

CME Group offers a wide array of derivative products covering all major asset classes including fixed income investments, equities, currencies and commodities. But perhaps the most important product offered by the Exchange may be described simply as “liquidity.”

This represents an update of how we are doing with respect to the provision of liquidity in “flagship” CME Group products, specifically Eurodollar futures, 10-Year T-note futures, E-mini S&P 500 Index futures and WTI crude oil futures through the 4th quarter of 2010.

Measuring Liquidity – Conceptually, liquidity may be assessed in four different ways as follows.

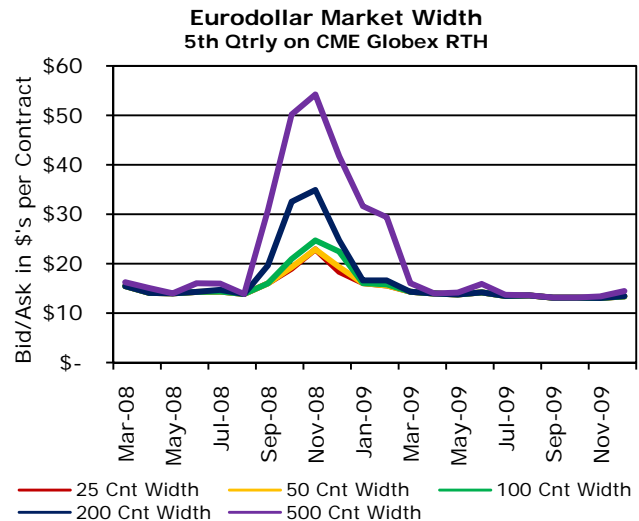
- **Width** – How tight or wide is the bid-ask spread?
- **Depth** – How deep is the market in terms of the quantity of orders resting on the bid or offer, or beyond the best bid and best offer?
- **Immediacy** – Can one execute a large size market order immediately? Does it require some time to be filled?
- **Resiliency** – Even in the most liquid markets, a large market order will impact prevailing bid-ask spreads. But how long does it require for the market to bounce back to previous levels after a large order is filled?

From a practical standpoint, liquidity measures tend to be limited to the first two of these considerations - market width and depth. We may readily observe these factors on the CME Globex electronic trading platform.

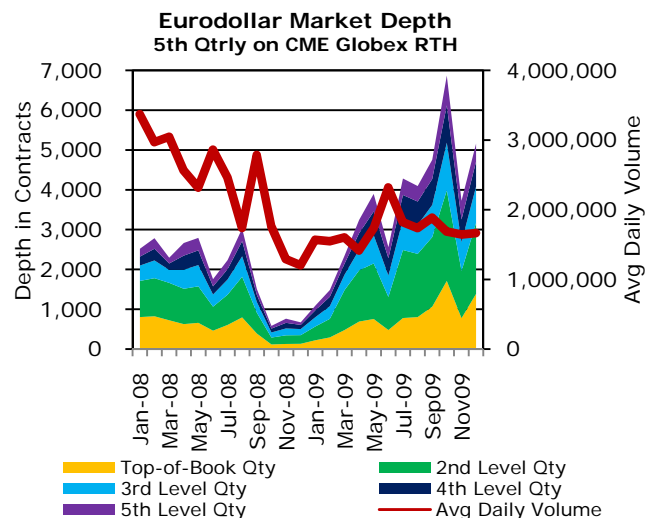
Market width may be quoted in ticks or in dollars for orders of a given quantity (*i.e.*, 25 contracts, 50 contracts, etc.). Market depth may be measured in contracts at different “levels” in the limit order book (*i.e.*, top-of-book or best bid-ask spread; 2nd level or next best bid-ask spread, etc.).

Financial Crisis – The recent financial crisis that peaked in September 2008 with the near simultaneous collapse of Lehman; bankruptcy of AIG; and, sale of Merrill Lynch to Bank of America, exerted a significant impact upon CME Group market liquidity. Difficulties in securing credit coupled with severe trading losses in some quarters led to deleveraging amongst CME Group customers notably including hedge funds. In turn, these conditions exerted a visible negative effect upon liquidity,

measured in terms of both market width and depth, in key CME Group markets.



