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Recent Developments in Real Estate, Financial Markets, and the Economy

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Portland, Maine

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It is a pleasure to be back in Maine to give my first speech as a Federal Reserve Bank president. Since leaving Maine after graduating from Colby College in 1979, I have spent the bulk of my career – as a research economist, a bank regulator, and now a policymaker – studying the ways that problems in financial markets impact the real economy; as consumers, investors, bankers, businesspeople, regulators, and policymakers interact[1].

This morning I would like to share some background on recent economic events, and then discuss recent stresses in housing and financial markets and how these have interacted with the rest of the economy. Let me add that my primary subject today is not the experience of subprime borrowers and the human toll of foreclosures – which is nonetheless a very important issue. Today, however, I will speak mainly about the wider ramifications in credit markets and the economy. This is a somewhat less vivid story, but one that we should also understand, because of the ways that financial- and credit-market matters impact each and every one of us in the economy.

Recent Economic Events

As you can imagine, recent events have made this a very interesting time to be at the helm of a Reserve Bank. Prior to July, the U.S. economy appeared to be settling into a "sweet spot." Inflation was edging down to below 2 percent, and the U.S. unemployment rate – at 4.5 percent – remained near historic lows.

To be sure, there were significant risks to staying in the sweet spot, not the least of which was the weakening of the housing sector. In addition, rising energy prices posed a threat to stable inflation, and to consumer spending. Emerging problems in the subprime mortgage market had captured some attention – particularly the significant rise in foreclosures on adjustable-rate subprime mortgages. But at the time, the prevailing view was that despite the pain for affected borrowers, problems in this sector would remain contained, and in fact, there were few signs of spillover into other credit markets.

As you know, circumstances since mid-year have changed significantly. Foreclosure and delinquency rates on subprime mortgages have continued to rise; house prices by some measures have fallen; and credit markets have been turbulent. This turbulence has been reflected in increases in interest-rate spreads between commercial and government debt; a decline in the liquidity of securities linked to riskier mortgages, arising from difficulty in obtaining reliable valuations of these securities; a related decline in asset-backed commercial paper used to finance short-term assets; and an unusual rise in the spread between the cost of short-term funding in Europe and the U.S.

As of mid-August, the combination of higher credit costs and in some cases reduced availability of credit threatened to weaken the U.S. economy. On August 17, the FOMC announced that "the downside risks to growth have increased appreciably," and signaled its willingness to take appropriate actions to mitigate those risks. It followed that statement with a cut in the primary credit rate we offer to banks that borrow from the Federal Reserve, to just half a percentage point above the federal funds rate, and of course followed with a half a percentage point reduction in the federal funds rate at the meeting on September 18.

Residential investment has been a major source of weakness in the economy for a year and a half. Forecasters who were predicting a recovery in the housing sector by the end of this year have been revising down their forecasts to incorporate the effect of rising mortgage defaults, financial turmoil, and softening housing prices.

Particularly notable is the decline in housing prices in many regions of the country. Consumer spending is affected by households' net worth and housing equity is an important component of wealth. While the effect of the problems in housing on consumption has been muted to date, further and more widespread deterioration in housing prices would increase the risk of a more adverse impact on consumption.

As a reminder, housing prices in New England, including Maine, began to appreciate rapidly in the second half of the 1990s, and through the end of 2004 price increases in the region outstripped those nationally. Over the past year, prices in the region have barely increased and are down somewhat in Massachusetts and Rhode Island. Prices in Maine have been holding a bit better than in the region as a whole. When housing prices were rising rapidly in New England, the number of foreclosures initiated was very low – considerably lower, as a fraction of loans outstanding, than nationally. Beginning in 2005, however, foreclosure initiations began to rise in the region, particularly for subprime adjustable-rate mortgages. The overall rate of foreclosure initiations is now roughly the same in New England – and Maine[2] – as the nation.

Housing Problems, Financial Markets, and the Economy

The housing sector, and the potential “collateral damage” from problems in the housing sector, is a significant component in the outlook for the economy. So the balance of my comments will focus on the interaction between housing problems and recent turmoil in financial markets.

In the spirit of this Chamber series, I’d like to address three major issues – in the form of questions:

- First, how did the problems in what was previously viewed as a relatively small, well-segmented market – subprime mortgages – spread to cause credit problems in so many other markets?
- Second, given that subprime mortgages are at the epicenter of current problems, what can we do to help those households who find themselves in difficulty, as well as to prevent such circumstances from arising again?
- Third, should we view the current developments and concerns in credit markets as a wholesale reassessment (or “repricing”) of risk by investors, and are the recent problems related to securitizing assets likely to have a longer-lasting impact on the economy or financial markets?

First Question

Before I provide the overview, let me hint at the punch line. The recent problems in financial and credit markets reflect a pulling back from what I would call “surrogate securitization,” whereby investors were willing to buy debt that had been assigned high credit ratings by the credit rating agencies, regardless of the underlying assets used in the securitization. In other words, investors basically delegated due diligence to the rating agencies.

