

October 28, 2010

## Asset Valuation Assessment<sup>1</sup>

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### *Broad Themes*

While valuation measures and indicators in many markets remain within historical ranges, some markets are evolving in a manner that could pose future downside risks to asset prices.

- Some risk premium measures in the high-yield corporate bond market appear narrow by historical standards.
- Market participants report a reemergence of pressure to ease credit terms in the leveraged loan market.
- Treasury risk premiums have continued their recent declines. While this is consistent with reports that investors have become more confident of an announcement of additional large-scale Treasury purchases at the November FOMC meeting, risk premiums now stand at extremely low levels by some measures, raising the risk of abrupt upward adjustment.
- Analysts' expectations for medium-term corporate earnings growth in a number of foreign countries remain on the high side of their historical norms, which may represent a downside risk to foreign equity prices. In addition, flows into emerging market equity funds (and bond funds) have continued to increase, reportedly reflecting a reaction by some investors to the very low level of interest rates in the United States and perhaps putting upward pressure on valuations.
- House prices in China, Australia, Singapore, Taiwan, and Hong Kong have continued to appreciate rapidly and in some cases are at historically high levels.
- Gold prices have continued to rise rapidly this year, and may reflect safe haven and hedging demands that could unwind sharply.

### *Domestic Markets*

- **Corporate bond** risk premiums have declined over the past two months, retracing much of the widening triggered by last spring's financial turmoil in Europe, suggesting renewed

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<sup>1</sup> The assessment of asset valuation relies on measures produced by Michael Abrahams, Eric Engstrom, Son Han, Rob Martin, Emanuel Moench, Joe Nichols, Jennifer Roush, Steve Sharpe, Shane Sherlund, Richard Wagreich, and Min Wei.

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investor willingness to take on credit risk. Far-forward corporate bond spreads, such as nine to ten years ahead—where fluctuations are mostly thought to reflect changes in risk aversion rather than credit risk—have declined to near the bottom of their historical ranges. However, at the same time, near-term (two to three years ahead) forward spreads remain elevated, suggesting that sizable default risks over the next few years continue to be factored into bond prices. Moreover, while historically low yields have spurred a good deal of speculative-grade issuance of late, the share that is rated deep junk (B- or below) moderated in the third quarter.

- In the **syndicated leveraged loan** market, the volume of institutional issuance has increased notably over the first three quarters of 2010. In addition, market participants noted that the pressure on credit terms evident in this market earlier in the year—which had subsided in May and June as a result of the European crisis—has reemerged and leverage embedded in deals has increased.
- **Treasury** yields generally declined over the past few months, and some measures of nominal and real term premiums are currently at historically low levels. The decline in term premiums is consistent with market reports indicating that investors have become increasingly confident of additional large-scale Treasury purchases being announced at the November FOMC meeting. Low levels of term premiums pose some risk of an abrupt upward adjustment in yields. A sharp increase in Treasury yields could trigger an unwinding of recent gains in riskier assets reportedly prompted by a “reach for yield” in the current low-rate environment. However, judging from option-based measures of uncertainty about longer-term Treasury yields, investors do not appear to see this risk as particularly large.

#### *International Markets*

- **Foreign equities** have risen modestly over the past month, and price-earnings ratios in most cases remain on the low side of historical norms. However, analysts' expectations for medium-term earnings growth in Europe, Japan, Australia, and parts of emerging Asia remain on the high side of historical norms. To the extent these expectations also reflect investor opinions, there could be significant downside risk to equity prices if staff forecasts of sustained, but only moderate, foreign expansion over the forecast horizon prove correct. In

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addition, flows into emerging market equity funds (and bond funds) have continued to increase, and reportedly reflect in part a search for higher yielding assets by unleveraged institutional and retail investors reacting to very low interest rates in the United States.

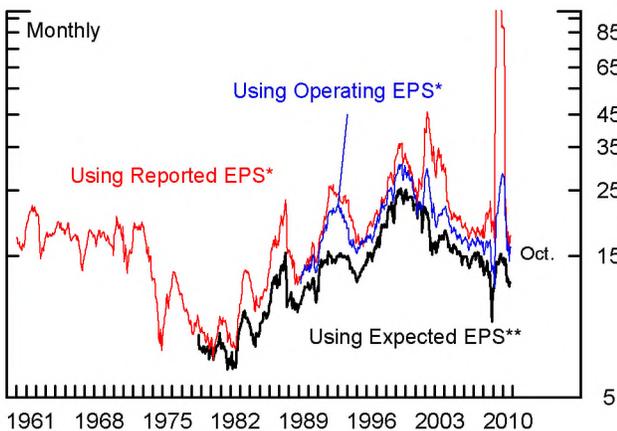
- **Rising house prices in China** have prompted Chinese authorities to reduce maximum loan-to-value ratios. Although such actions may well lead to a gradual slowdown in housing prices, a sharper and more disruptive reversal in the Chinese housing market is not out of the question, and could pose a threat to global financial markets given the growing importance of China to the global economy. House prices in **Australia, Singapore, Taiwan, and Hong Kong** continue to rise at fairly rapid paces despite the actions taken by authorities to restrain the further rise of currently high prices. A reversal of prices in these countries would likely not pose any systemic risk to the United States, but could create some instability if they sparked wider investor fears about growth in the region.
- **Gold prices** have risen a further 30 percent this year, raising the question of whether there is a bubble in the gold market. At least some of this increase is consistent with fundamentals: While demand has risen with global incomes over the last ten years, supply from mines has been stagnant. In addition, rising inflation expectations in China and India (where many investors and consumers buy gold as an inflation hedge), the decline in the value of the dollar, and rising demand for gold from central banks diversifying their reserves may have contributed to the recent rise in gold prices. However, some of the price increases also are likely due to demand from investors who see gold as a safe-haven or who have been attracted by its recent price gains and who may be supporting the continuing rise in gold held by ETFs. Safe-haven demand has historically been quite volatile, and improvements in the global economic outlook could cause a rapid decline in the price of gold. However, a sudden crash in gold prices is unlikely to trigger financial instability, as is it unlikely that financial institutions have substantial exposures to gold relative to their capital buffers.

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19		Financial Leverage

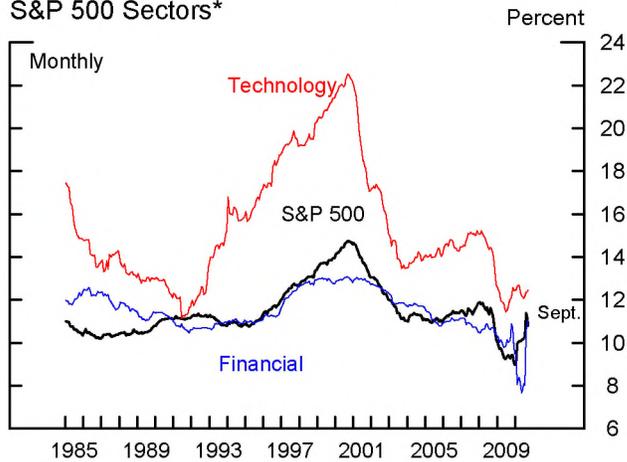
## Equity Valuation Monitor

S&P 500 Price Earnings Ratios



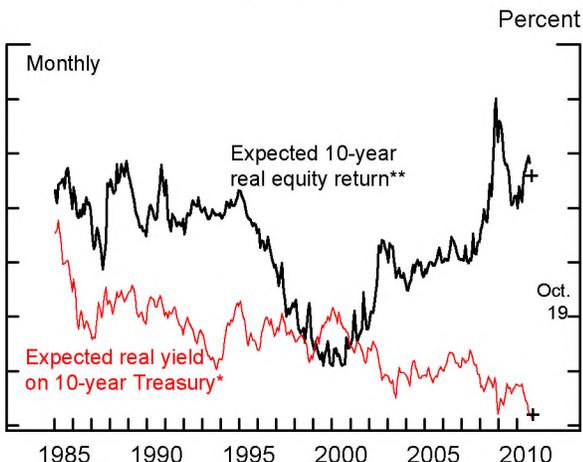
\* Based on trailing 4-quarter earnings.  
 \*\* Based on forecasts for 12-months ahead.

Long-Term EPS Growth Rate Expectations for S&P 500 Sectors\*



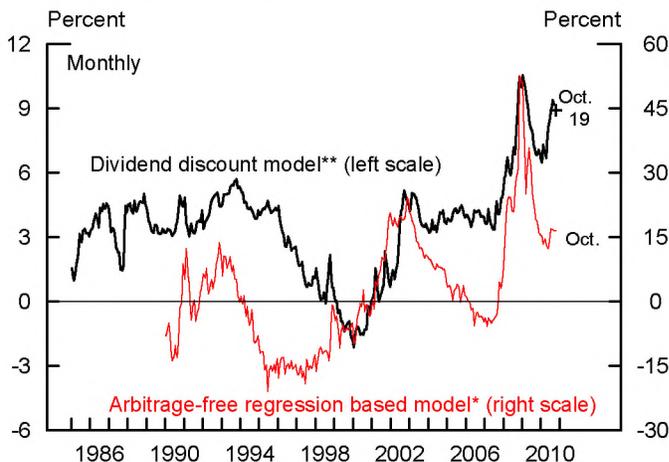
\* Earnings-weighted average of I/B/E/S consensus firm-level 5-yr growth forecasts.

Expected Real Equity Return



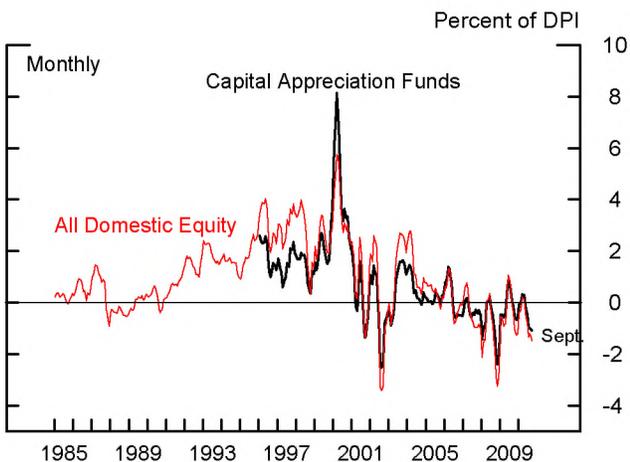
\* Off-the-run 10-year Treasury yield less Philadelphia Fed 10-year expected inflation.  
 \*\* Staff estimate using a dividend discount model incorporating private sector earnings growth estimates.  
 + Denotes the latest daily observation.

Equity Risk Premium

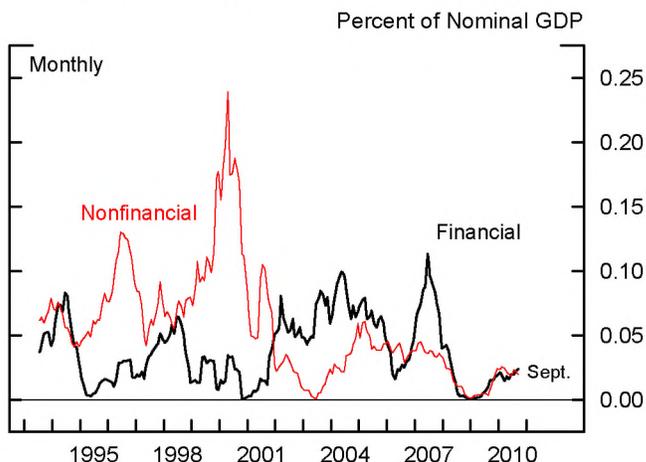


\* Based on one month-ahead return forecasts.  
 \*\* Gap between two lines in the middle-left panel.  
 + Denotes the latest daily observation using daily interest rates and stock prices.

