

Liquidity Monitor

3rd Quarter 2012

OCTOBER 18, 2012

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CME Group exchanges offer a wide diversity of products covering the gamut of asset classes including equities, fixed income, FX and physical commodities. But perhaps our most important asset may be described simply as “liquidity.”

This represents an update regarding liquidity in “flagship” CME Group exchange products, specifically CME Eurodollar, CBOT 10-Year T-note, CME E-mini S&P 500, CME EUR/USD, CME JPY/USD, NYMEX WTI crude oil, CBOT corn, CBOT soybeans, CBOT wheat and COMEX gold futures through the most recently completed calendar quarter.

Liquidity in CME Group flagship markets was generally rather steady during the past calendar quarter.

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.).

Eurodollar Liquidity

The width of the bid-ask spread for CME Eurodollar futures for a 500-lot order was recorded at \$12.51 in September 2012 and improved slightly from the \$12.60 recorded in June 2012. Noting that the tick size equals \$12.50, this width cannot substantially be improved upon. Depth at the top-of-the-book was recorded at 48,510 contracts in September 2012 or the equivalent of \$48.5 billion in notional value with effectively a one-tick bid/offer spread. This depth is orders of magnitude greater than any previously recorded figures, noting that June 2012 was observed at 14,629 contracts.¹

10-Year Treasury Liquidity

The width of the bid-ask spread on a 500-lot order in CBOT 10-year Treasury futures in September 2012 remained very tight at \$15.63 and steady from the \$15.64 recorded in June 2012. Note that the minimum tick value is 1/64th (\$15.625). Depth at the top-of-the-book was recorded at an average of 1,052 in September 2012 and improved substantially from the 789 contracts observed in June 2012.

Stock Index Liquidity

The width of the bid-ask spread for CME E-mini S&P 500 futures for a 500-lot order improved to \$12.60 in September 2012 from the \$12.60 observed in June 2012. Note that the minimum tick increment equals 0.25 index points or \$12.50. Thus, width has very little room to improve. Depth at the top-of-the-book advanced to 607 contracts in September 2012 from 456 in June 2012.

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.

¹ Note that while we had been following liquidity in the fifth quarterly month in the past, we have adopted a new policy for these purposes of following whichever quarterly contract month is most actively traded. This policy accounts for some of the apparently enhanced liquidity. However, we should attribute some of this to the fact that the short-end of the yield curve has been very stable per the Fed’s static monetary policy. This fosters low volatility and that reduced risk is generally attributed with more aggressive market making activities and enhanced liquidity.

Stocks had advanced nicely during the 3rd quarter 2012 on calming of the European debt crisis and on the strength of generally attractive dividend yields, noting the Fed's September 13th policy statement that it intended to retain current low rates until at least mid 2015. Thus, volatility continued to settle down as stocks advanced. To the extent that volatility and liquidity tend to be inversely related, we have witnessed some increased liquidity.

Currency Market Liquidity

The width of the bid-ask spread for a 25-lot lot entered in CME EUR/USD or JPY/USD futures was observed at \$13.52 and \$15.42, respectively, in September 2012, and mixed from the levels of \$13.48 and \$20.56 recorded respectively in June 2012. The minimum tick increment in both of these markets is \$12.50. Liquidity at the top-of-the-book was at 40 and 26 contracts for both EUR/USD and JPY/USD futures. These figures are generally the same as the prior quarter observations.

Crude Oil Liquidity

The width of the bid-ask spread for a 25-lot entered in NYMEX crude oil futures was observed at \$29.15 in September 2012 and up from the \$26.36 observed in June 2012. The tick size equals \$10.00. Liquidity at the top-of-the-book was down to 7.2 contracts from the 9.2 contracts observed in the prior quarter.

Grain Liquidity

The width of the bid-ask spread for a 25-lot entered in corn, soybean and wheat futures checked in at \$12.89, \$28.06 and \$29.90, respectively, in September 2012. These figures are generally improved from \$14.71, \$31.47 and \$35.23, respectively, in June 2012. The tick size for grain futures is 1/4th of one cent for a 5,000 bushel contract or \$12.50. Depth at the top-of-the-book for corn, soybean and wheat futures improved to 1,733, 12 and 11 contracts, respectively, in September 2012 from 1,556, 11 and 9 contracts in June 2012.