Utilizing ratings to help evaluate the riskiness of securities is a normal part of the securitization process. But when new securities arise, investors may need to exercise more caution as rating agencies themselves learn about the appropriate risk to attach to the new instruments.

Why should this concern not just central bankers, but all of us? Because disruptions in the ability to securitize assets have the potential to affect a much broader set of assets than just subprime loans, and increase the cost and reduce the availability of credit that consumers and businesses rely on. Let me begin with a few points about subprime debt and the role of securitization.

In essence subprime loans refer to mortgage loans that have a higher risk of default than prime loans, often because of the borrowers' credit history.[3] The loans carry higher interest rates reflecting the higher risk. Certain lenders, typically mortgage banks, may specialize in subprime loans. Banks, especially smaller community banks, generally do not make subprime loans, although a few large banking organizations are active through mortgage banking subsidiaries.

The subprime market has grown dramatically in the past five years but is still small, relative to all domestic financial assets – the value of outstanding subprime mortgages is around $1 trillion, while U.S. holdings of financial assets total about $44 trillion. The vehicle used to finance the growth in subprime lending was securitization, which allows for a much larger pool of investors, resulting in a greater supply of loans, benefiting many borrowers.

Securitization of subprime loans relied on the reasonable premise that subprime loans might be more risky than prime, but the vast majority would not default and higher interest rates and fees would compensate for the costs of handling those that did. With securitization, pools of subprime loans were structured, so that "riskiness" was tiered. The expectation was that likely losses would be borne first by investors in the riskiest tier. Investors in this tier were akin to equity holders. If losses exceeded expectations, then investors in the intermediate tiers – essentially subordinated debt holders – would bear the loss. Investors in the least risky, highest-quality tiers were thought to be well protected from losses. Based on historical experience, 70 percent or more of the securities were viewed as relatively safe and could carry high investment-grade ratings. Often these higher quality securities were also repackaged into new securities, such as collateralized debt obligations, making the risk tiering even less clear to the investor. The elevated defaults we have already seen on recent vintages of subprime mortgages have resulted in losses for the highest risk tiers, and have caused investors to sell higher quality securities at a discount, reflecting uncertainty surrounding the accuracy of the investment-grade rating.

If the ratings were accurate, highly rated securities containing subprime debt would have only a remote chance of default – similar to investment-grade securities containing prime mortgages, home equity loans, or student loans. Unfortunately, underlying assumptions for the subprime market were inaccurate for several reasons I'll describe.

First and most importantly, most parties involved in the process assumed that house prices would continue rising nationally. This assumption seems to have had the biggest impact on the situation we see today. Let me show you a chart our researchers have developed, which shows foreclosures and house price growth essentially mirroring one another [Chart 1]. Now, why is this the case? Earlier subprime securitizations had been issued when home prices were rising. In a strong housing market with rising home prices, a borrower who faced the prospect of an increase in an adjustable rate mortgage could probably refinance the loan, frequently with a withdrawal of some of the appreciated equity. This is borne out by the fact that the duration of subprime loans was relatively short, suggesting that borrowers were able to refinance into another subprime or prime loan prior to their rate re-setting at a higher level – as long as prices were rising. When prices stopped rising, the option of refinancing out of a mortgage with a rising borrowing cost became less available. Lenders' expectations also seemed to assume that prices would not drop (which, of course, diminishes the collateral that secures the loan for the lender).

Second, the subprime market has grown very rapidly in recent years, so such widespread use of subprime mortgages is a relatively new phenomenon. This limited history made it difficult to assess the likelihood of defaults if underlying economic conditions changed.

And third, the increased reliance on mortgage brokers who originated the loans but had little stake after they were securitized was a departure from the traditional buy-and-hold strategy of many financial institutions. These brokers typically are compensated based on volumes of loans made and sometimes on the rates and fees as well; as a result, the brokers have few incentives to worry about the longer-term viability of the mortgage.

As defaults on recently issued subprime mortgages began to increase despite low and stable unemployment, concerns mounted about the accuracy of underlying assumptions for predicting defaults. Investors and rating agencies began to reevaluate the risk associated with all parts of the securitization.

While holders of the riskiest slices, or "tranches," of securitizations may have been surprised by the default experience, they certainly knew they were holding relatively risky assets. However, many owners of investment-grade tranches assumed they faced very low likelihood of experiencing losses. Many of the investors had done little or no independent credit analysis – they were confident enough in the ratings agencies that they did not need to independently evaluate the securities, did not worry about the underlying asset, and did not require a significant premium to hold the securities.