Mutual Fund Flows, 3-Month Moving Average

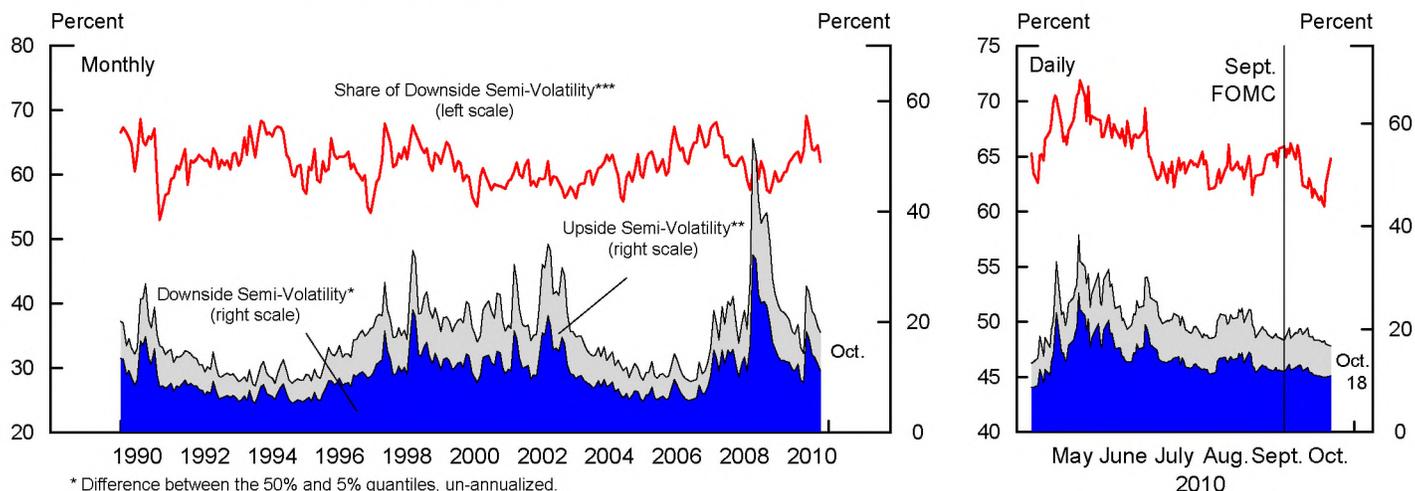


IPO Volume, 6-Month Moving Average



## Implied S&P 500 Risk Neutral Distribution

### Options-Based Uncertainty, Next Thirty Days

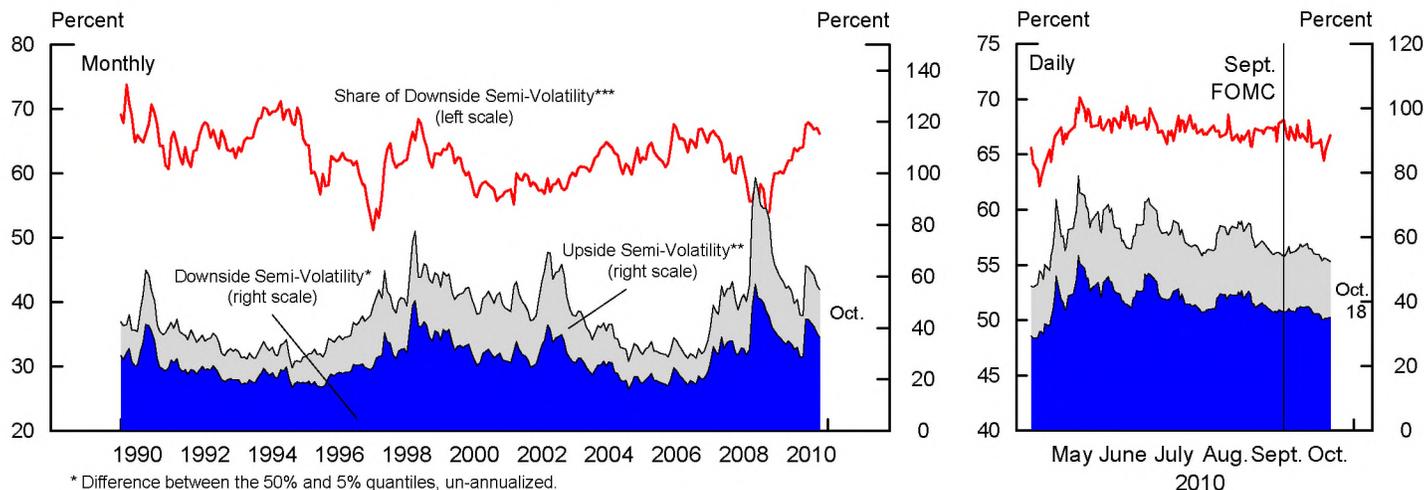


\* Difference between the 50% and 5% quantiles, un-annualized.

\*\* Difference between the 95% and 50% quantiles, un-annualized.

\*\*\* Difference between the 50% and 5% quantiles, divided by the difference in the 95% and 5% quantiles, un-annualized.

### Options-Based Uncertainty, Next Six Months

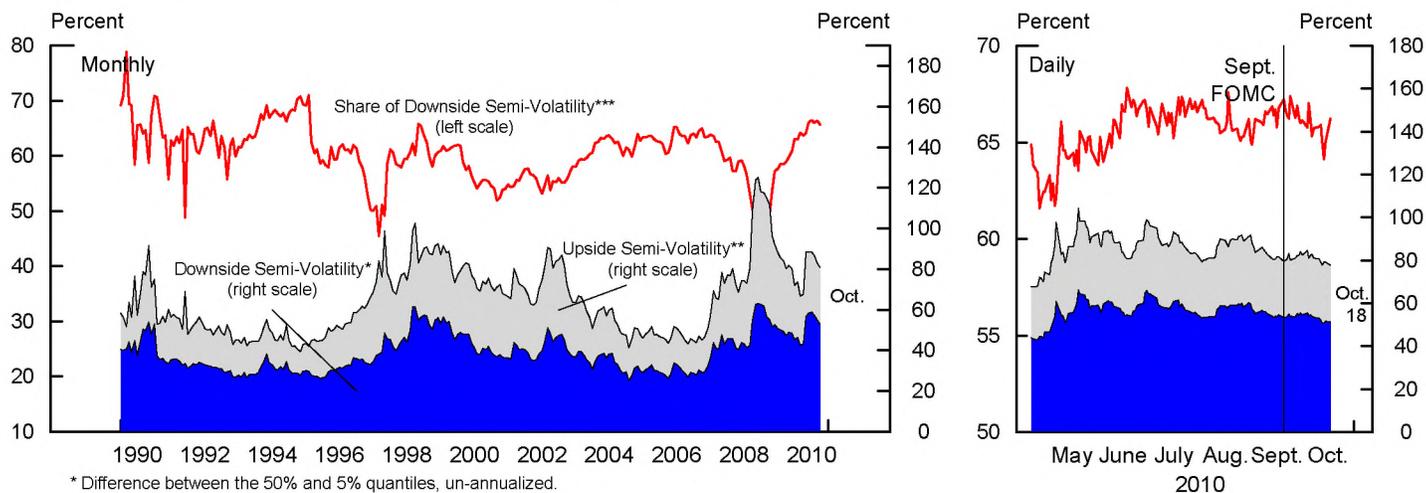


\* Difference between the 50% and 5% quantiles, un-annualized.

\*\* Difference between the 95% and 50% quantiles, un-annualized.

\*\*\* Difference between the 50% and 5% quantiles, divided by the difference in the 95% and 5% quantiles, un-annualized.

### Options-Based Uncertainty, Next Twelve Months



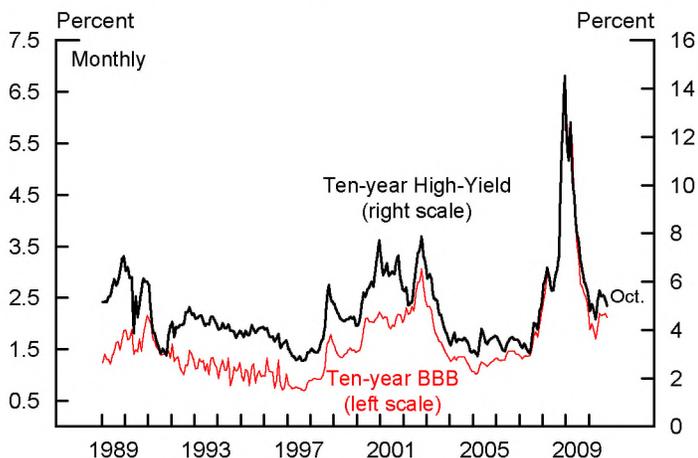
\* Difference between the 50% and 5% quantiles, un-annualized.

\*\* Difference between the 95% and 50% quantiles, un-annualized.

\*\*\* Difference between the 50% and 5% quantiles, divided by the difference in the 95% and 5% quantiles, un-annualized.

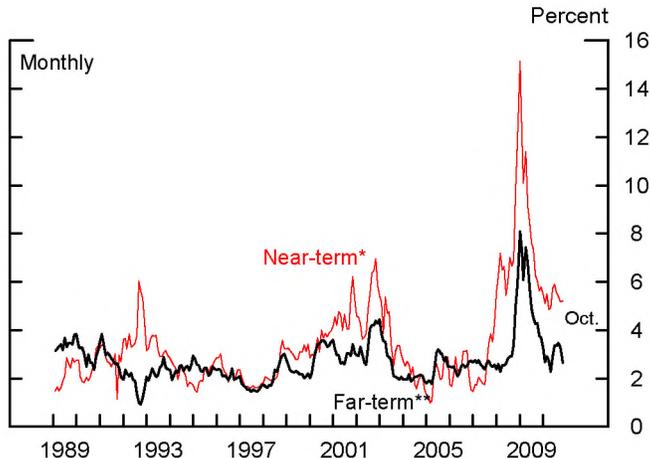
## Corporate Bond Valuation Monitor

Corporate Bond Spreads to Similar Maturity Treasury\*



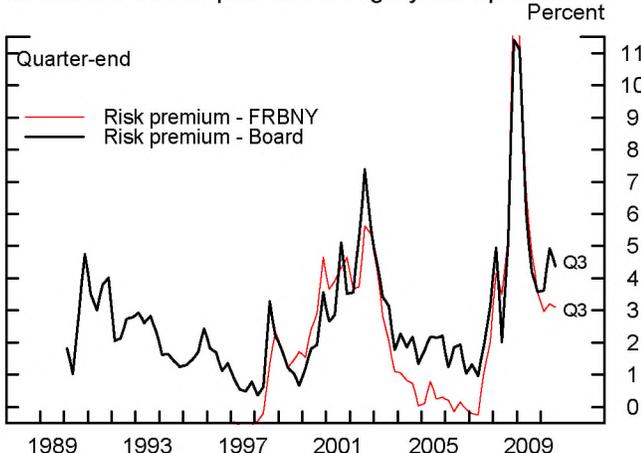
\* Estimated from curve fit to Merrill Lynch bond yields. Treasury yields from smoothed yield curve estimated from off-the-run securities.  
 Note: Pink shading denotes period when corporate bond market appeared to be overheated.

Near- and Far-Term BB Forward Credit Spreads



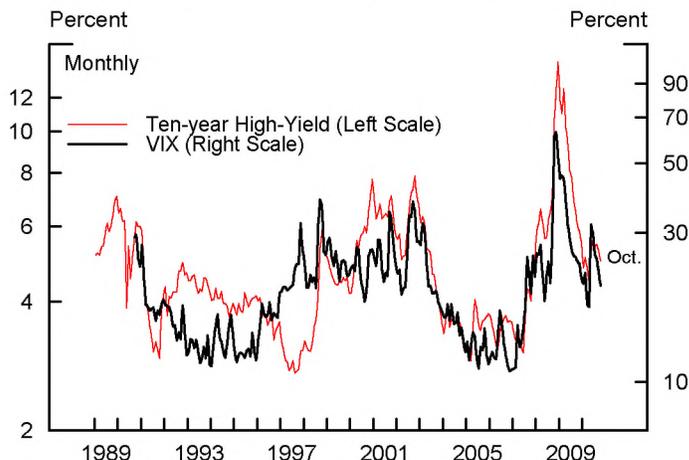
\* Forward spread between years two and three.  
 \*\* Forward spread between years nine and ten.  
 Source: Staff estimates.

Estimated Decomposition of High-yield Spreads



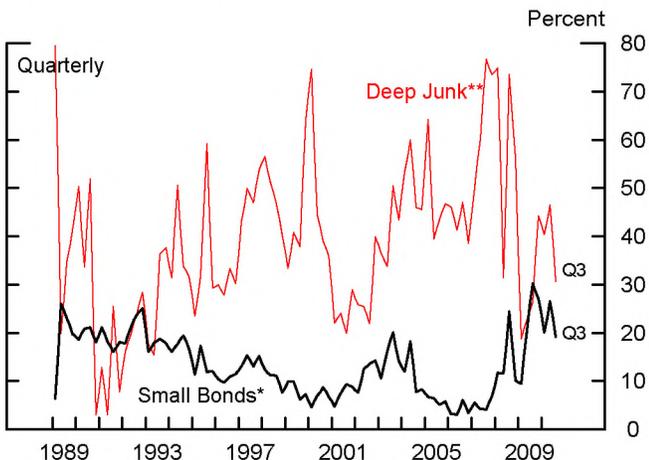
\* Staff estimates. Estimated corporate bond risk premium is equal to the spread of the BofA Merrill Lynch Master II yield index over the 7-year Treasury yield minus the compensation for expected credit losses required by a risk-neutral investor. Expected credit losses are estimated from (Board or FRBNY) staff forecasts of the default and recovery rates.

High Yield Spread\* and Implied Volatility on S&P500



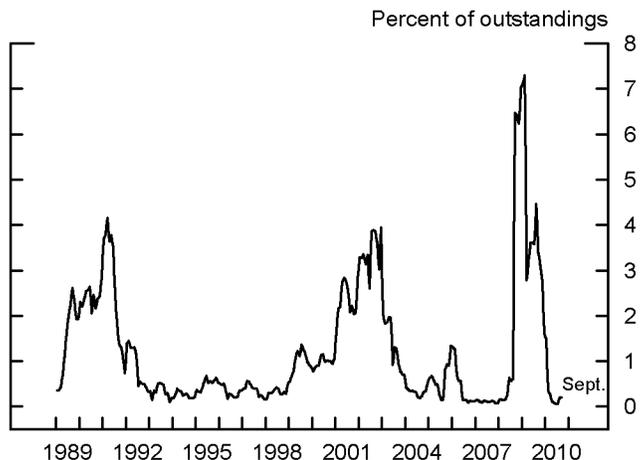
\* Estimated from curve fit to Merrill Lynch bond yields. Treasury yields from smoothed yield curve estimated from off-the-run securities.  
 Source: Chicago Board of Exchange

Shares of Small Bond and Deep Junk Issuance



\* Fraction of bonds with proceeds less than the 16-month moving average of median quarterly issuance over total nonfinancial issuance.  
 \*\* Fraction of bonds rated B- or lower over total nonfinancial junk issuance  
 Source: Security Data Company.

