

Capstone Project: Equity Hedging Using Derivatives for Mr. A

1. Objective

We have been asked to carve out a derivatives-based hedging strategy for Mr. A, who holds certain Long equity positions as per data provided below to cover his market exposure. The requirements of the project is enunciated below:

- Perform hedging strategy using Futures and Options separately.
- Make a pay-off diagram in both Futures and Options cases.
- Calculate breakeven point and profit and loss using option strategy.
- Perform calculations using Excel and write a detailed process in Word document.

2. Given data & Hedging Assumptions

Given Data:

Table: A

| Stock Name | Symbol | Markets | Purch. Qty. | Purch. Price | Cost |
|-----------------------|----------|------------|-------------|--------------|------------------|
| Ashok Leyland | ASHOKLEY | NSE, India | 5,000 | 180 | 9,00,000 |
| Larsen & Toubro | LT | NSE, India | 300 | 2,600 | 7,80,000 |
| Total Exposure | | | | | 16,80,000 |

There was a corporate action in Ashok Leyland on 16th July 2025 (Record/effective date) by which company announced bonus in the ratio of 1:1. The revised holdings considering the corporate action is as below along with comparison with Current market prices (CMP) and Gains/(Losses) as on the date of creation of Hedging strategy for ascertaining the exposure required to be hedged (Highlighted in green color).

Revised Base Data considering Corporate Action:

Table: B

| Stock Name | Symbol | Markets | Purch. Qty. | Purch. Price | Cost | CMP | Current Value | Gains/(Losses) |
|-----------------------|----------|------------|-------------|--------------|------------------|-------|------------------|-----------------|
| Ashok Leyland | ASHOKLEY | NSE, India | 10,000 | 90 | 9,00,000 | 122 | 12,19,000 | 3,19,000 |
| Larsen & Toubro | LT | NSE, India | 300 | 2,600 | 7,80,000 | 3,659 | 10,97,760 | 3,17,760 |
| Total Exposure | | | | | 16,80,000 | | 23,16,760 | 6,36,760 |

Since we have to carve out the hedging strategy now wherein Mr. A is already standing on a gain of INR 6,36,760, the hedging exposure considered in the strategy is portfolio value at CMP which is INR 23,16,760.

Please note the expiry of Aug'25 has been considered for Futures/Options as it has greater market depth and participation as against Sep'25 expiry.

Hence the strategy created uses current market data with August 2025 expiry to minimize downside risk while maintaining upside exposure where desirable to be prudent.

3. Hedging Strategy using Futures and Options separately

The August 2025 expiry Futures and Options can be selected for hedging purposes. Any of the below two instruments can be used:

- **Short Futures (Sell)**: to fully hedge downside at current price; or,
- **Long Put Options (Buy)**: to hedge downside while allowing for upside gains

Following contracts can be used for Hedging purposes using either Futures or Options strategies.

Table: C

| Name of stock | Ashok Leyland | | Larsen & Toubro | |
|--|---------------|----------|-----------------|---------|
| | Symbol | ASHOKLEY | ASHOKLEY | LT |
| | | Futures | Options | Futures |
| | | SELL | BUY PUT | SELL |
| Lot size | | 5000 | 5000 | 175 |
| Exposure Qty. to be covered | | 10000 | 10000 | 300 |
| No. of minimum Lots required | | 2 | 2 | 2 |
| CMP (30th July closing) | | 121.9 | 121.9 | 3659.2 |
| Last Traded Price (Aug expiry Futures as on 30th July) | | 122.55 | | 3677 |
| Closest Strike price (With Good Volume) | | | 130 | |
| LTP Put Option Premium | | | 8.25 | 155.7 |

Although the CMP of Ashok Leyland is INR 121.9, options strike price has been chosen as INR 130 with premium of INR 8.25 so as to arrive closest to CMP on net basis and avoid major loss

Similarly, although the CMP of Larsen & Toubro is INR 3659.2, options strike price has been chosen as INR 3800 with premium of INR 155.7 so as to arrive closest to CMP on net basis and avoid major loss

The breakeven price for the put options were calculated as:

- Ashok Leyland: ₹130 - ₹8.25 = ₹121.75 (close to Actual CMP of INR 121.9)
- L&T: ₹3,800 - ₹155.7 = ₹3,644.3 (close to Actual CMP of INR 3659.2)

For Futures, Last traded price as on 30th July 2025 of Aug Expiry has been taken for hedging for ease of reference basically to avoid fluctuations in prices during the market hours.

