Monetary Trends

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The LIBOR-OIS Spread as a Summary Indicator

The LIBOR-OIS spread has been a closely watched barometer of distress in money markets for more than a year. The 3-month London Interbank Offered Rate (LIBOR) is the interest rate at which banks borrow unsecured funds from other banks in the London wholesale money market for a period of 3 months. Alternatively, if a bank enters into an overnight indexed swap (OIS), it is entitled to receive a fixed rate of interest on a notional amount called the OIS rate. In exchange, the bank agrees to pay a (compound) interest payment on the notional amount to be determined by a reference floating rate (in the United States, this is the effective federal funds rate) to the counterparty at maturity. For example, suppose the 3-month OIS rate is 2 percent. If the geometric average of the annualized effective federal funds rate for the 3-month period is 1.91 percent, there will be a net cash inflow of $2,250 on a principal amount of $10 million [(2 percent – 1.91 percent) × 3/12 × $10 million = $2,250] to the bank from its counterparty.

A bank borrowing at the 3-month LIBOR rate of 2.10 percent that enters into a swap to receive at the 3-month OIS rate of 2 percent has a borrowing cost equal to the effective federal funds rate plus 10 basis points. Entering into the OIS exposes the bank to future fluctuations in the reference rate. However, the bank can guarantee itself longer-term funding while still paying close to the overnight rate. Because the alternative would be rolling over the funds on a daily basis at changing overnight rates, banks are willing to pay a premium. This is reflected in the LIBOR-OIS spread (defined as the difference between the LIBOR rate and the OIS rate) shown in the chart. In times of stress, the LIBOR, referencing a cash instrument, reflects both credit and liquidity risk,[1] but the OIS has little exposure to default risk because these contracts do not involve any initial cash flows. The OIS rate is therefore an accurate measure of investor expectations of the effective federal funds rate (and hence the Fed's target) over the term of the swap, whereas LIBOR reflects credit risk and the expectation on future overnight rates.

Before the onset of the turmoil in the credit markets in August 2007, the LIBOR-OIS spread was around 10 basis points. However, in just over a month, the spread rose to 85 basis points on September 14, 2007, when the Bank of England announced emergency funding to rescue the troubled Northern Rock, one of the U.K.'s largest mortgage lenders. The spread reached its all-time high at 108 basis points on December 6, 2007. Around the same time, large investment banks such as UBS and Lehman Brothers announced huge write-downs. On March 17, 2008, the collapse of Bear Stearns led to an 83-basis-point spread, a 19-basis-point increase from the previous trading day. In the latest illiquidity wave following the failure of Lehman Brothers, the spread was 365 basis points (as of October 10, 2008). In short, the LIBOR-OIS spread has been the summary indicator showing the "illiquidity waves" that severely impaired money markets in 2007 and 2008.

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[1] *Liquidity risk* is the risk that a bank could not convert its assets into cash, whereas *credit risk* is the risk that it could fail to meet its contractual obligations. Some have claimed that this distinction is unclear and that, particularly in the case of financial institutions, "the definition of liquidity is elusive." See von Thadden, Ernst-Ludwig. "Liquidity Creation Through Banks and Markets: Multiple Insurance and Limited Market Access." *European Economic Review*, April 1999, *43*(4-6), pp. 991-1006.