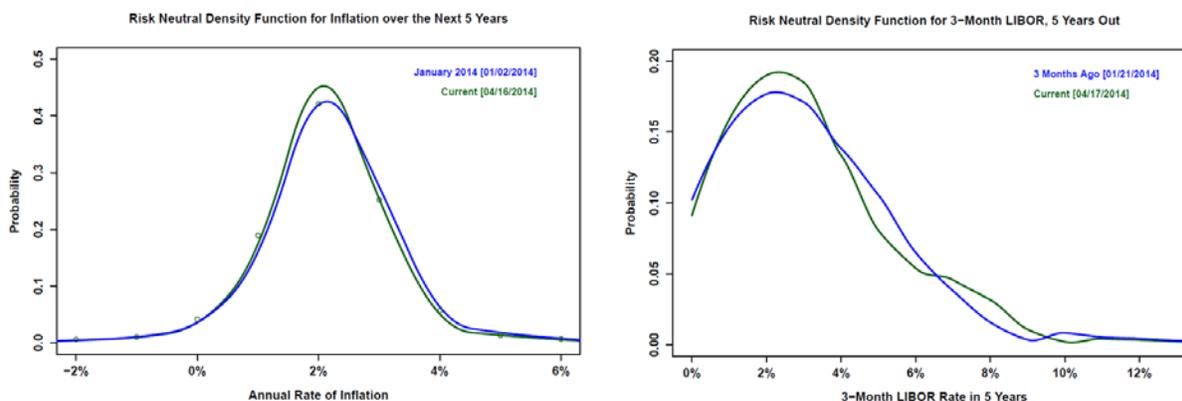


FEDERAL RESERVE BANK OF MINNEAPOLIS
BANKING AND POLICY STUDIES

Minneapolis Options Report – April 17th

Inflation and Interest Rates

- RNPDs for inflation and interest rates five years in the future have changed very little this year
- The inflation RNPD has slightly less upward skew (left panel) while the 3-month LIBOR rate RNPD is largely unchanged



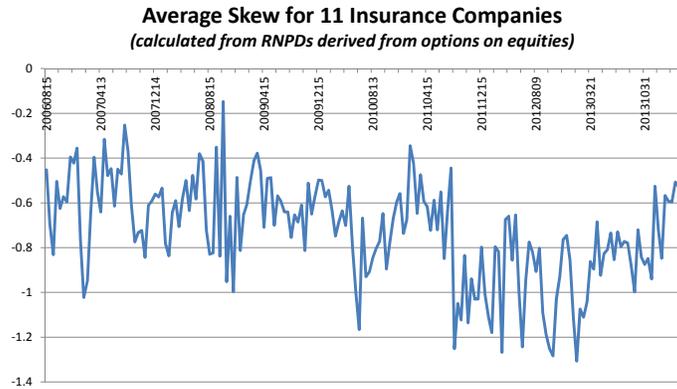
Banks & Insurance Companies

A number of large banks reported earnings last week (e.g., BAC, FITB, GS, JPM, MS, USB, and WFC). Options trading increased as a result and was relatively strong for banks. Options trading on insurance company equities remained light likely in anticipation of further earnings news for that industry.

Price performance for both bank and insurance company stocks was weak. Banks underperformed the S&P 500 by 200 basis points on average while insurance companies underperformed by 380 basis points. RNPD standard deviations rose for both groups.

Additional Notes:

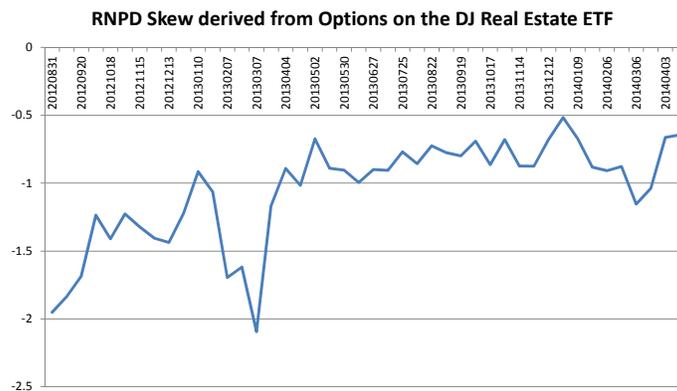
- RNPD skews rose again within the 11 insurance company group last week. The average for the group is at the upper end of its range.



- RNPD skews for BHCs have behaved similarly over this period.

Other Commodity Markets

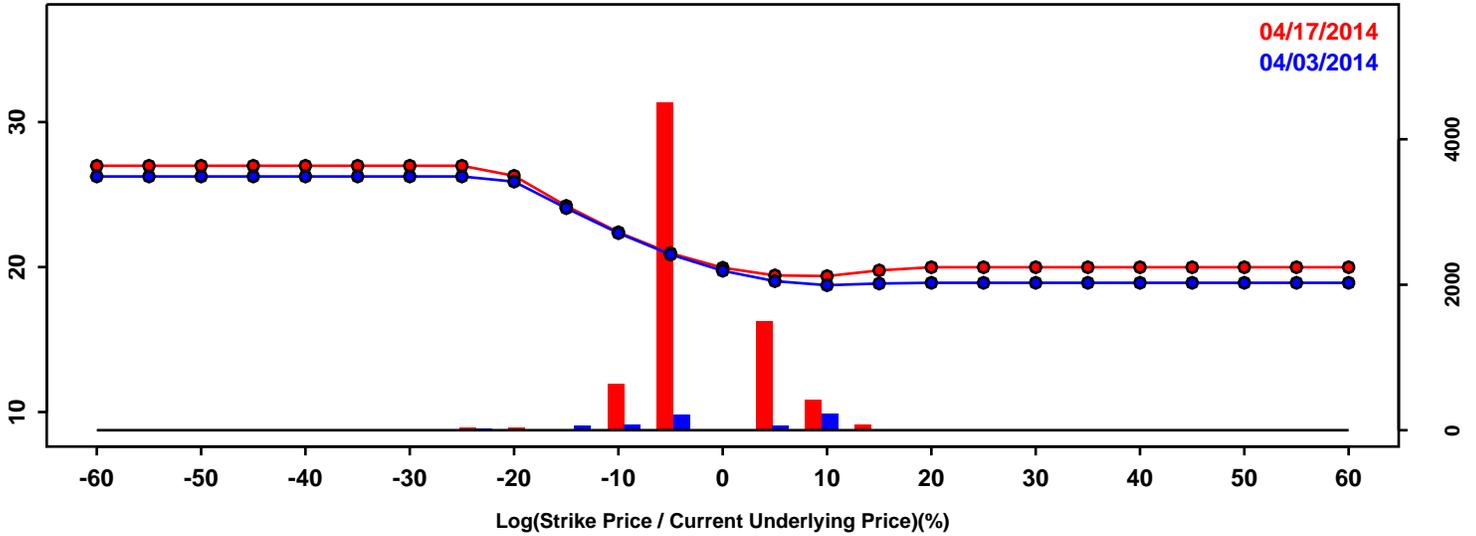
- Spot price changes in the other commodities we follow were mixed
- Tail risks are high for grains, low for oil, exchange rates and real estate
- RNPD skews remain positive for all of the grains and negative for precious metals and oil
- RNPD skew derived from options on the DJ real estate moved higher (less negative)



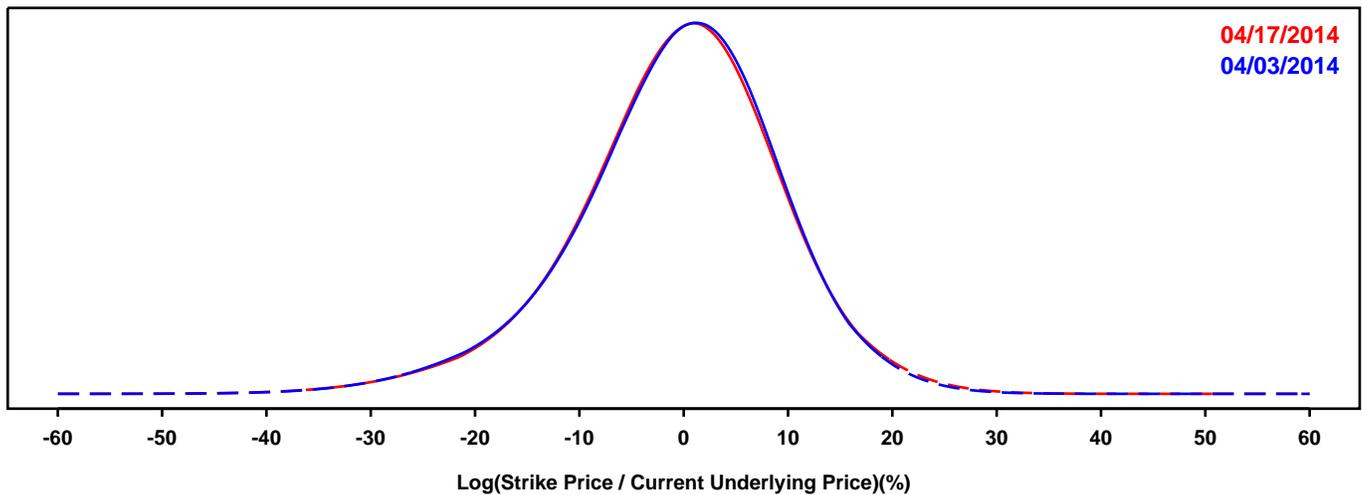
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- AMERICAN EXPRESS

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

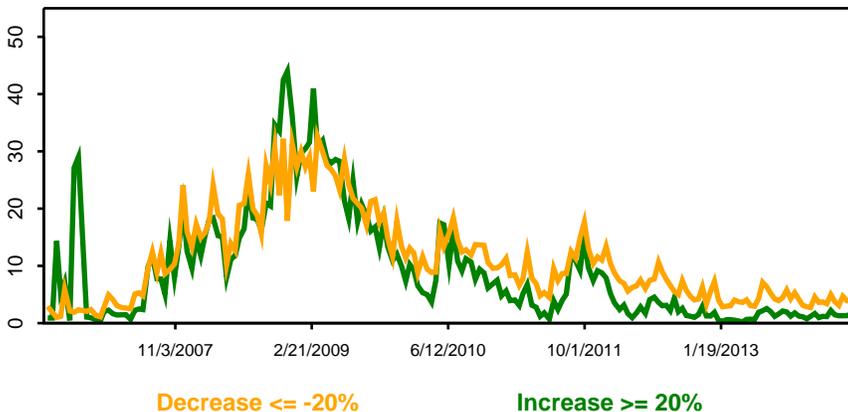
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

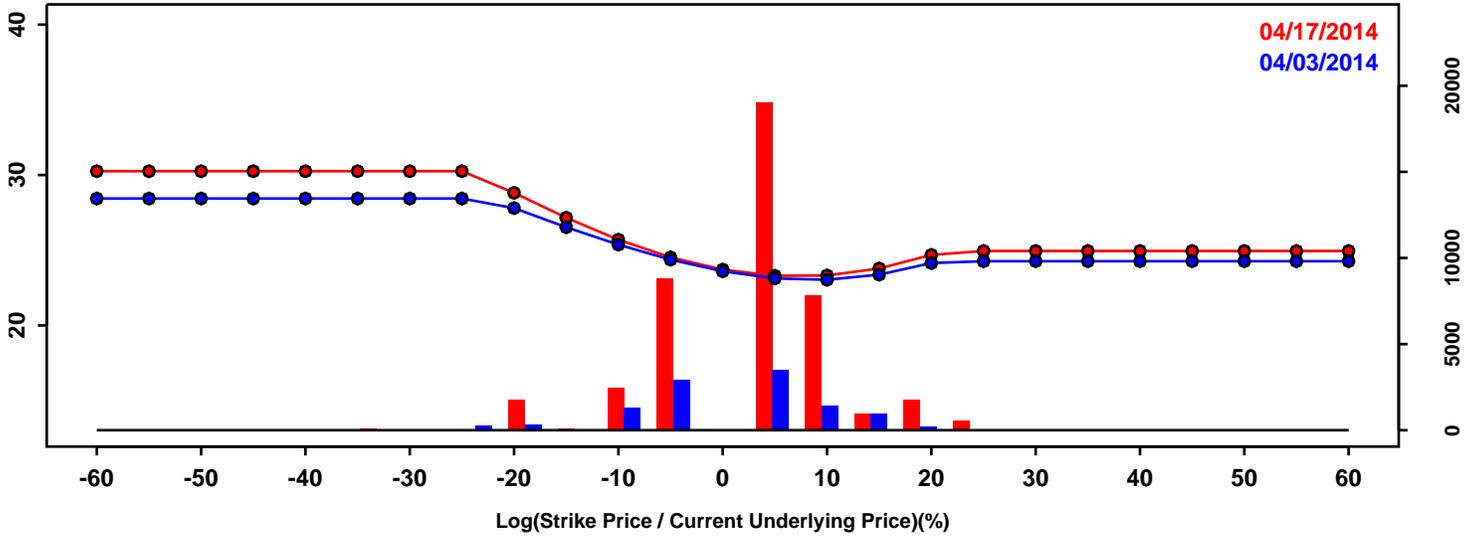


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-13.33%	-13.24%	0.09%
50th Pct	0.12%	0.05%	-0.08%
90th Pct	11.24%	11.40%	0.16%
Mean	-0.54%	-0.51%	0.03%
Std Dev	9.97%	10.05%	0.08%
Skew	-0.46	-0.41	0.05
Kurtosis	0.78	0.85	0.07

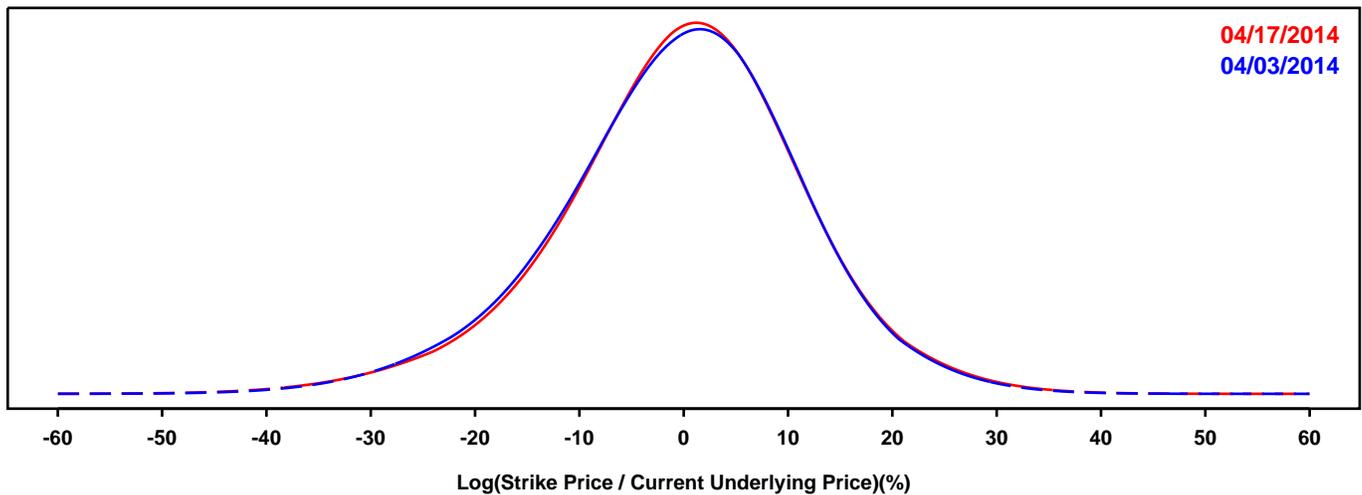
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- BANK OF AMERICA

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

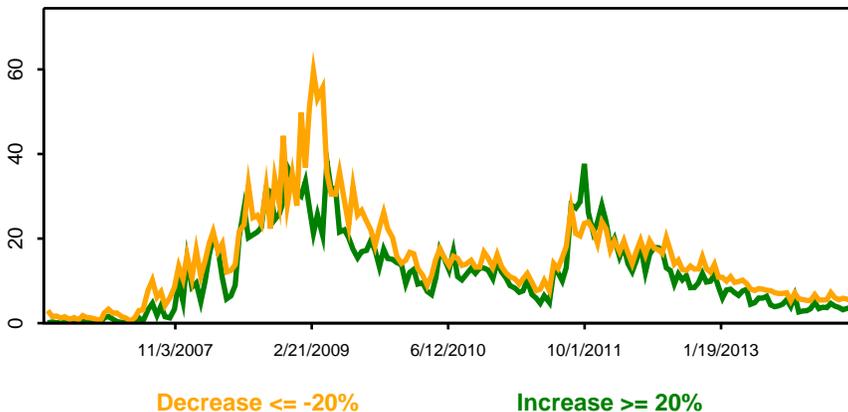
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

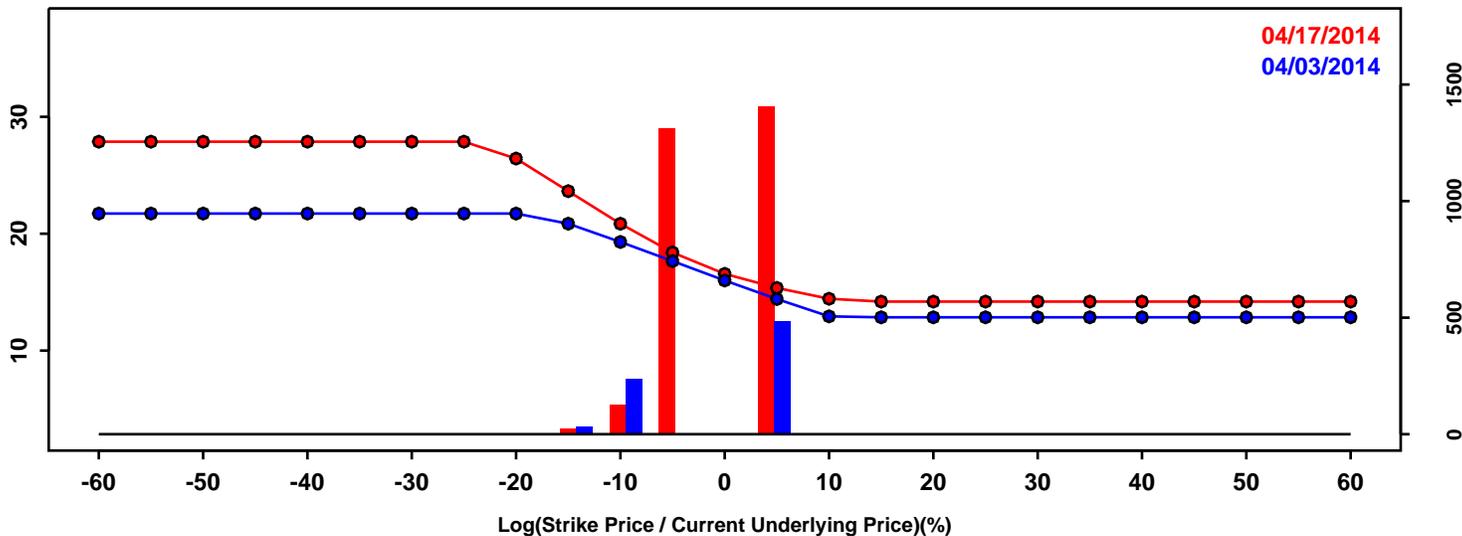


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-15.59%	-15.14%	0.45%
50th Pct	0.24%	0.37%	0.13%
90th Pct	13.78%	14.00%	0.21%
Mean	-0.36%	-0.16%	0.20%
Std Dev	11.80%	11.86%	0.06%
Skew	-0.28	-0.30	-0.02
Kurtosis	0.52	0.72	0.20

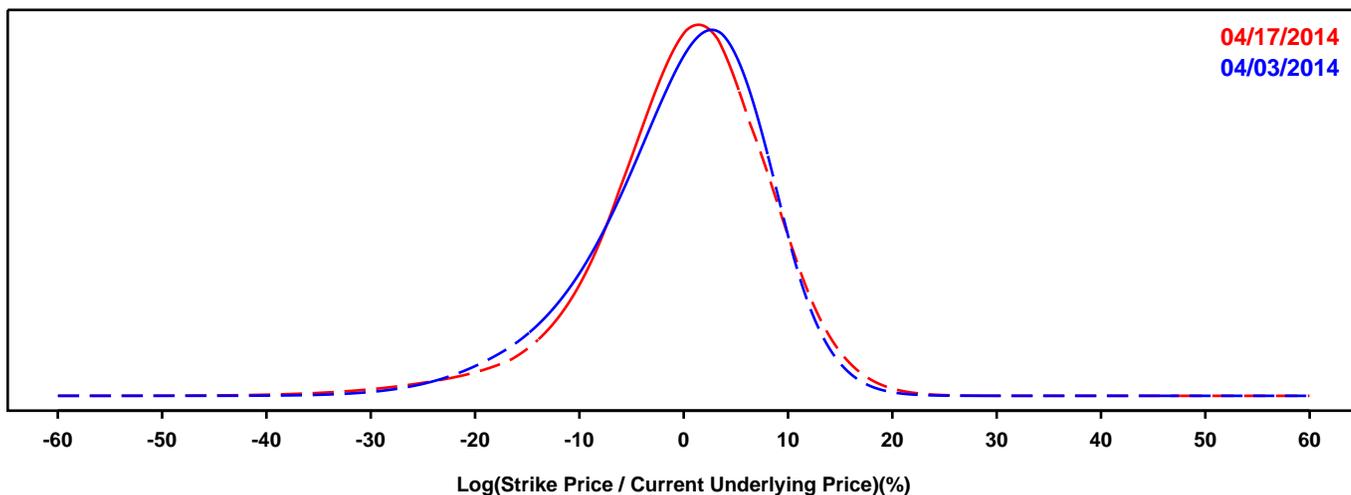
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- BB&T

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

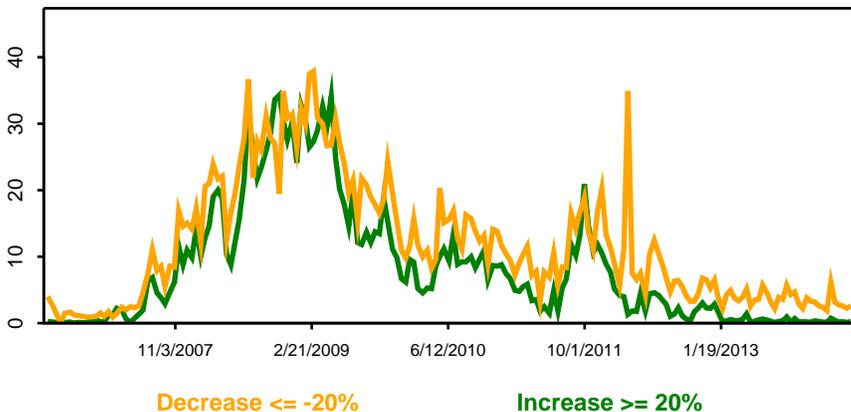
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



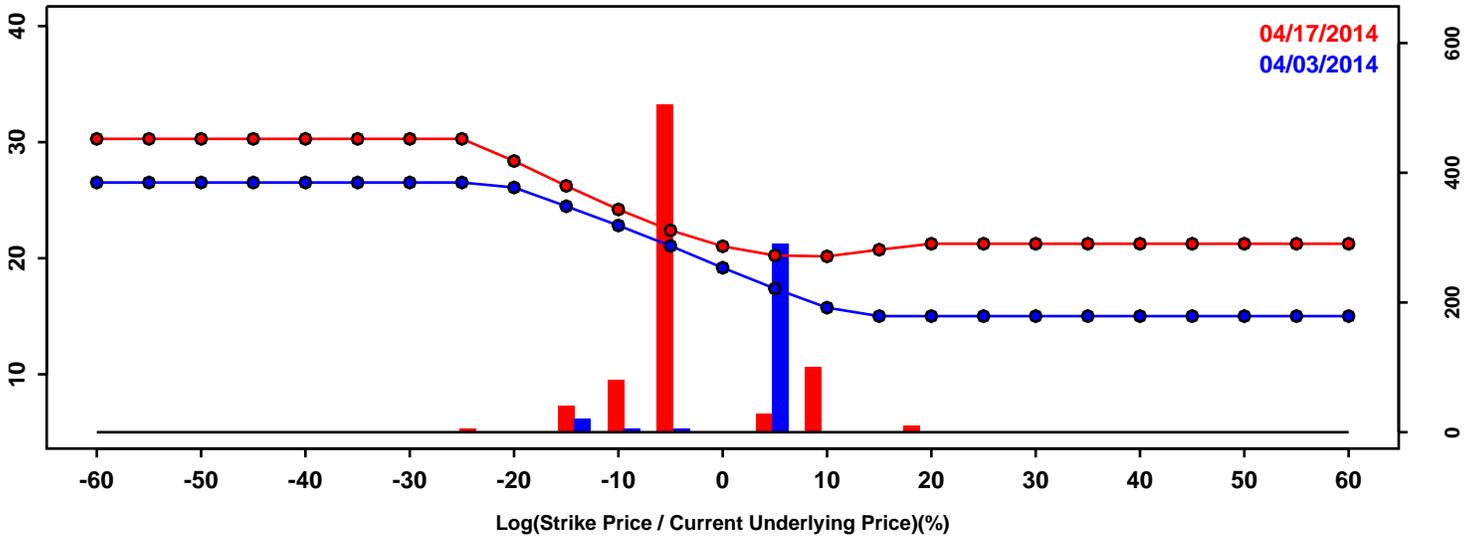
Statistics of the Log Return Distributions

	04/03/2014	04/17/2014	Change
10th Pct	-11.34%	-10.42%	0.92%
50th Pct	0.72%	0.64%	-0.08%
90th Pct	9.03%	9.58%	0.55%
Mean	-0.32%	-0.11%	0.21%
Std Dev	8.19%	8.43%	0.24%
Skew	-0.70	-0.84	-0.14
Kurtosis	0.77	1.90	1.13

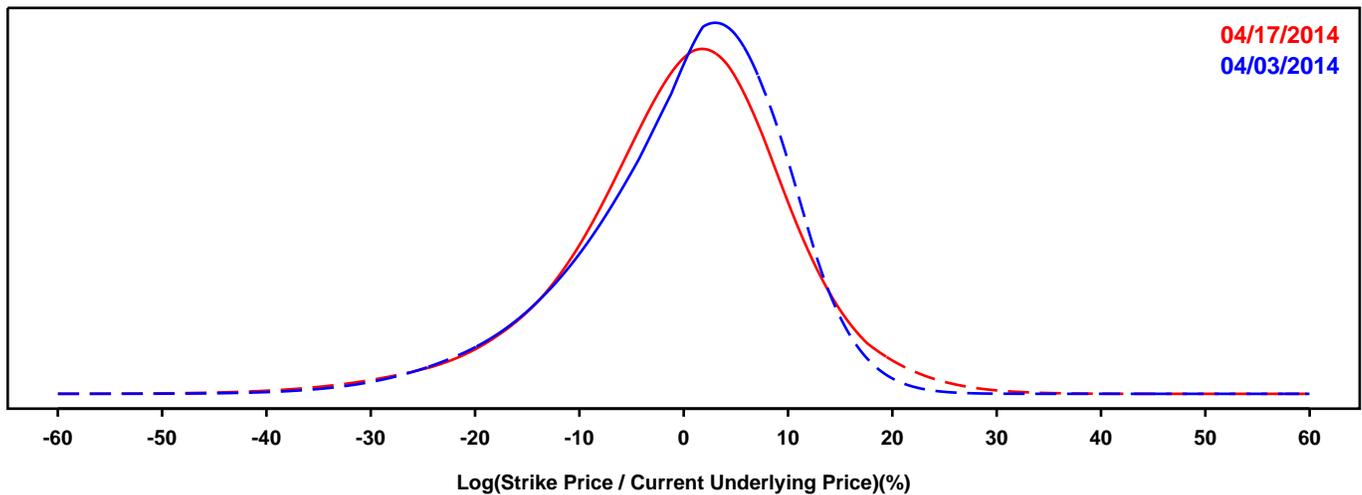
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- BANK OF NEW YORK MELLON

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

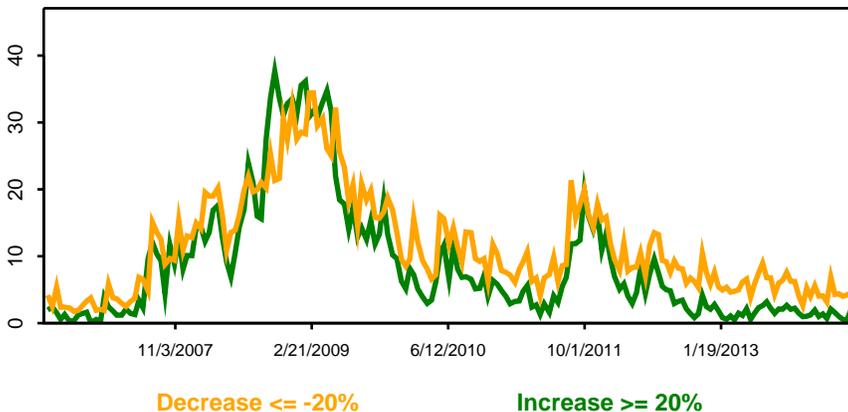
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

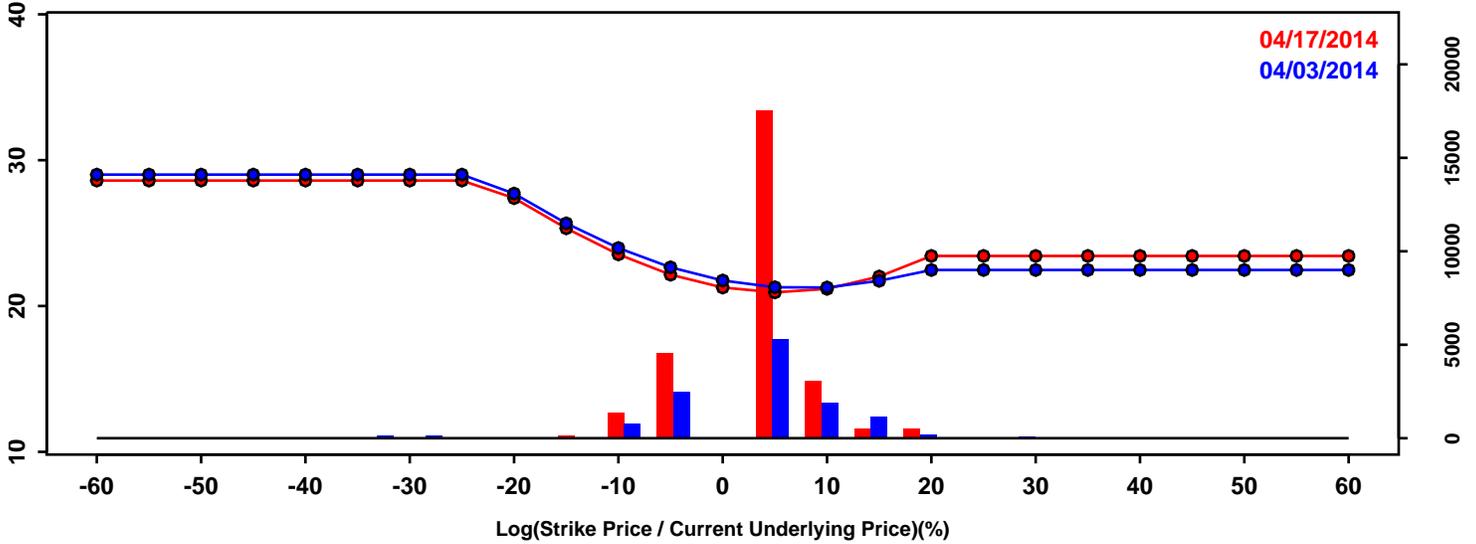


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-13.50%	-13.71%	-0.21%
50th Pct	1.24%	0.53%	-0.71%
90th Pct	10.91%	11.86%	0.94%
Mean	-0.17%	-0.29%	-0.12%
Std Dev	9.84%	10.58%	0.74%
Skew	-0.77	-0.55	0.22
Kurtosis	0.89	1.20	0.31

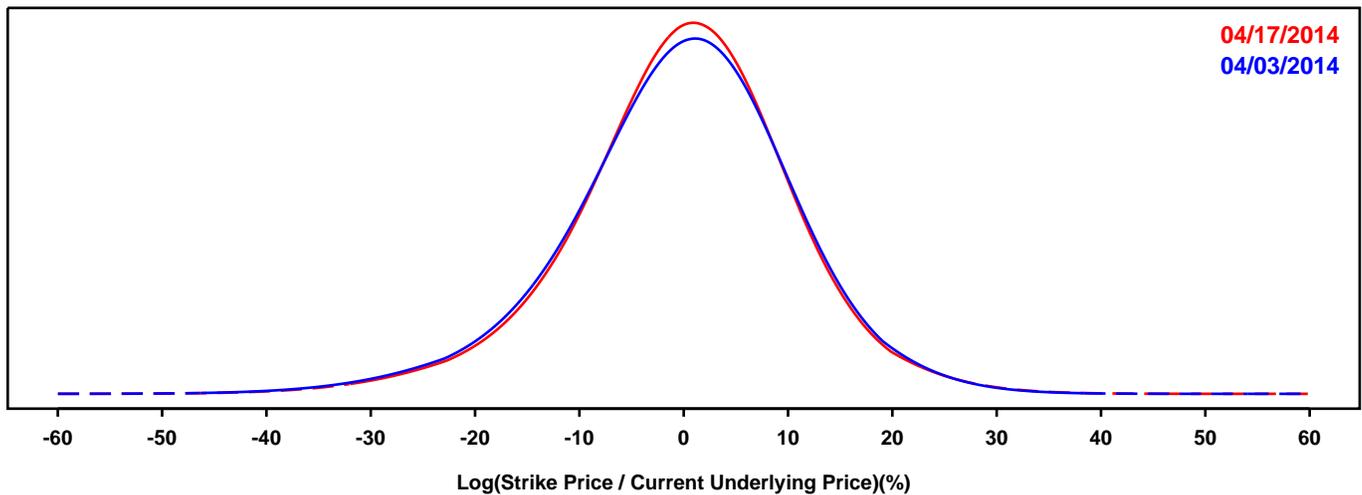
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CITIGROUP

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

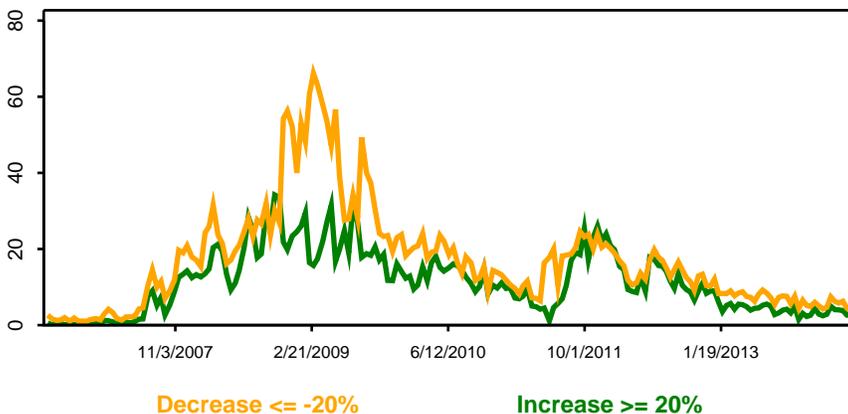
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

