from post-crisis levels, with the aggregate tier 1 common capital ratio under Basel I improving 0.86 percentage point from the fourth quarter of 2011 to the fourth quarter of 2012 to 11.3 percent. For U.S. BHCs with assets less than $50 billion, the average tier 1 common ratio under Basel I improved by approximately 0.19 percentage point to 12.2 percent from the fourth quarter of 2011 to the

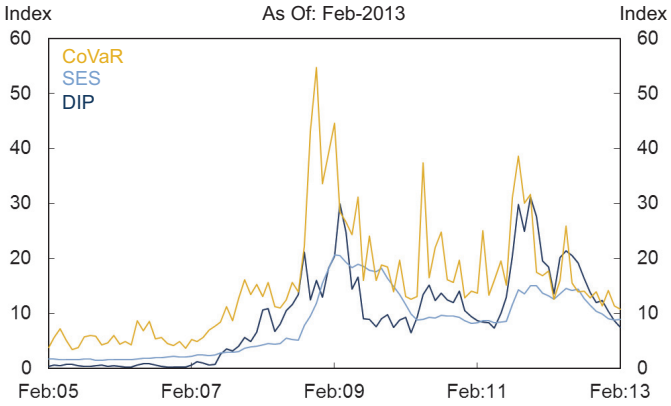
fourth quarter of 2012 period, with gains from retained earnings and common stock issuance partially offset by increases in risk-weighted assets.

During this period, many BHCs limited their capital distributions due to continued economic uncertainty, forthcoming increases in required regulatory capital, and enhanced regulatory scrutiny. Although capital distributions remain subdued relative to pre-crisis levels, the latter half of 2012 saw a shift from a net issuance of equity capital to a net payout in the form of share repurchases and dividends.

Liquidity

Along with higher capital levels, the average liquidity profile for the largest BHCs has improved since the financial crisis. In particular, the volume of liquid assets on BHC balance sheets is nearly two standard deviations above its average from the first quarter of 1995 to the fourth quarter of 2012 **(Chart 5.3.11)**. This increase in average liquidity partially reflects a change in the composition of BHCs. Among the six largest BHCs, two are primarily dealers (Goldman Sachs and Morgan Stanley), and two others (Bank of America and JPMorgan Chase) acquired major broker-dealers throughout 2008 (Merrill Lynch and Bear Stearns, respectively). Broker-dealers tend to hold a larger fraction of liquid assets, as the majority of their funding is in wholesale markets **(Chart 5.3.12)**. In fact, the ratio of liquid assets to total assets is roughly proportional to the percentage of non-core funding to total liabilities. An additional factor explaining the higher liquidity ratios of BHCs is the anticipated implementation of the Liquidity Coverage Ratio (LCR) in the United States as part of the Basel III reforms **(see Section 6.1.1 for an update on the implementation of the LCR)**. Once implemented, the LCR would require banking institutions, including BHCs, hold a sufficient amount of liquid assets as protection against withdrawals of funding in stressed conditions.

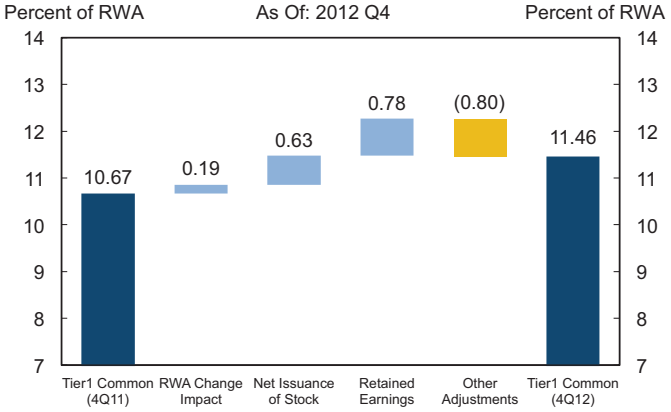
Chart 5.3.9 Systemic Risk Measures



Source: Federal Reserve, Markit Group Limited, Bloomberg, L.P., Compustat

Note: Measures are standardized by their historical volatility.

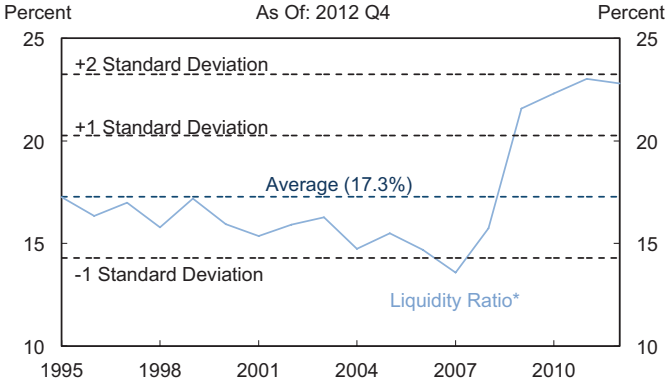
Chart 5.3.10 Change in Tier 1 Common Ratios for Aggregate U.S. BHCs



Source: FR Y-9C

Note: Domestically owned BHCs.

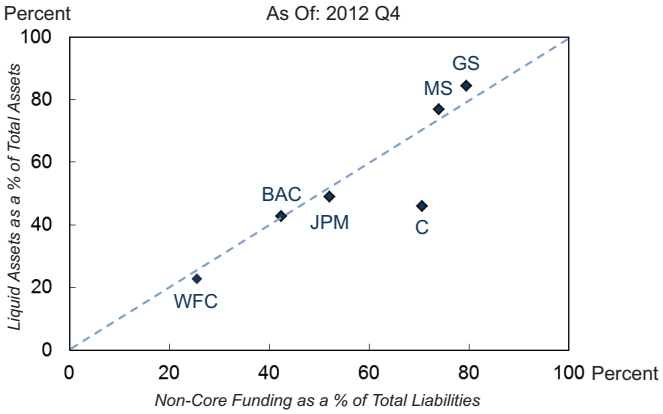
Chart 5.3.11 Consolidated Liquidity Ratio* for Top 50 BHCs



Note: *Liquidity Ratio = sum of Cash & Due From, FFS, Repos, U.S. Treasuries, U.S. Gov. Agencies and U.S. Gov. Sponsored Agencies divided by Total Assets. Top 50 BHCs by asset size.

Source: FR Y-9C, SNL Financial, FSOC calculations

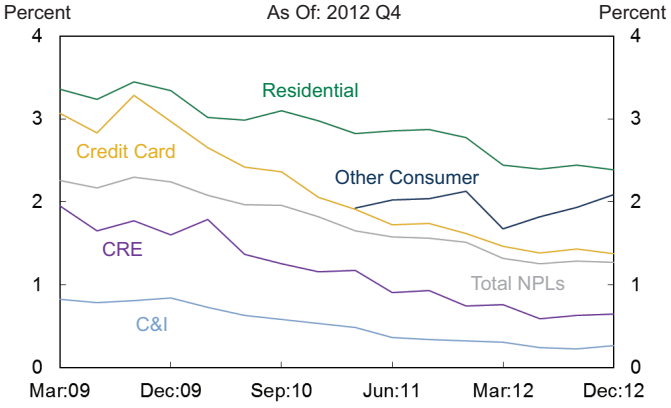
Chart 5.3.12 Non-Core Funding* Relative to Liquid Assets**



Source: FR Y-9C

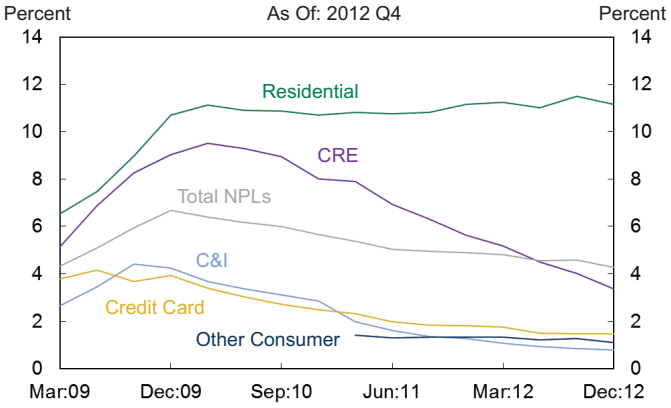
*Non-core funding includes time deposits > $100K, foreign deposits, brokered deposits < 100K, CP, other borrowed money, FF and repo, other liabilities. **Liquid assets includes cash and cash equivalents, trading assets, Treasury and Agency HTM and AFS securities, FF and reverse repo.

Chart 5.3.13 Nonperforming Loans (30-89 Days)



Source: FR Y-9C

Chart 5.3.14 Nonperforming Loans (90+ Days and Nonaccrual)



Source: FR Y-9C

Asset Quality

BHCs' asset quality continued to improve in 2012. For 18 large firms (the Comprehensive Capital Analysis and Review (CCAR) 2013 participants, which account for over 75 percent of system assets), nonperforming loans declined in aggregate and across most categories. However, residential loan delinquencies remain high despite the decline in early-stage delinquencies (30-89 days past due) and a slowdown in the rate at which loans transition into delinquency status **(Chart 5.3.13)**. Banks have been slow to reduce the stock of nonperforming residential loans through foreclosures, short-sales, or modifications, reflecting in part greater forbearance in light of the recovering housing market, as well as challenges in completing the foreclosure process **(Chart 5.3.14)**.

It is worth noting that although net charge-offs have declined at the largest BHCs, noncurrent levels continue to remain elevated, especially among the BHCs with high exposure to single-family mortgages. For the largest BHCs, the allowance for loan and lease losses has been sufficient to absorb recent levels of net charge-offs, although an increase in charge-offs to post-crisis peak levels in 2010 could erode this cushion considerably **(Chart 5.3.15)**. Reserve levels remain above post-crisis lows relative to risk-weighted loans and commitments, but continue to decline.

CCAR, CapPR, and DFAST

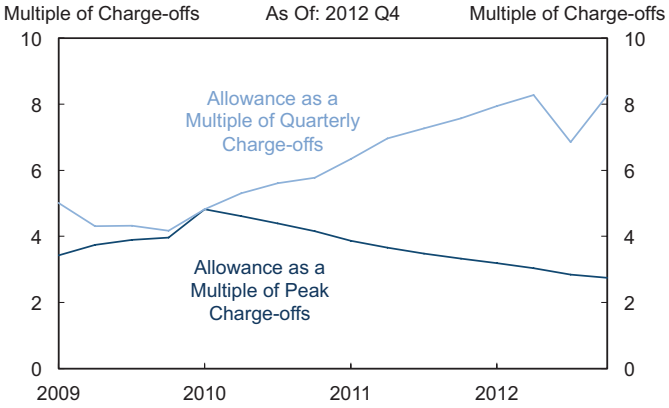
The Federal Reserve completed the latest round of its capital planning and stress testing program for 2013, which included CCAR and the supervisory stress tests mandated by the Dodd-Frank Act of 18 firms as well as the Capital Plan Review (CapPR) of an additional 11 BHCs with $50 billion or more of total consolidated assets. The Dodd-Frank Act stress tests (DFAST) are forward-looking exercises conducted by the Federal Reserve to help assess whether institutions have sufficient capital to absorb losses and support operations during adverse economic conditions. While the 11

BHCs submitting capital plans as part of the CapPR were evaluated on their submitted results, firms participating in the CCAR and DFAST were evaluated using both the BHC's submitted plans and the results of the Federal Reserve's supervisory stress tests. The aim of the CCAR is to ensure that large, complex banking institutions have robust, forward-looking capital planning processes that account for their unique risks, and to help ensure that these institutions have sufficient capital to continue operations throughout times of economic and financial stress **(Chart 5.3.16)**. Firms' capital adequacy is assessed against a number of quantitative and qualitative criteria, including projected performance under scenarios provided by the Federal Reserve and the institutions' internally-developed scenarios.

In order to project post-stress capital ratios for the Board's Dodd-Frank Act stress tests, the Federal Reserve uses a standardized set of capital action assumptions. In contrast, for the CCAR post-stress capital analysis, the Federal Reserve assessed whether a BHC would be capable of meeting the requirements under the Board's capital plan rule, including minimum capital ratios under baseline and stressed conditions using the BHC's planned capital actions. Specifically, under Dodd-Frank Act stress testing rules, firms are assumed to execute no common stock repurchases and maintain dividends at a rate consistent with their historical dividends paid on common shares outstanding. Thus, the key difference between capital levels and ratios determined under the CCAR and DFAST is the capital distributions. The comparative assumptions facilitate the Federal Reserve's assessment of shareholder distributions and other actions on BHC capital adequacy.

In a change from prior years, the Federal Reserve provided BHCs with an opportunity to adjust downward any planned capital distributions after receiving the Federal Reserve's preliminary CCAR post-stress capital analysis. These adjusted capital actions were

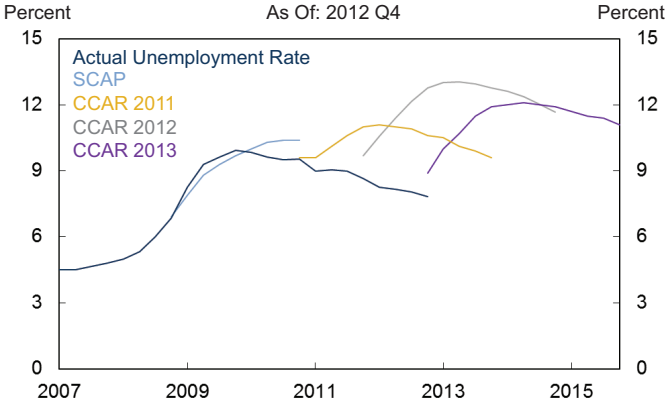
Chart 5.3.15 Allowance for Loan/Lease Losses as a Multiple of Charge-offs



Source: FR Y-9C

Note: Charge-offs are quarterly. Peak charge-offs are from 2010 Q1. Data pertains to the 18 CCAR BHCs.

Chart 5.3.16 U.S. Unemployment Rate: Actual vs. Stress Scenarios



Source: BLS, Federal Reserve

Note: Actual unemployment rate is quarterly average of monthly data. The remaining series are unemployment rate trajectories in the respective stress scenarios.

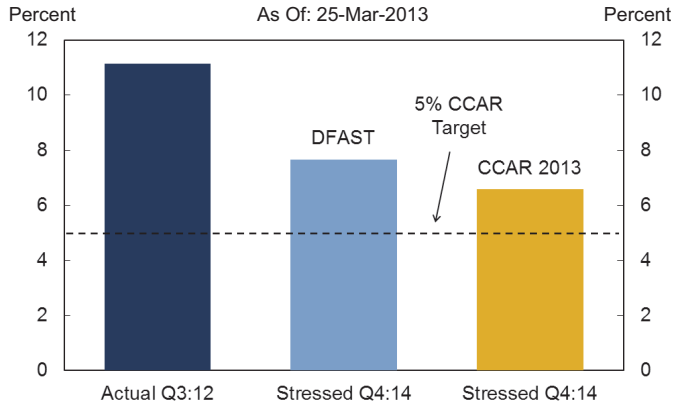
then incorporated into the Federal Reserve's projections to calculate the adjusted post-stress capital levels and ratios. All BHCs but one maintained a minimum tier 1 common ratio greater than 5 percent under stressed conditions, inclusive of all adjusted planned capital actions, under the severely adverse scenario. Significant capital accretion during the last year bolstered the ability of BHCs that participated in CCAR to weather significant aggregate net losses, which were projected at $192 billion on a pre-tax basis in the severely adverse scenario. Assuming capital distributions consistent with Dodd-Frank Act rules, the aggregate tier 1 common ratio for the 18 BHCs declined from an actual 11.1 percent in the third quarter of 2012 to a post-stress level of 7.7 percent at the end of 2014. Using BHCs' planned capital actions, the BHCs' aggregate post-stress tier 1 common ratio was projected to be 6.6 percent in the fourth quarter of 2014. In both cases, aggregate BHC capital levels significantly exceeded the 5 percent target established under the capital plan rule and the aggregate tier 1 common ratio that existed at the start of the 2009 stress test **(Chart 5.3.17)**.

The results of the stress test included a non-objection of capital actions for 14 of the 18 participating BHCs. The Federal Reserve objected to the capital plans of two firms, Ally Financial Inc. and BB&T Corporation. An additional two firms, JPMorgan Chase & Co. and the Goldman Sachs Group, Inc., received conditional non-objections to their capital plan due to weaknesses in the capital plans or planning process that required immediate attention.

Insured Commercial Banks and Savings Institutions

The banking industry was composed of 7,083 commercial banks and savings institutions at the end of fourth quarter 2012. Approximately 2,205 institutions had assets under $100 million, while 4,216 institutions had assets between $100 million and $1 billion, and 662 institutions had assets over $1 billion. Failures, mergers, and a decline in chartering activity contributed

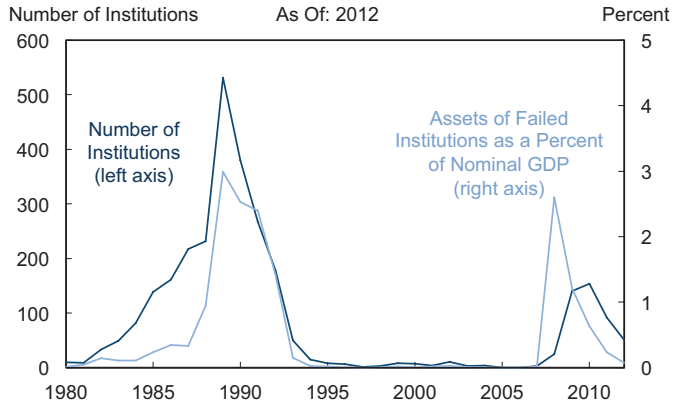
Chart 5.3.17 Initial and Stressed Tier 1 Common Capital Ratios



Source: Federal Reserve, FRBNY

Note: Aggregate ratios of 18 participating BHCs. Stressed estimates are supervisory estimates.

Chart 5.3.18 FDIC-Insured Failed Institutions



Source: BEA, FDIC, Haver Analytics

Note: No FDIC-insured institutions failed during 2005 and 2006.

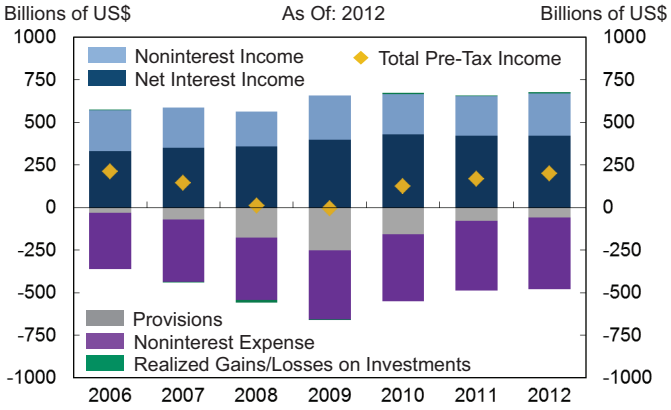
to the decline in the number of insured depository institutions, as the industry lost 274 firms in 2012.

However, failures of insured depository institutions continue to decline since the financial crisis; 51 institutions with $11.6 billion in total assets failed in 2012 **(Chart 5.3.18)**. Four more insured institutions failed between January 1, 2013, and March 8, 2013, with $459 million in total assets. As of December 31, 2012, 651 institutions, or 9.2 percent of all institutions, were on the FDIC's problem bank list. These institutions had financial, operational, or managerial weaknesses that require corrective action in order to operate in a safe and sound manner. Pre-tax net income for all U.S. commercial banks and savings institutions totaled $199.8 billion in 2012, representing an 18.2 percent increase from 2011, and further improvement in the industry following the crisis. A rebound in credit quality, with an associated reduction of loan loss provisions and other expenses, has driven the improvement in pretax net income since 2009 **(Chart 5.3.19)**. Overall asset quality continued to improve as net-charge offs and non-current loans declined across the industry **(Chart 5.3.20)**. Higher asset quality led to a reduction in portfolio risk and sustained the improvement in both earnings and capital positions at commercial banks and savings institutions **(Chart 5.3.21)**.

Temporary Liquidity Guarantee Program

The end of the FDIC's unlimited guarantee on noninterest-bearing transaction deposits on December 31, 2012, raised concerns that some portion of the $1.5 trillion in newly uninsured deposits would rotate into conservative, short-term asset classes or shift from smaller banks to larger banks with perceived guarantees of sovereign support.[10] However, Transaction Account Guarantee (TAG)-related withdrawals as the guarantee approached its end date appear to have been modest, as the amount over $250,000 in noninterest-bearing accounts remained at $1.5 trillion during the third and fourth quarters of 2012. According to Federal

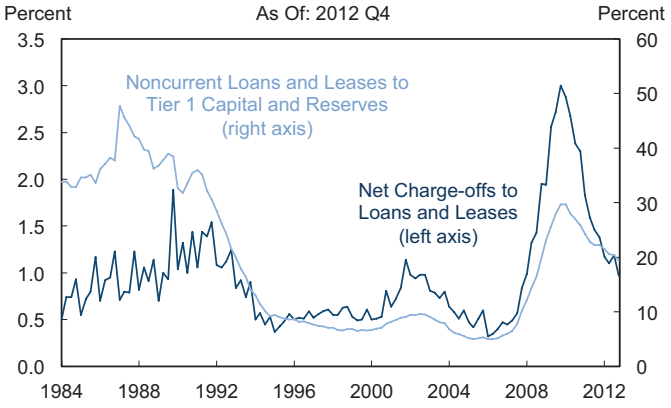
Chart 5.3.19 Commercial Bank and Thrift Pre-Tax Income



Source: FDIC

Note: Includes all FDIC-insured commercial banks and thrifts.

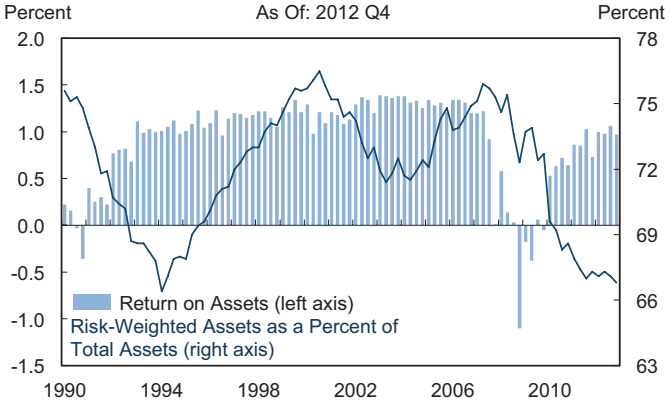
Chart 5.3.20 Net Charge-offs and Noncurrent Loans



Source: FDIC, Haver Analytics

Note: All FDIC-insured institutions.

Chart 5.3.21 Risk-Weighted Assets and Return on Assets



Source: FDIC, Haver Analytics

Note: All FDIC-insured institutions.

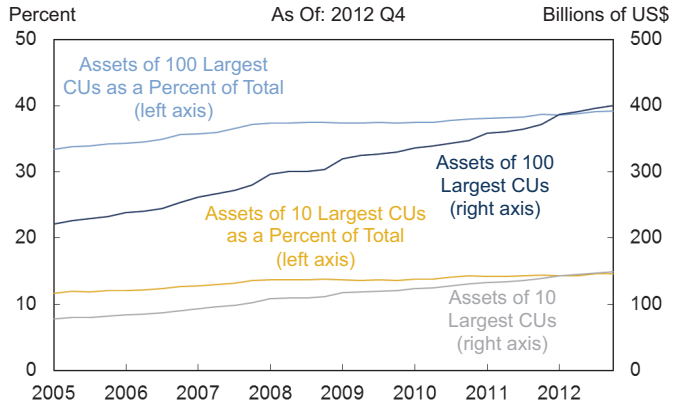
Reserve's H.8 release, the category containing TAG-eligible deposits declined by $60 billion in the first few weeks of 2013, an amount well below estimates of market analysts, before stabilizing in early February 2013.

Credit Unions

The number of credit unions declined from 7,094 at year end 2011 to 6,819 institutions in the fourth quarter of 2012. This 4 percent decline in the number of credit unions is in line with recent trends. As in other parts of the banking system, assets in the credit union system have become more concentrated. However, this concentration growth has seen only a slight increase with the top 100 credit unions growing their share of total credit union assets to 39 percent **(Chart 5.3.22)**. Corporate credit unions—which provide critical services to the broader credit union system—continue to consolidate and deleverage as they refocus their business models on providing operational support to consumer credit unions, raising capital, and adjusting to the new regulatory environment. As of November 2012, there were 17 corporate credit unions with $22.74 billion in assets serving consumer credit unions—a decline from 27 corporate credit unions with $96 billion in assets in 2007.

The credit union system experienced return on assets (ROA) in 2012 of 86 basis points (annualized YTD), an increase from 67 basis points in 2011, and 50 basis points in 2010. Reduced provisions for loan losses drove much of the improvement in ROA. Improved credit conditions were the primary driver behind the provision for loan losses declining to an annualized 0.3 percent of assets from 0.5 percent of assets in 2011 and 0.8 percent of assets in 2010 **(Chart 5.3.23)**. Aggregate annualized net income increased to $8.5 billion, a 35 percent improvement from 2011. Outstanding loans within the credit union system increased by 3.5 percent to $591 billion after experiencing weak growth in 2011, and declines in 2010.

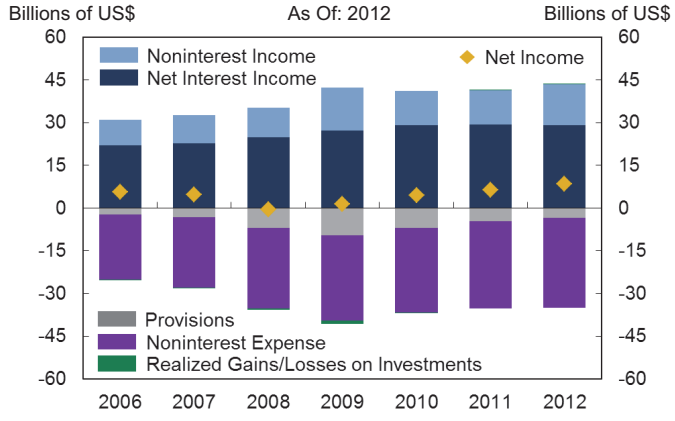
Chart 5.3.22 Concentration of Credit Union Assets



Source: NCUA

Note: Largest by asset size.

Chart 5.3.23 Federally Insured Credit Union Income



Source: NCUA

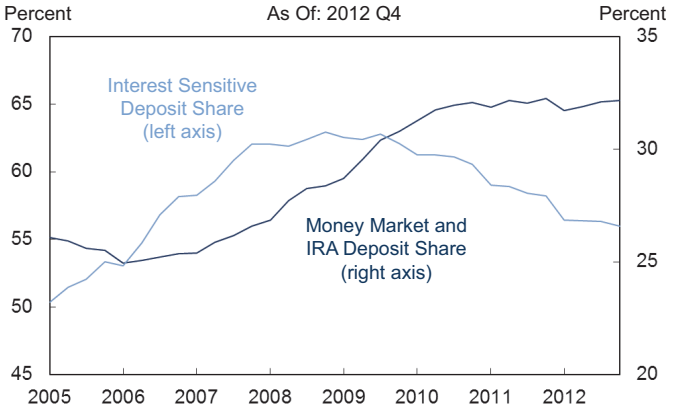
Profitability continued to vary by asset class based on the size of the institution, with smaller credit unions historically lagging behind larger credit unions. The industry faces lower uncertainty over future losses associated with failed corporate credit unions as future resolution costs are currently projected to total between $1.9 billion and $4.8 billion over the coming years. Larger concerns for the industry include challenges related to the low interest rate environment and, eventually, the transition process to a higher rate environment. However, long-term assets, including fixed-rate real estate loans, (as a share of total assets) have ranged from flat to slightly down over the past 18 months, and the share of interest sensitive deposits has also declined since the third quarter of 2009 **(Chart 5.3.24)**. Nevertheless, these levels remain elevated relative to historic levels and warrant an increased emphasis on managing interest rate risk.

5.3.2 U.S. Branches and Agencies of Foreign Banks

In addition to the U.S. BHCs, foreign bank families have a large presence in the United States. Together, the U.S. branches and agencies of foreign banks account for more than $2 trillion of banking assets, or about 13 percent of total U.S. banking assets. These entities represent an important source of credit to U.S. businesses.

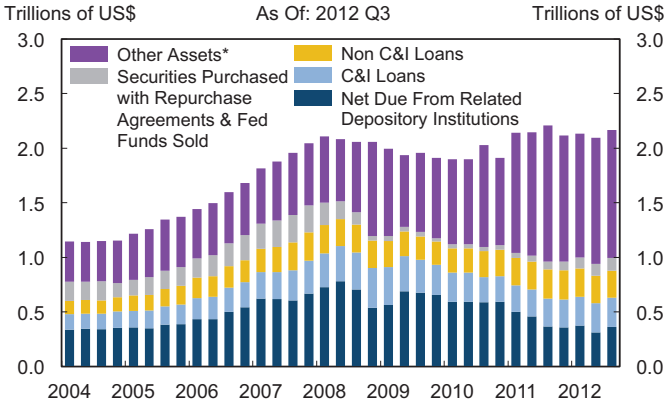
There are different business models in the operations of branches in the United States, with a mix of targeted investment and asset strategies and a range of different funding approaches. On average, branches and agencies generally dedicate about 25 percent of their balance sheets to loans, but can differ substantially in the composition of their lending. Direct commercial and industrial (C&I) loans outstanding by these banks, which represent a major source of financing for U.S. businesses and investment projects, have been as high as $365 billion, but more recently have fallen closer to $270 billion at the end of 2012, out of over $500 billion in total loans **(Chart 5.3.25)**. Other assets rose sharply from about

Chart 5.3.24 Credit Union Deposits



Source: NCUA

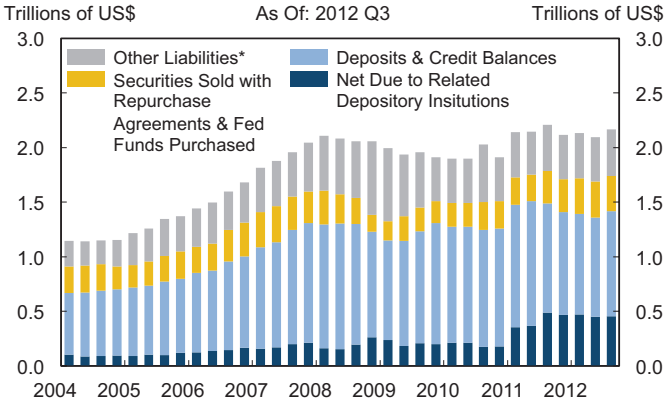
Chart 5.3.25 U.S. Branches and Agencies of Foreign Banks: Assets



Source: Federal Reserve, Haver Analytics

Note: *Includes government securities, asset-backed securities, and other trading assets.

Chart 5.3.26 U.S. Branches and Agencies of Foreign Banks: Liabilities



Source: Federal Reserve, Haver Analytics

Note: *Includes transaction accounts, non-transaction accounts, and other borrowed money.

$400 billion pre-crisis to about $1.2 trillion by the third quarter of 2012, as some branches and agencies increased their holdings of cash and liquid securities as protection against potential liquidity strains.

The liabilities of U.S. branches and agencies of foreign banks also bear on financial stability **(Chart 5.3.26)**. Most of these U.S. branches are not allowed to offer deposits insured by the FDIC and thus lack access to the stable source of funds represented by households' checking, savings, and other transaction accounts. Instead, wholesale funding provides the majority of funding for these institutions.

Some foreign bank branches and agencies, especially those associated with European banks, obtain dollar deposits in the United States, and use those deposits to provide dollar funding to their parent organizations and related affiliates, which in turn use the funds for lending and investment. If deposits are withdrawn from branches and agencies, the balance sheets of the affected banks can be destabilized, leading to deleveraging or a need for parents to provide dollar-denominated funding to their U.S. branches and agencies rather than receiving funding from them. This occurred at some European banks in the summer of 2011, leading to a dramatic increase in funding from parents to branches and agencies. Subsequent improvements in the European situation led to marginal declines in the level of funding support from parent banks to their U.S. branches and agencies. Nevertheless, funding from parents remains elevated relative to levels seen over the past 10 years.

Proposed Enhanced Prudential Requirements for Foreign Banking Organizations

In December 2012 **(as noted in Section 6.1)**, the Federal Reserve invited comment on proposed rules to implement enhanced prudential standards and early remediation requirements for foreign banking organizations (FBOs) as mandated under Sections 165 and 166 of

the Dodd-Frank Act. The proposal is generally consistent with the set of enhanced prudential standards that the Board proposed for large U.S. banking organizations in December 2011, but would also require FBOs with a large U.S. presence to form a U.S. intermediate holding company (IHC) over its U.S. bank and nonbank subsidiaries, which would be subject to capital and liquidity requirements. The U.S. operations of FBOs with combined U.S. assets of $50 billion or more would be required to meet enhanced liquidity risk management standards, conduct liquidity stress tests, and hold a 30-day buffer of highly liquid assets.

Many of the core elements of the Federal Reserve's existing approach to the supervision and regulation of FBOs were designed more than a decade ago, when U.S. operations of FBOs were focused largely on traditional banking activities. Since the mid-1990s, the U.S. operations of FBOs have become increasingly concentrated, interconnected, and complex.

For example, trends in the global balance sheets of FBOs for this period reveal that short-term U.S. dollar funding raised in the United States was used to provide long-term U.S. dollar-denominated project and trade finance around the world, as well as to finance non-U.S. affiliates' investments in U.S. dollar-denominated asset-backed securities. The associated material increase in intra-firm flows during this period also created vulnerabilities for the U.S. operations of FBOs. The financial stability risks associated with the increased capital markets activity and shift in funding practices of the U.S. operations of FBOs in the period preceding the financial crisis became apparent during and after the recent financial crisis.

While some FBOs were aided by their ability to move liquidity freely during the crisis, this behavior created a degree of cross-currency funding risk and heavy reliance on swap markets that proved destabilizing. In many cases, FBOs that relied heavily on short-term U.S. dollar liabilities were forced to sell U.S. dollar assets and reduce lending rapidly when that funding source evaporated. This deleveraging imposed further stress on financial market participants, thereby compounding the risks to U.S. financial stability. Although the United States did not experience a destabilizing failure of an FBO during the crisis, some FBOs required extraordinary support from home and host country central banks and governments.

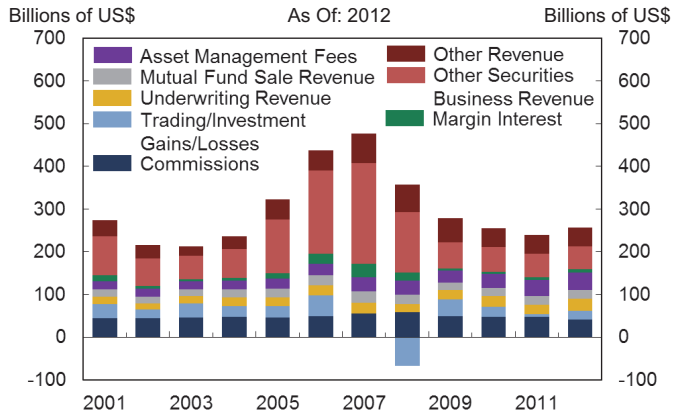
Beyond the United States, events in the global financial community underscored the risks posed by the operations of large multinational banking organizations to host country financial sectors. The failure of several internationally active financial firms during the crisis revealed that the location of capital and liquidity is critical in a resolution. In some cases, capital and liquidity related to operations abroad were trapped at the home entity. Actions by government authorities during the crisis period highlighted the fact that, while a foreign bank regulatory regime designed to accommodate centralized management of capital and liquidity can promote efficiency during good times, it can also increase the chances of home and host jurisdictions placing restrictions on the cross-border movement of assets at the moment of a crisis, as local operations come under severe strain and repayment of local creditors is called into question. Resolution regimes and powers remain nationally based, complicating the resolution of firms with large cross-border operations. In response to the financial stability risks highlighted by the crisis, and ongoing challenges associated with the resolution of large cross-border firms, other national authorities have adopted modifications, or considered proposals, to enhance their regulation of internationally active banks within their geographic boundaries.

