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**2015** | **ANNUAL REPORT**  
Financial Stability Oversight Council

# 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 May 19, 2015. Except as otherwise indicated, data cited in this report is as of March 31, 2015.

## Abbreviations for Council Member Agencies and Member Agency Offices

- Department of the Treasury (Treasury)
- Board of Governors of the Federal Reserve System (Federal Reserve)
- Office of the 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)
- Office of Financial Research (OFR)
- Federal Insurance Office (FIO)

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# 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

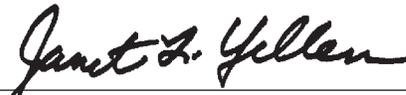
**The Honorable Mitch McConnell**  
Majority Leader  
United States Senate

**The Honorable Harry Reid**  
Democratic Leader  
United States Senate

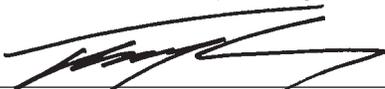
In accordance with Section 112(b)(2) of the Dodd-Frank Wall Street Reform and Consumer Protection Act, for the reasons outlined in the annual report, I believe that additional actions, as described below, should be taken to ensure financial stability and to mitigate systemic risk that would negatively 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



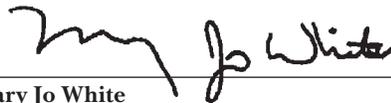
**Janet L. Yellen**  
Chair  
Board of Governors of the Federal Reserve System



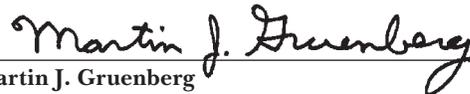
**Thomas J. Curry**  
Comptroller of the Currency  
Office of the Comptroller of the Currency



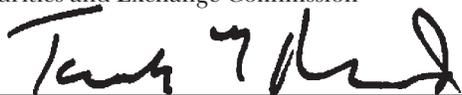
**Richard Cordray**  
Director  
Bureau of Consumer Financial Protection



**Mary Jo White**  
Chair  
Securities and Exchange Commission



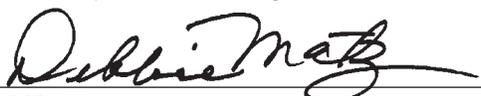
**Martin J. Gruenberg**  
Chairman  
Federal Deposit Insurance Corporation



**Timothy G. Massad**  
Chairman  
Commodity Futures Trading Commission



**Melvin L. Watt**  
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

Vulnerabilities in the U.S. financial system remained moderate over the past year. Domestic economic conditions improved and regulators continued to make progress in financial reforms, which further strengthened the balance sheets of financial institutions. The U.S. financial system successfully weathered a variety of shocks from abroad. These included rising geopolitical tensions in Ukraine and the Middle East; slowing growth in Europe, Japan, and China; renewed concerns about the sustainability of Greece's debt; and a sharp drop in oil prices. Despite improvements in some areas, the financial system became more vulnerable to shocks in other areas. For example, recent cyber attacks have heightened concerns about the potential of an even more destructive incident that could significantly disrupt the workings of the financial system. Also, the continued low-rate environment has encouraged some investors to take on more risk by reaching for yield.

Over the past year, progress toward financial reforms included further strengthening of capital, leverage, and liquidity standards for financial institutions; continued application of supervisory and company-run stress tests; ongoing supervisory review and comment on large banking organizations' resolution plans; adoption of a credit risk-retention requirement for asset-backed securities (ABS); adoption of money market mutual fund (MMF) and credit rating agency reforms; and other measures to enhance consumer protections. In the tri-party repo market, intraday credit exposures have largely been eliminated. In addition, the Council made a determination that a nonbank financial company will be subject to Federal Reserve supervision and enhanced prudential standards, and completed its first annual reevaluations of three previous determinations. The Council also conducted extensive public outreach regarding potential risks posed by asset management products and activities.

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 short-term wholesale funding, cybersecurity, volatility in fixed income markets, equity market structure, high-frequency and automated trading activities, leveraged lending, reference rate reform, and interest rate risk at a variety of financial institutions. The Council will continue to monitor potential threats to financial stability, whether from external shocks or structural weaknesses, and to facilitate coordination among federal and state agencies.

This year's annual report highlights two new topics that have received increased regulatory attention: changes in financial market structure and central counterparties (CCPs). In particular, the report discusses how changes in financial market structure—including trends that predate the financial crisis—may impact the provision of liquidity and market functioning. With regard to CCPs, which are designed to enhance financial stability, the report highlights the importance of taking steps so that CCPs have robust frameworks for risk management. Below are the key potential emerging threats and vulnerabilities, as well as recommended reforms identified by the Council.

## Cybersecurity

Over the past year, financial sector organizations and other U.S. businesses experienced numerous cyber incidents, including large-scale data breaches that compromised financial information. Malicious cyber activity is likely to continue, and financial sector organizations should be prepared to mitigate the threat posed by cyber attacks that have the potential to destroy critical data and systems and impair operations. Treasury and the U.S. regulators have taken steps to prompt financial institutions to mitigate risks to the financial system posed by malicious cyber activities. As cyber threats continue to evolve, strong collaboration and data sharing among financial service companies and government agencies; improvements in technology infrastructure; and adequate plans for responding to and recovering from cyber incidents will remain critical areas of focus.

## Increased Risk-Taking in a Low-Yield Environment

The historically low-yield environment continues to encourage greater risk-taking across the financial system. Investors may seek incremental gains in yield for disproportionate amounts of risk. Banks, credit unions, and broker-dealers have lower net interest margins (NIMs), leading some firms to increase risk by holding longer-duration assets, easing lending standards, or engaging in other forms of increased risk-taking. For example, federal banking agencies have found serious deficiencies in underwriting standards and risk management practices for certain leveraged loans. Although more recent data may suggest improvement in the quality of newly issued loans, the growth in loan issuance combined with the decline in credit risk premia in recent years warrants further monitoring. The low-rate environment is also making it difficult for pension and retirement funds to meet their long-term liabilities, some of which are seeking to boost returns by extending the duration of their assets or by purchasing lower quality, higher-yielding assets. Some insurance companies have also repositioned their investment portfolios in a similar fashion. A sharp increase in interest rates or credit spreads could generate losses on longer-term assets, including less liquid assets such as high-yield and emerging market bonds. If such losses are borne by leveraged investors, they could lead to fire sales and further declines in asset prices.

## Changes in Financial Market Structure and Implications for Financial Stability

Financial market structure has evolved substantially over the years, owing to a confluence of factors including technology, regulation, and competition. As electronic trading has captured an increasingly significant share of total trading, electronic trading platforms and algorithmic trading firms now play an increasing role in facilitating market liquidity. In addition, the business models and risk appetite of traditional broker-dealers have changed, with some broker-dealers reducing their securities inventories and, in some cases, exiting certain markets. New trading venues and platforms have also developed or expanded in certain markets, including new regulated exchanges, interdealer platforms, and dark pools among others. As this evolution of market structure plays out across a broader collection of asset classes and markets, market participants and regulators should continue to monitor how it affects the provision of liquidity and market functioning, including operational risks.

## Central Counterparties

Following the crisis, U.S. and foreign regulators have encouraged or required more derivatives and other financial transactions to be cleared through CCPs. CCPs require robust frameworks for risk management if they are to enhance financial stability and increase market resiliency. Regulators have taken significant steps in recent years to promote strong risk management at systemically important CCPs and remain focused in identifying and mitigating any potential threats to financial stability that could arise from CCPs. In particular, it is important to evaluate whether existing rules and standards are sufficiently robust to mitigate the risk that CCPs could transmit credit and liquidity problems among financial institutions and markets during periods of market stress.

## **Global Economic and Financial Risks**

In today's globally integrated financial markets, foreign shocks have the potential to disrupt financial stability in the United States. In 2014, concerns about stability in the euro area resurfaced amid weak economic growth and political uncertainty in Greece. It is unclear whether Greece will be able to implement the reforms needed to maintain the European Union (EU)-International Monetary Fund (IMF) financial assistance program, which it needs to meet debt obligations coming due later in 2015. In China, an abrupt correction in the property market could cause financial stress and pressure on the economy. Furthermore, the rapid growth in dollar credit to emerging market economies (EMEs) raises concerns that a disorderly increase in yields in advanced economies or a sudden change in market sentiment could trigger a sell-off in emerging market bonds and destabilize markets, as occurred in the summer of 2013.

## **Financial Innovation and Migration of Activities**

Technology, competition, and regulatory changes are continuously reshaping the financial system and bringing about innovations in products, services, and business practices, which benefit investors and consumers. Since the financial crisis, the changing financial system landscape has fostered many innovations. One challenge for regulators is the need to monitor new products or services in light of existing standards and regulations. Another challenge is the migration of activities to less regulated or unregulated institutions.

## **Short-Term Wholesale Funding**

Domestic banking firms' reliance on short-term wholesale funding has decreased since the financial crisis. The decline reflects in part the large growth in retail deposits and adjustments some banks are making to their funding and balance sheet structures in response to enhanced liquidity standards—such as the liquidity coverage ratio (LCR)—and capital requirements—such as the supplementary leverage ratio (SLR). Similarly, total borrowing by primary dealers across all segments of the repurchase agreements (repo) market was essentially flat in 2014.

Previous annual reports have highlighted structural vulnerabilities in the tri-party repo market. Significant progress has been made in this market in recent years, in particular reducing market participants' reliance on intraday credit from clearing banks. The risk of fire sales of collateral deployed in repo transactions remains an important financial stability concern. The industry is still working to bring the settlement of General Collateral Finance (GCF) repo transactions in line with the reforms effected for tri-party repo generally.

## **Risk-Taking Incentives of Large, Complex, Interconnected Financial Institutions**

In the 2008 financial crisis, the official sector—including the Federal Reserve, Treasury, and FDIC—provided liquidity and capital to some of the largest U.S. financial institutions to prevent an already significant financial disruption from becoming even worse. That support, while critical, likely exacerbated the existing too-big-to-fail moral hazard problem, that is, the risk that these financial institutions will become even larger and more interconnected because they and other market participants expect the official sector to intervene to prevent a catastrophic financial market failure. In addition, creditors and counterparties to these institutions may misprice risk when lending or transacting if they continue to expect support from the official sector.

The Dodd-Frank Act directly addressed this problem by enhancing the safety and soundness of the largest financial institutions and by instituting limits on the support that can be provided. Specifically, the Dodd-Frank Act requires the Federal Reserve to adopt enhanced prudential standards for the largest bank holding companies (BHCs) and designated nonbank financial companies, requires that certain companies develop and submit to the Federal Reserve and the FDIC their own plan for rapid and orderly resolution, and limits the ability of the Federal Reserve to provide extraordinary support to individual institutions.

Although the largest BHCs have become larger, some market-based measures indicate they have become less interconnected and less complex since the passage of the Dodd-Frank Act. Additionally, some credit rating agencies have lowered their assessments of the likelihood of government support for the largest banks in time of stress. However, these rating agencies still consider some chance that the government will provide support to the largest banks if they become financially distressed. The full implementation of Orderly Liquidation Authority (OLA) and the phasing in of enhanced prudential standards in the coming years should help reduce remaining perceptions of government support for large, complex, interconnected financial institutions.

### **Reforms of Reference Rates**

Investigations of manipulation of the widely used London Interbank Offered Rate (LIBOR) that surfaced in 2012 highlighted concerns about the integrity of interest rate and other financial benchmarks. Incidents of manipulation reduce public confidence in the financial system and risk financial instability, in part owing to the significant disruptions associated with changing the reference rates for financial contracts. The problems with U.S. dollar LIBOR (USD LIBOR) reflect several interrelated structural factors including the decline in unsecured interbank lending markets, the incentives to manipulate rates submitted to reference rate panels, and the dominance of instruments tied to LIBOR in terms of market liquidity. Since the Council's 2014 annual report, administrators of LIBOR, the Euro Interbank Offered Rate (Euribor), and the Tokyo Interbank Offered Rate (TIBOR) have made substantial progress toward enhancing oversight, governance, transparency, and accountability of these benchmark rates. Official sector efforts have focused on developing multiple reference rates, which would allow the rate used in a financial transaction to be more closely tied to the underlying economic purpose, reduce incentives for manipulation, and enhance stability by having more ready alternatives. Concerns have also been raised about other financial benchmarks, including swap rates and foreign exchange (FX) rates, which are used for valuing numerous contracts and portfolios of assets. U.S. regulators continue to cooperate with foreign regulators and official sector bodies in their assessment of market practices for these benchmarks.

### **Housing Finance Reform**

The housing market recovery continued in 2014, despite some signs of softness early in the year. As house prices continued to rise, the number of households with negative equity declined while the performance of outstanding loans improved. Although mortgage origination activity slumped in 2014, this was mainly due to fewer refinance originations, as mortgage rates remained elevated relative to 2013. In the absence of housing finance reform, FHFA, primarily through its conservatorship and oversight of Fannie Mae and Freddie Mac—the government-sponsored enterprises (GSEs)—continued to make meaningful efforts to improve housing finance infrastructure and reduce the amount of taxpayer risk. However, core challenges persist. The GSEs remain in conservatorship, subject to FHFA supervision, with the vast majority of newly

originated mortgages carrying a federal government backing either through the GSEs, the Federal Housing Administration (FHA), or other government-backed programs. Over the past year, the GSEs have continued to reduce their overall exposure to mortgage credit risk by engaging in risk-sharing with market participants—primarily through structured transactions and reinsurance agreements. Legislative action is still needed for federal and state regulators to implement necessary reforms. Legislation addressing the conservatorship of the GSEs and clarifying the future role of the federal and state governments in mortgage markets would also help reduce uncertainty in the mortgage market and better enable market participants to make long-term investment decisions.

### **Data Quality, Collection, and Sharing**

Data limitations can hamper the ability of market participants and regulators to fully comprehend the scope and size of risks throughout the financial system. Regulators took several steps in 2014 to improve the scope, comparability, and transparency of existing data collections. Promoting transparency in the over-the-counter (OTC) derivatives markets is a major priority for the Council and international regulators, given the market's role in the financial crisis, its decentralized nature, and evolving infrastructure. The global Legal Entity Identifier (LEI) project progressed in 2014. In the United States, more regulatory reporting forms are requiring the use of the LEI. Also, in 2014, the CFTC and OFR entered into a cooperative effort to enhance the quality, types, and formats of data collected from CFTC-registered swap data repositories (SDRs). Although regulators now collect significantly more data on financial markets and institutions, critical gaps remain in the scope and quality of available data. For example, regulators and market participants lack comprehensive data on repo and securities lending markets. Regulatory and supervisory efforts to improve visibility and transparency in various markets, such as bilateral repo, are ongoing.



## 3.1 Heightened Risk Management and Supervisory Attention

### 3.1.1 Cybersecurity

Cybersecurity is an increasing concern, with cyber attacks creating a growing operational risk to the financial sector. Mitigating risks to the financial system posed by malicious cyber activities requires strong collaboration among financial services companies, agencies, and regulators. The Council continues to support comprehensive legislation on cybersecurity issues, including proposals to enhance cybersecurity information sharing and data breach notifications.

#### Information Sharing

The Council recommends additional enhancements to cybersecurity information sharing between the private sector and government. Specifically, the Treasury should continue to work closely with intelligence and law enforcement agencies to enhance the sharing of timely and actionable cyber threat information with regulators and the private sector through the Financial Sector Cyber Intelligence Group and the Financial Sector Information Sharing and Analysis Center (FS-ISAC). This includes increasing the speed of information exchange by automating the sharing of technical data wherever possible. The Council also encourages continued efforts by the Federal Financial Institutions Examination Council (FFIEC) to collaborate and coordinate on cybersecurity issues affecting the banking sector. These information-sharing efforts should be undertaken in a manner that respects civil liberties and protects the privacy of customers.

In addition, financial regulators should enhance capabilities to allow for timely distribution of urgent cyber threat information to regulated entities in the event of a cyber incident with the potential to impact the whole sector, working in collaboration with the Financial and Banking Information Infrastructure Committee (FBIIC).

#### Best Practices

The Council recommends continued efforts to enhance the security and resilience of the nation's critical infrastructure through the use of the National Institute of Standards and Technology's Framework for Improving Critical Infrastructure Cybersecurity (NIST Cybersecurity Framework) among financial services sector companies, in addition to other relevant standards issued by the financial regulators. This includes integrating better security practices into agreements with vendors. The Council also recommends that financial regulators expand and complete efforts to map existing regulatory guidance to reflect and incorporate appropriate elements of the NIST Cybersecurity Framework and encourage consistency across regulatory regimes for cybersecurity. In addition, the Council notes that approaches and authorities to supervise third-party service providers vary across financial regulators. The Council supports efforts to synchronize these authorities, including by passing new legislation that helps to enhance the security of third-party service providers and the critical services they provide. The Council supports the granting of examination and enforcement powers to NCUA and FHFA to oversee third-party service providers engaged respectively with credit unions and the GSEs.

## Response and Recovery

The private sector and government should maintain robust plans for responding to a significant cyber incident. Treasury and financial regulators have been working closely with the private sector and other government agencies on a series of cybersecurity exercises to improve response and recovery from incidents impacting the financial services sector. The Council encourages the establishment of a national plan for cyber incident response for the sector, coordinated by the Treasury, that includes identifying and articulating the role of law enforcement, the Department of Homeland Security, and financial regulators.

### 3.1.2 Increased Risk-Taking in a Low-Yield Environment

#### Depository Institutions, Broker-Dealers, and Bank Holding Companies

With slowing global growth, falling inflation, and central banks providing accommodative monetary policies, long-term interest rates returned to near record lows, despite an improving U.S. economy. Low interest rates have helped to improve financial stability by strengthening the balance sheets of households, firms, and most financial institutions. However, these conditions continue to incentivize depository institutions, broker-dealers, and BHCs to seek additional yield by holding longer-duration assets, easing lending standards, or engaging in other forms of risk-taking. One sector that warrants continued monitoring is leveraged finance, with respect to which federal banking agencies' 2014 Shared National Credit (SNC) Review found serious deficiencies in underwriting standards and risk management practices of certain leveraged loans as compared to the norms set forth in their 2013 leveraged lending guidance. In response to these findings, the agencies increased the frequency of their reviews of these loans. The quality of newly originated loans will continue to be a focal point in the agencies' 2015 SNC review.

Such risk-seeking may lead to large losses or potential market disruptions under a shock to fixed income markets. This could come either from a sudden rise in interest rates or yield curve steepening, or from a turning of the credit cycle and a significant jump in credit spreads, leaving institutions exposed to losses from underwritten loans.

The Council recommends that supervisors, regulators, and firm management continue to closely monitor and assess the heightened risks resulting from continued search-for-yield behaviors as well as the risks from potential severe interest rate shocks.

#### Insurance Companies

A similar dynamic is playing out in the insurance industry. To boost returns, some insurers are taking on incremental risk by extending the durations of their portfolios, or investing in assets of lower credit quality. Some have also moved into less liquid investments, such as commercial mortgage loans, real estate, or alternative assets such as private equity or hedge funds.

The Council recommends that FIO and state insurance regulators continue to closely monitor and assess the growing risks that insurers have been taking by extending the duration of their portfolios, and by investing in lower quality or less liquid assets.

### 3.1.3 Changes in Financial Market Structure and Implications for Financial Stability

While changes in market structure, such as the ability to trade at higher speeds, and the expansion and diversity of trading venues have increased competition and reduced transaction costs, regulators should be mindful of the introduction of certain vulnerabilities. In particular, the expansion of electronic trading beyond equities and futures markets should be assessed for potential vulnerabilities. First, risk management and technology systems must be equipped to quickly detect and mitigate issues that may arise from erroneous

trades or disruptive strategies. Second, in today's highly complex and interlinked markets, liquidity provision and pricing may adjust quickly and unexpectedly, even in the absence of significant market events.

Over the last five years, the SEC and CFTC have implemented a series of market structure reforms to improve transparency, fairness, risk management, and technology systems. These reforms include the enhancement of market-wide circuit breakers in the equity markets, rules that require brokers to implement better risk controls, as well as rules that place stricter requirements relating to the technology used by exchanges, large alternative trading systems, clearing institutions, and securities information processors. Last year, the SEC enacted Regulation Systems Compliance and Integrity (SCI), which imposes requirements on certain key market participants that are intended to reduce the occurrence of systems issues and improve resiliency when problems do occur. In addition, the self-regulatory organizations have advanced new backup recovery processes for each consolidated data feed—known as securities information processors—to improve failovers to backup sites in the event of a failure of the primary site and resume operations within a short timeframe. The SEC has also proposed rules that would close a regulatory gap by requiring active proprietary traders to be registered with Financial Industry Regulatory Authority (FINRA).

The Council recommends that members and member agencies continue to remain vigilant to the confluence of factors driving changes in market structure, the extent of their impact on market functioning and the provision of liquidity, and potential implications for financial stability. Regulators should assess the extent to which potential actions in certain markets might be applicable to other markets as well. Regulators should also work to better understand the linkages between and across markets, both regulated and unregulated, by improving data collection efforts and data sharing arrangements across the member agencies. The Council also recommends that regulators continue to enhance their understanding of firms that may act like intermediaries and that may be outside the regulatory perimeter, work to develop enhanced tools, and, as warranted, make recommendations to Congress to close such regulatory gaps.

### **3.1.4 Central Counterparties**

CCPs serve important risk-mitigating functions and have long been core components in a range of markets including exchange-traded derivatives and cash markets. The Dodd-Frank Act requirement that certain standardized OTC derivatives contracts be cleared via CCPs—a key plank of post-crisis regulatory reforms—recognizes that opaque and highly interconnected derivatives markets played a significant role in exacerbating financial instability. Properly regulated and managed CCPs have the potential to greatly improve the transparency and stability of OTC derivatives markets. However, the increasing importance of CCPs has heightened public and regulatory focus on risk management practices at CCPs and the potential threat to financial stability in the event of a CCP failure. As U.S. regulators and their foreign counterparts continue to implement and expand clearing requirements for additional derivatives products, the role of derivatives CCPs as risk management hubs will necessarily increase. There is a broad recognition that regulatory scrutiny must be commensurate with this increased role.

The Council recommends that the Federal Reserve, CFTC, and SEC continue to coordinate closely in the supervision of all CCPs that are designated as systemically important financial market utilities (FMUs) under Dodd-Frank Title VIII, and recommends that the agencies continue to actively evaluate whether recently enhanced rules and standards are sufficiently robust to mitigate potential threats to financial stability. The Council also encourages regulators to continue working collaboratively through the Council's FMU Committee as well as through international work streams and other avenues, to review the adequacy of margining, stress testing, enhanced transparency and disclosures, and cyber resilience. Further, the Council recommends that the agencies continue to evaluate whether certain CCP-related risk areas are being addressed adequately, in particular: (1) CCP credit, default, and liquidity risk management; (2) bank-CCP interactions and risk management, including how banks and other clearing members manage and account

for their potential exposures to the full range of CCPs, both foreign and domestic, in which they participate; and (3) CCP recovery and resolution planning. In addition, member agencies should continue working with respective international official sector bodies to identify and address areas of common concern as additional derivatives clearing requirements are implemented in other jurisdictions.

### **3.1.5 Financial Innovation and Migration of Activities**

Financial markets continue to change in response to technological advances, competition, and regulatory developments. Many of these changes have greatly benefited investors, consumers, and firms, but in some instances, such changes may pose risks to financial stability. The Council recommends that members and member agencies remain vigilant to the potential financial stability risks that may arise from financial innovation, business practices, and migration of activities in the financial system.

In particular, nonbank mortgage servicing companies, which in recent years have purchased large amounts of mortgage servicing rights (MSRs) from banks and thrifts, have grown to account for a material portion of the mortgage servicing market. These nonbank firms are subject to CFPB regulation, as well as state-level prudential standards, which consist of bonding and net worth requirements, and counterparty standards imposed by the GSEs. Following the recommendation made in the Council's 2014 Annual Report, FHFA proposed new minimum financial eligibility requirements for mortgage seller/servicers that do business with the GSEs in January 2015. Also, in March 2015, state bank and mortgage regulators issued a proposed framework for prudential regulation of nonbank mortgage servicers, which would establish baseline standards for all firms and enhanced standards for larger, more complex ones. The Council recommends that state regulators continue to monitor these firms and collaborate with the CFPB and FHFA, as appropriate, on further developing and implementing prudential and corporate governance standards to strengthen these companies.

### **3.1.6 Capital, Liquidity, and Resolution**

#### **Capital and Liquidity**

U.S. banks and credit unions have continued to make progress toward robust capital and liquidity planning. The banking agencies are developing more stringent capital requirements on banking organizations that pose greater risks to financial stability. For instance, in April 2014, the federal banking agencies adopted a final rule that enhances the supplementary leverage requirement for the largest, most interconnected U.S. BHCs and their subsidiary depository institutions. In December 2014, the Federal Reserve sought comment on a proposal to establish risk-based capital surcharges for this category of BHCs, which would be calibrated based on an institution's size, interconnectedness, cross-jurisdictional activity, complexity, and use of short-term wholesale funding. In addition, the Federal Reserve continues to conduct its supervisory stress tests to ensure that the largest U.S. BHCs have sufficient capital and rigorous forward-looking capital planning processes to enable banking firms to continue operations throughout periods of severe stress. NCUA also is conducting its first supervisory stress tests and capital planning review on credit unions with over \$10 billion in assets, the results of which will be communicated in May 2015. In February 2014, the Federal Reserve finalized enhanced prudential standards, including enhanced capital and liquidity standards, for the largest domestic BHCs and foreign banking organizations (FBOs) with a U.S. banking presence. Similarly, the OCC implemented heightened risk governance standards for the financial institutions it supervises. In April 2014, the FDIC implemented Basel III regulatory capital standards, which were substantively identical to those implemented by the Federal Reserve and the OCC in October 2013. The Council recommends that the agencies continue to promote forward-looking capital and liquidity planning at large BHCs, U.S. operations of FBOs, and other depositories.

The traditional banking sector model relies on many different forms of funding. As such, firms are encouraged to diversify their funding base and place prudent limits on the volume of short-term liabilities. The Council recommends that supervisors and private sector risk managers closely monitor the liquidity risks inherent in short-term funding of longer-term assets. In September 2014, the federal banking agencies finalized the LCR that would strengthen the liquidity position of large banking firms. The Council recommends that the agencies continue work on potential quantitative rules that would address structural liquidity needs for the largest banking organizations.

## Resolution

In its 2014 annual report, the Council acknowledged the importance of establishing a framework for effective cross-border cooperation in the event a global systemically important financial institution (G-SIFI) requires resolution and recommended that the FDIC and Federal Reserve continue to work with international counterparts to identify and address issues of mutual concern. The Federal Reserve and FDIC have been working diligently to improve the capabilities for an orderly resolution of a G-SIFI under the U.S. Bankruptcy Code and, if needed to protect the financial stability of the United States, the OLA provided in the Dodd-Frank Act. In the past year, important progress has been made on international efforts to mitigate two broadly recognized obstacles to a cross-border resolution of a G-SIFI.

First, in November 2014, the Financial Stability Board (FSB) published for consultation a proposal for a common international standard on total loss-absorbing capacity for global systemically important banking organizations (G-SIBs), which is intended to ensure that G-SIBs have sufficient financial resources to absorb losses and enable resolution authorities to implement an orderly cross-border resolution. The FSB standard is expected to be finalized by the end of 2015. In the United States, the Federal Reserve is considering adopting a proposal that would require the largest, most complex U.S. banking firms to maintain a minimum amount of long-term unsecured debt outstanding at the holding company level. The Council recommends that U.S. regulators continue to work with foreign regulators and official sector bodies toward the finalization of the FSB proposal. The Council also recommends that the Federal Reserve work toward proposing regulations regarding maintenance of a minimum amount of long-term debt at the holding company level for the largest, most complex U.S. BHCs.

Second, during 2014, the International Swaps and Derivatives Association (ISDA) and its members developed a set of standard contractual amendments that should improve the resolvability of G-SIBs by providing for a short-term suspension of termination rights and other remedies in the context of an orderly resolution. This work was done in consultation with U.S. and foreign regulators. In November 2014, ISDA published the ISDA 2014 Resolution Stay Protocol, which enables parties to amend the terms of their relevant OTC derivatives agreements to contractually recognize the cross-border application of certain special resolution regimes and support the resolution of certain financial companies under the U.S. Bankruptcy Code. At that time, 18 of the largest banking organizations adhered to the protocol. To become fully effective, the protocol for covered transactions among the 18 firms requires the issuance of regulations in the United States and foreign countries. The Council recommends that the appropriate member agencies take steps, including through notice-and-comment rulemaking, so that the provisions of the protocol become effective and to encourage a more widespread adoption of contractual amendments to ISDA documentation and other financial contracts. The Council also recommends that regulators and market participants continue to work together to facilitate industry-developed mechanisms to address similar risks in other financial contracts governed by standardized market documentation.

In addition, in August 2014, the FDIC and the Federal Reserve Board delivered letters to the largest financial firms regarding their second resolution plan submissions. In these letters, the agencies jointly identified shortcomings among the firms' submissions, and directed the firms to demonstrate in their 2015 plans that they are making significant progress to address these shortcomings (see Section 6.1.3). The Council recommends that the FDIC and Federal Reserve review and assess upcoming resolution plans and take appropriate action to foster resolvability.

### 3.1.7 Data Quality, Collection, and Sharing

Efforts to address financial data gaps and promote standards must keep pace with changes in market activity. Analysis into potential vulnerabilities in the financial system by market participants, regulators, and researchers requires more detailed and frequent data, as well as new ways of integrating existing data. The Council recommends that regulators and market participants continue to work together to improve the quality, access and comprehensiveness of financial data in the United States and across global markets.

Regulators and supervisors should seek to attain greater visibility into certain sectors of the financial system. The Council recommends that the SEC continue its work to address data gaps for the asset management industry and that the appropriate member agencies continue to improve data collection on bilateral repo and securities lending activities. The Council also recommends that the state insurance regulators and the National Association of Insurance Commissioners (NAIC) continue to work to improve the public availability of data, including financial statements relating to captive reinsurance activity, and that FIO continue to monitor and publicly report on the regulatory treatment of issues relating to captive reinsurance, which FIO previously noted as an area of concern in its Modernization Report.

Regulators are increasingly encouraging or requiring use of the LEI. However, the full benefits of the LEI will not be realized without broader adoption. The Council recommends that members and member agencies continue moving to adopt the LEI in reporting requirements and rulemakings, where appropriate. The Council also recommends that member agencies support the adoption and use of standards in mortgage data, particularly the CFPB's efforts to develop a unique loan identifier, and the adoption and use of the LEI in mortgage data collections.

For derivatives markets, swaps must now be reported to new entities known as SDRs and security-based swap data repositories (SBSDRs). It is important that these data be sufficiently standardized for effective analysis by regulators and with appropriate aggregation and protection for public dissemination. SDRs and SBSDRs need to have strong and common standards to facilitate counterparty analysis by financial institutions, in addition to aiding in the monitoring of financial stability by the regulatory community. Regulators' access to these data remains a challenge both in the United States and globally. The Council recommends that members and member agencies work with international regulators to promote high standards in derivatives data reporting and recommends that impediments to U.S. authorities' access to data stored at repositories be resolved.

During the financial crisis, the inability to access or share certain data prevented market participants and regulators from fully understanding the size and scope of risks throughout the financial system. Both increased data sharing and reporting efficiency could also help reduce the reporting burden on the industry. The Council recommends that member agencies continue to explore best practices for data sharing and for improving reporting efficiency.

## 3.2 Reforms to Address Structural Vulnerabilities

### 3.2.1 Reforms of Wholesale Funding Markets

#### Repo Markets

Significant progress has been made in recent years in reducing market participants' reliance on intraday credit from clearing banks. The share of tri-party repo volume funded intraday by the clearing banks fell from 92 percent in December 2012, to under 20 percent in December 2013, to less than 5 percent in December 2014. However, the industry is still working to bring the settlement of GCF repo transactions in line with the reforms effected for tri-party repo generally, by moving the settlement for those trades in step with the 3:30 p.m. unwind and making it much less reliant on intraday credit. The risk of fire sales of collateral by creditors of a defaulted broker-dealer, many of whom may themselves be vulnerable to runs in a stress event, remains an important financial stability concern. The Council recommends that market participants continue to make progress toward extending improvements in the tri-party repo settlement process to GCF repo settlement. The Council also urges continued coordination between market participants and financial regulators to address the risk of post-default fire sales of assets by repo investors.

#### Money Market Mutual Funds

In July 2014, the SEC adopted structural and operational reforms to the rules governing MMFs in order to address the risk of investor runs in those funds, as exhibited during the financial crisis. The new structural and operational reforms for MMFs build upon the SEC's 2010 MMF reforms. The reforms adopted in 2010 were designed to reduce the interest rate, credit, and liquidity risks of MMF portfolios and have provided regulators and the public comprehensive data on MMF portfolios. The new rules require a floating net asset value (NAV) for institutional prime MMFs, which were the funds that experienced significant redemptions during September 2008, and institutional tax-exempt MMFs. Both government and retail funds will be allowed to continue using stable NAVs.

The floating NAV reform addresses incentives for investor runs by requiring the daily share prices of these funds to fluctuate along with changes in the market-based value of some fund assets. The reforms also provide the boards of directors of non-government MMFs with new tools—liquidity fees and redemption gates—that are intended to address runs during periods of stress. The reforms also enhance diversification, disclosure, regulatory reporting, and stress testing requirements for MMFs. Finally, the reforms require private liquidity funds that operate like MMFs to report on a monthly basis their full portfolio holdings on Form PF to facilitate regulators' understanding of these funds' operations and investments.

The Council will monitor the effectiveness of the SEC's reforms in addressing risks to financial stability—including any unintended consequences of liquidity fees and gates—as well as the treatment of retail funds. After these measures have been implemented, the Council intends to review and consider the effects of these reforms and their broader implications for financial stability.

The Council recommends that regulators assess the extent to which other types of cash management vehicles may present run risk or be relied upon as a source of short-term wholesale funding, and whether regulatory gaps may exist for some of these vehicles. Other cash management vehicles of interest include short-term investment funds, local government investment pools, and common and collective trust funds, particularly those that serve as cash collateral reinvestment pools for securities lending transactions, as well as private liquidity funds.

### 3.2.2 Housing Finance Reform

The housing market was a proximate cause of the financial crisis, and yet six years have passed without major statutory reforms to the housing finance system. Market conditions have improved over the past several years, albeit at a gradual pace, with fewer underwater borrowers and improved loan performance. In the absence of major housing finance reform, FHFA, primarily through its conservatorship and oversight of the GSEs, has made progress to improve housing finance infrastructure and reduce the amount of taxpayer risk. However, core challenges persist. The GSEs remain in conservatorship, subject to FHFA supervision, with the vast majority of newly originated mortgages backed by the federal government either through the GSEs, FHA, or other government-backed programs. Efforts to reinvigorate private capital's role in supporting mortgage markets should move forward in ways that provide access to credit for creditworthy borrowers, adequately protect taxpayers, and support financial stability. The Council recommends that member agencies continue to work with Congress and other stakeholders to carry out reforms of the housing finance system to achieve these goals.

#### Promoting Comprehensive Housing Finance Legislation

Congress has debated several housing finance reform proposals, including separate pieces of legislation that advanced out of the House Financial Services Committee in July 2013 and the Senate Banking Committee in May 2014. While federal and state regulators have made progress toward improving both prudential regulation and housing finance infrastructure, the Council reaffirms that, in the absence of legislative action, federal and state regulators have limited scope to implement necessary reforms. Legislation would reduce uncertainty in the mortgage market and enable market participants to make better long-term investment decisions. Furthermore, without any resolution of the long-term relationship between the federal government and the mortgage market, taxpayers will remain exposed to the GSEs' balance sheets indefinitely. The Council recommends that comprehensive legislation address the conservatorship of the GSEs and clarify the future role of the federal and state governments in mortgage markets.

#### Reducing Taxpayer Risk by Facilitating Increased Private Mortgage Market Activity

Over the past year, the GSEs have continued to reduce their overall exposure to mortgage credit risk by engaging in risk-sharing with market participants. FHFA has encouraged the GSEs to continue this process in 2015 by transferring credit risk of at least \$270 billion in unpaid principal balance. The Council recommends that FHFA continues to encourage the GSEs to engage in a variety of risk-sharing transactions to spread mortgage credit risk across a broad spectrum of private capital providers.

The GSEs also continued the steady reduction of their retained portfolios, which declined by nearly 14 percent in 2014. Also, FHFA provided guidance that the GSEs should meet their annual cap even under adverse conditions. This measured approach is designed to reduce taxpayer risk without impairing the overall functioning of the housing finance system. The Council recommends further reduction in the GSEs' retained portfolios, particularly their less liquid assets, through measures that do not disrupt the stability of mortgage markets or access to credit for creditworthy borrowers.

Reform of representations and warranties frameworks will also increase transparency and enhance certainty for both mortgage investors and mortgage originators. FHFA and the U.S. Department of Housing and Urban Development (HUD) have worked with the GSEs and the FHA, respectively, to clarify their representations and warranties policies over the past few years. However, loan originators continue to cite uncertainty regarding repurchase requirements as a major driver of their credit policies for GSE and FHA loans, which are often more conservative than these institutions require. The Council therefore recommends that FHFA, Treasury, and HUD work with market participants to more clearly define and standardize representations and warranties.

## Building a New Housing Finance Infrastructure

The development of new infrastructure within the secondary mortgage market continued in 2014, as further progress was made toward a functional Common Securitization Platform. FHFA has also actively sought input on the design and implementation of methods to create fungible contracts in the to-be-announced market for mortgage-backed securities (MBS) separately issued and guaranteed by the GSEs. This will enhance liquidity in the secondary mortgage market by addressing certain trading disparities between existing securities. The Council continues to support this effort to enhance efficiencies in the secondary market and to allow for integration into a future system featuring the Common Securitization Platform.

### 3.2.3 Reforms Relating to Reference Rates

In its 2014 annual report, the Council recommended U.S. regulators cooperate with foreign regulators, international bodies, and market participants to identify alternative interest rate benchmarks anchored in observable transactions and supported by appropriate governance structures, as well as develop a plan for a smooth and orderly transition to these new benchmarks. Significant progress has been made, including the formation of the Alternative Reference Rates Committee (ARRC), a group of market participants working with U.S. authorities to meet these recommendations, but more work is needed. The Council recommends that U.S. regulators continue to cooperate with the ARRC and foreign authorities to fully implement the recommendations of the FSB Report on Reforming Major Interest Rate Benchmarks, which was drafted as part of an international process in which U.S. regulators were significant participants.

The Council also recommended that U.S. regulators continue to cooperate with foreign regulators and official sector bodies in assessing market practices and benchmarks in FX markets. The FSB released a report based on that work in 2014, and implementation of its recommendations has begun. The Council recommends continued cooperation in implementing those recommendations.

The Council also recommends that U.S. agencies consider the International Organization of Securities Commissions (IOSCO) Principles for Financial Benchmarks in their ongoing assessment of financial benchmarks in the United States.



# 4

## Macroeconomic Environment

### 4.1 U.S. Economic Activity

#### 4.1.1 Real Gross Domestic Product

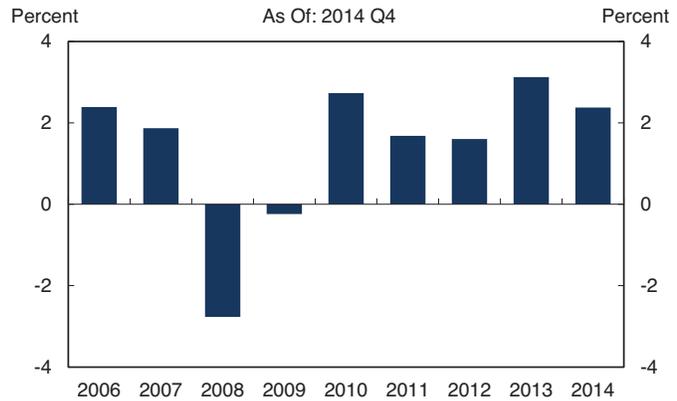
The growth rate of U.S. real gross domestic product (GDP) slowed to 2.4 percent during 2014, from 3.1 percent the previous year (**Chart 4.1.1**). After contracting in the first quarter of 2014, real GDP grew at a solid pace during the remainder of the year, supported by gains in personal consumption expenditures (PCE) and nonresidential fixed investment. In the first quarter of 2015, real GDP increased at an annual rate of 0.2 percent according to the “advance” estimate released by the Bureau of Economic Analysis (BEA). The deceleration in real GDP growth in the first quarter likely reflected transitory factors, as well as a deceleration in PCE and declines in net exports, nonresidential fixed investment, and state and local government spending.

#### Consumption and Residential Investment

Real PCE increased at a moderate pace of 2.9 percent during 2014 (**Chart 4.1.2**), gaining strength toward the end of the year. PCE growth was supported by improved labor market conditions, lower gasoline prices, continued growth in household net worth, and rising consumer confidence. An expansion in credit availability likely also played a role in increasing real PCE, particularly for automobile purchases, but many forms of credit remain limited for households with lower credit scores or limited financial resources. BEA estimates that real PCE increased at an annual rate of 1.9 percent in the first quarter of 2015. Real disposable personal income grew 3.1 percent in 2014 and its growth rate is estimated to have accelerated to 6.2 percent in the first quarter of 2015.

In the first half of 2014, housing activity was muted, likely reflecting transitory factors such as bad weather and a step-up in mortgage

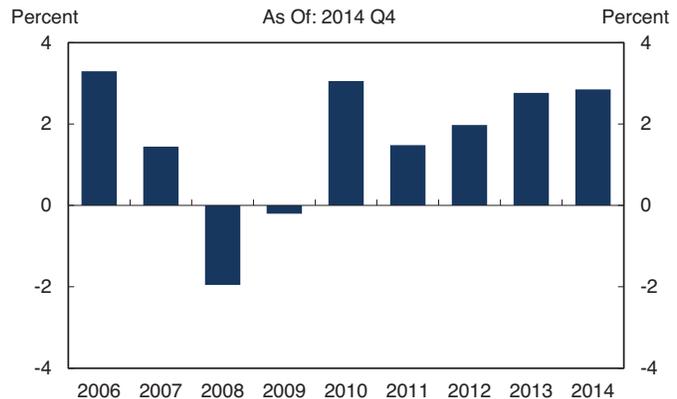
#### 4.1.1 Change in Real Gross Domestic Product



Source: BEA, Haver Analytics

Note: Annual changes are Q4/Q4.

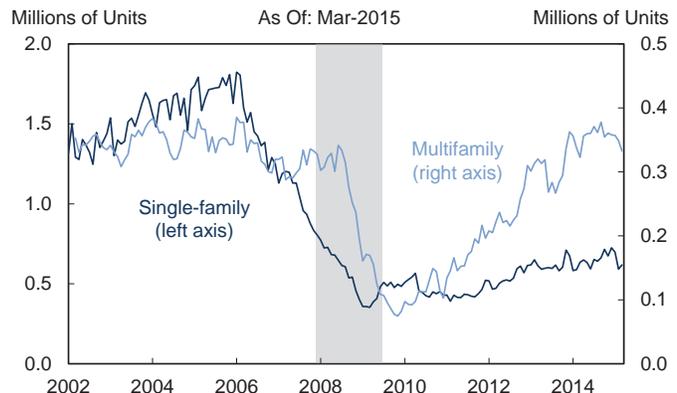
#### 4.1.2 Change in Real Personal Consumption Expenditures



Source: BEA, Haver Analytics

Note: Annual changes are Q4/Q4.

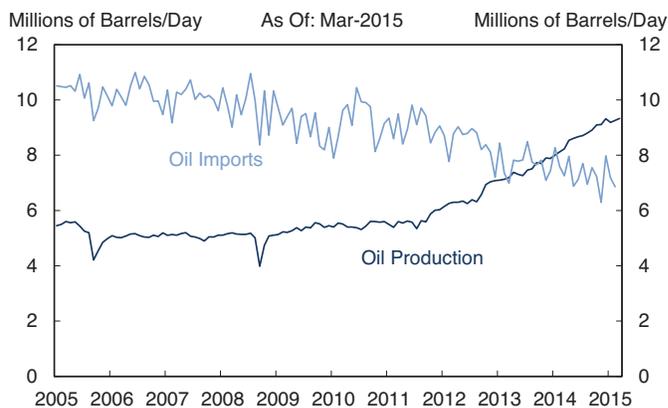
#### 4.1.3 Private Housing Starts



Source: Census Bureau, Haver Analytics

Note: Seasonally adjusted at an annualized rate. Multifamily housing starts are calculated on a 3-month moving average. Gray bar signifies NBER recession.

#### 4.1.4 U.S. Oil Imports and Production



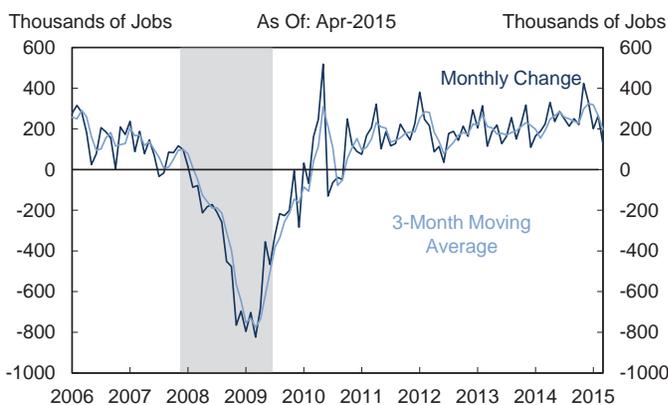
Source: Energy Information Administration, Census Bureau, Haver Analytics

rates that began in mid-2013. However, in the second half of the year, single-family housing starts gradually resumed growth (**Chart 4.1.3**) and sales of new homes rose, as mortgage rates moved back down and the labor market continued to improve. Despite these gains, both housing construction and new home sales remain well below long-term averages.

#### Business Fixed Investment

Real business fixed investment rose at a moderate but uneven pace during 2014 and early 2015, supported by the ongoing expansion of economic activity and favorable corporate financial conditions (**see Section 4.2**). Although overall investment in mining continued to rise through the end of 2014, some energy firms have announced that they will reduce their capital spending in response to the drop in oil prices, and shipments of mining machinery have recently declined sharply.

#### 4.1.5 Net Change in Nonfarm Payroll Employment

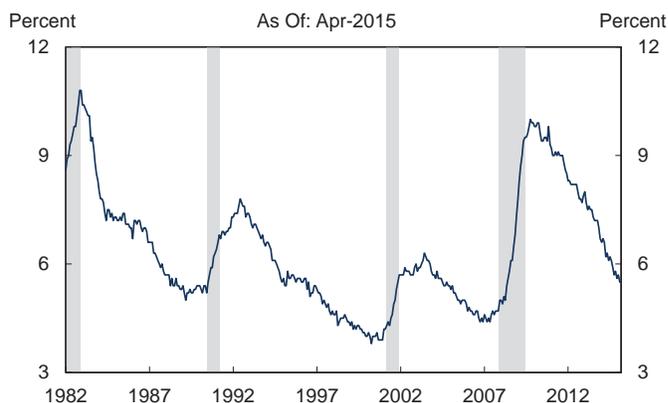


Source: BLS, Haver Analytics Note: Gray bar signifies NBER recession.

#### Government Purchases

Real government purchases edged up by 0.8 percent during 2014. State and local governments benefited from increased tax revenues, as real purchases increased 1.2 percent. Real federal government purchases ticked up 0.2 percent in 2014 after decreasing in each of the previous three years. The uptick was driven by increases in nondefense spending, which rose 1.1 percent. BEA estimates that real government purchases fell slightly in the first quarter of 2015.

#### 4.1.6 Civilian Unemployment Rate



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

#### Imports and Exports

Real exports of goods and services grew 2.4 percent during 2014, tempered by sluggish foreign growth and a strengthening dollar. BEA estimates that real exports declined at an annual rate of 7.2 percent in the first quarter of 2015, compared to the previous quarter. Real imports grew at a pace of 5.6 percent in 2014, fueled by the stronger dollar and increased business and consumer spending. This pickup in imports occurred despite a decline in U.S. oil imports, due in part to a rapid expansion in domestic oil production (**Chart 4.1.4**). In the first quarter of 2015, the growth rate of

real imports is estimated to have decelerated to an annual rate of 1.8 percent, compared to the previous quarter. Altogether, net exports (exports less imports) subtracted an average of 0.6 percentage point per quarter from real GDP growth during 2014, compared with a positive average contribution of nearly 0.3 percentage points per quarter during the previous two years. In the first quarter of 2015 net exports subtracted an estimated 1.3 percent from GDP.

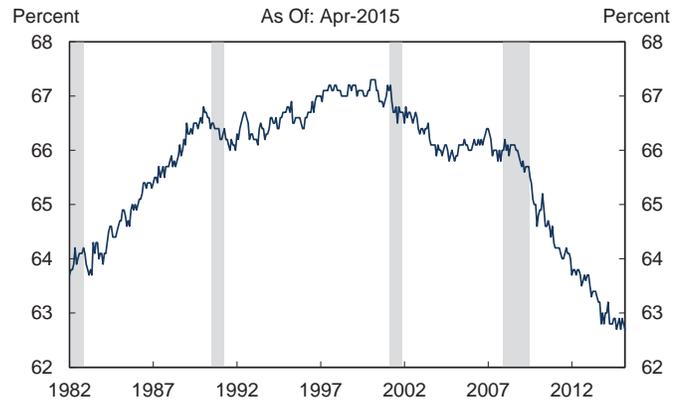
#### 4.1.2 The Labor Market

The labor market continued to strengthen over the past year, with nonfarm payroll employment increasing at a brisk pace of 248,500 jobs per month, on average, over the 12-month period ending in April 2015 (Chart 4.1.5). The private sector added 243,200 jobs per month on average, while government payrolls rose at an average rate of 5,300 per month.

The strong job gains helped reduce the unemployment rate from 6.7 percent at the end of 2013 to 5.4 percent in April 2015, the lowest rate in almost seven years (Chart 4.1.6). Labor force participation appears to have stabilized at just below 63 percent, down roughly 3.4 percentage points since the beginning of 2008 (Chart 4.1.7). A substantial portion of this decline is due to demographic changes related to the aging of the U.S. labor force, as well as other long-term trends. That said, cyclical factors persist, as many would-be job-seekers, discouraged by their labor market prospects, remain out of the labor force. About 29 percent of unemployed workers in April 2015 had been out of work for more than six months (Chart 4.1.8).

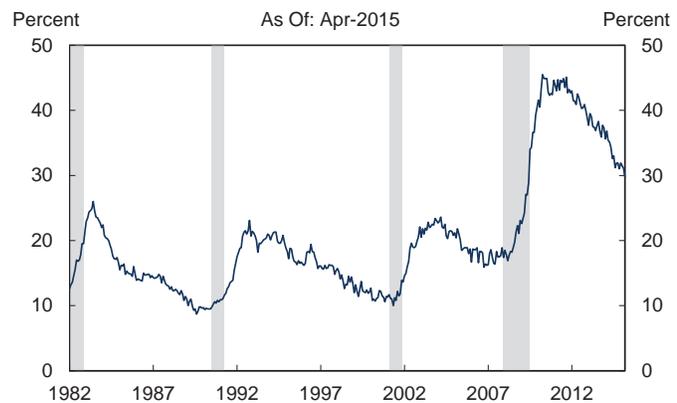
Despite the healthy employment growth over the past year, wage growth for those employed remains moderate by historical standards, even taking into account the subdued rate of inflation.

