A Framework to Monitor Financial Stability

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Dodd-Frank Act

- Reforms regulatory architecture – pre-emptive policies
  - Tighter capital and liquidity standards for SIFIs, bank and designated non-banks
  - Infrastructure: OTC derivatives reform
  - New resolution regime
  - Some new constraints on crisis management tools
- New financial stability mandate – greater accountability
  - Macro prudential approach to supervision
  - Identify and mitigate threats to financial stability
  - Promulgate pre-emptive macroprudential policies
  - New entities FSOC, OFR
- Does not control financial flows or innovation
  - Could push financial activities into the shadows
  - Did not reform wholesale short-term funding markets
    - Maturity transformation outside of lender of last resort will continue
- As a result, cannot forecast where or in what form systemic risk will arise

Lessons from the Crisis about Systemic Risk

1. **Microprudential supervision may not suffice to prevent systemic events, given level of capital**

2. **Systemic risks can emerge during benign periods**
   - Systemic risk built up during the period of low volatility
   - Risk measurement problems and accounting can obscure risk taking

3. **Systemic risk externalities have first order, aggregate effects**
   - Fire sales and effects on the real economy
   - Interconnections transmit distress

4. **Shadow banking system affects core financial institutions**
   - Vulnerability to runs
   - Implicit and explicit guarantees from core institutions to shadow institutions

5. **Aggregate leverage and maturity transformation matter**
   - While financial innovation can enhance risk sharing, it can increase aggregate risk

Implications for Monitoring Financial Stability

- Pre-emptive assessment process:

    1. Identify possible shocks from scenarios

    2. Assess amplification channels:

        - Vulnerabilities in the financial system (structural or cyclical) that could transmit and amplify possible shocks

        - Could disrupt financial intermediation and impair real economic activity

- Focus on amplification channels helps to identify needed regulatory reforms

Broad Monitoring Framework

1. SIFIS (bank and nonbank) and FMUs

   Firms are considered systemically important because their distress or failure could disrupt the functioning of the broader financial system and inflict harm on the real economy

2. Shadow Banking

   Shadow banks (and chains) provide maturity and credit transformation without public sources of backstops and represent systemic risks due to their connections to other financial institutions

3. Real Economy

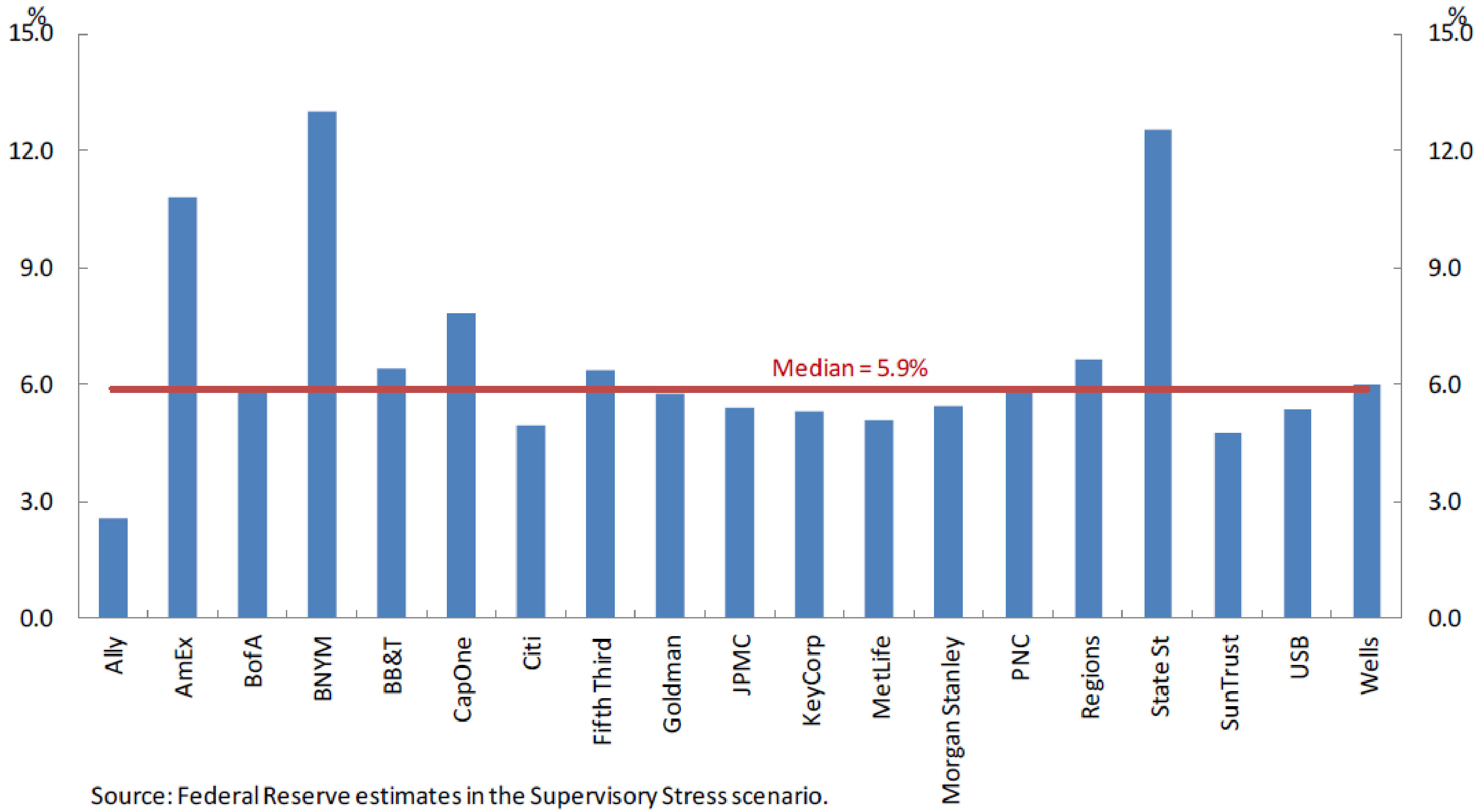
   Linkage of financial sector to real economy is via the provision of credit