Price and trading activity in grains tends to be extraordinarily seasonal in nature. Mid-summer is, of course, the height of the so-called "weather months" while the magnitude of the anticipated

harvest is becoming more firmly established by September.

Gold Liquidity

The width of the bid-ask spread for a 25-lot entered in COMEX gold futures was observed at \$35.46 in September 2012 and improved from the \$52.07 in June 2012. The tick size equals \$10.00. Liquidity at the top-of-the-book was 6.5 contracts and an improvement over the 4.6 contracts observed in the prior quarter.

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 superior to displayed liquidity.

Website Tool

Liquidity is central to a successful futures market. Liquidity in CME Group flagship products, including CME Eurodollar, CBOT 10-year Treasury note, CME E-mini S&P 500, CME EUR/USD, CME JPY/USD, NYMEX WTI crude oil and corn futures, has generally declined a bit over the prior calendar quarter. But this is largely attributed to growing economic uncertainties. While volatile markets generally erode liquidity measures, they nonetheless contribute to enhanced volumes.

Because liquidity and the quality of order execution are of such paramount significance, CME Group offers "Order Execution Tools" on its website and found at the following addresses.

For stock index futures -

<http://www.cmegroup.com/trading/equity-index/order-execution/main.html>

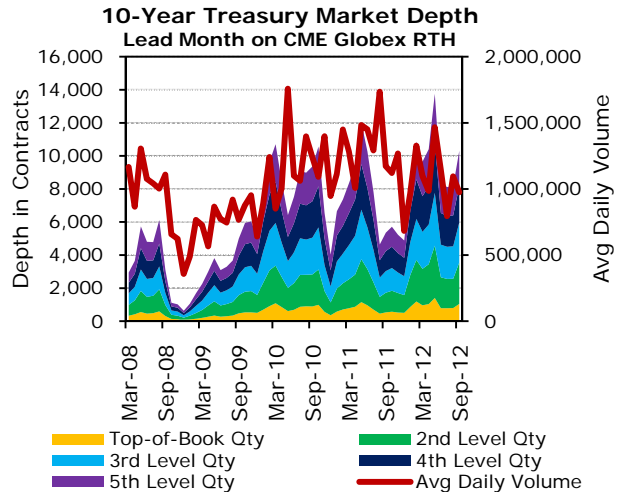
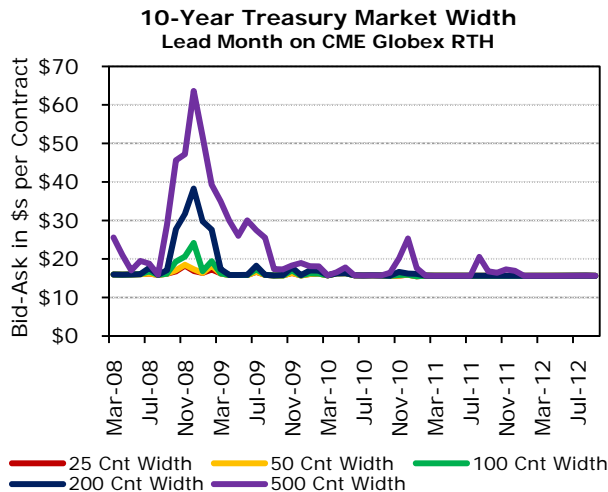
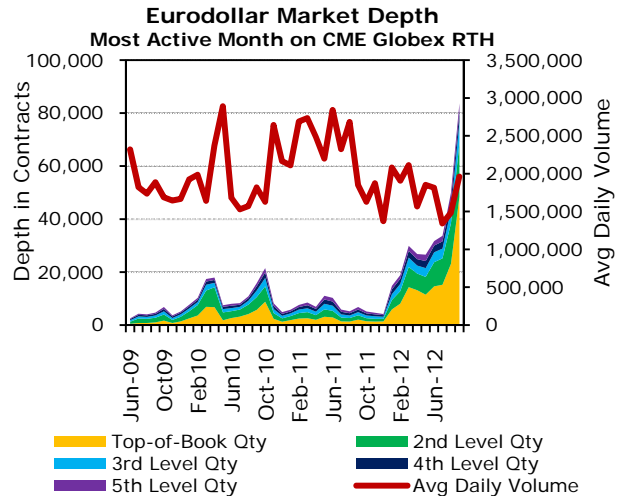
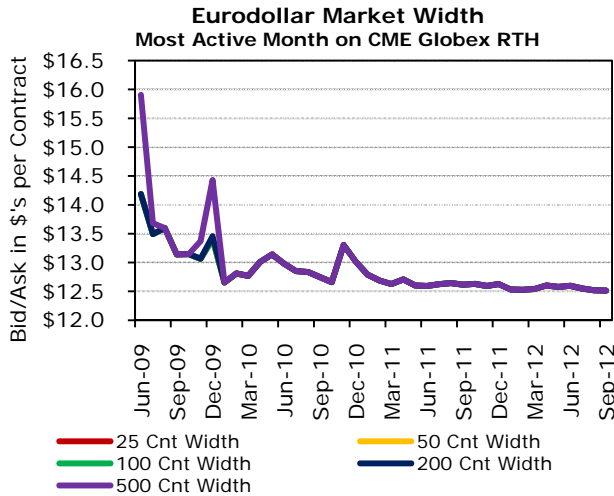
For currency futures -