#### 4.1.7 Labor Force Participation Rate



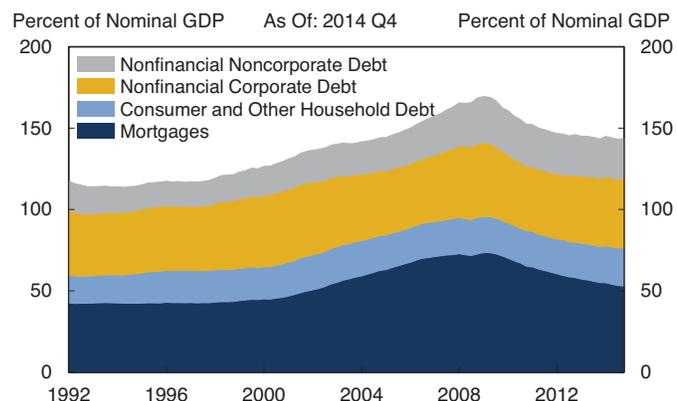
Source: BLS, Haver Analytics Note: Gray bars signify NBER recessions.

#### 4.1.8 Long-Term Unemployment



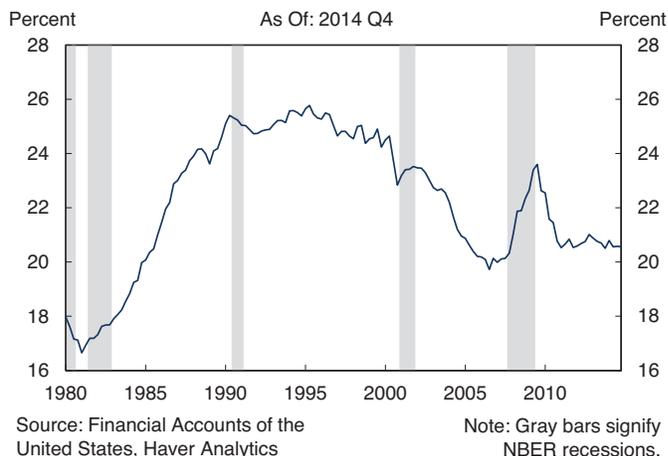
Source: BLS, Haver Analytics Note: Long-term unemployment as a percent of total unemployment. Gray bars signify NBER recessions.

#### 4.2.1 Private Nonfinancial Debt

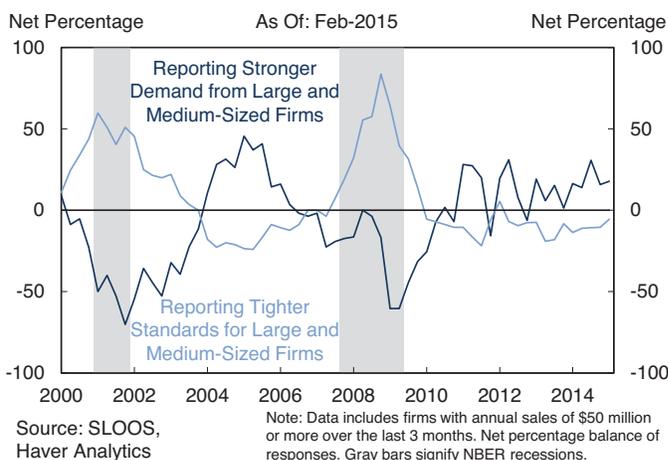


Source: BEA, Financial Accounts of the United States, Haver Analytics Note: Other Household Debt includes debts of both households and nonprofits.

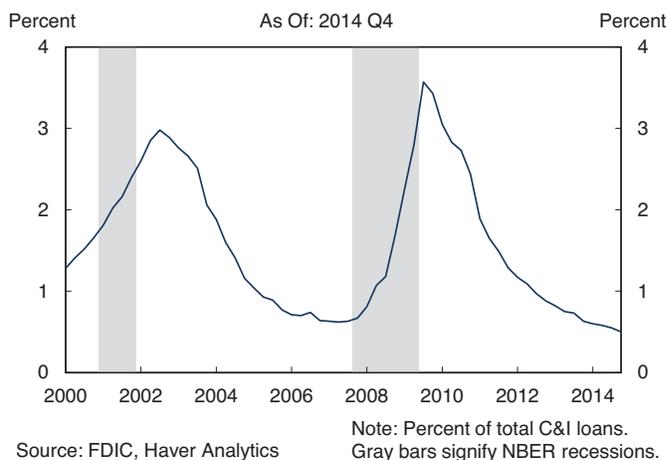
## 4.2.2 Debt to Assets for Nonfinancial Corporations



## 4.2.3 Bank Business Lending Standards and Demand



## 4.2.4 Noncurrent Commercial and Industrial Loans



## 4.2 Nonfinancial Balance Sheets

### 4.2.1 Nonfinancial Corporate Sector

Favorable economic conditions contributed to solid earnings growth in 2014, lifting stock prices and strengthening corporate balance sheets. Corporations' outstanding debt relative to GDP continued to rise in 2014 (**Chart 4.2.1**), supported by robust gross issuance of bonds in an environment of low interest rates and favorable earnings. Total outstanding bank and nonbank loans to corporations also continued to rise. However, in late 2014 issuance of speculative-grade bonds slowed, in part reflecting the increase in spreads as well as the effect of lower oil prices on the prospects of speculative-grade issuers in the energy sector. Although gross total debt increased, the ratio of debt to assets for the sector remains around long-term averages (**Chart 4.2.2**).

Bank respondents to the Federal Reserve Senior Loan Officer Opinion Survey on Bank Lending Practices (SLOOS) reported stronger demand in 2014 for commercial and industrial (C&I) loans by firms as well as some easing of underwriting standards (**Chart 4.2.3**).

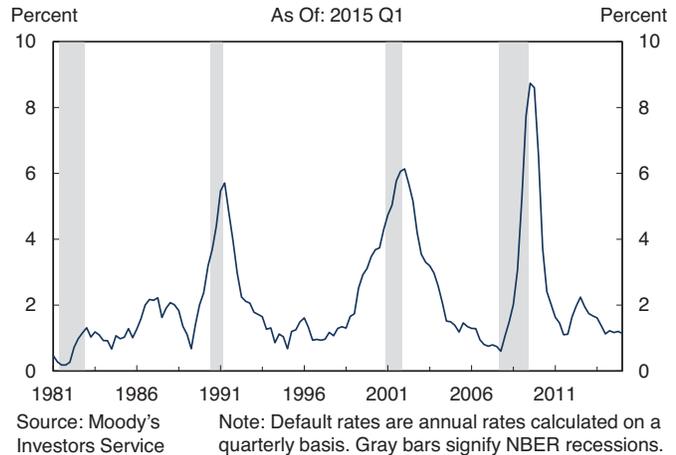
Corporate credit performance remains strong. The delinquency rate on C&I loans continued to decline (**Chart 4.2.4**), and the default rate on nonfinancial corporate bonds remained low in comparison with recent history (**Chart 4.2.5**).

### 4.2.2 Noncorporate Business Sector

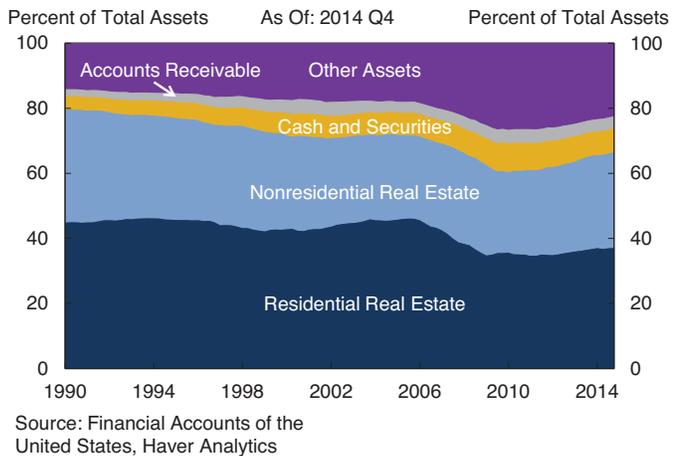
Financial conditions in the noncorporate business sector, composed primarily of small businesses, continued to improve in 2014. Relative to the corporate sector, however, the recovery in the noncorporate business sector has been slow. Small businesses have fewer financing options than corporations, with bank loans constituting the principal form of debt available to noncorporate businesses. Noncorporate business debt accounts for about one third of total nonfinancial business debt.

Most of the assets owned by noncorporate businesses are in the form of real estate (Chart 4.2.6), so changes in the value of real estate collateral affect the sector's ability to borrow from banks. The decline in real estate values during the financial crisis hindered noncorporate borrowers' ability to borrow from banks (Chart 4.2.7). Since then, net borrowing by noncorporate businesses has gradually increased as rising real estate prices and improving business conditions have enabled banks to ease lending standards for small firms, and boosted demand for C&I loans (Chart 4.2.8). The number of small businesses indicating difficulty in obtaining credit continued to decline (Chart 4.2.9).

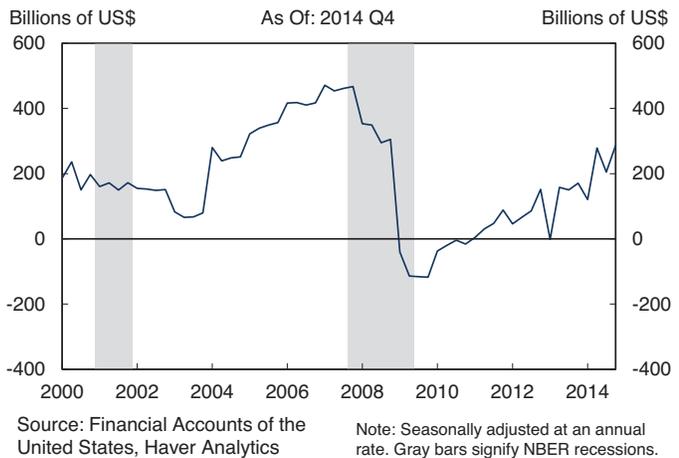
#### 4.2.5 Nonfinancial Corporate Bond Default Rate



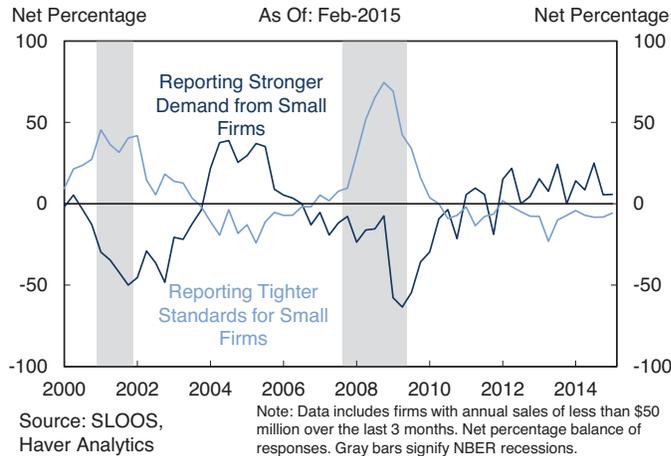
#### 4.2.6 Nonfinancial Noncorporate Assets



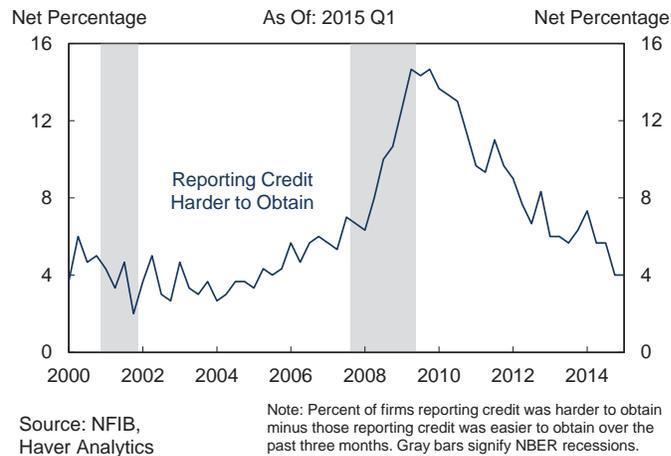
#### 4.2.7 Net Borrowing by Nonfinancial Noncorporate Businesses



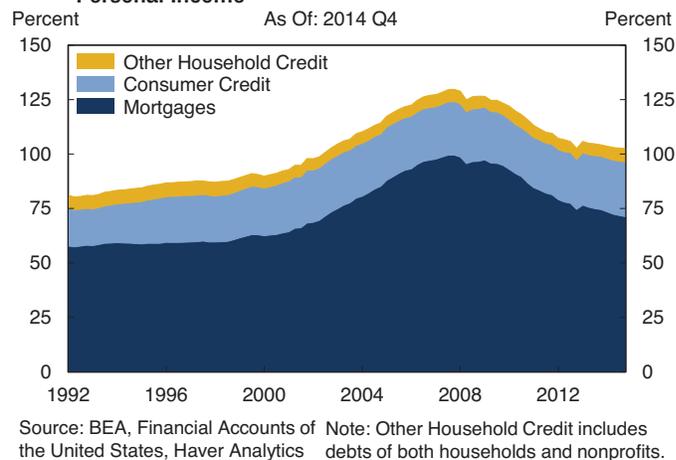
#### 4.2.8 Bank Business Lending Standards and Demand



#### 4.2.9 Small Businesses' Difficulty Obtaining Credit



#### 4.2.10 Household Debt as a Percent of Disposable Personal Income



#### 4.2.3 Household Sector

Since 2012, household debt has grown roughly in line with disposable personal income, and has remained at approximately 107 percent of disposable personal income, well below the pre-crisis high of 135 percent in 2007 (**Chart 4.2.10**). Mortgage debt continued to decline despite improving labor markets, rising home prices, and low mortgage rates. While borrowers with high credit scores and other financial resources generally have access to mortgages, credit remains tight for many other households.

Slow debt growth, historically low interest rates, and improving labor markets have reduced the overall household debt service ratio to near 30-year lows (**Chart 4.2.11**). Reduced debt burdens and improving economic conditions have allowed households to slowly become more current on their debts. Since 2009, the percentage of household debt that is delinquent has decreased from nearly 12 percent to 6 percent, though it still remains significantly above pre-crisis levels. The share of seriously delinquent debt (more than 120 days) has also declined, but remains elevated (**Chart 4.2.12**). Thus, while aggregate measures of the debt burden have improved, many households continue to face difficulties meeting their financial obligations.

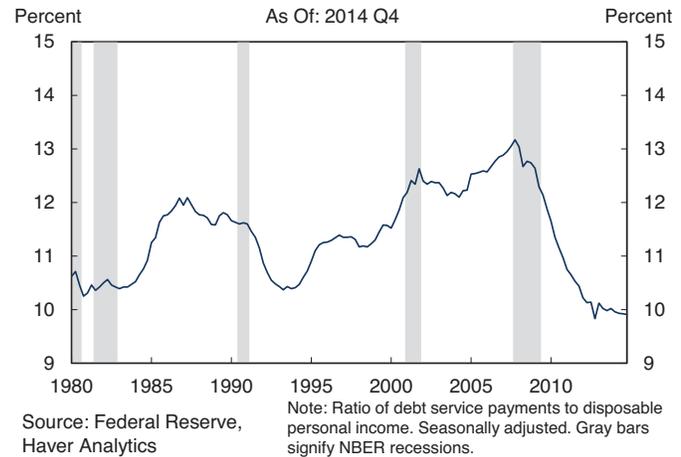
Aggregate household net worth (the difference between assets and liabilities) rose more than \$4 trillion in 2014, to almost \$83 trillion, primarily due to rising asset and equity prices (**Chart 4.2.13**). Owners' equity as a share of household real estate continued to increase with rising house prices, although it remains well below its 1990 to 2005 average (**Chart 4.2.14**). Furthermore, the percentage of mortgages with negative equity continued to decline in 2014 (**see Section 5.1.4**).

Non-housing related debt, which accounts for about one quarter of total household debt, continued to expand in 2014, driven mainly by an increase in auto loans and student loans (**Chart 4.2.15**). The increase in auto loans reflects eased credit conditions in this market

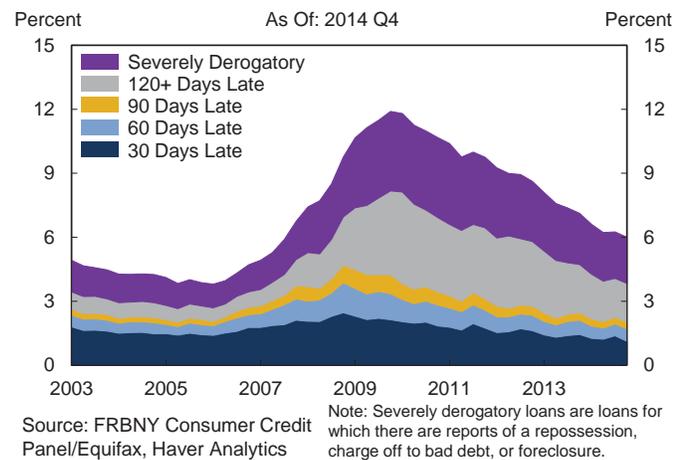
and rising consumer demand for motor vehicles (see Section 5.4.3). Federal student loan programs remain the primary source of student loan balances, which continued to rise against a backdrop of increasing costs of education, a growing number of borrowers, and increasing participation in repayment programs that reduce required payments and lengthen loan terms.

Delinquency rates on credit cards and mortgage loans declined further in 2014, while delinquencies on student loans and home equity lines of credit (HELOCs) were little changed. Except for credit card loans, delinquency rates overall remained elevated compared to pre-crisis levels (Chart 4.2.16). Lower delinquency rates for credit cards reflect, in part, a composition shift toward borrowers with higher credit scores. The delinquency rates on credit cards to consumers with prime and super-prime credit scores are currently near their historical averages. The delinquency rate on student loans remained elevated at about 12 percent in 2014. Large and growing student-debt burdens and slowly recovering labor markets have pushed many younger borrowers into delinquency. The risk to lenders is mitigated by the fact that student loans are difficult to discharge in bankruptcy, and the federal government has extraordinary collection authorities on loans it originated or guaranteed. However, high student-debt burdens could impact household consumption and limit access to other forms of credit, such as mortgages.

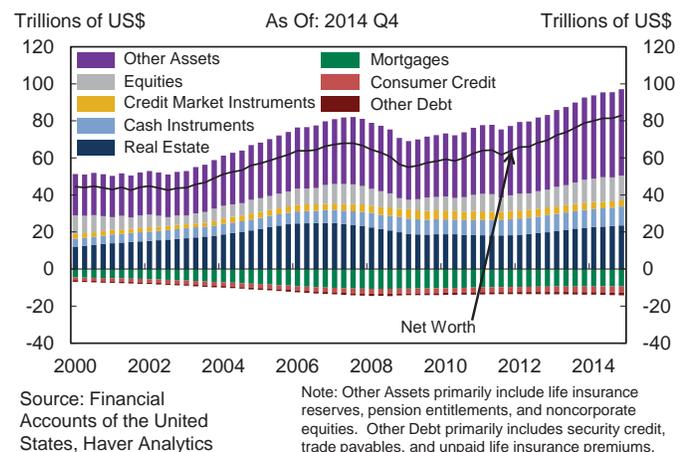
#### 4.2.11 Household Debt Service Ratio



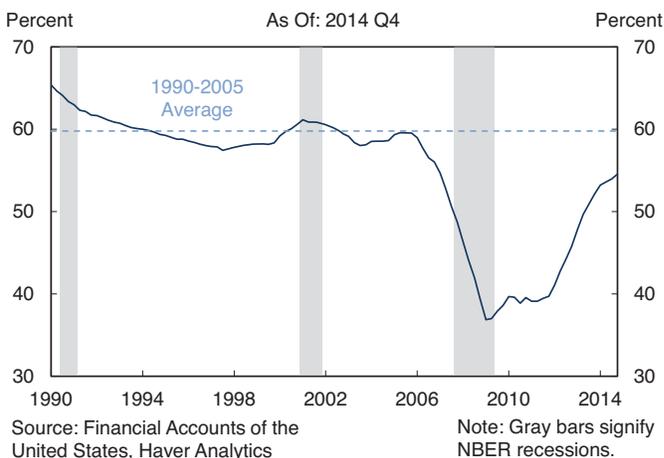
#### 4.2.12 Share of Household Debt by Delinquency Status



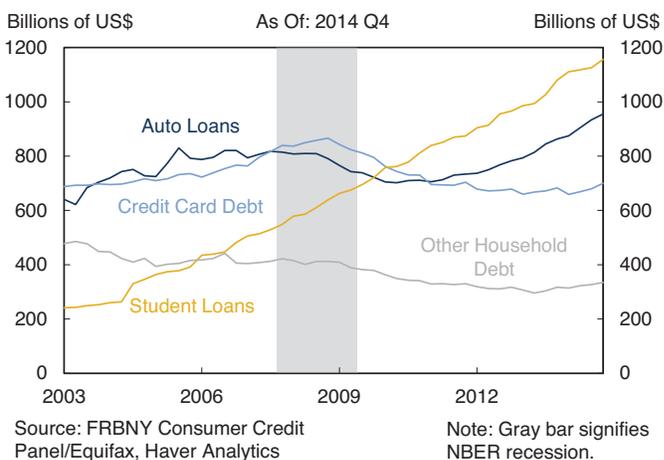
#### 4.2.13 Household and Nonprofit Balance Sheets



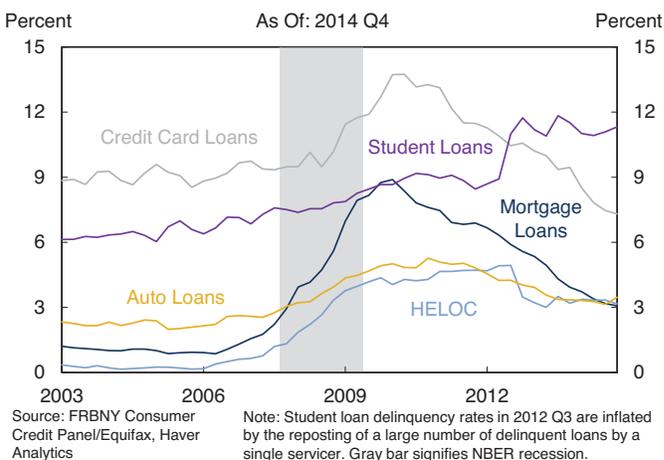
#### 4.2.14 Owners' Equity as Share of Household Real Estate



#### 4.2.15 Components of Consumer Credit



#### 4.2.16 90+ Day Delinquency Rate by Loan Type



### 4.3 Government Finance

#### 4.3.1 Federal Government

The federal unified budget deficit continued to shrink in fiscal year 2014, with outlays exceeding revenue by 2.8 percent of nominal GDP, down from 4.1 percent in 2013 (**Chart 4.3.1**). This represents the smallest deficit in the post-crisis period, and a return to the 50-year historical average. Outlays maintained their downward trajectory and fell to 20.3 percent of GDP, while revenue increased to 17.5 percent of GDP.

The path of outlays and revenues over the next decade depends on both the performance of the economy and changes to fiscal policy. The Congressional Budget Office (CBO) baseline projects the deficit to move slightly lower in 2015 and remain stable through 2018, before expanding thereafter. This projected expansion is mainly due to increases in outlays, as revenues are expected to remain roughly flat at around 18 percent of GDP through 2025. The projected increases in outlays over this period are primarily due to an aging population, rising health care costs, and larger interest payments on the federal debt (**Chart 4.3.2**). The expected increase in interest payments, in turn, reflects assumptions of higher interest rates in the future. Together the projected rise in outlays is expected to outweigh the savings associated with the slightly lower levels of discretionary spending. Federal debt held by the public—which includes Federal Reserve holdings, but not other intra-governmental debt—increased nearly 2 percentage points as a share of GDP in 2014, reaching 74.1 percent of GDP at year-end. The CBO baseline projects federal debt held by the public to hold relatively steady in the near future, with a modest decrease through 2018 before an increase to 77.1 percent of GDP by 2025 (**Chart 4.3.3**).

The three major credit rating agencies left their overall ratings of U.S. sovereign debt unchanged over the past 12 months, and each maintains a stable outlook for Treasury securities. After the completion of the Federal

Reserve's asset purchase program, demand for Treasury securities remains strong among both domestic and foreign institutions, as evidenced by allocations to various investor classes and the relatively high bid-to-cover ratios at Treasury auctions.

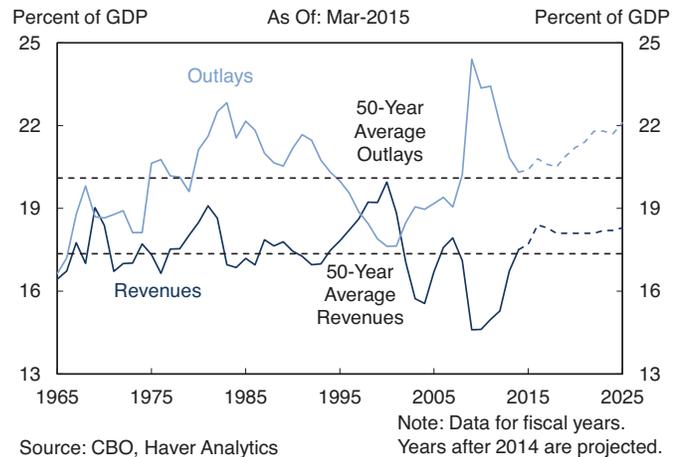
Low interest rates have kept interest outlays on the federal debt at around 1.3 percent of GDP, similar to the low levels seen throughout the post-crisis period. The average maturity of outstanding federal debt continued to climb in 2014, reaching its highest level since 2001 (**Chart 4.3.4**).

### 4.3.2 State and Local Governments

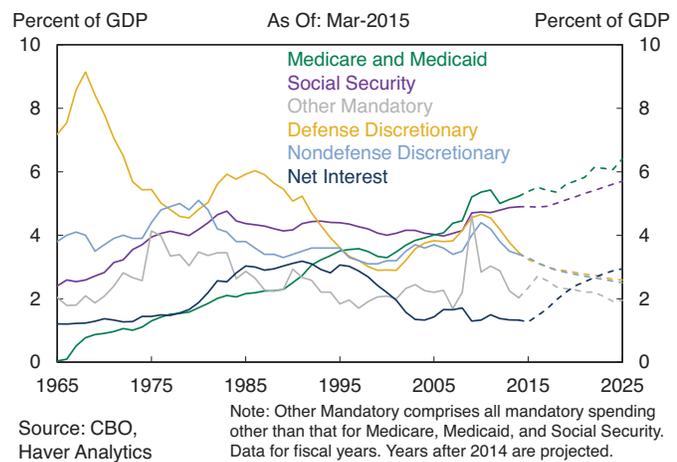
The fiscal position of state and local governments improved modestly in 2014. Nominal tax revenue growth was positive for the year but the rate of growth declined through the third quarter (**Chart 4.3.5**). State and local spending grew in 2014, as states rolled back some cuts to discretionary spending enacted after the crisis, but then fell in the first quarter of 2015. This improved fiscal picture has been accompanied by growth in state and local employment over the past year. Despite the modest gains, the current pace of employment growth in state and local governments remains sluggish, as more than five years after the recession, state and local government employment remains more than 600,000 jobs below its previous peak (**Chart 4.3.6**).

One long-term challenge facing state and local governments relates to the underfunding of pension and other post-employment benefit systems (**see Section 5.5.3**). Many governments have not set aside sufficient funding for their ongoing obligations to provide post-employment health care to retired employees, resulting in large unfunded liabilities. Legal protections for retiree health care are limited in most jurisdictions and the percentage of government entities offering retiree coverage continues to drop.

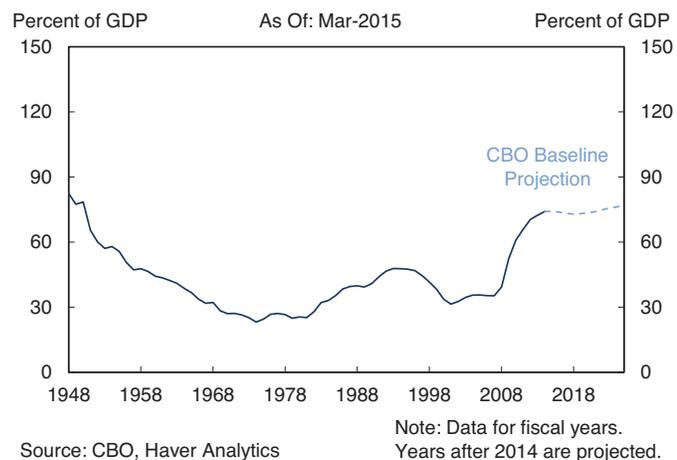
### 4.3.1 Federal Revenues and Outlays



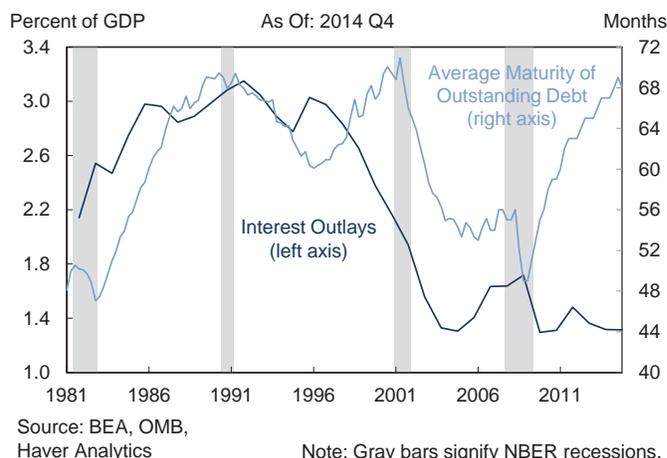
### 4.3.2 Outlays in Major Budget Categories



### 4.3.3 Federal Debt Held by the Public

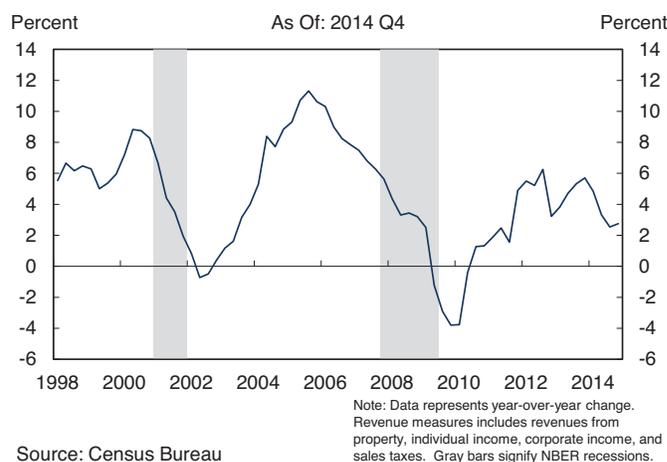


### 4.3.4 Interest Outlays and Average Maturity of U.S. Public Debt



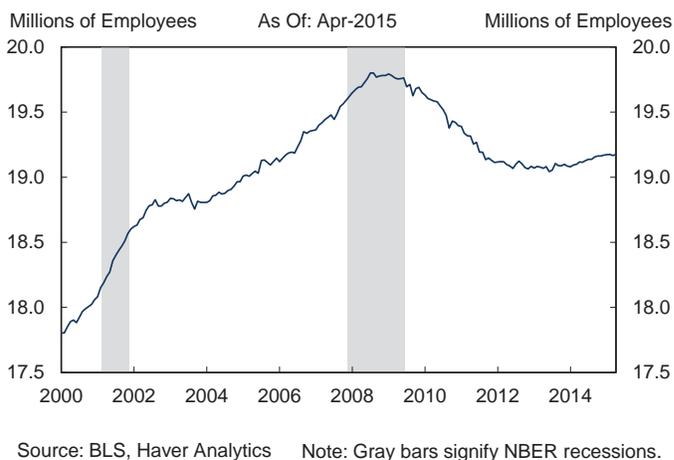
These funding challenges have been reflected in the credit ratings of some state and local issuers, with the number of downgrades outweighing the number of upgrades over the past year, despite upgrades for New York and California, among other states. Structural budget imbalances—in part due to unfunded pension liabilities—have led to credit downgrades for states including New Jersey, Kansas, Pennsylvania, and Michigan, along with Puerto Rico (see Box A) and cities such as Chicago. Challenges of this nature have also prompted notable defaults in recent years by Detroit; Jefferson County, Alabama; and several California municipalities. However, these more severe events appear to be idiosyncratic and not representative of a broader trend in municipal credit.

### 4.3.5 Change in State and Local Government Tax Revenues



Net credit flows to state and local governments were mixed in 2014. Municipal bond funds experienced very strong inflows for each of the 12 months of the year (Chart 4.3.7), but bond issuance was relatively unchanged year-over-year at about \$335 billion, with declines in new issuance largely offsetting an increase in refunding stemming from lower interest rates in the second half of the year (Chart 4.3.8). Yield spreads for general obligation bonds—a proxy for municipal bond demand—generally tightened over the year (Chart 4.3.9). The municipal bond sector had an overall return of 9 percent, above that of other fixed income asset classes.

### 4.3.6 State and Local Government Employment



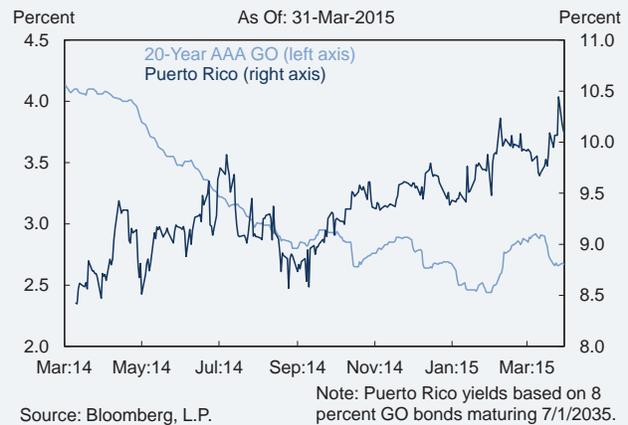
## Box A: Municipal Debt Markets: Challenges in Puerto Rico

Puerto Rico continues to face a difficult fiscal situation due to high levels of debt and the lack of economic growth. The outstanding debt of roughly \$73 billion represents more than 100 percent of gross national product. The vast majority of Puerto Rico's debt is exempt from federal, state, and local taxes in the United States. Many municipal bond mutual funds hold this debt although most funds have been reducing their holdings. Additionally, hedge funds and distressed debt traders have also invested in Puerto Rico debt.

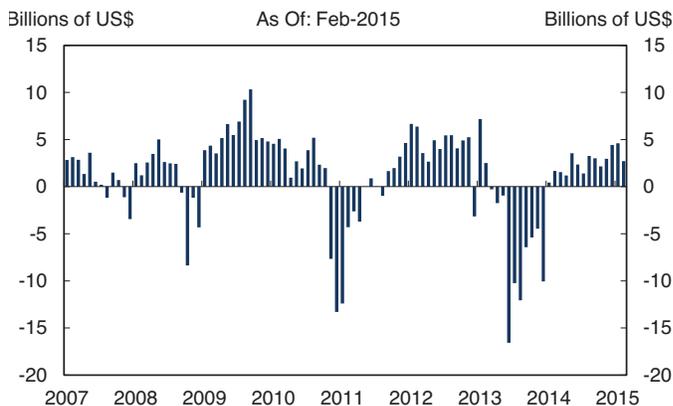
For the past several years the government of Puerto Rico has pursued reforms to help address these challenges, including raising taxes, cutting expenditures, and reforming the government pension systems. The fiscal situation, however, continues to be challenging and the rating agencies have further downgraded Puerto Rico and public corporation debt, in part based on the Commonwealth's limited liquidity position and lower-than-forecasted tax revenue.

Commonwealth debt yields rose significantly over the past six months with some types of debt yielding over 10 percent (**Chart A.1**). Despite problems exhibited by Puerto Rico, there has been little spillover thus far to the broader municipal bond market. Overall inflows into municipal bond mutual funds remain positive and average municipal bond yields have fallen. The continued deterioration in the economic and financial conditions in Puerto Rico, however, could impact the municipal debt market.

### A.1 Municipal Bond Yields

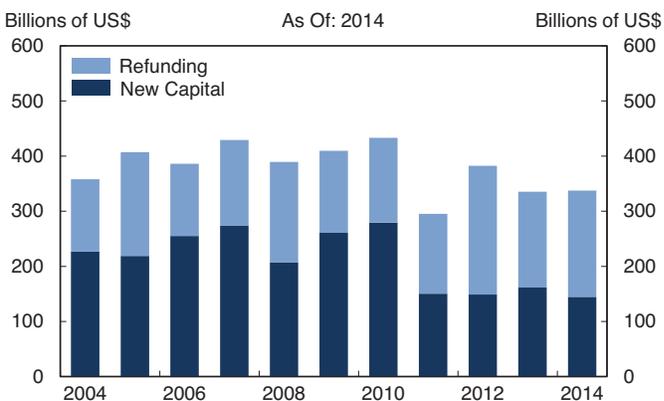


### 4.3.7 Long-Term Mutual Fund Flows: Municipal Bonds



Source: ICI, Haver Analytics

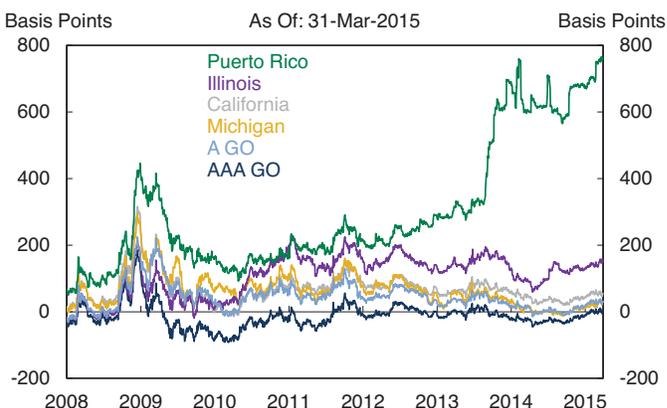
### 4.3.8 Municipal Bond Issuance



Source: Thomson Reuters, SIFMA

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

### 4.3.9 Municipal Bond Spreads



Source: Thomson Reuters MMD

Note: Spreads between 10-year municipal and 10-year Treasury securities.

## 4.4 External Environment

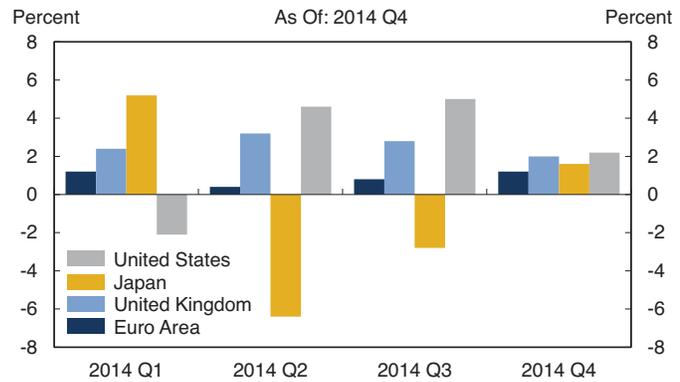
### 4.4.1 Advanced Foreign Economies

Growth in the advanced economies was sluggish and uneven in 2014. The United States, Canada, and the United Kingdom have been expanding moderately. Recovery of growth in the euro area stalled in early 2014 (**Chart 4.4.1**). In Japan, GDP contracted in the second and third quarters of 2014 due to a hike in its consumption tax rate. In response to weak economic growth, low inflation, and related factors, central banks in some advanced economies have lowered key policy rates into negative territory. Additionally, shorter-term sovereign bond yields in Japan and a number of European countries are trading in negative territory. The IMF expects growth in the advanced economies to strengthen in 2015, led by strong growth in the United States and continued recovery in the euro area (**Chart 4.4.2**).

## Euro Area

Growth in the euro area stopped improving in 2014, largely as a result of weak investment and exports. Germany grew at 1.6 percent, while France stagnated, and Italy contracted (**Chart 4.4.3**). Headline inflation (including food and energy) in the euro area has continued to fall and dipped below zero in the fourth quarter of 2014 (**Chart 4.4.4**), in part because of sustained economic slack, but also because of the sharp drop in oil prices in the second half of 2014. While supportive of growth, oil price declines are dampening inflation, which could further depress medium-term inflation expectations and exert upward pressure on real interest rates. So far, however, real interest rates have continued to decline as these pressures have been more than offset by the sharp decline in nominal yields related to the European Central Bank's (ECB) bond purchases under its asset purchase program designed to support the recovery and bring inflation back to the 2 percent target. These large-scale purchases of public and private bonds complement other stimulus measures that the ECB has announced since June 2014, such as lowering the rates on its main refinancing operations and deposit facilities, and introducing targeted longer-term refinancing operations to support bank lending to households and nonfinancial corporations. In 2014, the ECB also performed a comprehensive assessment of euro area banks (**see Box B**). The IMF predicts that real GDP in the euro area will expand by 1.5 percent in 2015, and 1.6 percent in 2016, supported by a combination of accommodative monetary policy, a more neutral fiscal policy stance, lower energy prices, looser financial conditions, and a weaker currency.

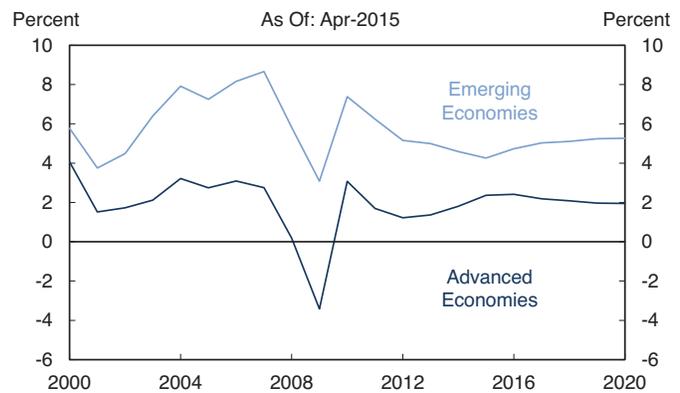
### 4.4.1 Advanced Economies Real GDP Growth



Source: Eurostat, CAO, BEA, Haver Analytics

Note: Data represents seasonally adjusted quarter-over-quarter annualized real GDP growth rates.

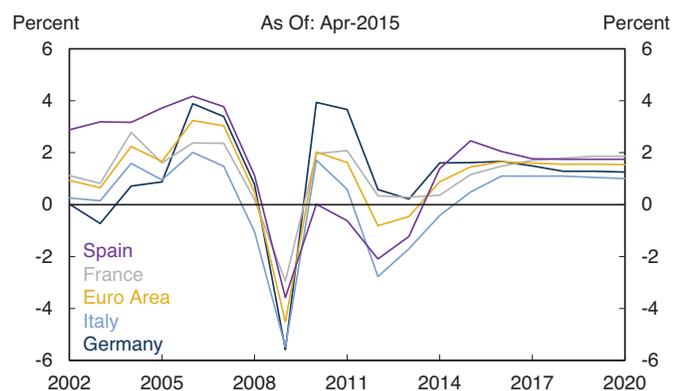
### 4.4.2 Real GDP Growth



Source: IMF, Haver Analytics

Note: Year-over-year percent change. Data after 2014 are projected.

### 4.4.3 Euro Area Real GDP Growth



Source: IMF, Haver Analytics

Note: Year-over-year percent change. Data after 2014 are projected.

## Box B: ECB's Comprehensive Assessment of Euro Area Banks

The ECB released the results of its comprehensive assessment of euro area banks in October 2014. The assessment was conducted in advance of the launch of the Single Supervisory Mechanism (SSM), which became operational in early November. Under the SSM, the ECB directly supervises “significant” (larger) banks, and indirectly supervises the “less significant” (smaller) banks in cooperation with the national-level authorities. The ECB’s comprehensive assessment was designed to enhance transparency and strengthen the balance sheets of the 130 banks directly supervised by the SSM, thereby assuring investors that these banks are sufficiently capitalized. The comprehensive assessment had two components:

1. The asset-quality review: This review was a health check of banks’ assets as of December 31, 2013, which resulted in additional provisions for losses on exposures on banks’ balance sheets, leading to downward revisions to the capital of some banks.
2. Stress test: Starting from the asset-quality review-adjusted capital ratios, this exercise examined banks’ ability to maintain minimum capital levels over a three-year period under a baseline and an adverse stress scenario. The adverse stress scenario entailed an increase in global bond yields; further deterioration in credit quality; increased cost of funding for banks; and higher borrowing costs for households and corporations, as well as declines in GDP and inflation relative to the baseline scenario. Under the adverse scenario, banks were required to maintain a minimum ratio of common equity tier 1 capital to risk-weighted assets (RWAs) of 5.5 percent.

Overall, the comprehensive assessment identified a capital shortfall of €25 billion across 25 banks in the euro area. After taking into account the capital raised between January 1, 2014 and September 30, 2014, €9.5 billion remained to be filled among 13 banks. Despite the new capital raised, the assessment identified 14 banks that did not meet a minimum requirement of 3 percent for the leverage ratio, which will likely become a regulatory requirement in Europe in 2018.

All told, the assessment encouraged banks to raise capital and improved the transparency of banks’ balance sheets, but vulnerabilities at some banks remain. European authorities are now enhancing their focus on factors beyond capital-raising to resolve the €1 trillion stock of non-performing loans and remove impediments to market-based finance through the European Commission’s Capital Markets Union.

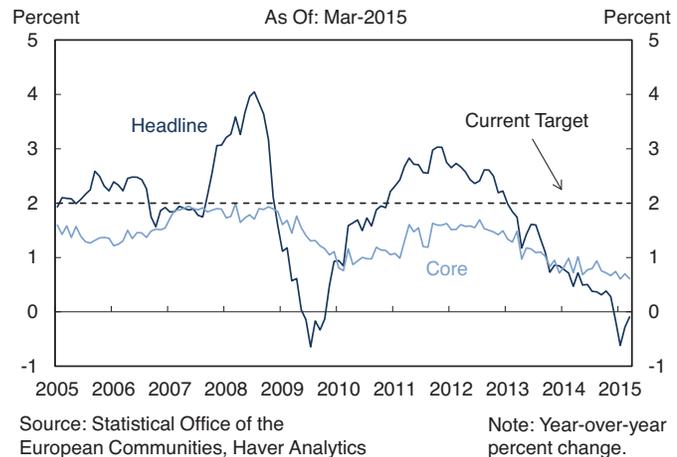
## Japan

Japanese real GDP grew at a robust 5.1 percent in the first quarter of 2014, as households anticipated spending ahead of the April 1 consumption tax hike (**Chart 4.4.5**). However, this gain was more than fully reversed the following quarter, as the severe decline in household spending following the tax hike resulted in a sharp contraction in GDP. Japanese GDP contracted again in the third quarter, amid continuing weak domestic demand and a reduction in inventory investment. With the economy in recession, Prime Minister Abe delayed a second consumption tax hike—originally planned for October 2015—to April 2017. In addition, to combat low inflation (**Chart 4.4.6**), in October 2014, the Bank of Japan (BoJ) increased the pace of its asset purchases. The government also rebalanced Japan's largest pension fund away from domestic bonds toward domestic equities and foreign assets. This additional monetary policy accommodation, together with lower energy prices and the delay of the second consumption tax hike, is generally anticipated to strengthen growth in 2015 and 2016.

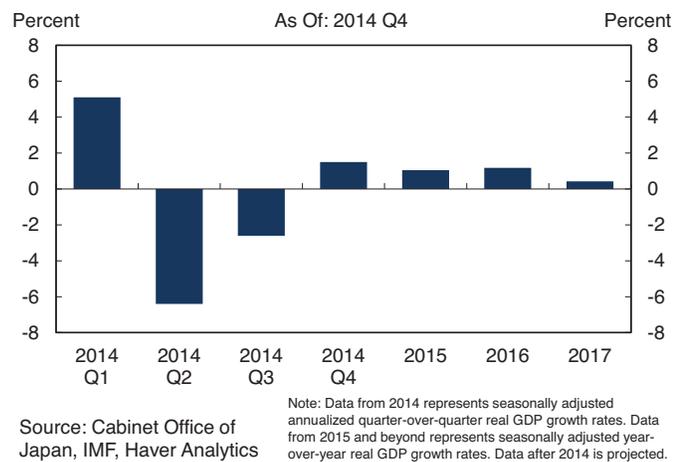
### 4.4.2 Emerging Market Economies

In 2014, economic growth in EMEs edged down further to 4.6 percent, which marks the fifth consecutive slowdown in emerging market growth since the post-crisis rebound in 2010. Chinese growth slowed in 2014 as the economy continued to rebalance away from export- and investment-led growth. Elsewhere in emerging Asia, growth was relatively robust in 2014. Growth in Latin America was restrained by lower commodity prices and in some cases by tighter financial conditions or longstanding structural bottlenecks. For commodity exporters, lower commodity prices also weighed on growth. In particular, the Russian economy was hampered by the effects of sanctions, lower oil prices, and turbulence in financial markets.

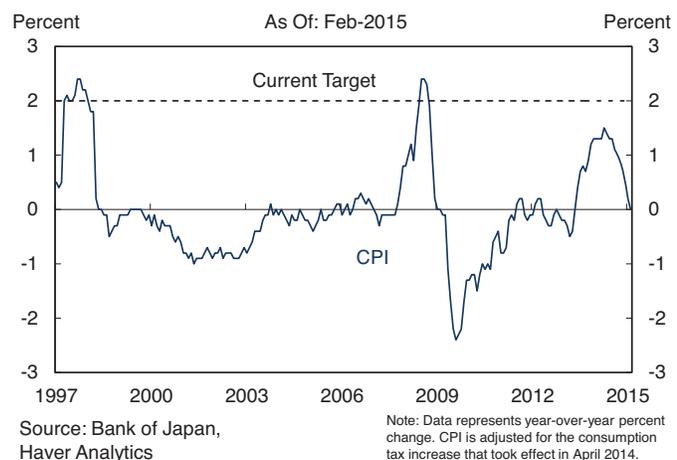
### 4.4.4 Euro Area Consumer Price Inflation



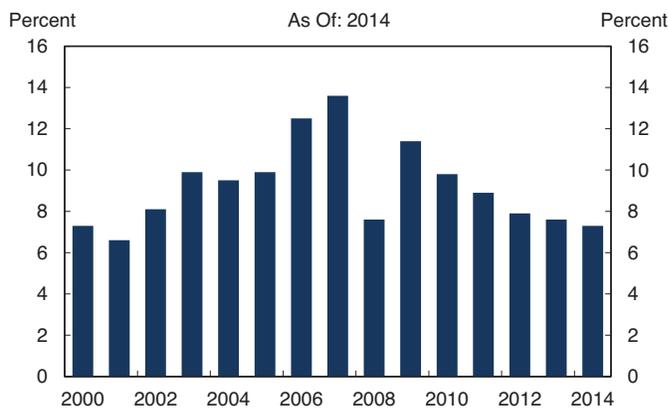
### 4.4.5 Japanese Real GDP Growth



### 4.4.6 Japanese Consumer Price Inflation



#### 4.4.7 Chinese Real GDP Growth



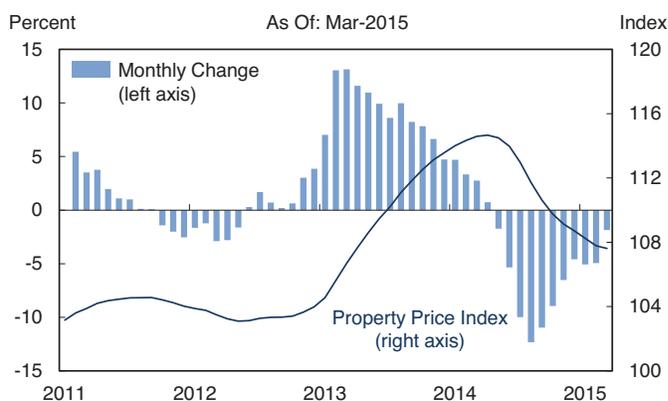
Source: China National Bureau of Statistics, Haver Analytics  
 Note: Year-over-year percent change from the fourth quarter of the previous year.