1. SIFI and FMU Monitoring

- Measures of default risk
  - Capital and leverage ratios; off-balance sheet commitments
  - Stress test results (CCAR) – best forward-looking measure
  - Market-based measures
    - CDS, sub-debt bond spreads
    - Stock prices, price to book, market equity capitalization, market betas
- Measures of liability risk: runs and funding squeezes, cross border
- Measures of systemic importance
  - Size, interconnectedness, complexity, and critical services
    - Interconnectedness: Intra-financial assets and liabilities, counterparty credit exposures
    - Complexity – business lines; number of legal entities; countries of operation
  - Market-based measures of systemic risk – CoVaR, SES, DIP
    - Adrian and Brunnermeier (2008), Huang, Zhou, Zhu (2009), Acharya et al (2010)

Monitoring SIFIs: Example

Minimum Tier 1 Common Ratio in the Supervisory Stress Scenario (%)



Source: Federal Reserve estimates in the Supervisory Stress scenario.

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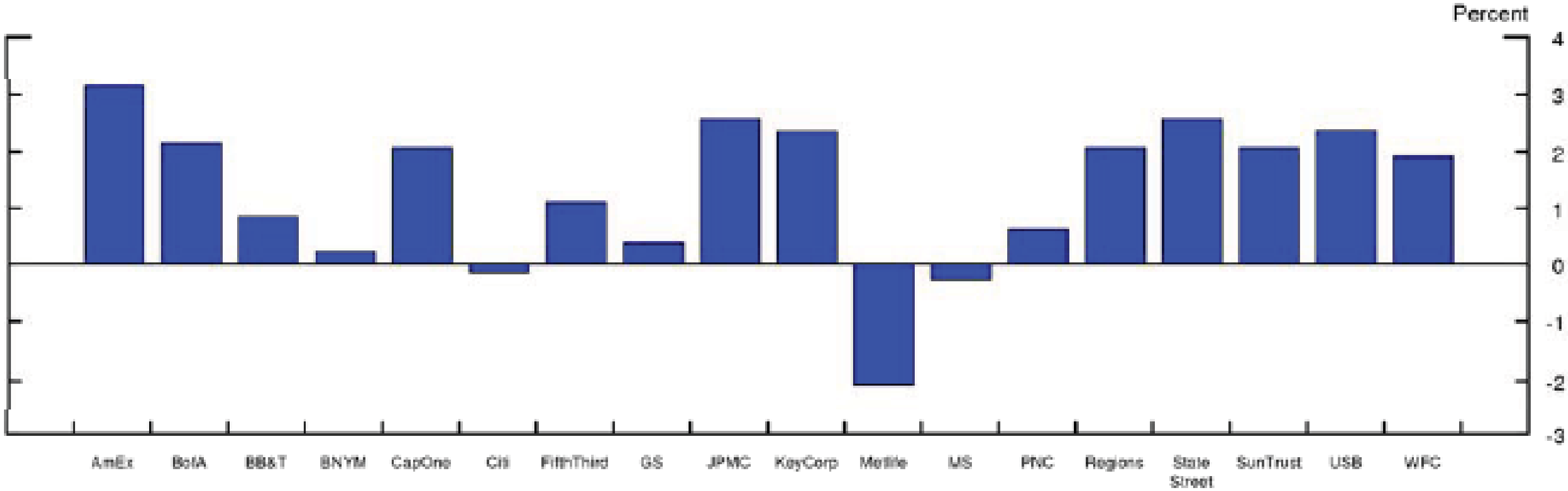
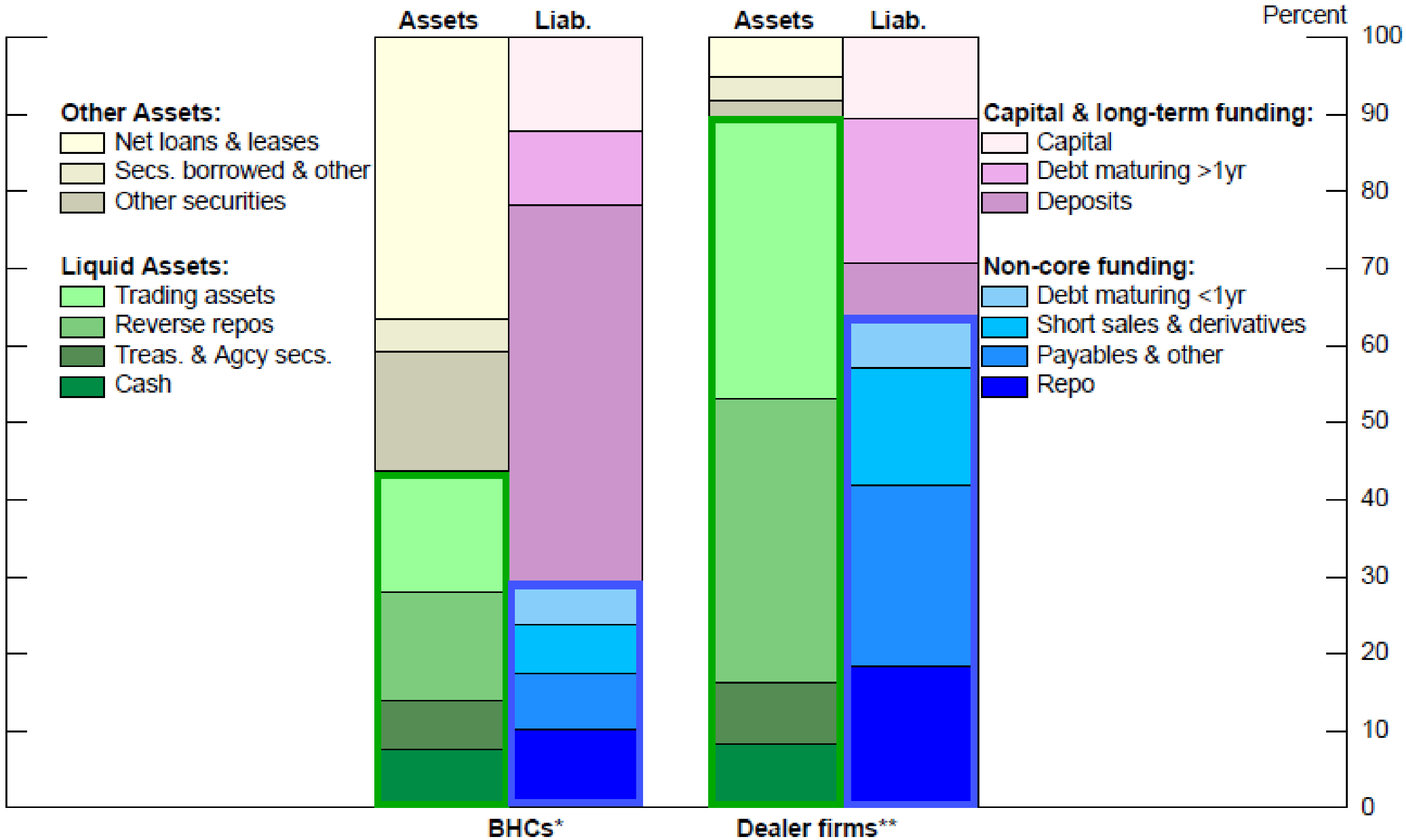
Monitoring SIFIs: Example
Abnormal Stock Returns of CCAR 2012 Firms

