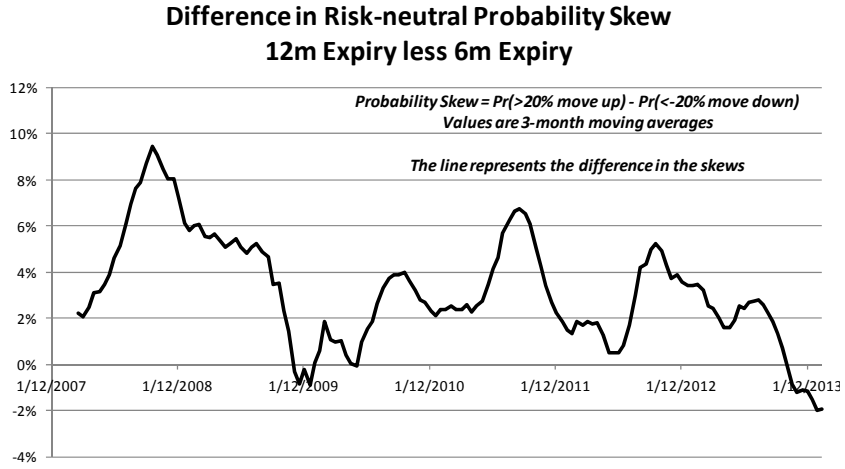
Minneapolis Options Report – February 22nd

We apologize for missing the February 8th report. ue to the timing of stress testing work, we were unable to produce the report two weeks ago.

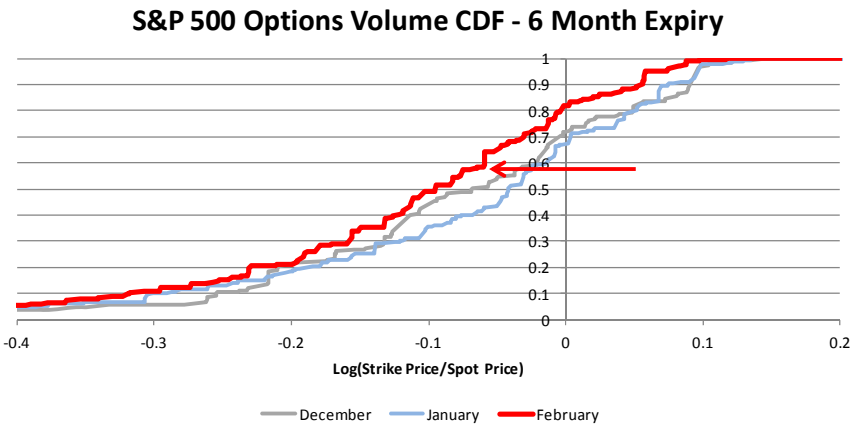
Commodity Markets

- The standard deviations of the RNPDs derived from options on the S&P 500 index rose last week. We point out that they are relatively low and near 2007 levels. The risk-neutral probabilities of large changes remain in a downward trend.

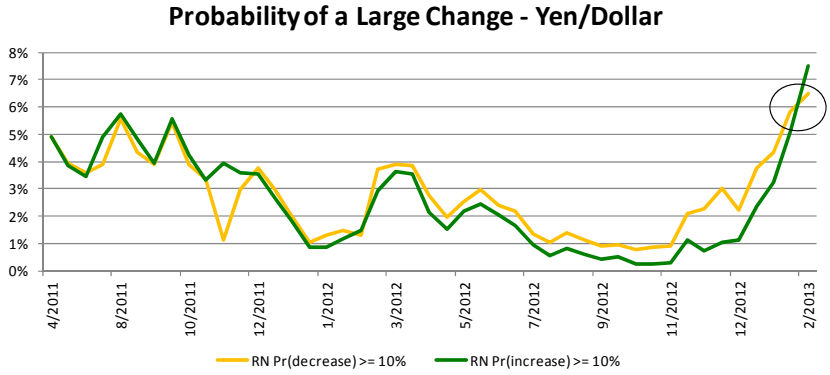
- Probability skew is more negative for S&P 500 options with 12 months to expiry than with 6 months to expiry. Recall that probability skews derived from options on the S&P 500 index tend to be negative. This relationship remains at recent extreme levels (s*ee chart below and S&P 500 reports*)



- In a search for signs of concern related to federal budget issues and sequestration, we examined trading patterns for shorter dated S&P 500 options contracts (6-month) that we follow. We noted that trading shifted to lower strike prices in February. We measured 82% of the volume struck below the spot price in the two measurement weeks of February relative to about 70% in January and February.



- Trading activity continues to be strong in exchange rate markets. Risk-neutral tail probabilities have begun to increase in the Dollar/Pound and Dollar/Euro markets. These same probabilities continue their steep ascent in the Yen/Dollar market. Last week the probability skew turned positive. (*see exchange rate reports*).



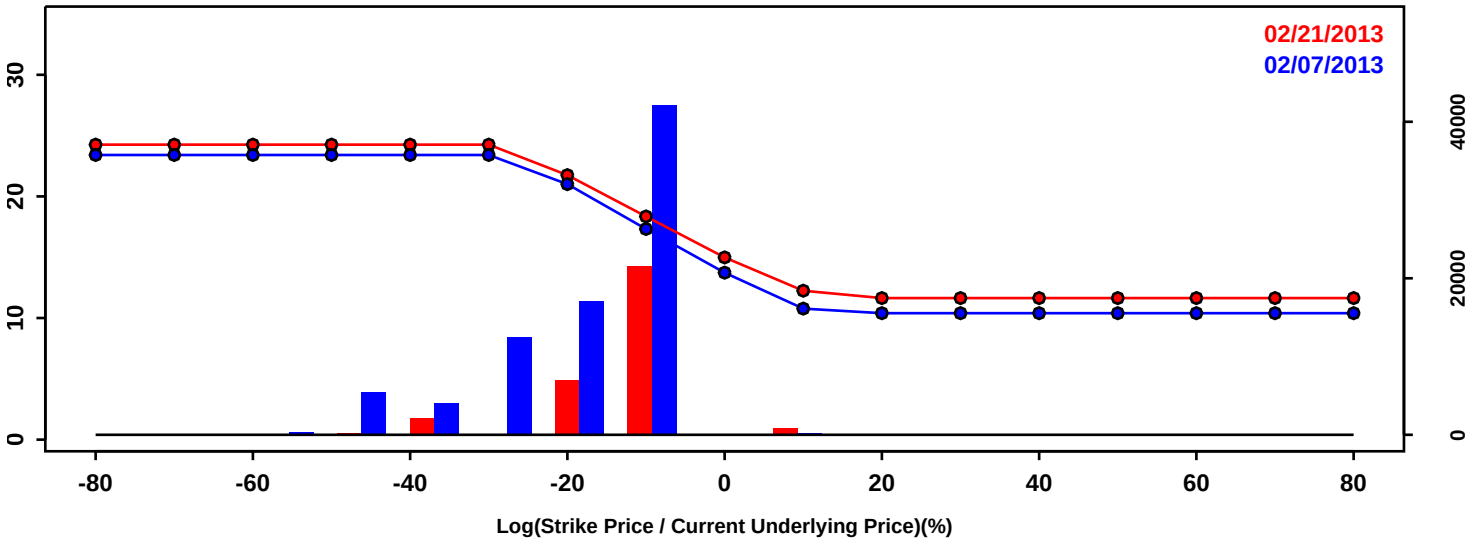
- RNPD standard deviations were stable at low levels in both oil markets that we follow. Trading is down significantly in February relative to January. We have begun to see probability skews favoring downside price moves. (*See WTI and Brent reports*)

- Trading in options related to precious metals and grains was extremely light last week.

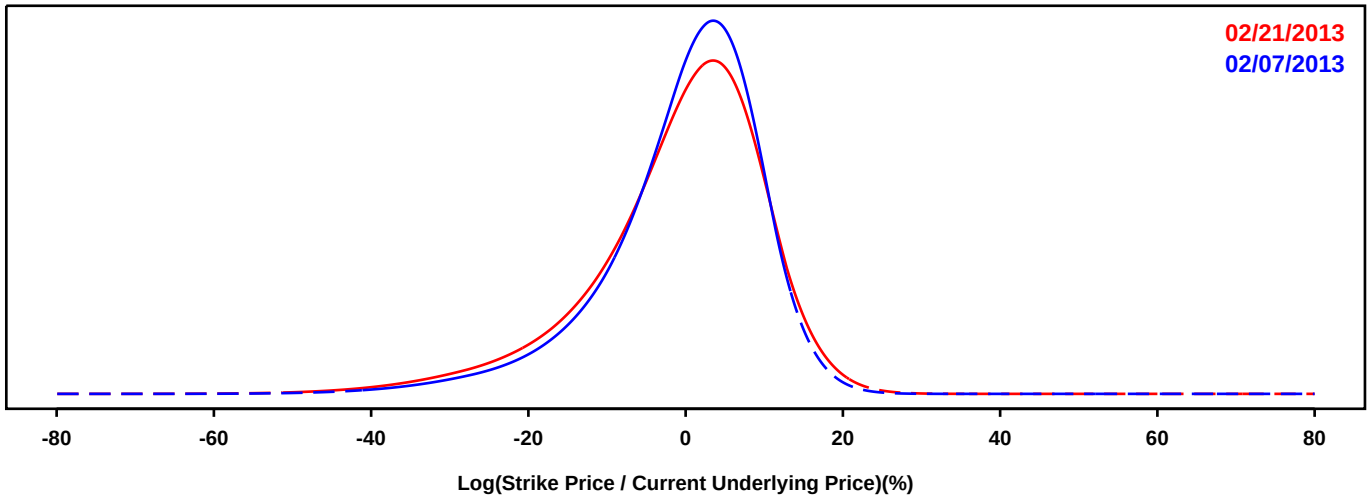
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- S&P 500

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 6 months.

