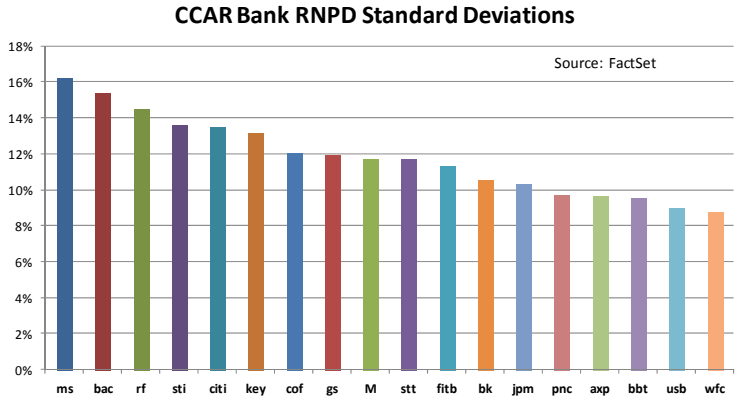
Minneapolis Options Report – March 9th

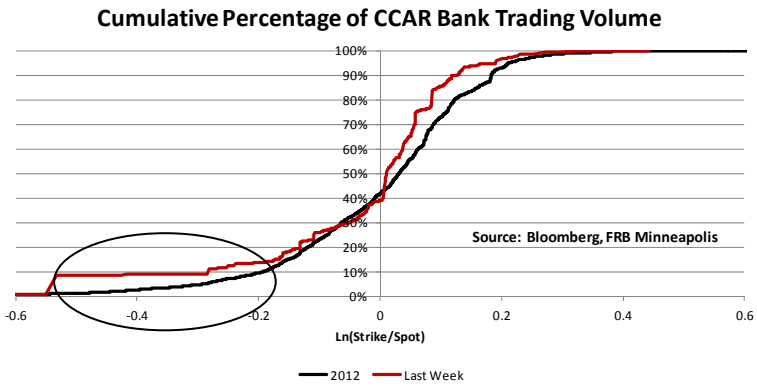
We are introducing RNPD reports for all of the CCAR banks this week. We are targeting the quarterly expiry closest to three months in the future. This expiry allows us to use options that often trade actively for individual banks. Nevertheless, because options on a number of the CCAR bank stocks can be very illiquid, we are use quoted prices in place of traded prices when trading is especially light. The use of quotes in periods of less liquidity will allow us to maintain more continuous time series of RNPD statistics and backfill additional history in the near future.

CCAR Banks

RNPD standard deviations generally increased from two weeks ago with a median change of 20 basis points (see graph below for current distribution of RNPD standard deviations). Nevertheless, RNPD standard deviations remain near their 20 week lows. Trading was light across this universe. Only BK, RF, and STI option volumes were above 20 week medians.



Relative to last year, a larger percentage of last week's trading took place at strike prices -20% below the current spot. We note that this did NOT occur in strikes above the current spot where trading was closer to at the money.



Additional notes:

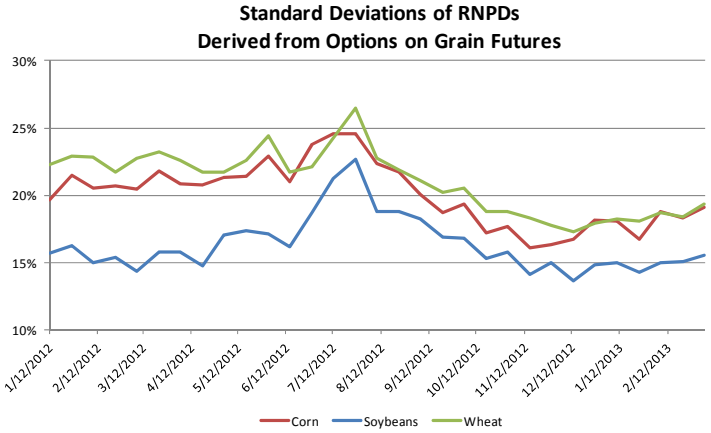
- Deeply out of the money put trades are apparent for options on a number of firms' stocks: AXP, BAC, BK, GS, and MS (*see individual reports*). This trading is also evident two weeks ago.

Other Commodity Markets

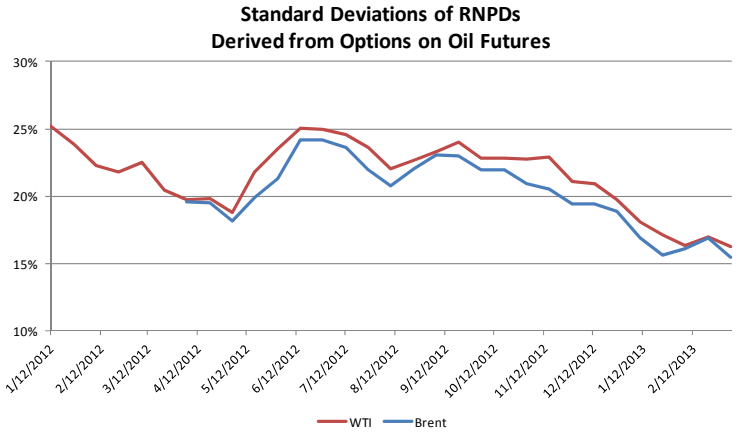
- Trading was strong in options on the S&P 500 index with approximately 1 year to expiration. The standard deviations of the RNPDs derived from options on the S&P 500 index that we follow largely reversed the increase from two weeks ago. Tail risk as measured by the standard deviation remains down about 20% from last year's levels.

- Probability skew is remains more negative for S&P 500 options with 12 months to expiry than with 6 months to expiry. (*see S&P 500 reports*)

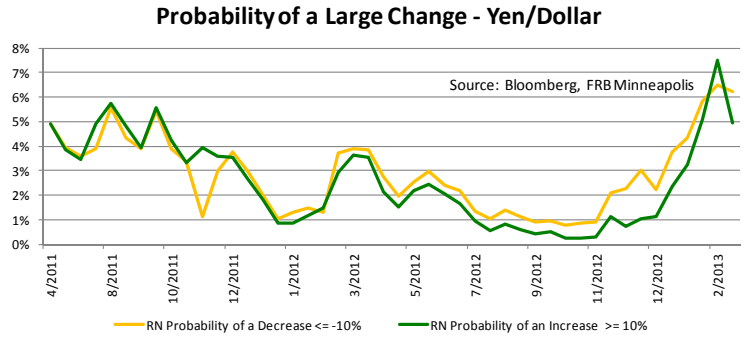
- RNPD standard deviations ticked up in the grain markets again last week and RNPD skews have begun to increase. (*see individual reports*)

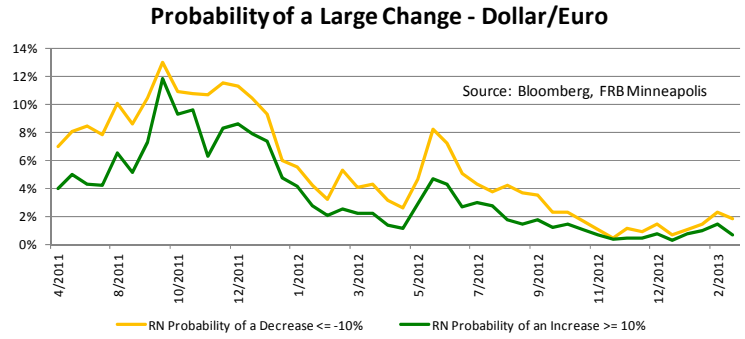


- Tail risks continue to decline in the oil markets. RNPD skews derived from options on oil futures are decidedly negative. Trading was higher relative to last period. (*See WTI and Brent reports*)



- Heavy trading in options on exchange rate futures paused last week as did the increase in tail probability mass that we have been following. RNPD standard deviations remain above their year-end levels for each of the exchange rates in our report. (*see exchange rate reports*).



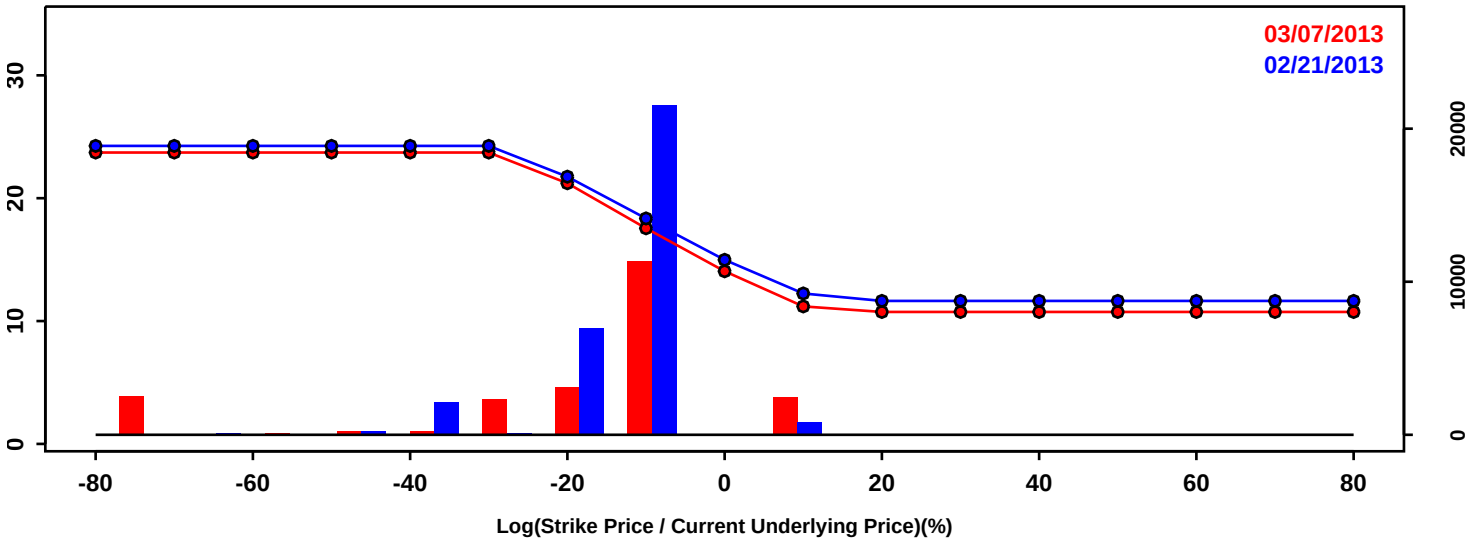


- Trading in options related to precious metals and grains remains light.

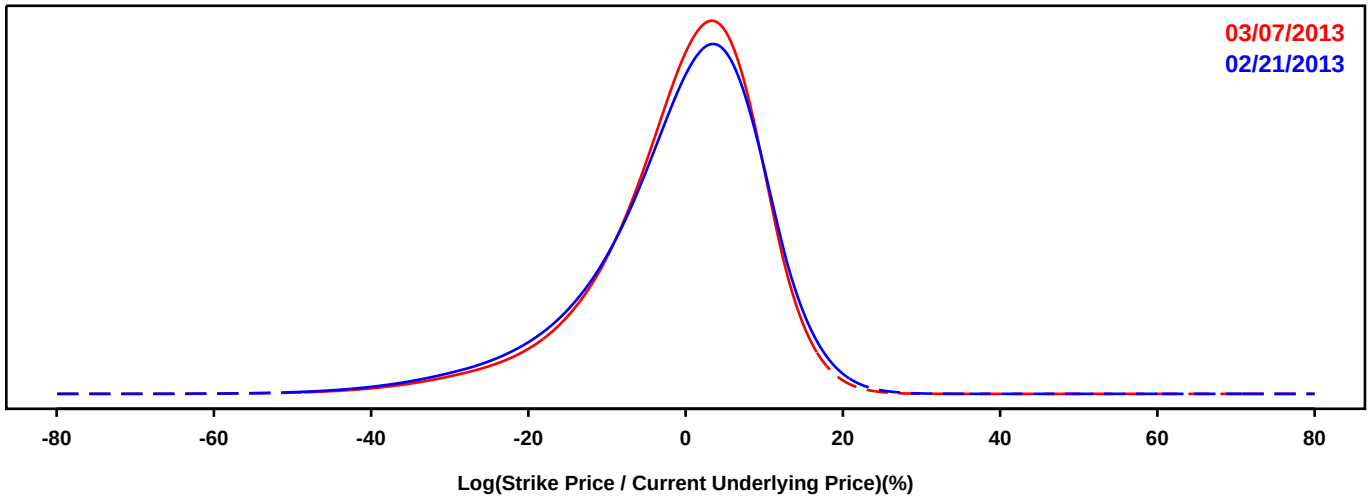
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- S&P 500

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

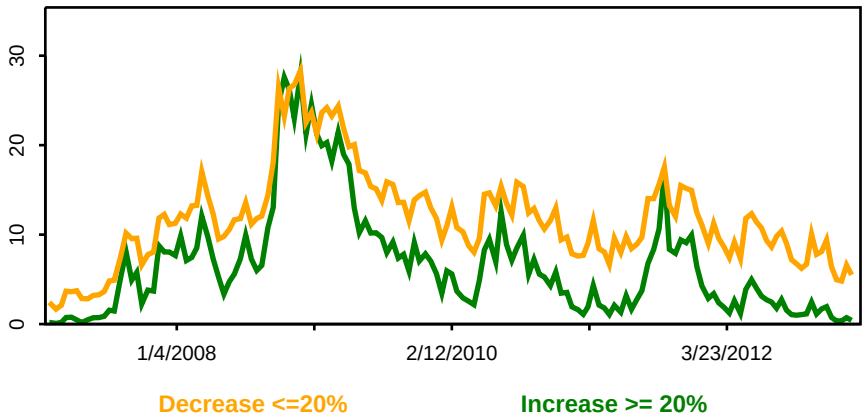
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



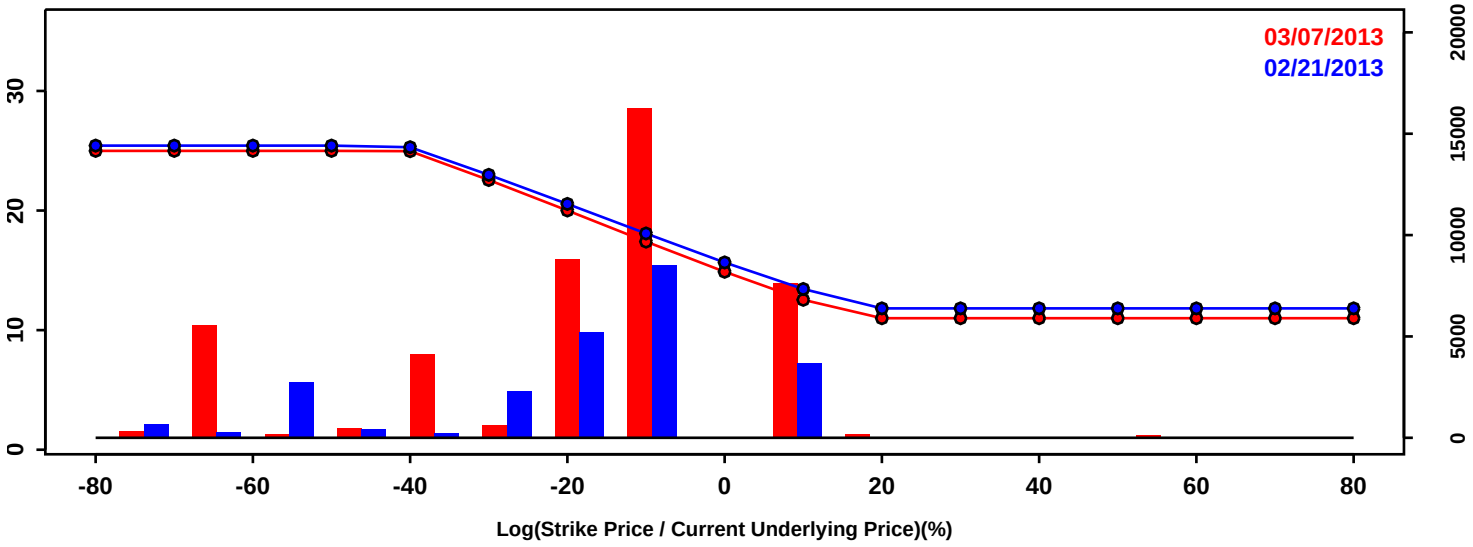
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-15.76%	-14.33%	1.44%
50th Pct	0.83%	0.90%	0.08%
90th Pct	11.11%	10.52%	-0.59%
Mean	-0.99%	-0.76%	0.23%
Std Dev	11.24%	10.50%	-0.74%
Skew	-1.04	-1.10	-0.06
Kurtosis	1.78	2.08	0.30

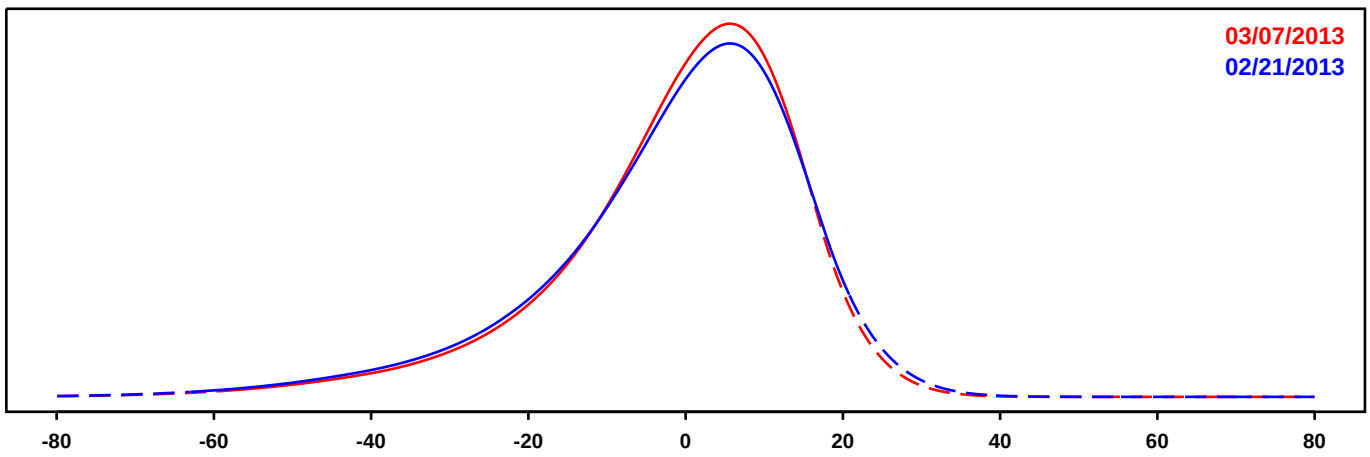
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- S&P 500

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

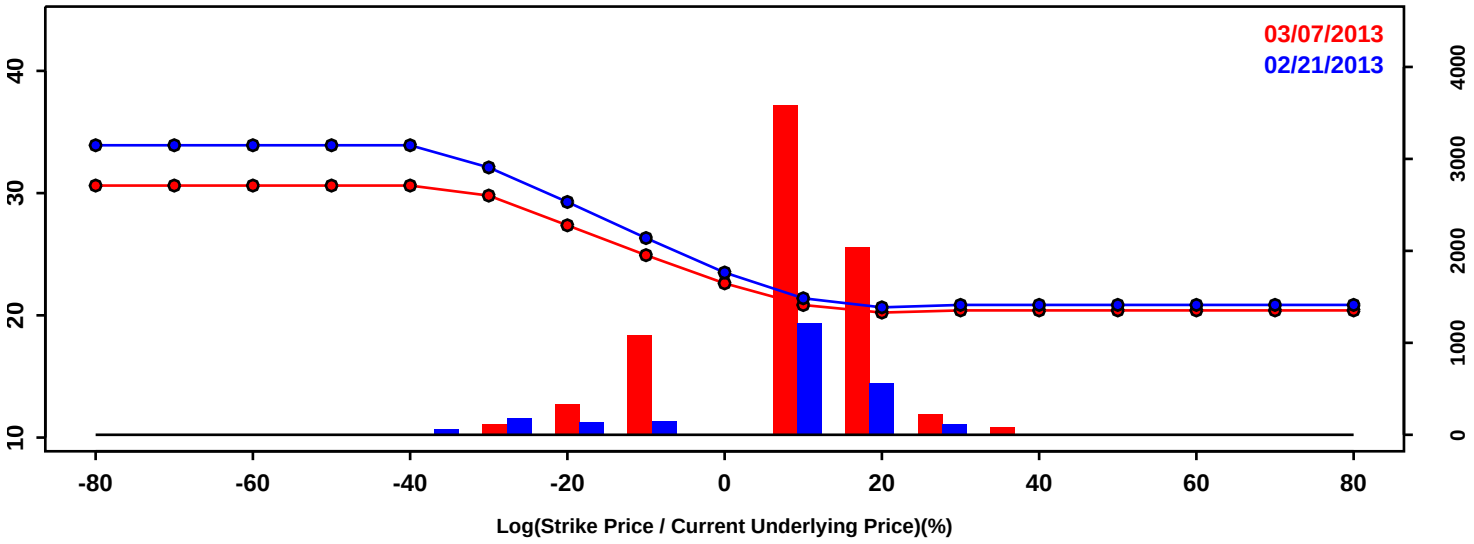
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-23.16%	-21.53%	1.64%
50th Pct	1.41%	1.55%	0.14%
90th Pct	16.40%	15.64%	-0.77%
Mean	-1.38%	-1.09%	0.29%
Std Dev	16.54%	15.69%	-0.86%
Skew	-1.06	-1.13	-0.06
Kurtosis	1.83	2.07	0.24

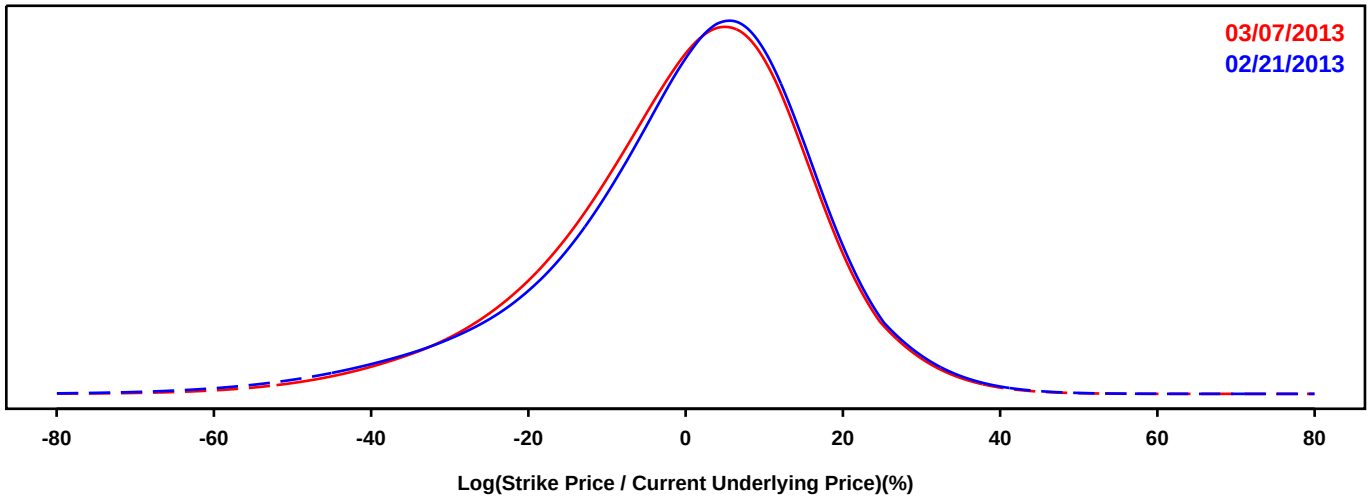
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CRUDE OIL FUTURES (WTI)

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

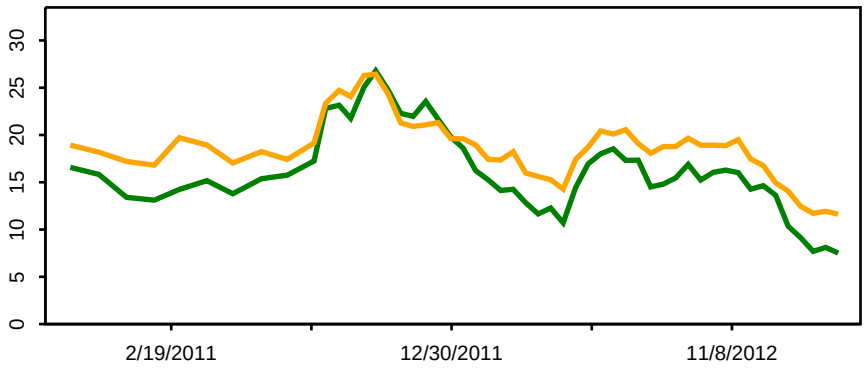
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <=20% Increase >= 20%