Corporate Bond Default Rate

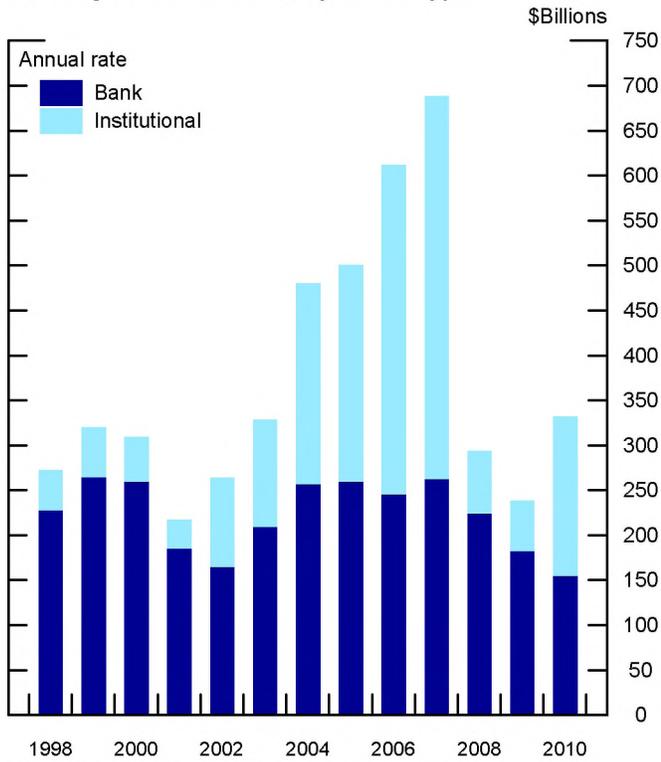


\* 6-month trailing defaults divided by beginning-of-period outstandings, at an annual rate.  
 Source: Moody's Investors Service.

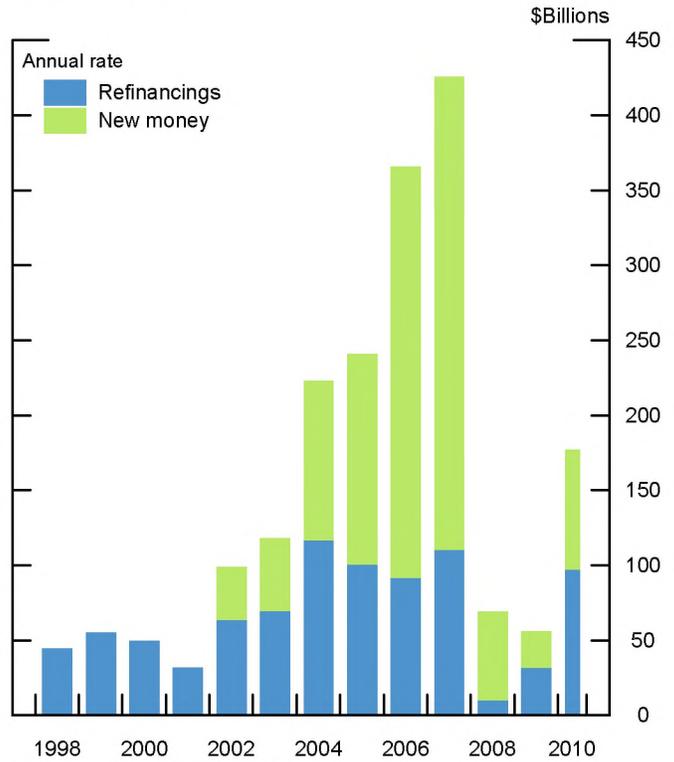
# Syndicated Leveraged Loan Market

## Primary Market

Leverage loan issuance, by lender type

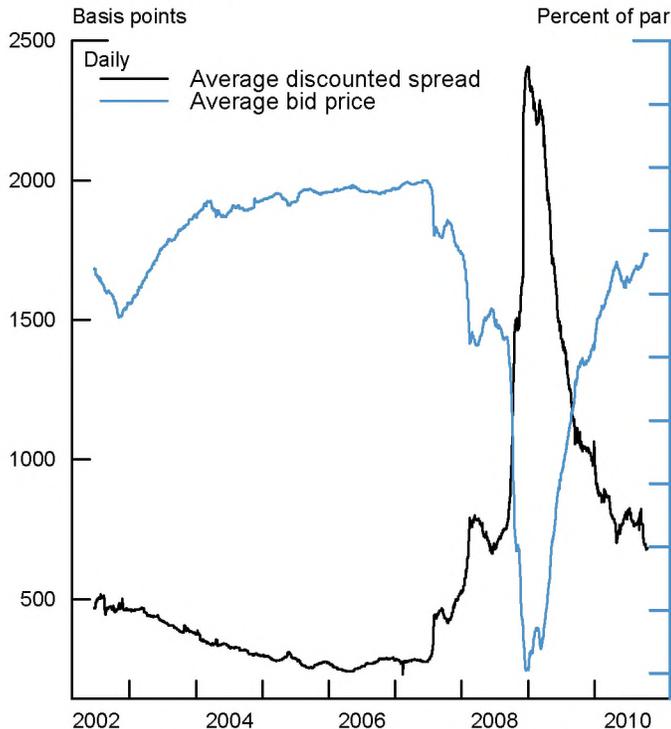


Institutional issuance



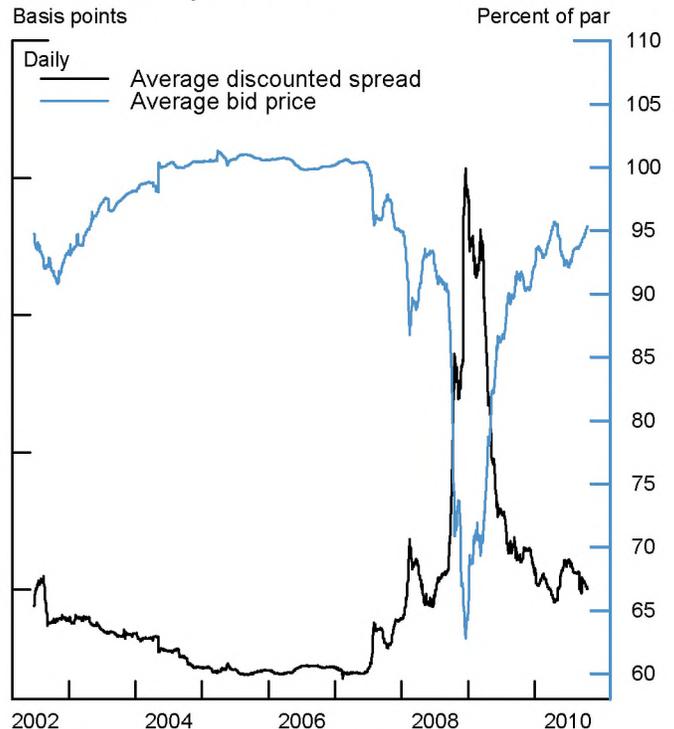
## Secondary Market

Overall market



Note. The discounted spread is obtained from a calculation of the implied yield on the loan based on its price, and assuming a three-year expected life of the loan, par payment, and quarterly interest payment. The spread is obtained by subtracting the base rate.  
Source. LSTA/LPC Mark-to-Market Pricing.

100 most widely held loans



Note. The discounted spread is obtained from a calculation of the implied yield on the loan based on its price, and assuming a three-year expected life of the loan, par payment, and quarterly interest payment. The spread is obtained by subtracting the base rate.  
Source. LSTA/LPC Mark-to-Market Pricing.

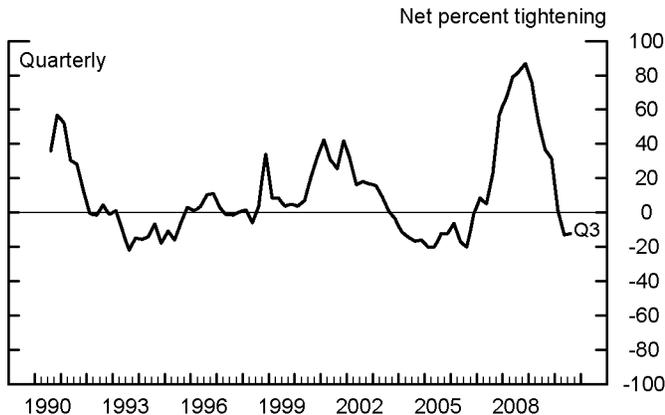
# Bank Credit

## Bank credit and selected components\*

		Bank Credit	Securities	Total Loans	Loans to Businesses		Loans to Households	
					Commercial and Industrial	Commercial Real Estate	Residential Real Estate	Consumer
<b>Growth rates s.a.a.r. (%)</b>								
Annual:	2007	10	8	11	19	9	6	10
(Q4/Q4)	2008	4	5	4	13	6	-4	7
	2009	-7	4	-10	-19	-5	-6	-4
Quarterly:	2009 Q4	-10	3	-13	-24	-10	-11	-9
(average)	Q1	-8	3	-11	-19	-9	-6	-19
	Q2	-6	-1	-7	-14	-9	-5	-3
	Q3	-0	12	-4	-2	-9	-3	-5
Monthly:	2010 Jun.	-6	-11	-5	-5	-10	-4	-2
	Jul.	5	29	-3	2	-10	-5	-1
	Aug.	2	14	-3	0	-8	1	-7
	<b>Sep.</b>	<b>1</b>	<b>24</b>	<b>-7</b>	<b>-4</b>	<b>-10</b>	<b>-0</b>	<b>-19</b>

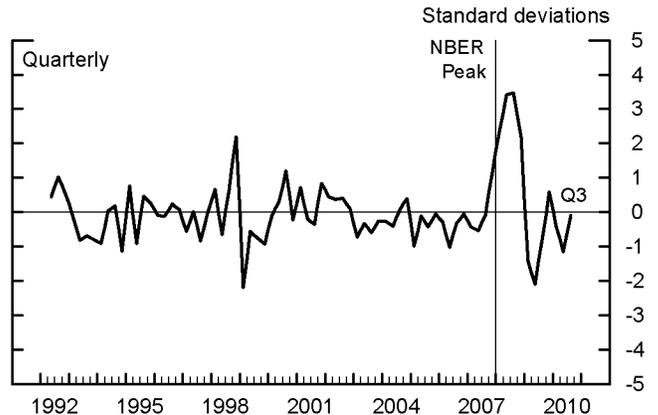
\* All commercial banks. Data have been adjusted to remove the estimated effects of marking to market securities available for sale (FAS 115), the initial consolidation of certain variable interest entities (FIN 46), and off-balance sheet vehicles (FAS 166 and 167) and the effects of nonbank structure activity of \$5 billion or more.

Composite index of changes in bank credit standards



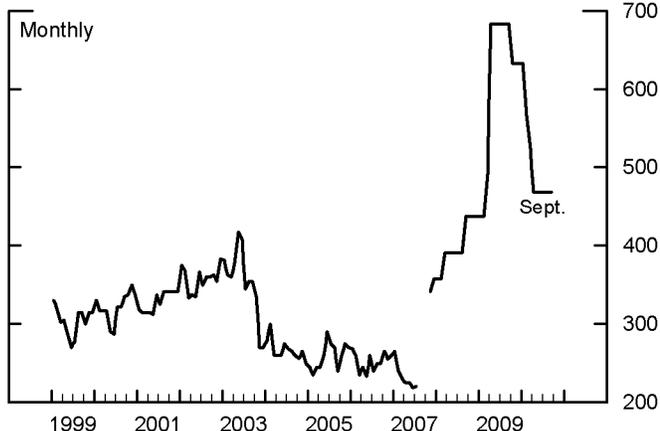
Note: The index represents the net percentage of core loans on SLOOS respondents' balance sheets that were in categories for which banks reported a tightening of standards.  
Source: Senior Loan Officer Opinion Survey.

Unanticipated changes in bank credit standards



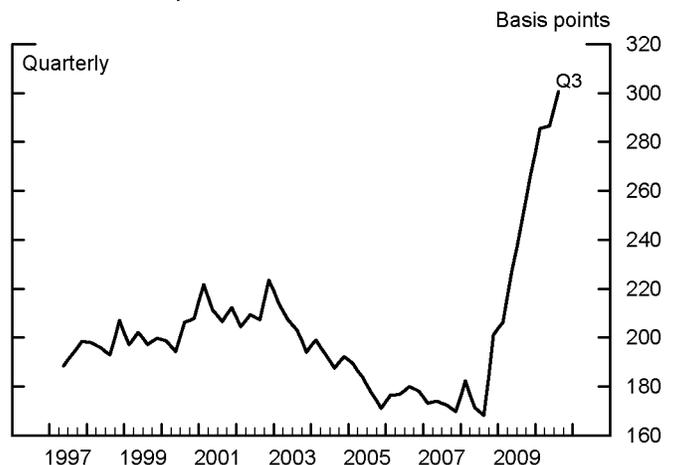
Note: The solid line depicts the estimated path of loan supply shocks from a bank-level panel regression.  
Source: Senior Loan Officer Opinion Survey.

