

PROJECT 3

1st half of the market:

CALL					PUT			
OI	CHNG IN OI	IV	LTP	STRIKE	LTP	IV	CHNG IN OI	OI
26,476	3,347	40.55	649.35	19,000.00	1.25	29.67	23,075	2,07,101
151	-61	-	595.3	19,050.00	1.4	27.81	4,791	27,615
1,778	-43	35.38	558.55	19,100.00	1.5	26.15	23,123	72,345
266	-3	27.69	496.65	19,150.00	1.65	24.52	6,551	38,101
3,142	128	29.03	449.7	19,200.00	1.9	22.79	51,343	1,56,071
1,817	-45	26.6	399.15	19,250.00	2.25	21.12	13,598	62,592
16,448	229	27.19	350.8	19,300.00	2.85	19.52	58,171	1,52,475
1,839	683	24.15	300.2	19,350.00	3.65	17.93	34,031	79,276
18,122	2,731	21.92	252.3	19,400.00	5.2	16.48	48,107	1,63,894
7,785	3,977	19.59	204.55	19,450.00	8.05	15.26	36,953	1,05,992
65,524	32,148	17.7	159.55	19,500.00	13	14.36	1,07,889	2,79,530
37,656	27,126	16.15	117.2	19,550.00	20.7	13.39	89,271	1,74,300
1,51,436	94,295	14.89	80	19,600.00	33.6	12.62	1,63,027	3,38,542
1,57,580	79,309	14.11	50.45	19,650.00	53.9	12.07	16,150	1,30,006
3,00,865	90,476	13.59	28.75	19,700.00	82.2	11.54	-279	1,35,285
1,92,880	63,584	13.39	14.9	19,750.00	118.25	10.8	-295	28,896
3,13,997	48,874	13.69	7.9	19,800.00	161.25	9.63	-10,238	66,718
1,45,761	31,725	13.93	4.05	19,850.00	207.65	-	-4,011	9,984
2,23,031	40,826	14.56	2.45	19,900.00	256	-	-4,397	32,821
1,03,959	24,872	15.57	1.75	19,950.00	304.8	-	-957	6,162
2,33,694	493	16.74	1.4	20,000.00	354.55	-	-4,810	32,747

Calculation of put call ratio:

PCR=put OI÷call OI

Strike price	PCR
19000	7.82
19050	182.88
19100	40.68
19150	143.23
19200	49.67
19250	34.44
19300	9.27
19350	43.10
19400	9.04
19450	13.61
19500	4.26
19550	4.62
19600	2.23
19650	0.82
19700	0.44

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19750	0.14
19800	0.21
19850	0.068
19900	0.14
19950	0.059
20000	0.14

Till the strike price of Rs.19600 the put call ratio is >1, put writing is done in greater amount than call writing. This indicates that there is bullish sentiment in the market.

At strike price of Rs.19600

$$\text{PCR} = 338542 / 151436 = 2.23$$

At strike price of Rs.19650

$$\text{PCR} = 130006 / 157580 = 0.82$$

From strike price of Rs.19650 to Rs.20000 there is a significant increase in call writing than put writing. In this range the PCR ratio < 1. This indicates that there is bearish sentiment in the market.

The critical levels for analysis are at the strike price of Rs.19600 (in put section), Rs.19700 and Rs.19800 (in call section). Here, most open positions are present.

There is an additional deployment of contracts at strike price of Rs.19600 is highest in both put and call option as change in OI is highest. This price can be considered as support level as large number of open interest is present at this level in the put section. At this price there is a bullish sentiment and the price will not go below this.

At strike price of Rs.19700 there is significant change in OI along with a large number of open interest in call option section. This indicates that it can be considered as resistance level.

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For 2nd half of market:

CALL					PUT			
OI	CHNG IN OI	IV	LTP	STRIKE	LTP	IV	CHNG IN OI	OI
26,225	3,096	-	700.45	19,000.00	1.25	30.2	27,213	2,11,239
124	-88	30.61	649.9	19,050.00	1.25	28.44	5,068	27,892
1,740	-81	30.3	598.4	19,100.00	1.35	26.93	24,510	73,732
259	-10	30.31	554.9	19,150.00	1.55	25.21	10,941	42,491
2,991	-23	-	496.25	19,200.00	1.7	23.54	43,749	1,48,477
1,742	-120	-	449.25	19,250.00	1.95	22.08	13,609	62,603
16,248	29	-	399.2	19,300.00	2.35	20.53	60,276	1,54,580
1,688	532	-	347.5	19,350.00	2.8	19.02	43,225	88,470
16,586	1,195	-	300	19,400.00	3.55	17.55	52,122	1,67,909
6,178	2,370	13.03	251.3	19,450.00	4.55	15.96	71,555	1,40,594
56,923	23,547	11.94	202.9	19,500.00	6.9	14.88	1,12,187	2,83,828
23,296	12,766	12.61	156.9	19,550.00	10.75	13.83	72,829	1,57,858
99,620	42,479	11.95	113.3	19,600.00	17.7	12.97	1,87,761	3,63,276
1,04,216	25,945	11.49	75.45	19,650.00	29.45	12.25	1,16,500	2,30,356
2,71,561	61,172	11.2	45.25	19,700.00	49.2	11.9	1,09,775	2,45,339
1,97,099	67,803	11.15	24.4	19,750.00	78.2	11.93	17,112	46,303
3,34,652	69,529	11.35	12.15	19,800.00	116.2	12.26	-18	76,938
1,56,865	42,829	11.56	5.65	19,850.00	159.7	13.27	-2,363	11,632
2,34,323	52,118	12.2	2.95	19,900.00	206	14.2	-6,094	31,124
88,078	8,991	13.13	1.8	19,950.00	253.75	17.07	-1,188	5,931
2,34,054	853	14.46	1.35	20,000.00	304.15	18.62	-4,185	33,372

Calculation of PCR:

Strike price	PCR
19000	8.05
19050	224.93
19100	42.37
19150	164.05
19200	49.64
19250	35.93
19300	9.51
19350	52.41
19400	10.12
19450	22.75
19500	4.98
19550	6.77
19600	3.63
19650	2.21
19700	0.90
19750	0.23

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19800	0.22
19850	0.07
19900	0.13
19950	0.06
20000	0.14

Till the strike price of Rs.19650 the $PCR > 1$ this indicates that there is bullish sentiment in the market.