According to the IMF, the pace of emerging market growth in 2015 is expected to drop by 0.3 percentage point to 4.3 percent, weighed down by the continued slowing in China and subdued growth in Latin America.

#### China

Chinese real GDP growth edged down to 7.3 percent in 2014, close to the authorities' target of 7.5 percent (Chart 4.4.7). Growth was supported by strong exports, but this was more than offset by a moderation in residential investment growth amid a cooling property market (Chart 4.4.8). Property prices have been falling rapidly since May 2014, and declined by about 10 percent at an annual rate in July through October. The price declines have also become widespread, affecting all but a few cities in the 70-city index. Consumer price inflation has been falling since May 2014 and was 1.6 percent for the 12 months through December 2014. For 2015, Chinese officials reduced their growth target to "approximately 7 percent" and their inflation target to "around 3 percent," citing the formidable difficulties faced by the Chinese economy as it attempts to rebalance toward a sustainable growth path in a challenging external environment. In the first quarter of 2015 Chinese real GDP grew by 7.0 percent.

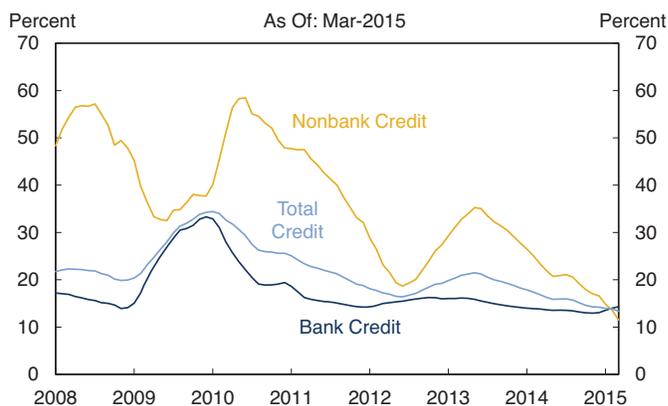
#### 4.4.8 Chinese Property Prices



Source: China National Bureau of Statistics, Haver Analytics  
 Note: 2010 = 100 in property price index. Monthly changes expressed at an annualized rate. Data represents the arithmetic mean of a 70-city sample.

In response to the global financial crisis, Chinese authorities induced a massive increase in bank lending to local governments and the property sector (Chart 4.4.9). This surge was accompanied by an even faster expansion in nontraditional forms of credit, especially trust loans (Chart 4.4.10). Overall credit to the nonfinancial private sector has continued to increase, albeit at a slower pace, reaching 191 percent of GDP in September 2014 (Chart 4.4.11).

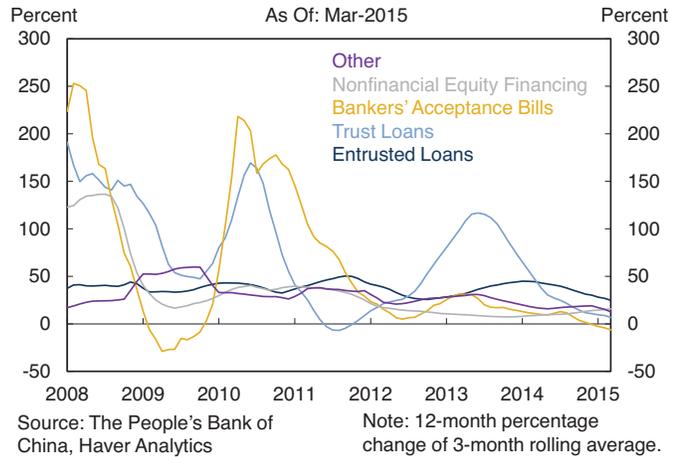
#### 4.4.9 Chinese Credit Growth



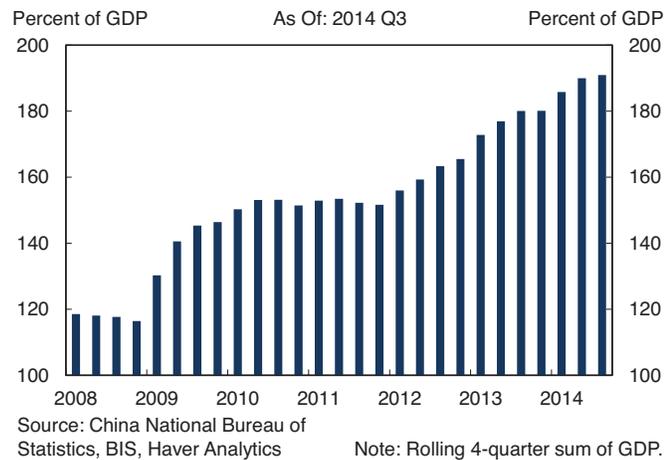
Source: The People's Bank of China, Haver Analytics  
 Note: 12-month percentage change of 3-month rolling average.

The People's Bank of China has been trying to manage a smooth transition toward a more sustainable growth path, while trying to discourage nontraditional forms of lending. In late 2014, the People's Bank of China took a series of measures to try to lower firms' financing costs, which included liquidity injections into large- and medium-sized banks, cuts to banks' benchmark lending and deposit rates, and an easing of macroprudential measures to support the property sector. Further measures were taken in early 2015, including a cut in bank reserve requirements and an expansion in local governments' ability to issue debt.

#### 4.4.10 Components of Chinese Nonbank Credit Growth



#### 4.4.11 Credit to the Chinese Nonfinancial Private Sector





## 5.1 Asset Valuations

### 5.1.1 Fixed Income Valuations

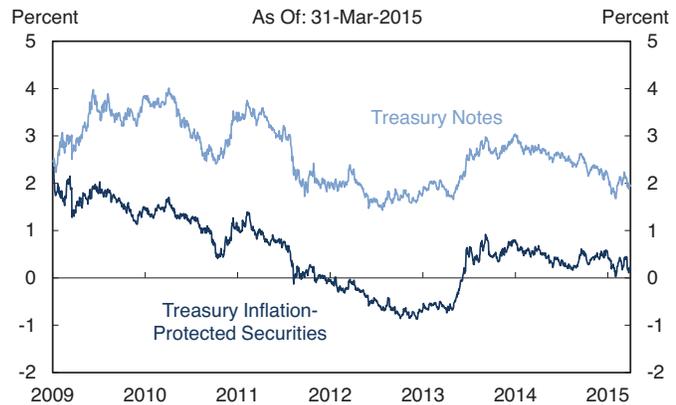
Two broad and interlinked themes dominated valuation and issuance patterns in fixed income markets over the last 12 months. The first is that a weaker outlook for the global economy, large-scale policy accommodation by the ECB and the BoJ, and global disinflation pressures associated with the falling price of oil, have all put downward pressure on global long-term interest rates. This has happened despite the strengthening of the U.S. economy and the approaching normalization of domestic monetary policy.

The second theme is that, in the low-rate environment, investors continued to reach for yield by accepting larger amounts of risk in exchange for relatively smaller increments in yield. The greater incremental return available in the United States may be prompting more foreign buying of U.S. assets, further pushing down domestic fixed income yields. These trends are particularly acute in high-yield and emerging market bonds, leveraged loans, and commercial mortgage-backed securities (CMBS). Amidst heavy issuance volumes in corporate credit markets, debt spreads narrowed and underwriting standards loosened until the oil price-driven sell-off starting in late 2014. Changes in the types of investors and markets for certain assets heighten concerns about potential credit and liquidity risks (see Section 7).

#### U.S. Treasuries

The Treasury yield curve flattened during 2014. Long-term U.S. Treasury yields fell in the second half of 2014 due to the macro pressures mentioned above. In 2015, yields again dropped sharply to near-record lows, but have since recovered to just below December 2014 levels.

### 5.1.1 10-Year Treasury Yields



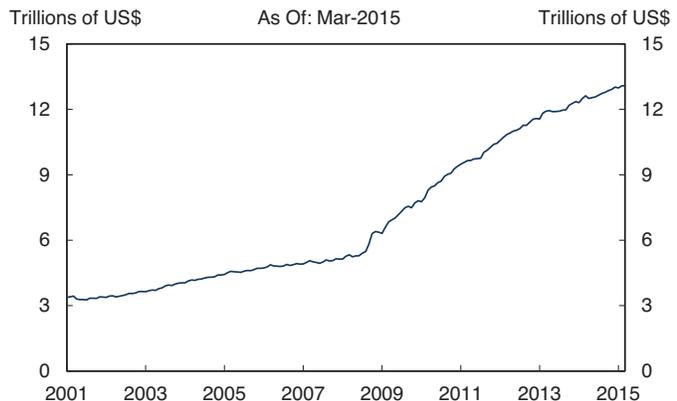
Source: U.S. Department of the Treasury

### 5.1.2 2-Year Treasury Yields



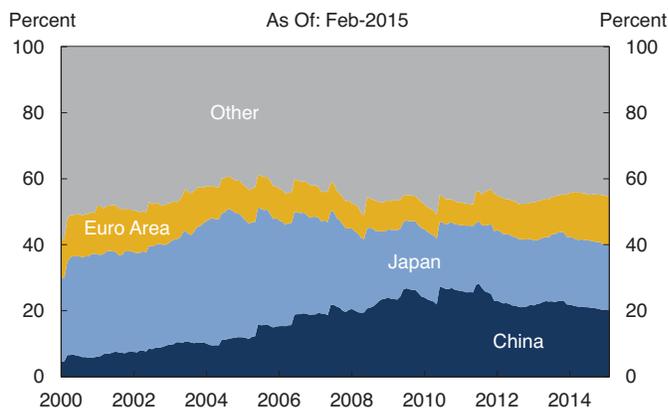
Source: U.S. Department of the Treasury

### 5.1.3 Publicly Held Federal Debt Outstanding



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

### 5.1.4 Foreign Holders of U.S. Federal Debt

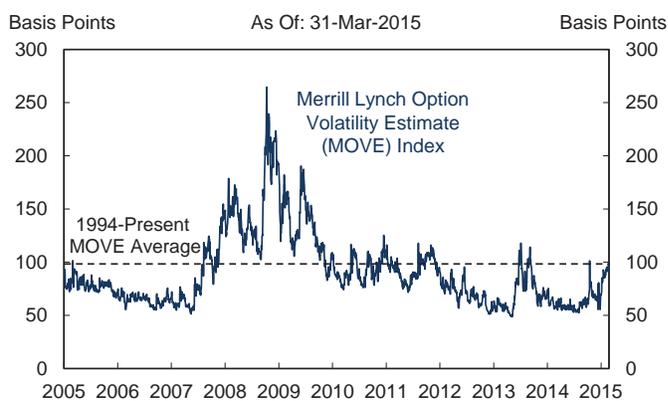


Source: U.S. Department of the Treasury, Haver Analytics

Year over year, 10-year Treasury note yields have fallen by 79 basis points to 1.94 percent in March 2015. At the same time, the real yield on Treasury Inflation-Protected Securities has fallen 42 basis points to nearly zero (Chart 5.1.1).

In contrast, yields on 2-year Treasury notes have been gradually increasing since mid-2014, as the U.S. economy continues to improve and the expected date of monetary policy normalization approaches (Chart 5.1.2). As of the end of the first quarter of 2015, 2-year Treasury notes stood at 0.56 percent, roughly 12 basis points higher than at the same period last year.

### 5.1.5 Fixed Income Implied Volatility



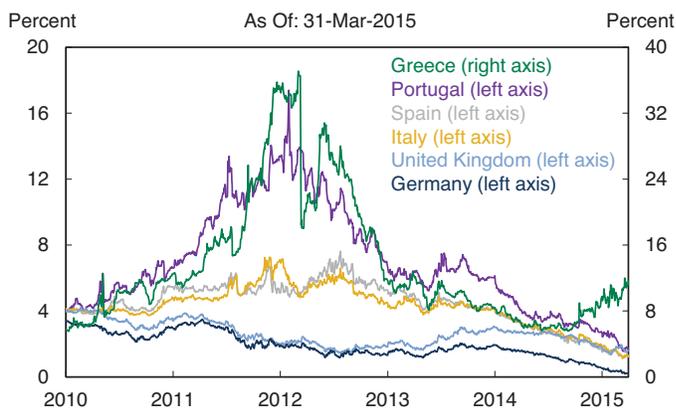
Source: Bloomberg, L.P.

Note: Implied volatility is calculated using a yield curve-weighted index of the normalized implied volatility on 1-month Treasury options.

The total outstanding U.S. sovereign debt held by the public increased slightly over the previous year to \$13.1 trillion as of March 2015 (Chart 5.1.3). Over the same period, foreign holdings of U.S. Treasury securities increased by \$273 billion, reaching \$6.2 trillion. The countries with the largest holdings, Japan and China, hold over \$2.4 trillion, or approximately 40 percent of total foreign (Chart 5.1.4).

Fixed income volatility, as measured by prices of options on Treasury securities, was mostly flat in 2014, but spiked in early 2015 and is now closer to its long-term average (Chart 5.1.5).

### 5.1.6 European 10-Year Yields



Source: Bloomberg, L.P.

### Developed Markets Sovereign Debt

Other developed markets also experienced significant decreases in their sovereign yields in 2014 (Chart 5.1.6). German and other core euro area debt yields dropped even more sharply than those in the United States amidst a slowing euro area economy, declines in realized and expected inflation, and additional monetary policy accommodation by the ECB. Over the year ending March 2015, German 10-year government bond yields declined by 139 basis points to 0.18 percent. Consequently, the spread between U.S. Treasury securities and German Bunds of 176 basis points is significantly above its long-run average. In an extraordinary development, many core European bonds maturing in seven years or fewer are trading at negative yields.

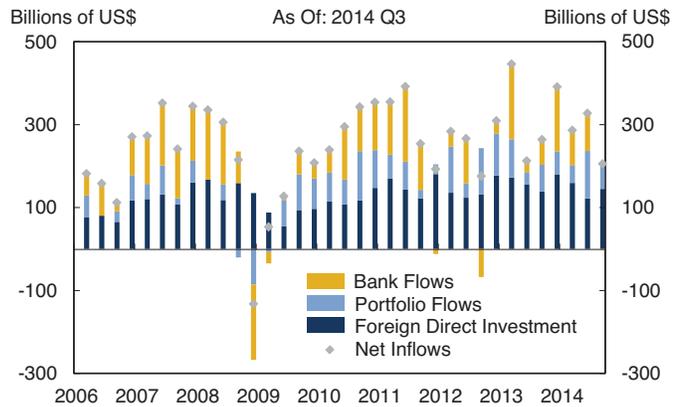
Consistent with these trends, 10-year sovereign yields in the United Kingdom declined by 116 basis points to 1.58 percent over the 12-month period ending in March 2015.

With the exception of Greece, spreads on 10-year government bonds of peripheral European countries over their German equivalent also declined substantially in 2014. At the end of March 2015, the yield on peripheral European debt was significantly lower than that of U.S. Treasury securities. In contrast, Greek sovereign bond spreads increased by 645 basis points over the 12-month period ending in March 31, 2015, amid concerns about the willingness and ability of the newly elected government to implement reforms necessary to borrow critical funds from the EU and the IMF and maintain ECB liquidity support for Greek banks. In Japan, government bond yields declined 24 basis points over the 12-month period ending in March 31, 2015, to 0.40 percent.

### Emerging Market Debt

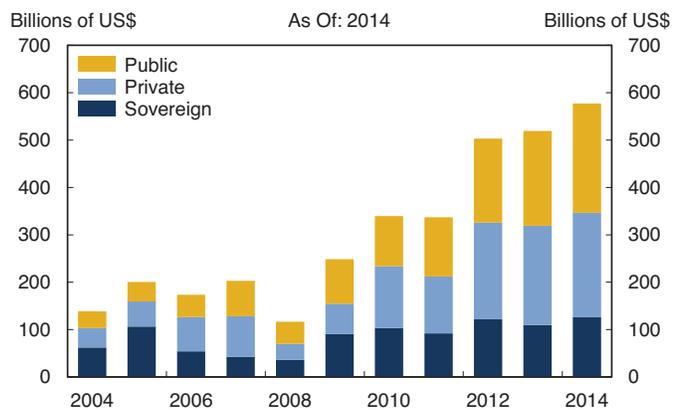
Amid record gross issuance of emerging market debt in 2014, capital inflows to emerging markets remained strong (Charts 5.1.7, 5.1.8). Furthermore, dollar credit to EMEs has grown rapidly since the financial crisis, driven largely by a surge in offshore corporate bond issuance. Sudden changes in market sentiment may elicit capital flight and pose challenges to rolling over maturing bonds. Also, a rise in yields in advanced economies could spark a sell-off in emerging market bonds and destabilize markets, as occurred in the summer of 2013. Spreads to U.S. Treasury securities on emerging market dollar bonds generally declined during the first half of 2014, but then increased in the second half (Chart 5.1.9). Spreads widened across most emerging markets, although moves were particularly acute in a few troubled countries, such as Russia and Venezuela. Russian sovereign debt was downgraded to below investment grade status. Venezuelan debt is now trading at severely distressed levels with the fall in oil prices (see Box C). Spreads on Brazilian debt have also widened.

### 5.1.7 Gross Capital Flows to EMEs



Source: IMF, Haver Analytics

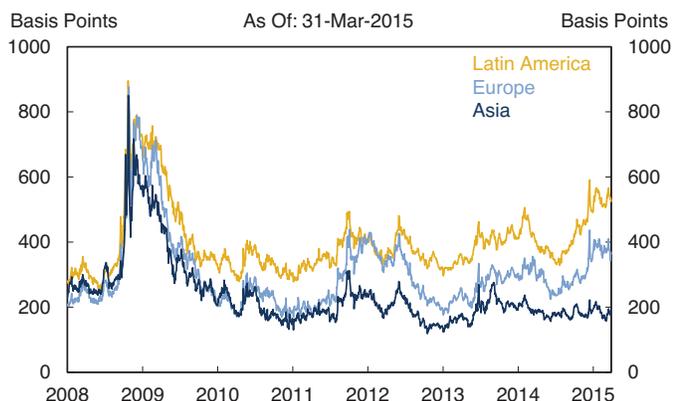
### 5.1.8 Emerging Market Gross Global Bond Issuance



Source: Dealogic

Note: Public includes issuance by state-owned enterprises.

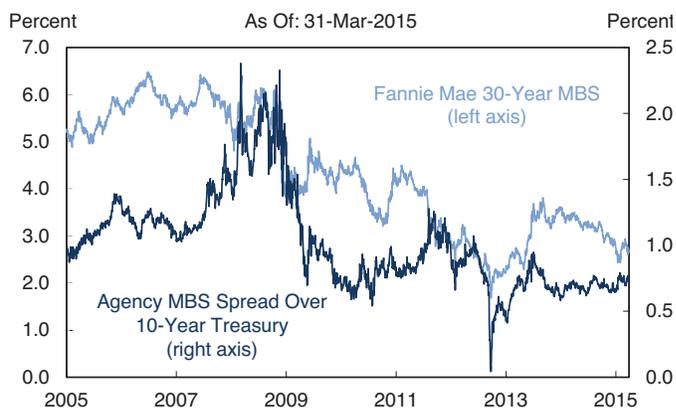
### 5.1.9 Emerging Market Bond Spreads



Source: JP Morgan, Haver Analytics

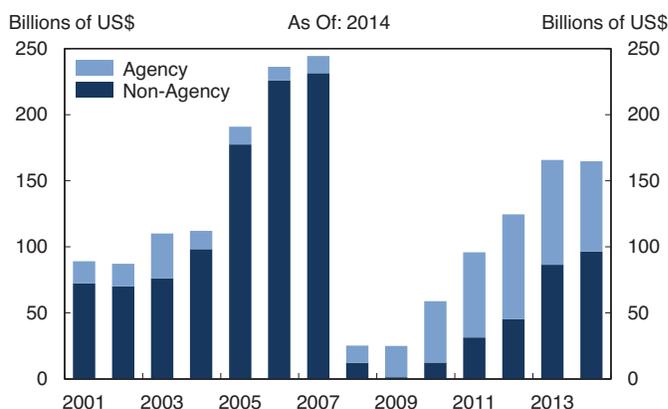
Note: JP Morgan EMBI+ Sovereign Spreads indices for each region.

### 5.1.10 Agency MBS Yield and Spread



Source: Bloomberg, L.P.

### 5.1.11 CMBS Issuance



Source: Inside Mortgage Finance

### 5.1.12 CMBS Senior Debt Spreads



Source: Barclays

Note: Cash spread of new issue non-agency 3.0 dufer 10-year LCF CMBS.

### MBS and Other Securitized Products

Consistent with strong demand from investors, risk premia for agency MBS, as measured by the spread between 30-year MBS yields and 10-year U.S. Treasury yields, remain depressed (Chart 5.1.10). New issuance of private-label securities backed by residential mortgages remains dormant. Net agency issuance was only slightly positive in 2014 at \$87 billion, reinforcing the dynamic of tight supply with increasing demand.

Strong CMBS issuance continued in 2014, but volumes were still well below 2007 peak levels (Chart 5.1.11). Spreads remained relatively tight in 2014 (Chart 5.1.12), and lenders continued to ease underwriting standards by allowing longer amortization schedules and higher loan-to-value ratios. Even so, current underwriting standards are not as weak as they were before the financial crisis.

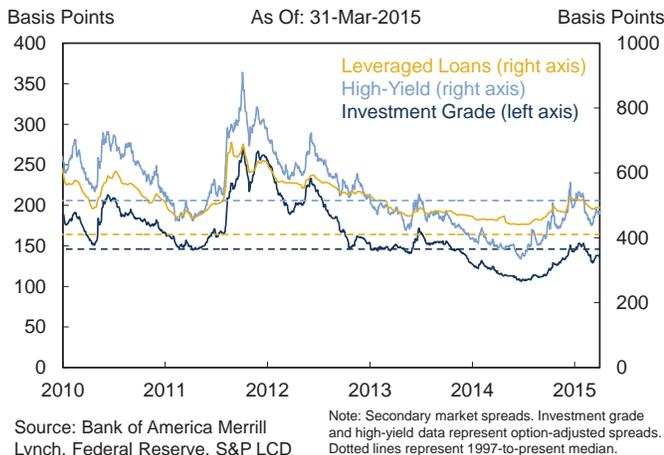
While delinquency rates remain low by historical standards, there are potential risks in the commercial real estate (CRE) market. Over 50 percent of outstanding securitized CRE loans will need to be refinanced over the next three years. A significant rise in interest rates could cause a decline in property values and lower debt service coverage ratios. This could make refinancing difficult for some borrowers and result in an increase in delinquencies.

## Corporate Credit

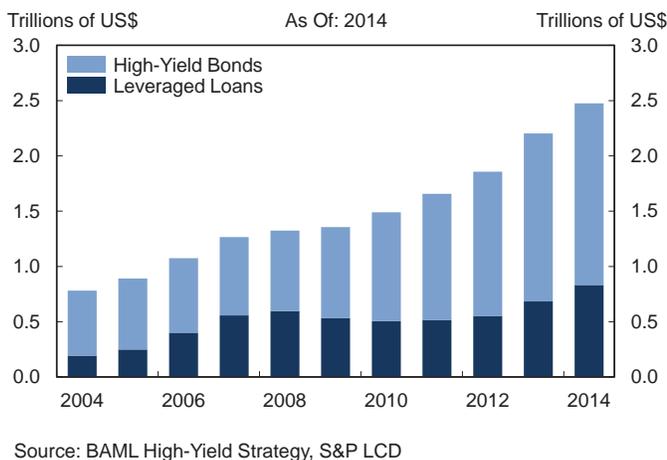
Corporate credit issuance was strong in 2014, although issuance declined somewhat in the second half of the year as spreads increased. After tightening to post-crisis lows in mid-2014, credit spreads have now widened out nearly to historical median levels, driven mostly by moves in the energy sector (see Box C, Chart 5.1.13).

After reaching a record \$2.20 trillion in 2013, total outstanding high-yield debt continued to increase in 2014, reaching \$2.48 trillion (Chart 5.1.14). Outstanding investment grade debt also continued to rise, particularly in the industrials sector (Chart 5.1.15). In 2014, underwriting standards weakened further amid strong issuance, as evidenced by both the increase in leverage in new issuance (Chart 5.1.16), as well as reduced lender protections. In leveraged loans, “covenant-lite” issuance, which provides less protection to lenders by foregoing the maintenance covenants typically seen in secured lending, rose to its highest levels ever as a percentage of total leveraged issuance (Chart 5.1.17). Issuance of debt for leveraged buyouts and acquisitions, which are historically associated with higher use of leverage, also increased. However, leveraged buyout- and leveraged merger and acquisition-related volume was still only 76 percent of 2007 levels. Leveraged buyout issuance was at 45 percent of 2007 levels.

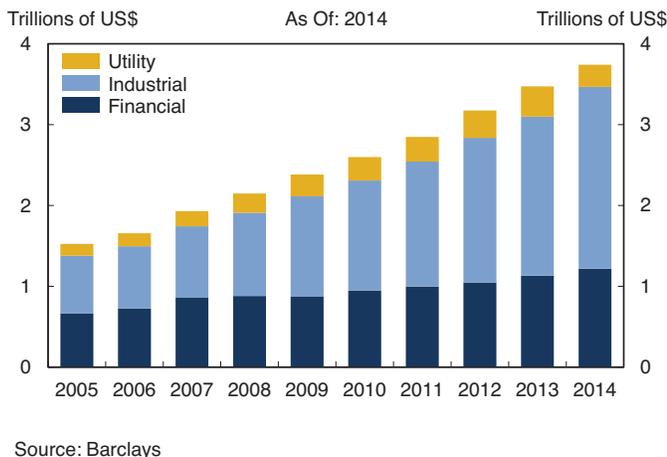
### 5.1.13 Corporate Credit Spreads



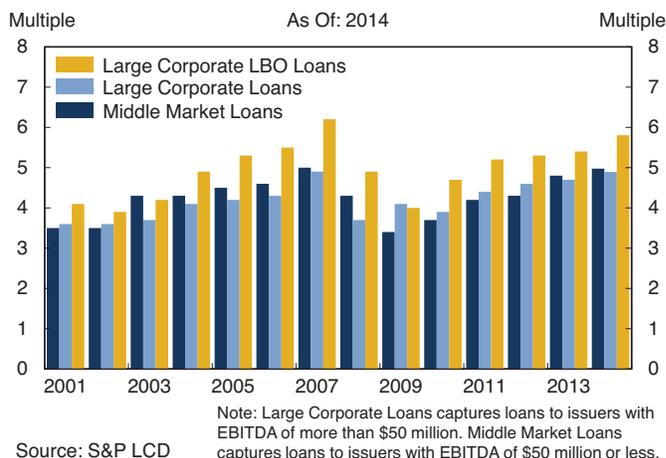
### 5.1.14 Total High-Yield Debt Outstanding



### 5.1.15 Outstanding Investment Grade Bonds



### 5.1.16 Leveraged Loans: Debt to EBITDA Ratios

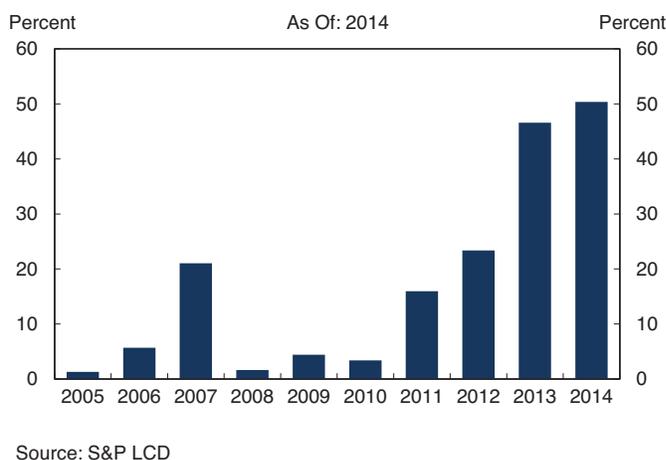


Guidance issued by the banking agencies in 2013 set forth standards for sound leveraged lending practices and stated that financial institutions should ensure they do not unnecessarily heighten risks by originating poorly underwritten loans. However, the SNC Review for 2014, undertaken by the FDIC, Federal Reserve, and OCC, found serious deficiencies in underwriting standards and risk management practices of leveraged loans issued by supervised institutions.

The SNC review identified several areas where institutions need to strengthen compliance with the guidance, including provisions addressing borrower repayment capacity, leverage, underwriting, and enterprise valuation. While institutions have formally addressed many of the risk management issues noted in the guidance, full implementation has not been achieved. Examiners noted numerous exceptions at all the large leveraged loans originators.

In response to these findings, the federal banking agencies stated that institutions that participate in leveraged lending without implementing strong risk management practices will be criticized and that the agencies plan to increase the frequency of their reviews of this activity. The federal banking agencies also reiterated their expectations that loans should be originated with a sound business premise, a sustainable capital structure, and borrower capacity to repay the loan or de-lever to a sustainable level over a reasonable period.

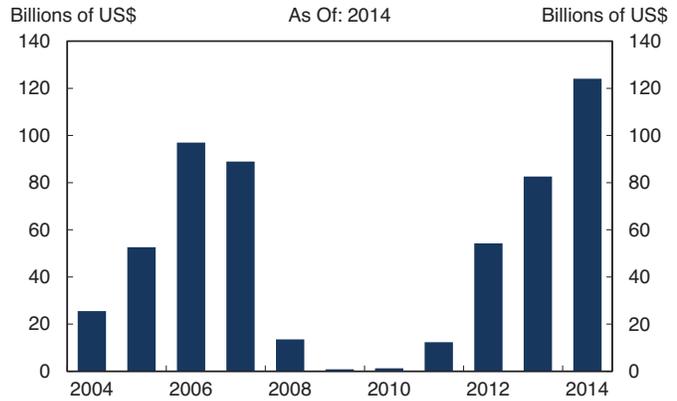
### 5.1.17 Covenant-Lite Volume as a Percent of Total Issuance



Recent public data shows total leveraged loan issuance for the first quarter of 2015 dropped abruptly, partly due to a sharp rise in credit spreads near the end of 2014. However, over the same period, the leveraged loan market witnessed moderate improvement in the quality of new issue loans, along with a decline in the share of loans associated with high leverage and lower credit ratings.

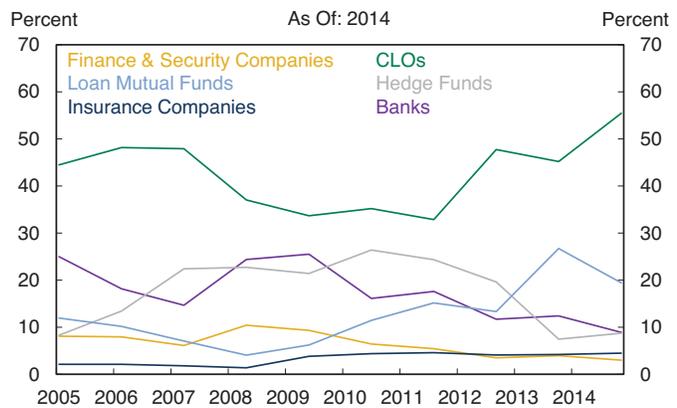
Collateralized loan obligations (CLOs) remain the most important buyer of leveraged loans, with both CLO issuance levels and their share of the primary loan market at all-time highs (**Charts 5.1.18, 5.1.19**). The continued search for higher yielding assets by institutional investors has helped spur demand for CLO tranches. Meanwhile, demand from banks for leveraged loans continues to decline, with CLOs and loan mutual funds supplanting this buyer base since the crisis. On the supply side, CLO managers are motivated to issue deals prior to new risk-retention regulations that will come into place in December 2016. Loan mutual funds saw significant net outflows of \$21 billion in 2014, but nevertheless purchased 19 percent of leveraged loan primary issuance in 2014, compared to just 4 percent in 2008.

### 5.1.18 CLO Issuance



Source: S&P LCD

### 5.1.19 Share of Leveraged Loan Primary Market by Investor Type



Source: S&P LCD

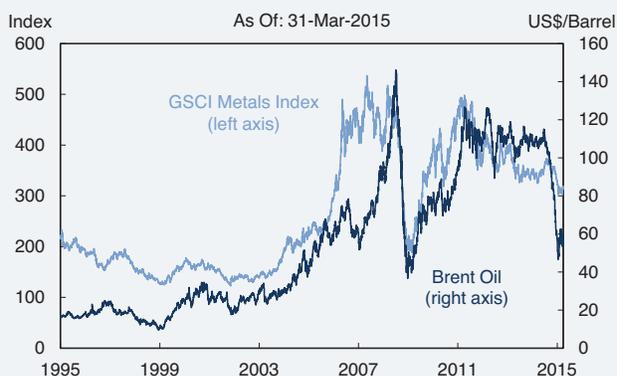
## Box C: Implications of Lower Oil Prices

Oil reached a peak price of \$115 per barrel (Brent crude) in June 2014, but then dropped precipitously to \$57 per barrel at the end of 2014. This is only the fourth time in the last 30 years the price has fallen more than 50 percent in six months. The move has had significant repercussions across financial markets, as currencies, equities, and credit assets linked to the price of oil have fallen in value.

### Likely Causes of the Decline

The main driver of this decline is likely favorable supply conditions, including increased shale production from the United States, and the recovery of production and exports from Iraq and Libya. In addition, prices dropped sharply following the decision by the Organization of the Petroleum Exporting Countries (OPEC) in November 2014 to keep its production levels unchanged. But the decline is also partly in response to weaker-than-expected demand from China and other oil importers amid weaker global growth. Notably, oil has far underperformed industrial metals this past year, whereas previously metals and oil were tightly linked through global demand channels (**Chart C.1**). This divergence further supports the view that supply factors were an important driver of the recent oil price declines.

### C.1 Commodity Prices: Metals vs. Oil



Source: Bloomberg, L.P.

### Impact on U.S. and Global Growth

The IMF estimates that the positive effect of lower oil prices on growth will outweigh the negative effects from the slowdown of investment in energy and the increased financial risks to oil-exporting countries. In addition, the disinflationary effects of lower oil prices should provide more room for monetary policy accommodation in countries facing higher inflation. All told, the IMF projects that, on net, the decline in oil prices will expand U.S. GDP in 2015 by an additional 0.8 percent, and global GDP by 0.5 to 0.7 percent. In the United States, lower oil prices should boost consumer spending—the Energy Information Administration estimates that lower gasoline prices will increase disposable income of this year by \$700 on average across U.S. households.

### Regional Bank Lending

While the economic benefits of lower oil prices are shared widely, some oil-dependent sectors and regions of the country will likely experience adverse consequences. For example, the credit quality of institutions with higher levels of direct lending to oil exploration, oil production, and other supporting services may deteriorate. In addition, some institutions located in or near oil-dependent regions may experience knock-on effects from weaker investment and subdued business activity.

### Domestic Credit Markets

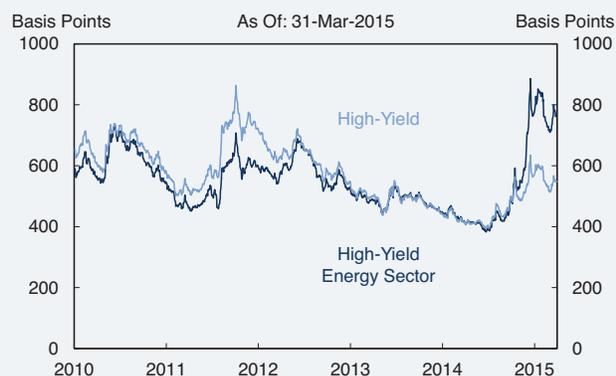
Of concern is the potential impact on credit markets, in particular high-yield bonds. Energy companies compose roughly 15 percent of the \$1.6 trillion U.S. high-yield bond market, compared to only 10 percent in 2009. Much of this rise has been driven by issuance of bonds by energy exploration and production companies that have been hit hard by the recent drop in oil prices. In June 2014, the high-yield bond market began a significant sell-off, especially in the energy sector, which is now trading at distressed levels (**Chart C.2**). Market participants noted at the

time that energy sector bonds became significantly less liquid. High-yield mutual funds and exchange-traded products (ETPs) also saw significant outflows during this period. In the first quarter of 2015, this market stabilized, with distressed debt specialists and other investors purchasing discounted bonds. Some borrowers have been able to issue new debt and equity as well.

### Emerging Markets Debt and FX Markets

About one third of the \$3.3 trillion of outstanding dollar-denominated emerging market debt is issued by energy companies, or by corporates and sovereigns in countries where oil profits compose more than 10 percent of GDP. Many of these issuers have seen their debt downgraded. Russia, Venezuela, and other oil-exporters have also seen their currencies weaken significantly. Because sharp drops in commodity prices have in the past triggered emerging market crises—such as in Latin America in the 1980s—these developments bear close monitoring. Similar to high-yield bonds, emerging market debt is relatively illiquid compared to other fixed income products. Lower oil prices may lead to sizable capital losses, which may dampen investor risk appetite and lead to emerging market debt outflows. Significant outflows, coupled with illiquidity, could exacerbate market risks.

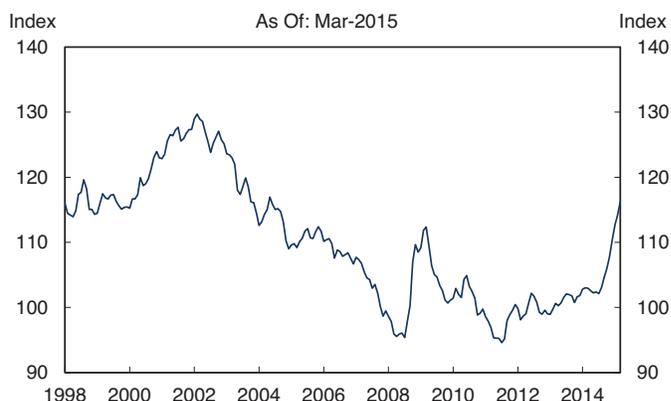
## C.2 High-Yield Bond Spreads



Source: Bloomberg, L.P.

Note: Spreads to worst.

### 5.1.20 Nominal U.S. Dollar Trade-Weighted Index

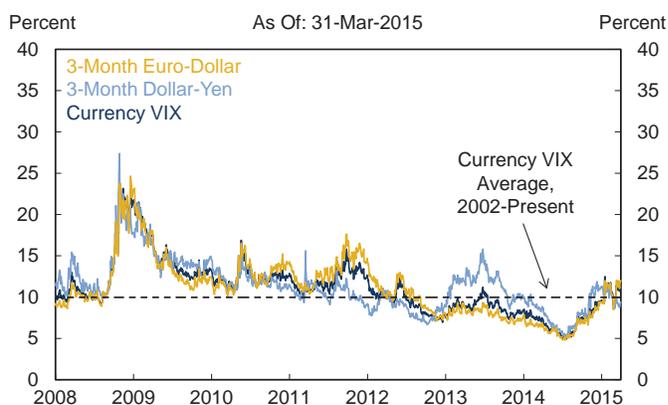


Source: Federal Reserve, Haver Analytics  
 Note: Nominal U.S. Dollar Trade-Weighted Index is a weighted average of the foreign exchange value of the U.S. dollar against the currencies of a broad group of major U.S. trading partners.

### 5.1.2 Foreign Exchange

The dollar has appreciated significantly on a trade-weighted basis since mid-2014 as the economic outlook in the United States began to improve relative to the rest of the world, perhaps faster than markets had expected, and as foreign central banks began aggressively easing monetary policy or signaling their intent to do so (Chart 5.1.20). Along with the dollar's appreciation there has been an increase in developed market currency volatility, albeit from a very low level (Chart 5.1.21). The euro and Japanese yen depreciated significantly, as did the currencies of oil-exporters (Chart 5.1.22), with the Russian ruble experiencing the steepest decline due to plummeting oil prices and the effects of U.S. and EU sanctions, which were implemented in response to Russia's aggressive actions in Ukraine (Chart 5.1.23).

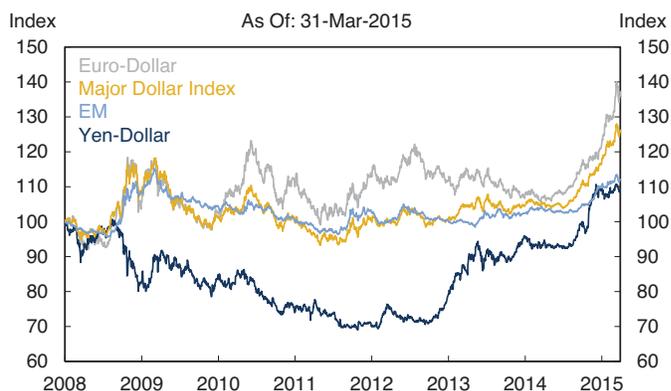
### 5.1.21 Currency Implied Volatility



Source: Bloomberg, L.P.

On January 15, 2015, the Swiss National Bank unexpectedly abandoned its cap on the value of the Swiss franc to the euro that had been in place since September 2011. This caused the franc to unexpectedly appreciate almost 21 percent against the euro in one day, with an intraday rise of close to 40 percent. While the sharp appreciation of the franc resulted in stresses to some smaller FX brokers, the knock-on effects to broader financial markets were muted. There has also been appreciation pressure on the Danish krone, causing the Danish Central Bank to intervene heavily to maintain its longstanding peg to the euro.

### 5.1.22 U.S. Dollar Exchange Rates



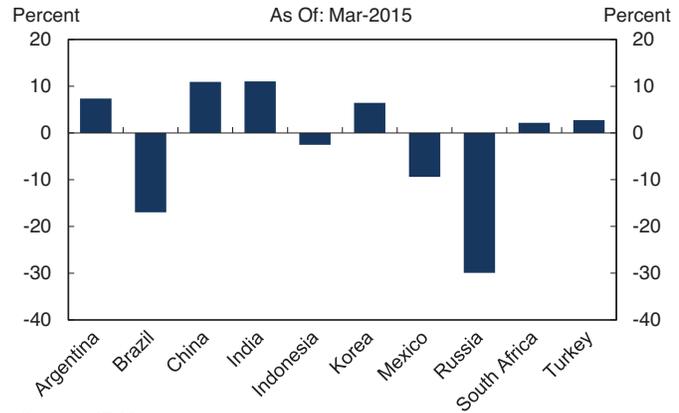
Source: Federal Reserve, Haver Analytics  
 Note: 1-Jan-2008 = 100. EM is a weighted average of the FX values of the dollar against a subset of currencies in the broad index that do not circulate widely outside the country of issue.

### 5.1.3 Equities and Commodities

#### Equities

Equity indices in developed markets saw mixed performances in 2014, with U.S. indices outperforming those of other countries. However, in the first quarter of 2015, Japanese and European equity markets surged, leading them to outperform the U.S. market for the 12-month period ending in March 2015 (**Chart 5.1.24**). In 2014, U.S. stocks generally benefitted from low interest rates and continuing accommodative monetary policy, as well as modest growth in earnings and economic performance, but these gains were tempered by global growth concerns, commodity-driven declines in energy-related stocks, and geopolitical tensions. In the United States, the S&P 500 Index gained 10 percent over the 12-month period ending in March 2015, while the S&P 500 composite trailing price-to-earnings ratio continued to climb, reaching a level only slightly below its 20-year average of 19.4 (**Chart 5.1.25**). The Euro Stoxx Index rose 17 percent over this period, while in the United Kingdom, the FTSE 250 Index increased 3 percent. Japanese equity markets increased by 30 percent over the same period.

#### 5.1.23 Change in Exchange Rates (Mar 2014 - Mar 2015)



Source: JP Morgan, Haver Analytics

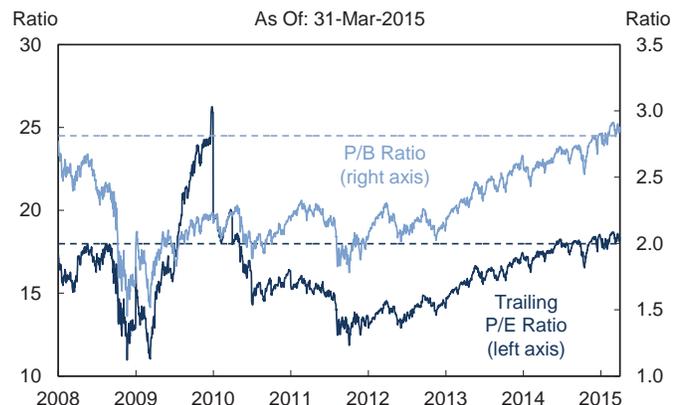
Note: Change in exchange rate is the change in a country's JP Morgan Broad Nominal Effective Exchange Rate Index.

#### 5.1.24 Returns in Selected Equities Indices

|                            | Change from 31-Mar-2014 to 31-Mar-2015 | Annual growth rate from 31-Mar-2010 to 31-Mar-2015 |
|----------------------------|--|--|
| <b>Major Economies</b>     |  |  |
| U.S. (S&P)                 | 10%                                    | 12%  |
| Euro (Euro Stoxx)          | 17%                                    | 6%   |
| Japan (Nikkei)             | 30%                                    | 12%  |
| U.K. (FTSE)                | 3%                                     | 4%   |
| <b>Selected Europe</b>     |  |  |
| Germany (DAX)              | 25%                                    | 14%  |
| France (CAC)               | 15%                                    | 5%   |
| Italy (FTSE MIB)           | 7%                                     | 0%   |
| Spain (IBEX)               | 11%                                    | 1%   |
| <b>Emerging Markets</b>    |  |  |
| MSCI Emerging Market Index | -2%                                    | -1%  |
| Brazil (Bovespa)           | 1%                                     | -6%  |
| Russia (RTS)               | -28%                                   | -11%   |
| India (Sensex)             | 25%                                    | 10%  |
| China (Shanghai SE)        | 84%                                    | 4%   |
| Hong Kong (Hang Seng)      | 12%                                    | 3%   |

Source: Capital IQ

#### 5.1.25 S&P 500 Key Ratios



Source: Bloomberg, L.P.

Note: Dotted lines represent 1995-to-present median.

### 5.1.26 Market Volatility



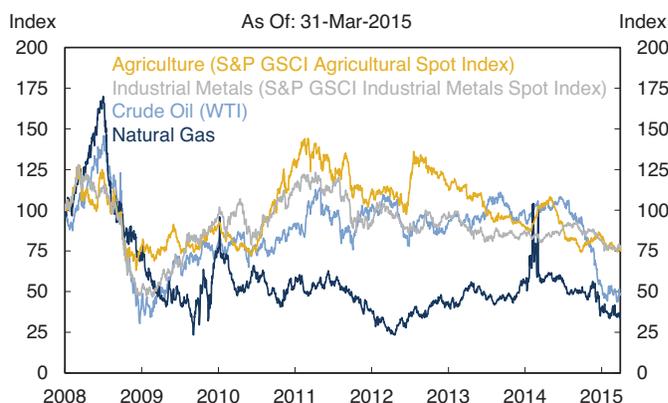
Source: Capital IQ

U.S. equity market implied volatility, as measured by the Chicago Board Options Exchange Volatility Index (VIX), averaged 14 percent during 2014 and generally remained below its historical average (**Chart 5.1.26**). Levels of volatility were particularly low during the first half of the year, but then increased owing to concerns about the weaker global outlook.

### Commodities

Commodity prices declined in 2014, led by the 50 percent drop in oil prices (**see Box C**) during the second half of the year (**Chart 5.1.27**). The overall S&P GSCI (formerly the Goldman Sachs Commodity Index) decreased over 30 percent during the course of the year, while the S&P GSCI Energy Index declined nearly 50 percent.

### 5.1.27 Commodities



Source: Energy Information Administration, S&P, Haver Analytics  
Note: 02-Jan-2008 = 100.

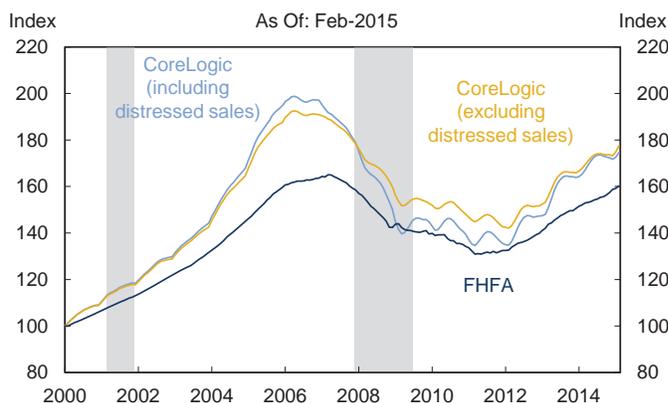
Prices of metals and agricultural commodities also declined in 2014, but much less so than energy prices. The S&P GSCI Industrial Metals Index declined approximately 6 percent in 2014, as slowing growth in China and other emerging markets affected demand expectations. Agricultural commodities prices also declined in 2014, as harvests in several key agricultural commodities were larger than expected.

### 5.1.4 Real Estate Markets

#### Housing Market Overview

The housing market recovery continued in 2014, despite some signs of softness early in the year. Home prices rose, and many of the legacy issues from the financial crisis continued to abate, as loan performance improved and negative equity declined. But mortgage origination activity and home sales were generally below 2013 levels.

### 5.1.28 National Repeat Sales Home Price Indices



Source: CoreLogic, FHFA, Haver Analytics  
Note: Jan-2000 = 100. Gray bars signify NBER recessions.

According to the FHFA's repeat sales home price index, national home prices rose 5.4 percent during 2014 (**Chart 5.1.28**). Existing home sales started the year slowly. Although about 3 percent fewer existing homes were sold in 2014 than in 2013, the second half of 2014 showed some signs of recovery from the

slowdown earlier in the year. Both sales and construction starts of new single-family homes picked up in the second half of 2014, though they remain well below levels seen in decade before the housing market collapse.

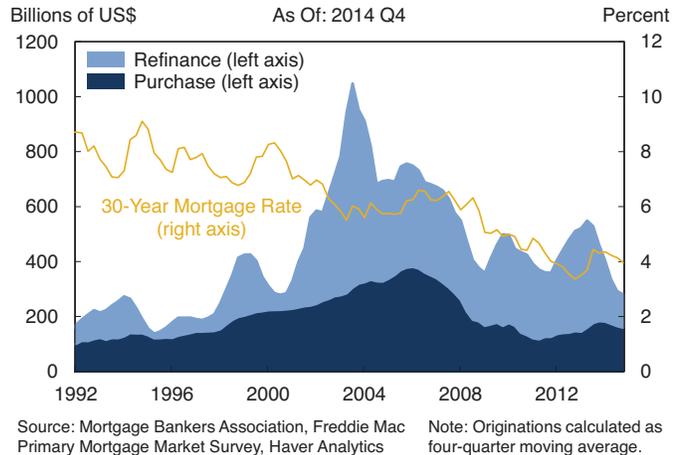
Household formation, a key driver of housing demand, surged in the second half of 2014 after eight years of tepid growth. Nearly 2 million households were added from December 2013 through December 2014—more than were added during the previous three years combined. In contrast, the national homeownership rate marked its ninth consecutive year of decline in 2014, ending the year at 64.0 percent, while a surge in rentals have pushed down rental vacancy rates to their lowest level since the mid-1990s.

Overall, mortgage origination activity slumped in 2014, mainly because of a dramatic reduction in refinance originations, as mortgage rates remained elevated relative to early 2013 (**Chart 5.1.29**). Refinance originations in 2014 totaled \$484 billion, 56 percent below their 2013 level. Mortgage purchase originations also declined in 2014 to \$638 billion, 13 percent lower than the previous year.

