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Assessing Potential Financial Imbalances in an Era of Accommodative Monetary Policy

Remarks by

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at the

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Let me begin by thanking Governor Shirakawa and the Bank of Japan for inviting me to participate in this important conference on linkages among monetary policy, financial markets, and the real economy. The severe economic consequences of the recent financial crisis have underscored the need for central banks to vigilantly monitor the financial system for emerging risks to financial stability. Indeed, such vigilance may be particularly important when monetary policy remains highly accommodative for an extended period. As many observers have argued, an environment of low and stable interest rates may encourage investor behavior that could potentially lead to the emergence of financial imbalances that could threaten financial stability.<sup>1</sup>

Monetary policy in the United States has been highly accommodative now for a number of years. Since late 2008, the Federal Open Market Committee (FOMC) has kept the target federal funds rate close to zero and has purchased a substantial amount of longer-term Treasury and agency securities. My reading of the evidence is that those securities purchases have proven effective in easing financial conditions, thereby promoting a stronger pace of economic recovery and checking undesirable disinflationary pressures. Moreover, I believe that the current accommodative stance of U.S. monetary policy continues to be appropriate because the unemployment rate remains elevated and inflation is expected to remain subdued over the medium run.

Today, I will describe some of the surveillance practices that the Federal Reserve has put in place to monitor risks to financial stability, particularly risks stemming from potential interactions between a run-up in asset prices and leverage, and I will offer our perspective on the current financial situation. At present, we see few indications of significant imbalances, despite some recent developments warranting close attention, including signs of valuation pressures in

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<sup>1</sup> I am indebted to Board staff members Matthew Eichner, Andrew Levin and Fabio Natalucci for their assistance in preparing these remarks.

some markets and a moderate increase in leverage provided by dealers. I will also briefly touch on the role of supervision and regulation in this context and the development of new macroprudential tools for addressing financial imbalances.

### **Monetary Policy and Financial Imbalances**

In the aftermath of the crisis, the primary objective of U.S. monetary policy was to promote financial conditions likely to spur spending on goods and services through a number of channels. To this end, the Federal Reserve first lowered the federal funds rate and other rates at the short end of the yield curve and, once the zero lower bound was binding, sought to push down yields at the longer end through large-scale purchases of longer-term Treasury and agency securities. We anticipated that lowering rates on these securities would place downward pressure on a range of private yields as well, in turn supporting home values, equity prices, and other asset prices. After all, this is the primary mechanism through which monetary policy in its conventional form stimulates the economy. But a sustained period of very low and stable yields may incite a phenomenon commonly referred to as “reaching for yield,” in which investors seek higher returns by purchasing assets with greater duration or increased credit risk.

The shift toward riskier assets is a normal channel through which monetary policy supports economic activity. But taken too far, this dynamic has the potential to facilitate the emergence of financial imbalances. For example, with interest rates at very low levels for a long period of time, and in an environment of low volatility, investors, banks, and other market participants may become complacent about interest rate risk.<sup>2</sup> Similarly, in such an environment,

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<sup>2</sup> In January 2010, financial regulators issued an interagency advisory to remind financial institutions about supervisory expectations regarding sound practices for the management of interest rate risk. Regulators noted that in an environment of historically low short-term interest rates, it is important for institutions to have robust processes for measuring and, where necessary, mitigating their exposure to potential increases in interest rates. See Board of Governors of the Federal Reserve System, Division of Banking Supervision and Regulation (2010), “Interagency Advisory on Interest Rate Risk,” Supervision and Regulation Letter SR 10-1 (January 11), [www.federalreserve.gov/boarddocs/srletters/sr1001.htm](http://www.federalreserve.gov/boarddocs/srletters/sr1001.htm).

investors holding assets which entail exposure to greater credit risk may not fully appreciate, or demand proper compensation for, potential losses. Finally, investors may seek to boost returns by employing additional leverage, which can amplify interest rate and credit risk as well as make exposures less transparent.

One of the lessons of the financial crisis was that the potential adverse effects of a rapid unwinding of financial imbalances, regardless of the causes, are significantly increased if market participants employ significant leverage. In the extreme, changes in investor sentiment can lead to a withdrawal of liquidity, rapid declines in mark-to-market values, forced asset sales in the face of margin calls, and, ultimately, a rapid and disorderly self-reinforcing deleveraging. Such painful outcomes are more likely when financing mechanisms are opaque, when intermediation occurs without an effective liquidity backstop, when assets are less liquid, and when financial leverage is layered on top of structural leverage.<sup>3</sup>

These dynamics were evident during the financial crisis. Before the crisis, market participants grew comfortable with borrowing collateralized by a variety of less-liquid assets, sometimes using structured investment vehicles (SIVs), conduits, and other off-balance-sheet structures. Directly or indirectly, market participants used short-term funding that needed to be renewed almost continually but lacked a formal liquidity backstop (although, in some cases, such support was seen by market participants as implicit). Further, much of the financing--through repurchase agreements (repos), over-the-counter (OTC) derivatives, and other mechanisms--was collateralized by securities that already embedded significant structural leverage.

This layering of leverage had profound consequences when sentiment changed. Lenders who had financed securities, either directly in the repo market or through structured vehicles,

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<sup>3</sup> Structural leverage refers to design features of an instrument that produce large changes in valuation in response to small changes in risk factors.

were suddenly no longer comfortable with the collateral and were unsure of their potential exposure to losses. Given the uncertainties, the rational response went beyond raising haircuts or other means of tightening credit terms: Banks simply stopped lending, typically by not “rolling over,” or renewing, short-term financing when trades matured. In addition, collateralized borrowing had taken on many transactional forms, including OTC derivatives or securities financings, which were not always recognized as economically equivalent. Given the extent of layering, and sometimes opacity of leverage, the result was a rapid and disorderly unwinding, over just weeks or months, of a very complicated system that had taken years to evolve.

### **Assessing Current Financial Imbalances**

In light of this experience, the Federal Reserve is carefully monitoring financial indicators for signs of potential imbalances and is assessing the extent to which leverage is currently employed by investors, particularly where some of the potentially amplifying factors I just discussed may be present.

### ***Asset Valuations***

Misaligned asset prices are notoriously difficult to detect in a timely fashion, and no single metric or set of metrics can consistently and reliably identify stretched valuations. Nonetheless, it is clearly worthwhile to track a wide range of metrics and to view them in the context of their historical norms. Current conditions can be evaluated against a baseline of past experience, and then assessed in light of the various institutional and market factors that could conceivably account for deviations from historical ranges. The Federal Reserve tracks a large number of indicators, and I will highlight a few examples.

Overall, these indicators do not obviously point to significant excesses or imbalances in the United States. For example, as shown in figure 1, forward price-to-earnings ratios in the

stock market fall within the ranges prevailing in recent decades, and are well below the early-2000 peak, although corresponding measures for small-cap equities (not shown) appear somewhat elevated. In the residential real estate market, price-to-rent ratios are now somewhat below their long-run averages, in sharp contrast with the situation immediately before the financial crisis.

Notwithstanding this general view, some areas warrant our ongoing attention. As shown in figure 2, credit spreads on nonfinancial corporate bonds have dropped sharply since the financial crisis. This decline partly reflects improvements in earnings and corporate balance sheets, but also lower risk premiums. One measure of risk premiums, the forward spreads far in the future, are extremely low compared with historical norms for high-yield bonds, suggesting that investors have become more willing to assume credit risk. In the syndicated leveraged loan market, strong inflows appear to have contributed to an increase in prices. I will return to developments in this market and discuss their potential ramifications shortly.

Rapid debt growth may also signal emerging imbalances. In recent quarters, issuance of high-yield bonds by nonfinancial corporations has been robust. As shown in figure 3, credit flows have also been solid in the syndicated leveraged loan market, with a substantial amount of this credit being ultimately provided by nonbank institutional investors such as loan mutual funds, pension funds and insurance companies. Nonetheless, a portion of the recent corporate issuance has been used to refinance existing debt, and small business lending remains quite weak. Overall, despite a recent pickup in commercial and industrial lending, we see little evidence that financial institutions are significantly expanding the level of private credit, on net.