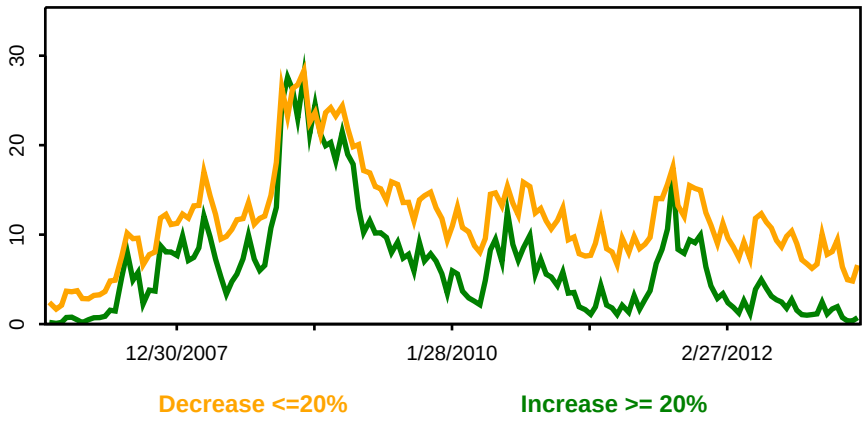
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



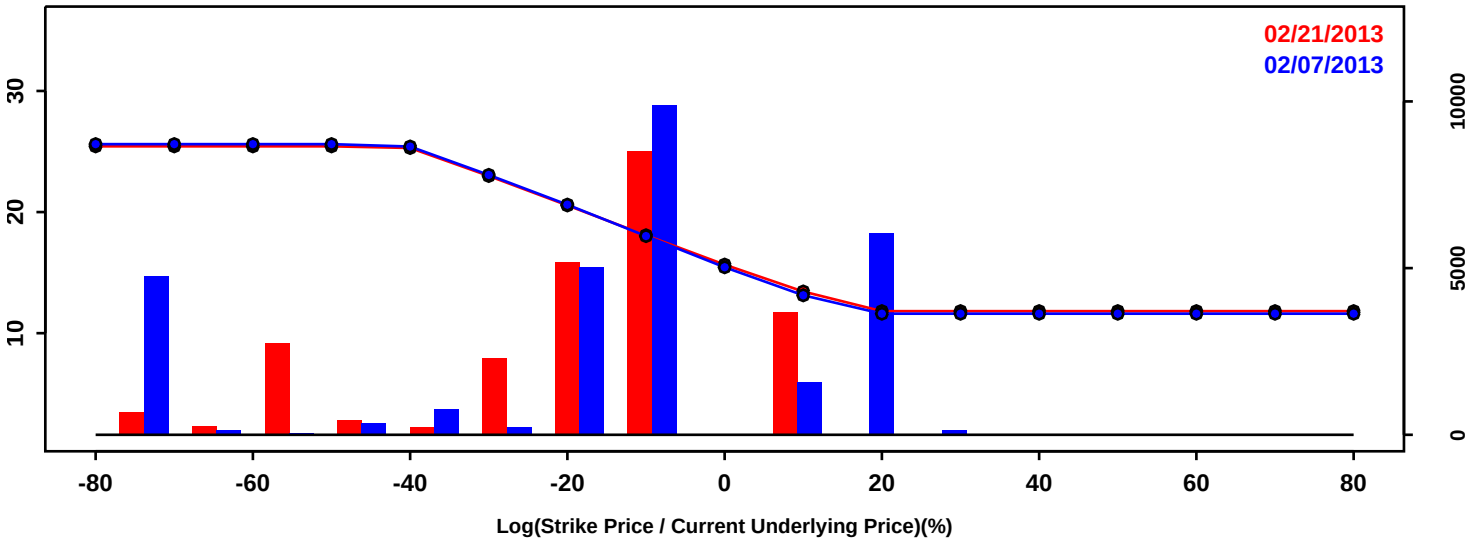
Statistics of the Log Return Distributions

	02/07/2013	02/21/2013	Change
10th Pct	-13.35%	-15.76%	-2.42%
50th Pct	1.34%	0.83%	-0.51%
90th Pct	10.51%	11.11%	0.60%
Mean	-0.32%	-0.99%	-0.67%
Std Dev	10.11%	11.24%	1.13%
Skew	-1.12	-1.04	0.08
Kurtosis	2.20	1.78	-0.41

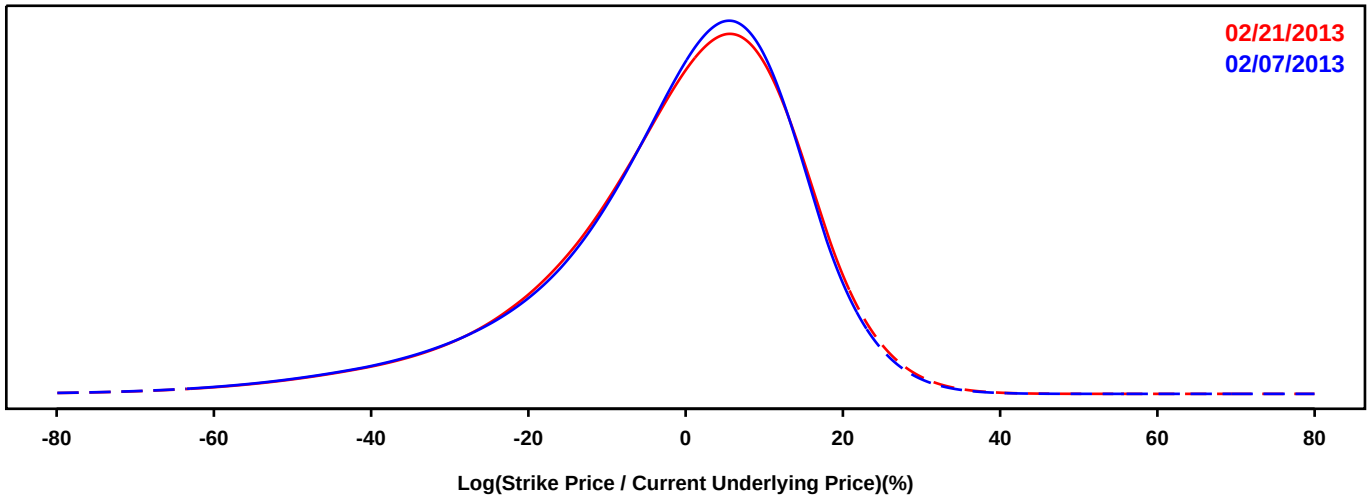
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- S&P 500

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 12 months.

Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

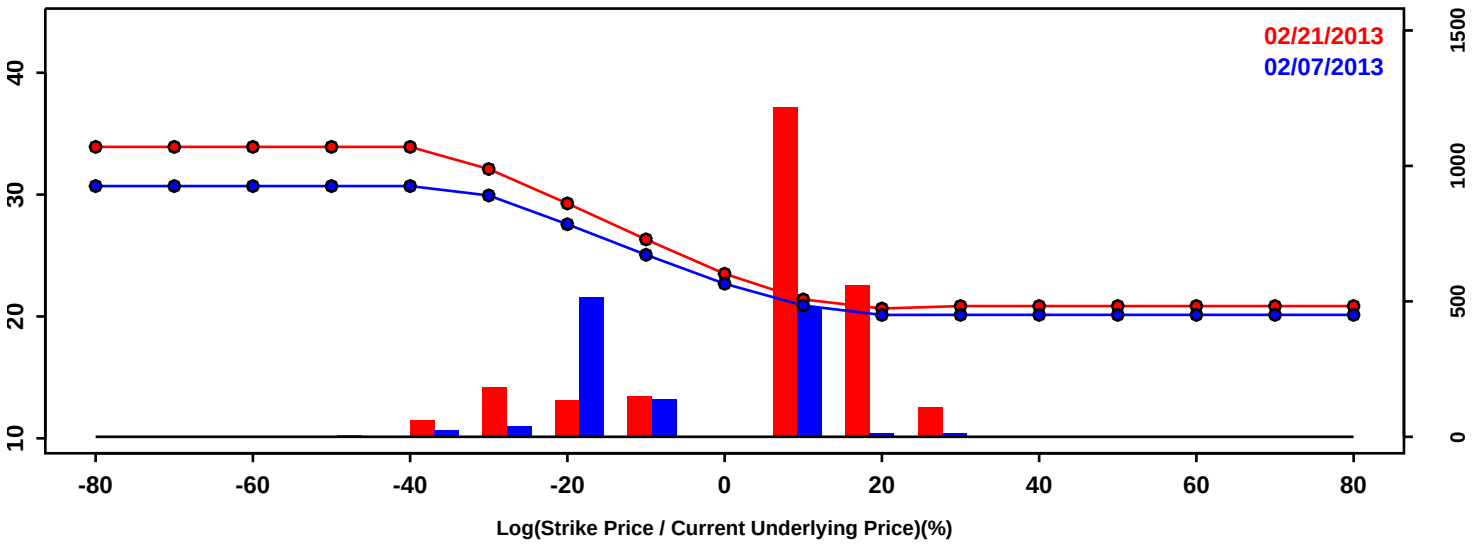
Statistics of the Log Return Distributions

	02/07/2013	02/21/2013	Change
10th Pct	-23.35%	-23.16%	0.19%
50th Pct	1.43%	1.41%	-0.02%
90th Pct	15.91%	16.40%	0.49%
Mean	-1.51%	-1.38%	0.13%
Std Dev	16.49%	16.54%	0.05%
Skew	-1.13	-1.06	0.06
Kurtosis	1.99	1.83	-0.17

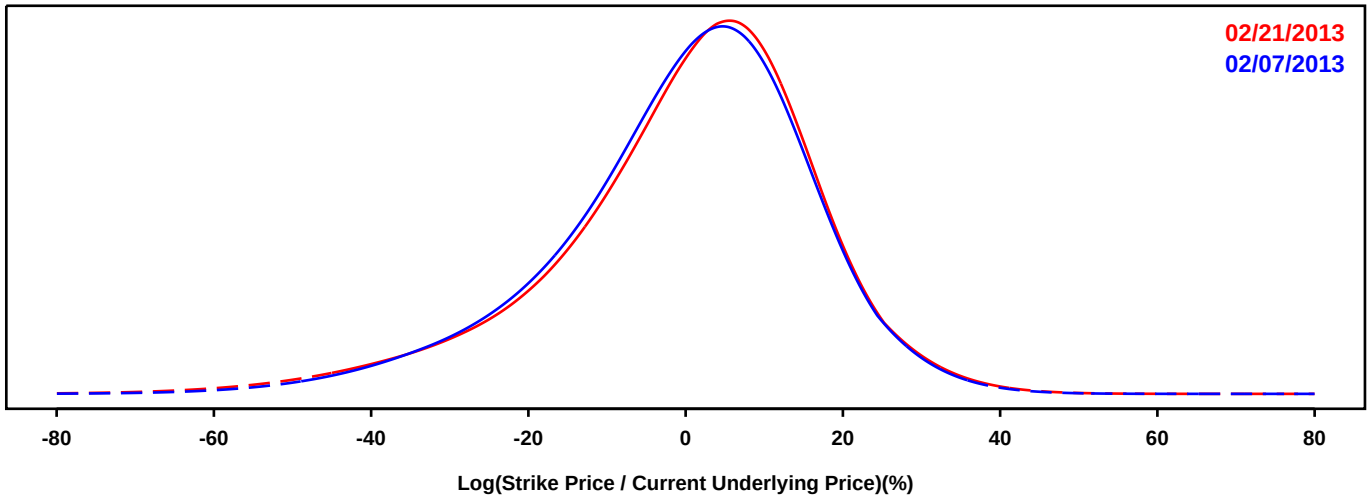
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CRUDE OIL FUTURES (WTI)

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 6 months.

Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

Decrease <=20% Increase >= 20%

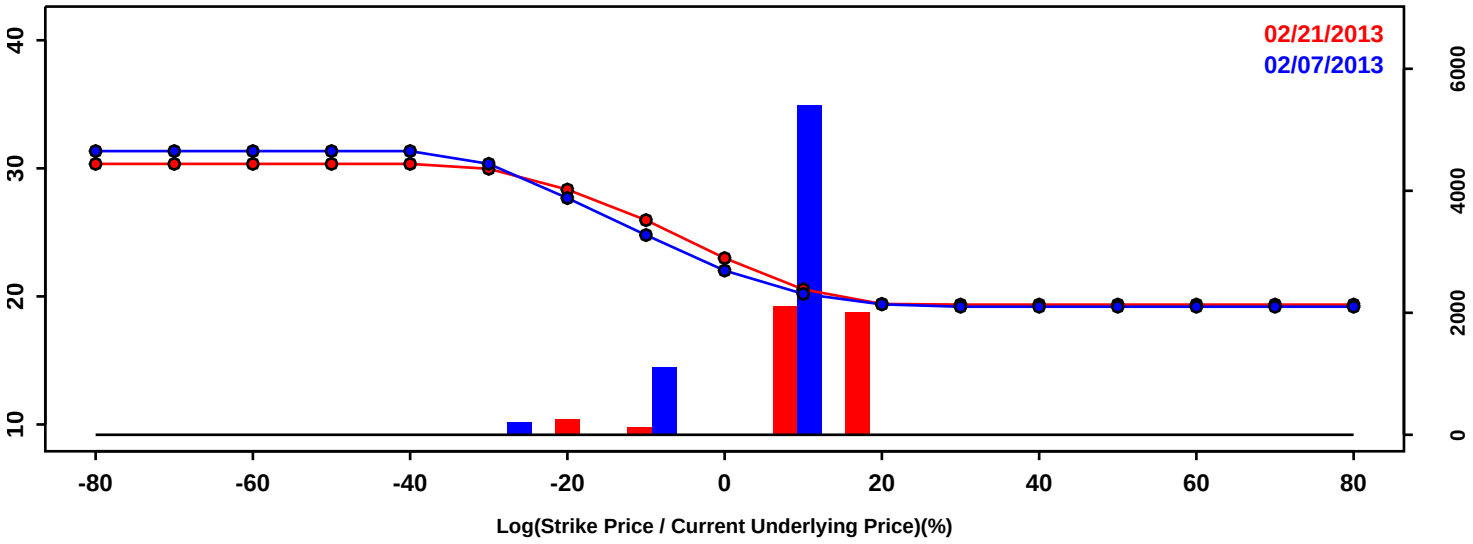
Statistics of the Log Return Distributions

	02/07/2013	02/21/2013	Change
10th Pct	-22.13%	-22.56%	-0.43%
50th Pct	1.56%	2.12%	0.56%
90th Pct	18.14%	18.49%	0.35%
Mean	-0.39%	-0.18%	0.21%
Std Dev	16.34%	16.96%	0.62%
Skew	-0.67	-0.81	-0.14
Kurtosis	0.91	1.30	0.39

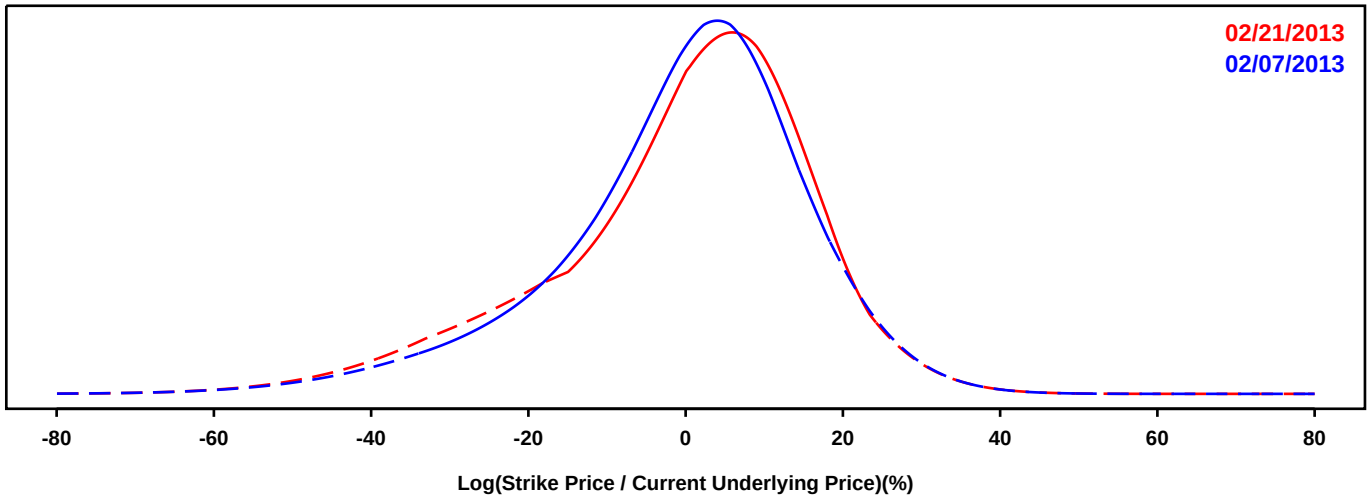
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CRUDE OIL FUTURES (Brent)

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 6 months.

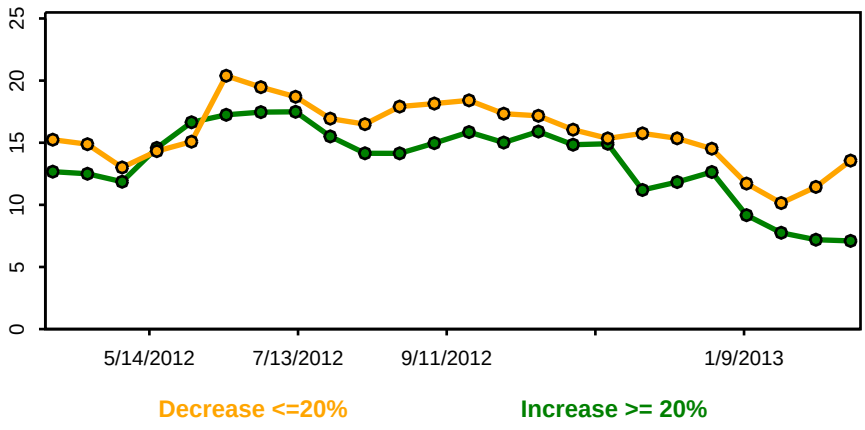
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



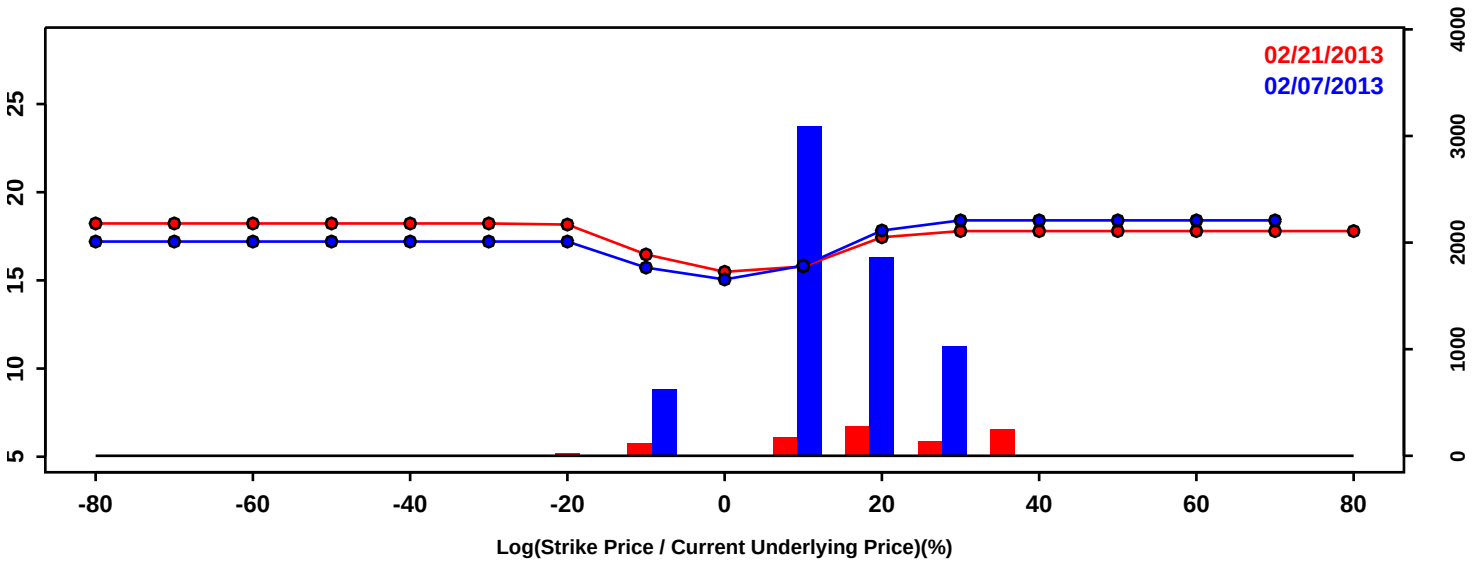
Statistics of the Log Return Distributions

	02/07/2013	02/21/2013	Change
10th Pct	-21.90%	-24.63%	-2.73%
50th Pct	1.53%	2.14%	0.60%
90th Pct	17.65%	17.78%	0.13%
Mean	-0.50%	-0.66%	-0.16%
Std Dev	16.10%	16.88%	0.78%
Skew	-0.76	-0.79	-0.03
Kurtosis	1.17	0.82	-0.35