Today the situation is very different. Defaults in the subprime market have resulted in even the most secure tranches of subprime securitizations selling at a sizable discount. Investors are now questioning the appropriateness of surrogate securitization, contemplating more independent analysis of the securities and underlying assets and the need to distinguish between securitizations with different underlying assets. These are appropriate considerations, to be sure, but until they are more confident, investors have been shying away from even investment-grade securitization. The problems in securitization are highlighted by the impact on jumbo mortgage loans. Because of difficulties in securitization, the cost of these loans has risen significantly [Chart 2]. This is particularly a problem in New England where the price of housing is quite high.

<u>A Second Question</u>

Now, to our second question. Given that subprime mortgages are at the epicenter of current problems, what can we do to help those households who find themselves in difficulty, as well as to prevent such circumstances from arising again?

Subprime mortgages were particularly dependent on securitization for funding. Mortgage lenders, working through brokers, originated loans that were then securitized so investors could buy slices of the pooled assets. Brokers rely on volume and fee income. As home values flattened, or in some cases declined, it appears that more brokers “stretched” underwriting standards to maintain volume. Investors, still eager for higher-yielding, and still-highly rated, subprime tranches, continued to crave these securitizations. Brokers obliged and the 2006 vintage of loans, in particular, has seen notable rises in early defaults.

As investors lost confidence in the ability to evaluate securities whose underlying asset are subprime mortgages, many mortgage lenders found themselves with sharply limited access to funds to finance new subprime loans or refinance existing ones. The inability to refinance has been a key component of the recent rise in foreclosures. Many subprime borrowers refinanced several times in order to avoid rate resets that would further stretch affordability; and, our research shows, some withdrew additional household equity with each refinancing – a practice that many prime borrowers followed, too. However, if housing prices stop rising or fall, or if funding for refinance is disrupted, many borrowers no longer have the option of refinancing out of increasingly difficult financial circumstances, and may experience foreclosure. Foreclosure, it goes without saying, brings great stress and difficulty to the person affected, and can have disruptive effects that ripple through neighborhoods.

To better understand the subprime issue, the Federal Reserve Bank of Boston has been studying publicly-available information from the Registries of Deeds in New England states, which allows us to study the patterns of mortgages issued on a given house over time. The researchers on this project -- Paul Willen, Chris Foote, Kris Gerardi, and Adam Shapiro – are finding some very interesting results.

A first finding is that recent foreclosures have been disproportionately related to multi-family dwellings. In Middlesex County, Massachusetts, multi-family properties accounted for approximately 10 percent of all homes, but 27 percent of foreclosures in 2007. This highlights a potentially serious problem for tenants, who may not have known that the owner might be in a precarious financial position.

Second, the Bank’s research shows that the duration of a subprime mortgages is on average quite short – for a sample of subprime mortgages used to purchase a home between 1999 and 2004, two-thirds have prepaid within two years and almost 90 percent have prepaid within three years. Prepayment will occur if the home is refinanced or if it is sold. While some of those sales may have been under difficult circumstances, it is plausible that many borrowers who purchased homes with subprime products did benefit from the appreciation of home prices in New England that occurred over the last decade.

As noted earlier, default rates for subprime mortgages were relatively low when house prices were appreciating, so that borrowers could refinance into another prime or subprime mortgage or sell their house. With the recent decline in home prices in New England, however, and the drying up of funding from former investors in subprime securitizations, conditions are far less favorable for borrowers who had hoped to refinance or sell before their subprime mortgage reset.

However, our research suggests at least three factors may help in finding ways to mitigate the problem:

- First, many subprime borrowers have respectable credit histories. LoanPerformance data from Middlesex County show that almost two-thirds (64 percent) of borrowers who received subprime loans had FICO[4] scores greater than 620, and 18 percent had scores over 700. They may have been in subprime products because they chose to make a highly leveraged home purchase, or they may have been steered to a more costly mortgage for which they might have otherwise qualified. Either way, it is encouraging to note that these borrowers could be in a position to refinance to another product.
- Second, many subprime borrowers have held their house long enough for it to appreciate, so they may now have sufficient equity in their house to facilitate refinancing into a prime product.

- Third, many borrowers of so-called "teaser" 2/28[5] mortgages were actually paying a much higher rate than is found on prime loans. The average "teaser" rate was 7.3 percent in 2005 and 8.35 percent in 2006 for loans located in Middlesex County in Massachusetts. This suggests that if these borrowers could qualify for a prime product, they would likely see a significant reduction in their interest rate.

Trying to mitigate the current problems with subprime mortgages requires a balance – between providing credit to borrowers who might not otherwise be able to buy a house, and ensuring that the mortgage they get is appropriate for their financial position. In our research, we looked at what happened to homeowners who used subprime loans to buy their homes and found that five years later, 90 percent were either still in their house or had profitably sold it. While our research also shows that number will likely be lower for the most recent vintages, which already exhibit elevated defaults, most subprime buyers have a positive experience with homeownership.