Of course, these aggregate measures provide only a limited picture of overall credit conditions. Another type of evidence comes from surveys of market participants' practices. For

example, the Federal Reserve's Senior Loan Officer Opinion Survey on Bank Lending Practices provides information about changes in the supply of and demand for bank loans to businesses and households.<sup>4</sup> As shown in figure 4, recent surveys indicate that banks have reversed only a portion of the substantial tightening in credit standards and terms put in place after the crisis.

### ***Dealer-Intermediated Leverage***

In the wake of the crisis, the Federal Reserve has intensified its efforts to monitor leverage, particularly outside of the traditional banking system. Information on the use of leverage is incomplete at best, and in our attempts to better measure leverage, we must grapple with several complexities. For instance, in recent years a significant volume of credit intermediation has migrated outside the traditional banking system, where it is not only unprotected by a formal government backstop but also difficult to capture by traditional accounting measures. A further complication stems from the fact that dealers in securities and OTC derivatives--the key providers of leverage outside of the traditional banking system--can facilitate a particular economic exposure using a variety of transactional structures including, for example, combinations of securities financing, OTC derivatives, and prime brokerage activities.

To obtain information on the usage and pricing of such leverage, the Federal Reserve relies on a number of different indicators, including supervisory and market surveillance data, as well as ongoing dialog with a range of market participants to construct a composite picture of the extent to which leverage is being deployed, on what terms, and the channels through which leverage is being facilitated by dealers. These indicators include results from the Senior Credit Officer Opinion Survey on Dealer Financing Terms (SCOOS), which was launched by the

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<sup>4</sup> Results of the Senior Loan Officer Opinion Survey on Bank Lending Practices are available on the Board's website at [www.federalreserve.gov/boarddocs/SnLoanSurvey](http://www.federalreserve.gov/boarddocs/SnLoanSurvey).

Federal Reserve last year in June.<sup>5</sup> This survey provides qualitative information on credit terms and availability of various forms of dealer-intermediated financing--including for securities positions--and OTC derivatives.

The available qualitative and quantitative indicators suggest that dealer-intermediated leverage has risen modestly since its post-crisis nadir in 2009. For example, responses to several consecutive SCOOSs point to an easing of price and nonprice credit terms applicable to a range of counterparties (including hedge funds, private equity firms, and other private pools of capital, shown in figure 5) since early 2010. In addition, dealers have consistently reported an increase in demand for funding across various collateral types. Furthermore, special questions included in the March 2011 SCOOS suggest an increase in the use of leverage by some traditionally unlevered investors (such as pension funds and insurance companies) as well as hedge funds during the previous six months.

In spite of this increase, many indicators suggest that the overall use of financial leverage remains markedly below levels prevailing before the crisis and has increased only modestly over the past year. For example, as shown in figure 6, activity in the triparty repo market has in fact changed little, on balance, over the past year, and haircuts on the most important types of collateral have been steady over this period.<sup>6</sup> Of note, increases in the utilization of leverage have been driven by the financing of relatively liquid asset types (such as equities) through comparatively transparent transactions. Moreover, issuance of structured products that embed leverage, which were originated in large volumes prior to the crisis, has not resumed on any significant scale. More broadly, the appetite of most market participants for additional leverage

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<sup>5</sup> Results of the Senior Credit Officer Opinion Survey on Dealer Financing Terms are available on the Board's website at [www.federalreserve.gov/econresdata/releases/scoos.htm](http://www.federalreserve.gov/econresdata/releases/scoos.htm).

<sup>6</sup> Summary statistics for the U.S. triparty repo market are available dating back to May 2010 on the Federal Reserve Bank of New York's website at [www.newyorkfed.org/tripartyrepo/margin\\_data.html](http://www.newyorkfed.org/tripartyrepo/margin_data.html).

appears to remain generally muted, with most investors not fully using their existing funding capacity. Therefore, the risk of a rapid and disorderly deleveraging in the event of a swift change in market sentiment seems to be limited at this point.

Nonetheless, two dynamics with respect to the use of leverage bear watching. First, important classes of generally unlevered investors (for example, pension funds) are reportedly finding it difficult in the present low interest rate environment to meet nominal return targets and may be reaching for yield by assuming greater interest-rate and credit risk in their portfolios. While some investors have also apparently boosted returns by increasing leverage, we see little evidence at present that this behavior is occurring on any significant scale. Second, additional funding is reportedly broadly available to traditionally levered investors such as hedge funds. To the extent that investors choose to take advantage of the readily available funding for less liquid assets, their use of leverage could rise quickly, increasing the risks of a disorderly deleveraging.

#### ***A Case Study: The Syndicated Leveraged Loan Market***

I mentioned earlier that strong demand has been pushing prices higher in the syndicated loan market and figure 7 shows recent developments: Inflows into this asset class have indeed been robust and prices have been rising quite rapidly. An important characteristic of syndicated loans is that they are floating rate instruments, priced at a fixed spread to Libor (the London interbank offered rate). In an environment where interest rates may be expected to rise, this characteristic may partly explain such strong investor interest.

To assess the potential financial stability ramifications of these developments, we have focused initially on two key questions. First, to what degree would financial intermediaries be exposed to a rapid change in investor sentiment? Recall that prior to the financial crisis, a number of important financial institutions, in their role as lead arrangers of syndicated loans,

amassed significant “pipelines” of very large deals, which effectively represented commitments to provide financing. When investor interest waned, banks were left with notable positions in “hung” deals, which resulted in substantial mark-to-market losses. Today, in contrast, banks report that they have significant risk mitigants in place to protect their balance sheets. In particular, deals are smaller, financings are reportedly arranged on a “best efforts” basis, and banks are said to maintain considerable contractual flexibility post-commitment to adjust the pricing and structure of loans, at the expense of borrowers, to market-clearing levels.<sup>7</sup>

A second question is whether leveraged loans are being funded on any significant scale using mechanisms, such as repo funding, total return swaps and other OTC derivatives, and collateralized loan obligations, or CLOs, that were prevalent before the crisis. During the market disruption in 2007-08, the significant leverage deployed through these channels, and the operation of the associated mark-to-market triggers, clearly contributed to the disruptions in the loan market, and to the losses experienced by banks and other market participants. When prices came under pressure, calls for additional collateral followed, leading in many cases to the sale of positions that put further pressure on valuations and started the cycle anew. But, at present, a number of indicators, including SCOOS special questions focused on funding of syndicated leveraged loans, provide little evidence of heavy reliance on such mechanisms, suggesting that the potential for such a rapid and disorderly delevering is very limited.

These comforts aside, demand from unlevered investors, presumably “reaching for yield,” has persisted in recent months. Strong inflows into the asset class have reportedly allowed borrowers to bargain for more attractive loan terms, especially given that many funds catering to retail and other unlevered investors have little choice but to immediately deploy

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<sup>7</sup> A “best efforts” syndication entails a commitment by the arranging banks for less than the entire amount of financing. If the loan is undersubscribed, the deal may not close or terms may need to be adjusted to induce greater investor demand.

invested funds. Manifestations of this dynamic include the reemergence of deals that do not provide investors with the traditional protection of maintenance covenants--so-called covenant lite structures--and of deals financing the distribution of dividends to equity-holders, as well as a gradual increase in the leveraging of the underlying corporate assets by borrowers. None of these developments may, per se, be indicative of unwise or imprudent lending, and in fact each of these may respond to a perceived need on the part of some market participants. However, the dynamics of competition are very much on display, including the resultant pressures on fund managers to accept and deploy incremental investments, and the pressures on arranging banks to maintain their market share. Indeed, these circumstances were recently highlighted to me by market participants. We will therefore continue to watch conditions in the leveraged loan market closely in the coming months, and we will speak out forcefully if we perceive pressures continuing to build.

### **Tools for Addressing Financial Imbalances**

If substantial evidence of financial imbalances on a broader scale were to develop, particularly if accompanied by significant use of leverage, I believe that supervision and regulation should constitute our first line of defense. Indeed, in the wake of the crisis, our supervisory process has been significantly modified to take more explicitly into account possible financial stability implications and effects on the broader economy, a perspective that is frequently described as “macroprudential.” Our concerns now extend beyond the capacity of individual institutions to protect their capital and balance sheets.