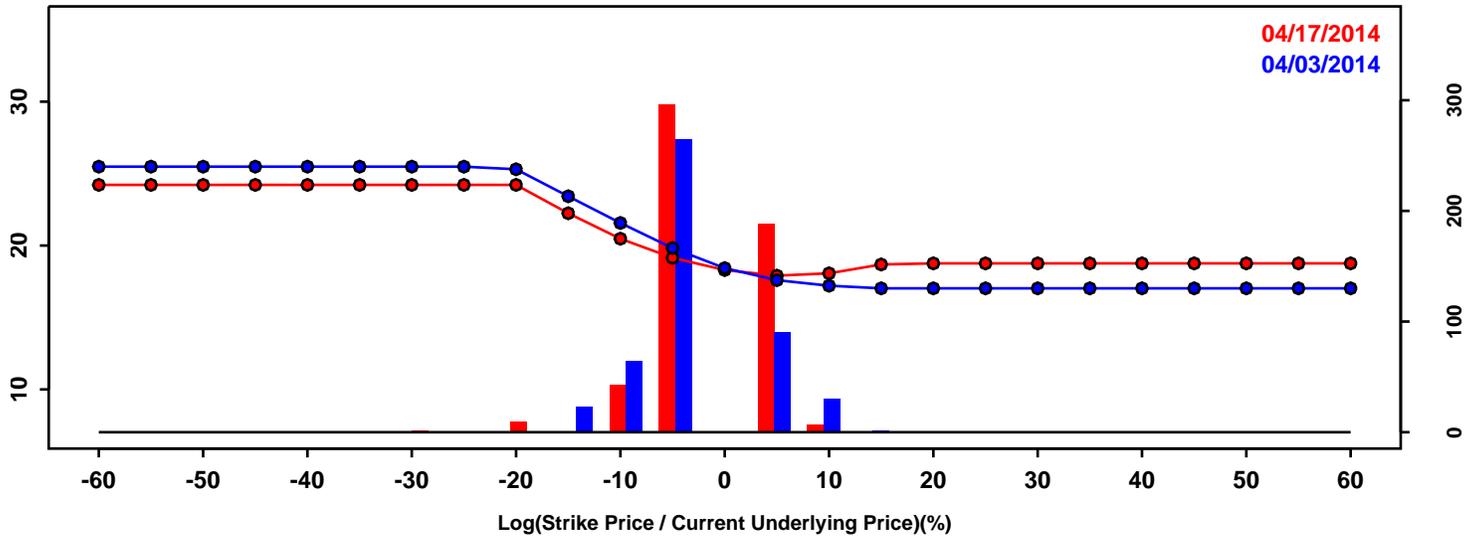


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-13.94%	-13.29%	0.65%
50th Pct	0.29%	0.37%	0.08%
90th Pct	12.81%	12.53%	-0.28%
Mean	-0.21%	-0.07%	0.15%
Std Dev	10.92%	10.63%	-0.29%
Skew	-0.35	-0.31	0.04
Kurtosis	0.81	0.94	0.13

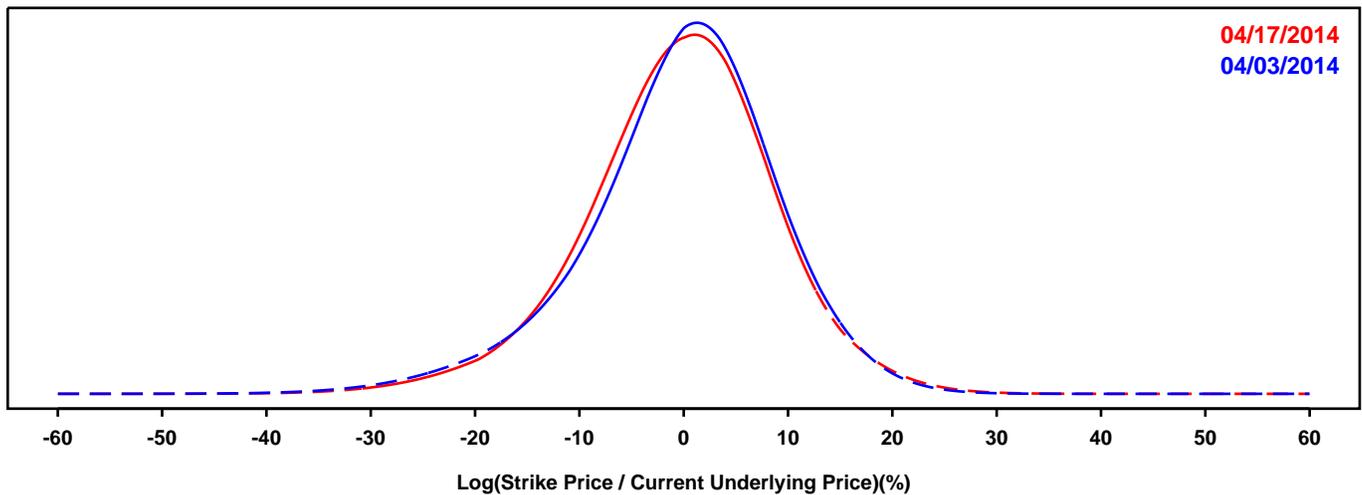
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CAPITAL ONE

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

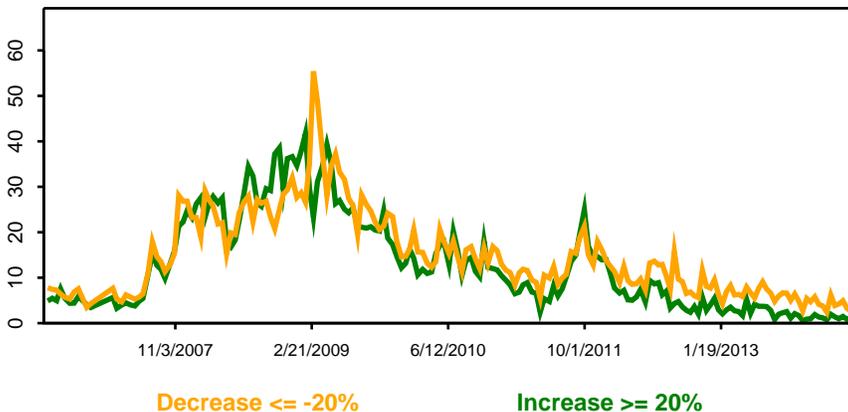
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

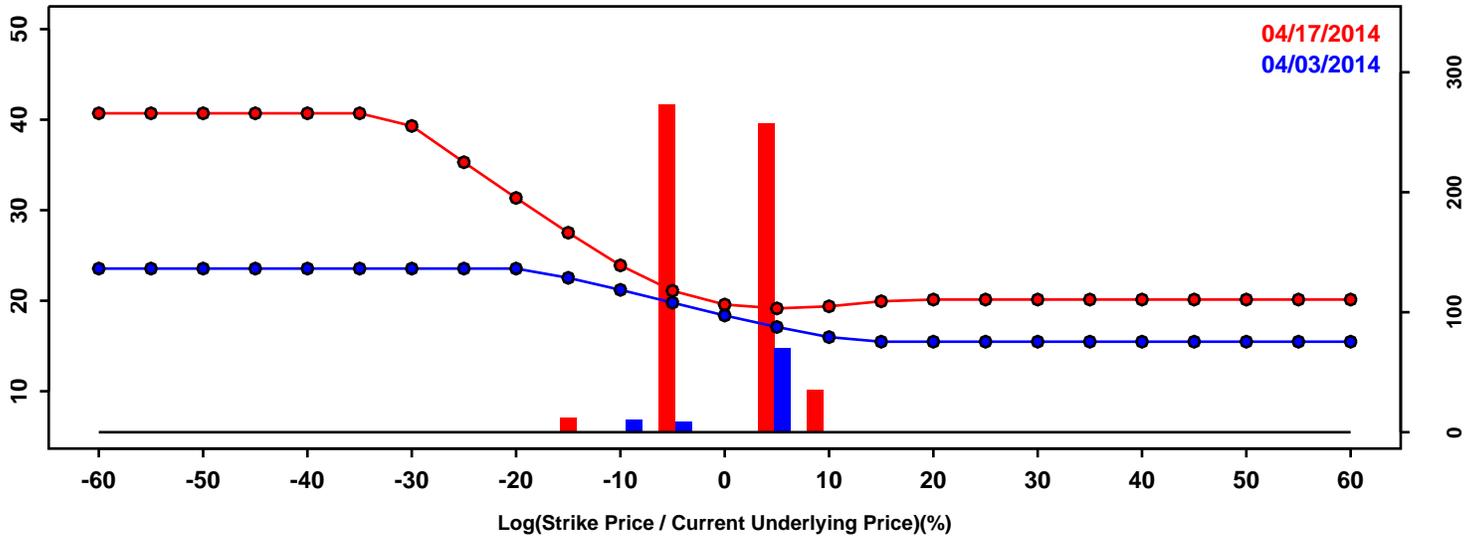


	04/03/2014	04/17/2014	Change
10th Pct	-12.25%	-11.87%	0.38%
50th Pct	0.48%	0.05%	-0.43%
90th Pct	10.70%	10.55%	-0.14%
Mean	-0.25%	-0.37%	-0.12%
Std Dev	9.35%	9.15%	-0.20%
Skew	-0.55	-0.33	0.22
Kurtosis	0.95	0.76	-0.19

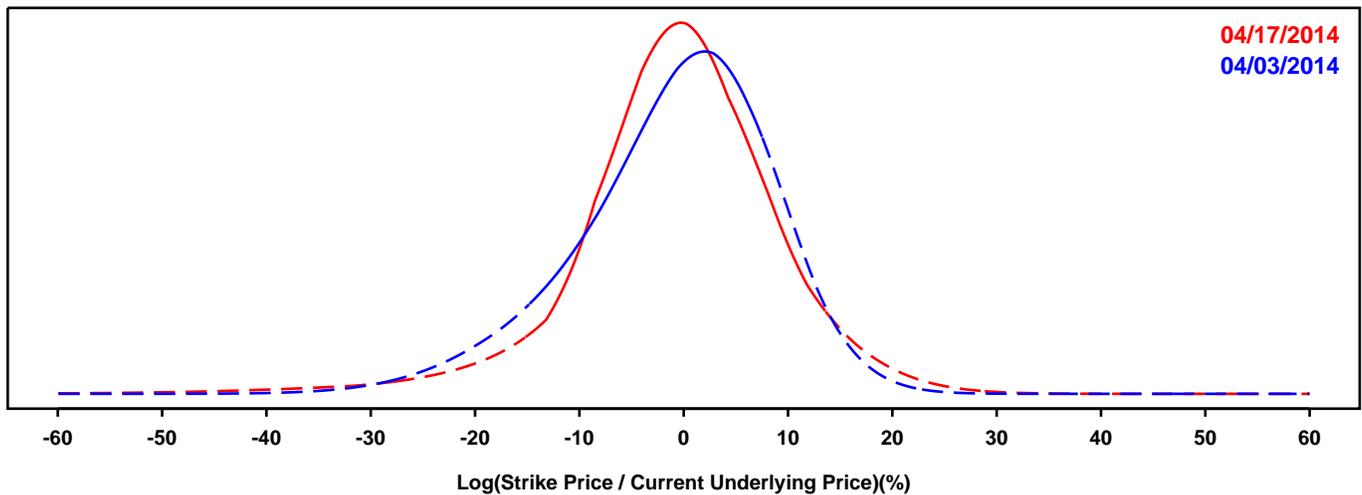
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- FIFTH THIRD

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

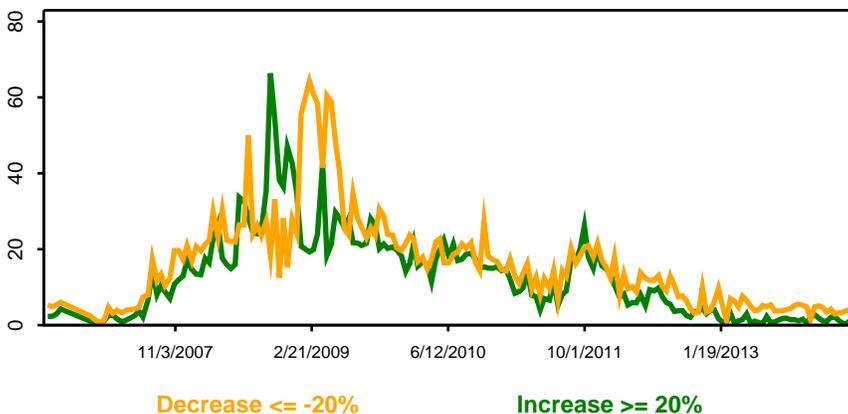
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

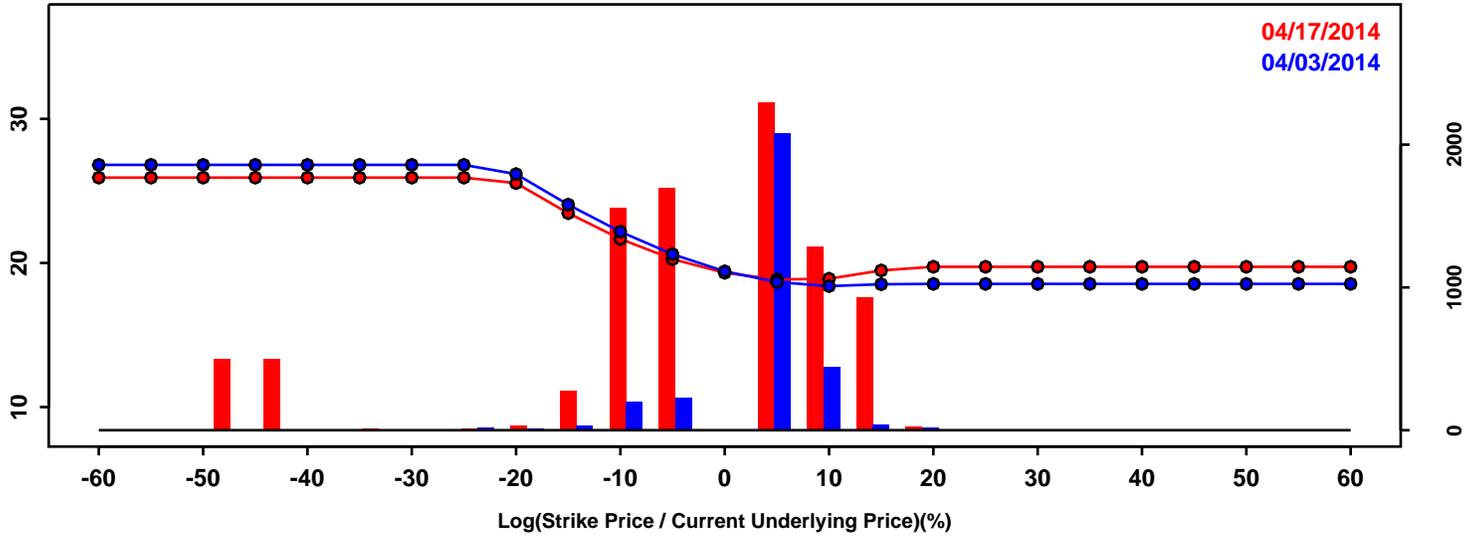


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-13.75%	-11.77%	1.97%
50th Pct	0.11%	-0.31%	-0.42%
90th Pct	10.20%	10.61%	0.41%
Mean	-0.91%	-0.76%	0.15%
Std Dev	9.49%	10.04%	0.54%
Skew	-0.58	-0.89	-0.32
Kurtosis	0.51	3.45	2.93

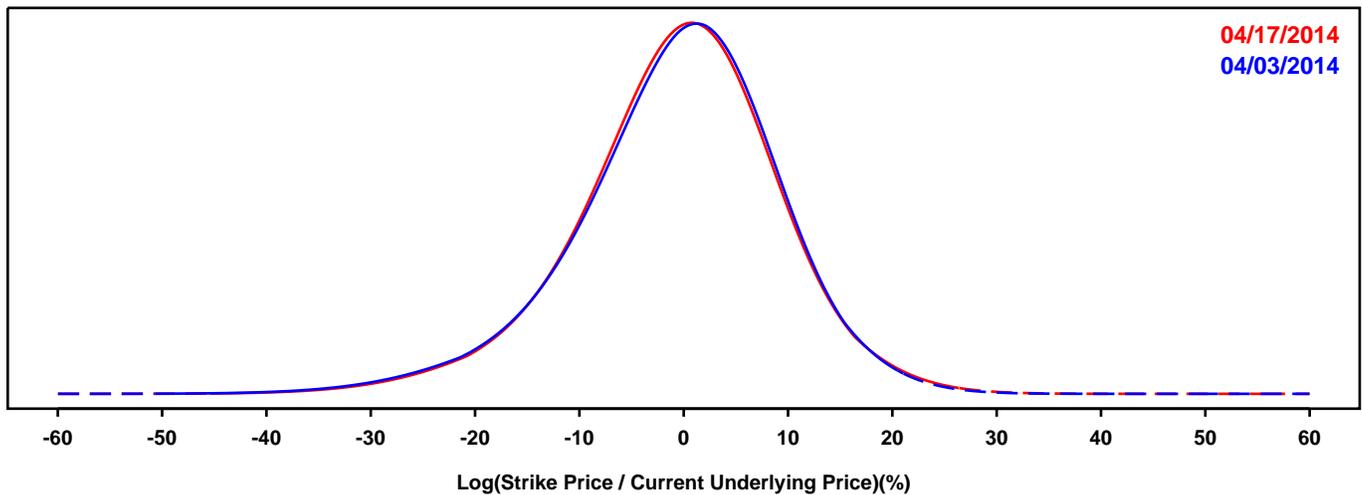
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- GOLDMAN SACHS

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

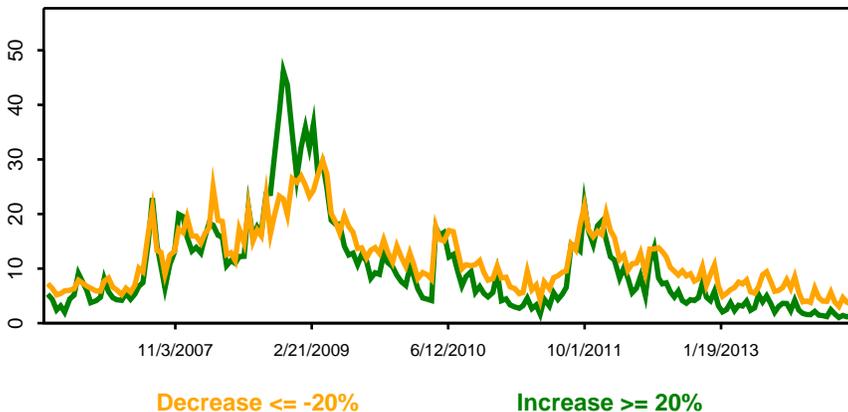
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

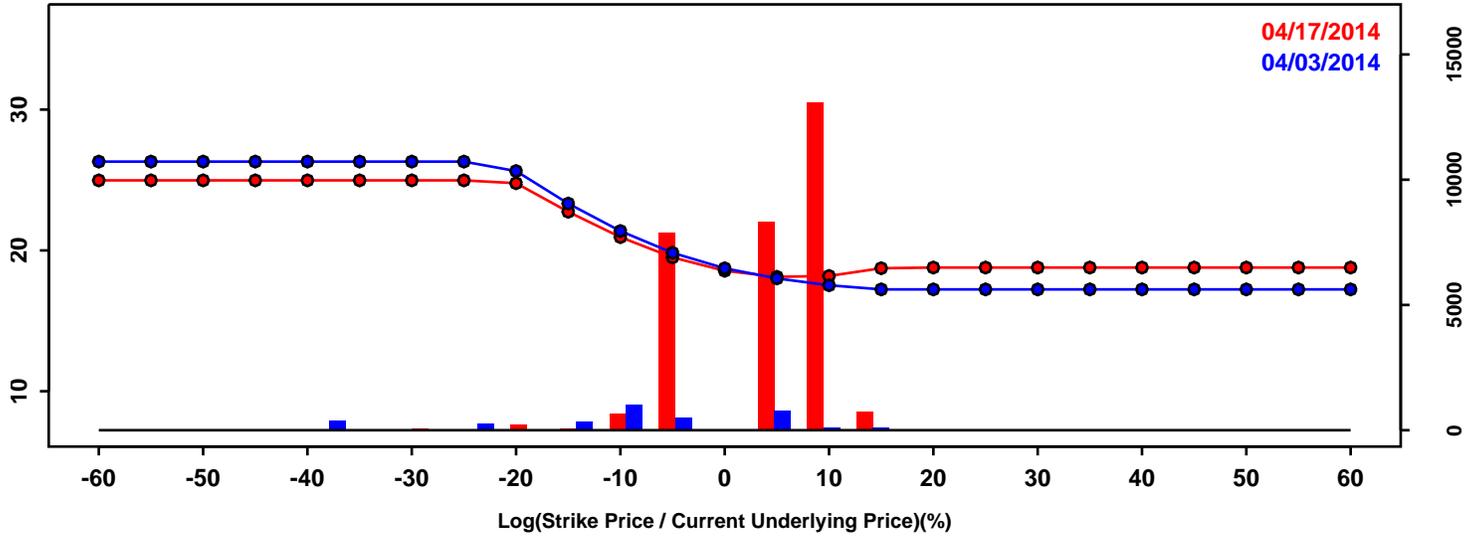


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-13.18%	-12.88%	0.30%
50th Pct	0.12%	-0.04%	-0.17%
90th Pct	10.99%	11.00%	0.02%
Mean	-0.61%	-0.58%	0.03%
Std Dev	9.85%	9.75%	-0.11%
Skew	-0.50	-0.38	0.12
Kurtosis	0.88	0.82	-0.07

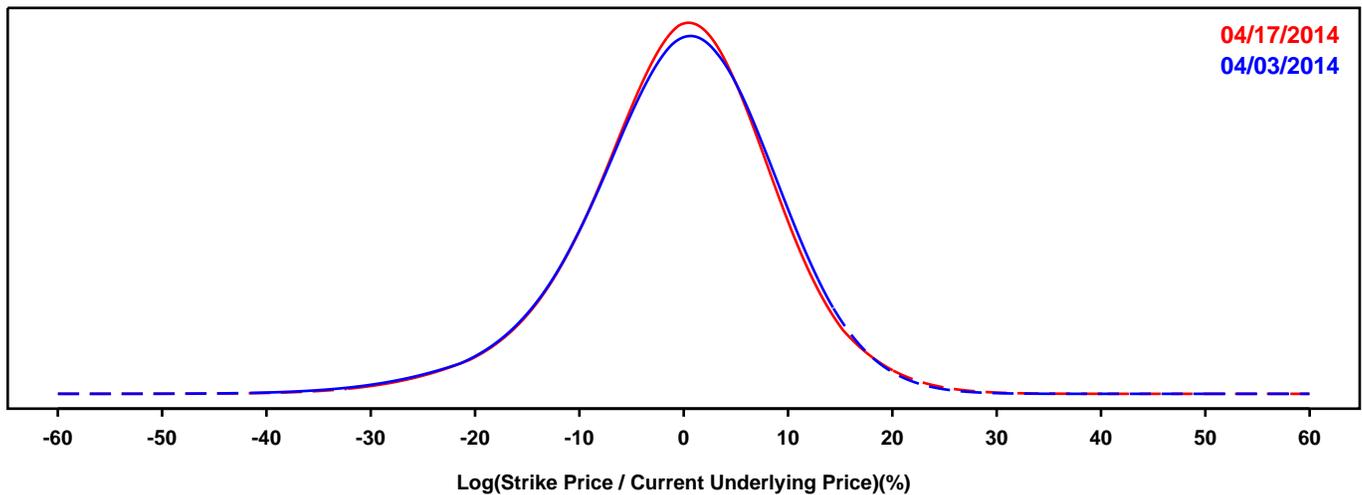
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- JP MORGAN

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

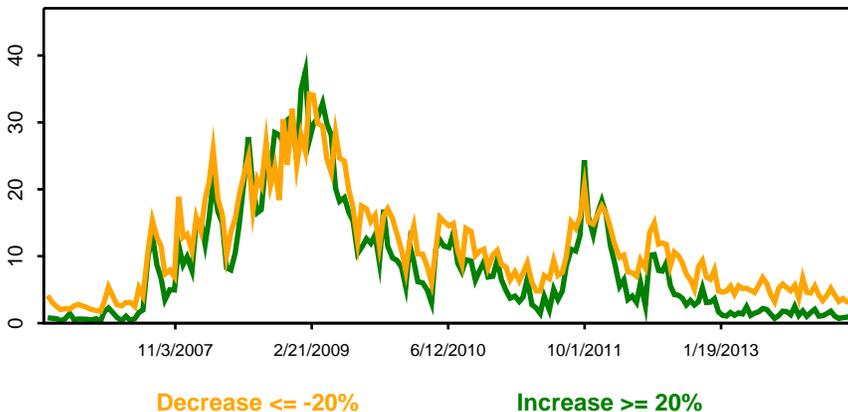
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

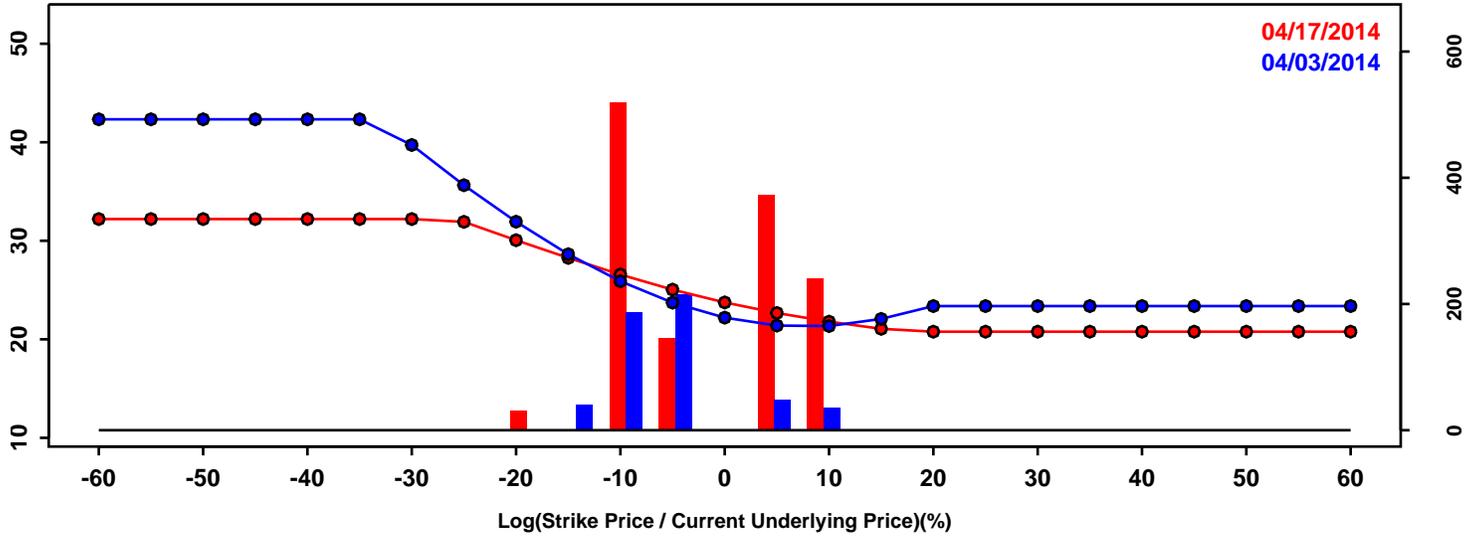


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-12.52%	-12.29%	0.24%
50th Pct	0.05%	-0.05%	-0.10%
90th Pct	10.78%	10.60%	-0.18%
Mean	-0.53%	-0.52%	0.01%
Std Dev	9.47%	9.32%	-0.15%
Skew	-0.48	-0.37	0.11
Kurtosis	0.85	0.82	-0.03

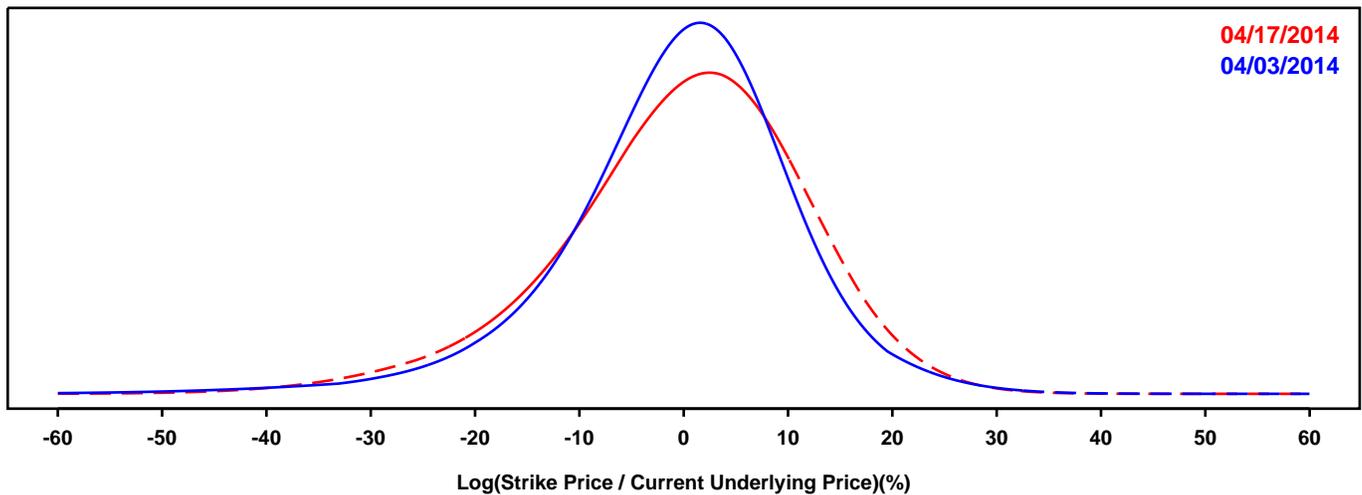
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- KEYCORP

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

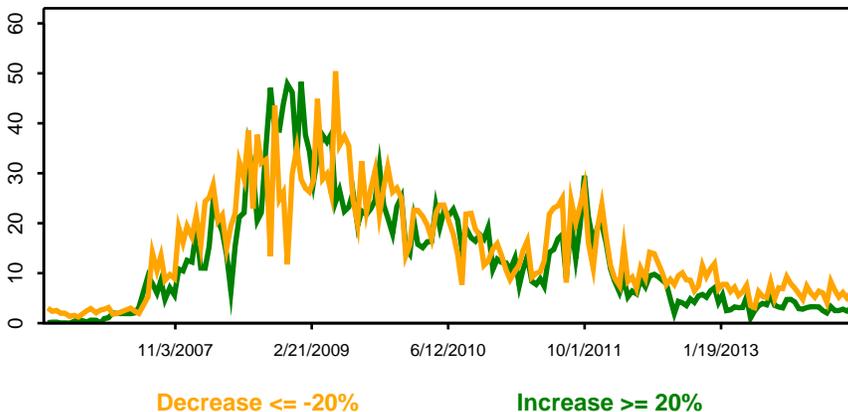
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

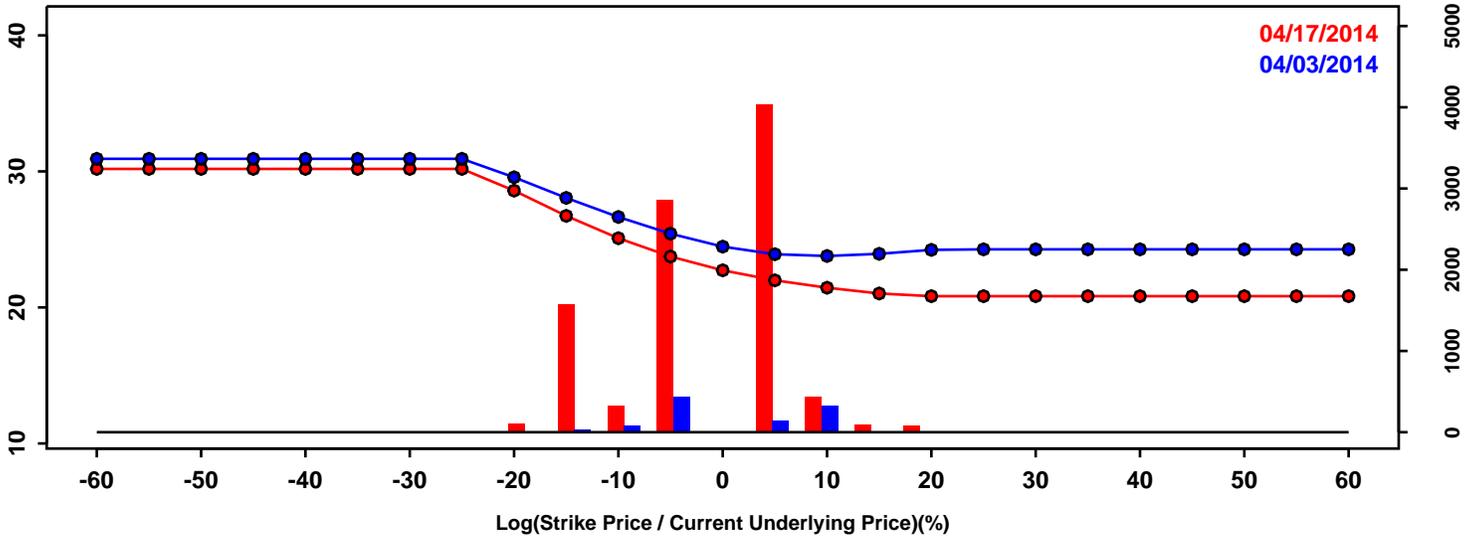


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-14.21%	-15.69%	-1.48%
50th Pct	0.43%	0.85%	0.41%
90th Pct	12.34%	14.00%	1.66%
Mean	-0.48%	-0.17%	0.31%
Std Dev	11.39%	11.99%	0.60%
Skew	-0.76	-0.56	0.21
Kurtosis	2.38	0.78	-1.60

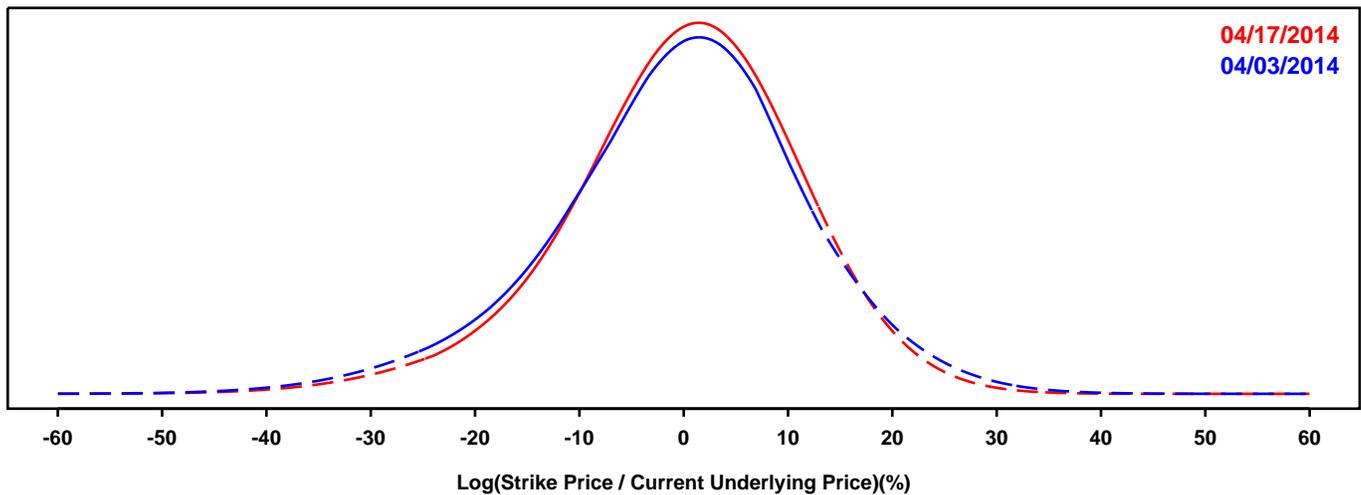
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- MORGAN STANLEY

