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June 2, 2009

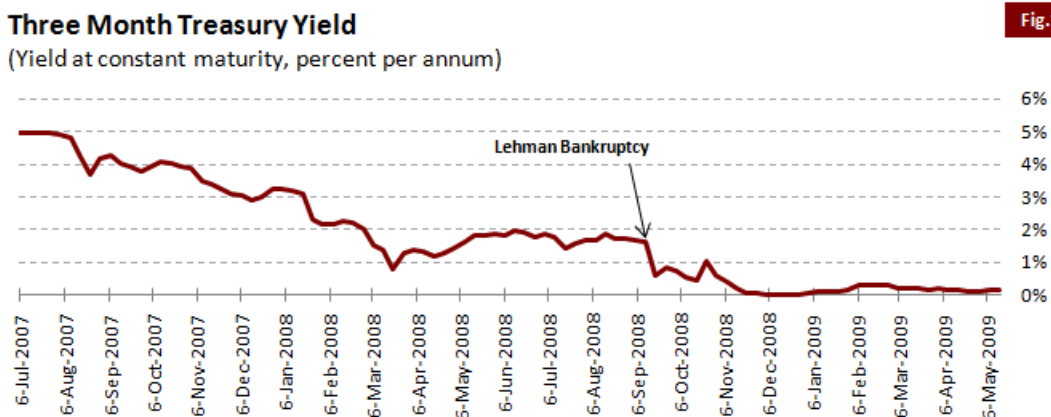
INDICATORS OF STRESS IN FINANCIAL MARKETS

Since August of 2007, financial markets have been under considerable stress, with difficulties accelerating following the September 15, 2008 bankruptcy filing by investment bank Lehman Brothers. This report provides a brief outline of recent developments in financial markets.

Indicators of Stress in Financial Markets

Treasury-Bill Yield: Since the outbreak of the financial crisis in August of 2007, financial market participants have been wary, not knowing who holds what assets and, therefore, who is or is not significantly exposed to risks from declines in values of securities such as mortgage-backed obligations. When there is heightened risk aversion in financial markets, as in many periods since the outbreak of the financial crisis, and fear of increased counterparty risks, lenders and creditors become increasingly averse to lending to anyone with less than the highest possible level of creditworthiness. This is known as a “flight to quality” or “flight to safety” in which lenders cut off lending to most counterparties and seek safe havens for their funds in the form of ultra-safe assets like U.S. Treasury securities.

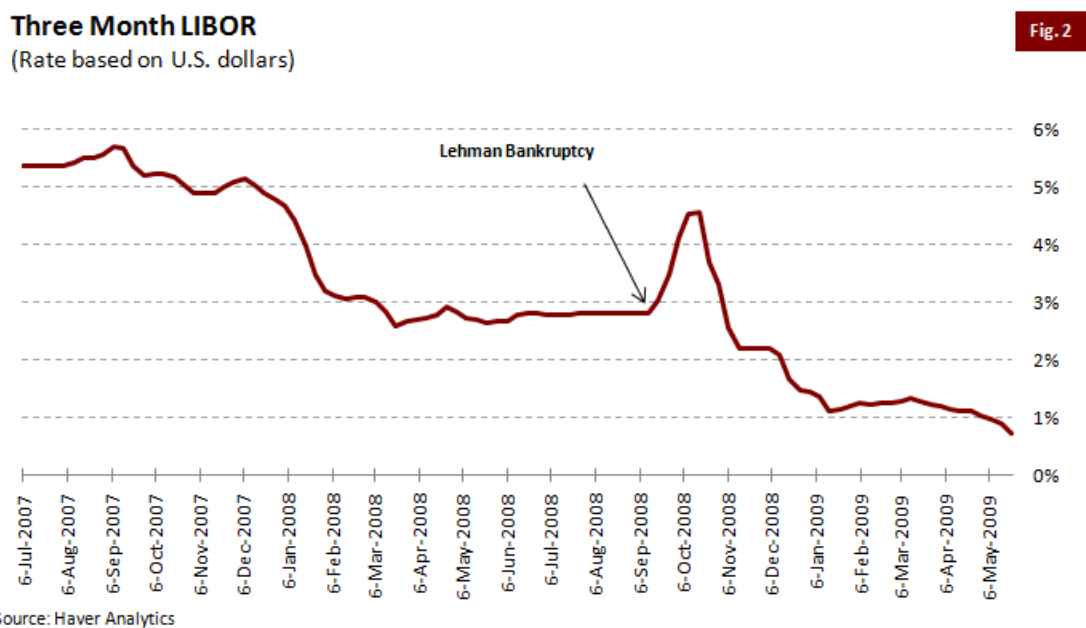
One consequence of flight to quality is that as investors flee to purchases of U.S government securities, the prices of those securities rise to reflect the strengthened demand. Because yields and prices are inversely related, as prices of Treasury securities rise, their yields fall. Yields on short-term Treasury securities fell precipitously following the collapse of Lehman Brothers in Mid-September of last year, and have remained low (Fig. 2).