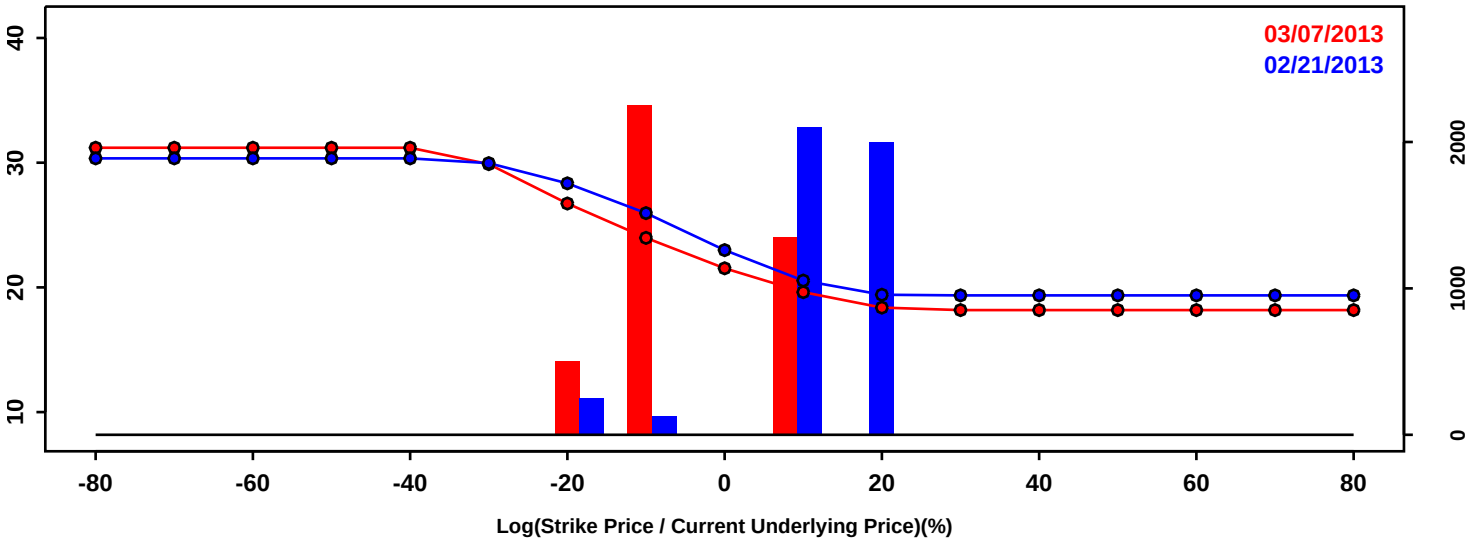
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-22.56%	-21.98%	0.58%
50th Pct	2.12%	1.52%	-0.60%
90th Pct	18.49%	18.02%	-0.47%
Mean	-0.18%	-0.41%	-0.23%
Std Dev	16.96%	16.25%	-0.71%
Skew	-0.81	-0.65	0.16
Kurtosis	1.30	0.89	-0.41

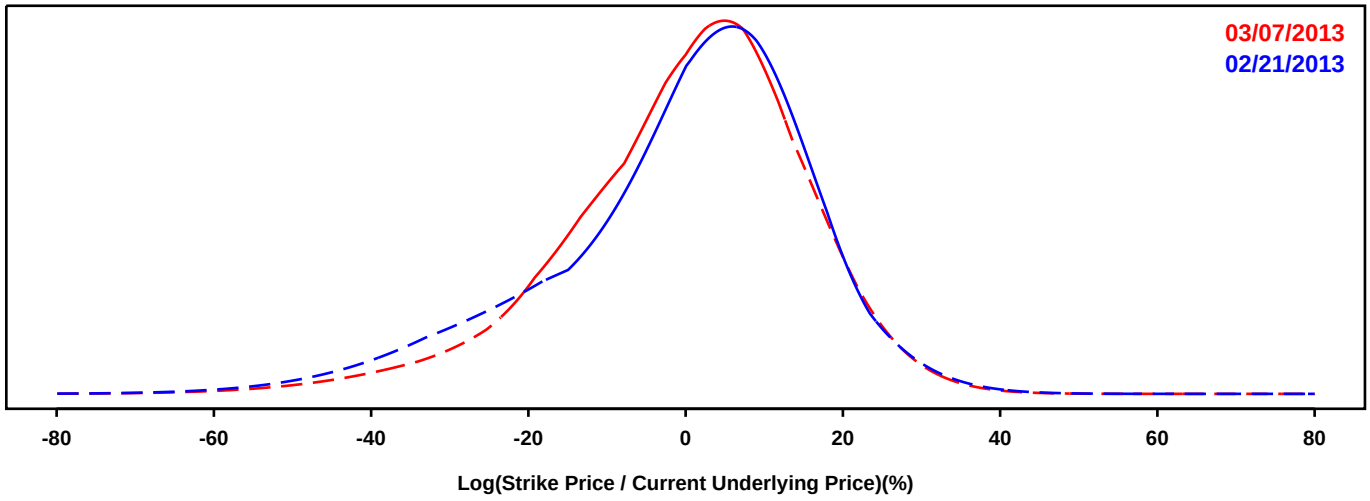
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CRUDE OIL FUTURES (Brent)

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

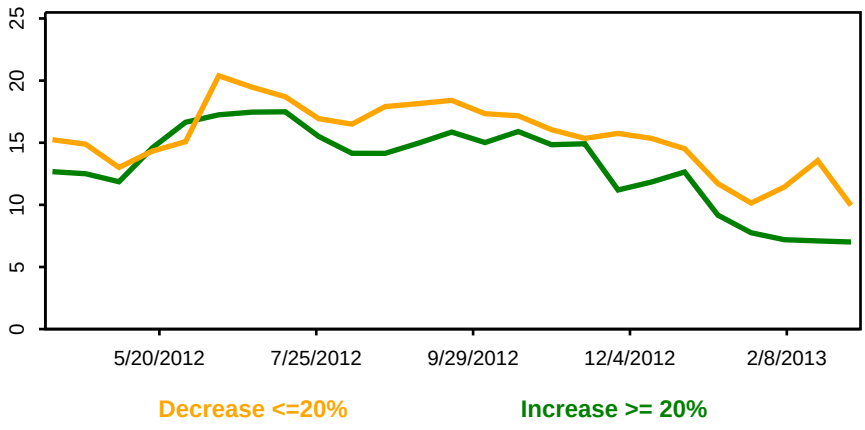
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



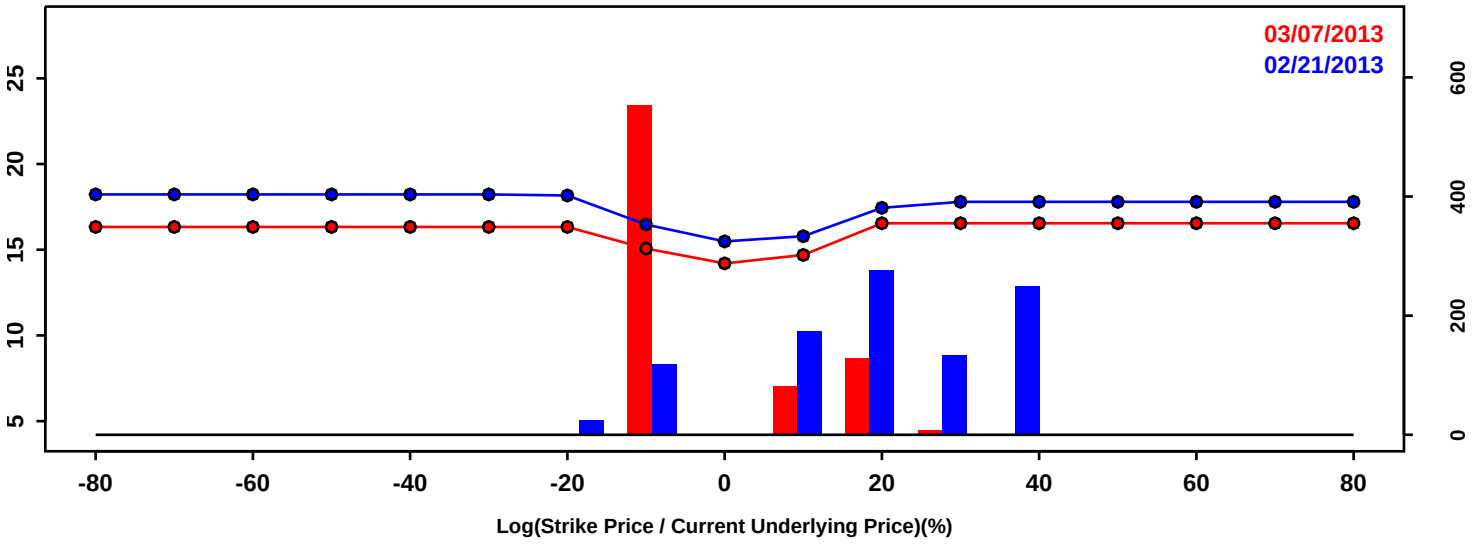
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-24.63%	-19.96%	4.66%
50th Pct	2.14%	1.72%	-0.41%
90th Pct	17.78%	17.66%	-0.12%
Mean	-0.66%	-0.07%	0.60%
Std Dev	16.88%	15.43%	-1.45%
Skew	-0.79	-0.71	0.08
Kurtosis	0.82	1.11	0.28

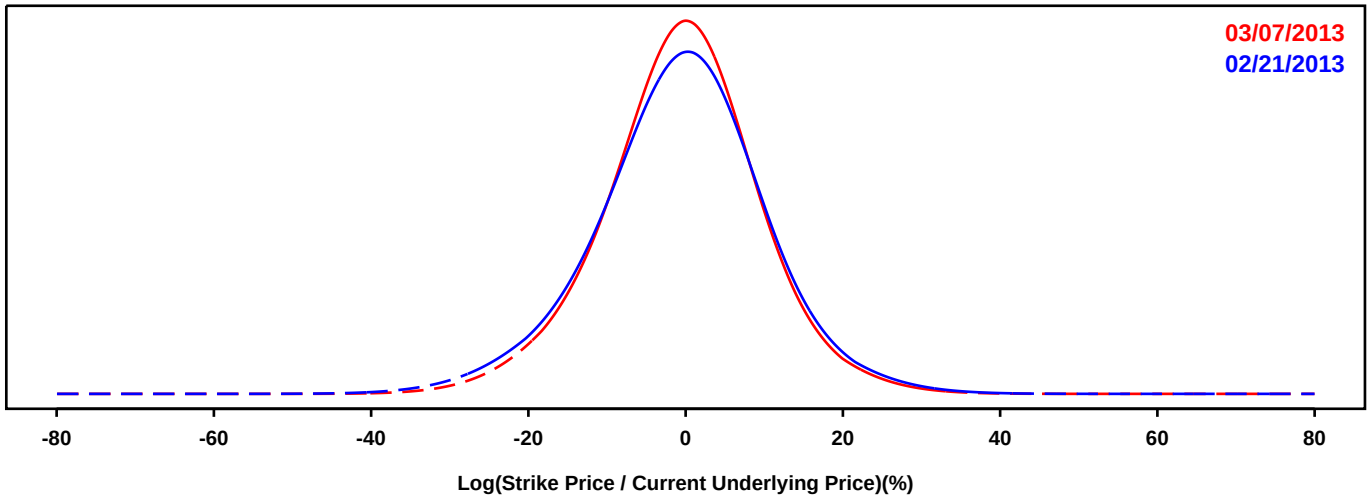
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- GOLD FUTURES

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

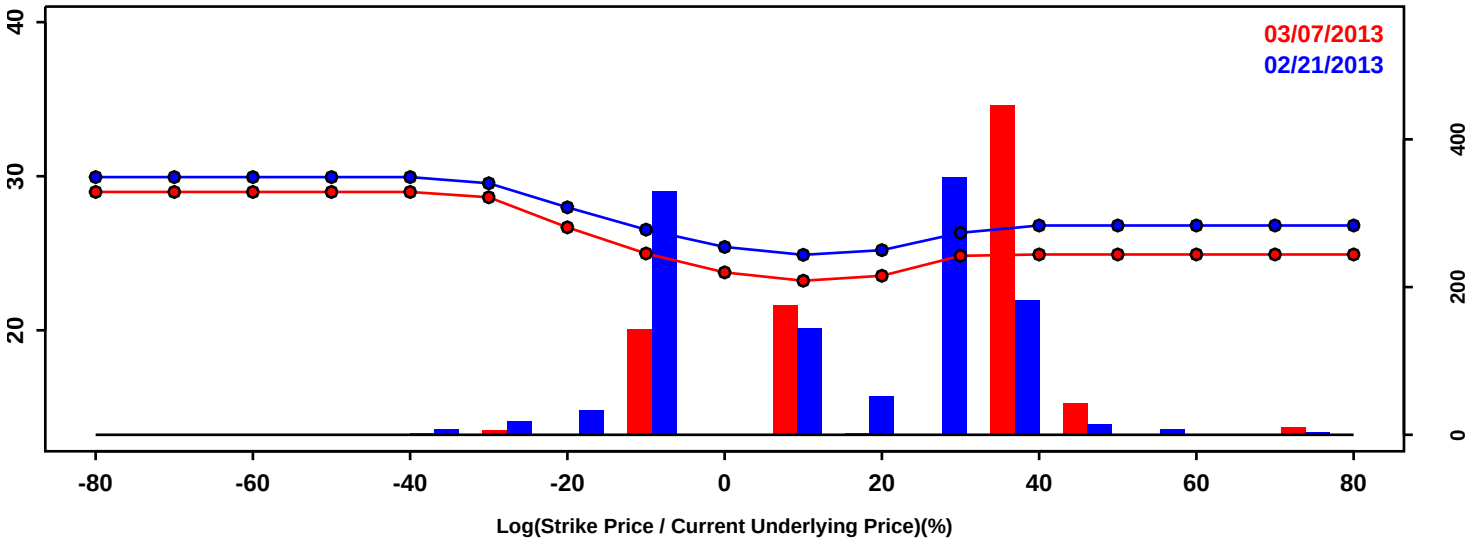
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-14.55%	-13.20%	1.35%
50th Pct	-0.33%	-0.30%	0.03%
90th Pct	12.52%	11.67%	-0.85%
Mean	-0.67%	-0.51%	0.16%
Std Dev	10.95%	10.04%	-0.91%
Skew	-0.15	-0.09	0.06
Kurtosis	0.62	0.59	-0.03

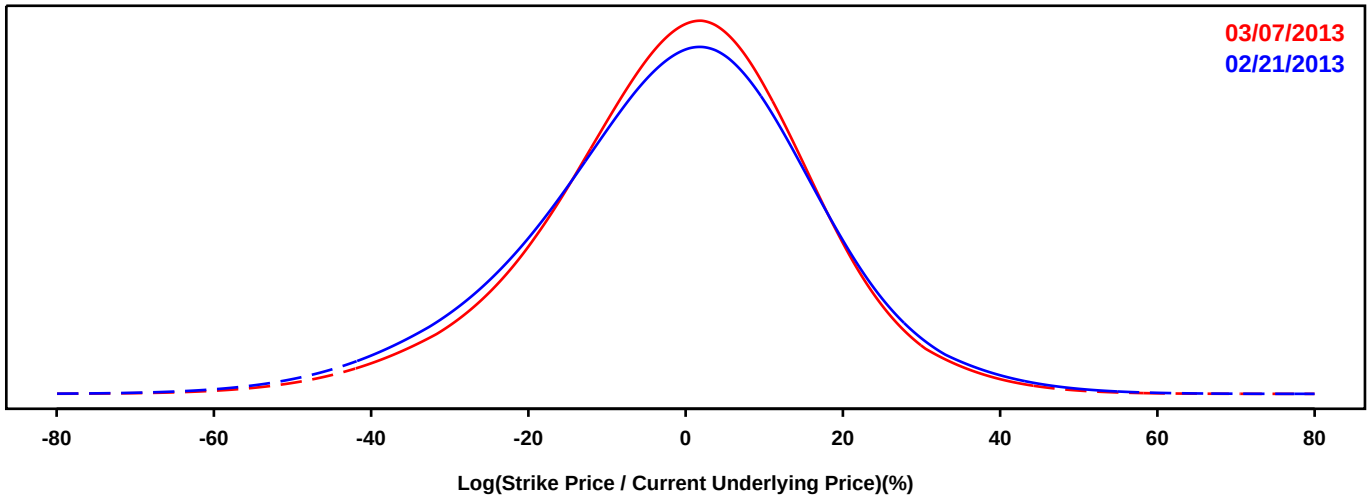
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- SILVER FUTURES

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

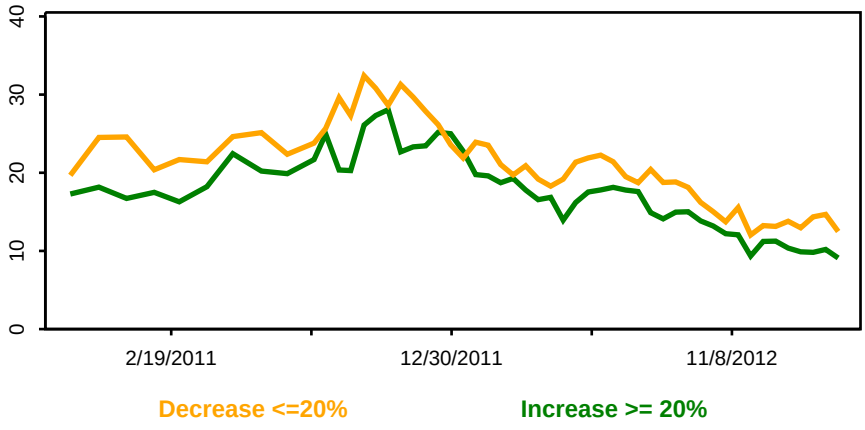
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



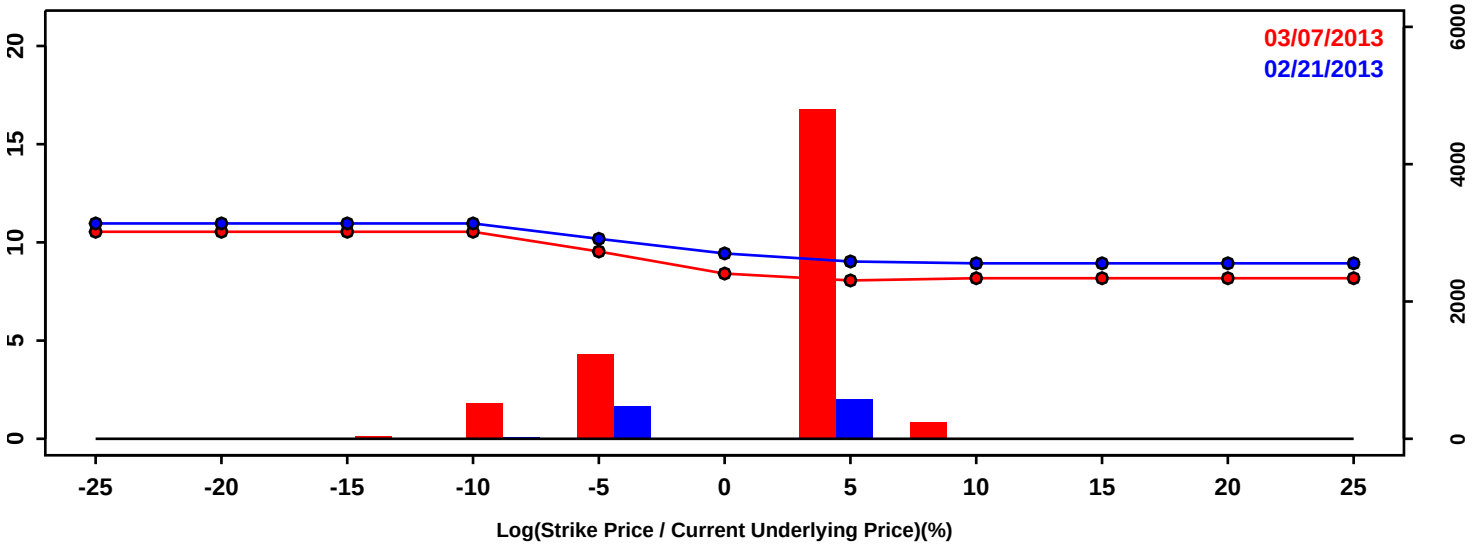
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-24.96%	-22.67%	2.29%
50th Pct	-0.40%	0.00%	0.40%
90th Pct	20.18%	19.18%	-1.00%
Mean	-1.44%	-0.95%	0.49%
Std Dev	18.08%	16.87%	-1.21%
Skew	-0.28	-0.30	-0.03
Kurtosis	0.48	0.57	0.10

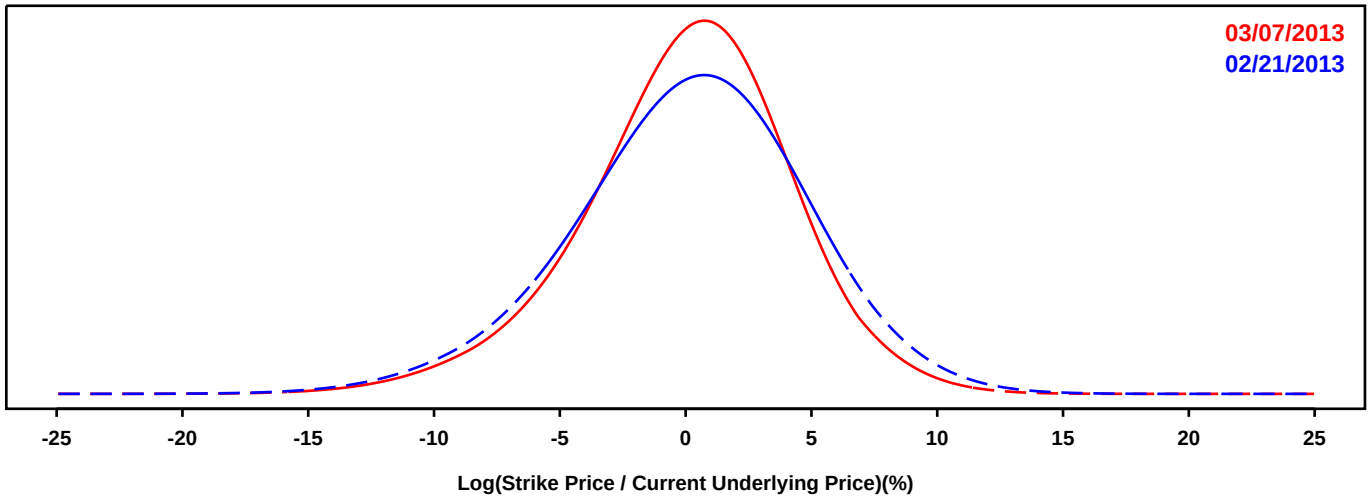
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- DOLLAR-EURO EXCHANGE RATE FUTURES

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

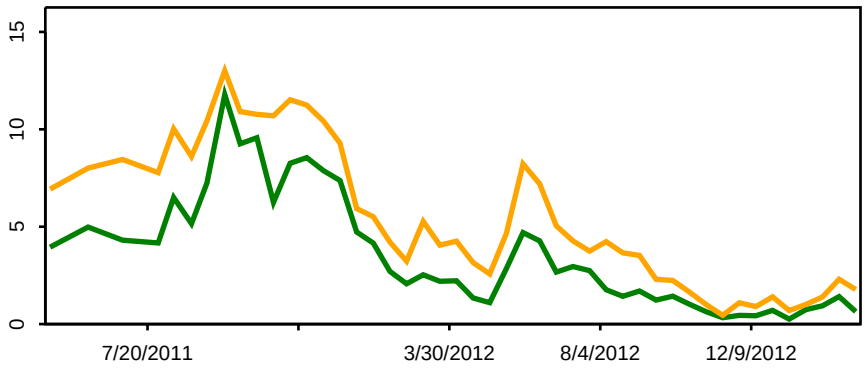
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <=10% Increase >= 10%

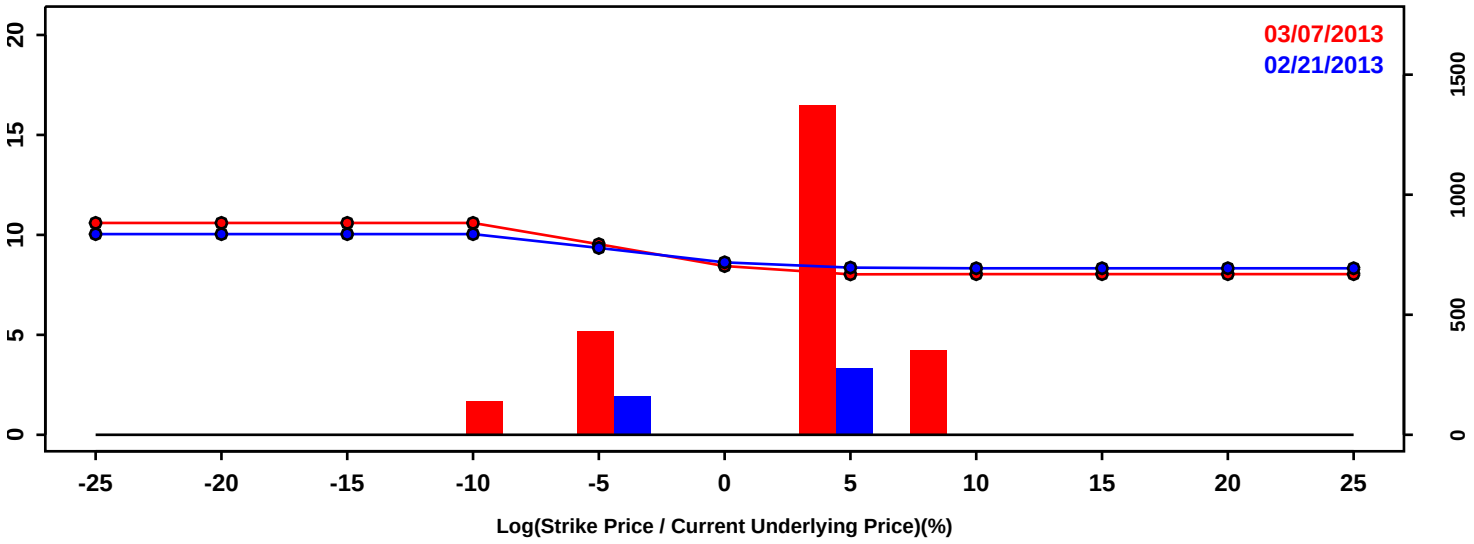
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-5.94%	-5.38%	0.57%
50th Pct	0.41%	0.31%	-0.10%
90th Pct	6.00%	5.06%	-0.94%
Mean	0.22%	0.06%	-0.16%
Std Dev	4.70%	4.21%	-0.49%
Skew	-0.25	-0.36	-0.11
Kurtosis	0.28	0.57	0.29

