

Discussion: The Mortgage Meltdown – Implications for Credit Availability

Eric S. Rosengren, President and CEO, Federal Reserve Bank of Boston

U.S. Monetary Policy Forum, February 29, 2008

I am very pleased to be able to discuss the paper "Leveraged Losses: Lessons from the Mortgage Meltdown" by Greenlaw, Hatzius, Kashyap and Shin (GHKS).

It is somewhat ironic that several current participants on the Federal Open Market Committee (FOMC), including myself, wrote extensively about the credit crunch period in the early 1990s and now have the opportunity as policy makers to consider how financial problems may be spilling over to the real economy.¹ So it is particularly appropriate that the paper we are discussing today asks whether problems that originated in mortgage markets are likely to cause a credit crunch that significantly impacts growth in the economy, and what that implies for central banks.

The paper provides a variety of new facts about the current financial turmoil, and does a very nice job of detailing the extent of current and potential problems that may impact future public policy. I plan to first discuss the issue of the size of the losses to financial institutions stemming from the current financial turmoil. I will highlight both the uncertainty around the GHKS estimate, and the possible downside risk that may remain to their estimate. I will next discuss the issue of the impact on balance sheets. I will argue that to date, the balance sheet constraints are primarily occurring at a few large institutions with significant exposure to more complicated financial products; but that again, there is downside risk that balance sheet constraints could become more widespread in the future – particularly if housing prices experience more significant declines. I will then amplify an issue touched on only lightly in the

paper, and that is the implications of mortgage problems for securitization and complicated financial products. I will conclude with a few observations on policy.

Residential Real Estate Losses – The Role of Declining Housing Prices

GHKS use three different methods to determine mortgage credit losses. The first is a migration analysis that looks at historical trends of each vintage year and then adjusts the trends for falling home prices. The second extrapolates from the current pricing of mortgage-backed securities' expected losses. The third uses foreclosure rates from previous regional periods of falling housing prices, and applies those rates to the current distribution of mortgages. With several assumptions and caveats they find losses are expected to be \$400 billion, with about half of that figure being borne by leveraged institutions.

The authors highlight the significant uncertainty around their estimates. This is particularly appropriate since two critical components of the calculation, the path of housing prices and the path of the economy, are not directly estimated in the model. Analysis by Gerardi, Shapiro, and Willen of the Federal Reserve Bank of Boston² finds the probability of a default and foreclosure is highly sensitive to the macroeconomic environment – particularly to house price appreciation.

In making adjustments for falling housing prices, GHKS discuss house price declines of 5, 10, and 15 percent from the end of 2006. While housing prices are critical to understanding the extent of overall mortgage credit losses, the absence from the historical record of a sustained *national* decline in housing prices makes it problematic to extrapolate the future solely with historical data. As shown in Table 1, all 10 major metropolitan areas followed by the Case-Schiller home-price index declined in the past year, and five of the major metropolitan areas

show double-digit declines. These declines have occurred despite an unemployment rate in January 2008 of 4.9 percent. Should the economy weaken more than expected, one can envision downside risks to even the rather bleak forecast of GHKS – especially given the large number of high loan-to-value (LTV) loans made in the past three years.

From a policy perspective it is important to understand not only what would happen if the economy behaves as expected – which would currently be that we skirt a recession and housing prices show only modest declines – but also how significant the downside would be if the rise in the unemployment rate and the decline in housing prices were significantly greater than currently expected. The authors’ estimates of expected losses do not try to factor in the potential – though hopefully unlikely – outcome of housing prices interacting with sharper declines in employment and further financial difficulties at mortgage lenders. While not the most likely outcome, it is an outcome that policymakers and others may consider “taking out some insurance against.”

An additional factor left out of the analysis involves the nature of the housing recovery that is likely to occur if the mortgage securities market and financial institutions are unwilling to lend to subprime borrowers. Given the recent difficulty in securitizing troubled or high LTV mortgage credits, and the possibility that many financial institutions will be reticent to lend to risky borrowers in a declining house price market, the housing malaise could be more protracted and the recovery more anemic than we have experienced in previous housing downturns.