In taking this broader perspective, we continue to rely on many traditional supervisory tools. For example, should they feel the need to more directly address a continued building of pressures in the leveraged loan market, supervisors might require institutions to strengthen their

underwriting standards while clarifying the degree to which anticipated distribution of loans through syndication constitutes risk mitigation. In addition, supervisory expectations concerning risk-management standards applicable to the syndication activity--in particular, the management of “pipeline risk” related to the warehousing of loans awaiting distribution--could be made more stringent.

The need to deploy an enhanced set of tools and standards to promote financial stability has been widely recognized in the aftermath of the financial crisis. In the United States, for example, more rigorous prudential standards will be applied to systemically important financial institutions to ensure that these firms internalize the costs of the risks they pose to the financial system and the economy. Likewise, systemically important institutions will be required to develop living wills, or plans to facilitate their resolution in the event of insolvency. Novel tools may be needed, however, to limit--or lean against--the buildup of financial sector imbalances that span multiple institutions and markets. Approaches that have been used in other countries when policymakers determine that credit growth and risk-taking have become excessive include, for example, restrictions on underwriting practices, such as limits on loan-to-value ratios, loan-to-income ratios, and debt-to-income ratios. Of course, the use of such tools must be carefully evaluated in the context of the particular imbalance that policymakers are seeking to address, and judged both on their potential benefits and potential costs.

Should monetary policy itself be adjusted to address emerging financial imbalances? Given the damage that financial imbalances can cause if not addressed in a timely fashion, I would not categorically rule out the use of monetary policy when dangerous imbalances are building and prudential steps seem ineffective. However, calibrating the magnitude of a monetary policy response to address financial imbalances--even assuming that these can be

identified at an early stage--is difficult at best given the bluntness of the monetary policy tool and the uncertain lags with which it operates. For these reasons, the use of monetary policy to address financial imbalances should generally remain a last resort.

### **Conclusion**

The Federal Reserve is fully engaged in monitoring financial markets for potential imbalances and developing the tools necessary to carry out that task. These ongoing efforts include attempting to recognize early signs of misaligned valuations in asset markets and increases in leverage. At present, we see few indications of significant imbalances, and the use of leverage appears to remain well below pre-crisis levels. That said, I've noted some recent developments that warrant close attention, including indications of potentially stretched valuations in certain U.S. financial markets and emerging signs that investors are reaching for yield. Should broader concerns emerge, I believe that supervisory and regulatory tools, including new macroprudential approaches, rather than monetary policy, should serve as the first line of defense.

# **Assessing Potential Financial Imbalances in an Era of Accommodative Monetary Policy**

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

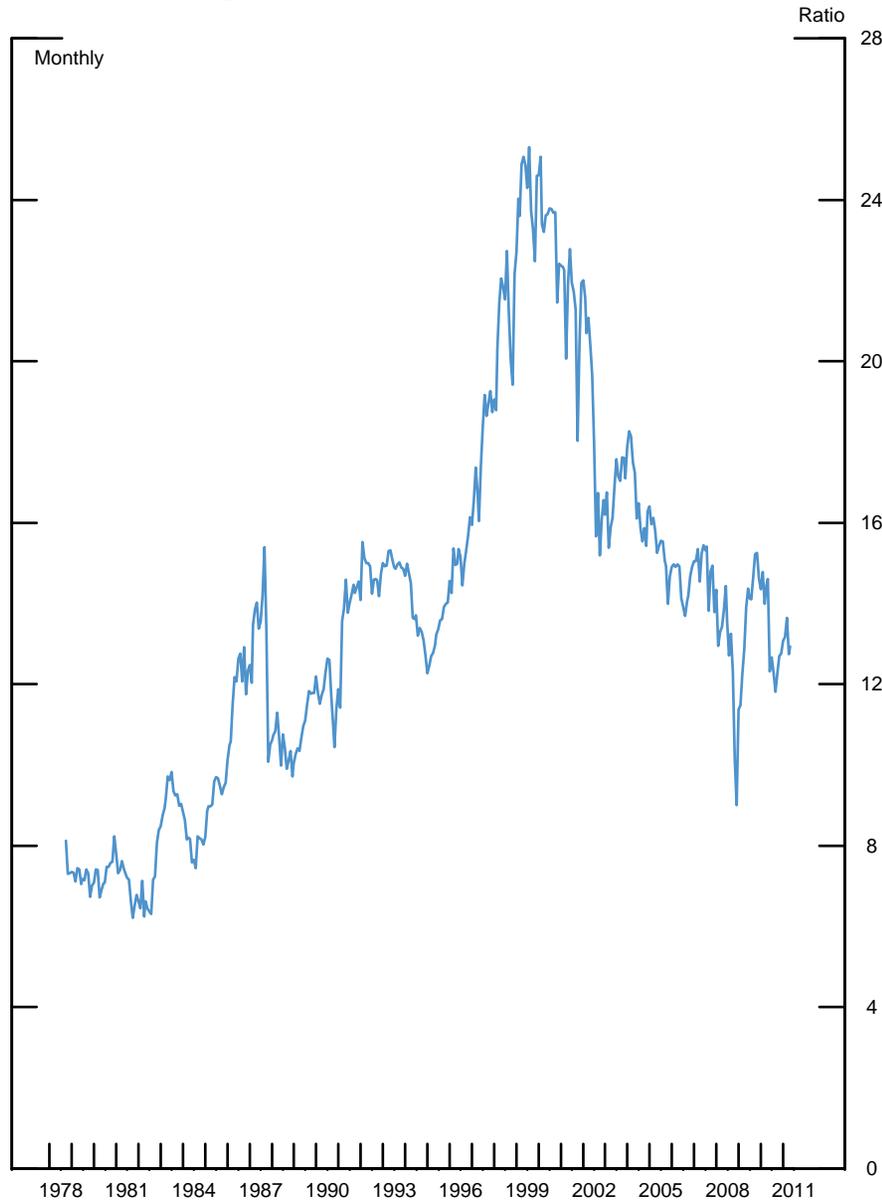
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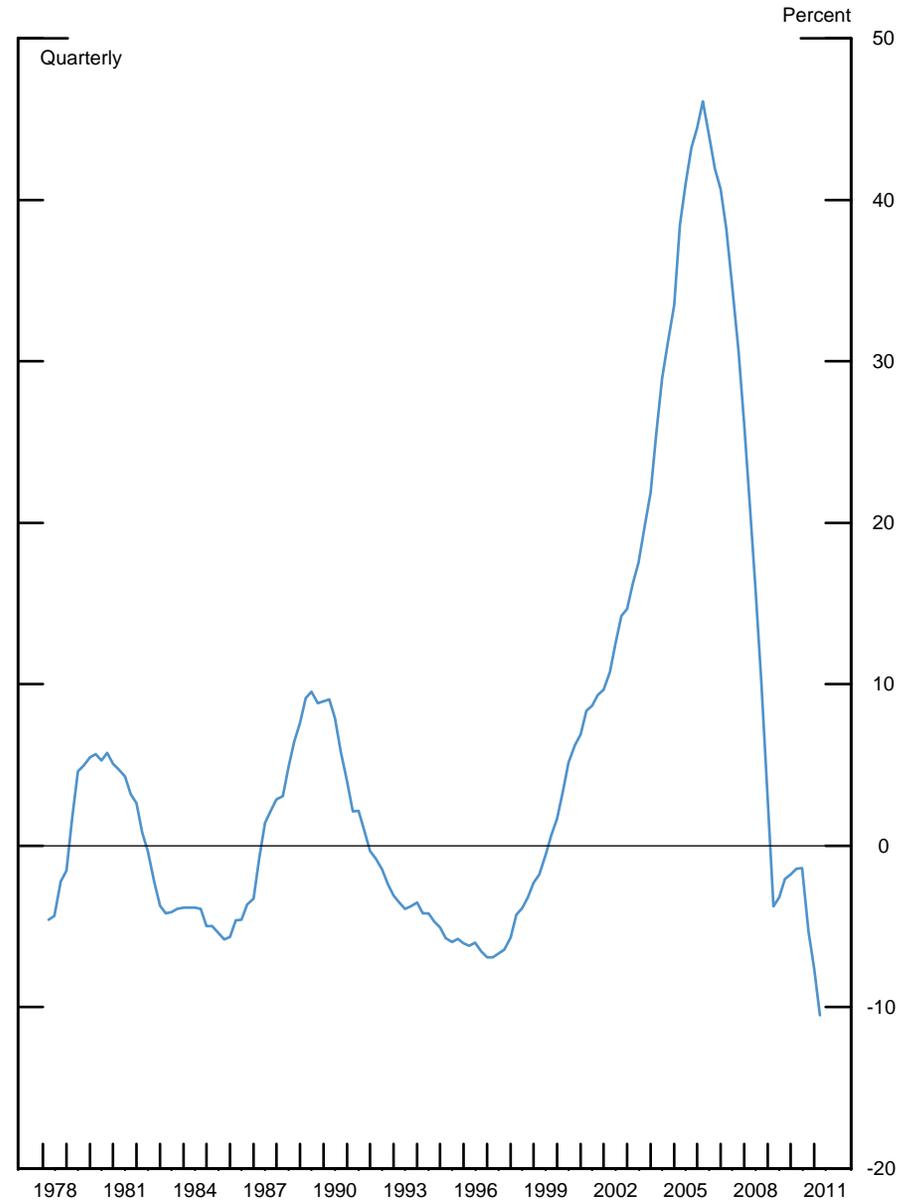
**Figure 1**  
Asset Valuation Indicators