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

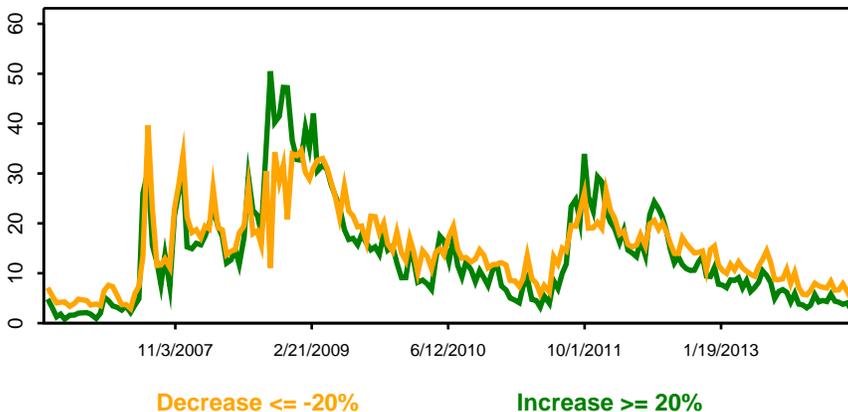
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

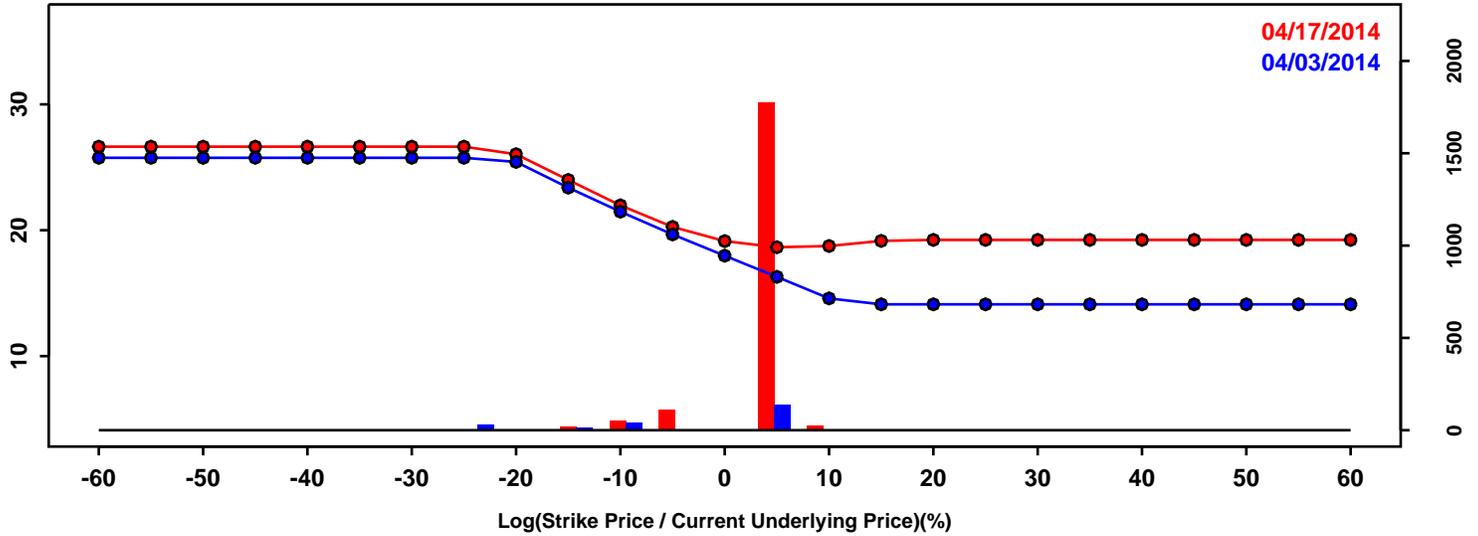


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-16.20%	-14.54%	1.66%
50th Pct	0.29%	0.58%	0.29%
90th Pct	14.37%	13.71%	-0.66%
Mean	-0.40%	-0.03%	0.37%
Std Dev	12.33%	11.40%	-0.93%
Skew	-0.35	-0.43	-0.08
Kurtosis	0.65	0.68	0.03

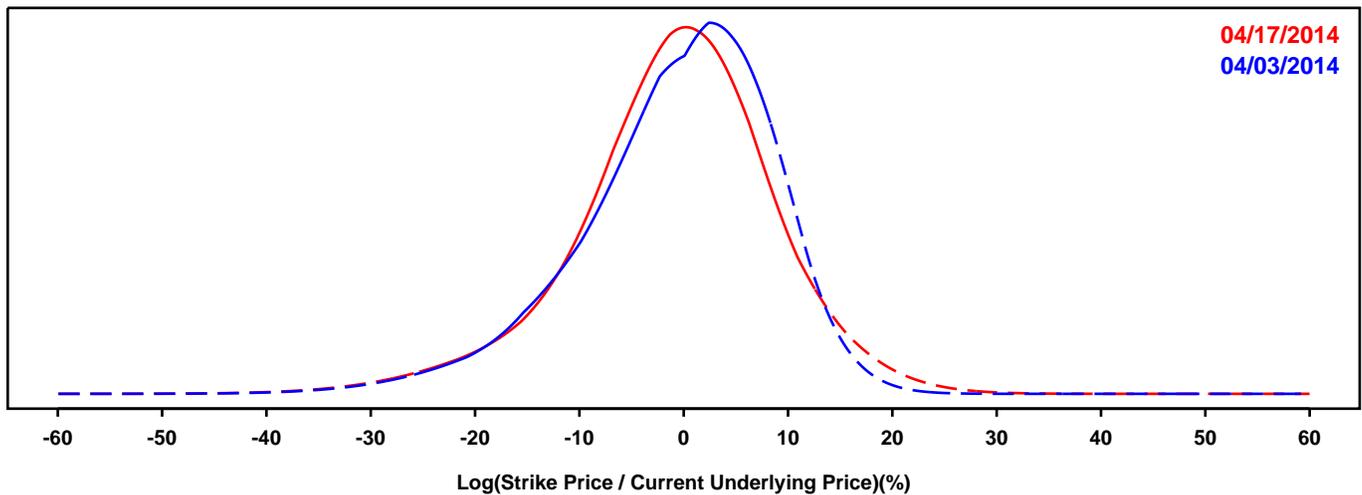
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- PNC FINANCIAL

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

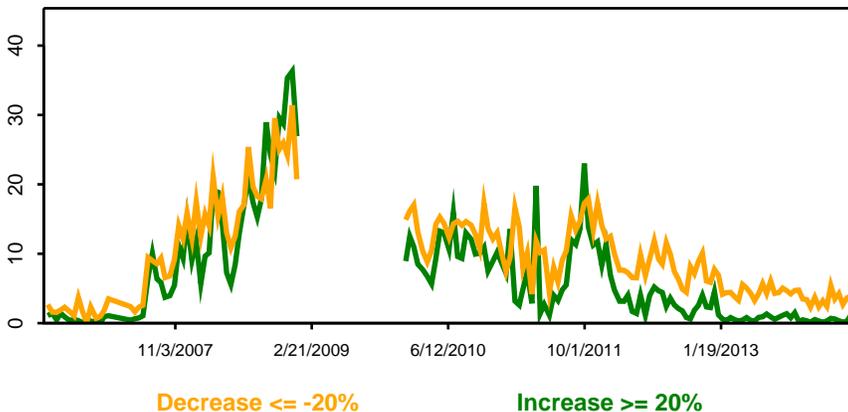
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

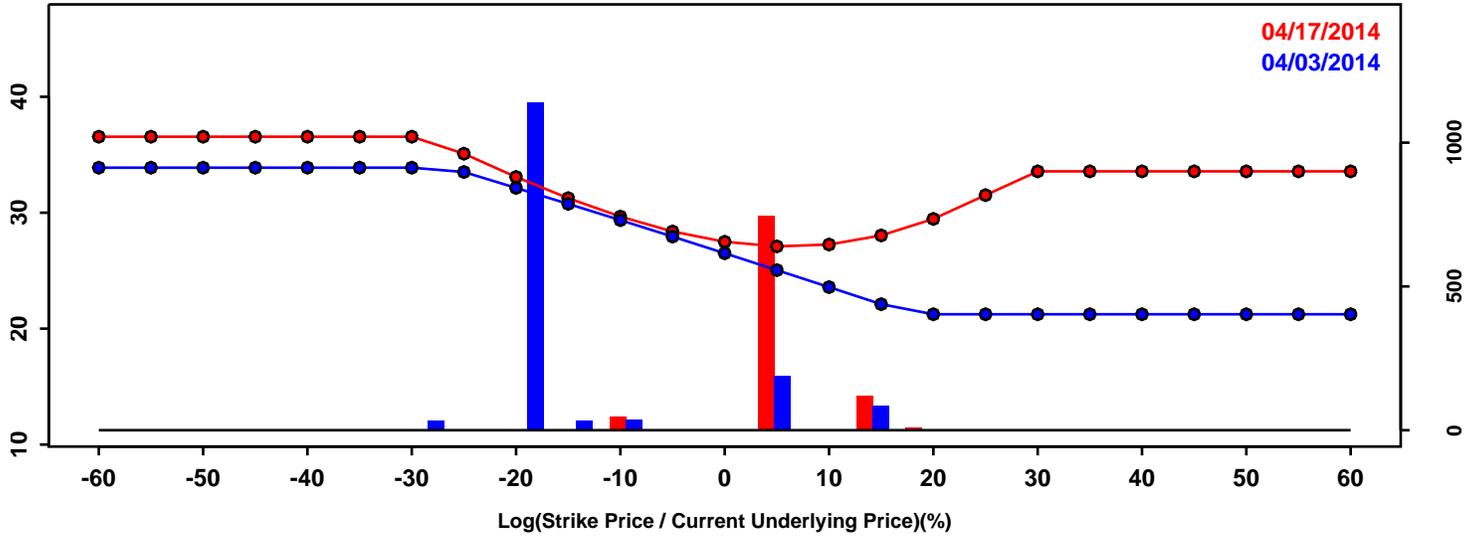


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-13.01%	-13.03%	-0.02%
50th Pct	0.48%	-0.31%	-0.79%
90th Pct	9.97%	10.51%	0.54%
Mean	-0.66%	-0.89%	-0.23%
Std Dev	9.29%	9.72%	0.43%
Skew	-0.74	-0.48	0.27
Kurtosis	0.92	1.06	0.14

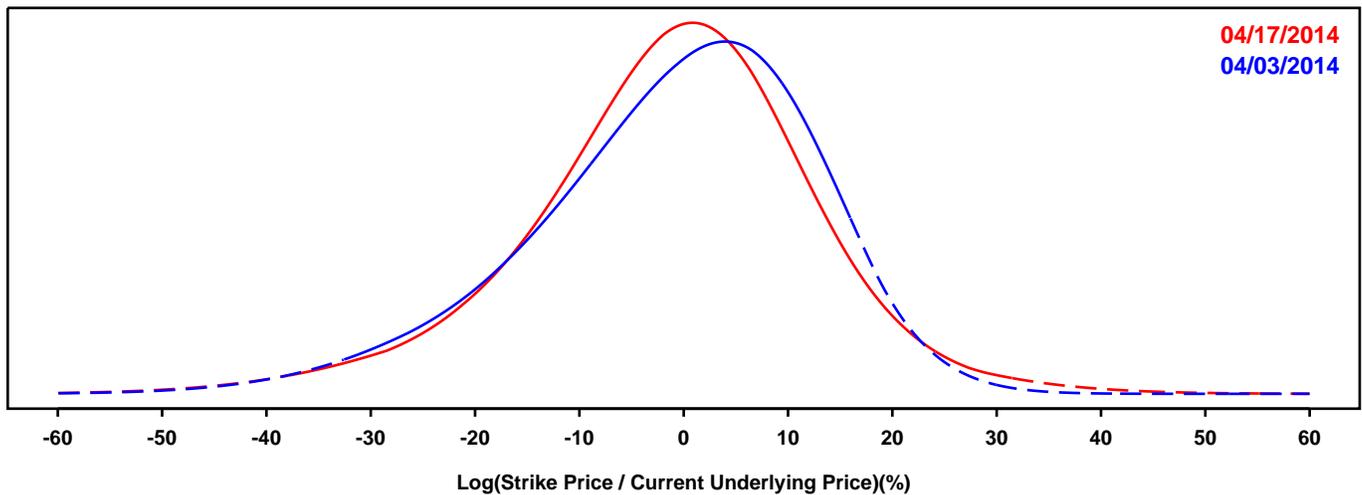
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- REGIONS FINANCIAL

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

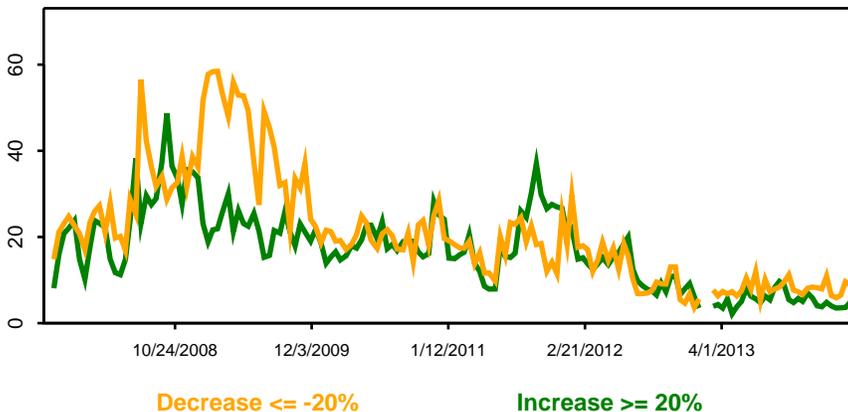
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

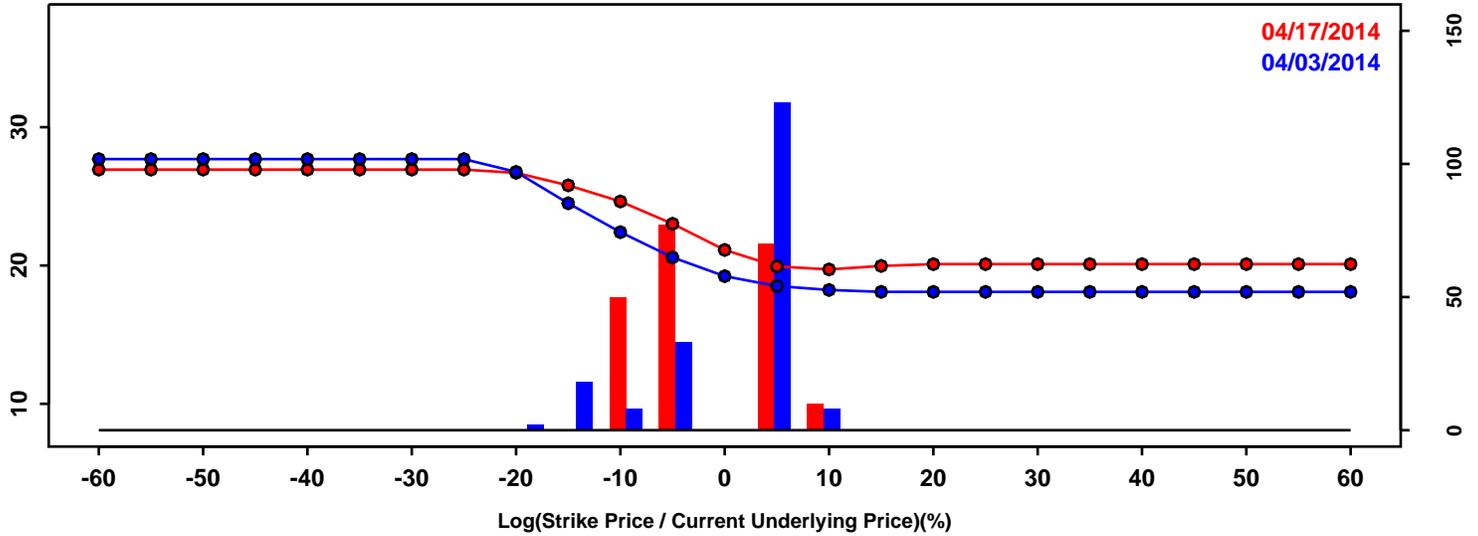


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-19.56%	-18.82%	0.74%
50th Pct	0.51%	-0.47%	-0.98%
90th Pct	14.97%	14.88%	-0.09%
Mean	-1.06%	-1.29%	-0.24%
Std Dev	13.71%	13.93%	0.22%
Skew	-0.60	-0.35	0.25
Kurtosis	0.47	1.03	0.56

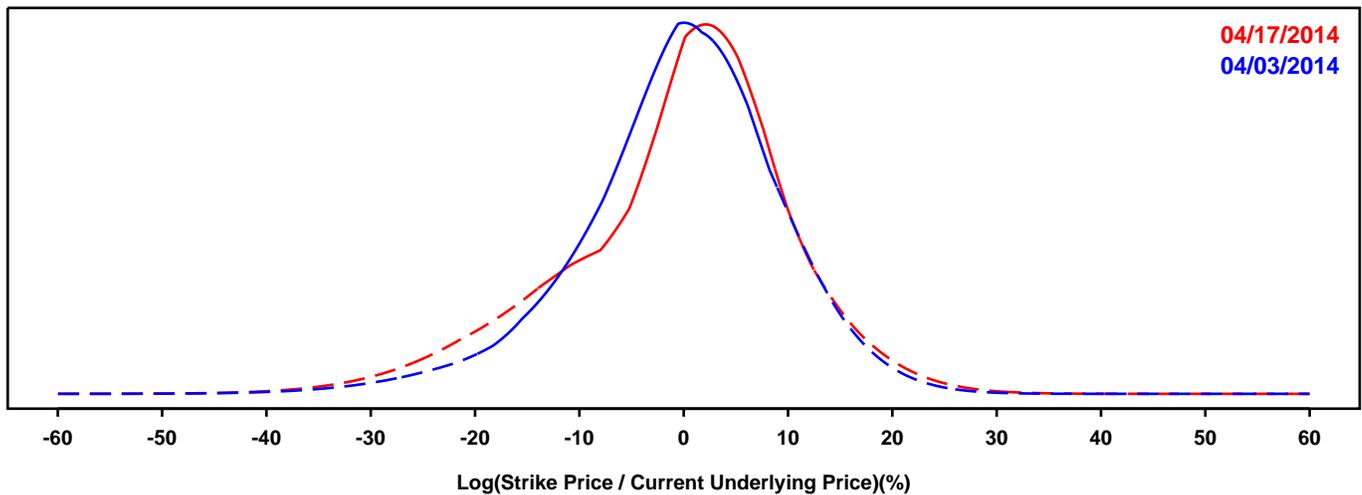
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- SUNTRUST

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

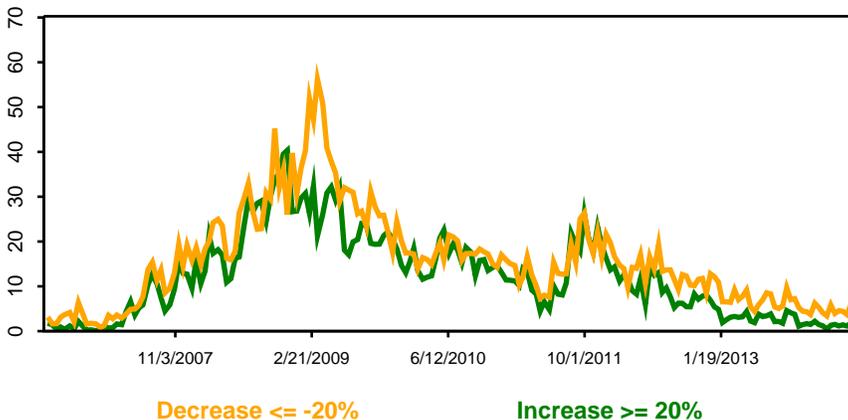
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

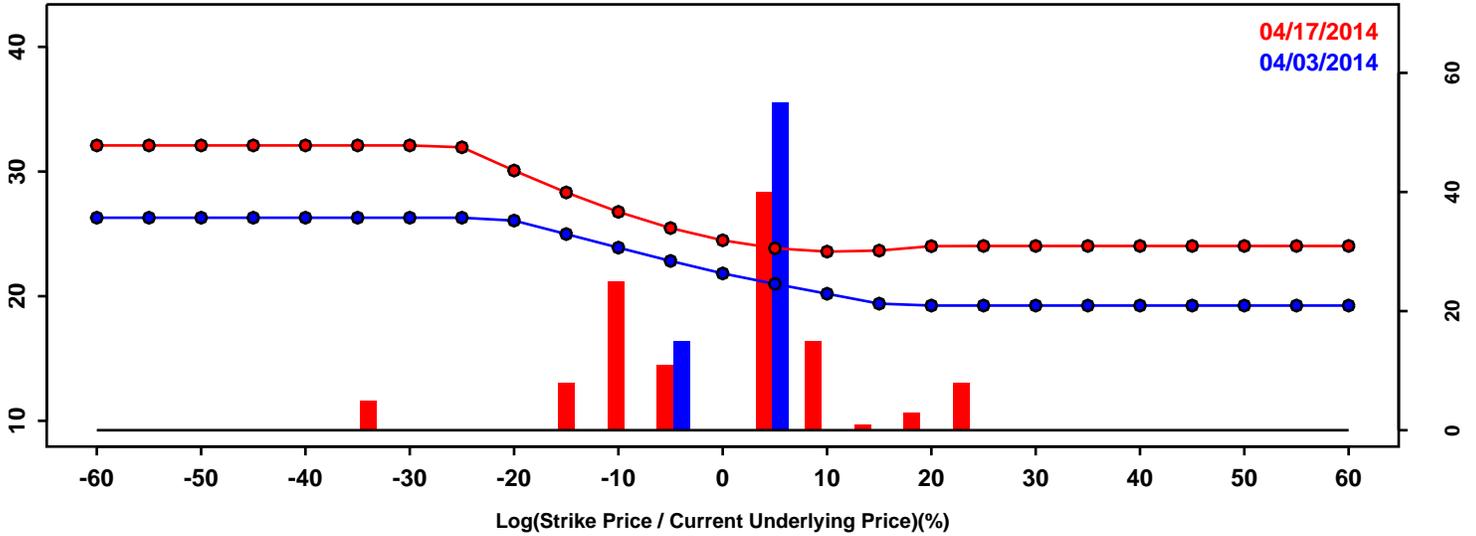


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-12.80%	-15.85%	-3.05%
50th Pct	0.25%	0.88%	0.63%
90th Pct	11.17%	11.71%	0.54%
Mean	-0.40%	-0.60%	-0.20%
Std Dev	9.79%	10.95%	1.16%
Skew	-0.55	-0.59	-0.04
Kurtosis	1.09	0.69	-0.40

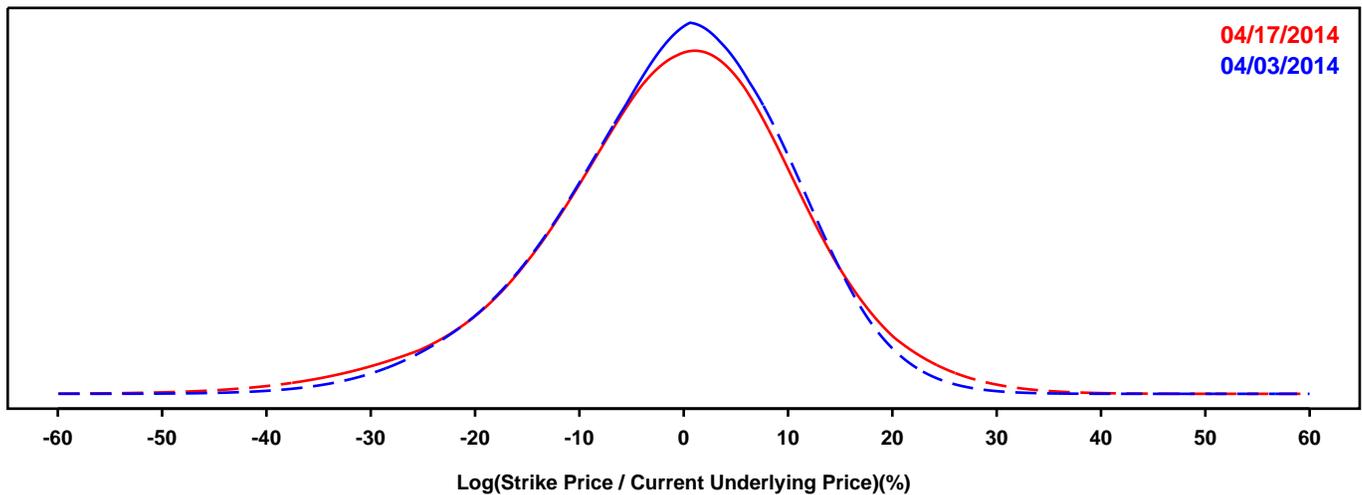
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- STATE STREET

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

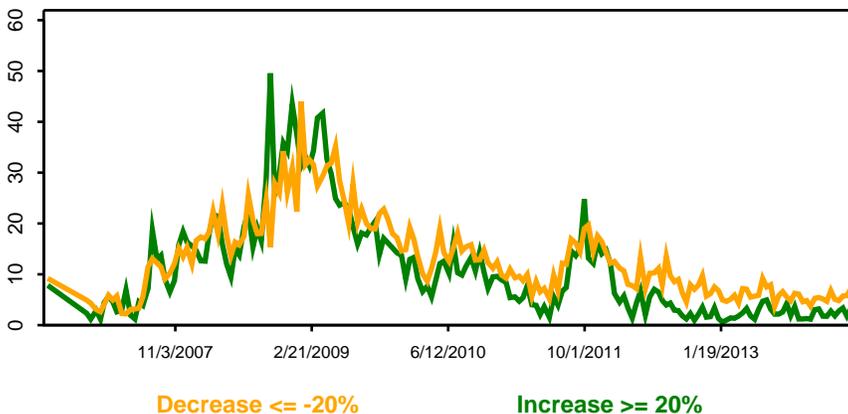
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

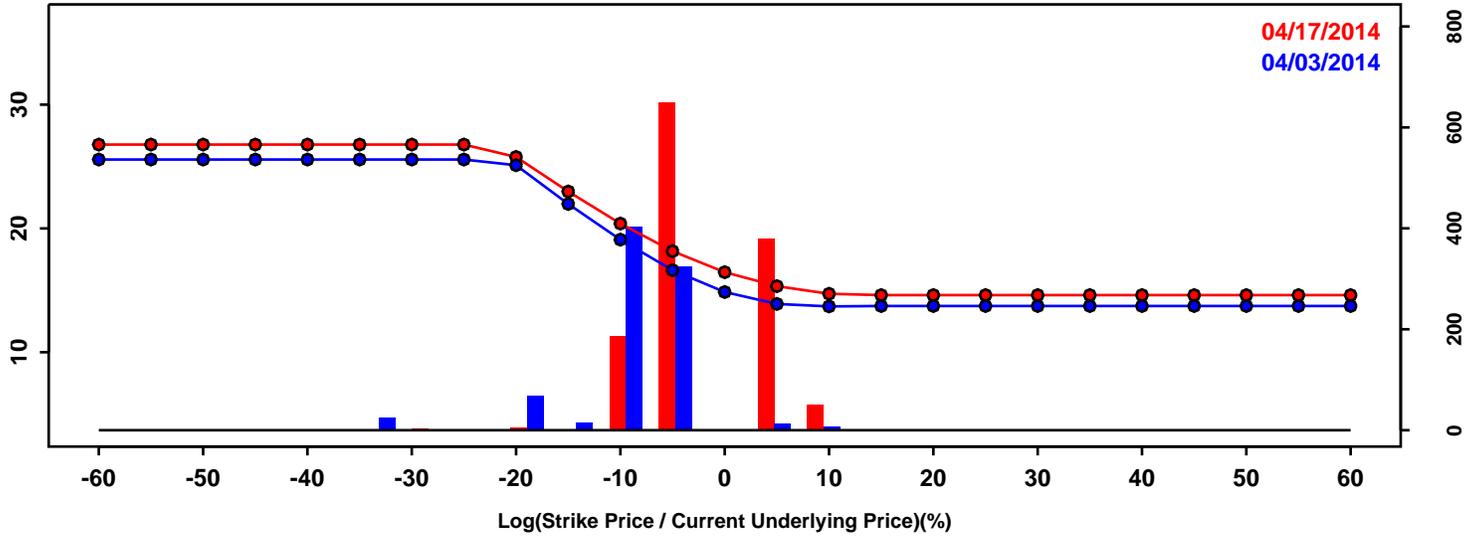


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-15.91%	-17.00%	-1.10%
50th Pct	-0.26%	-0.35%	-0.09%
90th Pct	12.44%	13.56%	1.11%
Mean	-1.07%	-1.16%	-0.10%
Std Dev	11.17%	12.40%	1.23%
Skew	-0.40	-0.42	-0.02
Kurtosis	0.30	0.74	0.44

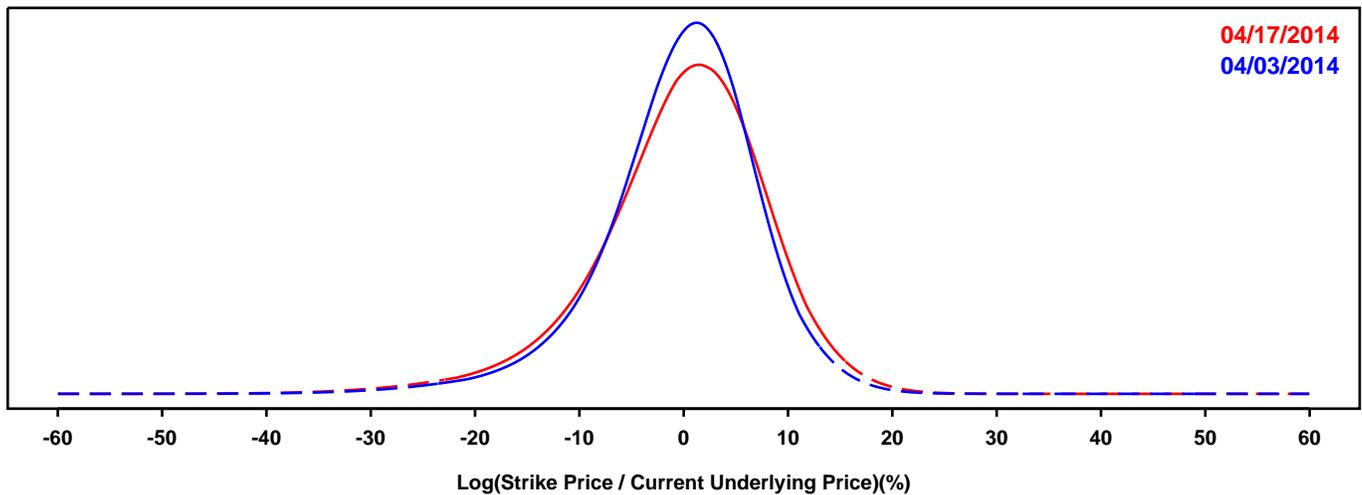
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- US BANCORP

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

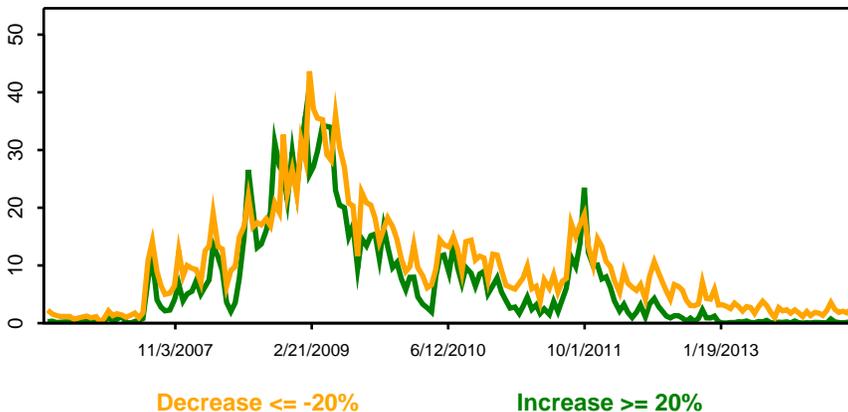
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

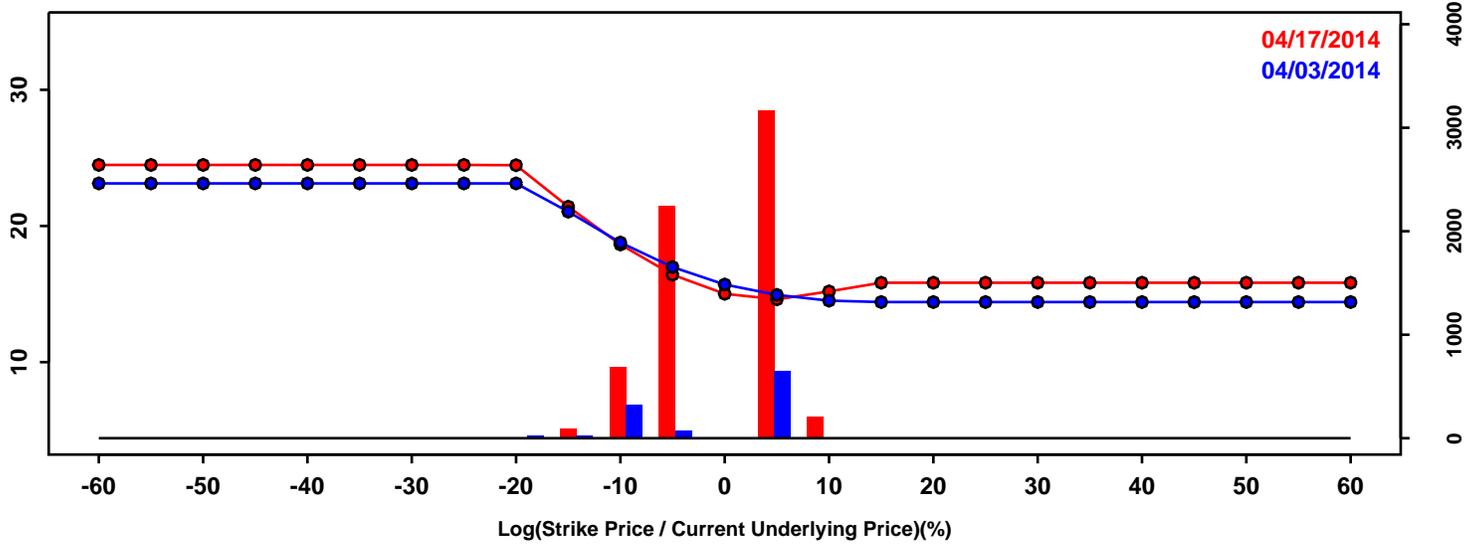


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-9.54%	-10.65%	-1.11%
50th Pct	0.34%	0.53%	0.19%
90th Pct	8.23%	9.33%	1.10%
Mean	-0.30%	-0.20%	0.10%
Std Dev	7.53%	8.34%	0.81%
Skew	-0.78	-0.75	0.03
Kurtosis	1.91	1.59	-0.33