5. Profit & Loss & Pay-off computation using both Futures & Options:

Payoff profiles have been constructed to show:

- Stock-only exposure
- Futures-hedged exposure
- Options-hedged exposure
- Net payoff combining stock and Futures and Stocks and options in either scenarios as below

Ashok Leyland

| Payoff Computation | | A | B | C= A+B | D | E | F = A + D - E |
|--------------------|-----------|-------------|--------------------|-------------|-----------------|--------------------|---------------|
| Expiry day price | Stock PnL | Futures PnL | Net Payoff-Futures | Options PnL | Options Premium | Net Payoff-Options | |
| 80 | -419000 | 425500 | 6500 | 500000 | 82500 | -1500 | |
| 90 | -319000 | 325500 | 6500 | 400000 | 82500 | -1500 | |
| 100 | -219000 | 225500 | 6500 | 300000 | 82500 | -1500 | |
| 110 | -119000 | 125500 | 6500 | 200000 | 82500 | -1500 | |
| 120 | -19000 | 25500 | 6500 | 100000 | 82500 | -1500 | |
| 130 | 81000 | -74500 | 6500 | 0 | 82500 | -1500 | |
| 140 | 181000 | -174500 | 6500 | 0 | 82500 | 98500 | |
| 150 | 281000 | -274500 | 6500 | 0 | 82500 | 198500 | |
| 160 | 381000 | -374500 | 6500 | 0 | 82500 | 298500 | |
| 170 | 481000 | -474500 | 6500 | 0 | 82500 | 398500 | |
| 180 | 581000 | -574500 | 6500 | 0 | 82500 | 498500 | |
| 190 | 681000 | -674500 | 6500 | 0 | 82500 | 598500 | |
| 200 | 781000 | -774500 | 6500 | 0 | 82500 | 698500 | |
| 210 | 881000 | -874500 | 6500 | 0 | 82500 | 798500 | |
| 220 | 981000 | -974500 | 6500 | 0 | 82500 | 898500 | |

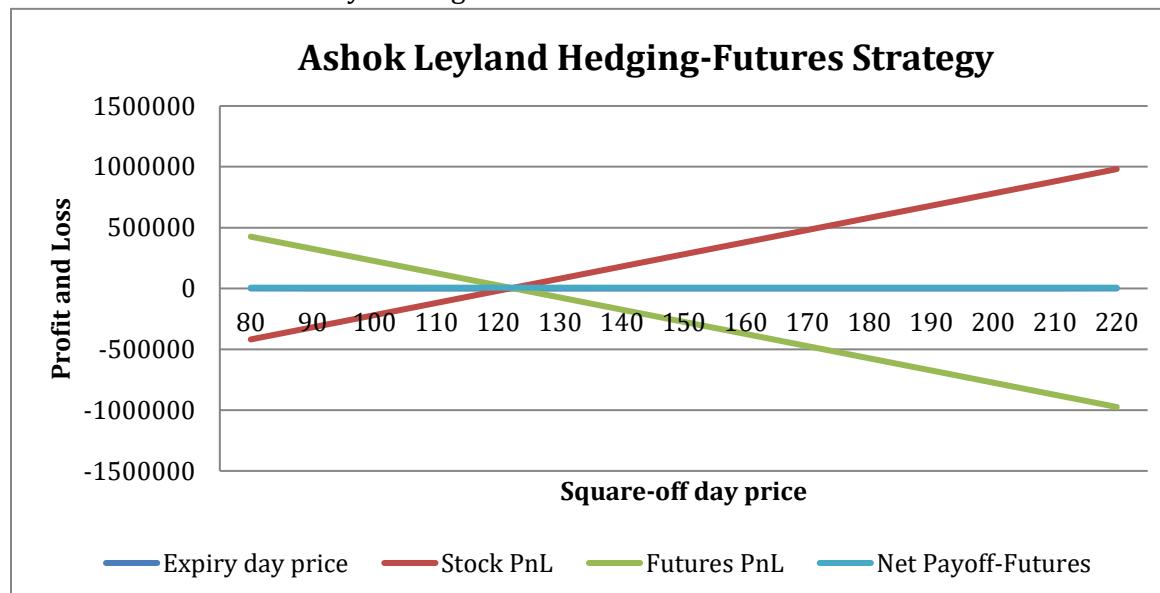
(Green highlighted cells show downside protection to price under options)