5.4 Nonbank Financial Companies

5.4.1 Securities Broker-Dealers

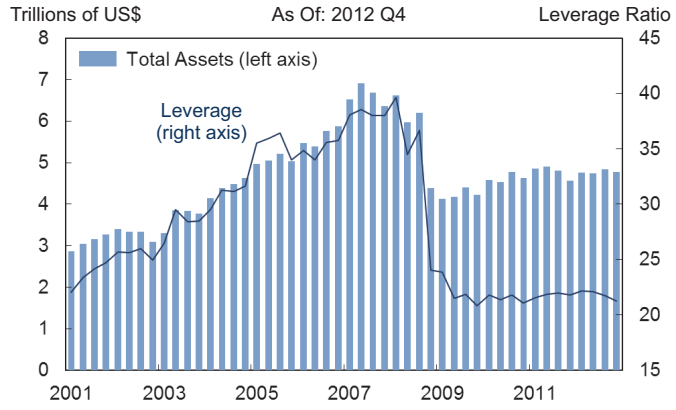
As of the fourth quarter of 2012, there were 4,358 domestic and foreign-owned securities broker-dealers operating in the United States. The U.S. broker-dealer sector is relatively concentrated; approximately 60 percent of industry assets were held by the top 10 broker-dealers at the end of last year, the largest of which were affiliated with foreign banks and domestic BHCs. Aggregate annual pretax income of broker-dealers more than doubled

Chart 5.4.1 Broker-Dealer Revenues



Source: SIFMA DataBank, FINRA

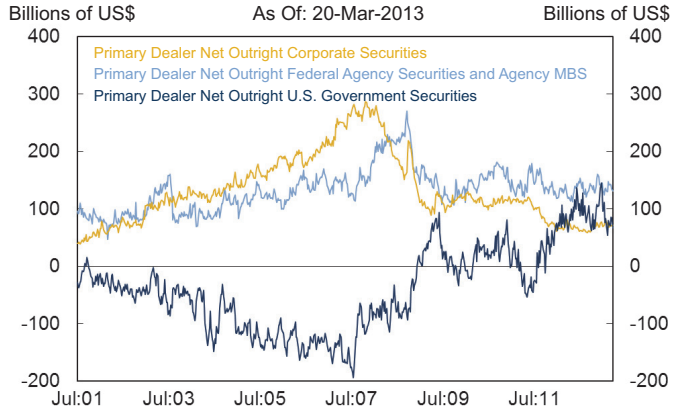
Chart 5.4.2 Broker-Dealer Assets and Leverage



Source: SIFMA DataBank, FINRA

Note: Leverage is total assets as a multiple of equity.

Chart 5.4.3 Primary Dealer Securities



Source: FRBNY

in 2012 to $32 billion, as trading revenues increased almost three times over the previous year **(Chart 5.4.1)**. Trading revenue increased primarily due to increased debt trading, led by near record levels of debt issuance, and gains in other trading, such as currencies, commodities, and derivatives.

The broker-dealer industry doubled in size between 2001 and 2007 before shrinking abruptly following the financial crisis. Assets held within the U.S. broker-dealer industry have stabilized at a post-financial crisis level of about 25 percent below the 2007 peak, reaching $4.8 trillion in the fourth quarter of 2012 **(Chart 5.4.2)**. Broker-dealer leverage also declined markedly after the crisis, and has stabilized over the past four years at 10-year lows. Broker-dealers operate at 22 times leverage in aggregate, which is significantly higher than leverage at commercial banks. Broker-dealers obtain leverage primarily through the use of secured lending arrangements, such as reverse repurchase agreements and secured borrowing arrangements. Since the financial crisis, the broker-dealer sector underwent a notable decline in asset size—from a peak of nearly $7 trillion to current total assets just under $5 trillion—and leverage—from a peak near 40 to the current level of 22. The run-up and subsequent decline in balance sheet size and leverage of the broker-dealers sector was also accompanied by a notable change in the types of assets that they hold **(Chart 5.4.3)**. Primary dealers—the broker-dealers that have a trading relationship with the Federal Reserve—experienced a marked decline in the holdings of corporate securities, agency securities, and agency MBS. At the same time, net holdings by primary dealers of U.S. government securities moved from negative to positive. This switch in net positions of broker-dealers indicates a decline in risk appetite and balance sheet capacity for the sector.

Market participants remain attuned to the liquidity risks associated with the broker-dealer model, as will be discussed in **Section 7.1**. Trading and financing undertaken by

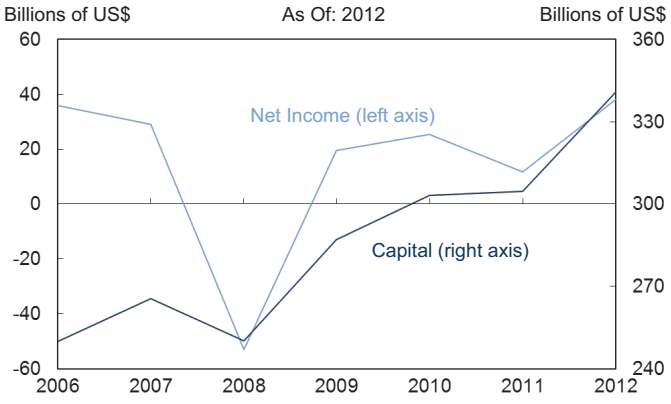
broker-dealers is typically short-duration, and the profitable execution of these activities requires a flexible and inexpensive funding profile, typically executed through short-term secured financing arrangements. While short-term funding is stable under normal market conditions, heavy reliance on short-term funding leaves broker-dealers vulnerable to liquidity runs during periods of stress. If a broker-dealer's secured creditors pull away, its ability to quickly replace lost funding sources may be limited. Reduced funding might cause fire sales with potentially system-wide implications. Although a broker-dealer's short-term liabilities are typically supported by a very liquid asset base, broker-dealers may be unable to reduce assets quickly enough to pay-off liabilities.

5.4.2 Insurance Companies

Flat or declining investment portfolio returns continued to pressure net incomes at life insurers in 2012. Nevertheless, net income of life insurance companies increased $26.5 billion in 2012 compared to 2011, after declining by over $13.6 billion from 2010 to 2011. Increased premium revenue and lower increases in reserves contributed to increased net income, aggregate statutory capital, and surplus **(Chart 5.4.4)**.

The prospect of continued low interest rates for a prolonged period poses a challenge to life insurers seeking to balance investment risks and returns, especially while trying to build capital and expand product offerings **(Chart 5.4.5)**. Life insurers earn a spread on products with guaranteed benefits (such as fixed annuities, universal life insurance, and guaranteed investment contracts) from the excess of the investment yield earned over the credited rate offered to policyholders. A protracted low interest rate environment may stress life insurers' profits as this spread compresses. While insurers have responded to the low interest rate environment by decreasing crediting rates, the flexibility to lower these rates is often limited given the guaranteed minimums on many products. Although the life

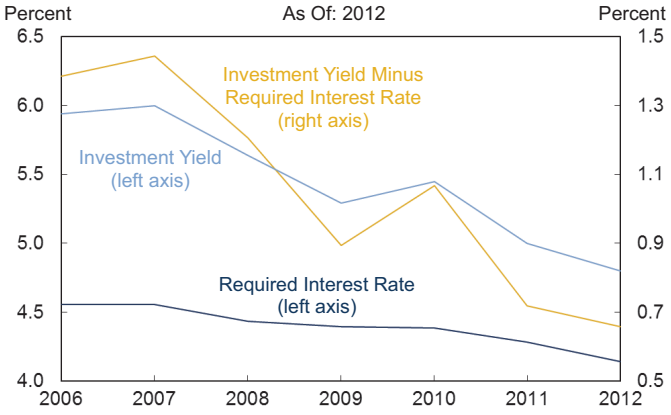
Chart 5.4.4 Life and Other Insurance: Capital and Net Income



Source: NAIC

Note: Includes accident and health.

Chart 5.4.5 Life Insurers: Impact of Low Rate Environment



Source: NAIC, SNL Financial

insurance industry has reduced its minimum guarantees over time, products with minimum guarantees still represent a large share of existing life and annuity products outstanding.

Aside from cutting the crediting rates on their insurance products, life insurers have also responded to the low interest rate environment by reducing exposure to, and increasing policyholder fees on, interest-sensitive businesses such as guaranteed investment products, variable annuities, and long-term care insurance. Life insurers also pursued new revenue sources by acquiring businesses in new markets such as Latin America, and by acquiring fee-earning pension and retirement assets. Some life insurers also increased revenue by leveraging their pre-existing real estate and private placement platforms to offer investment opportunities to other institutional investors. To offset the declining new money yields on their assets, some life insurers increased portfolio duration and marginally increased their allocation to hedge funds, private equity funds, BBB-rated bonds, and commercial mortgage loans over the last few years, though total exposures by life insurers to these assets are generally below peak levels.

In addition to adversely affecting investment returns, the current low interest rate environment affects the present value of life insurers' contract obligations. As interest rates have decreased, the present values of future obligations have increased. As a result, life insurers have increased reserve levels, adding further downward pressure to reported financial results. Moreover, the increase in reserves can also be attributed to the asset adequacy testing of liquid assets and change in policyholder lapse assumptions at life insurance companies. The increase in reserves was less of a factor in 2012 than in 2011 as the decline in interest rates slowed. Although life insurers could increase premiums on new products, this response may affect product sales and is likely to lag the accounting impact of reserve increases on existing products. However, premium revenues increased in 2012.

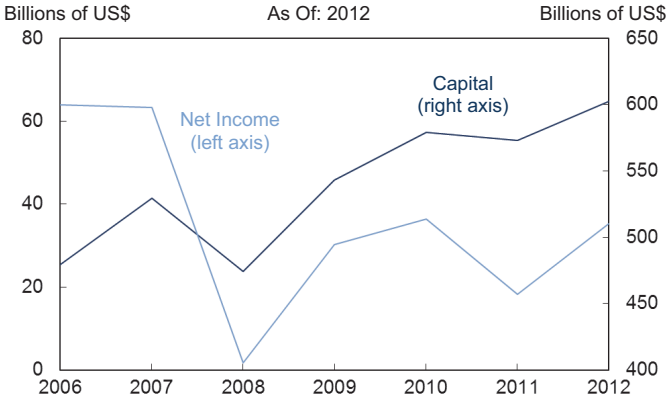
Life insurers could also be adversely impacted by a sudden increase in interest rates, which, under Generally Accepted Accounting Principles (GAAP), would increase unrealized losses in insurers' fixed income portfolios. Higher interest rates could also entice policyholders to surrender contracts for higher yield elsewhere. Thus, in order to fund contract surrender payments, insurers could be forced to seek other facilities for liquidity or to liquidate fixed income investments just as the market value has declined.

Property and casualty insurers, which sell insurance on homes, cars, and businesses, underwrite products that result in liabilities that are generally much shorter in duration (with the exception of workers' compensation insurance) as compared to life insurers, and, therefore, are affected less by the low interest rate environment. However, property and casualty insurers continued to be pressured by large catastrophe losses in 2012. A.M. Best estimates that insured catastrophe losses were $43.0 billion in 2012, down from $44.2 billion in 2011. The high losses were driven by Superstorm Sandy, a post-tropical storm system that struck the most densely-populated areas of the U.S. eastern seaboard in October 2012. Current estimates suggest that Superstorm Sandy may have caused $25 billion in insured losses, and up to $50 billion in total economic damages. Despite Superstorm Sandy, property and casualty insurers were able to increase net income and statutory capital and surplus **(Chart 5.4.6)**.

Interest Rate Risk Management of Insurance Companies

State insurance regulators require the appointed actuary to comply with the Actuarial Standards of Practice promulgated by the Actuarial Standards Board. These actuarial standards require that insurance companies run a range of scenarios that reflect the variability of the relevant cash flows being tested. In light of these actuarial standards, most companies currently use an economic scenario generator (such as the economic

Chart 5.4.6 Property and Casualty Insurance: Capital and Net Income



Source: NAIC

scenario generator developed by the American Academy of Actuaries) to generate a large number of economic scenarios. In addition, state insurance regulations traditionally have prescribed seven scenarios for the potential path of interest rates in order to test the ability of insurers' portfolios to withstand moderate shocks. These scenarios are often called the New York 7, since they were established by a 1986 regulation by the New York insurance regulator. The New York 7 include jumps 300 bps up and down, gradual increases and decreases of 500 bps, and a level path. Each scenario is applied as a parallel shift to the prevailing yield curve and therefore doesn't include any change to the slope of the yield curve, or in the convexity of the curve. This deterministic approach of the New York 7 scenarios therefore differs from that of stochastic scenario models, which allow for changes to the slope of the yield curve and for periods where the yield curve is inverted.

New York's requirement to use the seven scenarios for asset adequacy testing was later incorporated into model actuarial and opinion memorandum regulations that were adopted by the various states, and as a result, most U.S. life insurers were subjected to such testing even though they may not have been domiciled or licensed in New York. Beginning in 2009, the majority of states have amended their actuarial and opinion memorandum regulations to eliminate the prescribed deterministic scenario requirements of the New York 7. Under the revised regulations, the New York 7 was replaced by a requirement that each insurance company run scenarios (stochastic or deterministic) that provide a wider array of tests of the adequacy of reserves held, given the assets the company currently holds. A number of states (irrespective of whether they have yet adopted the amended regulation), also continue to require domiciled insurance companies to run the New York 7; other insurance companies also generally run these scenarios as a matter of practice.

5.4.3 Specialty Finance Companies

Credit activity in the specialty-lending sector has moderately improved in the past year, yet remains below pre-crisis levels. Nonbank financial companies involved in credit activity across various segments include issuers of equipment leases, credit cards, student loans, and auto finance. Overall, nonbank financial companies owned approximately $840 billion of consumer loans, $180 billion of real estate loans, and $421 billion of business loans at year end 2012 **(Charts 5.4.7 and 5.4.8)**.

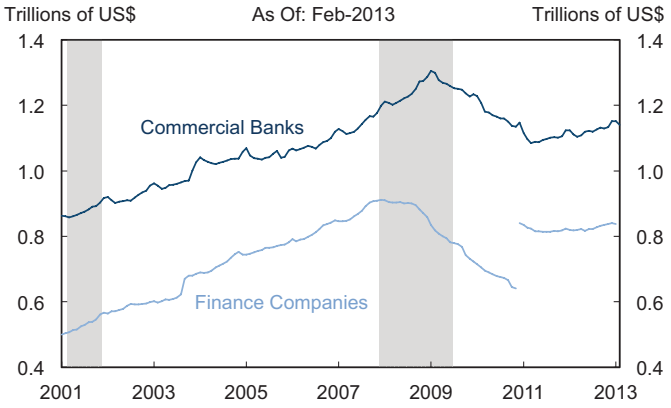
The securitization market for these credit types originated by both bank and nonbank financial companies has improved, with significant year-over-year increases in auto ABS issuance (30 percent), credit card issuance (150 percent), and equipment leasing (100 percent). Although these increases are large, they follow a period of low post-crisis issuance. For instance, a large proportion of the increase in credit card lending replaced Term Asset-Backed Securities Loan Facility (TALF)-era issuance that matured in 2012 **(Chart 5.4.9)**. Credit spreads on these types of ABS continue to tighten as a result of a growing appetite for securitized products, a lower perception of credit risk, and increased demand for yield by investors **(Chart 5.4.10)**.

5.4.4 Agency REITs

Agency MBS REITs use short-term debt in the form of repurchase agreements to fund the purchase of agency MBS and earn the difference between the yield on the underlying MBS and the cost of financing. As a REIT, these earnings are not taxed at the corporate level but are only taxed when equity holders receive the earnings in the form of a dividend. To maintain their REIT status, these entities return in excess of 90 percent of their earnings to equity holders. Agency REITs structure their operations to be excluded from regulation under the Investment Company Act of 1940.

The market for agency MBS REITs continued its trend of strong asset growth this past year. Much of this growth can be attributed to the high dividend yield that agency REITs

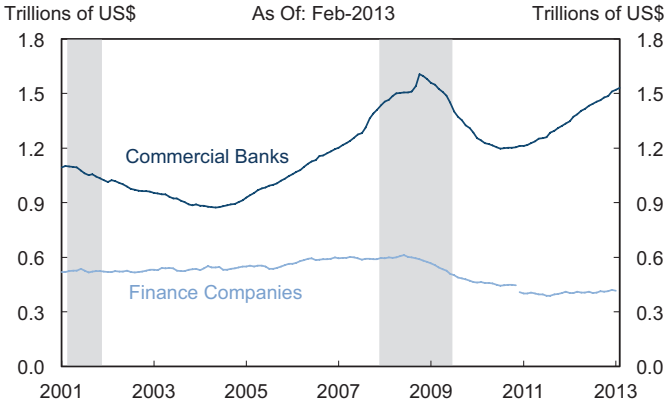
Chart 5.4.7 Consumer Loans Outstanding



Source: Federal Reserve, Haver Analytics

Note: Loans owned and securitized. Series break in December 2010 for consumer loans outstanding at finance companies due to change in data collection methodology. Gray bars signify NBER recessions.

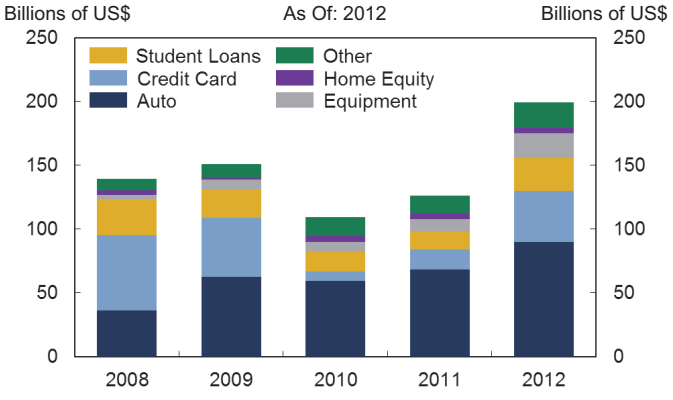
Chart 5.4.8 Business Loans Outstanding



Source: Federal Reserve, Haver Analytics

Note: Loans owned and securitized. Series break in December 2010 for business loans outstanding at finance companies due to change in data collection methodology. Gray bars signify NBER recessions.

Chart 5.4.9 ABS Issuance



Source: Thomson Reuters, SIFMA

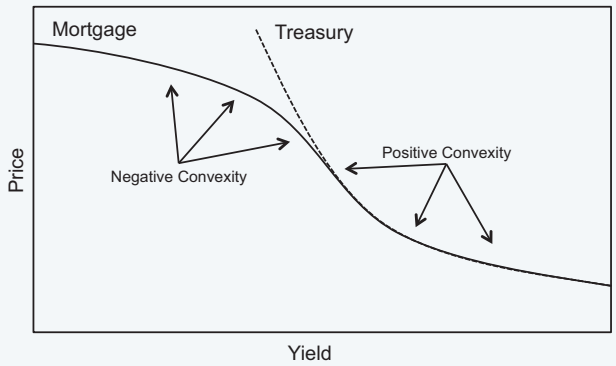
BOX C: CONVEXITY EVENT RISK

Hedging and relative value trading often involves basis risk, or the risk that changes in prices on closely related products may suddenly diverge from historical norms or market expectations. Portfolios exposed to basis risk tend to have fat-tailed distributions, that is, their short-term profit-and-loss volatility may be quite low, but may be susceptible to infrequent but extreme losses. In the case of large positions, such mark-to-market losses may compel firms to rapidly unwind, thus creating a vicious circle of fire sales that can strain market liquidity.

Basis risks are particularly pertinent in the market for MBS. MBS investors, broadly speaking, fall into two categories: those holding MBS on an unhedged or infrequently hedged basis and those that actively hedge the interest rate risk exposures of MBS. Unhedged or infrequently hedged investors include the Federal Reserve, foreign sovereign wealth funds, community banks, and mutual funds benchmarked against an MBS index. MBS holders who actively hedge include pension funds and insurance companies that endeavor to match the duration of their assets to that of their liabilities.

The interest rate risk of MBS differs from the interest rate risk of Treasury securities due to the embedded prepayment option in conventional residential mortgages. The purchaser of an MBS is effectively selling an interest rate option to each home loan borrower, because if interest rates fall, the borrower is incentivized to refinance into a lower rate mortgage, thus prepaying or accelerating payment of their higher rate mortgage into a lower rate loan. Conversely, if interest rates rise, the borrower is incentivized to maintain their current mortgage and not prepay. For the MBS investor a lack of prepayment, or extension in a rising environment, causes the loan and thus the MBS, to increase in duration and decrease in price. When interest rates increase, the price of Treasury securities falls, but it falls less and less sharply as the level of yields increases, a feature called positive convexity. The price of MBS on the other hand behaves very differently from Treasury securities as rates change. As interest rates rise, the price of MBS falls at an accelerating rate, that is, it displays negative convexity **(Chart C.1)**.

Chart C.1 Convexity Risk



Note: At low yields (relative to the coupon), MBS display negative convexity because price increases are more limited as market yields fall, due to borrowers' prepayment options being "in the money." This contrasts with the positive convexity of non-callable bonds, for which price gains increase as market yields fall.

MBS are negatively convex because the likelihood that a borrower prepays depends on the current level of interest rates relative to the rate that he pays on his mortgage. As rates rise from a low level, fewer and fewer households have an incentive to refinance their mortgages. Increasing rates thus result in an extension of the duration of MBS, causing the price of MBS to fall at an ever faster pace.

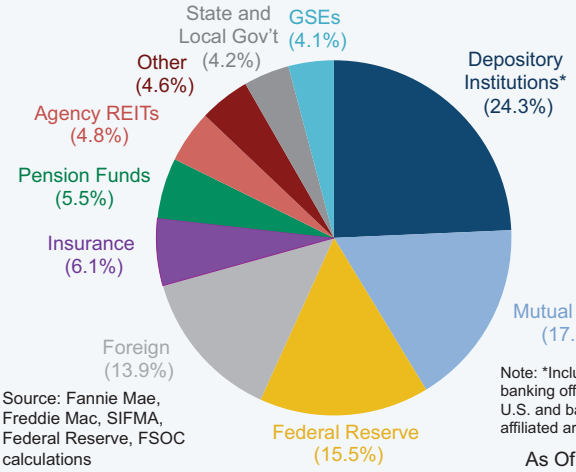
Managing the interest rate risk sensitivity of MBS necessitates dynamic hedging to maintain a desired exposure of the position to movements in yields. The hedging of the interest rate risk exposure of MBS is often called duration hedging, as the effective duration of the MBS changes with the level of yields. The amount of hedging depends on whether MBS are in the negatively or positively convex region. When rates decline, hedgers will seek to increase the duration of their position. This can be achieved by buying Treasury notes or bonds, or by receiving fixed payments in interest rate swaps. Conversely, hedgers will find themselves long duration when rates increase, which can be achieved by selling Treasury notes or bonds or by paying fixed in interest rate swaps.

Convexity event risk is the risk of a sudden, self-reinforcing increase in long- to medium-term rates caused by hedged investors in MBS trying to decrease duration risk by selling Treasury securities or entering into pay-fixed interest rate swaps. This hedging activity in turn can cause interest rates to rise further, which may increase the duration hedging need for other MBS holders, inducing another round of duration sell offs. Due to its self-reinforcing nature, a convexity event could be sparked by a relatively modest initial increase in medium- to long-term interest rates. In the current environment of yields near zero, even a modest yield increase may significantly extend mortgage portfolio durations, potentially forcing hedgers to sell duration, or to sell the underlying MBS. Any of these actions will tend to drive yields higher, increasing the need for further hedging.

While the current low rate environment has arguably set the stage for a convexity event, a key factor in the likelihood of such an event is who owns the convexity risk, as the amount of MBS held by hedged investors determines the intensity of the selloff **(Chart C.2)**. GSEs are important duration hedgers, but their portfolios have been shrinking compared to the pre-crisis period, when they were the dominant investors in MBS. The Federal Reserve, through its asset purchase programs, is currently the dominant MBS buyer and holds a sizable portion of the convexity risk. Also, many of the largest holders of MBS have access to sufficient sources of liquidity and funding, even in extreme market conditions, and in contrast to highly levered investors, are less likely to be forced sellers.

Whether the current environment is more or less susceptible to a convexity event than the 2003 episode is ambiguous **(Chart C.3)**. On the one hand, the GSEs are smaller, and the Federal Reserve has a larger presence, making a convexity event risk less likely. On the other hand, there are fewer natural providers of protection against convexity and rate volatility risk in the market. In particular, a potentially amplifying factor in a rates selloff is the reduced liquidity in fixed income markets since the crisis, with broker-dealers less active in market making.

Chart C.2 Outstanding Agency MBS by Holders

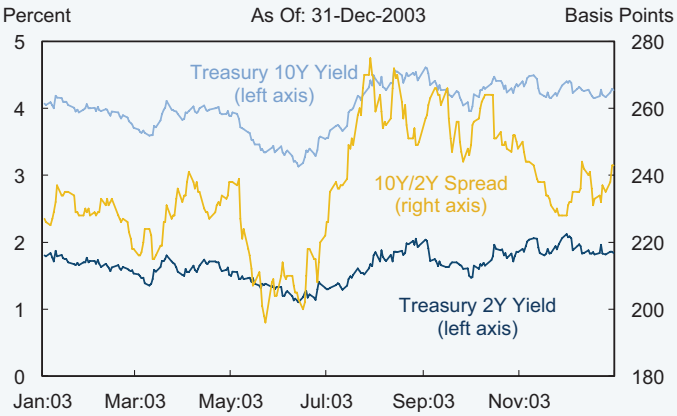


Source: Fannie Mae, Freddie Mac, SIFMA, Federal Reserve, FSOC calculations

Note: *Includes foreign banking offices in the U.S. and banks in U.S.-affiliated areas.

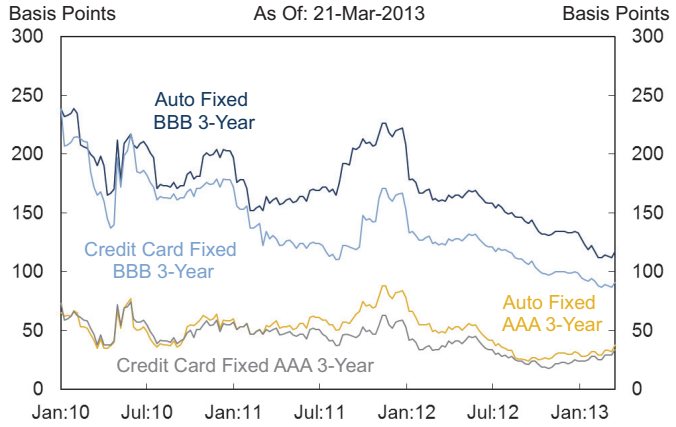
As Of: 2012 Q3

Chart C.3 2003 Convexity Event



Source: U.S. Department of Treasury

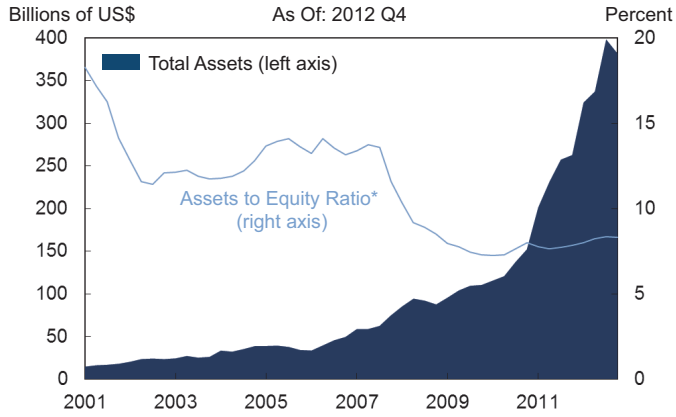
Chart 5.4.10 Selected ABS Spreads



Source: Barclays

Note: Spreads to Treasury securities.

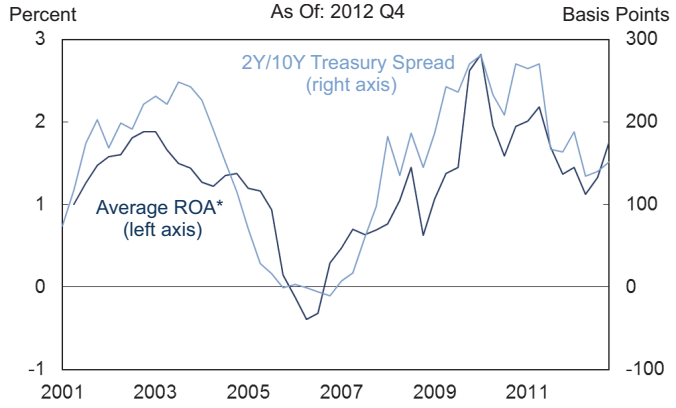
Chart 5.4.11 Total Agency REIT Assets



Source: Bloomberg, L.P.

Note: *Weighted by market capitalization.

Chart 5.4.12 Agency REITs: Return on Assets



Source: Bloomberg, L.P.

Note: *Weighted by market capitalization.

offer which has generated strong demand by investors. Although the asset levels of agency REITs have grown, the amount of leverage has been relatively stable post-crisis **(Chart 5.4.11)**. The relatively stable level of leverage can be partially attributed to structural changes in the requirements for margin on agency MBS. That is, haircuts on agency MBS have remained at fairly elevated levels post-crisis and have prevented agency REITs from increasing leverage to pre-crisis levels.

Near-term returns on assets for agency REITs are tightly linked to the slope of the yield curve **(Chart 5.4.12)**. These vehicles hold agency MBS funded in the bilateral repo market. They earn longer-term yields paying short-term money market rates to obtain leverage. This investment behavior of agency REITs exposes them to interest rate slope and convexity risk **(see Box C: Convexity Event Risk and Section 7.4 on risks from fixed income asset valuations)**. Convexity event risk is particularly acute for agency MBS REITs, since their earnings and capital are most sensitive to a sharp increase in interest rates. Moreover, agency REITs are exposed to rollover risk. The financing of long-term assets with short-term debt in the form of repurchase agreements is sensitive to either an increase in financing costs or a pullback in the willingness of lenders to extend credit. A significant pullback in financing availability could put pressure on agency REITs to sell MBS, which could itself pressure MBS valuations and further reduce the availability of short-term financing for agency REITs. The potential for such negative feedback loops becomes stronger as the share of agency MBS financed by short-term debt increases.

5.5 Investment Funds

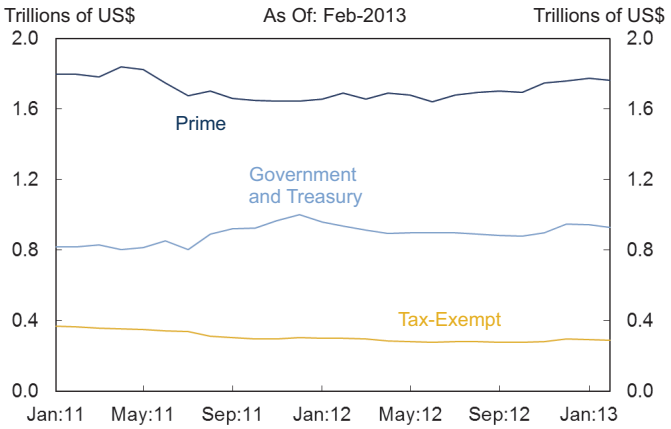
5.5.1 Money Market Funds

MMFs are open-ended mutual funds permitted to use certain valuation methods that generally allow them to redeem shares at a fixed $1 per share. Among other instruments, MMFs invest in short-term debt securities and repo. As of

the end of February 2013, MMFs totaled $3.0 trillion assets under management (AUM), according to SEC data. Total U.S. MMF assets increased slightly by $51.8 billion from February 29, 2012 to February 28, 2013. MMF assets remain far below their 2009 peak. Prime MMF assets increased from $1.7 trillion to $1.8 trillion, while government and Treasury MMF assets decreased from $936.5 billion to $929.3 billion during this period. Tax-exempt funds also declined from $302.8 billion to $289.4 billion **(Chart 5.5.1)**. Comparatively, MMFs comprised 20 percent of total mutual fund AUM, according to the Investment Company Institute (ICI). Consolidation in the number of MMFs continued in 2012, with 54 MMFs ceasing operations. In order to prevent MMFs' net yields paid to investors from falling below zero in the sustained low-interest rate environment, some managers decided to waive management fees, a practice in place throughout the MMF industry since 2009. This sustained fee-waiving practice has continued to erode the profitability of funds, possibly leading to some managers' decision to close their MMFs. Other post-crisis factors such as concerns about pressure on sponsors to cover MMFs' losses as well as declining AUM may have pushed some participants out of the MMF market.

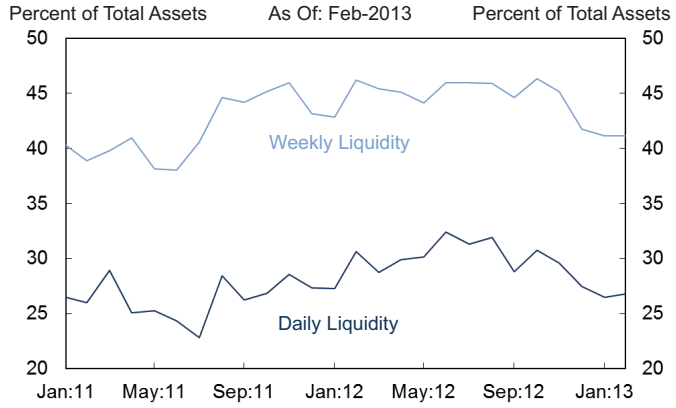
Concerns about the debt crisis in Europe continued to be a focus of MMF investment activities in the first half of 2012. MMF holdings of overall euro area bank-related securities reached a low of 11.6 percent of prime MMF assets in December 2011 and were still relatively low at 11.9 percent in June 2012. Following ECB indications of a strong commitment to maintaining the single euro currency, MMF managers began returning to euro area bank-related securities in July 2012 **(see Box B: Global Monetary Policy Actions)**. By February 28, 2013, holdings in euro area financial institutions comprised 18.7 percent of prime MMF assets. Throughout 2012, euro area exposure remained below 2010 levels, which marked the peak of euro area exposures. Another indicator of this increased optimism is the gradual increase in the weighted average

Chart 5.5.1 MMF Assets by Fund Type



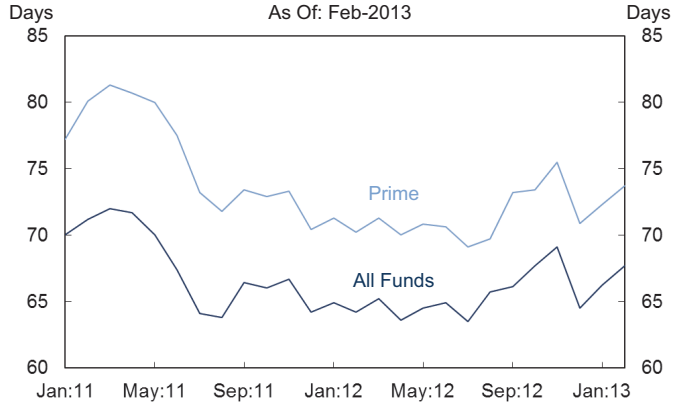
Source: SEC

Chart 5.5.2 Prime Funds Liquidity



Source: SEC

Chart 5.5.3 MMF Weighted Average Life*



Source: SEC Note: *Weighted average lives, weighted by size of fund.

maturity and weighted average life of MMF managers' fund portfolios, which allowed liquidity levels to decline slightly **(Charts 5.5.2 and 5.5.3)**. This gradual decrease in concerns regarding Europe's debt crisis in 2012, as demonstrated by MMFs' increased euro area exposure, was corroborated by the broader-based improvement in the outlook for European resolution of the sovereign debt and banking sector crisis given such public sector support as the ECB's OMT program **(see Box B: Global Monetary Policy Actions)**. Although euro area concerns ebbed in the second half of 2012, early 2013 euro area incidents—such as the decision to impose levies on Cypriot bank deposits and the uncertainty related to the February 2013 Italian election results—have kept euro area debt issues in focus as risks for MMFs. However, currently, those two early 2013 incidents have not had a significant impact on MMFs.

