

CDX Options Analytics, Wednesday, Jan 15, 2025

Tuesday, Jan 14, 2025 closing prices

Our option analytics presents current indicative pricing levels and calculates breakeven levels for common trading strategies. The most common strategies are:

- 1) bullish or bearish directional views where investors buy or sell calls or puts, and
- 2) range trades where investors buy a call and put, or sell a call and put and make or lose money if the CDX remains within or breaks out of a range.

- Options Volatility Summary 2

- Investment Grade Main CDX S43 Options Analytics

Jan 2025 expiration	3
Mar 2025 expiration	4
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- High Yield CDX S43 Options Analytics

Jan 2025 expiration	6
Mar 2025 expiration	7
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The certifying analyst(s) is indicated by a superscript AC. See last page of the report for analyst certification and important legal and regulatory disclosures.
Source for all charts in this report: J.P Morgan

Wednesday, January 15, 2025

CDX Option Volatility Summary

Table 1: Implied Volatility

1a. CDX.IG Options

Maturity	Spot (bp)	ATM Forward	ATM Implied Volatility	1d Chg	1w Chg	1m Chg	1m Range	3m Range	6m Range
1m	51	52	40.50%	-1.35%	2.37%	6.24%	33% - 46%	33% - 49%	33% - 65%
3m	51	54	45.41%	-1.14%	1.51%	3.70%	42% - 47%	40% - 47%	40% - 60%
6m	51	57	46.30%	-0.74%	1.49%	2.46%	44% - 47%	43% - 48%	43% - 53%

Table 2: Realized Volatility

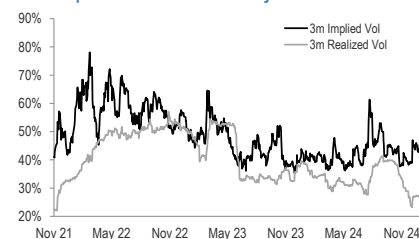
2a. CDX.IG Options

Maturity	Realized Volatility	1d Chg	1w Chg	1m Chg	1m Range	3m Range	6m Range
1m	31.6%	0.28%	0.84%	15.97%	14% - 32%	14% - 32%	14% - 53%
3m	26.80%	0.13%	-0.19%	2.61%	23% - 27%	23% - 40%	23% - 41%
6m	34.05%	0.08%	-0.06%	0.41%	34% - 34%	33% - 36%	29% - 37%

3a. CDX IG Options

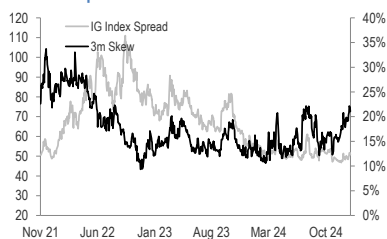
Maturity	Volatility Skew	1d Chg	1w Chg	1m Chg	1m Range	3m Range	6m Range
1m	12.69%	-0.84%	1.28%	3.55%	9% - 17%	8% - 17%	7% - 19%
3m	21.04%	-0.75%	0.79%	2.89%	17% - 22%	12% - 22%	12% - 22%
6m	23.71%	-1.42%	0.50%	2.05%	22% - 26%	15% - 26%	6% - 26%

IG 3m Implied v/s Realized Volatility



*All implied and realized volatilities shown have calendar 1m, 3m and 6m maturities.

IG Index Spread v/s 3m Skew



1b. CDX.HY Options

Maturity	Spot (\$)	ATM Forward	ATM Implied Volatility	1d Chg	1w Chg	1m Chg	1m Range	3m Range	6m Range
1m	107.4	107.0	36.10%	-1.51%	2.51%	10.73%	25% - 40%	24% - 40%	24% - 52%
3m	107.4	106.3	38.67%	-0.98%	1.39%	5.64%	33% - 40%	31% - 40%	31% - 46%
6m	107.4	105.1	40.32%	-0.24%	1.47%	4.85%	36% - 42%	34% - 42%	34% - 42%

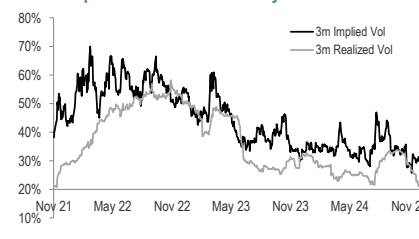
2b. CDX.HY Options

Maturity	Realized Volatility	1d Chg	1w Chg	1m Chg	1m Range	3m Range	6m Range
1m	30.6%	0.43%	0.91%	16.8%	12% - 31%	12% - 31%	12% - 44%
3m	25.3%	0.05%	-0.11%	3.99%	21% - 25%	21% - 34%	21% - 34%
6m	29.9%	0.06%	0.19%	1.93%	28% - 30%	27% - 30%	23% - 30%

3b. CDX HY Options

Maturity	Volatility Skew	1d Chg	1w Chg	1m Chg	1m Range	3m Range	6m Range
1m	12.84%	-0.38%	0.72%	3.23%	9% - 18%	5% - 40%	5% - 40%
3m	16.88%	-0.66%	-1.98%	-0.85%	17% - 21%	10% - 21%	10% - 21%
6m	21.55%	0.96%	-1.54%	0.67%	21% - 24%	12% - 24%	9% - 24%

HY 3m Implied v/s Realized Volatility



*All implied and realized volatilities shown have calendar 1m, 3m and 6m maturities.