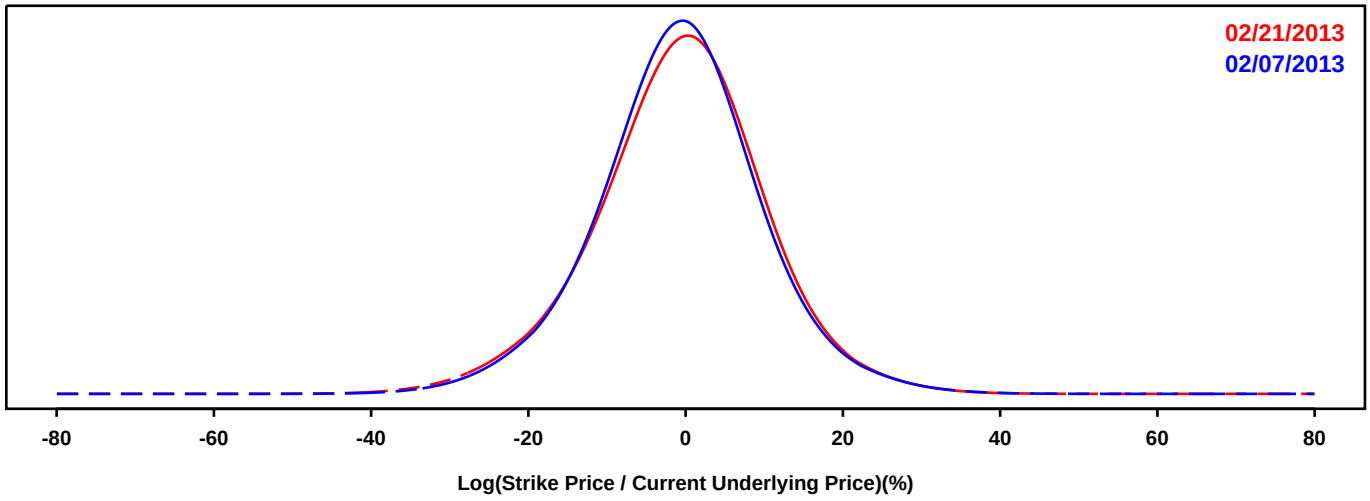
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- GOLD FUTURES

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 6 months.

Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

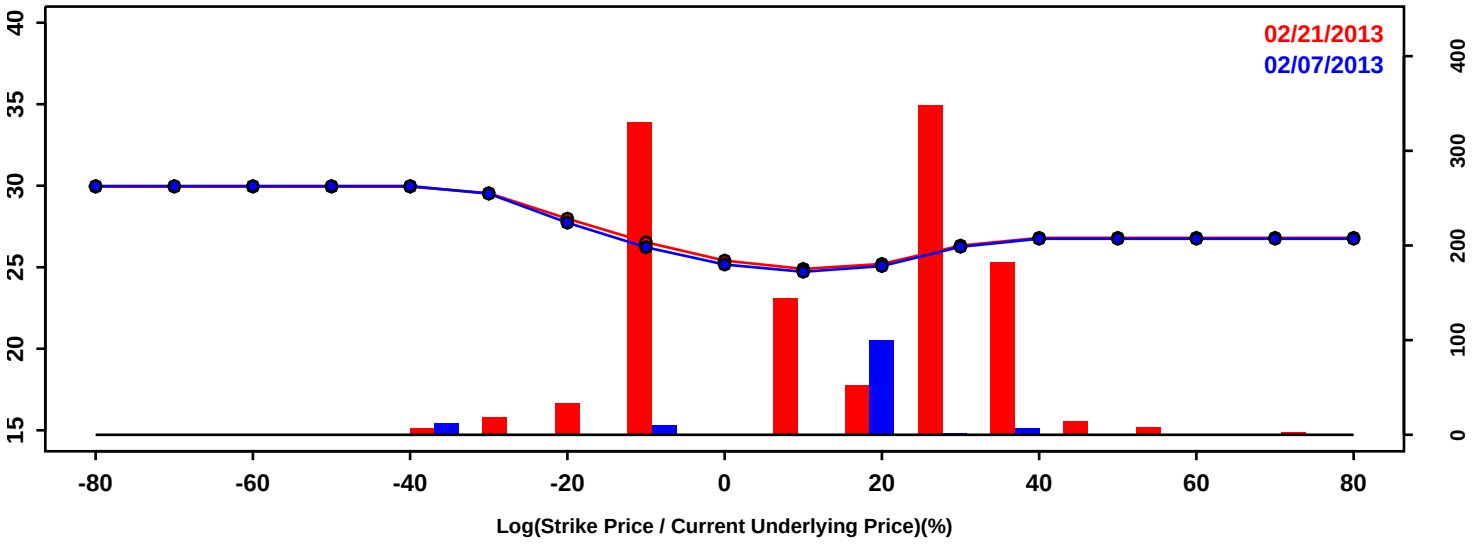
Statistics of the Log Return Distributions

	02/07/2013	02/21/2013	Change
10th Pct	-13.96%	-14.55%	-0.59%
50th Pct	-0.68%	-0.33%	0.35%
90th Pct	12.10%	12.52%	0.43%
Mean	-0.78%	-0.67%	0.11%
Std Dev	10.60%	10.95%	0.36%
Skew	-0.02	-0.15	-0.13
Kurtosis	0.69	0.62	-0.07

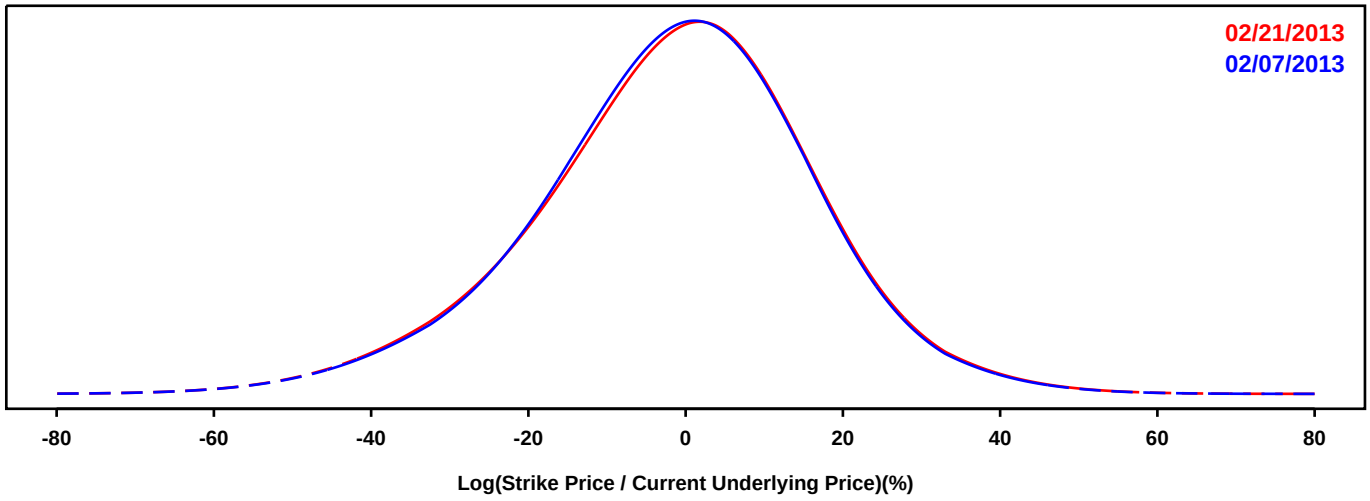
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- SILVER FUTURES

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 6 months.

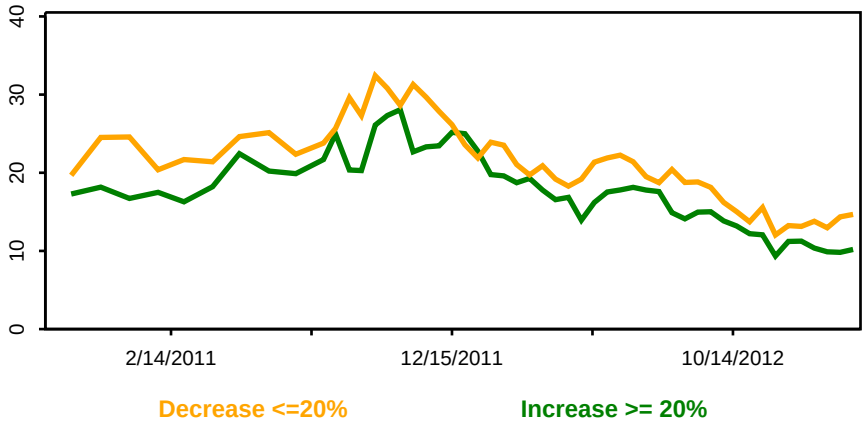
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



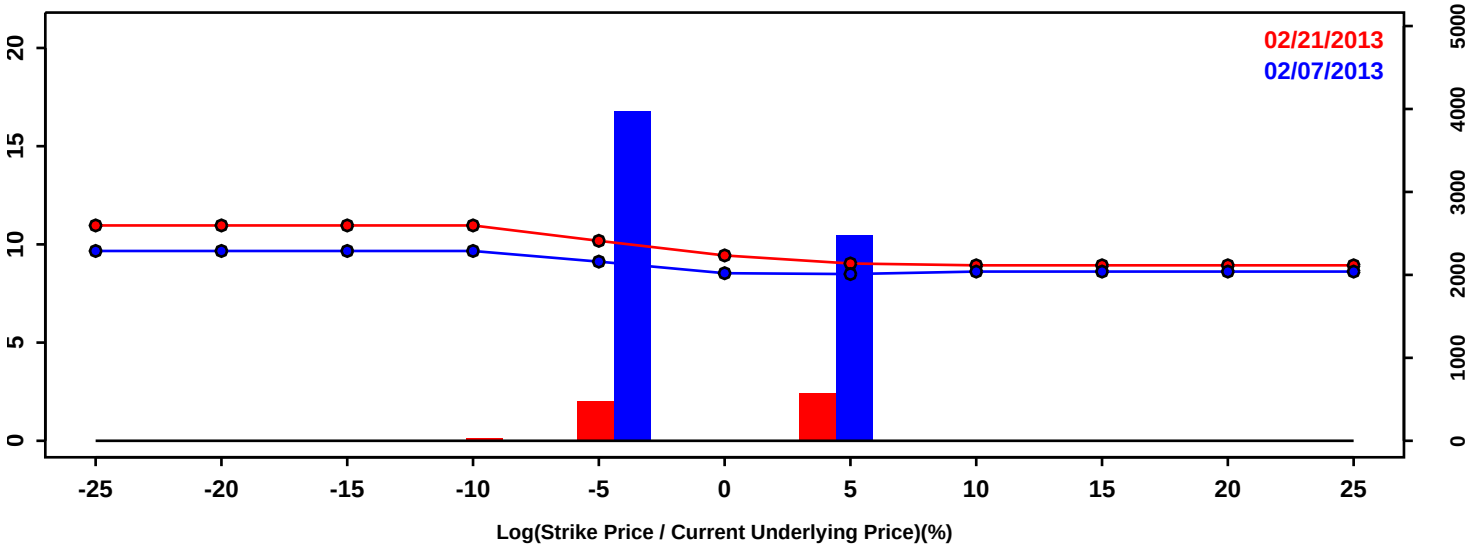
Statistics of the Log Return Distributions