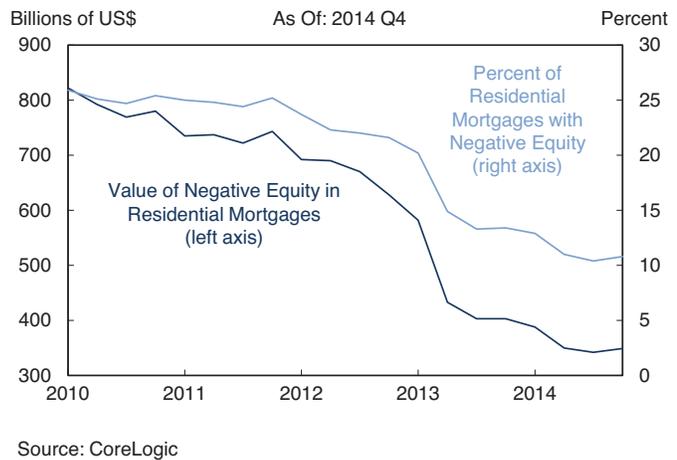
The number of households with negative equity continued to fall in 2014, with approximately 1.2 million households rising out of negative equity over that period. Sustained price increases, completed foreclosures on underwater loans, loan modifications, and the amortization of older loans have helped lower the percentage of mortgages with negative equity from 13.4 percent at the end of 2013 to 10.8 percent by December 2014 (**Chart 5.1.30**). The total value of negative equity fell from \$403 billion to \$349 billion over the year.

The performance of outstanding loans also continued to improve in 2014. The estimated number of loans with past-due installments declined from 2.6 million in December 2013 to 2.3 million in December 2014. The pipeline of mortgages likely to require foreclosure has also declined (**Chart 5.1.31**). The share of

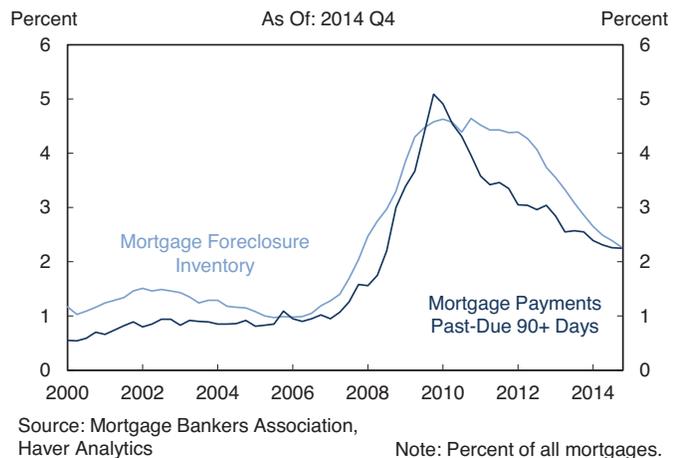
### 5.1.29 Originations by Purchase and Refinance



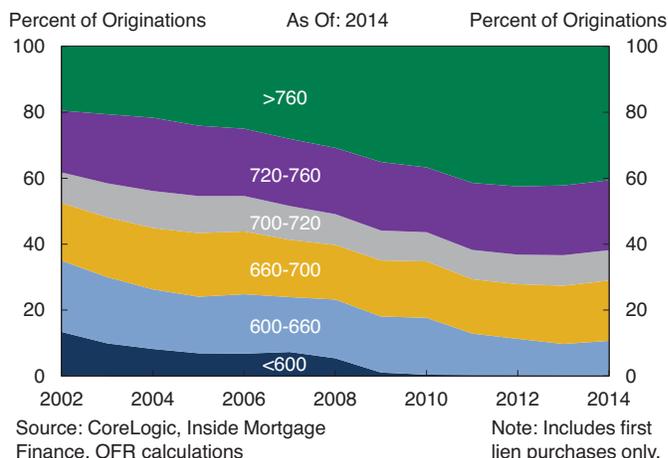
### 5.1.30 Mortgages with Negative Equity



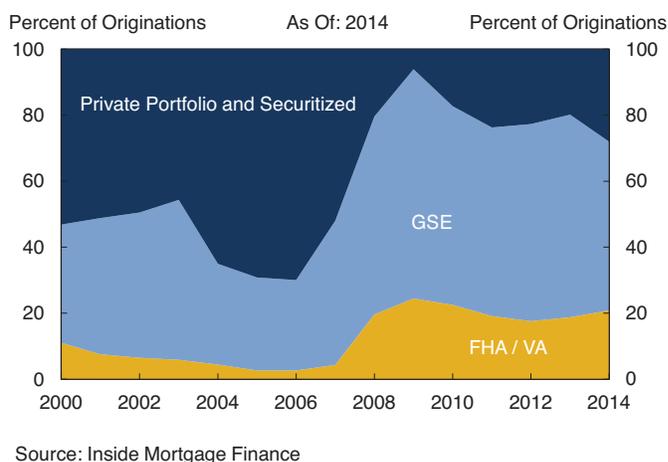
### 5.1.31 Mortgage Delinquency and Foreclosure



### 5.1.32 Purchase Origination Volume by Credit Score



### 5.1.33 Mortgage Originations by Product



loans with payments more than 90 days past due dropped from 2.5 percent to 2.2 percent between December 2013 and December 2014. Over the same period, the share of mortgages in foreclosure dropped from 2.9 percent to 2.3 percent. The pace of mortgage modifications also slowed.

Underwriting standards for new mortgages remained conservative relative to historical norms in 2014. The segment of purchase originations for borrowers with FICO scores below 600, which composed over 10 percent of originations in the early 2000s, is less than 0.5 percent of the market today (Chart 5.1.32). The private label securitization market, a major source of financing for low-FICO loans in the years before the crisis, remains dormant. The share of loans with FICO scores over 760 has doubled from about 20 percent of the market to about 40 percent. While the SLOOS showed an increasing share of respondents reporting easing credit standards in 2014, the vast majority of respondents reported that their credit standards remained unchanged. Similarly, the OCC's 2014 Survey of Credit Underwriting Practices reported just over two thirds of respondents held lending standards unchanged.

Through November 2014, the GSEs completed 1.4 million refinances, significantly less than the 4.1 million refinances completed in all of 2013. The number of Home Affordable Refinance Program (HARP) refinances also declined sharply. As borrowers have regained equity, a smaller proportion of loans require the low- and negative-equity refinances offered through HARP. FHA's total refinance volumes fell 70 percent to 191,000 refinances between fiscal years 2013 and 2014.

The federal government continues to back the majority of new mortgages, though its market share has declined over the past several years as jumbo loans have gained market share (Chart 5.1.33). Private lending in 2014 was largely concentrated in jumbo loans held in bank portfolios. As has been the case since 2008,

the government backed nearly all residential mortgage-backed security (RMBS) issuance in 2014 (**Chart 5.1.34**).

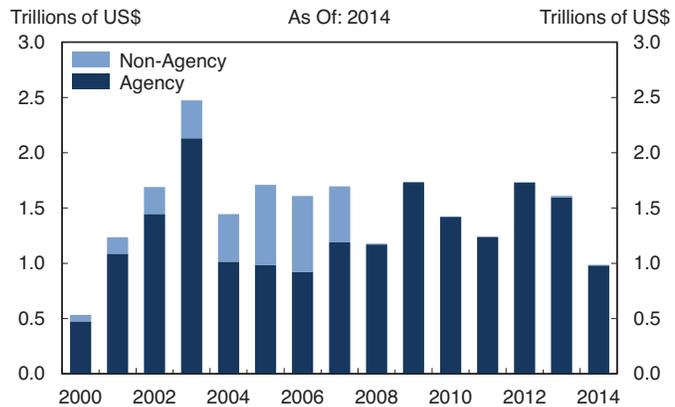
Investor activity, as indicated by cash sales, dropped in 2014, partly reflecting a decline in the share of sales composed of real estate owned (REO) properties. CoreLogic estimates that cash sales composed 35.5 percent of total home sales in December 2014. This figure is down 3.0 percentage points from a year earlier and 11.0 percentage points from the peak in January 2011. Typically, investors purchase homes for rental. Investors also participated in the rental market through equity real estate investment trusts (REITs) and an expanded rental property securitization market.

Originations of HELOCs rose 18 percent in 2014; however the number of HELOC accounts—and the balances associated with those accounts—declined slightly. On net, the pace of HELOC closure and pay-down exceeded the pace of originations. Approximately \$190 billion in HELOC balances—which represents more than one quarter of outstanding balances—face payment resets in 2015 and 2016 as the interest-only period expires. About \$30 billion of this debt is associated with negative-equity borrowers.

Over the course of 2014, the Federal Reserve tapered its large-scale asset purchase program, which ended in October. However, the Federal Reserve has continued to reinvest maturing principal payments in agency MBS. As of December 2014, the Federal Reserve held about \$1.7 trillion in agency MBS, or about 30 percent of outstanding agency MBS.

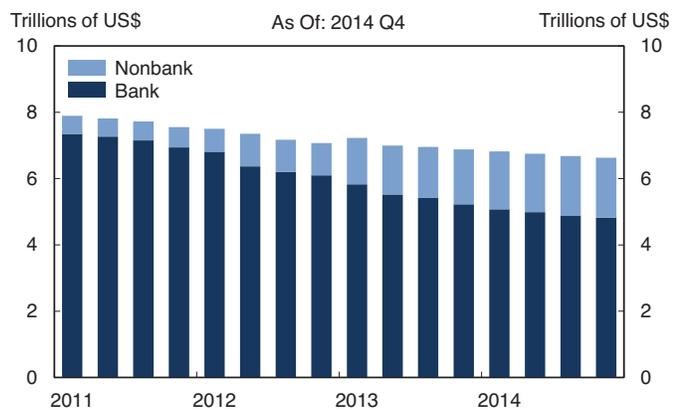
Nonbank firms continued to increase their purchases of MSRs from banks and thrifts in 2014, though the pace of this shift slowed notably compared to 2013 (**Chart 5.1.35**). Nonbank firms have also gained share in mortgage originations. Last year, nonbank

### 5.1.34 RMBS Issuance



Source: Fannie Mae, Freddie Mac, Ginnie Mae, Bloomberg, L.P., Dealogic, Thomson Reuters, SIFMA

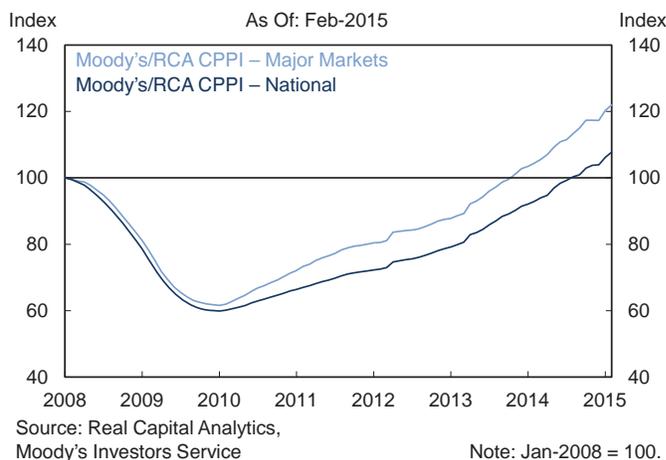
### 5.1.35 Mortgage Servicing Market



Source: Inside Mortgage Finance

Note: Data covers top 25 servicers in each quarter.

### 5.1.36 Commercial Property Price Indices



firms accounted for 38 percent of mortgages originated by the largest 40 lenders, up from 27 percent the year before.

#### Government-Sponsored Enterprises

GSE issuance of new MBS declined markedly in 2014, as both refinance and purchase activity remained near 15-year lows. In 2014, Fannie Mae issued \$408 billion and Freddie Mac issued \$280 billion in new MBS, down from \$765 billion and \$461 billion in 2013, respectively. Fannie Mae and Freddie Mac both saw large declines in net income in 2014 relative to 2013, due in large part to a reversal in the valuation allowance for deferred tax assets in 2013, as well as losses on derivatives.

The GSEs continued to expand their use of several risk-sharing structures. In 2014, they issued risk-sharing agreements on about \$370 billion in single-family MBS—or about half of their MBS issuances for the year. Investors in the most senior tranches of these securities were composed largely of mutual funds, and the most junior tranches disproportionately attracted hedge funds. On a limited basis, Fannie Mae and Freddie Mac also negotiated bilateral agreements with private entities to insure or reinsure portions of guaranteed pools.

#### Commercial Real Estate

CRE markets improved in 2014, as measured by vacancy rates, property values, loan volume, and loan performance. In 2014, the national CRE price index experienced year-over-year growth of 13.0 percent (**Chart 5.1.36**), with retail experiencing moderate growth (3.4 percent) relative to other sectors. Price growth in the six major markets (Boston, Chicago, Los Angeles, San Francisco, New York, and Washington, DC) has recovered faster than the national index since the crisis. Construction of commercial, nonresidential properties increased in 2014 but remains well below historical levels. Multifamily construction recovered rapidly, and is near pre-crisis highs in nominal terms.

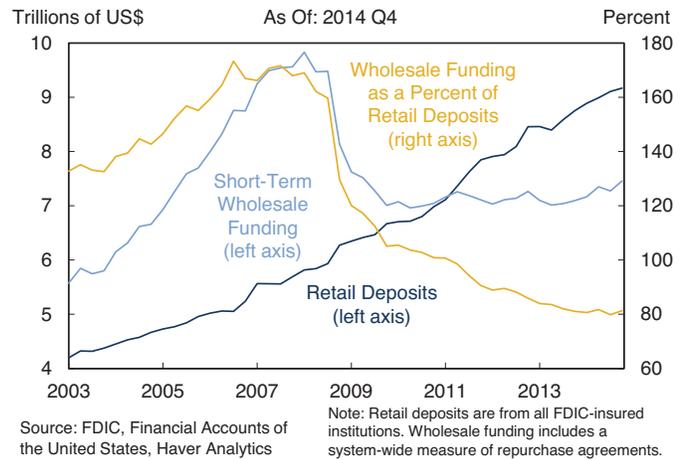
CRE loans outstanding—excluding multifamily residential loans—reached \$1.6 trillion in December 2014, an increase of nearly \$100 billion from the prior December. Between the fourth quarter of 2013 and the fourth quarter of 2014, CRE delinquency rates steadily fell from 2.45 percent to 1.56 percent. Correspondingly, the CRE charge-off rate fell from 0.19 percent to 0.08 percent.

Although some credit-risk indicators have stabilized, underwriting standards appear to be loosening in some CRE portfolios. Bank examiners surveyed for the OCC’s 2014 Survey of Credit Underwriting Practices indicated that commercial construction, residential construction, and other CRE loans are a growing concern in 65 percent of all banks.

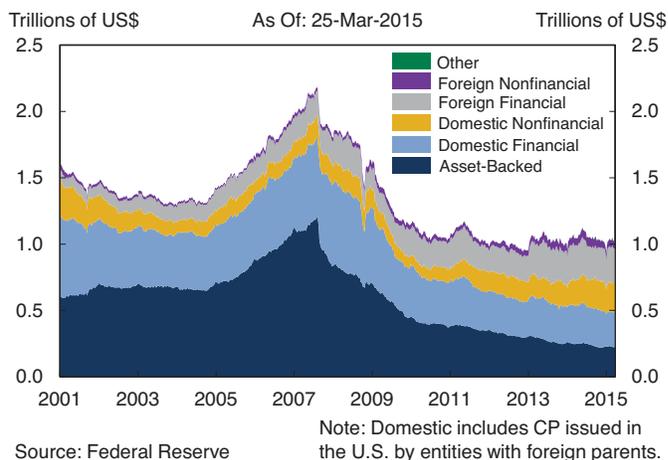
## 5.2 Wholesale Funding Markets

Short-term wholesale funding markets provide financial and nonfinancial firms with funds that supplement other funding sources such as retail deposits and long-term debt. Short-term wholesale funding is obtained through instruments such as federal funds, commercial paper (CP), repos, certificates of deposit (CDs), and large time deposits. Financial institutions have varying reliance on short-term wholesale funding. U.S. branches of foreign banks and broker-dealers tend to rely more on short-term wholesale funding than domestic banks, which have access to U.S. retail deposits. Sources of short-term wholesale funding include cash held by nonfinancial companies, MMFs, pension funds, and sovereign wealth funds, among others. Domestic banking firms’ reliance on short-term wholesale funding measured as a share of retail deposits has decreased since the financial crisis (**Chart 5.2.1**). The decline reflects in part the large growth in retail deposits and adjustments some banks are making to their funding and balance sheet structures to meet enhanced liquidity standards—such as the LCR—and capital requirements—such as the SLR. In particular, the LCR and the net stable funding ratio (NSFR) incentivize banks to rely on

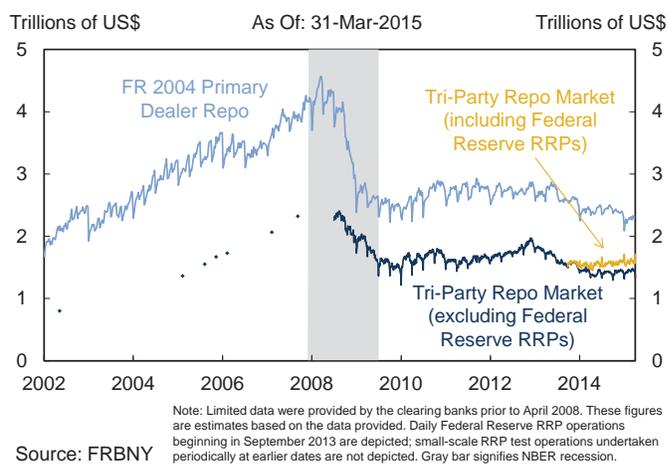
### 5.2.1 Composition of Bank Short-Term Funding



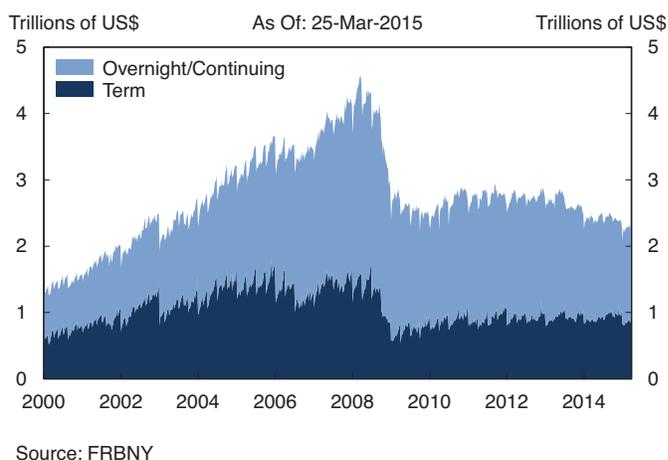
## 5.2.2 Commercial Paper Outstanding



## 5.2.3 Value of the Repo Market



## 5.2.4 Primary Dealer Repo Agreements



traditional retail deposits or issue longer-term debt. In addition, the SLR and the systemically important financial institutions capital surcharge incentivize overall reduction in balance sheet and thus borrowing needs.

### 5.2.1 Commercial Paper, Asset-Backed Commercial Paper, and Large Time Deposits

Total CP outstanding—domestic, foreign, and asset-backed—remained relatively flat over the past 12 months, with the growth in nonfinancial CP roughly offsetting the declines in financial CP and asset-backed commercial paper (ABCP) (**Chart 5.2.2**). Year over year, domestic financial CP outstanding declined by 10 percent. Meanwhile, domestic nonfinancial CP outstanding increased by 12 percent amid low financing rates and favorable economic conditions. Total foreign CP outstanding remained stable, with a small increase in financial CP outstanding offset by a small decline in nonfinancial CP outstanding. U.S. commercial bank large time deposits, which include wholesale CDs, increased modestly in 2014 to reach \$1.7 trillion.

### 5.2.2 Repo Markets

Total borrowing by primary dealers across all segments of the repo market was essentially flat in 2014, as was tri-party repo market volume (**Chart 5.2.3**). Dealer activity in the tri-party repo market was largely unchanged following the declines seen in 2013. The Federal Reserve's reverse repo operations (RRPs) increased gradually over the course of the year, though they continue to represent only a relatively small portion of the overall tri-party market. The relative size of the primary dealer term repo market compared to the overnight repo market remained roughly constant over the course of the year (**Chart 5.2.4**).

Market observers have cited a number of factors, such as changing risk appetites among market participants, the activities and holdings of central banks, and enhanced capital and liquidity requirements as potential contributors to the decline in primary dealer repo activity since 2012, though repo activity since 2012,

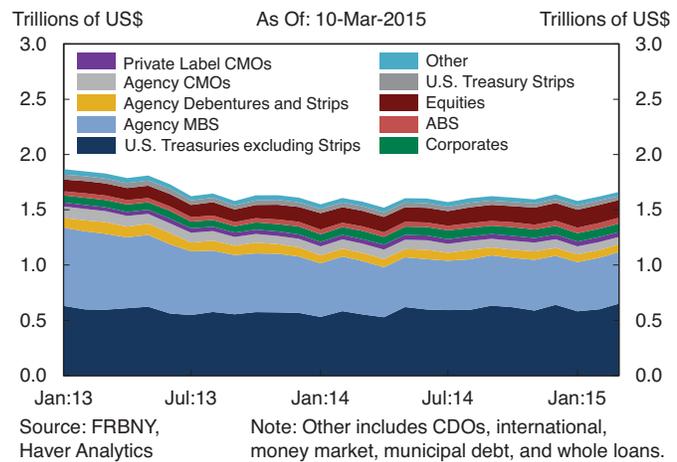
though repo activity remained relatively stable in 2014.

The lack of available data on bilateral repo makes estimation of the size of that market segment difficult, particularly with respect to the composition of collateral. Some studies estimate that bilateral repo may represent the largest of the repo market segments, and that Treasury securities may compose close to 80 percent of collateral. Other important data gaps in the bilateral repo market include the size of haircuts, the tenor of trades, and the distribution of counterparties. A joint pilot project recently initiated by OFR and the Federal Reserve aims to close some of these gaps by collecting and aggregating data on the bilateral repo market (see Section 6.4.1).

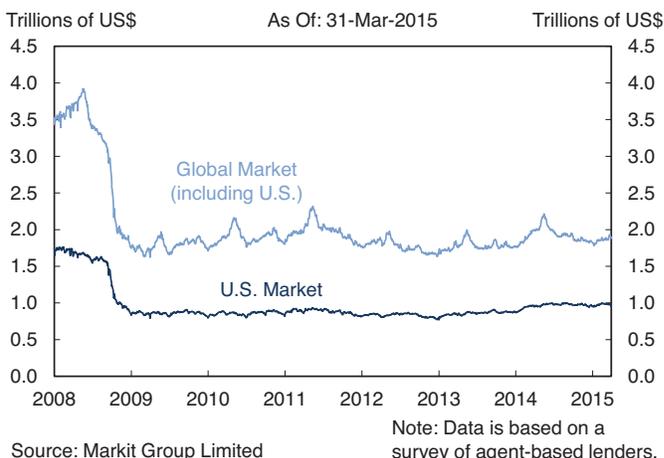
The collateral composition of the tri-party market, which since late 2009 includes the Federal Reserve’s RRP, remained consistent throughout 2014. The majority of tri-party repo financing continues to be collateralized by high-quality assets such as Treasury securities, agency debentures, and agency MBS. As of March 2015, these types of collateral accounted for 74 percent of all tri-party repo collateral (Chart 5.2.5). The share of these high-quality assets posted as collateral has declined slightly among dealer-financed repo transactions, though remains above pre-crisis levels. Haircuts demanded by cash investors in the tri-party market have been stable over the last few years across all collateral classes.

The Federal Reserve has continued to test the operational readiness of its policy tools, including overnight reverse repo agreements (ON RRP) and term reverse repo agreements (term RRP) in order to examine how such tools might support the monetary policy objectives of the Federal Open Market Committee (FOMC). These transactions are open market operations in which the Open Market Trading Desk (the Desk) at the Federal Reserve Bank of New York conducts a reverse repo operation with an eligible RRP counterparty. In addition to the set of primary dealers with whom the Federal Reserve had traditionally

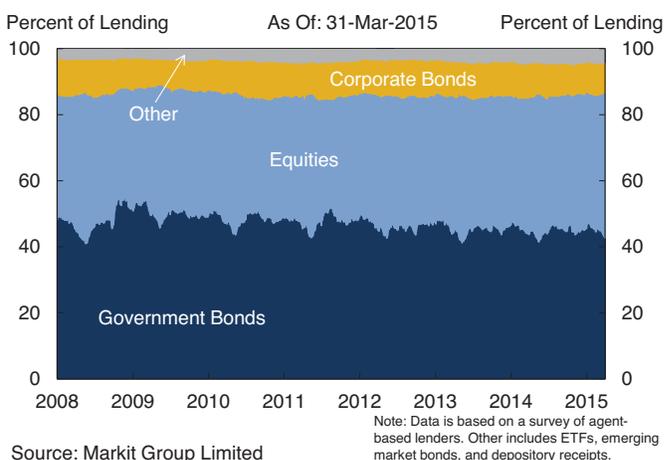
## 5.2.5 Collateral in Tri-Party Repo



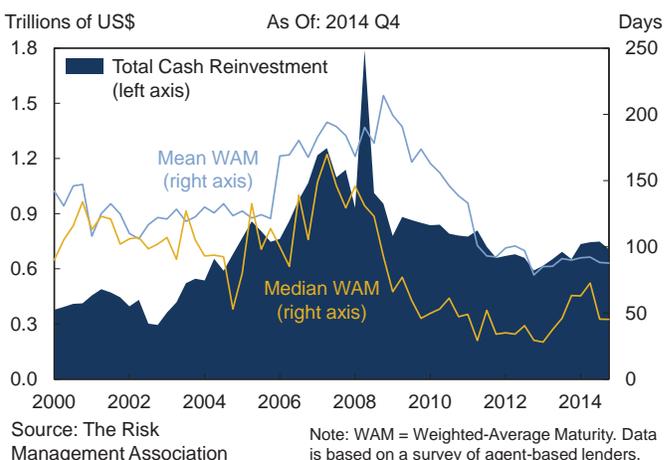
## 5.2.6 Value of Securities on Loan



## 5.2.7 Composition of Securities Lending by Security Type



## 5.2.8 Securities Lending Cash Reinvestment



conducted reverse repo agreements, the current operational exercises involve an expanded set of counterparties that includes banks, GSEs, and MMFs.

The Desk has been conducting a series of daily, overnight, fixed-rate RRP test operations since September 2013, and in September 2014 the Desk tested several notable changes, including the introduction of an overall size limit. The Desk has also periodically conducted term RRP operations over quarter-ends and other dates. These test operations have proceeded smoothly. Overall, the offered rate on ON RRP's continued to provide a soft floor for money market rates, and the term RRP's appeared to ease downside rate pressures in money markets around quarter-end dates. Even so, GCF repo rates have recently shown increased volatility at quarter-ends, a development that bears monitoring.

### 5.2.3 Securities Lending

The estimated value of securities on loan globally decreased slightly over the past 12 months to just below \$1.9 trillion (**Chart 5.2.6**), with government bonds and equities composing the bulk of these securities (**Chart 5.2.7**). The main lenders of securities continue to be retirement funds, mutual funds, and government bodies—including central banks. Market participants' strategies for reinvesting cash collateral remain conservative—the weighted-average maturity of cash reinvestment is relatively low and well below pre-crisis levels (**Chart 5.2.8**), and the collateral is mostly reinvested in liquid assets such as overnight repos and MMFs.

## 5.3 Bank Holding Companies and Depository Institutions

### 5.3.1 Bank Holding Companies and Dodd-Frank Act Stress Tests

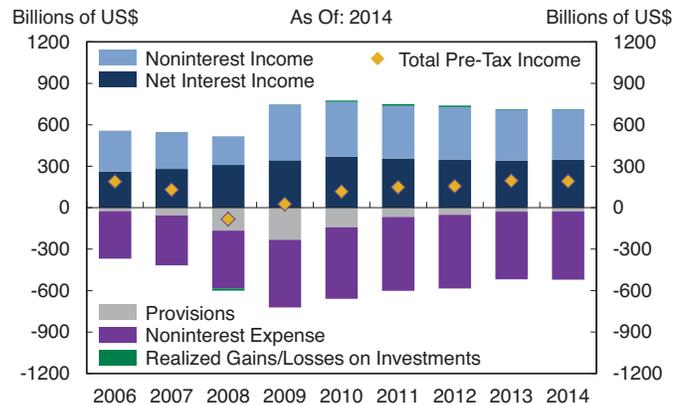
#### Performance

BHCs are companies with at least one commercial bank subsidiary. Subsidiaries of BHCs may also include nonbanks such as broker-dealers, investment advisers, or insurance companies. As of the fourth quarter of 2014, there were 1,034 BHCs in the United States (excluding Puerto Rico) with greater than \$500 million in assets, the aggregate assets of which totaled \$18.1 trillion.

The domestic banking sector in 2014 continued to face a challenging interest rate environment, enhanced regulatory requirements, foreign geopolitical and macroeconomic uncertainties, and a slowly recovering macroeconomic environment that led to a flattening of the yield curve. Aggregate pre-tax income for BHCs was \$191 billion for the full year ending December 31, 2014, compared to \$195 billion for the full year ending December 31, 2013 (**Chart 5.3.1**). Return on assets across BHCs slightly declined year-over-year and remained lower than the levels that prevailed in the 10 years before the crisis (**Chart 5.3.2**).

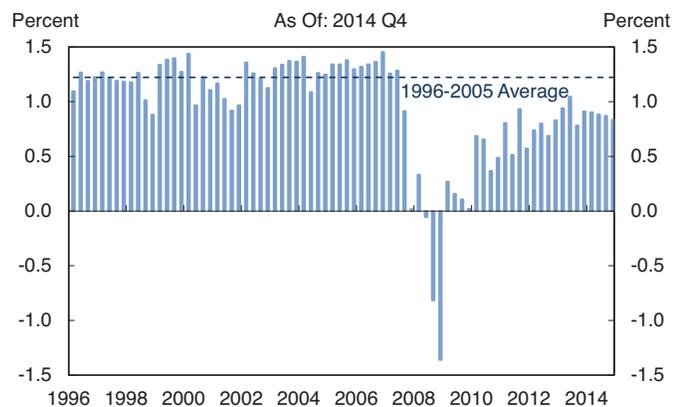
BHC NIMs declined slightly compared to 2013 due to continued historically low levels of interest rates—both long- and short-term—as well as the run-off of higher yielding assets, and, to a lesser extent, increased holdings of higher quality, lower yielding liquid assets to meet new minimum liquidity requirements (**Chart 5.3.3**). In addition, revenues from mortgage origination and trading were lower while litigation expenses were elevated. However, these headwinds were in part offset by increased revenues from growth in C&I lending in addition to strong investment banking and wealth management activities. Revenue losses were also offset by low loan loss provisions as BHCs moved towards their lowest levels of reserves post-crisis due to the improvement in credit quality.

### 5.3.1 Domestic BHC Pre-Tax Income



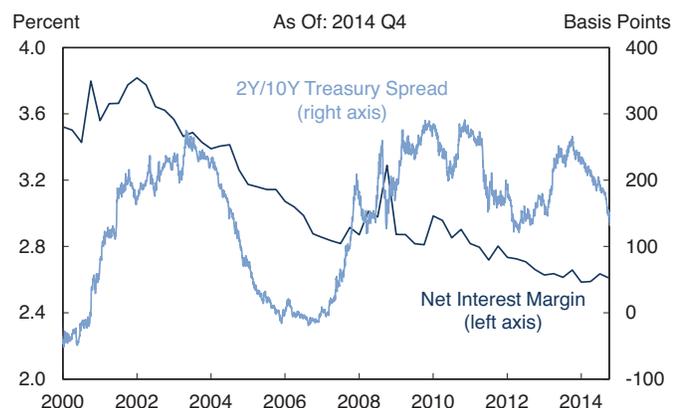
Source: FR Y-9C

### 5.3.2 Return on Average Assets for Domestic BHCs



Source: FR Y-9C

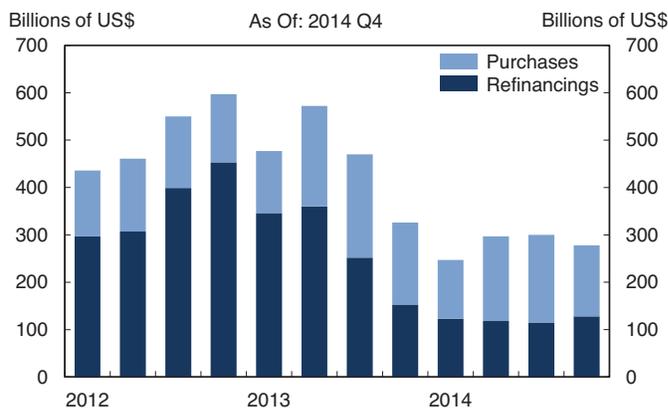
### 5.3.3 Annualized Net Interest Margin



Source: FRBNY Quarterly Trends Report, U.S. Department of the Treasury

Note: Domestic BHCs and commercial banks.

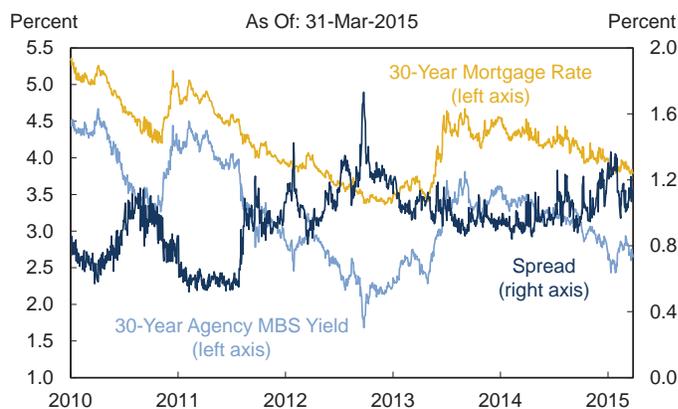
### 5.3.4 Total Residential Mortgage Originations



Source: Mortgage Bankers Association, Haver Analytics

Mortgage banking results were lower year-over-year, as total originations fell by roughly 39 percent (**Chart 5.3.4**). The level of refinancing activity declined in the second half of 2013 due to the increase in the 30-year mortgage rates (**Chart 5.3.5**) and did not recover in 2014. In addition, originations of home purchase loans remained subdued in 2014. On the expense side, BHCs are seeking cost-saving measures in mortgage banking operations through headcount reductions and more focused geographic footprints. However, legal settlements and increases in litigation reserves, especially by the largest BHCs, have more than offset many cost-saving efforts (**Chart 5.3.6**).

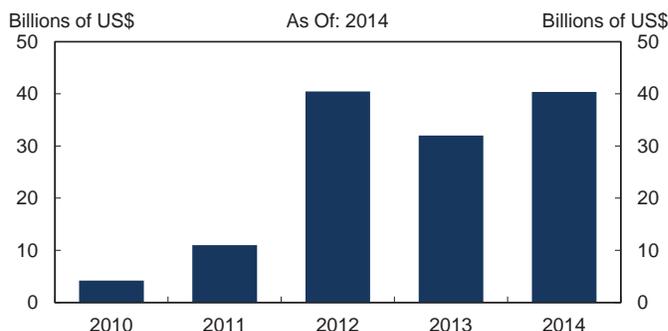
### 5.3.5 U.S. Mortgage Spread



Source: Bloomberg, L.P.

Despite the continued low interest rate environment, estimates of asset-liability maturity gaps suggest that large banks are not taking on significantly higher banking book interest rate risk from an income standpoint, although holdings of longer-term securities could experience material depreciation in an environment of increasing interest rates (**Chart 5.3.7**). However, smaller banks on average continued to lengthen the maturity of their asset portfolios (**Chart 5.3.8**). In addition, noninterest-bearing deposit accounts as a share of liabilities are near all-time highs and could leave the banking sector when interest rates begin to rise. Meanwhile, loans grew moderately during the year, amid continued easing in lending policies and increases in demand across several loan categories.

### 5.3.6 Select Crisis-Era Security and Mortgage-Related Settlements



Note: Data covers BAC, C, GS, JPM, MS, and WFC. Totals represent approximations based on disclosures. Values presented in financial periods in which BHCs report the values or litigation is concluded. Settlement amounts may not be accrued in the given period. Data includes cash payments and dollars required for assistance programs. Data does not include other fines and legal settlements such as those related to money laundering and reference rate manipulation.

Source: Public Disclosures and Releases

## Market Indicators

BHC equity prices and volatility rose in 2014, as indicated by the KBW Bank Index (**Chart 5.3.9**). Large BHC equity valuations are at the highest level since early 2012, though they remain well below pre-crisis levels (**Chart 5.3.10**). Credit spreads of the six largest BHCs also tightened slightly in 2014 and remained well below pre-crisis levels (**Chart 5.3.11**).

## Capital

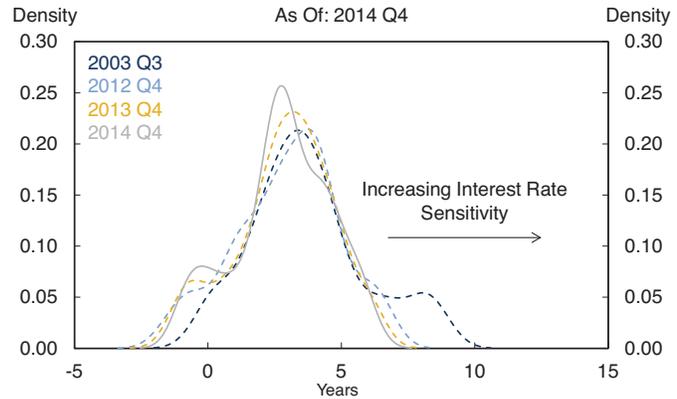
The aggregate common equity capital ratio for U.S. BHCs slightly increased in 2014, as the increase in capital was largely offset by the increase in RWAs (**Chart 5.3.12**).

Although certain aspects of the revised capital rules, including the capital conservation buffer, do not become fully phased in until 2019, most U.S. G-SIBs already meet the fully phased-in capital minimums under the revised capital rules plus the proposed U.S. G-SIB risk-based capital surcharge. In addition, most U.S. G-SIBs meet the 5 percent enhanced SLR standard on a fully phased-in basis as of December 31, 2014. As of the fourth quarter of 2014, most BHCs continued to increase their capital distributions and share repurchases. Common dividends paid by BHCs that participated in the 2015 Comprehensive Capital Analysis and Review (CCAR) increased approximately 15 percent in the aggregate, while net share repurchases increased approximately 19 percent from 2013. However, capital distributions remain lower than pre-crisis levels.

## Liquidity

BHCs continued to increase their holdings of liquid assets, which are now well above pre-crisis levels (**Chart 5.3.13**). Liquid assets as a percentage of total assets continued to increase over the past year for BHCs with consolidated assets over \$50 billion, but remained flat for other BHCs. The improvement in the liquidity profiles of large BHCs was driven

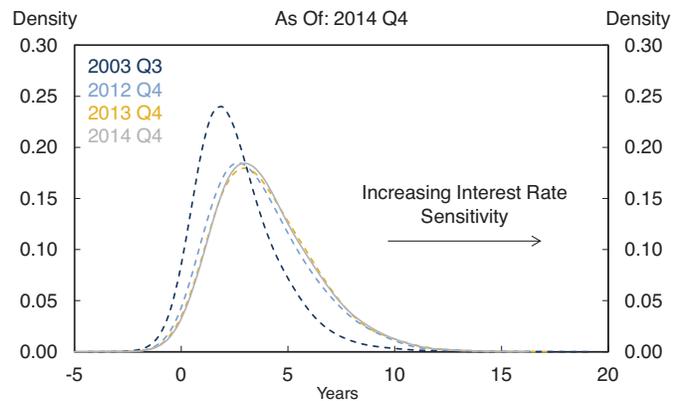
### 5.3.7 Maturity Gap at Large Banks



Source: Call Reports; Federal Reserve staff estimates

Note: Banks with assets over \$50 billion. Approximations based on midpoint of Call Report ranges. Liquid deposits assumed to have 1-year maturity.

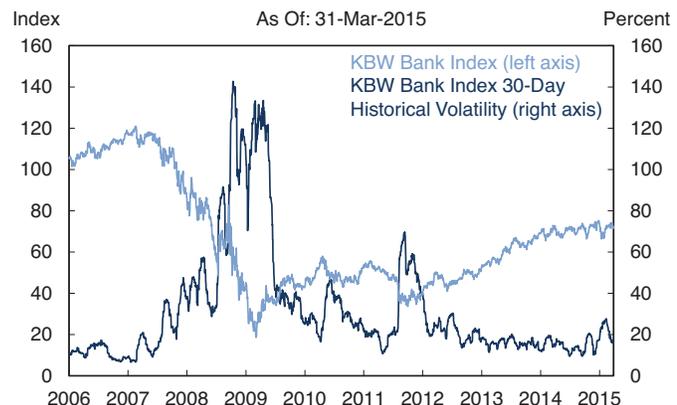
### 5.3.8 Maturity Gap at Small Banks



Source: Call Reports; Federal Reserve staff estimates

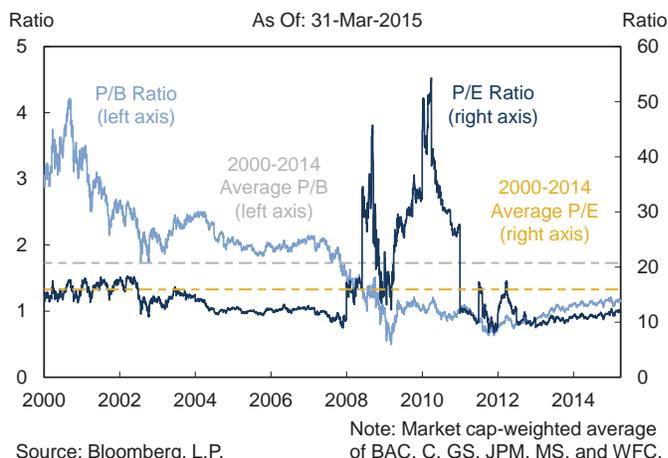
Note: Banks with assets less than or equal to \$50 billion. Approximations based on midpoint of Call Report ranges. Liquid deposits assumed to have 1-year maturity.

### 5.3.9 KBW Bank Index and Historical Volatility



Source: Bloomberg, L.P.

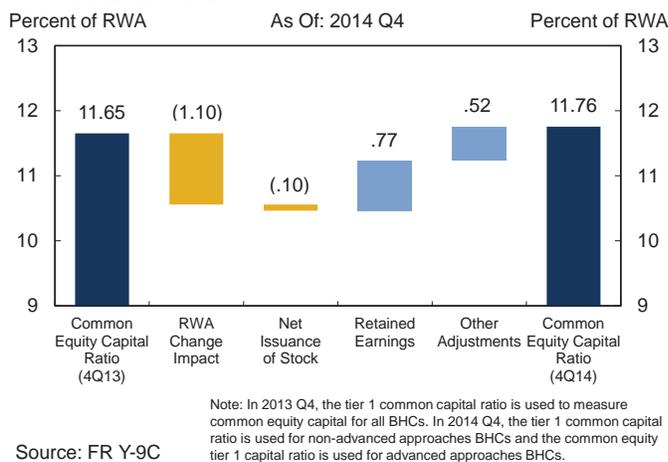
### 5.3.10 P/B and P/E Ratios of Six Large Complex BHCs



### 5.3.11 CDS Spreads of Six Large Complex BHCs



### 5.3.12 Change in Aggregate Common Equity Capital Ratios for Domestic BHCs



by both anticipated compliance with certain new liquidity requirements and by a change in balance sheet mix, as banks invested more of their increased deposit inflows into excess reserves and liquid investment securities than into loans.

The enhanced prudential standards rule issued in 2014 imposes enhanced liquidity risk management, stress testing, and liquidity buffer requirements on BHCs with consolidated assets of \$50 billion or more. In addition, the LCR and the modified LCR rules require BHCs to meet certain minimum liquidity needs. The transition period for LCR compliance began on January 1, 2015, and is due to be fully implemented by January 1, 2017. Compliance with the modified LCR becomes effective on January 1, 2016. Most BHCs appear to be well-positioned to comply with the LCR and modified LCR requirements as well as the expected NSFR requirement—a long-term structural liquidity measure included in the international liquidity framework agreed to by the Basel Committee on Banking Supervision (BCBS).

#### Asset Quality

Asset quality also continued to improve in 2014, with ratios of non-performing loans falling across most major categories (**Chart 5.3.14**). Delinquency rates on residential mortgages continued to decline through December 31, 2014, but remain elevated as extended foreclosure timelines in many states are delaying resolutions.

Net charge-offs continued to decline through December 31, 2014, and are now at pre-crisis levels (**Chart 5.3.15**). Total non-performing loans also declined, especially in CRE portfolios, which improved as a result of better market fundamentals. While reserve levels have fallen on net since 2010 due to slower growth in provisions, the level of reserves relative to charge-offs has improved significantly over the past four years (**Chart 5.3.16**).

On net, the sizable decline in crude oil prices in the latter half of 2014 (see Box C) may have a relatively neutral to positive effect on asset quality, as lower oil prices may bolster overall credit portfolios through increased consumer spending and economic growth. However, regional banks with larger oil and gas portfolio concentrations, smaller banks in areas whose local economies are dependent upon the energy sector, and banks exposed to countries whose sovereign debt is supported by oil production may be at increased risk.

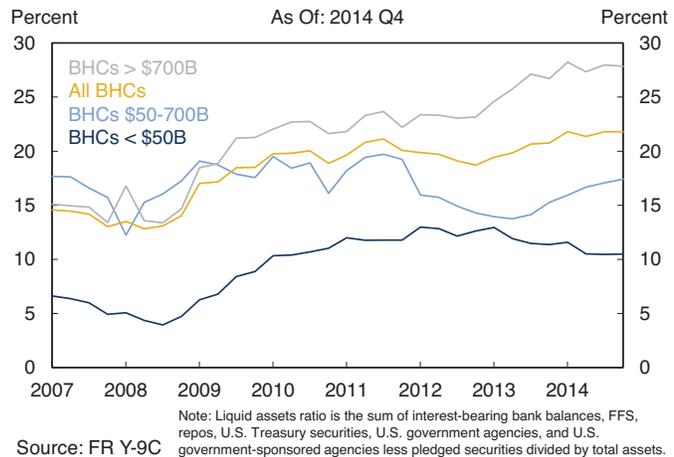
### DFAST and CCAR

In March 2015, the Federal Reserve released the results of the 2015 annual Dodd-Frank Act stress tests (DFAST) and the CCAR. A total of 31 BHCs with total consolidated assets of \$50 billion or more participated in the annual stress tests and CCAR.

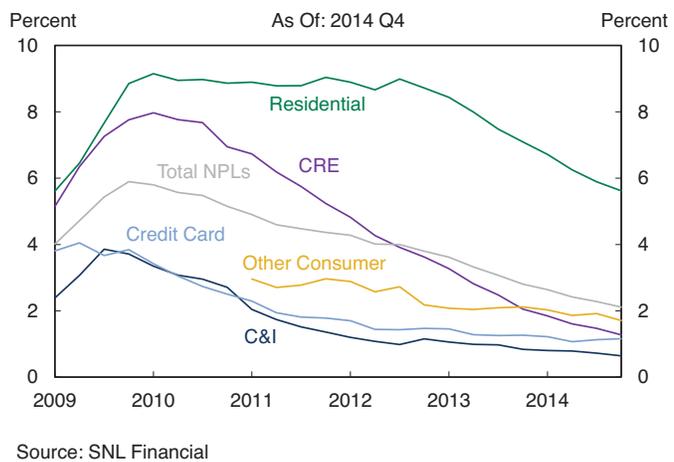
DFAST, a forward-looking exercise conducted by the Federal Reserve, evaluated whether the 31 BHCs have sufficient capital to absorb losses resulting from stressful economic and financial market conditions, using hypothetical supervisory scenarios designed by the Federal Reserve. In the nine quarters of the planning horizon covered in the stress test, the aggregate projected tier 1 common ratio for the 31 BHCs fell from 11.9 percent in the third quarter of 2014, to a minimum level of 8.3 percent under the severely adverse scenario (Chart 5.3.17), but remained well above the minimum requirement of 5.0 percent.

Through CCAR, the Federal Reserve evaluates the capital adequacy and the capital planning processes of the 31 BHCs, including the proposed capital actions such as dividend payments and stock repurchases. The Federal Reserve considers both qualitative and quantitative factors in analyzing a firm's capital plan. In 2015, the Federal Reserve did not object to the capital plans and planned capital distributions of 28 of the 31 BHCs, issued a conditional non-objection to one BHC, requiring it to correct weaknesses in its capital planning process, and objected to the

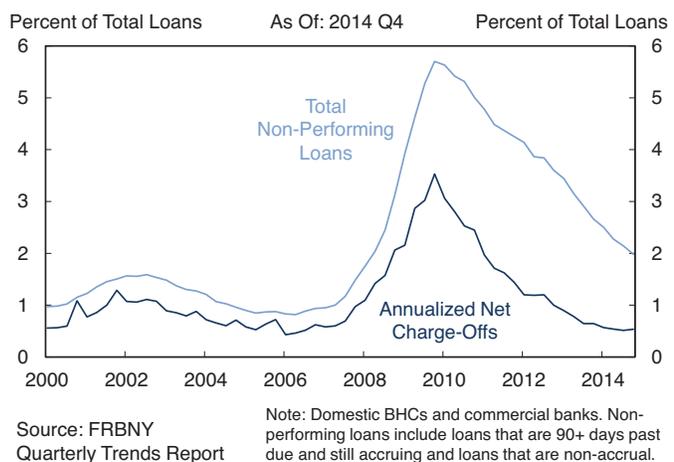
### 5.3.13 Consolidated BHC Liquid Assets Ratio by Firm Size



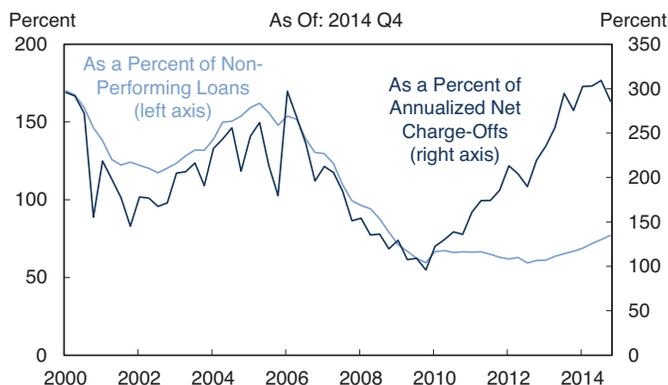
### 5.3.14 Non-Performing Loans (90+ Days and Non-Accrual)



### 5.3.15 Credit Quality



### 5.3.16 Loan Loss Reserves



Source: FRBNY Quarterly Trends Report, FSOC calculations

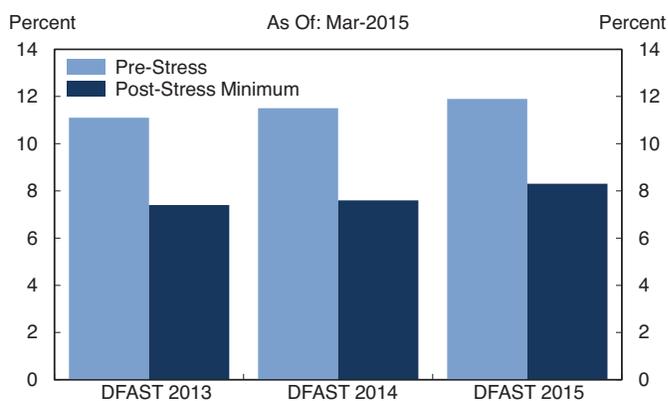
Note: Domestic BHCs and commercial banks. Non-performing loans include loans that are 90+ days past due and still accruing and loans that are non-accrual.

capital plans of two BHCs due to widespread and substantial weaknesses across their capital planning processes (**Chart 5.3.18**). Further, the 2015 CCAR results revealed that these BHCs have substantially increased their capital since the first round of stress tests in 2009. The common equity capital ratio, which compares high-quality capital to RWAs of the 31 BHCs, has more than doubled from 5.5 percent in the first quarter of 2009 to 12.5 percent in the fourth quarter of 2014, reflecting a \$641 billion increase in common equity capital to \$1.1 trillion during the same period.