HY Index Spread v/s 3m Skew

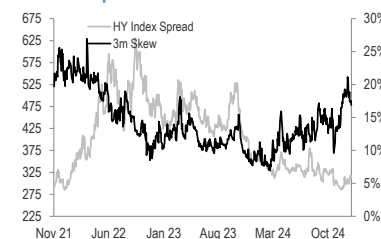


Table 4: Straddles, Ranges and Premium

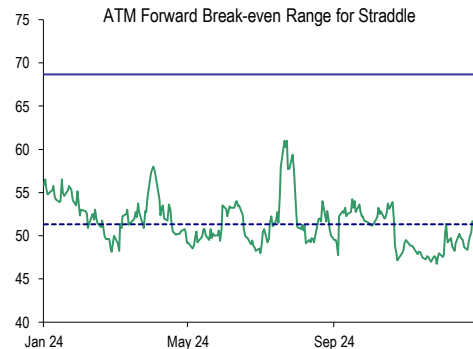
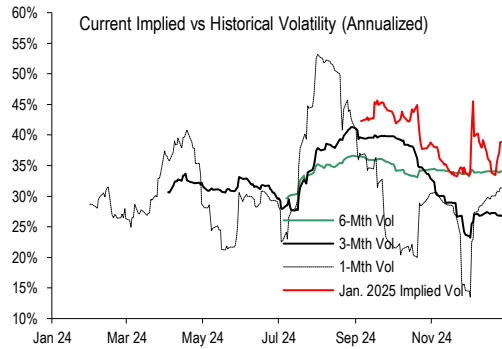
4a. CDX IG Options

Maturity	ATM Implied Volatility	ATM Forward	Straddle Strike (bp)	Premium (cents)			Breakeven Range (bp)	Range Width (bp)
				Today	1w Chg	1m Chg		
Jan	37.5%	51	60	41	-5		(51.3 - 68.7)	17.3
Mar	45.1%	53	63	58	-5		(49.9 - 75.1)	25.3
Jun	45.4%	56	63	65	-2		(47.4 - 77.6)	30.1

4b. CDX HY Options

Maturity	ATM Implied Volatility	ATM Forward	Straddle Strike (\$)	Premium (cents)			Breakeven Range (\$)	Range Width (\$)
				Today	1w Chg	1m Chg		
Jan	31.5%	107.4	107.5	18	-32		(107.3 - 107.7)	0.4
Mar	38.4%	106.6	106.5	170	-12		(104.8 - 108.2)	3.4
Jun	38.8%	105.4	105.0	280	15		(102.2 - 107.8)	5.6

CDX.NA.IG.43 Index Options, Jan. 2025 Maturity



CDX.NA.IG.43 Summary Information

CDX.IG Delta Exchange @	50.8	1-Mth CDX Spread Historical Volatility:	32%	Trade Date:	14-Jan-25
CDX.IG (bp):	50.8	3-Mth CDX Spread Historical Volatility:	27%	CDX Carry to Option Expiry (bp):	0.1
CDX Fixed Coupon (bp):	100.0	6-Mth CDX Spread Historical Volatility:	34%	CDX duration at expiry (yrs):	4.8
ATM Forward (bp):	51.1	Current At-the-money Implied Volatility:	37%	ATM Forward breakeven range:	51.3-68.7

Table 1: Call Options Market Pricing & Break Even Levels, Jan. 2025 Maturity

Call									
Strike (bp)	Price (Mid)	Volatility (Mid)	Delta (Mid)	Gamma (Mid)	Vega (Mid)	Theta (Mid)	% days that strike is in the money	Option Break Even (bp)	Option vs. Outright Break Even (bp)
60.0	\$0.41	50%	100%	0.000	0.0	0.149	29%	51	59
62.5	\$0.52	54%	100%	0.000	0.0	0.151	29%	51	62
65.0	\$0.63	57%	100%	0.000	0.0	0.152	29%	52	64
67.5	\$0.74	61%	100%	0.000	0.0	0.153	29%	52	66
70.0	\$0.86	64%	100%	0.000	0.0	0.155	29%	52	69
72.5	\$0.97	68%	100%	0.000	0.0	0.156	29%	52	71
75.0	\$1.08	71%	100%	0.000	0.0	0.157	29%	52	73

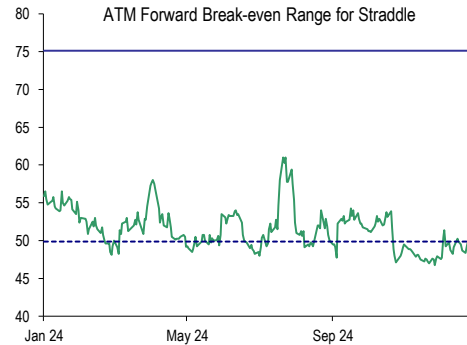
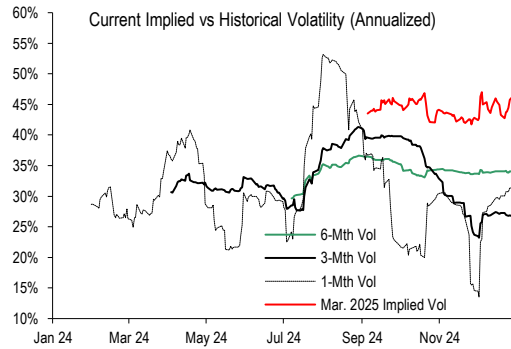
Table 2: Put Options Market Pricing & Break Even Levels, Jan. 2025 Maturity

