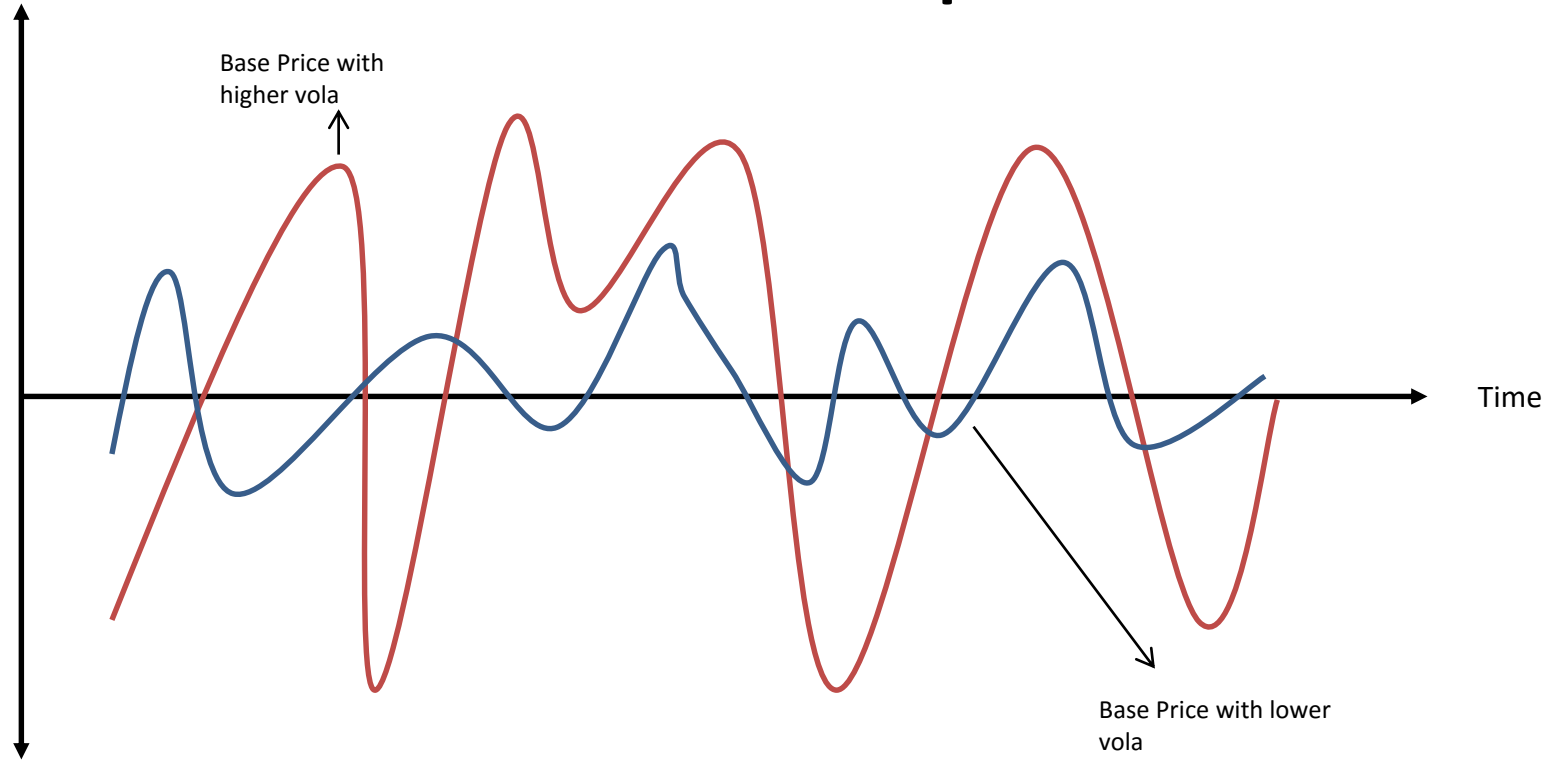


# Option Basics IV

Implied Volatility

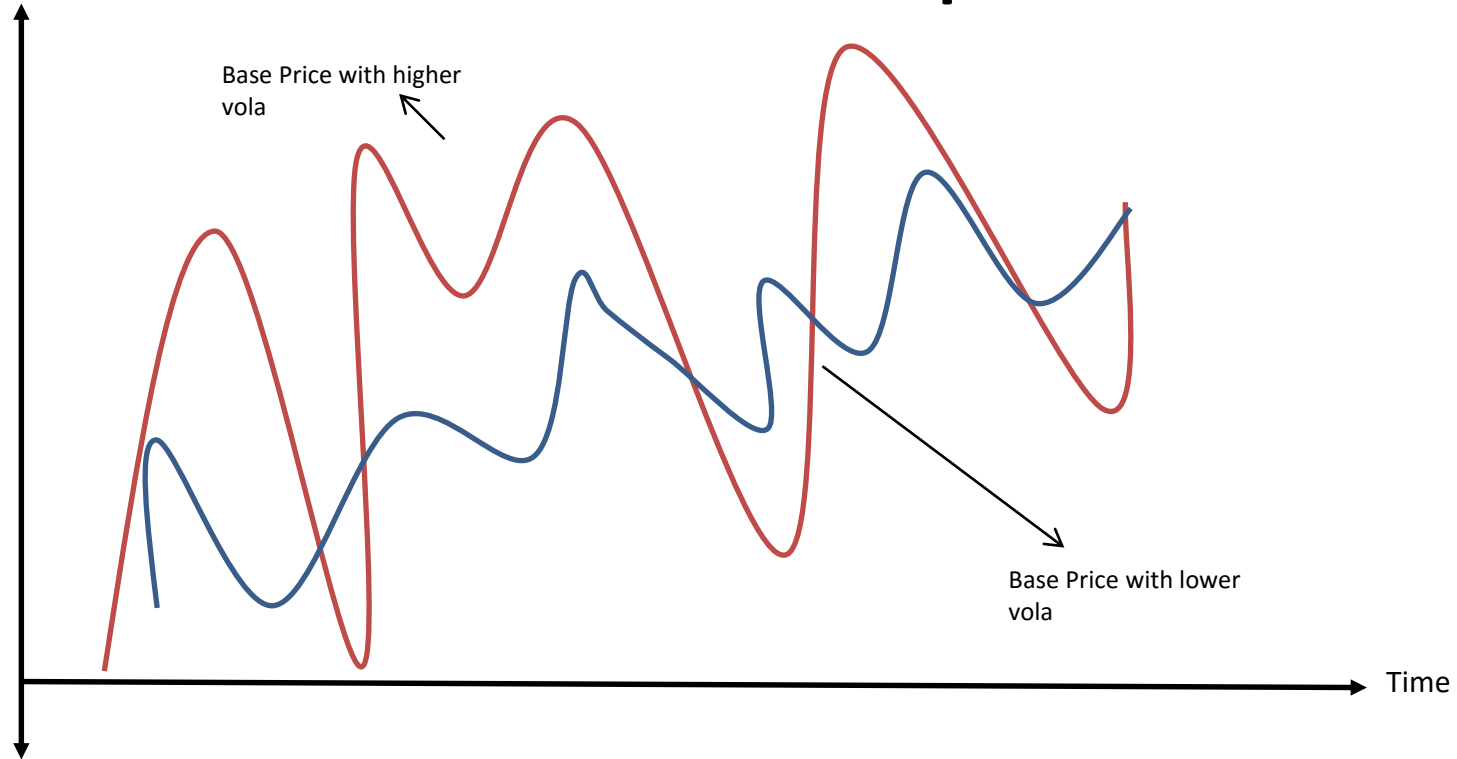
# Basic Principles

Volatility



# Basic Principles

Volatility



# Basic Principles

- IV is used in pricing options (part of time value component).
- Attempts to reflect the market's expected price move.
- IV of an option whose underlying has a steadily increasing/decreasing price has a lower IV (vs.) an option whose underlying is prone to price outbreaks even if the percentage movement in a specific time frame is same for both underlyings.
- Since 2008 Implied Volatility factor is greater in Puts than in Calls. (Prices generally go down faster than up).
- IV is imputed differently from strike to strike as well as between different option chains (Volatility Skew)
- IV interpretation example: 20% implied volatility for 1 year is 20%: means, the underlying has an expected move of +/- 20% from its current base price for the next 12 months.

