

Global Financial Turmoil

The turmoil in the US sub-prime mortgage market that began last August has continued to broaden and intensify, leading to a tightening in global credit markets and failing financial institutions – most dramatically with the collapse of the Bear Stearns investment bank in mid March 2008. How this will play out and its potential effects on world economic growth, trade and financial flows is one of the two or three major uncertainties facing economic policy makers in East Asia at present.

The roots of the crisis are tangled but one certainly lies in the long boom in the US housing market that came to an end in 2006. One category of loans that had expanded rapidly since the mid-1990s was US sub-prime mortgages—mortgages owed by people with a risky credit profile or mortgages that are too large to be eligible for reinsurance through government backed mortgage agencies. Issuance of such mortgages surged in the latter years of the housing boom, in 2004-2006 in particular.

House prices began falling from mid 2006, while the rate of defaults on sub-prime mortgages soared (figure 1). By early 2007 the rate of serious delinquencies on sub-prime mortgages with adjustable interest rates climbed to 11 percent, about double the rate in mid-2005. These rising mortgage delinquencies were the trigger for a virtual collapse in the price of mortgage backed securities in secondary markets that began in the third quarter of last year. Lehman Brothers estimates that losses on the existing stock of mortgages could total \$250 billion with a 15 percent housing price decline. Greenlaw, Hatzius et al (2008) estimate that mortgage credit losses on the current stock of mortgages could total \$400 billion.² They estimate that losses will be split roughly half and half between US and foreign leveraged institutions such as investment banks, commercial banks, and hedge funds.

A second broad set of factors were financial innovations in the 1990s and 2000s which, while they have played a key role in promoting deep and more efficient capital markets and providing instruments for trading and spreading risk, have also been instrumental in transmitting the shock of rising delinquencies in the mortgage market more broadly through the financial system. One of these is securitization, which involves the transformation of illiquid assets like mortgage loans into securities that can be traded in capital markets. Another

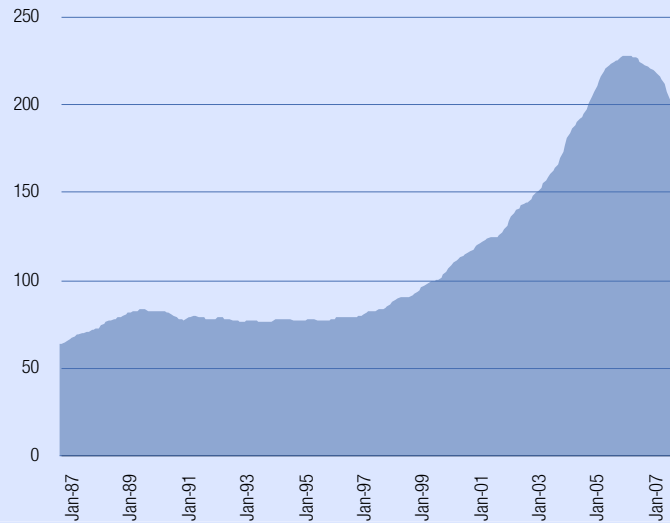
² David Greenlaw, Jan Hatzius, Anil K. Kashyap, Hyun Song Shin. (2008). "Leveraged Losses: Lessons from the Mortgage Market Meltdown." US Monetary Policy Forum Conference Draft. (February 29).

is the development of new risk transfer instruments that have allowed market participants to slice the risks embedded in traditional financial instruments and trade them separately, thereby allowing these risks to be spread across a large number of market participants. A sizeable proportion of sub-prime mortgages were securitized in collateralized debt obligations (CDOs) and found their way onto the balance sheets of banks, investment funds or 'structured investment vehicles' (often affiliates of banks) and institutional investors such as pension funds, insurance companies, and individuals worldwide. It is estimated that at the time the crisis started sub-prime securities made up some 15-20 percent of total CDOs, which, in turn, were estimated to amount to US\$ 1 trillion in the US and US\$ 1.5-2.0 trillion worldwide.

Rising mortgage delinquencies would certainly have hurt the balance sheets of mortgage lenders in any case, but, with securitization, market participants have found it difficult to estimate 'who holds what' and the magnitude of the exposure to risk of different financial institutions. Heightened uncertainty then led to negative spillovers and a fall in prices of a broader set of instruments such as CDOs, mortgage backed securities, jumbo mortgages and asset backed commercial paper, imposing further balance sheet losses.