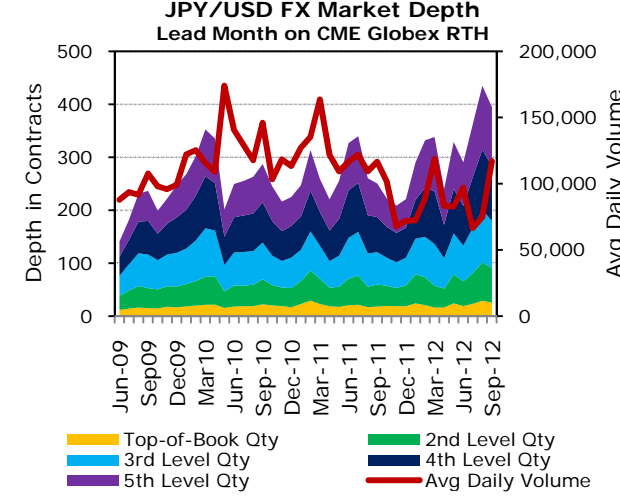
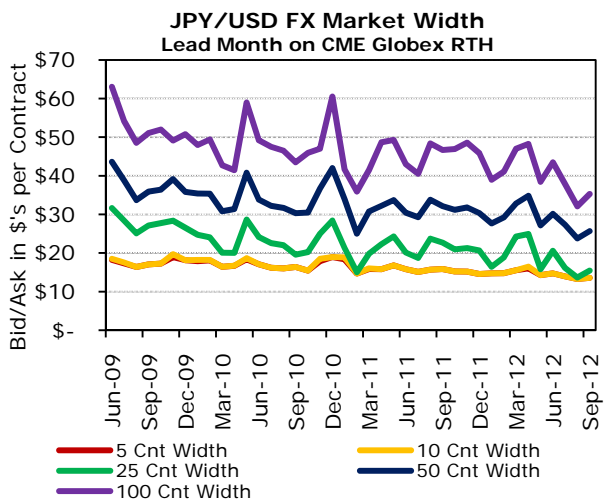
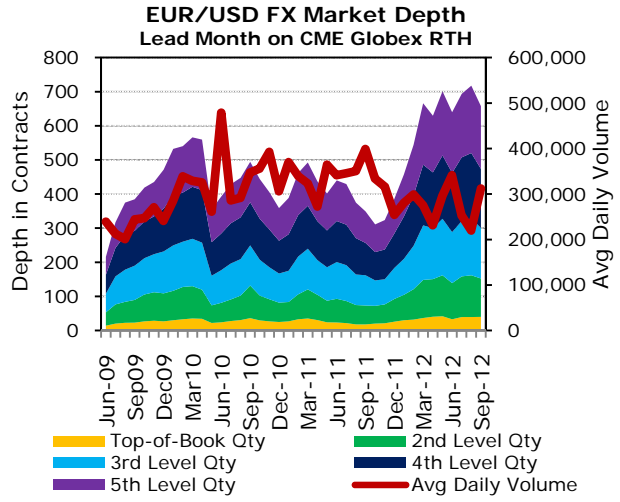
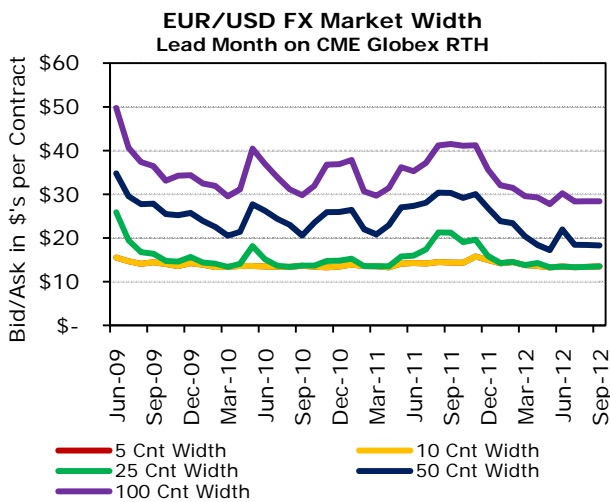