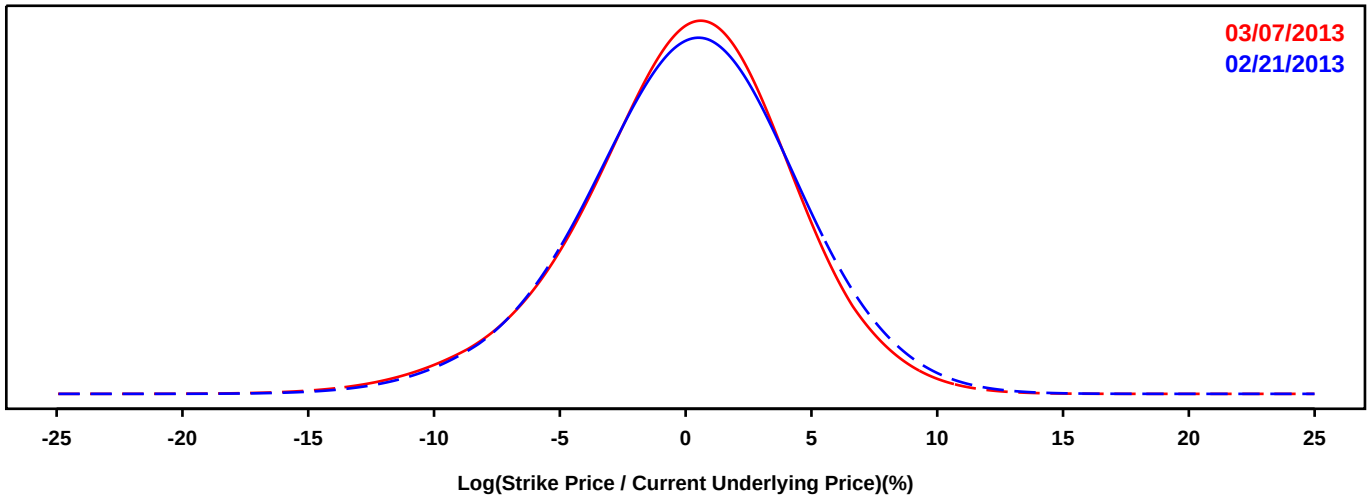
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- DOLLAR-POUND EXCHANGE RATE FUTURES

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

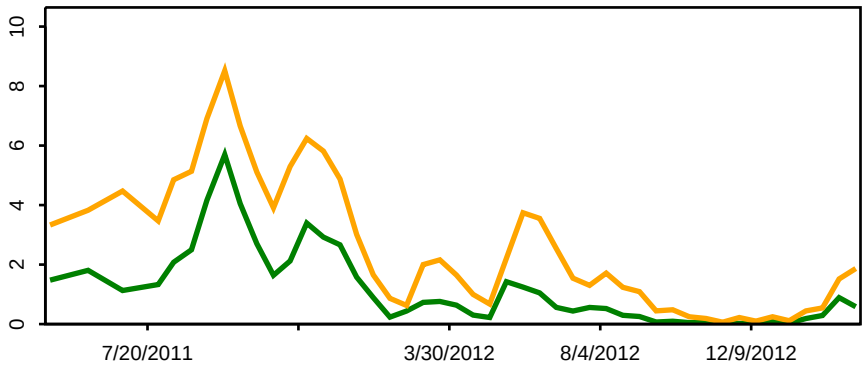
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <=10% Increase >= 10%

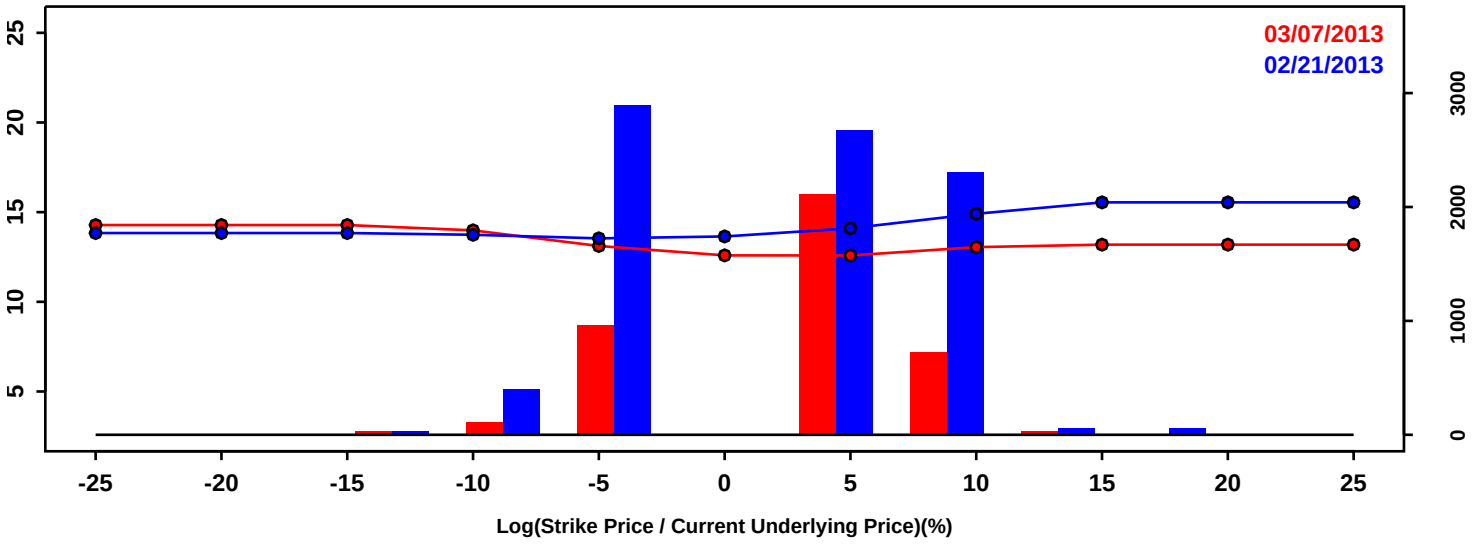
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-5.41%	-5.47%	-0.06%
50th Pct	0.31%	0.18%	-0.13%
90th Pct	5.50%	5.06%	-0.43%
Mean	0.19%	-0.02%	-0.21%
Std Dev	4.30%	4.23%	-0.07%
Skew	-0.21	-0.36	-0.15
Kurtosis	0.31	0.54	0.23

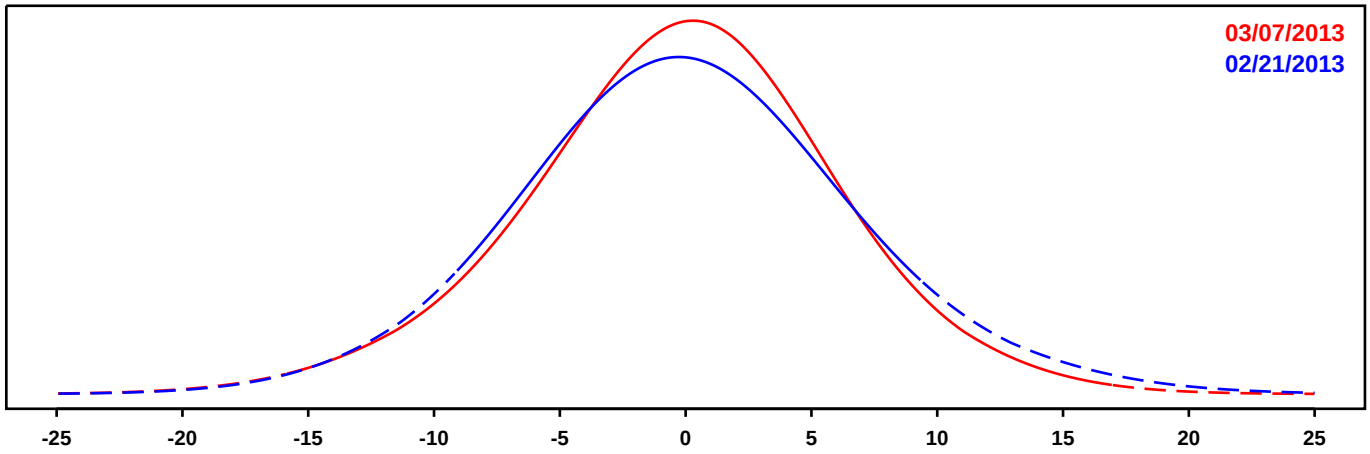
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- YEN-DOLLAR EXCHANGE RATE FUTURES

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

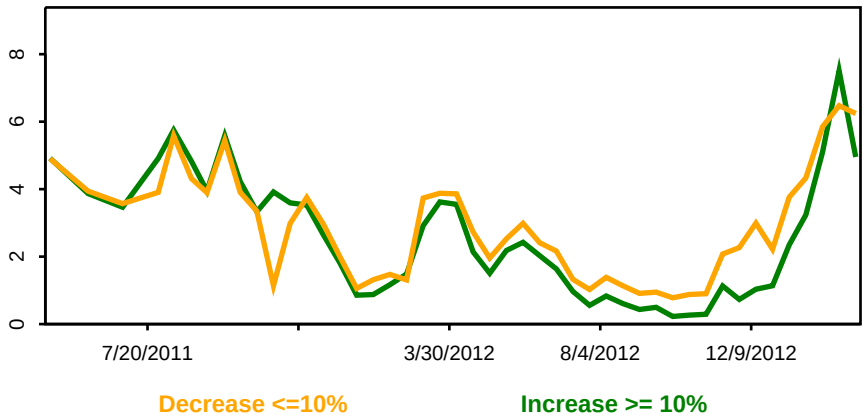
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



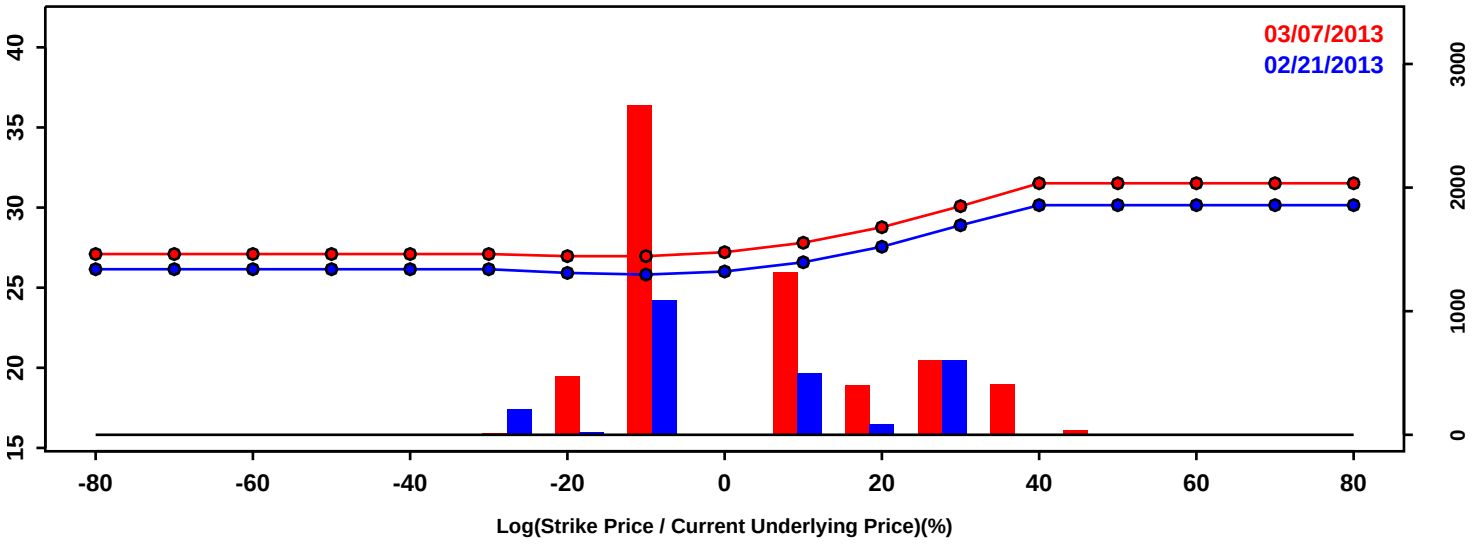
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-8.38%	-8.15%	0.23%
50th Pct	0.00%	0.00%	-0.00%
90th Pct	8.79%	7.62%	-1.17%
Mean	0.15%	-0.14%	-0.29%
Std Dev	6.82%	6.29%	-0.53%
Skew	0.14	-0.13	-0.26
Kurtosis	0.31	0.38	0.07

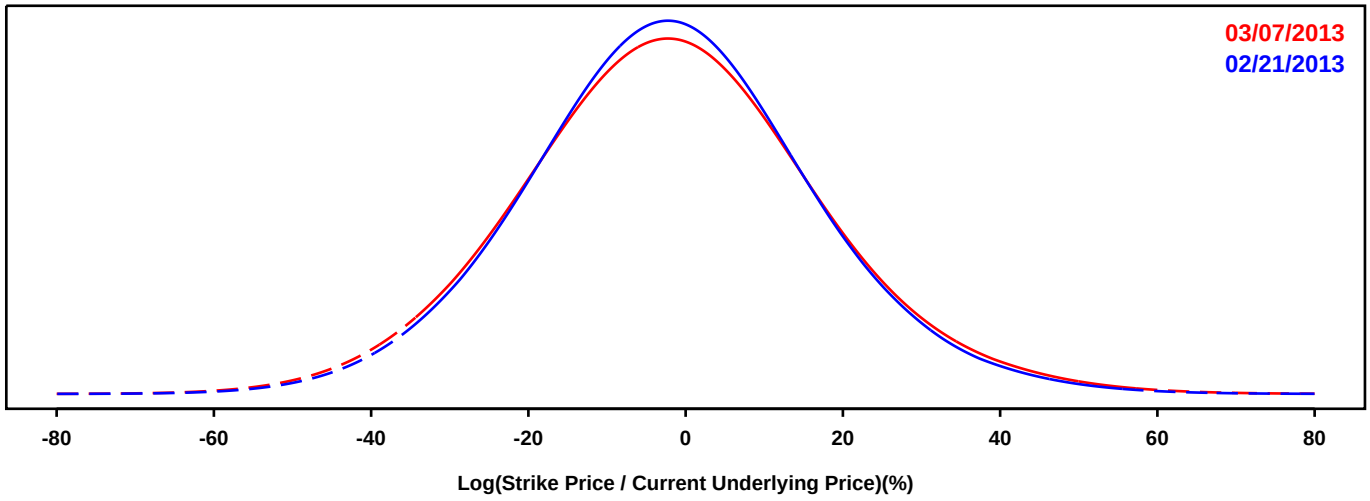
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CORN FUTURES

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

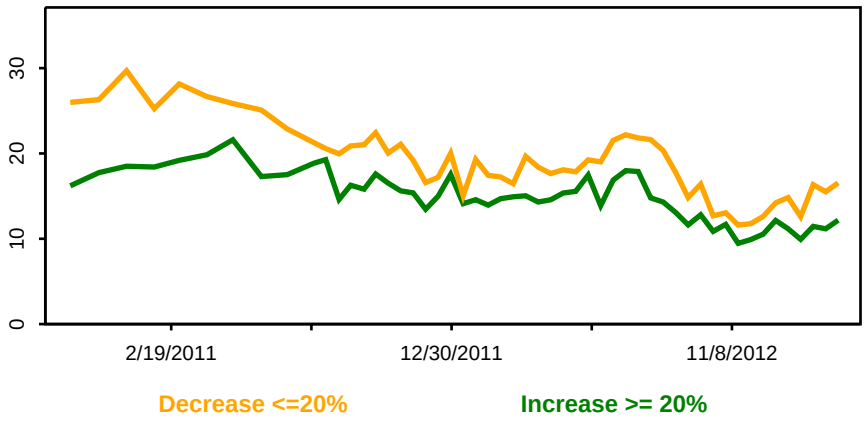
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



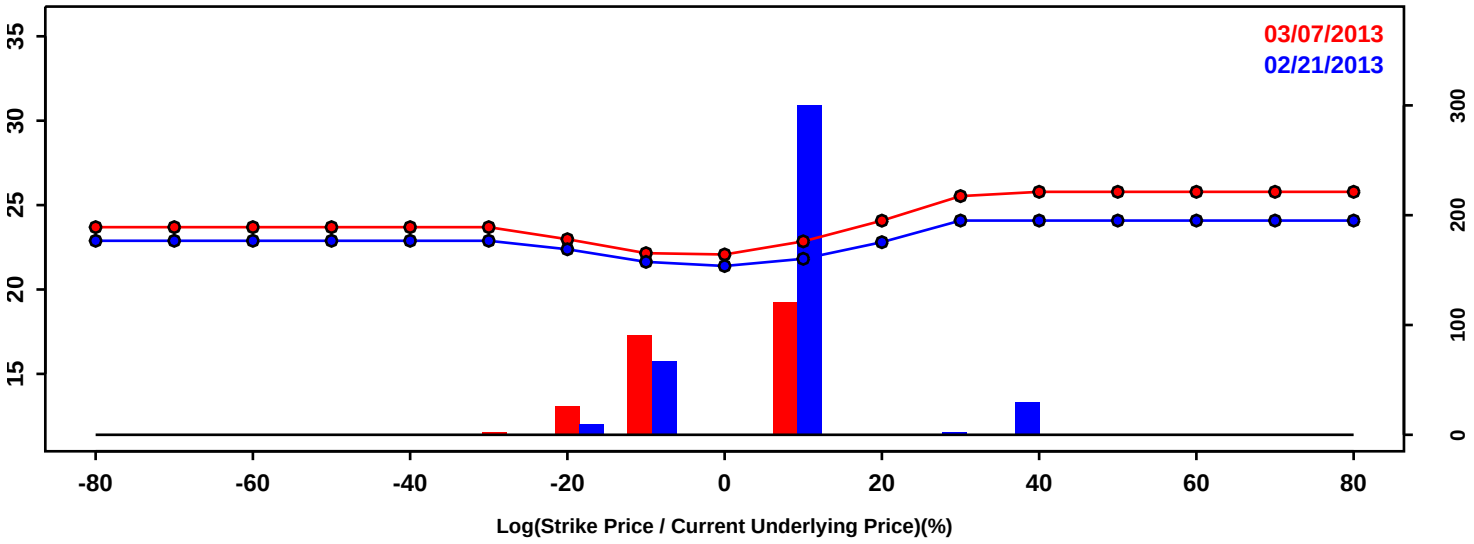
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-24.89%	-25.89%	-0.99%
50th Pct	-2.11%	-2.12%	-0.00%
90th Pct	21.27%	22.38%	1.11%
Mean	-1.85%	-1.82%	0.04%
Std Dev	18.30%	19.15%	0.85%
Skew	0.11	0.13	0.02
Kurtosis	0.30	0.30	-0.01

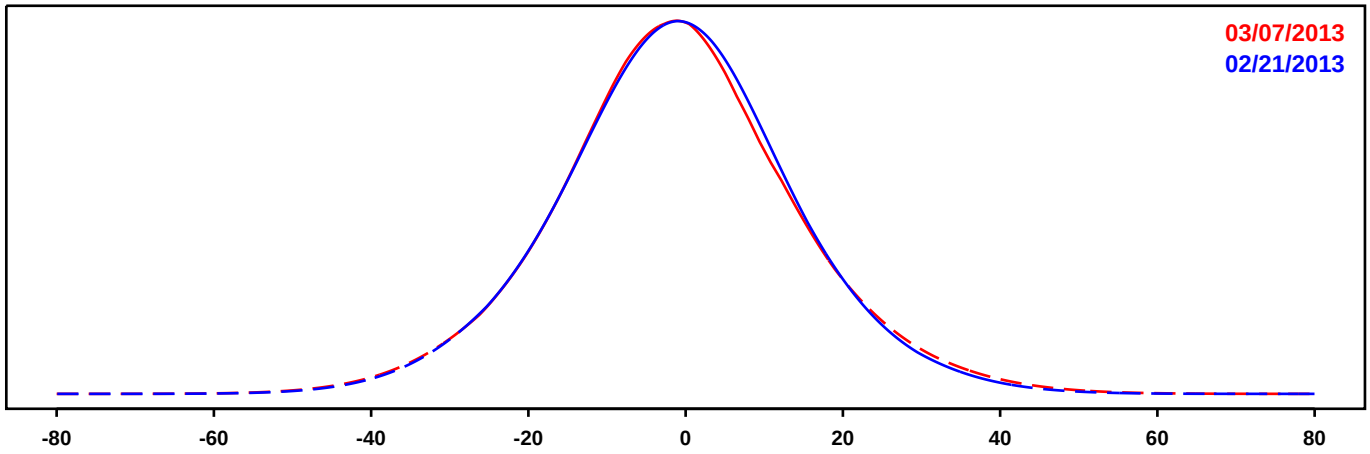
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- SOYBEAN FUTURES

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

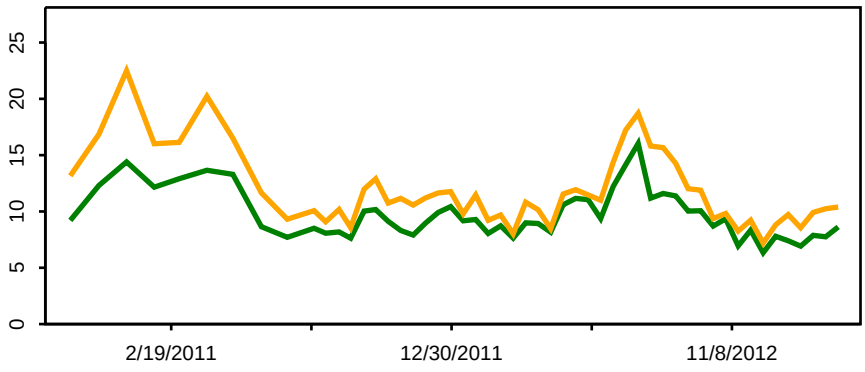
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <=20% Increase >= 20%

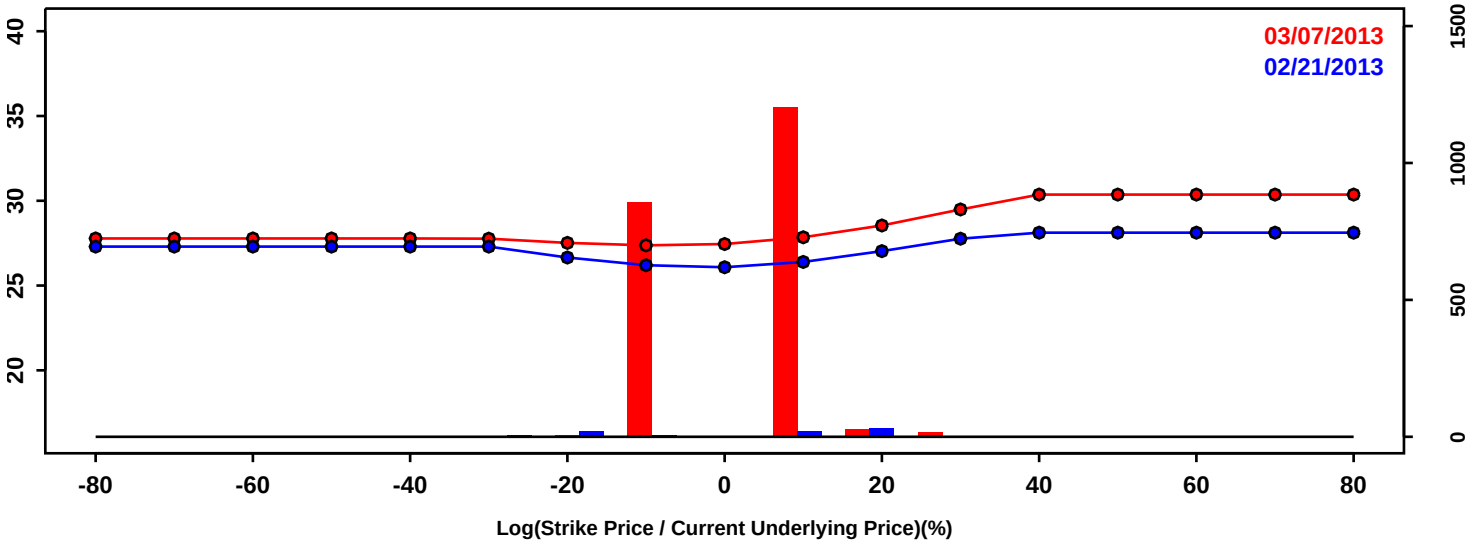
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-20.21%	-20.42%	-0.21%
50th Pct	-1.12%	-1.31%	-0.19%
90th Pct	17.72%	18.52%	0.80%
Mean	-1.15%	-1.07%	0.08%
Std Dev	15.10%	15.58%	0.48%
Skew	0.01	0.09	0.08
Kurtosis	0.38	0.50	0.12

