

# Research & Product Development

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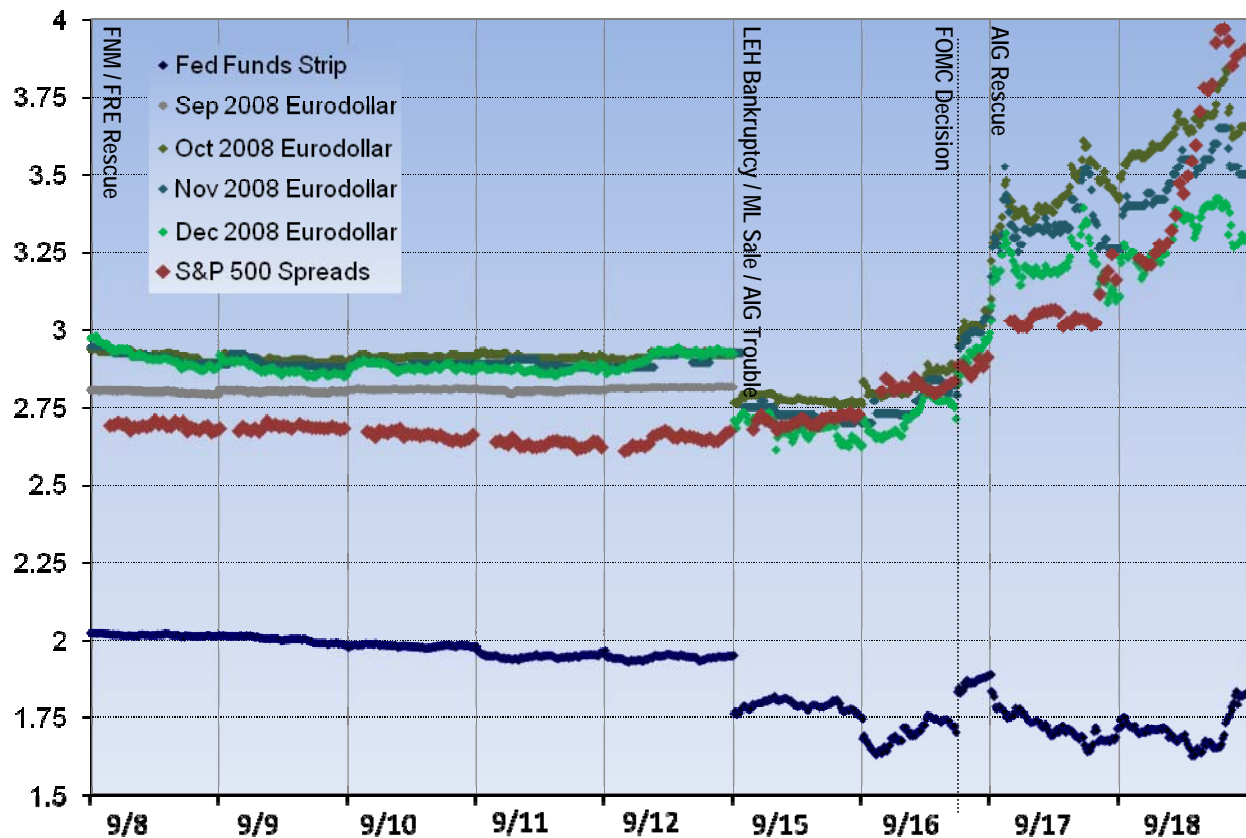
## CME Group Equity Index Futures Quarterly Roll Summary\*

The Sep/Dec quarterly rollover occurred in the midst of the most tumultuous market condition of recent history. Pricing the calendar spreads became extremely difficult in the throes of the credit crisis. As such, we decide to depart from the usual order of presentation and start by describing the interest rate landscape during our two-week coverage period.

To display the quantities in proper context, Exhibit 1 shows the intra-day movement of the implied financing rate for S&P 500 calendar spreads during the two-week period, along with other key interest rate benchmarks. Following the rescue of the Government Sponsored Enterprises, the market remained relatively calm, even though the LIBOR - Fed Fund spread was elevated by historical standard. The chaos ensued in the

### Exhibit 1

Implied Financing Rate of S&P 500 Calendar Spreads vs. various Eurodollar Futures and Fed Fund Futures Strip. Note that in the second week of the period, the Eurodollar curve was inverted, the extent of which became very pronounced towards to end of the period.



**Exhibit 2**

VWAP and average implied financing rates for calendar spreads of domestic index futures. Note that the averages reflect the trades consummated during the daylight trading hours of 8:30 am – 3:15 pm Chicago Time. The implied rates for S&P 500 reflect those of the E-mini S&P 500 futures calendar spreads.