Interest rate spread on B-rated leveraged syndicated loans\*



\*Primary market spreads over libor on pro-rata deals. Due to the lack of deals, data were not available between Aug. and Oct. 2007.  
Source: Reuters LPC.

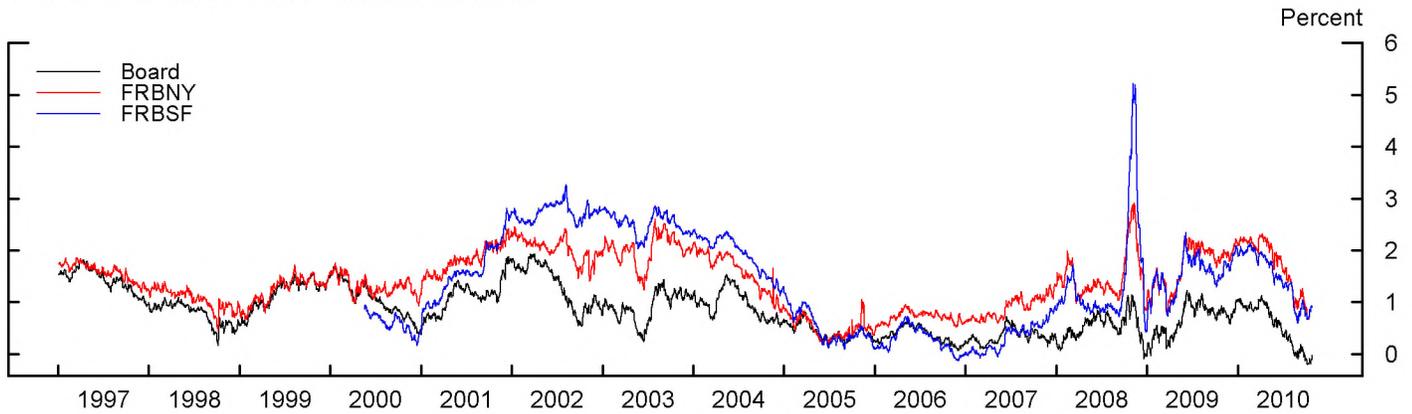
Interest rate spread on C&I loans\*



\*Spreads over swap and Eurodollar rates of comparable maturity and adjusted for compositional shifts.  
Source: Survey of Terms of Business Lending.

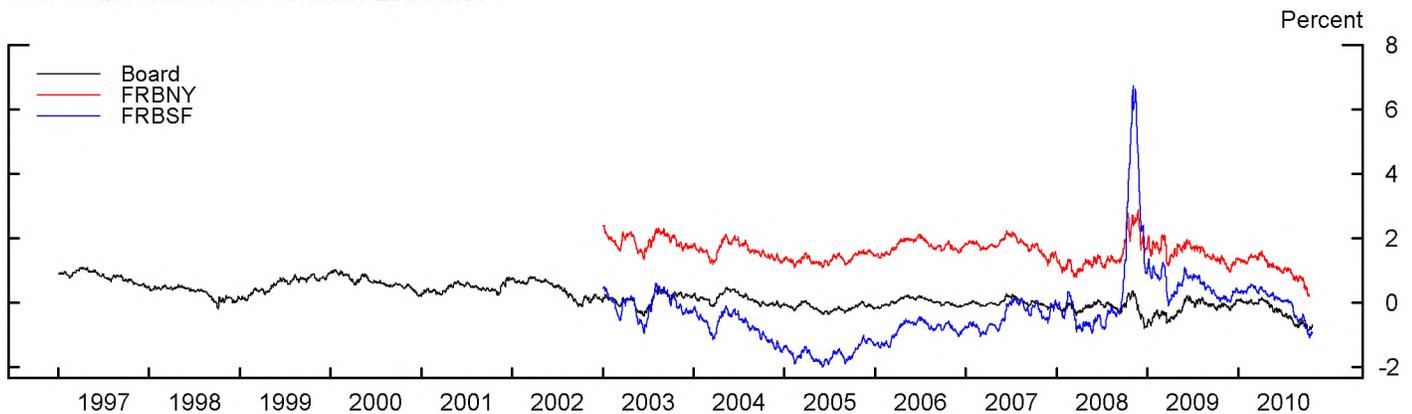
## Treasury Valuation Monitor

Ten-Year Nominal Term Premium Estimates



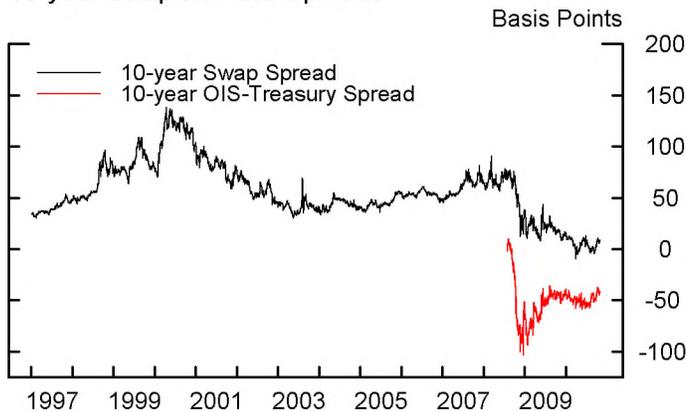
Note. Term premia are estimated by a three-factor term structure model combining Treasury yields with SPF interest rate forecasts (Board), a five-factor term structure model using Treasury yields only (FRBNY), and a three-factor model using Treasury yields only (FRBSF).

Ten-Year Real Term Premium Estimates



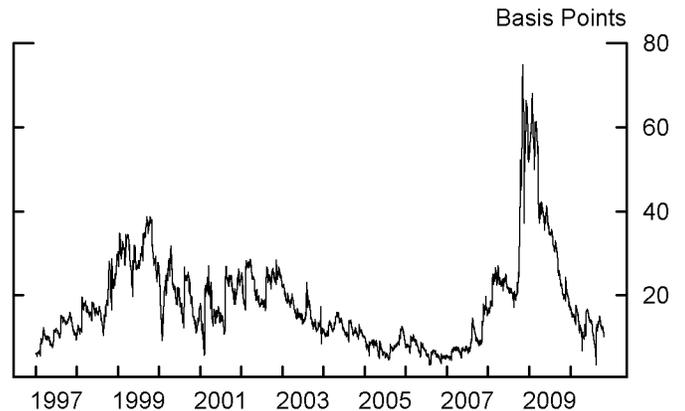
Note. Term premia are estimated by a three-factor term structure model combining Treasury yields with SPF interest rate forecasts (Board), a five-factor term structure model using Treasury yields only (FRBNY), and a four-factor model using Treasury yields only (FRBSF).

10-year Swap and OIS Spreads



Note. Spreads over 10-year Treasury yield estimated with off-the-run securities.

Ten-Year On-the-Run Premium

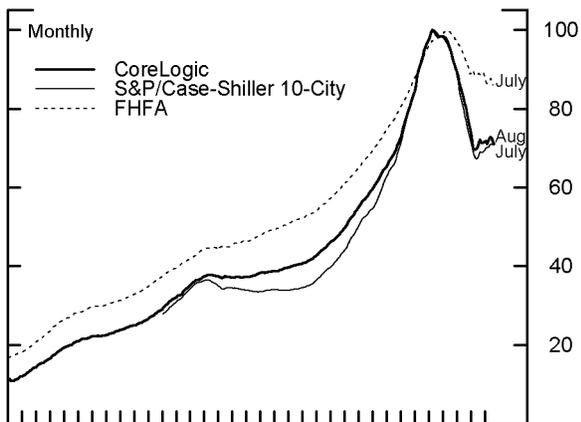


Note. Based on synthetic off-the-run yields from smoothed yield curve with same coupon structure as on-the-run security.

## Residential Real Estate Valuation Monitor

Prices of Existing Homes

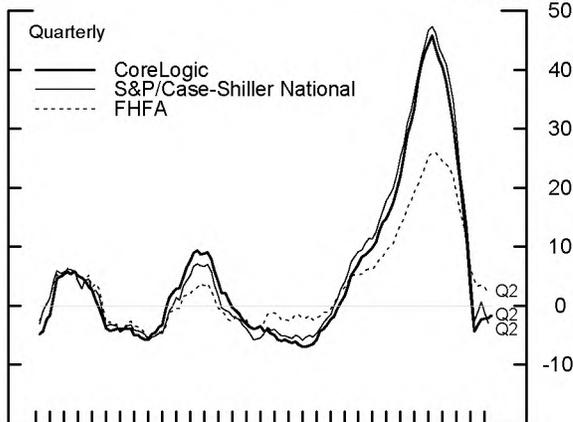
Index peaks normalized to 100



Source: CoreLogic; for S&P/Case-Shiller, Standard & Poor's; for FHFA, Federal Housing Finance Agency.

House Price Overvaluation Measures

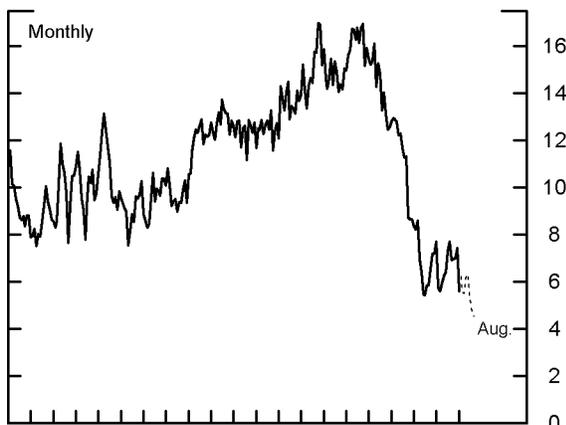
Percent



Note: Overvaluation measured as deviation from long-run relationship between house prices and rents.

Home Purchase Mortgage Originations

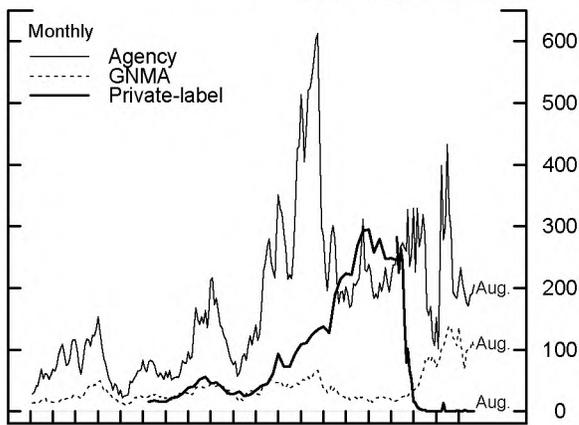
Percent of monthly disposable personal income



Note: HMDA originations estimated for 2010 based on MBA purchase applications and data from Mortgage Bankers Association.

Gross MBS Issuance

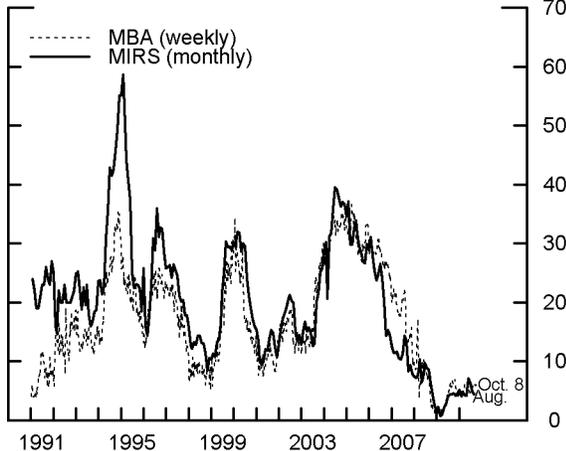
\$ Billions (quarterly rate)



Source: Inside Mortgage Finance.

ARM Share of New Mortgages

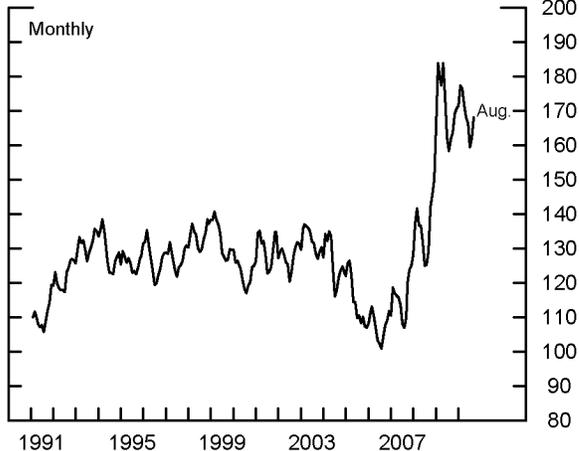
Percent



Source: For MIRS, staff calculations based on Mortgage Interest Rate Survey loan-level data; for MBA, Mortgage Bankers Association.