Prime MMFs increased their exposure to non-traditional geographies in 2012. Most notably, prime MMFs more than doubled their geographical exposure to Asian countries compared to 2010 levels, particularly in Japanese holdings. The increase in Japanese exposure of prime MMFs has been concentrated in U.S. dollar-denominated CDs. Over the past few years, average maturities of Japanese and U.S. CDs have been similar, while yields of average Japanese CDs in prime MMF portfolios have been higher than those of U.S. banks. Furthermore, Japanese CDs have been considered by market participants to be both high in quality and limited in their euro area exposures. These factors contribute to an increased exposure of MMFs to Japanese CDs. Japanese assets comprise U.S. MMFs' fourth largest country exposure after the United States, Canada, and France. MMFs' Japanese exposure suggests a potential vulnerability given the challenging growth outlook for Japan **(see Section 7.5 for further detail on the Japanese economy)**.

MMF flows continue to fluctuate with transitory developments in prime money markets; two

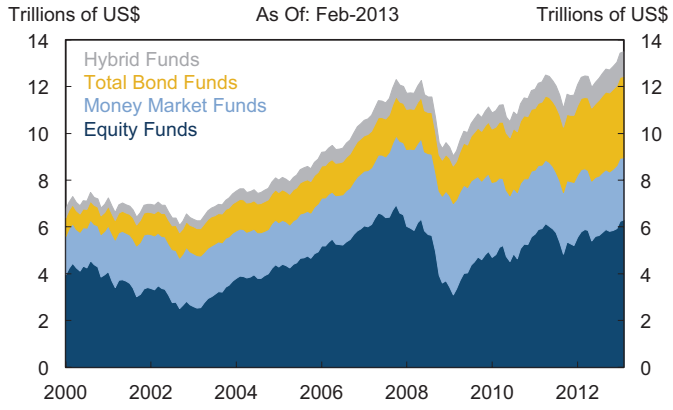
examples are the temporary effects of the expiration of the FDIC Temporary Unlimited Coverage for Noninterest-Bearing Transaction Accounts as well as then-ongoing fiscal cliff negotiations. The effects of the expiration of the Temporary Unlimited Coverage for Noninterest-Bearing Transaction Accounts, known colloquially as the Transaction Account Guarantee (TAG) program, were demonstrative of transitory effects on MMFs. Leading up to the TAG expiry, market participants expected that the expiry would lead to material inflows to MMFs. Though flows to MMFs did fluctuate visibly in response to the expiration of TAG, these inflows coincided with year end and seasonal effects. Thus, the net impact of TAG expiration on MMFs on these inflows is difficult to isolate. One such coinciding, and large, driver of flows into MMFs over the fourth quarter of 2012 was the result of equity investors liquidating positions ahead of an expected increase in capital gains taxes in 2013 (due to then-ongoing fiscal cliff negotiations). Proceeds from these stock sales were then invested in MMFs. Additionally, some market participants noted that accelerated corporate dividend payments ahead of 2012's year end contributed to the increase in MMF assets, as investors parked the dividend payments in MMFs (at least temporarily). Though the net impact of the TAG expiry appears to be minimal, it demonstrates how market developments might induce temporary fluctuations in the MMF space.

In January 2013, a number of large MMF managers announced that they would begin voluntarily and publicly releasing some or all of their MMFs' market-based net asset values on a daily basis. Under SEC rules this information was available only on a monthly basis with a 60-day delay.

5.5.2 Mutual Funds

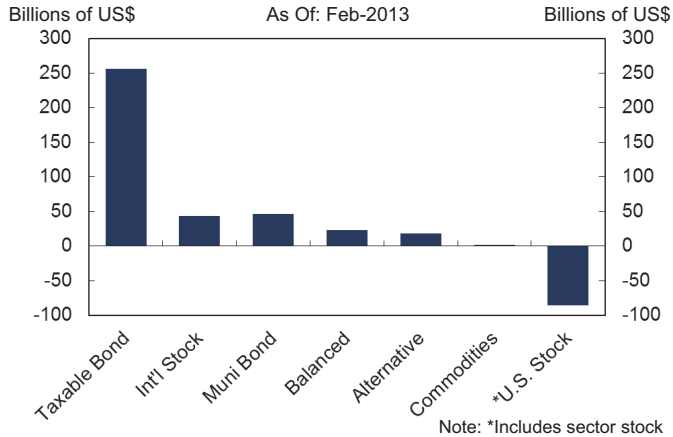
Mutual funds are open-end investment vehicles made up of a pool of funds for investment purposes. As of the end of February 2013, long-term mutual funds comprised 80 percent, or over $10.8 trillion, of total mutual fund AUM,

Chart 5.5.4 Total Assets of Mutual Funds



Source: ICI, Haver Analytics

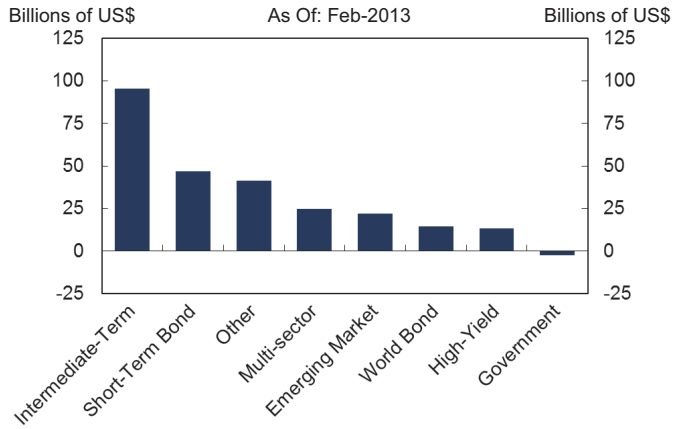
Chart 5.5.5 Mutual Fund Flows by Asset Class (Mar-2012 to Feb-2013)



Source: Morningstar

Note: *Includes sector stock funds with intÄl exposure.

Chart 5.5.6 Mutual Fund Taxable Bond Flows (Mar-2012 to Feb-2013)



Source: Morningstar

according to ICI **(Chart 5.5.4)**. Commensurate with global market gains, mutual funds have recovered value post-crisis. Mutual fund flows for the 12 months ending February 2013 reflected current investor preference for capital preservation, income generation, and lower volatility. Mutual funds had an estimated $305 billion net inflow for the period, largely attributable to taxable bond funds, which received a net $256 billion **(Chart 5.5.5)**. From March 2012 through February 2013, the net asset outflows from government funds and relatively higher inflows to high-yield funds and emerging market bond funds likely demonstrate investor preference for yield among lower-volatility fixed income products **(Chart 5.5.6)**. In contrast, U.S. equity funds had net outflows of $72 billion, with net outflows occurring every month since March 2012. Globally, fixed income funds saw large inflows **(Chart 5.5.7)**. Equity and hybrid inflows in the first month of 2013 picked up significantly, totaling $51 billion, possibly compounded by year end U.S. legislative action on tax reform as compromise on financial assets ameliorated some concerns, including avoiding more severe dividend and capital gain tax rate hikes.

Among mutual funds, corporate bond holdings have grown substantially since 2009. While the Securities Industry and Financial Markets Association (SIFMA) reports that the total U.S. investment grade and high-yield corporate bond market increased by 28 percent from 2009 to 2012, over the same period, corporate and foreign bond holdings among mutual funds increased by 54 percent **(Chart 5.5.8)**. Mutual fund holdings of high-yield bonds and loans have grown even more quickly, at 74 percent and 169 percent, respectively. The yields of corporate bond and loan mutual funds, relatively attractive in comparison to Treasury mutual funds, are likely the main reason for these flows. The rapid rise in AUM, particularly in high-yield bonds, may result in dislocations in response to a sharp sell-off in credit assets. This risk could be exacerbated by

dealer balances in corporate bonds that remain quite low by historical standards and may signal less willingness to deploy capital to corporate bond trading.

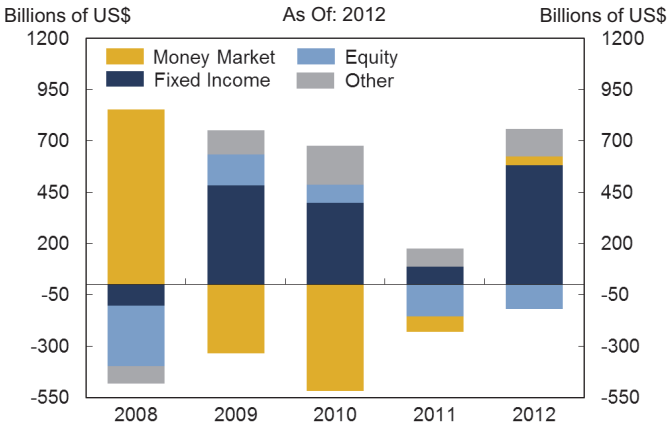
5.5.3 Pension Funds

As of the third quarter 2012, the combined AUM of private and public pensions, including federal pensions and defined contribution (DC) plans, were over $16 trillion **(Chart 5.5.9)**. While some large pension plans manage their own portfolios without outside help, others may invest some portion of their portfolios with investment managers.

Both public and private defined benefit (DB) plans remain significantly underfunded relative to the present value of their liabilities due to inadequate contributions, losses incurred in 2007 and 2008, and, in the case of corporate plans, declines in liability discount rates. Estimates of aggregate funded status vary. Some estimate that public DB plans were 75 percent funded in aggregate as of year end 2012, while private DB plans were 78 percent funded **(Chart 5.5.10)**. Some private pension funds have received contributions to make up for shortfalls or have been able to adjust their benefit plans to reduce future outlays. Even more underfunded are multiemployer private sector DB plans, which are only 48 percent funded. Recent projections issued by the Pension Benefit Guaranty Corporation (PBGC) substantiate these concerns. Based on these projections, which assume no changes either in multiemployer plans or in PBGC's multiemployer program, there is a 36 percent probability of insolvency in PBGC's multiemployer program by 2022 and a 91 percent probability of insolvency by 2032.

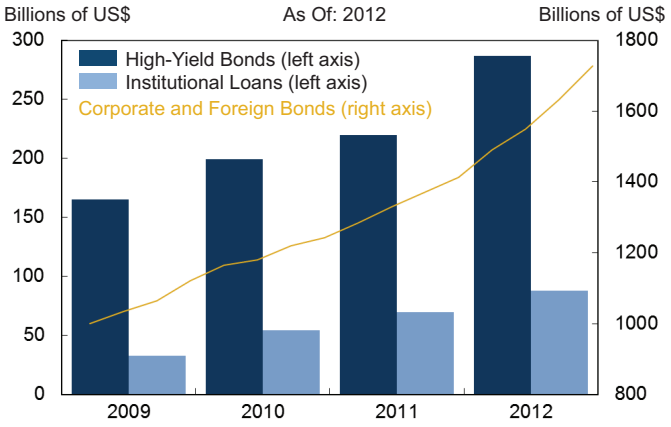
In July 2012, the Governmental Accounting Standards Board (GASB) released modifications to accounting standards for public pensions. Among the most notable changes were valuation methods for pension assets and liabilities as well as enhanced disclosure requirements. As a result, industry analysts expect most public pension plans to

Chart 5.5.7 Annual Net Worldwide Fund Flows



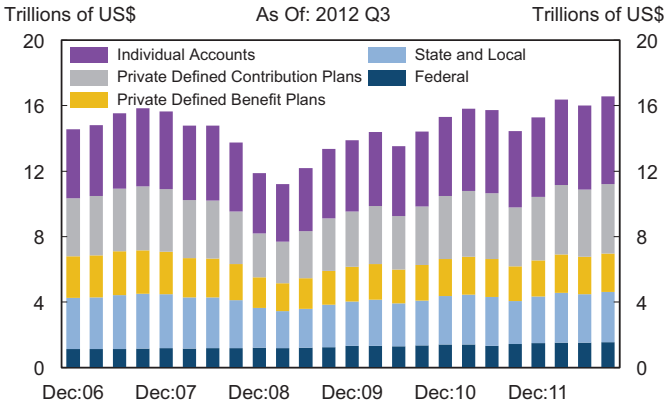
Source: Morningstar

Chart 5.5.8 Mutual Fund Holdings



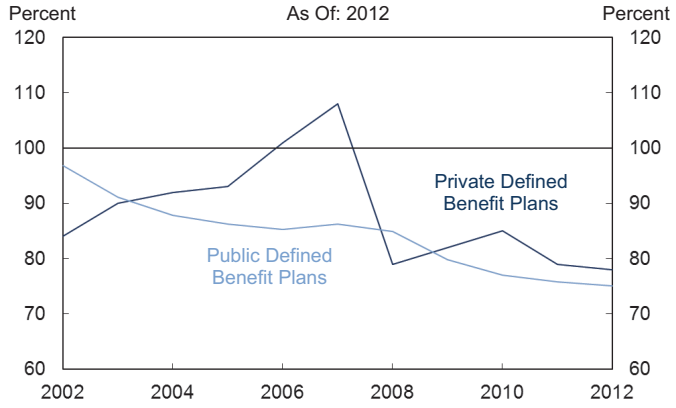
Source: Flow of Funds, S&P LCD, Lipper

Chart 5.5.9 Retirement Fund Assets by Plan Type



Source: Flow of Funds, Haver Analytics

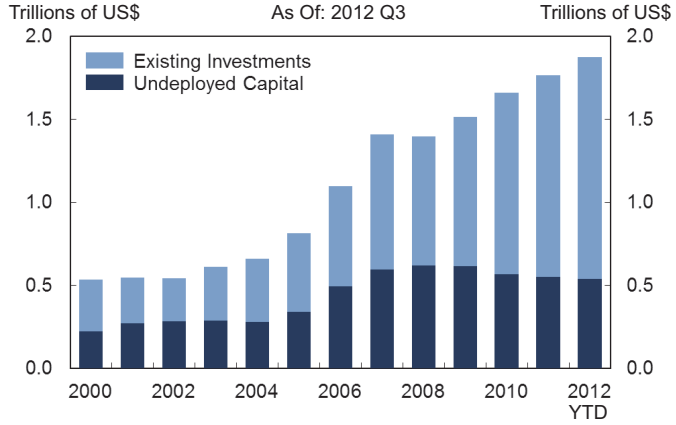
Chart 5.5.10 Public and Private Pension Funding Level



Source: Goldman Sachs Asset Management, Public Fund Survey, NASRA, NCTR

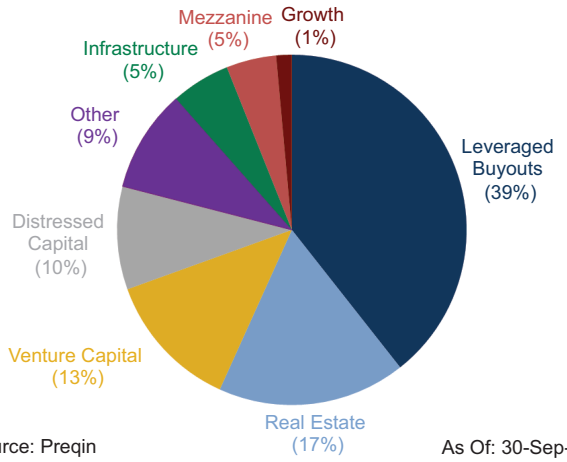
Note: 2012 figures are preliminary.

Chart 5.5.11 U.S. Private Equity AUM



Source: Preqin

Chart 5.5.12 U.S. Private Equity AUM by Strategy



Source: Preqin

As Of: 30-Sep-2012.

report a larger underfunded status despite unchanged plan economics; this is due mostly to the lower liability discount rate for already under-funded plans. Many analysts also anticipate that public pension funding status will become more volatile year-on-year. Plans are beginning to adapt gradually to these changes, though full GASB implementation is not expected to begin until fiscal years 2014 and 2015.

5.5.4 Private Equity

U.S. private equity AUM increased to nearly $2 trillion in 2012 **(Chart 5.5.11)**. Although leveraged buyout funds account for 39 percent of U.S. private equity AUM, advisers continue to diversify their investment strategies into such areas as real estate, natural resources, distressed assets, and emerging market opportunities **(Chart 5.5.12)**. Following the 2005 to 2007 period of robust deal activity, advisers remain focused on realizing returns on historically high levels of existing portfolio investments. Given the tepid environment for initial public offerings (IPOs), exits remain concentrated in sales to corporate buyers and to other private equity firms. In addition, private equity advisers continue to seek investment opportunities for over $500 billion in undeployed capital commitments stemming from record levels of fundraising during 2005 to 2007.

5.5.5 Hedge Funds

Hedge fund industry assets continued to grow in 2012, fueled by a balance of positive investment performance and net asset flows into the industry of $34.4 billion **(Chart 5.5.13)**. As of year end 2012, hedge funds managed approximately $2.22 trillion in assets, a 14 percent increase from 2011 **(Chart 5.5.14)**. Flow data indicate that larger, more established funds continued to receive a disproportionate share of capital inflows in 2012 **(Chart 5.5.15)**. Institutional investors continued to show interest in hedge funds as an asset class in part because of the perception that they offer attractive volatility adjusted returns with less correlation to traditional asset classes. On an absolute basis, major hedge fund strategy

returns lagged some broader equity indices, such as the S&P 500, although, when adjusted for volatility, most strategies outperformed their benchmarks **(Chart 5.5.16)**. According to available data, aggregate hedge fund balance sheet leverage remained in a modest range during calendar year 2012, in-line with the reduced levels of leverage observed since the 2008 financial crisis. Hedge fund managers noted global and domestic risk events as well as concerns regarding the global economic growth outlook as factors subduing risk appetites.

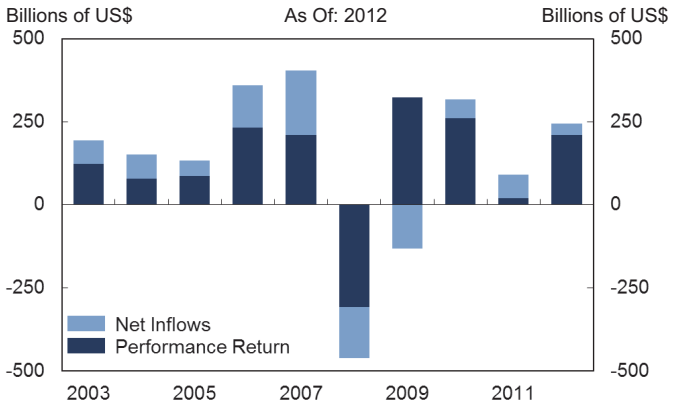
5.5.6 Exchange-Traded Products

Early 2013 marked the twentieth anniversary of the creation of the first U.S. exchange-traded fund (ETF). Most ETFs are registered under the Investment Company Act of 1940 (Investment Company Act) and may track a securities-based index or be actively managed. ETFs are part of a broader category of exchange-traded investment products (ETPs), which may include not only funds that track commodities or other non-securities based indices, but also exchange-traded notes. Currently, all ETPs trade at an intra-day market price.

Since their creation, ETPs have expanded from covering primarily equity markets to also include investments in commodities, currencies, and other non-securities instruments, such as precious metals. As of February 2013, ETFs comprised over 90 percent of ETP AUM. ETPs remain a popular investment vehicle, primarily used as a means to achieve exposure to a market sector or index in a manner potentially more efficient and cost-effective than a traditional mutual fund, investment product, or financial instrument.

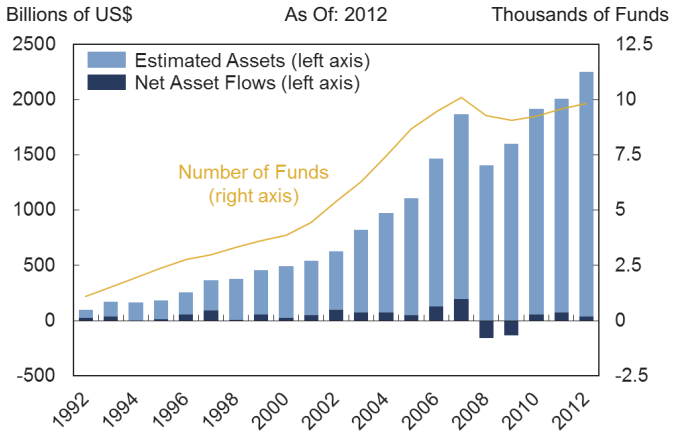
While the ETP industry is still a fraction of the size of the traditional open-end mutual fund industry, ETPs continue to outpace the growth of similar investment vehicles in overall asset accumulation. In 2012, the number of U.S.-listed ETFs grew to 1,131 products and ETF assets grew by 22 percent to $1.29

Chart 5.5.13 Change in Hedge Fund AUM



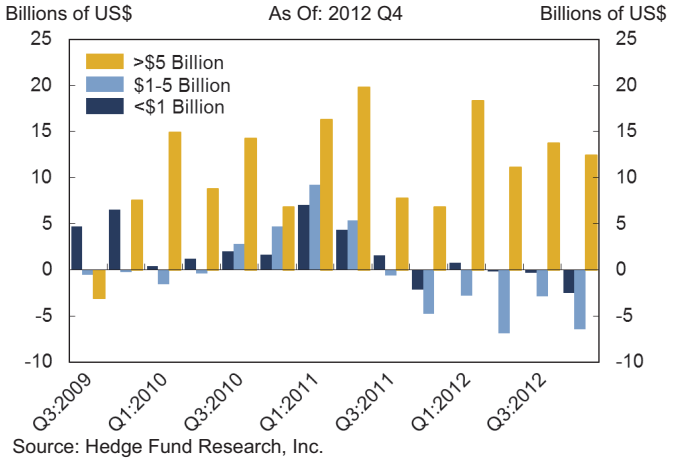
Source: Hedge Fund Research, Inc.

Chart 5.5.14 Hedge Fund Assets and Net Asset Flows



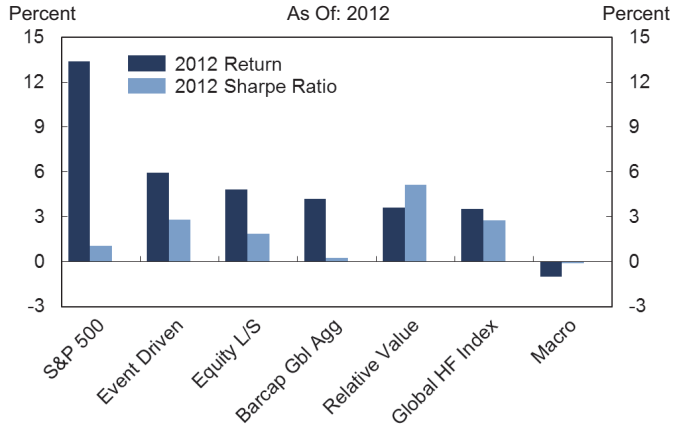
Source: Hedge Fund Research, Inc.

Chart 5.5.15 Hedge Fund Net Asset Flows by AUM



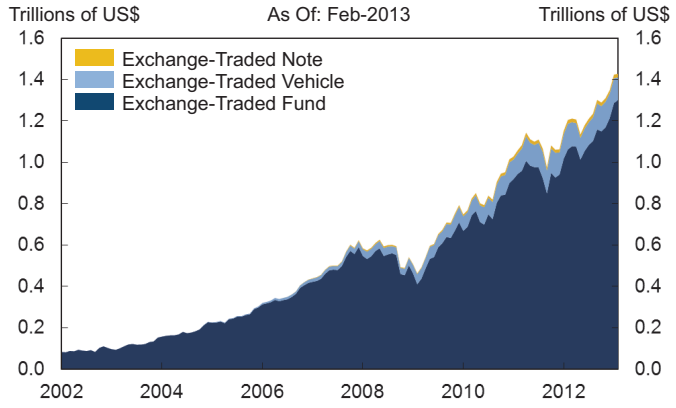
Source: Hedge Fund Research, Inc.

Chart 5.5.16 Hedge Fund Performance by Strategy



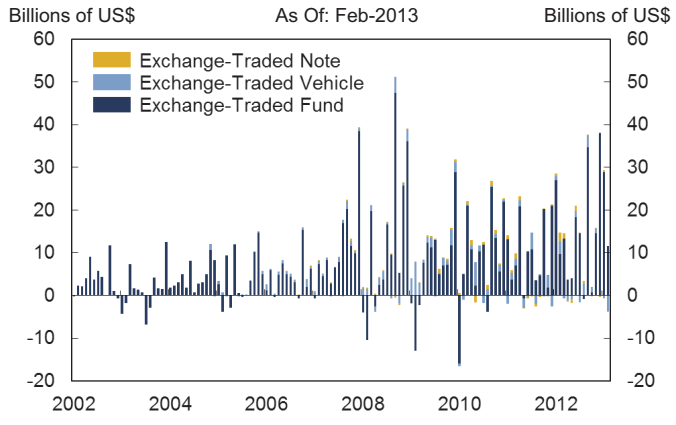
Source: Hedge Fund Research, Inc.

Chart 5.5.17 ETP Net Assets by Product Type



Source: Morningstar

Chart 5.5.18 ETP Net Flows by Product Type



Source: Morningstar

trillion **(Chart 5.5.17)**. ETPs saw net inflows in 2012 **(Chart 5.5.18)**; fixed income-based ETFs and international equity funds had particularly high growth relative to existing asset bases, consistent with asset inflows to similar investment vehicles. As discussed in the Council's 2011 annual report, fixed income was widely viewed by industry observers as a likely avenue of growth for the ETP industry; this view materialized primarily in the high-yield and investment-grade credit space as investors searched for yield in an environment of low interest rates. Combined, high-yield and investment grade ETPs saw a $39.3 billion net inflow in 2012.

The U.S. ETP market remains heavily dominated by passively-managed products that track widely-followed indices in equity, fixed income, and commodity markets. Furthermore, concentration among ETF fund sponsors remains high, with the top three sponsors of ETFs accounting for about 80 percent of industry assets. Both asset growth and trading volumes are concentrated and the top 10 funds account for 36 percent of net ETP assets. As the landscape for passive index and sector funds has become more saturated, product sponsors have begun to focus on alternative strategies. For instance, some fund complexes have recently launched products focusing on volatility-adjusted returns, lower beta (volatility), and short-dated active fixed income strategies (a potential alternative to traditional money market funds), among others.

There have been some regulatory developments in the U.S.-listed ETP space. In late 2012, the SEC lifted a 3-year moratorium on the use of derivatives by actively-managed ETFs and the fund industry. This may have an effect on hedging activities and investor disclosures. The SEC is reviewing applications for products that make extensive use of derivatives. Additionally, some ETP providers have approached the SEC with proposals for new ways to operate actively-managed ETPs, such as disclosing holdings less frequently or disclosing a mirror portfolio daily, thereby balancing the need for protecting the

provider's active strategy with the need to create both a transparent as well as liquid basket of assets. Currently, actively-managed ETFs and certain index-based ETFs disclose their holdings daily.

As the global ETP market continues to grow, market participants remain attentive to potential risks of ETPs, particularly synthetic European-listed ETPs, the risks of which may not yet be fully understood. A synthetic ETP typically aims to replicate the return of an index through a total return swap with a bank, whereas a physical-based ETP holds the actual index constituents. Some market participants continue to highlight the synthetic ETP structure as a potential transmission mechanism for risks. Furthermore, some regulators and market participants are concerned about the potential liquidity mismatch between the index that a synthetic ETP tracks and the securities pledged as collateral by its sponsor's swap counterparty. Synthetic ETPs are not common in the United States, due largely to the Investment Company Act's prohibition of affiliated transactions, and represent a declining share of the European market. In fact, synthetic ETPs now comprise less than 40 percent of European ETP assets, down from about 45 percent of all European ETP assets in 2009 to 2010. Some market participants continue to voice concerns about the potential for the affiliation between the ETP's derivatives counterparty and the ETP sponsor to amplify counterparty risks. For example, European-based synthetic ETPs have traditionally had counterparties that are historically affiliates of the sponsor. As noted above, U.S.-listed ETFs are prohibited by the Investment Company Act from having affiliated derivatives counterparties.

The continued development of new types of ETPs and similar products, such as leveraged and inverse-leveraged ETPs, is an ongoing trend in the market and a focus of regulators. Another focus for regulators is ETFs with less liquid underlyings, such as fixed income products discussed above. Finally, as the ETP market continues to evolve, the ongoing trend of concentration in the ETP market remains of interest.

5.6 Financial Market Infrastructure

5.6.1 Payment, Clearing, and Settlement

U.S. payment systems, central counterparties (CCPs), securities settlement systems, and central securities depositories are the building blocks of the U.S. financial market infrastructure. Payment systems include wire transfer networks, automated clearinghouses, check clearing services, and payment card networks. On the securities settlement side, Fedwire Securities Service and the Depository Trust Company provide services.

In new developments, the Fixed Income Clearing Corporation's (FICC) Mortgage-Backed Securities Division (MBSD) launched CCP services for U.S. MBS in April 2012. MBSD processes pass-through MBS issued by Ginnie Mae, Fannie Mae, and Freddie Mac. MBSD also processes options trades for to-be-announced (TBA) transactions. Through netting and guarantees, the MBSD CCP reduces overall costs and risks in the MBS market. MBSD guarantees the completion of matched MBS trades in the event that a counterparty to the trade defaults. In the final step of MBSD's clearance process, it nets and novates certain pool delivery obligations, which further reduces the amount of securities and payments to be delivered, and interposes itself as the counterparty to those obligations. The CCP is required to have an effective risk management framework to protect itself from the risks associated with the provision of its services, including the risks associated with a member default. While the new MBSD CCP cleared a significant $104 trillion of transactions in agency MBS in 2012, the overall market is larger, and many bilateral agency MBS transactions are not submitted to the MBSD. Because most bilateral agency MBS transactions settle once a month, trading is conducted months in advance of the settlement date, the size of unsettled positions is substantial, and the transactions are not typically margined, unsettled MBS transactions can represent significant counterparty risk. To address this risk, the Treasury Market Practices Group, an industry group sponsored by the Federal Reserve Bank of New York, has recommended that bilateral MBS transactions be margined appropriately.

Pursuant to Title VIII of the Dodd-Frank Act, in July 2012, the Council designated eight U.S.-based financial market utilities (FMUs) as systemically important. These FMUs are The Clearing House Payments Company LLC, on the basis of its role as operator of the Clearing House Interbank Payments System, CLS Bank International (CLS), Chicago Mercantile Exchange, Inc. (CME), The Depository Trust Company (DTC), Fixed Income Clearing Corporation (FICC), ICE Clear Credit LLC (ICE Clear Credit), National Securities Clearing Corporation, and The Options Clearing Corporation (OptionsCC). The designation subjects these FMUs to enhanced risk-management standards, including stronger risk management requirements and annual examinations. The FMUs are subject to enhanced oversight by the appropriate Supervisory Agency, meaning the federal agency with primary jurisdiction over the designated FMU under federal banking, securities, or commodity futures laws. Title VIII also provides the Federal Reserve discretionary authority to permit Federal Reserve Banks to establish accounts for and provide financial services to designated FMUs. In addition, FMUs that are clearing agencies must register with the SEC under the Securities and Exchange Act of 1934. FMUs that are derivatives clearing organizations must register with the CFTC under section 5b of the Commodity Exchange Act.

Under Section 807 of Title VIII of the Dodd-Frank Act, the CFTC and SEC are required to consult annually with the Federal Reserve regarding the scope and methodology for any examination of a designated FMU conducted under Section 807. The Federal Reserve is authorized to participate in any examination conducted under Section 807 of a designated FMU for which it is not the supervisory agency. The CFTC is the supervisory agency for both the CME and ICE Clear Credit, and has accordingly engaged the Federal Reserve for a consultation for the first Title VIII examination of a designated FMU. The SEC is separately required by the Exchange Act to conduct

periodic examinations of registered clearing agencies, including those dual-registered as designated clearing organizations for swaps. In addition, the three agencies continue to participate in discussions about current risk management of swaps for systemically important derivative clearing organizations.

The Basel Committee on Banking Supervision/ Committee on Payment and Settlement Systems (BCBS/CPSS) issued updated supervisory guidance in February 2013 on the settlement of FX transactions to supervisors and banks, which replaces guidance from 2000.[11] Since the 2000 guidance, payment-versus-payment (PVP) settlement systems, such as CLS, have significantly mitigated FX settlement risk; however, further FX settlement risks remain due to rapid market growth and undisciplined market practices. For enhanced risk reduction effectiveness, the revised supervisory guidance offers seven guidelines that focus on governance, replacement cost, and principal risk among other FX settlement-related risks.

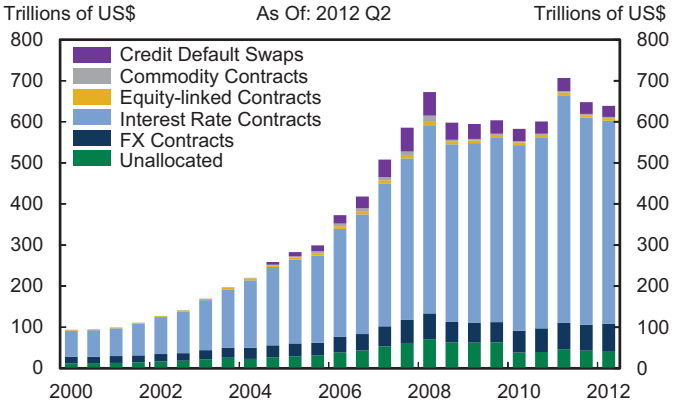
5.6.2 Derivatives Infrastructure

G-20 leaders committed at the 2009 Pittsburgh Summit to improve the governance of derivatives market activities by year end 2012. The four resulting reforms focus on central clearing, trade repositories, electronic trading, and higher capital and margin on non-centrally cleared derivatives. Progress on the initiatives has been mixed globally, with the U.S. having enacted the Dodd-Frank Act and established many regulations. In face of these broad transformations, notional outstandings of over-the-counter (OTC) derivatives and exchange-traded derivatives have moderated.

Global Derivatives Volumes

In the 12 months ending June 30, 2012, the size of the OTC derivatives market declined by 9.6 percent to $639 trillion, while exchange-traded derivatives declined by 28 percent to $60 trillion according to the BIS survey of global market activity **(Charts 5.6.1 and 5.6.2)**. Derivatives notional volumes declined in the first half of 2012, with exchange-traded derivatives falling

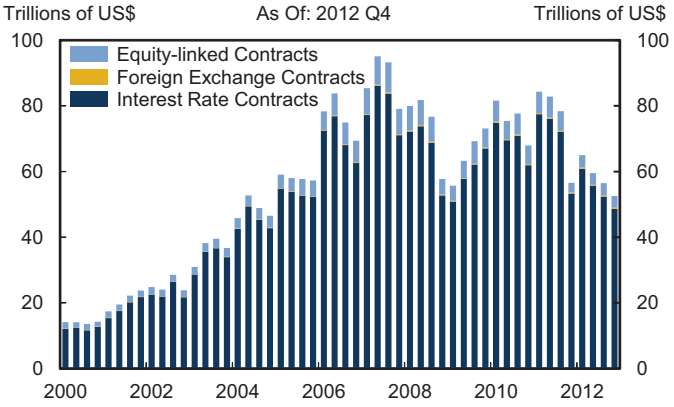
Chart 5.6.1 Global OTC Derivatives Market



Source: BIS, Haver Analytics

Note: Notional values.

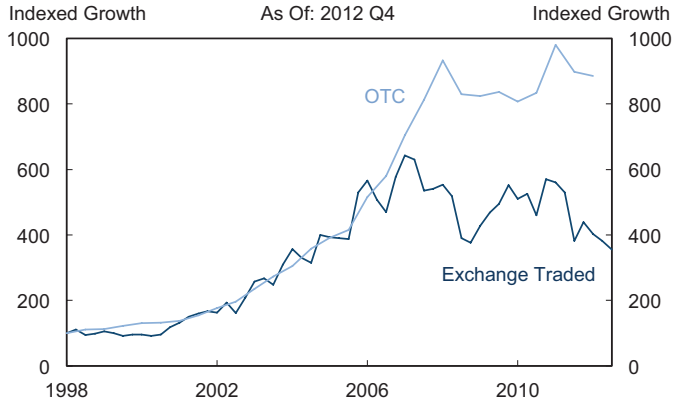
Chart 5.6.2 Global Exchange-Traded Derivatives



Source: BIS, Haver Analytics

Note: Notional values.