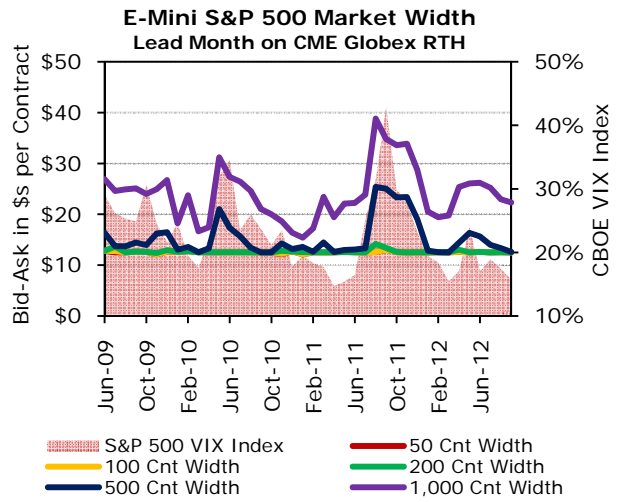
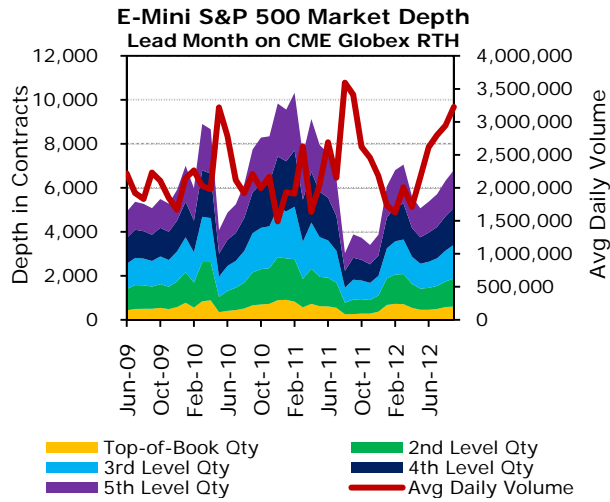
<http://www.cmegroup.com/trading/fx/order-execution/main.html>