Housing Affordability

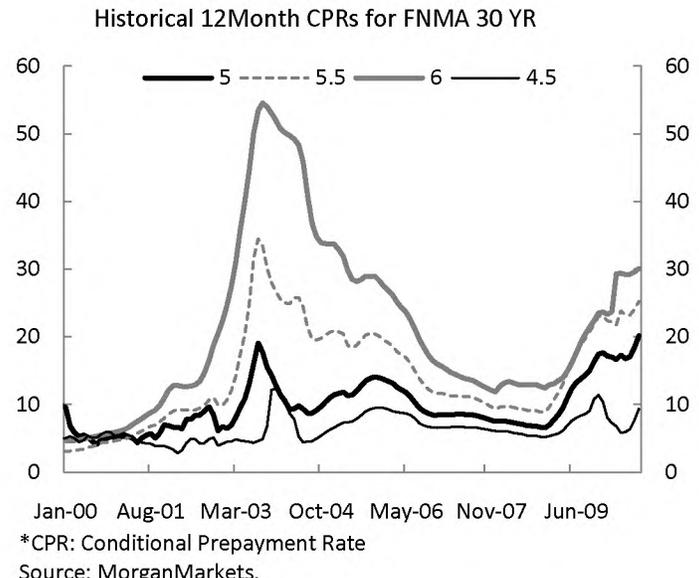
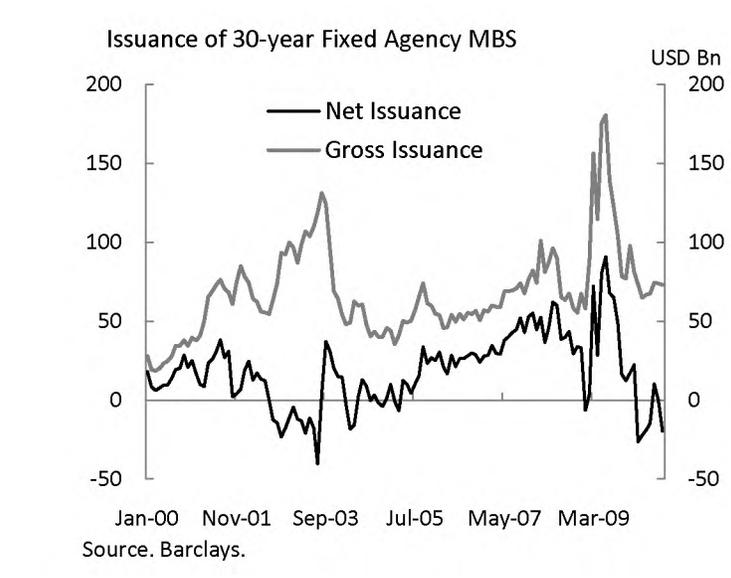
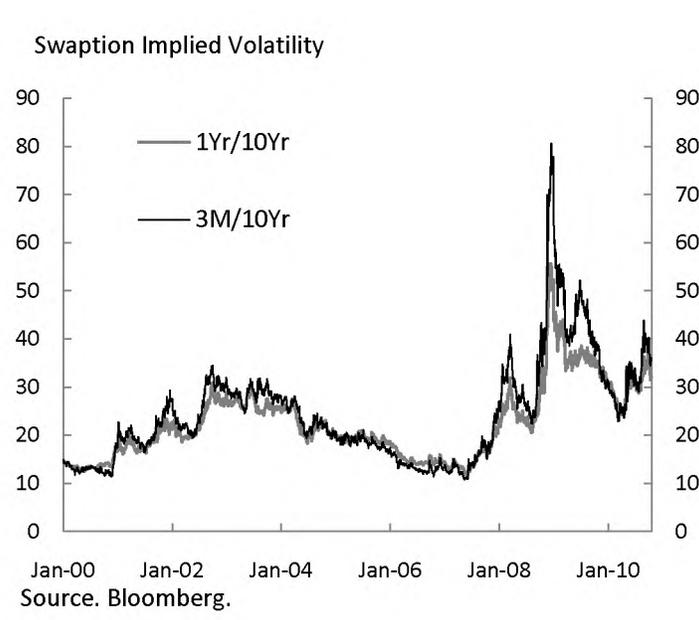
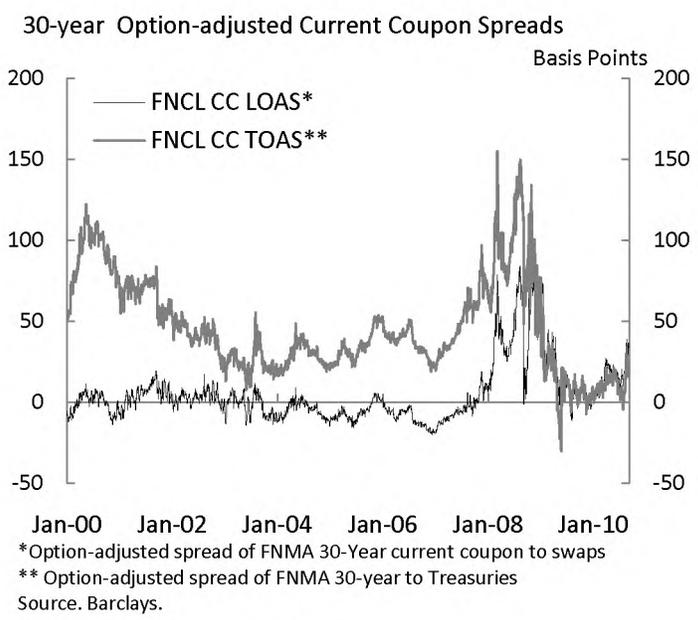
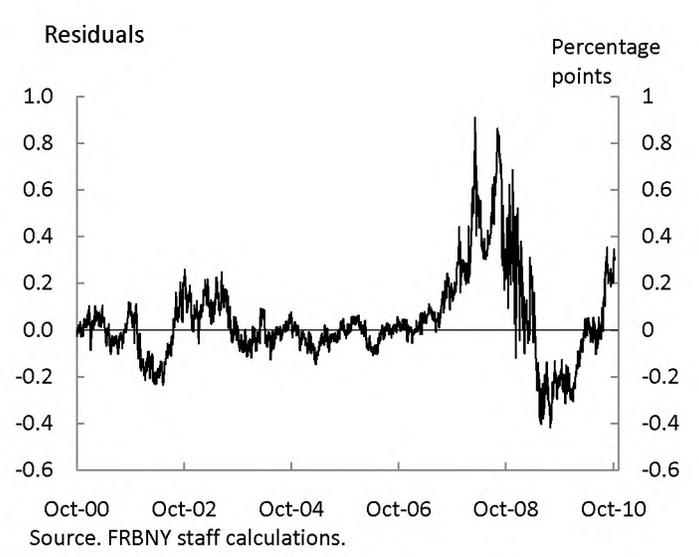
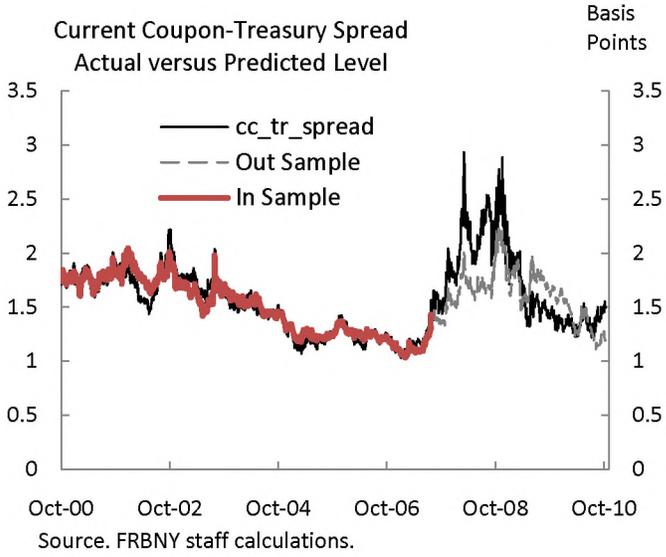
Percent of qualifying income



Source: National Association of Realtors.

Note: An index of 150 indicates that a family earning the median income has income 50 percent greater than that necessary to qualify for a mortgage loan (80% LTV) on a median-priced home.

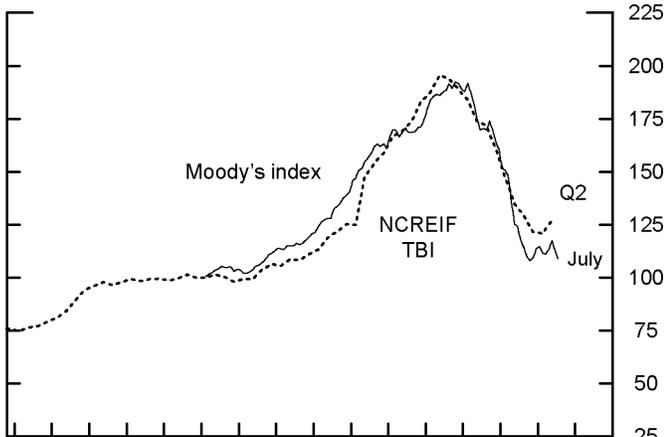
### Agency MBS Valuation Monitor



## Commercial Real Estate Valuation Monitor

Commercial Real Estate Price Indexes

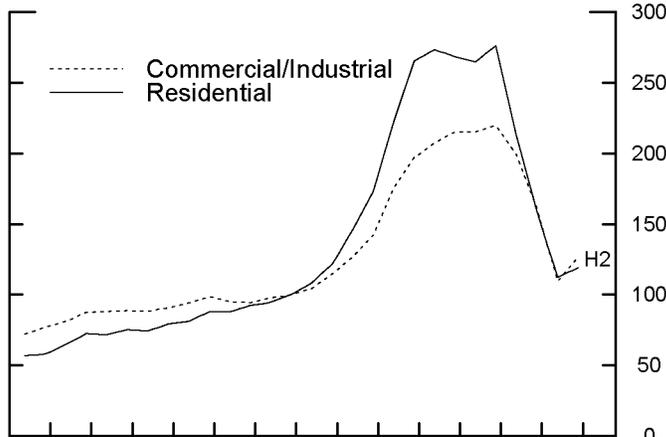
Index, 2001:Q1=100



1996 1998 2000 2002 2004 2006 2008 2010  
 Note. NCREIF TBI series re-weighted by staff to exclude multifamily.  
 Source. NCREIF; MIT Center for Real Estate; Moody's.

Land Price Indexes

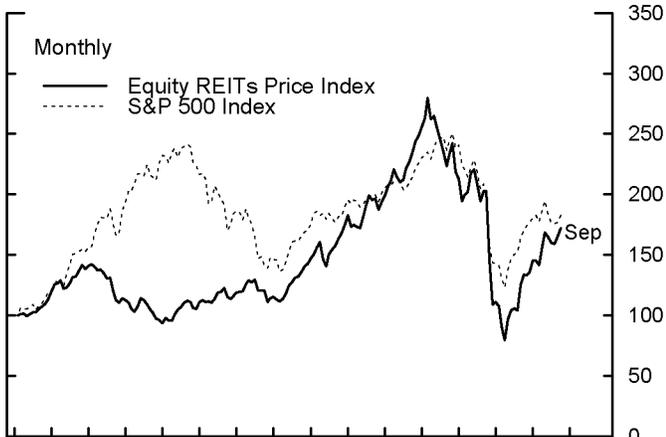
Index, 2002:H2 = 100



1996 1998 2000 2002 2004 2006 2008 2010  
 Note. Last value = 2009:H2.  
 Source. Staff estimates based on data provided by CoStar.

Equity REITs Price Index

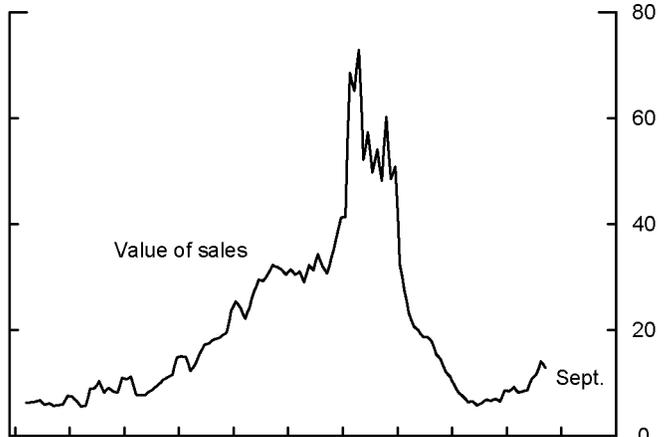
Jan 1996 = 100



1996 1998 2000 2002 2004 2006 2008 2010  
 Source. NAREIT; Bloomberg.

Commercial Real Estate Sales

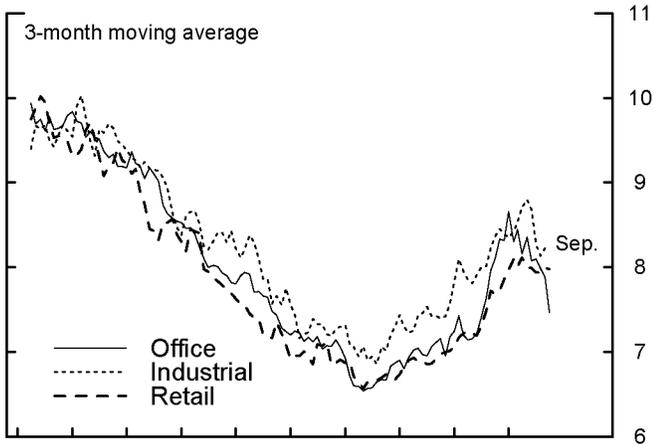
Billions of dollars



Note. 3-month moving average.  
 Source. Real Capital Analytics.