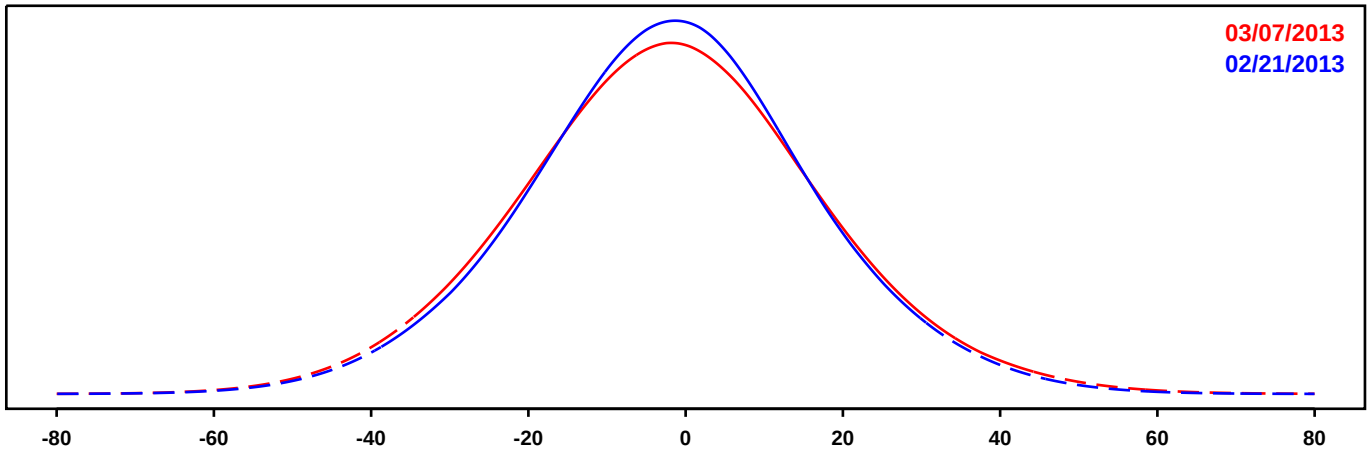
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- WHEAT FUTURES

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

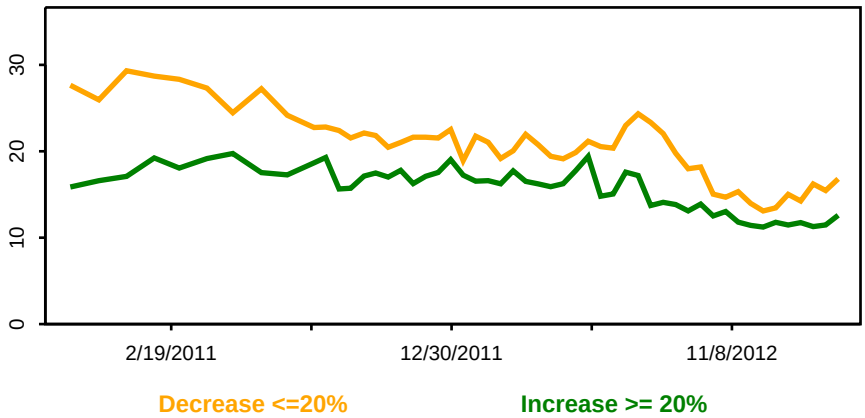
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



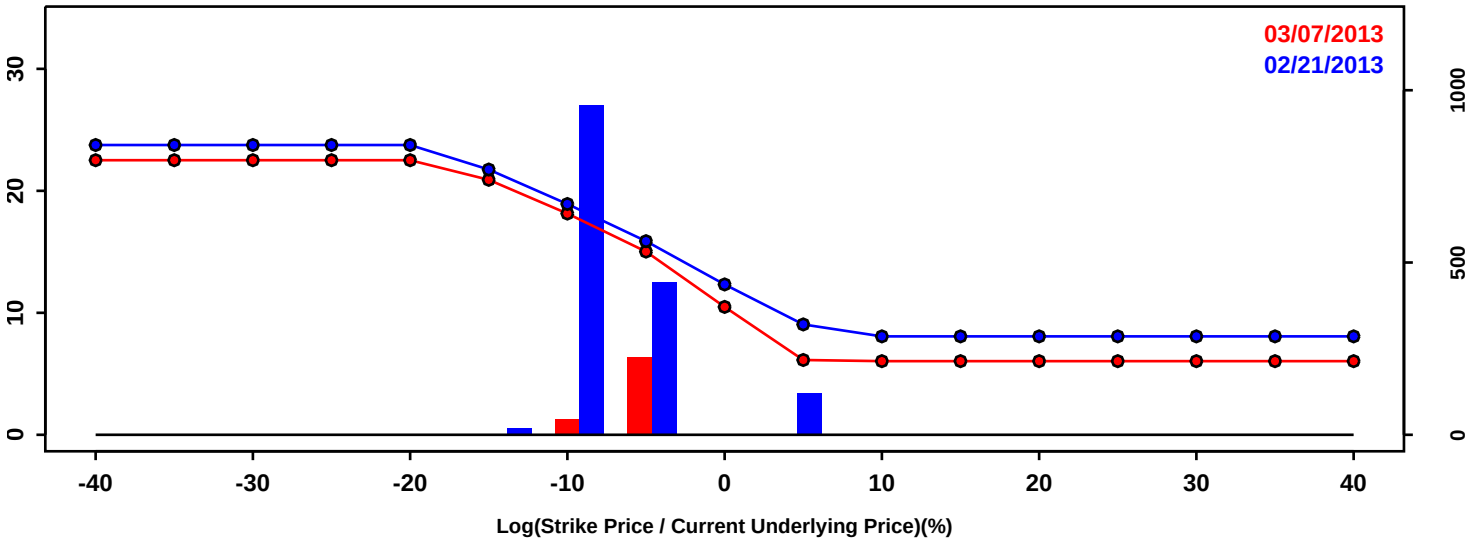
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-25.06%	-26.31%	-1.24%
50th Pct	-1.70%	-1.88%	-0.18%
90th Pct	21.59%	22.76%	1.17%
Mean	-1.70%	-1.75%	-0.05%
Std Dev	18.44%	19.36%	0.92%
Skew	0.02	0.07	0.05
Kurtosis	0.26	0.22	-0.03

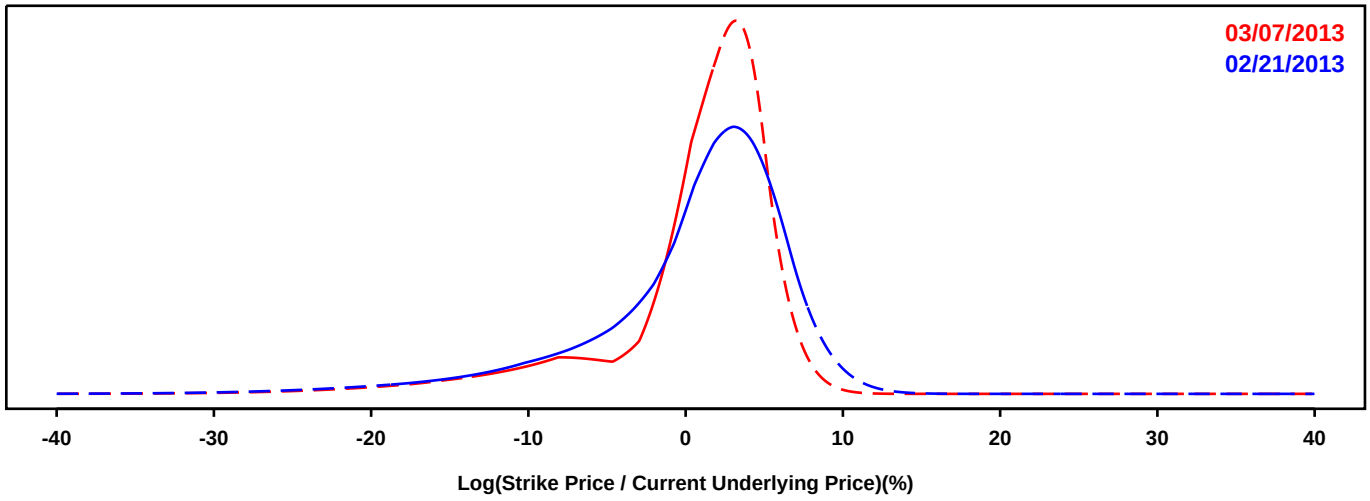
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- iSHARES DOW JONES US REAL ESTATE

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

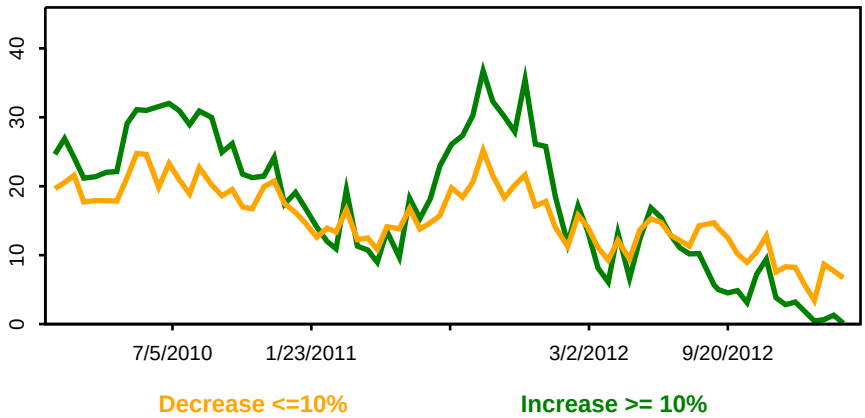
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

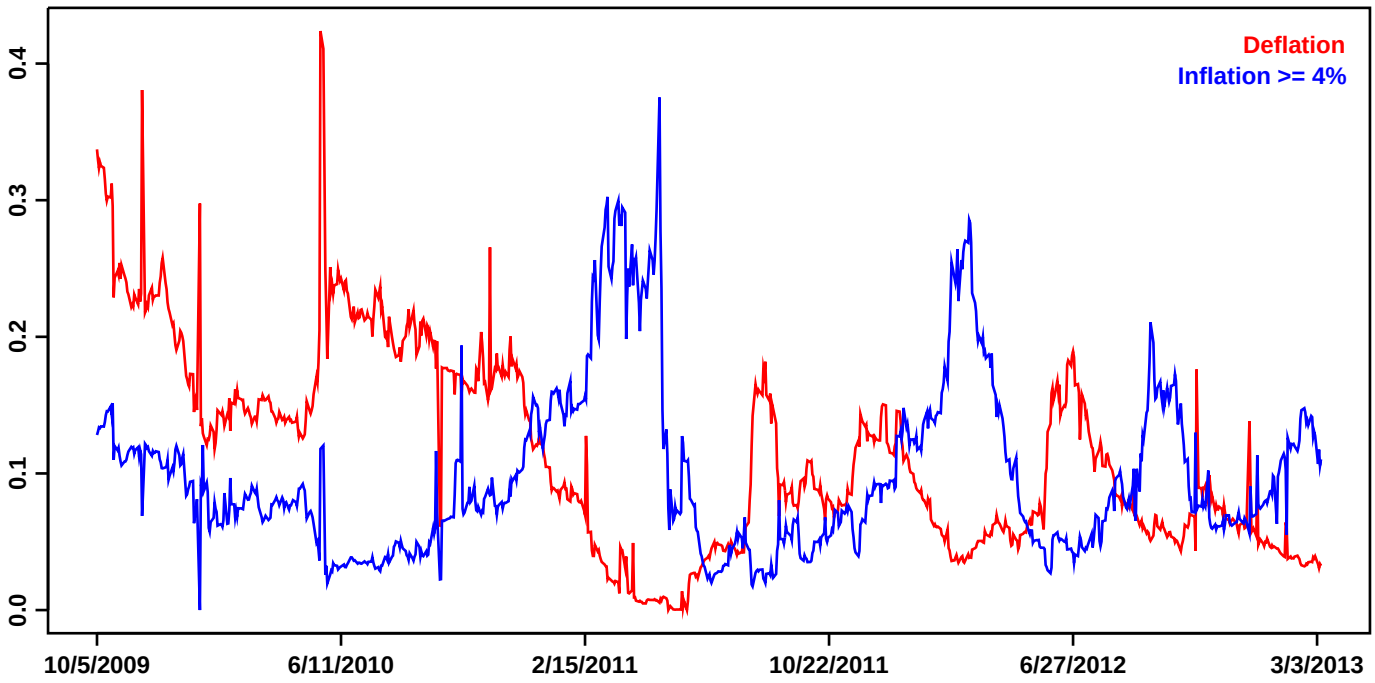


Statistics of the Log Return Distributions

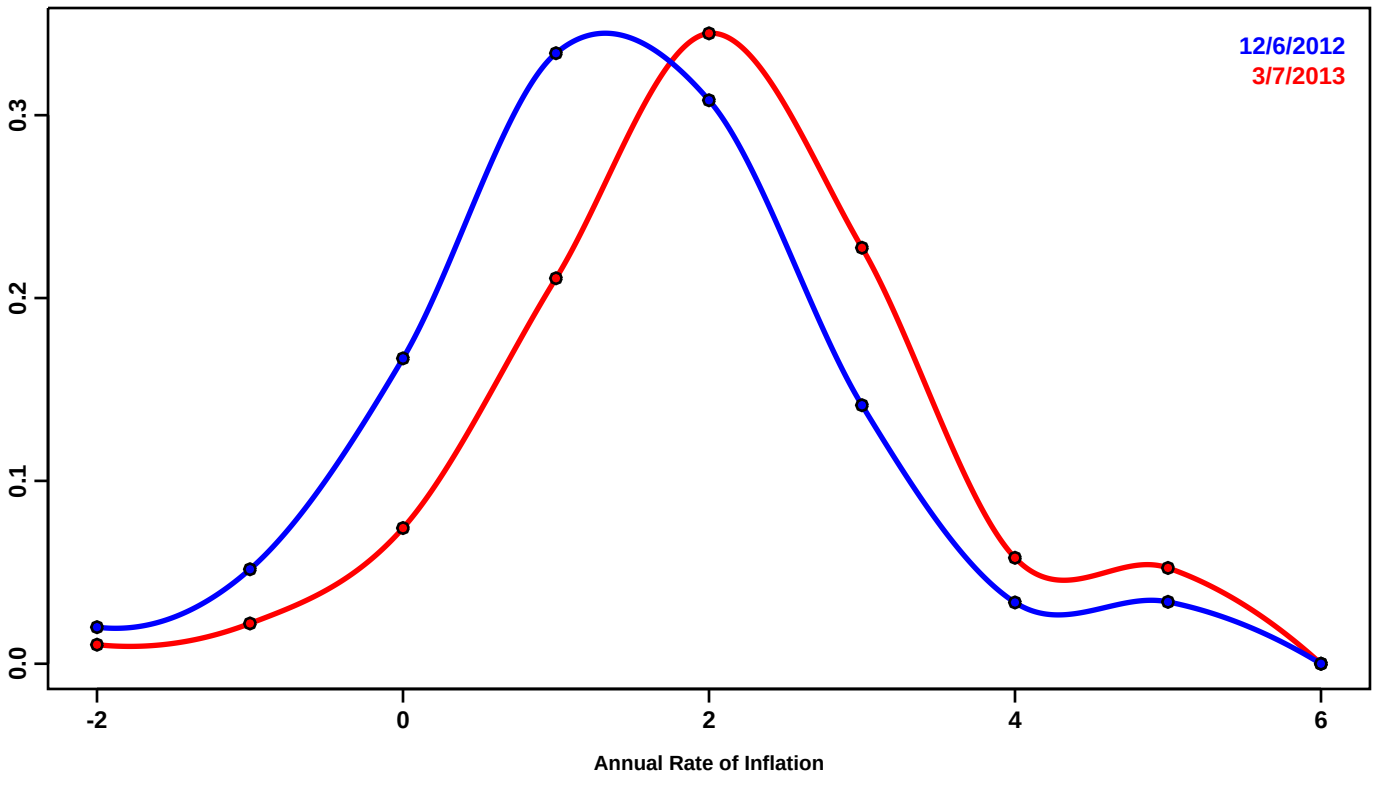
	02/21/2013	03/07/2013	Change
10th Pct	-8.25%	-7.28%	0.97%
50th Pct	1.87%	2.00%	0.13%
90th Pct	6.64%	5.36%	-1.28%
Mean	0.38%	0.55%	0.17%
Std Dev	6.55%	5.73%	-0.81%
Skew	-1.62	-2.09	-0.48
Kurtosis	3.80	5.64	1.84

RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- Inflation Caps & Floors

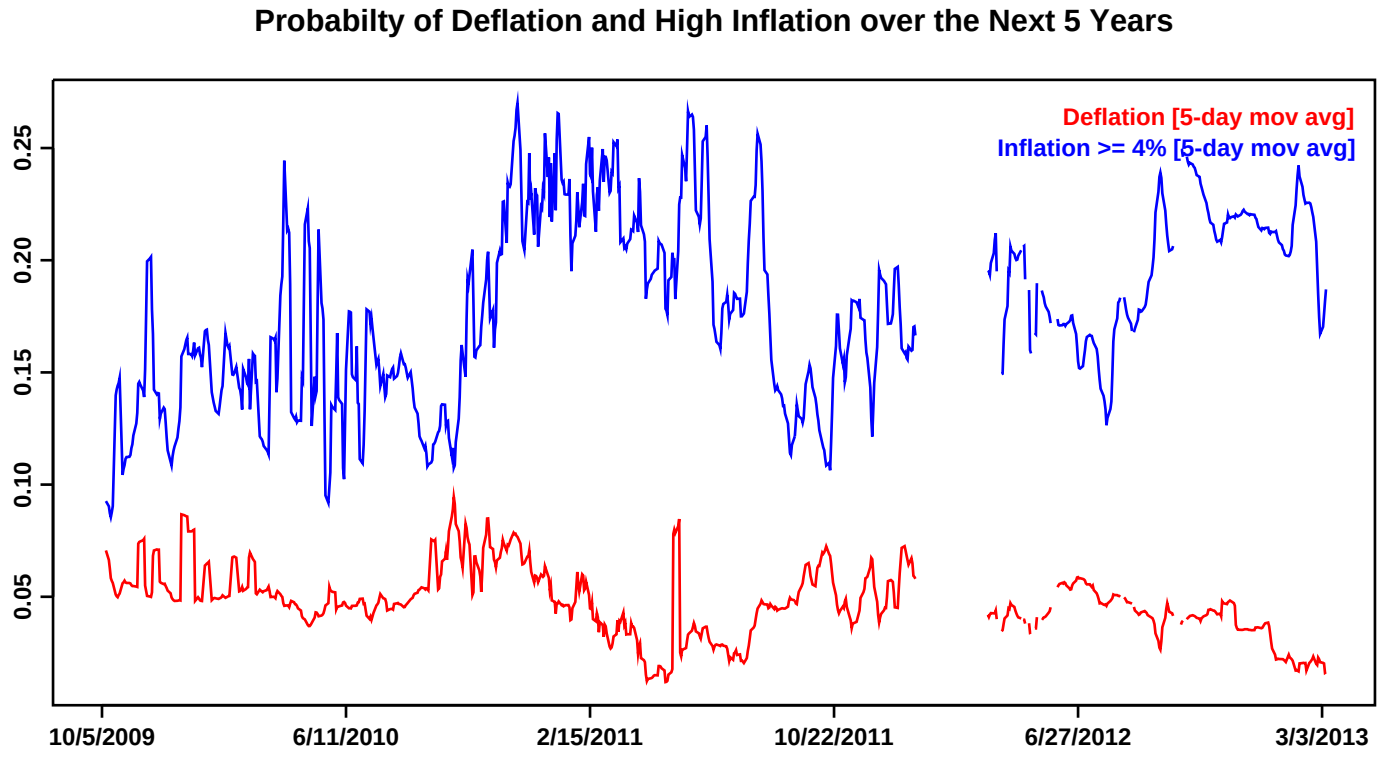
Probabilty of Deflation and High Inflation over the Next Year



Risk Neutral Density Function for Inflation over the Next Year



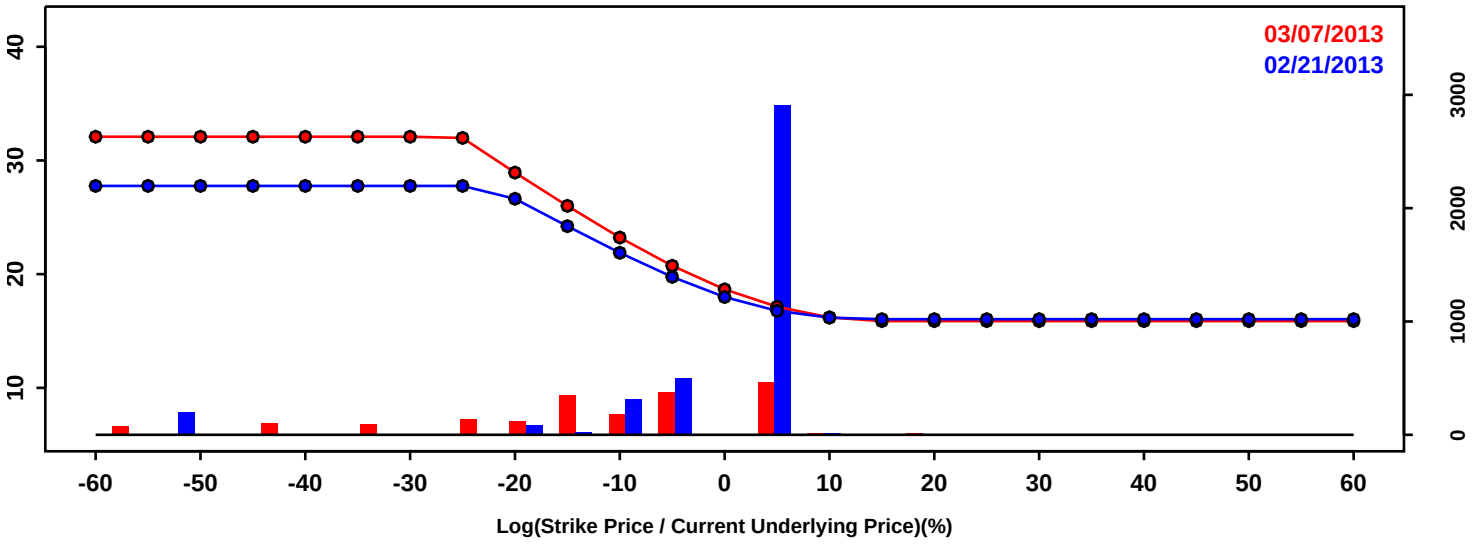
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- Inflation Caps & Floors



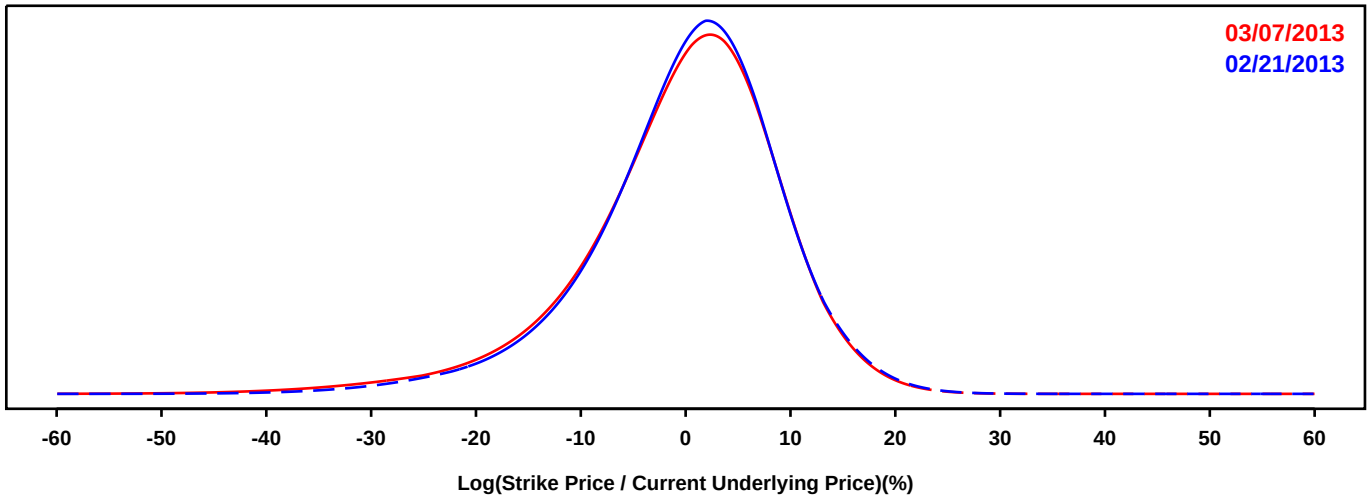
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- AMERICAN EXPRESS