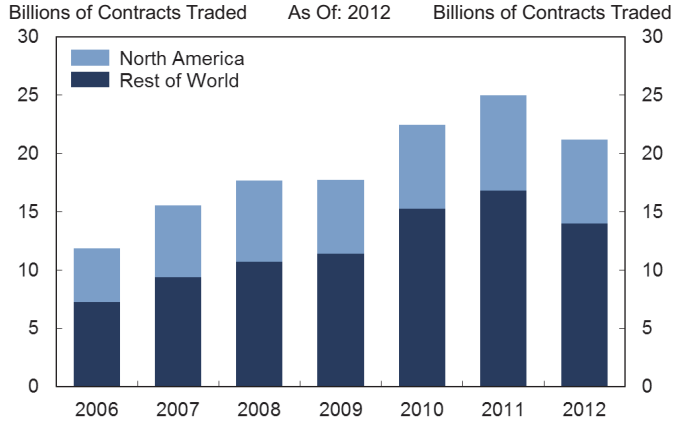
Chart 5.6.3 Global OTC and Exchange-Traded Derivatives Growth



Source: BIS, Haver Analytics

Note: Notional values, indexed such that 1998 Q2 = 100.

Chart 5.6.4 Exchange-Traded Derivatives Globalization



Source: Futures Industry Association

by a greater percentage than OTC derivatives **(Chart 5.6.3)**. The BIS OTC global survey reported gross notional outstandings of $494 trillion in interest rate derivatives, $66 trillion in FX derivatives, and $27 trillion in credit derivatives as of June 30, 2012.

Data on the geographic trading locations of derivatives is limited, yet available data suggests that trading within the U.S. accounts for about one-third of derivatives activity on exchanges and OTC markets. As measured by number of contracts, two-thirds of exchange-traded derivatives were traded outside of North America in 2012 **(Chart 5.6.4)**. The share of derivatives volume traded on non-North American exchanges continued to increase over the past several years until 2012, when it declined to 66 percent from 69 percent. The most recent BIS Triennial Survey (2010) indicated that more than two-thirds of turnover in OTC interest rate derivatives took place in two countries, with the U.S. share trailing the U.K. share, 24 percent to 46 percent. Further market information from the BIS derivatives market survey at June 30, 2012 estimates that outstanding credit derivative trades where both sides occur in the home country are 20 percent of trades, meaning that cross-border trades total 80 percent of all credit derivative trades. These figures highlight the importance of international coordination in derivatives market reforms.

Trade Repositories

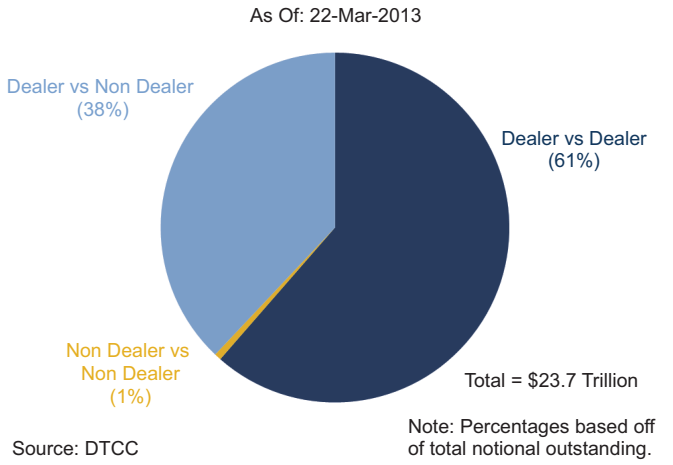
In the United States, Title VII of the Dodd-Frank Act implements the G-20 trade reporting commitment. Prior to the Dodd-Frank Act, international major derivatives market participants in derivatives collaborated with global regulators to establish certain trade repositories that receive voluntary reports on credit, equity, and interest rates derivatives trades. Continued efforts resulted in a commodities trade repository in 2012 and an FX trade repository in 2013. Under Dodd-Frank and related rules, the details of cleared and non-centrally cleared U.S. activity-related swaps are required to be reported to a registered

Swap Data Repository or Security-Based Swap Data Repository (SDR) or to the CFTC or SEC, as appropriate, if no SDR is available. The CFTC established a phase-in period that staggers the reporting requirement for different market participants and products during 2012 and 2013. The SEC is finalizing rules related to swap reporting for the products it oversees. Survey reports to the Financial Stability Board (FSB) indicate there are 14 trade repositories operating globally. Aggregation and understanding of derivatives data by regulators could be made more difficult if numerous trade repositories arise. The development of trade repositories in various jurisdictions may be due in part to concerns about privacy and information sharing that would need to be overcome for regulators to develop the most complete understanding of global activity in the derivatives markets.

According to the Depository Trust & Clearing Corporation's (DTCC) public trade repository data, $23.7 trillion (notional) credit derivative contracts were outstanding on March 22, 2013 **(Chart 5.6.5)**. The trade repository shows that credit derivatives are comprised of 55 percent single-name credit derivatives and 45 percent credit indices and tranches. For complete credit derivative trade records, the trade repository's copper (incomplete legal record and more bespoke) trades of about $3.7 trillion (last reported at December 31, 2010) need to be added to the $23.7 trillion gold (complete legal record) trades. This implies total notional value of credit derivatives outstanding is approximately $27.4 trillion. Finally, public data show interest rate derivatives trades outstanding as of March 22, 2013 tallied $536.8 trillion, of which only 15 percent were dealer-to-dealer, while 58 percent were dealer versus CCP, and 27 percent were dealer versus non-dealer transactions **(Chart 5.6.6)**.

Through portfolio compression, market participants reduce (or compress) the size of their respective swap portfolios. This results in fewer outstanding derivatives contracts and a lower gross notional size of their portfolio.

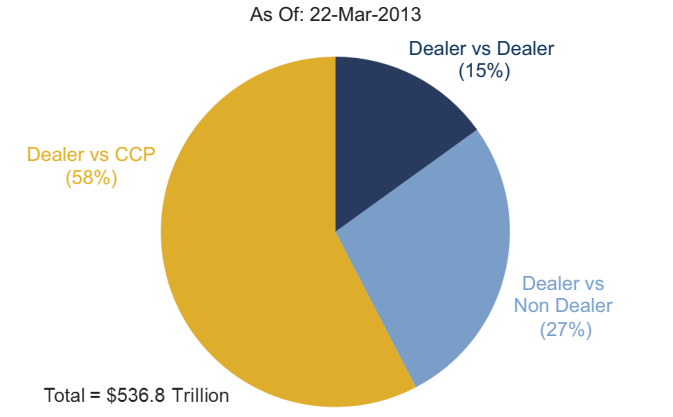
Chart 5.6.5 Credit Derivatives Market



Source: DTCC

Note: Percentages based off of total notional outstanding.

Chart 5.6.6 Interest Rate Derivatives Market



Source: DTCC

Note: Percentages based off of total notional outstanding.

Several benefits accrue from reducing the number of individual bilateral transactions, including lower operational risk and reduced capital requirements. In the first half of 2012, rates derivatives were compressed by $25.7 trillion and credit derivatives by $2.5 trillion.[12] The industry reports that the cumulative effect of compression over the past several years has led to the elimination of nearly $230 trillion in notional value of credit and rates derivatives.

Central Clearing of Derivatives

The anticipation of Dodd-Frank requirements and G-20 commitments mandating central clearing of certain OTC derivatives transactions has led to an increase in the number of transactions concentrated in CCPs. A CCP reduces risks to participants through multilateral netting of trades and by imposing risk controls on its participants. Critical components needed to reduce risk through a CCP include robust risk management practices and adequate financial resources.

The FSB Fourth Progress Report on Implementation of OTC Derivatives Market Reforms indicates that at mid-year 2012, there were approximately 12 OTC derivatives CCPs globally, including some that clear multiple asset classes. At mid-year 2012, the notional amounts outstanding in those CCPs had risen by about 23 percent from year end 2010 levels, reflecting movement of some activity to centralized clearing **(Chart 5.6.7)**. Global policy initiatives seek to increase these shares and to implement central clearing by firms on behalf of their clients.

CCP data show that 45 percent of rates and 11 percent of credit derivatives trades were centrally cleared at June 30, 2012 at LCH.Clearnet and IntercontinentalExchange (ICE), respectively. The OTC derivatives market, as mentioned previously, is predominately compromised of interest rate derivative (IRD) contracts. The majority of those contracts are cleared on London-based LCH.Clearnet, which has been clearing rates contracts for more than a decade. At mid-year 2012, LCH.Clearnet's

Chart 5.6.7 Notional Amounts Outstanding on CCPs by Asset Class

Notional Amounts Outstanding on CCPs
(as reported by CCPs participating in FSB survey)
(USD equivalents, in billions)

ASSET CLASS	*31-Dec-2010*	*31-Dec-2011*	*30-June-2012*
Credit	1,231	1,645	1,800
Commodities	25	17	13
Equity	11	2.8	2.4
FX	73	93	124
Interest Rates	124,398	142,088	152,972
TOTAL	**125,738**	**143,846**	**154,911**

Source: FSB

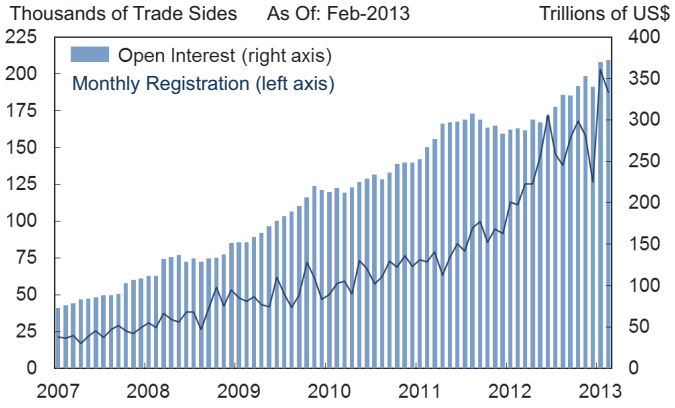
Note: Not all CCPs participating in survey provided data for all time periods. Where conversion to USD was necessary, exchange rates for a given currency on 31-Dec-2010, 31-Dec-2011, and 30-June-2012 were used.

SwapClear indicates trade sides notional amounts of about $305 trillion against a total rates market size per BIS of $494 trillion **(Chart 5.6.8)**. Trade sides are both novated contracts resulting from the CCP interposing itself between a seller and buyer. LCH.Clearnet's SwapClear further reports that the outstanding notional value of cleared IRDs has grown from about $70 trillion in 2007 to over $372 trillion in February 2013. The number of new IRDs cleared per month has risen from slightly over 20,000 in 2007 to almost 188,000 in February 2013. The credit derivatives market clearing volumes have also continued to grow, with U.S.-based ICE Clear Credit's open interest increasing to $842 billion as of December 2012, with similar trends at ICE Clear Europe **(Charts 5.6.9 and 5.6.10)**.

Given the increase in activity at CCPs, it is important that CCPs have in place robust risk management standards that keep pace with current and future growth. U.S. regulators have worked with other members of CPSS-IOSCO to revise international principles for all financial market infrastructures (FMIs) to enhance risk management standards for payment, clearing, and settlement systems, culminating in the publication of the Principles for Financial Market Infrastructures (PFMI).[13] The PFMI, which were finalized in April 2012, seek to address the potential risks resulting from increased use of infrastructure such as CCPs. The CFTC, Federal Reserve, and SEC are taking into consideration the PFMI, consistent with Title VIII of the Dodd-Frank Act, in assessing whether further rulemaking is needed with respect to risk management standards applicable to the FMUs designated as systemically important.

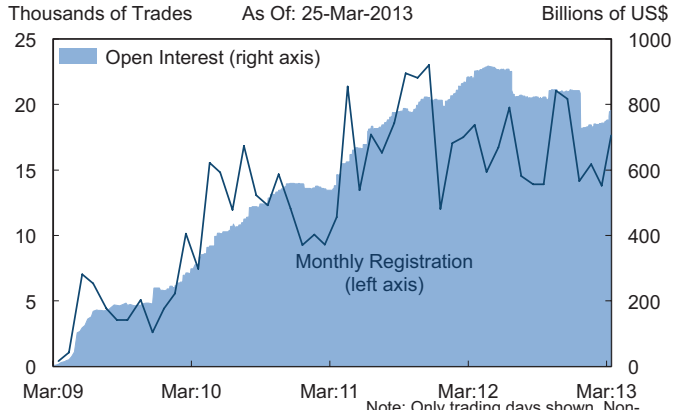
Many of the largest globally active financial institutions are members of CCPs or act as agent banks and/or liquidity providers to CCPs. As a result, it is critical that these institutions fully understand their potential liability in the event of a default by one or more members of a CCP. To help ensure that members understand and can anticipate

Chart 5.6.8 SwapClear Volume



Source: LCH.Clearnet

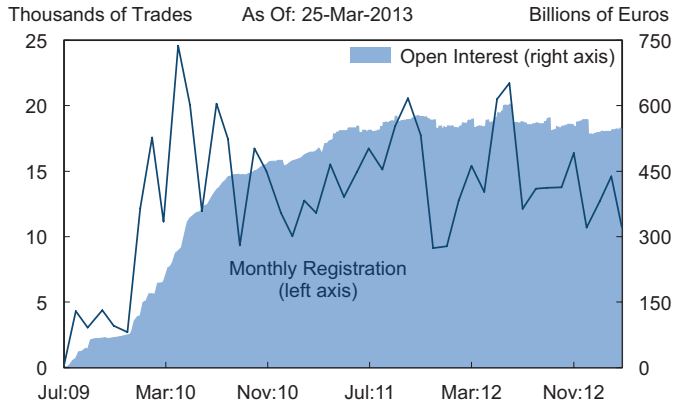
Chart 5.6.9 ICE Clear Credit



Source: ICE, Bloomberg, L.P., FSOC calculations

Note: Only trading days shown. Non-dollar denominated contracts converted using end of day exchange rates.

Chart 5.6.10 ICE Clear Europe



Source: ICE, FSOC calculations

Note: Only trading days shown.

potential losses from participating in CCPs, CPSS-IOSCO finalized a framework requiring an FMI[14] to disclose information about its activities, risk profile, and risk management practices to facilitate a comprehensive understanding of the FMI. In addition, the Payments Risk Committee, an industry group sponsored by FRBNY, developed a set of recommendations in support of a clearing member's due diligence of CCPs to further address this issue.[15]

In the event of a CCP member default, the CCP uses the defaulting member's initial margin and guarantee fund contribution to cover any losses. If losses exceed these amounts, the CCP may use its own resources and/or the default fund contribution of non-defaulting members. These pre-funded resources are required to be sufficiently sized to cover the one or two largest exposures created by the participants in stress tests of extreme but plausible circumstances. Should that prefunded amount prove insufficient to cover losses, CCPs may, to the extent permitted by their rules, then require non-defaulting members to contribute additional funds. This mutualization of losses across non-defaulting members underscores the importance of members using the information made available to estimate their potential obligations in stress periods.

Electronic Trading of Cleared Derivatives

Dodd-Frank set forth requirements that align with the G-20 commitment to electronically trade and clear derivatives that are subject to clearing. Under the Dodd-Frank Act, transactions that are subject to clearing will be executed by counterparties on designated contract markets, exchanges, or the newly-developed security-based swap, or swap execution facilities (SEFs) unless the derivatives are not made available to trade. A SEF must register and may have dual registration with the CFTC and SEC. To promote more pre- and post-trade transparency, the Dodd-Frank Act requires the CFTC and SEC to establish rules that define which swaps can be cleared and SEF core principles. Core principles focus on position limits, timely publication of trading information, and recordkeeping. CFTC transparency initiatives such as a proposed rule on a request-for-quote system to provide no fewer than five quotes to counterparties have proved to be problematic. Compliance with certain SEF-related rules applies to registered persons, so until release of final rules on SEF registration, the related rules will not come into effect.

Margin and Capital Initiatives for Non-Centrally-Cleared Derivatives

In the United States, global coordination continues to inform the federal prudential regulators' (OCC, Federal Reserve, FDIC, Farm Credit Administration (FCA), and FHFA), CFTC's, and SEC's review of their proposed rules on the G-20 margin and capital commitments for non-centrally cleared derivatives. The BCBS/IOSCO Working Group on Margin Requirements (WGMR) Second Consultative Document (Febuary 2013), prepared in consultation with the CPSS and the Committee on the Global Financial System (CGFS), recommends that all financial firms and systemically important nonfinancial entities that engage in non-centrally cleared derivatives exchange two-way initial and variation margin for non-centrally cleared derivatives, to be applied on a prospective basis. Industry practice has been to exchange variation margin and to collect initial margin only in some circumstances. In drafting the Consultative Document, global regulators have been mindful that the collateral requirements for non-centrally cleared derivatives should be stricter than those of CCPs, to reflect the less liquid nature of bilateral derivative contracts and as a means to incentivize use of CCPs. The initial margin proposal could potentially have a material quantitative impact **(see Box D: Collateral Availability)**. The WGMR has engaged in a quantitative impact study (QIS) to gauge the need for collateral that the proposed rule would require.

Some market participants have voiced concerns about the potential shortage or scarcity of collateral and its impact on market functioning and pricing. In response to potential collateral scarcity, various initiatives have emerged. For example, many have suggested that regulators broaden the types of assets that qualify as eligible collateral (subject to appropriate haircuts) to assist market participants in collateralization alternatives. In the case of non-centrally cleared OTC derivatives margin, 80 percent is posted in cash according to the International Swaps and Derivatives Association's (ISDA) margin survey.[16] However, incremental

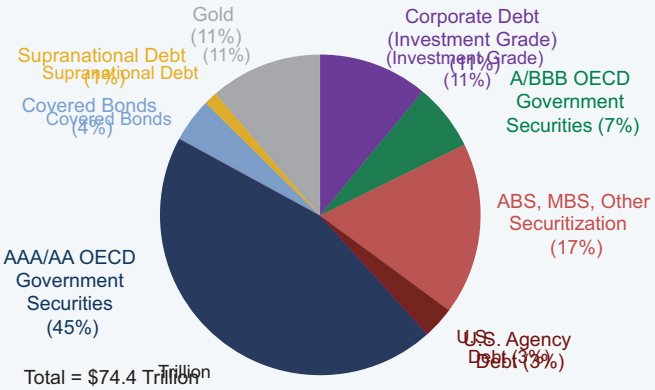
initial margin is anticipated to include a higher fraction of non-cash eligible collateral. Furthermore, collateral transformation trades such as collateral swaps **(see Section 5.2.4 for an explanation of such trades)** might lead to wider collateral availability. Collateral transformation could channel risk in new ways, resulting in additional counterparty exposures and increased market interconnectedness while concentrating lower-quality assets with banks or providers of collateral transformation services.

Margin requirements have the potential to be procyclical. This is because margins and collateral haircuts increase when market volatility rises. As a result, demand for eligible collateral could jump significantly in response to market stress, forcing market participants to exit positions quickly if they do not have continued access to eligible collateral, which exacerbates volatility. Some industry experts anticipate that margin requirements under stressed market conditions could perhaps raise collateral requirements by multiples, not just percentages. Through-the-cycle margining to stressed market conditions can potentially alleviate such procyclicality, but it comes at the cost of lower leverage in benign periods. Initial margins fixed at the trade date can also help to mitigate procyclicality. While reform efforts have attempted to reduce the procyclicality of margin setting, they do not prohibit market participants from behaving in a procyclical manner.

BOX D: COLLATERAL AVAILABILITY

The availability of global non-cash eligible collateral for certain transactions is likely to be affected by financial market reforms. Such reforms include the mandatory clearing of certain derivatives, margin requirements for many non-centrally cleared derivatives, restrictions on the ability to re-hypothecate collateral, and the Basel III liquidity standards. Eligible collateral refers to a pool of liquid assets that can be pledged for the purchase and sale of risky assets or derivatives by financial market participants. Non-cash eligible collateral is estimated at $74 trillion **(Chart D.1)**. The increased demand for collateral proposed by these reforms will be phased into the market over an extended time period; there is no immediate collateral cliff overshadowing the market.

Chart D.1 Outstanding Amounts of Marketable Potentially Safe Assets



Source: IMF citing BIS, Dealogic, ECBC, SIFMA, S&P, WGC, IMF staff estimates

Note: Data for government and corporate debt are as of 2011 Q2. Data for supranational debt, covered bonds, and gold are as of end-2010. Data for U.S. agency debt and securitization are as of 2011 Q3.

Compilation of several international regulatory studies suggests increased eligible collateral needs will be approximately $3.5 trillion globally, amounting to a material 4.8 percent of the $74 trillion estimate of outstanding global eligible collateral **(Chart D.2)**. However, the incremental eligible collateral estimates are likely conservative, and the full impact of the reforms is not expected until the end of 2019. In addition, the estimates do not yet account for the downward revision of Basel liquidity requirements that was announced in January 2013. Though the cost of financing these incremental uses of eligible collateral may be substantial, the modest percentage use of the large stock of eligible collateral, efforts by banks to reduce their LCR requirements by reducing their estimated 30-day net cash outflow, and the market's flexibility to adjust the supply of available eligible collateral, is expected to mitigate some of these pressures.

Chart D.2 Compilation of Potential Impact on Global Eligible Collateral

	Regulatory Change	Estimate *(in trillions of US$)*	Proportion of Global Collateral Stock *($74T)*	Comments
1	CCP Swap Market – Incremental Initial Margin	-$0.3	-0.3%	Incremental cleared swaps $252T. Initial margin on cleared derivatives equals roughly 0.1% of gross against $252T newly clearable derivatives.
2	Non-Centrally Cleared – New Initial Margin	-$0.9	-1.3%	Based on survey of 2012 Q2 and future state. Future non-centrally cleared, globalized equals $295T. Compiled where thresholds are €50 million. Initial margin estimate based on modeled calculations and as if all non-cleared came under margin immediately.
3	Basel III LCR Liquidity – Needs	-$2.3	-3.1%	Available regulatory 30-Jun-2011 estimate of dollar impact would overestimate eventual application of January 2013 revised LCR. Ongoing new QIS.
	Compilation of Incremental Collateral Needs – A Net Use	**-$3.5**	**-4.8%**	Margin assumes a short range future state with zero thresholds and rule applied at once. This LCR overestimates eventual impact of January 2013 revisions and is applied at once.

Source: FSB, BIS, IOSCO

Note: Negative numbers indicate uses, or demands, of collateral. $1.32 = €1 at 31-Dec-2012.

The CCP cleared swap market's incremental initial margin need of $0.3 trillion draws from the WGMR's Second Consultative paper which identified future increases in cleared swaps and a rule of thumb for related initial margin amounts. The $0.9 trillion incremental demand for non-centrally cleared derivatives assumes a threshold for counterparties of €50 million. Much of the incremental margin will likely be held in the form of non-cash collateral. Industry and regulatory entities have considered whether stressed margins would actually reflect the market-imposed margins in a time of extreme financial stress. The Basel III QIS for the LCR suggests that banks will need to raise up to $2.3 trillion in additional world-wide high-quality liquid assets (HQLA). The ongoing QIS on the revised standard is likely to result in lower incremental estimates. A number of global banks may already meet the revised minimum standards, suggesting that the estimated additional HQLA may be overstated in this sense.

The non-regulatory external factors, such as increased OECD and supranational debt, central bank monetary intervention, and a decreased pool of U.S. GSE debt, may have a net positive material incremental impact on the supply of eligible collateral. The combined impact of these factors is estimated to add approximately $2.5 trillion of additional eligible collateral over coming years, thus mitigating the increased collateral demand arising from regulatory initiatives.

6 Regulatory Developments; Council Activities

Since the Council's 2012 annual report, Dodd-Frank Act implementation included further strengthening of supervision, capital, and risk-management standards for financial institutions and financial market utilities; procedures for periodic supervisory and company-run stress tests; rulemakings related to the orderly liquidation authority; regulation of the derivatives markets to reduce risk and increase transparency; new standards to protect mortgage borrowers and reduce risks in the mortgage market; and other measures to enhance consumer and investor protection.

In addition, the Council has continued to fulfill its mandate. In particular, the Council is evaluating nonbank financial companies for potential designation for Federal Reserve supervision and enhanced prudential standards, and the Council issued a proposed recommendation on money market mutal fund (MMF) reforms. The Council also continued to monitor potential risks to U.S. financial stability and served as a forum for discussion and coordination among the member agencies. The following is a discussion of the significant implementation progress the Council and its member agencies have achieved since the Council's 2012 annual report.

This section covers (1) the safety and soundness of financial institutions; (2) financial infrastructure, markets, and oversight; (3) consumer and investor protection; (4) data standards; and (5) Council activities. A special topic discussed in this section covers international coordination on derivatives reform, including global margining.

6.1 Safety and Soundness

6.1.1 Enhanced Prudential Standards, Supervision, and Capital Standards

Framework for Consolidated Supervision of Large Financial Institutions

The Federal Reserve issued a new framework for the consolidated supervision of large financial institutions in December 2012. This framework strengthens traditional microprudential supervision and regulation to enhance the safety and soundness of individual firms, and incorporates macroprudential considerations to reduce potential threats to the stability of the financial system.

The new framework has two primary objectives:

- **Enhancing the resiliency of a firm to lower the probability of its failure or inability to serve as a financial intermediary.** Each firm is expected to ensure that the consolidated organization (or the combined U.S. operations, in the case of foreign banking organizations (FBOs)) and its core business lines can survive under a broad range of internal or external stresses. This requires financial resilience by maintaining sufficient capital and liquidity, and operational resilience by maintaining effective corporate governance, risk management, and recovery planning.
- **Reducing the impact on the financial system and the broader economy in the event of a firm's failure or material weakness.** Each firm is expected to ensure the sustainability of its critical operations and banking offices under a broad range of internal or external stresses. This requires, among other things, effective resolution planning that addresses the complexity and the interconnectivity of the firm's operations.

The framework is designed to support a tailored supervisory approach that accounts for the unique risk characteristics of each firm and applies to (1) Large Institution Supervision Coordinating Committee (LISCC) firms, which are the largest, most complex U.S. and foreign financial organizations subject to consolidated supervision by the Federal Reserve; (2) other large domestic bank and savings and loan holding companies (SLHCs); and (3) FBOs with combined assets of U.S. operations of $50 billion or more.

The consolidated supervision framework for large financial institutions is being implemented in a multi-stage approach.

Enhanced Prudential Standards and Early Remediation Requirements for Foreign Banking Organizations

In December 2012, the Federal Reserve issued a notice of proposed rulemaking (NPR) to implement the enhanced prudential standards and early remediation requirements in Sections 165 and 166 of the Dodd-Frank Act for large FBOs. The proposal generally applies to FBOs with a U.S. banking presence and total global consolidated assets of $50 billion or more. More stringent standards were proposed for FBOs with combined U.S. assets of $50 billion or more.

The proposal would implement:

- **A U.S. intermediate holding company requirement.** An FBO with both $50 billion or more in global consolidated assets and U.S. subsidiaries with $10 billion or more in total assets would generally be required to organize its U.S. subsidiaries under a single U.S. intermediate holding company (IHC). Direct U.S. branches and agencies of FBOs would remain outside the U.S. IHC.
- **Risk-based capital and leverage requirements.** IHCs of FBOs would be subject to the same risk-based and leverage capital standards applicable to U.S. bank holding companies (BHCs).
- **Liquidity requirements.** The U.S. operations of FBOs with combined U.S. assets of $50 billion or more would be required to meet enhanced liquidity risk-management standards, conduct liquidity stress tests, and hold a 30-day buffer of high-quality liquid assets.
- **Other requirements:** The proposal also includes measures regarding capital stress tests, single-counterparty credit limits, risk management, and early remediation.

Under the proposal, FBOs with global consolidated assets of $50 billion or more on July 1, 2014 would be required to meet the new standards on July 1, 2015.

Revised Basel III Liquidity Coverage Ratio

The Basel Committe on Banking Supervision (BCBS) issued the full text of the revised Liquidity Coverage Ratio (LCR) on January 7, 2013. The LCR is one of the BCBS's key reforms to strengthen global capital and liquidity regulations with the goal of promoting a more resilient banking sector. The LCR was first published in December 2010. The LCR generally requires a bank's unencumbered high-quality liquid assets to equal or exceed 100 percent of its stressed net cash outflows over a 30-day period.

The revisions issued in January 2013 incorporated amendments to broaden the definition of high-quality liquid assets and relaxed liquidity run-off assumptions used to calculate stressed net cash outflows. These revisions would generally moderate the impact of the earlier version but made some parameters more stringent. The BCBS has agreed to a revised timetable for the standard to be implemented by January 1, 2015. In the first year, banking organizations would be subject to a LCR requirement of 60 percent. The LCR requirement would increase by 10 percentage points each year, reaching a 100 percent requirement on

January 1, 2019. However, the BCBS also allows for a more accelerated phase-in. The exact phase-in for the United States has not been determined.

In the spring of 2013, the BIS updated the ongoing LCR quantitative impact study (QIS) to assess global impact estimates on which the January 2013 revisions were based. The next QIS is expected to be completed in the summer of 2013. The FDIC, the Federal Reserve, and the OCC are working jointly to develop a proposed rule that would implement the LCR in the United States.

Risk-Management Standards for Designated FMUs

Title VIII of the Dodd-Frank Act establishes a new supervisory framework for financial market utilities (FMUs) designated by the Council as systemically important. FMUs manage or operate multilateral systems for the purpose of transferring, clearing, or settling financial transactions. The new framework includes holding designated FMUs to enhanced risk-management standards. In July 2012, the Council designated eight FMUs as systemically important.

Section 805(a)(1) of the Dodd-Frank Act requires the Federal Reserve, in consultation with the Council and the supervisory agencies, to prescribe risk-management standards for designated FMUs that are supervised by the Federal Reserve under Title VIII. Under Section 805(a)(2), the CFTC and SEC may each prescribe regulations, in consultation with the Council and the Federal Reserve, containing risk-management standards for designated clearing entities they supervise. Risk-management standards prescribed under Section 805 must (1) promote robust risk management; (2) promote safety and soundness; (3) reduce systemic risks; and (4) support the stability of the broader financial system. Furthermore, Section 805 also directs the supervisory agencies to take into consideration relevant international standards and existing prudential requirements when prescribing Title VIII risk-management standards.

Section 806 of the Dodd-Frank Act requires the supervisory agencies to prescribe regulations regarding a requirement for designated FMUs to provide a 60-day advance notice to its supervisory agency of any proposed changes to its rules, procedures, or operations that could materially affect the nature or level of risks presented by that FMU.

On July 30, 2012, the Federal Reserve adopted Regulation HH implementing the risk-management standards and advance notice provisions of Title VIII. The Federal Reserve coordinated closely with the CFTC and SEC in developing its rules in order to promote consistency and consulted with other member agencies. Regulation HH establishes the minimum expectations in areas of risk management, including counterparty credit risk, settlement finality, default management, operational reliability, and governance for designated FMUs for which the Federal Reserve is the supervisory agency. To date, two of the eight FMUs designated by the Council are payment systems to which Regulation HH applies.

Short-Term Investment Funds

The OCC adopted a final rule in October 2012 to revise requirements for national banks, federal savings associations, and federal branches of foreign banks that act as a fiduciary and manage short-term investment funds (STIFs). The final rule, which becomes effective on July 1, 2013, was informed by the SEC's amendments in 2010 to Rule 2a-7 under the Investment Company Act. The final rule adds safeguards designed to address the risk of loss to a STIF's principal, including measures governing the nature of a STIF's investments, ongoing monitoring of its mark-to-market value, and forecasts of potential changes in a STIF's mark-to-market value under adverse market conditions. The final rule also requires greater transparency and regulatory reporting on a STIF's holdings, as well as procedures to protect fiduciary accounts from undue dilution of their participating interests in the event that the STIF loses the ability to maintain a stable net asset value.

Leveraged Lending

On March 21, 2013, the OCC, the Federal Reserve, and the FDIC adopted, after notice and comment, updated guidance for leveraged lending by the banking agencies' supervised entities. While leveraged lending declined during the crisis, volumes have since increased and underwriting practices have loosened. The revised guidance provides greater clarity regarding supervisory expectations for a sound risk management framework, clear underwriting standards, effective pipeline management, strong reporting and credit analytics, and appropriate risk grading. The guidance applies to all financial institutions supervised by the banking agencies that engage in leveraged lending activities.

6.1.2 Dodd-Frank Stress Tests and Comprehensive Capital Analysis and Review

In 2012, the Federal Reserve, OCC, and FDIC finalized rules to implement the stress testing requirements of Section 165 of the Dodd-Frank Act for financial companies with over $10 billion in total consolidated assets. Section 165 sets forth two stress testing regimes: a supervisory stress test framework that is conducted by the Federal Reserve and is discussed more fully in **Section 5.3.1**, and company-run stress tests that certain financial companies are required to conduct annually, pursuant to regulations prescribed by the company's primary financial regulator. BHCs with $50 billion or more in total consolidated assets and nonbank financial companies supervised by the Federal Reserve are also required to conduct semi-annual company-run stress tests. The federal banking agencies collaborated extensively on their rules to help ensure that they were consistent and comparable. The rules define "stress test," establish methods for the conduct of the company-run stress tests that must include at least three different scenarios (baseline, adverse, and severely adverse), establish the form and content of reporting, and compel the covered institutions to publish a summary of the stress test results.

The Dodd-Frank Act supervisory stress tests and the annual company-run stress tests are conducted under common scenarios (baseline, adverse, and severely adverse), provided by the Federal Reserve with respect to the supervisory stress test and the appropriate federal banking agencies with respect to the annual company-run stress tests. The mid-cycle, company-run stress test required for covered companies uses scenarios designed by the firms. Certain institutions with total consolidated assets of $50 billion or more were required to start their company-run stress testing under these rules in 2012, while covered companies with more than $10 billion but less than $50 billion in total consolidated assets, as well as BHCs with total consolidated assets of $50 billion or more that did not participate in the 2009 Supervisory Capital Assessment Program (SCAP), are not required to start stress testing until 2013. The company-run stress tests began with the release of stress scenarios by the federal banking agencies on November 15, 2012, and were recently concluded, with covered companies releasing a summary of their results in March 2013.

The annual company-run stress test is conducted concurrently with the Federal Reserve's Comprehensive Capital Analysis and Review (CCAR) of the largest BHCs. The Federal Reserve has aligned the timing of the Dodd-Frank Act stress tests and CCAR, which facilitates comparative analysis of the results of the Dodd-Frank Act supervisory stress test and CCAR post-stress analysis. On March 7, the Federal Reserve released the results of the Dodd-Frank Act supervisory stress tests. In particular, the Federal Reserve disclosed the results of its stress test conducted under the supervisory severely adverse scenario, which included firm-specific results based on the projections made by the Federal Reserve of each BHC's losses, revenues, expenses, and capital ratios over a nine-quarter planning horizon. On March 14, the Federal Reserve disclosed the summary results of the CCAR 2013 exercise. The Federal Reserve approved the capital plans of 14 BHCs. Two other BHCs received conditional approval, while the Federal Reserve objected to the plans of two other BHCs.

6.1.3 Orderly Liquidation Authority and Resolution Plans

Orderly Liquidation Authority

Title II of the Dodd-Frank Act establishes a new framework, the orderly liquidation authority (OLA), to address the potential failure of a BHC or other financial company when the failure of the financial company and its resolution under the Bankruptcy Code or otherwise applicable federal or state law would have serious adverse effects on financial stability in the United States. Under OLA, the FDIC would generally act as receiver of the financial company and would resolve the company as provided in OLA.

Section 210 of the Dodd-Frank Act also requires the FDIC "to coordinate, to the maximum extent possible" with appropriate foreign regulatory authorities in the event of a resolution of a covered company with cross-border operations. The FDIC and U.K. authorities have made substantial progress in identifying and overcoming impediments to resolution, and in December 2012, the FDIC and the Bank of England (BOE) published a joint paper that detailed their respective approaches to the resolution of a systemically important financial institution with operations in both jurisdictions. The FDIC is continuing to negotiate memoranda of understanding with certain foreign counterparts that provide a formal basis for information sharing and cooperation relating to resolution planning and implementation under the legal framework of the Dodd-Frank Act. In recent months, the FDIC concluded such memoranda with regulatory authorities in three jurisdictions. In addition, the FDIC and the European Commission have formed a senior staff-level working group to discuss issues related to deposit insurance and the resolution of banks and systemically important financial institutions. The group convened its initial meeting in February 2013 and plans additional meetings in 2013.