Balance Sheet Constraints

GHKS argue that the distribution of mortgage losses is important. Many of these losses are in leveraged financial institutions, which will be forced to shrink their balance sheets to maintain desired capital ratios. Thus the analysis is in the spirit of earlier credit crunch literature

that highlights that binding capital constraints at financial institutions can result in significant headwinds, as experienced in the United States in the early 1990s and in Japan during the “lost decade.”³

To date, there have been several significant differences in the distribution of losses compared to the 1990s. The 1990s credit crunch resulted from regional losses in commercial real estate and construction, and to a lesser degree residential investment. These losses essentially impacted all financial institutions in the affected region. To date in our current situation, the mortgage problems have been concentrated in some of the largest financial institutions involved in structured finance and the securitization of subprime mortgages.

In fact, three large financial institutions alone have already announced almost \$60 billion in write-downs in the last two quarters of 2007.⁴ Despite the very significant write-downs, the losses have been mitigated by the ability of these global institutions to attract new capital. In fact these same three institutions have together announced \$36 billion in new capital in the last four months (October – January).⁵ This ability to raise new capital has helped mitigate capital constraints.

Table 2 shows that despite large financial losses announced by some commercial banks in the past two quarters, many banks have experienced increases in capital and in their capital ratios. In fact, more than two-thirds of bank holding companies had increases in capital in the last two quarters of 2007. Note, however, that the decreases are more prevalent among the largest bank holding companies while the increases are more prevalent among the smaller bank holding companies. In terms of capital ratios, 354 bank holding companies had increases in capital ratios in the last two quarters of 2007, while 592 had decreases. This reflects that even at

bank holding companies with increased capital, the asset growth has exceeded the capital growth.

Table 3 shows that in aggregate, while capital was basically flat, assets did increase, as banks provided liquidity to many firms and financial market participants. To date, the resulting potential capital constraints are concentrated in the largest banks with the largest exposure to securities tied to subprime mortgages. While some of the capital losses have been mitigated by new capital, the losses in combination with involuntary growth in assets can potentially restrain the willingness of these institutions to engage in activities that would further swell their balance sheet.

Because these institutions are actively engaged in structured products and loans to finance leveraged deals, it is not surprising that participants in these markets are finding tighter financial constraints. For some markets where these banks are major market makers, the unwillingness to further increase balance sheets has impacted the liquidity in those markets.

Many small and medium-sized businesses are not complaining about credit conditions. This reflects the lack of exposure that many small and medium-sized banks had to securitized products or the subprime market. However, should housing prices continue to fall, losses in prime residential mortgages and construction loans are likely to cause these institutions to be more capital constrained. Banks under \$100 billion still retain significant exposure to residential mortgages and construction loans which account for 26 percent of assets or \$750 billion. Should housing prices continue to fall and the housing sector get worse, it is likely that these institutions will begin being impacted more significantly.

Spillovers From the Mortgage Meltdown

An issue not directly addressed in this paper, but nonetheless critical to the discussion, is the loss in confidence in the ratings process and the consequent uncertainty in the pricing of a wide variety of structured products.

As Exhibit 3.4 in GJKS highlights, AAA tranches for recently issued contracts are selling for less than 70 percent of their par value. Since lower-grade tranches would experience losses first, such pricing implies very severe losses on the underlying assets. It also highlights that the default probabilities on a large number of highly-rated securities are likely to be higher than would normally be expected by investors in the highest-grade securities. While the problems with ratings accurately reflecting probabilities of default are primarily related to mortgage products, their impact has moved well beyond residential mortgages.

The largest banks have increasingly moved to an originate-to-distribute model for a variety of assets formerly held on balance sheets. Leveraged loans, credit card receivables, commercial real estate loans, student loans, and municipal borrowings have all increasingly been moved off banks' balance sheets and into a variety of new securities. As investors have lost faith in the ratings process, many of these highly-rated securities have begun to sell at significant discounts, which will likely result in additional losses.