### Insured Commercial Banks and Savings Institutions

At the end of 2014, the banking industry was composed of 6,509 FDIC-insured commercial banks and savings institutions with total assets of \$15.6 trillion. There were 1,872 institutions with assets under \$100 million and 681 institutions with assets over \$1 billion. The total number of institutions fell by 303 firms during 2014 due to failures and mergers. Failures of insured depository institutions have continued to decline since the financial crisis; 18 institutions with \$3 billion in total assets failed in 2014 (**Chart 5.3.19**), which represents the smallest number of failures since 2007.

### 5.3.17 Initial and Stressed Tier 1 Common Capital Ratios



Note: Aggregate ratios shown for all participants in each year. Post-stress ratios reflect the minimum ratio observed at any point under the severely adverse supervisory scenario.

Source: Federal Reserve

As of December 31, 2014, 291 institutions—4.5 percent of all institutions—were on the FDIC’s “problem bank” list, compared to 467 problem banks in December 2013. Banks on this list have financial, operational, or managerial weaknesses that require corrective action in order to operate in a safe and sound manner.

### 5.3.18 Federal Reserve’s Actions in CCAR 2015

| Non-Objection to Capital Plan |                        |                   |
|-------------------------------|------------------------|-------------------|
| Ally Financial                | Comerica               | MUFG Americas     |
| American Express              | Discover Financial     | Northern Trust    |
| Bank of America**             | Fifth Third Bancorp    | PNC Financial     |
| Bank of New York Mellon       | Goldman Sachs*         | Regions Financial |
| BB&T                          | HSBC North America     | State Street      |
| BBVA Compass                  | Huntington Bancshares  | SunTrust          |
| BMO Financial                 | JPMorgan Chase*        | U.S. Bancorp      |
| Capital One Financial         | KeyCorp                | Wells Fargo       |
| Citigroup                     | M&T Bank               | Zions             |
| Citizens Financial            | Morgan Stanley*        |                   |
| Objection to Capital Plan     |                        |                   |
| Deutsche Bank                 | Santander Holdings USA |                   |

Note: \*Goldman Sachs, JPMorgan Chase, and Morgan Stanley met minimum capital requirements on a post-stress basis after submitting adjusted capital actions. \*\*Bank of America will be required to submit a new capital plan by the end of Q3 to address certain weaknesses in its capital planning processes.

Source: Federal Reserve

Pre-tax income for all U.S. commercial banks and savings institutions totaled \$221 billion in 2014, representing a 1.6 percent decline from 2013. Most of this decline was attributed to a drop in noninterest income, which in turn was largely driven by a decrease in income from the sale, securitization, and servicing of mortgage loans, as well as an increase in litigation expenses at a few of the largest banks (**Chart 5.3.20**). Net interest income rose by 1.3 percent, primarily due to a decline in interest expense,

and interest-earning assets grew by 6.2 percent. Almost two thirds of commercial banks and savings institutions reported higher earnings in 2014 compared to 2013. Credit quality continues to improve with an associated reduction in loan loss provisions and other expenses. In the past two years, the increase in loan growth has been accompanied by an increase in overall portfolio risk, as evidenced by the rise in RWAs relative to total assets (**Chart 5.3.21**).

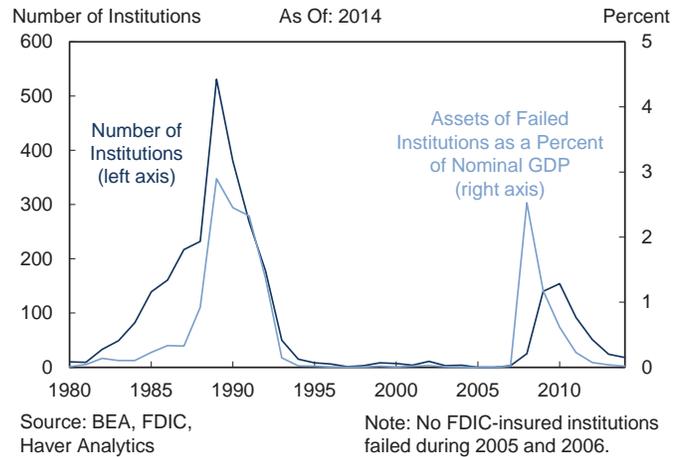
### 5.3.2 U.S. Branches and Agencies of Foreign Banks

Foreign banks have a large presence in the United States. Together, assets of U.S. branches and agencies of foreign banks total \$2.53 trillion. Asset growth in U.S. branches and agencies in 2014 may have been buoyed by a shift in assets from U.S. subsidiaries ahead of the implementation of the U.S. enhanced prudential standards rule, which requires the formation of an intermediate holding company. The enhanced prudential standards rule requires foreign banks with U.S. non-branch assets of \$50 billion or more to form a U.S. intermediate holding company over virtually all of their U.S. subsidiaries, including bank and nonbank subsidiaries.

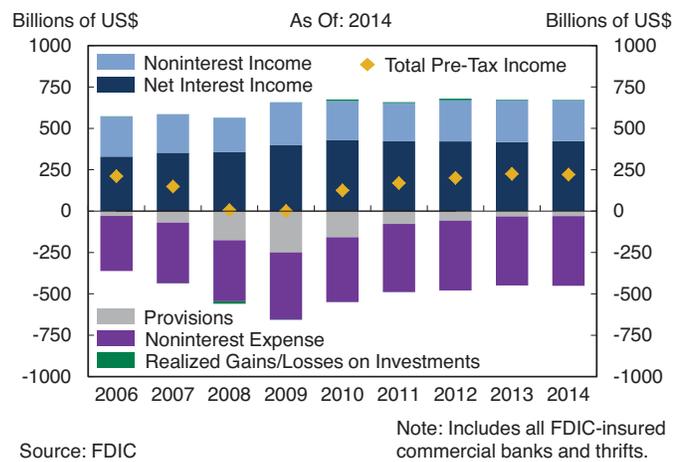
The operations and behavior of U.S. branches and agencies of foreign banks have changed notably since the crisis in response to both U.S. monetary policy and global regulatory developments. Pre-crisis, U.S. branches and agencies of foreign banks, in aggregate, obtained wholesale dollar deposits in the United States and used those deposits to provide dollar funding to their parent organizations and related affiliates, which in turn used the funds for lending and investment.

This trend reversed beginning in 2011. In recent years, dollar inflows to U.S. branches and agencies of foreign banks, in conjunction with an increase in U.S. deposit-taking on the part of these institutions, have funded an accumulation of reserve balances at the Federal Reserve. Safer and highly liquid assets such as cash and cash equivalents now represent the largest asset

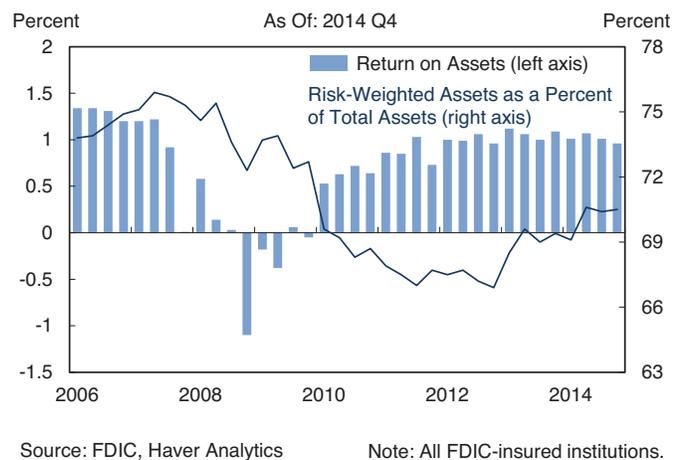
### 5.3.19 FDIC-Insured Failed Institutions



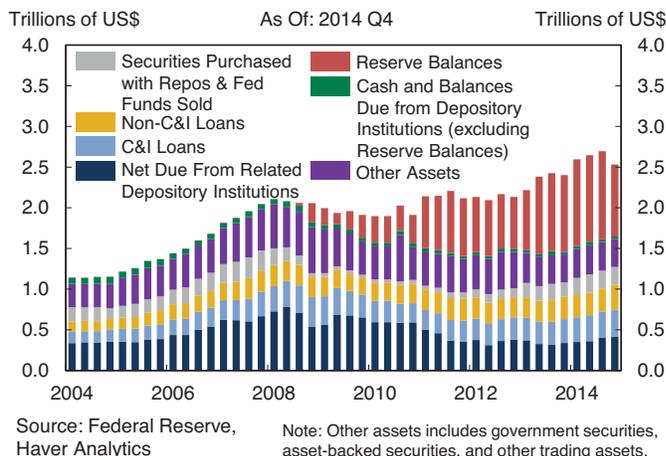
### 5.3.20 Commercial Bank and Thrift Pre-Tax Income



### 5.3.21 Risk-Weighted Assets and Return on Assets



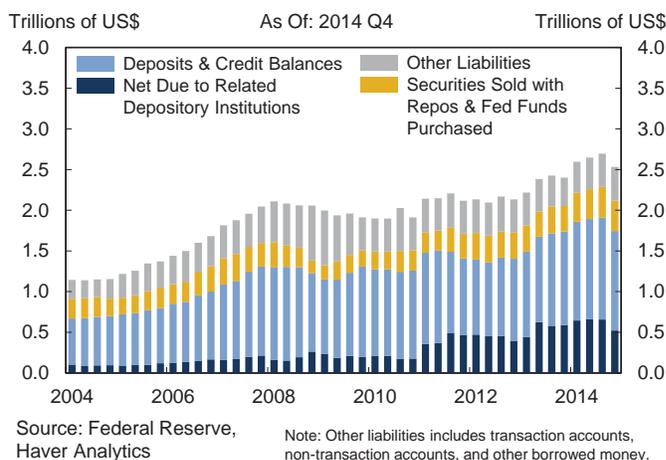
### 5.3.22 U.S. Branches and Agencies of Foreign Banks: Assets



category for foreign branches and agencies (Chart 5.3.22).

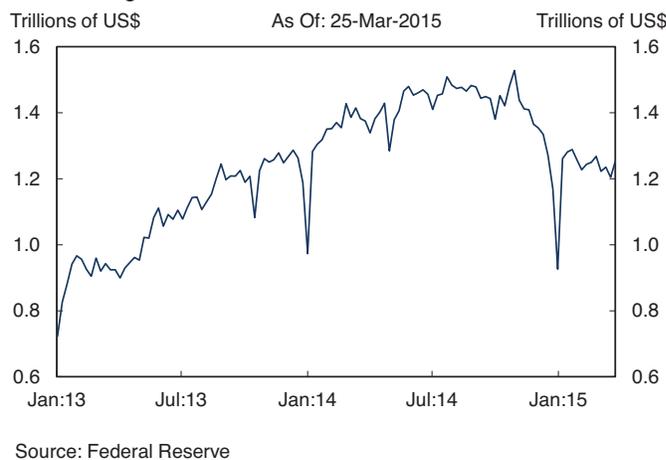
The liability structures of U.S. branches and agencies of foreign banks vary considerably. These U.S. branches lack access to the stable source of funds represented by households' checking, savings, and other transaction accounts, as they are generally not permitted to offer deposits insured by the FDIC. Instead, wholesale funding, particularly CDs issued primarily to institutional investors, provides the majority of funding for these institutions (Chart 5.3.23).

### 5.3.23 U.S. Branches and Agencies of Foreign Banks: Liabilities



Regulatory factors appear to have contributed to aggressive balance sheet management by foreign banks around period-end dates, particularly via reductions of cash balances held (Chart 5.3.24). Unlike the U.S. banking agencies' implementation of the BCBS international leverage ratio requirement, which requires daily averaging of balance sheet amounts, the BCBS version allows for calculation of the international leverage ratio exclusively based on month-end amounts. This creates an incentive for actions to reduce the size of balance sheets at month-ends. The chart suggests the possibility that some FBOs may have been responding to this incentive. Volatility was especially pronounced in the two weeks surrounding year-end 2013 and 2014.

### 5.3.24 Cash Assets of U.S. Branches and Agencies of Foreign Banks



### 5.3.3 Credit Unions

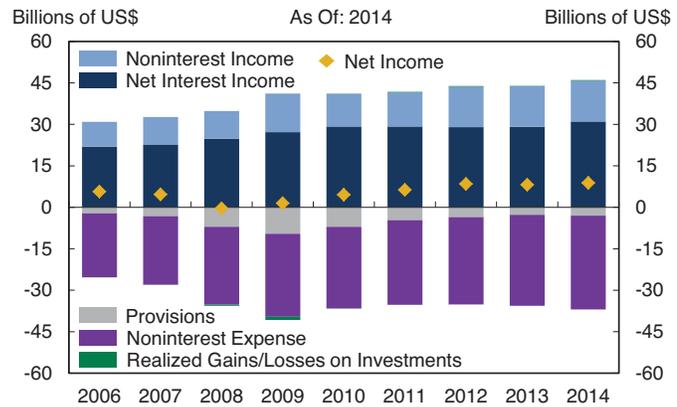
Credit unions are member-owned, not-for-profit depository institutions that face unique challenges in addition to many of those faced by other similarly sized depository institutions. As of the fourth quarter of 2014, there were 6,273 federally insured credit unions with aggregate assets of more than \$1.1 trillion. More than three quarters of credit unions (4,784) had assets of under \$100 million, 1,262 credit unions had assets between \$100 million and \$1 billion, and 227 credit unions had assets over \$1 billion. 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 year-end 2014, there were 14 corporate credit unions with over \$18 billion in assets serving consumer credit unions—a decline from 27 corporate credit unions with \$96 billion in assets in 2007. Consumer credit unions play a role in the financial lives of a sizable number of U.S. households. Data from the Federal Reserve’s Survey of Consumer Finances showed that just over a third of households have some financial affiliation with a credit union, and almost 18 percent of households use credit unions as their primary financial institution. Credit unions account for approximately 12 percent of private consumer installment lending.

Annualized net income at consumer credit unions was just under \$9 billion in 2014 (**Chart 5.3.25**), an increase of 8.0 percent from 2013. The amount of outstanding loans at credit unions increased by 10.4 percent year-over-year during 2014, compared to an increase of 8.0 percent in 2013. The credit union system experienced return on average assets (ROA) of 80 basis points in 2014, a slight increase from 78 basis points in 2013. The modest increase in ROA in 2014 reflected a similarly modest rise in the NIM, which had declined in each of the previous four years. The system-wide NIM rose to 2.84 percent of average assets in 2014 from 2.80 percent in 2013, though it remained 40 basis points below its recent high at year-end 2010. Provisions for loan losses were relatively stable, edging up from 26 basis points as a percent of average assets in 2013 to 28 basis points in 2014, which contrasts sharply with the experience in the early part of the economic recovery. Over the four years ending in 2013, loan loss provisions fell approximately 90 basis points, which contributed to a largely upward trend in ROA over that period.

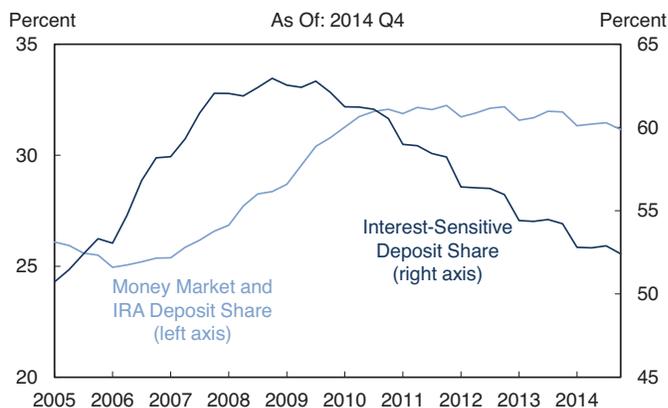
A key concern for the industry is ongoing challenges related to the low interest rate environment and the eventual transition process to a higher rate environment, potentially with a flatter yield curve. Although

### 5.3.25 Federally Insured Credit Union Income



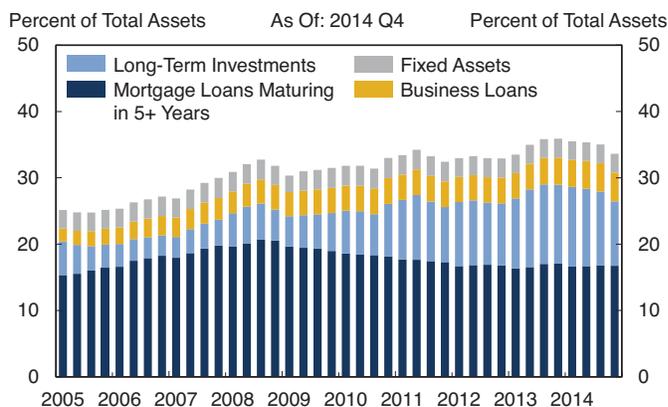
Source: NCUA

### 5.3.26 Credit Union Deposits



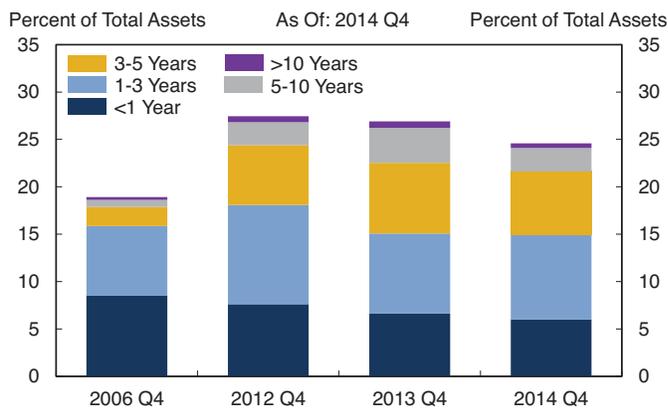
Source: NCUA

### 5.3.27 Credit Union Net Long-Term Assets



Source: NCUA

### 5.3.28 Credit Union Investments by Maturity



Source: NCUA

Note: Investments <1 Year excludes securities with maturities <3 months.

interest-sensitive deposits continue to decline as a share of total liabilities and are nearing pre-crisis levels, the share of money market accounts and IRA deposit accounts remains elevated (Chart 5.3.26). Net long-term assets declined in 2014, but remain high relative to the pre-crisis period (Chart 5.3.27). Like some other financial institutions, some credit unions are reaching for yield by holding relatively high levels of longer-duration assets.

Investments in total trended higher through 2012, rising from under 19 percent of assets in the fourth quarter of 2006 to more than 27 percent in the fourth quarter of 2012. Since then, investments have edged down as a share of assets, at least partly reflecting substitution toward lending as loan demand increased. However, the share of investments with greater than three years' maturity has remained high. After increasing sharply from 3 percent of assets in the fourth quarter of 2006 to nearly 12 percent at the end of 2013, the share retreated to just under 10 percent at the end of 2014 (Chart 5.3.28). The rise in long-term interest rates in 2013 began reducing the market value of these longer-term investments. At the end of 2012, credit unions had an unrealized gain of \$2.8 billion from held-to-maturity and available-for-sale securities. By the end of 2013, this gain had reversed to an unrealized loss of \$2.4 billion, and losses continued through the first three quarters of 2014, before reversing in the fourth quarter of 2014.

In addition to the federally insured credit unions, there are 129 non-federally insured credit unions operating in nine states. These credit unions, which are insured privately and not backed by NCUA share insurance, had \$13.9 billion in combined assets at the end of 2014 and served 1.2 million members. While federal law requires all federally chartered credit unions to be insured through the National Credit Union Share Insurance Fund, these nine states allow state-chartered credit unions to obtain deposit insurance either through the National Credit Union Share Insurance Fund or through a private insurer.

## 5.4 Nonbank Financial Companies

### 5.4.1 Securities Broker-Dealers

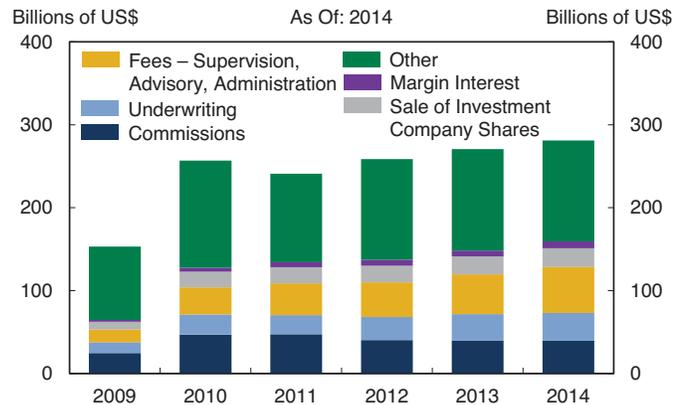
As of December 31, 2014, there were approximately 4,300 securities broker-dealers registered with the SEC. The U.S. broker-dealer sector is relatively concentrated; approximately 60 percent of industry assets were held by the top 10 broker-dealers at year-end 2014. The largest broker-dealers are affiliated with domestic BHCs and foreign banks.

Aggregate revenues across broker-dealers increased 4 percent to \$281 billion, driven largely by a 15 percent increase in supervision, advisory, and administration fees (**Chart 5.4.1**). Notably, underwriting revenue increased 6 percent, reflecting strong issuance activity, while securities commissions fell 1 percent with lower trading volumes.

Assets held within the U.S. broker-dealer industry totaled \$4.5 trillion as of December 31, 2014, well below the peak of \$6.8 trillion in 2007 (**Chart 5.4.2**). Broker-dealer leverage, measured in various ways, has also declined markedly after the crisis. Broker-dealers typically obtain leverage through the use of secured lending arrangements, such as repos and securities lending transactions. Measured as total assets over equity, broker-dealers operated at 18 times leverage in aggregate as of year-end 2014, well below the peak of 36 as of year-end 2007.

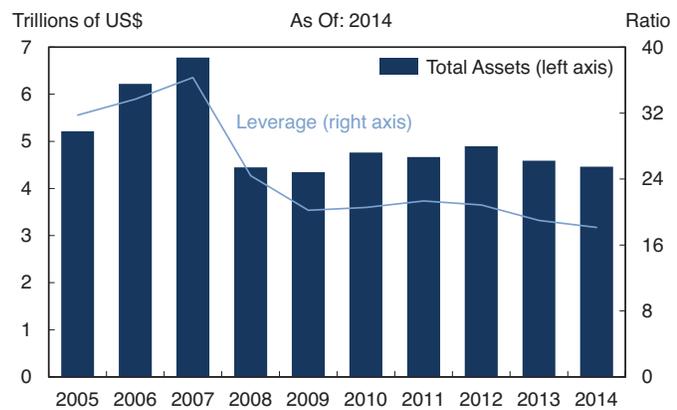
The top 20 broker-dealers compose 75 percent of the total industry assets at year-end 2014. Of these, broker-dealers that are part of U.S. BHCs account for 66 percent of the assets, and broker-dealers that are part of FBOs account for an additional 27 percent. The revenue share of the top 20 broker-dealers is similarly divided between those affiliated with BHCs, FBOs, and other institutions. Since 2010, assets for the BHC-affiliated broker-dealers declined slightly by 1 percent, while assets for FBO-affiliated broker-dealers declined by 22 percent. Non-BHC and non-FBO broker-dealers saw a 46 percent increase in asset size, although on an

### 5.4.1 Broker-Dealer Revenues



Source: FINRA

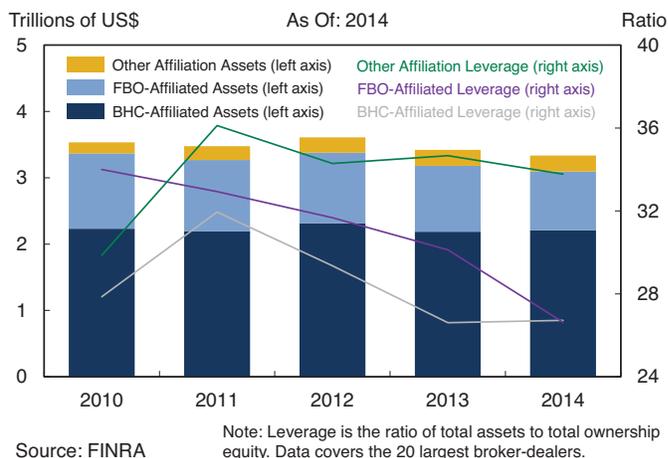
### 5.4.2 Broker-Dealer Assets and Leverage



Source: FINRA

Note: Leverage is the ratio of total assets to total ownership equity.

### 5.4.3 Large Broker-Dealer Assets and Leverage by Affiliation



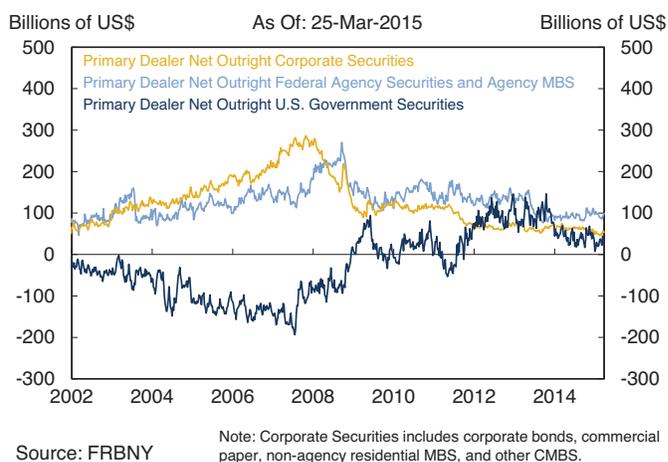
absolute basis the contribution of these broker-dealers to total assets remains small.

Among the three categories of broker-dealers, those affiliated with BHCs have the lowest leverage, followed by those affiliated with FBOs and non-BHC/non-FBO broker-dealers (**Chart 5.4.3**).

Unlike the traditional banking sector model that relies in large part on the use of customer deposits for funding, broker-dealers generally fund themselves through short-term secured financing arrangements. Because of the nature of this as well as lessons learned during the financial crisis, broker-dealers are focused on liquidity risk. A broker-dealer's short-term liabilities are typically supported by a very liquid asset base such as U.S. Treasury securities as well as agency debt and MBS. Less liquid assets such as high-yield debt are typically financed through term-secured financing arrangements, capital, or long-term lending from the parent company.

Post-crisis, primary dealers have adjusted their inventories by decreasing their net (long positions minus short positions) holdings of corporate securities (which includes corporate bonds, CP, non-agency MBS, and other CMBS), and increasing their net holdings of U.S. government securities (**Chart 5.4.4**).

### 5.4.4 Primary Dealer Securities



### 5.4.2 Insurance Companies

The insurance industry provides an array of important financial services to individuals and businesses in the United States. The insurance industry composes a significant part of the U.S. economy—altogether, insurance companies and related businesses added \$421.4 billion to U.S. GDP, or 2.5 percent of the total, in the latest figures for 2013. Gross revenues received by U.S. licensed insurance companies—both life, which includes some accident and health, and property and casualty (P&C)—from premiums and deposits on insurance policies and annuity contracts totaled \$1.2 trillion in 2014.

Balance sheet assets of U.S. licensed P&C and life companies totaled \$8.1 trillion (measured on a statutory accounting basis) at year-end 2014, roughly 8.6 percent of total U.S. credit and equity market assets. Insurers also rank among the largest U.S. financial corporations based on total assets (**Chart 5.4.5**). In comparison to the largest bank and thrift holding companies compiled by the FFIEC for year-end 2014, insurers make up nearly half of the 26 financial firms whose assets exceed \$200 billion, and hold assets of \$4.6 trillion representing 27 percent of the total assets of these firms. The largest 10 publicly traded insurance-based corporations held 70 percent of total consolidated assets for all such firms at year-end 2014.

The insurance industry, taken as a whole, was profitable and solvent in 2014. Profitability, as measured by net income in 2014, was \$65 billion in the P&C sector and \$38 billion in the life sector, resulting in total industry profits of \$102.4 billion (**Chart 5.4.6**). Net income for both sectors fell from record highs observed in 2013, but remained above average levels over the past decade. The P&C sector benefited from strong underwriting revenue, led by growth in premiums. In the life sector, premiums and investment income remained strong and increased slightly from 2013, but these increases were more than offset by increases in surrenders and aggregate reserves.

The current low interest rate environment is often cited as a challenge to the profitability of the insurance industry, especially life insurers, but the decline in the net yield on invested assets of insurers has been gradual and not as large as changes in market interest rates (**Chart 5.4.7**). Similarly, the low level of interest rates is often cited as a factor driving insurer investments towards longer duration and higher credit risk.

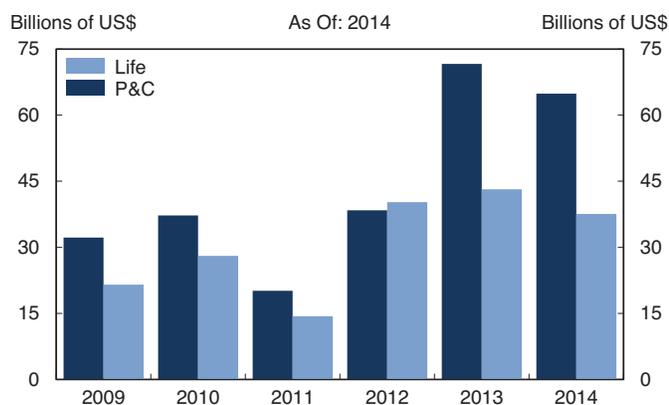
#### 5.4.5 Select U.S. Financial Holding Companies and Insurers

| Name                    | Total Assets  | Name                | Total Assets |
|-------------------------|---------------|---------------------|--------------|
| JPMorgan Chase          | 2,572,773,000 | PNC                 | 345,243,081  |
| Bank of America         | 2,106,796,000 | Capital One         | 309,083,481  |
| Citigroup Inc.          | 1,842,181,000 | HSBC North America  | 290,100,702  |
| Wells Fargo             | 1,687,155,000 | State Street        | 274,119,072  |
| MetLife                 | 902,337,000   | TIAA-CREF           | 272,073,395  |
| Goldman Sachs           | 856,301,000   | New York Life       | 265,555,200  |
| Morgan Stanley          | 801,510,000   | Lincoln             | 253,377,000  |
| Prudential Financial    | 766,655,000   | TD Bank             | 248,144,842  |
| Berkshire Hathaway      | 526,186,000   | Hartford            | 245,013,000  |
| AIG                     | 515,581,000   | Northwestern Mutual | 230,089,502  |
| GE Capital              | 508,255,287   | Voya                | 226,951,400  |
| U.S. Bancorp            | 402,529,000   | Principal           | 219,087,000  |
| Bank of New York Mellon | 385,303,000   | MassMutual          | 209,136,072  |

Note: Thousands of U.S. dollars. Data as of 2014 Q4. GAAP and SAP accounting. Insurers listed in blue. Entity classifications correspond to those used by the National Information Center and SNL Financial. Asset levels correspond to consolidated financial reporting.

Source: National Information Center, SNL Financial

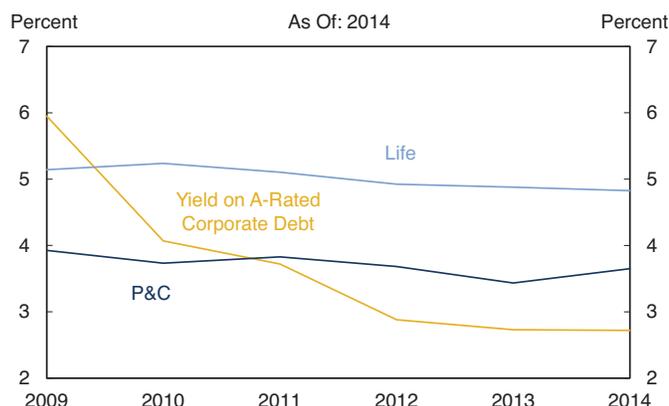
#### 5.4.6 Insurance Industry Net Income



Source: SNL Financial

Note: Life includes accident and health.

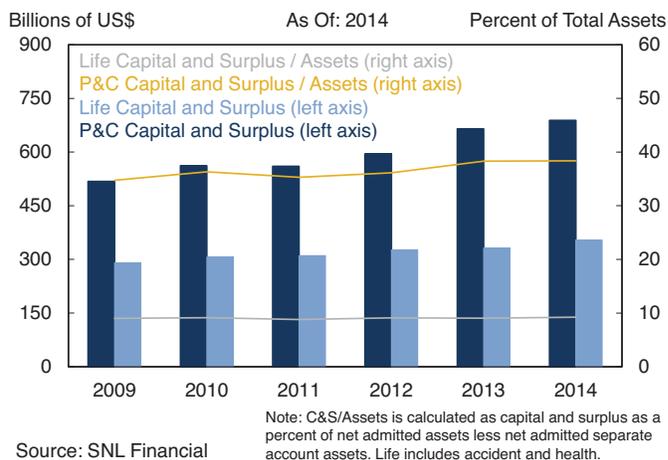
#### 5.4.7 Net Yield on Invested Assets



Source: SNL Financial, Bank of America Merrill Lynch

Note: Life includes accident and health.

## 5.4.8 Insurance Industry Capital and Surplus



Leverage in the life insurance sector, as measured by the ratio of capital to assets, has remained close to 9 percent over the past five years (**Chart 5.4.8**). The P&C sector operates with far less leverage, because the core P&C business model faces greater risks from unexpected losses and it focuses more on earning premium income from underwriting insurable risks rather than from investment income. The capital-asset ratio in the P&C sector increased from 35 to 38 percent over the period.

The use of captive reinsurers in the life insurance industry is motivated by several possible factors including tax benefits and relief from statutory reserve requirements. Captives add complexity and impact the potential resolvability of certain life insurance companies. Moreover, at least for purposes of insurance regulatory accounting, captives can reduce clarity about the financial condition of such companies. Regulators and rating agencies have noted that the broad use of captive reinsurance by life insurers may result in regulatory capital ratios that potentially understate risk. Efforts to address these concerns with regulatory reforms are ongoing (**see Section 6**).

### Pension Risk Transfers

An important development in the life insurance market has been the transfer of pension risk by corporate-sponsored pension plans to insurance companies and derivatives markets. The largest and most noticeable transactions were the deals by General Motors and Verizon in 2012, worth a combined \$33 billion, that moved pension plan assets and obligations to Prudential Financial. More recently, in July 2014, British Telecom and Prudential Financial entered into a longevity reinsurance transaction valued at approximately \$28 billion. Aside from those very large transactions, underlying growth continues in the market, and recent developments such as the creation of a longevity index to structure longevity derivatives may boost that growth rate.

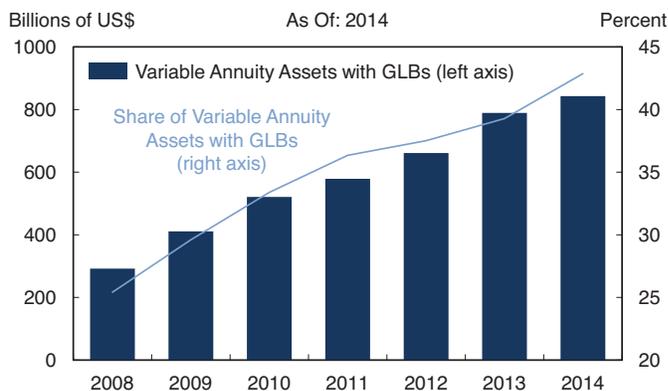
Pension risk transfer is conducted through three types of transactions. The most familiar, though not the largest, is a “buyout” deal in which the pension plan sponsor shifts all of the assets and obligations to a life insurer through the purchase of a group annuity. In cases where plans are under-funded, the pension sponsor makes a payment to the life insurer to augment the transferred assets in order for the transaction to be profitable for the life insurer. Another type of pension risk transfer is a “buy-in” transaction in which the pension plan retains the assets and obligations to beneficiaries but reduces its risks of its ability to meet these obligations by purchasing insurance from a life insurer against the variability of longevity and funding costs. This is sometimes structured using reinsurance through the use of a captive insurer. The third and largest type of risk transfer is conducted through longevity swaps. These derivatives help manage the longevity risk of meeting obligations to beneficiaries by allowing the pension plan to make fixed payments in exchange for a series of payments that vary according to how much longevity exceeds a targeted or indexed rate. The counterparties to this class of derivatives include some of the large derivatives dealers and insurance companies.

The potential consequences of pension risk transfers include the growth in the number of counterparties as well as changes in the type and amount of financial counterparty risk arising from the risk shifting transactions. In the case of buyouts, the beneficiaries have their credit exposure shifted from the pension plan to the life insurer. Accordingly, the backstop for pension plans switches from the Pension Benefit Guaranty Corporation to the state insurance guaranty funds. In the case of longevity swaps, the counterparty risk is like that of other derivatives and resides with the dealer or insurer.

### **Guaranteed Living Benefits**

Since 2003, the life insurance industry has sold a large amount of life insurance products that contain minimum financial guarantees. One of

### 5.4.9 Variable Annuities with Guaranteed Living Benefits



Source: LIMRA

Note: Data is based on a survey of domestic insurance companies.

the most common of these products is a variable annuity contract combined with guaranteed living benefits (GLBs). These products contain embedded derivatives related to interest rate and equity market movements.

Between 2009 and 2013, sales of individual variable annuities with GLBs averaged \$83 billion annually compared to total variable annuity average annual sales of \$111 billion—not including allocations to fixed accounts. Moreover, as of the end of 2014, the estimated total outstanding account value of all variable annuities with GLBs exceeds \$800 billion (Chart 5.4.9). In addition to variable annuities with GLBs, fixed indexed annuities, which link investment returns to stock market indexes, are another life insurance product with minimum financial guarantees. More than two thirds of the fast-growing fixed indexed annuity market includes sales with GLBs. As of year-end 2014, the aggregate account value of fixed indexed annuities with GLBs was \$112 billion—approximately half the account value of all outstanding fixed annuities.

GLBs are riders to the base annuity contract to provide minimum financial guarantees on investment returns or withdrawal benefits. GLBs offer the policyholder the potential for market gains while providing protection against some of the downside risk from market volatility. A common feature of GLBs allows the benefit base to appreciate in a ratchet-like manner with increases in the market value of linked security prices. Another type of rider guarantees a minimum return on invested assets during the savings or accumulation phase of the policy, and yet another guarantees a minimum rate of withdrawal from the account.

These riders represent intermediate- to long-term guarantees against unfavorable fluctuations in securities markets rather than insurable events such as death, longevity, or morbidity. Financial guarantees and the manner in which the associated risks are managed are more complex than for traditional life insurance and fixed annuity

products. Insurers have many decades of experience in managing the interest rate risk arising from fixed income assets and conventional life insurance and annuity product liabilities. Yet by comparison, exposure to equity price fluctuations in life insurance and annuity product liabilities is relatively new for life insurers.

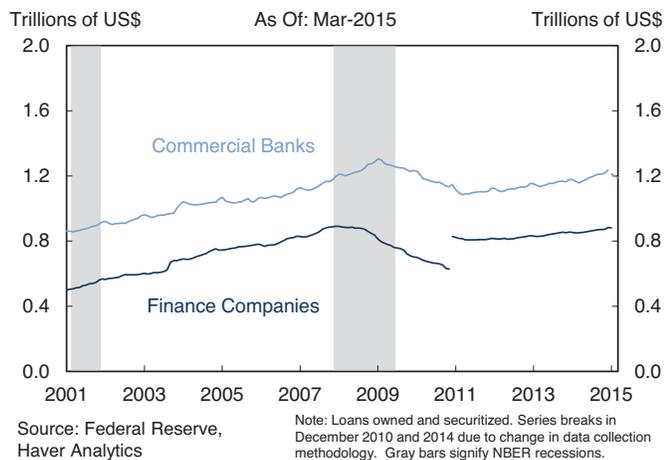
Like other financial firms, life insurers have developed sophisticated risk management programs to hedge the combined risks from interest rate and equity price fluctuations and the optionality embedded in the various financial guarantees through the use of derivatives. Using available data for five of the largest ten writers of variable annuities with GLBs, aggregate gross notional amounts of outstanding derivatives contracts grew from \$132 billion in 2003 to over \$1,139 billion as of year-end 2014. The reforms being implemented as a result of Title VII of the Dodd-Frank Act will help improve transparency and mitigate the counterparty risks arising from the use of derivatives associated with hedging of GLB market risks.

Following the financial crisis, several carriers exited the market for GLBs, and the remaining carriers have taken a range of actions to reduce risk arising from both new and in-force business. Although these actions have significantly reduced balance sheet exposures, GLBs continue to present meaningful financial risks.

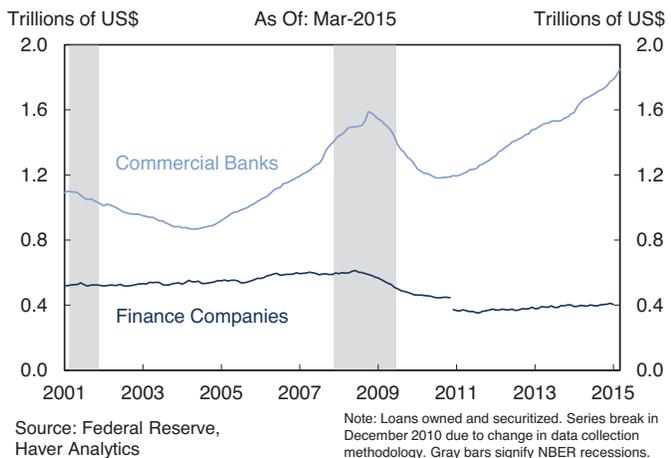
### 5.4.3 Specialty Finance Companies

Credit activity in the specialty-lending sector continued to expand moderately in 2014, yet still remains below pre-crisis levels in both consumer and business lending. Overall, specialty finance companies owned approximately \$881 billion of consumer loans and \$404 billion of business loans as of January 2015 (Charts 5.4.10, 5.4.11). Finance companies' ownership of real estate loans further declined, however, to \$147 billion in early 2015, and remains considerably lower than the pre-crisis peak of \$612 billion.

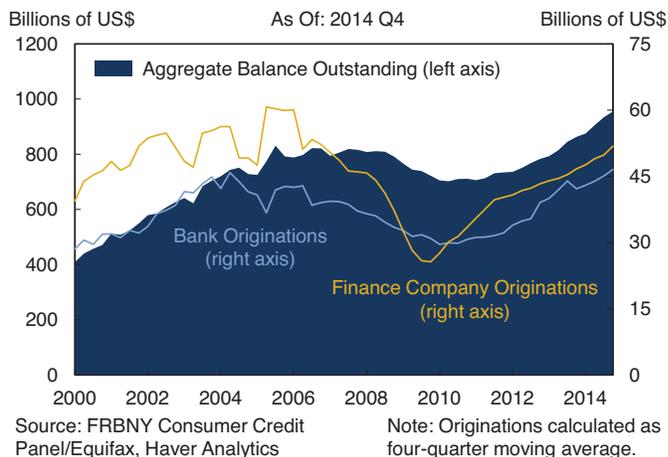
#### 5.4.10 Consumer Loans Outstanding



#### 5.4.11 Business Loans Outstanding



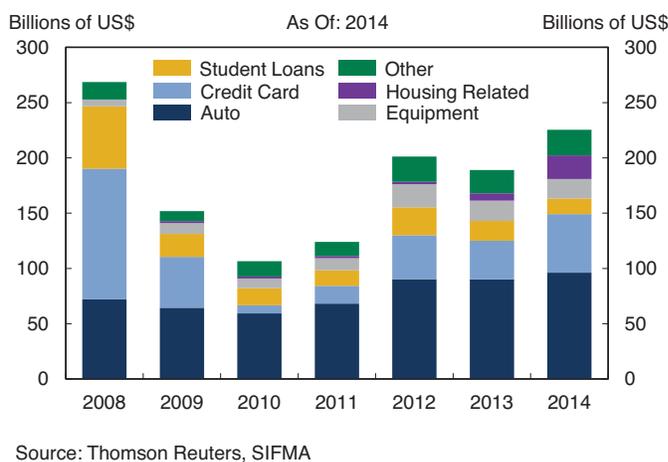
### 5.4.12 Auto Loans Outstanding and Originations by Type



Although the growth in credit held by specialty finance companies is much less than banks, specialty finance companies are gaining importance in certain types of origination. This trend is evident in growing rates of mortgage origination; from 2010 to 2014, the ten largest nonbank mortgage originators increased their market share from 11 percent to nearly 20 percent. Many of these firms have only recently entered the business.

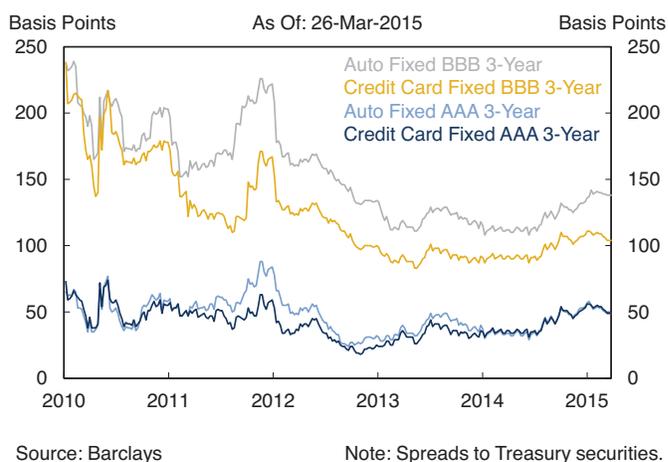
Auto credit expanded at a brisk pace through the end of 2014, with continued strong growth in subprime loans. The share of automobile loans originated by finance companies remained stable at 53 percent (Chart 5.4.12). Specialty finance companies also continue to be the main originator of subprime auto loans, originating 72 percent of these loans in the fourth quarter of 2014.

### 5.4.13 ABS Issuance



Given the absence of a deposit base, specialty finance companies rely heavily on securitization. The private securitization market has been highly supportive of growth in the specialty finance company sector, with overall issuance volume increasing 19 percent to \$225 billion in 2014 (Chart 5.4.13). Much of the growth is attributed to increases in issuance of housing-related ABS—which does not include MBS—and credit card ABS. Issuance of auto loan ABS increased 7 percent in 2014, as well, with subprime securitizations continuing to compose a larger share of total issuance. The recent growth in subprime auto loan securitizations has brought the amount of these ABS outstanding to levels last observed in 2007. Meanwhile, student loan ABS issuance has continued to decline, reaching \$14.1 billion in 2014, well below its 2006 peak of \$67.1 billion. Senior credit spreads on credit card and auto ABS relative to Treasury securities have widened since the start of 2014, consistent with the rise in risk premia across credit markets in general (Chart 5.4.14).

### 5.4.14 Selected ABS Spreads



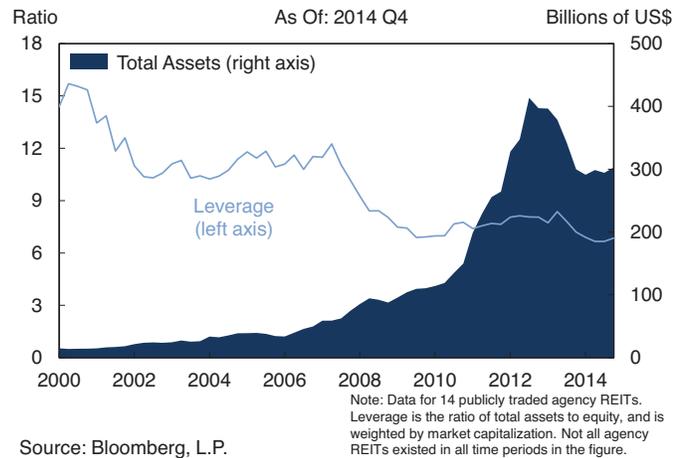
#### 5.4.4 Agency REITs

After declining by roughly 25 percent in 2013, agency REIT assets stabilized in 2014 at about \$300 billion (Chart 5.4.15). Leverage in the industry, as measured by the ratio of assets to equity, remained roughly flat at about 7, which is significantly lower than the average of 11 observed in the mid-2000s, when both the number of firms and total industry assets were much smaller than their current levels.

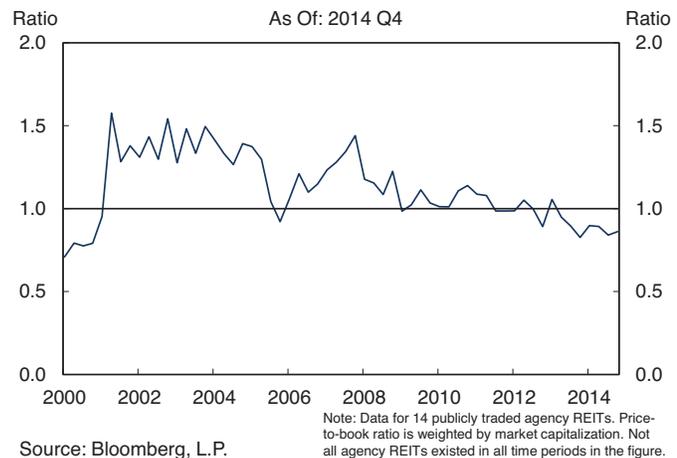
Share prices of agency REITs largely rose in 2014, though the industry price-to-book ratio remains below one (Chart 5.4.16), which generally discourages issuance of new equity, as agency REITs are incentivized to sell MBS and use the proceeds to repurchase their discounted shares. While MBS portfolio growth would therefore require increased leverage, agency REITs have instead continued to pare back their leverage, in part due to expectations that MBS spreads may widen in the future. Many large agency REITs have also taken steps to shorten the durations of their portfolios by acquiring shorter-dated MBS, adjustable-rate mortgages, and CRE assets. This shortened duration, along with an increase in overall hedging activity, may improve agency REITs' resilience to the consequences of any potential interest rate volatility moving forward.

Heavy reliance upon short-term borrowing in the repo market exposes agency REITs to rollover risk—the risk that lenders will provide new funding on less attractive terms or cease to provide funding at all. But as these entities have continued to deleverage, funding accessibility has remained stable. Some agency REITs have taken further steps to reduce their rollover risk by seeking greater diversity in both the sources and the types of funding that they utilize, such as Federal Home Loan Bank (FHLB) borrowings. Deterioration of funding conditions could occur, however, if agency REITs were to undertake broad changes in their risk profiles, or if unrelated dislocations in repo markets prompted lenders to pull back from their funding commitments.