Put									
Strike (bp)	Price (Mid)	Volatility (Mid)	Delta (Mid)	Gamma (Mid)	Vega (Mid)	Theta (Mid)	% days that strike is in the money	Option Break Even (bp)	Option vs. Outright Break Even (bp)
60.0	\$0.00	50%	0%	0.000	0.0	0.000	0%	60	51
62.5	\$0.00	54%	0%	0.000	0.0	0.000	0%	63	51
65.0	\$0.00	57%	0%	0.000	0.0	0.000	0%	65	51
67.5	\$0.00	61%	0%	0.000	0.0	0.000	0%	68	51
70.0	\$0.00	64%	0%	0.000	0.0	0.000	0%	70	51
72.5	\$0.00	68%	0%	0.000	0.0	0.000	0%	73	51
75.0	\$0.00	71%	0%	0.000	0.0	0.000	0%	75	51

Table 3: Straddle/Strangle Break Even Levels

Call Strike									
	60.0	62.5	65.0	67.5	70.0	72.5	75.0		
Upfront premium (\$)									
Put Strike	60.0	\$0.41							
	62.5	\$0.41	\$0.52						
	65.0	\$0.41	\$0.52	\$0.63					
	67.5	\$0.41	\$0.52	\$0.63	\$0.74				
	70.0	\$0.41	\$0.52	\$0.63	\$0.74	\$0.86			
	72.5	\$0.41	\$0.52	\$0.63	\$0.74	\$0.86	\$0.97		
	75.0	\$0.41	\$0.52	\$0.63	\$0.74	\$0.86	\$0.97	\$1.08	
Break-even price range (bp)									
Put Strike	60.0	51 - 69							
	62.5	51 - 71	51 - 74						
	65.0	51 - 74	51 - 76	52 - 78					
	67.5	51 - 76	51 - 79	52 - 81	52 - 83				
	70.0	51 - 79	51 - 81	52 - 83	52 - 86	52 - 88			
	72.5	51 - 81	51 - 84	52 - 86	52 - 88	52 - 91	52 - 93		
	75.0	51 - 84	51 - 86	52 - 88	52 - 91	52 - 93	52 - 95	52 - 98	

CDX.NA.IG.43 Index Options, Mar. 2025 Maturity



CDX.NA.IG.43 Summary Information

CDX.IG Delta Exchange @	50.8	1-Mth CDX Spread Historical Volatility:	32%	Trade Date:	14-Jan-25
CDX.IG (bp):	50.8	3-Mth CDX Spread Historical Volatility:	27%	CDX Carry to Option Expiry (bp):	9.3
CDX Fixed Coupon (bp):	100.0	6-Mth CDX Spread Historical Volatility:	34%	CDX duration at expiry (yrs):	4.6
ATM Forward (bp):	53.2	Current At-the-money Implied Volatility:	45%	ATM Forward breakeven range:	49.9-75.1

Table 1: Call Options Market Pricing & Break Even Levels, Mar. 2025 Maturity

Call									
Strike (bp)	Price (Mid)	Volatility (Mid)	Delta (Mid)	Gamma (Mid)	Vega (Mid)	Theta (Mid)	% days that strike is in the money	Option Break Even (bp)	Option vs. Outright Break Even (bp)
62.5	\$0.49	57%	72%	-0.028	0.3	-0.032	29%	52	64
65.0	\$0.59	60%	76%	-0.024	0.3	-0.020	29%	52	66
67.5	\$0.69	62%	79%	-0.022	0.3	-0.010	29%	52	68
70.0	\$0.79	65%	82%	-0.019	0.3	0.000	29%	53	70
72.5	\$0.89	67%	84%	-0.017	0.2	0.011	29%	53	72
75.0	\$0.99	69%	86%	-0.015	0.2	0.021	29%	53	74
77.5	\$1.09	71%	87%	-0.014	0.2	0.030	29%	54	77

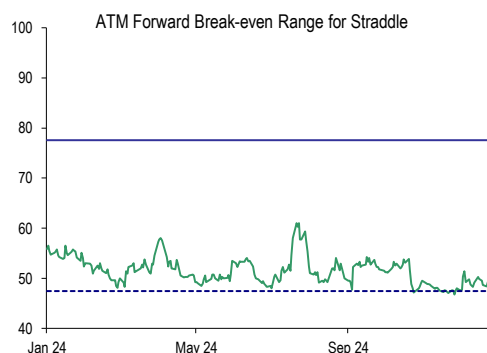
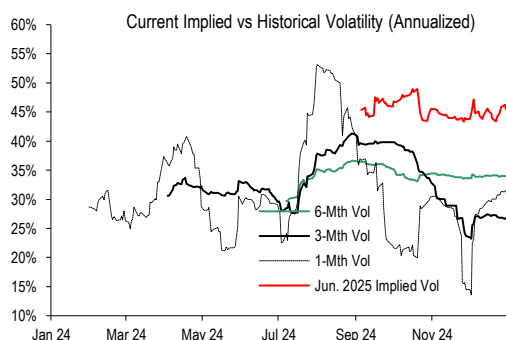
Table 2: Put Options Market Pricing & Break Even Levels, Mar. 2025 Maturity