In October 2012, the FDIC adopted, after notice and comment, a final rule clarifying the conditions and requirements governing the FDIC's exercise of its authority to enforce certain contracts of subsidiaries or affiliates of a financial company placed into OLA notwithstanding contract clauses that purport to terminate, accelerate, or provide for other remedies based on the insolvency, financial condition, or receivership of the financial company. In addition, the FDIC will be proposing additional rules to implement or clarify certain other aspects of OLA, as necessary.

Section 210 of the Dodd-Frank Act requires promulgation of regulations requiring financial companies to maintain records with respect to qualified financial contracts (QFCs) that are determined to be necessary or appropriate to assist the FDIC as the receiver of a financial company. QFCs include securities contracts, commodity contracts, forward contracts, repurchase agreements, swap agreements, and any similar agreement determined by the FDIC. It is expected that a proposed QFC recordkeeping rule will be issued in the near future.

Resolution Plans

Section 165(d) of the Dodd-Frank Act requires nonbank financial companies designated by the Council for supervision by the Federal Reserve and BHCs (including FBOs treated as BHCs) with total consolidated assets of $50 billion or more (covered companies) to report periodically to the Federal Reserve, the FDIC, and the Council with plans—also referred to as living wills—for their rapid and orderly resolution under the U.S. Bankruptcy Code in the event of material financial distress or failure. The Federal Reserve and the FDIC must review each plan and may jointly determine that a resolution plan is not credible, or would not facilitate an orderly resolution of the company under the U.S. Bankruptcy Code. If the Federal Reserve and FDIC jointly determine that a resolution plan is not credible or would not facilitate an orderly resolution under the Bankruptcy Code, then the company must resubmit the plan with revisions, including any proposed changes in business operations or corporate structure, that demonstrate that the plan is credible and would result in orderly resolution under the Bankruptcy Code.

In November 2011, the FDIC and the Federal Reserve published a joint final rule that implements the resolution plan requirement. In accordance with the joint final rule, covered companies with $250 billion or more in total nonbank assets (or, in the case of a foreign-based covered company, $250 billion or more in total U.S. nonbank assets) were required to submit their resolution plans to the Federal Reserve and the FDIC by July 1, 2012. Covered companies with at least $100 billion (but less than $250 billion) in total nonbank assets (or at least $100 billion, but less than $250 billion in total U.S. nonbank assets, for a foreign-based covered company) must submit their initial plans by July 1, 2013. Covered companies with less than $100 billion in total nonbank assets must submit their initial plans by December 31, 2013.

Eleven covered companies filed resolution plans with the Federal Reserve and the FDIC in 2012. The Federal Reserve and the FDIC have reviewed these plans and on April 15, 2013, issued guidance to the companies based on the agencies' review of the plans submitted in 2012. The Federal Reserve and the FDIC also extended the deadline for filing updated reports, from July 1, 2013 to October 1, 2013, to give companies additional time to address the guidance.

6.1.4 Insurance

FIO and state regulators serve on the International Association of Insurance Supervisors (IAIS) Executive Committee and other IAIS committees and subcommittees, including the Technical Committee and the Financial Stability Committee (FSC). One of the responsibilities of the Technical Committee is to direct the development of the Common Framework for the Supervision of Internationally Active Insurance Groups (IAIGs), which will be an integrated, multilateral, and multidisciplinary framework for the group-wide supervision of IAIGs. Also, through service on the FSC, FIO, state regulators, and the NAIC participate extensively in the process of identifying global systemically important insurers (G-SIIs) and the policy measures to be applied to any designated insurer. The IAIS released a proposed methodology in May 2012 and proposed policy measures in October 2012. As directed by the FSB, the IAIS will finalize its list of G-SIIs, methodology, and policy measures in 2013.

In early 2012, FIO hosted the insurance leadership of state regulators, the European Commission, and the European Insurance and Occupational Pensions Authority to partner in a dialogue and related project. The goal of this project is to increase mutual understanding and enhance cooperation between the European Union (EU) and the United States in order to promote business opportunity, consumer protection, and effective supervision. The steering committee for the project assembled separate technical committees to analyze and compare the EU and U.S. regimes on seven topics: (1) professional secrecy and confidentiality; (2) group supervision; (3) solvency and capital requirements; (4) reinsurance and collateral requirements; (5) supervisory reporting, data collection, and analysis; (6) supervisory peer reviews; and (7) independent third party review and supervisory on-site inspections. In December 2012, the steering committee published an agreed-upon way forward that defines common objectives and initiatives leading to improved convergence and compatibility between the EU and the United States.

Insurance regulators, through the NAIC, continue work on updating the Insurance Financial Solvency Framework. NAIC adopted the Own Risk and Solvency Assessment (ORSA) Model Law last year to establish the ORSA filing requirement and the Valuation Manual, which will allow states to consider adoption of the Standard Valuation Law to implement principles-based reserving. The NAIC continues to work on implementation of the revised Credit for Reinsurance Model Law and Regulation, and state regulators are implementing the revised Holding Company Model Law and Regulation, including the Enterprise Risk Report, upon adoption by state legislatures.

The Council will also continue to monitor relevant domestic and international financial regulatory proposals and developments involving insurance.

6.1.5 Mortgage-related Litigation/Settlements

In January 2013, the OCC and the Federal Reserve announced a $9.3 billion agreement with 13 mortgage loan servicers to resolve the 13 servicers' obligations to conduct an independent foreclosure review. The review was required by enforcement actions taken against the 13 servicers by the Federal Reserve, the OCC, and the Office of Thrift Supervision (OTS) in 2011 and 2012 to address deficiencies in mortgage foreclosure processing. The $9.3 billion in settlement funds will be allocated as follows:

- Approximately 4.2 million borrowers who went through foreclosure from 2009 to 2010 at the 13 servicers will receive cash payments totaling $3.6 billion.
- The remaining $5.7 billion will go to providing other assistance to borrowers, such as forgiveness of deficiency judgments, loan modifications, and principal reductions, support for borrower counseling and education, and other foreclosure prevention activities.

On January 6, 2013, Bank of America and Fannie Mae reached a settlement that resolved Fannie Mae's currently-outstanding and expected repurchase requests arising from breaches of representations and warranties on loans sold to Fannie Mae by Bank of America and Countrywide from 2000 to 2008. Bank of America will pay Fannie Mae approximately $10.3 billion, attributed as follows:

- Cash payment to Fannie Mae ($3.55 billion).
- Repurchase of approximately 30,000 loans ($6.75 billion).

On February 9, 2012, the Department of Justice (DOJ), Department of Housing and Urban Development (HUD), and 49 states announced a $25 billion settlement (the National Mortgage Settlement) with Bank of America, Wells Fargo, JPMorgan Chase, Citigroup, and Ally Financial/GMAC. Under the settlement, the five banks would be released from liabilities related to robo-signing and other forms of servicer abuses. In exchange, the five servicers must comply with new servicing standards and provide for about $25 billion in assistance towards the following:

- Principal reduction and other assistance to borrowers ($17 billion).
- Refinancing underwater borrowers ($3 billion).
- Making direct cash payments to foreclosed borrowers ($1.5 billion).
- Funding government consumer protection and foreclosure prevention efforts ($3.5 billion).

In conjunction with the announcement of the National Mortgage Settlement, the Federal Reserve and the OCC announced penalty actions against the same five servicers for deficiencies in mortgage foreclosure processing that were addressed in the agencies' April 2011 enforcement actions against those servicers. The Federal Reserve's penalties were just under $770 million, while the OCC's action levied approximately $400 million in penalties.

6.2 Financial Infrastructure, Markets, and Oversight

6.2.1 Over-the-Counter Derivatives Reform

Title VII of the Dodd-Frank Act establishes a comprehensive new regulatory framework for swaps and security-based swaps. Among other things, the legislation: (1) provides for the registration and comprehensive regulation of swap dealers, security-based swap dealers, major swap participants

(MSPs), and major security-based swap participants; (2) imposes clearing and trade execution requirements on standardized derivative products; and (3) creates robust recordkeeping and real-time reporting requirements with respect to swaps and security-based swaps. Title VII provides that the CFTC will regulate "swaps," the SEC will regulate "security-based swaps," and the CFTC and SEC will jointly regulate "mixed swaps."

In July 2012, the SEC and CFTC approved foundational joint final rules to further define the terms "swap," "security-based swap," "mixed swap," and "security-based swap agreement." This effort followed the CFTC's and the SEC's April 2012 adoption of joint final rules, which further defined the terms "swap dealer," "security-based swap dealer," major swap participant," "major security-based swap participant," and other terms. The entity and product definitional rules went into effect in July and October 2012, respectively, and triggered compliance with other final rules adopted previously by the CFTC. The effectiveness of these rules did not trigger compliance with certain other rules the SEC is adopting under Title VII.

Swap and Security-Based Swap Regulatory Reform

A number of significant elements of the CFTC's swap regulatory regime became effective in the fourth quarter of 2012 and in the first quarter of 2013. Swap dealer registration began in advance of December 31, 2012, and 73 swap dealers and 2 MSPs provisionally registered with the CFTC as of March 2013. Other entities are expected to register over the course of 2013 once they exceed the de minimis threshold for swap dealing activity. Swap dealers (and MSPs) are subject to a number of specific regulatory standards, including internal and external business conduct, recordkeeping and documentation requirements, and real-time and regulatory reporting obligations.

The CFTC adopted a final rule in July 2012 implementing an exception to the clearing requirement for nonfinancial entities and small financial institutions that use swaps to hedge or mitigate commercial risk, known as the end-user exception. The final rule exempts banks, savings associations, farm credit institutions, and credit unions with total assets of $10 billion or less from the definition of "financial entity," making such "small financial institutions" eligible for the end-user exception. The CFTC also proposed a rule in August 2012 that would exempt swaps between certain affiliated entities within a corporate group from the clearing requirement. The proposed rule details specific conditions that counterparties must satisfy to elect the proposed inter-affiliate clearing exemption. The proposed rule also includes reporting requirements for affiliated entities that would use the proposed exemption. In December 2012, the CFTC also adopted further proposed guidance on cross-border issues relating to the implementation of Title VII of the Dodd-Frank Act.

On December 31, 2012, swap dealers began reporting swap transaction data to swap data repositories (SDRs) for the purposes of real-time public reporting and regulatory reporting of interest rate swap transactions and credit default swap (CDS) transactions based on broad-based indices. Reporting to SDRs by swap dealers and certain MSPs for the purposes of real-time public reporting and regulatory reporting in the interest rates, credit, equity, foreign exchange (FX), and other commodity (including agricultural and energy swaps) swap asset classes continued, or began, on February 28, 2013. An April 2013 CFTC staff no-action letter established relief for real-time and regulatory reporting deadlines for non-swap dealer and non-MSP counterparties. Those that are financial entities (per CEA section 2(h)(7)(C)) began reporting swap transaction data on April 10, 2013 for interest rate and credit default swaps and will report data beginning May 29, 2013 with respect to equity, FX, and commodity swaps. Non-swap dealer and non-MSP counterparties, that are not financial entities, will begin swap data reporting on a staggered basis in the second half of 2013.

A third key milestone in swap regulatory reform was achieved in November 2012, with the CFTC's adoption of the first clearing requirement determinations. A significant portion of interest rate and credit default swaps will be brought into central clearing, such as four classes of interest rate swaps (fixed to floating, basis,

forward rate agreements, and overnight index swaps) and two classes of CDS indices (North American and European untranched credit derivatives indices). Compliance for central clearing will be phased in throughout 2013. Swap dealers and the largest hedge funds were required to begin clearing certain standardized swaps on March 11, 2013, and other financial entities will follow on June 10. Accounts managed by third-party investment managers and Employee Retirement Income Security Act (ERISA) pension plans will have until September 9, 2013 to begin clearing.

The CFTC previously adopted a comprehensive set of rules for risk management by swap clearing houses, and in June 2012 published rules to implement the core principles and other requirements for designated contract markets, where both futures and swaps may be listed for trading. The compliance dates for the CFTC's January 2012 rules governing the protection of cleared swap customer funds occurred in November 2012. In the second half of 2012, the SEC also completed the proposal of substantially all of the rules required by Title VII and adopted certain rules pertaining to clearing infrastructure. In June 2012, the SEC adopted rules that establish procedures for its review of certain actions undertaken by clearing agencies. These rules detail how clearing agencies will provide information to the SEC about the security-based swaps that the clearing agencies plan to accept for clearing, which will then be used by the SEC to aid in determining whether those security-based swaps are required to be cleared. The adopted rules also include rules requiring clearing agencies that are designated as systemically important by the Council under Title VIII of the Dodd-Frank Act to submit advance notice of changes to their rules, procedures, or operations if such changes could materially affect the nature or level of risk at those clearing agencies. In October 2012, the SEC adopted a rule that establishes operational and risk-management standards for clearing agencies, including clearing agencies that clear security-based swaps. The rule is designed to ensure that clearing agencies will be able to fulfill their responsibilities in the multi-trillion dollar derivatives market as well as in more traditional securities markets. In addition to these efforts to improve the resiliency of central counterparties (CCPs), U.S. regulators continue to actively participate with international regulators, the FSB, and CPSS-IOSCO to address resolution of CCPs, as well as other financial market infrastructure issues.

In October 2012, the SEC proposed capital, margin, and segregation requirements for security-based swap dealers and major security-based swap participants. Among other things, the proposed rules would set minimum capital requirements for nonbank security-based swap dealers and nonbank major security-based swap participants, establish margin requirements for nonbank security-based swap dealers and nonbank major security-based swap participants with respect to non-centrally cleared security-based swaps, and establish segregation requirements for security-based swap dealers and notification requirements with respect to segregation for security-based swap dealers and major security-based swap participants.

In December 2012, the SEC issued an order providing exemptive relief in connection with a program to commingle and portfolio margin customer positions in cleared CDS, which include both swaps and security-based swaps. Portfolio margining may be of benefit to investors and the market by promoting greater efficiency in clearing, helping to alleviate excessive margin calls, improving cash flow and liquidity, and reducing volatility.

In addition to its work to propose and adopt Title VII rules, the SEC issued in June 2012 a policy statement describing and requesting public comment upon the order in which it expects compliance would be required with the final rules to be adopted by the SEC under Title VII. The aim of this policy statement is to establish an appropriate sequence in which compliance with these rules would be required so as to avoid the disruption and cost that could result if compliance with all of the rules were required simultaneously or in a haphazard order.

Foreign Exchange Swap and Forward Determination

In November 2012, the Secretary of the Treasury made a determination that FX swaps and forwards should be exempt from the definition of "swap" in, and thus exempt from most of the provisions of, the Commodity Exchange Act (CEA), as amended by the Dodd-Frank Act. Prior to issuing this determination, as authorized in provisions of Sections 721 and 722 of the Dodd-Frank Act, the Treasury solicited public comment in 2010 and 2011, on a range of issues relating to whether FX swaps or forwards should be exempt from the definition of "swap" in the CEA. In addition to evaluating the statutory factors, the Treasury reviewed public comments, consulted with regulators, and conducted extensive outreach. The Secretary concluded that this determination is appropriate given the important differences and risk profiles between FX swaps and forwards—which are narrowly defined by the CEA—and other types of derivatives. Unlike most other swaps, FX swaps and forwards have fixed payment obligations that are settled by the exchange of actual currency, and are predominantly short-term instruments. Even though FX swaps and forwards are not subject to certain requirements under the CEA as a consequence of the determination, FX swaps and forwards still remain subject to reporting and business conduct requirements. Moreover, the determination does not extend to other FX derivatives, such as FX options, currency swaps, and non-deliverable forwards.

Credit Exposures

Section 610 of the Dodd-Frank Act, which became effective on July 21, 2012, amends the definition of "loans and extensions of credit" in the national bank lending limit statute (also applicable to savings associations) to include credit exposures arising from derivative transactions and from certain securities financing transactions. The OCC published an interim final rule on June 21, 2012 to implement the statutory amendment. The rule adopts a flexible approach that enables institutions to select from a number of measurement methods suitable to the size and complexity of that institution's activities and credit exposures, while reserving for the OCC the discretion to direct individual institutions to use a specific method to measure credit exposures when safety and soundness requires it. The OCC continues to review comments received on the interim final rule.

State banking regulators also continue to implement the mandate under Section 611 of the Dodd-Frank Act to consider derivative exposure in state lending limit laws.

Capital and Margin Requirements

Federal prudential regulators (Federal Reserve, FDIC, OCC, FHFA, and the Farm Credit Administration), the CFTC, and the SEC issued proposed rules on capital and margin requirements for non-centrally cleared swaps. The proposed margin requirements would require swap dealers, security-based swap dealers, MSPs, and major security-based swap participants to collect initial and variation margin on non-centrally cleared swap transactions from their counterparties.

The United States is currently engaged in an international effort being led by the BCBS and the IOSCO to establish recommendations for margin requirements on non-centrally cleared swaps to help ensure robust regulation of derivatives markets and prevent regulatory arbitrage **(see Box E: International Coordination on Derivatives Reform, including Global Margining)**. The international effort may inform the timing and nature of the rulemakings being advanced by the federal prudential regulators, the CFTC, and the SEC.

BOX E: INTERNATIONAL COORDINATION ON DERIVATIVES REFORM, INCLUDING GLOBAL MARGINING

The recent financial crisis exposed the large, opaque over-the-counter (OTC) derivatives market as a transmission mechanism for financial distress, demonstrating that the OTC market posed significant systemic risk in its existing form. In response, the leaders of the G-20 nations committed in 2009 to improve transparency and risk mitigation in this market by mandating reporting, requiring clearing and public trading of certain derivatives, and setting additional capital requirements for non-centrally cleared transactions. In 2011, the G-20 agreed to add margin requirements on non-centrally cleared derivatives to the derivatives reform program and called upon the BCBS and IOSCO to develop consistent global standards for these margin requirements.

On July 6, 2012, the BCBS/IOSCO-chaired, international Working Group in Margin Requirement (WGMR), which includes bank and securities regulators from the major jurisdictions whose institutions currently play a significant role in the derivatives market (such as the European Union, Hong Kong, Japan, Singapore, Switzerland, the United Kingdom, and the United States) released its first consultation document proposing global margin requirements on non-centrally cleared derivatives for public comment. After considering the initial comments and consulting with the BCBS and IOSCO boards, as well as other international standard-setting bodies, a second consultative document was issued on February 15, 2013 to request further comment.

The February 15 consultation document generally proposes that all financial firms and systemically important nonfinancial entities (excluding sovereigns and central banks) should exchange variation margin regularly (daily where possible) in amounts reflecting the full existing exposure associated with a given derivative. With respect to initial margin, subject to a €50 million threshold, all market participants with over €8 billion in gross notional amount of transactions outstanding (again excluding sovereigns and central banks) would be required to exchange initial margin on a gross basis calibrated according to certain technical standards, whether using regulator-approved modeling or standardized look-up tables. Initial margin payments would be segregated in a manner that maximizes their ready availability in the event of a party's default, and protects them, to the extent legally possible, from seizure in the bankruptcy of the collecting party. The permissible collateral for margin exchange would include a broad range of liquid assets (including high-grade corporate bonds and equities traded on major exchanges), subject to appropriate risk-sensitive haircuts.

The WGMR used information provided by major derivative market participants around the globe to complete a QIS on the predicted impact of these initial margin requirements. The study, which was published on February 15, 2013, found that the proposed initial margin requirement (with the €50 million threshold) would require roughly €700 billion globally in additional segregated margin collateral using internal model-based calculations. Comparing the size of this estimated collateral requirement to the notional size of the entire derivatives market, the study estimated that the proposed initial margin rules would require margin equal to 0.5 percent of the total notional amount of outstanding non-centrally cleared derivatives. By comparison, current market practice varies widely and is estimated to require initial margin equal to 0.03 percent of total notional amounts outstanding.

Currently, one of the largest unresolved issues is how to calibrate initial margin in a way that balances the benefits of margin, while mitigating counterparty risk against the liquidity cost of maintaining large levels of segregated initial margin. The WGMR's study found that, assuming wide use of internal models to estimate margin, the proposed initial margin requirements would require roughly 8 percent of all currently unallocated liquid assets.

6.2.2 Office of Financial Research

The Dodd-Frank Act established the OFR to support the Council and its member agencies by collecting and standardizing financial data, performing essential research, and developing new tools to measure and monitor risks to the financial system.

The OFR complements the efforts of Council member agencies by filling gaps in data and analysis to assess threats to financial stability. In recent work to support the Council, the OFR has been conducting research on the risks of wholesale funding markets. The OFR has also provided data and analysis for the Council's work on nonbank financial company designations.

The OFR is playing a central role in the international initiative to establish a global Legal Entity Identifier (LEI), a code that uniquely identifies parties to financial transactions and links to their basic "business card" information. The LEI will give regulators a better view of interconnected markets and will generate considerable cost savings for the financial industry in collecting, cleaning, and aggregating data **(see Section 6.4.1)**.

In 2012, the OFR released its Strategic Framework, issued its inaugural annual report, unveiled the first three papers of its collaborative Working Paper series with top researchers and academics, and launched a Financial Research Advisory Committee.

As provided by the Dodd-Frank Act, the OFR is led by a Director appointed by the President and confirmed by the Senate for a 6-year term. In January 2013, the Senate confirmed Richard B. Berner to serve as the OFR's first Director.

6.2.3 Accounting Standards

Under the Dodd-Frank Act, the Council's annual report is required to address financial market and regulatory developments, including accounting regulations and standards.

In December 2012, the Financial Accounting Standards Board (FASB) issued for public comment a proposal to improve financial reporting on expected credit losses of loans and other financial assets held by banks, financial institutions, and other public and private organizations. The proposal, Financial Instruments—Credit Losses (Subtopic 825-15), is intended to require more timely recognition of credit losses, while also providing additional transparency about credit risk. In releasing the proposal, the FASB stated that the recent financial crisis highlighted the need for improvements in the accounting for credit losses on loans and other financial instruments, and stated that the proposal would require more timely recognition of expected credit losses and more transparent information about the reasons for any changes in those estimates. Currently, under U.S. Generally Accepted Accounting Principles (GAAP), credit losses are generally not reflected in financial statements until it is probable that the losses have been incurred. Under the proposal, a firm's balance sheet would reflect management's current estimate of expected credit losses at the reporting date (as an allowance for credit losses), and the income statement would reflect the effects of credit deterioration or improvement that has taken place during the period (as a provision for bad debt expense).

In February 2013, the FASB issued for public comment a proposal to improve financial reporting by providing a comprehensive measurement framework for classifying and measuring financial instruments held by banks, financial institutions, and other entities. The proposal, Recognition and Measurement of Financial Assets and Financial Liabilities (Subtopic 825-10), responds to feedback the FASB received on its May 2010 proposal that would have required a much greater use of fair value measurement for financial assets and liabilities than currently exists in U.S. GAAP. Under the new proposal, the classification and measurement of a financial asset would be based on the asset's cash flow characteristics and the entity's business model for managing the

asset, rather than on its legal form, that is, whether the asset is a loan or a security. Based on this assessment, financial assets would be classified into one of three categories: Amortized Cost, for financial assets comprised solely of payments of principal and interest that are held for the collection of contractual cash flows; Fair Value through Other Comprehensive Income, for financial assets comprised solely of payments of principal and interest that are both held for the collection of contractual cash flows and for sale; or Fair Value through Net Income, for financial assets that do not qualify for measurement at either amortized cost or fair value through other comprehensive income. The proposal also would require financial liabilities to generally be carried at cost. For most financial assets and financial liabilities measured at amortized cost, public companies would be required to disclose their fair values, but non-public entities would not be required to disclose such information.

6.2.4 Operational Risks for Technological Systems

On March 7, 2013, the SEC proposed Regulation Systems Compliance and Integrity, or Regulation SCI, which would replace the voluntary standards of the existing Automation Review Policy Inspection Program with enforceable rules designed to help ensure that the core technology of national securities exchanges, significant alternative trading systems, clearing agencies, and plan processors meet certain standards and therefore be better insulated from and more resilient to the vulnerabilities posed by systems technology issues.[17] If approved by the SEC, Regulation SCI would require, among other things, that each SCI entity: (1) establish policies and procedures relating to the capacity, integrity, resiliency, and security of its technology systems; (2) establish policies and procedures designed to ensure its systems operate in the manner intended, including in compliance with relevant federal securities laws and rules; (3) take timely corrective action in response to systems problems; (4) notify and provide the SEC with detailed information when such systems issues occur, as well as when there are material changes in its systems, and inform its members or participants about certain systems problems; (5) conduct an annual review of its compliance with Regulation SCI, and submit a report of the annual review to its senior management and to the SEC; (6) designate certain individuals or firms to participate in the testing of its business continuity and disaster recovery plans at least annually, and coordinate such testing with other entities on an industry- or sector-wide basis; and (7) provide SEC representatives with access to its systems to assess compliance with Regulation SCI.

6.3 Consumer and Investor Protection

6.3.1 Mortgage Transactions and Housing

In January 2013, the FDIC, Federal Reserve, OCC, NCUA, CFPB, and FHFA issued a final rule to implement Section 129H of the Truth in Lending Act as added by Section 1471 of the Dodd-Frank Act. The rule establishes appraisal requirements applicable to higher-risk mortgages, referred to as higher-priced mortgage loans (HPMLs). An HPML is a residential mortgage loan secured by a principal dwelling with an annual percentage rate that exceeds an average prime offer rate by certain specified percentages. Before making an HPML, a creditor must: (1) obtain a written appraisal by a certified or licensed appraiser who has physically visited the interior of the mortgaged property; (2) obtain an additional appraisal from a different appraiser that analyzes any difference in sales prices, changes in market conditions, and any improvements made to the property if the property was acquired at a lower price by the seller within 180 days of the current transaction and the property is being sold at a price that exceeds certain thresholds; (3) provide the borrower with a statement that any appraisal is for the creditor's sole use and that the borrower may have a separate appraisal conducted at personal expense; and (4) provide the borrower with a copy of the appraisal without charge at least three days prior to closing. The final rule exempts certain transactions from the appraisal requirements. The final rule becomes effective on January 18, 2014.

In January 2013, the CFPB issued a final rule setting forth certain minimum requirements for creditors making determinations regarding a consumer's ability to repay a mortgage loan (the Qualified Mortgage Rule). Under the rule's ability-to-repay requirements, creditors generally must consider eight underwriting factors set forth in the rule. However, certain qualified mortgages are entitled to a presumption of compliance with the ability-to-repay requirements. In order to be a qualified mortgage, a loan is generally prohibited from having certain product features (such as negative amortization, interest-only payment, or balloon payment) and it generally must satisfy certain affordability underwriting requirements (such as a 43 percent back-end debt-to-income (DTI) limit and other requirements). The 43 percent DTI limit and other underwriting requirements do not apply to loans that are eligible for certain government guaranty or insurance programs or to loans that satisfy the requirements for a balloon payment qualified mortgage (which is available only to small, portfolio lenders operating predominately in rural or underserved areas). Loans that meet the definition of a "qualified mortgage" and are not higher-priced (generally, prime loans) receive a safe harbor presumption of compliance with the ability-to-repay requirements. Loans that meet the definition of a "qualified" mortgage, but are higher priced (generally, subprime loans) receive a rebuttable presumption of compliance with the ability-to-repay requirements. At the same time it issued the final qualified mortgage rule, the CFPB issued a proposed rule requesting public comment on certain adjustments to the qualified mortgage requirements. The CFPB anticipates that the proposed rule will be finalized and effective by the time the final rule takes effect in January 2014.

In January 2013, the CFPB also issued mortgage servicing rules containing nine significant requirements. Five of these requirements address servicing of all mortgage loan accounts (including accounts for borrowers that are current or delinquent on their mortgage loan obligations). These include requirements relating to periodic billing statements, interest rate adjustment notices, payment crediting and payoff statements, force-placed insurance restrictions, and procedures for error resolution and information requests. The mortgage servicing rules also include four sections setting forth additional protections for borrowers who are delinquent on their mortgage loan obligations. These protections include requirements for servicers to engage in early intervention outreach with borrowers, to provide borrowers with servicer personnel that provide continuity of borrower contact and information, to evaluate borrower applications for loss mitigation options pursuant to certain loss mitigation procedures, and to adopt policies and procedures to achieve certain operational objectives. Many of the servicing requirements include an exemption for small mortgage servicers.

The CFPB also issued a final rule regulating loan originator compensation that strengthens and clarifies existing regulations and commentary on loan originator compensation. Specifically, this final rule clarifies that a loan originator employee may not receive compensation based on any term of a transaction. The rule also sets forth requirements to prevent evasion, prohibits dual compensation of brokers by another party to a broker that has been compensated by a consumer, establishes loan originator qualification standards, and requires disclosure of a loan originator's unique identifier number. The final rule also prohibits mandatory arbitration clauses or financing single premium credit insurance.

The CFPB also issued a final escrow rule that requires creditors to maintain escrow accounts for at least five years after originating a "higher-priced mortgage loan." This rule exempts creditors operating predominantly in rural or underserved areas.

Additionally, the CFPB's Home Ownership and Equity Protection Act (HOEPA) rule expands the types of loans that can be subject to HOEPA's restrictions. Further, the rule revises the existing triggers for HOEPA coverage, which are based on interest rates, points, and fees, and adds a new trigger based on certain prepayment penalty features.

The CFPB also issued a final rule implementing requirements under the Equal Credit Opportunity Act (ECOA) regarding appraisals. This rule also provides that a consumer is entitled to receive a copy of an appraisal conducted for the origination of a first lien mortgage loan.

6.3.2 Consumer Protection

In August 2012, the CFPB published a final rule that provides a "safe harbor" from its remittance rule for providers of 100 or fewer remittance transfers per year. In December 2012, the CFPB proposed three amendments to its remittance rule, which would temporarily delay the February 7, 2013 effective date of that rule and provide additional clarity regarding disclosures and error resolution procedures. In November 2012, the CFPB proposed amendments to rules implementing the credit card ability-to-pay provisions of the Truth in Lending Act.

The Dodd-Frank Act also charges the CFPB with collecting, investigating, and responding to consumer complaints with respect to certain consumer financial products and financial institutions. In 2012, the CFPB received approximately 91,000 consumer complaints. Of these complaints, 50 percent were related to mortgages, the majority of which were related to the ongoing challenges faced by consumers who could not make payments. The CFPB provides the public with access to a database of complaints.

In July 2012, the CFPB and the Department of Education issued a report on private student loans as required by the Dodd-Frank Act. The report assesses the market for private student loans, and the impact of these loans on consumers, and provides a set of recommendations to improve consumer protections. The CFPB has also released a Financial Aid Shopping Sheet and a Financial Aid Comparison Shopper to help students and their families better understand the student loan process.

Among its authorities, the CFPB has supervision authority over certain nonbank entities, including mortgage companies, private education lenders, payday lenders, and "larger participants" of a market for other consumer financial products or services. In July 2012, the CFPB issued a final rule to define larger participants in the consumer credit reporting market, and in October 2012, the CFPB issued a final rule to define larger participants in the consumer debt collection market. The CFPB has started examinations of both types of entities.

In the course of its supervisory and enforcement activities, the CFPB has discovered numerous violations of federal consumer financial law. In each case, it has directed the financial institution that committed the violations to take corrective action. Where warranted, restitution or other relief to consumers has also been provided. In particular, the CFPB, OCC, FDIC, and Federal Reserve have brought enforcement actions against three credit card issuers with respect to the marketing of "add-on" products such as debt protection and credit monitoring. These practices include using deceptive marketing, misleading consumers about fees or the benefits associated with such products, retaining customers who attempted to cancel such products, and enrolling customers in products without their knowledge or consent. As a result of these actions, $435 million in relief was provided to approximately 5.75 million consumers.

6.3.3 Investor Protection

Section 952 of the Dodd-Frank Act requires the SEC by rule to direct the national securities exchanges and national securities associations to prohibit the listing of any equity security of a company that does not comply with the new requirements regarding the compensation committees and compensation consultants to such committees. In June 2012, the SEC adopted rules to implement Section 10C of the Securities and Exchange Act of 1934 and this provision that will (among other things) direct the exchanges to establish listing standards that will require each member of a listed company's compensation committee to be a member of the board of directors and to be "independent." The exchanges are also required to adopt listing

standards that identify factors that affect the independence of compensation consultants to the committee, including other services provided by the consultant to the issuer, the amount of fees received, and the policies and procedures that are designed to prevent conflicts of interest. To implement the new requirements, each relevant national securities exchange, including the New York Stock Exchange (NYSE) and NASDAQ, filed proposed rule changes with the SEC; the SEC issued final orders in January 2013 approving these changes. Under the rules, all listed companies must expand the authority of their compensation committees with respect to the oversight of compensation consultants to the committee by July 1, 2013. Thereafter a compensation committee may select or receive advice from a consultant only after conducting an independence assessment. Listed companies will be required to comply with the remaining provisions of the new exchange rules, including enhanced independence standards of compensation committee members, by the earlier of their first annual meeting after January 15, 2014, or October 31, 2014.

In August 2012, SEC staff released a study regarding financial literacy. The study, which was mandated by Section 917 of the Dodd-Frank Act, was intended to identify the existing level of financial literacy among retail investors, and the methods and efforts to increase investors' financial literacy. The study found that investors have a weak grasp of elementary financial concepts and lack critical knowledge of ways to avoid investment fraud. The study identifies several methods to improve financial disclosures and transparency.

In 2012, the SEC made the first payout under its Whistleblower Program, which was established in 2011. The individual who received the payout provided high-quality, significant information that helped stop a multi-million dollar fraud. The whistleblower received an award of 30 percent of the amount collected in the SEC's enforcement action, which is the maximum percentage payout allowed by law. In fiscal year 2012, the SEC received approximately 3,000 tips, complaints, and referrals from whistleblowers.

6.4 Data Standards

Data standards improve the quality of data by providing for their unambiguous and universally accepted meaning, thus increasing confidence in them, and enabling data comparison, aggregation, sharing, and exchange. Adoption of data standards also reduces the need for costly conversion and manual intervention when exchanging data. Building, adopting, and using standards for financial data will facilitate improved financial stability monitoring and better risk management by firms.

6.4.1 Legal Entity Identifier (LEI)

Although the financial services industry and financial regulators have long employed data standards, these data standards have not been adopted on a global basis or even universally within the United States. Consequently, existing standards are plagued by gaps and overlaps. Fortunately, the standards landscape is beginning to change. In 2012, the global regulatory and supervisory community made significant progress toward the launch of the global LEI system. Representing the Treasury in this initiative, the OFR has played a key leadership role, with strong support from the Federal Reserve, the CFTC, the SEC, and other federal financial regulatory agencies with an interest in data standards.

The LEI is a code that uniquely identifies parties to financial transactions. It is designed to be the first global and unique entity identifier, enabling risk managers and regulators to identify parties to financial transactions instantly and precisely. The LEI is expected to generate considerable cost savings for the financial industry in collecting, cleaning, and aggregating data. Additionally, adoption of the LEI system should reduce the regulatory reporting burden, allowing industry to use the same data more readily for its internal business operations and risk-management processes as it uses for reporting to regulators.

In November 2012, the G-20 endorsed the charter for the Regulatory Oversight Committee (ROC), which is acting as the governing body for the global LEI system. The ROC, which was established in January 2013, met for the first time in January 2013. The ROC is composed of financial regulators and authorities from around the world and is overseeing establishment of a global LEI foundation that will govern the Central Operating Unit (COU) for the system. With authority over a global federation of Local Operating Units (LOUs) that will issue and maintain the LEIs, the COU will ensure adherence with LEI governing principles, protocols, and standards, including reliability, quality, and uniqueness, to produce "one golden standard" for the LEI. To date, several organizations have been issued prefixes to the 20-digit LEI code to enable them to begin preparations to issue LEIs. Indeed, tens of thousands of standard-compliant "pre-LEIs" are already in use, and will converge to be global LEIs. Sponsoring authorities for these organizations include the CFTC and authorities in Germany, Ireland, Palestine, and Turkey.