2-Day Standardized Cumulative Abnormal Returns (SCARs) - 3/13/2012 to 3/14/2012



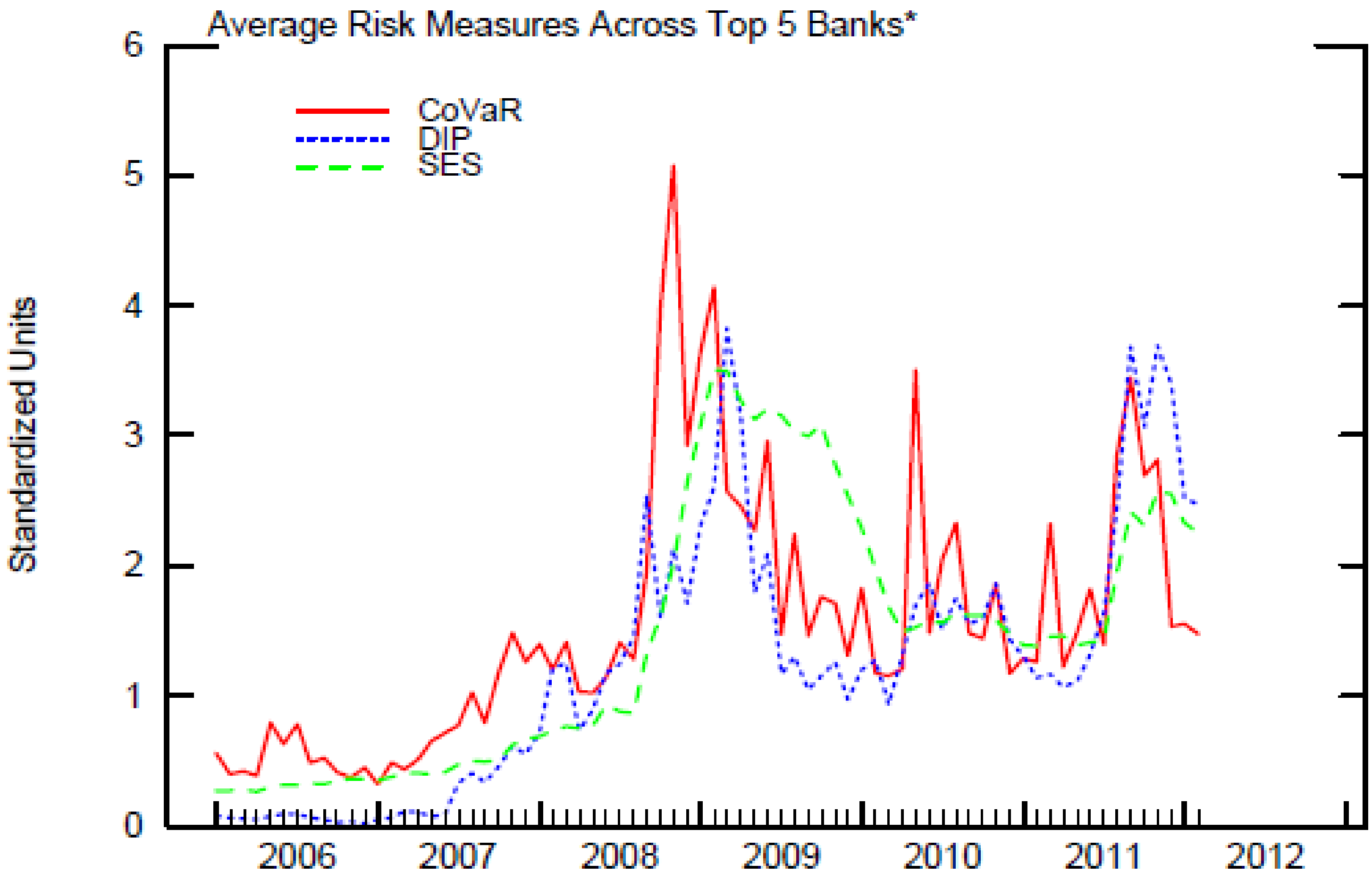
Note: Calculated from an event study using a simple market model and a rolling one-year model estimation window. As calculated, the SCARs are considered to be normally distributed and correspondingly are statistically significant when outside of the [-2, +2 standard deviation] range.
Source: Federal Reserve Bank of San Francisco.

Monitoring SIFIs: Example Assets and Liabilities



Source. FRY-9C reports as of 2011-Q4.
* BHCs comprise J.P. Morgan, Bank of America, and Citigroup.
** Dealer firms comprise Goldman Sachs and Morgan Stanley.

Monitoring SIFIs: Example
Market Based Systemic Risk Measures



* Each risk measure (CoVaR, SES, DIP) is averaged across five large banks (BAC, C, JPM, GS, MS).
Each resulting time series is then re-scaled by its standard deviation.

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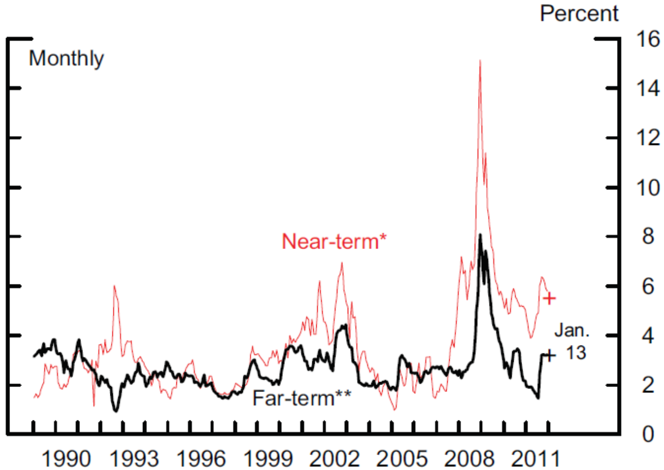
2. Shadow Bank Monitoring