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

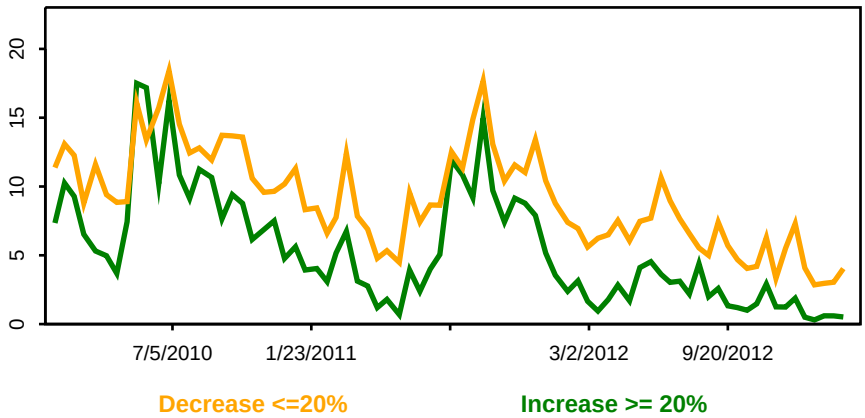
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



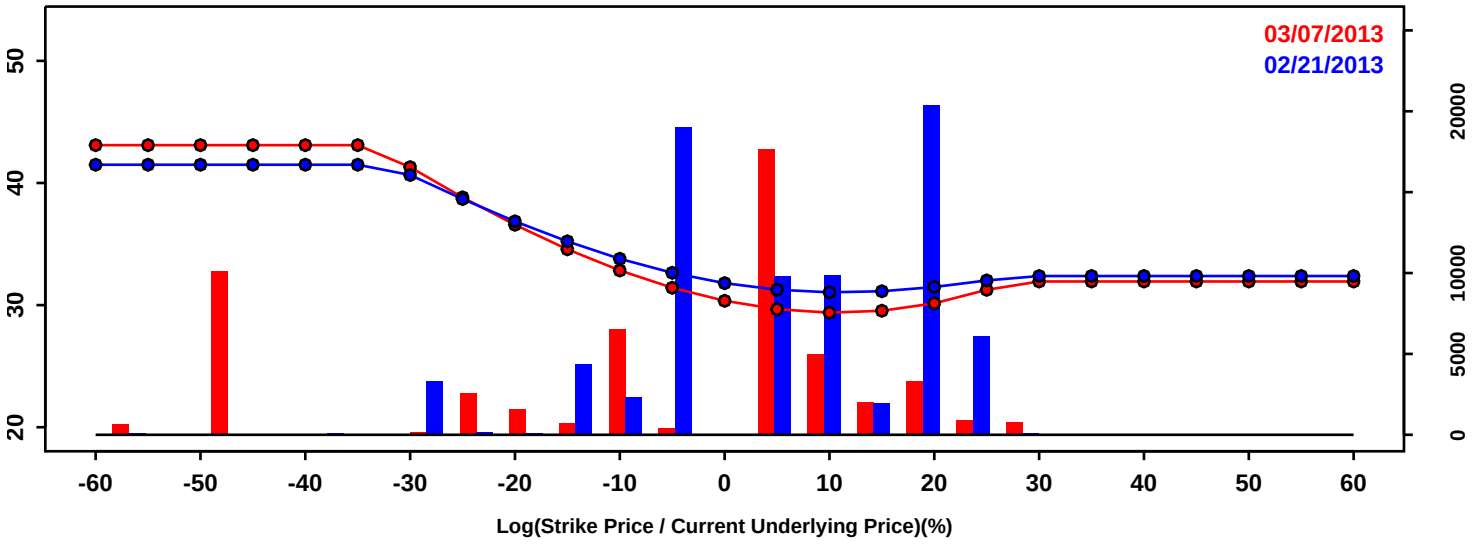
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-11.45%	-12.58%	-1.13%
50th Pct	0.94%	0.73%	-0.20%
90th Pct	10.33%	10.23%	-0.10%
Mean	0.05%	-0.47%	-0.52%
Std Dev	9.07%	9.67%	0.61%
Skew	-0.74	-0.96	-0.22
Kurtosis	1.46	2.10	0.64

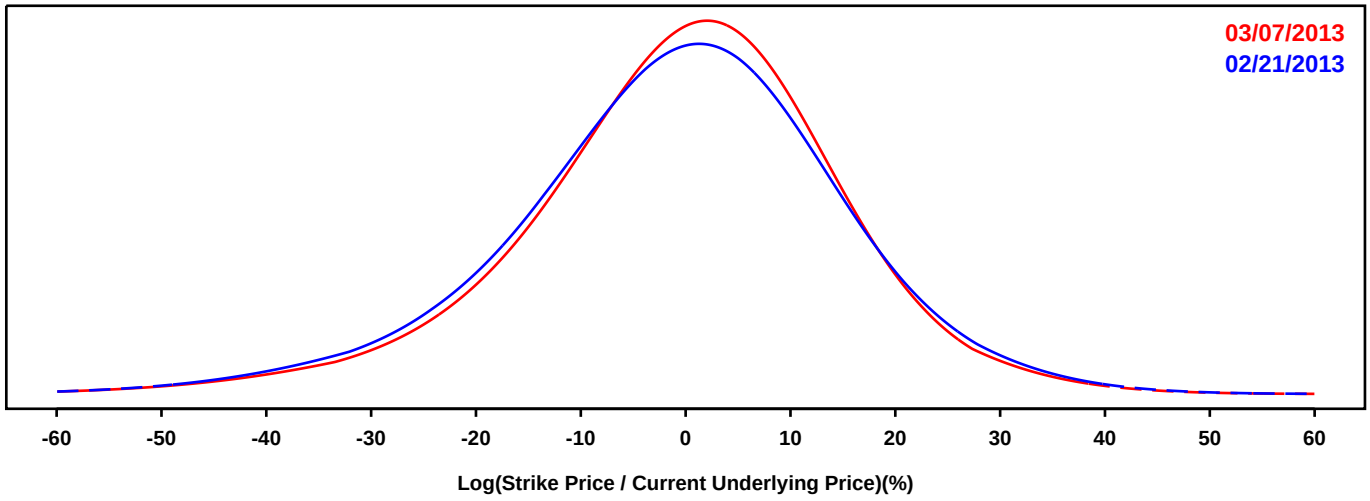
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- BANK OF AMERICA

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

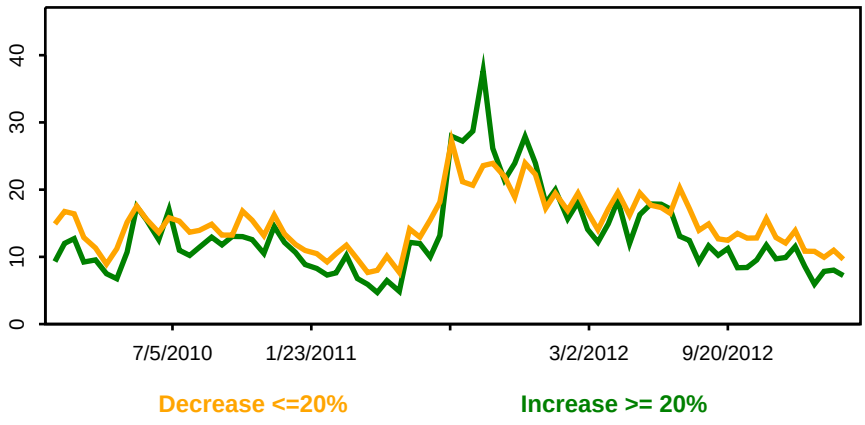
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



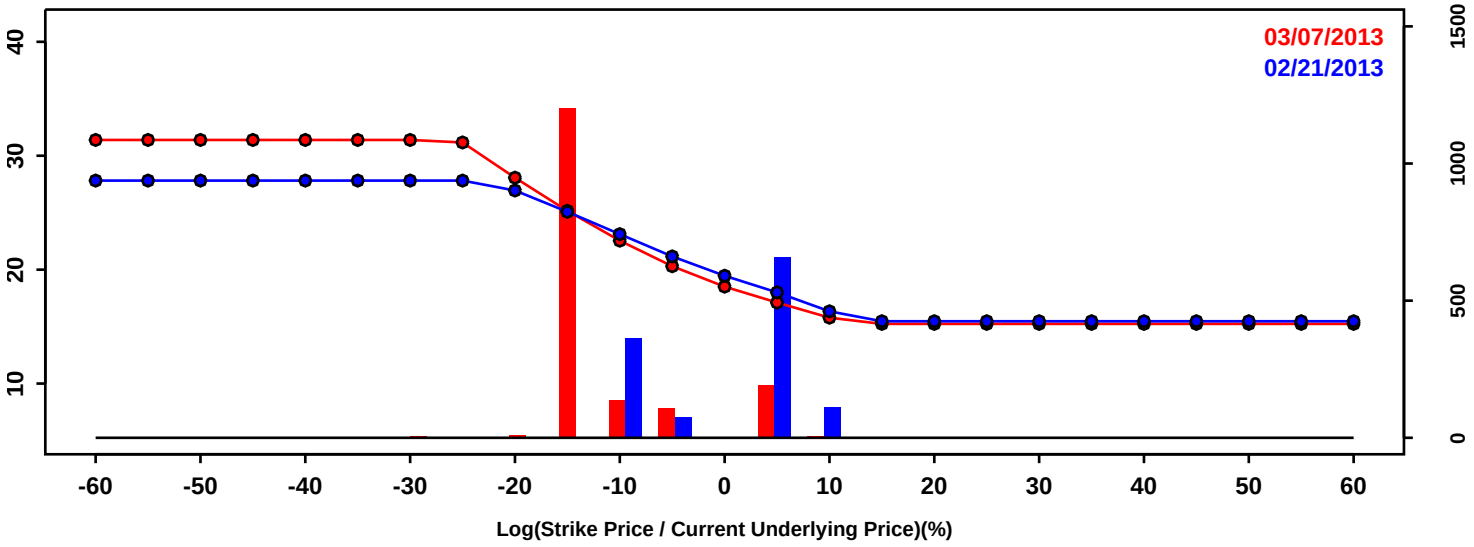
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-21.06%	-19.59%	1.47%
50th Pct	0.00%	0.55%	0.55%
90th Pct	18.16%	17.46%	-0.70%
Mean	-0.86%	-0.40%	0.46%
Std Dev	15.97%	15.32%	-0.65%
Skew	-0.36	-0.46	-0.10
Kurtosis	0.78	1.09	0.31

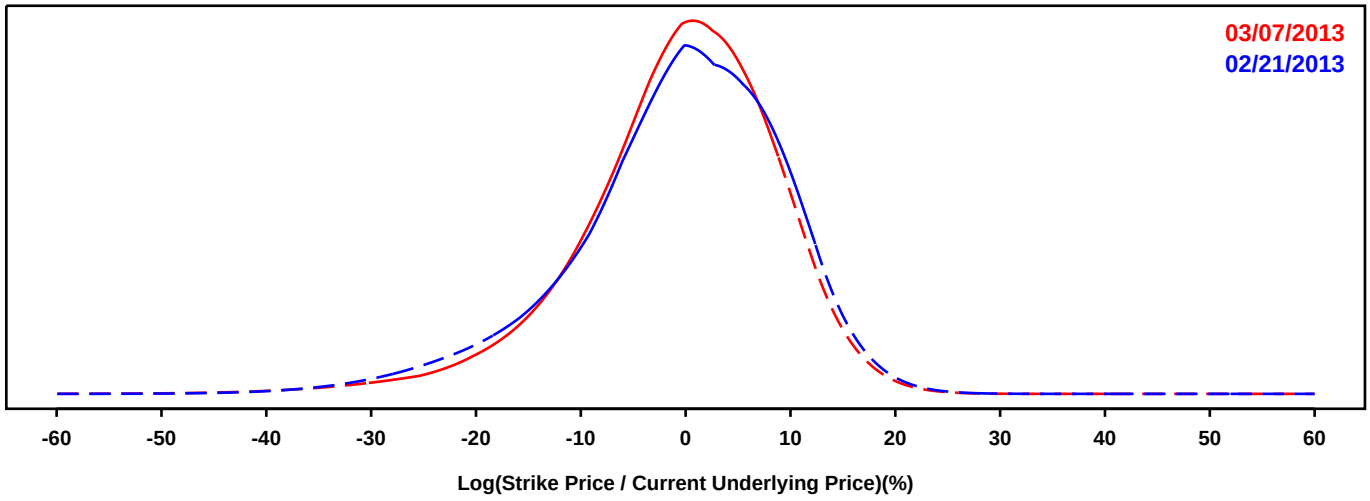
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- BB&T

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

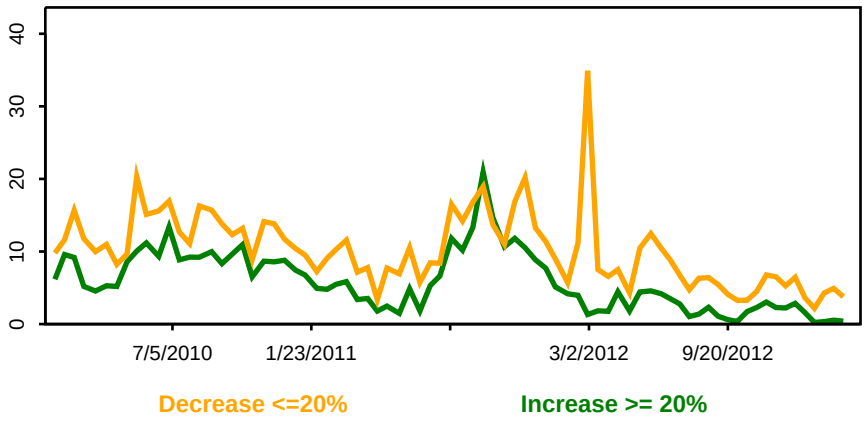
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



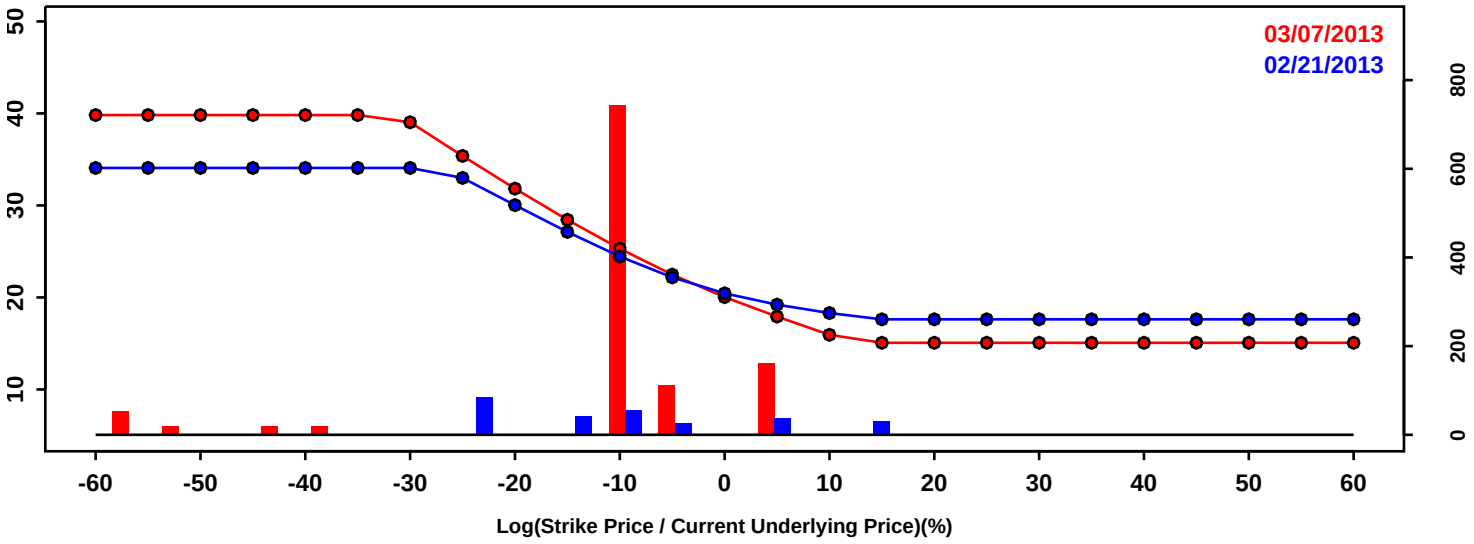
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-14.18%	-12.72%	1.46%
50th Pct	0.35%	0.21%	-0.14%
90th Pct	10.96%	10.23%	-0.74%
Mean	-0.75%	-0.72%	0.03%
Std Dev	10.16%	9.55%	-0.61%
Skew	-0.76	-0.84	-0.08
Kurtosis	1.00	1.72	0.72

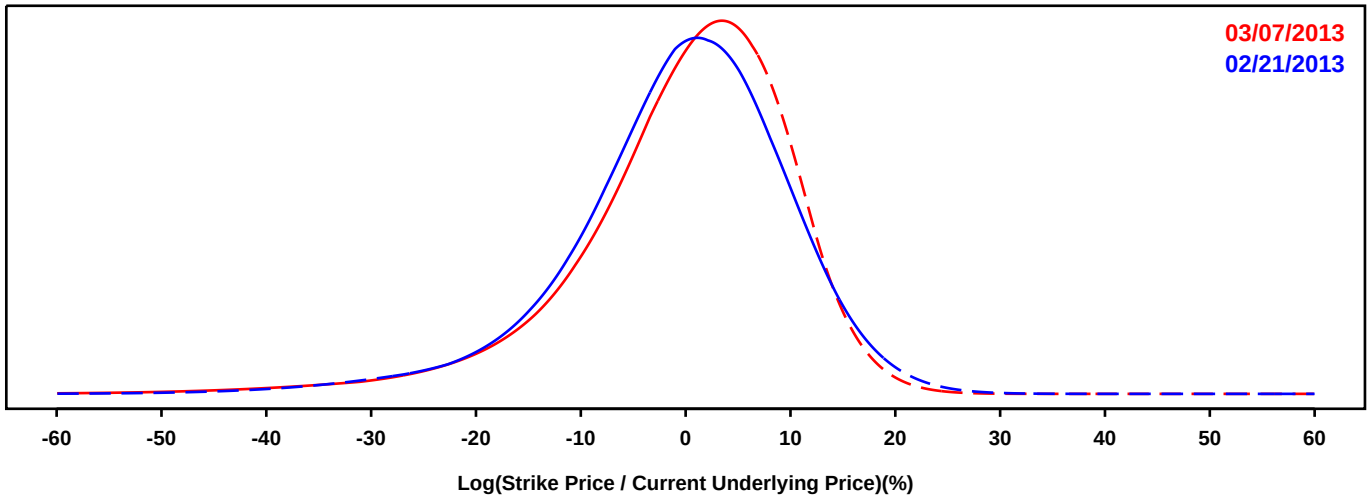
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- BANK OF NEW YORK MELLON

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

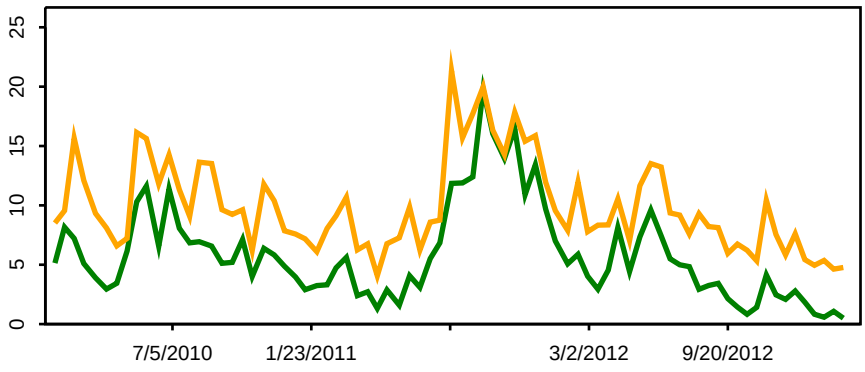
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



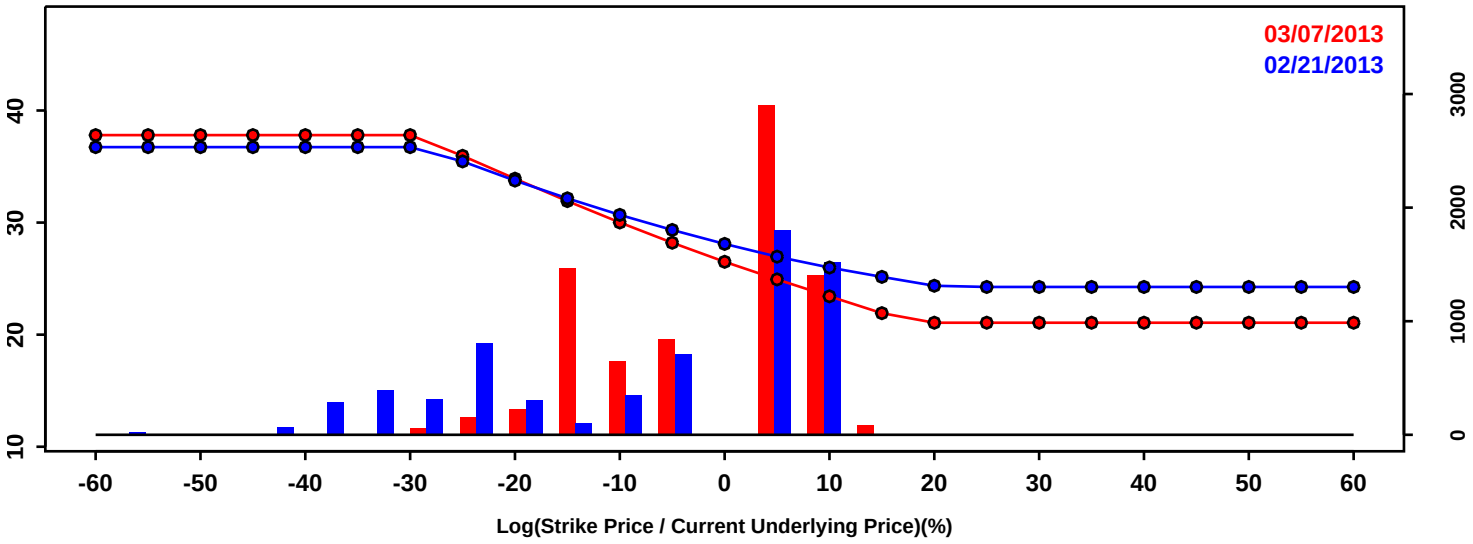
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-13.55%	-13.20%	0.35%
50th Pct	0.39%	1.28%	0.89%
90th Pct	11.41%	11.07%	-0.33%
Mean	-0.60%	-0.23%	0.37%
Std Dev	10.50%	10.54%	0.03%
Skew	-0.83	-1.24	-0.41
Kurtosis	1.85	3.12	1.27

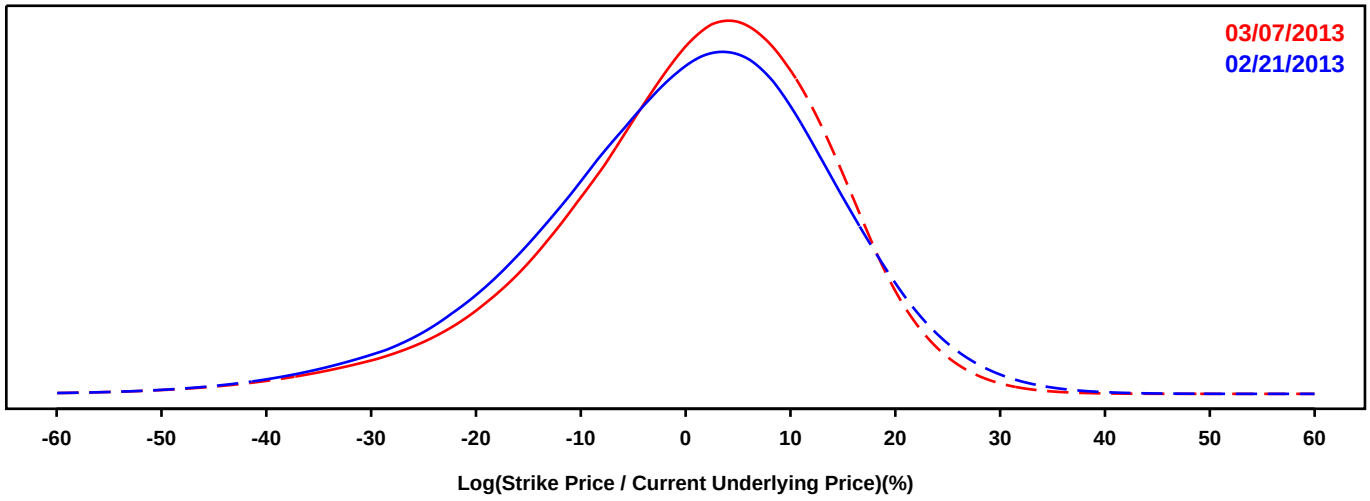
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CITIGROUP