The OFR has played a key role throughout the LEI development process, leading work streams, and working with other regulators and industry to provide recommendations to the G-20 to guide the governance, development, and implementation of the global LEI system. Earlier in the implementation phase, the OFR served as a Vice Chair on the LEI Implementation Group and the OFR's Chief Counsel currently serves as the Chair of the ROC. The OFR has also worked with other U.S. regulators to embed the concept of the LEI into rulemakings, and will continue to do so. Mandatory reporting uses of the LEI will facilitate the rapid deployment of the LEI as the global system becomes more widely available.

Initiatives for the Next Set of Standards

With the LEI on the path toward implementation, the OFR is assessing other critical gaps in data standards. First is the development and use of entity hierarchies that will facilitate understanding of parent-subsidiary relationships and promote better analysis of intra-firm exposures. Next are product identifiers, including those for loans and derivatives—these identifiers will help define attributes for financial instruments. For example, the Universal Product Identifier (UPI) categorizes swaps according to the underlying reference in them. The Unique Swap Identifier (USI) identifies a particular swap throughout its existence. The LEI, UPI, and USI are required for use under CFTC's swap reporting rules. The Dodd-Frank Act amended the Home Mortgage Disclosure Act to allow the CFPB to require a unique mortgage loan identifier, if deemed appropriate. As with LEIs, adoption of such standards offers the benefits of improved data quality, increased data sharing among regulators, and decreased costs for regulatory reporting by the industry.

6.4.2 Swap Data Repositories

The CFTC reporting rules require that swap transactions be reported to an SDR "as soon as technologically practicable," after trade execution for the purposes of real-time public reporting and regulatory reporting. As of December 31, 2012, swap dealers were required to report interest rate and credit default swap transactions to SDRs. Registered swap dealers began reporting the other three swap asset classes to SDRs on the required date of February 28, 2013. Certain MSPs initiated reporting to SDRs for all five asset classes for the purpose of real-time public reporting and regulatory reporting beginning February 28, 2013. The CFTC phase-in period staggers the reporting requirements for other swap counterparties.

SDRs for interest rate, credit, equity, FX, and other commodity asset classes are required to publicly disseminate real-time swap transaction data for these swap transactions "as soon as technologically practicable" after the SDR receives such data, unless the transaction is subject to a time delay. Time delays for large trades are based on type of execution, underlying asset, and market participant. Additionally, all trades are subject to delays during the phase-in of the CFTC reporting rules. Thus far, market participants have not indicated that the reporting requirements are causing any adverse market conditions such as reduced liquidity.

The DTCC's Data Repository LLC operates a multi-asset class SDR in the United States. The CFTC provisionally approved the DTCC Data Repository LLC to operate as an SDR for credit, equity, interest rate, FX, and commodity derivatives. ICE and CME have also provisionally registered as multi-asset class SDRs but are not yet reporting data. DTCC, the CME, and ICE are currently publicly disseminating swap data. The Trade Information Warehouse reports that $24.1 trillion (notional) of credit derivative contracts were reported, of which $15.0 trillion (approximately 62 percent) are dealer-to-dealer.

The SEC is finalizing the rules related to swap reporting for the products it oversees.

6.4.3 Private Fund Data

The annual and quarterly filings of form PF will provide the Council with a new window into the activities of private funds. The SEC estimates that the activities of approximately 650 private fund advisors, which collectively manage over an estimated 80 percent of the U.S. hedge fund industry and an estimated 75 percent of the U.S. private equity industry, will be reported quarterly on form PF.

6.4.4 Mortgage Market Data

Capturing consistent and accurate data is essential to strengthening the risk-management capabilities of the government-sponsored enterprises (GSEs) and other housing finance institutions, along with improving transparency and creating operational efficiencies that simplify the exchange of data and improve responses to changing requirements and market conditions and trends. The Uniform Mortgage Data Program is an ongoing initiative implemented by the FHFA and the GSEs to improve the consistency, quality, and uniformity of data collected at the beginning of the lending process, as well as for servicing data. Developing standard terms, definitions, and industry standard data reporting protocols will decrease costs for originators and appraisers and reduce repurchase risk. It will also allow new entrants to use industry standards rather than having to develop their own proprietary data systems to compete with other systems already in the market.

In November 2012, the FHFA and the CFPB announced that they had agreed to partner on the creation of a National Mortgage Database (NMDB)—the first comprehensive repository of detailed mortgage loan information. Although the mortgage market is the single largest market for consumer finance, there is a lack of comprehensive data available on a complete, national scale. The creation of the NMDB will be the first step in a broader strategy to help streamline data for research and policy analysis and to make accurate, comprehensive information accessible to regulators.

The SEC also has a rule proposal outstanding that, if adopted, would require the filing of tagged, computer-readable, standardized information about the specific assets or loans backing asset-backed securities offered and sold in transactions registered with the SEC. The SEC has requested public comment on whether the proposal appropriately implements the Dodd-Frank Act requirement to adopt regulations requiring issuers of asset-backed securities to disclose asset-level or loan-level data if such data is necessary for investors to independently perform due diligence.

6.5 Council Activities

6.5.1 Determination of Nonbank Financial Companies to be Supervised by the Federal Reserve

One of the Council's statutory authorities is to determine that a nonbank financial company will be subject to supervision by the Federal Reserve and enhanced prudential standards if the company's material financial distress—or the nature, scope, size, scale, concentration, interconnectedness, or mix of its activities—could pose a threat to U.S. financial stability.

In April 2012, the Council issued a final rule and interpretive guidance that describes the three-stage process that the Council generally intends to use in evaluating nonbank financial companies. In non-emergency situations, before a Council vote on any proposed determination, the company under consideration will have an opportunity to submit written materials to the Council regarding the proposed determination. The proposed determination will proceed only if approved by two-thirds of the Council, including the affirmative vote of the Chairperson. After a proposed determination, a company may request a hearing, and the determination will be finalized only after a subsequent two-thirds vote of the Council, including the affirmative vote of the Chairperson. Any final determination will be subject to judicial review, and the Council must submit a report to Congress on all determinations made under Section 113 of the Dodd-Frank Act and the basis for such determinations.

The Council publicly announced that, in September and October 2012, it voted to advance a subset of nonbank financial companies to the third and final stage of the evaluation process. As of the date of this report, the Council had not made any determinations under Section 113 of the Dodd-Frank Act.

6.5.2 Proposed Recommendation on MMFs

The financial crisis of 2007 to 2008 demonstrated that MMFs are susceptible to runs and can be a source of financial instability with serious implications for broader financial markets and the economy. Section 120 of the Dodd-Frank Act authorizes the Council to issue recommendations to regulatory agencies to apply new standards and safeguards to financial activities and practices that create the risk of problems spreading through U.S. financial markets.

In November 2012, the Council issued for public comment proposed recommendations to the SEC with three alternatives for reform to address the structural susceptibility of MMFs to run risk. The Council is currently considering the public comments on the proposed recommendations. Pursuant to the Dodd-Frank Act, if the Council issues a final recommendation to the SEC, the SEC would be required to adopt the recommended standards (or similar standards that the Council deems acceptable) or explain in writing to the Council, within 90 days, why it has determined not to follow the recommendation of the Council. The Council must then report to Congress on (1) the recommendation issued by the Council and (2) the SEC's implementation of, or failure to implement, the recommendation. The proposed recommendations state that if the SEC moves forward with meaningful structural reforms of MMFs before the Council completes its recommendation under Section 120, the Council expects that it would not issue a final Section 120 recommendation to the SEC.

6.5.3 Risk Monitoring and Regulatory Coordination

The Dodd-Frank Act charges the Council with responsibility to identify risks to U.S. financial stability, promote market discipline, and respond to emerging threats to the stability of the U.S. financial system. The Council also plays a role in further enhancing and facilitating the coordination that takes place among federal and state financial regulatory agencies. The Council regularly examines significant market developments and structural issues within the financial system. For example, over the past year, the Council has considered issues such as the sovereign fiscal developments in Europe and the United States, the multi-billion dollar trading losses by JPMorgan, the state of mortgage foreclosures in the United States, the failure of MF Global, the impact of Superstorm Sandy on financial markets, weaknesses in the LIBOR process, and risks to financial stability arising from cybersecurity vulnerabilities. The Council will continue to monitor potential threats to financial stability and to coordinate regulatory responses, whether from external shocks or structural weaknesses.

To facilitate this risk monitoring process, the Council established the Systemic Risk Committee (SRC), composed primarily of member agency staff in supervisory, surveillance, examination, and policy roles. The SRC serves as a forum for member agency staff to identify and analyze potential risks that may extend beyond the jurisdiction of any one agency.

6.5.4 Operations of the Council

The Dodd-Frank Act requires the Council to convene no less than quarterly. In 2012, the Council met 12 times.[18] The meetings bring Council members together to discuss and analyze emerging market developments, threats to financial stability, and financial regulatory issues. The Council is committed to conducting its business as openly and transparently as practicable, given the confidential supervisory and sensitive information at the center of its work. Consistent with the Council's transparency policy, the Council opens its meetings to the public whenever possible. The Council held a public session at three of its meetings in 2012.[19]

Approximately every two weeks, the Council's Deputies Committee, which is composed of senior representatives of Council members, has convened to discuss the Council's agenda and to coordinate and oversee the work of the SRC and the five other functional committees. The other functional committees are organized around the Council's ongoing statutory responsibilities: (1) identification and consideration of nonbank financial companies for designation; (2) identification and consideration of financial market utilities for designation; (3) making recommendations to primary financial regulatory agencies regarding heightened prudential standards for financial firms; (4) consultation with the FDIC on orderly liquidation authority and review of the resolution plan requirements for designated nonbank financial firms and the largest BHCs; and (5) the collection of data and improvement of data-reporting standards.

In 2012, the Council approved hearing procedures for nonbank financial companies and FMUs subject to proposed designations. The Council amended its hearing procedures in April 2013 to apply to financial companies engaged in payment, clearing, or settlement activities subject to proposed designations. The Council also passed its third budget. In addition, the Council fulfilled its obligations under the Freedom of Information Act (FOIA) by responding to FOIA requests in accordance with the Council's FOIA regulation, and complied with the Council's transparency policy by conducting its business in an open and transparent manner whenever possible.[20] The Council also re-launched its website, www.fsoc.gov, where members of the public can now register to receive e-mail notifications regarding the Council's activities, including announcements of upcoming Council meetings.

Financial Research Fund Assessments

Section 155 of the Dodd-Frank Act requires the Treasury, with the approval of the Council, to establish assessments to fund the OFR's budget, which includes the expenses of the Council and certain FDIC implementation expenses associated with OLA. To implement this provision, the Treasury issued a final rule on May 21, 2012 that establishes an assessment schedule for semi-annual collections from BHCs with total consolidated assets of $50 billion or greater and an interim final rule that applies to nonbank financial companies supervised by the Federal Reserve. The first payments to the Financial Research Fund under the rule were made on July 20, 2012. Under the Treasury regulation, subsequent collections are scheduled each March 15 and September 15 to replenish the Financial Research Fund.

6.5.5 Section 119 of the Dodd-Frank Act

Section 119 of the Dodd-Frank Act provides that the Council may issue non-binding recommendations to member agencies on disputes about the agencies' respective jurisdiction over a particular BHC, nonbank financial company, or financial activity or product. (Certain consumer protection matters, for which another dispute mechanism is provided under Title X of the Act, are excluded). To date, no member agency has approached the Council to resolve a dispute under Section 119.

7 Potential Emerging Threats

Financial stability is threatened when adverse shocks interact with financial system vulnerabilities. Adverse shocks potentially induce substantial losses on a class of assets over a short period of time and can emerge from, or be exacerbated by, the failures of specific firms, infrastructure weaknesses, or breakdowns in market functioning. Not all shocks necessarily affect the stability of the financial system or the real economy. However, if the financial system is particularly vulnerable to shocks due to excessive leverage, excessive maturity transformation, or excessive credit risk taking, a shock could threaten many institutions with insolvency. Vulnerabilities can also arise from weaknesses in reporting systems or the possibilities of runs.

In this section, we review six areas of vulnerabilities that could threaten the stability of the U.S. financial system if adverse shocks occur. Specifically, this section (1) provides a review of fire sale and run risk vulnerabilities; (2) describes operational risks and draws lessons learned from Superstorm Sandy; (3) explains why the reliance on reference rates is a potential vulnerability for the financial sector; (4) explores the financial system's vulnerability to a sudden spike in fixed income yields; (5) lists threats from foreign economic and financial developments; and (6) explains the risk-taking incentives of large, complex, interconnected financial institutions, followed by financial stability considerations for bank merger policies.

7.1 Fire Sales and Run Risk Vulnerabilities

Market-based intermediation is exposed to fire sale and run vulnerabilities. This section investigates the vulnerabilities that arise along a particular chain of market-based intermediation. The chain begins with cash lenders, such as pooled cash management vehicles and others with excess cash to invest, including corporate and governmental entities. These cash lenders invest in tri-party repos with broker-dealers. The repos are collateralized by Treasury securities, agency mortgage-backed securities (MBS) and debt, or corporate bonds **(see Section 5.2.3 for a breakdown of repo funding by collateral type)**. This intermediation chain allows participants to allocate funds to long-term investments while offering liquid investment products to investors. However, the intermediation conducted along this chain makes each step potentially vulnerable to runs and fire sales. If cash investors doubt the solvency or liquidity characteristics of their collateral or counterparty, they might rapidly unwind their investments. This in turn leaves broker-dealers who are funded through tri-party repo vulnerable to sudden collapses in sources of funding.

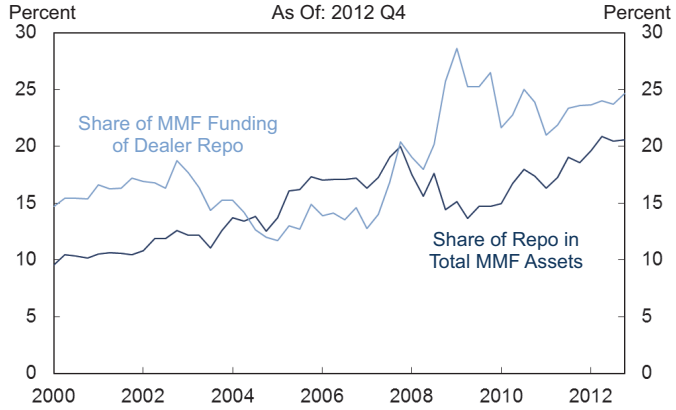
Money market funds (MMFs) are among the largest cash investors in the tri-party repo market.[21] Repo holdings of MMFs have steadily increased over recent quarters, and currently amount to $545 billion **(Chart 7.1.1)**. The share of MMF assets allocated to repo and the share of broker-dealer repo funded by MMFs have been steadily increasing since experiencing a sharp decline during the financial crisis. As of the end of 2012, MMFs allocate over 20 percent of their investments to repos and fund nearly 25 percent of total broker-dealer repos **(Chart 7.1.2)**. Because MMFs are susceptible to runs, their relative importance in the repo market creates a source of vulnerabilities for the broker-dealer sector.

In the tri-party repo market, a fire sale can occur if a broker-dealer under stress immediately needs to sell assets that it can no longer finance. Such pre-default fire sales are a risk because broker-dealers perform maturity and liquidity transformation. As such, broker-dealers that obtain funding in the tri-party repo market could be solvent but illiquid. The value of the securities they hold might exceed the face value of the repo if the securities are sold in a well-functioning market. If, however, the market for these securities becomes temporarily illiquid, the securities' price might drop to a point at which—if a broker-dealer cannot provide additional collateral

Chart 7.1.1 Total MMF Repo Holdings

Source: Flow of Funds, Haver Analytics

Chart 7.1.2 Repo Funding by MMFs



Source: Flow of Funds, Haver Analytics

to make up for the shortfall in the required coverage—the securities are worth less than the face value of the repo they collateralize. This dynamic makes a run by repo creditors potentially self-reinforcing.

The risk of fire sales is heightened when collateral is less liquid. In particular, firms that have a large fraction of their repo transactions collateralized by illiquid securities tend to be more vulnerable. Lenders' incentives to sell collateral quickly in case of dealer distress rather than to liquidate over a longer time horizon or hedge those positions also increase the risk of fire sales. Large broker-dealers' repo books currently range between $100 and $200 billion and, in some cases, reached peak levels in excess of $400 billion prior to the financial crisis. While haircuts place some constraint on the size of a firm's repo book, so long as underlying collateral remains liquid, the size of a firm's repo book could increase further. For very large repo books, even the liquidation of high-quality collateral such as agency MBS could prove challenging over a compressed timeframe.

The fire sale risk in the tri-party repo market generates vulnerabilities for the securities broker-dealer sector. Although commercial banks benefit from access to the discount window and deposit insurance, broker-dealers do not have such backstop sources of funding. However, compared to activity before the crisis, broker-dealers have modestly reduced their reliance on overnight tri-party repo funding, instead relying on longer-term repo funding sources. Furthermore, large broker-dealers have reduced their reliance on MMFs for funding less liquid assets via repo. In addition, the largest broker-dealers are now part of bank holding companies (BHCs), and are thus subject to comprehensive prudential oversight at the holding company level. Despite these mitigating factors, the absence of direct and pre-specified sources of public liquidity and credit backstops makes broker-dealers, as compared to banks, more exposed to vulnerabilities in their funding sources.

7.2 Operational Risks

Market Infrastructure and Market Continuity Weaknesses

In 2012, equity markets experienced a number of systems issues, raising concerns over the impact of the markets' technology infrastructure on market stability. Technological advances have brought many benefits to markets, but recent events demonstrate that those benefits are not without risks. When systems do not operate as intended, there may be significant consequences not only for the entities responsible for the errors, but also for a much wider group of market participants. Among the significant systems issues that affected U.S. securities markets in 2012, there are three notable examples of the ways in which the technology failures of individual firms can potentially threaten market stability and investor confidence. These include systems malfunctions in connection with the initial public offerings (IPOs) of both BATS Global Markets, Inc. (BATS) and Facebook, Inc., as well as losses suffered by Knight Capital Group, Inc. (Knight Capital) caused by errors in its systems related to order routing.

- On March 23, 2012, a flaw in software code forced BATS, an equities exchange, to cancel the IPO of its own stock, which was to be listed on its own exchange. According to reports, a coding error caused the matching engine for certain ticker symbols to enter into an infinite loop, making certain securities symbols, including the symbol for BATS itself, inaccessible on the exchange.
- On May 18, 2012, issues with NASDAQ's trading systems delayed the start of trading in the high-profile IPO of Facebook, Inc. According to public disclosures, NASDAQ's IPO system encountered conditions that delayed the determination of an opening price in the IPO and resulted in some market participants experiencing delays in notifications over whether orders had been filled.
- On August 1, 2012, the trading firm Knight Capital experienced a technology issue at the opening of trading at the New York Stock Exchange (NYSE) related to the installation of trading software that caused routing problems. These issues resulted in Knight Capital sending a significant number of unintended orders in NYSE-listed securities into the market. As a result of the error, Knight Capital accumulated large positions in certain securities that, when unwound, led to a substantial loss.

These events occurred notwithstanding current regulatory requirements and oversight programs relating to technology standards and safeguards. For example, under the SEC's voluntary Automation Review Policy Inspection Program, SEC staff conducts inspections of the self-regulatory organizations' trading and related systems, monitors planned significant system changes, and responds to reports of system failures, disruptions, and other problems. In addition, Rule 15c3-5 under the Exchange Act requires a broker-dealer with market access, or that provides a customer or any other person with access to an exchange or alternative trading system, to establish, document, and maintain a system of risk management controls and supervisory procedures reasonably designed to manage the financial, regulatory, and other risks of its business activity. Financial risk management controls and supervisory procedures must be reasonably designed to systematically limit the financial exposure of a broker-dealer that could arise as a result of market access.

The SEC, in conjunction with various market participants, is examining the relationship between the operational stability and integrity of the securities market and the ways in which market participants design, implement, and manage complex and interconnected trading technologies. In March 2013, the SEC proposed Regulation Systems Compliance and Integrity (Regulation SCI) to strengthen the automated systems of important participants in the securities markets.

Market Infrastructure and Business Continuity

On October 29, 2012, the landfall of Superstorm Sandy caused a two-day closure of the NYSE and NASDAQ, while fixed income markets were closed for one day. Money markets experienced only minor disruptions, as market participants followed the Securities Industry and Financial Markets Association's (SIFMA) recommendation to extend overnight trades to two-day trades. The Depository Trust & Clearing Corporation's (DTCC)

clearing and settlement services continued to operate throughout the storm from an alternate site, although physical certificate processing was damaged due to the flooding of its downtown Manhattan location **(see Box F: Lessons Learned from Superstorm Sandy)**.

Cybersecurity: Vulnerabilities to Attacks on Financial Services

Security threats in cyberspace are not bound by national borders and can range widely from low to high security risks. Such threats include mechanisms that compromise computer systems through software code, which may immediately exploit an application weakness, coordinate an attack across systems, or replicate on a single system to the point that performance is disrupted. Cyber risks can impact the confidentiality, integrity, and availability of the information and technologies essential for the provision of services, resulting in financial, compliance, and reputation risk. Moreover, cyber incidents that disrupt, degrade, or impact the integrity of critical financial infrastructure could have consequences on operations and efficiency. During 2012, more than a dozen financial institutions sustained distributed denial-of-service (DDoS) attacks to their public websites, all of which were attributable to a single group. These particular attacks, which began in September, were targeted, persistent, and recurring. These attacks targeted a number of the largest financial institutions, as well as a few large regional organizations. The knowledge and skill of the attackers appeared to increase over time, including incorporation of blended attacks, which can employ multiple vectors to ensure higher success rates, and the use of browser-specific attacks to allow compromises over multiple operating systems platforms. With this recent experience, the financial sector has become increasingly adept in identifying, assessing, preventing, and mitigating cyber risks.

Financial sector services groups (such as the Financial Sector Information Sharing and Analysis Center), trade associations, and coordinating committees of the public sector (such as the Financial Services Sector Coordinating Council) are critical to understanding the risks, trends, and best practices for mitigation of cyber threats, and for disseminating timely information. Enhancing cross-sector cooperation, particularly with industries upon which the financial sector is dependent, such as energy, power, and telecommunications, is critical to resiliency. Public-private partnership improvements in the analysis and dissemination of robust information to improve real-time responses to cyberattacks will enhance incident management, mitigation, and recovery efforts. Enhanced cybersecurity education directed to employees and consumers, as well as efficient implementation and testing of response programs, will improve protection, mitigation, and response to cyberattacks.

Money Laundering

The scale, efficiency, sophistication, and complexity of the U.S. financial system make it a prime target for those who seek to conceal and move illicit money. Money launderers must often, at some point, rely on the U.S. financial system to move or launder the illicit funds supporting or derived from their operations. The technology, products, and services offered by institutions to give customers better and quicker access to financial services can also be used by criminals to instantaneously and anonymously move money throughout the world, sometimes through the simple click of a mouse or the use of a cell phone application. Furthermore, money laundering schemes are becoming more complex, involving entities and individuals located in numerous jurisdictions worldwide. To preserve the stability of the U.S. financial system, money laundering and other illicit financial activities need to be combated, and financial institutions should continually reassess and enhance their systems for detecting, reporting, and deterring potential money laundering activities accordingly.

Model Risk

Model risk presents an increasingly widespread and important form of operational risk. Just as technological progress has permitted faster and more complex transactions, it also has permitted more complex models for making investment decisions. Flawed models have been costly to some financial institutions, and distress due to flawed models can exert negative externalities onto other firms. Financial institutions can mitigate model risk by continuously monitoring and analyzing the

validity of models, comparing alternative models, understanding the limitations of their models, and supplementing their models with other information and analysis.

7.3 Reliance upon Reference Rates as a Vulnerability

Benchmark interest rates, including the London Interbank Offered Rate (LIBOR), the Euro Interbank Offered Rate (EURIBOR), and similar rates, are referenced in swaps transactions, commercial and consumer loans, futures contracts, and other financial derivatives products traded in over-the-counter (OTC) markets and exchanges around the world.[22] Approximately $350 trillion notional amount of swaps and $10 trillion of loans are indexed to LIBOR alone. Furthermore, LIBOR is a reference rate for 70 percent of the U.S. futures market, a majority of the swaps market, and nearly half of U.S. adjustable-rate mortgages (ARMs).

LIBOR, EURIBOR, and other similar benchmarks play a key role in the financial system's core functions of pricing and allocating capital and risk. The Council believes that the price signals derived from such benchmark interest rates must have integrity; be based upon competitive forces of supply and demand; and be free of fraud, manipulation, and other abuses. For capital and risk to be efficiently allocated within the economy and risk to be appropriately measured, such interest rate benchmarks should reflect actual price discovery anchored in observable transactions.

The Decline in Unsecured, Interbank Lending

LIBOR and other similar rates reference a market that currently has few, and at times, no transactions, particularly in longer tenors. The decline in trading in unsecured bank funding markets is attributable to a significant structural shift in the funding of balance sheets and trading positions by market participants since the financial crisis. In particular, the funding market between banks has shifted from unsecured borrowing to borrowings that are secured by posting collateral. Furthermore, the deterioration in the perception of some banks' credit risk since the beginning of the European debt crisis has exacerbated the reluctance of banks to engage in unsecured lending. The very large volume of excess reserves in the banking system provided by central banks has also contributed to significantly reduced activity in interbank lending markets. In addition, banks are more closely managing demands on their balance sheets. Recent changes to Basel capital rules also move banks even further from interbank lending on an unsecured basis.

Weakness of Reference Rate Governance

Another key problem with LIBOR and other similar rate regimes that facilitated the malfeasance that occurred was the weakness of the governance structures that were in place. This weakness was evident both in the processes that existed within banks for determining their submissions and in the processes for administering the rates more broadly. Coupled with the scarcity of transactions in the unsecured, interbank market, these weaknesses created the opportunity for banks to manipulate and misreport rates over long periods of time.

Manipulative Activity

Recent investigations uncovered systematic false reporting and manipulations of reference rate submissions dating back many years. This misconduct was designed to either increase the potential profit of the submitting firms or to convey a misleading picture of the relative health of the submitting banks. These actions were pervasive, occurred in multiple bank locations around the world, involved senior bank officials at several banks, and affected multiple benchmark rates and currencies, including LIBOR, EURIBOR, and the Tokyo Interbank Offered Rate (TIBOR). Each of the banks that faced charges engaged in a multi-year pattern of misconduct that involved collusion with other banks. These revelations have undermined the public's confidence in these benchmarks.

In the United States, the CFTC issued orders bringing and settling charges against Barclays, UBS, and the Royal Bank of Scotland. The orders charged the banks with manipulation, attempted manipulation, and false reporting, resulting in penalties of more than $1.2 billion in the United States, and over $2.5 billion globally. The banks also reached resolutions with U.S. Department of Justice (DOJ) and foreign authorities. The CFTC's

BOX F: LESSONS LEARNED FROM SUPERSTORM SANDY

Financial sector infrastructure operates in an environment that is threatened daily by natural disasters, human error, and intentional acts. Core financial infrastructure firms, including providers of payment, settlement, trading, and clearing services, must ensure that their daily operations can function with a high level of confidentiality, integrity, and availability in the face of these threats. While these firms continue to successfully identify, prevent, mitigate, and respond to threats, wide-scale events still pose potential operational risks, including disruption or degradation of critical functions supporting financial transactions.

Superstorm Sandy made landfall near Atlantic City, New Jersey on Monday, October 29, 2012, as a post-tropical cyclone. At its peak, the storm left over 6 million people in 16 states without power. The financial services sector was most affected by the impact of the storm in New York City and New Jersey. The severe flooding and wind impact on energy, telecommunications, and transportation infrastructures highlighted the financial services sector's dependency on those systems.

Despite the severity of Sandy's impact on people's lives, the financial services sector continued to operate, albeit with some notable exceptions. Sandy's impact on financial services was limited, with the worst impacts experienced during the initial two business days. The NYSE and NASDAQ were closed for two consecutive days beginning Monday, while money markets and fixed income markets experienced an early close on Monday, the day of the storm, and were closed on the following day.

The most critical financial market utilities (FMUs), including core payment, clearing, and settlement functions, operated normally from their primary or contingency sites. On the retail services side, point-of-sale data flowed, currency inventories were adequate, and ATMs generally were available outside the hardest hit areas. The majority of institutions and third-party providers successfully leveraged their contingency plans, and disaster recovery vendors were able to meet extremely high demand. The financial services sector's extensive efforts towards preparation and planning, and investment in failover, back-up, and alternative operations, as well as the fortunate backdrop of an early warning of the impending storm, contributed to sector resiliency. Effective governmental assistance through federal interagency coordination, federal-state coordination, the public-private partnership for critical infrastructure protection, and targeted financial regulatory relief helped to resolve issues and assure communication among affected parties.

As a result of the storm, several areas were identified where further improvement is needed to strengthen business continuity and resiliency, including:

- **Planning and testing:** It is important that all market participants, including firms, exchanges, service bureaus, vendors, and clearing houses, fully understand the functionality of contingency systems, and that key operations and business personnel communicate efficiently to assure enterprise-wide clarity. Expanded testing exercises would enhance market-wide assurance of failover reliability. Such testing should involve major market participants as well as exchanges, clearing houses, settlement and payment systems, and data repositories, and should also involve providers of essential services such as power, water, and telecommunications.

- **Incident management:** Protocols for assuring a timely decision on whether and when to close or open markets would benefit from review and streamlining by the responsible public-and private-sector entities. Likewise, protocols for assuring timely decisions within financial firms and service providers on whether and when to leverage back-up sites would benefit from continued regular testing. Furthermore, market interdependencies need to be fully incorporated in the decision-making process.

- **Personnel:** The resilience of critical components of the financial system, including major market

participants, requires geographic dispersal of both electronic systems and personnel sufficient to enable an organization to operate despite the occurrence of a wide-scale disruption affecting the metropolitan or geographic area of the organization's primary operations, including communities economically integrated with, adjacent to, or within normal commuting distance of the primary operations area. Organizations, including major financial firms, need to continuously and rigorously analyze their routine positioning and emergency repositioning of key management and staff. This is an ongoing requirement as technology, market structure, and institutions evolve rapidly. Developed business continuity plans should be implemented, and key staff should be sent to disaster recovery sites when there is advance notice of events.

- **Dependencies:** Cross-industry interdependencies require constant review, reassessment, and improvement by organizations to mitigate the impact of energy, power, transport, and communications failures during severe incidents, and to help ensure reliable redundancy.

settlements with Barclays, UBS, and the Royal Bank of Scotland included measures requiring those three banks to take specified steps concerning their LIBOR and other benchmark interest rate submissions and to improve related internal controls.[23]

Financial Stability Concerns

Council members believe that in the absence of both an explicit and transparent link between LIBOR and market transactions and strong governance of reference rates, price signals for capital and risk allocation and risk measurement may become distorted, possibly leading to misallocation of capital and risk and a mis-measurement of risk. Identifying alternatives anchored in observable transactions with appropriate governance structures, and determining how to achieve a smooth transition to them, would mitigate the risk of a significant threat to U.S. financial stability.

Possible Distortions in Capital Markets by Continued Use of LIBOR

The continued publishing of LIBOR implicitly suggests that there is a liquid underlying market when, in fact, trading volumes are thin, and at times nonexistent, particularly in longer tenors. Referencing LIBOR and similar rates diminishes market integrity and will be unsustainable in the long run, inasmuch as these rates are not anchored in observable transactions. Furthermore, significant incentives for misconduct exist when a vast array of financial instruments reference a given benchmark based on a small or possibly nonexistent market. These incentives were noted by a recent Bank for International Settlements' (BIS) Economic Consultative Committee report: "Cases of market manipulation have raised concerns about the appropriateness of the processes and methodologies used in formulating reference interest rates. These cases reflect both the incentives to manipulate submissions—e.g. the potential to profit in a large derivatives market that relies on reference rates and the desire during the financial crisis to avoid the stigma associated with relatively high submissions—and a relatively weak governance structure."

Banks Withdraw from LIBOR Panels

In light of the litigation and reputational risk, there is a chance that banks currently participating in LIBOR panels may choose not to submit rates.[24] According to media reports, banks have considered withdrawing from LIBOR and other panels. To date, six banks have withdrawn from EURIBOR, and a number of banks, including Barclays, have pulled out of lesser-used LIBOR panels, such as LIBOR for the Australian dollar and the Canadian dollar. All 18 banks continue to report to the U.S. dollar LIBOR panel, but absent a smooth and orderly transition, if banks were to pull out of the U.S. dollar LIBOR panel, preventing LIBOR from being published, it could prove difficult to settle contracts or write new contracts. While some contracts contain language that allows for a backup rate in the event of temporary problems with LIBOR, it is not clear how an event would be treated if LIBOR ceased to exist.[25]

A Rapid and Precipitous Move by Market Participants to Divest Contracts Tied to LIBOR

Another concern is if market participants were to rapidly and precipitously move to divest investments and contracts linked to LIBOR. While such an event is currently not expected, such an event could destabilize markets. If such a shift occurred gradually, it could be seen as market participants effectively solving their own problem. However, if appetite for LIBOR-linked investments and contracts was severely reduced and led investors to rapidly and precipitously shift out of these instruments, the normal functioning of a variety of markets, including business and consumer lending, could be impaired.

Reform Efforts

In the wake of the investigations and settlements described above, multiple international regulatory bodies and supervisory agencies responded to concerns about reference rates and financial benchmarks by initiating reviews of various global benchmark activities and developing best practices to improve the governance of these benchmarks.

The U.K. government requested that the Financial Services Authority (FSA) review LIBOR and provide recommendations for its revision or replacement.

The resulting Wheatley Review published a final report on September 28, 2012, which included a number of major and minor revisions to the then-current system of governance, calculation, and oversight. As examples, the Review recommended an explicit and clear use of transaction data to corroborate LIBOR submissions and a phasing out of all but 37 of the current 150 published rates.[26] The Review recommended, for instance, that Canadian dollar LIBOR and Australian dollar LIBOR cease to exist. The Review concluded that transaction data should be explicitly used to support LIBOR submissions. It also emphasized the importance of sound governance in the determination of reference rates and, along the lines of the Review, recommended that both the administration and submission processes be regulated by the FSA. The Wheatley Review recommendations were incorporated in final legislation by the U.K. Parliament in December of 2012. On March 25, 2013, the U.K. FSA issued proposals for the regulation and supervision of LIBOR-related activities.[27] LIBOR-related activities fall under regulation by the new Financial Conduct Authority (FCA) as of April 2, 2013. Benchmark administrators are required to corroborate submissions and monitor them for suspicious activities. Banks must put in place conflicts of interest policies, and benchmark administrators and submitters must be considered FSA-approved persons.

The CFTC and the U.K. FCA are co-chairing the International Organization of Securities Commissions (IOSCO) Task Force on financial market benchmarks. In January 2013, the task force published its Consultation Report on Financial Benchmarks, with a final report scheduled to be published in mid-June.[28] The consultation requested public input on a possible framework of principles to support the quality and credibility of benchmark administration and the resilience of benchmarks. In the report, the Task Force said, among other things, that in order to be credible, benchmarks should be anchored in observable transactions and be subject to clear governance and accountability mechanisms. The consultation report stated, "The Task Force is of the view that a benchmark should as a matter of priority be anchored by observable transactions entered into at arm's length between buyers and sellers in order for it to function as a credible indicator of prices, rates or index values." It went on to say, "However, at some point, an insufficient level of actual transaction data raises concerns as to whether the benchmark continues to reflect prices or rates that have been formed by the competitive forces of supply and demand." The consultation report also discussed the need for benchmarks, as well as contracts and financial instruments that reference benchmarks, to have contingency provisions to address the possible cessation of a benchmark and the transition to alternatives.

The March 2013, the BIS Economic Consultative Committee report noted that greater use of transaction data combined with the transparent and appropriate use of expert judgment in the rate setting process would enhance the resilience of reference rates, and that steps should be taken to ensure that contracts have robust fallback arrangements for use in the event that the main reference rate is not produced.[29] In addition, the report notes both the incentives to manipulate and a relatively weak governance structure. The report also discussed a range of options that central banks could use to promote additional benchmark choices, including a rebalancing away from current unsecured, interbank lending reference rates. Significantly, the report stressed that given the "public-good" nature of reference rates, it is "entirely appropriate that the official sector should play a role in ensuring the reliability and robustness of reference rates and facilitating a range of private sector solutions."