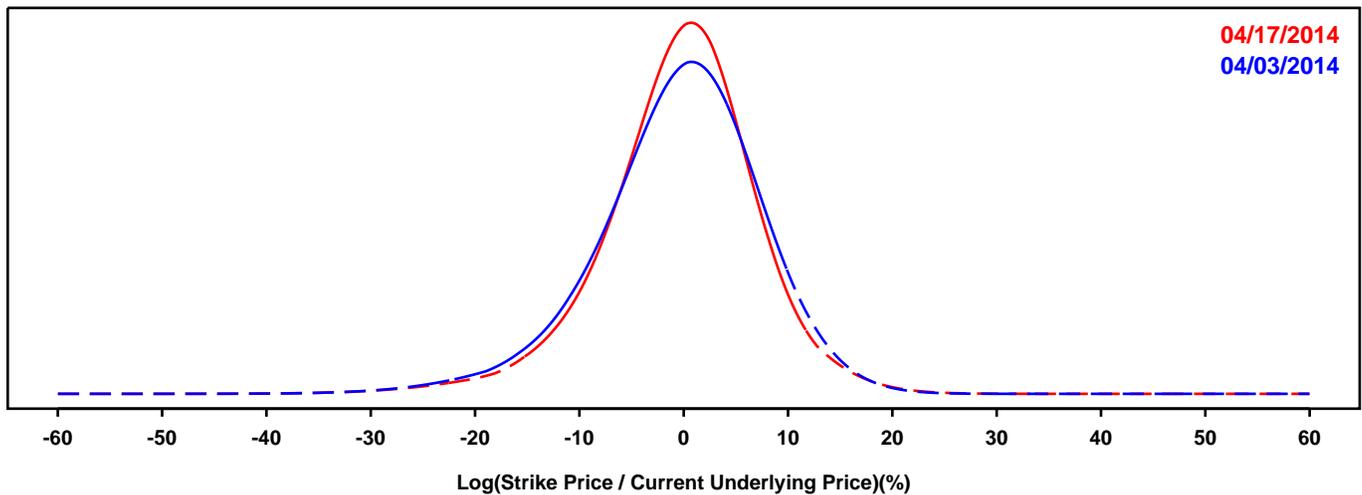
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- WELLS FARGO

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

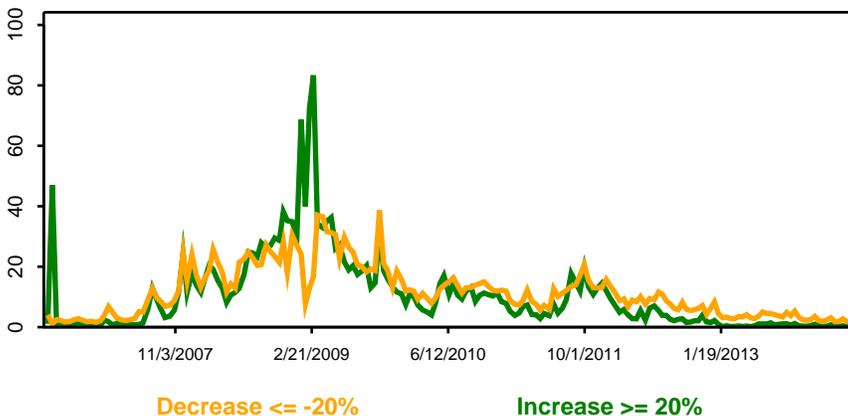
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

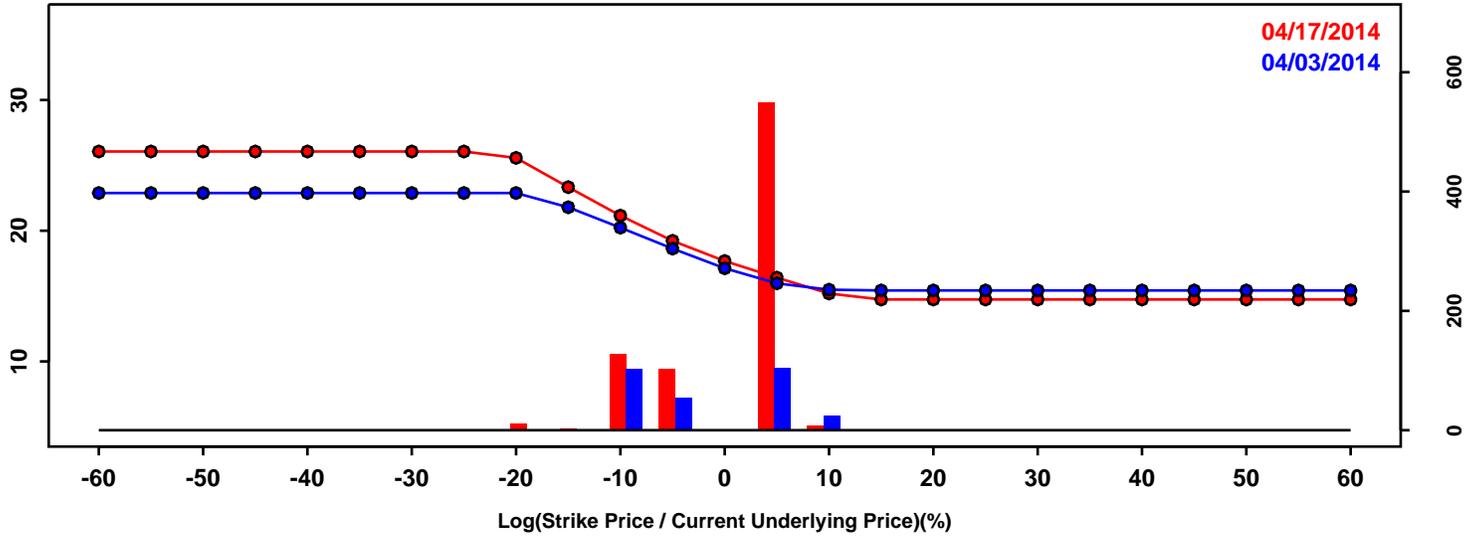


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-10.49%	-9.55%	0.94%
50th Pct	0.10%	0.05%	-0.04%
90th Pct	8.99%	8.25%	-0.74%
Mean	-0.44%	-0.39%	0.06%
Std Dev	7.94%	7.52%	-0.43%
Skew	-0.53	-0.55	-0.02
Kurtosis	1.02	1.64	0.63

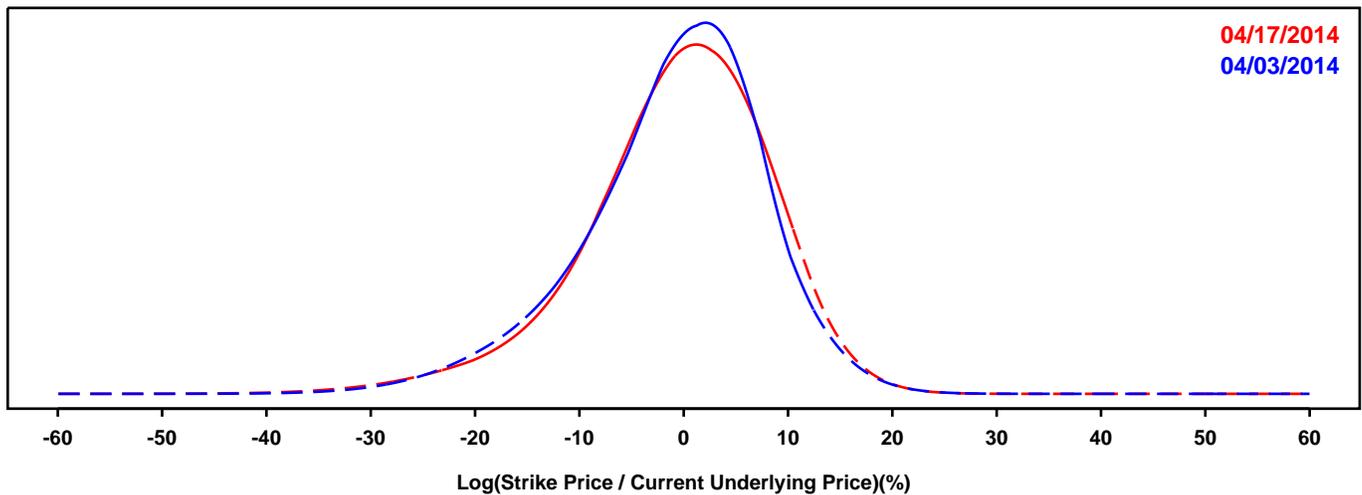
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- AFLAC

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

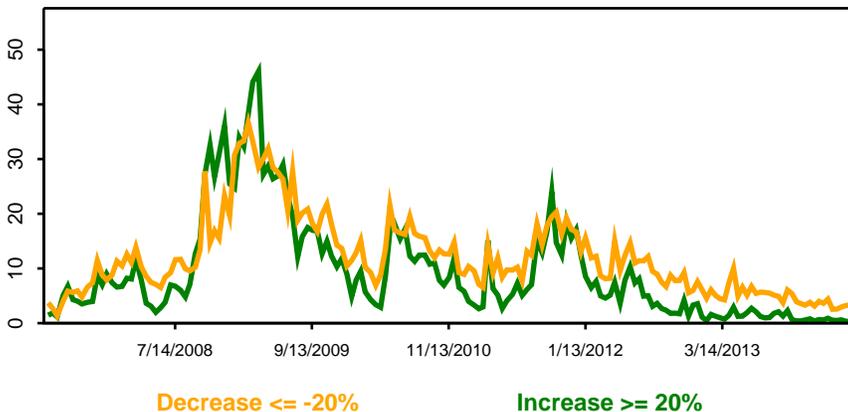
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

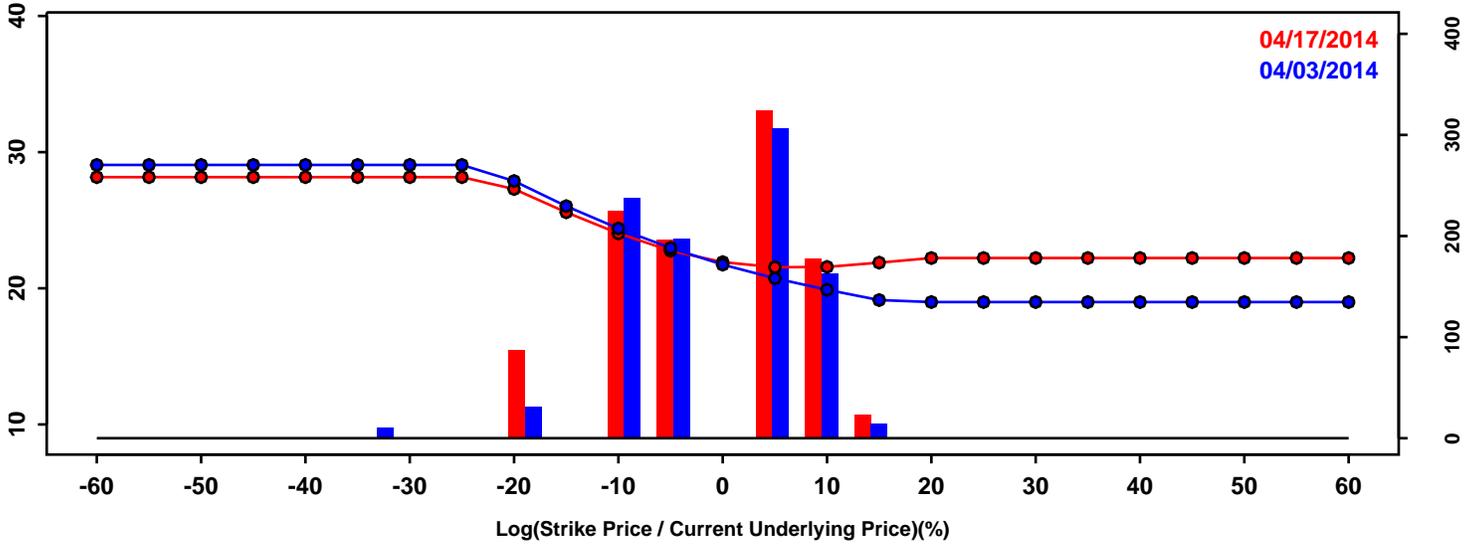


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-12.75%	-12.26%	0.49%
50th Pct	0.04%	0.20%	0.16%
90th Pct	9.09%	9.92%	0.83%
Mean	-0.97%	-0.64%	0.33%
Std Dev	8.83%	9.08%	0.25%
Skew	-0.61	-0.70	-0.09
Kurtosis	0.77	1.12	0.35

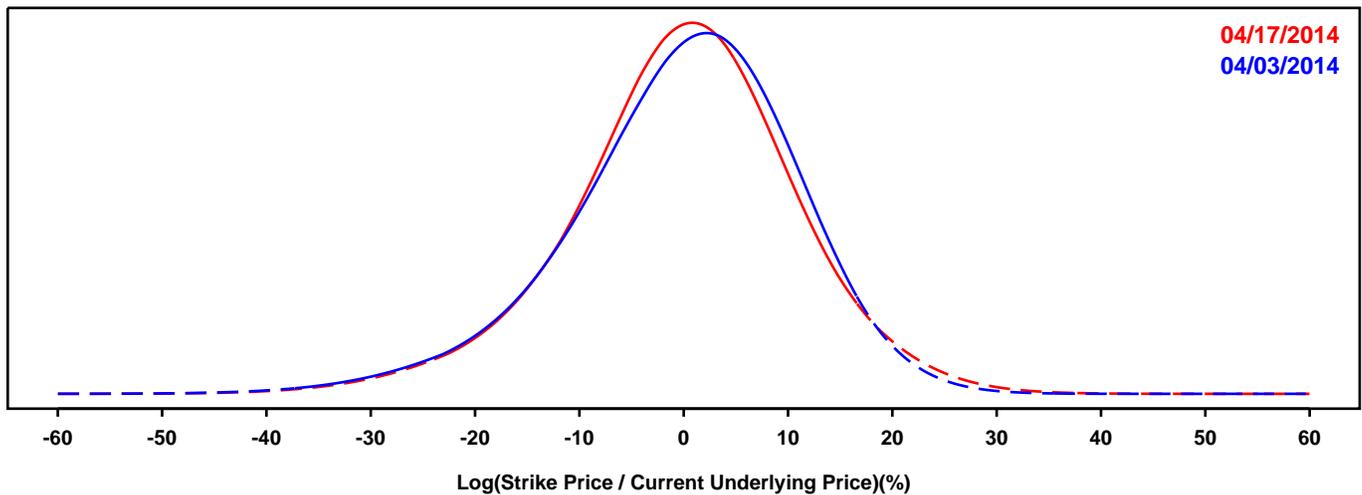
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- AIG

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

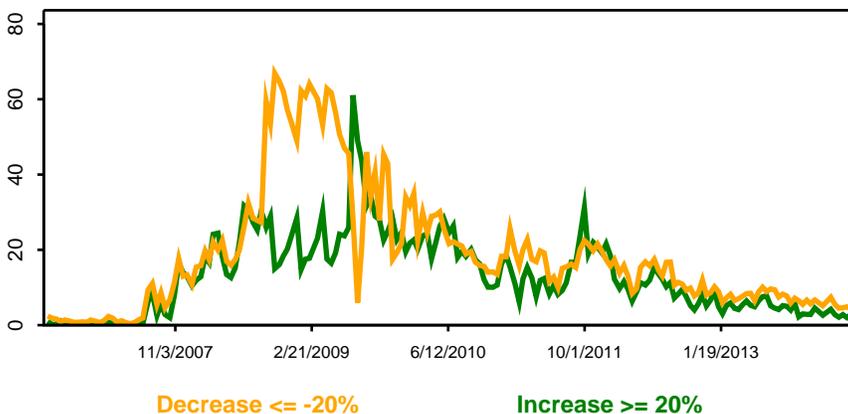
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

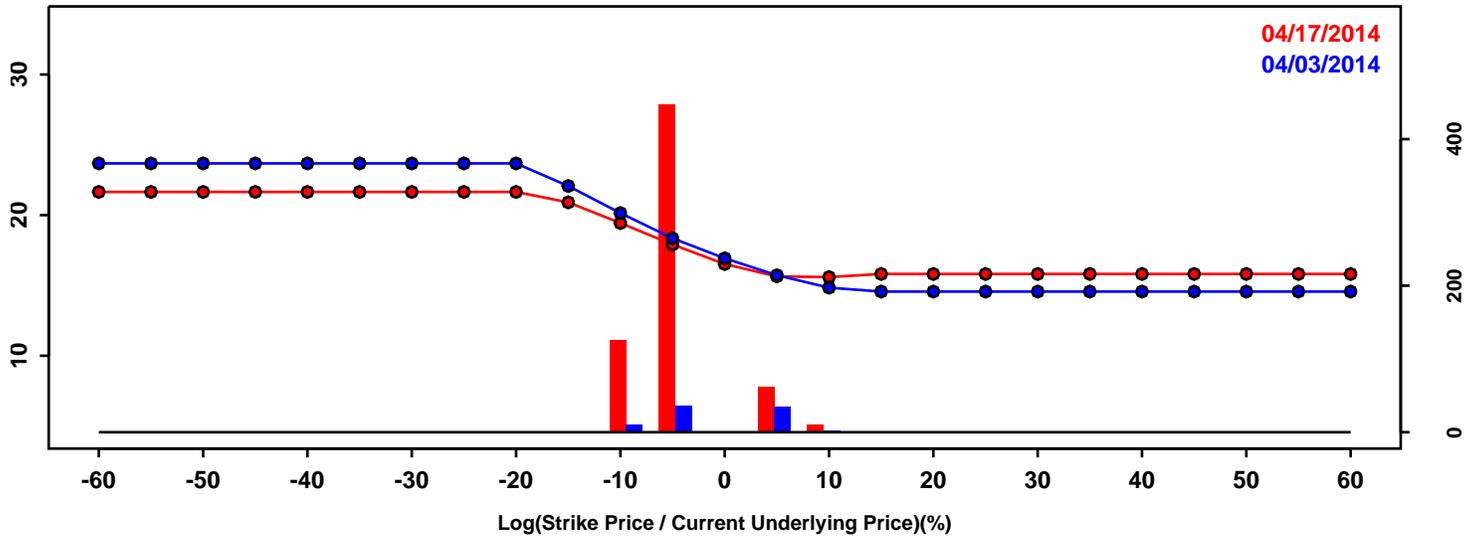


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-14.37%	-14.00%	0.37%
50th Pct	0.77%	0.32%	-0.45%
90th Pct	12.98%	13.10%	0.12%
Mean	-0.11%	-0.12%	-0.02%
Std Dev	10.99%	10.97%	-0.02%
Skew	-0.52	-0.31	0.21
Kurtosis	0.68	0.71	0.03

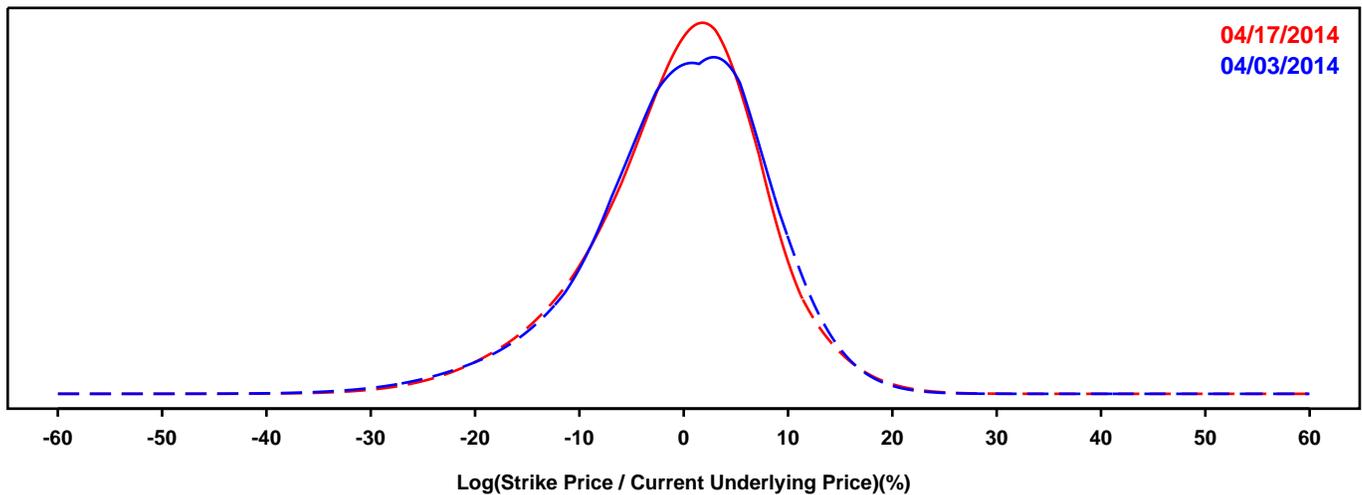
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- ALLSTATE

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

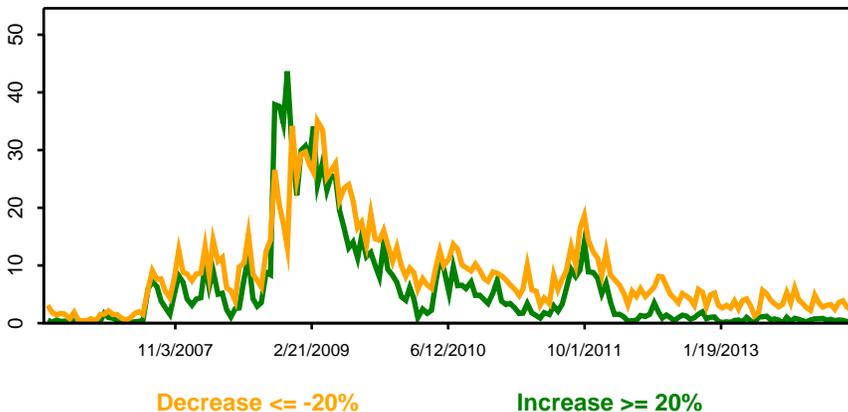
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

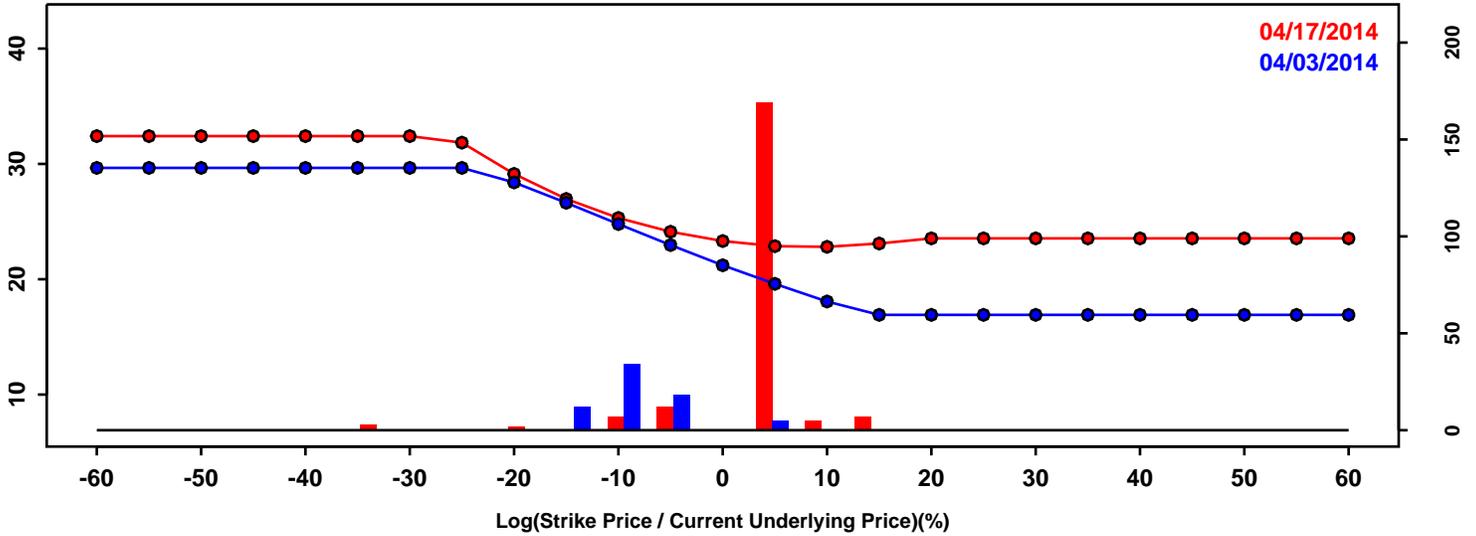


	04/03/2014	04/17/2014	Change
10th Pct	-11.72%	-11.68%	0.04%
50th Pct	0.29%	0.27%	-0.02%
90th Pct	9.55%	9.04%	-0.50%
Mean	-0.50%	-0.58%	-0.07%
Std Dev	8.65%	8.40%	-0.25%
Skew	-0.64	-0.53	0.11
Kurtosis	0.92	0.77	-0.15

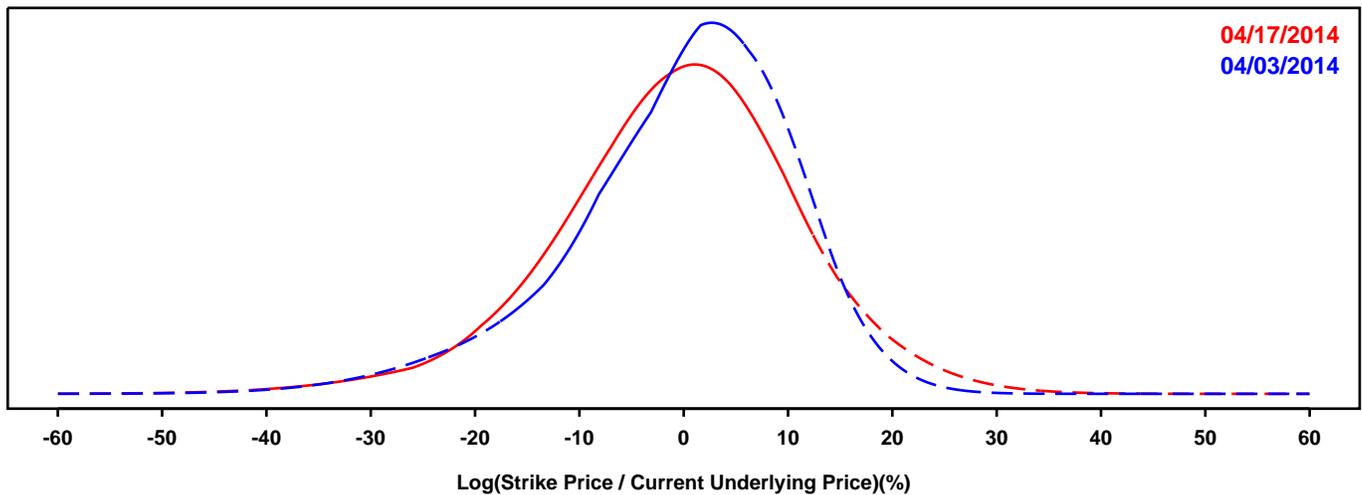
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- AMERIPRISE

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

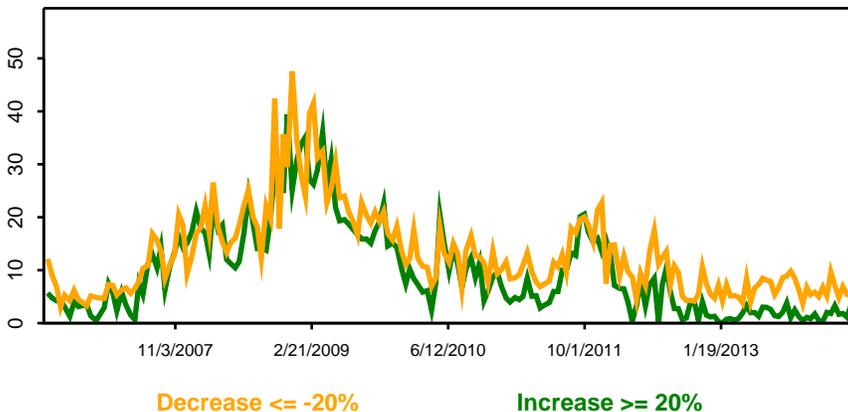
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

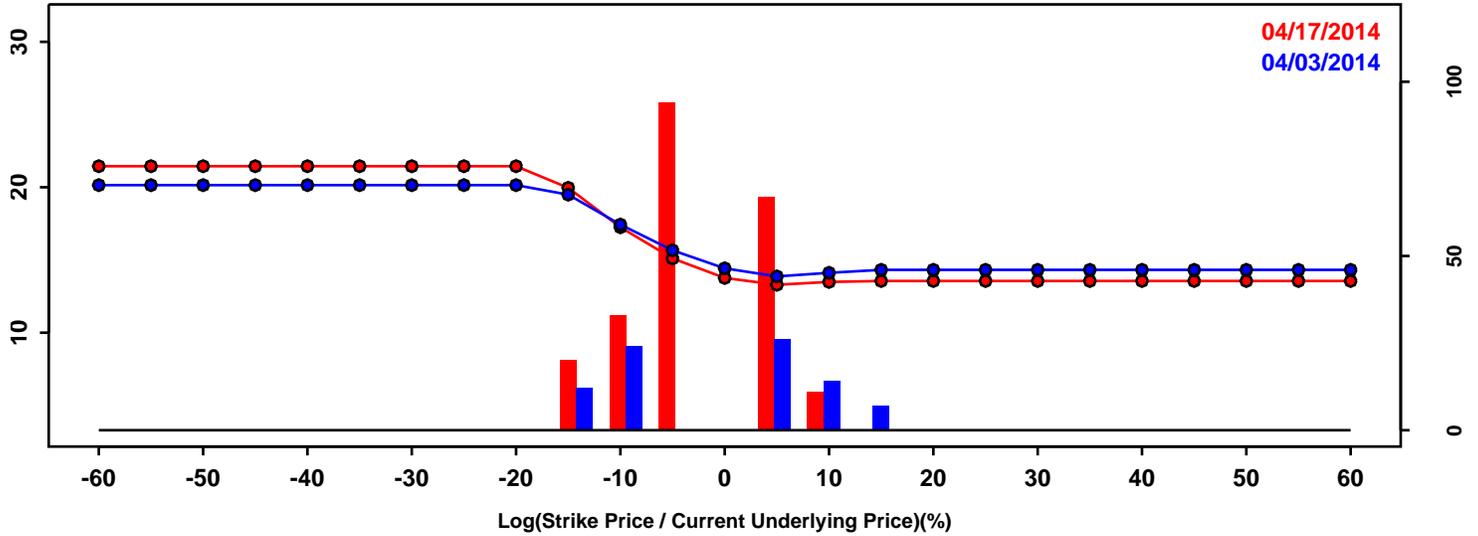


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-14.65%	-15.20%	-0.55%
50th Pct	1.15%	0.00%	-1.15%
90th Pct	12.21%	13.52%	1.32%
Mean	-0.20%	-0.52%	-0.32%
Std Dev	10.87%	11.71%	0.84%
Skew	-0.75	-0.34	0.41
Kurtosis	0.96	0.82	-0.13

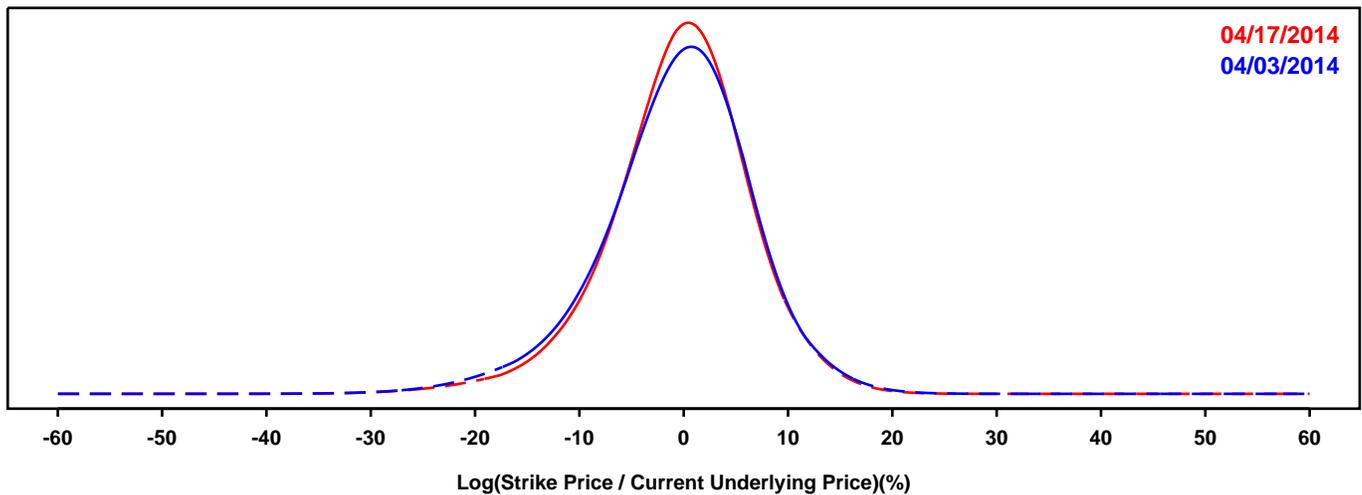
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CHUBB

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

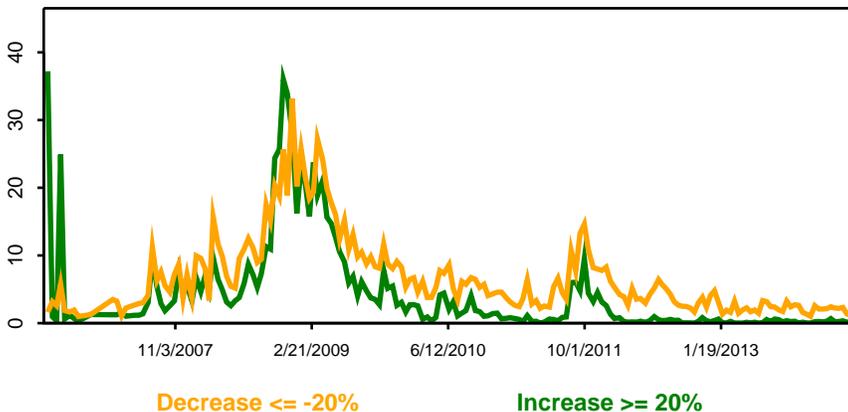
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