Capitalization Rate at Origination

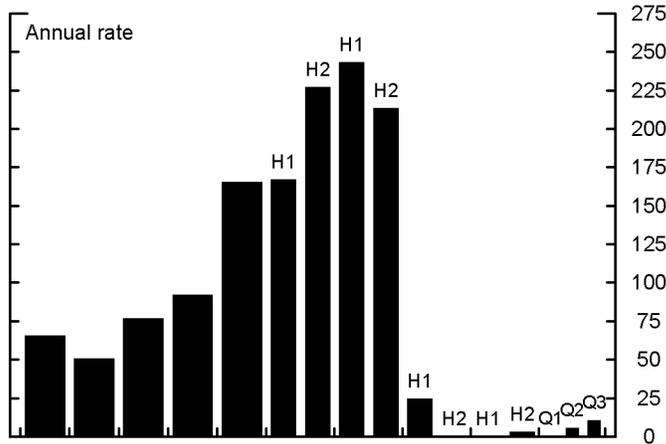
Percent



Source. Real Capital Analytics.

CMBS Issuance

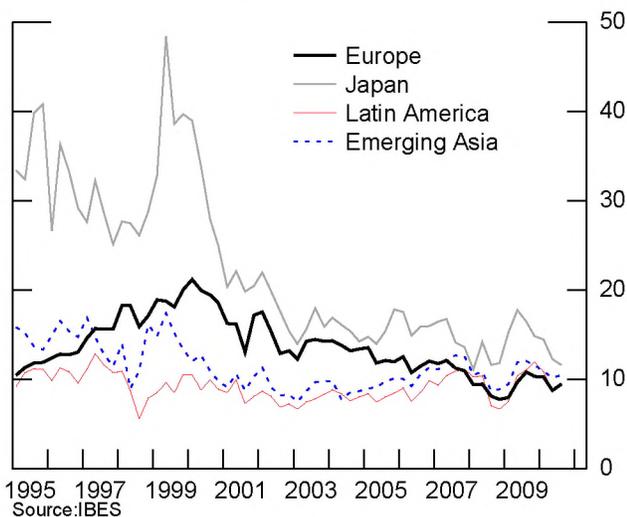
Billions of dollars



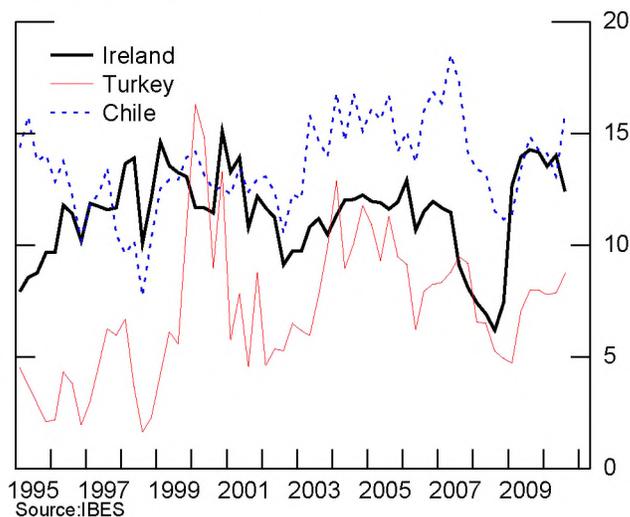
Source. Commercial Mortgage Alert.

### International Equities

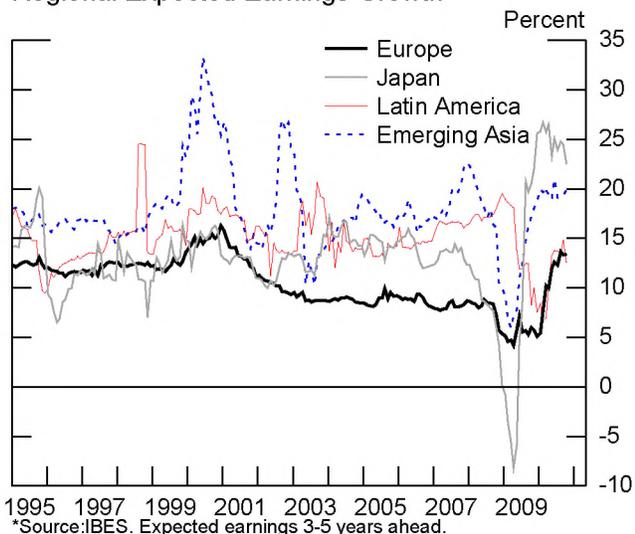
Regional Price-Earnings Ratios



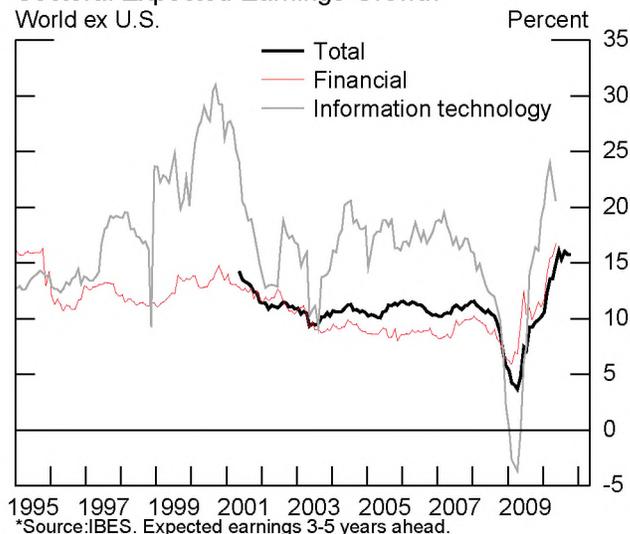
Selected Countries with High Price-Earnings Ratios



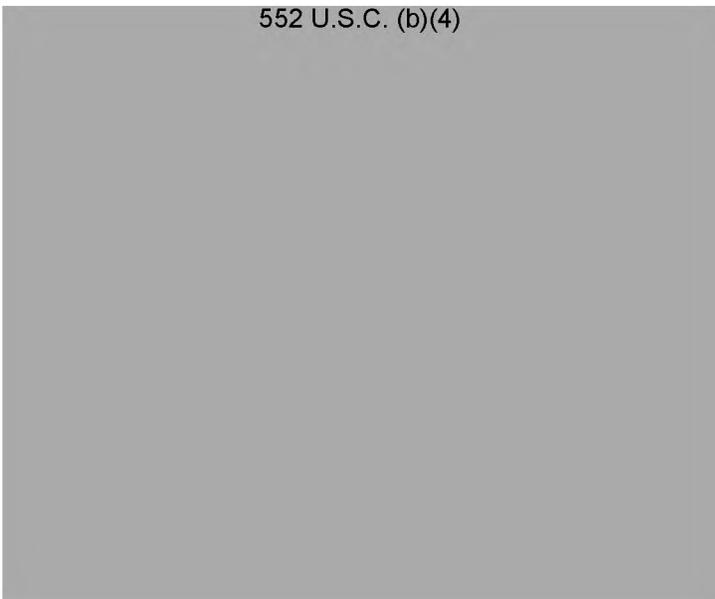
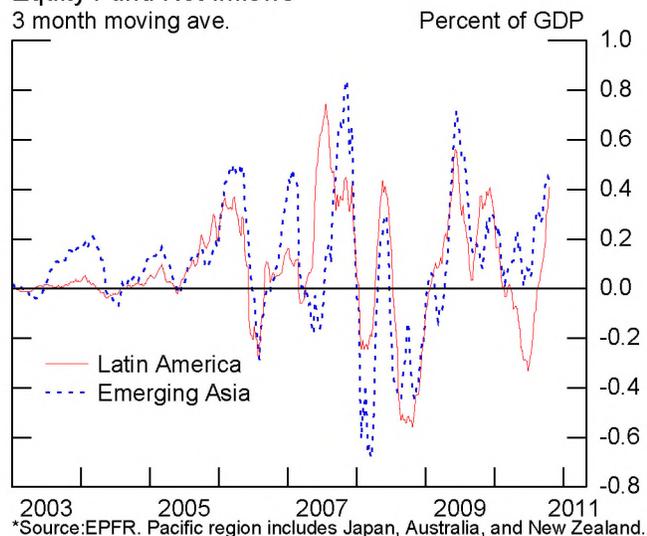
Regional Expected Earnings Growth\*



Sectoral Expected Earnings Growth\*  
World ex U.S.

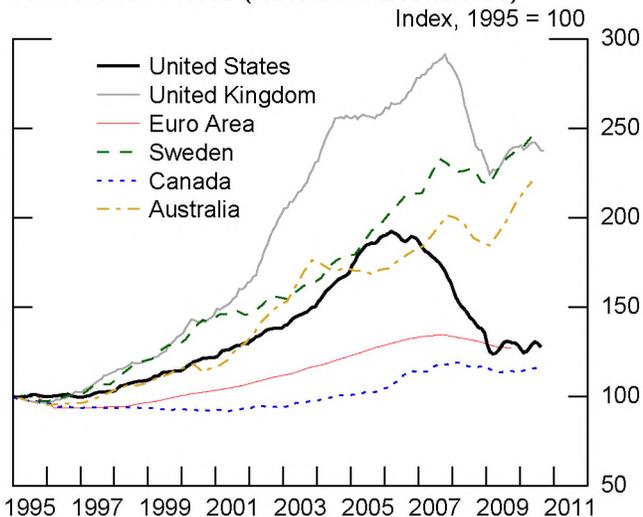


Equity Fund Net Inflows\*

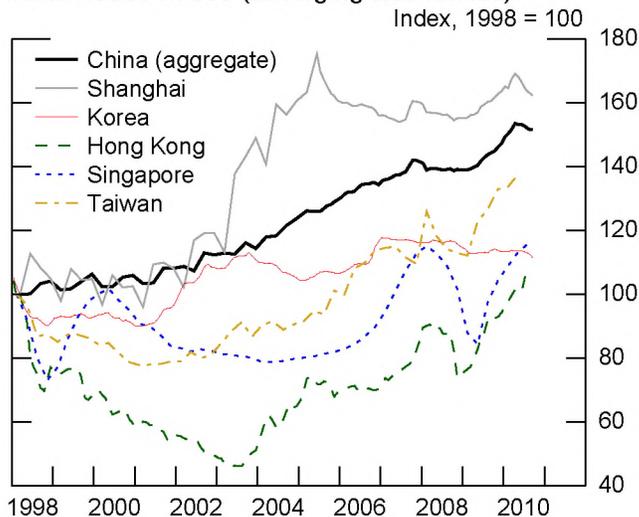


## International Housing Markets

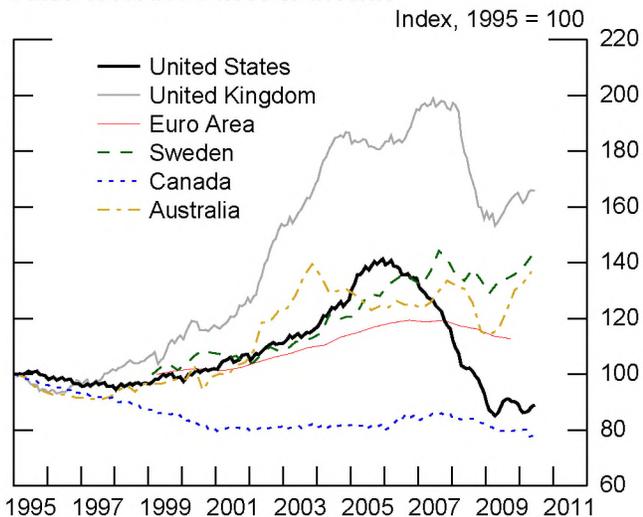
Real House Prices (Advanced Economies)



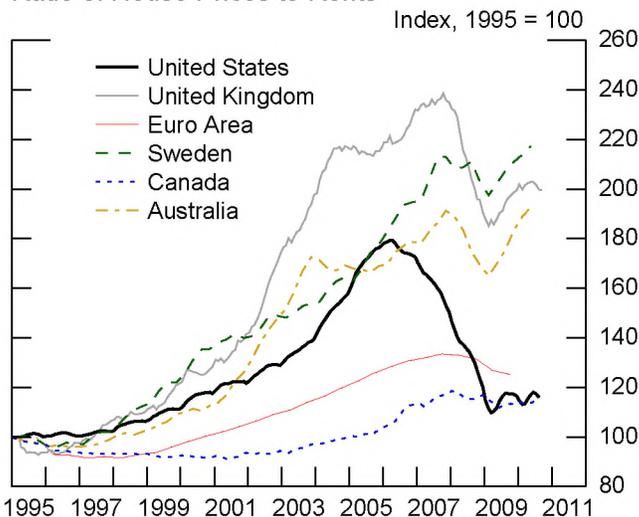
Real House Prices (Emerging Economies)