Price-to-earnings ratio in U.S. equity market



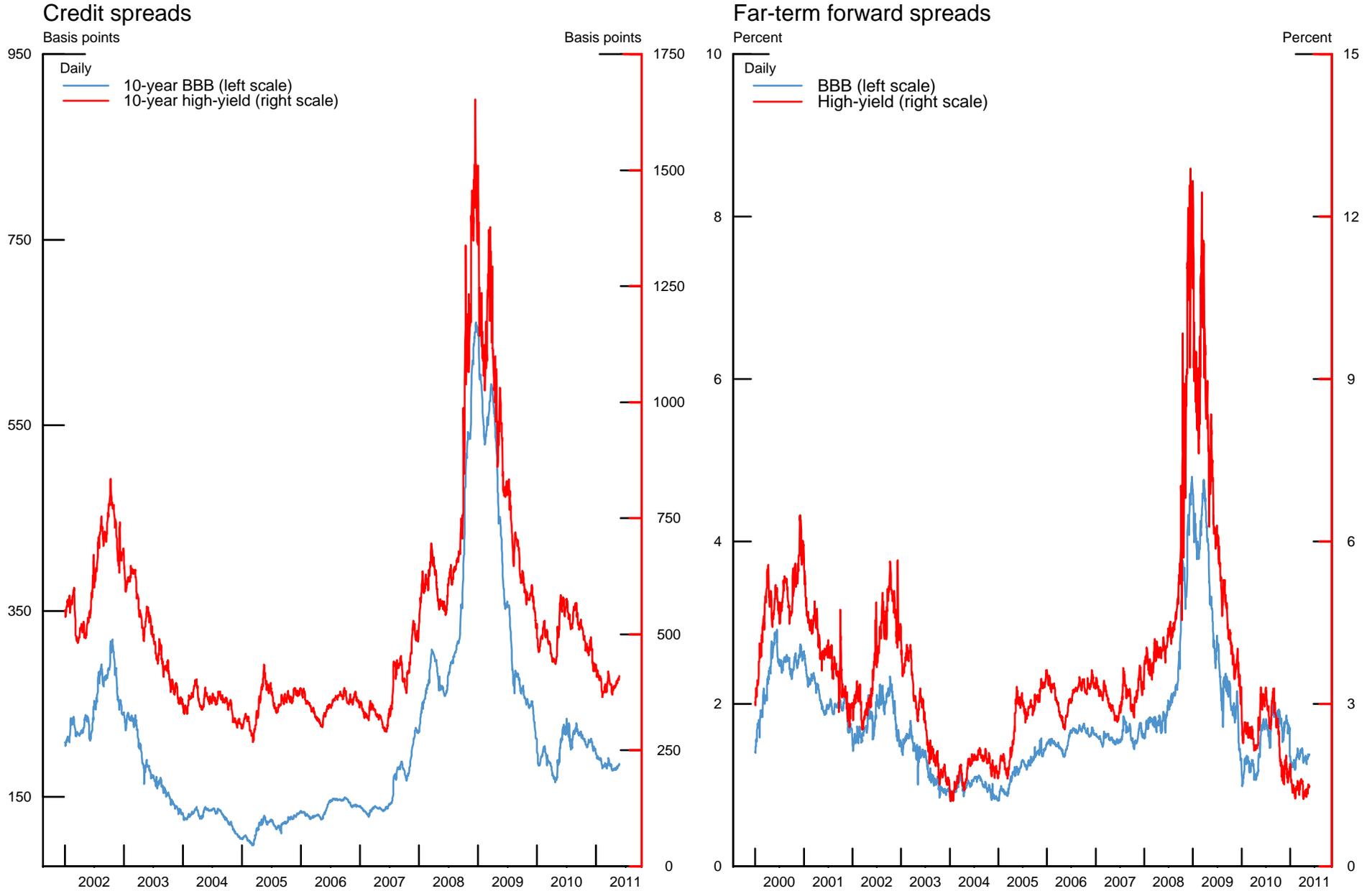
Note: S&P 500 12-month forward price-to-earnings ratio.  
Source: Thomson Financial.

Price-to-rent ratio in U.S. residential real estate market



Note: Deviation from long-run relationship between house prices and rents.  
Source: CoreLogic and Federal Reserve staff estimates.