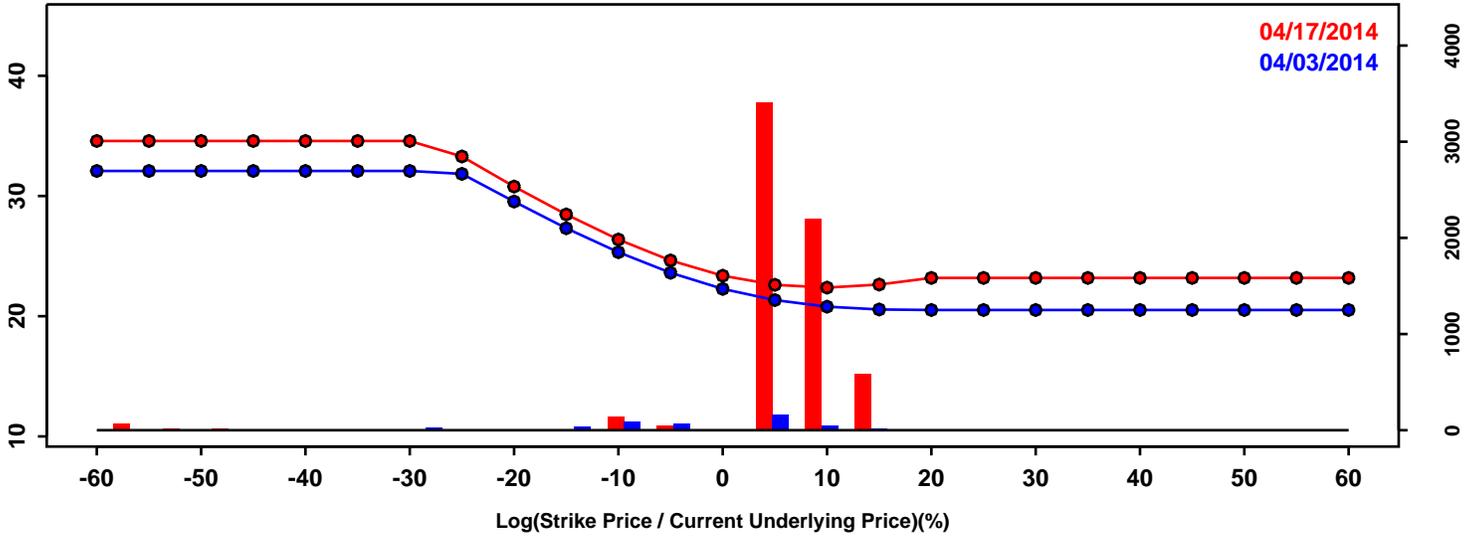


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-9.82%	-9.03%	0.79%
50th Pct	-0.12%	-0.04%	0.08%
90th Pct	7.86%	7.66%	-0.20%
Mean	-0.61%	-0.44%	0.17%
Std Dev	7.28%	6.92%	-0.36%
Skew	-0.49	-0.52	-0.03
Kurtosis	0.99	1.33	0.34

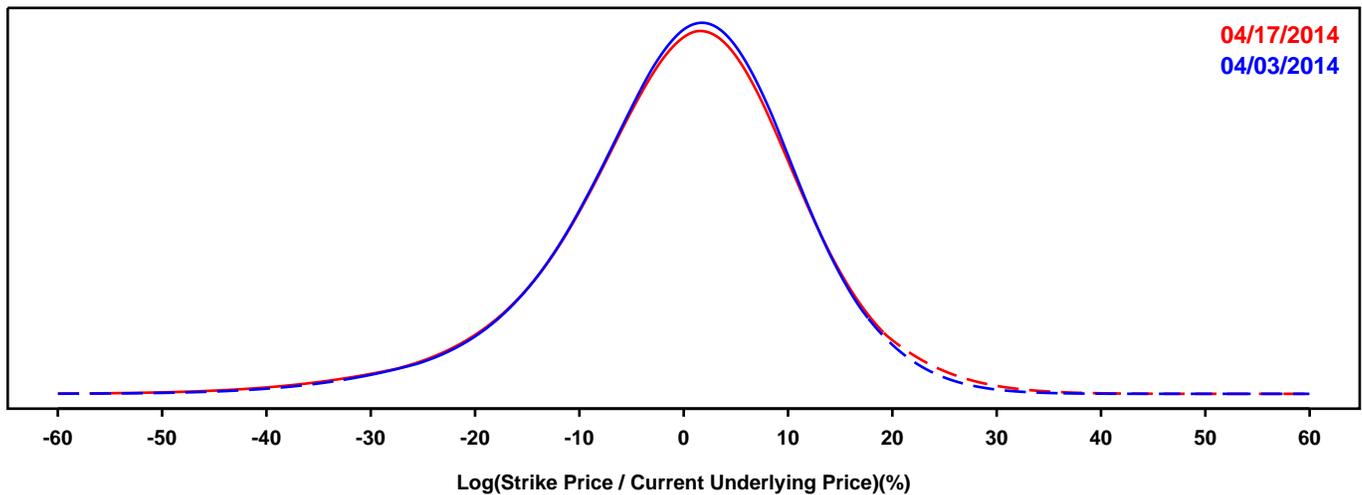
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- HARTFORD FINANCIAL

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

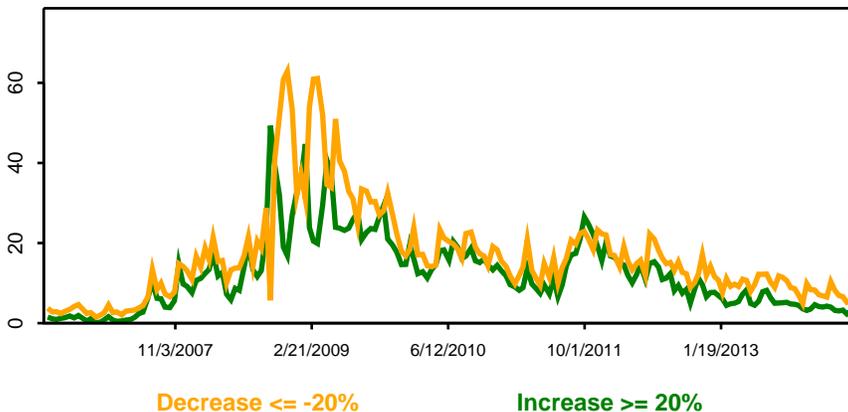
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

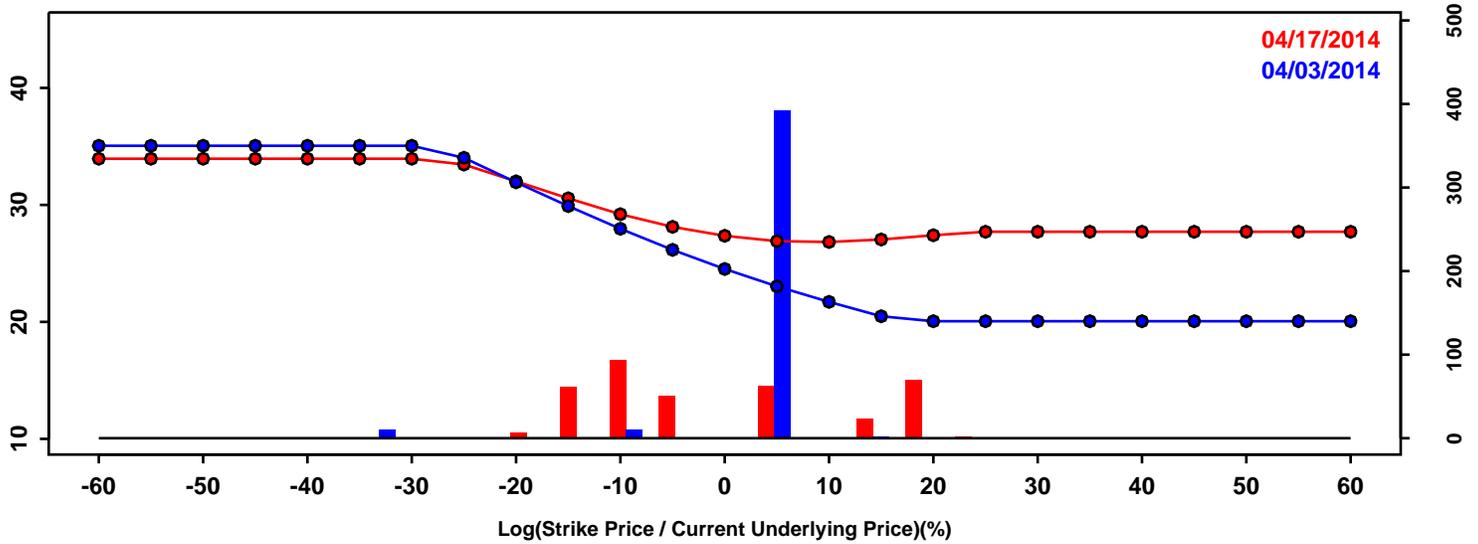


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-14.59%	-14.96%	-0.37%
50th Pct	0.53%	0.58%	0.05%
90th Pct	12.81%	13.38%	0.58%
Mean	-0.33%	-0.26%	0.07%
Std Dev	11.24%	11.77%	0.52%
Skew	-0.58	-0.54	0.03
Kurtosis	1.07	1.24	0.17

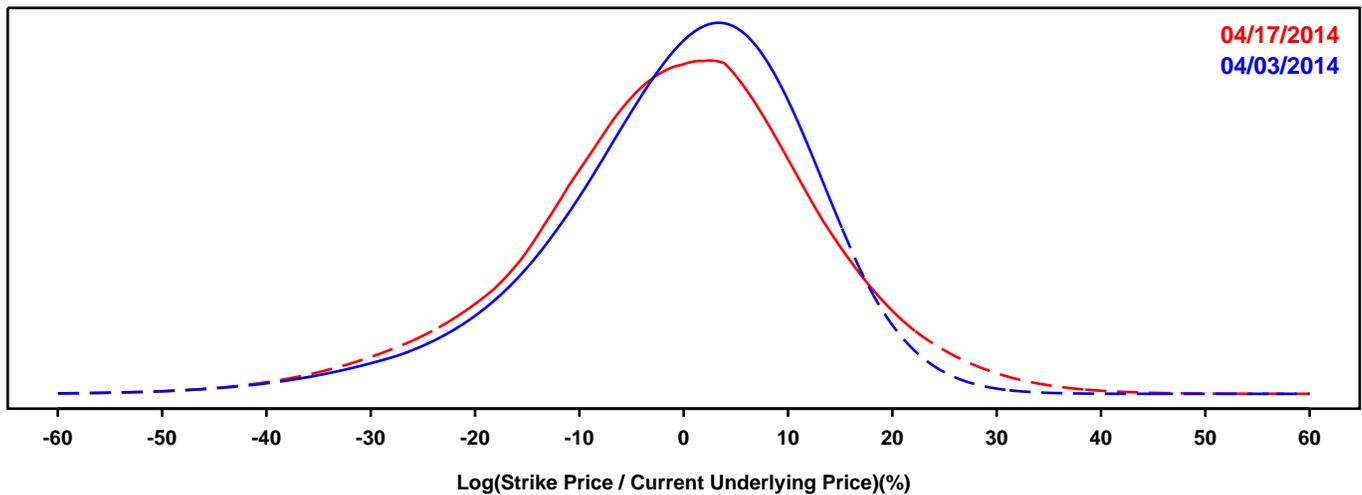
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- LINCOLN NATIONAL

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

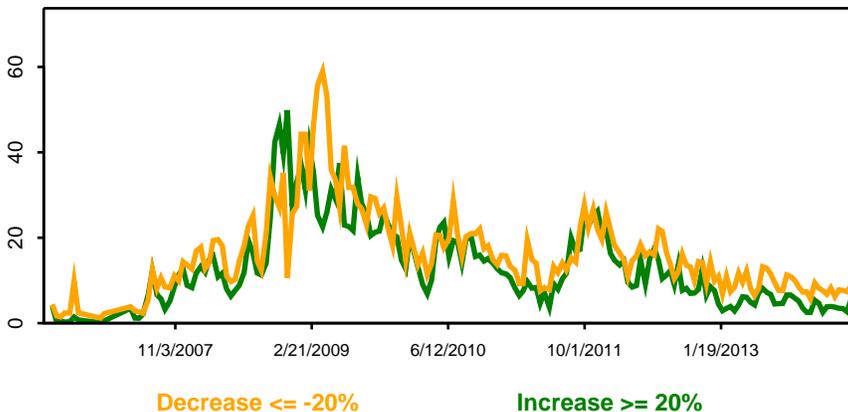
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

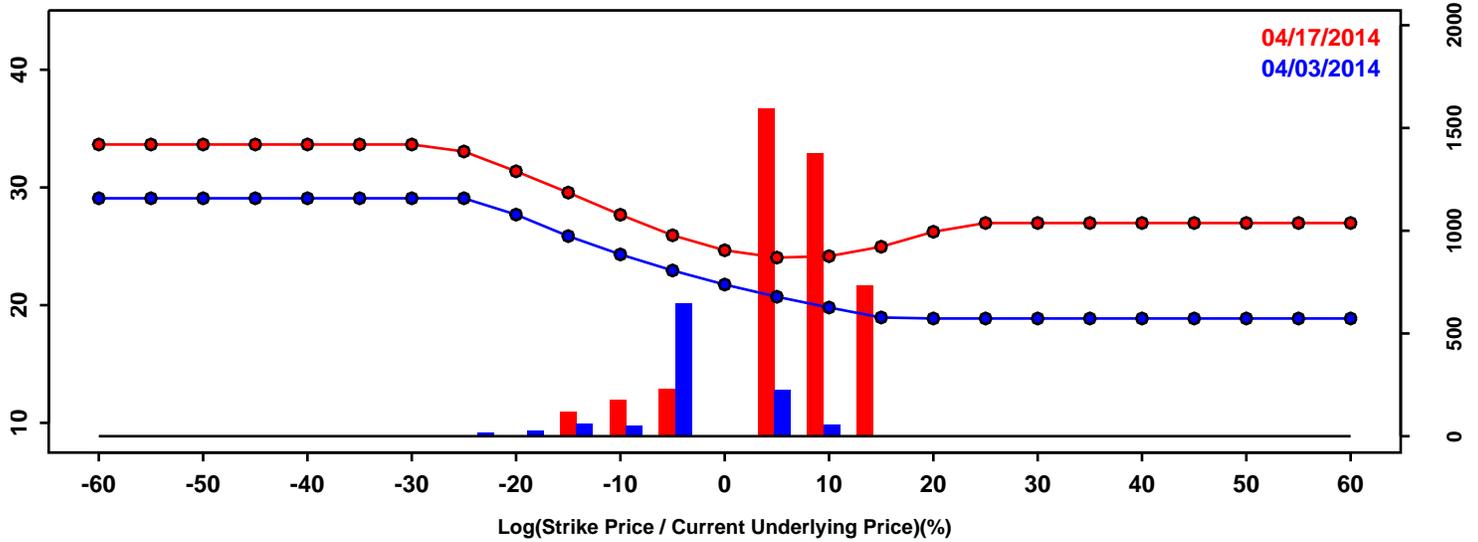


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-16.97%	-18.54%	-1.57%
50th Pct	0.94%	-0.22%	-1.16%
90th Pct	13.97%	15.68%	1.71%
Mean	-0.50%	-0.91%	-0.41%
Std Dev	12.60%	13.79%	1.19%
Skew	-0.72	-0.32	0.41
Kurtosis	1.01	0.63	-0.38

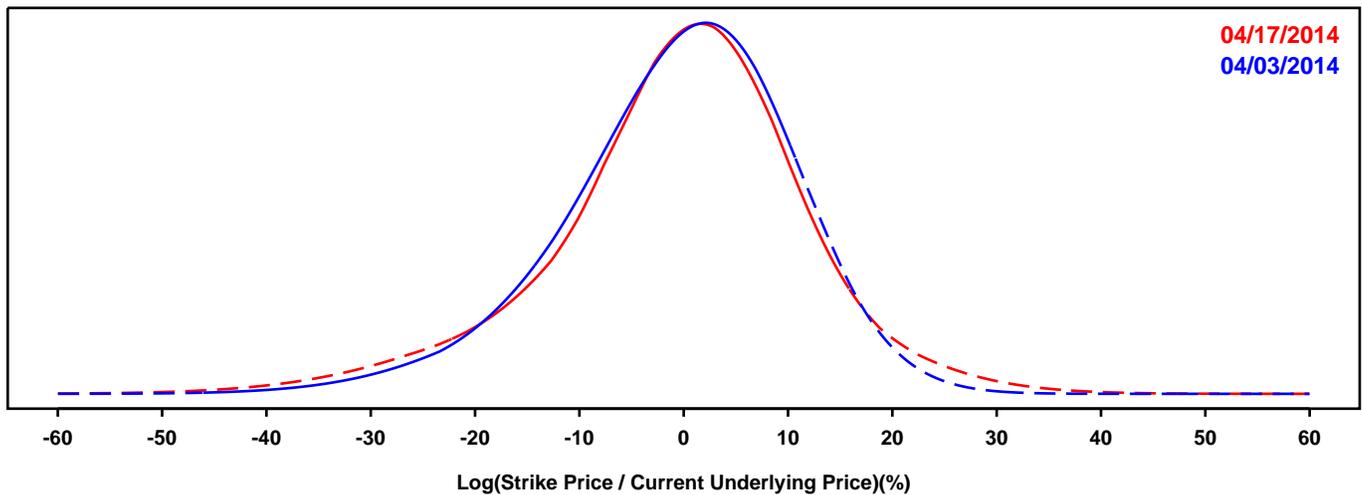
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- METLIFE

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

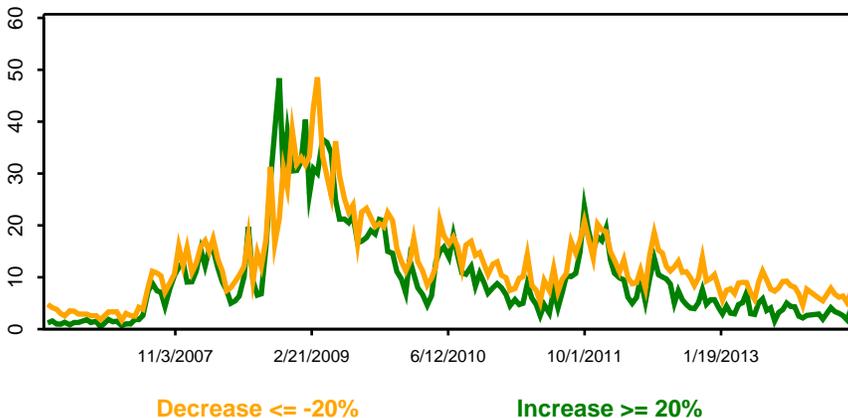
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

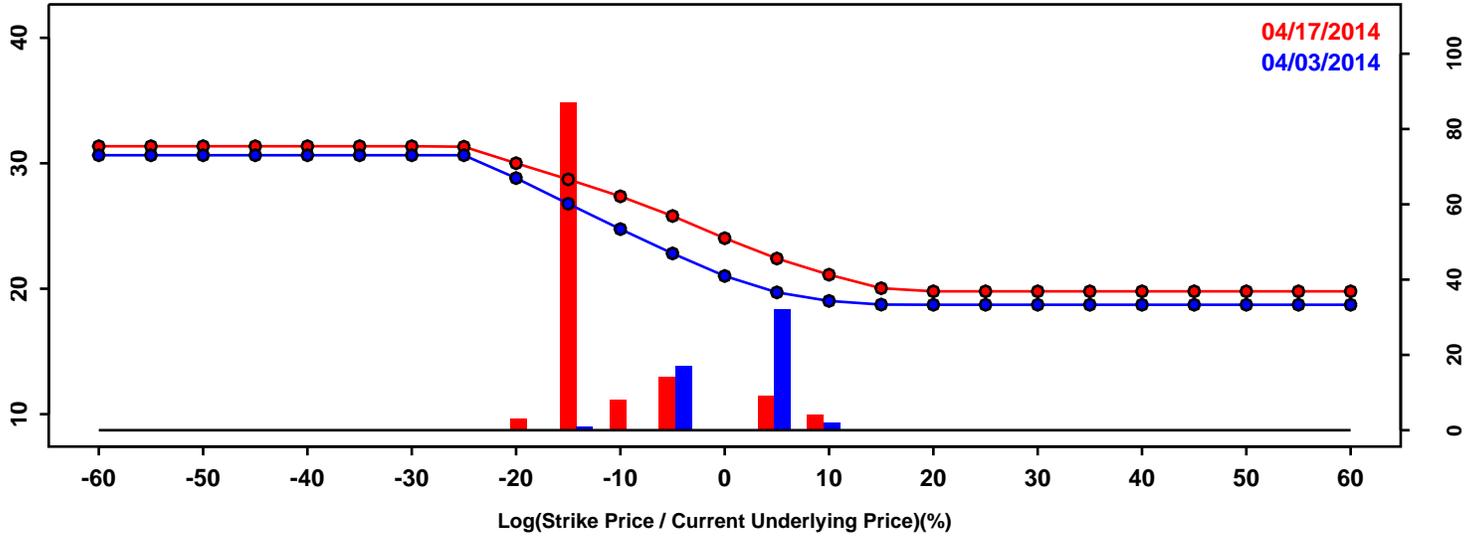


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-14.93%	-16.42%	-1.49%
50th Pct	0.43%	0.43%	-0.01%
90th Pct	12.68%	13.67%	0.99%
Mean	-0.49%	-0.50%	-0.01%
Std Dev	11.07%	12.49%	1.42%
Skew	-0.52	-0.48	0.04
Kurtosis	0.63	1.17	0.54

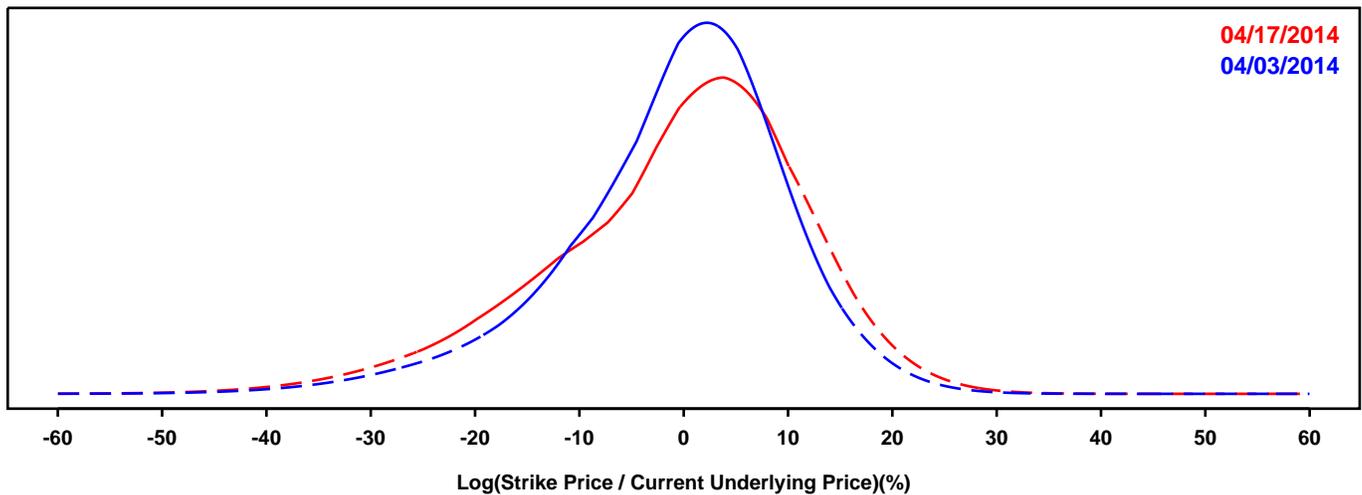
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- PRINCIPAL FINANCIAL

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

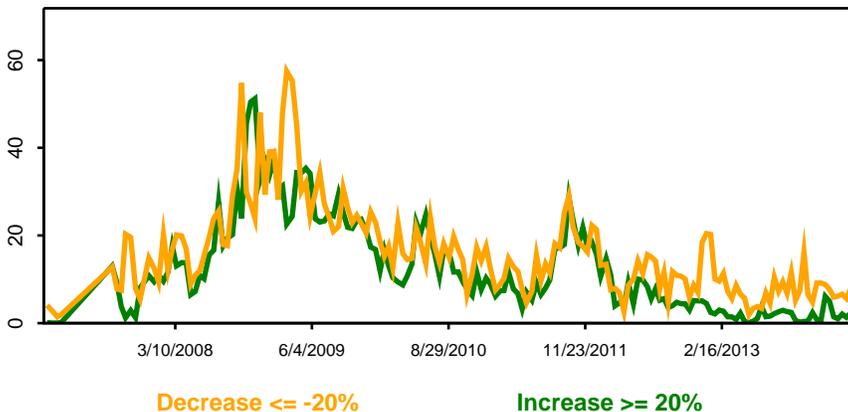
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

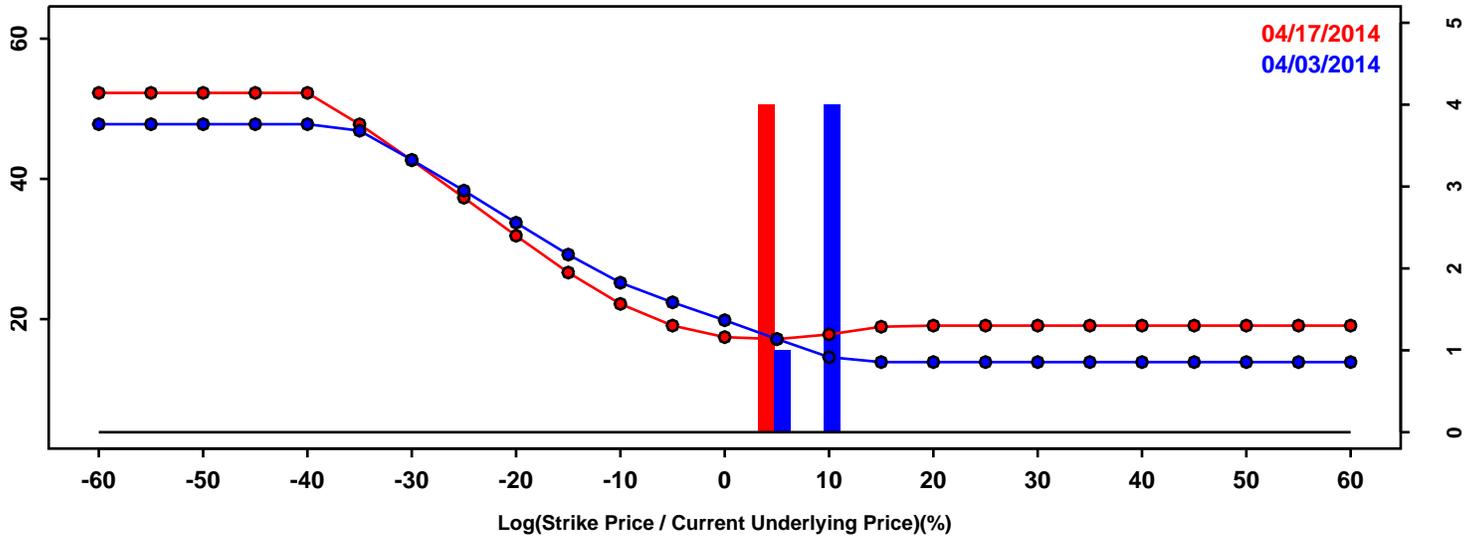


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-14.96%	-17.79%	-2.83%
50th Pct	0.54%	0.97%	0.43%
90th Pct	11.46%	13.43%	1.97%
Mean	-0.79%	-0.78%	0.01%
Std Dev	10.86%	12.41%	1.55%
Skew	-0.73	-0.65	0.08
Kurtosis	1.20	0.59	-0.61

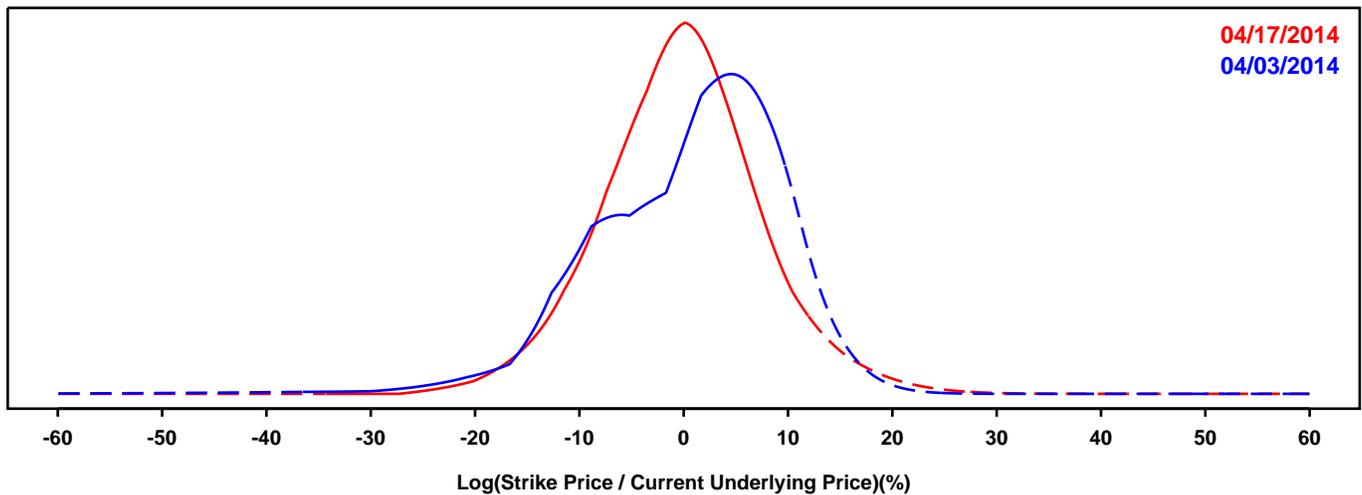
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- PROGRESSIVE

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

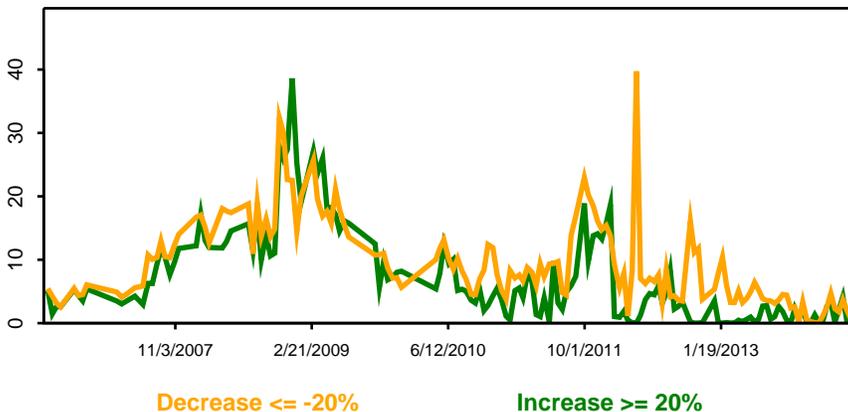
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



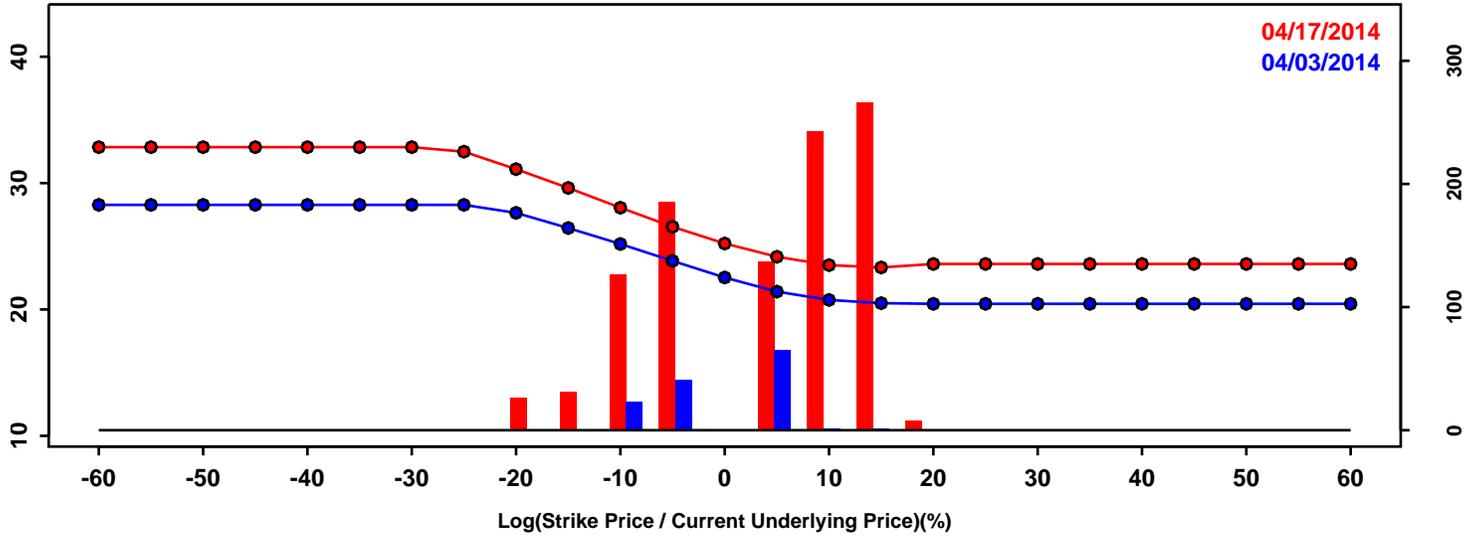
Statistics of the Log Return Distributions

	04/03/2014	04/17/2014	Change
10th Pct	-11.05%	-9.83%	1.22%
50th Pct	1.93%	-0.15%	-2.08%
90th Pct	10.78%	9.33%	-1.46%
Mean	0.57%	-0.16%	-0.73%
Std Dev	9.14%	7.70%	-1.44%
Skew	-1.07	0.11	1.18
Kurtosis	3.62	0.51	-3.11

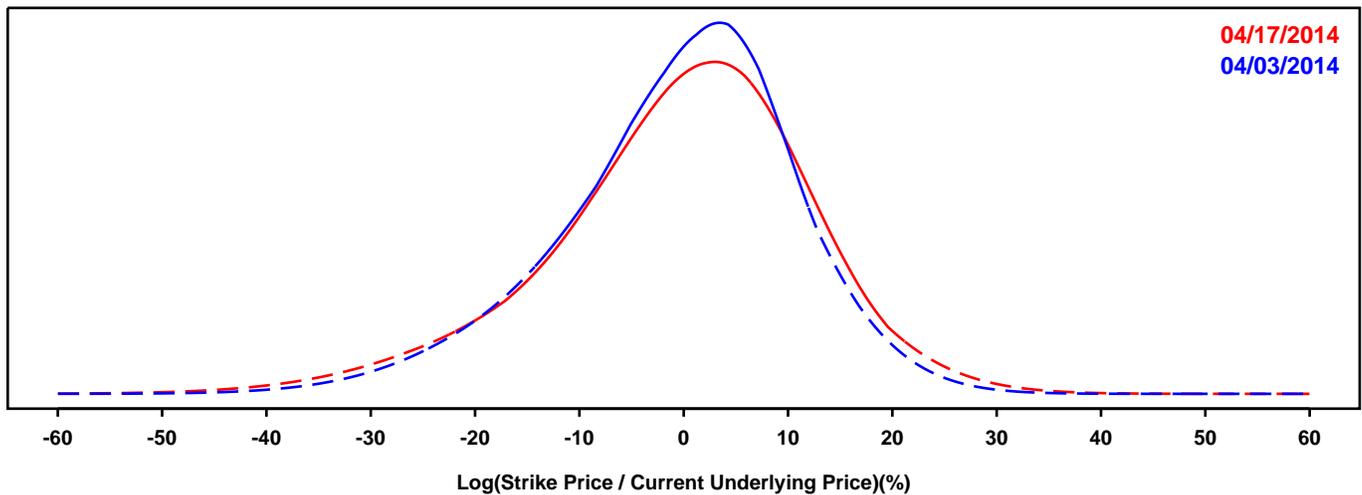
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- PRUDENTIAL