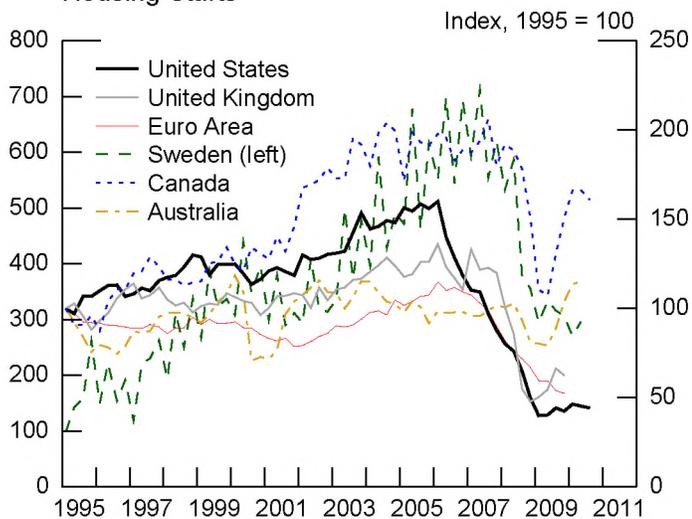
Ratio of House Prices to Income



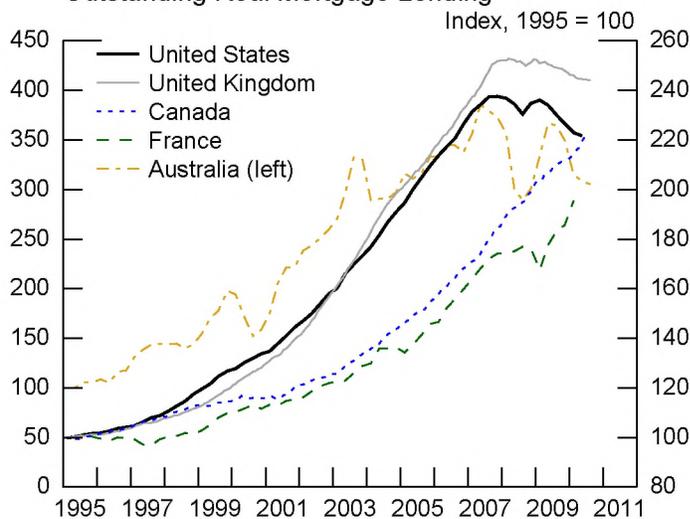
Ratio of House Prices to Rents



Housing Starts

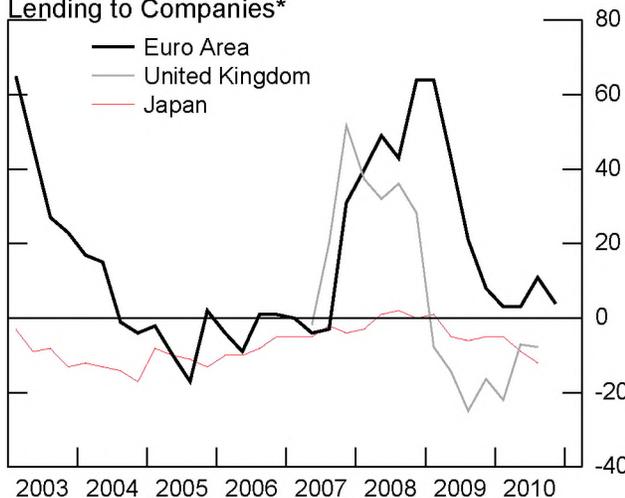


Outstanding Real Mortgage Lending



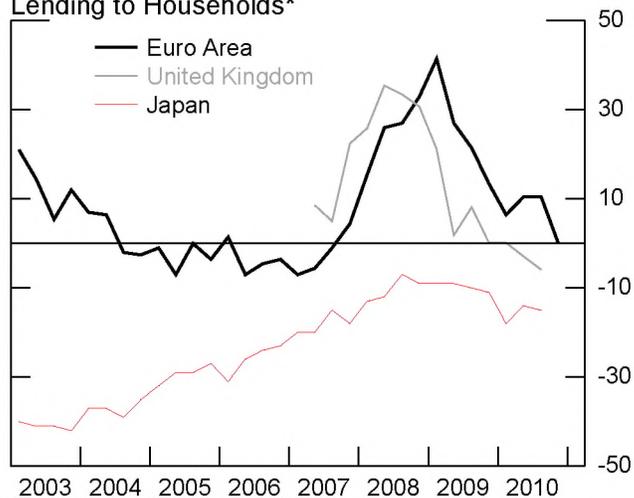
## International Credit Availability/Terms

Net Change in Credit Standards for Lending to Companies\*



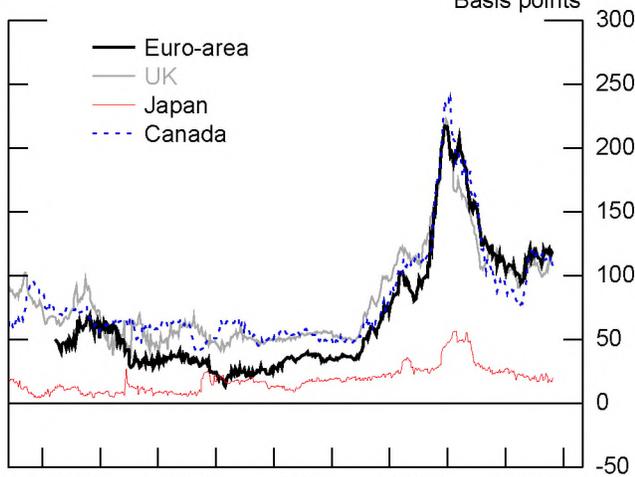
\*Positive values indicate credit tightening.

Net Change in Credit Standards for Lending to Households\*



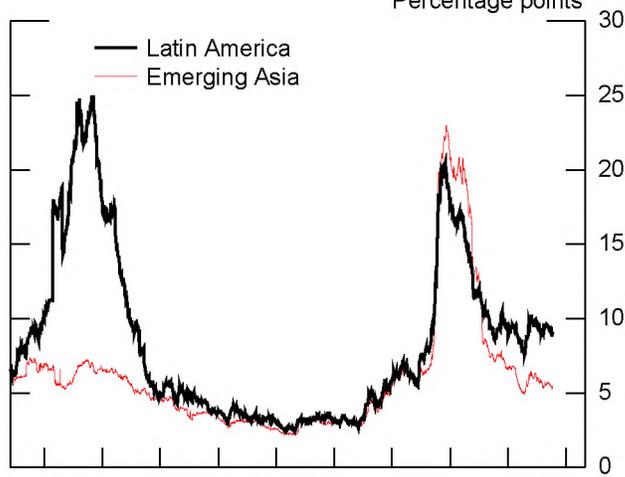
\*Positive values indicate credit tightening.

Corporate Debt Spreads (Advanced Economies)\*



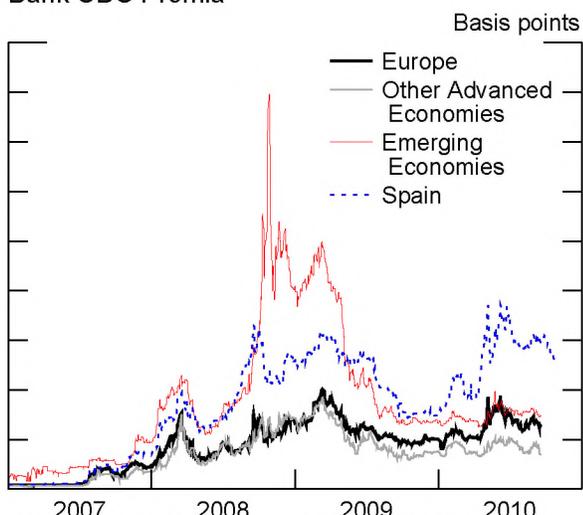
\*Spreads of ten-year AA corporate debt over government debt.

Corporate Debt Spreads (Emerging Economies)\*



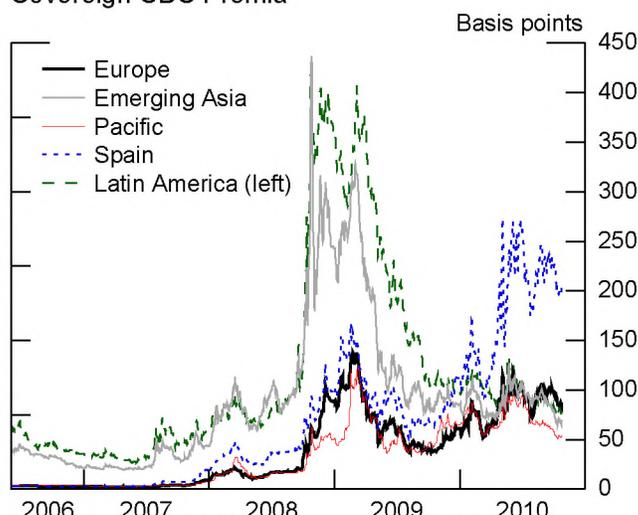
\*Source: Merrill Lynch. US dollar denominated debt over five-year treasury rate, composite BB- rating for Asia, B for Latin America.

Bank CDS Premia\*



\*Source: Markit. Median of 5-year CDS premiums, senior debt.

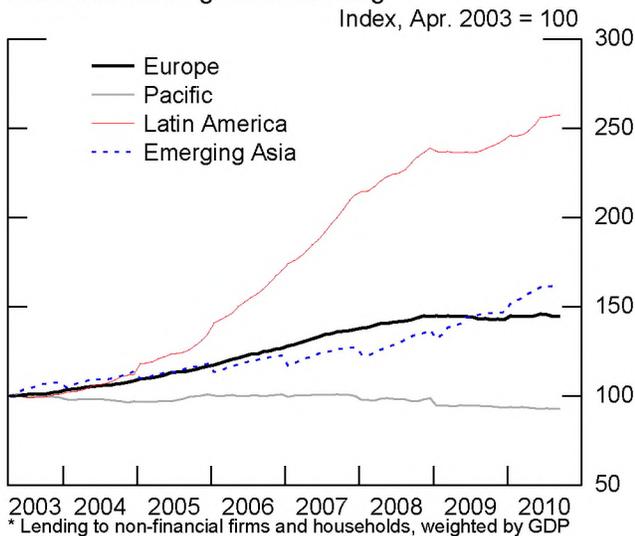
Sovereign CDS Premia\*



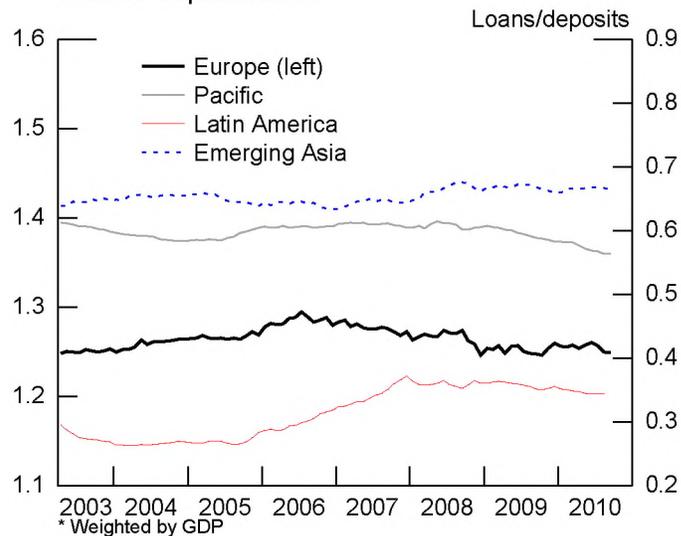
\*Source: Markit. GDP-weighted averages of 5-year CDS premia.