	02/07/2013	02/21/2013	Change
10th Pct	-24.57%	-24.96%	-0.40%
50th Pct	-0.64%	-0.40%	0.24%
90th Pct	19.84%	20.18%	0.34%
Mean	-1.56%	-1.44%	0.13%
Std Dev	17.86%	18.08%	0.22%
Skew	-0.27	-0.28	-0.01
Kurtosis	0.51	0.48	-0.04

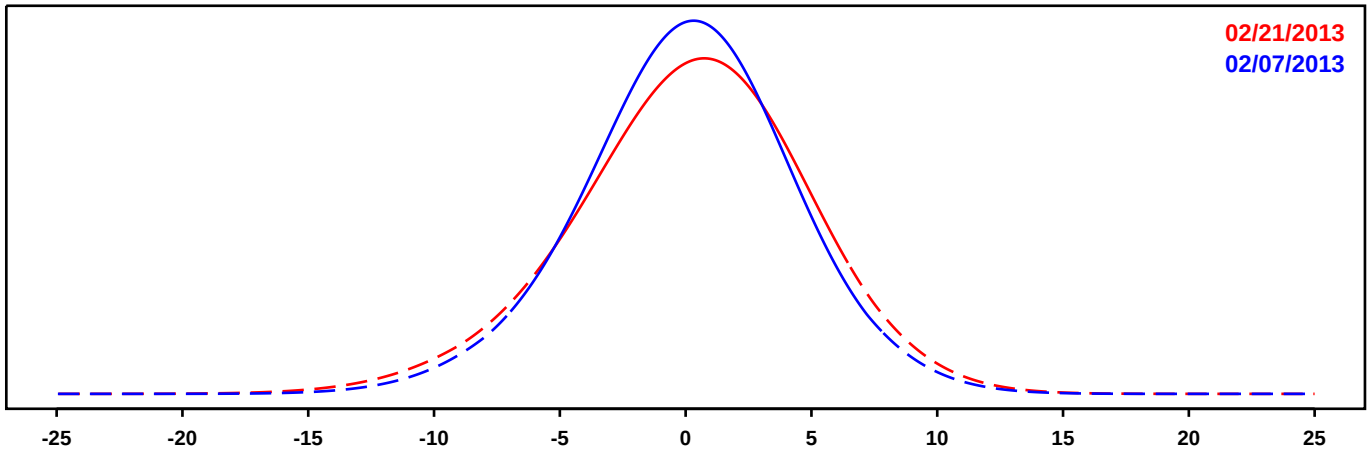
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- DOLLAR-EURO EXCHANGE RATE FUTURES

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

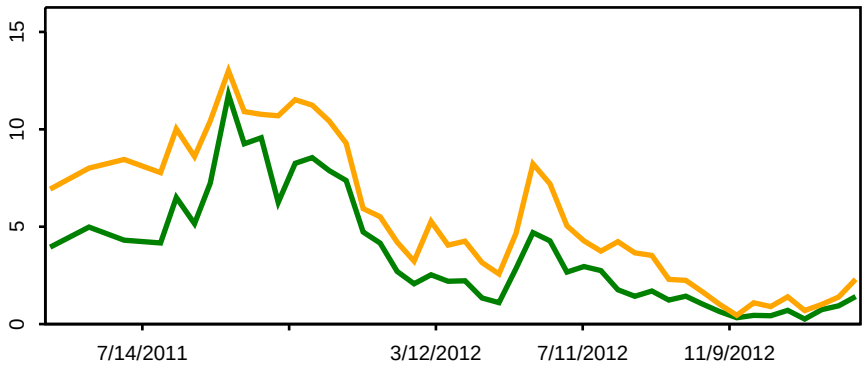
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



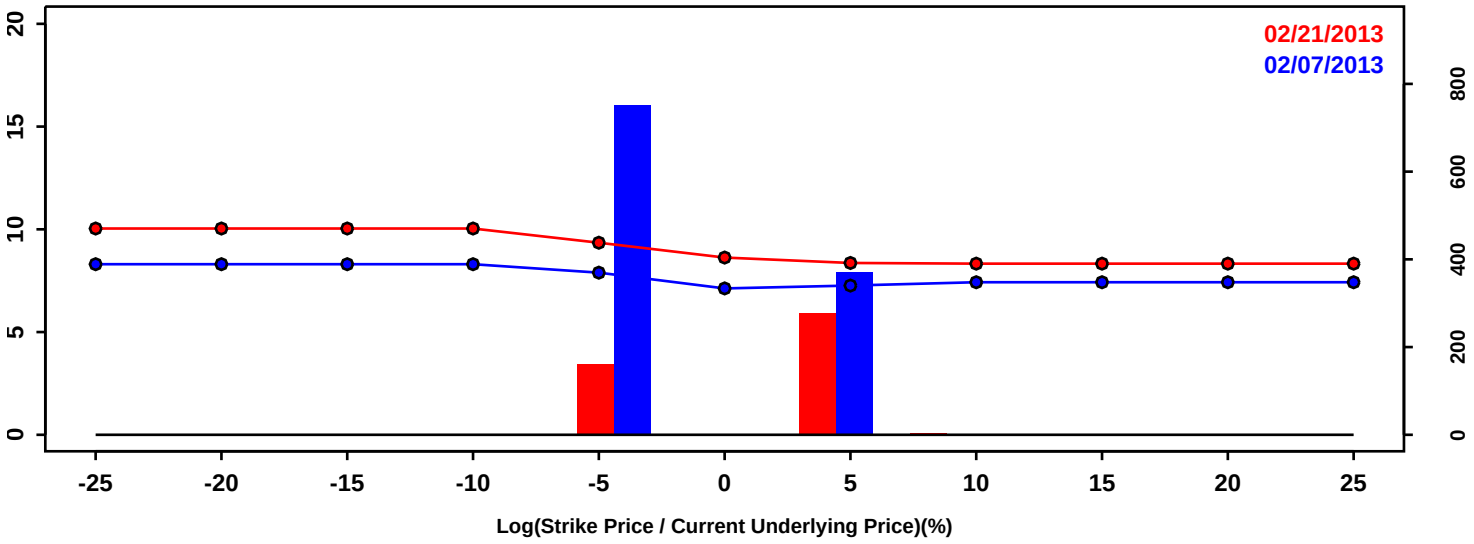
Statistics of the Log Return Distributions

	02/07/2013	02/21/2013	Change
10th Pct	-5.34%	-5.94%	-0.60%
50th Pct	0.15%	0.41%	0.26%
90th Pct	5.33%	6.00%	0.67%
Mean	0.10%	0.22%	0.11%
Std Dev	4.26%	4.70%	0.45%
Skew	-0.14	-0.25	-0.11
Kurtosis	0.30	0.28	-0.01

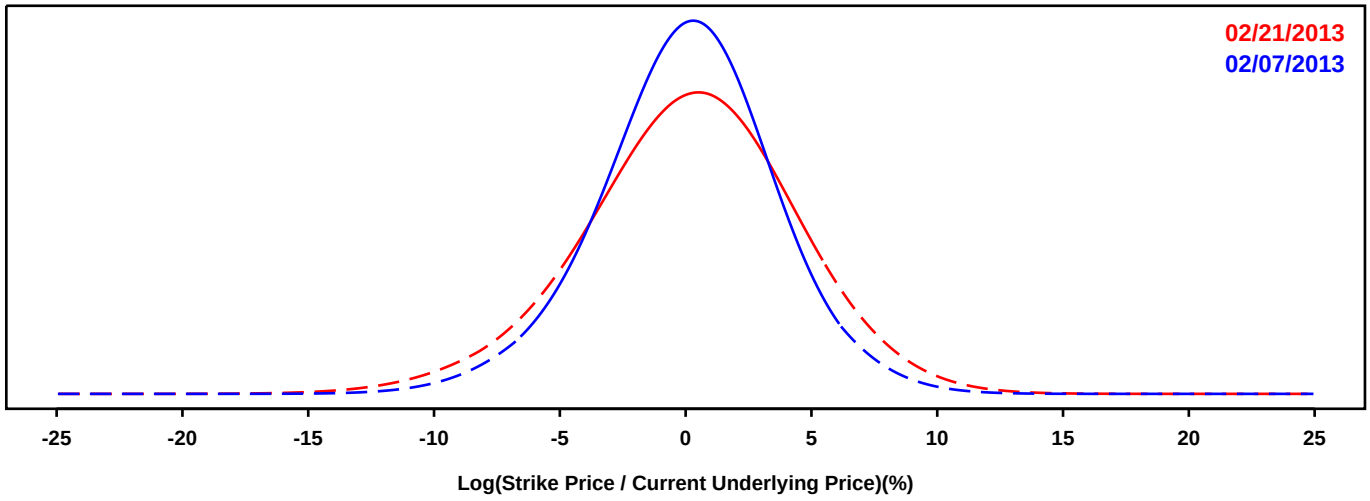
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- DOLLAR-POUND EXCHANGE RATE FUTURES

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

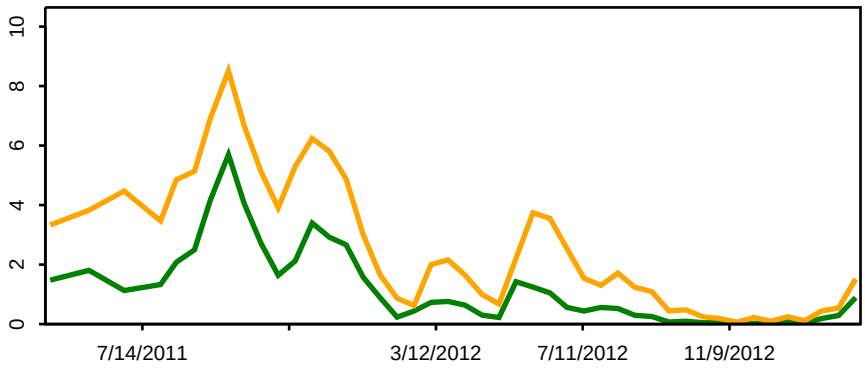
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