- Potential for Destabilizing Drops in Asset Prices
  - Shadow banking could inflate asset valuations in booms and amplify asset price crashes in busts
  - Price and non-price measures of potential bubbles, extremely low volatility
- Leverage Cycle, Maturity Mismatch, and Run Risk
  - Measures of leverage in financial system (including on and off balance sheet exposures)
  - Measures of maturity mismatch and vulnerability
  - Hedge funds, insurers, pension funds, and other financial firms that are not SIFIS
  - Activities not backed by government backstops: MMFs, cash pools, securities lending / repo activities, velocity of collateral, securitization
- New Products

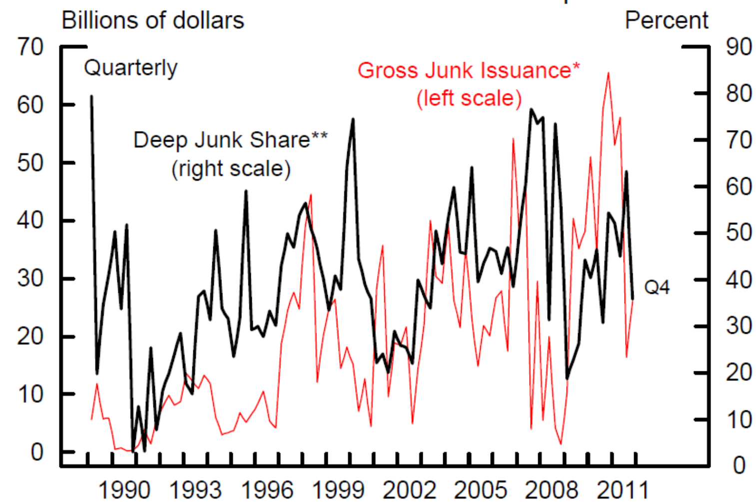
Monitoring Shadow Banking: Example Credit Spreads and Issuance

Near- and Far-Term BB Forward Credit Spreads



* Forward spread between years two and three.
** Forward spread between years nine and ten.
+ Denotes the latest daily observation.
Source. Staff estimates.

Gross Junk Issuance and Share of Deep Junk Issuance



* Includes public, 144a, euro, and MTN issues.
** Fraction of bonds rated B- or lower over total nonfinancial junk issuance.

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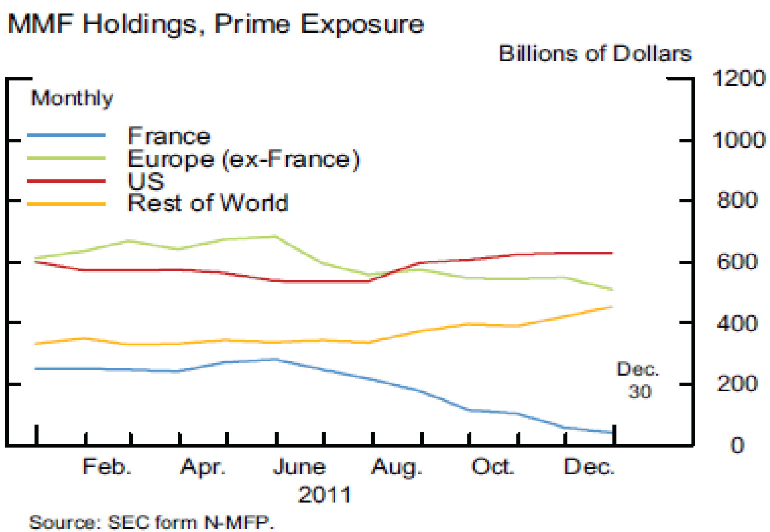
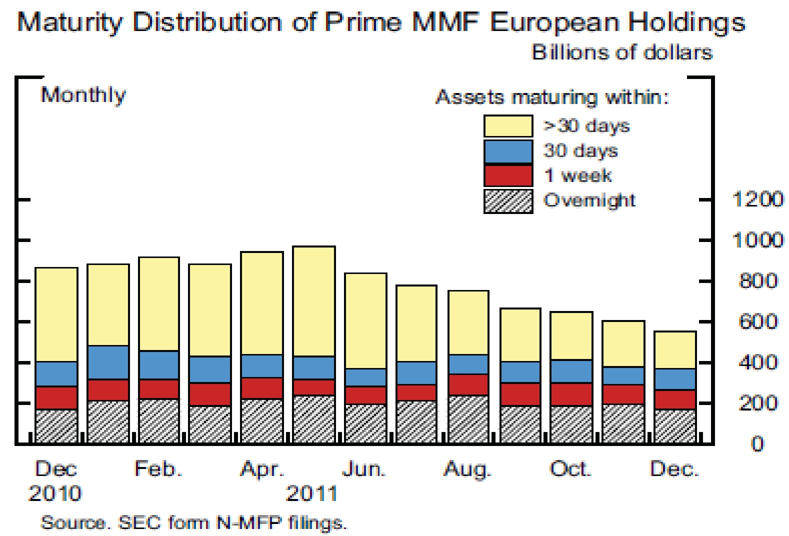
Monitoring Shadow Banking: Example
Money Market Funds