In addition to the losses experienced by the holders of these securities, the borrowers have had their financing disrupted. Many of these loans will need to be financed by bank balance sheets, and the terms may be significantly different than what they experienced prior to the recent financial turmoil.

Difficulties in selling structured financial products have resulted in the disappearance or near-disappearance of trading in some collateralized loan obligations (CLOs) and collateralized

debt obligations (CDOs), have disrupted the auction-rate securities market, have made it difficult to sell asset-backed commercial paper, have created problems for monoline insurers and have caused the winding down of many structured investment vehicles. Many of these markets financed assets above and beyond mortgages, and as a result may produce losses not captured in the analysis by GHKS. While problems in rating mortgages may have been the trigger, the drying up of the market for structured financial products is a downside risk and could make it more difficult or more expensive to meet the financing needs of a variety of organizations.

Public Policy

GHKS express some pessimism regarding the ability of monetary policy to help mitigate problems. I am less pessimistic. Most subprime loans had reset rates tied to the London Interbank Offered Rate (LIBOR) – generally around 6 percentage points over the six-month LIBOR. The reductions in the federal funds rate, as well as the reduction in the spread of LIBOR over the federal funds target after the introduction of the Federal Reserve’s Term Auction Facility, have significantly reduced the reset rate for most subprime borrowers (Figure 1). For many borrowers, the reset rate may at this point not be dramatically different than the original rate – a significant difference from what would have occurred in the absence of appropriately aggressive monetary policy.

In addition, lower rates are likely to result in higher house prices than would occur in the absence of monetary easing. This should reduce the foreclosure rate and reduce some of the concern that housing problems will become more widespread. Finally, lower rates should result in less unemployment – one of the main drivers in forced sales of houses. Thus, monetary policy actions may significantly reduce the depth of problems, but are of course not a panacea.

Many of the possible steps to mitigate these problems involve policy solutions not tied to monetary policy. In recent years the subprime market became the major avenue for low- and moderate-income borrowers to buy homes. There would seem to be a strong economic incentive for borrowers to seek FHA insurance and get a prime rather than a subprime rate. Examining how FHA programs could continue to be modernized and streamlined and become a more viable choice for borrowers may be an important mitigant for housing problems.

Given falling housing prices, many financial institutions are likely less willing to be exposed to the mortgage market. One aspect of the current situation is the high LTV ratios facing many borrowers, as low down-payments and falling housing prices have made refinancing homes difficult. A possible solution would be shared appreciation loans with FHA guarantees. This approach, variants of which are currently being discussed, would provide the FHA and the lending institution with a portion of future appreciation in return for providing the FHA insurance on high LTV loans.

While too large a topic for today's discussion, I believe there is also a need to increase transparency and create more consistent prices for complex financial products. We need to think about the ramifications and possible remedies of a situation where parties are unable to accurately value financial assets tied to the mortgage market – a market whose prices are more easily determined than are many other types of balance sheet assets.

Conclusion

GHKS have done a nice job of highlighting some of the ramifications of the mortgage meltdown. A critical factor in the size of losses, and whether balance sheet constraints become more widespread, is the extent to which housing prices fall. Unfortunately, we have little

historical precedent for sustained declines in national housing prices, which makes it difficult to forecast future home prices. However, one of the significant downside risks to the economy is that further declines in housing prices could depress residential investment, reduce consumer spending, generate elevated foreclosures, and contribute to financial instability. Taking appropriate monetary, regulatory, and fiscal actions to mitigate this risk seems prudent.

¹ For example, see the following. Peek and Rosengren, "The Capital Crunch: Neither a Borrower or a Lender Be" in the *Journal of Money Credit and Banking*, August 1995, pp. 625-638. Bernanke and Lown, "The Credit Crunch" in *Brookings Papers on Economic Activity*, 1991, 205-48. Mishkin, "Preventing Financial Crises: An International Perspective," published by the The Manchester School of Economic and Social Studies, 1994, pp. 1-40.