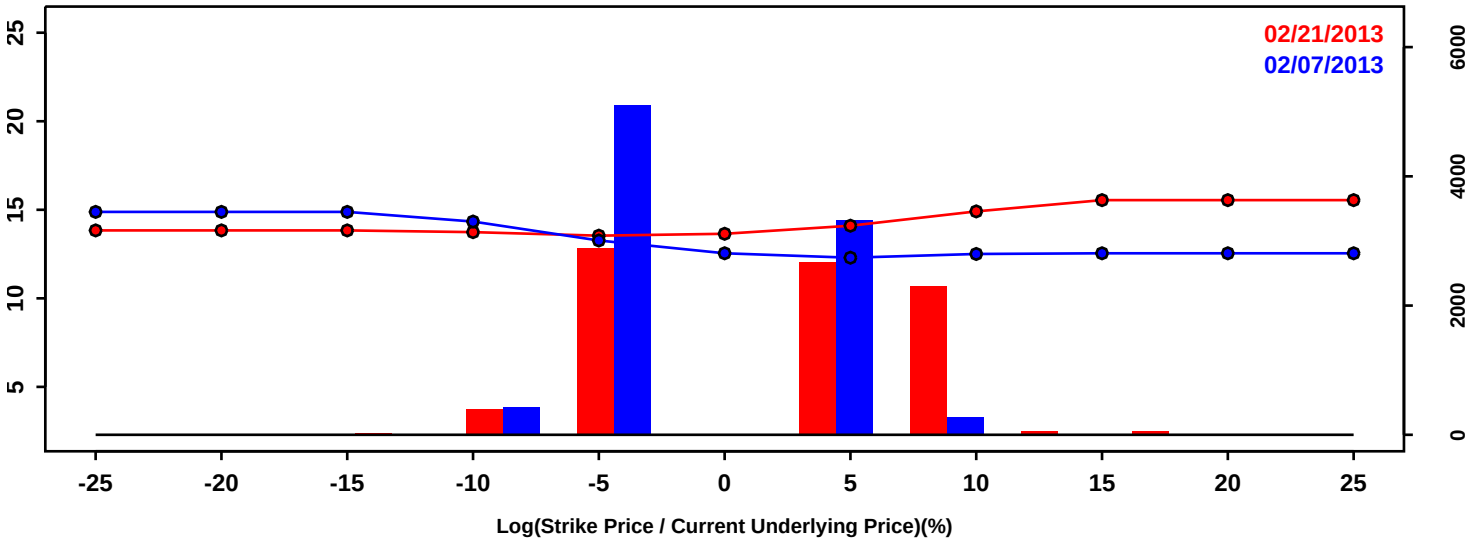
Statistics of the Log Return Distributions

	02/07/2013	02/21/2013	Change
10th Pct	-4.48%	-5.41%	-0.94%
50th Pct	0.15%	0.31%	0.16%
90th Pct	4.44%	5.50%	1.05%
Mean	0.08%	0.19%	0.11%
Std Dev	3.55%	4.30%	0.75%
Skew	-0.15	-0.21	-0.06
Kurtosis	0.43	0.31	-0.12

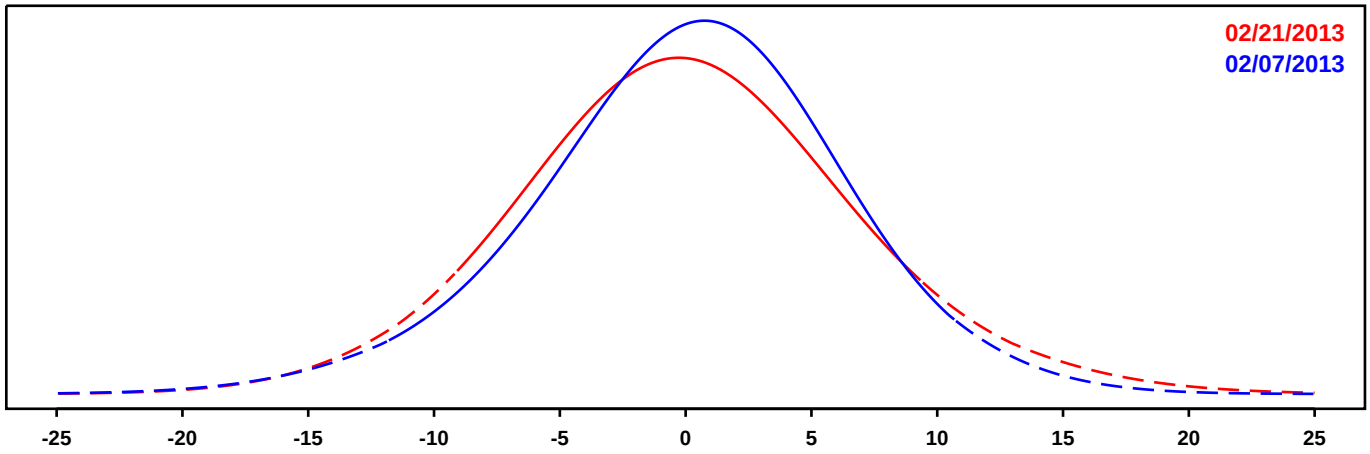
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- YEN-DOLLAR EXCHANGE RATE FUTURES

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

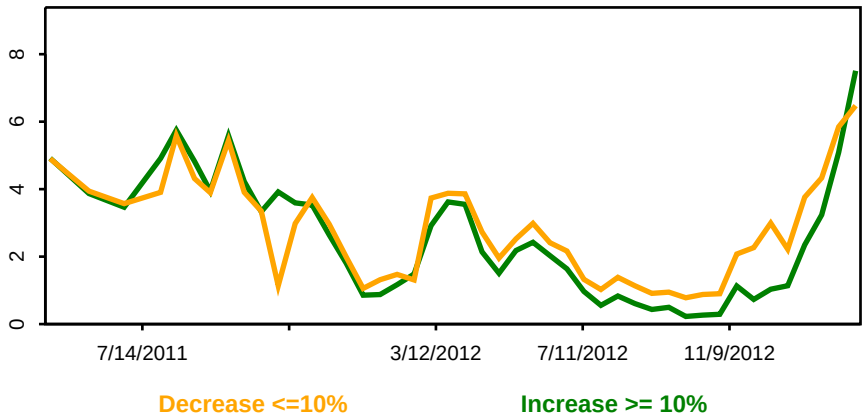
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



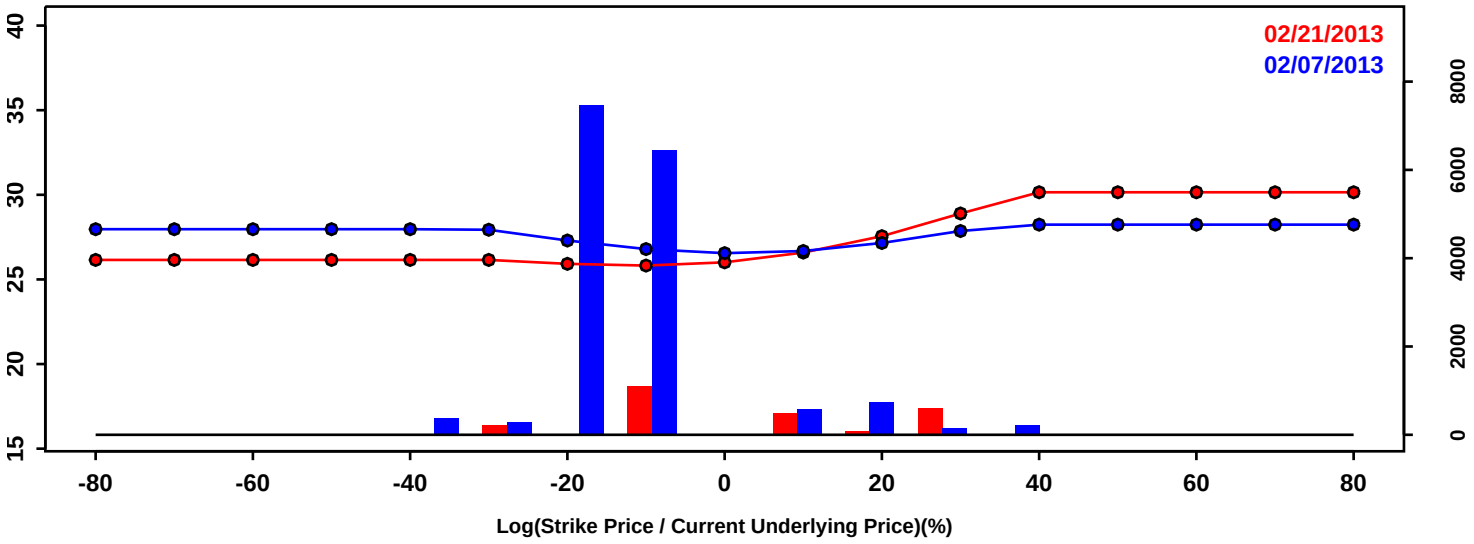
Statistics of the Log Return Distributions

	02/07/2013	02/21/2013	Change
10th Pct	-7.80%	-8.38%	-0.59%
50th Pct	0.38%	0.00%	-0.38%
90th Pct	7.82%	8.79%	0.96%
Mean	0.18%	0.15%	-0.03%
Std Dev	6.25%	6.82%	0.57%
Skew	-0.22	0.14	0.35
Kurtosis	0.41	0.31	-0.11

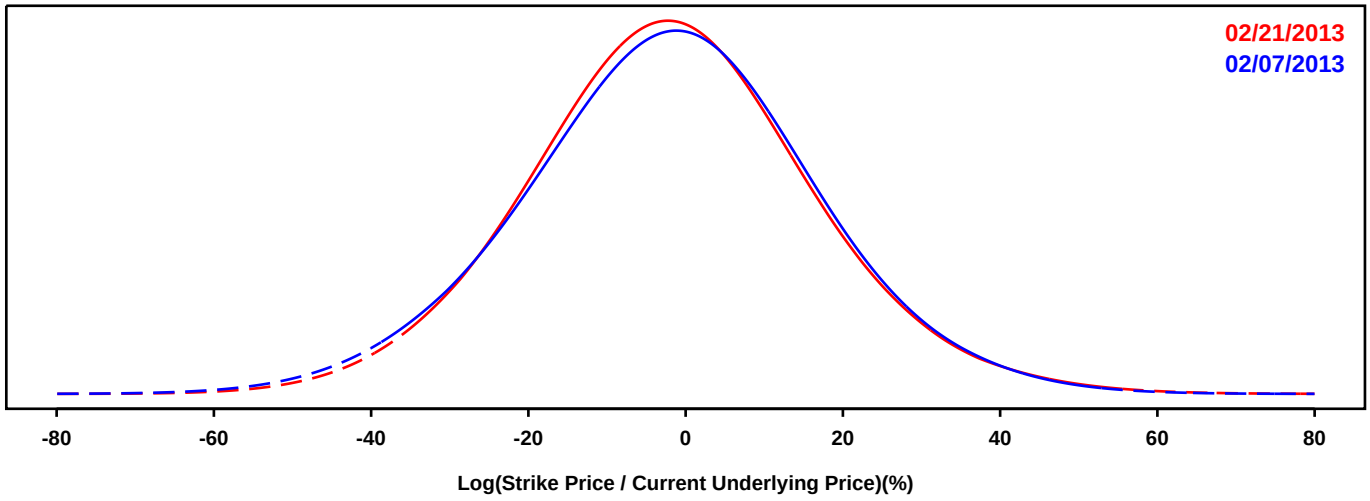
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CORN FUTURES

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 6 months.