Larsen & Toubro

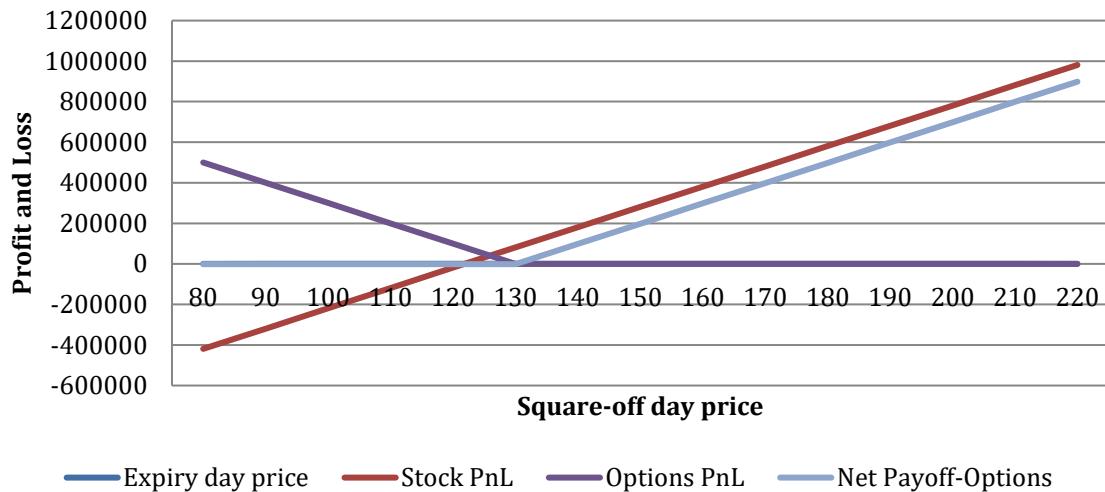
| Payoff Computation | | A | B | C= A+B | D | E | F = A + D - E |
|--------------------|-----------|-------------|--------------------|-------------|-----------------|--------------------|---------------|
| Expiry day price | Stock PnL | Futures PnL | Net Payoff-Futures | Options PnL | Options Premium | Net Payoff-Options | |
| 3500 | -55720 | 61950 | 6230 | 105000 | 54495 | -5215 | |
| 3550 | -38220 | 44450 | 6230 | 87500 | 54495 | -5215 | |
| 3600 | -20720 | 26950 | 6230 | 70000 | 54495 | -5215 | |
| 3650 | -3220 | 9450 | 6230 | 52500 | 54495 | -5215 | |
| 3700 | 14280 | -8050 | 6230 | 35000 | 54495 | -5215 | |
| 3750 | 31780 | -25550 | 6230 | 17500 | 54495 | -5215 | |
| 3800 | 49280 | -43050 | 6230 | 0 | 54495 | -5215 | |
| 3850 | 66780 | -60550 | 6230 | 0 | 54495 | 12285 | |
| 3900 | 84280 | -78050 | 6230 | 0 | 54495 | 29785 | |
| 3950 | 101780 | -95550 | 6230 | 0 | 54495 | 47285 | |
| 4000 | 119280 | -113050 | 6230 | 0 | 54495 | 64785 | |
| 4050 | 136780 | -130550 | 6230 | 0 | 54495 | 82285 | |
| 4100 | 154280 | -148050 | 6230 | 0 | 54495 | 99785 | |
| 4150 | 171780 | -165550 | 6230 | 0 | 54495 | 117285 | |
| 4200 | 189280 | -183050 | 6230 | 0 | 54495 | 134785 | |

(Green highlighted cells show downside protection to price under options)