### International Credit

Real Outstanding Bank Lending\*

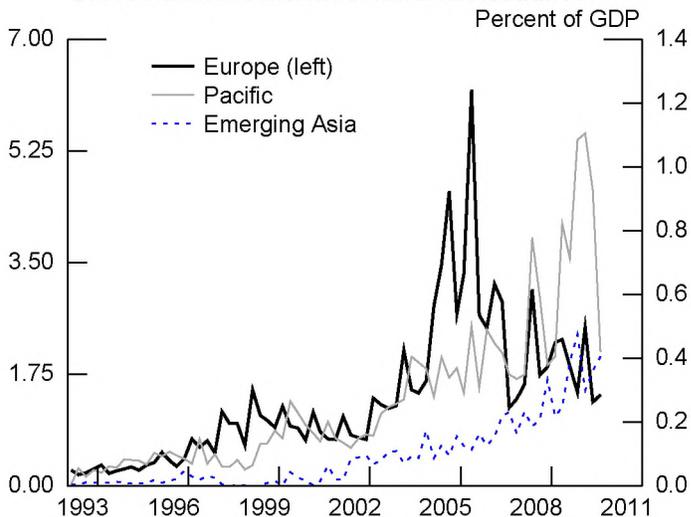


Loan-to-deposit ratios\*

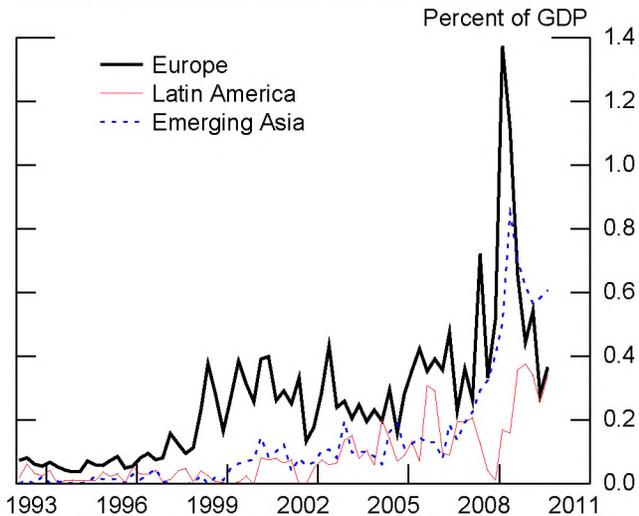


552 U.S.C. (b)(4)

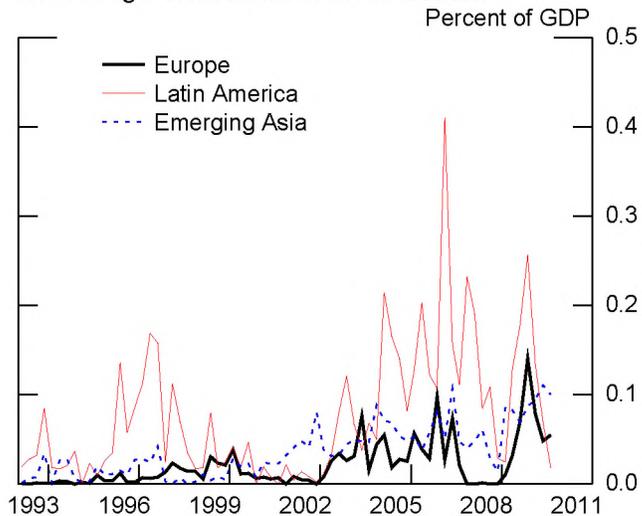
Gross Financial International Debt Issuance



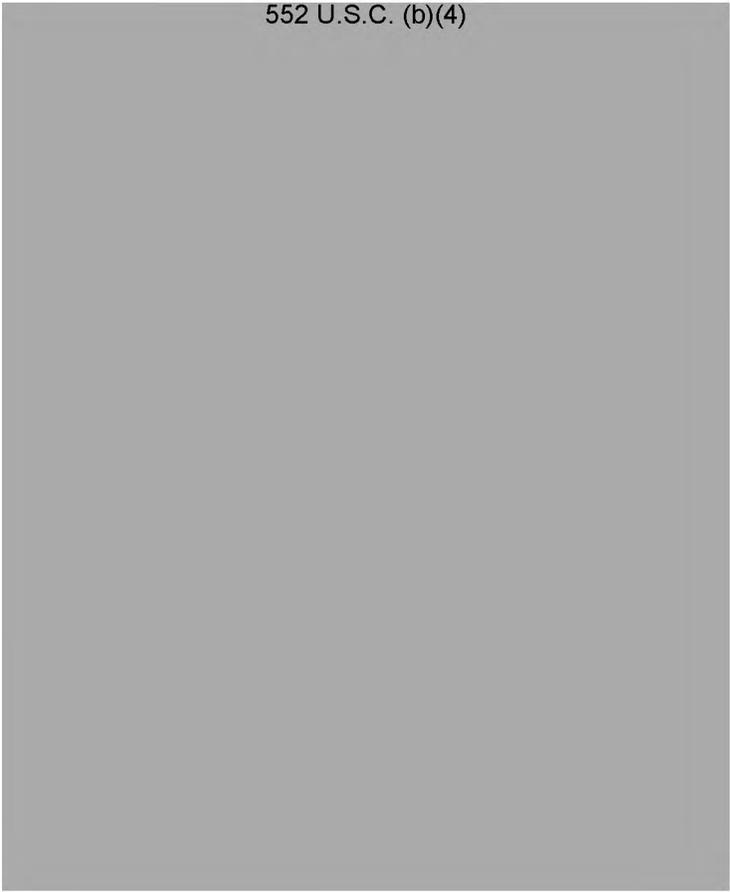
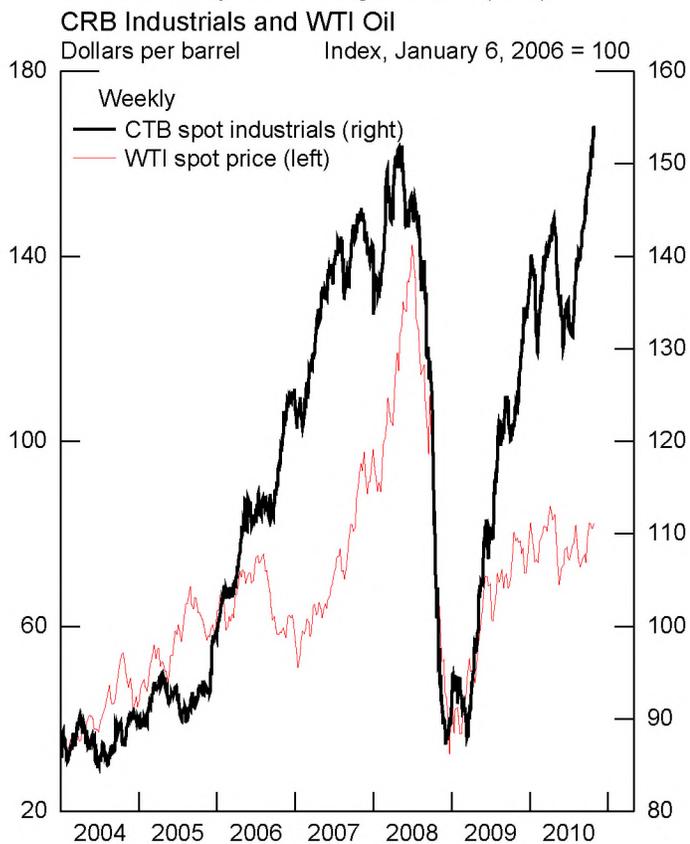
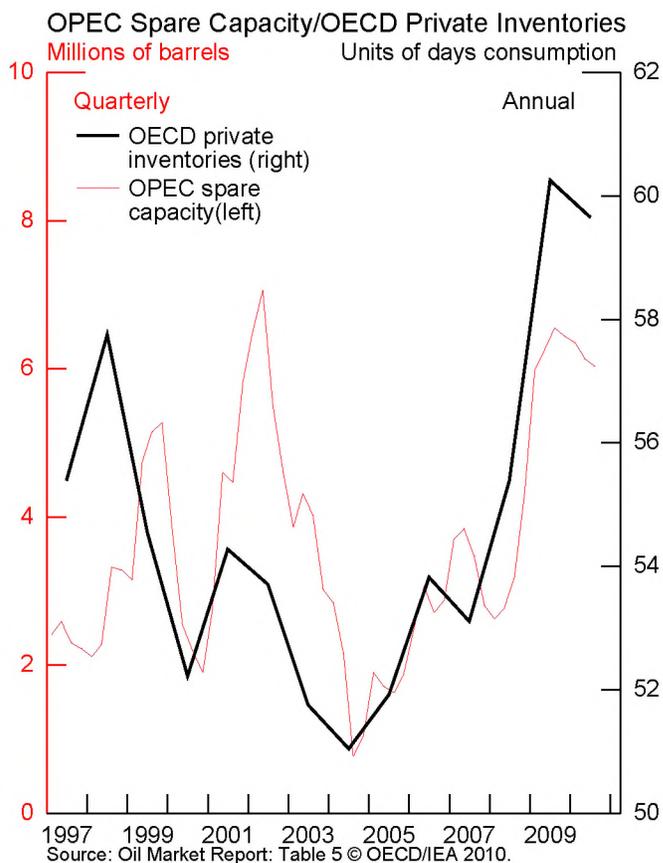
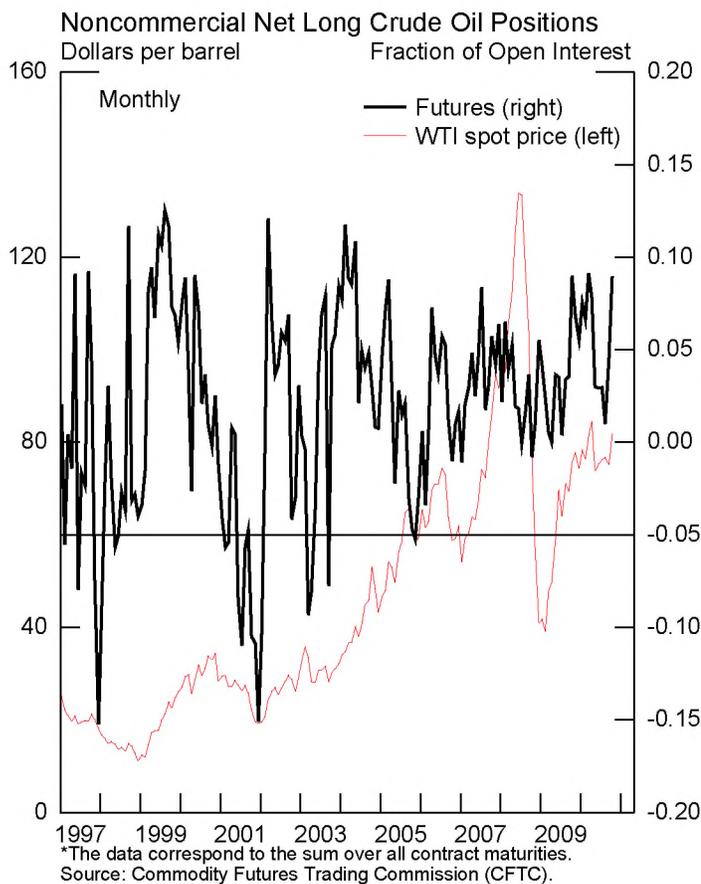
Gross Investment Grade Non-Financial Issuance



Gross High Yield Non-Financial Issuance

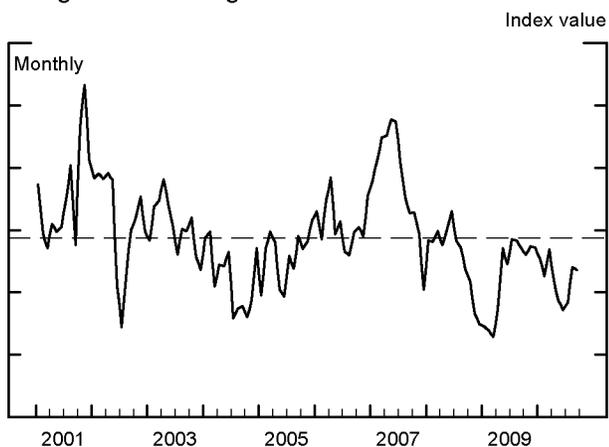


### Commodity Prices



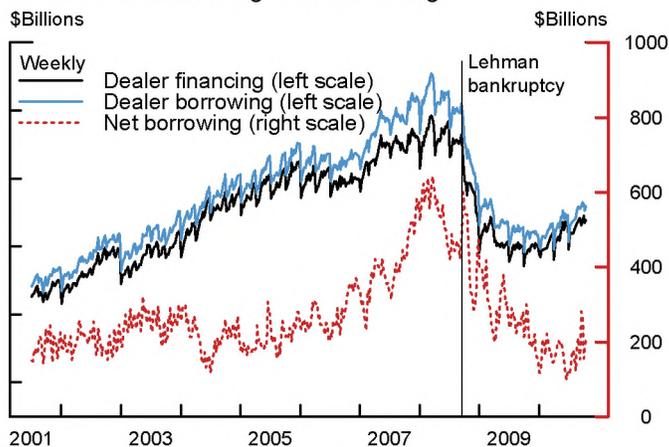
## Indicators of Leverage

Hedge fund leverage indicator



Note. Ratio of standard deviations of returns for leveraged funds relative to those for unleveraged funds. Limited to long/short equity funds reporting returns in US dollars. Data are through September 2010.

Total dealer financing and borrowing



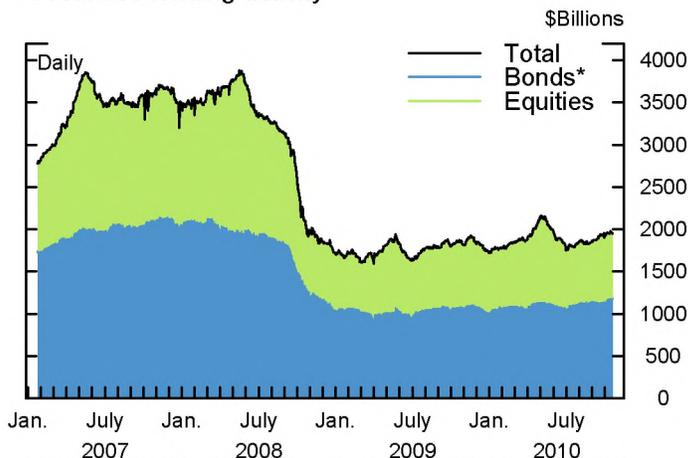
Note. Data are through October 13, 2010.  
Source. FR 2004C.

552 U.S.C. (b)(4)

552 U.S.C. (b)(4)

552 U.S.C. (b)(4)

Securities lending activity



\* Includes corporate bonds, ABS, convertible bonds, US government bonds, the bonds of most Western European countries in addition to Japan, Australia, and Canada, and emerging market bonds.  
Source. FRBNY.