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

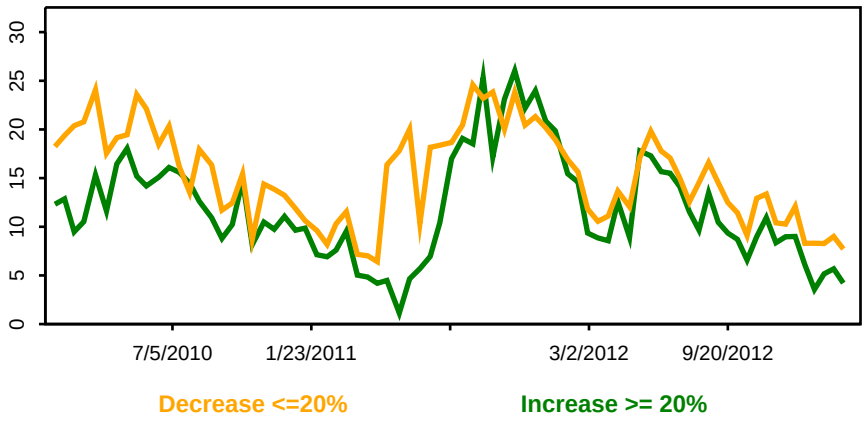
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



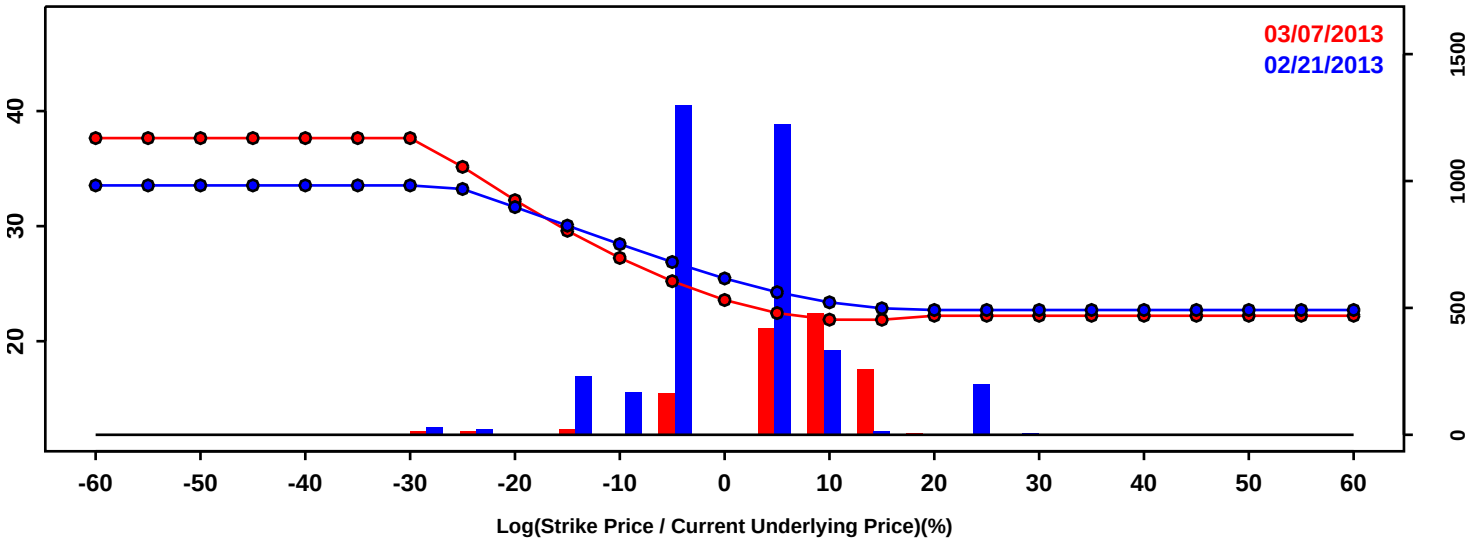
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-18.90%	-17.34%	1.56%
50th Pct	0.95%	1.85%	0.90%
90th Pct	16.55%	15.68%	-0.87%
Mean	-0.31%	0.27%	0.59%
Std Dev	14.22%	13.42%	-0.79%
Skew	-0.52	-0.74	-0.21
Kurtosis	0.61	1.02	0.41

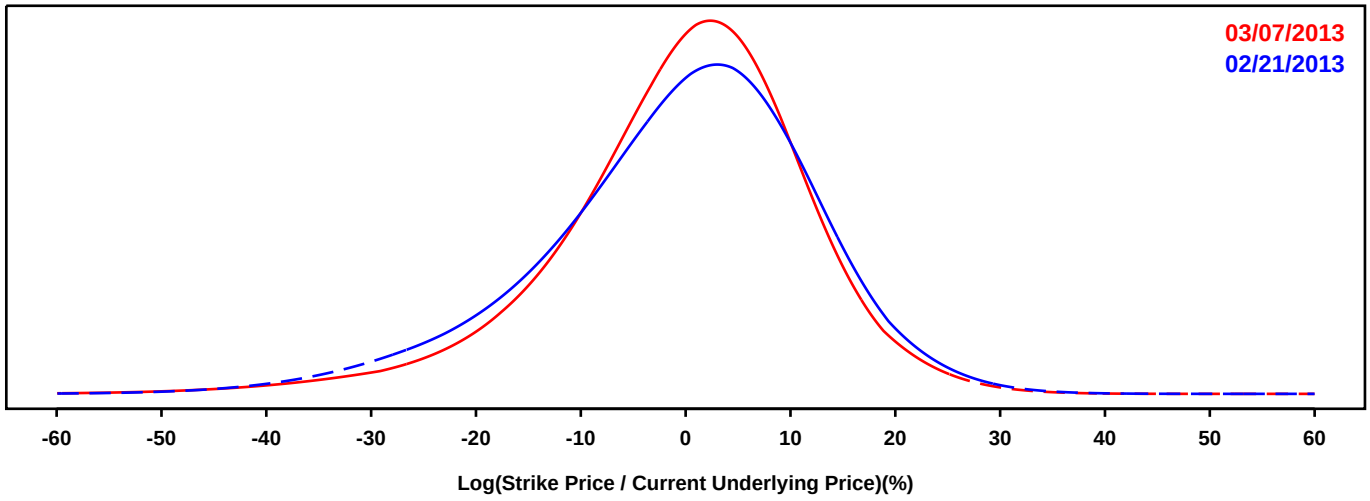
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CAPITAL ONE

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

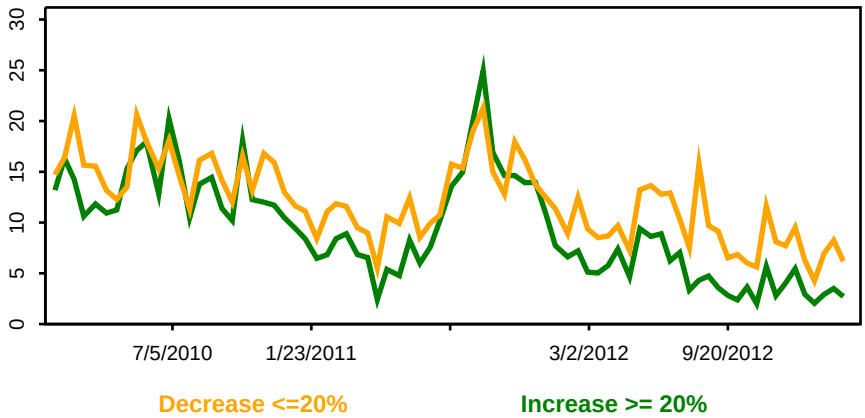
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



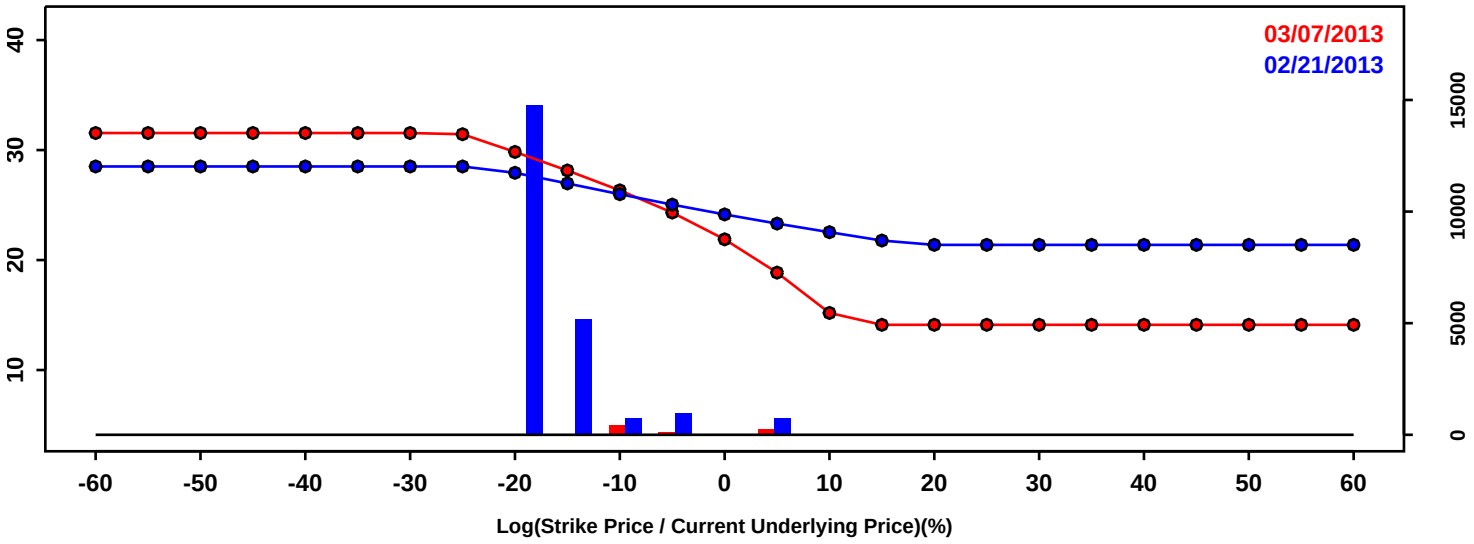
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-18.09%	-15.52%	2.57%
50th Pct	0.62%	0.74%	0.13%
90th Pct	14.33%	13.18%	-1.15%
Mean	-0.77%	-0.43%	0.34%
Std Dev	13.04%	12.04%	-1.00%
Skew	-0.59	-0.74	-0.15
Kurtosis	0.72	1.62	0.90

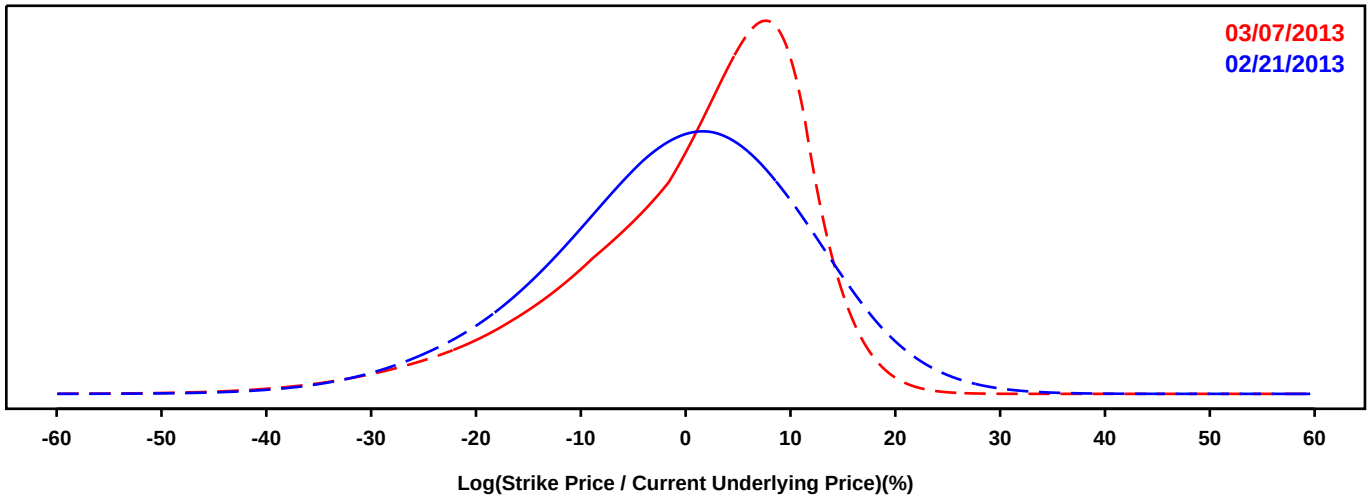
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- FIFTH THIRD

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

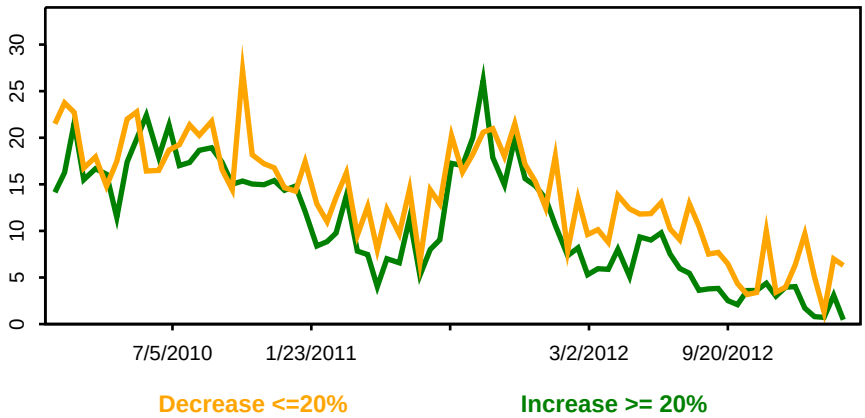
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



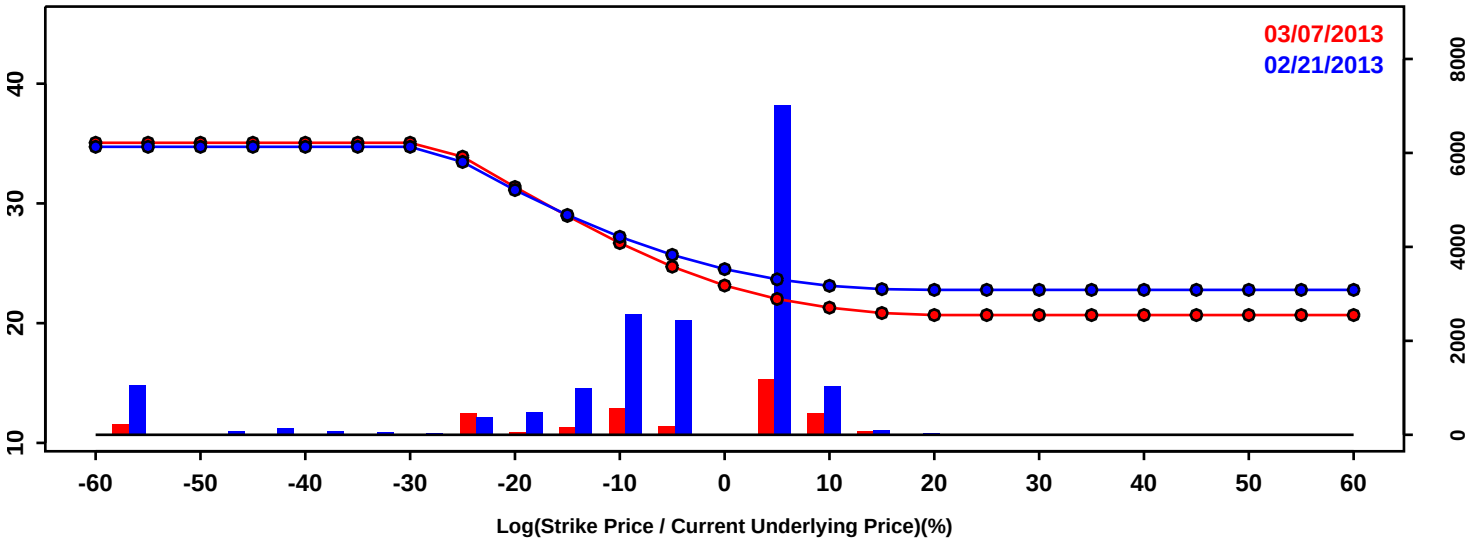
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-17.05%	-15.70%	1.35%
50th Pct	-0.04%	2.84%	2.88%
90th Pct	14.05%	11.94%	-2.11%
Mean	-0.84%	0.22%	1.06%
Std Dev	12.24%	11.30%	-0.94%
Skew	-0.37	-1.05	-0.68
Kurtosis	0.25	1.19	0.95

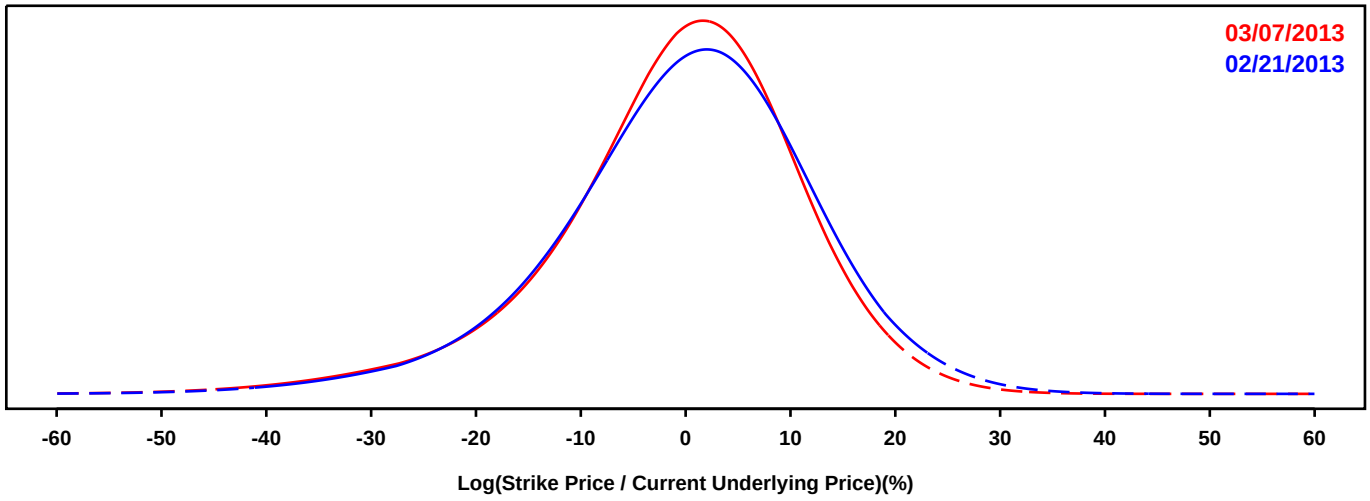
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- GOLDMAN SACHS

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

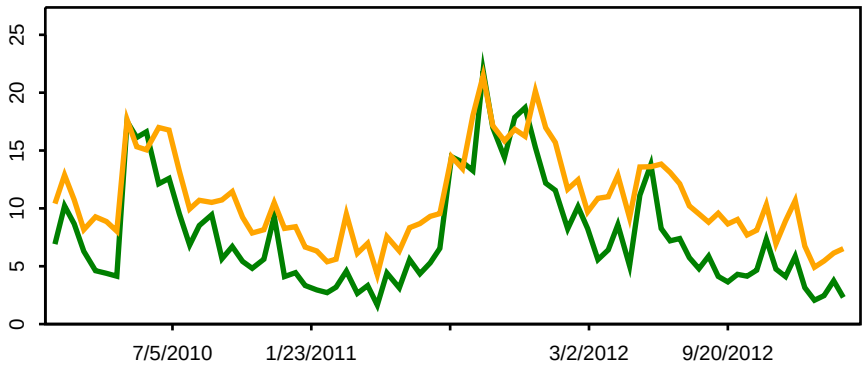
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



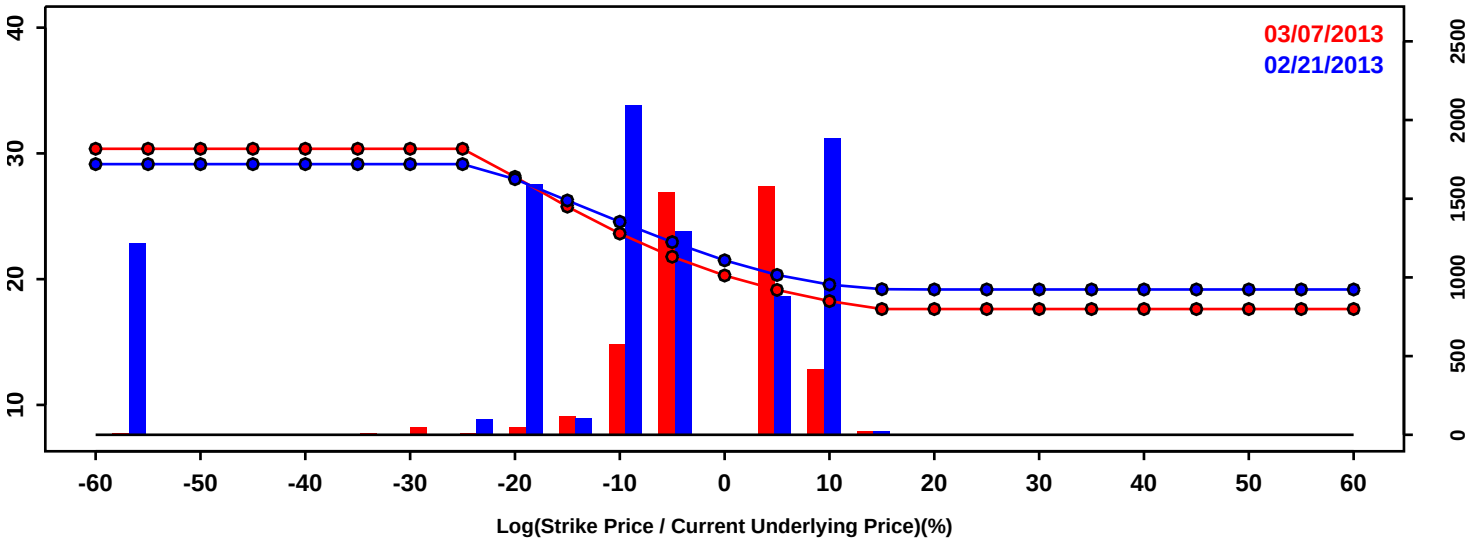
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-15.71%	-15.95%	-0.24%
50th Pct	0.77%	0.29%	-0.48%
90th Pct	14.48%	12.85%	-1.63%
Mean	-0.09%	-0.84%	-0.75%
Std Dev	12.32%	11.92%	-0.40%
Skew	-0.51	-0.72	-0.21
Kurtosis	0.94	1.36	0.42

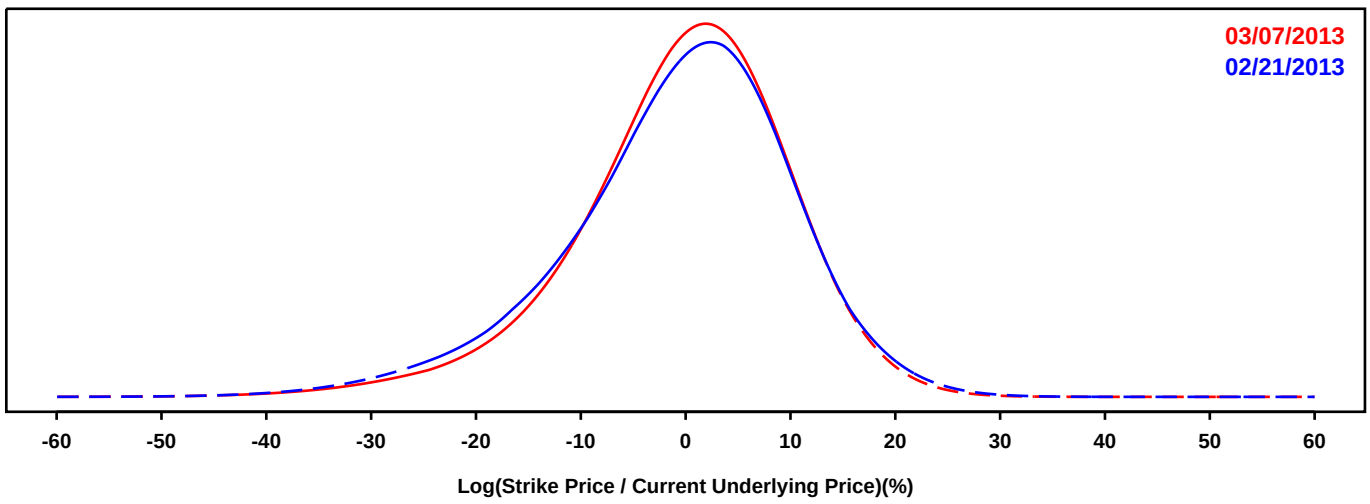
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- JP MORGAN