International regulators and markets participants have begun to consider alternatives and possible arrangements to transition to alternative rates. For example, the BIS working group report lists the overnight swaps rate and short-term collateralized financing rates, such as general collateral repo rates, as possible alternatives.

Regulators around the globe have taken steps toward reviewing their own local benchmarks. The European Securities and Markets Administration (ESMA) and European Banking Authority (EBA) published a joint consultation report in January

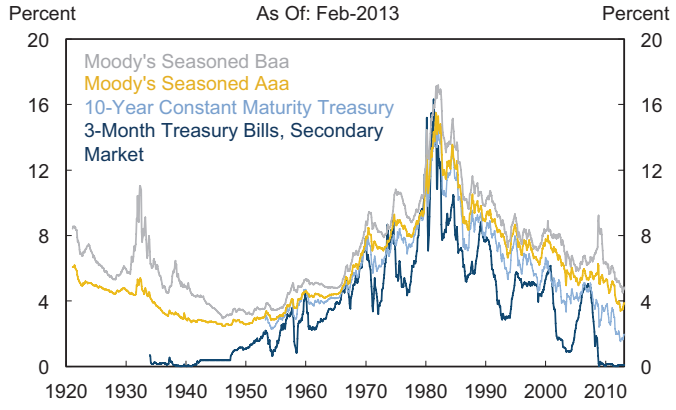
2013, which focused on EURIBOR and other European benchmarks, detailing similar high-level principles for benchmark administrators, calculation agents, and submitters. On the legislative front, the European Commission has started to revise current legislative authority over these widely used market instruments. All of these entities aim to establish systems of governance and administration, especially in the case of benchmarks with widespread use, that will perform robustly through a wide range of market conditions.

7.4 Financial System Vulnerability to Sudden Spikes in Fixed Income Yields

Treasury yields are at the lowest levels seen since the 1940s **(Chart 7.4.1)**. Yields across the credit spectrum are also low by historical standards. The primary drivers for these exceptionally low levels are threefold: expectations of continued low short-term interest rates, compressed pricing of interest rate risk, and contained solvency risk for credit markets.

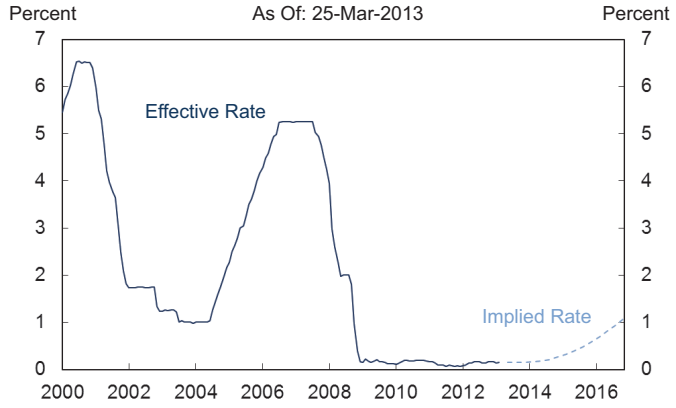
- Market expectations of low short-term rates can be gauged from federal funds futures, which are at very low levels relative to recent years **(Chart 7.4.2)**. Expectations for low future interest rates primarily reflect the stance of monetary policy, including the Federal Open Market Committee's (FOMC) rate guidance. That policy stance, in turn, reflects the depth of the post-crisis recession and the moderate recovery since that time.
- The pricing of interest rate risk can be measured by term premia, or the excess compensation to investors of holding long-term Treasury securities compared to reinvesting in short-term securities periodically over time. Current estimates of term premia are quite compressed relative to historical averages **(Chart 7.4.3)**.[30] The 1-year rate 9 years forward—another measure of the risk premium embedded in Treasury securities—is also very low. The pricing of risk is driven by the composition of investors and by risk appetite. An important factor in the composition of buyers is the

Chart 7.4.1 Historical Bond Yields



Source: Federal Reserve, Haver Analytics

Chart 7.4.2 Federal Funds Rate



Source: Federal Reserve, Haver Analytics

Note: Implied Federal Funds Rate derived from OIS quotes.

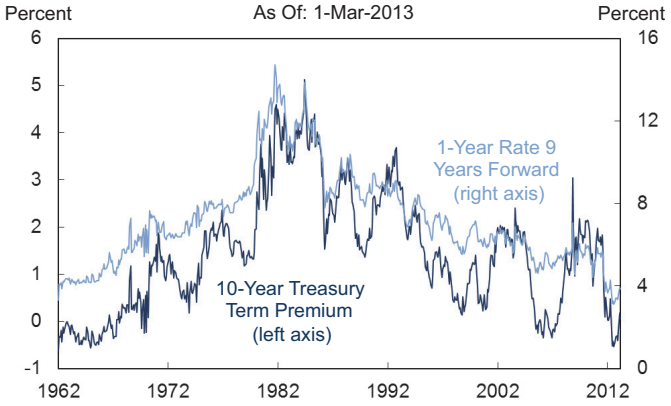
presence of the Federal Reserve's large-scale asset purchase programs (LSAPs) as well as pension funds' demand for long-term Treasury securities, both of which tend to compress term premia. The low rate volatility environment relaxes risk management constraints, resulting in higher risk appetite.

- The pricing of credit risk is measured by credit spreads, which are the difference in yields between corporate bonds and Treasury securities of the same duration for given credit qualities. Credit spreads have declined, but are not unusually low by historical standards **(Chart 7.4.4)**. High-yield, or speculative grade, corporate credit spreads have also compressed. The compression in spreads can be attributed to a decline in the credit risk premium in response to robust demand for higher-yielding assets, healthy corporate balance sheets, and a sanguine outlook for defaults.

The low level of interest rates provides incentives for institutions to reach for yield by extending their duration risk, investing in lower-quality credit, or increasing their degree of leverage. Pension funds, insurers, and asset managers face challenges in meeting targets for future obligations. Reaching for yield is supported by the low measured volatility across asset markets. Low term premia provide an incentive to move down the credit spectrum and earn higher spread. On the other hand, low term premia may be offsetting those incentives to some extent by reducing the profitability of maturity transformation and encouraging financial institutions to increase their longer-term funding.

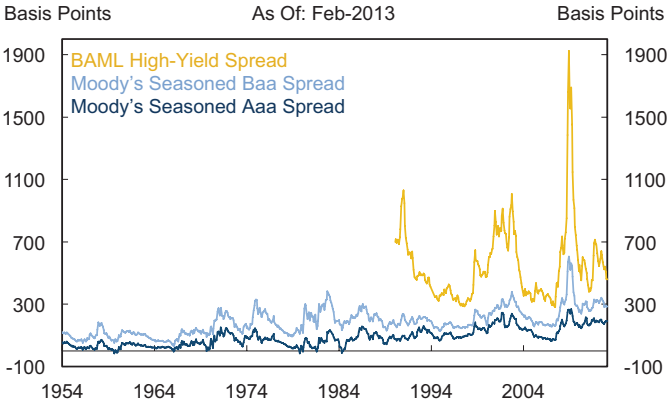
There is some evidence that investors are exhibiting reach for yield behavior. In primary markets, new issuance set highs in leveraged loans, high-yield bonds, and investment grade bonds. However, there is currently little evidence that high-yield bonds are being purchased by levered investors, or that they are being issued by excessively levered borrowers. Still, there is some evidence of deteriorating underwriting standards for high-

Chart 7.4.3 Interest Rate Risk Premium Indicators



Source: FRBNY calculations, Blue Chip Consensus, Federal Reserve

Chart 7.4.4 Historical Credit Spreads



Source: Bank of America Merrill Lynch, Federal Reserve, Haver Analytics

Note: Spread to 10-Year CMT.

yield bonds and leveraged loans. Collateralized loan obligations (CLOs) offer leveraged exposure to high-yield corporate credit. Additionally, increased competition among underwriters and limited volumes of merger and acquisition activity have led to an erosion of margins and other protections for lenders.

The high volume of CLO issuance is indicative of broader issuance trends in the leveraged loan market, where financial conditions are getting less tight. Increased issuance of leveraged loans has historically served as an early warning indicator. However, since the financial crisis, rating agencies have revised criteria to require higher credit enhancements for rated CLO tranches, which provide additional protection for senior note investors. Today, CLO structures are generally less complex than they were before the crisis.[31] While leverage and illiquidity were key vulnerabilities for structured products during the crisis, CLOs today are primarily funded either by non-levered investors or commercial banks, which tend to buy senior tranches. There is little evidence that CLOs are funded by leveraged, short-term funded investors outside of depository institutions. Besides banks, CLO investors are often long-term, fully capitalized entities whose holding periods are less sensitive to short-term funding conditions. Furthermore, many CLOs are floating rate, and as a result protect investors against interest rate risk.

Yields and risk premia are likely to rise from their current low levels. The speed of this adjustment is important to financial stability. While a transition to a more normal yield environment might occur gradually over years, there is a risk of a sudden spike in yields. A yield spike could be induced by changed views about the economic outlook, an adverse external shock, or a sudden change in risk appetite. Spikes in the pricing of risk occur when the risk appetite of institutions, or their ability to take risk, drops suddenly, triggering an adverse feedback loop of investor losses, forced asset sales, lower asset prices, higher market volatility, and further decreases in risk appetite. The vulnerability of the financial system to such shifts in risk appetite depends on the degree of leverage in the financial system, maturity transformation, and interconnectedness among financial institutions. In addition, a sharp increase in yields can be triggered by duration hedging of investors in the MBS market **(see Box C: Convexity Event Risk)**. These vulnerabilities have been mitigated in recent years. The degree of leverage is generally lower due to tighter regulatory requirements and more stringent market discipline, maturity transformation in wholesale funding markets has been reduced due to the decline in shadow banking activity since the crisis, and vulnerabilities from interconnectedness of financial institutions have been reduced due to improvements in counterparty risk management.

The combination of low returns and increasing appetite for risk warrants continued vigilance by regulators, investors, and lenders to the potential build-up of risks. Although counterparty risk management in many markets has improved, particularly in the swaps market, concerns remain that funding markets have not taken the necessary steps to appropriately reduce counterparty risk. Opaque chains of intermediation remain possible risk transmission channels, such as in short-term funding markets, securities lending, and derivative markets.

7.5 Foreign Economic and Financial Developments

Though external threats appear to have decreased over the past year, they remain a risk to U.S. financial stability and economic activity. The euro area and Japan grapple with ways to reduce public debt burdens and promote growth. China has avoided an abrupt slowdown, but concerns persist about its ability to transition away from its investment-driven growth model.

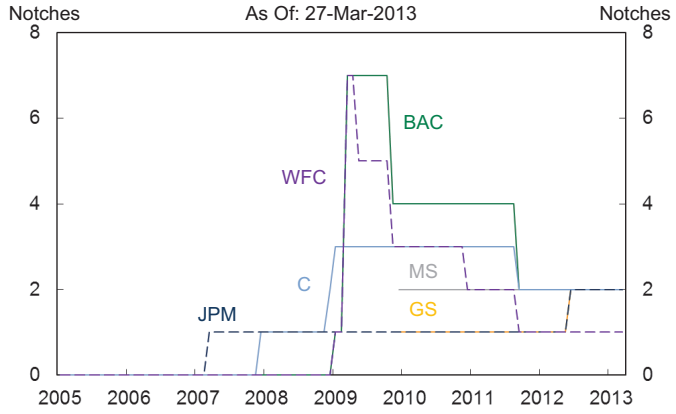
Policy actions undertaken by euro area governments and the European Central Bank (ECB) have improved stability in the euro area and eased severe market pressures, providing additional time for adjustments at the country and regional level **(see Section 4.4.1)**. However, recent developments in Italy and Cyprus serve as a reminder that the euro area continues to be a source of shocks and vulnerabilities. Renewed stress could arise due to missed fiscal or structural reform targets and

adverse political developments. Delays in financial, economic, and fiscal integration could make it difficult to reverse large intra-euro area economic disparities and leave the region vulnerable to new shocks over an extended period of time. Sustained economic weakness is also a possible source of renewed stress. The restoration of growth in the euro area remains essential, and will support a reduction of heavy debt burdens, lower high unemployment rates, and help maintain political support for the adjustment process within the core and periphery. In January, the International Monetary Fund (IMF) forecasted a sequential strengthening of growth over 2013, by 0.5 percent on a Q4/Q4 basis; however, headwinds to growth include substantial fiscal drag, private sector deleveraging, and a weak external environment. Medium-term growth prospects remain uncertain, given mixed progress with reforms to address challenges to competiveness and productivity. Financial fragmentation within the euro area continues to be a challenge. Private sector capital has started to return to the periphery, but remains sharply lower compared to pre-crisis levels. Meanwhile, despite the reduction in sovereign debt yields, there has been limited feed through to improved credit conditions for private sector borrowers in the periphery countries. European bank lending capacity continues to be constrained by balance sheet deleveraging, rising credit costs, and ongoing efforts to bolster capital buffers.

The Japanese economy is marked by sluggish economic growth, persistent deflation, and high public sector indebtedness. Consistent with Prime Minister Abe's campaign calls, in January, the Bank of Japan (BOJ) adopted a 2 percent inflation target as part of a joint statement with the government. The BOJ's new policy framework, approved in April, shifted the policy operating target from the overnight call money rate to the quantity of the monetary base, with a target of ¥60-70 trillion annual growth. The BOJ has committed to maintaining the new policy as long as necessary to maintain 2 percent inflation "in a stable manner." The new government is seeking to establish a policy mix that boosts growth and ends deflation. A high public debt burden (gross public sector debt totals 235 percent of GDP) and Japanese banks' large and growing share of Japanese government bond (JGB) holdings remain vulnerabilities.

China has significant influence on financial market sentiment due to its large size and sustained rapid growth. A sharp deceleration of domestic demand could impact macroeconomic, trade, and financial activity among its trading partners, including the United States and other Group of 20 (G-20) countries. Recent Chinese economic data suggests that activity has stabilized, mitigating concerns that prevailed last year over an abrupt slowdown **(see Section 4.4.2)**. However, concerns persist about the sustainability of China's growth model, in which exports and fixed investment have played key roles, and about the prospects for gradually rebalancing the economy toward domestic consumption. Challenges include implementing a host of structural reforms, such as interest rate and capital account liberalization, and addressing banking and other financial sector risks, including the nonbank credit sector. China's strong external position and demonstrated capacity for forceful policy actions may enable it to address these risks.

Chart 7.6.1 Moody's BHC Systemic Support Uplift



Source: MoodyÃs, FRBNY calculations

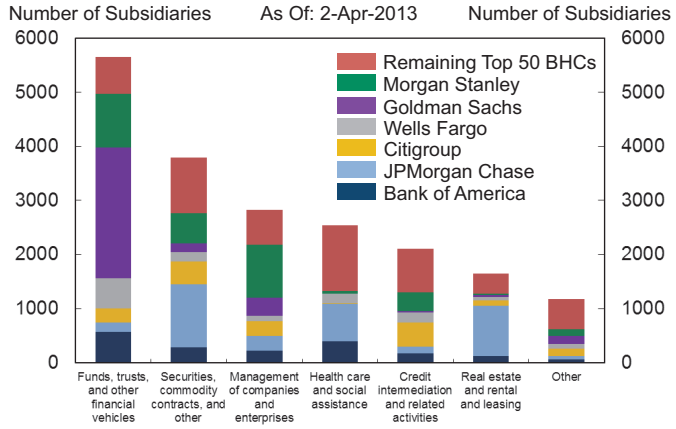
Chart 7.6.2 Number and Distribution of Subsidiaries: Selected Top 50 BHCs

BHC Rank	Name	Count		% of Assets Outside Domestic Commercial Banks	Consolidated Total Assets *(Billions of US$)*
		Total	Foreign		
1	JPMorgan Chase	3,409	449	14.1%	2,359.1
2	Bank of America	1,838	429	25.1%	2,212.0
3	Citigroup	1,642	682	29.5%	1,864.7
4	Wells Fargo	1,331	90	6.4%	1,423.0
5	Goldman Sachs Group	3,124	1,683	87.4%	938.8
6	Morgan Stanley	3,093	1,398	87.6%	781.0
10	Capital One Financial	115	14	0.0%	313.0
20	Regions Financial	39	4	0.8%	121.3
30	BBVA USA Bancshares	44	0	0.0%	69.1
40	BOK Financial	35	0	0.7%	28.1
50	Webster Financial	19	0	0.2%	20.2
Total		**19,743**	**5,859**	**24.9%**	**14,274.0**

Source: National Information Center, FR Y-9C, FR Y-6, FR Y-10, FFIEC 031, FFIEC 041

Note: Subsidiary data are as of 2-Apr-2013. Financial data are as of 2012 Q4. Capital One % of assets set to zero; raw figure is negative due to netting of related party transactions. Excludes data on SLHCs.

Chart 7.6.3 BHC Subsidiaries by Industry



Source: National Information Center, FR Y-6, FR Y-10

7.6 Risk-Taking Incentives of Large, Complex, Interconnected Financial Institutions

Financial institutions have incentives to take on excessive risk if they perceive a public sector guarantee. Risk-taking incentives can be further supported if the market perceives financial institutions as being too big, too complex, or too interconnected to fail. Such market perceptions of government support diminish market discipline by allowing institutions to take on more leverage at lower cost. In fact, some credit rating agencies continue to factor a systemic support uplift into the long-term credit ratings of the largest U.S. financial institutions **(Chart 7.6.1)**.

While the systemic uplift by credit rating agencies generally declined since the financial crisis due to improving credit assessments of the underlying company and a perception of decreased government support, the uplift has not disappeared completely. The justification by the credit rating agencies for the systemic support uplift is the perception that the actions of government authorities during the recent crisis imply a guarantee to large, complex, interconnected financial institutions. The uplifts for long-term credit ratings also tend to be reflected in the short-term ratings that help firms access short-term unsecured wholesale funding. Vulnerabilities can arise when a financial institution's funding model depends in part on the belief that the government will provide support, rather than solely on the intrinsic strength of the institution and its portfolio.

The Dodd-Frank Act explicitly addresses the incentives and abilities of large, complex, interconnected institutions to engage in risk taking through a combination of policies.

- The Act limits the ability of the government to provide extraordinary support to shareholders and creditors of large, complex financial institutions. Thus, by law, the

government is constrained in its ability to provide support after a crisis event.

- The Act institutes enhanced prudential standards for the largest BHCs and designated nonbank financial companies **(see Section 6.1.1)**. The enhanced prudential standards include risk-based capital and leverage requirements, liquidity standards, risk management and risk committee requirements, single-counterparty credit limits, and stress test requirements. The stringency of these requirements tends to increase with the size and complexity of the firm. In addition to these enhanced prudential standards, the Dodd-Frank Act provides the Council authority to impose a debt-to-equity limit for companies that it has determined pose a grave threat to financial stability. Together, these provisions put limits on certain types of risk taking by financial institutions, and thus reduce the probability of failure, though the provisions do not directly reduce perceptions of public guarantees.
- The Act authorizes the FDIC to resolve certain failing financial companies deemed to pose a risk to the financial system. The FDIC is developing a resolution strategy for such firms that will promote financial stability by minimizing contagion and requiring accountability by forcing the firms' shareholders and creditors to bear losses and culpable management to be replaced. In addition, covered companies are required to develop their own resolution plans, which are jointly reviewed by the Federal Reserve and the FDIC **(see Section 6.1.3)**. If the Federal Reserve and the FDIC jointly determine that a resolution plan is not credible or would not facilitate orderly resolution under the Bankruptcy Code, then the company must resubmit the plan with revisions, including, if necessary, proposed changes in business operations or corporate structure, that demonstrate that the plan is credible and would result in orderly resolution under the Bankruptcy Code.

The complexity and international reach of BHCs is illustrated in **Chart 7.6.2**, which reflects the diverse business lines and locations in which these firms operate.[32] BHC legal structures spread over hundreds, and in some cases thousands, of subsidiaries, many of which are domiciled abroad.

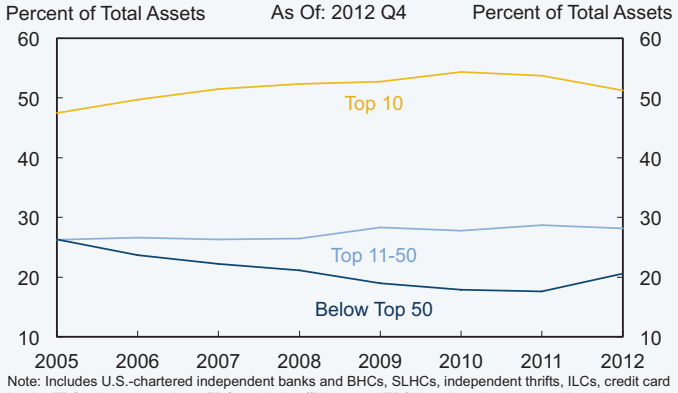
For the six largest BHCs by total assets, the share of assets outside of domestic commercial bank subsidiaries ranges from 6.4 percent to 87.6 percent, illustrating that traditional banking is in some cases only a small fraction of BHCs' activities. The largest share by industry of nonbank subsidiaries is accounted for by funds, trusts, and other financial vehicles **(Chart 7.6.3)**. Many of these funds, trusts, and financial vehicles conduct credit intermediation via securitization outside of the commercial bank. For the largest BHCs, the biggest nonbank subsidiaries by asset size include securities broker-dealers.

Market participants may continue to perceive that some institutions receive special treatment by virtue of their size. Such beliefs could be exacerbated by the degree of concentration in the financial services industry. While the approval process for bank consolidations now take into account the systemic risk footprint of the resulting firm **(see Box G: Bank Consolidation and Financial Stability Policy)**, increased concentration can still be achieved via organic growth. However, in the past two years, the asset share of the 10 largest U.S. financial institutions has decreased, while the asset share of smaller institutions has increased **(Chart G.1)**.

BOX G: BANK CONSOLIDATION AND FINANCIAL STABILITY POLICY

Banking concentration in the United States has remained relatively stable in the years since the financial crisis. As is shown in **Chart G.1**, acquisitions by the largest firms in the years preceding the crisis had caused a substantial fraction of assets at the top 50 banking organizations to become consolidated among the 10 largest institutions. The crisis-related acquisitions that occurred during 2007 to 2008 further raised the asset share of the 10 largest institutions to above 50 percent.[33] In the past two years, the asset share of the 10 largest institutions has declined somewhat, while the share of the banks below the top 50 has increased. Despite the trend towards consolidation prior to and during the financial crisis, the U.S. banking system remains relatively unconcentrated compared with that of many other advanced economies. The size distribution of banking firms is relatively broad, with regional or smaller banks conducting a substantial share of retail banking activity.

Chart G.1 Asset Shares of U.S. Financial Institutions



Note: Includes U.S.-chartered independent banks and BHCs, SLHCs, independent thrifts, ILCs, credit card banks, FBO edge corporations, FBO nonbank affiliates, and FBO branches. Assets are adjusted to account for acquisitions and charter changes. Assets are as of 2012 Q4 except small-parent BHCs (2012 Q2), certain FBO nonbank affiliates that file annually (2011 Q4), and all other FBO nonbank affiliates (2012 Q3).
Source: FR Y-9C, FR Y-9SP, SLHC, Call Reports, SEC 10Qs

For several years, the federal banking agencies have been prohibited from approving an interstate acquisition or merger in which a banking organization's post-merger share of U.S. deposits would exceed 10 percent upon consummation.[34] In addition to this limitation, prior to the financial crisis, federal banking agencies focused primarily on competitive, microprudential supervisory, and community and consumer considerations when reviewing bank and BHC mergers and applications, without specific regard to financial stability. For the competitive analysis—which is still applied today—federal law prohibits the appropriate federal banking agencies from approving a bank merger or acquisition if it would result in a monopoly. The law also prohibits an agency from approving a proposal that would substantially lessen competition or tend to create a monopoly, unless the agency finds that the anticompetitive effects are clearly outweighed in the public interest by the probable effects in meeting the convenience and needs of communities served.

In 2010, the Dodd-Frank Act incorporated additional provisions regarding banking acquisitions, including several sections that direct the Federal Reserve to consider financial stability in its review of banks, BHCs, and related nonbank acquisitions.[35] The Dodd-Frank Act also requires the appropriate federal banking agency to consider the risks to U.S. financial stability in its review of a banking organization merger.[36] In addition, the Dodd-Frank Act prohibits an insured depository institution, BHC, savings and loan holding company (SLHC), or nonbank financial company supervised by the Federal Reserve from merging with or acquiring control of another company if the total consolidated liabilities of the acquiring company upon consummation of the transaction would exceed 10 percent of the liabilities of all financial companies.

The new financial stability screens have been applied to several recent acquisitions, including PNC's December 2011 acquisition of Royal Bank of Canada's U.S. banking subsidiary and the acquisition by Capital One of ING Bank (the U.S. thrift affiliate of ING Group) in February 2012. These two acquisitions left the acquiring firms among

the largest U.S. institutions in terms of deposits, but their shares of banking organization assets are still substantially smaller, leaving the two firms out of the top 10 **(Chart G.2)**. The Federal Reserve stated that it will generally find a significant adverse effect "if the failure of the resulting firm, or its inability to conduct regular-course-of-business transactions, would likely impair financial intermediation or financial market functioning so as to inflict material damage on the broader economy."[37]

Chart G.2 Asset Shares of the Top 10 U.S. Financial Institutions

As Of: 2012 Q4

	Share of U.S. Assets	Assets
	Percent	*Billions of US$*
JPMorgan Chase	10.5	2,359
Bank of America	9.8	2,212
Citigroup	8.3	1,865
Wells Fargo	6.3	1,423
Goldman Sachs	4.2	939
Morgan Stanley	3.5	781
Credit Suisse (U.S.)	2.6	575
Deutsche Bank (U.S.)	2.3	509
Barclays (U.S.)	2.2	501
BoNY Mellon	1.6	359

Note: Includes U.S.-chartered independent banks and BHCs, SLHCs, independent thrifts, ILCs, credit card banks, FBO edge corporations, FBO nonbank affiliates, and FBO branches. Assets are adjusted to account for acquisitions and charter changes. Assets are as of 2012 Q4 except small-parent BHCs (2012 Q2), certain FBO nonbank affiliates that file annually (2011 Q4), and all other FBO nonbank affiliates (2012 Q3).
Source: FR Y-9C, FR Y-9SP, SLHC, Call Reports, SEC 10Qs

The metrics applied by the Federal Reserve to assess the effects of the transactions on financial stability include measures of size, substitutability of critical services, interconnectedness, complexity, and cross-border activity. These metrics are conceptually similar to the global metrics applied by the Basel Committee on Banking Supervision (BCBS) in the designation of global systemically important banks (G-SIBs).

References

Acharya, Viral, Lasse Pedersen, Thomas Philippon, Matthew Richardson (2010) "Measuring Systemic Risk," SSRN working paper 1573171, available at http://ssrn.com/abstract=1573171.

Adrian, Tobias and Markus K. Brunnermeier (2011) "CoVaR," NBER working paper 17454, available at http://newyorkfed.org/research/staff_reports/sr348.pdf.

Adrian, Tobias, Richard K. Crump, and Emanuel Moench (2013) "Pricing the Term Structure using Linear Regressions," Journal of Financial Economics, available at http://www.newyorkfed.org/research/staff_reports/sr340.pdf.

Avraham, Dafna, Patricia Selvaggi, and James Vickery (2012) "A Structural View of U.S. Bank Holding Companies," Federal Reserve Bank of New York Economic Policy Review, available at www.newyorkfed.org/research/epr/12v18n2/1207avra.pdf.

BBA (2012) "Strengthening LIBOR–Proposal to Implement Recommendation Number 6 of 'The Wheatley Review of LIBOR," available at http://bba.bladonmore.com/download/8545.

BCBS/CPSS (2013) "Supervisory Guidance for Managing Risks Associated with the Settlement of Foreign Exchange Transactions," February 2013, available at http://www.bis.org/publ/bcbs241.pdf.

BCBS/IOSCO (2013), "Second Consultative Document: Margin requirements for non-centrally cleared derivatives," February 2013, available at http://www.bis.org/publ/bcbs242.pdf.

BIS (2012) "Statistical release: OTC derivatives statistics at end-June 2012," November 2012, available at http://www.bis.org/publ/otc_hy1211.pdf.

BIS (2013) "Towards better reference rate practices: a central bank perspective," A report by BIS Economic Consultative Committee (ECC), available at http://www.bis.org/publ/othp19.pdf.

CPSS/IOSCO (2012a) "Principles for Financial Market Infrastructures," available at http://www.bis.org/publ/cpss101a.pdf.

CPSS/IOSCO (2012b) "Disclosure Framework for Financial Market Infrastructures," available at http://www.bis.org/publ/cpss101c.pdf.

CPSS/IOSCO (2013) "Financial Benchmarks," available at http://www.iosco.org/library/pubdocs/pdf/IOSCOPD399.pdf.

Daly, Mary C., Bart Hobijn, Ayşegül Şahin, and Robert G. Valletta (2012) "A Search and Matching Approach to Labor Markets: Did the Natural Rate of Unemployment Rise?" Journal of Economic Perspectives, available at http://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.26.3.3.

English, Bill, Skander Van den Heuvel, and Egon Zakrajšek (2012) "Interest Rate Risk and Bank Equity Valuations," Federal Reserve Board Finance and Economics Discussion Series Paper 2012-26, available at http://www.federalreserve.gov/pubs/feds/2012/201226/201226pap.pdf.

Federal Reserve System (2012) "Order Approving the Acquisition of a Savings Association and Nonbanking Subsidiaries (Capital One Corporation, McLean, Virginia)," February 14, 2012, available at http://www.federalreserve.gov/newsevents/press/orders/order20120214.pdf.

FSA (2013) "The Regulation and Supervision of Benchmarks," policy statement 13/6, available at http://www.fsa.gov.uk/static/pubs/policy/ps13-06.pdf.

FSB (2013) "Thematic Review on Resolution Regimes," available at http://www.financialstabilityboard.org/publications/r_130411a.pdf.

FSOC (2012) "Proposed Recommendations Regarding Money Market Mutual Fund Reform," 77 Federal Register 69455 (Nov. 19, 2012), available at http://www.treasury.gov/initiatives/fsoc/Documents/Proposed%20Recommendations%20Regarding%20Money%20Market%20Mutual%20Fund%20Reform%20-%20November%2013,%202012.pdf.

Huang, Xin, Haibin Zhu, and Hao Zhou (2009) "A Framework for Assessing the Systemic Risk of Major Financial Institutions," Journal of Banking and Finance, available at http://www.federalreserve.gov/pubs/feds/2009/200937/200937pap.pdf.

ISDA (2012a) "Mid-Year 2012 Market Analysis," December 20, 2012, available at http://www2.isda.org/attachment/NTE4Mg==/Market%20Analysis%2012-21-2012.pdf.

ISDA (2012b) "Margin Survey," available at http://www2.isda.org/functional-areas/research/surveys/margin-surveys.

Payment Risk Committee (2013) "Recommendations for Supporting Clearing Member Due Diligence of Central Counterparties," February 5, 2013, available at http://www.newyorkfed.org/prc/files/report_130205.pdf.

SEC (2012) "Response to Questions Posed by Commissioners Aguilar, Paredes and Gallagher," Division of Risk, Strategy and Financial Innovation, November 30, 2012, available at http://www.sec.gov/news/studies/2012/money-market-funds-memo-2012.pdf.

SEC (2013) "Regulation Systems Compliance and Integrity," Securities Exchange Act Release No. 69077, March 8, 2013, available at http://www.sec.gov/rules/proposed/2013/34-69077.pdf.