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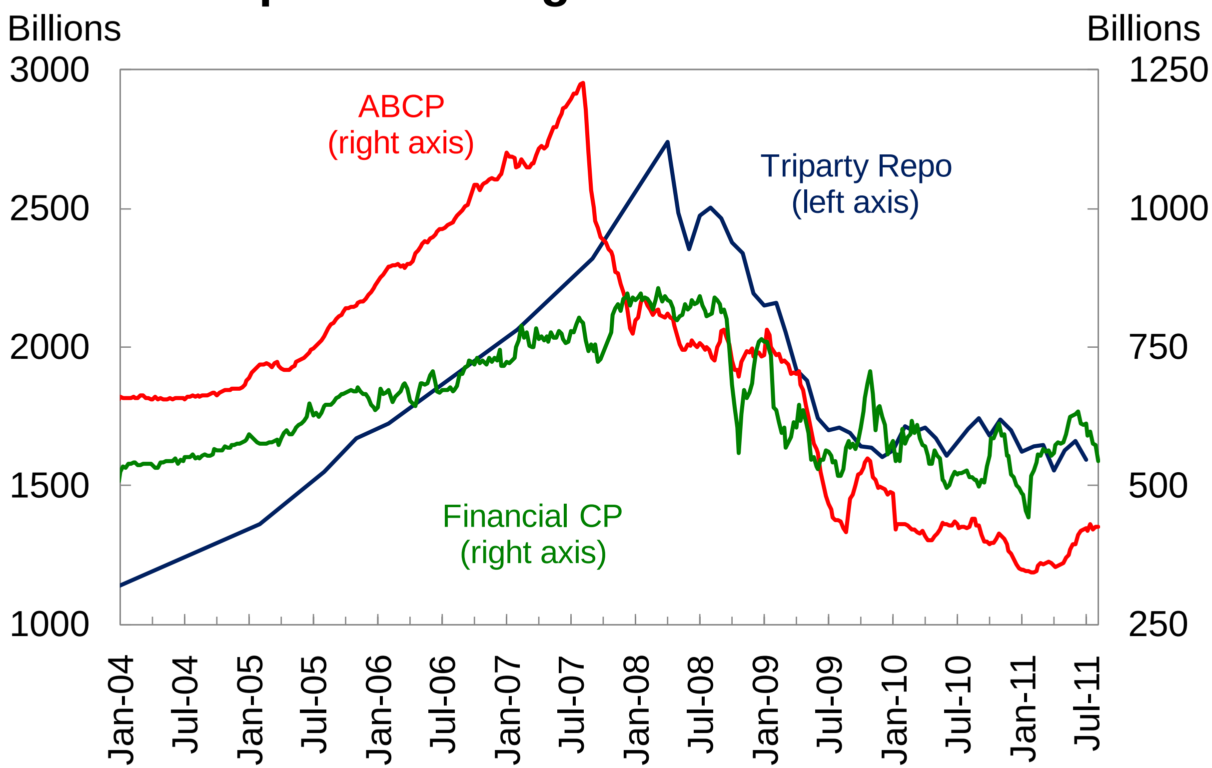
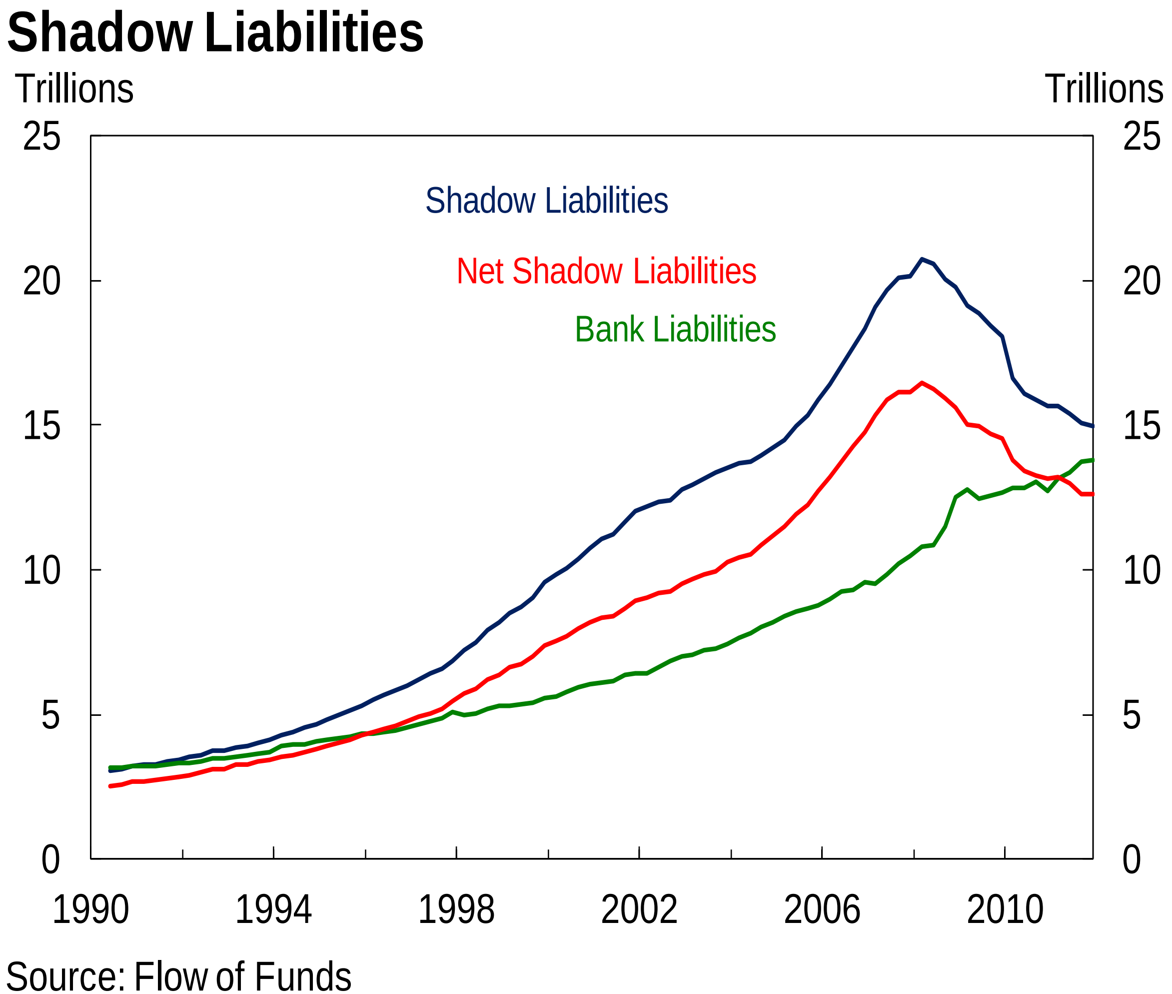
Monitoring Shadow Banking: Example Commercial Paper and Repo Financing