## Figure 2 Corporate Bond Market

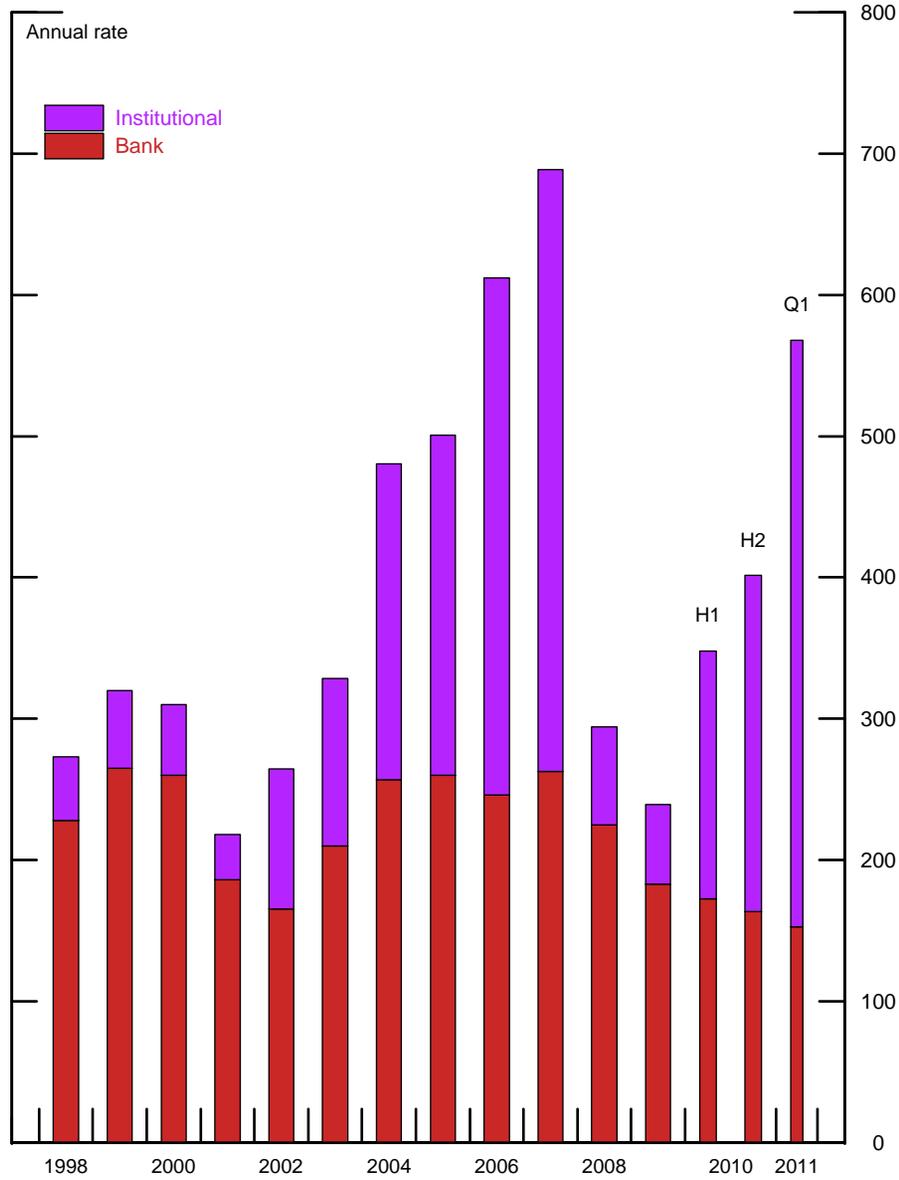


Note: Measured relative to an estimated off-the-run Treasury yield curve.  
Source: Merrill Lynch and Federal Reserve staff estimates.

Note: Far-term forward spread between years 9 and 10.  
Source: Merrill Lynch and Federal Reserve staff estimates.

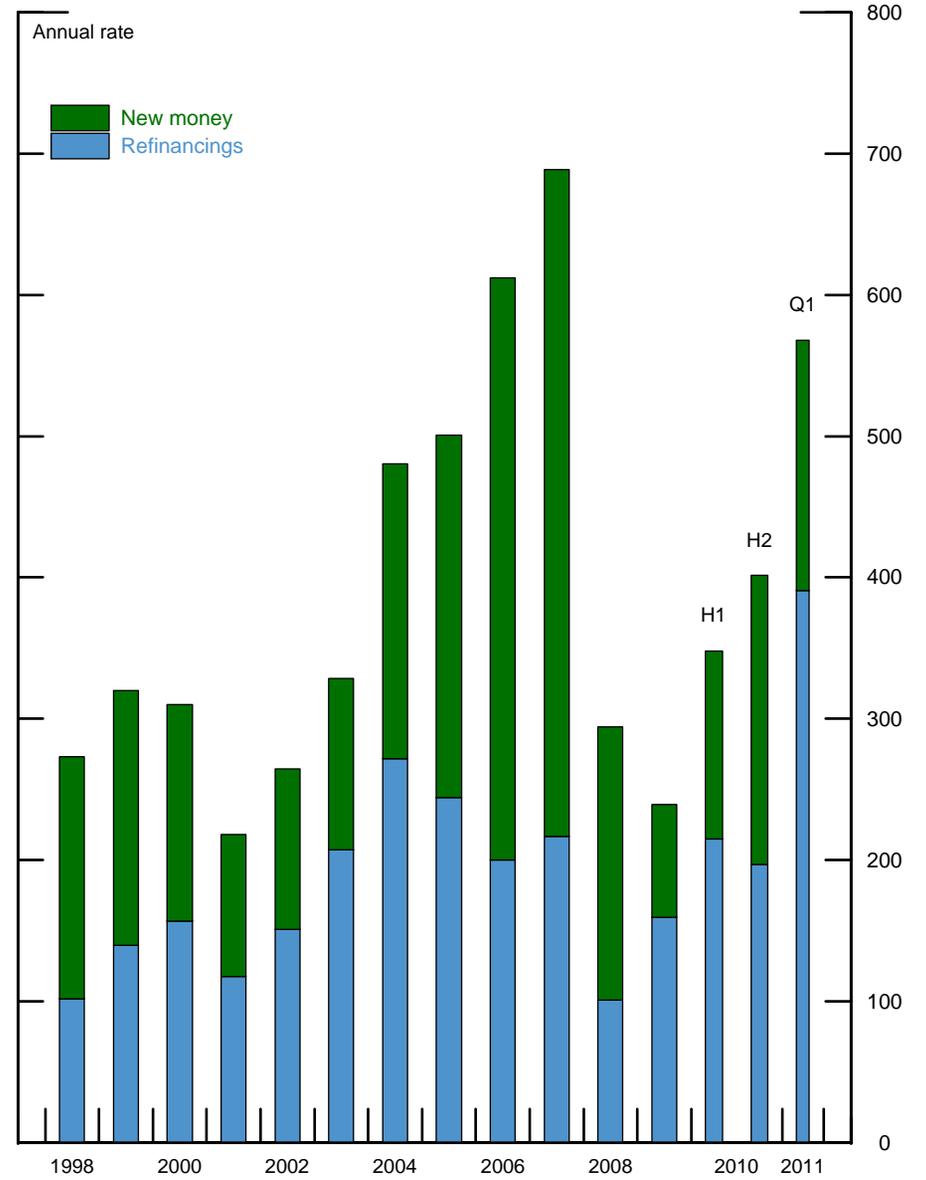
### Figure 3 Syndicated Leveraged Loan Market

#### By lender type



Source: Thomson Reuters LPC -- LoanConnector.

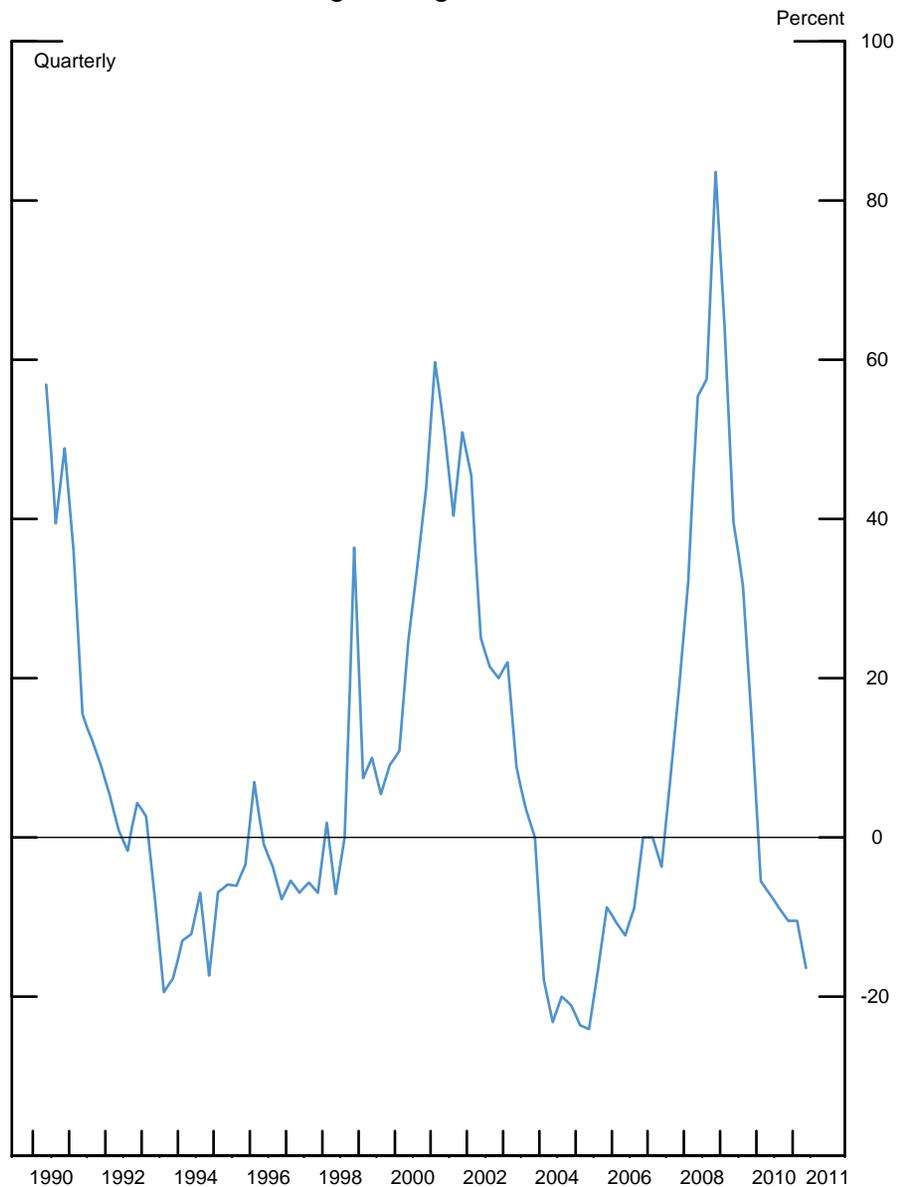
#### By use



Source: Thomson Reuters LPC -- LoanConnector.