So, perhaps the most critical issue is that financing that supports responsible subprime lending continues, despite recent problems. Since the broker channel has been disrupted, as described earlier, I believe there is an opportunity for commercial and savings banks to help provide liquidity in this market. Most commercial and savings banks were not involved in originating subprime mortgages and are well capitalized, and may have profitable opportunities to explore in this market.

Recently, I have been meeting with bankers from all six New England states to examine the opportunities for commercial banks to get back into this market to help qualified borrowers obtain mortgages. They have shown some interest in the opportunities and have agreed to examine how we can encourage borrowers to pursue opportunities with banks before they get behind in their mortgage. To the extent that some subprime borrowers have improved their FICO score with regular payments, already had a high FICO score, or have appreciated wealth in their house, now is the time for these borrowers to seek lower cost financing opportunities. We know anecdotally that some Maine institutions have been active with outreach, and have been able to work with borrowers, particularly on refinancing 2/28 subprime mortgages into a fixed-rate mortgage or more traditional ARM.

I am hopeful that financial institutions will play an important role in providing financing for many of the borrowers facing higher rates as their mortgages reset. In the past, rate-resets may not have been as problematic as they could be now, because borrowers had an easier time refinancing or selling.[6] As we look at the situation now, we want to see borrowers continue to have the option to refinance, and want to see lenders continue lending – so that resets do not become an increasing problem. As I said a moment ago, perhaps the most critical issue is that financing that supports responsible subprime lending continue.

The Federal Reserve Bank of Boston has created several brochures that are intended to help borrowers consider all their options, and we are creating a web site to help borrowers in subprime products to get information and help looking for refinance opportunities. Working with financial institutions, city and state governments, community organizations, regulators, and others, we at the Fed hope to play a constructive role in mitigating subprime problems.

A Third Question

Now our third issue for this morning: Should we view the current developments and concerns in credit markets as a wholesale reassessment (or "repricing") of risk by investors, and are the recent problems related to securitizing assets likely to have a longer lasting impact on the economy or financial markets?

I think the answer is no, investors are not reassessing risk in a wholesale way. Consider that a variety of assets that normally are impacted by investor desire for risk reduction have shown little reaction to current problems. For example, if one looks at emerging market debt, or stock prices in emerging economies, the current problems have left little trace in the data [Chart 3]. Prices for stocks in many emerging markets are close to or at their highs for the year.

By contrast after September 11, 2001 and during the problems triggered by Long-Term Capital Management, stocks in many emerging markets fell sharply. Similarly, emerging market debt has shown only a modest widening of spreads. Following the September 11 attacks and during the Long-Term Capital Management problems, emerging market interest rates rose sharply.

Short-term debt markets, where relatively low risk financial assets are traded primarily between large financial institutions, are experiencing significantly reduced volumes and unusually large spreads. This is consistent with liquidity problems rather than a change in the willingness to hold risky assets in general.

Allow me to digress for a moment to touch on some unique aspects of the recent problem that may not be widely understood, but impact many of us that borrow for our businesses or households.

Usually the overnight Eurodollar interest rate is very close to the overnight federal funds rate. Both are overnight, unsecured, dollar-denominated loans between financial institutions. Over the past two months the funds for overnight Eurodollar have frequently been trading at a much higher rate than overnight federal funds. This highlights the difficulty that some financial institutions are having borrowing in dollars, and the wariness of credit exposure to certain financial institutions.

And these difficulties worsen when we look at one- to three–month maturities, versus overnight loans [Chart 4]. Consider something which may not be a “household term” to the layperson, the London Inter-Bank Offer Rate or LIBOR, which involves short-term borrowing of dollars by banks in Europe. One-month and three-month LIBOR remain very elevated and – here’s the rub – this tightens credit for a variety of U.S. borrowers, since many loans to businesses and many floating rate mortgages are tied to the LIBOR rate. For example, many variable-rate subprime mortgages are tied to the LIBOR rate.

Of course, we all want to consider whether the recent problems related to securitizing assets are going to have a longer lasting impact on the economy or financial markets. Securitizations have made it possible to efficiently finance pools of assets. In particular, investors with low risk tolerance were willing to buy what they thought were investment grade securities without a detailed understanding of the underlying assets as long as they had confidence in the ratings of the securities. To the extent that these investors have less confidence in ratings, they may choose to buy government or agency securities, where they do not need to make an independent analysis of potential credit risk. In part, this accounts for the reduction in rates on government securities relative to other financial instruments over the past two months.

Another symptom of what you might call the “collateral damage” from the end of surrogate securitizations has been the asset-backed commercial paper market[7], where the outstanding stock shrank from an early August peak of nearly $1.2 trillion to $912 billion as of the end of September, as investors reevaluate the risks [Chart 5]. Asset backed commercial paper, or ABCP, would be issued to these short-term investors, with assets such as investment-grade securities from securitizations used to back the commercial paper. It offered lower-cost financing to companies as it was asset-backed rather than unsecured.