CP and Repo Financing



Source: FRBNY and Federal Reserve Board

Monitoring Shadow Banking: Example
Shadow Banking Liabilities



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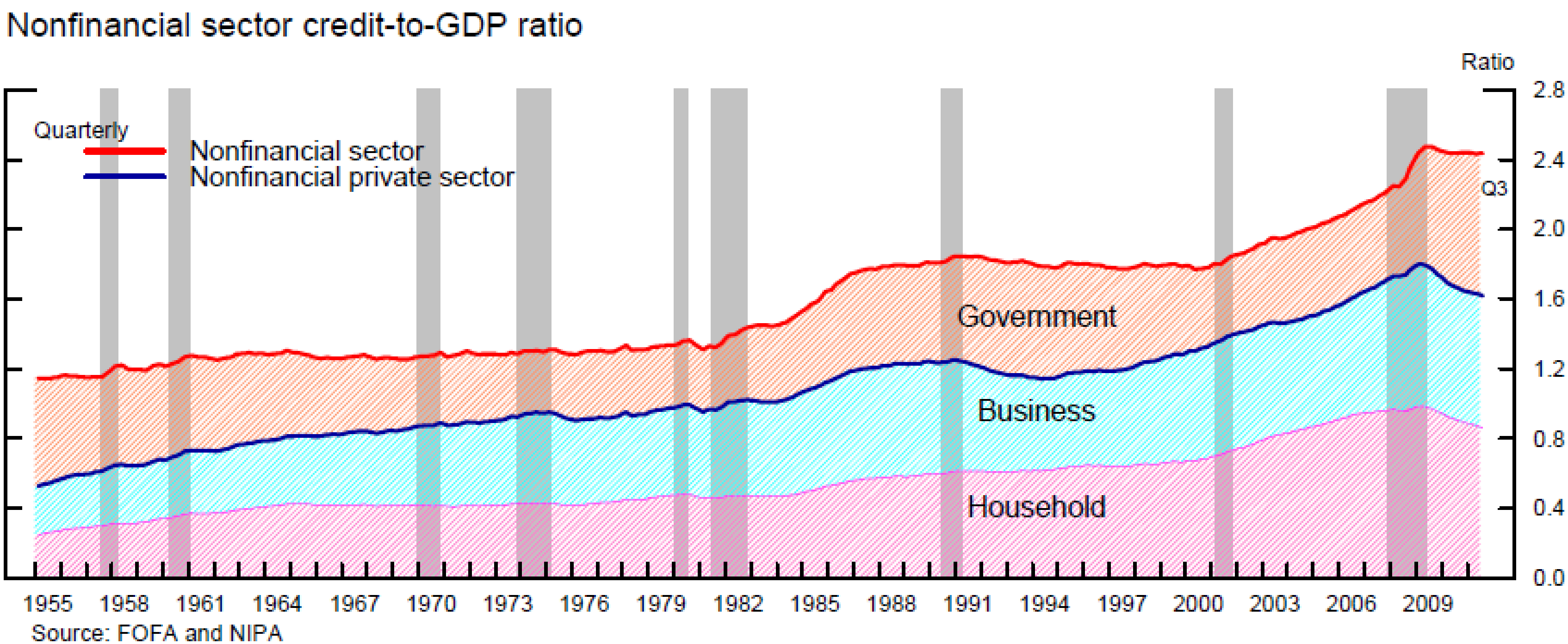
3. Real Economy Monitoring