Put									
Strike (bp)	Price (Mid)	Volatility (Mid)	Delta (Mid)	Gamma (Mid)	Vega (Mid)	Theta (Mid)	% days that strike is in the money	Option Break Even (bp)	Option vs. Outright Break Even (bp)
62.5	\$0.08	57%	-28%	-0.028	0.3	-0.181	0%	64.31477187	51
65.0	\$0.07	60%	-24%	-0.024	0.3	-0.171	0%	67	51
67.5	\$0.06	62%	-21%	-0.022	0.3	-0.161	0%	69	51
70.0	\$0.05	65%	-18%	-0.019	0.3	-0.153	0%	71	52
72.5	\$0.05	67%	-16%	-0.017	0.2	-0.143	0%	74	52
75.0	\$0.04	69%	-14%	-0.015	0.2	-0.134	0%	76	52
77.5	\$0.04	71%	-13%	-0.014	0.2	-0.126	0%	78	52

Table 3: Straddle/Strangle Break Even Levels

Call Strike									
		62.5	65.0	67.5	70.0	72.5	75.0	77.5	
Put Strike	Upfront premium (\$)								
	62.5	\$0.58							
	65.0	\$0.57	\$0.66						
	67.5	\$0.56	\$0.65	\$0.75					
	70.0	\$0.55	\$0.64	\$0.74	\$0.84				
	72.5	\$0.54	\$0.64	\$0.73	\$0.83	\$0.93			
	75.0	\$0.54	\$0.63	\$0.73	\$0.83	\$0.93	\$1.03		
Put Strike	Break-even price range (bp)								
	62.5	50 - 75							
	65.0	50 - 77	51 - 79						
	67.5	50 - 80	51 - 82	51 - 84					
	70.0	50 - 82	51 - 84	51 - 86	52 - 88				
	72.5	51 - 84	51 - 86	51 - 89	52 - 91	52 - 93			
	75.0	51 - 87	51 - 89	52 - 91	52 - 93	52 - 95	53 - 97		
Put Strike	77.5	51 - 89	51 - 91	52 - 93	52 - 95	52 - 98	53 - 100	53 - 102	

CDX.NA.IG.43 Index Options, Jun. 2025 Maturity



CDX.NA.IG.43 Summary Information

CDX.IG Delta Exchange @	50.8	1-Mth CDX Spread Historical Volatility:	32%	Trade Date:	14-Jan-25
CDX.IG (bp):	50.8	3-Mth CDX Spread Historical Volatility:	27%	CDX Carry to Option Expiry (bp):	22.6
CDX Fixed Coupon (bp):	100.0	6-Mth CDX Spread Historical Volatility:	34%	CDX duration at expiry (yrs):	4.3
ATM Forward (bp):	56.5	Current At-the-money Implied Volatility:	45%	ATM Forward breakeven range:	47.4-77.6

Table 1: Call Options Market Pricing & Break Even Levels, Jun. 2025 Maturity

Call									
Strike (bp)	Price (Mid)	Volatility (Mid)	Delta (Mid)	Gamma (Mid)	Vega (Mid)	Theta (Mid)	% days that strike is in the money	Option Break Even (bp)	Option vs.Outright Break Even (bp)
62.5	\$0.45	50%	57%	-0.024	0.6	-0.007	29%	52	66
65.0	\$0.53	52%	61%	-0.022	0.6	-0.001	29%	53	68
67.5	\$0.62	53%	64%	-0.021	0.6	0.004	29%	53	70
70.0	\$0.70	55%	67%	-0.020	0.5	0.010	29%	54	72
72.5	\$0.79	57%	70%	-0.018	0.5	0.015	29%	54	74
75.0	\$0.88	58%	72%	-0.017	0.5	0.019	29%	55	76
77.5	\$0.97	60%	74%	-0.016	0.5	0.025	29%	55	78

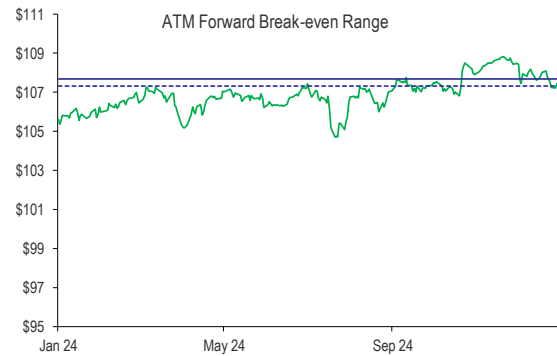
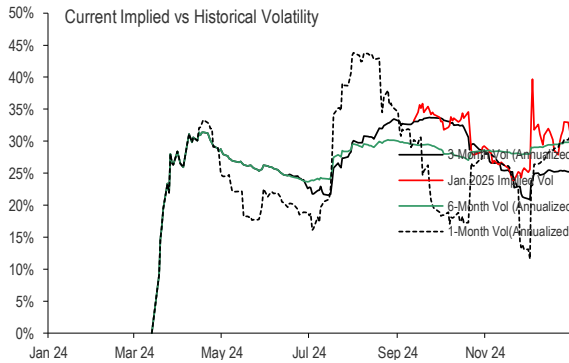
Table 2: Put Options Market Pricing & Break Even Levels, Jun. 2025 Maturity

Put									
Strike (bp)	Price (Mid)	Volatility (Mid)	Delta (Mid)	Gamma (Mid)	Vega (Mid)	Theta (Mid)	% days that strike is in the money	Option Break Even (bp)	Option vs.Outright Break Even (bp)
62.5	\$0.20	50%	-43%	-0.024	0.6	-0.154	0%	67	51
65.0	\$0.18	52%	-39%	-0.022	0.6	-0.149	0%	69	52
67.5	\$0.16	53%	-36%	-0.021	0.6	-0.145	0%	71	52
70.0	\$0.15	55%	-33%	-0.020	0.5	-0.141	0%	73	53
72.5	\$0.14	57%	-30%	-0.018	0.5	-0.137	0%	76	53
75.0	\$0.13	58%	-28%	-0.017	0.5	-0.133	0%	78	53
77.5	\$0.12	60%	-26%	-0.016	0.5	-0.129	0%	80	53