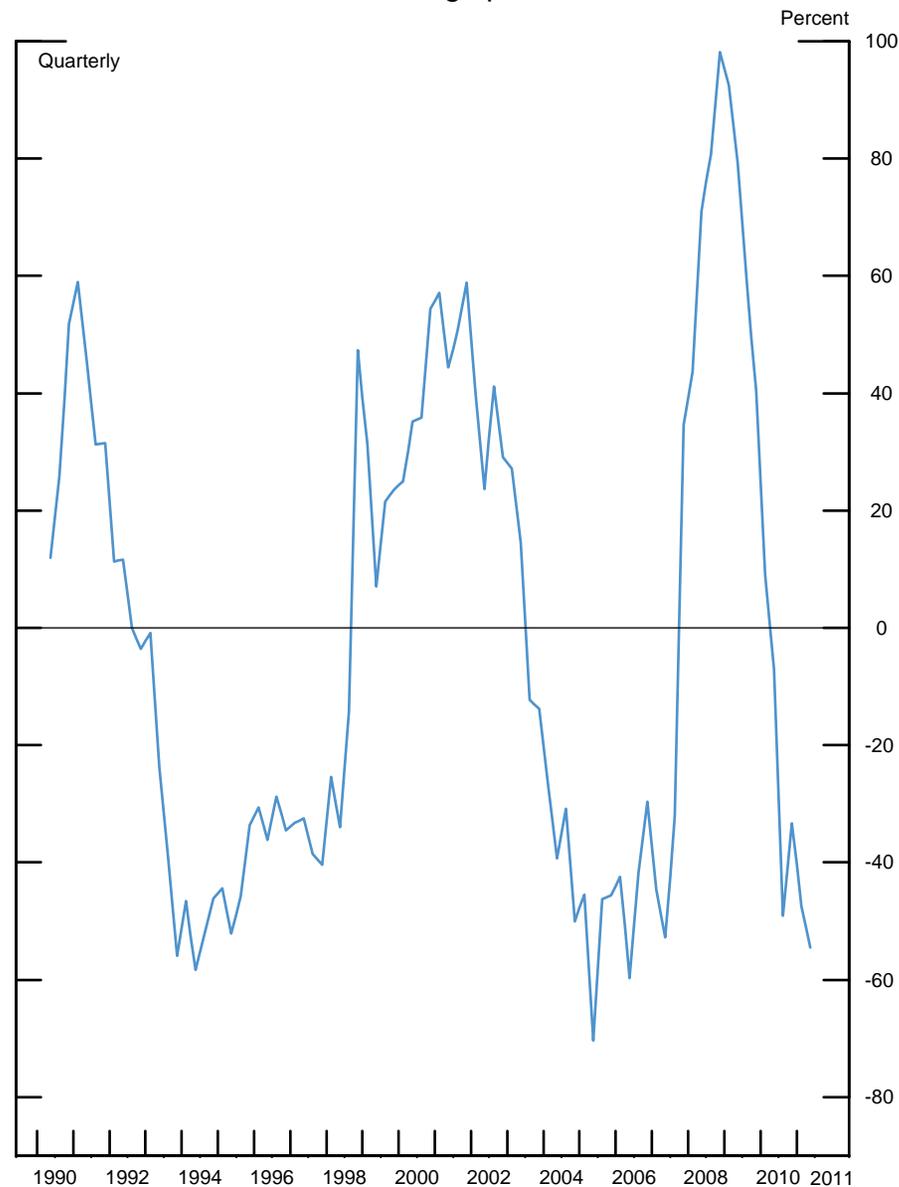
**Figure 4**  
**Senior Loan Officer Opinion Survey on Bank Lending Practices**

Net fraction of banks tightening standards on C&I loans



Note: Lending to large and medium-sized firms. The most recent Senior Loan Officer Opinion Survey on Bank Lending Practices is as of April 2011.  
 C&I Commercial and industrial.  
 Source: Federal Reserve Board.

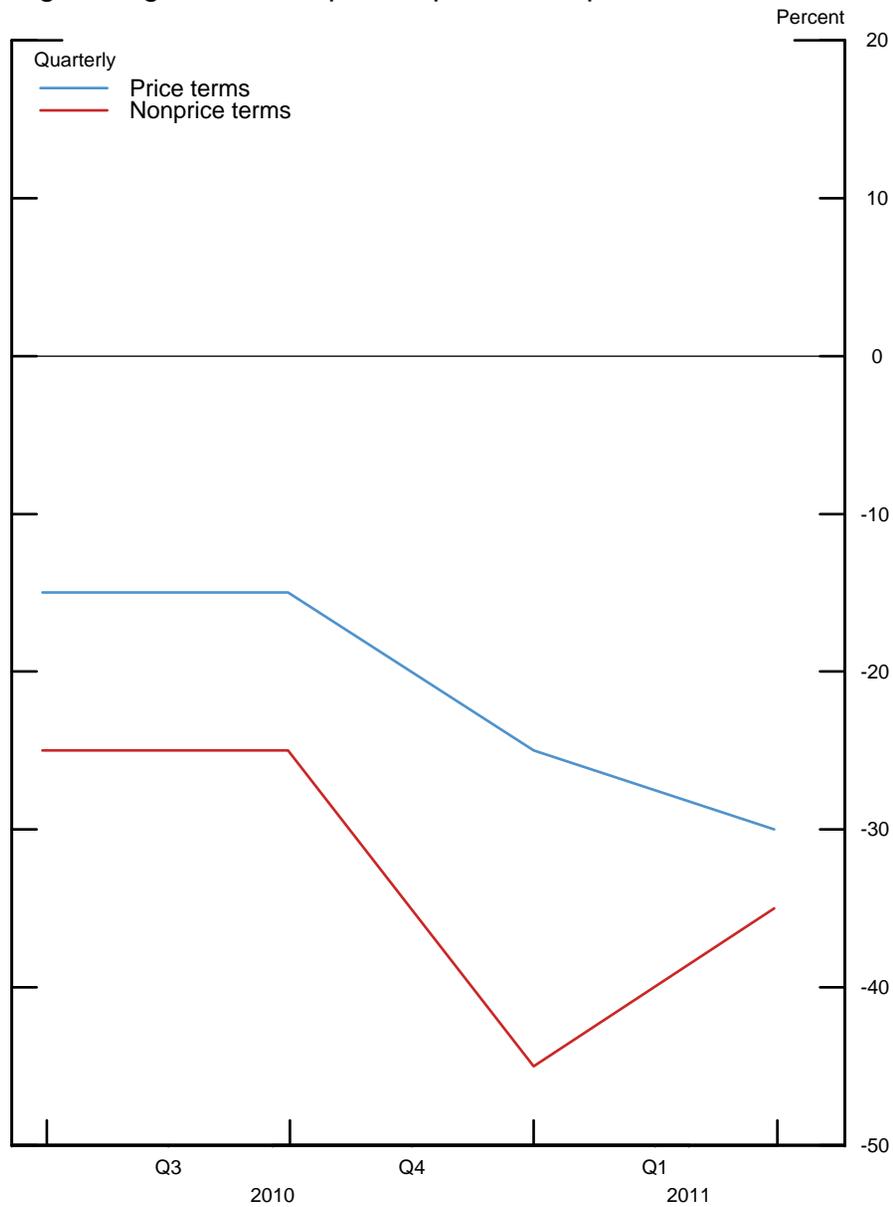
Net fraction of banks increasing spreads on C&I loans



Note: Spreads of loan rates over banks' cost of funds. Lending to large and medium-sized firms. The most recent Senior Loan Officer Opinion Survey on Bank Lending Practices is as of April 2011.  
 C&I Commercial and industrial.  
 Source: Federal Reserve Board.