As questions have been asked on ratings of securities, many investors have chosen not to roll over commercial paper that was not backed by solid assets and did not have liquidity provisions provided by banks. This "freeze-up," of course, means problems for financing a variety of assets, including mortgages, student loans, and home-equity loans.

Securitizations and asset-backed commercial paper are efficient ways to provide financing for a wide variety of assets. Unlike some types of liquidity issues, confidence in the ability to evaluate risk on securitizations is likely to return gradually. Some of the most aggressive securitizations and forms of ABCP may no longer be worth the risks to many short-term investors.

The alternative to securitizations and financing assets with commercial paper is financing by commercial banks. Fortunately, most banks are very well capitalized and have the ability to finance these assets. In fact, bank balance sheets did expand in both August and September, reflecting in part banks holding assets on their balance sheet that have been difficult to securitize. However, while banks have the capacity to finance many of these assets, it is likely that the cost of financing for these assets will increase if they are done by banks rather than through financial markets.

My expectation is that over time, investors will gain more confidence in their ability to evaluate the quality of ratings, and that conservatively underwritten securitizations and asset-backed commercial paper will find acceptance by investors. A reevaluation of ratings and the models used to determine ratings, and a greater onus on investors to understand the underlying assets and securities they are purchasing is likely to make these markets more resilient. However, this process of evaluation may take some time. While we have seen improvement in financial markets over the past month, we continue to observe wider spreads and reduced volumes on securitized products, which may remain until investor confidence has been restored.

In Conclusion

In summary, the past two months have been quite unusual for financial markets. Short-term liquidity has been disrupted for almost two months, as investors have reevaluated the securitization process. I am hopeful that with appropriate underwriting, the securitization process and the ABCP will continue to be a source of financing for a wide range of assets.

In the meantime, it will be important for banks to provide their usual role as a provider of liquidity during times of distress. While the subprime market that was the epicenter of the problem is likely to continue to have some difficulties, I am hopeful that financial institutions will play an important role in providing financing for many of the borrowers facing higher rates as their mortgages reset.

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[1] The views I express today are my own, not necessarily those of my colleagues on the Board of Governors or the Federal Open Market Committee (the FOMC).

[2] In terms of the Maine experience with subprime problems and foreclosures, Maine was ranked 14th in the U.S. in terms of the percent of loans with a foreclosure initiation, tied with Massachusetts. This was up from being 20th in the first quarter. Subprime ARM loans past due as of the second quarter stood at 19.3 percent, similar to the New England rate, but above the national rate of just under 17 percent.

[3] According to interagency guidance issued, in 2001, "The term 'subprime' refers to the credit characteristics of individual borrowers. Subprime borrowers typically have weakened credit histories that include payment delinquencies, and possibly more severe problems such as charge-offs, judgments, and bankruptcies. They may also display reduced repayment capacity as measured by credit scores, debt-to-income ratios, or other criteria that may encompass borrowers with incomplete credit histories. Subprime loans are loans to borrowers displaying one or more of these characteristics at the time of origination or purchase. Such loans have a higher risk of default than loans to prime borrowers. Generally, subprime borrowers will display a range of credit risk characteristics that may include one or more of the following: Two or more 30-day delinquencies in the last 12 months, or one or more 60-day delinquencies in the last 24 months; Judgment, foreclosure, repossession, or charge-off in the prior 24 months; Bankruptcy in the last 5 years; Relatively high default probability as evidenced by, for example, a credit bureau risk score (FICO) of 660 or below (depending on the product/collateral), or other bureau or proprietary scores with an

equivalent default probability likelihood; and/or Debt service-to-income ratio of 50 percent or greater, or otherwise limited ability to cover family living expenses after deducting total monthly debt-service requirements from monthly income. This list is illustrative rather than exhaustive and is not meant to define specific parameters for all subprime borrowers. Additionally, this definition may not match all market or institution specific subprime definitions, but should be viewed as a starting point from which the Agencies will expand examination efforts."

[4] "Credit bureau risk scores produced from models developed by Fair Isaac Corporation are commonly known as FICO® scores. Fair Isaac credit bureau scores are used by lenders and others to assess the credit risk of prospective borrowers or existing customers, in order to help make credit and marketing decisions." [Source: Fair Isaac Corporation]

[5] ARMS's known as "2/28" loans feature a fixed rate for two years and then adjust to a variable rate for the remaining 28 years.

[6] The Bank's research shows that a third of borrowers who received a notice of default in Massachusetts in 2006 owned the dwelling for less than two years, so they could not have hit the 2-year rate reset on a 2/28 subprime mortgage.

[7] Asset-backed commercial paper was an innovation that allowed investors interested in short-term high quality paper to invest in assets that gave a higher yield than government securities of short-term duration. Investors received a highly liquid investment instrument that paid somewhat more interest than government securities, and there was a ready market for high grade securities issued through securitization. Much of the asset-backed commercial paper had liquidity and often credit enhancements provided by banks, to insure that investors would receive their money should they decide they no longer wanted to hold the commercial paper. The success of the asset-backed commercial paper in financing assets has encouraged some organizations to choose structures that were less reliant on liquidity provisions by banks.