² "Subprime Outcomes: Risky Mortgages, Homeownership Experiences, and Foreclosures." Federal Reserve Bank of Boston Working Paper 07-15, by Kristopher Gerardi, Adam Hale Shapiro, and Paul S. Willen.

³ An overview of the credit crunch literature is provided in Peek and Rosengren, (forthcoming) "The Role of Banks in the Transmission of Monetary Policy," in the *Oxford Handbook of Banking*.

⁴ Source – Bank earnings announcements.

⁵ Source – Bank announcements.

Table 1

S&P/Case-Shiller Home Price Index: Ten Metro Areas and Composite

	Percent Change from Year Earlier				
	Dec-03	Dec-04	Dec-05	Dec-06	Dec-07
Composite 10	13.4	18.7	15.9	0.2	-9.8
Boston	7.7	9.4	3.5	-5.1	-3.4
Chicago	8.6	8.6	9.6	2.8	-4.5
Denver	1.3	4.3	3.9	-0.3	-4.5
Las Vegas	17.2	45.5	10.5	0.9	-15.3
Los Angeles	21.4	24.9	21.8	2.0	-13.7
Miami	14.8	23.6	31.5	6.1	-17.5
New York	11.8	14.1	14.9	0.5	-5.6
San Diego	19.2	26.6	6.6	-4.2	-15.0
San Francisco	8.6	20.1	15.8	-1.4	-10.8
Washington DC	14.4	24.3	20.0	-2.8	-9.4

Source: S&P/Case-Shiller / Haver Analytics

Table 2

US Bank Holding Companies*

By Asset Size and Change in Tier 1 Capital and Tier 1 Capital Ratio

June 2007 - December 2007

Asset Size	Number of Bank Holding Companies**			
	Change in Tier 1 Capital		Change in Tier 1 Capital Ratio	
	Decrease in Tier 1	Increase in Tier 1	Decrease in Tier 1 Ratio	Increase in Tier 1 Ratio
Greater than \$100 billion	10	8	15	3
\$10 billion to \$100 billion	19	30	35	14
\$1 billion to \$10 billion	114	261	248	127
Less than \$1 billion	126	378	294	210
Total	269	677	592	354

* Financial Top Tier Y-9C Filing Bank Holding Companies, filing in both June and December 2007, merger adjusted.

** Analysis excludes one large institution for which capital changes are significantly affected by recent merger activity.

Source: Federal Reserve Board and author's calculations.

Table 3

US Bank Holding Companies*

Growth in Assets and Tier Capital 1 by Asset Size
June 2007 to December 2007

Asset Size	BHCs**	June Assets	December Assets	June Tier 1 Capital	December Tier 1 Capital	Asset Growth	Tier 1 Capital Growth	Total Risk Based Capital Growth
	Number	Dollars in Billions				Percent		
Greater than \$100 billion	18	7,980	8,239	434	431	3.25	-0.65	2.86
\$10 billion to \$100 billion	49	1,435	1,499	104	105	4.49	0.94	2.31
\$1 billion to \$10 billion	375	969	1,003	88	89	3.50	0.85	1.25
Less than \$1 billion	504	314	326	29	30	3.77	2.43	2.47
Total	946	10,698	11,067	655	655	3.45	-0.06	2.57

* Financial Top Tier Y-9C Filing Bank Holding Companies, filing in both June and December 2007, merger adjusted.