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

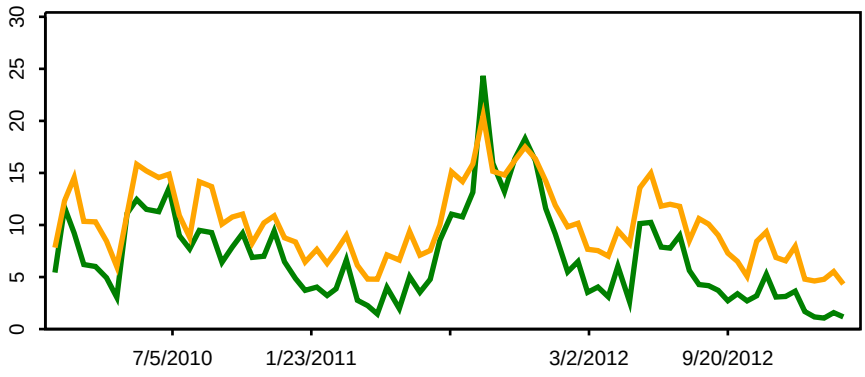
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



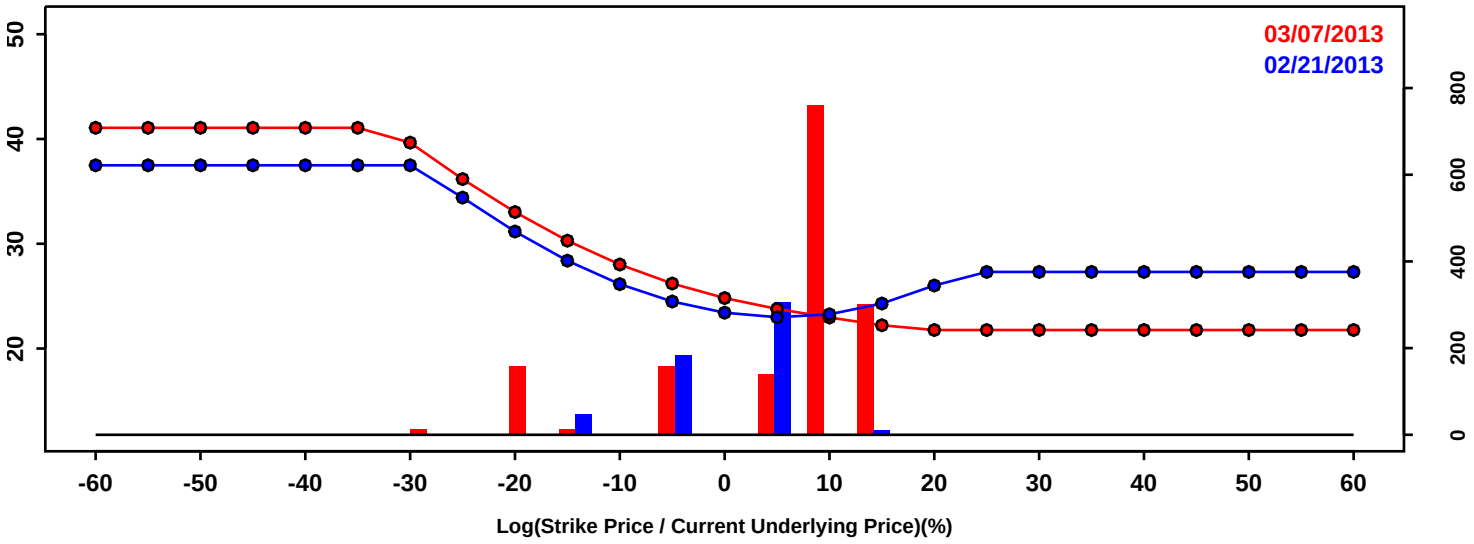
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-15.13%	-13.47%	1.66%
50th Pct	0.46%	0.60%	0.15%
90th Pct	12.00%	11.67%	-0.34%
Mean	-0.68%	-0.34%	0.34%
Std Dev	10.96%	10.32%	-0.65%
Skew	-0.60	-0.67	-0.06
Kurtosis	0.82	1.16	0.34

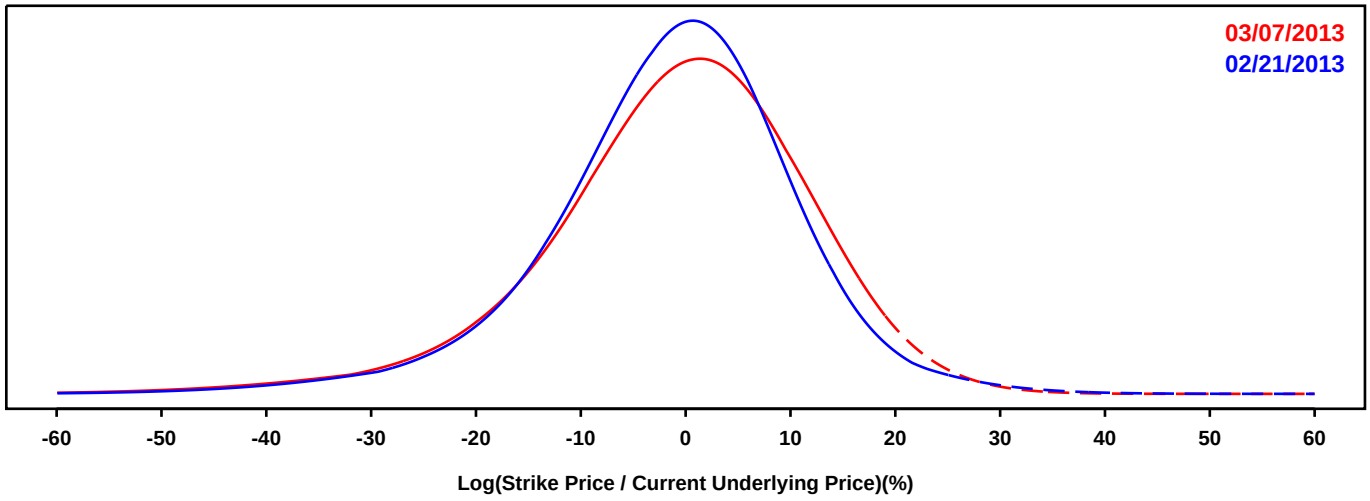
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- KEYCORP

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

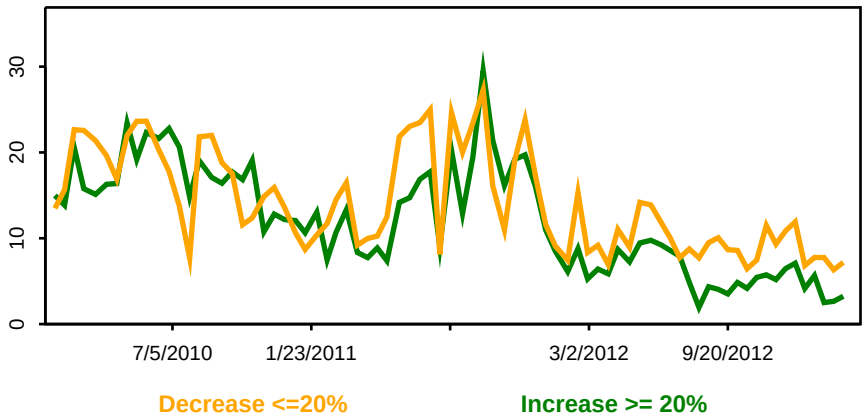
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



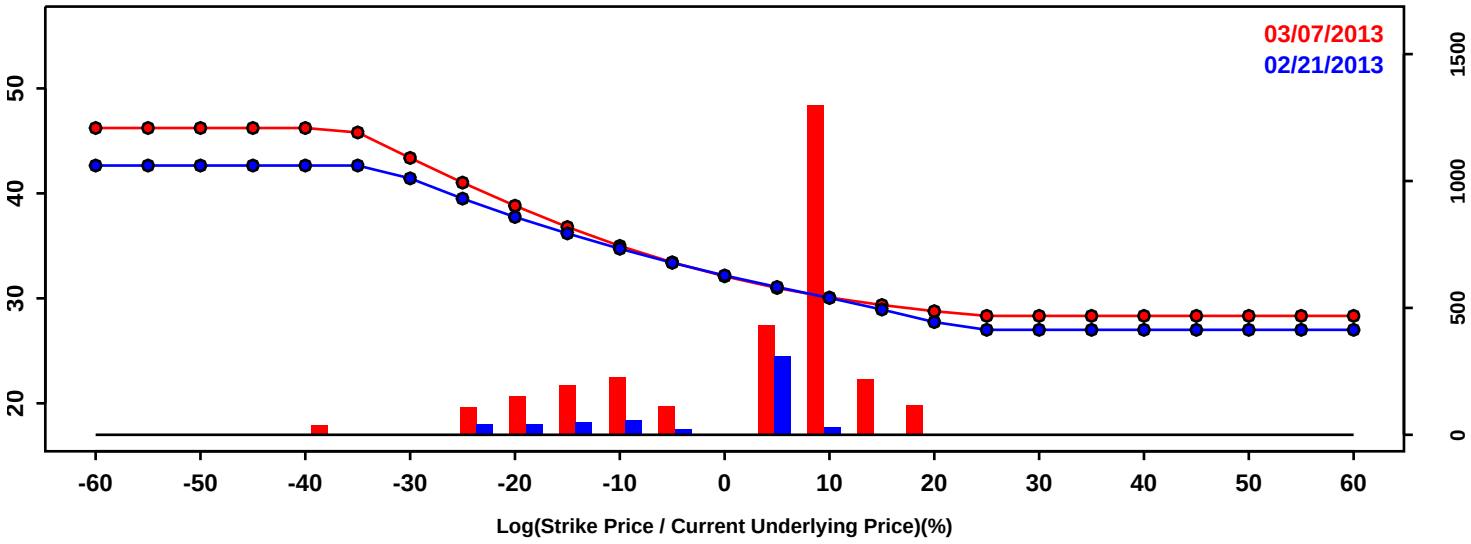
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-16.02%	-16.85%	-0.83%
50th Pct	-0.54%	0.13%	0.67%
90th Pct	12.28%	14.11%	1.83%
Mean	-1.38%	-0.90%	0.48%
Std Dev	12.00%	12.86%	0.87%
Skew	-0.56	-0.73	-0.17
Kurtosis	1.66	1.55	-0.10

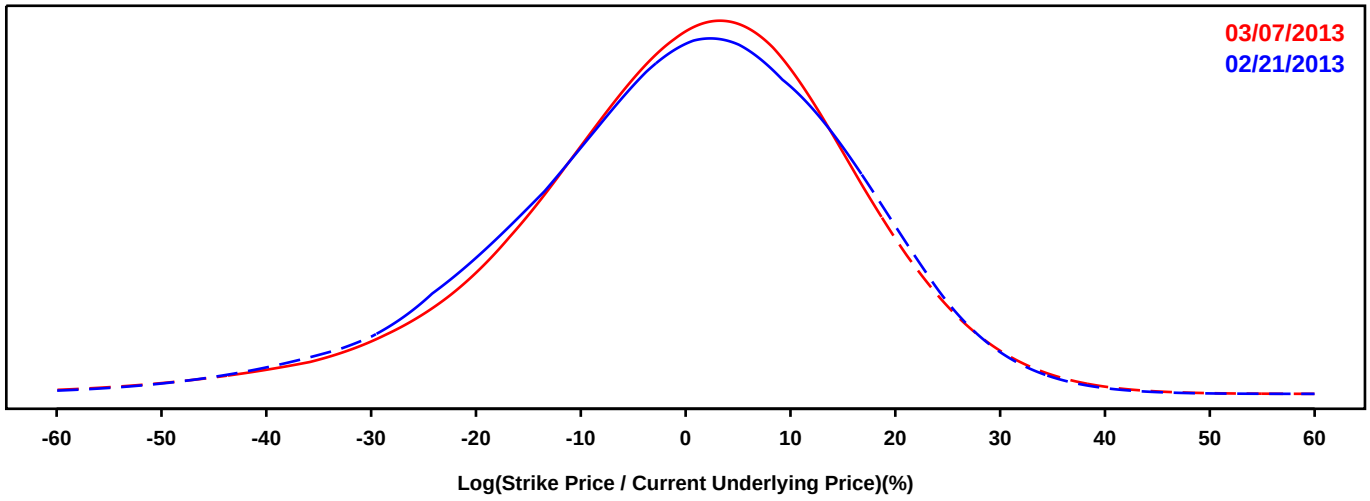
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- MORGAN STANLEY

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

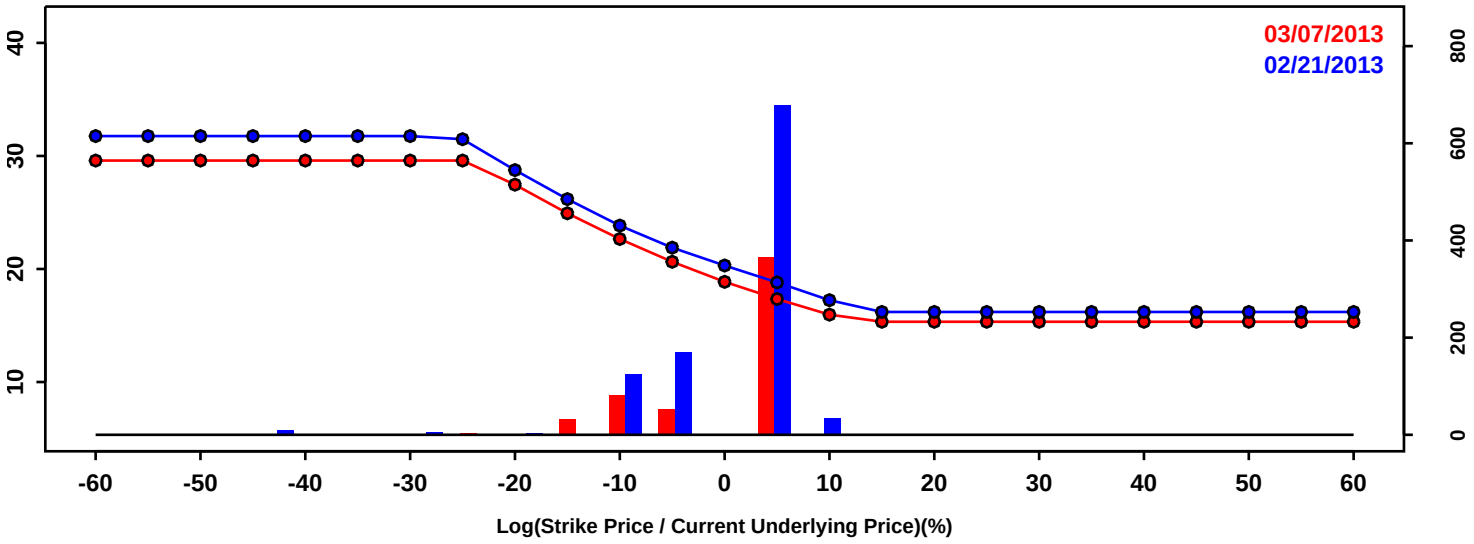
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-21.90%	-20.80%	1.10%
50th Pct	0.73%	1.10%	0.38%
90th Pct	19.00%	18.79%	-0.20%
Mean	-0.58%	-0.23%	0.36%
Std Dev	16.34%	16.19%	-0.15%
Skew	-0.53	-0.60	-0.07
Kurtosis	0.60	1.03	0.43

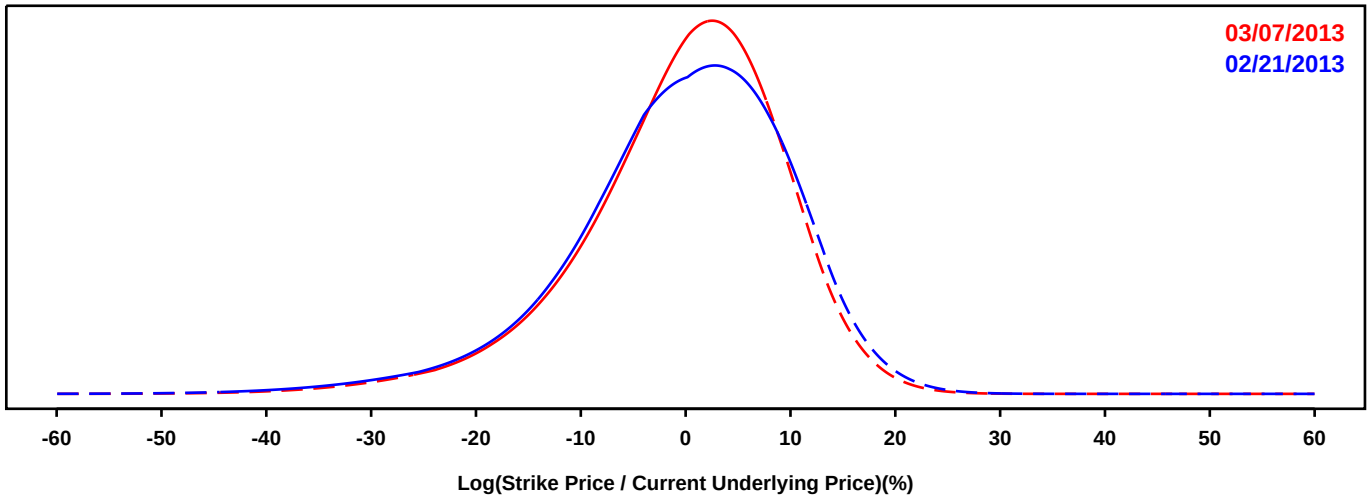
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- PNC FINANCIAL

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

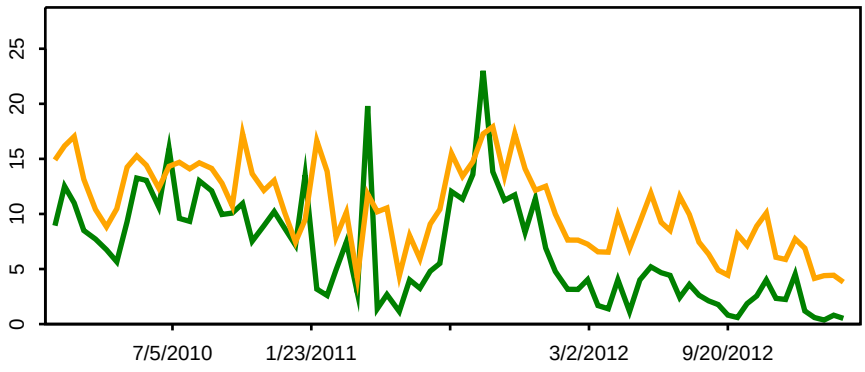
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease <=20% Increase >= 20%

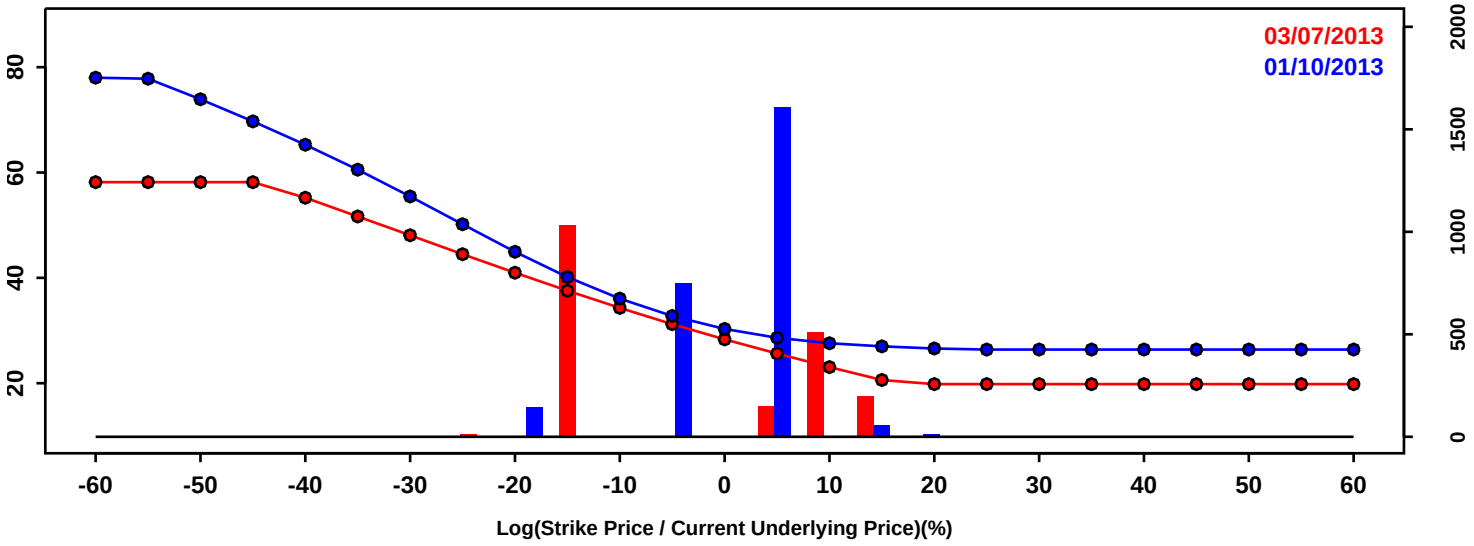
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-13.56%	-12.79%	0.77%
50th Pct	0.64%	0.85%	0.22%
90th Pct	11.60%	10.75%	-0.85%
Mean	-0.37%	-0.27%	0.10%
Std Dev	10.37%	9.69%	-0.68%
Skew	-0.77	-0.80	-0.03
Kurtosis	1.31	1.35	0.04

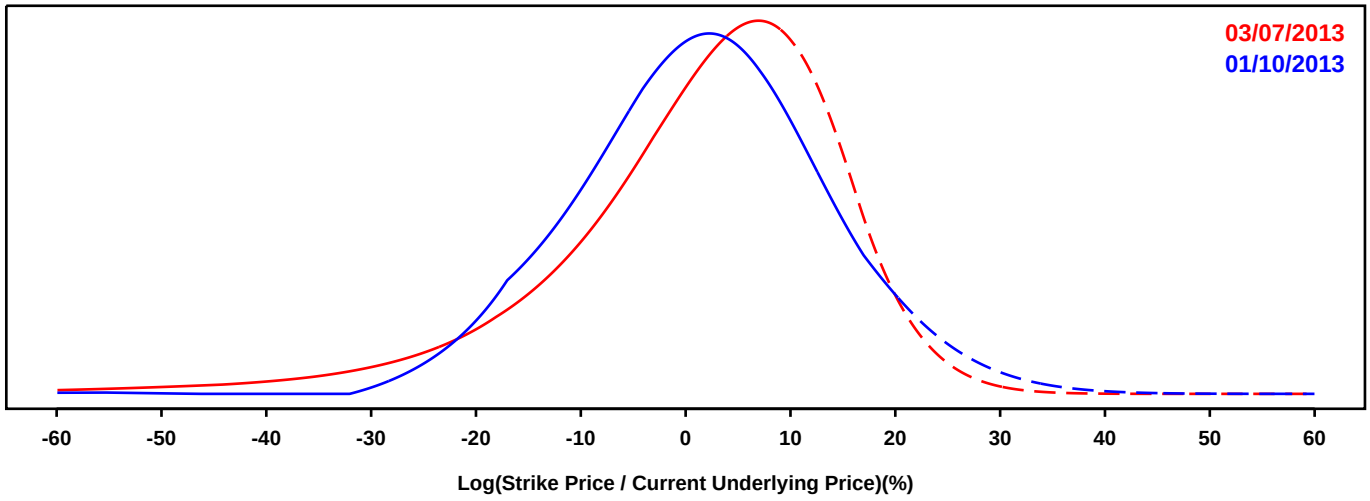
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- REGIONS FINANCIAL

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

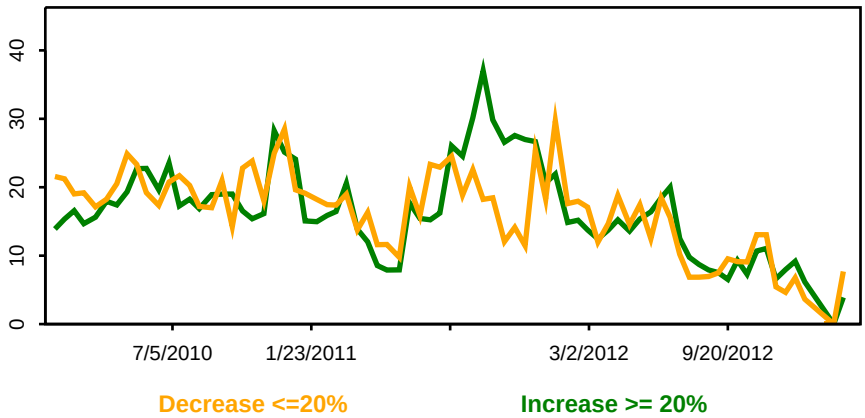
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