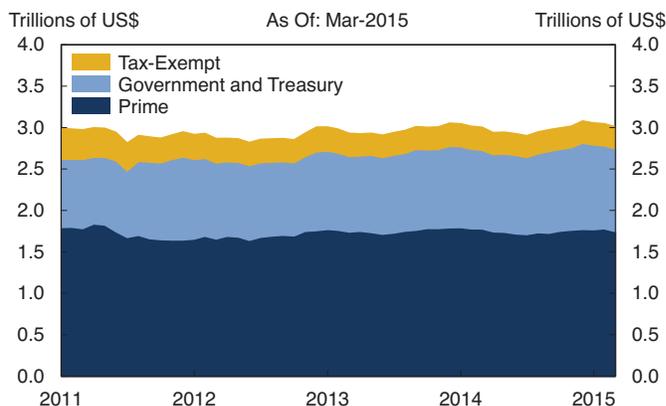
#### 5.4.15 Agency REIT Assets and Leverage



#### 5.4.16 Agency REIT Price-to-Book Ratio

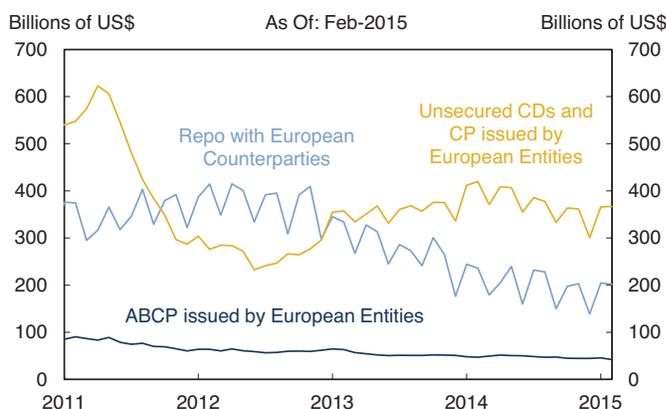


### 5.5.1 MMF Assets by Fund Type



Source: SEC

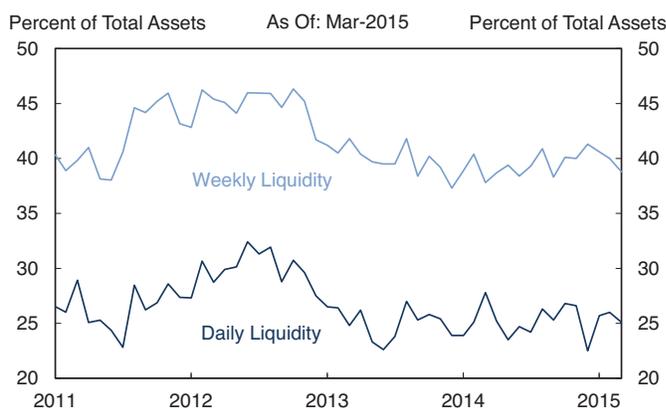
### 5.5.2 U.S. MMF Holdings of European Entities' CP, CD, and Repos



Source: SEC Form N-MFP filings, OFR calculations

Note: Assets valued at amortized cost.

### 5.5.3 Liquidity of Prime MMFs



Source: SEC

Note: Weighted by fund size.

## 5.5 Investment Funds

### 5.5.1 Money Market Mutual Funds

MMFs held \$3.0 trillion of assets as of March 2015, practically unchanged from the previous year. Over half of these assets (\$1.7 trillion) are held by prime MMFs, and about one third (\$1.0 trillion) by government and Treasury MMFs (Chart 5.5.1), with the balance held by tax-exempt funds.

MMFs are major participants in the Federal Reserve's ON RRP and term RRP operational exercises (see Section 5.2.2). MMFs have significantly increased their participation in the exercises as the Federal Reserve increased participation limits as part of the evolution of the exercise.

U.S. prime MMFs' unsecured exposures to the euro area have remained stable (Chart 5.5.2). Prime MMFs continue to have small direct exposure to peripheral euro area institutions.

A trend towards consolidation in MMFs continues. As of March 2015, there were 542 MMFs, down from 559 at the same point in 2014. With short-term interest rates near zero, many MMFs have waived their management fees to keep net yields positive and retain their investor base, while some fund sponsors have exited the business.

In July 2014, the SEC adopted new money market reforms, which will require a floating NAV for institutional prime and institutional tax-exempt MMFs, allowing the daily share prices of these funds to fluctuate along with changes in the market-based value of fund assets. The reforms also allow for liquidity fees and redemption gates in non-government MMFs and are intended to mitigate the risk of runs in prime and tax-exempt MMFs. As a response to these reforms, MMF providers are considering different options for funds they manage, including converting prime MMFs into government MMFs.

Prime MMFs' daily liquidity hovered around 25 percent of assets in 2014 and early 2015, significantly higher than the 10 percent minimum required by SEC rules. Weekly liquidity was steady at around 40 percent of assets, also higher than the 30 percent minimum required by the SEC (**Chart 5.5.3**).

The weighted-average life of all MMFs increased slightly over the past 12 months, from 72 days to 75 days, but fell slightly for prime funds, from 80 days to 78 days (**Chart 5.5.4**).

### 5.5.2 Mutual Funds

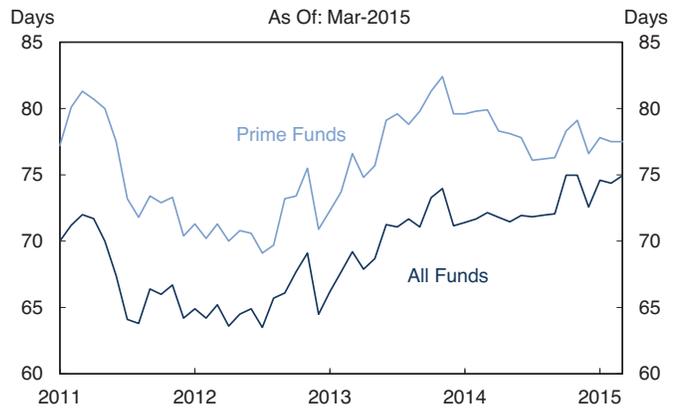
Assets under management (AUM) of U.S. mutual funds and other investment companies have grown from approximately \$1 trillion in 1990 to \$18 trillion in December 2014 (**Chart 5.5.5**). Long-term (equity and bond/hybrid) mutual funds, with assets of over \$13 trillion, represented 72 percent of total AUM as of December 2014, which is unchanged from December 2013.

Flows into bond and equity funds slowed considerably in the second half of 2014 (**Charts 5.5.6, 5.5.7**), amid a weaker outlook for the global economy and rising geopolitical risks, but remained positive for the year as a whole.

Bank loan mutual funds, which primarily invest in lower-rated bank loans with floating interest rates, had net outflows of \$21 billion in 2014, compared to inflows of \$62 billion in 2013 (**Chart 5.5.8**). Despite idiosyncratic concerns about the financial condition of some state and local finances, \$28 billion flowed into tax-exempt bond funds in 2014, compared to outflows of \$58 billion in 2013.

Alternative mutual funds, which include long-short, market neutral and inverse strategies, continued to grow fairly rapidly from a small base, with inflows of \$17 billion in 2014, down from \$40 billion in 2013 (**Chart 5.5.9**).

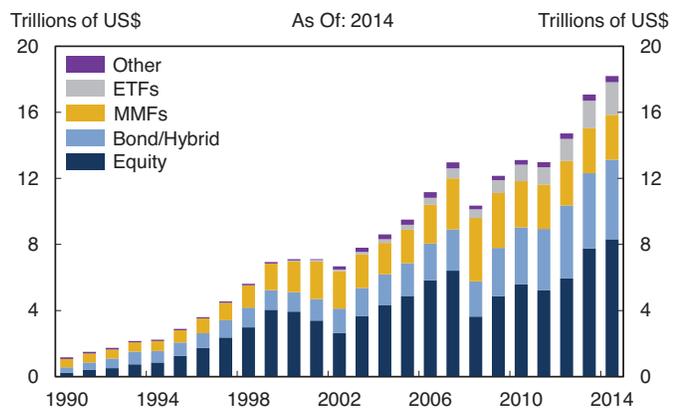
### 5.5.4 Weighted-Average Life of MMFs



Source: SEC

Note: Weighted by fund size.

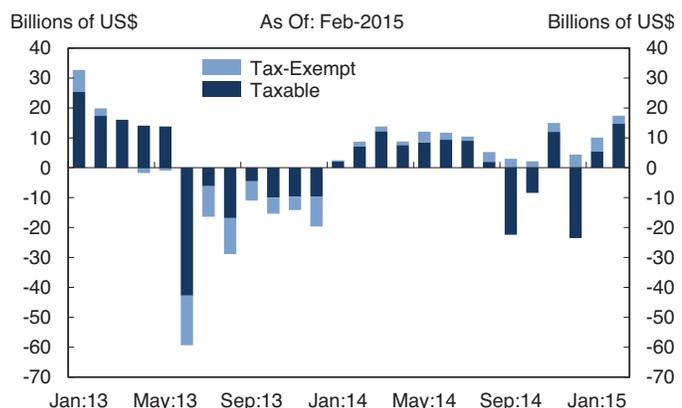
### 5.5.5 Net Assets of the Investment Company Industry



Source: ICI, Haver Analytics

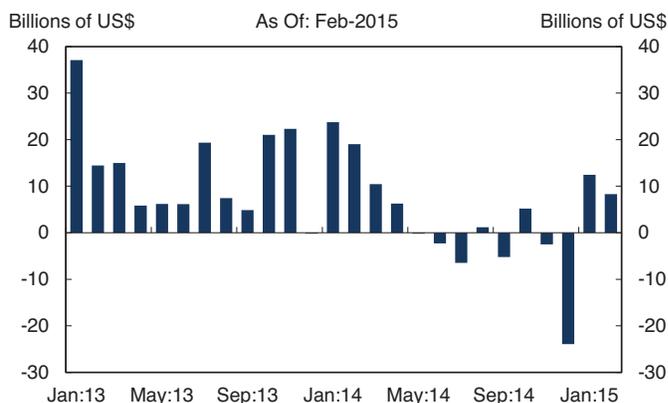
Note: Other is composed of unit investment trusts and closed-end funds.

### 5.5.6 Monthly Bond Mutual Fund Flows



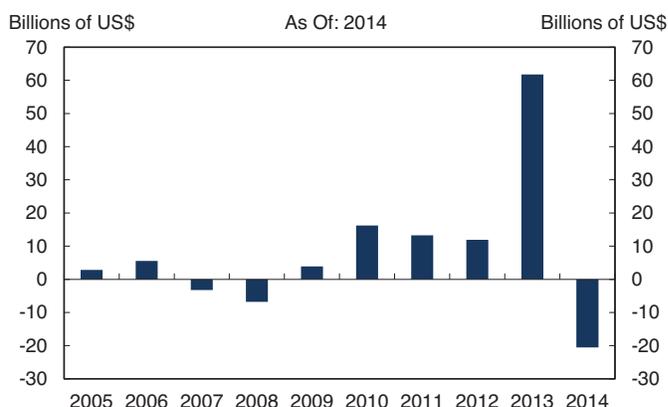
Source: ICI, Haver Analytics

### 5.5.7 Monthly Equity Mutual Fund Flows



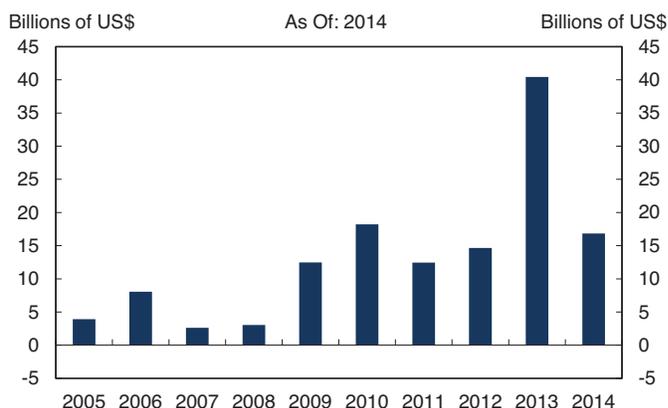
Source: ICI, Haver Analytics

### 5.5.8 Bank Loan Mutual Funds: Annual Flows



Source: Morningstar, Inc.

### 5.5.9 Alternative Mutual Funds: Annual Flows



Source: Morningstar, Inc.

Investors of equity funds continued to gravitate toward passive, index-based investment products. Index mutual funds and exchange-traded funds (ETFs) now represent 39 percent of U.S. equity fund AUM compared to 27 percent in 2009. Over the past 12 months, inflows into U.S. equity index funds were \$178 billion while active outflows were \$138 billion, resulting in a net inflow of \$40 billion (Chart 5.5.10).

### 5.5.3 Pension Funds

As of the third quarter of 2014, the combined AUM of private and public pensions, including federal pensions and defined contribution plans, was approximately \$24.8 trillion (Chart 5.5.11).

### Corporate Plans

Corporate defined benefit funded status—the estimated share of fund liabilities covered by current assets—deteriorated in 2014 (Chart 5.5.12). One estimate of the funded status of the 100 largest corporate pension plans fell to 81.7 percent in December 2014, a decline of 6.0 percentage points from the previous year. The lower aggregate corporate funded status resulted in part from the significant decrease in the corporate pension liability discount rate over the course of 2014. Corporate pension discount rates, which are used to value pension liabilities, declined in tandem with the decrease in longer-term Treasury yields. Higher investment returns in equities and alternative assets failed to keep pace with the growth in pension liabilities.

As of the end of 2014, new mortality assumptions reflecting increases in life expectancy were incorporated by some pension funds, resulting in higher liabilities. Pension funds can obtain relief via risk transfer mechanisms such as longevity swaps, annuities purchased from insurance companies, and buyout or buy-in options. However, industry analysis indicates an increase of about 3.4 percent in liabilities when new mortality assumptions are incorporated.

## Public Plans

Preliminary estimates of the aggregate funded ratio of U.S. public pension plans rose to 80 percent as of June 30, 2014. Assets in public plans grew by 13.7 percent driven by strong equity and fixed income performance. Of note, public pension funds generally use a different set of accounting rules than private pension funds, which could overstate funded status. Indeed, industry analysis of liabilities recalibrated to reflect similar methods used by private pension funds shows liabilities to be approximately 3.8 percent higher than those reported by plan sponsors for 2014.

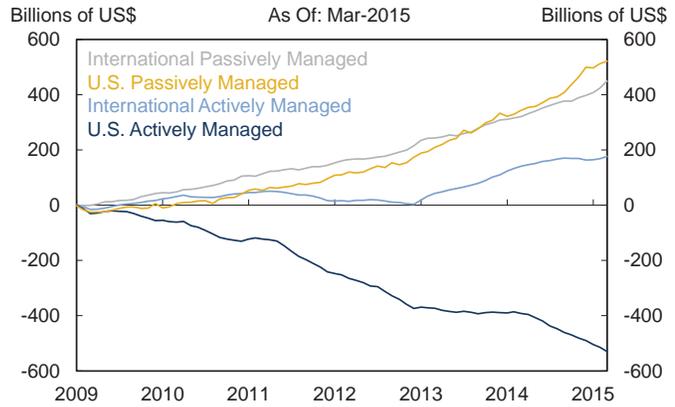
Several localities and states, such as Puerto Rico, Detroit, Chicago, Connecticut, and Illinois continue to face low levels of pension funding as efforts to strengthen retirement plans faltered amid a persistently low interest rate environment. States, municipalities, and territories may face important constraints in improving strained fiscal conditions while addressing pension funding shortfalls.

### 5.5.4 Hedge Funds

Hedge fund industry assets grew 8 percent in 2014 to an estimated \$2.9 trillion, according to industry research. The growth in assets was driven by \$140 billion in investment returns and net inflows of \$76 billion in 2014. Unlike in previous years when the large majority of net inflows were received by the largest hedge funds, roughly half of all net inflows in 2014 were received by funds with less than \$5 billion in assets. Assets managed by funds of hedge funds increased modestly in 2014, as investment returns exceeded the net capital outflows from this vehicle. Despite the bump in AUM, these funds-of-funds nonetheless experienced net capital outflows for the seventh straight year in 2014.

Form PF data indicates that the use of financial leverage by hedge funds was little changed during 2014. In the Federal Reserve's Senior Credit Officer Opinion Surveys on Dealer Financing Terms, about one fifth of the respondents to the December 2014

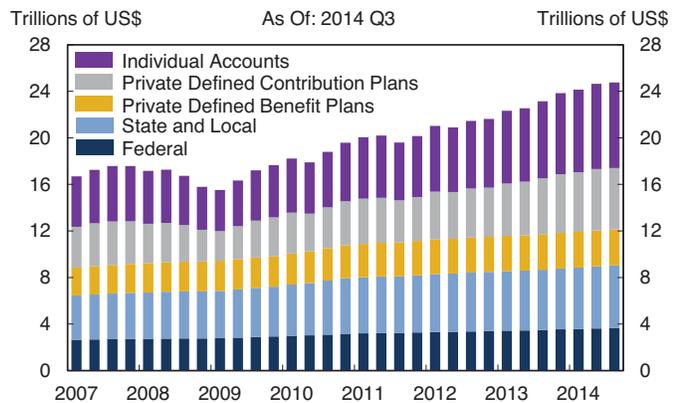
### 5.5.10 Cumulative Equity Fund Flows



Source: Morningstar, Inc.

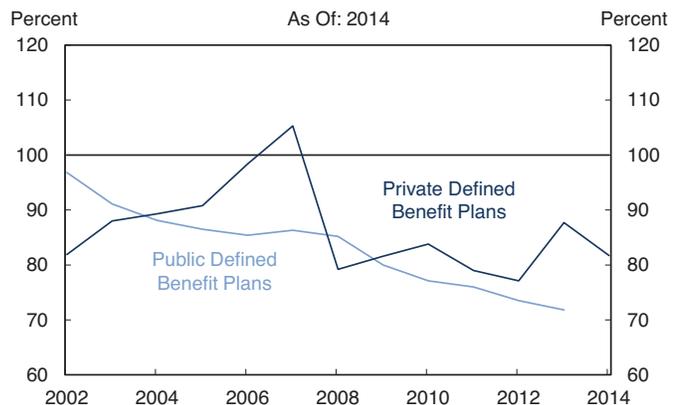
Note: Includes ETFs and mutual funds.

### 5.5.11 Retirement Fund Assets by Plan Type



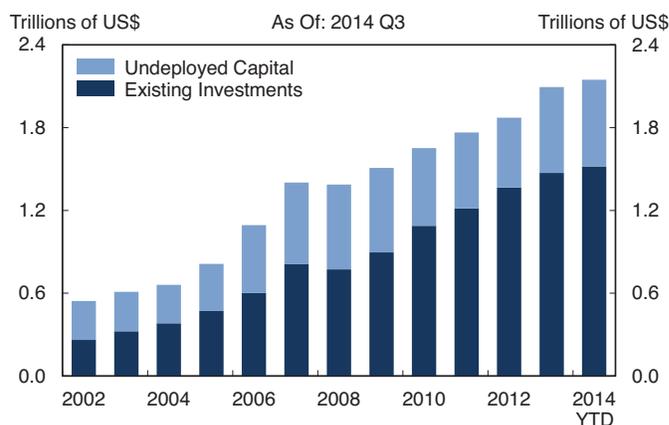
Source: Financial Accounts of the United States, Haver Analytics

### 5.5.12 Public and Private Pension Funding Levels



Source: Public Fund Survey, Milliman 2015 Pension Funding Study

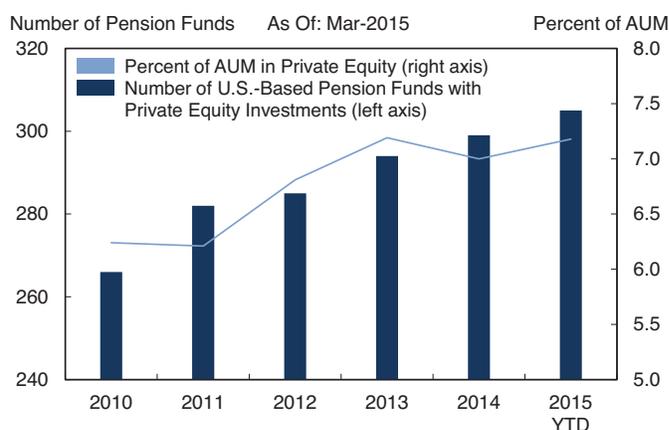
### 5.5.13 U.S. Private Equity AUM



Source: Preqin

survey indicated that the price terms, such as financing rates, offered to hedge funds for securities financing and OTC derivatives transactions tightened during the quarter. The most cited reason was the diminished availability of balance sheet or capital from bank counterparts. Market participants have suggested that enhanced capital regulations, notably the SLR, have made it more difficult and more expensive for hedge funds to finance their positions as dealers have deemphasized low return on equity businesses such as repo financing.

### 5.5.14 Pension Investment in Private Equity



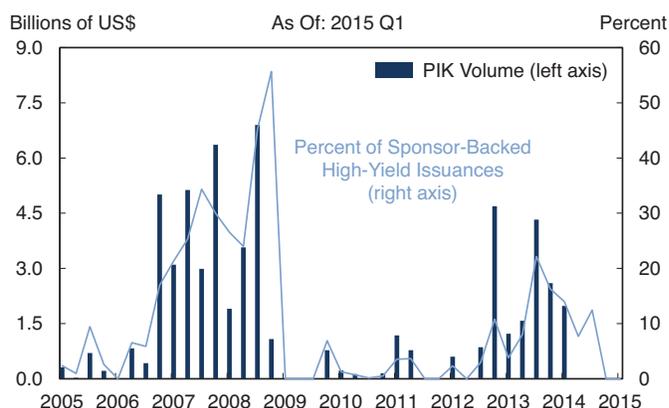
Source: Preqin

### 5.5.5 Private Equity

Private equity AUM for U.S.-focused funds increased by \$53 billion to \$2.15 trillion as of the third quarter of 2014 (**Chart 5.5.13**). Existing investments climbed 3 percent year-to-date to \$1.52 trillion, while undeployed capital remained relatively flat at \$628 billion over this period.

The growth in private equity investments has been attributed, in part, to increased participation by public pension funds. The number of U.S.-based pension funds with private equity exposure increased from 294 at year-end 2013 to 305 in 2015 year-to-date, with the average pension fund allocating 7.2 percent of assets to private equity, slightly higher than last year's share (**Chart 5.5.14**).

### 5.5.15 Sponsor-Backed Payment-in-Kind Bonds



Source: S&P LCD

Sponsor-backed high-yield bond issuance declined to \$59 billion over the past 12 months, the lowest level since 2009, as leveraged buyout activity was relatively limited during this period. Of note, the ratio of debt to gross earnings on leveraged loan deals is at its highest level since 2007 and is near the upper end of bank regulator guidance on leveraged lending. The issuance of sponsor-backed payment-in-kind (PIK) bonds, which are financing vehicles used by private equity firms that are typically viewed as highly risky for investors, declined to about \$3.6 billion, with no issuance in the past two quarters (**Chart 5.5.15**). PIK issuance accounted for 6 percent of all sponsor-backed high-yield issuance over this period.

### 5.5.6 Exchange-Traded Products

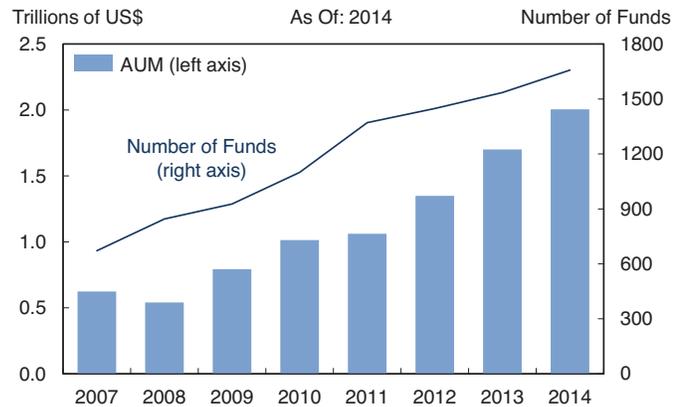
ETPs include 1940 Act registered ETFs, non-1940 Act registered ETPs (e.g., those that primarily hold commodities or physical metals), and exchange-traded notes. U.S.-listed ETPs continued to grow at a faster pace than other types of investment vehicles, with AUM over \$2 trillion, an 18 percent increase from the previous year (Chart 5.5.16). ETPs now make up roughly 15 percent of all long-term public funds, with mutual funds composing almost all the remaining 85 percent. Both equity and fixed income ETPs experienced similar rates of asset growth.

ETP flows and performance tended to mirror that of their underlying assets; for example, popular ETP themes in 2014 included demand for domestic equity exposure and a continued preference for dividend or income yield. Amid central bank accommodation and recent currency fluctuations, those internationally focused ETPs that hedge out currency risk have become increasingly popular among investors. Finally, with much of the index landscape already covered by existing ETPs, new products have focused on tracking more exotic indices or engaging in active management. Notably, the SEC approved a structure that is a hybrid between an ETF and a mutual fund.

## 5.6 OTC Derivatives Markets

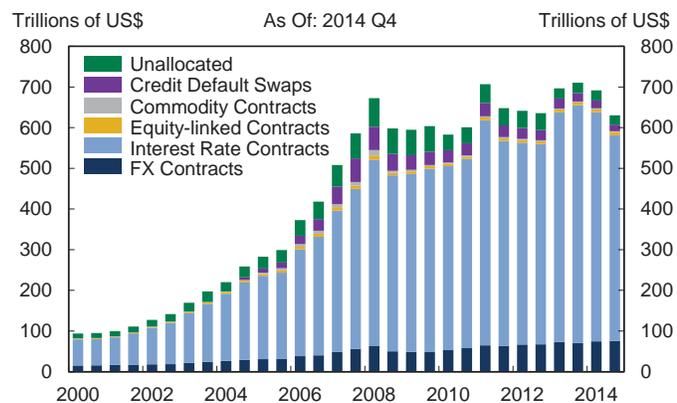
Globally, Bank for International Settlements (BIS) data shows that the notional amount of outstanding OTC derivatives declined in 2014 to an estimated \$630 trillion, but remains well above levels seen in the mid-2000s (Chart 5.6.1). Nearly half of these derivatives are booked in U.S. institutions, which must report their transaction data to SDRs regulated by the CFTC.

### 5.5.16 U.S.-Listed ETP AUM and Count



Source: Morningstar, Inc.

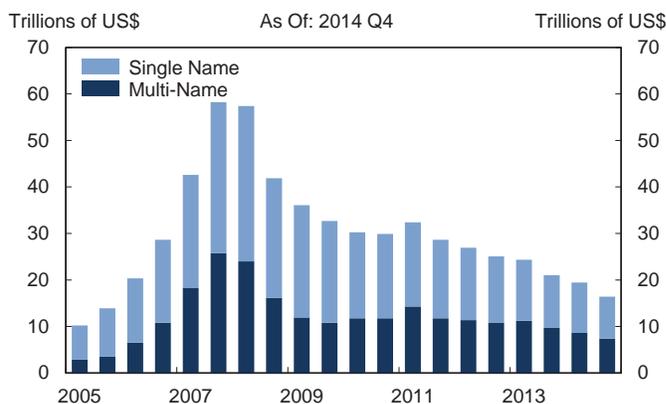
### 5.6.1 Global OTC Derivatives Market



Source: BIS, Haver Analytics

Note: Notional values.

### 5.6.2 Credit Derivatives Outstanding

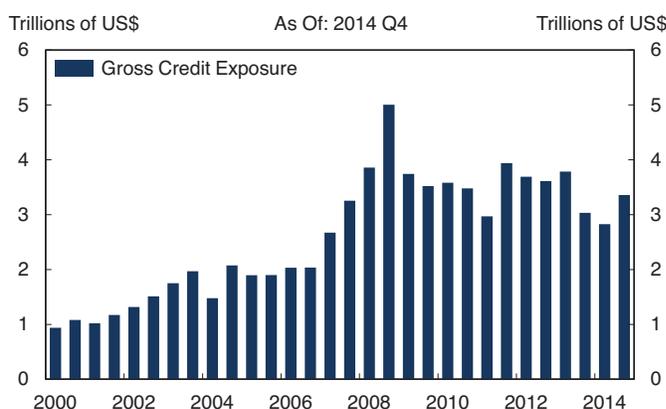


Source: BIS, Haver Analytics

Note: Notional values.

The CFTC's Swaps Report showed \$327 trillion in total notional amount outstanding across all swap asset classes as of March 27, 2015. Interest rate swaps dominate both the U.S. and global OTC derivatives markets, and domestically account for roughly 83 percent of notional value, followed by FX swaps at roughly 10 percent and credit swaps at roughly 2 percent. Equity and commodity swaps remain a small percentage of the total market. The total notional volume of credit default swaps (CDS) continued to decline from its pre-crisis levels (**Chart 5.6.2**).

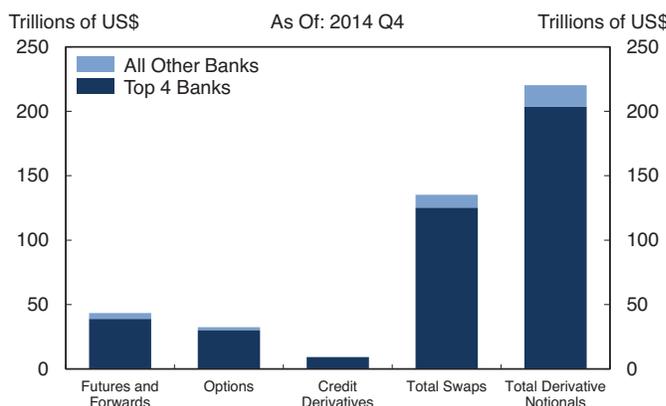
### 5.6.3 Global OTC Derivatives: Gross Credit Exposure



Source: BIS, Haver Analytics

Overall risk from derivatives exposures measured by replacement cost, or the amount that a market participant would lose if its counterparty defaults, increased in the second half of 2014 to approximately \$3.36 trillion (**Chart 5.6.3**). The OCC estimates show that total gross derivatives exposure to the U.S. banking system reached a peak of \$804 billion at year-end 2008, when interest rates steeply declined and credit spreads widened significantly. But this exposure has since fallen to \$445 billion at the end of 2014, in part because of the extended low interest rate environment and the continuing drop in exposure to credit contracts.

### 5.6.4 Concentration of U.S. Derivative Exposures



Source: OCC Quarterly Report on Bank Trading and Derivatives Activities

Note: Notional values. Data covers insured U.S. commercial banks and savings associations.

A few highly active dealer banks continue to dominate U.S. OTC derivatives markets, with four major U.S. banking institutions composing 92 percent of total U.S. banking industry notional amounts outstanding (**Chart 5.6.4**). The OCC estimates that roughly half (53 percent) of banks' derivatives exposure is to other banks and security firms, while 38 percent is to corporations. The remaining 9 percent of the derivatives exposures of banks is to hedge funds, sovereigns, and monoline insurance companies. Although the vast majority of actual bank exposures to other financial institutions are collateralized, a significant portion of bank exposures to sovereigns and nonfinancial corporations are not. **Box D** gives an overview of the role of CCPs in the OTC derivatives market.

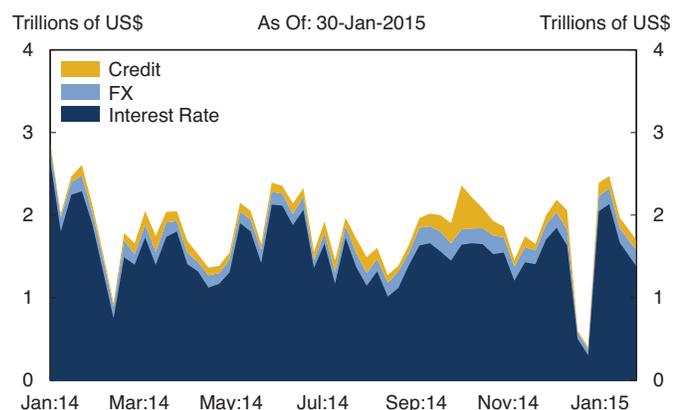
### Swaps Trading on Regulated Platforms

In 2013 the CFTC finalized its rule for swap execution facilities (SEFs), which serve as regulated trading platforms for OTC swaps, including interest rate, certain CDS, and FX swaps. To date, 22 SEFs have received temporary registration from the CFTC, although fewer than 10 of these currently have significant trade volumes.

In February 2014, benchmark dollar, euro, and sterling interest rate swap contracts and certain five-year CDS indices became subject to the trade execution mandate under CFTC rules. Swaps subject to this trade execution mandate must trade on designated contract markets or on SEFs through a multilateral trading system such as an order book or a request-for-quote system. The CFTC has steadily phased in the trading requirement for more complex “package transactions,” which involve the simultaneous and contingent execution of one or more other financial instruments in a single economic package, through early 2016. In some cases, market participants have also voluntarily chosen to trade swaps that are not subject to the SEF trading mandate via SEFs. Weekly SEF trading in 2014 averaged roughly \$1.8 trillion in notional amount, with interest rate swaps constituting roughly \$1.5 trillion of this total and credit and FX transactions making up the remainder (**Chart 5.6.5**). In the first quarter of 2015, 54 percent of total notionals for interest rate transactions and 71 percent of CDS index trades involving U.S. persons were traded on SEFs.

Currently, SEF trading for OTC interest rate derivatives and certain CDS indices is concentrated around a small number of SEFs with eight platforms maintaining over 80 percent of market share.

**5.6.5 Swap Execution Facility Weekly Volume**



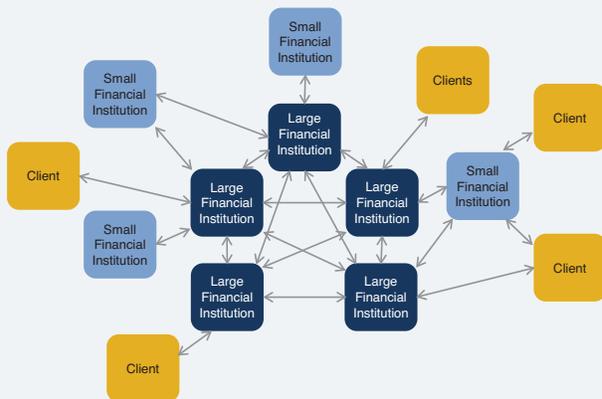
Source: Futures Industry Association

Note: Notional values.

## Box D: Overview of Central Counterparties Relevant to OTC Derivatives Markets

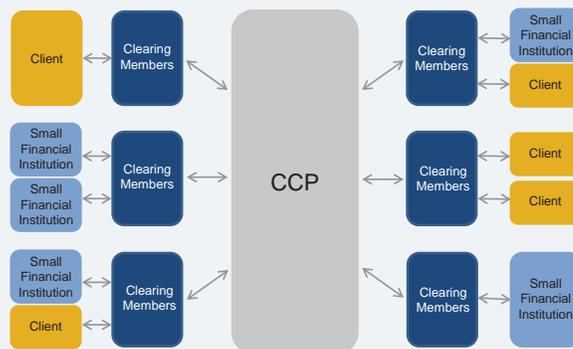
CCPs simplify and centralize risk management for particular financial markets by assuming the role of buyer to every seller and seller to every buyer. In the pre-Dodd-Frank bilateral market, the major OTC derivatives dealers formed the core of the derivatives market, transacting with each other and their clients directly (**Chart D.1**). In contrast, CCPs are the counterparty for their direct clearing members, which include major derivatives dealer banks and other large financial institutions. These clearing members interact directly with the CCP both as principal and as agent for their clients, which range from smaller financial institutions to insurance companies and nonfinancial firms (**Chart D.2**). In addition, a CCP reduces risks to participants through multilateral netting of trades, imposing risk controls on clearing members, and maintaining financial resources commensurate with risks it carries.

### D.1 Bilateral Derivatives Market



Unlike banks, CCPs do not undertake transactions in derivatives markets that result in directional exposures. Rather, by interposing themselves between the parties to a transaction, in a process known as novation, CCPs manage the clearing risk of that transaction. CCPs maintain multiple levels of pre-funded financial resources that may be used to cover

### D.2 Centrally Cleared Derivatives Market



Note: Clearing members consist mostly of large financial institutions.

losses in the event of a clearing member default. The first level of these resources, initial margin, is commensurate with clearing members' individual risk profiles. Many regulators further require CCPs to establish ex-ante procedures for managing a clearing member default and allocating any resulting losses, in addition to procedures for allocating non-default losses. While CCP default procedures vary in some respects, the clarity provided by ex-ante delineation of those procedures can potentially provide greater certainty and confidence in times of market stress.

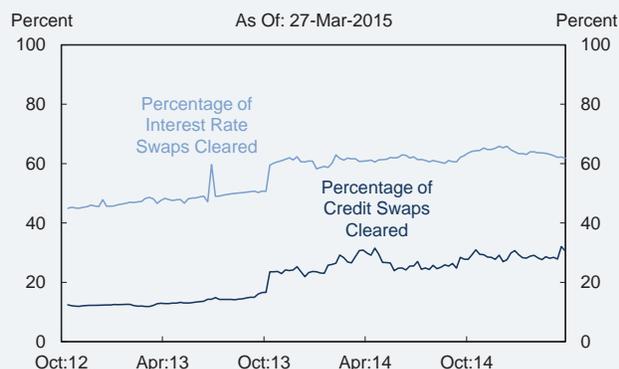
As the United States and other Group of Twenty (G-20) members implement their commitment to centrally clear standardized derivatives, the resulting increase in central clearing of OTC derivatives transactions via CCPs (**Chart D.3**) has focused market attention on these risk management-driven institutions and increased the profile of global and domestic regulatory efforts to continue refining CCP risk management and recovery and resolution planning. Centrally clearing derivatives may require more sophisticated risk modeling than centrally clearing transactions involving assets that have clearly defined maximum exposures, such as cash equity, fixed income securities, and repos. Given the growing importance of CCPs, domestic and foreign regulators have been actively

engaged in developing and implementing robust risk management standards for CCPs (see Section 6.2.1).

The FSB estimates that globally, as of September 2014, CCPs were clearing an estimated 56 percent of all currently clearable OTC derivatives transactions, which represented 44 percent of OTC derivatives transactions outstanding. For CDS, central clearing increased from 10 percent in 2010 to 27 percent in mid-2014.

In the United States, the CFTC has implemented Dodd-Frank requirements for clearing certain interest rate and index CDS transactions via CCPs. As of March 20, 2015, 62 percent of interest rate swap gross notional reported to CFTC-registered trade repositories were being cleared, according to the CFTC Weekly Swaps Report. The SEC is also adopting rules for clearing security-based swaps.

### D.3 Centrally Cleared Swap Market



Note: Notional values. Data are adjusted for double-counting of cleared trades to show a single exposure for each trade. Methodology for collecting and reporting data changed in October 2013.

Source: CFTC

## International Developments

European derivatives markets are similar to U.S. markets in overall size. In 2014 the EU began requiring derivatives transaction reporting by all EU entities. The EU plans to begin imposing its clearing mandate in 2015. European exchange or platform trading requirements are still under development and will not take effect before early 2017.

Asian derivatives markets are significantly smaller than those in the United States and Europe, though they continue to grow. Japan has made significant progress in implementing reporting and clearing reforms, but other major Asian jurisdictions are further behind. Several jurisdictions have publicly expressed their reluctance to impose trading requirements on the basis that their derivatives markets are much smaller than U.S. and European markets and may lack the liquidity necessary to support exchange or platform trading.

These developments have created a potential for regulatory arbitrage—some jurisdictions have reported that banks and other financial firms are reorganizing their business activities, often at client request, with the possible purpose of avoiding U.S. regulatory requirements. For instance, market observers have noted that the largest globally active U.S. banking institutions use their nonguaranteed U.K. affiliates for transactions with their foreign customers, many of whom prefer to avoid the CFTC clearing, trading, and reporting requirements that would apply if they transacted with the U.S. parent institution. As a result of this shift, the U.S. parent is not technically liable for the transactions of the overseas affiliate with the bank's foreign customers. Regulators are actively reviewing this development.

Since the Council's 2014 annual report, financial reform progress included further strengthening of capital, leverage, and liquidity standards for financial institutions; continued application of supervisory and company-run stress tests; continued supervisory review and comment on large banking organizations' resolution plans; adoption of a credit risk-retention requirement for ABS; adoption of MMF reform; and other measures to enhance consumer protection.

In addition, the Council continued to fulfill its mandate. The Council continued to monitor potential risks to U.S. financial stability and served as a forum for discussion and coordination among the member agencies. The Council also made a determination that a nonbank financial company will be subject to Federal Reserve supervision and enhanced prudential standards and completed its first annual reevaluations of three previous determinations. The Council also conducted extensive public engagement regarding potential risks posed by asset management products and activities.

The following is a discussion of the significant financial regulatory reforms implemented by the Council and its member agencies since the Council's 2014 annual report.

## 6.1 Safety and Soundness

### 6.1.1 Enhanced Capital and Prudential Standards and Supervision

#### Capital, Leverage, and Liquidity Standards

The banking agencies continued to make significant progress over the last year in implementing capital, leverage, and liquidity standards.

In April 2014, the FDIC issued a final rule on the implementation of Basel III regulatory capital standards, which revised risk-based and leverage capital requirements and was substantively identical to the joint final rule issued by the OCC and the Federal Reserve in October 2013. Relatedly, the FDIC issued a final rule in November 2014 to revise its risk-based deposit insurance assessment system, primarily to conform it to the updated capital rules referenced in the FDIC's assessment regulations.

In September 2014, the Federal Reserve, FDIC, and OCC adopted a final rule modifying the definition of the denominator of the SLR in a manner consistent with international leverage ratio standards. The final rule strengthens the SLR by modifying the methodology for including off-balance sheet items, including credit derivatives, repo-style transactions, and lines of credit, in the denominator of the SLR. The final rule's changes apply to the SLR the agencies adopted in July 2013, which applies to advanced approaches banking organizations, and to the enhanced SLR standards adopted in April 2014, which apply to the largest U.S. banking organizations.

In September 2014, the banking agencies adopted a final rule implementing a quantitative LCR requirement for certain large and internationally active banking organizations. After a transition period, a company subject to the rule is required to maintain an amount of high-quality liquid assets that is no less than 100 percent of its total net cash outflows over a prospective 30-day period of stress. The final rule, effective January 1, 2015, applies the LCR requirements to banking organizations with consolidated total assets of \$250 billion or more or consolidated total on-balance sheet foreign exposure of \$10 billion or more, and to their subsidiary depository institutions with \$10 billion or more of consolidated total assets. Under the rule separately adopted by the Federal Reserve, banking organizations that are smaller or have less foreign exposure, but still have \$50 billion or more in total consolidated assets, are subject to a modified LCR requirement.

In December 2014, Congress passed and the President signed into law the “Insurance Capital Standards Clarification Act of 2014,” which provides the Federal Reserve with flexibility to tailor its capital framework to firms substantially engaged in insurance underwriting activity.

### Enhanced Prudential Standards

In November 2014, the Federal Reserve invited public comment on a proposed order to apply enhanced prudential standards for the regulation and supervision of General Electric Capital Corporation, Inc. (GECC), a nonbank financial company designated by the Council in July 2013 for Federal Reserve supervision. The proposed standards include risk-based and leverage capital requirements, capital planning and stress testing requirements, liquidity requirements, risk-management and risk-committee requirements, independence requirements for GECC’s board of directors, and restrictions on intercompany transactions between GECC and its parent, General Electric Corporation. The proposed order would also require GECC to file certain regulatory reports with the Federal Reserve.

Separately, the Federal Reserve is assessing the business model, capital structure, risk profile, and systemic footprint of the three insurance companies designated by the Council—MetLife, American International Group (AIG), and Prudential Financial—to determine how enhanced prudential standards related to capital, liquidity, and risk management would apply and if additional prudential standards may be necessary to reflect any unique aspects in these companies’ business model, activities, or structure.

In December 2014, the Federal Reserve issued a proposed rule that would establish a methodology to identify whether a U.S. BHC is a G-SIB. As such, a G-SIB would be subject to a risk-based capital surcharge that is calibrated based on its systemic profile. The proposal builds on a G-SIB capital surcharge framework agreed to by the BCBS and is augmented to address the risk arising from the over-reliance on short-term wholesale funding. The G-SIB surcharge under the proposal would generally be higher than under the BCBS approach. Failure to maintain the capital surcharge would subject the G-SIB to restrictions on capital distributions and certain discretionary bonus payments.

### Risk Governance Standards for Large Banks

In September 2014, the OCC issued enforceable guidelines that establish minimum standards for the design and implementation of a risk governance framework for large insured national banks, insured federal savings associations, and insured federal branches of foreign banks. The final guidelines also establish minimum standards for an institution’s board of directors in overseeing the framework. The guidelines set out the roles and responsibilities for front line units, independent risk management, and internal audit and provide that such an institution should have a comprehensive written statement that articulates its risk appetite and serves as a basis for the risk governance framework. The guidelines also provide that at least two members of such an institution’s board of directors should be independent.

## Risk-Management Standards for Designated FMUs

In October 2014, the Federal Reserve issued a final rule amending the risk-management standards in its Regulation HH, designated FMUs, to replace two sets of risk-management standards, one for payment systems and one for central securities depositories and CCPs, with a common set of standards for all types of designated FMUs. The new standards and definitions amendments are based on the international risk-management standards in the Principles for Financial Market Infrastructures (PFMIs) developed jointly by the Committee on Payment and Market Infrastructures and the Technical Committee of the IOSCO. The final rule was effective December 31, 2014.

## Concentration Limit

In November 2014, the Federal Reserve issued a final rule, Regulation XX, to implement Section 622 of the Dodd-Frank Act and establish a financial sector concentration limit. The final rule prohibits a financial company from merging or consolidating with, or acquiring control of, another company if the resulting company's liabilities would exceed 10 percent of the aggregate consolidated liabilities of all financial companies. The rule also establishes reporting requirements for certain financial companies that do not otherwise report consolidated financial information to a bank regulatory agency.

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

Section 165(i) of the Dodd-Frank Act requires two types of stress tests. First, the Federal Reserve must conduct annual supervisory stress tests of BHCs with \$50 billion or more in total consolidated assets and of nonbank financial companies designated by the Council. Second, financial companies with more than \$10 billion in total consolidated assets regulated by a primary federal financial regulatory agency must conduct annual stress tests, and BHCs with \$50 billion or more in total consolidated assets and nonbank financial companies designated by the Council must also conduct semiannual company-run stress tests.

This is the third year that the stress tests have been conducted pursuant to the Dodd-Frank Act and the fifth round of stress tests and capital plan assessments since 2009. The results of company-run, mid-year stress tests were released by certain banking organizations in September 2014. Institutions with \$10 billion to \$50 billion in assets began their second stress test cycle in 2014, and public disclosures of their 2014 to 2015 stress test results will occur in June 2015. The results of the Federal Reserve's annual Dodd-Frank Act supervisory stress tests were released in March 2015 (see [Section 5.3.1](#)).

### 6.1.3 Resolution Plans and Orderly Liquidation Authority

#### Resolution Plans

Under the framework of the Dodd-Frank Act, resolution under the U.S. Bankruptcy Code is the statutory first option in the event of the failure of a financial company. 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 that are, or are treated as, BHCs—with total consolidated assets of \$50 billion or more 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 review each plan and may jointly determine that a 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 the FDIC make such a joint determination, then the company must resubmit its plan with revisions that address the deficiencies jointly identified by the Federal Reserve and FDIC, including any proposed changes in business operations and corporate structure, and with an explanation of why the company believes that the revised plan is credible and would result in an orderly resolution under the U.S. Bankruptcy Code.

In August 2014, the Federal Reserve and the FDIC delivered letters to 11 large global banking organizations regarding their second round of resolution plan submissions. In the letters, the agencies jointly identified some shortcomings that the companies must demonstrate they are making significant progress toward addressing in their 2015 plans. The common features of the identified shortcomings include:

- assumptions that the agencies regard as unrealistic or inadequately supported, such as assumptions about the likely behavior of customers, counterparties, investors, central clearing facilities, and regulators; and
- failure to make or identify the kinds of changes in firm structure and practices that would be necessary to enhance the prospects for orderly resolution.

Based on its review, the FDIC Board of Directors determined, pursuant to Section 165(d) of the Dodd-Frank Act, that these plans are not credible and do not facilitate an orderly resolution under the U.S. Bankruptcy Code. The Federal Reserve determined that these banking organizations must take immediate action to improve their resolvability and reflect those improvements in their 2015 plans. These firms are required to submit plans that are responsive to the identified shortcomings on or before July 1, 2015. The agencies agreed that in the event that the firms do not submit such plans, the agencies expect to use their authority under Section 165(d) to determine that a resolution plan does not meet the requirements of the Dodd-Frank Act.

The firms have begun to undertake projects to improve their resolvability under the U.S. Bankruptcy Code. An important area stressed in the letters is the need for legal entity rationalization that would take into account the best alignment of legal entities and business lines to improve a firm's resolvability. Agency staff are working with the firms to discuss expected improvements in the forthcoming 2015 resolution plans and efforts, both proposed and already in progress, to facilitate each firm's 2015 resolution strategy.

### Orderly Liquidation Authority

In cases for which resolution of a financial company under the U.S. Bankruptcy Code would have serious adverse effects on financial stability in the United States, the Dodd-Frank Act establishes the OLA as a statutory framework to enable the orderly resolution of financial companies without cost to taxpayers. The OLA includes specific authorities granted to the FDIC that were not available during the 2008 financial crisis but which largely parallel those the FDIC uses to resolve failed insured depository institutions.

The OLA also allows the FDIC to impose a temporary stay on certain financial contracts to prevent contagion and market disruption in a failure. Though this stay helps address risks posed by such contracts within the United States, questions remain regarding cross-border contracts or those not subject to U.S. law. The resolution stay protocol adopted by ISDA represents a step toward addressing these questions ([see Section 3.1.6](#)).

Orderly resolution also requires sufficient debt and equity to absorb losses and fund operations during a resolution process. In November 2014, the FSB issued a consultative paper on “total loss-absorbing capacity” for G-SIBs ([see Section 3.1.6](#)). Both the resolution stay protocol and the upcoming loss-absorbing capacity requirements are designed to significantly improve the cross-border resolvability of firms under both the OLA and the U.S. Bankruptcy Code.

U.S. regulators have worked closely with all the major financial jurisdictions, including the United Kingdom, Germany, France, and other EU entities as well as Switzerland and Japan, to identify issues and to address obstacles to cross-border resolution. Key to this effort has been the on-going dialogue with authorities in the United Kingdom. In October 2014, the FDIC hosted the heads of the Treasuries, central banks, and leading financial regulatory bodies in the United States and United Kingdom at a discussion regarding resolution strategies in the event of the failure of a G-SIB under U.S. and U.K. resolution regimes. The exercise built upon prior bilateral work, including the publication of a joint paper on resolution, participation in detailed simulation exercises, and participation in other joint staff-level resolution planning efforts.

#### **6.1.4 Insurance**

FIO, state regulators, and the Federal Reserve compose the U.S.-based members of the International Association of Insurance Supervisors (IAIS). FIO's director and three state insurance regulators, in addition to supervisors from other jurisdictions, serve on the IAIS's Executive Committee.

Through service on the IAIS's Financial Stability Committee, FIO, NAIC, the Federal Reserve, and state regulators have participated extensively in the process of evaluating insurers for potential identification by the IAIS and the FSB as global systemically important insurers (G-SIIs) and in developing the policy measures to be applied to any such G-SII. The FSB, which was tasked by the G-20 to identify G-SIIs, delegated the development of a methodology to identify G-SIIs and the development of policy measures applicable to G-SIIs to the IAIS. On July 18, 2013, the FSB, in consultation with the IAIS, identified an initial list of nine G-SIIs that included three U.S.-based insurers. On November 6, 2014, the FSB, after consultation with the IAIS and national authorities, reaffirmed the G-SII status of the nine firms identified in 2013. A decision on the G-SII status of reinsurers was postponed pending further development of the methodology as needed to ensure, among other things, that it appropriately addresses all types of insurance and reinsurance, and other financial activities of global insurers.

In the absence at that time of an international capital standard for insurance companies, the FSB also called upon the IAIS to develop several separate capital measures. On October 23, 2014, the IAIS finalized the first such measure—a straightforward basic capital requirement (BCR) that applies to all group activities, including the non-insurance activities, of G-SIIs. The BCR will serve as an initial foundation for the higher loss-absorbency (HLA) requirements for G-SIIs; HLA is scheduled for development by the IAIS by the end of 2015.