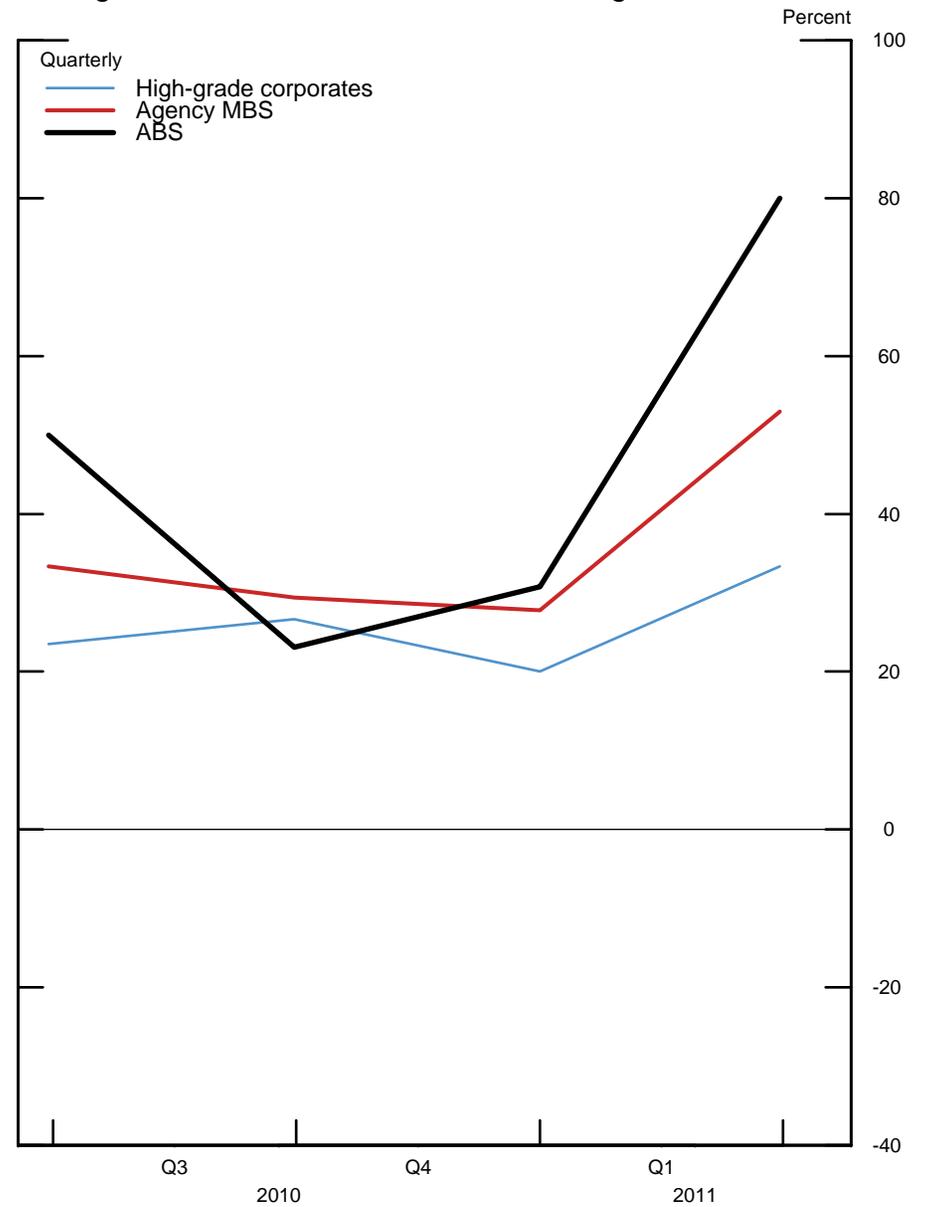
**Figure 5**  
Senior Credit Officer Opinion Survey on Dealer Financing Terms

Tightening of terms to private pools of capital



Note: The most recent Senior Credit Officer Opinion Survey on Dealer Financing Terms is as of March 2011.  
Source: Federal Reserve Board.

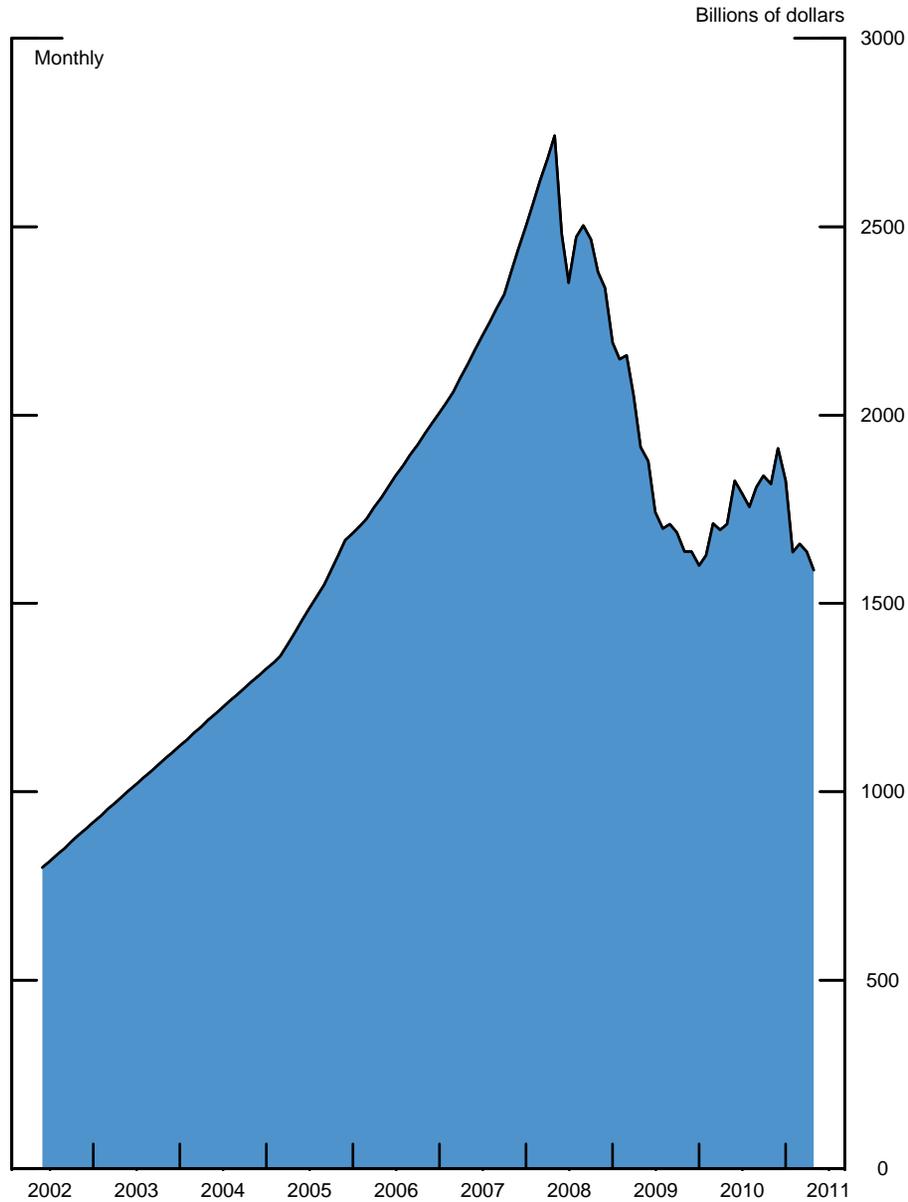
Changes in demand for securities financing



Note: The most recent Senior Credit Officer Opinion Survey on Dealer Financing Terms is as of March 2011.  
MBS Mortgage-backed securities; ABS Asset-backed securities.  
Source: Federal Reserve Board.