- Nonfinancial sector risk
  - Leverage of nonfinancial sector—households, businesses, governments
  - Nonfinancial credit that is ultimately funded with short-term debt

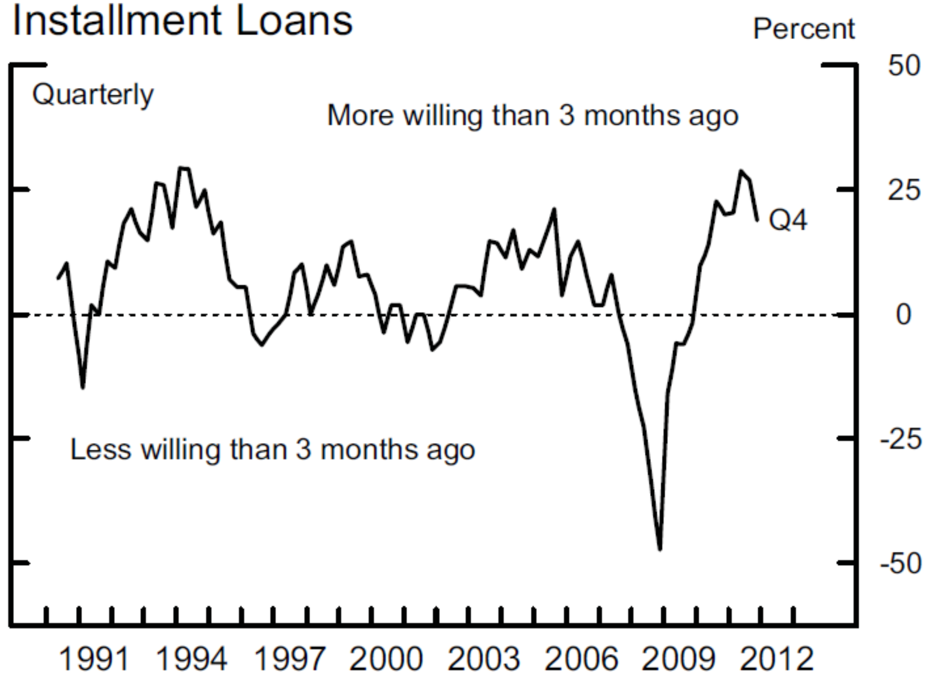
- Effect of financial sector on economic activity
  - Underwriting standards, risk appetite, and balance sheet capacity of financial institutions
  - Indicators of macro-economy vulnerability to financial risks

Real Economy Monitoring: Example
Nonfinancial Sector Credit-to-GDP Ratio



Real Economy Monitoring: Example
Senior Loan Officer Survey

Willingness to Make Consumer Installment Loans



Note: Net percent of banks reporting willingness to make loans.
Source: Senior Loan Officer Opinion Survey on Bank Lending Practices.

Conceptual Framework for Policy Response to Systemic Risk

- Monitoring indicates the extent to which shocks might trigger systemic events
  - Monitoring informs us about exposures to changes in the pricing of risk
  - Sharp increases in the pricing of risk can generate systemic risk

- Tradeoff between systemic risk and the price of risk
  - Regulation is trading off the price of risk with the level of systemic risk
  - Higher price of risk today may reduce buildup of systemic risk

- Tougher regulation, higher price of risk, less systemic risk

Ex ante Policies to Promote Financial Stability

1. SIFIs
   – Size of macroprudential surcharge
   – Stringency of capital requirements, and liquidity requirements

2. Shadow Banking
   – Margins , more centralized clearing
   – MMMF and repo reforms
   – Greater disclosure and transparency, better accounting

3. Nonfinancial sector
   – Lender restrictions
   – Borrower requirements