The IAIS also has made significant progress toward developing a more risk-sensitive group-wide global insurance capital standard (ICS) that will apply to internationally active insurance groups and the G-SIIs. On December 17, 2014, the IAIS issued a public consultation document on the ICS, and the IAIS is currently considering the extensive feedback received from stakeholders. Once implemented, it is expected that the ICS will replace the BCR as the foundation for HLA applicable to G-SIIs. U.S. representatives from FIO, the Federal Reserve, and state insurance regulators have been working together on efforts to develop the ICS.

Since early 2012, FIO, state regulators, the NAIC, the European Commission, and the European Insurance and Occupational Pensions Authority have participated in a FIO-initiated project to increase mutual understanding and enhance cooperation between the EU and the United States intended to promote business opportunity, consumer protection, and effective supervision. During 2014, the Steering Committee of the EU-U.S. Insurance Project reaffirmed its commitment to the project and updated its Way Forward document establishing objectives and initiatives concerning professional secrecy and confidentiality, group supervision, solvency and capital requirements, reinsurance and collateral requirements, supervisory reporting and data collection, peer reviews and examinations.

Under Title V of the Dodd-Frank Act, FIO has the authority to assist the Treasury Secretary in negotiating “Covered Agreements” in conjunction with the U.S. Trade Representative. A covered agreement is a written bilateral or multilateral agreement between the United States and one or more foreign governments, authorities, or regulatory entities regarding prudential measures with respect to the business of insurance or reinsurance that meets certain specified standards and can preempt state laws in certain narrow circumstances. In 2013, FIO recommended that the United States pursue a covered agreement relating to reinsurance collateral requirements. FIO and the U.S. Trade Representative are continuing work towards achieving the preconditions in order to initiate negotiations for a covered agreement with leading reinsurance jurisdictions.

Title I of the Terrorism Risk Insurance Program Reauthorization Act of 2015 (2015 Reauthorization Act), which was enacted on January 12, 2015, amended several features of the Terrorism Risk Insurance Act of 2002. The 2015 Reauthorization Act extends the termination date of the Terrorism Risk Insurance Program (TRIP) to December 31, 2020, while gradually reducing the federal share of loss reimbursement that may be paid to insurers under TRIP. The 2015 Reauthorization Act also requires that Treasury issue several reports and new rules as part of the implementation process. Broad support existed for extending the federal backstop for insured terrorism losses. According to the 2014 report of the President’s Working Group on Financial Markets, terrorism risk insurance would likely be less available and more costly in the absence of TRIP. FIO also assists in administering the TRIP.

Congress also passed the National Association of Registered Agents and Brokers (NARAB) Reform Act of 2015, which requires the establishment of a nonprofit corporation through which non-resident insurance producers may do business on a multi-state basis. NARAB maintains state supervisory and disciplinary authority over insurance producers while also creating a mechanism to streamline market access nationwide.

State insurance regulators, through the NAIC, continue work on updating the insurance financial solvency framework and to refine existing accounting, reporting, valuation, and risk-based capital requirements. States continue to enact new and updated NAIC model laws related to the Solvency Modernization Initiative, including the revised Credit for Reinsurance Model Act, the revised Insurance Holding Company System Regulatory Act (including the new enterprise risk report), the Risk Management and Own Risk and Solvency Assessment (ORSA) Model Act (requiring the ORSA filing), and the revised Standard Valuation Law to implement principle-based reserving.

In addition, state insurance regulators continue to build on various aspects of these projects through implementation efforts at the NAIC. This includes the NAIC’s approval of six international supervisory authorities as qualified jurisdictions under the Process for Developing and Maintaining the NAIC List of Qualified Jurisdictions as part of the implementation of the Credit for Reinsurance Model Act. As of February 2015, the NAIC Reinsurance Financial Analysis Working Group had approved 26 companies as certified insurers for passporting purposes to facilitate consistency among the states and to coordinate multi-state efforts.

The states, through the NAIC, are moving toward establishing a more consistent regulatory framework for life insurance affiliated captive reinsurance transactions relating to certain term and universal life insurance products. This framework would provide for transparency of the reserves and assets held by the captives, including through the 2015 implementation of a new Reinsurance Supplement to the Annual Statement covering existing transactions as of year-end 2014 and through financial analysis procedures for use by states when reviewing 2014 statutory financial statements, as well as through Actuarial Guideline 48, which is effective for these transactions as of the beginning of 2015. While efforts continue on a new Reinsurance Model Regulation and related modifications to risk-based capital and audited financial statement disclosures

for these transactions, the Financial Regulation Standards and Accreditation (F) Committee is considering revisions to the scope of the NAIC Accreditation program to clarify its application to certain captives, including those established to finance term and universal life insurance product reserves as well as captive transactions involving variable annuities and long-term care. The NAIC's Financial Condition (E) Committee will study the regulatory-related incentives that encourage insurers to engage in variable annuity reinsurance transactions with captives and consider any appropriate adjustments to the NAIC solvency framework required by the Accreditation program.

### **6.1.5 Federal Mortgage-related Settlements**

Since the Council's last annual report, federal agencies continued to reach significant settlements with financial institutions relating to mortgage practices and the sale of mortgage securities. These settlements contained provisions for consumer relief in several forms, including loan modifications, new loans and payment assistance to borrowers, and financing for affordable rental housing.

In June 2014, the Justice Department, CFPB, and HUD, together with state attorneys general in 49 states and the District of Columbia, reached a nearly \$1 billion settlement with SunTrust Mortgage, Inc. The agreement addresses mortgage origination, servicing, and foreclosure abuses between January 2006 and March 2012. In July 2014, the Justice Department announced an additional \$320 million settlement with the company related to a criminal investigation of its administration of the Home Affordable Modification Program (HAMP). The settlement amounts include relief to certain borrowers and consumers.

Also in July 2014, the Justice Department, along with federal and state authorities, announced a \$7.0 billion settlement with Citigroup to resolve claims related to Citigroup's conduct in the offering of RMBS prior to January 1, 2009. This amount includes a \$4.5 billion civil penalty paid to the Justice Department and \$2.5 billion in consumer relief. As part of the settlement, Citigroup acknowledged that it made serious misrepresentations about the mortgage loans it securitized in RMBS.

The Justice Department and federal and state authorities announced a \$16.7 billion settlement in August 2014 with Bank of America to resolve claims regarding conduct in the origination of mortgages and offering of RMBS that occurred at Countrywide and Merrill Lynch. Approximately \$7.0 billion will go to consumers harmed by the unlawful conduct. The amount also includes a \$5.0 billion civil penalty, which is the largest civil penalty to date under the Financial Institutions Reform, Recovery, and Enforcement Act.

## **6.2 Financial Infrastructure, Markets, and Oversight**

### **6.2.1 Over-the-Counter Derivatives Reform**

The CFTC and SEC continued to implement Title VII of the Dodd-Frank Act, which establishes a comprehensive new regulatory framework for swaps and security-based swaps.

In June 2014, the SEC adopted the first of a series of rules and guidance that explain when a cross-border transaction must be counted toward the requirement to register as a security-based swap dealer or major security-based swap participant. The rules also address the scope of the SEC's cross-border anti-fraud authority.

## Margin Standards for Uncleared Derivatives

In September 2013, IOSCO published a policy framework establishing global minimum margin standards for non-centrally cleared transactions. Once implemented, these margin standards will increase protective collateral and decrease implicit leverage in OTC derivatives markets. While implementation of these standards by national jurisdictions was originally scheduled to begin in December 2015, the BCBS and IOSCO have recently recommended extending initial implementation until September 2016 to provide firms with additional time to adjust operational and risk-management practices.

In September 2014, the CFTC, the federal banking agencies, the FHFA, and the Farm Credit Administration re-proposed rules previously proposed in 2011 governing margin requirements for swap and security-based swap dealers and for major swap and security-based swap market participants. The proposed rules would impose initial margin and variation margin requirements for uncleared swaps held by entities under each agency's jurisdiction. The CFTC's release also included an advance notice of proposed rulemaking requesting public comment on the cross-border application of such margin requirements.

## CCPs: Relevant Standards, Regulation, and Regulators

CCPs that serve U.S. market participants are regulated by the CFTC and SEC. The SEC is the supervisory agency for the Fixed Income Clearing Corporation (FICC), the National Securities Clearing Corporation (NSCC), the Depository Trust Company (DTC), and the Options Clearing Corporation, while the CFTC is the supervisory agency for Intercontinental Exchange (ICE) Clear Credit, LLC and the Chicago Mercantile Exchange (CME), although both the CFTC and the SEC supervise Options Clearing Corporation, ICE Clear Credit, LLC and CME for activities under their respective jurisdictions. Under Title VIII, the Federal Reserve also has certain authorities with respect to the supervision of CCPs that have been designated as systemically important by the Council. These authorities include participation in examinations, review of material changes to their operations that may affect the level or nature of risk of the CCP, and the ability to establish an account at a Federal Reserve Bank and to offer associated account services for each designated FMU. In 2012, the Council designated FICC, NSCC, Options Clearing Corporation, CME, and ICE Clear Credit LLC as systemically important FMUs under Title VIII of the Dodd-Frank Act. DTC, CLS Bank International, and The Clearing House Payments Company L.L.C. also were designated as systemically important FMUs, but are not CCPs.

In April 2012, the Committee on Payments and Market Infrastructures (CPMI), an international group of central banks of which the Federal Reserve is a member, and IOSCO, of which the CFTC and SEC are members—together CPMI-IOSCO—released the PFMI, which harmonized and strengthened existing international standards for CCPs and other types of financial market infrastructures (FMIs).

U.S. supervisory agencies have implemented or proposed regulations that are consistent with the PFMI. In December 2013, the CFTC implemented rules for CFTC-regulated CCPs that are designated FMUs. The SEC proposed its rules for certain clearing agencies in March 2014. The Federal Reserve issued a final rule amending the Regulation HH risk management standards for designated FMUs that became effective in 2014.

In October 2014, the FSB published an annex to the Key Attributes of Effective Resolution Regimes standard covering FMIs and FMI participants, which include CCPs. Among other things, this annex provides additional detail on the aspects that domestic regulators should incorporate into their resolution planning efforts for CCPs. CPMI-IOSCO also released a report providing guidance for FMIs and authorities on the development of comprehensive and effective recovery plans as well as discussing the relationship between risk management, recovery, and resolution.

## CCPs: Ongoing Domestic and International Regulatory Initiatives

Regulators are actively working on many domestic and international work streams related to CCPs, a number of which are highlighted here. The Federal Reserve, as a member of CPMI, and the CFTC and SEC, as members of IOSCO, are actively engaged in ongoing discussions relating to CCP risk management standards, stress testing, cyber risk, and disclosure standards. To promote transparency in the implementation by CCPs of the PFMI and risk management practices, CPMI-IOSCO published additional guidance on public quantitative disclosure standards for CCPs in February 2015. Also in February, the G-20 tasked the FSB, together with CPMI, IOSCO, and the BCBS, to develop a work plan for identifying and addressing any remaining gaps and potential financial stability risks related to CCPs that are systemic across multiple jurisdictions and to help enhance CCP resolvability.

Domestically, the Council remains engaged on FMU matters to carry out its responsibilities under the Dodd-Frank Act. Staff committees of the Council are currently engaged in work on two priority areas. First, a working group is focusing on various CCP risk management issues, including the default management process, liquidity risk management, and banks' management of exposures to CCPs. Second, another working group is providing input to the FDIC's efforts to develop resolution plans for the designated FMUs.

### 6.2.2 Securitization Reform

Pursuant to the Dodd-Frank Act, the Federal Reserve, FDIC, OCC, SEC, FHFA, and HUD, with coordination by the Secretary of the Treasury, in his capacity as Chairperson of the Council, adopted a joint final rule in October 2014 requiring sponsors of ABS to retain at least 5 percent of the credit risk of the assets collateralizing the ABS. As required by the Dodd-Frank Act, the final rule defines a qualified residential mortgage (QRM) and exempts securitizations of QRMs from the risk retention requirement. The final rule also does not require any retention for securitizations of commercial loans, commercial mortgages, or automobile loans if they meet specific standards for high quality underwriting. The rule is intended to help align the interests of ABS-deal sponsors and investors and provide an incentive for sponsors to monitor the credit quality and underwriting of assets they securitize.

Separately, in August 2014, the SEC adopted revisions to its regulations governing the public offering process, disclosure, and reporting for ABS. The final rules generally require that the public offering prospectuses and ongoing reports of ABS backed by real estate-related assets, auto-related assets, or debt securities—including resecuritizations—contain specified asset-level information about each of the assets in the pool. These revisions are intended, in part, to address a concern that previously ABS investors may not have received all the information necessary to understand the risks underlying the securities.

### 6.2.3 Money Market Mutual Fund Reform

In July 2014, the SEC adopted significant structural reforms for the regulation of MMFs (see [Section 3.2.1](#)). The reforms are intended to make MMFs less susceptible to runs that could threaten financial stability and harm investors.

### 6.2.4 Credit Rating Reforms

The Dodd-Frank Act included a number of measures to improve the quality of credit ratings. In August 2014, the SEC adopted new rules and amendments to existing rules regarding credit rating agencies. These rules addressed internal controls; conflicts of interest; disclosure of credit rating performance statistics; procedures to protect the integrity and transparency of rating methodologies; disclosures to promote the transparency of credit ratings; and standards for training, experience, and competence of credit analysts. The requirements provide for an annual certification by a credit rating agency's CEO as to the effectiveness of internal controls and additional certifications to accompany credit ratings attesting that the rating was not influenced by other business activities.

### **6.2.5 Operational Risks for Technological Systems and Cybersecurity**

In November 2014, the SEC adopted Regulation SCI, which is designed to strengthen the technology infrastructure of the U.S. securities markets. The rules, which impose requirements on certain key market participants, including registered national securities exchanges and clearing agencies, are intended to reduce the occurrence of systems issues, including operational disruptions, compliance issues and intrusions such as hacking incidents, and to improve resiliency when systems issues do occur. The rules provide a framework for these entities to implement comprehensive policies and procedures to help ensure operational capability, take appropriate corrective action when systems issues occur, provide notifications and reports to the SEC regarding systems problems and systems changes, inform members and participants about systems issues, conduct business continuity testing, and conduct annual reviews of their automated systems.

The banking regulators have prioritized and are collaborating and coordinating on cybersecurity through the FFIEC. In the past year, the FFIEC members piloted a cybersecurity exam work program at over 500 community institutions. The results of this assessment are informing the FFIEC members' priorities on cybersecurity including development and issuance of a self-assessment tool that financial institutions can use to evaluate their readiness to identify, mitigate, and respond to cyber threats. The FFIEC also will enhance its incident analysis, crisis management, training, and policy development and expand its focus on technology service providers' cybersecurity preparedness. Additionally, the members raised awareness of cybersecurity threats and vulnerabilities and risk mitigation steps to address them, including hosting a webinar and publishing statements on ATM cash-out schemes, distributed denial of service attacks, and the Heartbleed and Shellshock vulnerabilities. This year, the FFIEC published updated business continuity guidance on strengthening the resilience of outsourced technology services, including cyber resilience.

FIO and the NAIC, along with the Council's independent member with insurance expertise, as well as other federal financial regulators, also participate in governmental and industry groups focused on cyber issues, including the FBIIC and the Financial Services Sector Coordinating Council's (FSSCC) Cyber Insurance Working Group. State insurance regulators, through the NAIC, also have established a Cyber Security Task Force to coordinate state regulatory activities relating to cybersecurity issues including analyzing information regarding the cyber insurance market and discuss potential regulatory standards relating to cybersecurity. FIO is encouraging examination standards for cybersecurity for the insurance sector that are consistent across all states and which comply with best practices. FIO also heads the IAIS Financial Crimes Task Force, which is called upon to "explore the area of cyber-crime risks to the insurance sector."

### **6.2.6 Accounting Standards**

In May 2014, the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) jointly issued a converged standard on the recognition of revenue from contracts with customers. The core principle of the new standard is for companies to recognize revenue to depict the transfer of goods or services to customers in amounts that reflect the payment to which the company expects to be entitled in exchange for those goods or services. The new standard is also intended to result in enhanced disclosures about revenue, provide guidance for transactions that were not previously addressed comprehensively, and improve guidance for multiple-element arrangements.

In June 2014, the FASB issued a new standard to improve the financial reporting of repos and other similar transactions. The new guidance aligns the accounting for repurchase-to-maturity transactions and repos executed as a repurchase financing with the accounting for other typical repos such that, going forward, these transactions would all be accounted for as secured borrowings. The new guidance also brings U.S. generally accepted accounting principles (GAAP) into greater alignment with International Financial Reporting Standards for repurchase-to-maturity transactions.

In February 2015, the FASB issued a new standard to improve targeted areas of consolidation guidance for legal entities such as limited partnerships, limited liability corporations, and securitization structures, including collateralized debt obligations, CLOs, and MBS. The new standard simplifies consolidation accounting by reducing the number of consolidation models and places more emphasis on risk of loss in determining when to consolidate.

## **6.3 Mortgage Transactions, Housing, and Consumer Protection**

### **6.3.1 Mortgage Transactions and Housing**

The Dodd-Frank Act requires certain federal agencies that guarantee, insure, or administer mortgages to define which loans are defined as qualified mortgages (QMs) for the purposes of the Truth in Lending Act (TILA). It also authorizes the agencies to exempt streamlined refinances from certain income-verification requirements of TILA. In May 2014, the Department of Veterans Affairs (VA) issued an interim final rule to establish which VA-guaranteed loans are to be considered QMs for the purposes of the new ability-to-repay requirements under TILA. In its interim final rule, the VA establishes that almost all VA loans that meet current VA underwriting standards will qualify for the QM safe harbor with regard to the ability-to-repay requirements of TILA.

In August 2014, the CFPB published a proposed rule to amend its Regulation C, which implements the Home Mortgage Disclosure Act (HMDA). Among other measures, the CFPB has proposed to revise the tests for determining which financial institutions and housing-related credit transactions are covered under HMDA to require the reporting of new data points identified in the Dodd-Frank Act, and to better align the requirements of Regulation C to existing industry standards to the extent practicable.

In November 2014, the CFPB published a final rule amending its 2013 ability-to-repay and mortgage servicing rules. The final rule provides an alternative small servicer definition for nonprofit entities that meet certain requirements and amends the existing exemption from the ability-to-repay rule for nonprofit entities that meet certain requirements. The final rule also provides a cure mechanism for the points and fees limit that applies to QMs.

In January 2015, the FHFA proposed new minimum financial eligibility requirements for mortgage seller/servicers to do business with Fannie Mae and Freddie Mac. The proposed minimum financial requirements include net worth, capital ratio, and liquidity criteria for such seller/servicers, which are designed to ensure the safe and sound operation of Fannie Mae and Freddie Mac. In March 2015, state bank and mortgage regulators published a proposed set of prudential standards for nonbank mortgage servicers; this proposal establishes baseline prudential standards that apply to all nonbank mortgage servicers and enhanced prudential standards for larger, more complex entities.

### **6.3.2 Consumer Protection**

Among its authorities, the CFPB may supervise certain nonbank entities, including mortgage companies, private education lenders, payday lenders, “larger participants” of a market for other consumer financial products and services, and any nonbank covered person that the CFPB has reasonable cause to determine is engaging or has engaged in conduct that poses risks to consumers with regard to the offering or provision of consumer financial products or services. The CFPB has issued a series of larger-participant rulemakings for specific markets, which establish the scope of the CFPB’s nonbank supervision authority in those markets. In September 2014, CFPB issued its latest larger-participant rulemaking, defining a market for “international money transfers.” This rule covers certain electronic transfers. In general, the definitions in the final rule track many key terms of the CFPB’s Regulation E for remittance transfers. The rule provides that a nonbank

covered person is a larger participant in the market for international money transfers if the entity has at least one million aggregate annual international money transfers.

In October 2014, the CFPB also published a proposed rule to identify a market for automobile financing and define certain nonbank covered persons as larger participants in this market. Under the proposal, a nonbank entity would be a larger participant in the market for automobile financing if the entity has at least 10,000 aggregate annual originations. Automobile financing would be defined to include grants of credit for purchasing an automobile, refinancing of these credit obligations, and the purchasing or acquiring of these obligations. The proposed rule would also define automobile leases and the purchasing or acquiring of automobile leases as automobile financing but would not include automobile title lending or the securitization of automobile loans or leases.

The CFPB also published in December 2014 a proposed rule to amend its Regulation E to regulate a broad range of general purpose reloadable prepaid accounts, including extensions of credit offered through those accounts. These prepaid accounts typically offer services and functionality similar to a debit card linked to a checking account, although not necessarily including deposit insurance, and consumers who are unbanked or otherwise underserved in financial services can use these prepaid accounts to obtain access to financial services such as the ability to (1) avoid carrying cash; (2) conduct card transactions with merchants that accept network-branded cards; (3) use direct-deposit services; (4) use online bill-pay services; and (5) review a history of financial transactions. Regulation E provides consumer protections for certain electronic fund transfers. Under the CFPB's proposed rule, those protections generally would be extended to a prepaid account. Under the proposed rule, for example, a financial institution would be required to provide consumers who use prepaid accounts with certain disclosures before they acquire the account and to make more detailed disclosures easily available. The proposed rule also would require financial institutions to provide consumers with access to information about their accounts' transactions, to resolve errors in accordance with Regulation E, and to limit consumers' liability for unauthorized transactions. The CFPB also proposed to amend its Regulation Z, which implements TILA, to require a financial institution that offers credit or overdraft services in connection with a prepaid account to treat the account as a credit card and to provide relevant protections under Regulation Z, including assessing the consumer's ability to pay before extending credit.

## **6.4 Data Gaps and Standards**

### **6.4.1 Data Gaps**

From a regulatory perspective, data gaps can take various forms. Regulators may not have data of sufficient scope, detail, or frequency to conduct robust analyses. Those data also may not be sufficiently standardized, or there may be legal restrictions on sharing the data. Furthermore, market participants need high-quality financial data to ensure efficient market functioning. Regulators took several steps in 2014 to improve the scope, comparability, and transparency of existing data collections.

In 2014, the SEC adopted amendments to its Form PF regulatory report, filed by registered advisors to hedge funds and other private funds, to align the data reported by liquidity funds with the information that MMFs report on the SEC's Form N-MFP. Since July 2013, national banks and federal savings associations have been reporting on the OCC's Monthly Schedule of Short-term Investment Funds. These changes will permit analysts to evaluate and compare risks in MMFs and private liquidity funds. The SEC also eliminated the 60-day lag on public availability of information that MMFs file on Form N-MFP.

In 2014, for the first time, the Federal Reserve made available to the public the data from its FRY-15 data collection—the Banking Organization Systemic Risk Report—except for certain line items related to LCRs. These data on 33 BHCs provide insights into the structure of financial networks and interconnectedness of the largest financial institutions.

Also in 2014, FINRA began posting on its website data submitted by FINRA members that operate alternative trading systems. These alternative trading systems are relatively opaque, raising concerns about efficient market functioning, potentially abusive trading behavior, and market vulnerability from the impact of high-frequency trading. This data provides information on aggregated transactions based on the volume and number of trades for each equity security traded on a weekly basis, utilizing a unique market participant identifier.

### Pilot Repo Data Collection

In 2014, the OFR and Federal Reserve announced a joint pilot project to collect data from participants in the bilateral repo market and the securities lending industry. The project focuses on the bilateral repo market due to its relative opacity as compared to the tri-party repo market. Some bilateral repo market participants have volunteered to take part in the pilot data collection and have already provided valuable feedback. Regulators would also like to improve their information about securities lending markets, as there is no systematic, targeted data collection for the benefit of regulators or the investing public. The OFR and Federal Reserve intend to publish aggregated data from the survey to provide greater transparency to market participants and policymakers. The SEC is a key contributor to this initiative, as well, and will have access to the data collected. The joint data collection of the OFR and the Federal Reserve in secured funding markets is aligned with global efforts by regulators, acting through the FSB, to collect data on secured funding markets that can be aggregated for cross-border analysis.

## 6.4.2 Data Standards

### Legal Entity Identifier

Further progress toward the broader adoption of the LEI for financial market participants remains a Council priority. The LEI is an alphanumeric code that uniquely identifies legal entities that engage in financial transactions. It provides a globally accepted standard for identifying market participants and serves as a linchpin for making connections in the massive volumes of financial data that course through the international economy every day. As of March 31, 2015, more than 356,000 LEIs have been issued to entities in 189 countries and 20 operational issuers have been approved to issue LEIs for use in regulatory reporting. The operational issuers are overseen by the Global LEI Foundation, which began to assume operational management of the LEI system in June 2014. The OFR's Chief Counsel continues to serve as chair of the LEI's Regulatory Oversight Committee, representing more than 60 public authorities in over 40 countries.

So far, derivatives regulators have driven LEI adoption across the world. The CFTC has required use of the LEI for reporting swap transactions to SDRs since 2012 and, beginning in 2015, the SEC will also require use of the LEI for reporting security-based swap transactions to SDRs. Swaps regulators in Europe, Canada, Australia, and Singapore also now require companies to use the LEI. In the United States, required use of the LEI is expanding beyond the initial focus on swap transactions. The Federal Reserve announced in late 2014 that BHCs that have already acquired an LEI are required to report it on the cover page of several forms after October 31, 2014. The Federal Reserve proposed in early 2015 that banking organizations and their affiliates that have already acquired an LEI would be required to report it on several forms after June 30, 2015. The CFPB included use of the LEI as the entity identifier in its proposed HMDA rule, published in August 2014.

Rules proposed in January 2015 by the Secretary of the Treasury, in his capacity as Chairperson of the Council, to implement the qualified financial contract recordkeeping requirements of the Dodd-Frank Act would generally require covered entities to use LEIs to identify counterparties of qualified financial contracts. Requirements to use the LEI for mandatory reporting will help drive the use of the LEI in the private sector.

### Swap Data Repositories

The Dodd-Frank Act amended the Commodity Exchange Act and the Securities Exchange Act to establish a new regulatory framework for swaps and security-based swaps, respectively. Under the Dodd-Frank Act, the CFTC was granted regulatory authority over SDRs, and the SEC was granted regulatory authority over SBSDRs. In 2012, the CFTC adopted rules to implement swap data recordkeeping and reporting requirements. Furthermore, in 2014, the CFTC and OFR entered into a cooperative effort to enhance the quality, types, and formats of data collected from CFTC-registered SDRs. In 2015, the SEC adopted Regulation SBSR—Reporting and Dissemination of Security-Based Swap Information, which sets forth the data elements that must be collected by SBSDRs.

Promoting transparency in the OTC derivatives markets is also a major priority for international regulators, given the market's role in the financial crisis, its decentralized nature, and still-developing infrastructure. Consistent with a 2014 Council recommendation, U.S. regulators sought to advance the work of the CFTC and OFR with international regulators through the newly formed Working Group for Harmonization of Key OTC Derivatives Data Elements of the CPMI-IOSCO. This international working group is tasked with issuing guidance on the development of a Unique Product Identifier and a Unique Transaction Identifier and with further harmonizing other OTC derivatives data elements, leveraging work already completed by the CFTC and OFR.

### Universal Loan Identifier

In August 2014, as part of its HMDA/Regulation C rulemaking, the CFPB published a proposal to create a Universal Loan Identifier (ULI) to strengthen Regulations C's self-assigned loan identifier for each covered loan or application reported under HMDA. The CFPB's proposal would combine the LEI with a uniquely generated loan number to create a ULI to track mortgage loan applications, originations and purchase of most mortgages.

### Financial Instrument Reference Database

Under the Dodd-Frank Act, the OFR is required to create a financial instrument reference database that is easily accessible to the public. Over the past year, OFR moved forward in developing a conceptual framework, which contemplates public-private engagement in various forms. To this purpose, the OFR has begun planning for an initial workshop in 2015, hosted by NIST, with the aim of further informing the development plans for the project. This project may reduce the adverse effects of information asymmetry by giving investors access to financial instrument data to enable better-informed investment decisions.

### Data Inventory

The Council's Interagency Data Inventory, publicly available on OFR's website, was updated on February 12, 2015, with new and updated information on agencies' data collections. By providing an easy and searchable view of agencies' data collections, the inventory can help regulators assess data gaps and data overlaps in regulatory collections. For researchers and the public, the inventory provides a view of the breadth of agencies' collections.

## Reporting Efficiency

It is a Council priority to make regulatory reporting requirements more efficient. In 2014, the OFR initiated a pilot project to gain insights into overlap and reporting efficiencies. The OFR also hosted a workshop in January 2015 with the Bank of England and the ECB to discuss regulatory reporting efficiency and effective use of data standards on an international level.

## 6.5 Council Activities

### 6.5.1 Determinations Regarding Nonbank Financial Companies

One of the Council's statutory authorities is to subject certain nonbank financial companies 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. The Council's authority to make these determinations is an important tool to help mitigate potential threats posed by these companies to U.S. financial stability. The Dodd-Frank Act sets forth the standard for the Council's determinations regarding nonbank financial companies and requires the Council to take into account 10 specific considerations when evaluating those companies. To further inform the public of the Council's framework and processes for assessing nonbank financial companies, the Council issued a final rule and interpretive guidance following three separate requests for public comment. Additionally, the Council adopted supplemental procedures in February 2015, describing changes to increase the transparency of its determinations and to formalize certain practices (see [Section 6.5.4](#)).

In December 2014, the Council voted to make a final determination regarding MetLife. Previously, the Council had made final determinations regarding AIG, GECC, and Prudential Financial. The basis for each final determination is available on the Council's website.

The Council's determination regarding MetLife followed the standards laid out in the Dodd-Frank Act and the framework and processes set forth in the Council's rule and guidance. In July 2013, the Council notified MetLife that the company was under consideration for a proposed determination by the Council. After over a year of engagement between the Council and MetLife, the Council notified the company in September 2014 that the Council had made a proposed determination and provided the company with an explanation of the basis of the Council's proposed determination. The company requested a written and an oral hearing to contest the Council's proposed determination. The Council granted the request and held an oral hearing in November 2014.

In addition, the Council in 2014 completed its first reevaluations of previous determinations regarding nonbank financial companies. Under Section 113 of the Dodd-Frank Act, the Council is required at least annually to reevaluate each previous determination and rescind any determination if the company no longer meets the statutory standards. In the summer and fall of 2014, the Council reevaluated its determinations regarding AIG, GECC, and Prudential Financial. The Council did not rescind any of its determinations. The Council's supplemental procedures with respect to nonbank financial company determinations provide the public with additional information regarding the process for the Council's annual reevaluations of determinations (see [Section 6.5.4](#)). As of the date of this report, as discussed above, four nonbank financial companies are subject to final determinations by the Council, and the Council has voted not to advance five nonbank financial companies to Stage 3 of the Council's three-stage process for evaluating nonbank financial companies. In 2014, the Council did not make a proposed or final determination regarding a nonbank financial company other than MetLife.

### 6.5.2 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 has a duty to facilitate coordination among member agencies and other federal and state agencies regarding financial services policy and other developments.

The Council regularly examines significant market developments and structural issues within the financial system. This risk monitoring process is facilitated by the Council's Systemic Risk Committee (SRC), which is composed primarily of member agency staff in supervisory, monitoring, 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.

The OFR plays an important role in the activities of the Council. In 2014, the OFR reported regularly to the SRC on developments in financial markets. In its 2014 annual report, the OFR issued a Financial Stability Monitor that assesses risks to the financial system based on five areas of risk: macroeconomic, market, credit, funding and liquidity, and contagion.

### 6.5.3 Asset Management Analysis

The Council has engaged in work over the past year to analyze risks associated with the asset management industry and the potential of such risks to affect U.S. financial stability. In May 2014, the Council's Deputies Committee hosted a conference on the asset management industry and its activities during which practitioners, academics, and other stakeholders discussed a variety of topics related to the industry.

In July 2014, the Council directed staff to undertake a more focused analysis of industry-wide products and activities to assess potential risks associated with the asset management industry. In order to inform that analysis, in December 2014 the Council voted unanimously to release a notice seeking public comment on aspects of the asset management industry. In particular, the Council sought input from the public about potential risks to the U.S. financial system associated with liquidity and redemptions, leverage, operational functions, and resolution in the asset management industry. The notice provided another important mechanism to solicit input from the public and built upon the Council's prior public engagement in this area. The public comment period closed in March 2015. The Council has not made any determination regarding the existence or nature of any potential risks to U.S. financial stability arising from asset management products or activities; in the event the Council's analysis identifies risks to U.S. financial stability, the Council will consider potential responses.

### 6.5.4 Adoption of Supplemental Procedures Relating to Nonbank Financial Company Determinations

In February 2015, the Council adopted changes relating to its process for reviewing nonbank financial companies for potential determinations. The changes fall into three categories:

- **Engagement with companies under consideration by the Council:** The Council will inform companies earlier when they come under review and provide opportunities for companies and their regulators to engage with the Council and staff, without compromising the Council's ability to conduct its work.
- **Transparency to the broader public regarding the determinations process:** The Council will make available to the public more information about its determinations work, while continuing to protect sensitive, nonpublic information.

- **Engagement during the Council’s annual reevaluations of determinations:** These changes create a clearer and more robust process for the Council’s annual reviews of its determinations. This process will enable more engagement between a company subject to a final determination and the Council and staff, with ample opportunity for companies to present information and to understand the Council’s analysis.

Under the new procedures, before the Council’s annual reevaluation of a nonbank financial company subject to a Council determination, the company will be provided an opportunity to meet with Council staff to discuss the scope and process for the review and to present information regarding any change that may be relevant to the threat the company could pose to financial stability, including a company restructuring, regulatory developments, market changes, or other factors. Companies subject to a final determination are also provided, pursuant to these supplemental procedures, an opportunity for an oral hearing before the Council once every five years at which the company can contest the determination.

The adoption of these changes followed extensive outreach to stakeholders during the second half of 2014 regarding the Council’s determinations process.

### **6.5.5 Governance and Transparency Initiatives**

The Council has recognized the importance of transparency since its first meeting in October 2010, when it voluntarily adopted its transparency policy. The Council continually examines how it can more effectively open up its work to the public and improve its internal policies and procedures.

In May 2014, the Council adopted enhancements to its transparency policy and adopted bylaws for its Deputies Committee. These changes were adopted following a review of existing Council practices and a comparison to organizations with similar structures, memberships, or responsibilities to the Council. As part of these changes, the Council now provides the public with information regarding its agenda in advance of each meeting and publishes on its website a written readout of meeting proceedings, in advance of formal minutes. The Council also reaffirmed its commitment to conducting its meetings in public whenever possible and to providing detailed minutes for its meetings.

Additionally, in September 2014, the Council published an extensive set of frequently asked questions on its website, providing greater transparency regarding its practices for nonbank financial company determinations.

The Council has also continued to make improvements to its website to provide the public with timely updates on a wide range of Council materials. Among other important information about the Council’s work, the website contains the minutes of all its meetings; its governance documents and budgets; all rulemakings, studies, requests for comment, and reports; and explanations of the basis of the Council’s designations of nonbank financial companies and FMUs.

### **6.5.6 Operations of the Council**

The Dodd-Frank Act requires the Council to convene no less than quarterly. In 2014, the Council met 10 times. The meetings bring Council members together to discuss and analyze market developments, threats to financial stability, and financial regulatory issues. Although the Council’s work frequently involves confidential supervisory and sensitive information, the Council is committed to conducting its business as openly and transparently as practicable. 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 2014.

Approximately every two weeks, the Council's Deputies Committee, which is composed of senior representatives of Council members, convenes 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 FMUs and payment, clearing, and settlement activities for designation; (3) making recommendations to primary financial regulatory agencies regarding heightened prudential standards for financial firms; (4) consultation with the FDIC on OLA and review of the resolution plan requirements for designated nonbank financial firms and the largest BHCs; and (5) data availability, data gaps, and improvement of data-reporting standards.

In 2014, the Council adopted its fifth budget.

#### **6.5.7 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.

## 7.1 Cybersecurity: Vulnerabilities to Attacks on Financial Services

Over the past year, financial sector organizations and other U.S. businesses experienced a host of notable cyber incidents, including large-scale data breaches that compromised financial information. While security technologies and user awareness are improving, malicious cyber activity is likely to continue in the future. Even more concerning is the prospect of a more destructive incident that could impair financial sector operations.

While the financial sector has in many ways been an industry leader in adopting cybersecurity measures, continued vigilance is necessary. For example:

- The U.S. financial sector is highly dependent upon information technology systems that are often interconnected. Financial transactions, such as payments and clearing, operate on computer and network systems that require robust data confidentiality, integrity, and availability.
- Various service providers operate infrastructure that is critical to financial sector operations. The concentration of key services may create the risk of a cyber incident impacting many organizations simultaneously, with significant impacts on financial sector operations.
- Malicious actors may infiltrate supply chains and compromise equipment and software in a manner that is difficult for companies to detect.

Cybercriminals have the capability to steal payment information from retail networks,

as well as accessing sensitive client data from financial institutions. More troubling, the recent destructive malware attack on an entertainment company was apparently able to render the company's computers inoperable, which suggests a higher level of sophistication. As a result of these intrusions, several technical and administrative best practices have been identified to mitigate the potential damage from future cyber incidents, including:

- **Third-party Vendor Management:** The cyber attack on a large retailer's network, executed through network access provided to a third-party vendor, highlighted the importance of establishing robust system controls for third-party vendors. Several firms have begun using the NIST Cybersecurity Framework to assist with vendor management.
- **Administrative Access:** Acquiring administrative access is a requirement for many malicious cyber attackers to penetrate secure systems. Both protecting administrative access—for example by requiring two-factor layered authentication for privileged accounts and sensitive systems—and detecting compromised administrative access through continuous and routine monitoring should be emphasized.
- **Recovery:** Financial firms should assume they will be subject to destructive attacks and develop capabilities and procedures to resume operations. Financial firms also need to be ready to quickly restore computer networks and technology-enabled operations in response to known or unforeseen threats that could cause catastrophic disruption.

## 7.2 Increased Risk-Taking in a Low-Yield Environment

The low-rate environment and improved economic conditions are encouraging greater risk-taking across the financial system as investors are more likely to accept incremental gains in yield for disproportionate amounts of risk. The low-rate environment could persist as global monetary authorities may need to keep rates low in order to fulfill their employment and price stability objectives. Banks, credit unions, and broker-dealers have lower NIMs, leading some firms to increase risk by holding longer-duration assets, easing lending standards, and otherwise seeking additional yield. For example, regulators have found serious deficiencies in underwriting standards and risk management practices of certain leveraged loans (see Section 5.1.1). The low rate environment has also put pressure on the ability of pension and retirement funds to meet their long-term liabilities. To boost returns, pension and retirement funds are taking on additional risk by extending duration or buying lower quality, higher-yielding assets and less liquid assets. Some insurance companies have repositioned their investment portfolios in a similar manner. Also, hedge funds and private equity are under pressure to maintain high absolute returns in a low-yielding environment.

In credit markets, despite strong outflows in 2014, high-yield and leveraged loan funds have seen significant growth since the crisis. Issuance of CLOs was at record highs in 2014. Emerging market bonds largely recovered from their sell-off in 2013 and continued to see strong issuance in 2014. In addition, agency REITs experienced similarly substantial inflows since the crisis. While each of these developments is likely due to a range of factors, including the economic recovery and an increase in risk appetite, low interest rates have played a role.

Since the 2014 annual report, credit markets exhibited loosening lending standards and declining spreads until the energy-market led sell-off that began in the second half of 2014 (see Box C). The sharp rise in spreads triggered losses across credit investment strategies and vehicles, and leveraged loan mutual funds saw record outflows in 2014. Following this sell-off, public data reveals a moderate improvement in new issue quality, as the percentage of highly levered deals done in the first quarter of 2015 decreased versus the prior year. Despite

these moves, spreads remain below long-term averages outside of the energy industry, and a spike in defaults could lead to further losses, increased volatility, and redemptions from credit funds.

A sharp increase in interest rate volatility or credit spreads could threaten the stability of the financial system, for example:

- If a rise in rates leads to a significant drop in demand for credit assets, less liquid markets such as high-yield bonds, emerging market bonds, and leveraged loans could have difficulty coping with demand imbalances and price volatility.
- Highly leveraged corporate borrowers could be at risk from a sharp rise in short-term interest rates. The rates on their floating-rate loans could increase significantly, leading to a drop in their cash flow and a potential downgrade of their credit quality, which could then have adverse effects on their credit holders.
- Strategies that use leverage to increase yields in fixed income could suffer sizeable losses if interest rates rise rapidly. If these losses lead to forced selling of assets, this could further depress prices, with this feedback loop potentially leading to further forced selling.

### 7.3 Changes in Financial Market Structure and Implications for Financial Stability

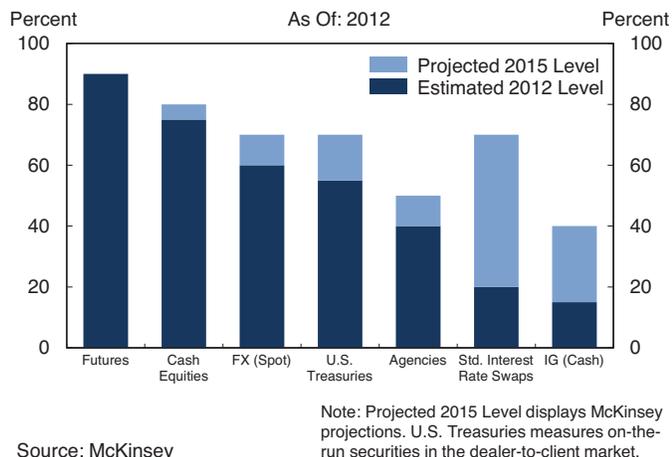
Financial market structure has evolved substantially over the years. It has resulted in lower costs, faster and more effective methods of risk transfer, improved price discovery, and expanded access for new market participants. It has also introduced operational vulnerabilities and potential liquidity risks. These changes to market structure stem from a confluence of factors including technology, regulation, and competition.

Some changes predated the financial crisis, such as the growing “electronification” of financial markets. This process is most developed in cash equity and futures markets while automated trading and electronification has increased steadily in fixed income, FX, and OTC derivative markets (**Chart 7.3.1**). As electronification becomes more prevalent across markets, regulators and market participants should monitor and seek to mitigate risks and vulnerabilities that may emerge.

The differing degrees of automated and electronic trading in interdependent markets, such as those for Treasury notes, Treasury futures, Eurodollar futures, U.S. interest rate swaps, and agency debt and MBS, may pose challenges. For example, for highly interdependent markets such as the cash and futures Treasury markets, which take price signals from each other, the varying degree of electronification and differences in trading systems among them may cause changes in liquidity demand in one market to spill over to the other, possibly amplifying price movements in periods of market stress.

As electronic trading has captured an increasingly significant share of total trading, there has been tremendous growth among electronic trading platforms and algorithmic trading firms that play an increasing role in facilitating market liquidity. For example,

7.3.1 Use of Electronic Trading by Asset Class



trading in equity markets is highly fragmented while trading in futures markets is highly centralized, yet both markets have a significant electronic and algorithmic trading presence. In addition, the business model and risk appetite of traditional broker-dealers have changed, with some reducing their securities inventories and, in some cases, exiting certain markets. New trading venues and platforms have also developed or expanded in some markets, including new regulated exchanges, interdealer platforms, and dark pools.

### Operational Vulnerabilities

As evidenced in the Flash Crash in 2010, the Facebook initial public offering in 2012, and the outage of consolidated pricing measures related to NASDAQ-listed equities in 2013, automation and electronic trading can nevertheless be susceptible to various types of market and operational risk. For example, as the speed with which large investment positions can be accumulated increases, it is critical that risk management systems across a variety of markets and market participants move equally fast. In addition, investment in technology, infrastructure, and appropriate safeguards is important to ensure the resiliency of market participants against potential operational risks, including those related to clearing and settlement processes.

### Liquidity Risks

As market structures have evolved, non-traditional liquidity providers such as proprietary-trading firms and hedge funds that engage in high-frequency trading have come to play an increasingly important role in market-making and the provision of liquidity. In equity markets, the process has evolved most as these firms have largely replaced exchange specialists and market makers that trade directly with customers. Across all markets that feature electronic trading, non-traditional liquidity providers engage exchanges and other electronic markets by rapidly submitting multiple bids and offers at different prices and sizes through automated systems. These orders are often cancelled and resubmitted at extremely fast speeds to avoid becoming stale, especially during volatile periods. Hence, the increased electronification in some markets, such as fixed income and FX, has been coupled with similarly quick changes in the provision of liquidity in response to market volatility. In such an environment, expectations about market speed and liquidity based on prior generation

trading systems may not align with actual market responses during volatile periods.

Also, broker-dealers have significantly reduced their inventories of fixed income securities such as Treasury securities, agency and corporate debt, MBS, and related derivative instruments. This contraction has taken place while the volume of new issuance and the overall size of many such markets have expanded and asset managers and other buy-side investors have grown relative to market makers. Market liquidity may be impaired if broker-dealers are less willing or unable to intermediate supply and demand imbalances.

In addition to market structure changes, cyclical forces such as the supply of credit, leverage of financial intermediaries, and monetary policy may also affect liquidity. As mentioned elsewhere in this report, the prolonged period of low interest rates and subdued volatility has encouraged a “reach for yield” behavior with increased positioning in cash and derivative fixed income markets. A sudden rise in interest rates could trigger a sell-off, which could be magnified by changes in market structure. The effects of such a sell-off may be especially acute for riskier or less liquid assets, such as high-yield or emerging market debt. On the other hand, a more normalized market environment could increase trading activity and incentivize greater liquidity provisioning. In the aftermath of the sharp movements in Treasury yields observed on October 15, 2014 (see **Box E**), market participants cited such cyclical forces, as well as market structure changes, as factors affecting liquidity in the \$39 trillion domestic fixed income market.

As this evolution of market structure plays out across a broader collection of asset classes and markets, market participants and regulators should monitor how it affects the provision of liquidity and market functioning.

## Box E: Financial Markets on October 15, 2014

On October 15, 2014, benchmark Treasury yields experienced the fourth-largest intraday move since the financial crisis, with the 10-year yield trading between 1.86 percent and an overnight peak of 2.23 percent (**Chart E.1**). Importantly, there was a 15 basis point drop in yields shortly after 9:30 a.m. that largely reversed within 15 minutes. Similarly large price movements were also observed in highly correlated U.S. interest rate markets including Eurodollar futures, Treasury future options, interest rate swaps and swaptions. While Treasury cash and futures trading volume on the day hit record highs, other measures of liquidity showed signs of deterioration. Interest rate swap contracts traded on regulated SEFs and OTC also registered then-record volumes. Other asset classes, such as equities, were also volatile. Historically, similarly sharp intraday changes in U.S. interest rates were associated with major economic events. By contrast, the volatility on October 15 followed slightly weaker-than-expected U.S. retail sales data, and the round-trip in yields in the short window just after 9:30 a.m. did not appear to correspond with any fundamental economic news.

Leading into the morning of October 15, macroeconomic risks in the euro area, accompanied by uncertainty around the eventual ECB response, generated considerable negative risk sentiment. This was compounded by the gloomy tone investors took away from the annual IMF/World Bank meetings the prior weekend and by increasing concerns over the risk of a widespread Ebola outbreak. Market commentary points to the potential amplifying effects of the unwinding of significant short positions established in cash and derivatives markets by leveraged investors in anticipation of higher interest rates in the United States. Data indicates that such interest rate positions, including for example those established via Eurodollar futures contracts (**Chart E.2**) and other instruments, began to be unwound in early October as interest rates moved lower, and continued on October 15.

**E.1 10-Year Treasury Yield on October 15, 2014**



Source: Bloomberg, L.P.

**E.2 Net Positioning by Leveraged Funds in Eurodollar Futures**



Source: CFTC

Note: Data covers net positioning in 3-month Eurodollar futures.

Global risk and positioning factors, however, do not adequately explain the volatile price movements in the short window just after 9:30 a.m., which was particularly notable for the sharp drop in interest rates and subsequent retracement. In both the cash and futures markets, the depth of standing quotes visible to market participants—a common metric of liquidity—rapidly fell to low levels and remained around those levels during the window of interest. Transactions continued to occur in a highly continuous manner during the window, which stands in contrast to some past episodes of sharp volatility that were marked by highly discontinuous trading, with prices “gapping” from one transaction to another. Some reports later suggested widespread disengagement by some of the largest broker-dealers and proprietary trading firms, as a means of managing their risk.

Many market participants have discussed the events of October 15 within the larger context of market structure changes in the U.S. Treasury market, particularly those related to market-making and electronic trading. The record volumes and continuous nature of trading during the most volatile window were due to the presence of automated trading systems capable of transacting at high speed that are now used by many market participants. Given the importance of the U.S. Treasury market to private and public participants, the relevant authorities are undertaking a thorough review of the Treasury market on October 15. Certain member agencies will publish an interagency white paper in the coming weeks, providing analysis into these events and changes in market structure.

## 7.4 Central Counterparties

CCPs are designed to enhance financial stability and increase market resiliency. To realize these financial stability benefits, systemically important CCPs must have robust frameworks for risk management. U.S. regulators have taken significant steps over the past several years to promote strong risk management practices at CCPs designated by the Council as systemically important and remain focused on identifying and mitigating any potential threats to financial stability that could arise from the activities of such CCPs, especially as an increasing amount of derivatives transactions shift onto these critical institutions.

Toward that end, regulators are analyzing the potential that under stressed market conditions CCPs could transmit significant liquidity or credit problems among financial institutions or markets. For example, in response to heightened market volatility, CCPs could require increased initial margin from their clearing members and clients in a procyclical manner. In addition, market stress could result in the failure of multiple major clearing members in a compressed time period, potentially creating exposures across major global CCPs. If a CCP suffers clearing member defaults of sufficient size and number and the resulting net losses across their portfolios are sufficiently severe, prefunded default resources could be exhausted. If the defaulted clearing member also provided other services to the CCP, this could complicate the CCP's response to the default.

While unprecedented in the United States, the exhaustion of the pre-funded resources could result in assessments on clearing members, to the extent specified in their ex ante rules. For some CCPs, if available defaulters' and mutualized resources are insufficient, CCP participants, including clients, could incur pro rata losses on their unpaid gains. The CCPs' default allocation procedures, which detail participants' obligations to the CCPs, are set forth in the CCPs' rulebooks. Nevertheless, the

unexpected timing of these costs to CCP participants could increase market uncertainty during a time of overall market stress.

While CCPs have failed in jurisdictions outside the United States, there is no precedent for the failure of a global CCP active in multiple jurisdictions. It is possible that significant market uncertainty and volatility could result if a major cross-border CCP's financial resources, risk management practices, or business continuity plans were to prove inadequate to weather the default of multiple clearing members or another disruptive event. The failure of such an interconnected financial infrastructure potentially could disrupt financial markets and transmit unpredictable financial stress. The structure of CCPs may also pose unique challenges to successful resolution, including how to determine the point where a CCP's recovery becomes impossible and regulators may choose to resolve the CCP, as well as how to ensure there is sufficient time to consider the systemic impact of, and implement, loss-allocation rules and procedures in stressed market environments.

Regulators are reviewing CCPs' default waterfalls, including how those plans allocate losses among clearing members, CCP owners, and other CCP stakeholders to maximize their respective incentives to remain focused on risk mitigation. They are also reviewing the level and breadth of transparency that should be provided into CCP risk management, including the risk models used to calculate margin requirements for each type of transaction. In addition, regulators are reviewing the practicability of a framework for consistent and comparable stress testing, including transparency into stress testing methodologies, and the development of sufficiently rigorous stress testing scenarios used, among other things, to calculate financial and liquidity resource requirements. Finally, domestic and foreign regulators are working to complete resolution plans that provide further clarity regarding how CCPs can be resolved safely by the appropriate authorities.