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Eric S. Rosengren

October 10, 2007

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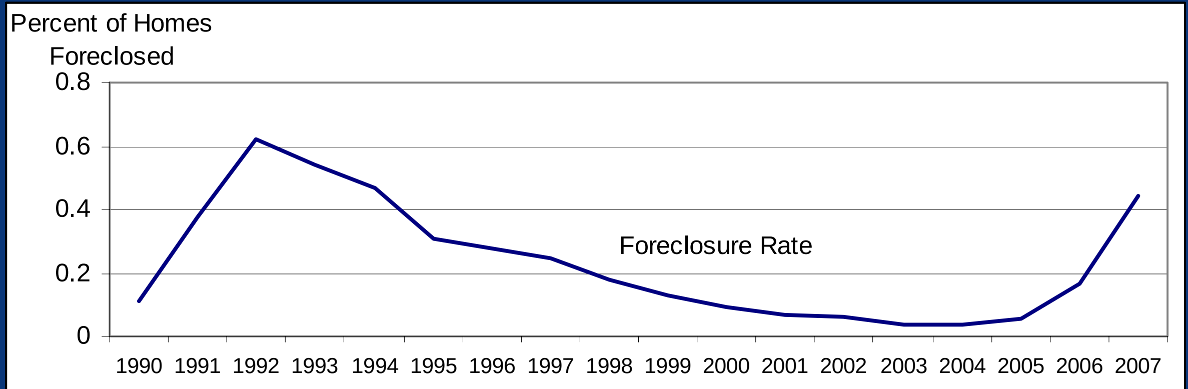
Three Major Issues

– How did the problems in what was previously viewed as a relatively small, well-segmented market – subprime mortgages – spread to cause credit problems in so many other markets?

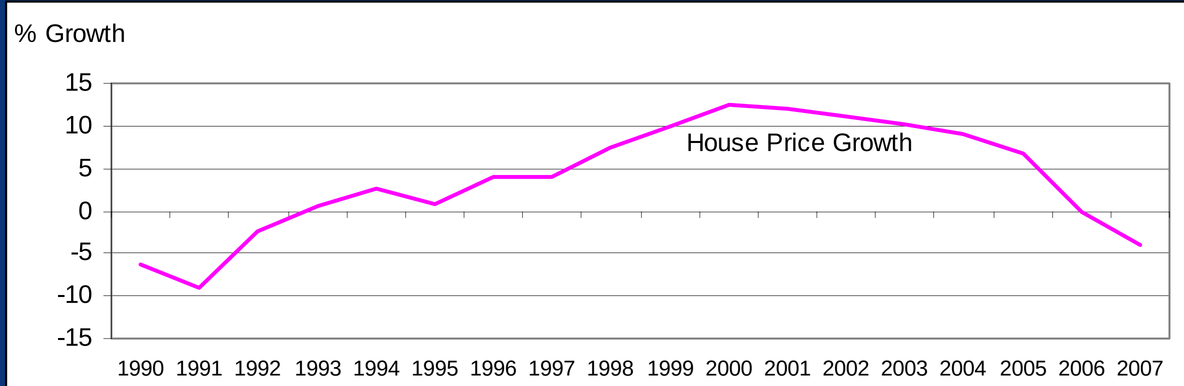
– Given that subprime mortgages are at the epicenter of current problems, what can we do to help those households who find themselves in difficulty, as well as to prevent such circumstances from arising again?

– Should we view the current developments and concerns in credit markets as a wholesale reassessment (or “repricing”) of risk by investors, and are the recent problems related to securitizing assets likely to have a longer-lasting impact on the economy or financial markets?