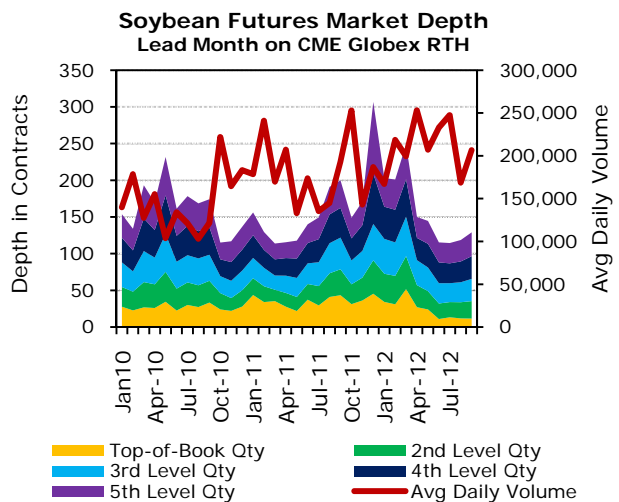
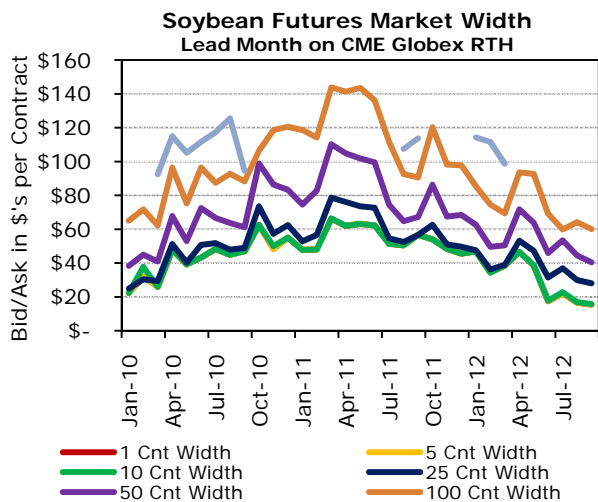
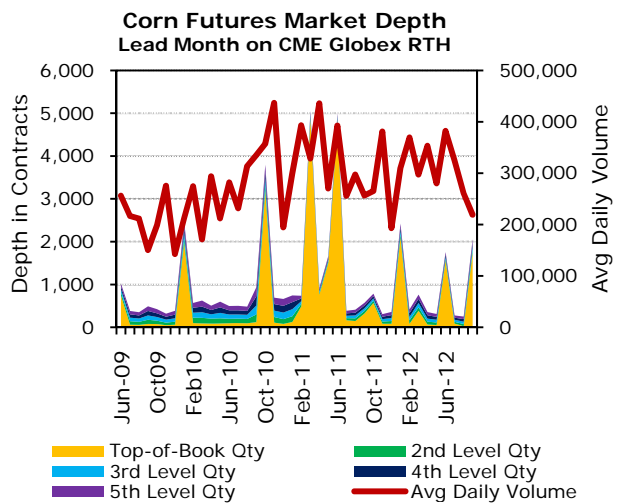
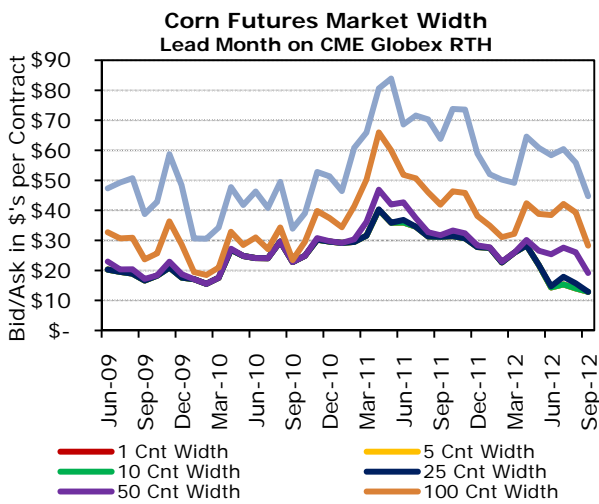
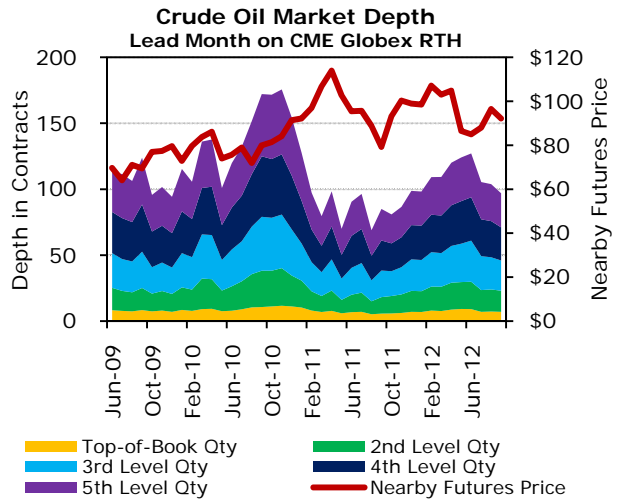
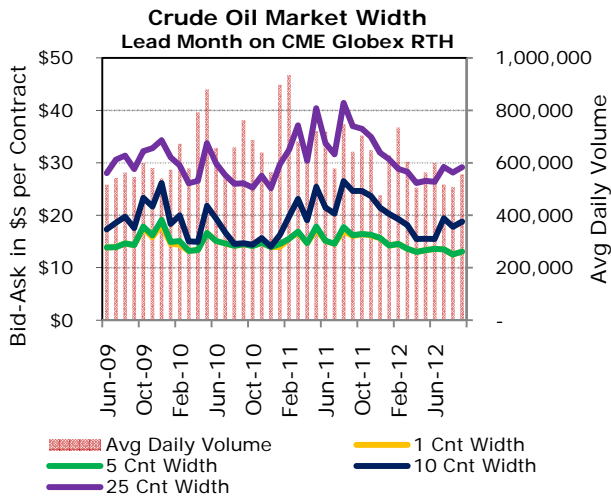