Table 3: Straddle/Strangle Break Even Levels

Call Strike								
	62.5	65.0	67.5	70.0	72.5	75.0	77.5	
Put Strike	Upfront premium (\$)							
	62.5	\$0.65						
	65.0	\$0.63	\$0.71					
	67.5	\$0.62	\$0.70	\$0.78				
	70.0	\$0.60	\$0.68	\$0.77	\$0.85			
	72.5	\$0.59	\$0.67	\$0.75	\$0.84	\$0.93		
	75.0	\$0.58	\$0.66	\$0.74	\$0.83	\$0.92	\$1.01	
Put Strike	77.5	\$0.57	\$0.65	\$0.73	\$0.82	\$0.91	\$1.00	\$1.09
	Break-even price range (bp)							
	62.5	47 - 78						
	65.0	48 - 80	49 - 81					
	67.5	48 - 82	49 - 84	49 - 86				
	70.0	49 - 84	49 - 86	50 - 88	50 - 90			
	72.5	49 - 86	50 - 88	50 - 90	51 - 92	51 - 94		
Put Strike	75.0	49 - 88	50 - 90	50 - 92	51 - 94	51 - 96	52 - 98	
	77.5	49 - 91	50 - 93	51 - 94	51 - 96	51 - 99	52 - 101	52 - 103

CDX.NA.HY.43 Index Options, Jan.2025 Maturity



Trade Date: 14-Jan-25	
CDX.HY Delta Exchange @:	107.42
COB CDX.HY (\$):	107.42
Index Current Spread (bp):	313.14
Fixed Coupon (bp):	500.00
Carry to Option Expiry(\$):	0.01
3-Month Historical Volatility:	25.27%
6-Month Historical Volatility:	29.86%
Current ATM Implied Volatility:	31.50%

Table 1: Current Options Market Pricing, Jan.2025 Maturity

Strike	Price (Mid)		Volatility
	Call	Put	Call
\$105.5	\$1.9	\$0.0	44.5%
\$106.0	\$1.4	\$0.0	41.1%
\$106.5	\$0.9	\$0.0	37.8%
\$107.0	\$0.4	\$0.0	34.5%
\$107.5	\$0.0	\$0.1	30.9%
\$108.0	\$0.0	\$0.6	30.3%
\$108.5	\$0.0	\$1.1	29.8%

Table 2: Index Break Even Levels, Jan.2025 Option Maturity *

Strike	Option Break Even		Option vs. Outright Break Even	
	Call	Put	Call	Put
\$105.5	\$107.4	\$105.5	\$105.5	\$107.4
\$106.0	\$107.4	\$106.0	\$106.0	\$107.4
\$106.5	\$107.4	\$106.5	\$106.5	\$107.4
\$107.0	\$107.4	\$107.0	\$107.0	\$107.4
\$107.5	\$107.5	\$107.4	\$107.4	\$107.5
\$108.0	\$108.0	\$107.4	\$107.4	\$108.0
\$108.5	\$108.5	\$107.4	\$107.4	\$108.5

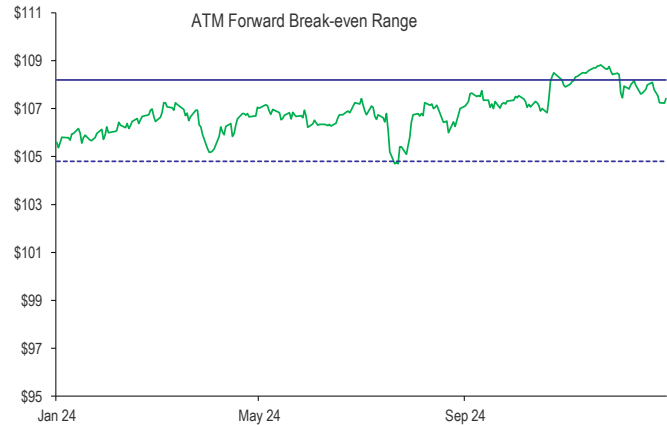
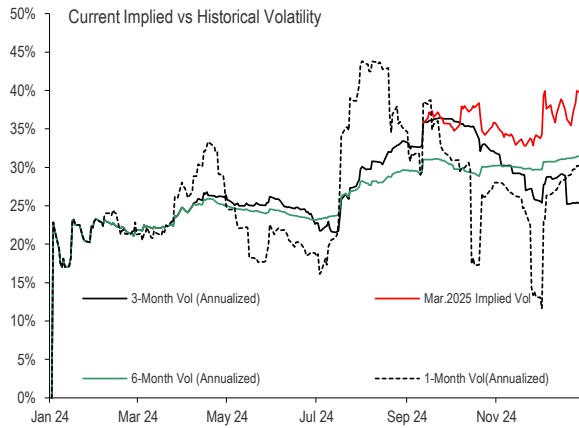
Table 3: Straddle Break Even Levels, Jan.2025 Option Maturity

Strike	Straddle	
	Upfront Premium	Break-Even
\$105.5	\$1.91	103.6 - 107.4
\$106.0	\$1.41	104.6 - 107.4
\$106.5	\$0.91	105.6 - 107.4
\$107.0	\$0.42	106.6 - 107.4
\$107.5	\$0.18	107.3 - 107.7
\$108.0	\$0.59	107.4 - 108.6
\$108.5	\$1.09	107.4 - 109.6