Source: Haver Analytics

LIBOR (London Interbank Fixing Rate): LIBOR is a measure of the rate at which banks borrow and lend among each other. LIBOR is also the basis for some financial contracts, including home mortgages and student loans. A LIBOR rate reflects many considerations on the

part of both the borrowing bank and lending bank. Increases in a LIBOR rate can reflect increasing concerns on the part of banks about the creditworthiness of other counterparty banks with which the lending would occur. Roughly speaking, higher LIBOR rates can signal that banks are less willing to lend money to one another. Following the collapse of Lehman Brothers, LIBOR rates spiked up precipitously, but have since retreated following aggressive actions by central banks and fiscal authorities around the globe (Fig. 2).



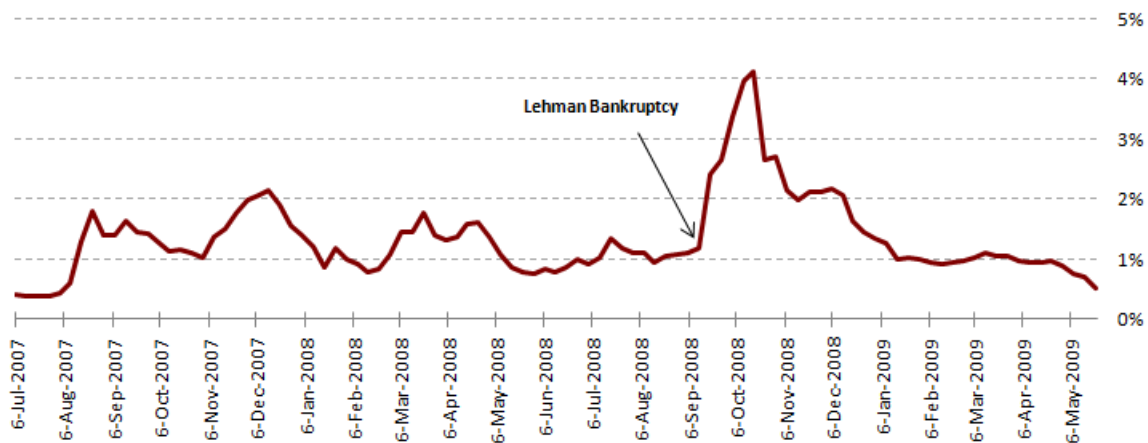
TED Spread: One indicator of financial market stress is the so-called “TED spread,” which is the difference between the 3-month LIBOR and the yield on a 3-month Treasury bill. The TED spread is a measure of liquidity and is an indicator of the degree to which banks are willing to lend to one another. It is also an indicator of perceptions of credit risks facing commercial banks. Treasury bills are considered virtually risk free, while LIBOR reflects credit risks associated with one bank lending to another bank—the so-called “counterparty risk.” As the TED spread goes up (because the 3-month LIBOR has risen or the 3-month T-bill yield has fallen, for example), there is an indication that banks perceive an increase in counterparty risk and/or investors have a stronger preference for safe investments. Roughly speaking, a higher TED spread indicates higher anxiety among lenders and creditors.

The TED spread spiked up significantly following the Lehman Brothers collapse and, given a number of interventions in financial markets by the Fed, Treasury, and monetary and fiscal authorities abroad, has recently been signaling that banks’ perceptions of counterparty risks are abating (Fig. 3). The TED spread averaged around 25 basis points between 2002 and 2006 (a basis point is one hundredth of a percent). By contrast, the spread spiked to over 400 basis points (4%) following Lehman’s collapse, but has since retreated given aggressive actions by central bankers and fiscal authorities around the globe. The TED spread has fallen from over 1% in January of this year to 0.54% in the week ending on May 22.

TED Spread

(3-month LIBOR - 3-month T-bill yield at constant maturity)

Fig. 3



Source: Haver Analytics

Commercial Paper: How do stresses in credit markets, judged by Treasury yields or inter-bank lending rates, relate to Main Street? One answer is that businesses, large and small, increasingly find it hard, expensive, or even impossible to obtain credit that they need to continue operations (producing, making payrolls, buying inputs) as bank lending freezes up.