	S&P 500			NASDAQ-100		DJIA		S&P MidCap 400		S&P SmallCap 600		LIBOR
	VWAP Regular	VWAP E-mini	Implied Rates	VWAP E-mini	Implied Rates	VWAP E-mini	Implied Rates	VWAP E-mini	Implied Rates	VWAP E-mini	Implied Rates	
9/8	1.44	1.43	2.688	6.56	1.995	-6.03	2.639	1.62	2.346	0.04	1.378	2.845
9/9	1.36	1.33	2.683	6.33	1.940	-8.64	2.566	1.61	2.405	n/a	n/a	2.837
9/10	1.18	1.15	2.661	6.50	1.992	-7.10	2.632	1.56	2.372	0.20	1.581	2.841
9/11	0.99	0.99	2.631	6.42	1.975	-7.88	2.624	1.42	2.308	0.09	1.472	2.840
9/12	1.15	1.16	2.644	6.21	1.913	-7.34	2.609	1.35	2.230	0.18	1.561	2.843
9/15	1.20	1.22	2.703	5.68	1.817	-10.99	2.490	0.35	1.760	0.15	1.541	2.709
9/16	1.38	1.45	2.830	6.31	1.996	-9.22	2.592	0.19	1.733	0.35	1.742	2.726
9/17	1.98	2.08	3.060	6.40	2.052	-2.49	2.865	0.58	1.936	-0.03	1.410	3.355
9/18	3.33	3.53	3.573	6.43	2.091	4.93	3.149	0.09	1.795	-0.22	1.195	3.565

following week, after the Lehman Brothers bankruptcy filing, the sale of Merrill Lynch, the apparent trouble and the subsequent rescue of AIG, as well as the FOMC decision. Not surprisingly, the spread between Fed Funds and LIBOR widened dramatically, briefly breaching the level of 200 basis points, as well as becoming highly volatile.

It was apparent that the LIBOR curve was inverted in the second week, the extent of which became very pronounced in the last two days. With the volatility of the interest rates, fair value estimates of the spreads established at the beginning of the trading sessions became obsolete in the middle of the same session.

In light of the volatility, we have departed from our usual practice of reporting “fair values” of the spreads for each day. Instead, we have published the volume weighted average prices (VWAP) of the spreads, as well as the volume weighted averages of the implied financing rates embedded in the spreads. For comparison purposes, our usual LIBOR estimate as well. Please note that the LIBOR figures were estimated early in the regular trading hours. As such, the figures are not synchronized with the average implied rates from the calendar spreads.

While the S&P calendar spread richened dramatically – along with the Eurodollar/Fed Funds spread, not all index futures spreads exhibited the same richening. The S&P MidCap 400 and S&P SmallCap 600 Indexes became cheaper as the roll progressed.<sup>1</sup> Generally speaking, the richness or cheapness progressively became more extreme. For those contracts that tend to trade cheap relative to LIBOR, the roll became much cheaper versus the benchmark as the crisis deepened. For those that tend to trade flat or rich to LIBOR, the roll became progressively richer. As we would document later, the same applied to the MSCI international indexes as well.

Turning our attention to the MSCI indexes, a couple of comments are in order. Insofar as the MSCI EAFE index futures were concerned:

- The roll was richly priced from the beginning. It became progressively richer as the credit crisis tightened its grip on the overall market.
- The roll started earlier than in past quarters. Also, the roll consummated via block trades shrank in terms of both total volume as well as the size of each block trade.
- The open interest in the contract gained marginally from where it emerged after the last roll, to 18,809 contracts from 17,485.

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<sup>1</sup> The Russell 2000 index ceased trading at CME Group following the expiration of the September 2008 contract. As such, there was no rollover market at CME Group.

**Exhibit 3**

VWAP and average implied financing rates for calendar spreads of MSCI international index futures.

	MSCI EAFE			MSCI Emerging Markets		
	VWAP	Implied Rates	Volume	VWAP	Implied Rates	Volume
9/8	3.52	3.23	240	4.30	2.97	274
9/9	4.78	3.58	310	4.30	3.13	945
9/10	4.70	3.55	431	4.89	3.37	617
9/11	4.48	3.54	781	4.95	3.49	638
9/12	4.46	3.46	2,531	5.36	3.58	1,214
9/15	5.55	3.88	5,529	3.14	2.70	3,550
9/16	8.09	4.57	4,216	1.02	1.74	2,943
9/17	9.69	5.06	1,175	-3.71	-0.58	1,710
9/18	10.60	5.21	976	-4.04	-0.79	186

Unlike MSCI EAFE index futures, MSCI Emerging Markets index futures traded progressively cheaper down the stretch, with plenty of intra-day fluctuations. However, as has been noted in the MSCI EAFE, the roll appeared to start earlier this quarter as well. The open interest emerged from the roll at 12,022 contracts, almost doubling the count of 6,622 following the conclusion of the last roll.

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