Table 4: Strangle Break-Evens

		\$105.5	\$106.0	\$106.5	Put Strike	\$107.0	\$107.5	\$108.0	\$108.5
Upfront premium									
Call Strike	\$105.5	---							
	\$106.0	\$1.41	---						
	\$106.5	\$0.91	\$0.91	---					
	\$107.0	\$0.42	\$0.42	\$0.42	---				
	\$107.5	\$0.05	\$0.05	\$0.05	\$0.05	---			
	\$108.0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.13	---		
	\$108.5	\$0.00	\$0.00	\$0.00	\$0.00	\$0.13	\$0.59	---	
Break-even price range									
Call Strike	\$105.5	---							
	\$106.0	104.1 - 107.4	---						
	\$106.5	104.6 - 107.4	105.1 - 107.4	---					
	\$107.0	105.1 - 107.4	105.6 - 107.4	106.1 - 107.4	---				
	\$107.5	105.5 - 107.5	106.0 - 107.5	106.5 - 107.5	106.9 - 107.6	---			
	\$108.0	105.5 - 108.0	106.0 - 108.0	106.5 - 108.0	107.0 - 108.0	107.4 - 108.1	---		
	\$108.5	105.5 - 108.5	106.0 - 108.5	106.5 - 108.5	107.0 - 108.5	107.4 - 108.6	107.4 - 109.1	---	

CDX.NA.HY.43 Index Options, Mar.2025 Maturity



Trade Date: 14-Jan-25	
CDX.HY Delta Exchange @:	107.42
COB CDX.HY (\$):	107.42
Index Current Spread (bp):	313.14
Fixed Coupon (bp):	500.00
Carry to Option Expiry(\$):	0.65
3-Month Historical Volatility:	25.27%
6-Month Historical Volatility:	31.46%
Current ATM Implied Volatility:	38.43%

Table 1: Current Options Market Pricing, Mar.2025 Maturity

Strike	Price (Mid)		Volatility
	Call	Put	Call
\$105.5	\$1.6	\$0.6	44.5%
\$106.0	\$1.3	\$0.7	41.7%
\$106.5	\$0.9	\$0.8	39.0%
\$107.0	\$0.6	\$1.0	36.2%
\$107.5	\$0.3	\$1.2	33.7%
\$108.0	\$0.2	\$1.6	31.2%
\$108.5	\$0.1	\$2.0	29.5%

Table 2: Index Break Even Levels, Mar.2025 Option Maturity *

Strike	Option Break Even		Option vs. Outright Break Even	
	Call	Put	Call	Put
\$105.5	\$107.1	\$104.9	\$105.1	\$107.3
\$106.0	\$107.3	\$105.3	\$105.5	\$107.4
\$106.5	\$107.4	\$105.7	\$105.9	\$107.6
\$107.0	\$107.6	\$106.0	\$106.2	\$107.8
\$107.5	\$107.8	\$106.3	\$106.4	\$108.0
\$108.0	\$108.2	\$106.4	\$106.6	\$108.3
\$108.5	\$108.6	\$106.5	\$106.7	\$108.7

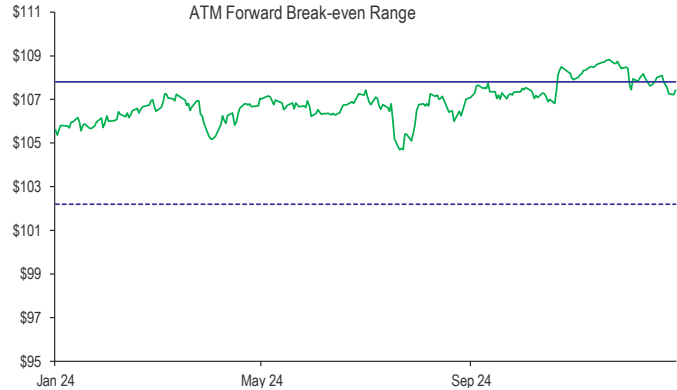
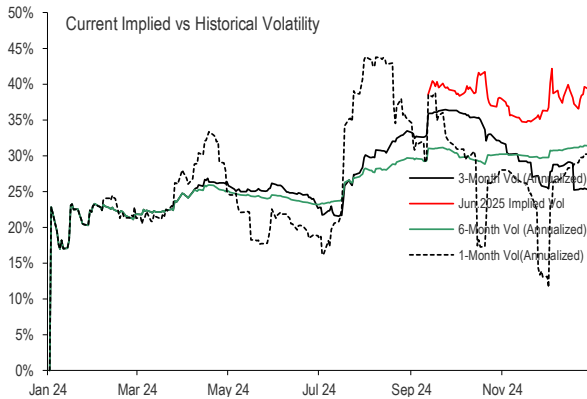
Table 3: Straddle Break Even Levels, Mar.2025 Option Maturity

Strike	Straddle	
	Upfront Premium	Break-Even
\$105.5	\$2.19	103.3 - 107.7
\$106.0	\$1.91	104.1 - 107.9
\$106.5	\$1.70	104.8 - 108.2
\$107.0	\$1.58	105.4 - 108.6
\$107.5	\$1.59	105.9 - 109.1
\$108.0	\$1.73	106.3 - 109.7
\$108.5	\$2.03	106.5 - 110.5