Charts 1a and 1b
Foreclosures and House Price Growth in Massachusetts



Source: Federal Reserve Bank of Boston and The Warren Group



Source: Federal Reserve Bank of Boston and The Warren Group

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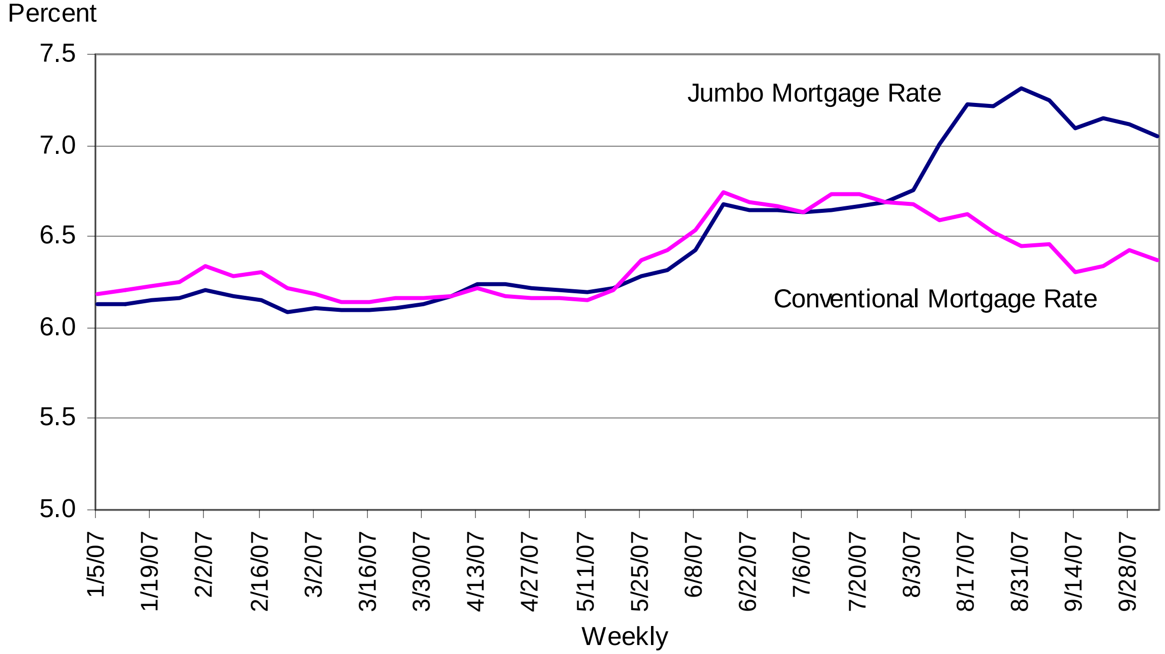
Chart 2
Jumbo and Conventional 30-Year Fixed-Rate Mortgage Rates



Source: Federal Home Loan Mortgage Corporation, Wall Street Journal / Haver Analytics

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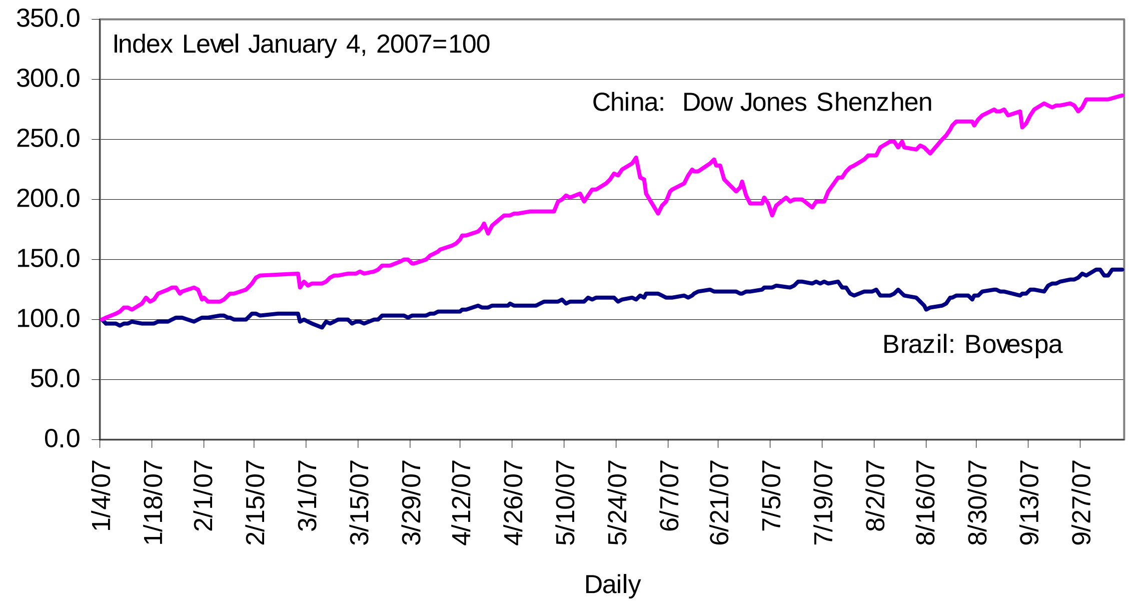
Chart 3
Stock Market Indexes for Emerging Markets