**Figure 6**  
Triparty Repo Market

Volume



Source: Federal Reserve Bank of New York.

Median haircuts applicable to specific collateral types

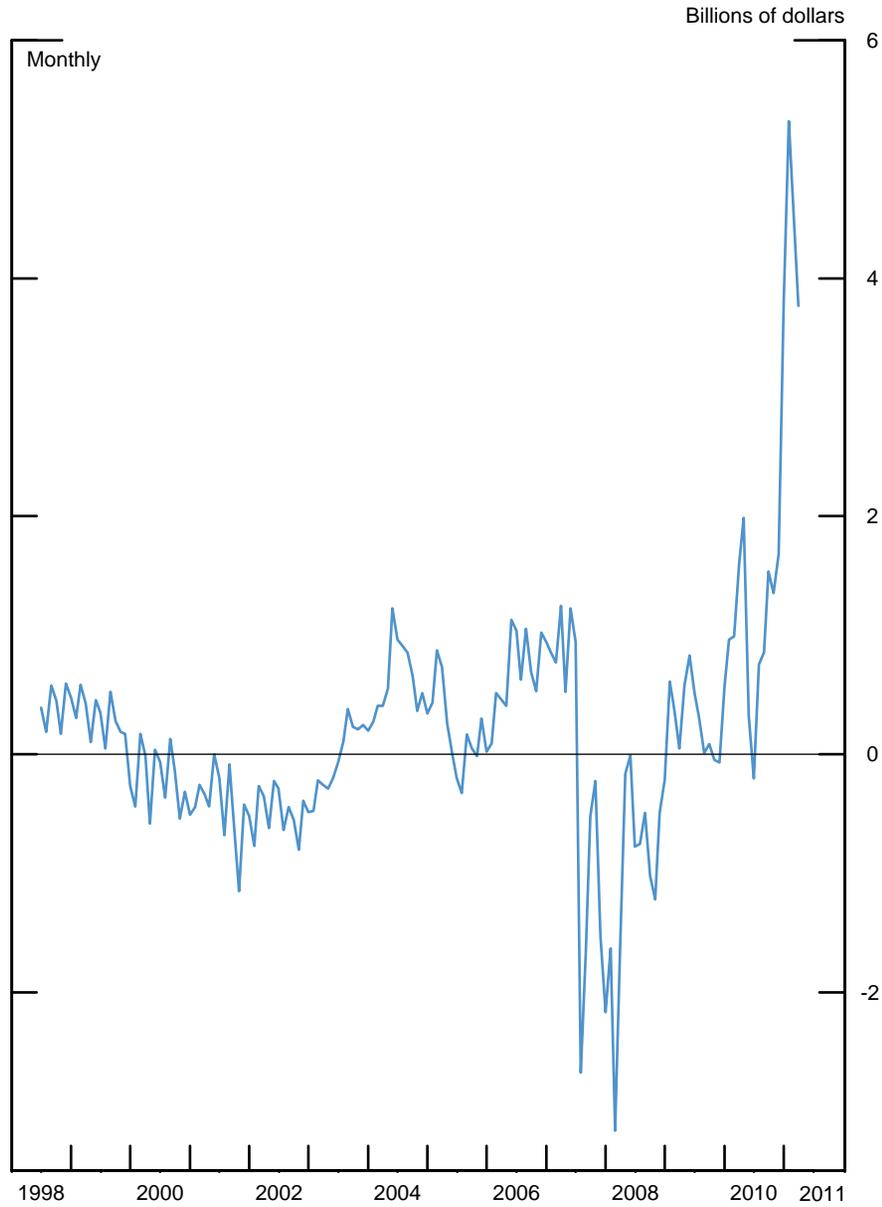
|                            | May 2010 (percent) | April 2011 (percent) |
|----------------------------|--------------------|----------------------|
| <i>Treasury securities</i> | 2.0                | 2.0                  |
| <i>Agency MBS</i>          | 2.0                | 2.0                  |
| <i>ABS IG</i>              | 5.0                | 5.0                  |
| <i>Corporates HY</i>       | 8.0                | 8.0                  |
| <i>Equities</i>            | 8.0                | 8.0                  |

MBS Mortgage-backed securities; ABS Asset-backed securities; IG Investment-grade; HY High-yield.

Source: Federal Reserve Bank of New York.

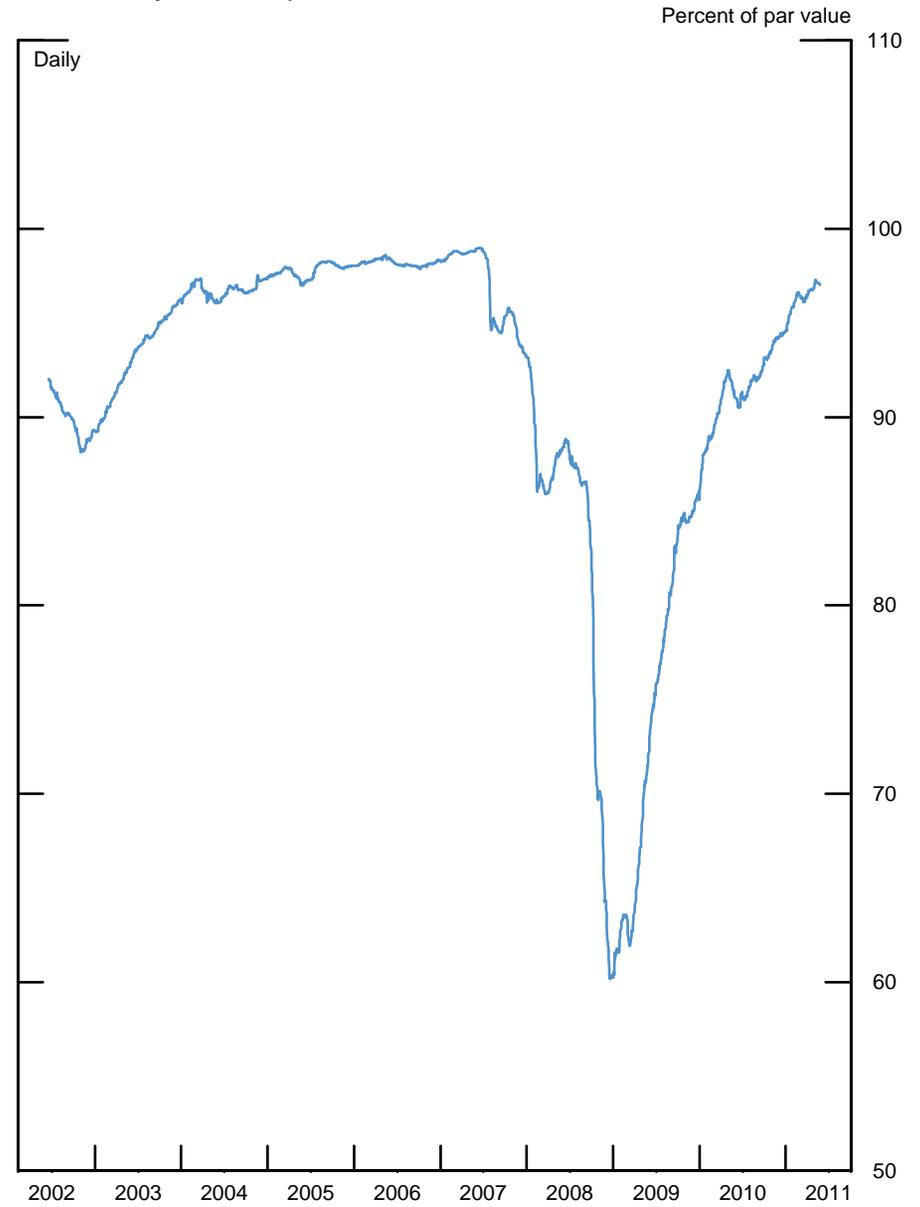
# Figure 7 Syndicated Leveraged Loan Market

## Inflows into bank loan funds



Note: Data are through March 2011.  
Source: Investment Company Institute.

## Secondary-market prices



Note: Average bid price.  
Source: LSTA/LPC Mark-to-Market Pricing.