Table 4: Strangle Break-Events

		Put Strike							
		\$105.5	\$106.0	\$106.5	\$107.0	\$107.5	\$108.0	\$108.5	
Call Strike	Upfront premium								
	\$105.5	---							
	\$106.0	\$1.80	---						
	\$106.5	\$1.45	\$1.56	---					
	\$107.0	\$1.14	\$1.25	\$1.39	---				
	\$107.5	\$0.90	\$1.01	\$1.15	\$1.34	---			
	\$108.0	\$0.72	\$0.83	\$0.97	\$1.16	\$1.41	---		
Call Strike	Break-even price range								
	\$105.5	---							
	\$106.0	103.7 - 107.8	---						
	\$106.5	104.1 - 107.9	104.4 - 108.1	---					
	\$107.0	104.4 - 108.1	104.8 - 108.2	105.1 - 108.4	---				
	\$107.5	104.6 - 108.4	105.0 - 108.5	105.4 - 108.6	105.7 - 108.8	---			
	\$108.0	104.8 - 108.7	105.2 - 108.8	105.5 - 109.0	105.8 - 109.2	106.1 - 109.4	---		
Call Strike	\$108.5	104.9 - 109.1	105.3 - 109.2	105.6 - 109.4	105.9 - 109.6	106.2 - 109.8	106.4 - 110.1	---	

CDX.NA.HY.43 Index Options, Jun.2025 Maturity



Trade Date: 14-Jan-25	
CDX.HY Delta Exchange @:	107.42
COB CDX.HY (\$):	107.42
Index Current Spread (bp):	313.14
Fixed Coupon (bp):	500.00
Carry to Option Expiry(\$):	1.57
3-Month Historical Volatility:	25.27%
6-Month Historical Volatility:	31.46%
Current ATM Implied Volatility:	38.79%

Table 1: Current Options Market Pricing, Jun.2025 Maturity

Strike	Price (Mid)		Volatility
	Call	Put	Call
\$103.5	\$2.8	\$0.9	46.0%
\$104.0	\$2.4	\$1.0	44.3%
\$104.5	\$2.0	\$1.1	42.6%
\$105.0	\$1.6	\$1.2	40.7%
\$105.5	\$1.3	\$1.3	38.4%
\$106.0	\$0.9	\$1.5	36.2%
\$106.5	\$0.6	\$1.7	34.0%

Table 2: Index Break Even Levels, Jun.2025 Option Maturity *

Strike	Option Break Even		Option vs. Outright Break Even	
	Call	Put	Call	Put
\$103.5	\$106.3	\$102.6	\$103.1	\$106.7
\$104.0	\$106.4	\$103.0	\$103.5	\$106.8
\$104.5	\$106.5	\$103.4	\$103.9	\$106.9
\$105.0	\$106.6	\$103.8	\$104.3	\$107.1
\$105.5	\$106.8	\$104.2	\$104.6	\$107.2
\$106.0	\$106.9	\$104.5	\$104.9	\$107.4
\$106.5	\$107.1	\$104.8	\$105.2	\$107.6

Table 3: Straddle Break Even Levels, Jun.2025 Option Maturity

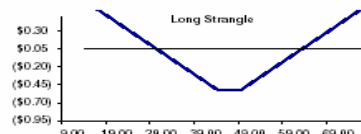
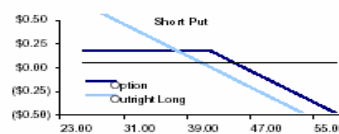
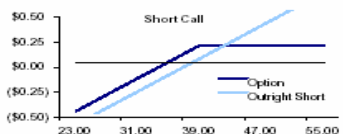
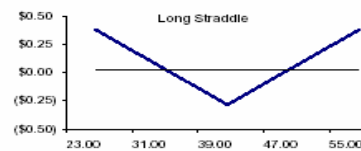
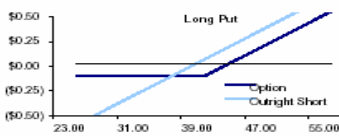
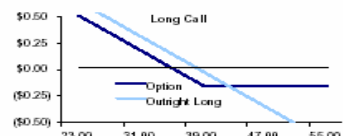
Strike	Straddle	
	Upfront Premium	Break-Even
\$103.5	\$3.65	99.8 - 107.2
\$104.0	\$3.33	100.7 - 107.3
\$104.5	\$3.05	101.4 - 107.6
\$105.0	\$2.80	102.2 - 107.8
\$105.5	\$2.58	102.9 - 108.1
\$106.0	\$2.43	103.6 - 108.4
\$106.5	\$2.36	104.1 - 108.9