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

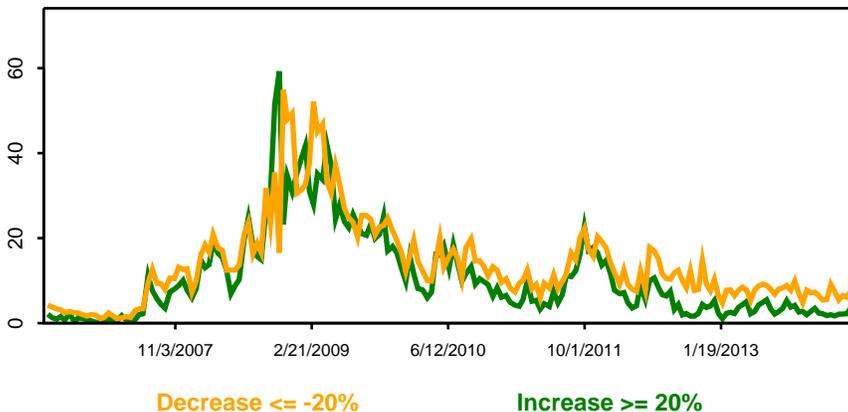
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

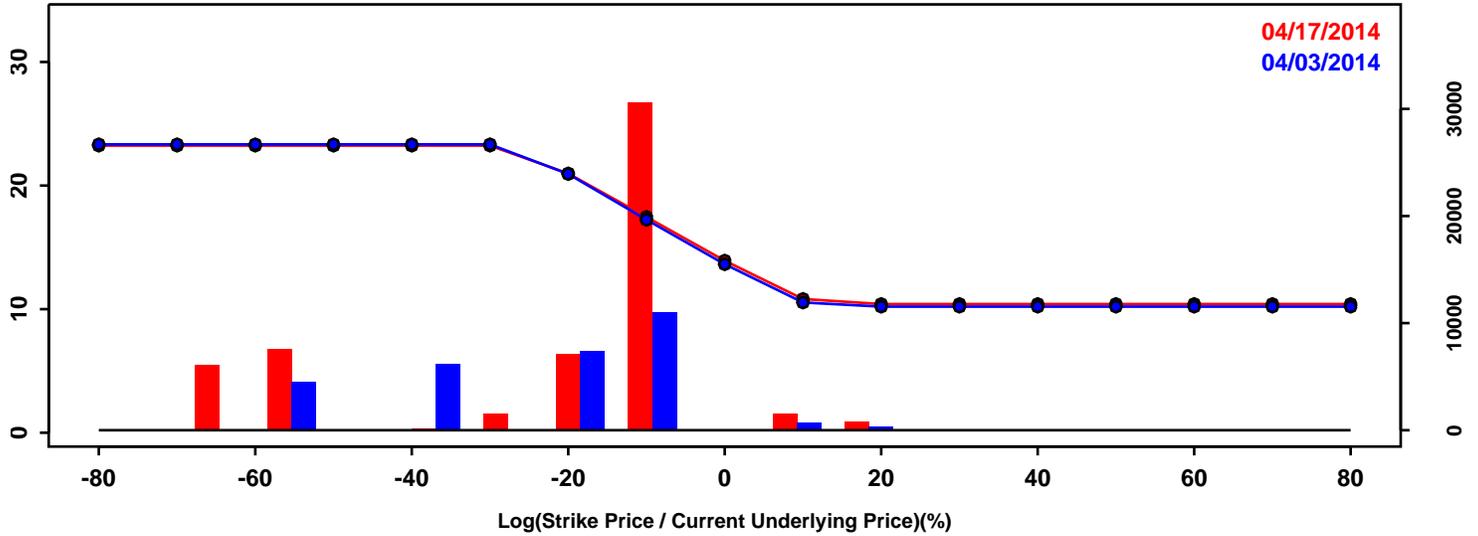


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-15.98%	-17.27%	-1.29%
50th Pct	0.58%	0.74%	0.17%
90th Pct	12.68%	14.33%	1.65%
Mean	-0.63%	-0.44%	0.18%
Std Dev	11.45%	12.77%	1.32%
Skew	-0.51	-0.54	-0.03
Kurtosis	0.54	0.75	0.20

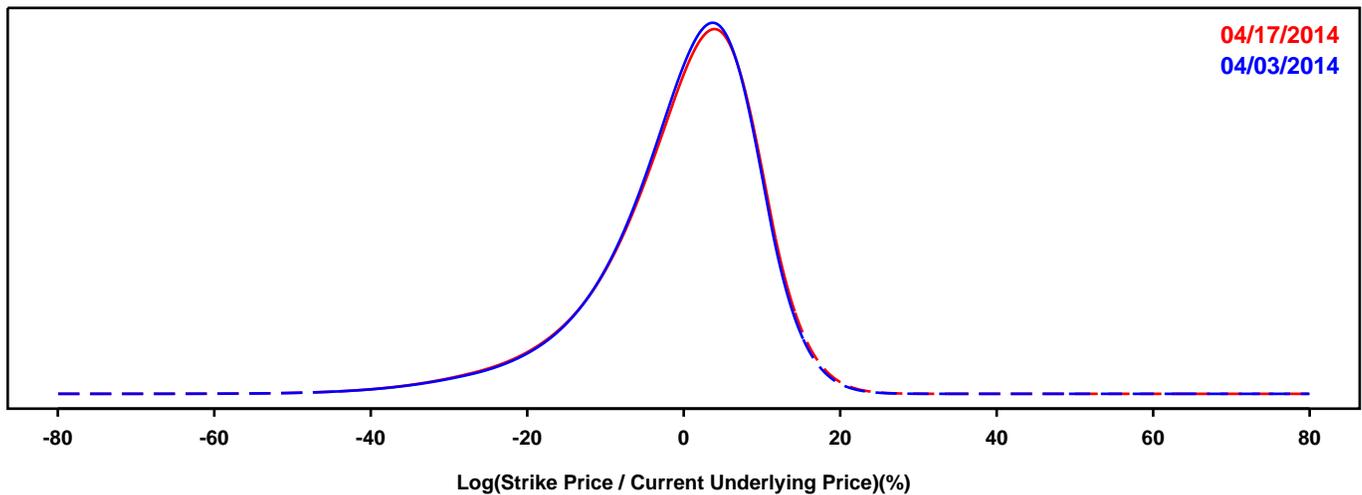
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- S&P 500

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

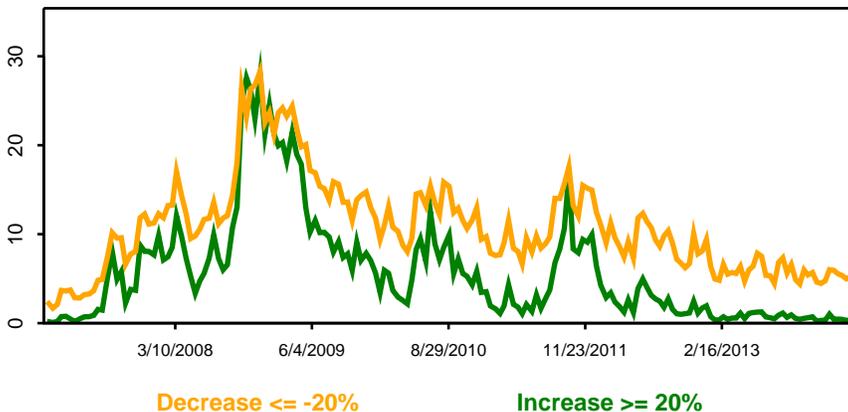
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

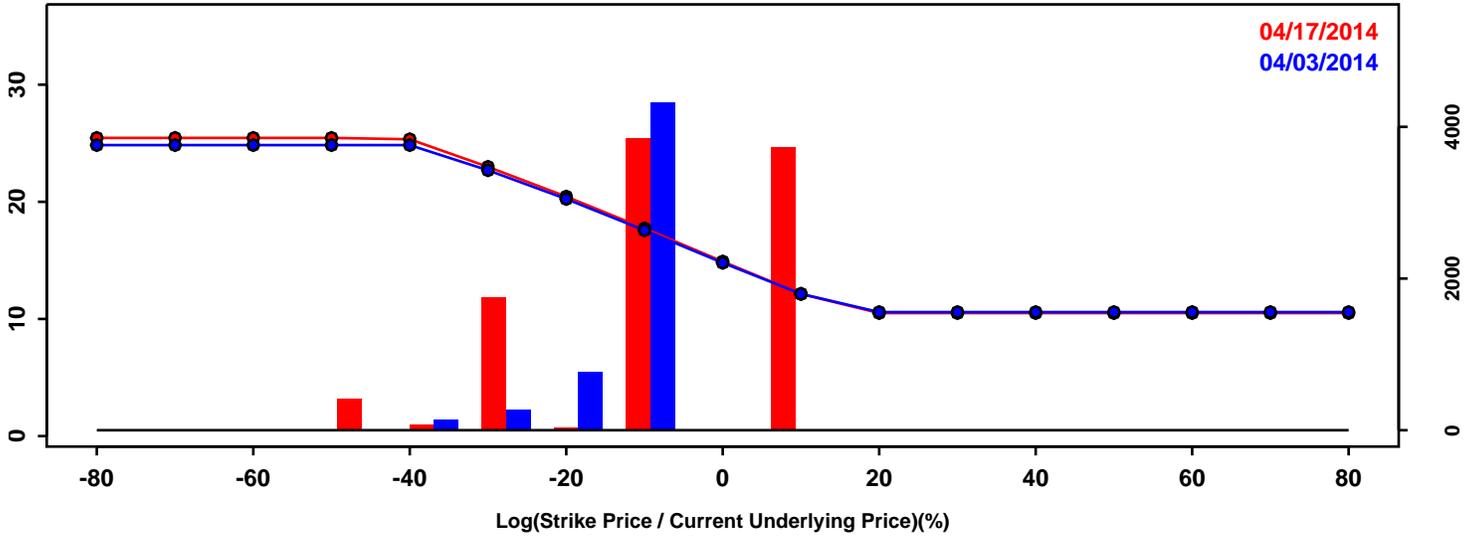


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-13.63%	-13.91%	-0.28%
50th Pct	1.20%	1.30%	0.10%
90th Pct	10.30%	10.58%	0.28%
Mean	-0.50%	-0.42%	0.08%
Std Dev	10.13%	10.31%	0.17%
Skew	-1.14	-1.11	0.03
Kurtosis	2.19	2.04	-0.15

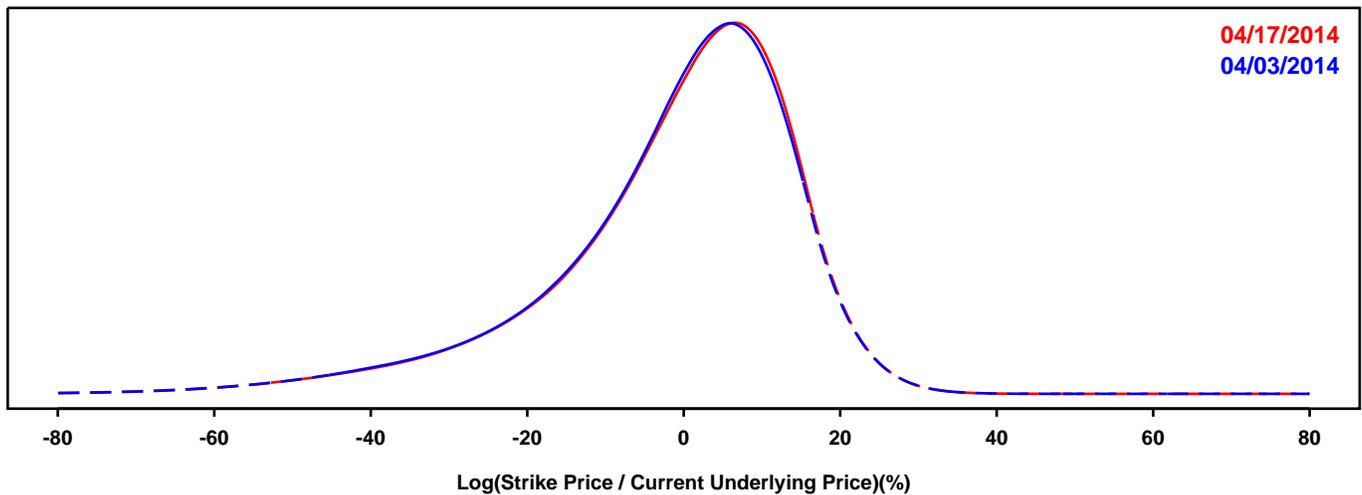
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- S&P 500

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

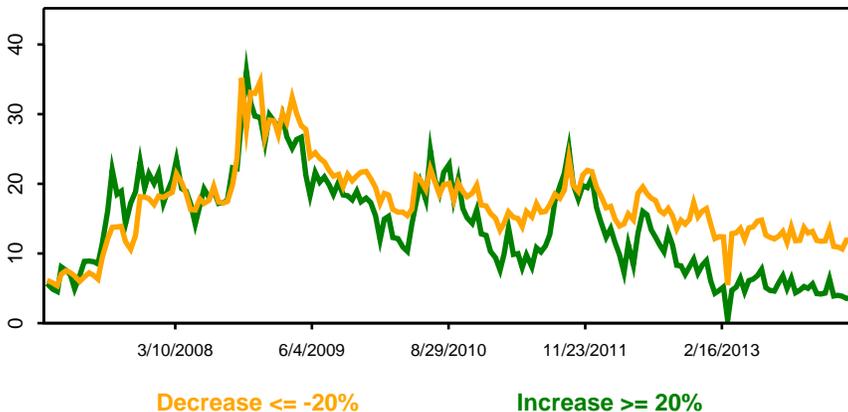
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

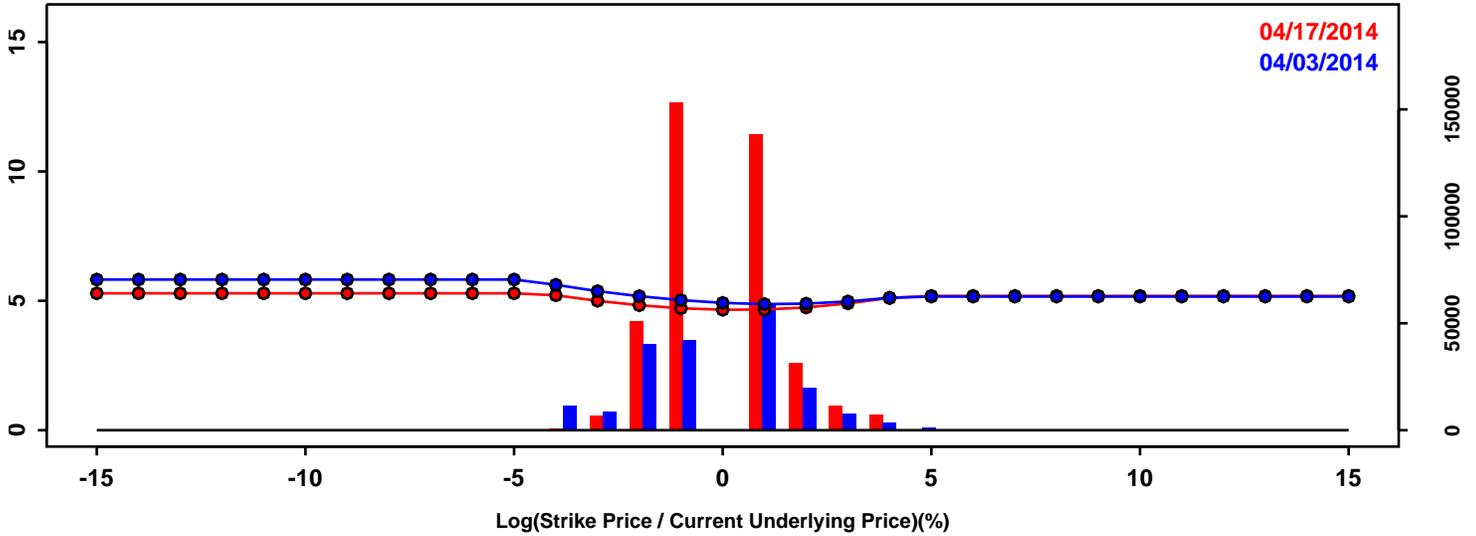


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-22.72%	-22.62%	0.11%
50th Pct	1.67%	1.94%	0.26%
90th Pct	15.17%	15.29%	0.12%
Mean	-1.45%	-1.28%	0.17%
Std Dev	16.00%	16.07%	0.08%
Skew	-1.21	-1.25	-0.03
Kurtosis	2.14	2.27	0.13

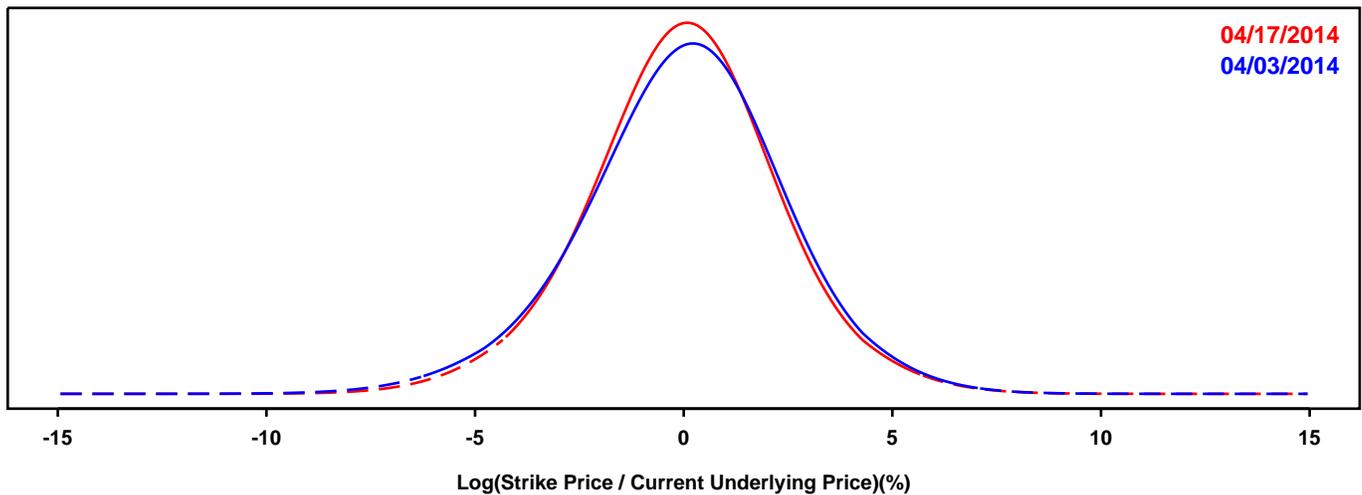
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- TEN YEAR TREASURY

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

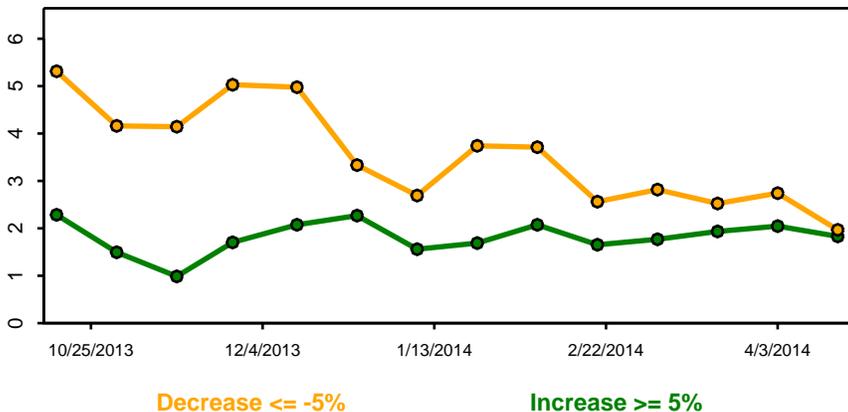
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

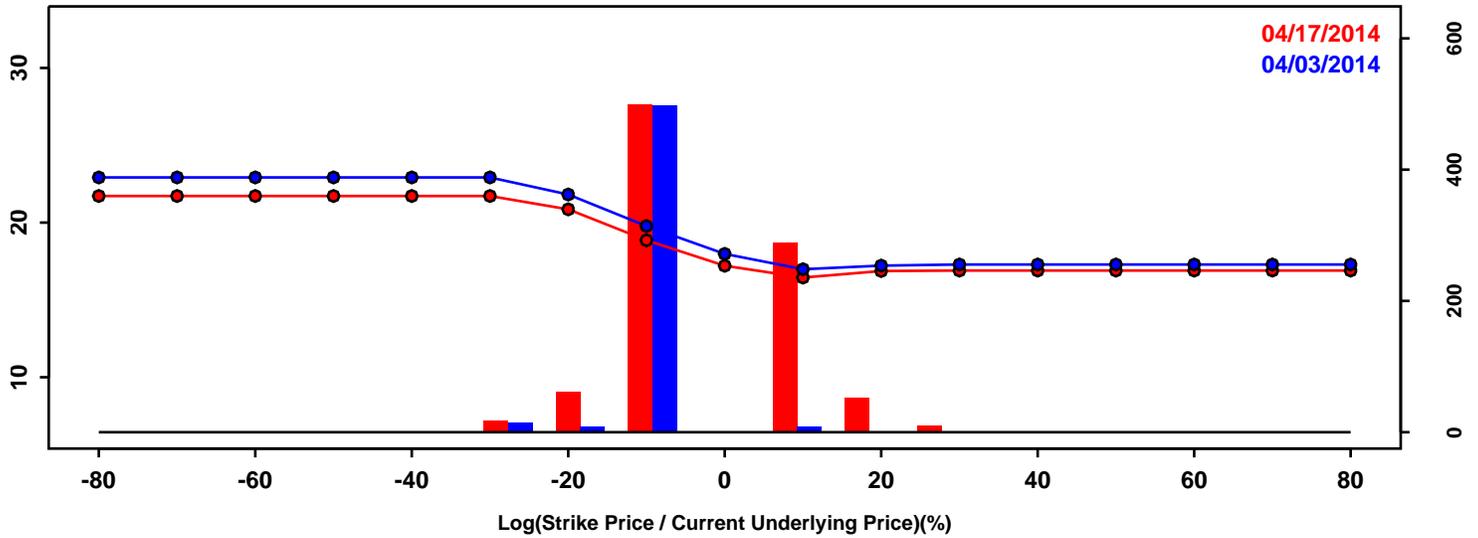


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-3.09%	-2.93%	0.17%
50th Pct	0.06%	0.00%	-0.06%
90th Pct	3.03%	2.88%	-0.15%
Mean	0.05%	0.04%	-0.00%
Std Dev	2.45%	2.32%	-0.13%
Skew	-0.17	-0.05	0.12
Kurtosis	0.47	0.48	0.01

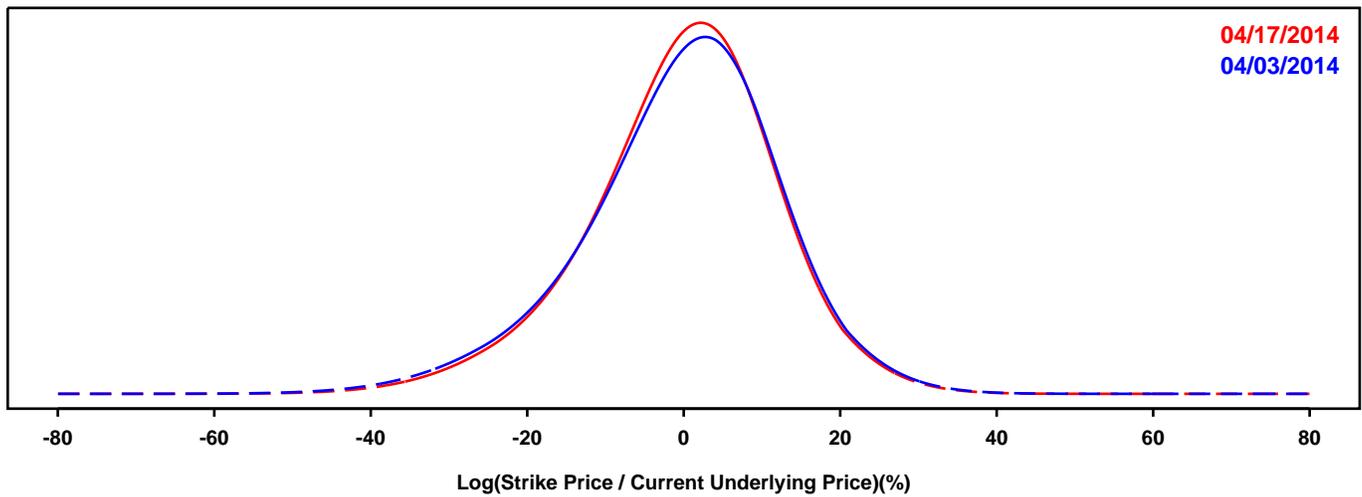
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CRUDE OIL FUTURES (WTI)

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

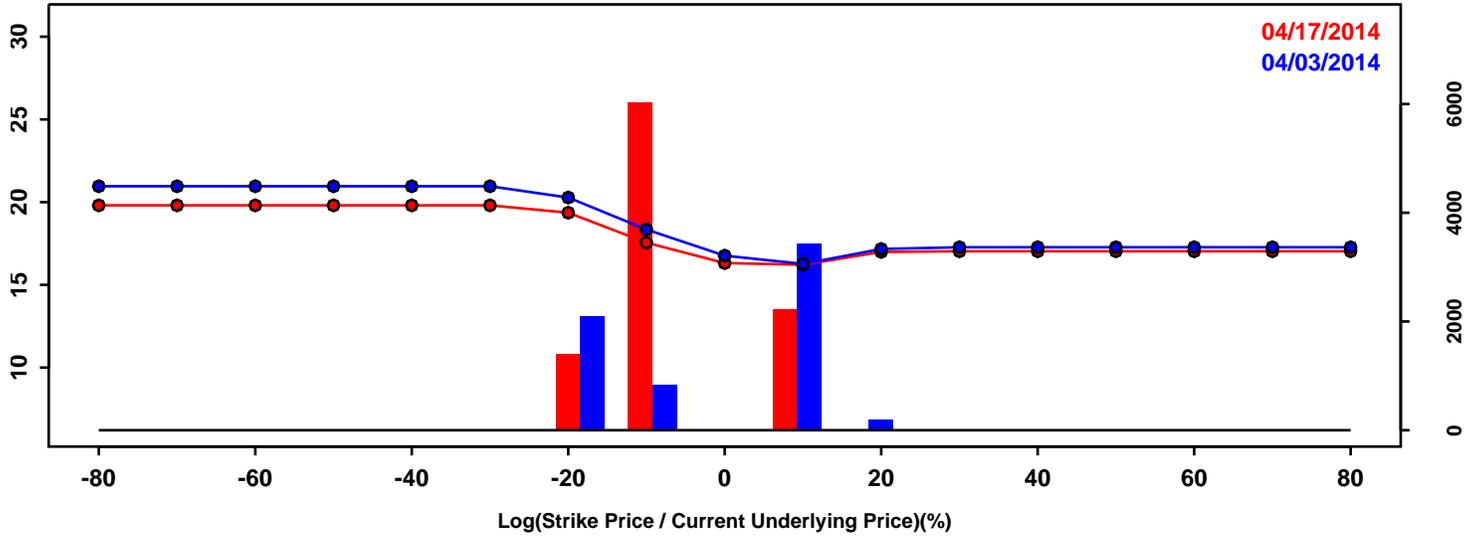


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-17.12%	-16.13%	0.99%
50th Pct	0.75%	0.64%	-0.11%
90th Pct	14.67%	14.23%	-0.44%
Mean	-0.32%	-0.23%	0.10%
Std Dev	12.82%	12.23%	-0.59%
Skew	-0.46	-0.41	0.06
Kurtosis	0.67	0.64	-0.03

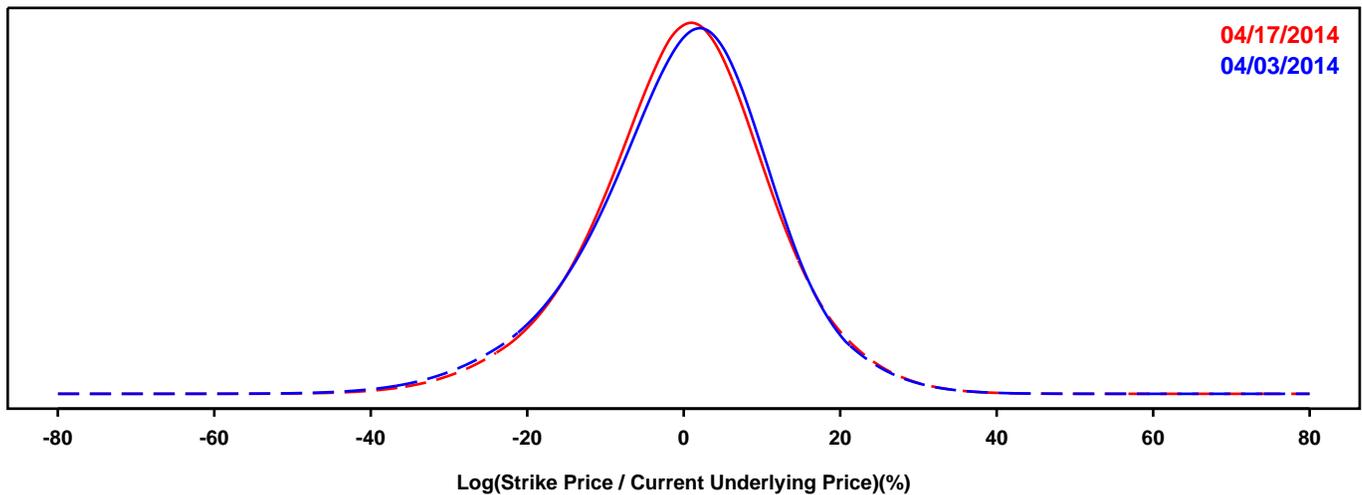
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CRUDE OIL FUTURES (Brent)

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

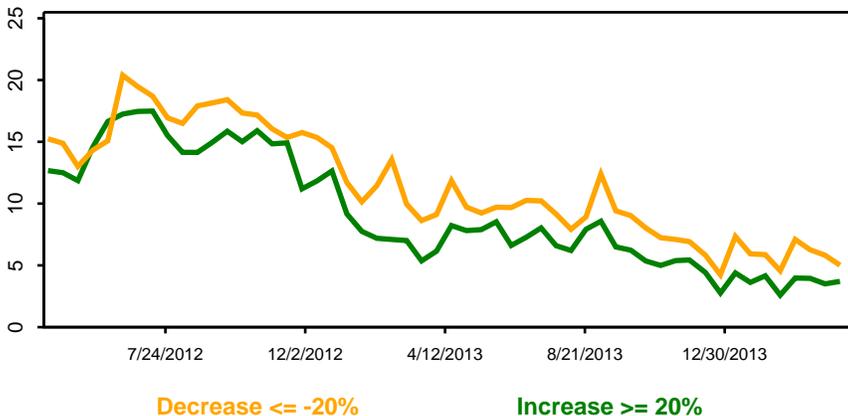
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

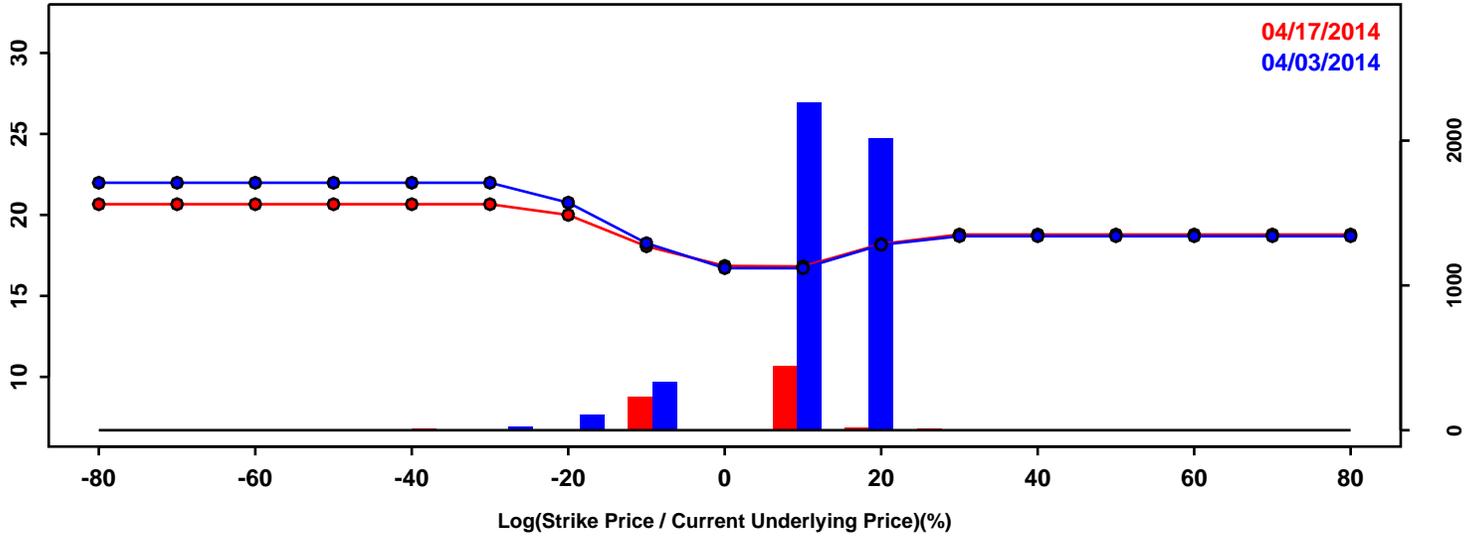


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-15.51%	-14.78%	0.73%
50th Pct	0.64%	0.34%	-0.30%
90th Pct	13.81%	13.93%	0.12%
Mean	-0.15%	-0.06%	0.09%
Std Dev	11.86%	11.55%	-0.31%
Skew	-0.36	-0.23	0.13
Kurtosis	0.68	0.58	-0.10

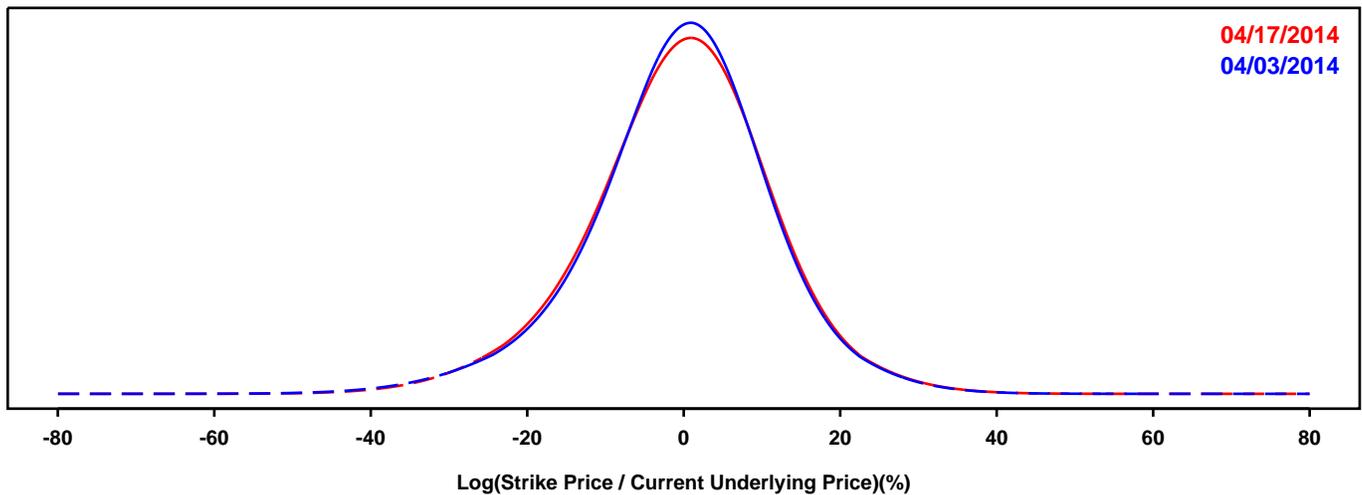
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- GOLD FUTURES