Eurodollar Liquidity - The width of the bid-ask spread for CME Eurodollar futures for a 500-lot order advanced to \$54 by November 2008. This equates to more than 2 basis points at \$25 per basis point; or, 4 minimum tick increments at ½ basis point per tick. The depth of the Eurodollar book suffered as well as depth at the top of the book fell to an average of 119 contracts by October 2008.



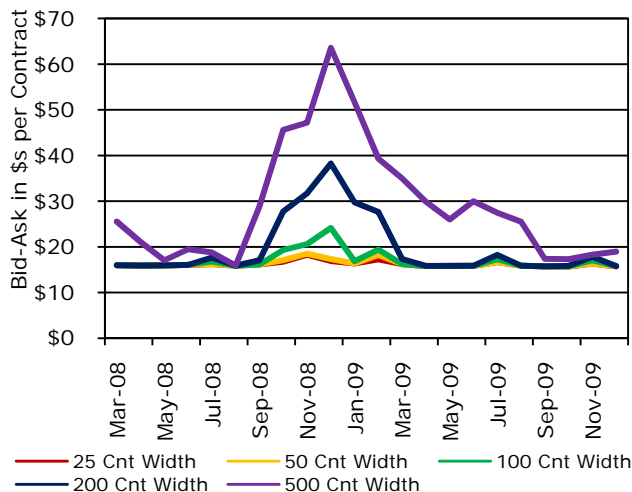
Since then, liquidity has rebounded to exceed pre-crisis levels. In December 2009, the width of the Eurodollar book for a 500-lot order was observed at \$14.43 or over the \$12.50 value of one minimum tick of ½ basis point. Depth at the top of the Eurodollar order book surged well above pre-crisis

levels to new highs of 1,389 contracts during December 2009.

Average daily volume has yet to return to pre-crisis levels but the trend is pointed up. Volume generally is driven by volatility and short-term interest rates (including Eurodollar rates) are driven by Federal Open Market Committee (FOMC) monetary policy. The FOMC has held target Fed Funds steady at 0-0.25% since the height of the crisis, dampening market volatility. But economic conditions seem to be improving with 3rd quarter GDP reported at +2.2%. While unemployment remained high at 10.0% in November 2009, this is a downtick from the 10.2% recorded in the prior month. Thus, most economists anticipate that the Fed will lift rates later in 2010 in response to a recovering economy. This in turn may result in increased volatility, trading opportunities and increased volumes.

10-Year Treasury Liquidity – Liquidity in 10-year Treasury note futures followed a similar path. The width of the bid-ask spread on a 500-lot order surged to highs of \$63.59 on average during December 2008. This represents over 2/32nds or about 4 minimum price increments of 1/64th (\$15.625 per tick). Similarly, the depth at the top of the order book fell to an average of 77 contracts during December 2008.

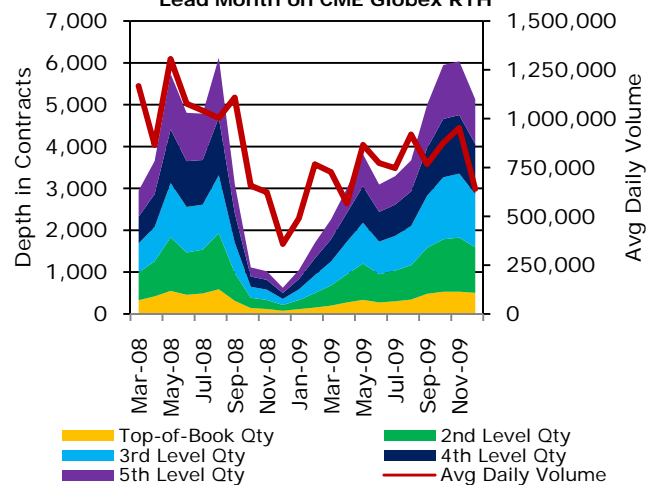
10-Year Treasury Market Width
Lead Month on CME Globex RTH



But conditions improved with the bid-ask on a 500-lot down to \$18.95 or just over one minimum tick valued at \$15.625 by December 2009. Depth at the top-of-the-book was recorded at 506 contracts on average during December 2009.