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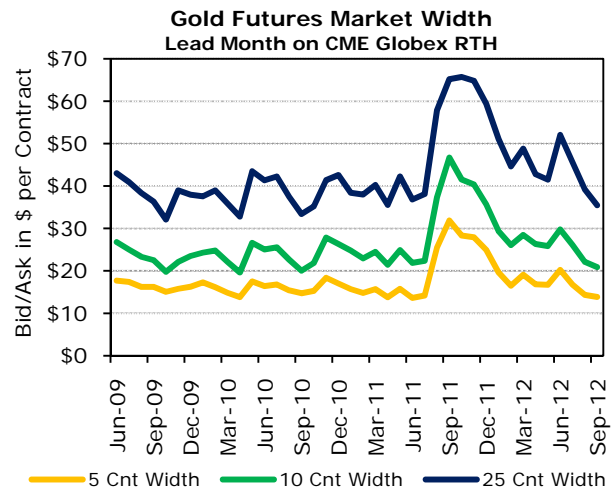
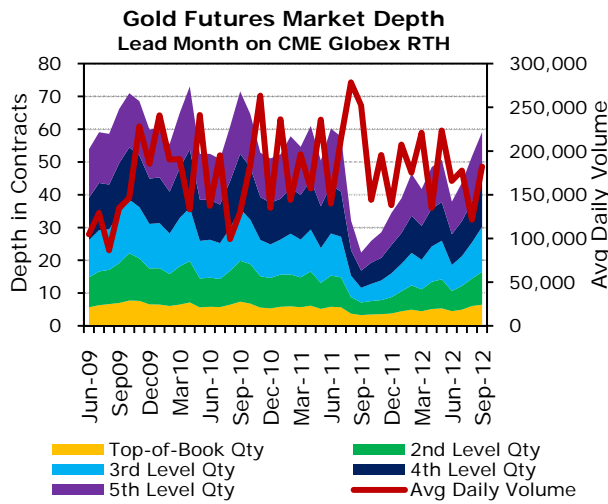
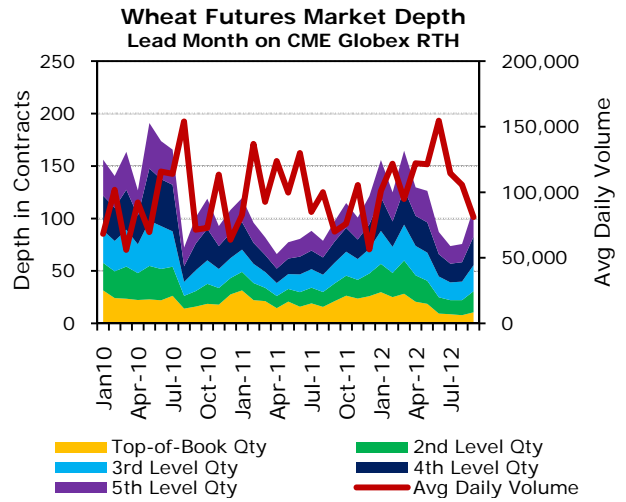
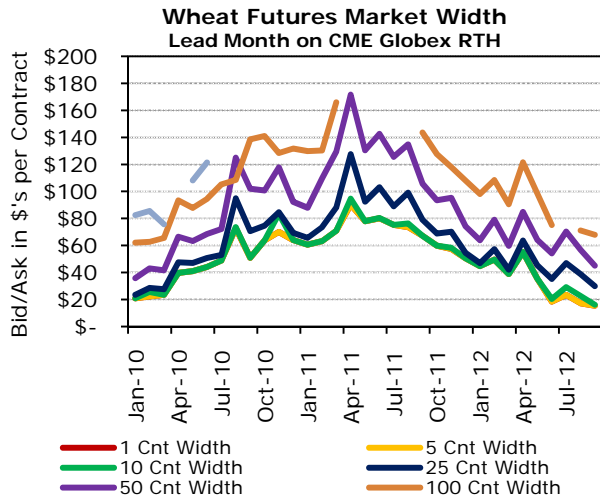
<http://www.cmegroup.com/trading/interest-rates/order-execution/main.html>