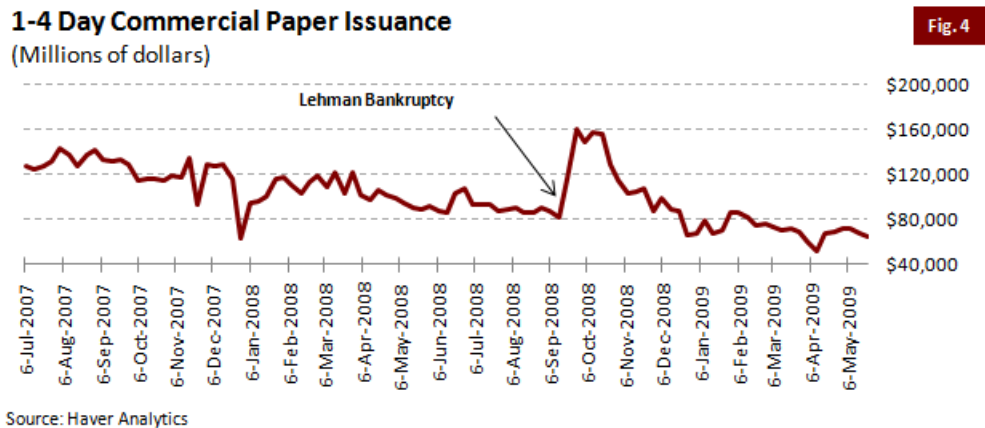
Many businesses rely on something called Commercial Paper to fund their ongoing operations—it is normally an efficient, low-cost way of funding operations. Commercial paper is often represented by an unsecured promissory note with a fixed maturity of one to 270 days. Commercial paper markets have been under stress since the onset of the financial crises, and especially so since the collapse of Lehman Brothers. The supply of funds to the commercial paper market dried up following the collapse of Lehman Brothers as the normal suppliers, such as money market investors, withdrew in order to hoard cash to meet their own possible depositor withdrawals and funding needs.

In response to the drying up of funding in the commercial paper market, the Federal Reserve (Fed), since October 7, 2008, has been extending credit to U.S. issuers of commercial paper through a specially created limited liability company (LLC) called the Commercial Paper Funding Facility, LLC. Net assets held by the Commercial Paper Funding Facility rose to as much as \$349 billion on January 21 of this year and were \$146 billion on May 27.

Following the collapse of Lehman Brothers, commercial paper lending that did take place had increasingly been at higher rates and at shorter maturities as lenders feared being locked into commitments for long periods. Indeed, the Federal Reserve at one point was temporarily unable to calculate interest rates on some non-financial commercial paper issued by AA-rated companies (companies having nothing directly to do with Wall Street or bad mortgage debt) because of lack of trading activity. For a time, funding had all but dried up in many segments of the commercial paper market, as investors funded only very short-term notes of one to a few days, but were very reluctant to fund notes lasting much longer than a few days. That forced many who typically fund their operations through commercial paper to fund on a rolling short-

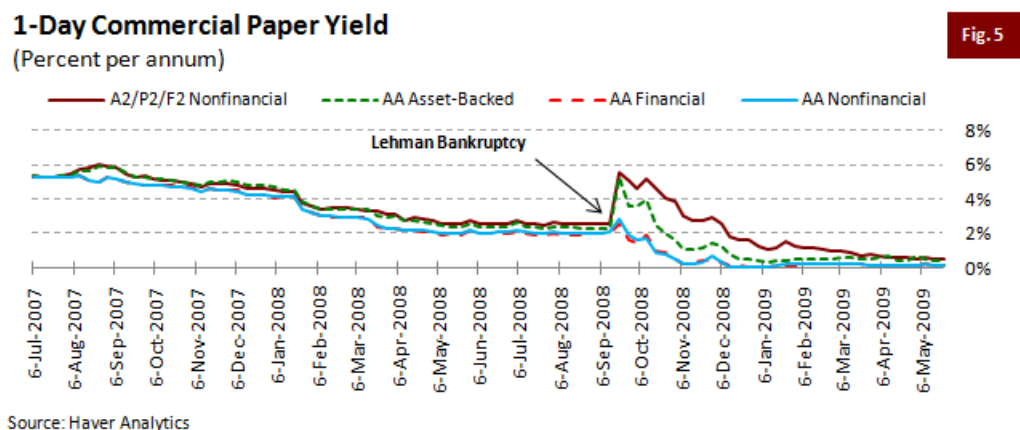
term basis and to tap existing lines of credit, often at higher rates than would typically be paid in commercial paper markets.

Following the collapse of Lehman Brothers, issuance of very short term commercial paper spiked up, as longer term commercial-paper financing was less available and, when available, was much more costly to obtain. Following aggressive actions by central bankers and fiscal authorities around the globe, commercial paper market lending has been thawing—with increasing amounts of lending at relatively longer terms and lower rates than prevailed immediately after Lehman’s collapse (Figs. 4-6).