At strike price of Rs.19650

$PCR = 2.21$

At the strike price of Rs.19700

$PCR = 0.9$

Here call writing dominates over put writing, from strike price of Rs.19700 to Rs.20000 $PCR < 1$ this indicates that there is bearish sentiment in the market.

The critical levels for analysis are at strike price of Rs.19800 (in call section) and Rs.19600 (in put section). Here highest number of OI are present.

At strike price of Rs.19600 change in OI and number of OI is highest in the put section, it can be considered as support level.

At the strike price of Rs.19800 change in OI and number of OI is highest in the call section, it can be considered as resistance level.

Strategy 1: Bull call spread

In this strategy the investor will buy in the money call option at a lower strike price and sell an out of money call option at higher strike price, here risk would be limited to initial premium paid when the spot price will go below lower strike price

For 1st half of market:

Assuming that the spot price is Rs.19650

Strike price of in the money call option Rs.19600 at premium of Rs.80 (paid)

Strike price of out of the money call option Rs.19700 at premium of Rs.28.75 (received)

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Expected payoff table:

Spot price	Net payoff buy(19600)	Net payoff sell(19700)	Premium (call buy)	Premium (call sell)	Net payoff
19500	0	0	-80	28.75	-51.25
19550	0	0	-80	28.75	-51.25
19600	0	0	-80	28.75	-51.25
19650	50	0	-80	28.75	-1.25
19700	100	0	-80	28.75	48.75
19750	150	-50	-80	28.75	48.75
19800	200	-100	-80	28.75	48.75
19850	250	-150	-80	28.75	48.75
19900	300	-200	-80	28.75	48.75

Here for any spot price below Rs.19625 the investor would incur loss of Rs.51.25 due to the premium paid, for spot price above Rs.19651.25(breakeven point) the investor will start gaining profit, the net payoff above this spot price would be Rs.48.75.

For 2nd half of the market:

Assuming that the current stock price is of Rs.19700

The investor would buy a call option at strike price Rs.19650 and pay a premium of Rs.75.45 and sell a call option at strike price of Rs.19750 and receive a premium of Rs.24.40

Expected payoff table:

Spot price	Net payoff buy(19650)	Net payoff sell(19750)	Premium (call buy)	Premium (call sell)	Net payoff
19500	0	0	-75.45	24.40	-51.05
19550	0	0	-75.45	24.40	-51.05
19600	0	0	-75.45	24.40	-51.05
19650	0	0	-75.45	24.40	-51.05
19700	50	0	-75.45	24.40	-1.05

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19750	100	0	-75.45	24.40	48.95
19800	150	-50	-75.45	24.40	48.95
19850	200	-100	-75.45	24.40	48.95
19900	250	-150	-75.45	24.40	48.95

Here for any spot price below Rs.19650 the investor would occur loss of Rs.51.05 due to the premium paid, for spot price above Rs.19701.05(breakeven point) the investor would start gaining profit of Rs.48.95.

Strategy 2: short straddle

In this strategy the investor will sell a short call and put option, here the risk is unlimited and the income comes from premium.

In the 1st half of market:

Assuming the current spot price to be Rs.19650,

Strike price of call option is Rs.19700, premium received Rs.28.75

Strike price of put option is Rs.19700, premium received Rs.82.20

Expected payoff table:

Spot price	Net payoff call(19700)	Net payoff put(19700)	Premium (call sell)	Premium (put sell)	Net payoff
19500	0	-200	28.75	82.20	-89.05
19550	0	-150	28.75	82.20	-39.05
19600	0	-100	28.75	82.20	10.95
19650	0	-50	28.75	82.20	60.95
19700	0	0	28.75	82.20	110.95
19750	-50	0	28.75	82.20	60.95
19800	-100	0	28.75	82.20	10.95
19850	-150	0	28.75	82.20	-39.05
19900	-200	0	28.75	82.20	-89.05

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Here the investor would make money when the spot price is between Rs.19,589.05 and Rs.19810.95(breakeven points). Spot price below and above the given price would account for loss.

For 2nd half of the market:

Assuming the spot price to be Rs.19700

Strike price of call option Rs.19800, premium received Rs.12.15

Strike price of put option Rs.19800, premium received Rs.116.20

Expected payoff table:

Spot price	Net payoff call(19800)	Net payoff put(19800)	Premium (call sell)	Premium (put sell)	Net payoff
19500	0	-300	12.15	116.20	-171.65
19550	0	-250	12.15	116.20	-121.65
19600	0	-200	12.15	116.20	-71.65
19650	0	-150	12.15	116.20	-21.65
19700	0	-100	12.15	116.20	28.35
19750	0	-50	12.15	116.20	78.35
19800	0	0	12.15	116.20	128.35
19850	-50	0	12.15	116.20	78.35
19900	-100	0	12.15	116.20	28.35
19950	-150	0	12.15	116.20	-21.65

Here the investor would make profit if the spot price is between Rs.19671 and Rs.19928.35(breakeven points). Spot price below and above the given price would account for the loss.