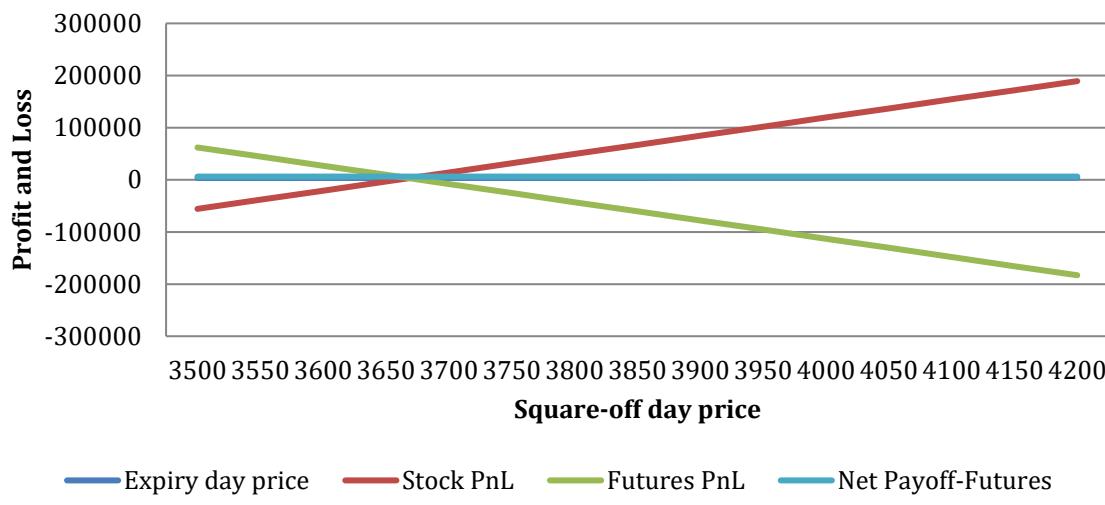
Also attached below the Pay-off diagrams for:



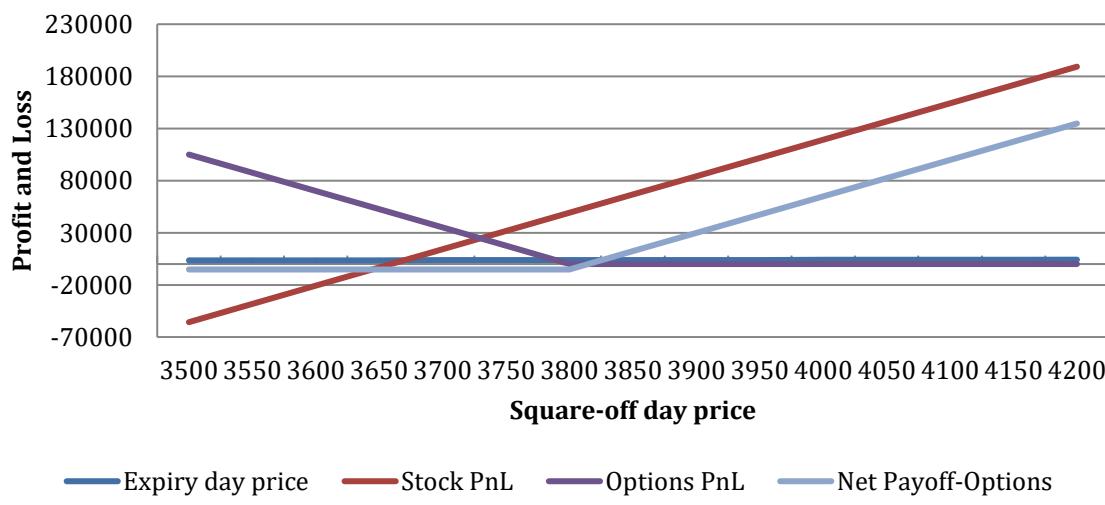
Ashok Leyland Hedging-Options Strategy



Larsen Toubro Hedging-Futures Strategy



Larsen Toubro Hedging-Options Strategy



6. Strategic Insights

- Futures hedging

- Fully protects downside but forgoes all upside.
- Since we have shorted the futures, in case price on Expiry date is below the hedged target price, the profit from futures would be offset by losses in Stock P&L (cash market) and vice versa, thereby hedging the positions as evident from table above and payoff diagrams

- Options hedging

- Costs a premium but allows for profits beyond strike price
 - Since we have bought Put options, in case expiry date price is below the strike price, the profit from exercising the Put options net off amounts paid towards premium for purchase of options would be used to majorly square off against losses made in the stocks cash market and vice versa thereby hedging the positions as evident from table above and payoff diagrams
- Depending on Mr. A's risk tolerance and market view, selective use of either strategy is recommended.

7. Conclusion

The strategy was executed using NSE data at current market prices as of July 30, 2025. Futures provide perfect downside protection, while options offer flexible protection with upside potential. The analysis supports a well-informed hedging decision tailored to Mr. A's exposure and investment goals wherein initial gains of INR 6,36,760 made before entering into hedging strategies (Refer Table B) is majorly protected.