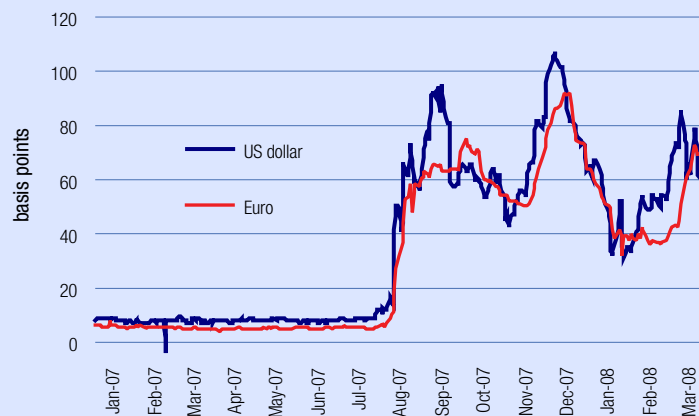
Rising uncertainty about the distribution of losses and the creditworthiness of borrowers also contributed to a sharp rise in spreads and a drying of credit in a number of key short term funding markets such as the interbank market and the asset backed commercial paper market. Reflecting the funding squeeze in the interbank market, the spread between the 3 month US dollar LIBOR rate (at which banks lend to each other) and the OIS rate (a measure of the expected overnight federal funds policy rate) surged from less than 15 basis points on August 8 2007 at over 50 on August 10 and over 90 basis points by mid September. As Figure 2 shows, the LIBOR-OIS spread has remained high, surging whenever new waves of concern about the creditworthiness of financial institutions affect the market. Euro denominated LIBOR spreads have also widened sharply.

Figure 1. S&P/Case-Shiller Composite Home Price Index (Jan. 1987 – Jan. 2008)



Source: Bloomberg, Datastream.

Figure 2. Term liquidity spreads: 3-month Libor/3-month OIS. Jan.2007 – Mar. 2008



Source: Bloomberg, Datastream.

A third factor in the amplification and spread of the crisis is the process of pro-cyclical active balance sheet management by leveraged financial institutions. When the value of assets in balance sheets are marked to market, a rise in the price of assets held by financial institutions will be reflected in an increase in their net worth. With active balance sheet management, banks then borrow more (to maintain a target ratio between leverage and net worth) and acquire more assets, which tends to push asset prices up even more. When – as today - asset prices are falling, this multiplier goes into reverse. As leveraged institutions suffer losses on their assets their net worth falls and they are obliged to pay down their borrowings, which they do by selling assets. This pushes down asset prices, which further damages the asset side of bank balance sheets.

Greenlaw, Hatzius et al (2008) suggest that is the active balance sheet management and deleveraging process which explains the progressive broadening of classes of assets affected by price declines and tightening credit conditions in late 2007 and early 2008, including wider classes of mortgage loans, corporate debt, sovereign debt and equities. These developments have resulted, overall, in a significant tightening of credit availability, especially in the US and the Euro Area. How far could the deleveraging process go? Under a plausible scenario, Greenlaw, Hatzius et al (2008) calculate that balance sheets of US financial institutions could contract by \$1.98 trillion. They estimate that this, in turn, could reduce GDP growth by 1-1 ½ percentage points over the course of a year.

The Federal Reserve has undertaken a series of strong and innovative actions aimed at maintaining the liquidity of leveraged financial institutions and the flow of credit in the economy – slashing the benchmark interest rate to just over 2 percent, widening the assets against it is willing to lend to include mortgage backed securities, and allowing a wider set of financial institutions to borrow directly from its discount window. But how successful these actions will be in staunching the crisis in credit markets is not yet clear. There is now an unusually high level of uncertainty about the economic outlook, given the vast innovations in financial markets over the past decade and the as-yet poor understanding of the new and complex linkages within the post-securitization financial system and between the financial system and the real economy.

Given the high level of uncertainty surrounding the global outlook we have assumed an interim scenario with a range of outcomes for the external environment facing East Asia rather than point forecasts. (Table 2). This scenario sees growth in the industrial world in 2008 slowing from 2007 by roughly 1.0-1.5 percentage points, with the sharpest slowdowns from 2007 occurring in the US and Europe, the two areas most seriously affected by the financial turmoil.

Table 2. International Economic Environment

	2007	2008	2009
GDP Growth (%):			
World	3.6	2.4 – 2.8	2.8 – 3.2
High Income OECD	2.5	1.1 – 1.6	1.4 – 2.0
USA	2.2	0.5 - 1.4	1.0 - 2.0
Euro-zone	2.7	1.3 - 1.7	1.5 - 1.9
Japan	2.1	1.3 - 1.7	1.6 - 2.0
World trade (%)	7.5	4.0 – 5.0	5.0 – 6.0
Oil price (\$/bbl)	71.1	80 - 90	80 - 90
Non-oil commodity	15.8	10 - 20	-10 - 0

*World Bank East Asia and Pacific Region.
Interim scenario March 2008.*