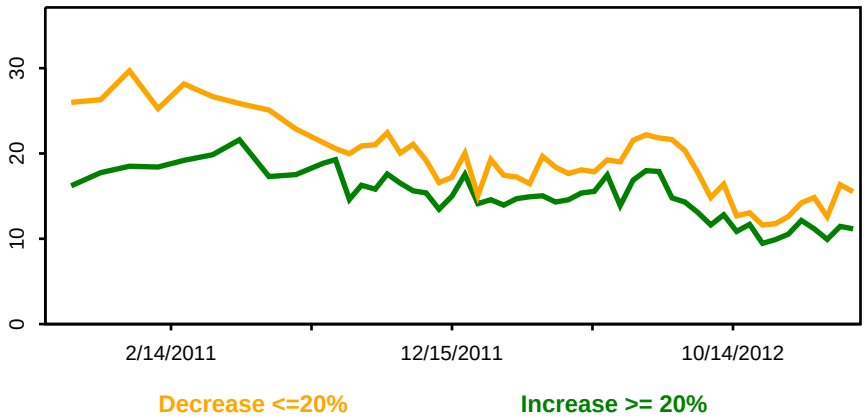
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



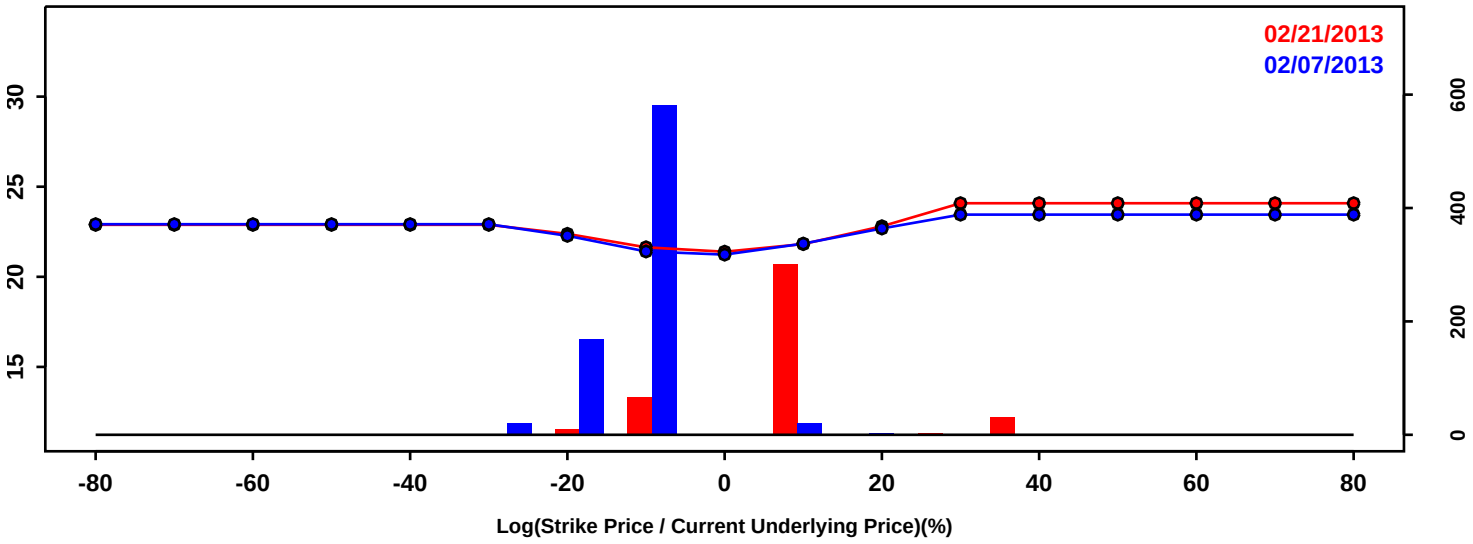
Statistics of the Log Return Distributions

	02/07/2013	02/21/2013	Change
10th Pct	-25.99%	-24.89%	1.10%
50th Pct	-1.77%	-2.11%	-0.34%
90th Pct	21.53%	21.27%	-0.26%
Mean	-1.97%	-1.85%	0.12%
Std Dev	18.76%	18.30%	-0.46%
Skew	-0.03	0.11	0.14
Kurtosis	0.23	0.30	0.08

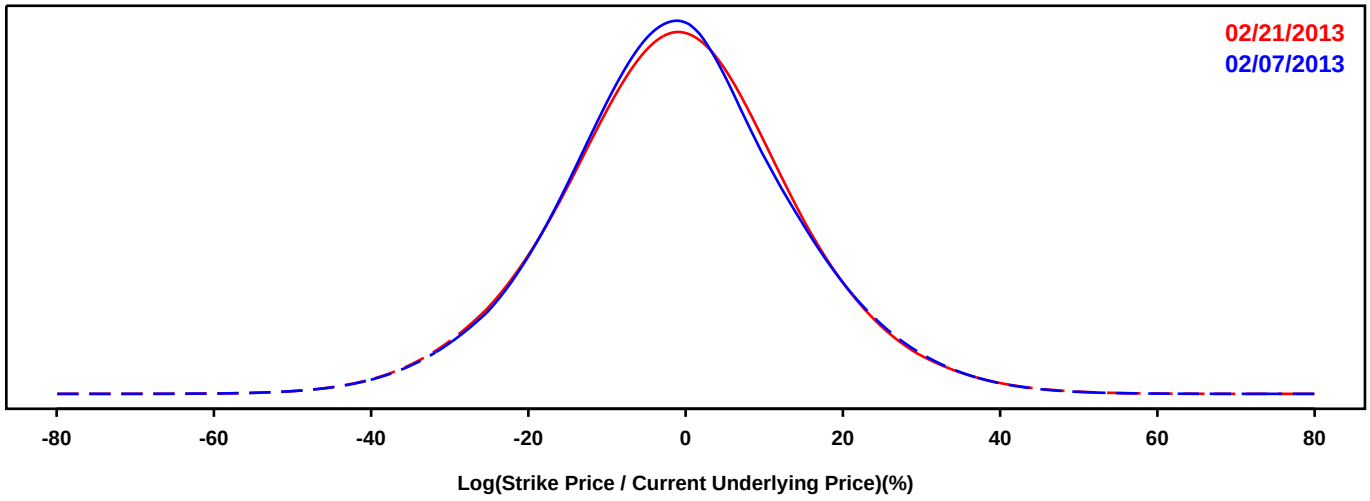
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- SOYBEAN FUTURES

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 6 months.

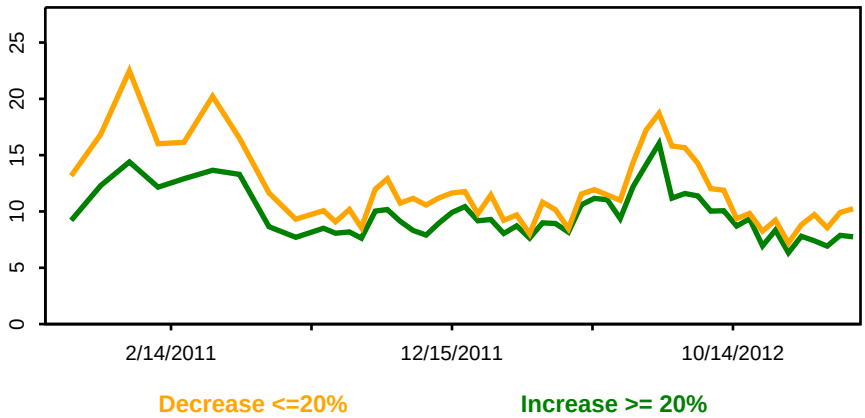
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



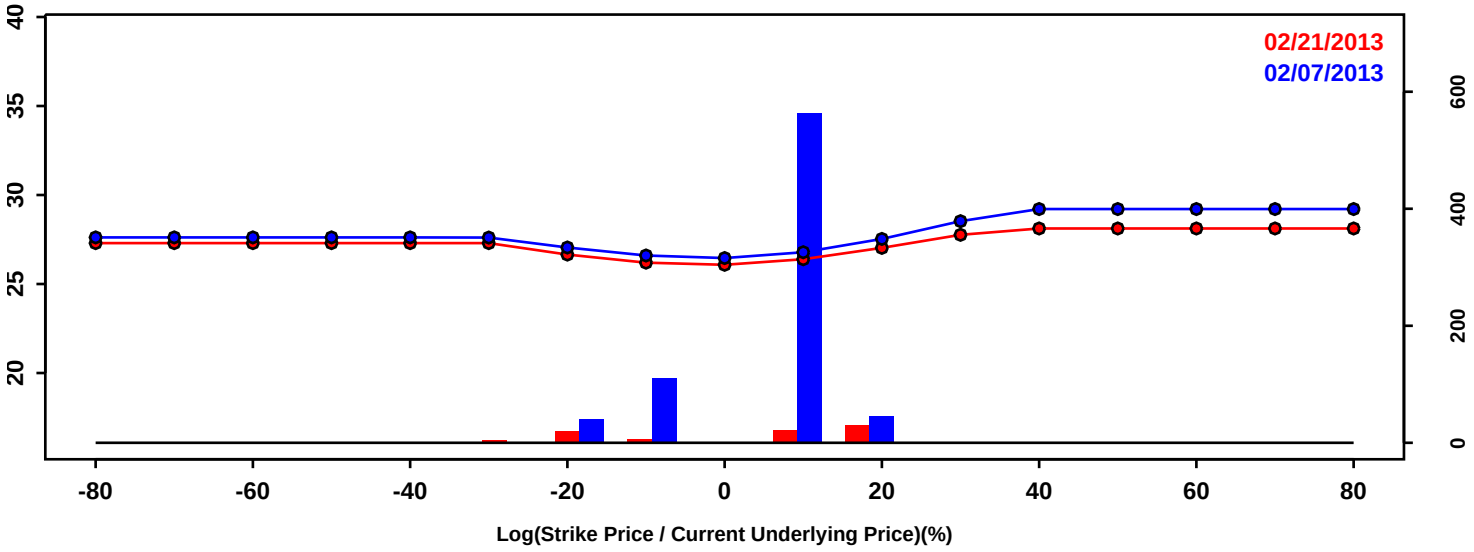
Statistics of the Log Return Distributions