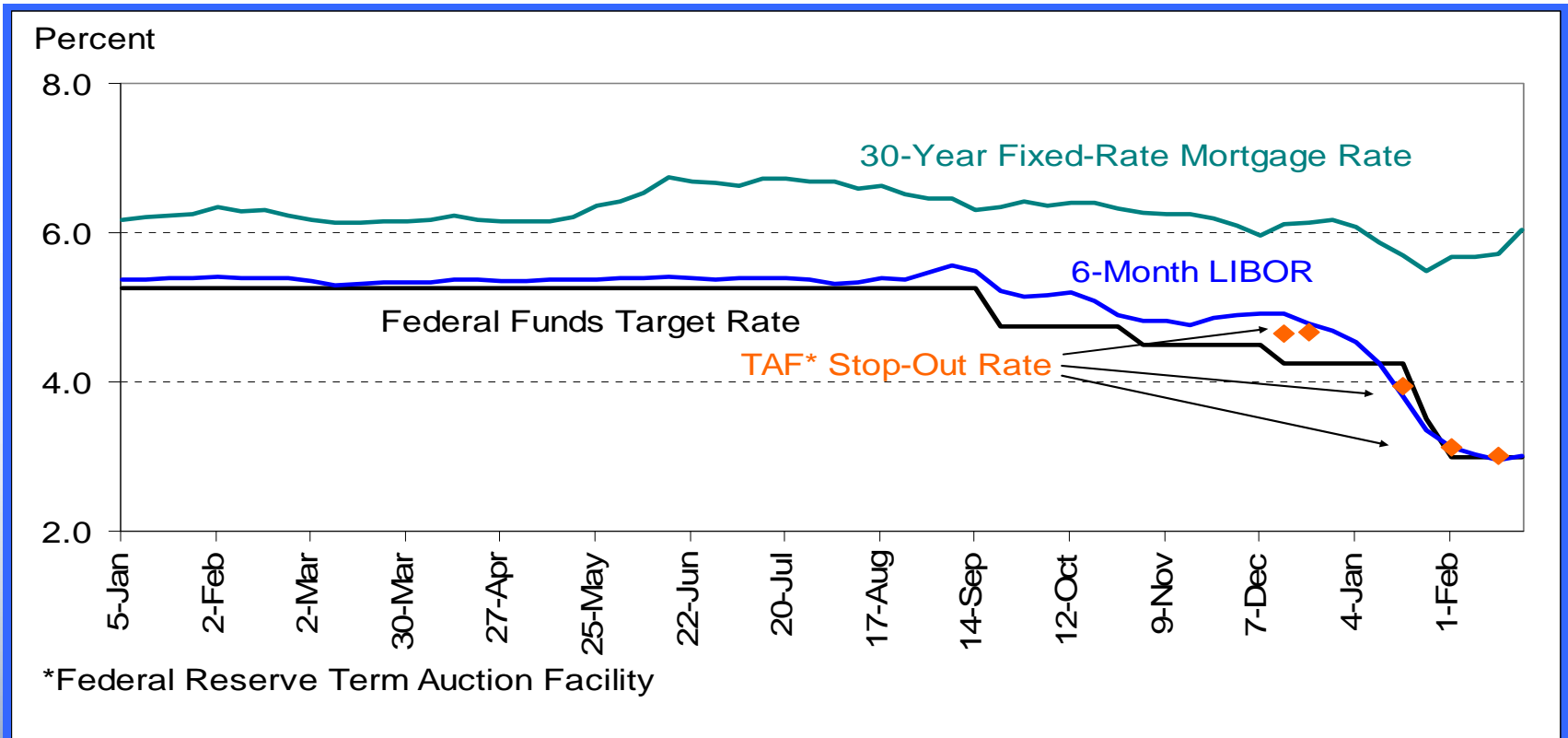
** Analysis excludes one large institution for which capital changes are significantly affected by recent merger activity.

Source: Federal Reserve Board and author's calculations.

Figure 1

LIBOR, Federal Funds Target Rate, 30-Year Fixed-Rate Mortgage Rate, and TAF Stop-Out Rate

Weekly, January 5, 2007 - February 22, 2008



Source: Federal Home Loan Mortgage Corporation, Federal Reserve Board, Financial Times / Haver Analytics