## 7.5 Global Economic and Financial Developments

The euro area recovery is fragile and could be derailed by shocks and political uncertainty. A key risk for the euro area is the political uncertainty in Greece, which must still successfully negotiate comprehensive reforms with the EU and IMF in order to continue to receive financial assistance needed to help fund the government's external and domestic obligations. Successful negotiation of reforms is also a necessary step for the Eurosystem to continue to provide Greece's financial sector with access to Eurosystem liquidity. In February 2015, after contentious negotiations, the new Greek government secured a four-month extension of its loan program with its official creditors, which would release €7.2 billion in undisbursed funds provided that Greece developed and implemented a comprehensive list of reforms. Technical negotiations between Greece and its creditors continue, but timing is short for the various parties to agree to a sufficiently robust set of reforms in time to provide Greece with necessary financing. In addition, it is likely Greece will need additional financing over the near-term in order to meet domestic and external obligations. Despite the agreement, Greek bond spreads remain elevated. So far, spillovers to other peripheral bonds have been muted, but such risks merit careful monitoring.

In addition, a key macroeconomic risk facing the euro area is that further disinflation could result in an unanchoring of inflation expectations, hindering the recovery. Also, despite approaching normalization of monetary policy in the United States, aggressive quantitative easing measures by the ECB and the BoJ to combat deflation may dampen global yields for a prolonged period of time, incentivizing continued reach for yield behavior which could result in excessive risk-taking.

The ongoing conflict in Ukraine has led to a deterioration of economic and financial conditions in both Ukraine and Russia, whose economies contracted in 2014. The Russian economy has experienced contractionary pressure from the combined effect of the drop in oil prices (see **Box C**) and sanctions imposed by the United States and Europe in response to Russian aggression. To help meet its financing needs and support its new economic reform program, the

Ukrainian government reached an agreement with the IMF for a new financial assistance package of about \$17.5 billion, which will be supplemented by additional resources from the international community. Although the situation in Ukraine is likely to remain volatile, direct spillovers to the United States are likely to be muted because of limited trade and financial linkages.

In China, a disorderly correction in the property market could impose large losses on many property developers and cause a sharp retrenchment in real estate investment. Also, credit growth has boomed since the global financial crisis, fueled by nontraditional lending and new financial products such as wealth management products (WMPs). A loss of investor confidence in WMPs could exert funding pressures in the banking system, potentially setting off a broader credit crunch. Adverse feedback loops between such a pullback in credit and declines in investment growth could generate broad financial stress in China. China does, however, maintain ample fiscal space for bank recapitalization or macroeconomic stimulus if necessary.

An abrupt slowdown in China poses a key risk to other EMEs, including through lower exports to China and downward pressure on commodity prices. Furthermore, dollar credit to EMEs has grown rapidly since the financial crisis, driven largely by a surge in offshore corporate bond issuance. Sudden changes in market sentiment may elicit capital flight and pose challenges to rolling over maturing bonds. Also, a rise in yields in advanced economies could spark a sell-off in emerging market bonds and destabilize markets, as occurred in the summer of 2013. Finally, oil exporters, such as Russia and Venezuela, are particularly vulnerable to weaker currencies and increased risk spreads and interest rates.

## 7.6 Financial Innovation and Migration of Activities

Competition, regulatory changes, and improvements in technology are continuously re-shaping the financial system and bringing about innovations in products, services, and business practices that benefit investors and consumers. One challenge for regulators is the creation of new products or services that could weaken the effectiveness of regulations. Another challenge for regulators is the migration of activities to areas outside of the regulatory perimeter, or to entities that are less regulated. Even seemingly beneficial innovations may later create vulnerabilities depending on how they are ultimately utilized. Since the financial crisis, the changing landscape of the financial system has fostered many innovations. What follows are examples of innovations in products, services, and business practices that Council member agencies are monitoring so as to understand the potential benefits and risks.

- **Expansion of ETFs / bond mutual funds:** Mutual funds and ETFs provide investors with daily liquidity for an underlying portfolio that may include illiquid assets. The Council is exploring how these funds, based on their structure or the nature of their redemption management practices, may raise distinct liquidity and redemption risks, particularly during periods of market stress. The Council is also examining, among other things, how incentives to redeem funds may increase the risk of fire sales or pose other risks to financial stability.
- **Volatility products:** Volatility products are derivatives (swaps, futures, or options) whose value is explicitly linked to the volatility of a reference asset. These products can be listed on exchanges or traded OTC. The market for exchange-listed products is relatively small. For instance, the market size for

VIX futures was about \$6 billion as of early 2015. As for OTC products, market exposures are reportedly significantly smaller than before the recent financial crisis; however, these exposures are difficult to measure.

- **MSRs:** Nonbank mortgage servicers maintain a large presence in the mortgage servicing market. These entities are not currently subject to company-wide capital and liquidity standards, which could inhibit their ability to withstand an economic downturn. Large-scale servicing transfers have also exposed significant data integrity issues, such as inaccurate loan files, that can hinder loss mitigation efforts. These issues contribute to larger concerns regarding the adequacy of risk management processes at some nonbank mortgage servicers.
- **Captive reinsurance:** In the insurance industry, life insurance companies continue to use affiliated captive reinsurers to address perceived redundancies in statutory reserves, and for other reasons. The states, through the NAIC, are working to establish a more consistent regulatory framework for captive reinsurance transactions.
- **Captive insurers and FHLB funding:** FHLB membership is limited to insured depository institutions, insurance companies, and community development financial institutions (CDFIs); however, some financial firms, such as REITs, have recently formed captive insurance companies in part to gain access to FHLB funding. The FHLBs provide a stable funding source that may allow for accelerated balance sheet and earnings growth. While insurance companies are subject to supervision and regulation by state regulators, some financial firms that are forming captives—and thereby gaining indirect access to FHLB funding—may be subject to less regulatory oversight. FHFA has proposed a rule on FHLB membership eligibility that could impose limits on captive insurers.

- Migration of leveraged loan origination to nonbank entities:** Leveraged loans are typically underwritten by a syndicate of firms such as banks, broker-dealers, and private equity firms. Banks currently represent the majority of the participants in these syndicates. Most of these loans are then sold to a variety of investors including CLOs, loan funds, hedge funds, and insurance companies. In response to the significant growth and weakened underwriting standards in the leveraged loan space, banking regulators updated their leveraged lending guidance in 2013 and subsequently in November 2014 released clarifying frequently asked questions. The guidance outlines high-level principles related to safe-and-sound leveraged lending activities for exposures held by banks. According to one estimate, deals that do not comply with this leveraged lending guidance represented over \$100 billion of the leveraged loans originated in 2014. A pullback by banks could provide an opportunity for institutions not subject to the guidance such as private equity firms, unregulated arms of broker-dealers, and business development companies to expand their participation in the riskiest deals. In this scenario, banks would continue to originate less risky leveraged loans while firms not subject to the guidance would originate more risky loans targeted by the guidance. The migration in credit origination outside of the banking system could result in a further decline in underwriting standards for those particular loans, which could result in larger losses in stressed conditions.
- Peer-to-peer lending:** Peer-to-peer lending, also known as marketplace lending, refers to loans which are arranged through companies that match borrowers and lenders and that manage loan applications, borrower screening, and loan servicing. In addition to credit risk, peer-to-peer lenders are also subject to liquidity risk because there is no secondary market for these loans. Although the amount of current peer-to-peer loans outstanding is small, the rapid growth of this sector bears monitoring.
- Digital Currencies:** There are several hundred digital currencies (also called virtual or crypto currencies). Although there is no single definition or model of a digital currency, many have two main features. First, the units of the currency are not denominated or tied to a sovereign currency such as the U.S. dollar. In fact, in most cases, the units of the digital currency are not a liability of any individual or institution. Second, transactions with the currency take place over a decentralized, peer-to-peer computer network that maintains a public ledger of transactions, often without the need for third-party intermediaries. At this time, digital currencies do not appear to pose financial stability concerns, as the extent to which digital currencies are used is extremely small, and their connection to the broader financial system is limited. Nonetheless, the potential applications and uses of the peer-to-peer network for transferring value in the payment and financial service industry warrant continued monitoring. Further, the relative anonymity of decentralized virtual currency transactions and holdings may hamper efforts to prevent money laundering and adherence to Bank Secrecy Act requirements.

## 7.7 Short-Term Wholesale Funding

In repo markets, the risk of pre-default fire sales—when a dealer begins to lose access to funding and sells its securities quickly—and post-default fire sales—when investors who receive collateral from a defaulted dealer sell that collateral in a rapid and uncoordinated fashion—continues to pose a significant threat to financial stability. The risk of pre-default fire sale can be mitigated by proper management of rollover risk, maturity of repo books, single-day concentrations, and capital and liquidity resources. However, post-default fire sale risk is harder to mitigate because no single regulator has the ability to impose a coordinated and orderly liquidation of collateral across all investors in the market.

Greater transparency about bilateral repo activity would expand policymakers' understanding of how the overall repo market works, its functioning and interconnectedness. Unfortunately, regulators and policymakers still do not have good visibility into the full range of repo market activity in the United States. While tri-party repo market activity has become increasingly transparent in recent years, there is limited information currently available on the bilateral repo market's size, composition, concentration, pricing, or risk profile. This lack of transparency inhibits the ability of U.S. regulators and policymakers to monitor and detect emerging developments that can pose risks to financial stability.

While the SEC took meaningful reform steps for MMFs in 2014, and the OCC has implemented short-term investment fund reforms for federally chartered banks and thrifts, other similar types of short-term investment vehicles could pose potential run risks. These risks could be particularly acute among existing or newly developed vehicles that are outside of the regulatory perimeter, and thus require continued monitoring.

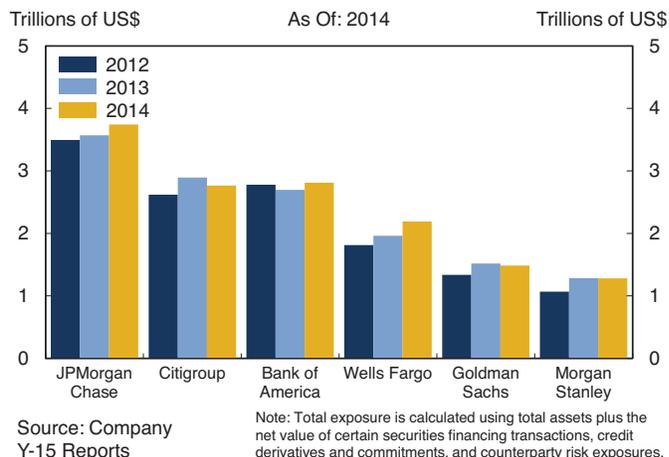
## 7.8 Risk-Taking Incentives of Large, Complex, Interconnected Financial Institutions

In the 2008 financial crisis, the official sector, including the Federal Reserve, Treasury, and FDIC, supported some of the largest U.S. financial institutions that became distressed by providing them with liquidity and capital in order to maintain financial stability. Expectations of continued support from the official sector could incentivize these financial institutions to further increase their systemic importance by growing in size, interconnectedness, and complexity, and could also lead creditors and counterparties to these institutions to misprice risk when lending or transacting.

The Dodd-Frank Act mitigates the incentives and abilities of large, complex, interconnected financial institutions to take excessive risks by limiting the ability of the Federal Reserve to provide extraordinary support to individual institutions, requiring the Federal Reserve to adopt enhanced prudential standards for the largest BHCs and designated nonbank financial companies ([see Section 6.1.1](#)), and by requiring that certain companies develop and submit to the Federal Reserve and the FDIC their own plan for rapid and orderly resolution under the Bankruptcy Code in the event they experience material financial distress or failure ([see Section 6.1.3](#)).

Title I of the Act requires certain companies to develop and submit to the Federal Reserve and the FDIC their own plan for rapid and orderly resolution under the Bankruptcy Code in the event they experience material financial distress or failure. In August 2014, the Federal Reserve and the FDIC jointly identified shortcomings among the plans of the largest filers. Letters were delivered to the firms directing them to demonstrate in their July 2015 plans that they are making significant progress to address all identified shortcomings. The letters also stated that if the firms fail to demonstrate significant progress with respect to the identified shortcomings that the Federal Reserve and the FDIC may determine that that the plans are not credible or would not facilitate orderly resolution under the U.S. Bankruptcy Code.

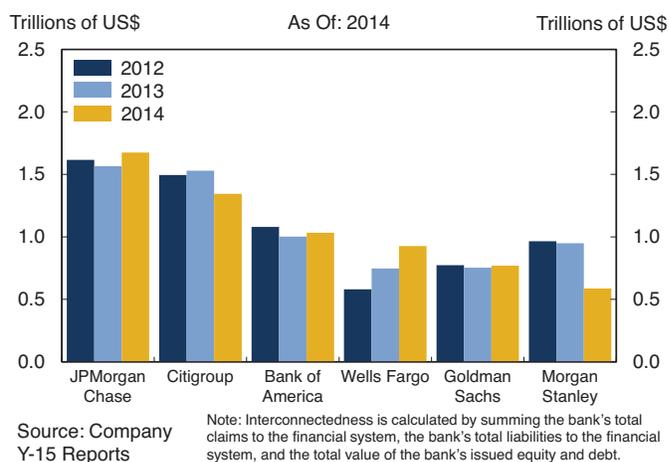
### 7.8.1 Total Exposure of Six Large Complex BHCs



Title II of the Act authorizes the FDIC to resolve financial companies whose failure and resolution under otherwise applicable law would have serious adverse effects on U.S. financial stability. The FDIC is continuing its work to carry out its OLA for resolving a financial company. Additionally, the Federal Reserve is considering adopting a proposal that would require the largest, most complex U.S. banking firms to maintain a minimum amount of long-term unsecured debt outstanding at the holding company level.

In the United States, BHCs with assets over \$50 billion are required to disclose, on an annual basis, their systemic risk indicators to the Federal Reserve by filing FR Y-15—the Banking Organization Systemic Risk Report. The systemic risk indicators are grouped into multiple categories including size, interconnectedness, and complexity.

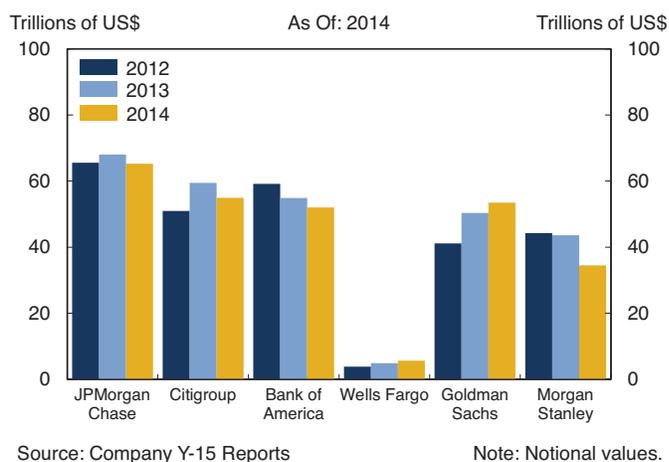
### 7.8.2 Interconnectedness of Six Large Complex BHCs



- Size is a measure of a bank's total risk exposure, and includes total assets, securities financing transactions, derivatives, and off-balance sheet items, among other things. In the aggregate, the largest BHCs have grown in size since 2012 (**Chart 7.8.1**).

- Interconnectedness is the measure of how connected a bank is to other financial institutions. Interconnectedness is measured using the sum of three indicators: the bank's total claims to the financial system; the bank's total liabilities to the financial system; and the total value of the bank's issued equity and debt. Since 2012, the largest BHCs have overall become slightly less interconnected, but some BHCs, like Wells Fargo and JPMorgan Chase, have become more interconnected (**Chart 7.8.2**).

### 7.8.3 OTC Derivatives Held by Six Large Complex BHCs



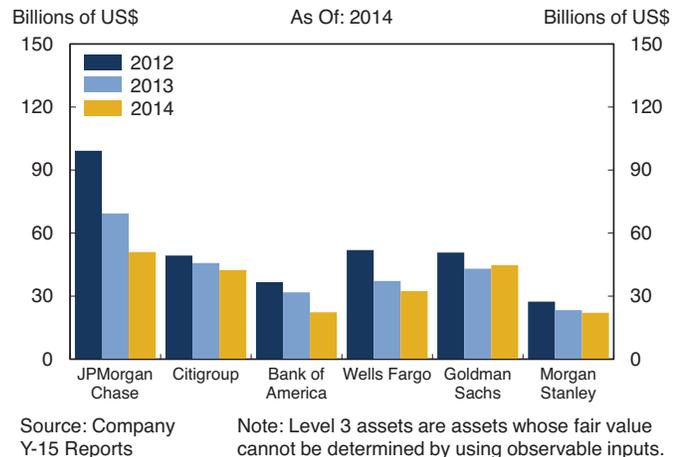
- Complexity is a measure of how difficult a bank is to resolve. Two components of complexity include the notional amount of OTC derivatives

the bank holds and the total value of the bank's level 3 assets—assets that are illiquid and hard to value. The overall amount of OTC derivatives at the largest BHCs since 2012 has remained roughly flat, with variation among the BHCs (Chart 7.8.3). However, level 3 assets have significantly dropped at all of the largest BHCs (Chart 7.8.4).

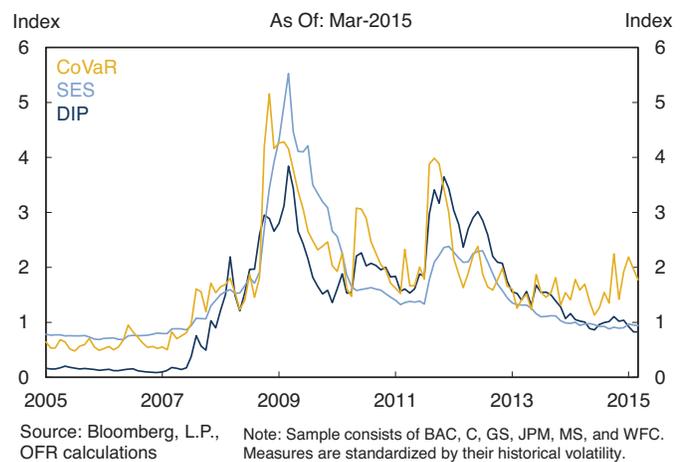
Other metrics which attempt to gauge systemic risk continued to decline at the largest BHCs in 2014 and remain well below crisis levels, indicating a reduction in systemic risk (Chart 7.8.5). The Conditional Value-at-Risk (CoVaR), Systemic Expected Shortfall (SES), and Distress Insurance Premium (DIP) all attempt to measure the spillover or correlation from one firm's failure to the whole system. As such, they measure interconnectedness. The CoVaR measure is defined as the value-at-risk of the financial system as a whole, conditional on the firm in question being in distress. The SES measure predicts the propensity of a firm to be undercapitalized when the system as a whole is in distress. The DIP measure represents a hypothetical insurance premium that covers distressed losses in a banking system. The current measures, based on the average of the six largest U.S. BHCs, continue to moderate. All told, since the passage of the Dodd-Frank Act, although the largest BHCs have become larger, some market-based measures indicate they have become less interconnected and less complex.

In recent years, both Moody's and Fitch rating agencies have lowered their assessments of the likelihood of government support for the largest banks in time of stress (Charts 7.8.6, 7.8.7). However, both rating agencies still consider some chance that the government will provide support to the largest banks if they become financially distressed.

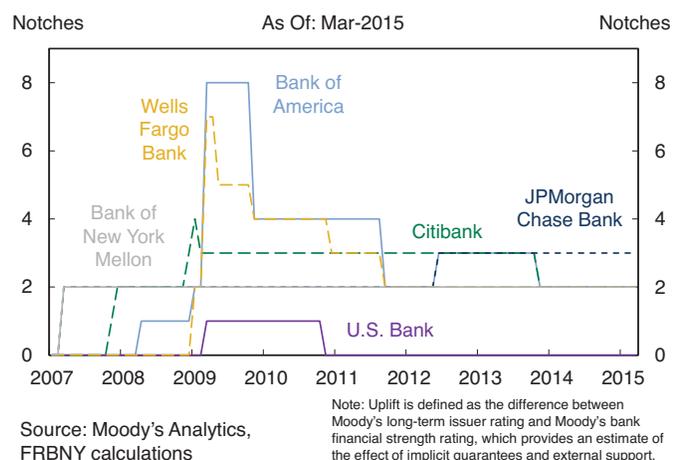
#### 7.8.4 Level 3 Assets Held by Six Large Complex BHCs



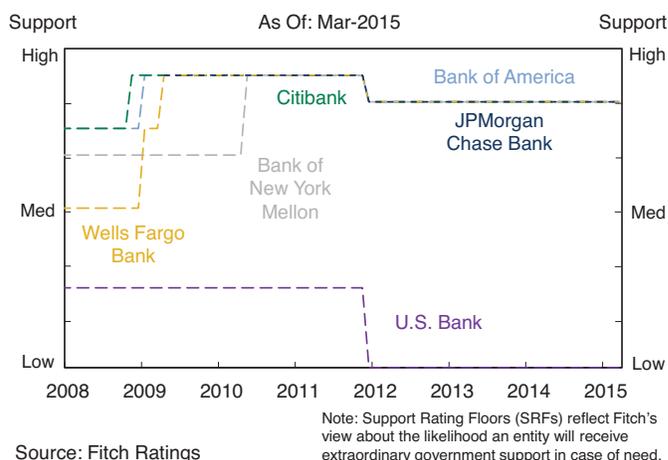
#### 7.8.5 Systemic Risk Measures



#### 7.8.6 Moody's Systemic Support Uplift



### 7.8.7 Fitch Support Rating Floors



Banks have also experienced an increase in legal settlements and fines related to misconduct issues, which have heightened concerns about their ability to manage legal risk and adequately quantify their potential legal exposures. Uncertainty about the scale and size of these potential legal exposures could pose significant threats to banks' capital, earnings, and reputation, as well as undermine the public trust in the financial system. Moreover, a continued pattern of misconduct could undermine efforts to towards a more stable and sound financial system.

Firms also rely on technology and models to conduct much of their day-to-day business such as pricing securities and managing portfolio risk, confirming trades and booking traders' positions for accounting and regulatory reporting, as well as monitoring market, credit, and operational risks. Regardless of whether the systems and models are built in-house or purchased from third-party vendors, there are often differences in how they measure, aggregate, and report portfolio exposures and risks, which may complicate risk management across all the firms' business lines.

### 7.9 Reliance upon Reference Rates

As discussed in the Council's 2013 and 2014 annual reports, the problems with USD LIBOR reflect several interrelated structural factors, including the decline in unsecured interbank lending, the incentives to manipulate rates submitted to reference rate panels owing to the vast scale of derivatives tied to the reference rate, and the dominant market position of instruments tied to LIBOR. Reliance on USD LIBOR creates vulnerabilities that could pose a threat to market integrity, the safety and soundness of individual financial institutions, and to U.S. financial stability for several reasons. First, a reference rate that is not anchored in observable transactions or that relies overly on transactions in a relatively low-volume market increases the incentives and potential for manipulative activity. Second, the current and prospective levels of activity

in unsecured interbank markets raise the risk that continued production of LIBOR might not be sustainable. The cessation of such a heavily used reference rate would pose substantial legal risks and could cause substantial disruptions to and uncertainties around the large gross flows of LIBOR-related payments and receipts between financial institutions.

### Reform Efforts in Interest Rate Benchmarks

Since the Council's 2014 annual report, official sector efforts to strengthen interest rate benchmarks have made substantial progress.

In July 2014, IOSCO published its first review of the extent to which the benchmark administrators of LIBOR, Euribor, and TIBOR had implemented the IOSCO Principles for Financial Benchmarks. The review found that the administrators had made significant progress in implementing the majority of the IOSCO principles. Completed and ongoing reforms raised the overall oversight, governance, transparency, and accountability of the three administrators and their respective benchmarks. Nonetheless, the review noted several areas in which further progress was needed in order to meet the IOSCO principles.

In the same month, the FSB released its report, *Reforming Major Interest Rate Benchmarks*, containing recommendations for reference rate reform. Those recommendations were made after extensive consultation with market participants who conducted a thorough study of possible alternatives.

The key recommendation from these reports was that efforts should focus on the accommodation of multiple reference rates. A multiple-rate approach will allow the rate used in a financial transaction to be more closely tied to the underlying economic purpose, reduce the incentive to manipulate, and enhance stability by improving the availability of alternatives. One of those reference rates would be a reformed version of LIBOR anchored in transactions. The others should be nearly risk-free rates, which are more

appropriate for financial markets today. Using largely risk-free rates based on observable transactions, rather than interbank markets with relatively few transactions, is consistent with the Council's recommendations. Separating the reference rate used for most derivatives from the interbank market would also remove one of the significant incentives to manipulate LIBOR. This separation would also allow some users to select a reference rate that is based on what is most appropriate for their transaction rather than the current system in which the vast majority of contracts reference LIBOR. The reformed LIBOR rate and the alternatives would exist side-by-side going forward, giving market participants a choice of reference rates.

A number of steps have been taken to implement the report's recommendations. The administration of LIBOR shifted last year from the British Bankers' Association to ICE Benchmark Administration (IBA). In October 2014, IBA issued a position paper with a request for comments that suggested using a more transactions-based approach to calculating LIBOR, expanding the size of the submission panels, widening the scope of transactions that are used, and increasing the time frame considered. The Federal Reserve has been cooperating with the FSB, the U.K. Financial Conduct Authority, and IBA on LIBOR reform.

In order to implement the second part of the recommendation of the FSB report to develop risk-free U.S. dollar alternative reference rates, the Federal Reserve, with the support of the Treasury, is sponsoring a group of market participants, the ARRC, charged with developing a plan to identify alternative reference rate(s) that both fits the needs of the market and meets IOSCO standards. More specifically, the ARRC has four objectives:

- Identify best practices for alternative reference rate(s).
- Identify best practices for contract robustness.
- Develop an adoption plan.
- Create an implementation plan with metrics of success and a timeline.

### Concerns about Other Reference Rates

Over the past several years, concerns have been raised about other financial benchmarks, including swap rates

and FX rates. These benchmarks are used for valuing numerous contracts and portfolios of assets.

The FSB's Official Sector Steering Group established a working group to examine the rate setting process for exchange rate benchmarks. That group issued a report containing recommendations in September 2014, and implementation of those recommendations has begun. WM/Reuters, the provider of the most widely used FX benchmark, made changes to its calculation by expanding the length of the calculation window and by utilizing more data inputs. Banks have begun to announce changes to promote more transparent and consistent pricing of fixing transactions and to strengthen internal procedures related to such transactions. In addition, the various central bank-sponsored FX committees developed a document to help provide globally consistent guidance covering topics, such as personal and market conduct and protection of client information. Currently, the WM/Reuters rates are regulated as critical benchmarks by the FCA.

## 7.10 Challenges to Data Quality, Collection, and Sharing

The financial crisis illustrated that insufficient or low-quality data obfuscates a buildup in vulnerabilities and that greater data transparency can improve the ability of both regulators and market participants to respond effectively. Although regulators now collect significantly more data on financial markets and institutions, critical gaps remain in the scope, quality, and access to data.

For example, there is a lack of data available to regulators and market participants with respect to wholesale funding markets. The joint Federal Reserve and OFR pilot data collection on repo markets, in which the SEC is participating, is an important step toward addressing that data gap. There are similar data gaps in securities lending activities of financial institutions and a similar pilot collection for securities lending transactions is already underway.

Regulators and market participants would also benefit from more data about asset management activities. Mutual fund data provided in a similar format to the MMF data collected on the SEC's Form N-MFP would increase the transparency of fund practices for investors and regulators. Greater transparency of investments

in separately managed accounts would also improve visibility into broader market practices. The SEC has identified these issues and has targeted enhanced data reporting in separately managed accounts and derivatives in mutual funds as possible areas for rulemaking in 2015.

Data gaps can emerge as financial activities migrate to new products and markets. Regulators have little information about certain types of traditional banking activities that are increasingly taking place outside of the prudential regulatory perimeter. For example, there is a lack of public information about the use of captive reinsurers by the life insurance industry and the growing concentration of risks in CCPs.

There has been important progress in implementing the LEI (see Section 6). Since the LEI implementation in 2013, new regulations requiring LEI reporting are being issued across the world.

SDRs and SBSDRs collect and maintain confidential information about transactions and make those data available to regulators. However, under current rules the repositories have significant discretion in how they report data. Without strong and common standards, the data collected by repositories are unlikely to bring the desired benefits to counterparty analysis and financial stability monitoring. The CFTC is working to improve data quality and standards in swaps data reporting with input from the OFR. However, some U.S. authorities' access to these data remains a challenge due to legal and other obstacles.

Regulators need better mechanisms to quickly share, link, and integrate data that cut across different types of institutions and markets. International cooperation on data standards and data sharing is also essential to reduce variations in data collections across national boundaries.

# Abbreviations

|      |   |
|------|---|
| ABCP | Asset-Backed Commercial Paper               |
| ABS  | Asset-Backed Security                       |
| AIG  | American International Group                |
| ARRC | Alternative Reference Rates Committee       |
| AUM  | Assets Under Management                     |
| BCBS | Basel Committee on Banking Supervision      |
| BCR  | Basic Capital Requirement                   |
| BEA  | Bureau of Economic Analysis                 |
| BHC  | Bank Holding Company                        |
| BIS  | Bank for International Settlements          |
| BLS  | Bureau of Labor Statistics                  |
| BoJ  | Bank of Japan                               |
| C&I  | Commercial and Industrial                   |
| CBO  | Congressional Budget Office                 |
| CCAR | Comprehensive Capital Analysis and Review   |
| CCP  | Central Counterparty                        |
| CD   | Certificate of Deposit                      |
| CDFI | Community Development Financial Institution |

|                |   |
|----------------|---|
| CDO            | Collateralized Debt Obligation                                  |
| CDS            | Credit Default Swap   |
| CFPB           | Bureau of Consumer Financial Protection                         |
| CFTC           | Commodity Futures Trading Commission                            |
| CLO            | Collateralized Loan Obligation                                  |
| CMBS           | Commercial Mortgage-Backed Security                             |
| CME            | Chicago Mercantile Exchange                                     |
| CMO            | Collateralized Mortgage Obligation                              |
| Council        | Financial Stability Oversight Council                           |
| CoVaR          | Conditional Value-at-Risk                                       |
| CP             | Commercial Paper  |
| CPMI           | Committee on Payments and Market Infrastructures                |
| CRE            | Commercial Real Estate  |
| DFAST          | Dodd-Frank Act Stress Tests                                     |
| DIP            | Distress Insurance Premium                                      |
| Dodd-Frank Act | Dodd-Frank Wall Street Reform and Consumer Protection Act       |
| DTC            | Depository Trust Company  |
| EBITDA         | Earnings Before Interest, Taxes, Depreciation, and Amortization |
| ECB            | European Central Bank   |
| EME            | Emerging Market Economy   |

|                 |  |
|-----------------|--|
| ETF             | Exchange-Traded Fund                                       |
| ETP             | Exchange-Traded Product                                    |
| EU              | European Union   |
| Euribor         | Euro Interbank Offered Rate                                |
| FASB            | Financial Accounting Standards Board                       |
| FBIC            | Financial and Banking Information Infrastructure Committee |
| FBO             | Foreign Banking Organization                               |
| 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                             |
| FHLB            | Federal Home Loan Bank                                     |
| FICC            | Fixed Income Clearing Corporation                          |
| FINRA           | Financial Industry Regulatory Authority                    |
| FIO             | Federal Insurance Office                                   |
| FMI             | Financial Market Infrastructure                            |
| FMU             | Financial Market Utility                                   |
| FOMC            | Federal Open Market Committee                              |

|         |  |
|---------|--|
| FRBNY   | Federal Reserve Bank of New York                         |
| FS-ISAC | Financial Sector Information Sharing and Analysis Center |
| FSB     | Financial Stability Board                                |
| FSOC    | Financial Stability Oversight Council                    |
| FSSCC   | Financial Services Sector Coordinating Council           |
| FX      | Foreign Exchange   |
| G-20    | The Group of Twenty                                      |
| G-SIB   | Global Systemically Important Banking Organization       |
| G-SIFI  | Global Systemically Important Financial Institution      |
| G-SII   | Global Systemically Important Insurer                    |
| GAAP    | Generally Accepted Accounting Principles                 |
| GCF     | General Collateral Finance                               |
| GDP     | Gross Domestic Product                                   |
| GECC    | .General Electric Capital Corporation, Inc               |
| GLB     | Guaranteed Living Benefit                                |
| GO      | General Obligation                                       |
| GSE     | Government-Sponsored Enterprise                          |
| HAMP    | Home Affordable Modification Program                     |
| HARP    | Home Affordable Refinance Program                        |
| HELOC   | Home Equity Line of Credit                               |

|       |  |
|-------|--|
| HLA   | Higher Loss Absorbency                               |
| HMDA  | Home Mortgage Disclosure Act                         |
| HUD   | U.S. Department of Housing and Urban Development     |
| IAIS  | International Association of Insurance Supervisors   |
| IASB  | International Accounting Standards Board             |
| IBA   | ICE Benchmark Administration                         |
| ICE   | Intercontinental Exchange                            |
| ICI   | Investment Company Institute                         |
| ICS   | Insurance Capital Standard                           |
| IMF   | International Monetary Fund                          |
| IOSCO | International Organization of Securities Commissions |
| ISDA  | International Swaps and Derivatives Association      |
| LBO   | Leveraged Buyout                                     |
| LCF   | Last Cash Flow                                       |
| LCR   | Liquidity Coverage Ratio                             |
| LEI   | Legal Entity Identifier                              |
| LIBOR | London Interbank Offered Rate                        |
| MBS   | Mortgage-Backed Security                             |
| MMF   | Money Market Mutual Fund                             |
| MOVE  | Merrill Lynch Option Volatility Estimate             |

|        |   |
|--------|---|
| MSR    | Mortgage Servicing Right                              |
| NAIC   | National Association of Insurance Commissioners       |
| NARAB  | National Association of Registered Agents and Brokers |
| 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                                   |
| NIST   | National Institute of Standards and Technology        |
| NSCC   | National Securities Clearing Corporation              |
| NSFR   | Net Stable Funding Ratio                              |
| OCC    | Office of the Comptroller of the Currency             |
| OFR    | Office of Financial Research                          |
| OLA    | Orderly Liquidation Authority                         |
| OMB    | Office of Management and Budget                       |
| ON RRP | Overnight Reverse Repurchase Agreement                |
| OPEC   | Organization of the Petroleum Exporting Countries     |
| ORSA   | Own Risk and Solvency Assessment                      |
| OTC    | Over-the-Counter                                      |
| P&C    | Property and Casualty                                 |

|       |   |
|-------|---|
| PCE   | Personal Consumption Expenditures               |
| PFMI  | Principles for Financial Market Infrastructures |
| PIK   | Payment-in-Kind                                 |
| QM    | Qualified Mortgage                              |
| QRM   | Qualified Residential Mortgage                  |
| REIT  | Real Estate Investment Trust                    |
| REO   | Real Estate Owned                               |
| Repo  | Repurchase Agreement                            |
| RMBS  | Residential Mortgage-Backed Security            |
| ROA   | Return on Average Assets                        |
| RRP   | Reverse Repurchase Operation                    |
| RWA   | Risk-Weighted Asset                             |
| S&P   | Standard and Poor's                             |
| SBSDR | Security-Based Swap Data Repository             |
| SBSR  | Security-Based Swap Reporting                   |
| SCI   | Systems Compliance and Integrity                |
| SDR   | Swap Data Repository                            |
| SEC   | Securities and Exchange Commission              |
| SEF   | Swap Execution Facility                         |
| SES   | Systemic Expected Shortfall                     |

|          |   |
|----------|---|
| SIFMA    | Securities Industry and Financial Markets Association |
| SLOOS    | Senior Loan Officer Opinion Survey                    |
| SLR      | Supplementary Leverage Ratio                          |
| SNC      | Shared National Credit                                |
| SRC      | Systemic Risk Committee                               |
| SSM      | Single Supervisory Mechanism                          |
| Term RRP | Term Reverse Repurchase Agreement                     |
| TIBOR    | Tokyo Interbank Offered Rate                          |
| TILA     | Truth in Lending Act                                  |
| Treasury | U.S. Department of the Treasury                       |
| TRIP     | Terrorism Risk Insurance Program                      |
| ULI      | Universal Loan Identifier                             |
| USD      | U.S. Dollar   |
| VA       | U.S. Department of Veterans Affairs                   |
| VaR      | Value-at-Risk   |
| VIX      | Chicago Board Options Exchange Volatility Index       |
| WAM      | Weighted-Average Maturity                             |
| WMP      | Wealth Management Product                             |
| WTI      | West Texas Intermediate                               |

# Glossary

|                                       |   |
|---------------------------------------|---|
| 1940 Act                              | The Investment Company Act of 1940 is an act of Congress primarily concerning the regulation of mutual funds, closed-end funds, exchange-traded funds, and business development companies.  |
| Additional Tier 1 Capital             | A regulatory capital measure which includes items such as non-cumulative perpetual preferred stock and related surplus, minority interest in subsidiaries, and mandatory convertible preferred securities.  |
| Advanced Approaches Capital Framework | The Advanced Approaches capital framework requires certain banking organizations to use an internal ratings-based approach and other methodologies to calculate risk-based capital requirements for credit risk and advanced measurement approaches to calculate risk-based capital requirements for operational risk. The framework applies to large, internationally active banking organizations—generally those with at least \$250 billion in total consolidated assets or at least \$10 billion in total on-balance sheet foreign exposure—and includes the depository institution subsidiaries of those firms. |
| 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 type of security that is collateralized by self-liquidating financial assets that allows the holder of the security to receive payments that depend primarily on cash flows from the assets.  |
| Bid-to-Cover Ratio                    | A measure of investor demand, typically with respect to auctions of fixed income securities, calculated as the total bids placed divided by the total bids accepted.  |
| Bilateral Repo                        | Bilateral repos are repos between two institutions where settlement typically occurs on a “delivery versus payment” basis. More specifically, the transfer of the collateral to the cash lender occurs simultaneously with the transfer of the cash to the collateral provider.   |
| 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.  |

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| Clearing Bank                                    | A BHC 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.  |
| Collateral                                       | Any asset pledged by a borrower to guarantee payment of a debt.  |
| Collateralized Loan Obligation (CLO)             | A securitization vehicle backed predominantly by commercial loans.   |
| 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.   |
| Common Equity Tier 1 Capital                     | A regulatory capital measure which includes capital with the highest loss-absorbing capacity, such as common stock and retained earnings.  |
| Common Equity Tier 1 Capital Ratio               | A ratio that divides common equity tier 1 capital by total risk-weighted assets. The ratio applies to all banking organizations subject to the Revised Capital Rule.   |
| Common Securitization Platform (CSP)             | A common RMBS securitization infrastructure between Fannie Mae and Freddie Mac.  |
| 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.   |
| Conditional Value-at-Risk (CoVaR)                | The value-at-risk (VaR) of the financial system conditional on institutions being in distress.   |
| Consumer Price Index (CPI)                       | A monthly index containing data on changes in the prices paid by urban consumers for a representative basket of goods and services.  |
| 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 securities. Many credit rating agencies are Nationally Recognized Statistical Rating Organizations, the largest of which are Fitch Ratings, Moody's Investors Service, and Standard & Poor's. |

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| Defined Benefit 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 defined benefit plans, the investment risk is borne by the plan sponsor.   |
| Defined Contribution Plan             | A retirement plan in which the cost to the employer is limited to the specified annual contribution. In defined contribution plans, the investment risk is borne by the plan participant.  |
| Distress Insurance Premium (DIP)      | A measure of systemic risk that integrates the characteristics of bank size, default probability, and interconnectedness.  |
| Dodd-Frank Act Stress Tests (DFAST)   | Annual stress tests required by Dodd-Frank for national banks and federal savings associations with total consolidated assets of more than \$10 billion.   |
| Duration                              | The sensitivity of the prices of bonds and other fixed income securities to changes in the level of interest rates.  |
| Euro Interbank Offered Rate (Euribor) | The rate at which euro interbank term deposits are offered by one prime bank to another prime bank within the euro area.   |
| Exchange-Traded Product (ETP)         | An investment fund or note whose shares are traded on an exchange. ETPs offer continuous pricing—unlike mutual funds, which offer only end-of-day pricing. ETPs are often designed to track an index or a portfolio of assets.   |
| Federal Funds Rate                    | The interest rate at which depository institutions lend balances to each other overnight. The 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. |
| 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 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."                                |

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| 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 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.   |
| Future                                | A standardized contract traded over exchanges to buy or sell an asset in the future.   |
| General Collateral Finance (GCF)      | An interdealer repo market in which the Fixed Income Clearing Corporation plays the role of intraday CCP. Trades are netted at the end of each day and settled at the tri-party clearing banks. See Tri-party Repo.  |
| 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.   |
| 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                      | An accounting term for debt securities accounted for at amortized cost, under the proviso that the company can assert that it has the positive intent and ability to hold the securities to maturity.  |
| High-Quality Liquid Asset             | An asset—such as a government bond—that is considered eligible as a liquidity buffer in the U.S. banking agencies' liquidity coverage ratio. High-quality liquid assets should be liquid in markets during times of stress and, ideally, be central bank-eligible.   |
| Home Equity Line of Credit (HELOC)    | A line of credit extended to a homeowner that uses the home as collateral.   |
| 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.   |
| Household Formation                   | A measure of housing demand, calculated as the month-to-month change in the number of occupied housing units.  |

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| 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.  |
| Large-Scale Asset Purchases           | 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. |
| Level 3 Assets                        | Assets for which fair value measurement is based on unobservable inputs.   |
| Leveraged Buyout (LBO)                | 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.  |
| Leveraged Loan                        | A loan for which the obligor's post-financing leverage as measured by debt-to-assets, debt-to-equity, cash flow-to-total debt, or other such standards unique to particular industries significantly exceeds industry norms. Leveraged borrowers typically have a diminished ability to adjust to unexpected events and changes in business conditions because of their higher ratio of total liabilities to capital.  |
| Liquidity Coverage Ratio (LCR)        | A standard to ensure that covered companies maintain adequate unencumbered, high-quality liquid assets to meet anticipated liquidity needs for a 30-day horizon under a standardized liquidity stress scenario.  |
| Loan-to-Value Ratio                   | 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.  |
| London Interbank Offered Rate (LIBOR) | The interest rate at which banks can borrow unsecured funds from other banks in London wholesale money markets, as measured by daily surveys. The published rate is a trimmed average of the rates obtained in the survey.   |

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| 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.  |
| Maturity Gap                          | The weighted-average time to maturity of financial assets less the weighted-average time to maturity of liabilities.  |
| Money Market Mutual Fund (MMF)        | A type of mutual fund that invests in short-term, liquid securities such as government bills, CDs, CP, or repos.  |
| Mortgage-Backed Security (MBS)        | ABS backed by a pool of mortgages. Investors in the security receive payments derived from the interest and principal payments on the underlying mortgages.   |
| Mortgage Servicing Company            | 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 to borrowers and investors.  |
| Mortgage Servicing Rights (MSRs)      | The rights to service and collect fees on a mortgage.   |
| Municipal Bond                        | A bond issued by states, cities, counties, local governmental agencies, or certain nongovernment issuers to finance certain general or project-related activities.  |
| Net Asset Value (NAV)                 | An investment company's total assets minus its total liabilities.   |
| Net Interest Margin (NIM)             | Net interest income as a percent of interest-earning assets.  |
| Net Stable Funding Ratio (NSFR)       | A liquidity standard to promote the funding stability of internationally active banks, through the maintenance of stable funding resources relative to assets and off-balance sheet exposures.  |
| Open Market Operations                | The purchase and sale of securities in the open market by a central bank to implement monetary policy.  |
| 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. |
| Over-the-Counter (OTC)                | A method of trading that does not involve an organized exchange. In OTC markets, participants trade directly on a bilateral basis, typically through voice or computer communication and often with certain standardized documentation with counterparty-dependent terms.   |

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| 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 and product feature requirements announced by the CFPB, VA, or other applicable agencies. An originator of a QM 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.   |
| 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.    |
| 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.   |
| 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.  |
| Revised Capital Rule                        | The capital rule that revised the risk-based and leverage capital requirements for U.S. banking organizations, as finalized by the U.S. banking agencies in October 2013 (78 FR 198 (October 11, 2013)).   |
| Risk-Based Capital                          | An amount of capital, based on the risk-weighting of various asset categories, that a financial institution holds to help protect against losses.  |

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| Risk-Weighted Assets (RWAs)               | A risk-based concept used as the denominator of risk-based capital ratios (common equity tier 1, tier 1, and total). The total RWAs for an institution are a weighted total asset value calculated from assigned risk categories or modeled analysis. Broadly, total RWAs are determined by calculating RWAs for market risk and operational risk, as applicable, and adding the sum of RWAs for on-balance sheet, off-balance sheet, counterparty, and other credit risks. |
| 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 Information Processor          | A system that consolidates and disseminates equity prices.  |
| 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.  |
| 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, CP, Federal Home Loan Bank borrowings, and repos.   |
| Sponsor-Backed Payment-in-Kind (PIK) Bond | A bond that compensates the holder with other bonds rather than cash.   |
| Supplementary Leverage Ratio (SLR)        | Tier 1 capital of an advanced approaches banking organization divided by total leverage exposure. All advanced approaches banking organizations must maintain an SLR of at least 3 percent. The SLR is effective January 1, 2018, and organizations must calculate and publicly disclose their SLRs beginning March 31, 2015.   |

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| 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, equities, commodities, and FX.   |
| 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. The Committee on Payments and Settlement Systems and IOSCO describe 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.   |
| Swap Execution Facility (SEF)     | A term defined in the Dodd-Frank Act as a trading platform which market participants use to execute and trade swaps by accepting bids and offers made by other participants.  |
| Swap Future                       | A futures contract that mimics the economic substance of a swap.  |
| Swaption                          | An option granting the right to enter into a swap. See Option and Swap.   |
| Systemic Expected Shortfall (SES) | A systemic risk indicator that estimates the extent to which the market value equity of a financial firm would be depleted by a decline in equity prices.   |
| Tier 1 Capital                    | A regulatory capital measure comprised of common equity tier 1 capital and additional tier 1 capital. See Common Equity Tier 1 Capital and Additional Tier 1 Capital.   |
| Tier 2 Capital                    | A regulatory capital measure that includes subordinated debt with a minimum maturity of five years and satisfies the eligibility criteria in the Revised Capital Rule.  |
| 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 CD is a time deposit.  |
| Total Capital                     | A regulatory capital measure comprised of tier 1 capital and tier 2 capital. See Tier 1 Capital and Tier 2 Capital.   |
| Tri-Party Repo                    | A repo 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.   |

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| Underwriting Standards                                       | Terms, conditions, and criteria used to determine the extension of credit in the form of a loan or bond.   |
| Value-at-Risk (VaR)  | A tool measuring the risk of portfolio losses. The VaR projects the probability and maximum expected loss for a specific time period. For example, the VaR over 10 days and with 99 percent certainty measures the most one would expect to lose over a 10-day period, 99 percent of the time. |
| VIX (Chicago Board Options Exchange Market Volatility Index) | Standard measure of market expectations of short-term volatility based on S&P equity index option prices.  |
| Wealth Management Products (WMPs)                            | Products sold to investors as higher-yielding alternatives to time deposits. WMPs are largely off-balance sheet investment vehicles offered by banks, trusts, and securities companies.  |
| Weighted-Average Life  | A weighted average of the time to each principal payment in a security.  |
| Weighted-Average Maturity (WAM)                              | A weighted average of the time to maturity on all loans in an asset-backed security.   |
| Yield Curve  | A graphical representation of the relationship between bond yields and their respective maturities.  |

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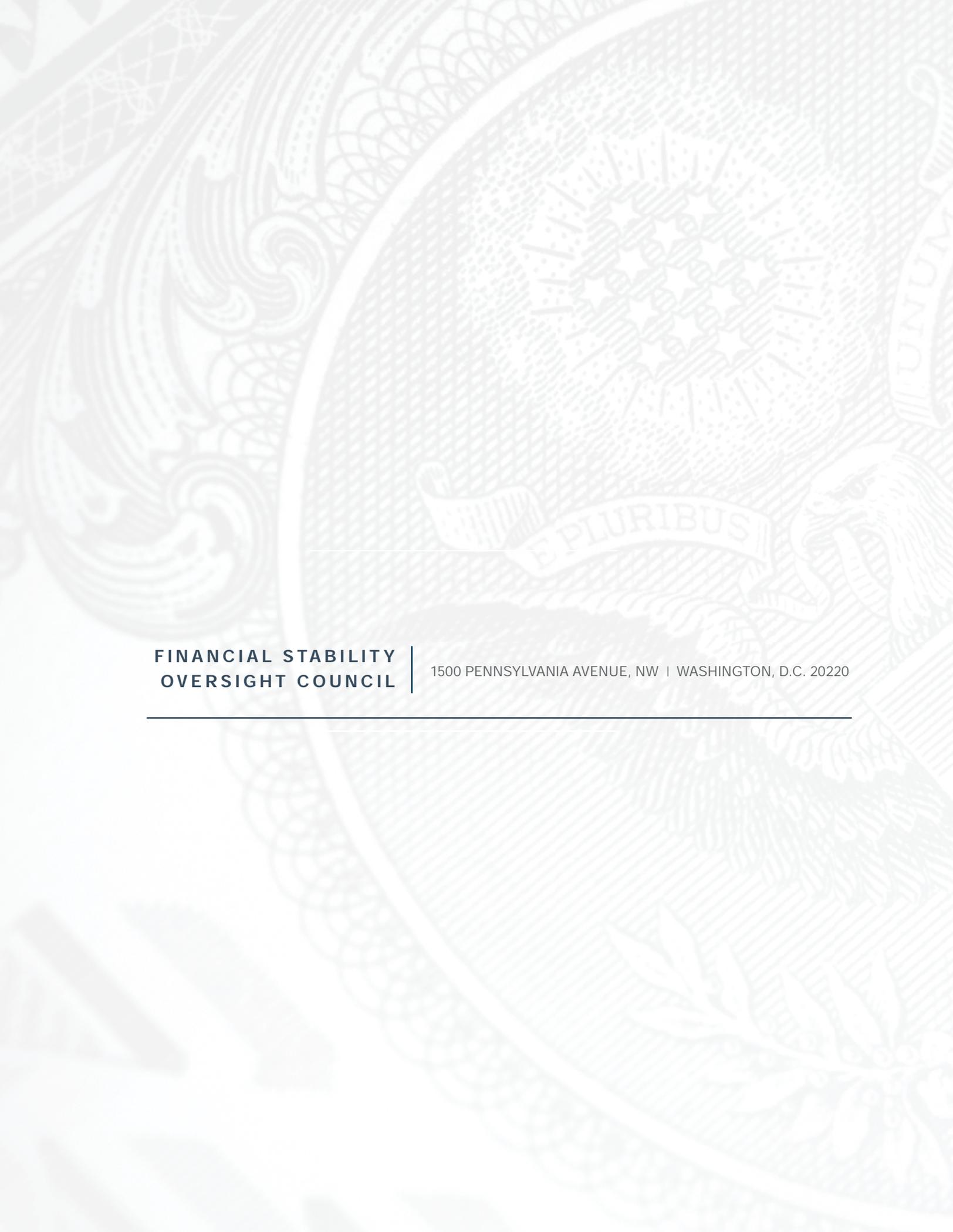
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