	02/07/2013	02/21/2013	Change
10th Pct	-19.94%	-20.21%	-0.26%
50th Pct	-1.38%	-1.12%	0.26%
90th Pct	17.83%	17.72%	-0.11%
Mean	-1.21%	-1.15%	0.06%
Std Dev	15.01%	15.10%	0.10%
Skew	0.04	0.01	-0.02
Kurtosis	0.39	0.38	-0.01

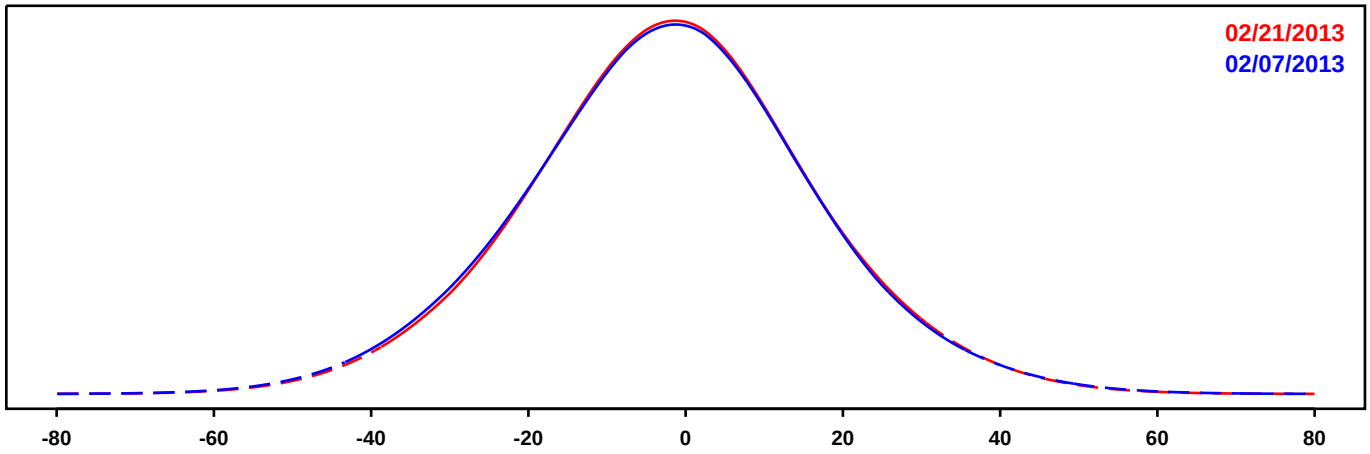
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- WHEAT FUTURES

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 6 months.

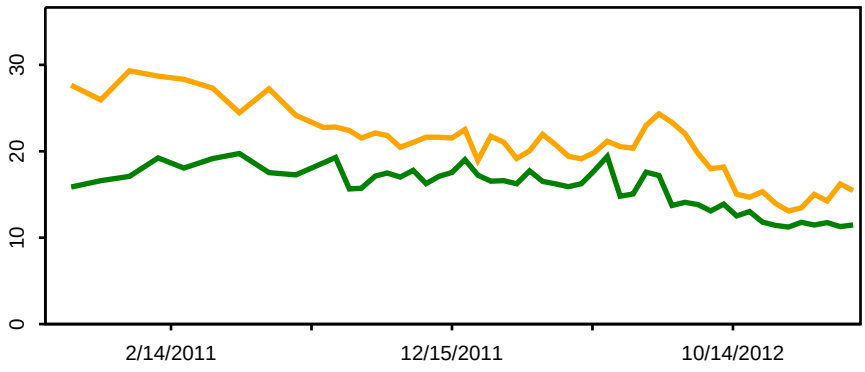
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <=20% Increase >= 20%

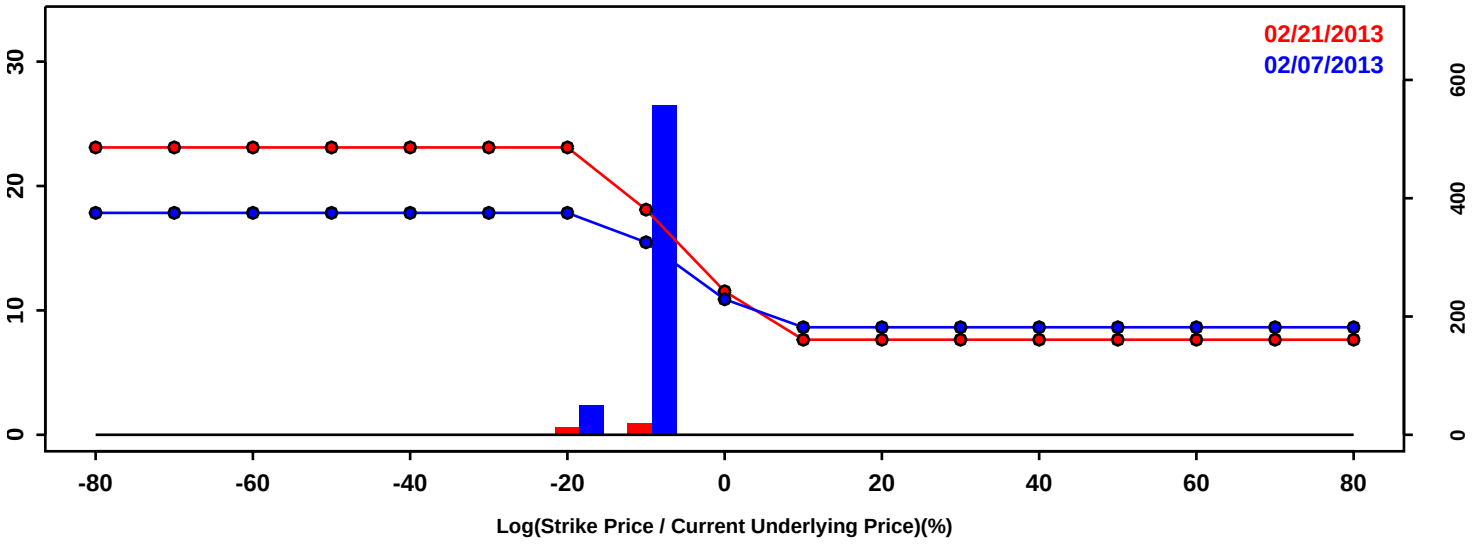
Statistics of the Log Return Distributions

	02/07/2013	02/21/2013	Change
10th Pct	-25.82%	-25.06%	0.76%
50th Pct	-1.95%	-1.70%	0.24%
90th Pct	21.39%	21.59%	0.20%
Mean	-2.01%	-1.70%	0.31%
Std Dev	18.69%	18.44%	-0.26%
Skew	0.01	0.02	0.00
Kurtosis	0.29	0.26	-0.03

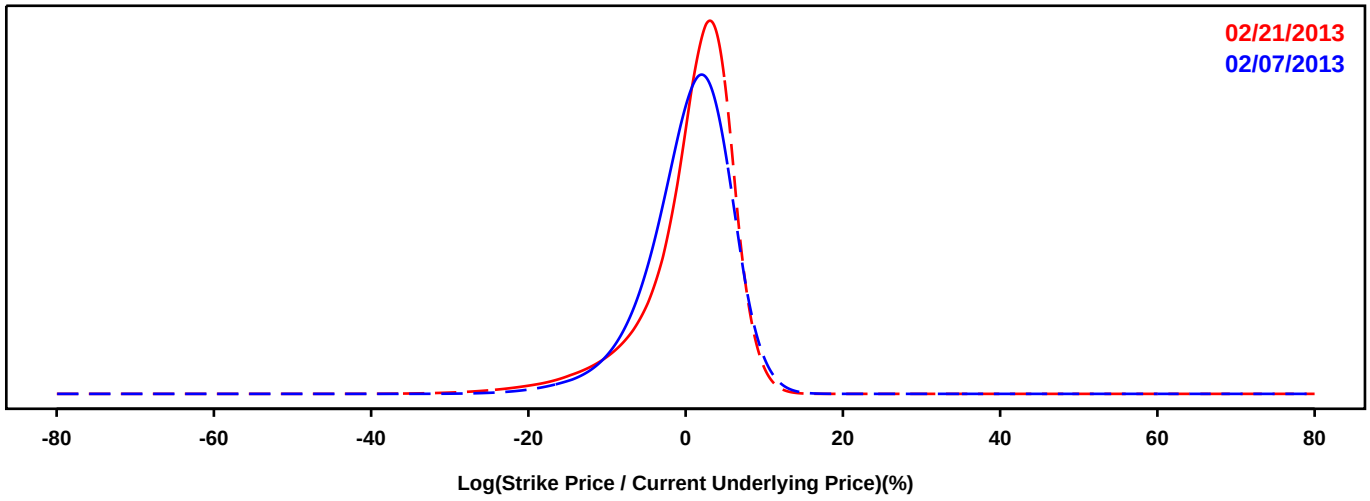
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- iSHARES DOW JONES US REAL ESTATE

Log returns are based on the risk neutral density function of the underlying asset derived from options that expire in approximately 3 months.

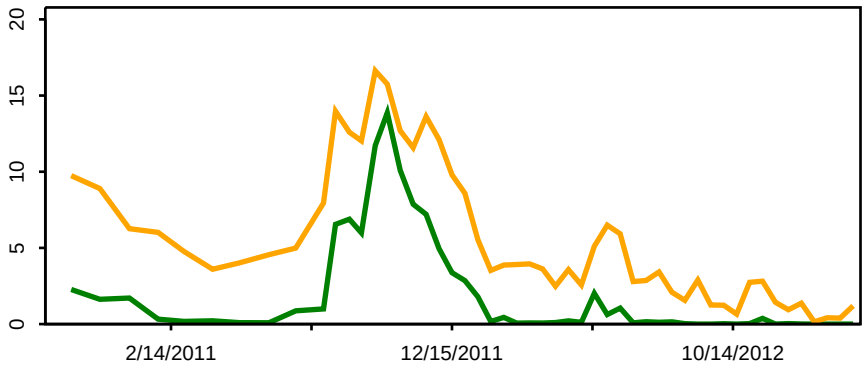
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <=20% Increase >= 20%

Statistics of the Log Return Distributions

	02/07/2013	02/21/2013	Change
10th Pct	-6.60%	-7.11%	-0.51%
50th Pct	1.02%	1.76%	0.74%
90th Pct	6.52%	6.36%	-0.16%
Mean	0.41%	0.53%	0.12%
Std Dev	5.45%	6.01%	0.55%
Skew	-0.89	-1.62	-0.73
Kurtosis	1.72	4.12	2.39