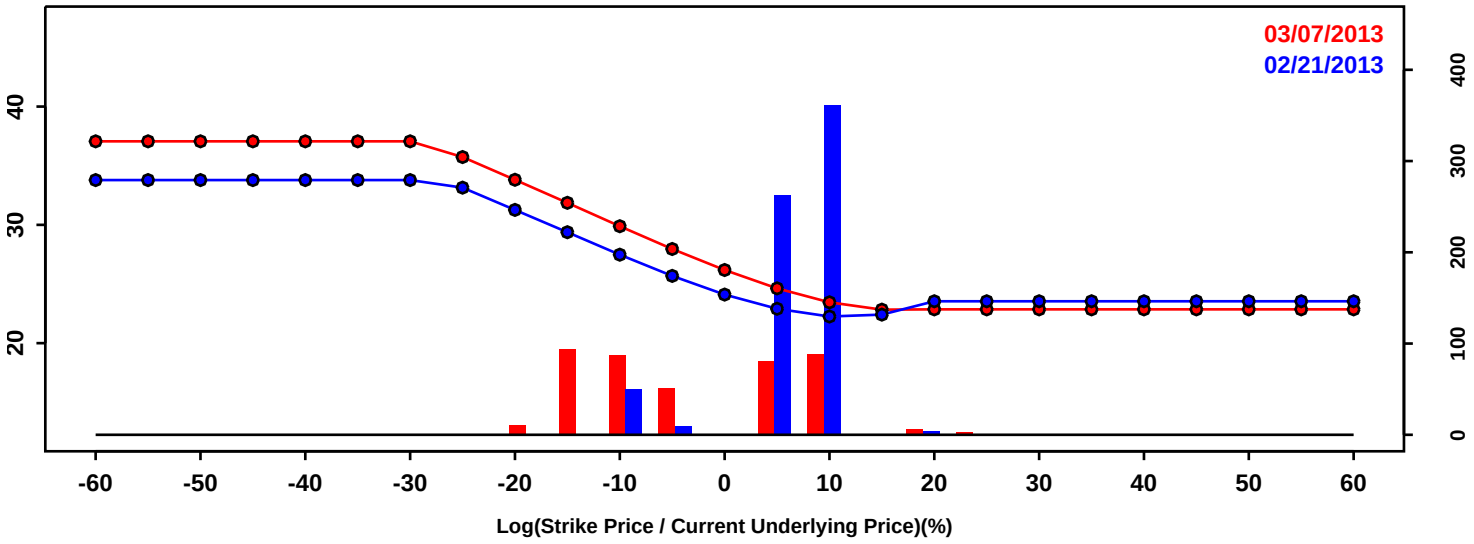
Statistics of the Log Return Distributions

	01/10/2013	03/07/2013	Change
10th Pct	-14.01%	-16.81%	-2.80%
50th Pct	1.67%	3.33%	1.65%
90th Pct	16.68%	15.81%	-0.87%
Mean	1.44%	0.90%	-0.54%
Std Dev	12.56%	14.38%	1.82%
Skew	-0.65	-1.42	-0.77
Kurtosis	4.48	3.86	-0.62

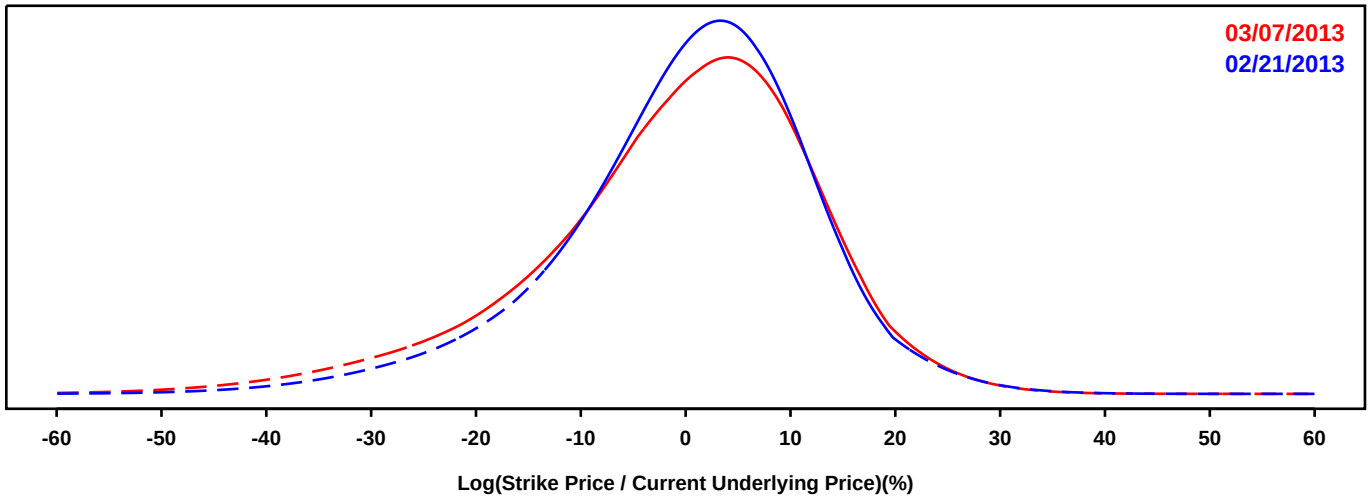
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- SUNTRUST

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

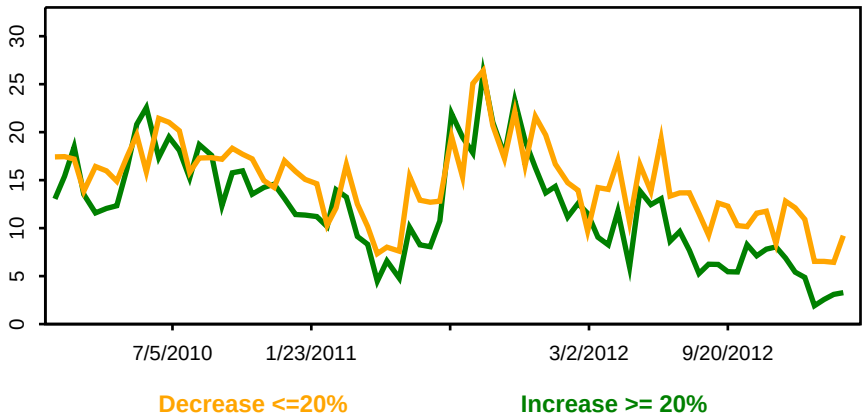
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



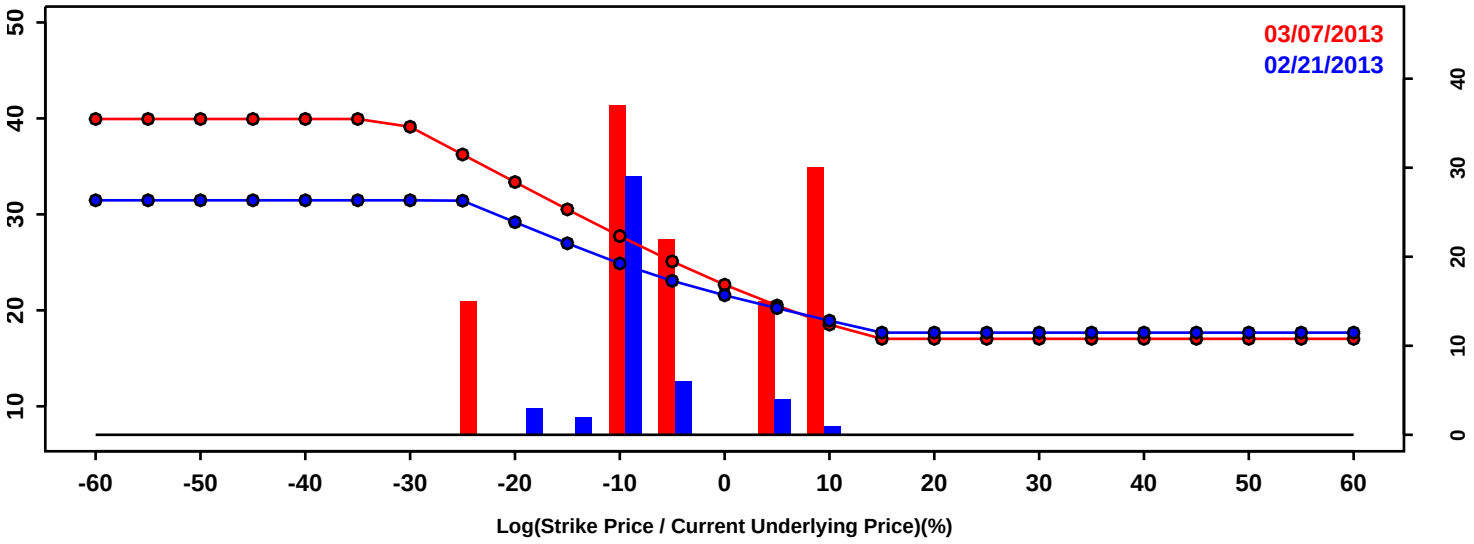
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-15.71%	-19.05%	-3.34%
50th Pct	1.32%	0.84%	-0.48%
90th Pct	13.74%	14.17%	0.42%
Mean	0.05%	-0.99%	-1.04%
Std Dev	12.15%	13.58%	1.43%
Skew	-0.64	-0.77	-0.13
Kurtosis	1.12	1.08	-0.04

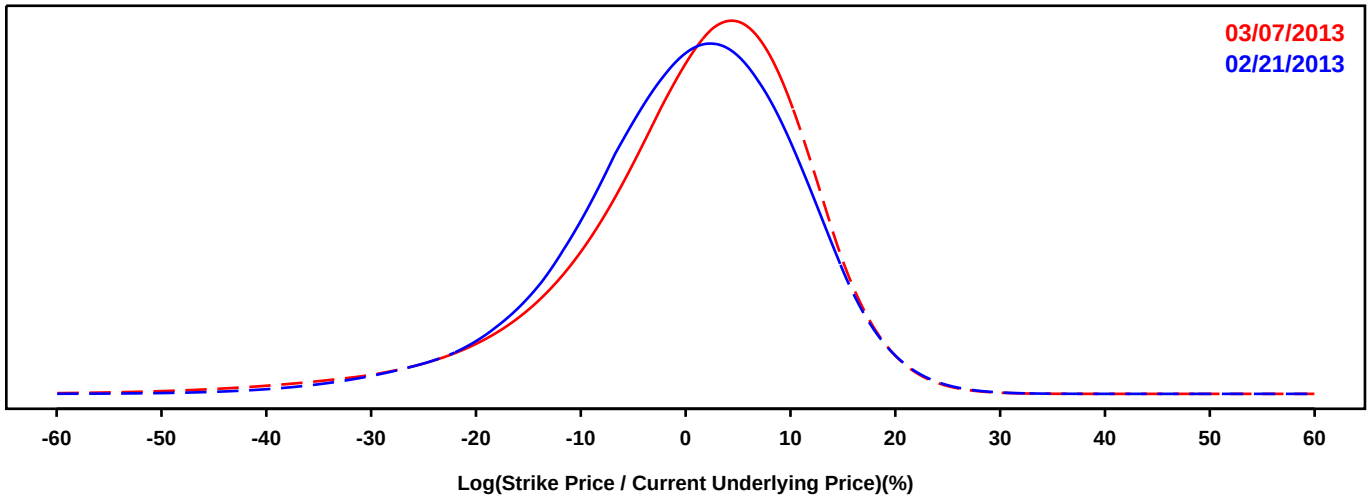
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- STATE STREET

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

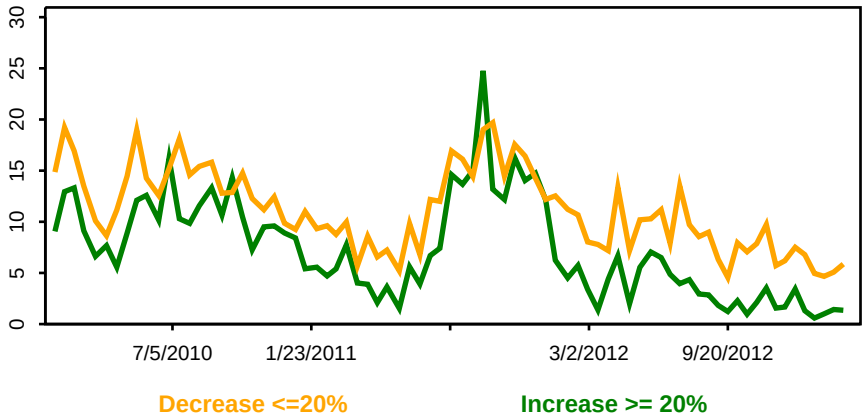
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



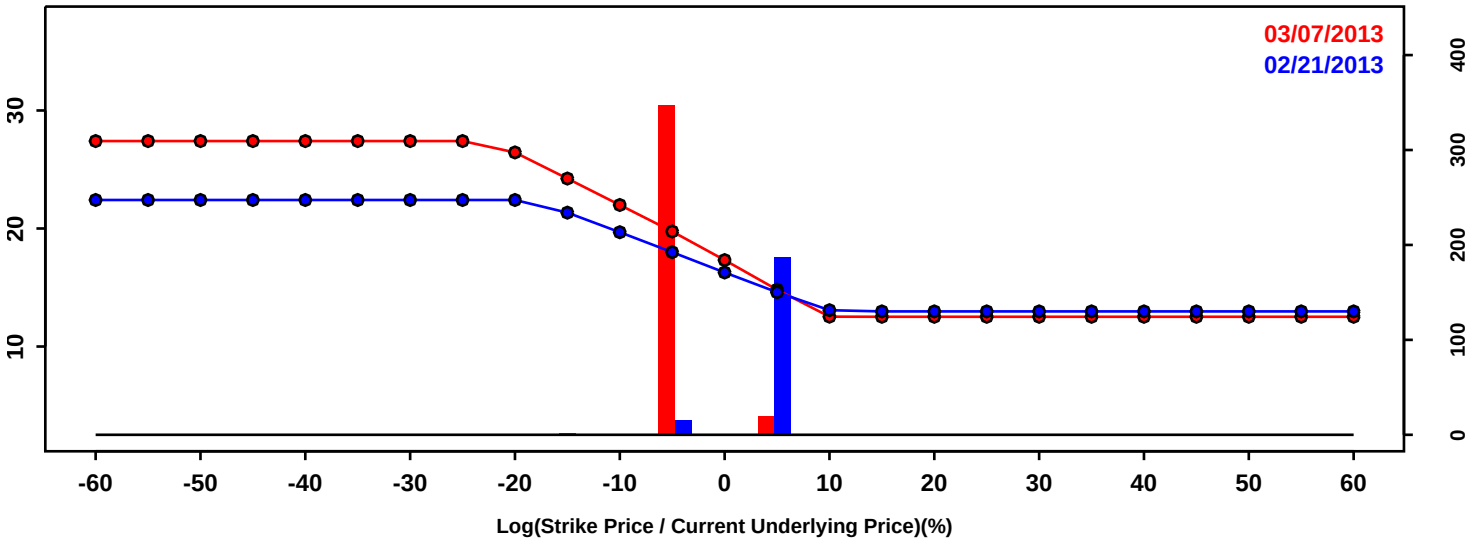
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-14.29%	-14.55%	-0.26%
50th Pct	0.77%	1.95%	1.18%
90th Pct	12.53%	12.80%	0.27%
Mean	-0.25%	0.21%	0.46%
Std Dev	10.97%	11.66%	0.69%
Skew	-0.69	-1.13	-0.44
Kurtosis	1.07	2.40	1.34

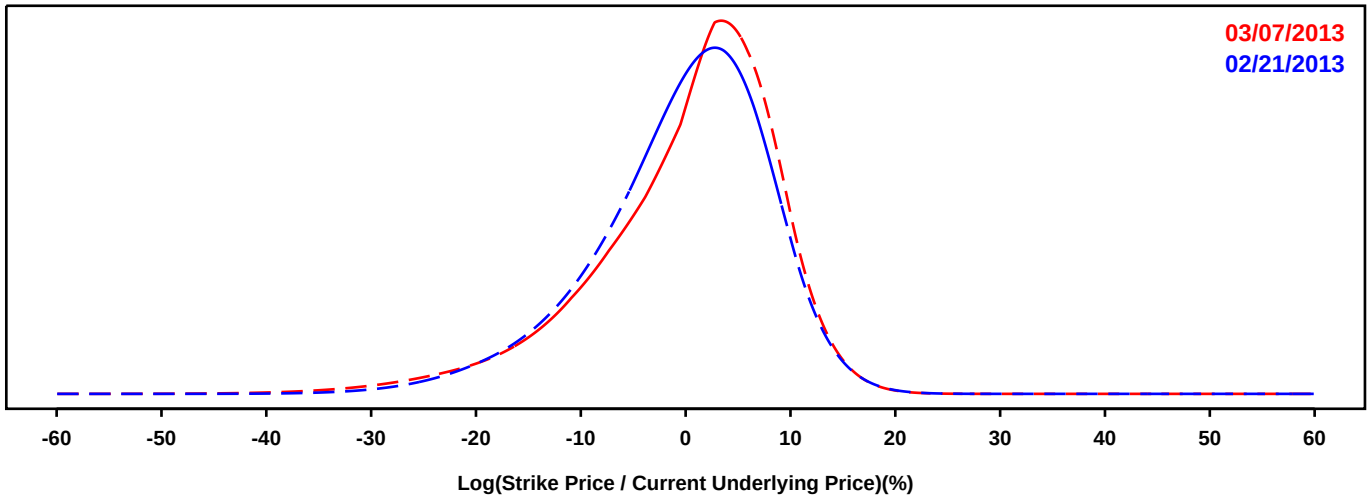
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- US BANCORP

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

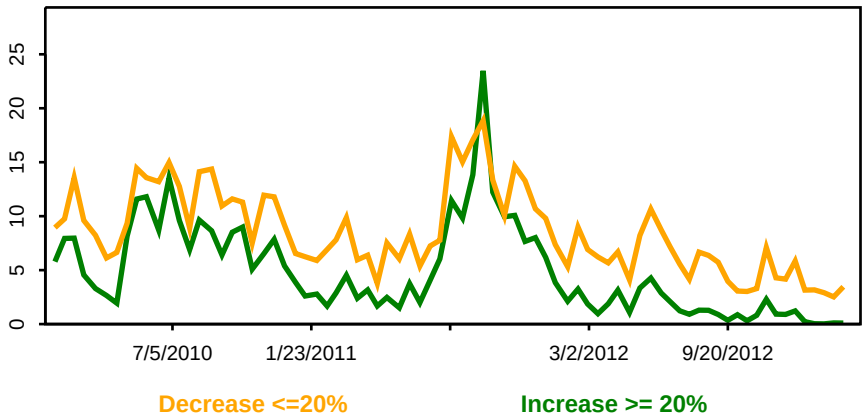
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



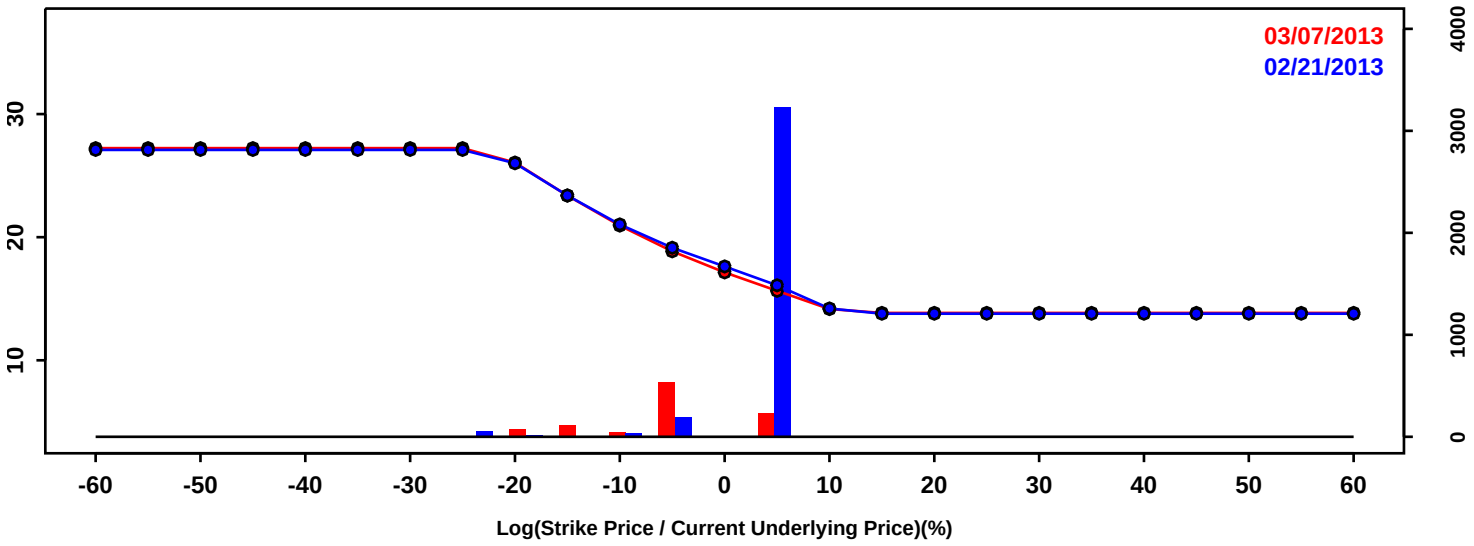
Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-11.65%	-12.00%	-0.35%
50th Pct	0.73%	1.65%	0.92%
90th Pct	9.13%	9.46%	0.33%
Mean	-0.38%	-0.03%	0.35%
Std Dev	8.37%	8.93%	0.57%
Skew	-0.73	-1.06	-0.33
Kurtosis	0.83	1.69	0.86

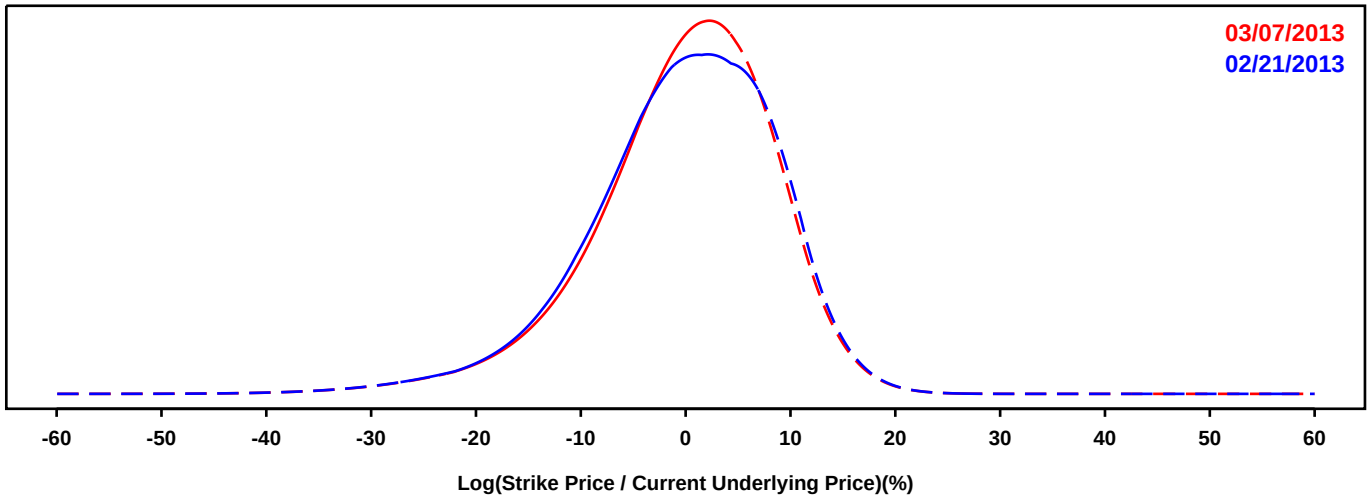
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- WELLS FARGO

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

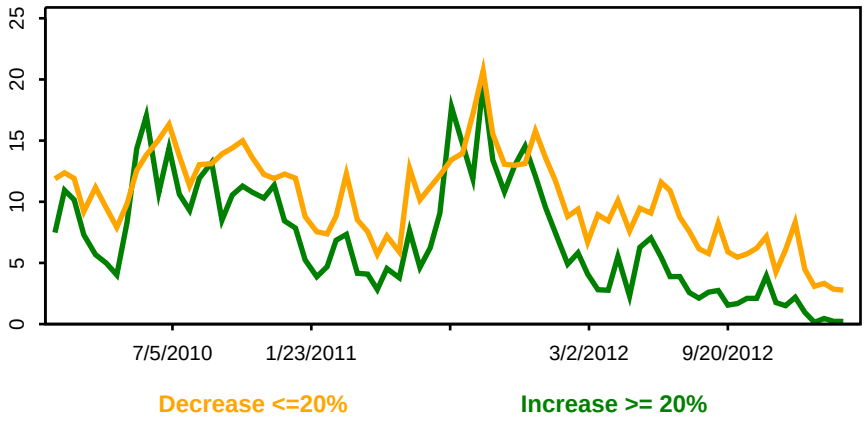
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Statistics of the Log Return Distributions

	02/21/2013	03/07/2013	Change
10th Pct	-11.70%	-11.38%	0.32%
50th Pct	0.55%	0.70%	0.16%
90th Pct	10.13%	9.79%	-0.34%
Mean	-0.29%	-0.21%	0.08%
Std Dev	8.95%	8.74%	-0.20%
Skew	-0.73	-0.79	-0.07
Kurtosis	1.12	1.39	0.27