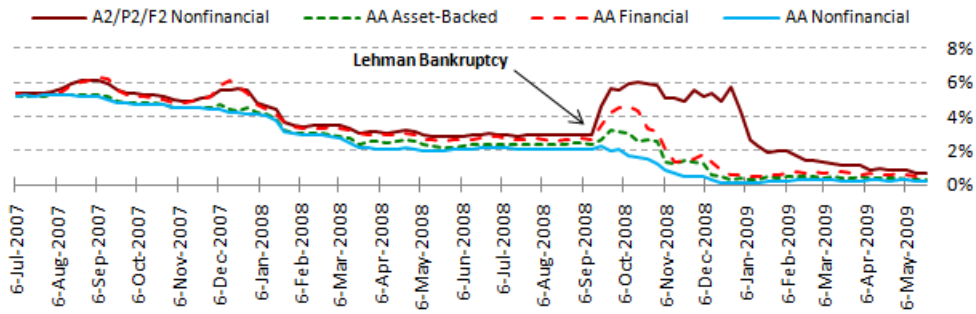
As figures 5 and 6 below show, costs of commercial paper funding (i.e., the yield required by lenders) shot up for financial paper, relatively riskier paper (A2/P2/F2) and asset-backed paper following the collapse of Lehman Brothers, both for short-term and relatively longer-term paper. In addition, spreads between lower rated issuing firms (A2/P2/F2) and safer (AA rated) issuing firms and between AA asset-backed paper and paper not backed by assets increased, reflecting heightened risk aversion and uncertainty about counterparty risk and asset quality.

Following aggressive actions by central banks and fiscal authorities around the globe, commercial paper yields have been declining since the post-Lehman spike.



30-Day Commercial Paper Yield
(Percent per annum)

Fig. 6



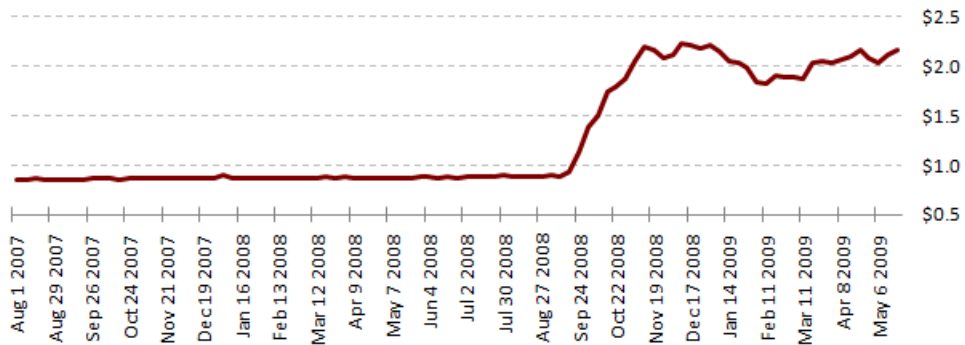
Source: Haver Analytics

Many Rates are Down, but Have Normal Credit Flows Resumed? No. The indicators of credit market stresses above all paint a similar picture. Financial markets, already under considerable stress, became very stressed and turbulent following the collapse of Lehman Brothers. Some of the post-Lehman-collapse stresses and turbulence have been subsiding in the aftermath of aggressive actions by central banks and fiscal authorities around the globe. However, stresses remain and credit markets have yet to return to more normal functioning, and the Fed has been engaged in intermediating a significant amount of borrowing that would normally be intermediated in the private sector.

Through a variety of lending facilities, the Fed has ramped up the size of its balance sheet from net asset holdings of around \$890 billion prior to the collapse of Lehman Brothers to over \$2 trillion (Fig. 7). The Fed has been buying debt of the Government Sponsored Enterprises, Fannie and Freddie, of the U.S Federal government (Treasury debt) and has been making collateralized loans to a host of counterparties that the Fed did not, prior to the onset of the financial crisis, normally make loans.

Federal Reserve Bank Credit
(Trillions of dollars)

Fig. 7



Source: Haver Analytics

While the cost of credit, measured by interest rates and yields, has declined on many financial instruments from the highs reached after the collapse of Lehman Brothers (e.g., declines in commercial paper yields and in LIBOR), actual credit flows in many cases have not returned to a state of normalcy, with trades executed privately between private borrowers and private lenders. Rather, the Fed is intermediating significant amounts of credit flows. Until private borrowing and lending resumes in place of Fed lending, stresses in financial markets will remain.