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

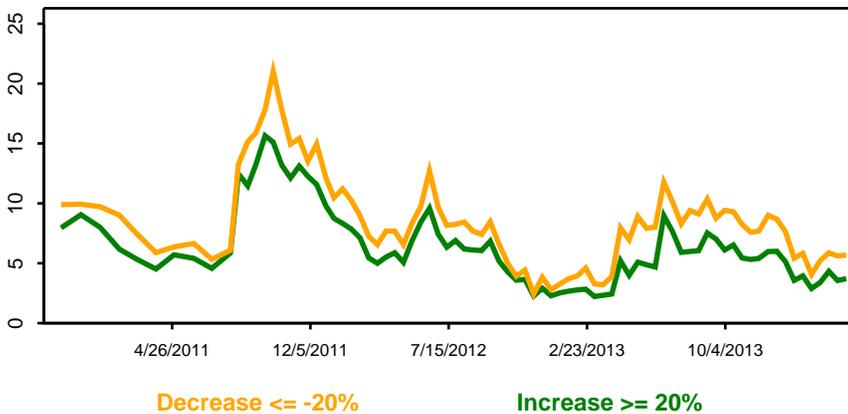
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

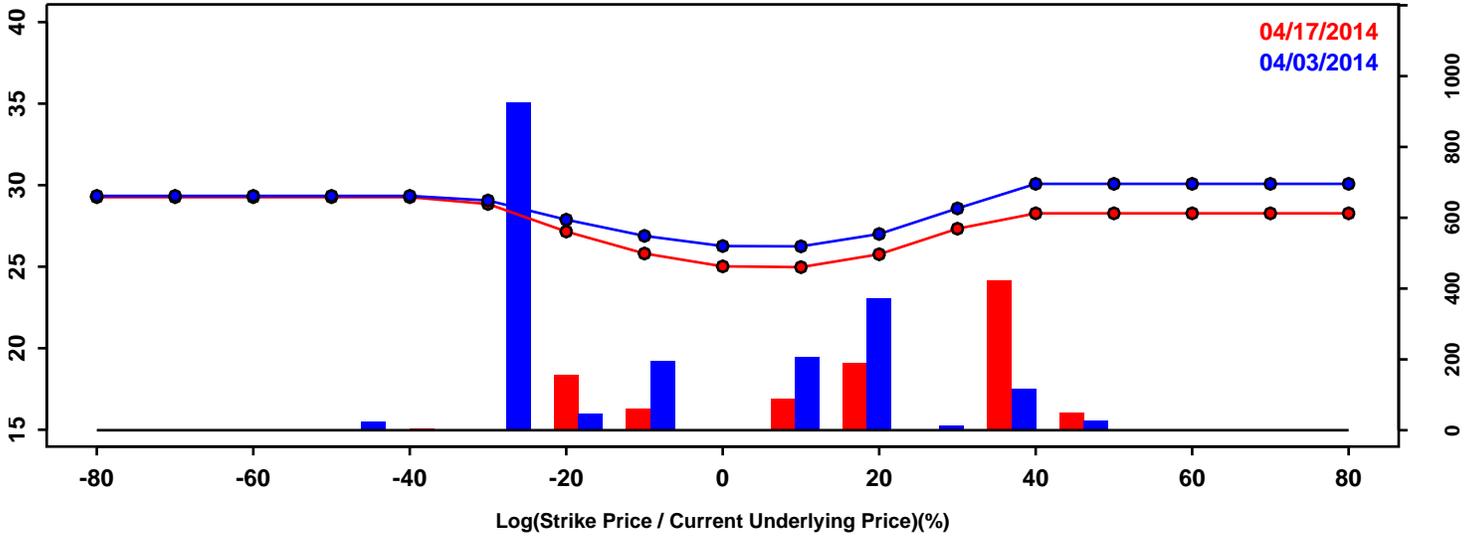


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-15.22%	-15.49%	-0.27%
50th Pct	0.09%	0.10%	0.00%
90th Pct	13.53%	13.82%	0.29%
Mean	-0.42%	-0.40%	0.02%
Std Dev	11.83%	11.91%	0.08%
Skew	-0.31	-0.23	0.08
Kurtosis	0.95	0.68	-0.26

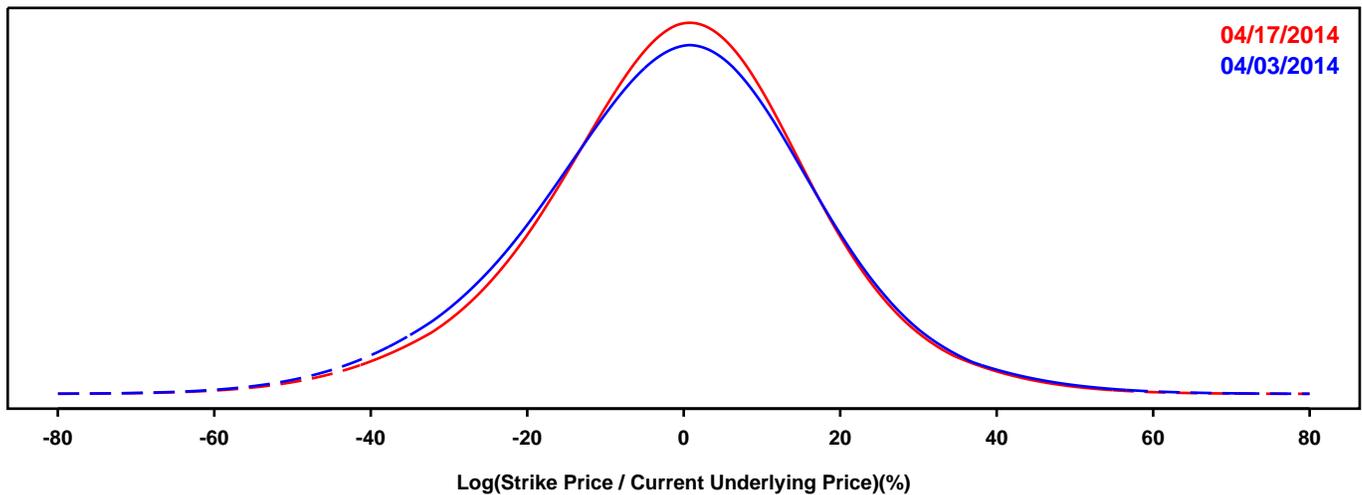
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- SILVER FUTURES

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

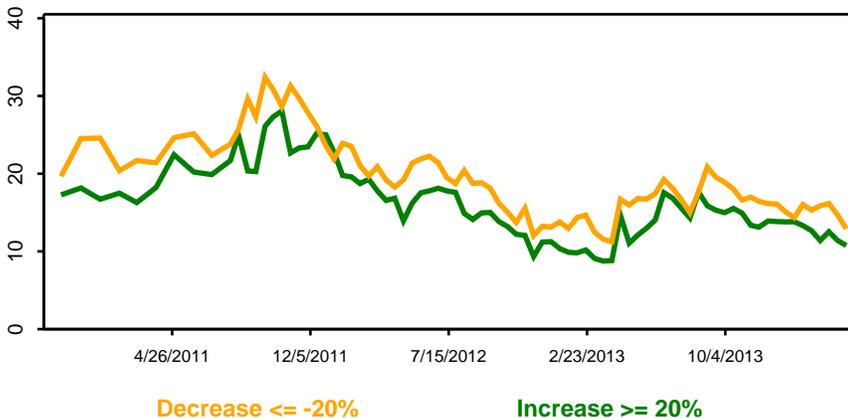
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

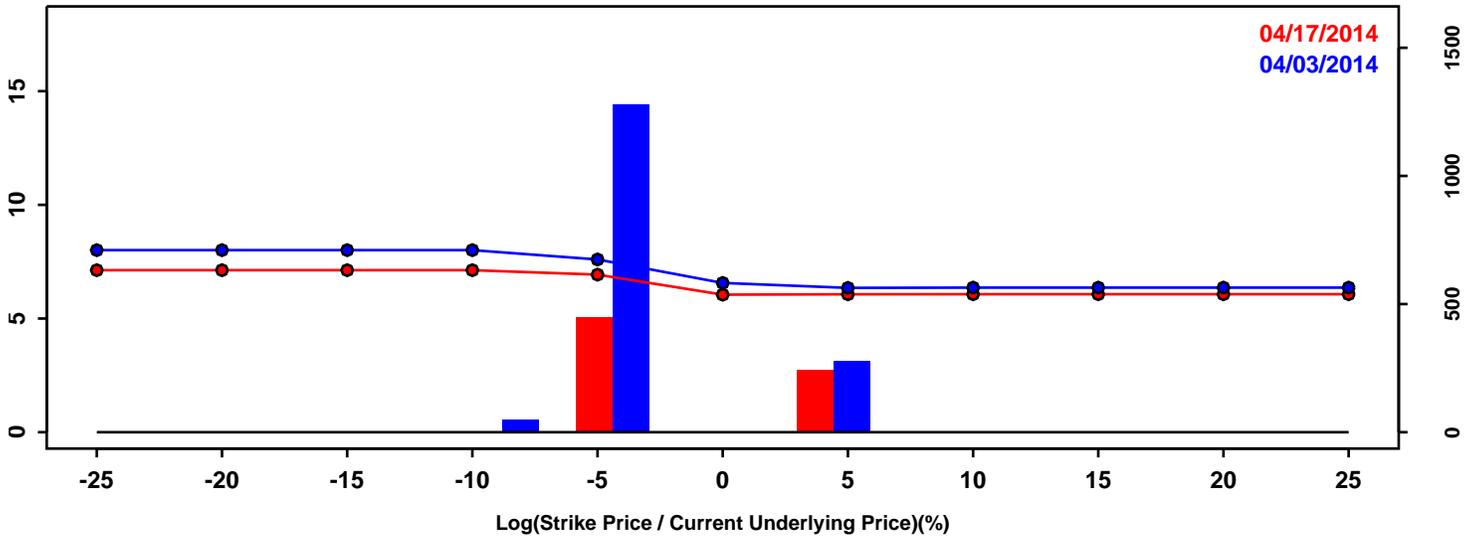


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-24.84%	-23.03%	1.81%
50th Pct	-0.55%	-0.16%	0.39%
90th Pct	21.37%	20.74%	-0.63%
Mean	-1.10%	-0.66%	0.44%
Std Dev	18.52%	17.67%	-0.85%
Skew	-0.11	-0.14	-0.03
Kurtosis	0.46	0.58	0.11

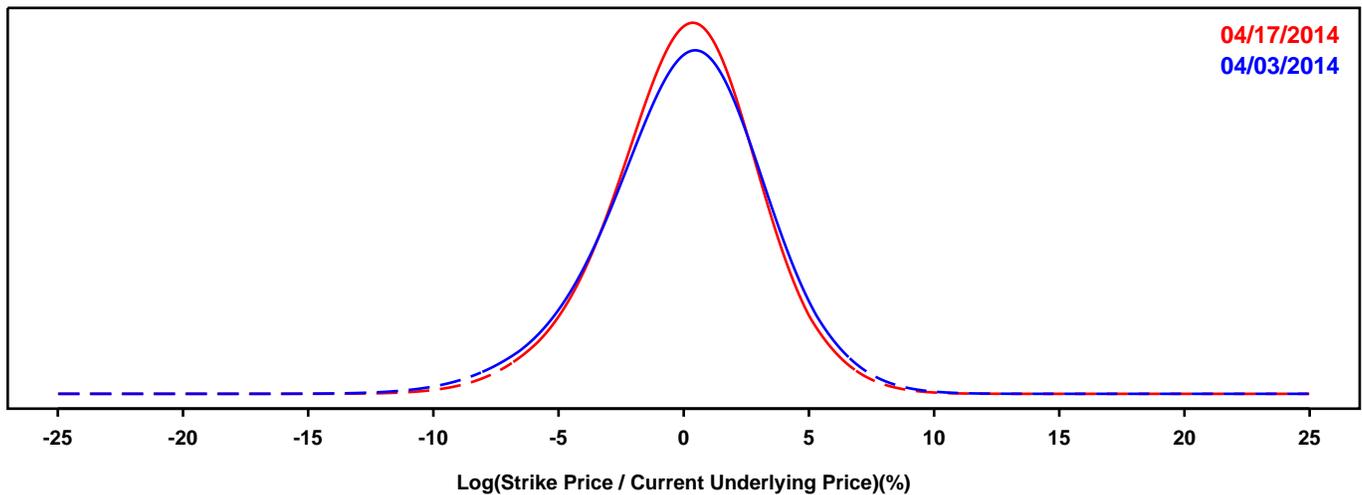
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- DOLLAR-EURO EXCHANGE RATE FUTURES

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

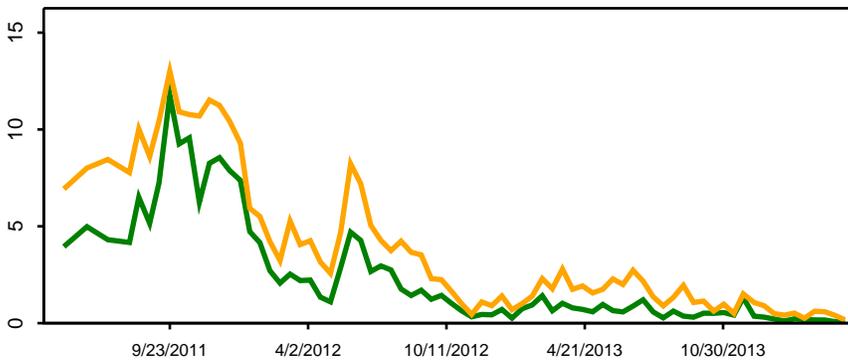
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



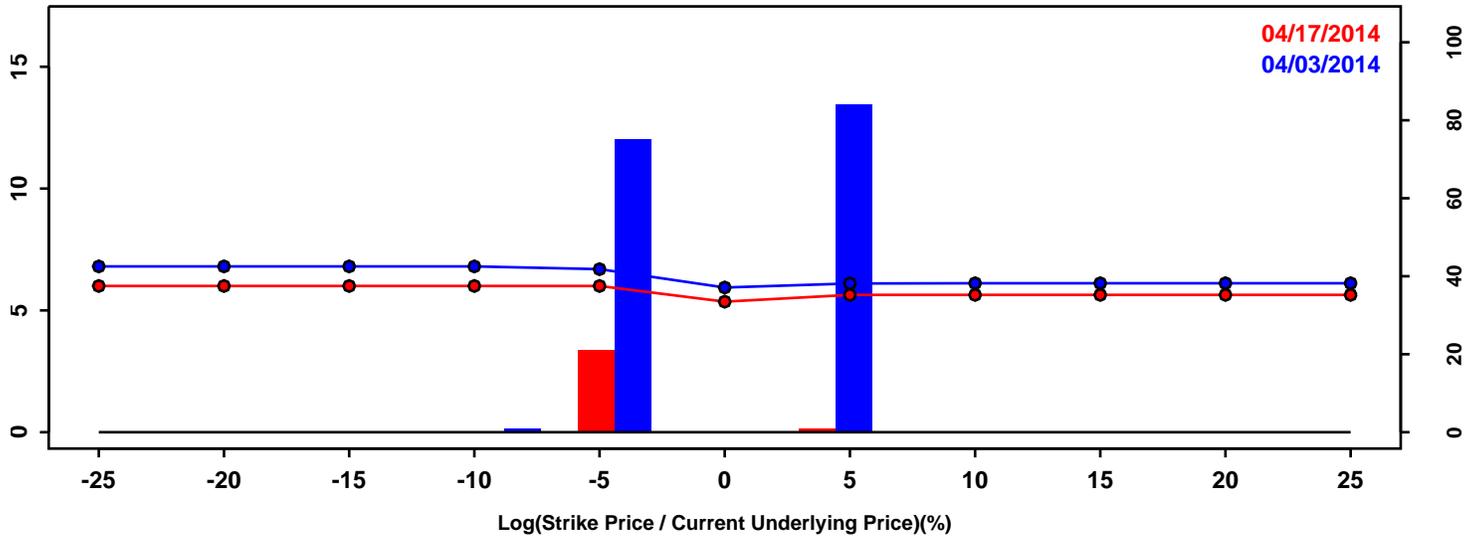
Decrease \leq -10% [stronger \$] Increase \geq 10% [weaker \$]

Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-4.19%	-3.81%	0.38%
50th Pct	0.22%	0.12%	-0.09%
90th Pct	4.05%	3.71%	-0.34%
Mean	0.06%	0.06%	0.00%
Std Dev	3.28%	3.02%	-0.26%
Skew	-0.30	-0.22	0.08
Kurtosis	0.46	0.41	-0.06

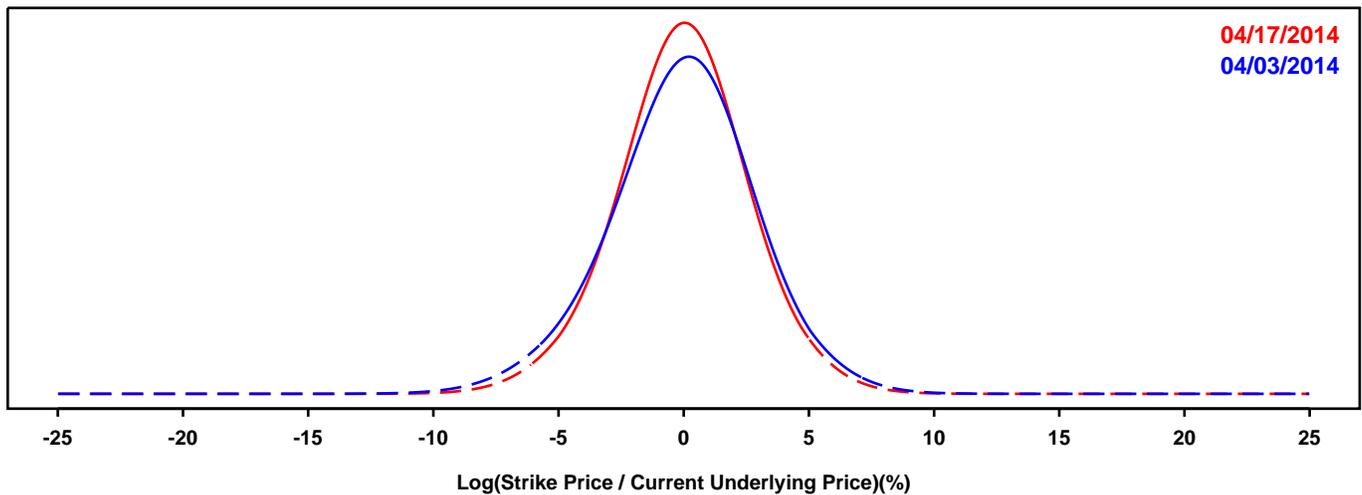
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- DOLLAR-POUND EXCHANGE RATE FUTURES

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

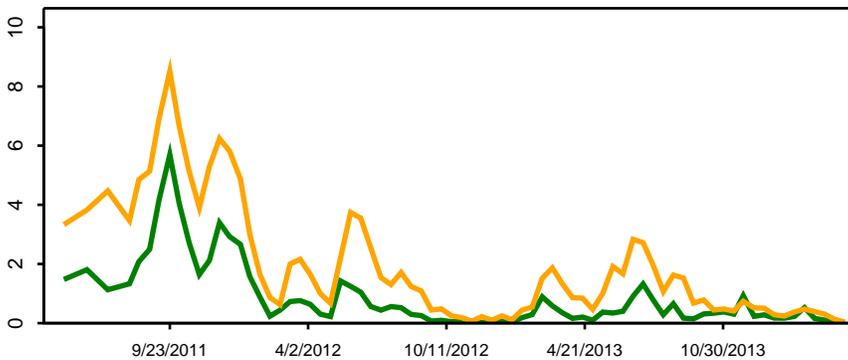
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



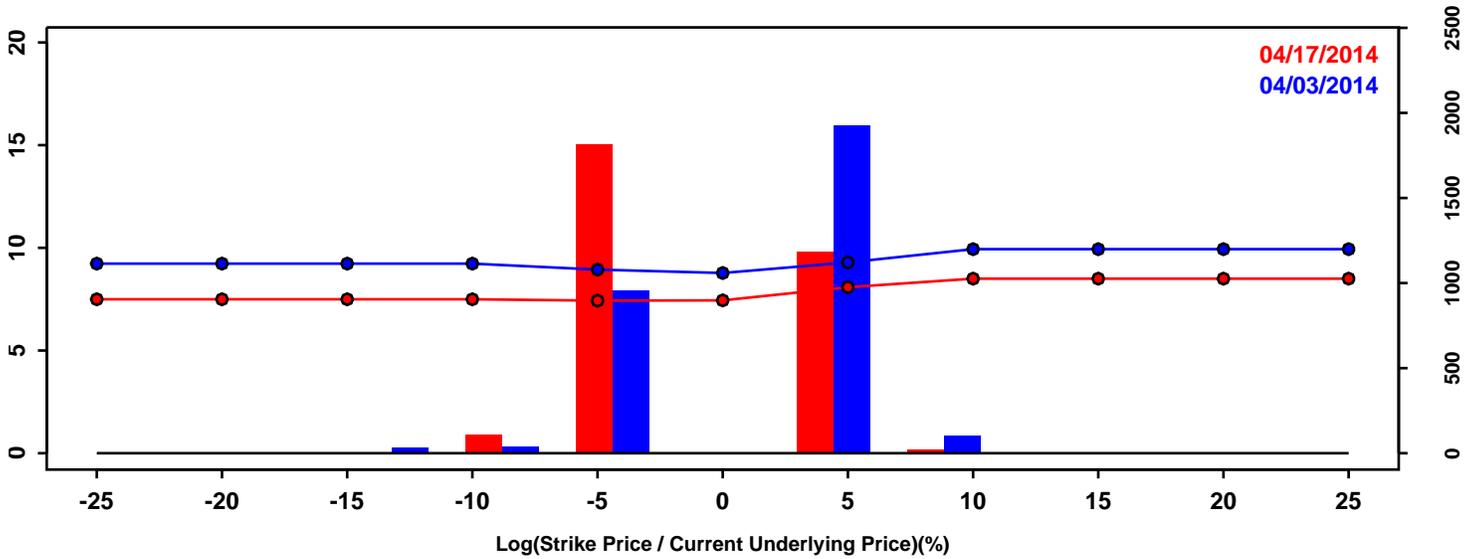
Decrease <= -10% [stronger \$] Increase >= 10% [weaker \$]

Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-3.86%	-3.37%	0.48%
50th Pct	0.05%	0.00%	-0.05%
90th Pct	3.64%	3.30%	-0.34%
Mean	-0.01%	-0.00%	0.01%
Std Dev	2.97%	2.67%	-0.29%
Skew	-0.16	-0.07	0.09
Kurtosis	0.37	0.34	-0.03

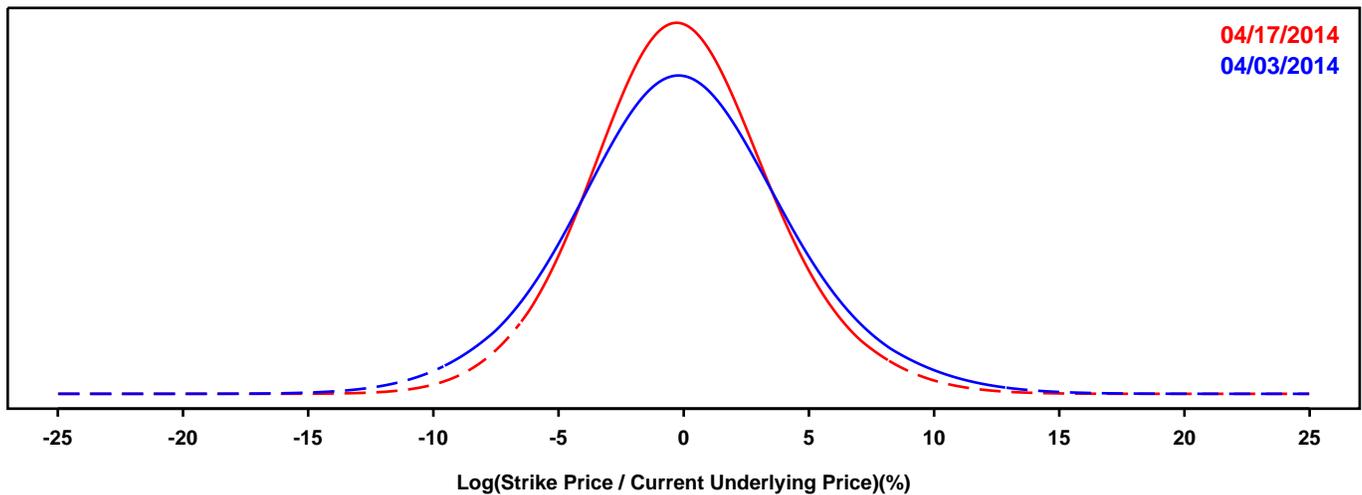
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- DOLLAR-YEN EXCHANGE RATE FUTURES

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

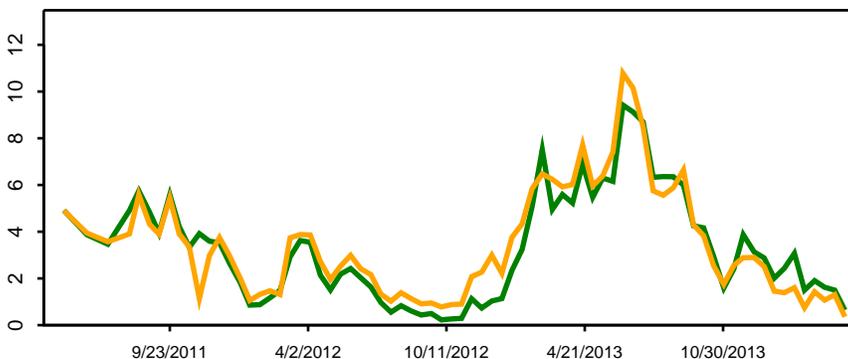
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change



Decrease $\leq -10\%$ [stronger \$] Increase $\geq 10\%$ [weaker \$]

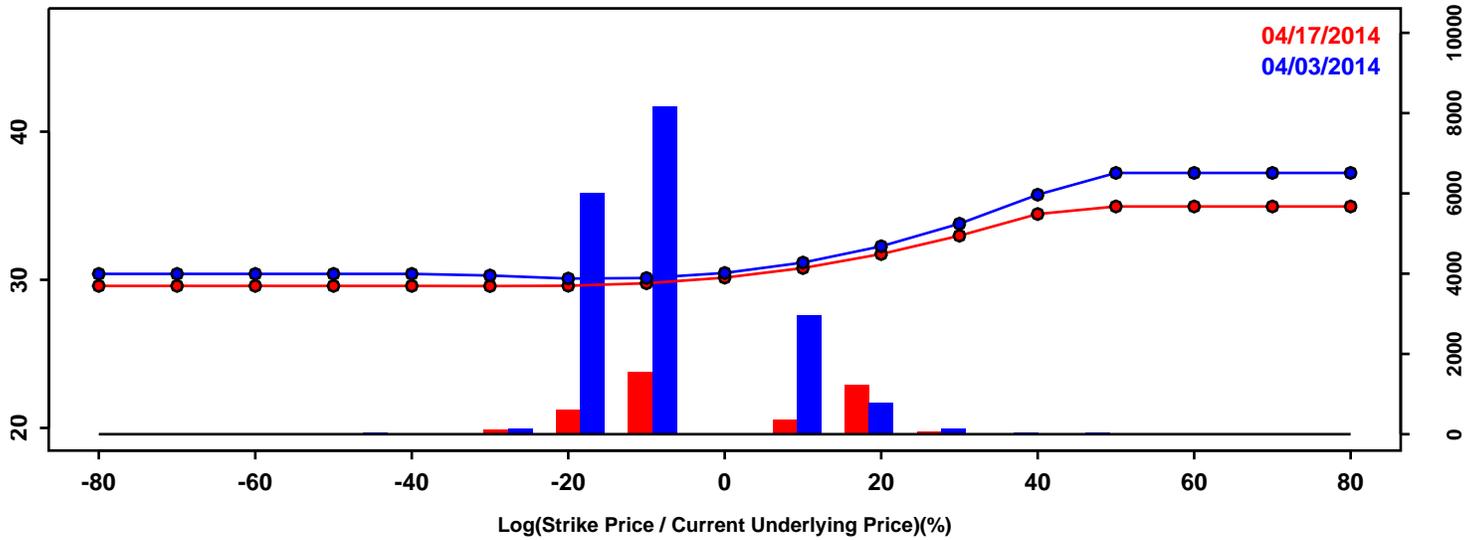
Statistics of the Log Return Distributions

	04/03/2014	04/17/2014	Change
10th Pct	-5.52%	-4.69%	0.84%
50th Pct	-0.11%	-0.12%	-0.01%
90th Pct	5.44%	4.65%	-0.79%
Mean	-0.05%	-0.03%	0.02%
Std Dev	4.37%	3.71%	-0.66%
Skew	0.08	0.15	0.07
Kurtosis	0.37	0.31	-0.05

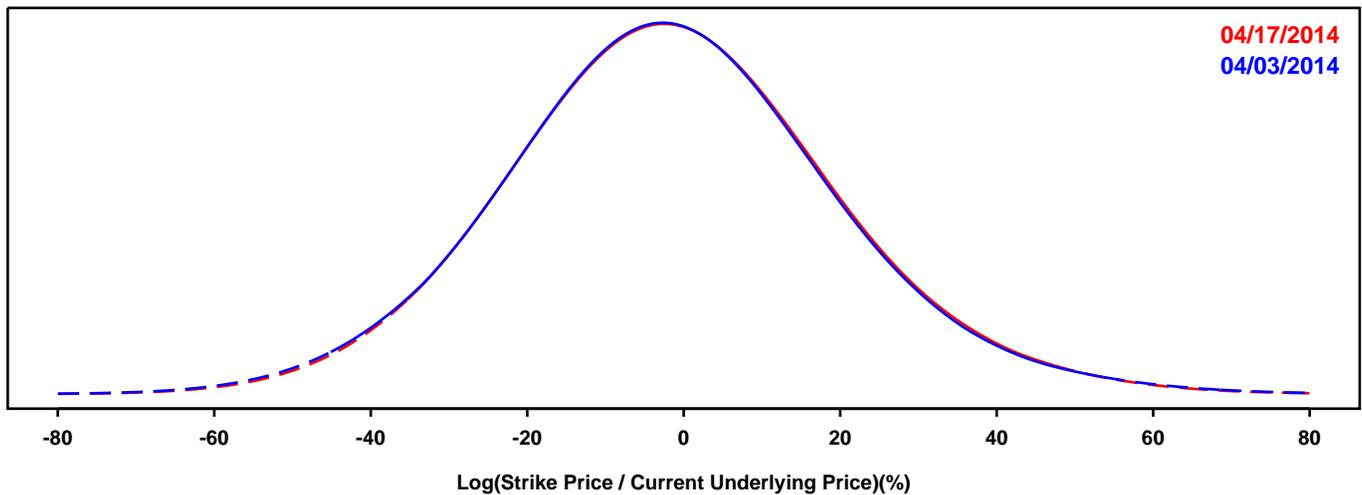
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CORN FUTURES

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

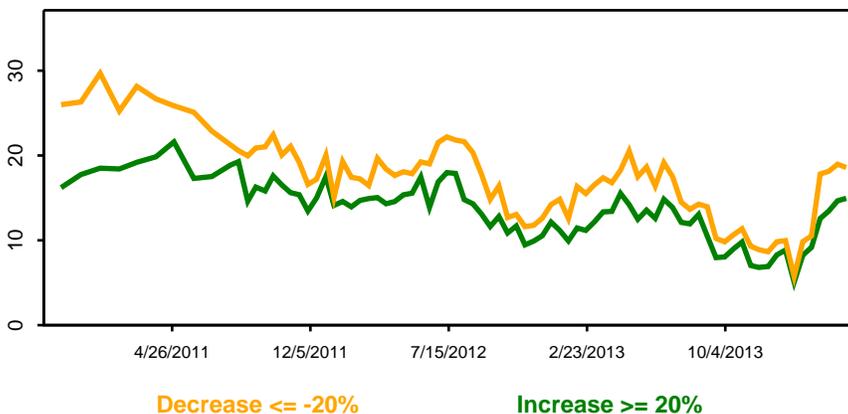
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

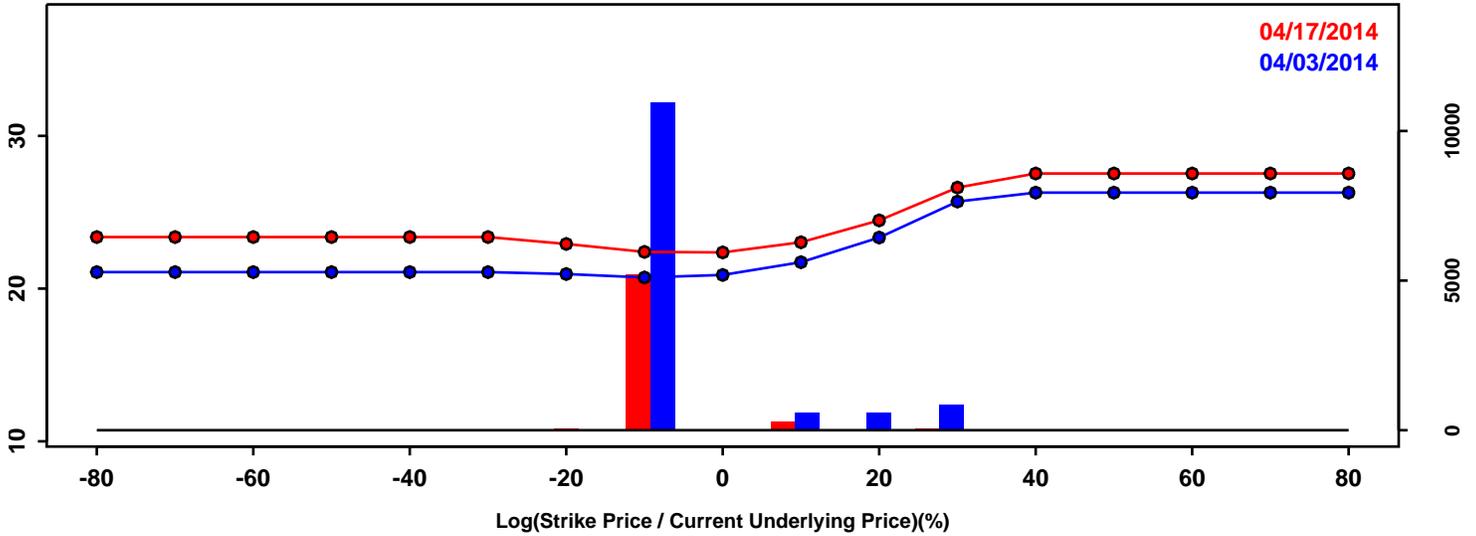


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-28.42%	-27.99%	0.43%
50th Pct	-2.16%	-1.89%	0.26%
90th Pct	25.28%	25.53%	0.26%
Mean	-1.70%	-1.42%	0.29%
Std Dev	21.43%	21.21%	-0.22%
Skew	0.17	0.16	-0.01
Kurtosis	0.40	0.29	-0.11