# Basic Principles

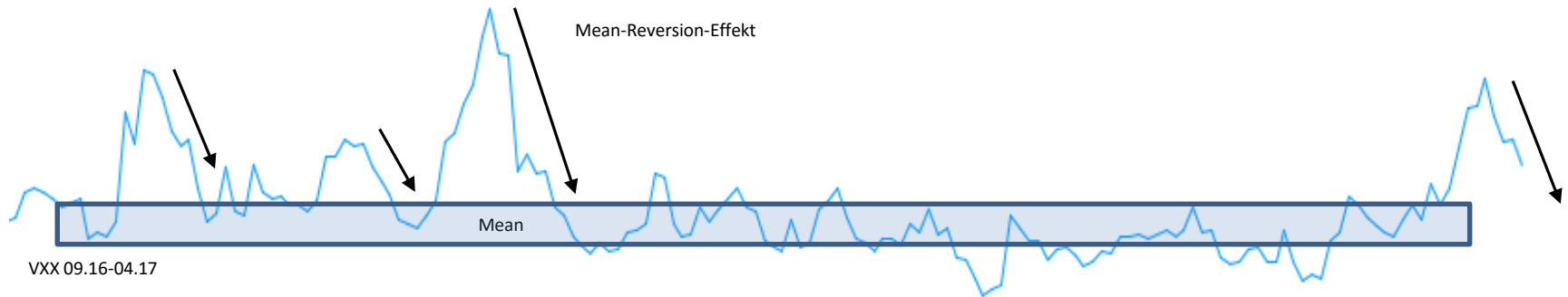
- IV skew is normally to be observed:
  - Calls: often decreasing the more OTM an option is
  - Puts: often increasing the more OTM an option is

ODAX 19.04.17 am 21.04.2017

CALLS						BESCHREIBUNG	PUTS					
IMPLIZ. VOL. IN %	GELDKURS	BRIEFKURS	VOLUMEN	OFFENE ...	DELTA	BASISPREIS	IMPLIZ. VOL. IN %	GELDKURS	BRIEFKURS	VOLUMEN	OFFENE ...	DELTA
24.6%	710.10	721.00	297	764	0.772	11500	24.7%	104.90	108.60	381	5.18K	-0.228
24.4%	668.80	680.50	1	4	0.755	11550	24.4%	114.10	118.10	203	484	-0.245
24.1%	630.00	640.70	105	151	0.737	11600	24.1%	124.00	128.50	283	6.57K	-0.263
23.8%	591.00	601.60		262	0.718	11650	23.8%	134.80	139.50	3	1.61K	-0.282
23.5%	552.40	563.40	162	163	0.698	11700	23.5%	146.60	151.50	962	9.44K	-0.302
23.2%	515.50	525.80	106	204	0.677	11750	23.2%	159.40	164.10	24	1.06K	-0.323
23%	479.20	489.00	80	809	0.655	11800	22.9%	173.30	177.80	758	8.69K	-0.345
22.7%	445.70	453.00	26	365	0.631	11850	22.6%	187.60	192.40	40	1.15K	-0.369
22.4%	410.90	418.40	21	1.52K	0.607	11900	22.2%	202.70	206.90	795	6.42K	-0.393
22%	376.70	384.20	59	349	0.581	11950	21.9%	218.50	223.70	76	606	-0.419
21.6%	343.80	350.70	498	10.8K	0.554	12000	21.5%	235.40	238.50	621	17.8K	-0.446
21.2%	311.20	316.90	17	473	0.526	12050	21.1%	252.70	258.40	479	6.52K	-0.474
20.7%	279.30	285.50	299	1.95K	0.497	12100	20.6%	270.70	276.90	112	1.64K	-0.503
20.1%	248.50	255.50	620	842	0.467	12150	20.2%	289.80	296.90	300	1.06K	-0.533
19.7%	219.00	226.00	252	5.05K	0.435	12200	19.7%	310.80	318.10	105	4.49K	-0.565
19.2%	191.80	198.50	164	1.69K	0.403	12250	19.2%	332.70	340.60	23	461	-0.597
18.7%	166.30	172.80	1.05K	3.13K	0.370	12300	18.7%	356.80	364.80	41	1.60K	-0.630
18.2%	142.10	147.60	102	1.69K	0.336	12350	18.2%	383.20	391.20	24	242	-0.664
17.7%	120.40	125.30	465	4.97K	0.302	12400	17.7%	409.30	420.60	161	124	-0.698
17.2%	100.20	104.20	28	1.48K	0.268	12450	17.2%	439.00	450.10	1	13	-0.732
16.7%	82.30	86.50	237	4.31K	0.235	12500	16.7%	470.80	482.20	41	215	-0.765

# Basic Principles

- Volatility tends to normalize over time (mean reversion effect.) Every instrument has and maintains its own average volatility under normal market conditions.



# Basic Principles

- Unexpected and/or Material events increase Implied Volatility.
- Implied Volatility usually crashes after a binary event, regardless of the actual base price move thereafter.