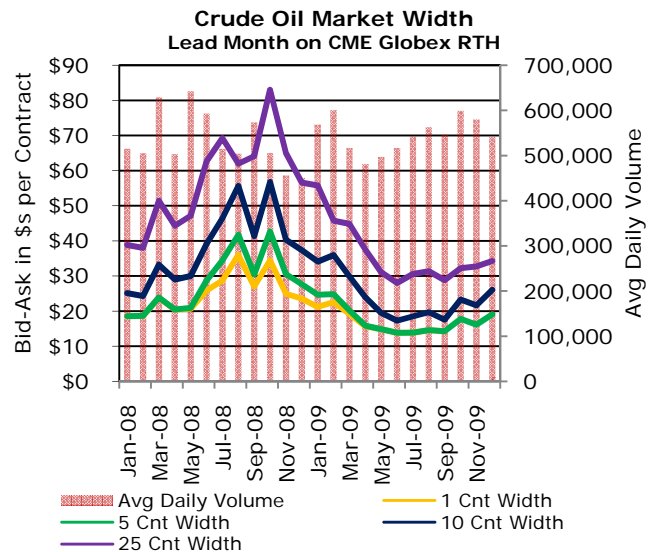
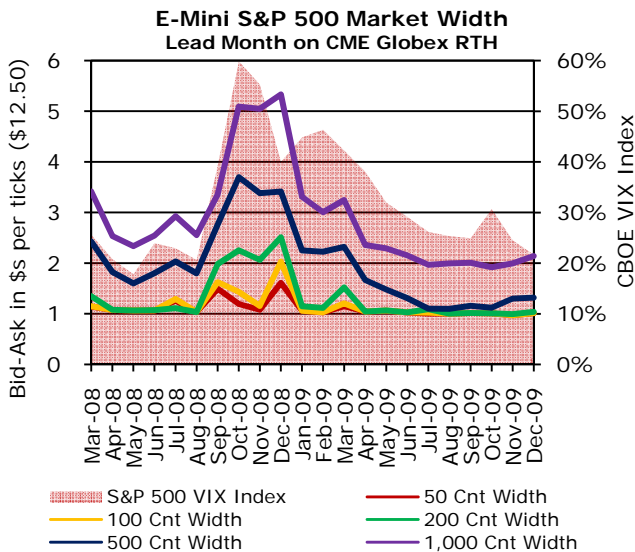
Volumes have yet to return to pre-crisis levels but there is reason for optimism in the future. While the short-end of the yield curve fundamentally is anchored by monetary policy, the long-end of the curve is driven by inflationary expectations. Treasury issuance is up sharply as a result of the Federal fiscal stimulus. Excessive Federal spending raises inflationary concerns while overseas Treasury investors fret over U.S. dollar weakness and sometimes express reluctance to hold U.S. dollar denominated assets. Thus, we might expect ample Treasury trading opportunities and advancing volumes in 2010.