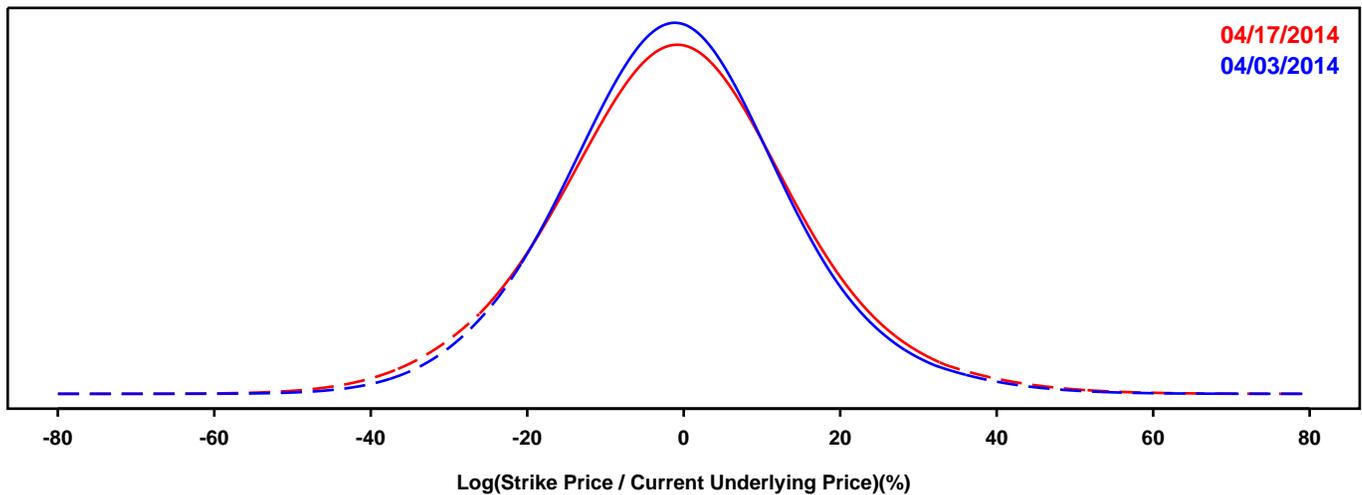
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- SOYBEAN FUTURES

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

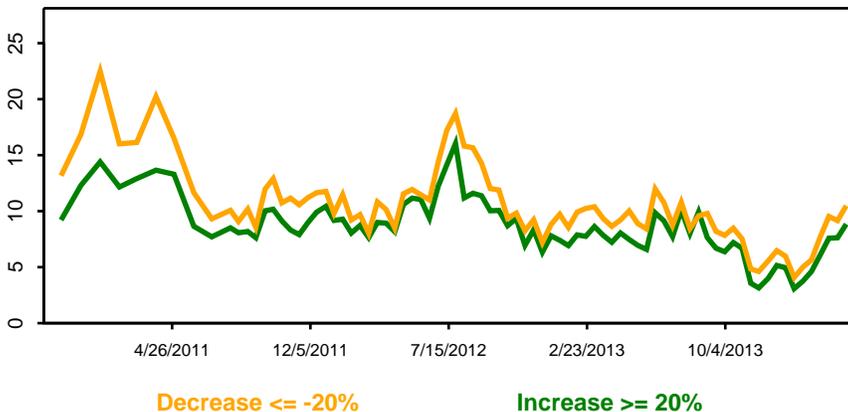
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

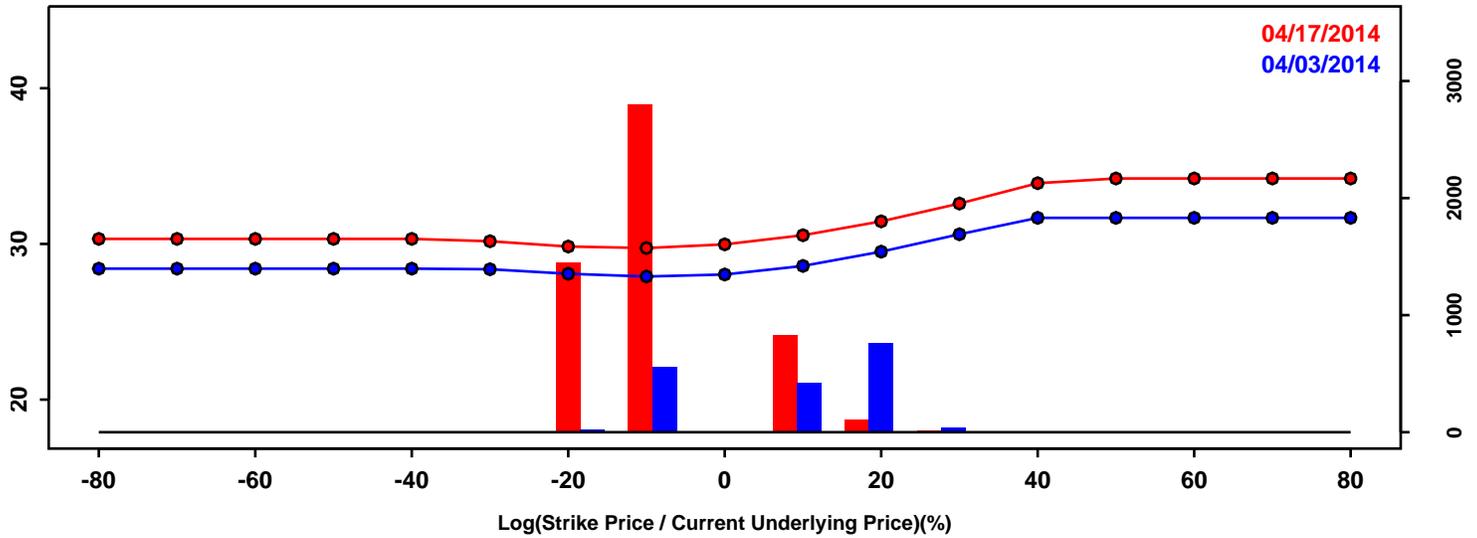


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-19.26%	-20.43%	-1.18%
50th Pct	-1.12%	-0.86%	0.26%
90th Pct	17.52%	18.80%	1.28%
Mean	-0.86%	-0.74%	0.12%
Std Dev	14.73%	15.76%	1.03%
Skew	0.17	0.11	-0.06
Kurtosis	0.50	0.51	0.01

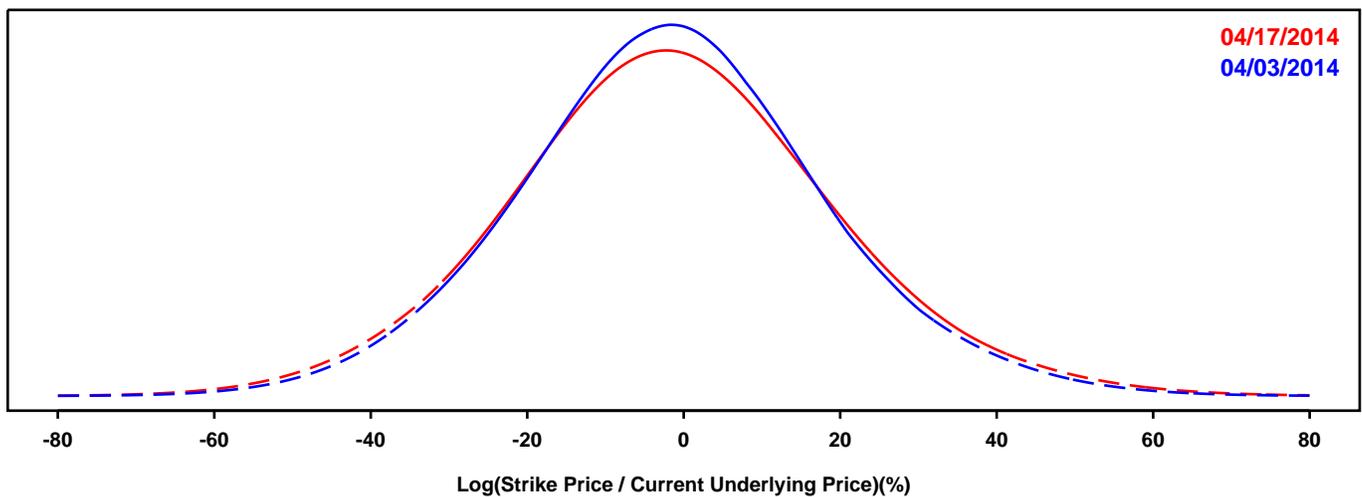
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- WHEAT FUTURES

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

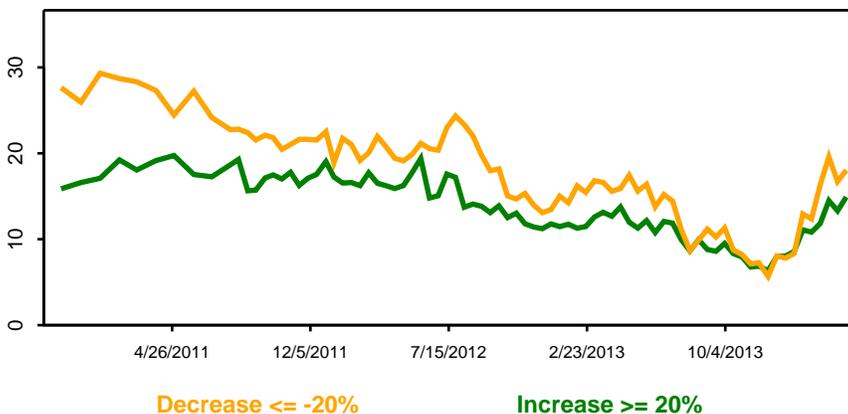
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

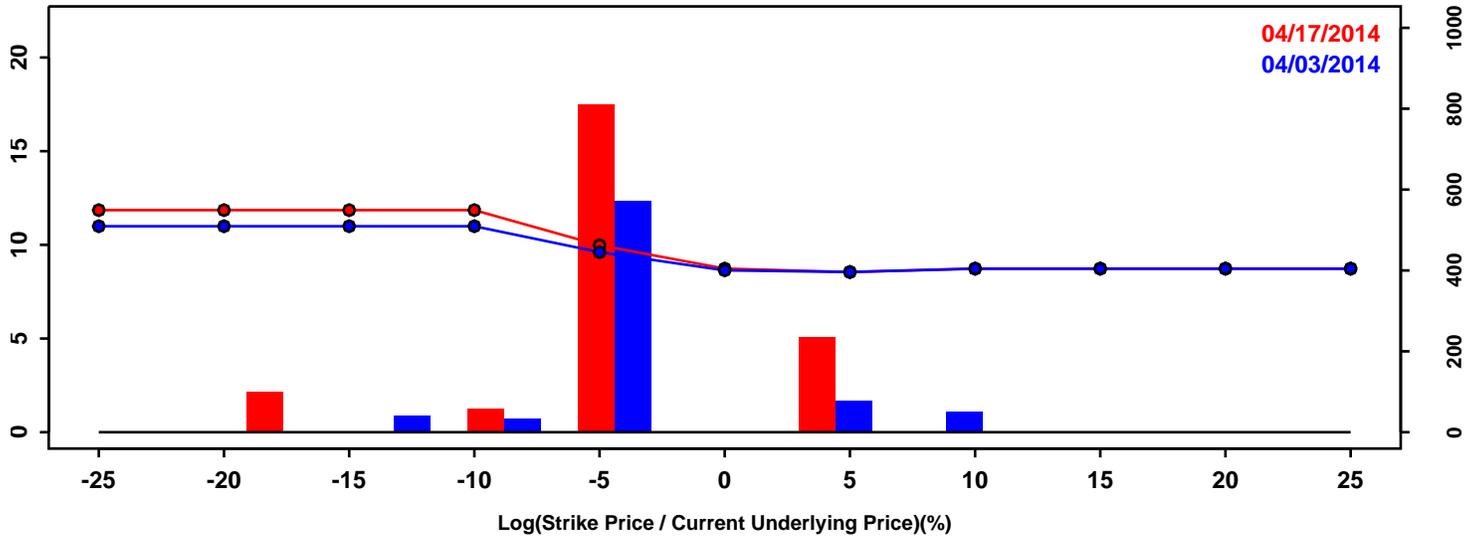


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-26.35%	-27.65%	-1.30%
50th Pct	-1.64%	-1.67%	-0.03%
90th Pct	23.64%	25.45%	1.81%
Mean	-1.39%	-1.29%	0.10%
Std Dev	19.80%	21.10%	1.30%
Skew	0.10	0.12	0.02
Kurtosis	0.30	0.31	0.01

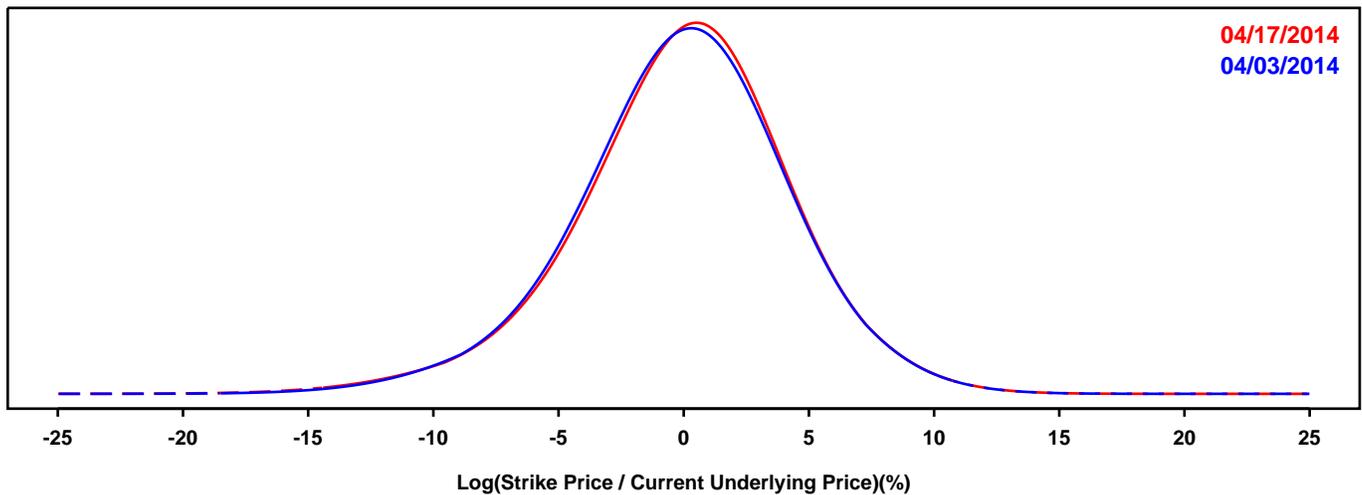
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- CATTLE FUTURES

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

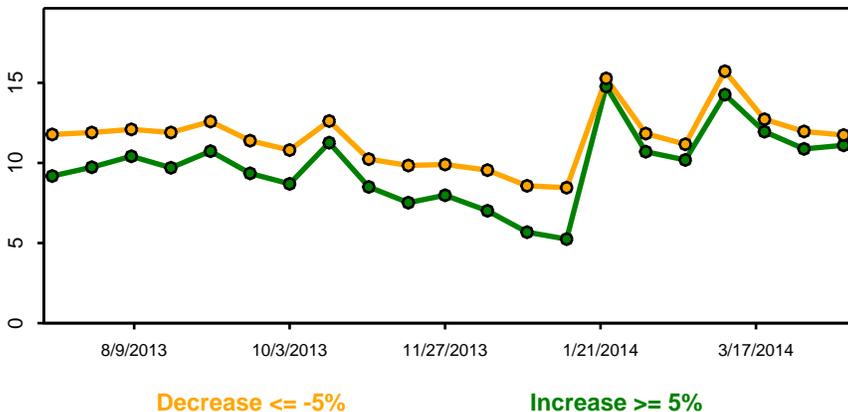
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



Probability of a Large Change

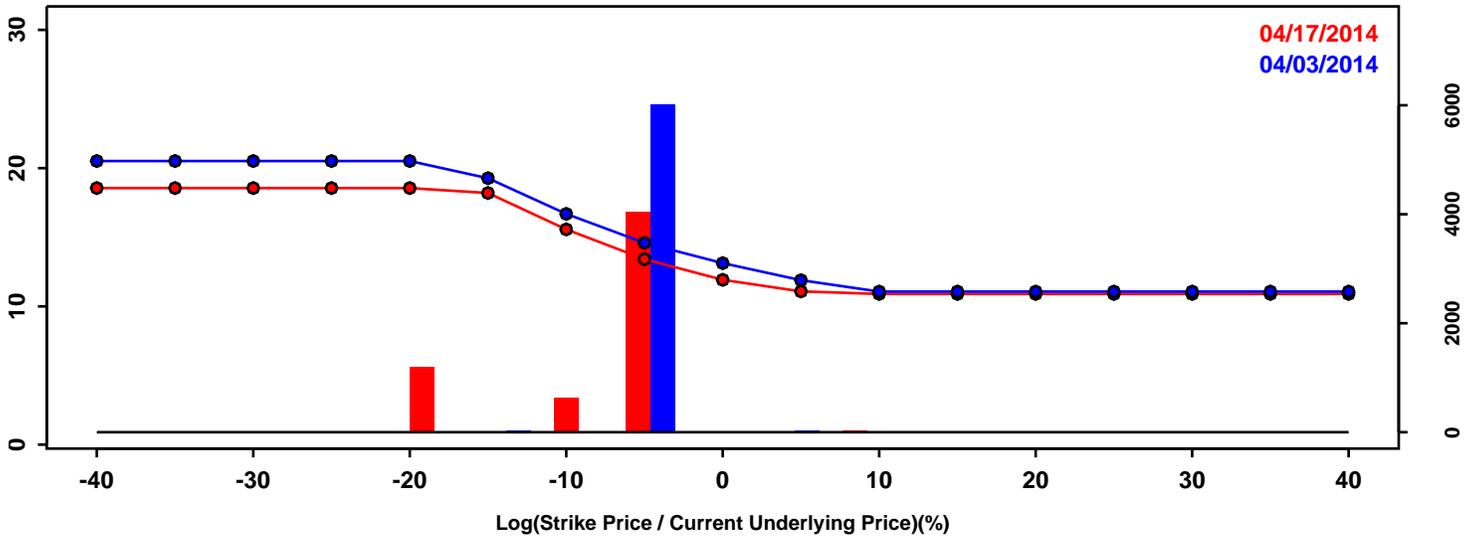


Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-5.52%	-5.48%	0.04%
50th Pct	0.08%	0.21%	0.13%
90th Pct	5.20%	5.22%	0.02%
Mean	-0.04%	0.01%	0.05%
Std Dev	4.33%	4.37%	0.04%
Skew	-0.27	-0.36	-0.10
Kurtosis	0.61	0.83	0.23

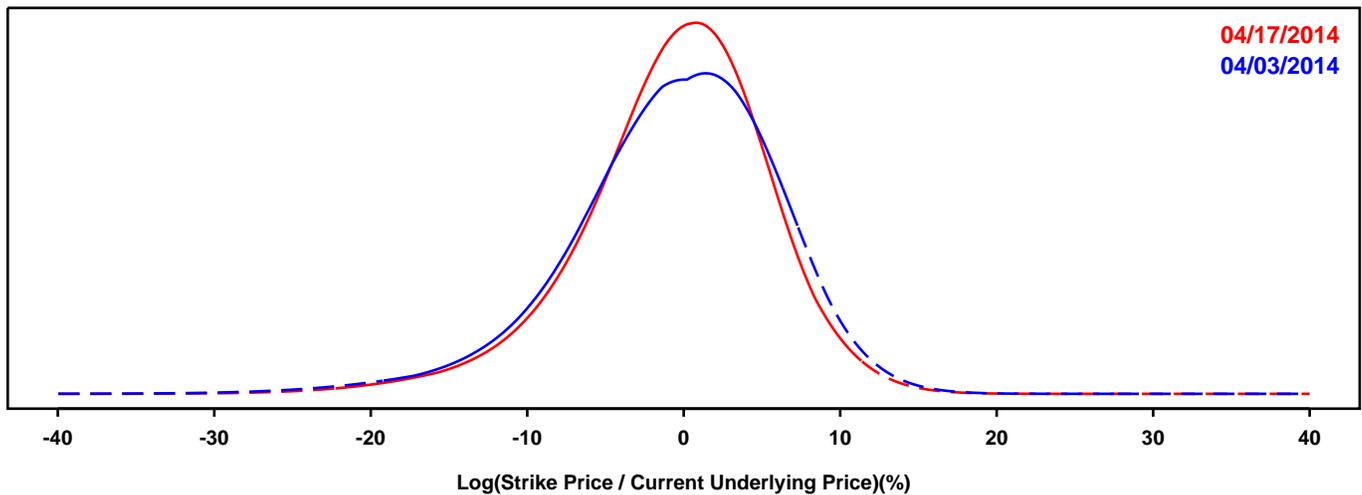
RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- iSHARES DOW JONES US REAL ESTATE

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

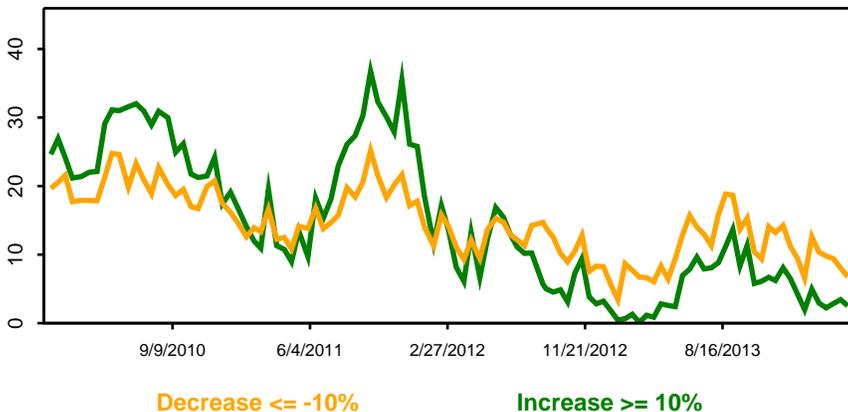
Implied Volatilities (lines--left axis) and Volume (bars--right axis)



Risk Neutral PDF of the Log Return Distribution



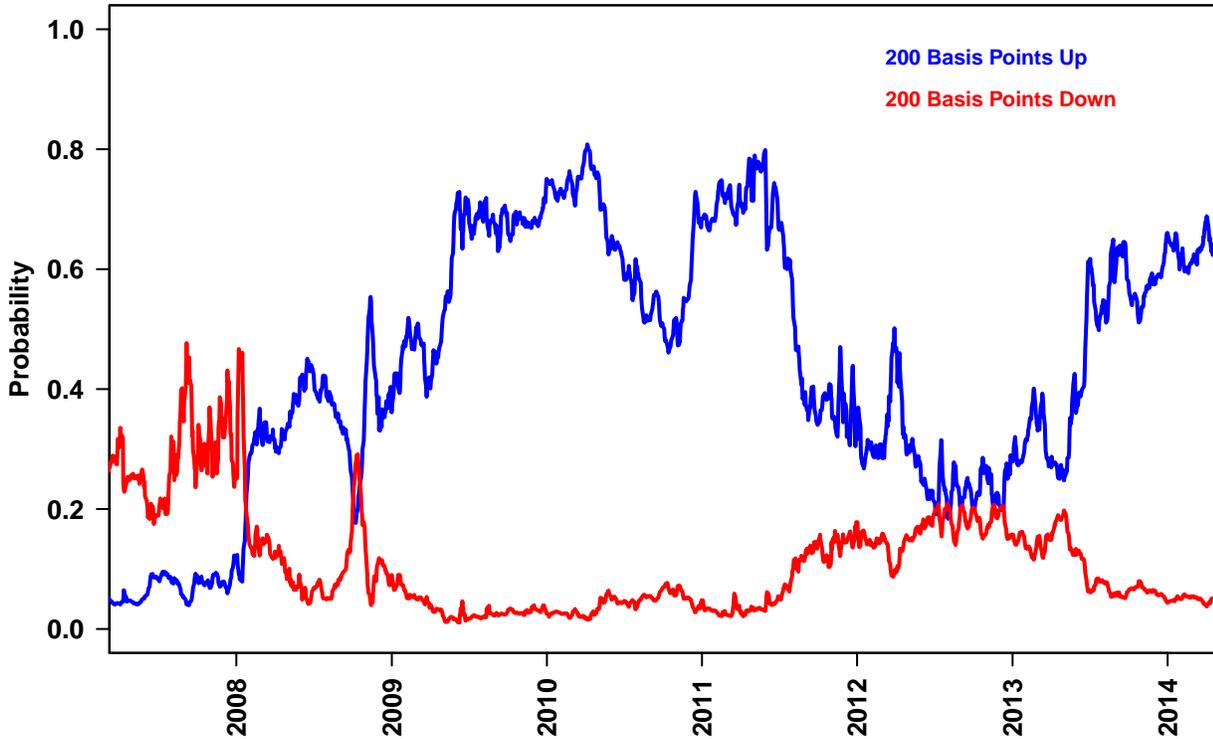
Probability of a Large Change



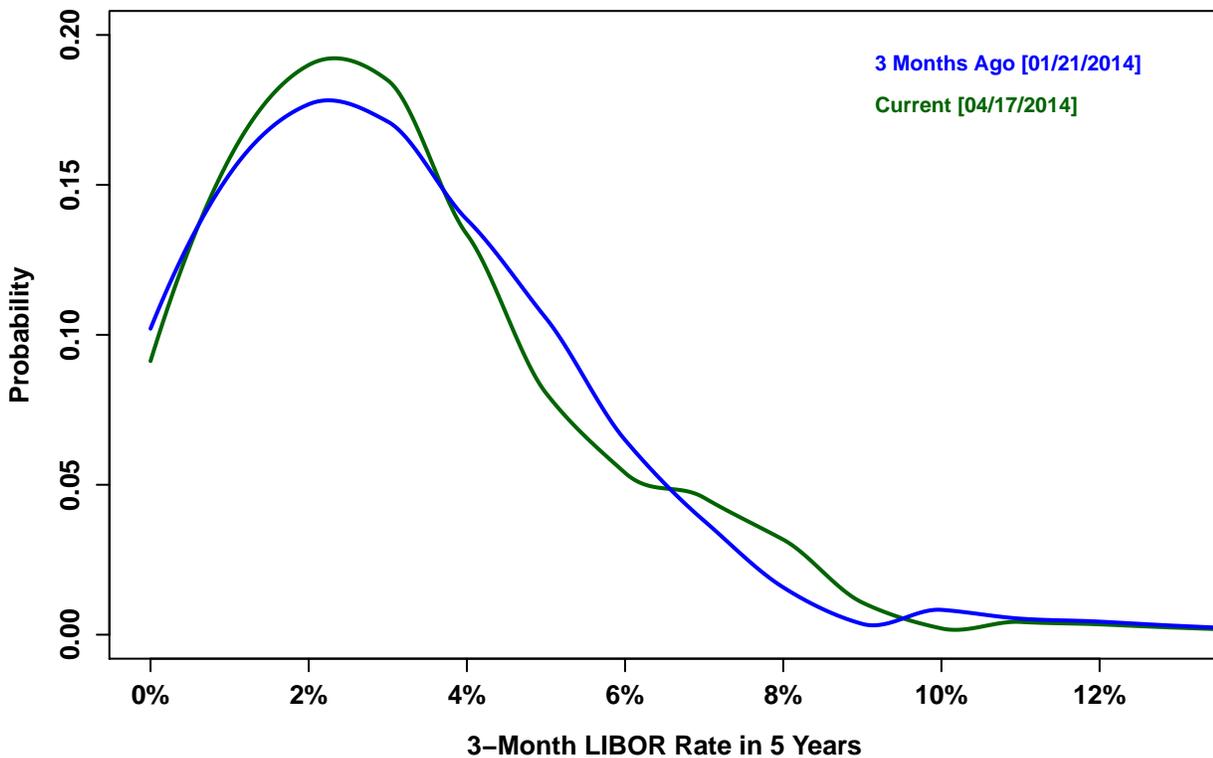
Statistics of the Log Return Distributions			
	04/03/2014	04/17/2014	Change
10th Pct	-8.96%	-8.24%	0.73%
50th Pct	-0.05%	-0.05%	-0.00%
90th Pct	7.20%	6.45%	-0.75%
Mean	-0.58%	-0.57%	0.01%
Std Dev	6.65%	6.09%	-0.56%
Skew	-0.66	-0.64	0.02
Kurtosis	1.18	1.27	0.09

RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- Interest Rate Caps & Floors

Probability of 200 Basis Point Moves for 3-Month LIBOR, 5 Years Out 5-Day Rolling Average

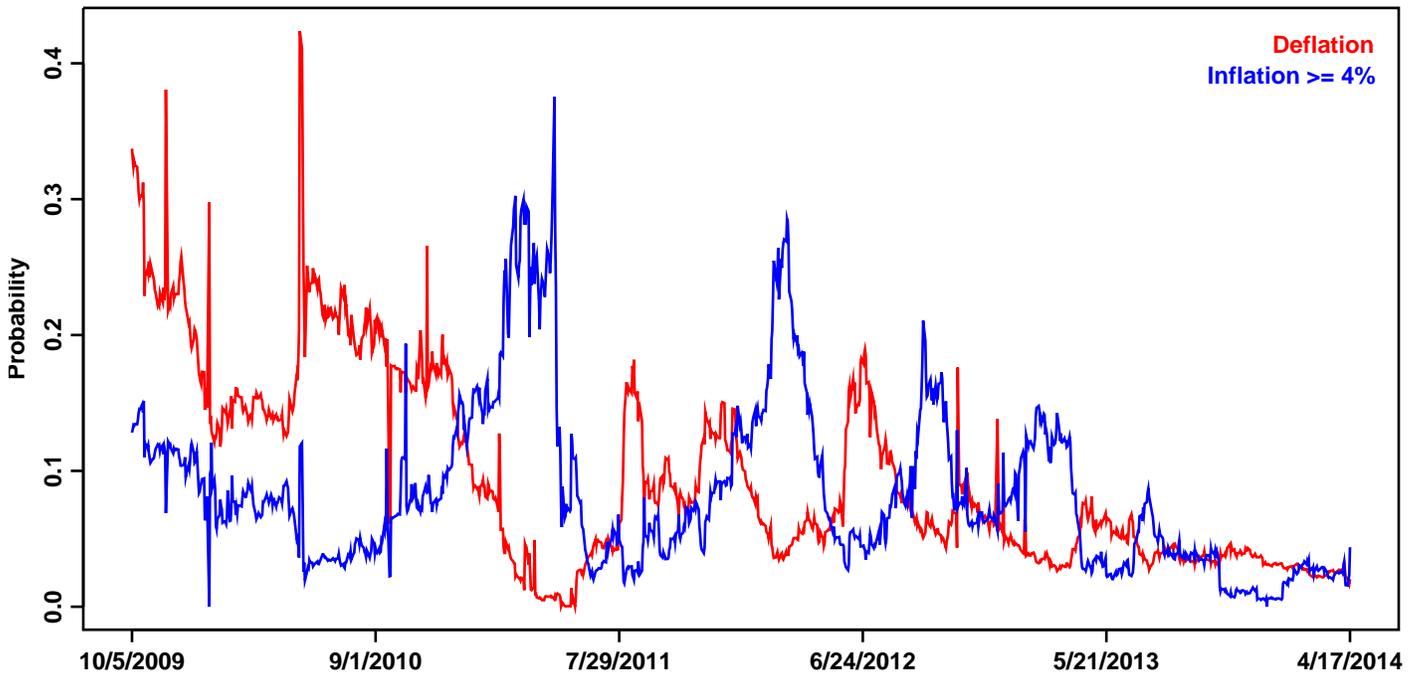


Risk Neutral Density Function for 3-Month LIBOR, 5 Years Out

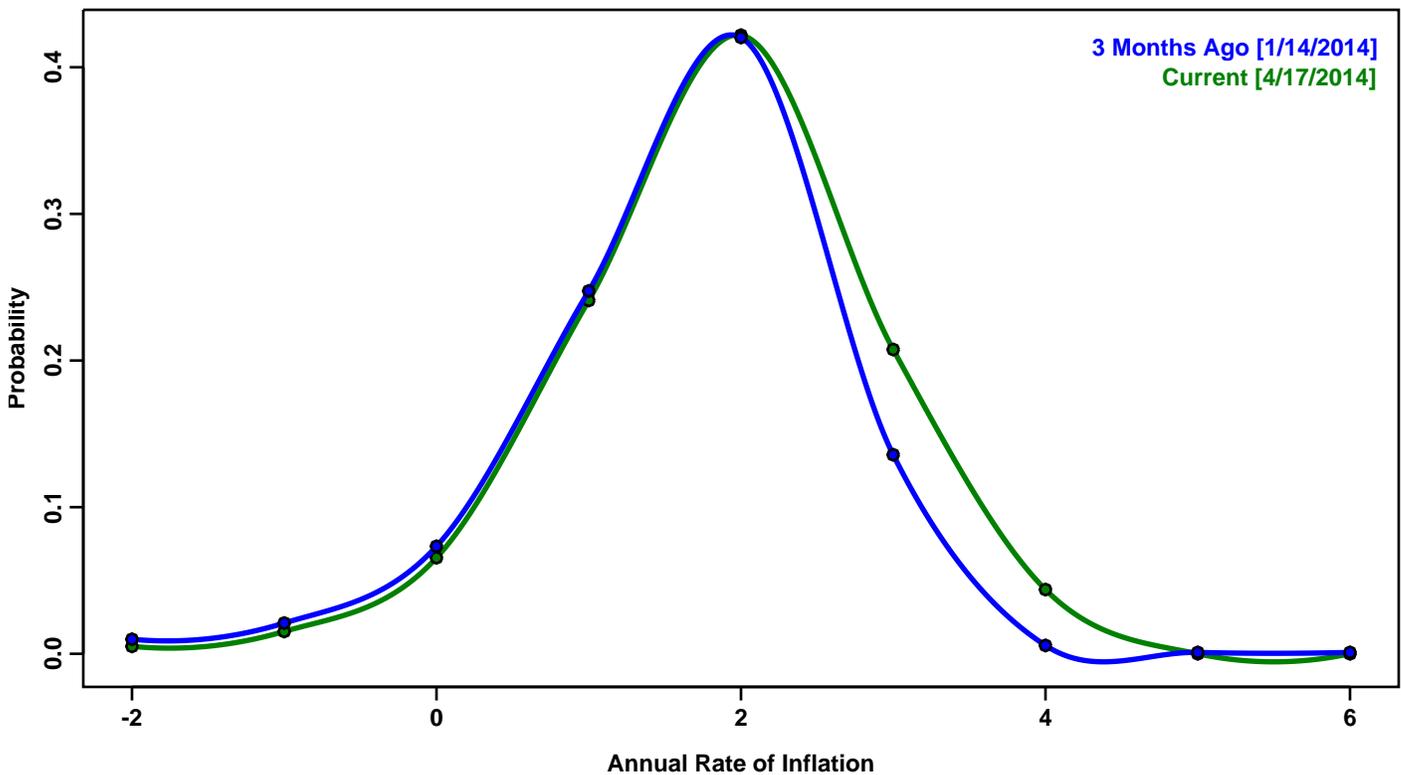


RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- Inflation Caps & Floors

Probability of Deflation and High Inflation over the next 12 Months



Risk Neutral Density Function for Inflation over the next 12 Months



RISK NEUTRAL PROBABILITY DENSITY FUNCTIONS -- Inflation Caps & Floors

Probability of Deflation and High Inflation over the next 5 Years