These tools provide up to date readings on width and depth of markets as well as other statistics. We currently offer tools that address order execution quality in the context of stock index, currency and interest rate futures.









Market Width in USD
(For Quantity as Indicated)

	Min Tick	Sep-09	Dec-09	Mar-10	Jun-10	Sep-10	Dec-10	Mar-11	Jun-11	Sep-11	Dec-11	Mar-12	Jun-12	Sep-12
Eurodollars (500-lot)	\$12.50	\$13.14	\$14.43	\$12.77	\$12.98	\$12.75	\$13.02	\$12.63	\$12.59	\$12.62	\$12.63	\$12.54	\$12.60	\$12.51
10-Year T-Notes (500-lot)	\$15.625	\$17.38	\$18.95	\$15.76	\$15.75	\$15.69	\$25.32	\$15.64	\$15.64	\$16.80	\$16.92	\$15.64	\$15.64	\$15.63
E-mini S&P 500 (500-lot)	\$12.50	\$14.47	\$16.46	\$12.54	\$17.37	\$12.51	\$13.16	\$14.48	\$13.07	\$25.05	\$19.05	\$12.50	\$15.66	\$12.60
EuroFX (25-lot)	\$12.50	\$16.39	\$15.67	\$13.39	\$15.17	\$13.68	\$14.82	\$13.53	\$15.96	\$21.23	\$15.89	\$13.80	\$13.48	\$13.52
Japanese yen (25-lot)	\$12.50	\$27.14	\$26.56	\$20.08	\$24.14	\$19.56	\$28.40	\$19.84	\$20.13	\$22.70	\$20.65	\$24.27	\$20.56	\$15.42
Crude Oil (25-lot)	\$10.00	\$28.83	\$34.30	\$26.09	\$29.87	\$26.11	\$25.15	\$37.14	\$33.76	\$37.00	\$31.88	\$28.29	\$26.36	\$29.15
Corn (25-lot)	\$12.50	\$16.67	\$17.62	\$17.56	\$24.09	\$22.77	\$29.59	\$31.56	\$36.77	\$31.22	\$27.79	\$25.88	\$14.71	\$12.89
Soybeans (25-lot)	\$12.50	Na	Na	\$29.35	\$50.73	\$49.00	\$62.48	\$78.70	\$72.68	\$56.66	\$49.58	\$38.90	\$31.47	\$28.06
Wheat (25-lot)	\$12.50	Na	Na	\$27.70	\$50.75	\$70.60	\$69.31	\$88.07	\$103.1	\$79.05	\$54.51	\$42.05	\$35.23	\$29.90
Gold (25-lot)	\$10.00	\$36.33	\$37.96	\$35.87	\$41.33	\$33.37	\$42.60	\$40.24	\$36.84	\$65.19	\$59.39	\$48.82	\$52.07	\$35.46

Market Depth in Contracts
(Top-of-the Book)

	Sep-09	Dec-09	Mar-10	Jun-10	Sep-10	Dec-10	Mar-11	Jun-11	Sep-11	Dec-11	Mar-12	Jun-12	Sep-12
Eurodollars	1,068	1,389	6,921	2,655	5,779	1,295	2,635	2,900	2,100	1,425	14,362	14,629	48,510
10-Year T-Notes	481	506	1,084	690	895	360	790	965	531	508	962	789	1,052
E-mini S&P 500	503	579	845	410	659	896	566	614	262	369	712	456	607
EuroFX	23.3	27.2	35.7	24.5	36.7	25.2	35.4	23.9	18.2	26.2	36.8	33.0	40.4
Japanese yen	15.1	16.6	21.5	18.3	22.3	16.5	23.1	20.7	18.2	18.9	16.3	19.2	25.8
Crude Oil	8.4	7.1	9.2	7.9	10.8	11.3	7.0	6.9	5.7	7.1	7.8	9.2	7.2
Corn	78	62	92	96	120	78	4,872	4,836	323	82	386	1,556	1,733
Soybeans	Na	Na	27	22	34	28	35	37	44	46	52	11	12
Wheat	Na	Na	24	22	16	28	21	16	21	26	28	9	11
Gold	7.0	6.6	6.5	5.9	7.4	5.4	5.7	5.8	3.3	3.8	4.5	4.6	6.5

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