10-Year Treasury Market Depth
Lead Month on CME Globex RTH



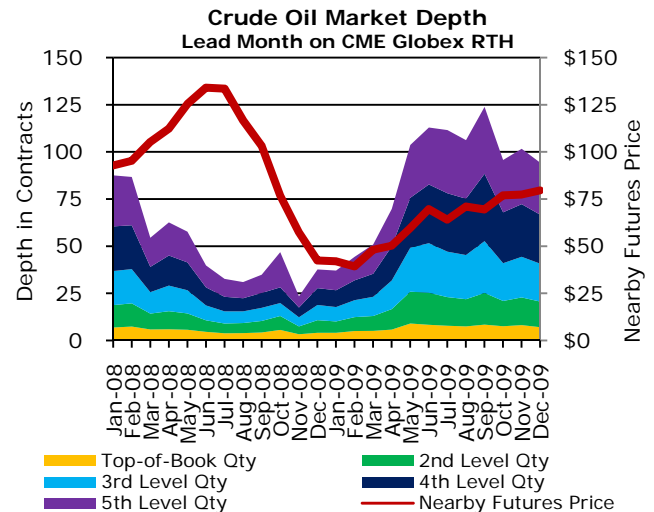
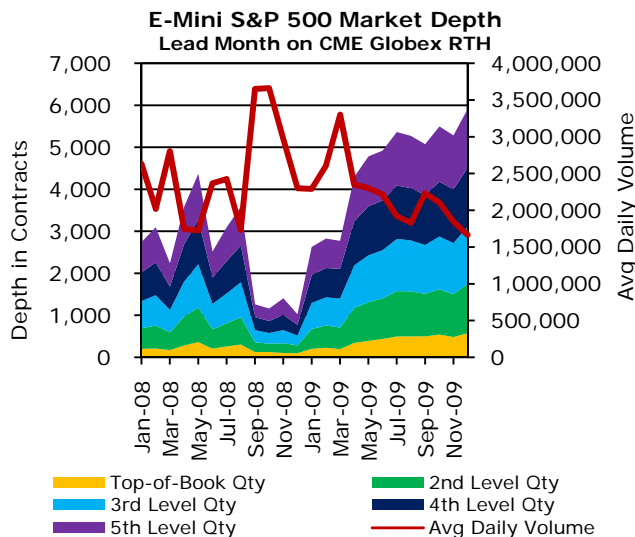
Stock Index Liquidity – Liquidity in the E-mini S&P 500 futures contract is visibly superior to pre-crisis levels. The average width of the bid-offer spread for a 500-lot order was observed at \$46.23 while market depth at the top-of-the-book averaged 129 contracts in October 2008. But market width for a 500-lot order during December 2009 averaged \$16.46 and just over the \$12.50 value of one minimum tick of 0.25 index points. Market depth at the top-of-the-book rebounded to 579 contracts by December 2009.

There is a reliable negative relationship between equity market volatility and price direction. *i.e.*, stocks tend to fall quickly on rising volatility; and, rise slowly on declining volatility. The stock market has advanced steadily since the 1st quarter 2009 on declining volatility as measured by the S&P 500 VIX Index which has fallen from 59.89% in October 2008 to 21.68% in December 2009. These circumstances have detracted from average daily volumes in the E-mini S&P 500 futures, which tend to increase during volatile bear markets.



Crude Oil Liquidity – Crude oil liquidity is down just a bit in recent months after recovering from crisis levels. The average bid-ask for a 25-lot order was at \$34.30 during December 2009 or approximately 3.4 ticks at \$0.01/barrel (\$10.00 per tick). This is down sharply from the October 2008 average of \$83.02 but a bit higher than in the prior few months. Market depth displayed at the top of the electronic order book is at 7.1 contracts and up sharply from the October 2008 average of 5.6 contracts.

Crude oil prices have recently rallied above \$80/ bbl. Although still well below 2008 highs in the vicinity of \$140/bbl, the bullish trend has continued throughout 2009. Elevated risk levels tied to this increased volatility may be causing a slight contraction in observed liquidity. However, we believe that such volatility contributes to trading opportunities and the demand for risk-management solutions.



Caveat - The measures of market liquidity referenced here may be considered conservative. Thus, we describe these measures as “displayed” rather than “true” liquidity. *I.e.*, we are only observing orders that are visibly displayed in the CME Globex limit order books. But some types of orders, such as so-called “iceberg” orders where the customer chooses to display only a portion of the

total order quantity, are not included in these measures. Hence, we believe that true liquidity in CME Group markets is generally much superior to displayed liquidity.

Concluding Note - Liquidity is central to a successful futures market. But other factors such as the availability of trading opportunities are likewise important. Volatility generally equates to speculative opportunity and hedge necessities, generating volume. But increased volatility may actually detract from liquidity to the extent that it increases risks faced by market makers. Ideally, markets will exhibit enough volatility to make things interesting but not so much as to seriously threaten market making activities.

Liquidity in CME Group flagship products including Eurodollar, 10-year Treasury Note, E-mini S&P 500

and WTI crude oil futures has improved significantly since the financial crisis. While we focus on four of the most visible and important of our products, similar patterns are observed in most CME Group products. To the extent that liquidity encourages active trading, *i.e.*, liquidity breeds more liquidity, there is ample reason to feel optimistic about 2010 trading activity at CME Group.

For more information, please contact ...

John W. Labuszewski, Managing Director
Research & Product Development
312-466-7469, jlab@cmegroup.com

Sabrina Su, Financial Analyst
Research & Product Development
(312) 648-3727, xing.su@cmegroup.com

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