Abbreviations

ABCP	Asset-Backed Commercial Paper
ABS	Asset-Backed Security
AFS	Available-for-Sale
ARM	Adjustable-Rate Mortgage
ATRA	American Taxpayer Relief Act of 2012
AUM	Assets Under Management
BAC	Bank of America
BATS	BATS Global Markets, Inc.
BBA	British Bankers' Association
BCBS	Basel Committee on Banking Supervision
BEA	Bureau of Economic Analysis
BFI	Business Fixed Investment
BHC	Bank Holding Company
BIS	Bank for International Settlements
BLS	Bureau of Labor Statistics
BNYM	Bank of New York Mellon
BOE	Bank of England
BOJ	Bank of Japan
C	Citigroup
C&I	Commercial and Industrial
CapPR	Capital Plan Review
CBO	Congressional Budget Office

CCAR	Comprehensive Capital Analysis and Review
CCP	Central Counterparty
CD	Certificate of Deposit
CDS	Credit Default Swap
CEA	Commodity Exchange Act
CFPB	Bureau of Consumer Financial Protection
CFTC	Commodity Futures Trading Commission
CGFS	Committee on the Global Financial System
CLO	Collateralized Loan Obligation
CLS	CLS Bank International
CMBS	Commercial Mortgage-Backed Security
CME	Chicago Mercantile Exchange
CMO	Collateralized Mortgage Obligation
COU	Central Operating Unit
CoVaR	Conditional Value-at-Risk
CP	Commercial Paper
CPPI	Commercial Property Price Index
CPSS	Committee on Payment and Settlement Systems
CRE	Commercial Real Estate
CU	Credit Union
DB	Defined Benefit
DC	Defined Contribution
DDoS	Distributed Denial-of-Service
DFAST	Dodd-Frank Act Stress Tests

DIP	Distress Insurance Premium
DOJ	U.S. Department of Justice
DTC	Depository Trust Company
DTI	Debt-to-Income
DTCC	Depository Trust & Clearing Corporation
E&S	Equipment and Software
EBA	European Banking Authority
ECB	European Central Bank
ECOA	Equal Credit Opportunity Act
EFSF	European Financial Stability Facility
EM	Emerging Market
EMBI+	Emerging Markets Bond Index Plus
EME	Emerging Market Economy
ERISA	Employee Retirement Income Security Act
ESM	European Stability Mechanism
ESMA	European Securities and Markets Administration
ETF	Exchange-Traded Fund
ETN	Exchange-Traded Note
ETP	Exchange-Traded Product
ETV	Exchange-Traded Vehicle
EU	European Union
EURIBOR	Euro Interbank Offered Rate
FASB	Financial Accounting Standards Board
FBO	Foreign Banking Organization

FCA	Farm Credit Administration
FDIC	Federal Deposit Insurance Corporation
Federal Reserve	Board of Governors of the Federal Reserve System
FFIEC	Federal Financial Institutions Examination Council
FHA	Federal Housing Administration
FHFA	Federal Housing Finance Agency
FICC	Fixed Income Clearing Corporation
FICO	Fair Isaac Corporation
FINRA	Financial Industry Regulatory Authority
FIO	Federal Insurance Office
FMI	Financial Market Infrastructure
FMU	Financial Market Utility
FOIA	Freedom of Information Act
FOMC	Federal Open Market Committee
FRBNY	Federal Reserve Bank of New York
FSA	Financial Services Authority
FSB	Financial Stability Board
FSC	Financial Stability Committee (IAIS)
FSOC	Financial Stability Oversight Council
FX	Foreign Exchange
G-20	The Group of Twenty Finance Ministers and Central Bank Governors
G-SIB	Global Systemically Important Bank
G-SIFI	Global Systemically Important Financial Institution
G-SII	Global Systemically Important Insurer

GAAP	Generally Accepted Accounting Principles
GASB	Governmental Accounting Standards Board
GCF	General Collateral Finance
GDP	Gross Domestic Product
GS	Goldman Sachs
GSE	Government-Sponsored Enterprise
HAMP	Home Affordable Modification Program
HARP	Home Affordable Refinance Program
HHF	Hardest Hit Fund
HOEPA	Home Ownership and Equity Protection Act
HPML	Higher-Priced Mortgage Loan
HQLA	High-Quality Liquid Asset
HTM	Held-to-Maturity
HUD	U.S. Department of Housing and Urban Development
IAIG	Internationally Active Insurance Group
IAIS	International Association of Insurance Supervisors
ICE	IntercontinentalExchange
ICI	Investment Company Institute
IHC	Intermediate Holding Company
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commissions
IPO	Initial Public Offering
IRD	Interest Rate Derivative
ISDA	International Swaps and Derivatives Association

JGB	Japanese Government Bond
JPM	JPMorgan Chase
KBW	Keefe, Bruyette & Woods
LCR	Liquidity Coverage Ratio
LEI	Legal Entity Identifier
LIBOR	London Interbank Offered Rate
LISCC	Large Institution Supervision Coordinating Committee
LOU	Local Operating Unit
LSAPs	Large-Scale Asset Purchases
LTV	Loan-to-Value Ratio
MBR	Minimum Balance at Risk
MBS	Mortgage-Backed Security
MBSD	Mortgage-Backed Securities Division
MHA	Making Home Affordable Program
MMF	Money Market Mutual Fund
MOVE	Merrill Lynch Option Volatility Estimate
MS	Morgan Stanley
MSP	Major Swap Participant
NAIC	National Association of Insurance Commissioners
NASDAQ	NASDAQ Stock Market
NAV	Net Asset Value
NBER	National Bureau of Economic Research
NCUA	National Credit Union Administration
NFIB	National Federation of Independent Business

NIM	Net Interest Margin
NMDB	National Mortgage Database
NPR	Notice of Proposed Rulemaking
NYSE	New York Stock Exchange
OAS	Option-Adjusted Spread
OCC	Office of the Comptroller of the Currency
OFR	Office of Financial Research
OIS	Overnight Index Swap
OLA	Orderly Liquidation Authority
OMB	Office of Management and Budget
OMO	Open Market Operation
OMT	Outright Monetary Transactions
OPEC	Organization of Petroleum Exporting Countries
OptionsCC	Options Clearing Corporation
ORSA	Own Risk and Solvency Assessment
OTC	Over-the-Counter
OTS	Office of Thrift Supervision
P/B	Price-to-Book
P/E	Price-to-Earnings
PBGC	Pension Benefit Guaranty Corporation
PCE	Personal Consumption Expenditures
PFMI	Principles for Financial Market Infrastructures
PIK	Payment-In-Kind
PSPAs	Preferred Stock Purchase Agreements

PVP	Payment-versus-Payment
Q4/Q4	Fourth Quarter over Fourth Quarter
QFC	Qualified Financial Contract
QIS	Quantitative Impact Study
QM	Qualified Mortgage
QRM	Qualified Residential Mortgage
REIT	Real Estate Investment Trust
Repo	Repurchase Agreement
RMBS	Residential Mortgage-Backed Security
ROA	Return on Assets
ROC	Regulatory Oversight Committee
RWA	Risk-Weighted Assets
S&P	Standard & Poor's
SCAP	Supervisory Capital Assessment Program
SCOOS	Senior Credit Officer Opinion Survey on Dealer Financing Terms
SDR	Swap Data Repository
SEC	Securities and Exchange Commission
SES	Systemic Expected Shortfall
SIFI	Systemically Important Financial Institution
SIFMA	Securities Industry and Financial Markets Association
SLHC	Savings and Loan Holding Company
SLOOS	Senior Loan Officer Opinion Survey on Bank Lending Practices
SMOVE	Merrill Lynch Swaption Volatility Estimate
SRC	Systemic Risk Committee

SSM	Single Supervisory Mechanism
STIF	Short-Term Investment Fund
STRIPS	Separate Trading of Registered Interest and Principal Securities
TAG	Transaction Account Guarantee
TALF	Term Asset-Backed Securities Loan Facility
TBA	To Be Announced
TIBOR	Tokyo Interbank Offered Rate
TLGP	Temporary Liquidity Guarantee Program
USD	U.S. Dollar
USDA	U.S. Department of Agriculture
UPI	Universal Product Identifier
USI	Unique Swap Identifier
VA	U.S. Department of Veterans Affairs
WAL	Weighted Average Life
WAM	Weighted Average Maturity
WFC	Wells Fargo Company
WGMR	Working Group on Margin Requirements
WTI	West Texas Intermediate

Glossary

Adjustable-Rate Mortgage (ARM)	A mortgage that allows for the periodic adjustment of the interest rate on the basis of changes in a specified index or rate.
Agency Mortgage-Backed Security	A mortgage-backed security issued or guaranteed by federal agencies or government-sponsored enterprises.
Asset-Backed Commercial Paper (ABCP)	Short-term debt that has a fixed maturity of up to 270 days and is backed by some financial asset, such as trade receivables, consumer debt receivables, securities, or auto and equipment loans or leases.
Asset-Backed Security (ABS)	A fixed income or other security that is collateralized by any type of self-liquidating financial asset that allows the holder of the security to receive payments that depend primarily on cash flows from the assets.
Available-for-Sale (AFS)	An accounting term for debt and equity securities that are accounted for at fair value on firms' balance sheets and are not classified as trading securities or as held-to-maturity securities. Changes in fair value for AFS securities are recognized in stockholders' equity as part of accumulated other comprehensive income.
Bank Holding Company (BHC)	Any company that has direct or indirect control of one or more banks and is regulated and supervised by the Federal Reserve in accordance with the Bank Holding Company Act of 1956.
Bank for International Settlements (BIS)	An international financial organization that serves central banks in their pursuit of monetary and financial stability, to foster international cooperation in those areas, and that acts as a bank for central banks. The BIS hosts the secretariat of the Basel Committeee on Banking Supervision (BCBS), the Committee on the Global Financial System (CGFS), the Committee on Payment and Settlement Systems (CPSS), the Markets Committee, the Central Bank Governance Group, and the Irving Fisher Committee on Central Bank Statistics. Other secretariats operating out of the BIS, but not reporting directly to the BIS or its member central banks, are those of the Financial Stability Board (FSB), the International Association of Deposit Insurers, and the International Association of Insurance Supervisors (IAIS).

Basel Committee on Banking Supervision (BCBS)	An international forum for the cooperation of bank supervisors that aims to improve banking supervision worldwide. The BCBS develops guidelines and supervisory standards, such as standards on capital adequacy, the core principles for effective banking supervision, and the Concordat on cross-border banking supervision. Following the financial crisis, the BCBS developed new global capital and liquidity standards for the banking system that are collectively referred to as Basel III.
Broker-Dealer	An entity that is engaged in the business of underwriting, buying, and selling securities for itself and others.
Central Counterparty (CCP)	An entity that interposes itself between counterparties to contracts traded in one or more financial markets, becoming the buyer to every seller and the seller to every buyer and thereby ensuring the performance of open contracts.
Clearing Bank	A bank holding company subsidiary that facilitates payment and settlement of financial transactions, such as check clearing, or facilitates trades between the sellers and buyers of securities or other financial instruments or contracts.
Clearing House	An entity through which financial institutions agree to exchange payment instructions or other financial obligations (e.g., securities). The institutions settle for items exchanged at a designated time based on the rules and procedures of the clearing house. In some cases, the clearing house may assume significant counterparty, financial, or risk management responsibilities for the clearing system. Where a clearing house interposes itself between the initial participants to a bilateral transaction, and becomes the buyer to every seller and the seller to every buyer, it is known as a Central Counterparty (CCP).
Collateralized Mortgage Obligation (CMO)	An obligation of a bankruptcy remote special purpose vehicle with claims to specific cash flows from a pool of mortgage-backed securities (MBS). The streams of principal and interest payments on the MBS underlying loans are distributed to the different classes of CMO interests, known as tranches, according to a deal structure. Each tranche may have different principal balances, coupon rates, prepayment risks, and maturity dates.
Commercial Bank	A chartered and regulated financial institution authorized to take deposits from the public, obtain deposit insurance from the FDIC, and engage in certain lending activities.

Commercial Mortgage-Backed Security (CMBS)	A security that is collateralized by a pool of commercial mortgage loans and makes payments derived from the interest and principal payments on the underlying mortgage loans.
Commercial Paper (CP)	Short-term (maturity of up to 270 days), unsecured corporate debt.
Committee on the Global Financial System (CGFS)	A committee comprised of senior officials of participating central banks that monitors developments in global financial markets to identify and assess potential sources of stress, to further the understanding of the structural underpinnings of financial markets, and to promote improvements to the functioning and stability of these markets. The CGFS fulfills this mandate by way of regular monitoring discussions among CGFS members, through coordinated longer-term efforts, including working groups involving central bank staff, and through the various reports that the CGFS publishes. The CGFS also oversees the collection of the Bank for International Settlements' (BIS) international banking and financial statistics.
Committee on Payment and Settlement Systems (CPSS)	A standard-setting body for payment, clearing and securities settlement systems. The CPSS also serves as a forum for central banks to monitor and analyze developments in domestic payment, clearing, and settlement systems as well as in cross-border and multicurrency settlement schemes.
Comprehensive Capital Analysis and Review (CCAR)	An annual exercise by the Federal Reserve to ensure that institutions have robust, forward-looking capital planning processes that account for their unique risks and sufficient capital to continue operations throughout times of economic and financial stress.
Convexity Event Risk	Risk that an initial increase in long-term interest rates can be significantly amplified by many MBS investors actively hedging the duration of their MBS. Convexity events can result in rapid changes in long-term interest rates, sharp increases in interest rate volatility, and reduced liquidity in fixed income markets. See Duration Hedging
Core Deposits	Typically funds of local customers who also have a borrowing or other relationship with the bank. Core deposits are generally stable, lower cost, and reprice more slowly than other deposits when interest rates change.
Credit Default Swap (CDS)	A financial contract in which one party agrees to make a payment to the other party in the event of a specified credit event, in exchange for one or more fixed payments.

Credit Rating Agency	A private company that evaluates the credit quality of debt issuers as well as their issued securities and provides ratings on the issuers and those securities. Many credit rating agencies are Nationally Recognized Statistical Rating Organizations (NRSROs), the largest of which are Fitch Ratings, Moody's Investors Service, and Standard & Poor's.
Credit Union (CU)	A member-owned, not-for-profit cooperative financial institution formed to permit members to save, borrow, and obtain related financial services. All federally chartered credit unions and most state-chartered credit unions provide federally insured deposits and are regulated by the NCUA.
Deed-in-Lieu-of-Foreclosure	A document that transfers the right of ownership in a property from a borrower-in-default to the mortgage lender in order to avoid foreclosure proceedings.
Defined Benefit (DB) Plan	A retirement plan in which the cost to the employer is based on a predetermined formula to calculate the amount of a participant's future benefit. In DB plans, the investment risk is borne by the plan sponsor.
Defined Contribution (DC) Plan	A retirement plan in which the cost to the employer is limited to the specified annual contribution. In DC plans, the investment risk is borne by the plan participant.
Depository Institution	A financial institution that is legally permitted to accept deposits. Examples of depository institutions include savings banks, commercial banks, savings and loan associations, and credit unions.
Discount Window	The Federal Reserve facility for extending credit directly to eligible institutions.
Duration	The sensitivity of the prices of bonds and other fixed income securities to changes in the level of interest rates.
Duration Hedging	A process of dynamically changing portfolio allocation to fixed income instruments—such as Treasury securities or futures, or interest rate swaps or swaptions—so as to limit fluctuation of the portfolio interest rate duration.

European Financial Stability Facility (EFSF)	A European intergovernmental crisis-financing facility that was activated in May 2010. The EFSF's mandate is to safeguard financial stability in Europe by providing financial assistance to euro area member states by issuing bonds or other debt instruments and lending the proceeds to countries within the framework of a macroeconomic adjustment program. Since the creation of the European Stability Mechanism (ESM), the EFSF is no longer the main mechanism for financing new programs, though it continues operating ongoing programs for Greece, Portugal, and Ireland.
European Stability Mechanism (ESM)	A European intergovernmental crisis-financing facility that was activated in October 2012, following ratification of an amendment to the EU treaties. The ESM is authorized to provide assistance through: direct lending to sovereigns (including on a precautionary basis); purchases in the secondary government debt markets; and (once the EU's Single Supervisory Mechanism (SSM) has been established) direct lending to financial institutions. All lending decisions must be approved by unanimous agreement by creditor states, and borrowers must be under a macroeconomic adjustment program or policy conditionality program approved by creditors and (in some cases) the IMF.
Federal Financial Institutions Examination Council (FFIEC)	An interagency body that prescribes uniform principles, standards, and reporting forms for the federal examination of financial institutions. The FFIEC makes recommendations to promote uniformity in the supervision of financial institutions. Members include the Federal Reserve, FDIC, NCUA, OCC, CFPB, and a representative of state financial supervisors.
Federal Funds Rate	The interest rate at which depository institutions lend balances to each other overnight. The Federal Open Market Committee (FOMC) sets a target level for the overnight federal funds rate, and the Federal Reserve Bank of New York then uses open market operations to influence the overnight federal funds rate to trade around the policy target rate or within the target rate range.
Fedwire Securities Service	A book-entry securities transfer system operated by the Federal Reserve Banks that provides participants safekeeping, transfer, and delivery-versus-payment settlement services.
FICO Score	A measure of a borrower's creditworthiness based on the borrower's credit data; developed by the Fair Isaac Corporation.

Financial Market Infrastructure (FMI)	A multilateral system among participating financial institutions, including the operator of the system, used for the purposes of recording, clearing, or settling payments, securities, derivatives, or other financial transactions. Under the Dodd-Frank Act, certain FMIs are recognized as Financial Market Utilities (FMUs).
Financial Market Utility (FMU)	A Dodd-Frank defined entity, which, subject to certain exclusions, is "any person that manages or operates a multilateral system for the purpose of transferring, clearing, or settling payments, securities, or other financial transactions among financial institutions or between financial institutions and the person."
Fire Sale	The disorderly liquidation of assets to meet margin requirements or other urgent cash needs. Such a sudden sell-off drives down prices, potentially below their intrinsic value, when the quantities to be sold are large relative to the typical volume of transactions. Fire sales can be self-reinforcing and lead to additional forced selling by some market participants that, subsequent to an initial fire sale and consequent decline in asset prices, may also need to meet margin or other urgent cash needs.
Fiscal Consolidation	Changes in government policy pertaining to taxes and spending intended to reduce deficits and slow the pace of debt accumulation.
Fiscal Year	Any 12-month accounting period. The fiscal year for the federal government begins on October 1 and ends on September 30 of the following year; it is named after the calendar year in which it ends.
Forward	A contract traded over-the-counter to buy or sell an asset in the future. Most forwards are standardized contracts, but they can be customized.
Future	A standardized contract traded over exchanges to buy or sell an asset in the future.
Government-Sponsored Enterprise (GSE)	A corporate entity that has a federal charter authorized by law, but that is a privately owned financial institution. Examples include the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac).
Gross Domestic Product (GDP)	The broadest measure of aggregate economic activity, measuring the total value of all final goods and services produced within a country's borders during a specific period.

The Group of Twenty Finance Ministers and Central Bank Governors (G-20)	An international forum established in 1999 to bring together officials of systemically important industrialized and developing economies to discuss key issues in the global economy and promote financial stability.
Haircut	The discount, represented as a percentage of par or market value, at which an asset can be pledged as collateral. For example, a $1,000,000 bond with a 5 percent haircut would collateralize a $950,000 loan. The purpose of a haircut is to provide a collateral margin for a secured lender.
Held-to-Maturity (HTM)	An accounting term for debt securities held in portfolio and accounted for at cost less any impairment, under the proviso that the company has no intent to sell and it is more likely than not that it will hold those securities to maturity.
High-Quality Liquid Asset (HQLA)	Assets such as government bonds that are considered eligible as liquidity buffers in Basel III's liquidity coverage ratio (LCR). HQLA should be liquid in markets during times of stress and, ideally, be central bank eligible.
Household Debt Service Ratio	An estimate of the ratio of debt payments to disposable personal income. Debt payments consist of the estimated required payments on outstanding mortgage and consumer debt.
Interest Rate Risk Management	The management of the exposure of an individual's or an institution's financial condition to movements in interest rates.
Interest Rate Swap	A derivative contract in which two parties swap interest rate cash flows on a periodic basis, referencing a specified notional amount for a fixed term. Typically one party will pay a predetermined fixed rate while the other party will pay a short-term variable reference rate that resets at specified intervals.

International Organization of Securities Commissions (IOSCO)	An international organization that develops, implements, and promotes adherence to internationally recognized standards for securities regulation. The member agencies currently assembled have resolved, through IOSCO's permanent structures, to cooperate in developing, implementing, and promoting adherence to internationally recognized and consistent standards of regulation, oversight and enforcement in order to protect investors, maintain fair, efficient, and transparent markets, and seek to address systemic risks; to enhance investor protection and promote investor confidence in the integrity of securities markets, through strengthened information exchange and cooperation in enforcement against misconduct and in supervision of markets and market intermediaries; and to exchange information at both global and regional levels on their respective experiences in order to assist the development of markets, strengthen market infrastructure and implement appropriate regulation.
Large Bank Holding Company	Any bank holding company (BHC) that files the FR Y-9C Consolidated Financial Statements for Bank Holding Companies. All BHCs with total consolidated assets of $500 million or more are required to file. BHCs meeting certain additional criteria determined by the Federal Reserve may also be required to file regardless of size.
Large-Scale Asset Purchases (LSAPs)	Purchases by the Federal Reserve of securities issued by the U.S. government or securities issued or guaranteed by government-sponsored agencies (including Fannie Mae, Freddie Mac, Ginnie Mae, and the Federal Home Loan Banks) in the implementation of monetary policy.
Legal Entity Identifier (LEI)	A 20-digit alpha-numeric code that connects to key reference information that enables clear and unique identification of companies participating in global financial markets. The LEI system is designed to facilitate many financial stability objectives, including: improved risk management in firms; better assessment of microprudential and macroprudential risks; expedition of orderly resolution; containment of market abuse and financial fraud; and provision of higher-quality and more accurate financial data.
Leveraged Buyout	An acquisition of a company financed by a private equity contribution combined with borrowed funds, with debt comprising a significant portion of the purchase price.

Loan-to-Value Ratio (LTV)	The ratio of the amount of a loan to the value of the asset that the loan funds, typically expressed as a percentage. This is a key metric when considering the level of collateralization of a mortgage.
Major Security-Based Swap Participant	A person that is not a security-based swap dealer and maintains a substantial position in security-based swaps, creates substantial counterparty exposure, or is a financial entity that is highly leveraged and not subject to federal banking capital rules.
Major Swap Participant (MSP)	A person that is not a swap dealer and maintains a substantial position in swaps, holds outstanding swaps that create substantial counterparty exposure, or is a highly leveraged financial entity which is not otherwise subject to capital requirements.
Mark-to-Market	The process by which the reported value of an asset is adjusted to reflect its fair value.
Maturity Gap	The weighted-average time to maturity of financial assets less the weighted-average time to maturity of liabilities.
Maturity Transformation	An activity in which a financial intermediary issues shorter-term liabilities to fund longer-term assets.
Model Risk	Risk related to using an incorrect model specification. For example, misspecification model risk can be due to programming errors, technical errors, data issues, calibration errors, or conceptual mistakes.
Money Market Mutual Fund (MMF)	A type of mutual fund that invests in short-term, liquid securities such as government bills, certificates of deposit, commercial paper, or repurchase agreements.
Mortgage Servicer	A company that acts as an agent for mortgage holders by collecting and distributing mortgage cash flows. Mortgage servicers also manage defaults, modifications, settlements, foreclosure proceedings, and various notifications of borrowers and investors.
Mortgage-Backed Security (MBS)	An asset-backed security backed by a pool of mortgages. Investors in the security receive payments derived from the interest and principal payments on the underlying mortgages. This term typically applies to mortgage-backed securities issued or guaranteed by the GSEs; these securities can also be called “agency MBS.”

Municipal Bond	A bond issued by states, cities, counties, local governmental agencies, or certain nongovernment issuers to finance certain general or project-related activities.
Mutual Fund	A type of investment company that issues redeemable securities, which the fund generally stands ready to buy back from investors at their current net asset value. Also called an open-end investment company or open-end fund.
Novation	A process through which one of the original parties in a swap contract transfers its respective position or liability to another, unrelated party.
Option	A financial contract granting the holder the right but not the obligation to engage in a future transaction on an underlying security or real asset. The most basic examples are an equity call option, which provides the right but not the obligation to buy a block of shares at a fixed price for a fixed period, and an equity put option, which similarly grants the right to sell a block of shares.
Outright Monetary Transactions (OMT)	An ECB program under which secondary market purchases of sovereign bonds can be made, with the aim of safeguarding appropriate monetary policy transmission and the singleness of the monetary policy. A necessary condition for OMT is a support agreement under which the EFSF or ESM program can make primary market purchases of sovereign debt. Such an agreement would include a range of policy conditions.
Over-the-Counter (OTC)	A method of trading that does not involve an organized exchange. In over-the-counter markets, participants trade directly on a bilateral basis, typically through voice or computer communication and often with certain standardized documentation with counterparty-dependent terms.
Prudential Regulation	Regulation aimed at ensuring the safe and sound operation of financial institutions, set by both state and federal authorities.
Public Debt	All debt issued by Treasury and the Federal Financing Bank, including both debt held by the public and debt held in intergovernmental accounts such as the Social Security Trust Funds. Not included is debt issued by government agencies other than the Department of the Treasury.

Qualified Mortgage (QM)	A mortgage loan that meets certain underwriting criteria announced by the CFPB. An originator of a Qualified Mortgage is provided with certain protections from borrower lawsuits alleging that the originator failed to fulfill its duty under the Dodd-Frank Act to make a good faith and reasonable determination of the borrower's ability to repay the loan.
Qualified Residential Mortgage (QRM)	A mortgage loan that is exempt from the Dodd-Frank Act's securitization risk retention rule requiring securitization issuers to retain a portion of securitized risk exposure in transactions that they issue.
Ratings Uplift	The difference between the stand-alone credit rating assigned by a credit rating agency to an issuer, based on that issuer's intrinsic financial strength, and a higher credit rating assigned by the same credit rating agency that includes the possibility of government support.
Real Estate Investment Trust (REIT)	An operating company that manages income-producing real estate or real estate-related assets. Certain REITs also operate real estate properties in which they invest. To qualify as a REIT, a company must have three-fourths of its assets and gross income connected to real estate investment and must distribute at least 90 percent of its taxable income to shareholders annually in the form of dividends.
Receiver	A custodian appointed to maximize the value of the assets of a failed institution or company and to settle its liabilities.
Rehypothecation	The reuse of collateral posted by clients of banks or broker-dealers. The collateral is used for securities lending, repurchase agreements, or as collateral for the bank's or broker-dealer's own borrowing.
Repurchase Agreement (Repo)	The sale of a security combined with an agreement to repurchase the security, or a similar security, on a specified future date at a prearranged price. A repo is a secured lending arrangement.
Reserves	Balances held by depository institutions at the central bank plus vault cash.
Residential Mortgage-Backed Security (RMBS)	A security that is collateralized by a pool of residential mortgage loans and makes payments derived from the interest and principal payments on the underlying mortgage loans.

Revolving Credit	A lending arrangement whereby a lender commits to provide a certain amount of funding to a borrower on demand. The borrower may generally draw funds and repay the committed funding at any time over the term of the agreement.
Risk-Based Capital	An amount of capital, based on the risk-weighting of various asset categories, that a financial institution is required to hold to protect against unexpected losses.
Risk-Weighted Assets (RWA)	A risk-based concept used as the denominator of risk-based capital ratios with respect to Basel capital guidelines for banking organizations. The RWA is a weighted total asset value developed from assigned risk categories or modeled analysis. Broadly, total RWA are determined by calculating RWA for market risk and operational risk and adding the sum of RWA for on-balance sheet, off-balance sheet, counterparty, and other credit risks. Details vary, in part, depending upon the version of Basel capital guidelines to which the banking organization is subject.
Rollover Risk	The risk that as an institution's debt nears maturity, the institution may not be able to refinance the existing debt or may have to refinance at less favorable terms.
Run Risk	The risk that investors lose confidence in an institution—due to concerns about counterparties, collateral, solvency, or related issues—and respond by pulling back their funding.
Securities Lending/Borrowing	The temporary transfer of securities from one party to another for a specified fee and term, in exchange for collateral in the form of cash or securities.
Securitization	A financial transaction in which assets such as mortgage loans are pooled, securities representing interests in the pool are issued, and proceeds from the underlying pooled assets are used to service and repay securities issued via the securitization.
Security-Based Swap Dealer	A person that holds itself out as a dealer in security-based swaps, makes a market in security-based swaps, regularly enters into security-based swaps with counterparties, or engages in any activity causing it to be known as a dealer or market maker in security-based swaps; does not include a person entering into security-based swaps for such person's own account.
Shadow Banking	Maturity, credit, or liquidity transformation activities conducted by entities that are not regulated as banks and that unlike banks do not have access to a lender of last resort or to forms of liability guarantees.

Short-Term Wholesale Funding	Short-term funding instruments not covered by deposit insurance that are typically issued to institutional investors. Examples include large checkable and time deposits, brokered CDs, commercial paper, Federal Home Loan Bank borrowings, and repurchase agreements.
Single Supervisory Mechanism (SSM)	A proposed European bank supervision framework, under which the ECB will assume supervisory responsibility for euro area banks, working in cooperation with national authorities.
Supervisory Capital Assessment Program (SCAP)	A stress test, conducted from February-May 2009, designed to estimate the capital needs of U.S. bank holding companies with assets exceeding $100 billion under an adverse macroeconomic scenario; SCAP was administered by the Federal Reserve, the OCC, and the FDIC.
Supervisory Information	Generally refers to information consisting of reports of examination and inspection, operating and condition reports, and any information derived from, relating to, or contained in them, and information gathered by agencies responsible for supervising financial institutions in the course of any investigation or enforcement action. Supervisory information is exempt from public disclosure.
Swap	An exchange of cash flows with defined terms and over a fixed period, agreed upon by two parties. A swap contract may reference underlying financial products across various asset classes including interest rates, credit, equity, commodity, and foreign exchange.
Swap Data Repository (SDR)	A person that collects and maintains information or records with respect to transactions or positions in, or the terms and conditions of, swaps entered into by third parties for the purpose of providing a centralized recordkeeping facility for swaps. In certain jurisdictions, SDRs are referred to as trade repositories. CPSS-IOSCO describes a trade repository as "an entity that maintains a centralized electronic record (database) of transaction data".
Swap Dealer	A person that holds itself out as a dealer in swaps, makes a market in swaps, regularly enters into swaps with counterparties, or engages in any activity causing it to be known as a dealer or market maker in swaps; does not include a person entering into swaps for such person's own account.
Swaption	An option granting the right to enter into a swap. See Option and Swap.

TARGET2	The real-time gross settlement system owned and operated by the Eurosystem. TARGET2 must be used for all payments involving the Eurosystem, as well as for the settlement of operations of all large-value net settlement systems and securities settlement systems handling the euro. Payment transactions are settled one by one on a continuous basis in central bank money with immediate finality.
Temporary Liquidity Guarantee Program (TLGP)	A program implemented in October 2008 (and which expired in December 2012) by the FDIC through a systemic risk determination to provide liquidity to the banking industry by restoring banks' access to funding markets and by stabilizing bank deposits. The program had two components: the Debt Guarantee Program and the Transaction Account Guarantee (TAG) Program.
Term Asset-Backed Securities Loan Facility (TALF)	A Federal Reserve funding facility that issued loans with terms of up to five years to holders of eligible ABS. TALF was intended to assist financial markets in accommodating the credit needs of consumers and businesses by facilitating the issuance of ABS collateralized by a variety of consumer and business loans. TALF was also intended to improve market conditions for ABS more generally. The program was announced in November 2008. The facility ceased making loans collateralized by newly issued CMBS on June 30, 2010, and loans collateralized by all other types of TALF-eligible newly issued and legacy ABS on March 31, 2010.
Term Premium	The excess compensation to investors for owning long-term Treasury securities compared to reinvesting short-term securities continually over time.
Term Spread	The excess yield an investor must receive in order to purchase a longer-maturity bond over a shorter-maturity bond of the same issuer.
Thrift	A financial institution that ordinarily possesses the same depository, credit, financial intermediary, and account transactional functions as a bank, but that is chiefly organized and primarily operates to promote savings and home mortgage lending rather than commercial lending. Also known as a savings bank, a savings association, or a savings and loan association.
Time Deposits	Deposits which the depositor, generally, does not have the right to withdraw before a designated maturity date without paying an early withdrawal penalty. A certificate of deposit is a time deposit.

To-Be-Announced (TBA) Transaction	A forward transaction involving a purchase or sale of MBS with settlement occurring in the future, generally a period of up to three months from the purchase date. TBA transactions include solely agency-issued or agency-guaranteed MBS. MBS transacted in the TBA market use a few standardized contracts, which are grouped based on key characteristics such as the agency, term, coupon, or settlement date of the MBS security that will be delivered. At the settlement date, TBA sellers have the option to deliver any agency MBS that meet the contract requirements.
Transaction Account Guarantee (TAG) Program	The Dodd-Frank Act-provided temporary, unlimited deposit insurance coverage for noninterest-bearing transaction accounts and IOLTAs (but not low-interest NOW accounts) from December 31, 2010 through December 31, 2012, regardless of the balance in the account and the ownership capacity of the funds. This coverage essentially replaced TAGP, which expired on December 31, 2010, and was available to all depositors, including consumers, businesses, and government entities. The coverage was separate from, and in addition to, the standard insurance coverage provided for a depositor's other accounts held at an FDIC-insured bank.
Tri-Party Repo	A repurchase agreement in which a clearing bank acts as third-party agent to provide collateral management services and to facilitate the exchange of cash against collateral between the two counterparties.
Underwater Mortgage	A mortgage loan with a higher unpaid principal balance than the value of the home.
Underwriting Standards	Terms, conditions, and criteria used to determine the extension of credit in the form of a loan or bond.
Yield Curve	A graphical representation of the relationship between bond yields and their respective maturities.

List of Charts

Endnotes

[1] See FSOC (2012).

[2] See SEC (2012).

[3] See FSB (2013).

[4] See, Daly, Hobijn, Ṣahin, and Valletta (2012).

[5] The extraordinary measures available were (1) suspending sales of State and Local Government Series Treasury securities; (2) redeeming existing, and suspending new, investments of the Civil Service Retirement and Disability Fund and the Postal Service Retirees health Benefit Fund; (3) suspending reinvestment of the Government Securities Investment Fund and (4) suspending reinvestment of the Exchange Stabilization fund. In total, these measures would have freed up about $200 billion in headroom under the debt ceiling.

[6] Tri-party transactions are used to enable cash transactions against general collateral, and activity in this market is reported to the Federal Reserve Bank of New York. GCF repo is administered by the Fixed Income Clearing Corporation, which also provides aggregate data on outstandings. Data on bilateral repo transactions, which are typically used to obtain specific collateral, negotiate certain non-price terms, or enable firms to transact with counterparties who are not in the tri-party market, are not systematically collected. However, bilateral repo transactions conducted by primary dealers are reported in the aggregate with GCF and tri-party repo in the Federal Reserve Bank of New York's FR2004 Primary Dealer survey.

[7] See the Federal Reserve's December 2012 Senior Credit Officer Opinion Survey on Dealer Financing Terms for additional evidence at http://www.federalreserve.gov/econresdata/releases/SCOOS_201212.htm.

[8] The estimation methodology is based on that described in English, Van den Heuvel, and Zakrajšek (2012).

[9] The figure represents the evolution of three normalized systemic risk measures averaged across JPMorgan Chase, Bank of America, Citigroup, Wells Fargo, Goldman Sachs, and Morgan Stanley. Conditional Value-at-Risk (CoVaR) measures the contribution of each institution to overall systemic risk from the market value of total assets. The Distress Insurance premium (DIP) measures a hypothetical CDS implied insurance premium to protect institutions from a systemic event. Systemic Expected Shortfall (SES) is the equity shortfall contingent on market stress. CoVaR is by Adrian and Brunnermeier (2011); DIP is by Huang, Zhu, and Zhou (2009); and SES is by Acharya, Pedersen, Philippon, Richardson (2010).

[10] The federal government's response to the financial crisis included the FDIC's Temporary Liquidity Guarantee Program (TLGP). The Transaction Account Guarantee (TAG) portion of the TLGP guaranteed deposits in noninterest-bearing transaction accounts of participating insured depository institutions. The TAG expired on December 31, 2010. Under the other portion of the TLGP, the Debt Guarantee Program, the FDIC guaranteed newly issued senior unsecured debt of participating insured depository institutions, their holding companies, and certain affiliates. This guarantee expired on December 31, 2012. Section 343 of the Dodd-Frank Act, which provided unlimited deposit and share insurance coverage for noninterest-bearing transaction accounts for all insured depository institutions beginning December 31, 2010, expired on December 31, 2012.

[11] See BCBS/CPSS (2013).

[12] See ISDA (2012a).

[13] See CPSS/IOSCO (2012a).

[14] See CPSS/IOSCO (2012b).

[15] See Payment Risk Committee (2013).

[16] See ISDA (2012b).

[17] See SEC (2013).

[18] In 2012, the Council met on February 1, April 3, May 22, June 11, July 18, September 28, October 18, October 29, October 30, November 13, December 3, and December 13.

[19] In 2012, the Council held public sessions on April 3, July 18, and November 13.

[20] The Council's Freedom of Information Act regulation and its transparency policy are available at www.fsoc.gov.

[21] See SEC (2012).

[22] LIBOR comprises a set of unsecured lending rates for commercial banks based in London, with published rates for different currencies and tenors, ranging from overnight through twelve months. Every business day shortly before 11 a.m. London time, banks on the LIBOR panel submit the rates at which they could borrow funds "by asking for and then accepting inter-bank offers in a reasonable market size just prior to 11 a.m." A trimmed averaging process is used to exclude the top and bottom quartile of the rates submitted, and the remaining rates are averaged for each tenor. That average rate becomes the official daily LIBOR.

[23] Among other things, the banks were required to (1) make their submissions based on certain specified factors, with their own transactions given the greatest weight; (2) implement firewalls to prevent improper communications, including between traders and submitters; (3) prepare and retain documents concerning submissions, and retain relevant communications; (4) implement auditing, monitoring and training measures concerning their submissions and related processes; (5) make regular reports to regulators concerning compliance with the obligations under the respective orders; and (6) use best efforts to encourage the development of rigorous standards for benchmark interest rates.

[24] See BBA (2012).

[25] See FSA (2013).

[26] CPSS/IOSCO (2013).

[27] BIS (2013).

[28] The term premium estimate is computed by the Federal Reserve Bank of New York based on the methodology of Adrian, Crump, and Moench (2013).

[29] The Senior Credit Officer Opinion Survey on Dealer Financing Terms (SCOOS) provides additional information on underwriting standards in broker-dealer intermediated credit markets and recent special questions have included CLOs, see http://www.federalreserve.gov/econresdata/releases/scoos.htm.

[30] The underlying data for Charts 7.6.2 and 7.6.3 is described in more detail in Avraham, Selvaggi, and Vickery (2012).

[31] Assets include consolidated assets of U.S.-chartered bank holding companies (BHCs), savings and loan holding companies (SLHCs); federally insured depository institutions (excluding credit unions) not held by a BHC or SLHC; and U.S.-domiciled affiliates (including nonbanking affiliates), branches, and agencies of FBOs. The denominators used for assets are merger-adjusted in the pre-crisis years to reflect the BHC charters that were granted to former nonbanks during the financial crisis (and thus drew in substantial aggregate assets and deposits to be included in the share calculations).

[32] This restriction is a provision of the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994.

[33] Dodd-Frank Act Section 604(d), which covers acquisitions of banking organizations, requires that the Federal Reserve "take into consideration the extent to which a proposed acquisition, merger, or consolidation would result in greater or more concentrated risks to the stability of the United States banking or financial system." Dodd-Frank Act Section 604(e), which covers nonbank acquisitions by bank holding companies, adds "risk to the stability of the United States banking or financial system" as a factor to be considered in the balancing test that the Federal Reserve is required to conduct. Dodd-Frank Act Section 163(b), which governs the acquisition of voting shares of a nonbank company with assets over $10 billion or more by a bank holding company with assets over $50 billion or more, states that the Federal Reserve "shall consider the extent to which the proposed acquisition would result in greater or more concentrated risks to global or United States financial stability or the United States economy."

[34] Dodd-Frank Act Section 604(f), which covers Bank Merger Act transactions, adds "risk to the stability of the United States banking or financial system" as a factor to be considered by the appropriate federal banking agency.

[35] See Federal Reserve System (2012).

WWW.FSOC.GOV

FINANCIAL STABILITY
OVERSIGHT COUNCIL

1500 PENNSYLVANIA AVENUE, NW
WASHINGTON, D.C. 20220