Table 4: Strangle Break-Evens

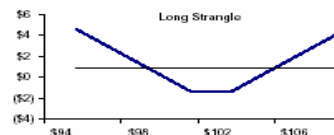
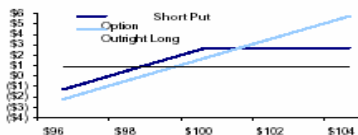
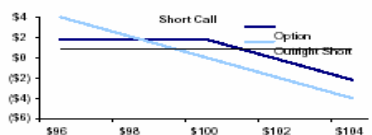
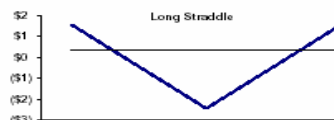
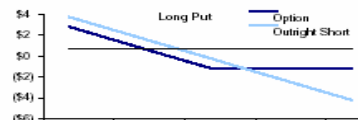
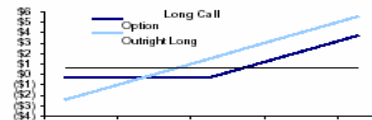
		\$103.5	\$104.0	\$104.5	Put Strike	\$105.0	\$105.5	\$106.0	\$106.5
Upfront premium									
Call Strike	\$103.5	---							
	\$104.0	\$3.25	---						
	\$104.5	\$2.86	\$2.95	---					
	\$105.0	\$2.49	\$2.58	\$2.68	---				
	\$105.5	\$2.14	\$2.22	\$2.33	\$2.45	---			
	\$106.0	\$1.81	\$1.90	\$2.00	\$2.13	\$2.26	---		
	\$106.5	\$1.53	\$1.62	\$1.72	\$1.85	\$1.98	\$2.15	---	
Break-even price range									
Call Strike	\$103.5	---							
	\$104.0	100.3 - 107.2	---						
	\$104.5	100.6 - 107.4	101.1 - 107.4	---					
	\$105.0	101.0 - 107.5	101.4 - 107.6	101.8 - 107.7	---				
	\$105.5	101.4 - 107.6	101.8 - 107.7	102.2 - 107.8	102.6 - 107.9	---			
	\$106.0	101.7 - 107.8	102.1 - 107.9	102.5 - 108.0	102.9 - 108.1	103.2 - 108.3	---		
	\$106.5	102.0 - 108.0	102.4 - 108.1	102.8 - 108.2	103.2 - 108.3	103.5 - 108.5	103.9 - 108.6	---	

Appendix

IG, HiVol, XO: Basic Option Strategy Payoff Diagrams



HY, LCDX: Basic Option Strategy Payoff Diagrams



Terms and Definitions

Call - A call gives the holder the right, but not the obligation to enter into a long risk CDS index contract at a given spread, the strike. This is also called a receiver option.

Put - A put gives the holder the right, but not the obligation to enter into a short risk CDS index contract at a given spread, the strike. This is also called a payer option.

Strike - The strike is the agreed spread at which CDS index contract will be struck at maturity of the option.

Maturity - There are two maturities in a CDS option contract. The maturity of the option and the maturity of the underlying CDS index contract. As traded indices have fixed maturities, the term of the index decreases as time passes.

At-The-Money (ATM) - An option is ATM if its strike is equal to the forward spread on the underlying.

In-The-Money (ITM) - An option is ITM if its strike is above the forward spread for a call and vice versa for a put.

Out-Of-The-Money (OTM) - An option is OTM if its strike is below the forward spread for a call and vice versa for a put.

Realised Volatility (also known as Historic or Delivered volatility) - This is the standard deviation of the daily log returns of the index. This is annualised by multiplying by $\sqrt{252}$. Realised Volatility is a backward looking measure and tells us how volatile the index has been over a given period.

Implied Volatility - This is the volatility implied from an option price, using the Black Equation. This is the equation used to price options and is detailed in "Option Pricing Model - March 2004, JPMorgan". Implied volatility is a forward looking measure and reflects the expected volatility of the index to the maturity of the option.

Volatility Skew - This describes the different levels of implied volatility for different strikes.

Forward Duration - This is the duration of the forward. It is the duration of the contract we can enter into at maturity of the option. We can convert option prices to breakevens by multiplying by the forward duration.

Delta - This describes how the option price changes with respect to the underlying index price. We calculate delta as the ratio of the change in option price to change in index upfront for a 1bp widening in index spread. An ATM option has a delta of around 50% meaning that for a 1bp spread widening the option price will change by around 50% of the upfront price change on the index. The delta tells us how much of the underlying we need to purchase or sell in order to hedge or replicate the option payoff.

Gamma - This describes how the delta changes for a 1bp shift in underlying index spread. Owning options results in a positive gamma position. This means that as the spread on the underlying moves our way, the option delta increases and the option becomes more likely to end up ITM. Effectively we get "longer in a rally and shorter in a sell-off".

Vega - This is the sensitivity of the option price to changes in implied volatility. Vega tells us how much the option price changes, in cents, for a 1% increase in implied volatility. Owning options (puts or calls) results in a positive vega position as the holder benefits from increasing implied volatility. Longer dated options have higher vega and therefore are more sensitive to changes in implied volatility.

Theta - Theta describes the time decay of the option. This is the change in the option price due to a 1 day passage of time assuming all else remains unchanged (index spread, implied volatility etc.). Owning options usually has a negative theta position as options become less valuable as time passes. Theta is often thought of as the "rent" paid for having a positive gamma position.

Delta Exchange - When trading an option, the convention is to hedge the delta of the option by buying or selling a delta amount of the underlying index. All prices in this report include the cost of the delta hedge. To take an outright option position, investors need to buy or sell their delta hedge back to the market.

Option Breakeven shows the index price necessary at the expiry of the option, for the profits from exercising the option to equal the premium paid for the option. For example, if an investor purchases a call option for \$0.20 at a strike of 50bp, the index price must be 45bp at expiration for the option to breakeven assuming the index duration is 4 years, or $50\text{bp} - (\$0.20 / 4) \times 100 = 45\text{bp}$.

Option vs. Outright answers the question, if an investor purchases an option and it falls farther out of the money, how far can the index unfavorably move and the investor be indifferent between owning the option and having a position in the index. For example, if an investor buys a call for \$0.20 and the duration of the index is 4 years, the call is worth 5bp ($\$0.20 / 4$). She would be indifferent to owning the call or buying the index (long risk) today at 50bp, selling it at 59bp, and earning a carry of 4bp.

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