Source: Financial Times, Wall Street Journal / Haver Analytics

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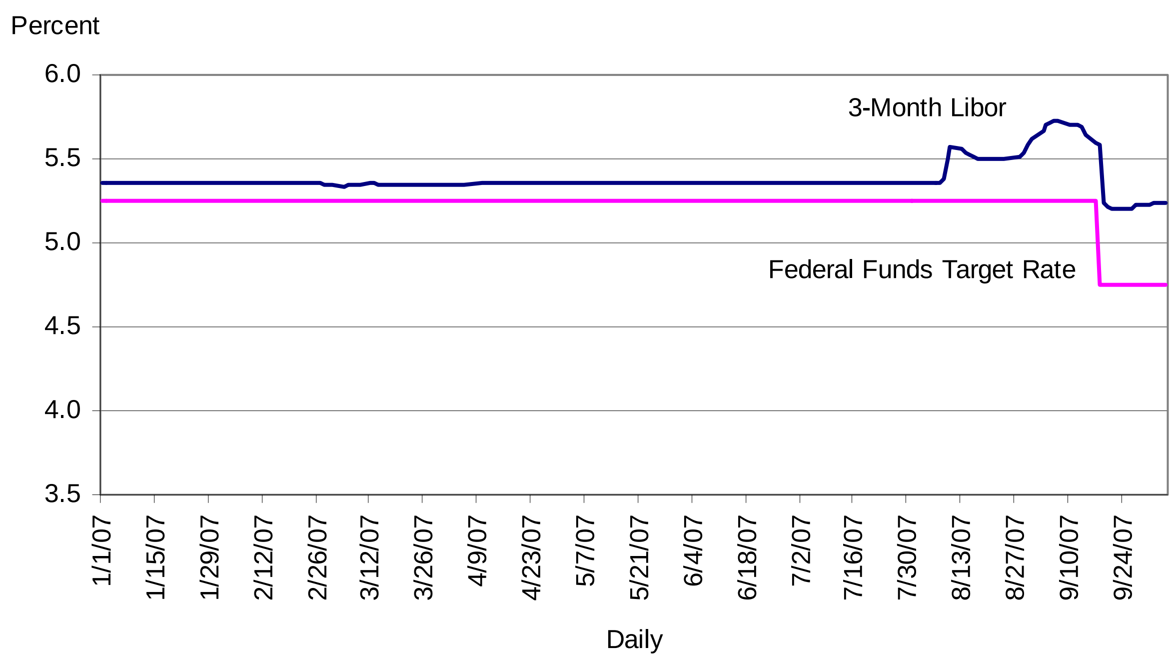
Chart 4
3-Month Libor and Federal Funds Target Rate



Source: Federal Reserve Board, Financial Times / Haver Analytics

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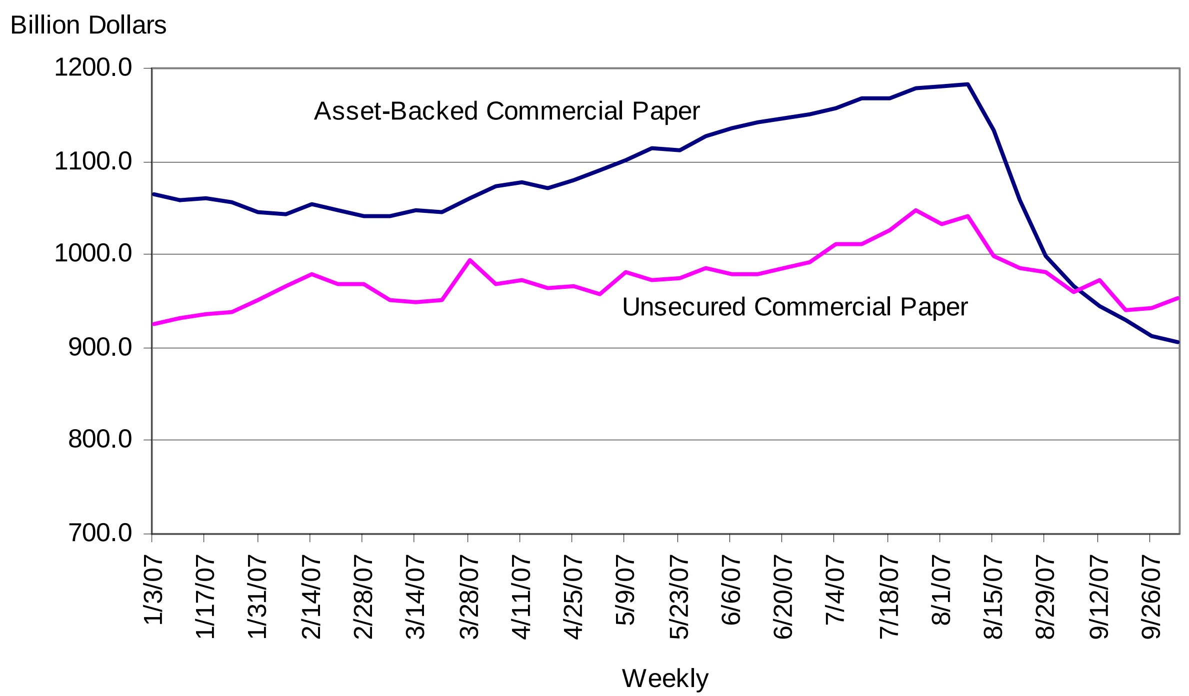
Chart 5
Commercial Paper Outstanding



Source: Federal Reserve Board

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