

ECON F354/FIN F311 - Derivatives & Risk Management

Group-30 Assignment

TITAN COMPANY LIMITED



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Titan Company Limited



About

Titan Company Limited, an Indian multinational corporation, specializes in consumer goods spanning watches, jewelry, eyewear, and lifestyle products. Founded in 1984 through a collaboration between the Tata Group and the Tamil Nadu Industrial Development Corporation (TIDCO), Titan initially focused on manufacturing quartz watches under the Titan brand. Over the years, it has diversified its offerings to include a wide range of products.

Titan's portfolio encompasses various segments, including formal, casual, and sports watches, marketed under brands like Titan, Fastrack, Sonata, and Xylys. Committed to sustainable business practices, Titan engages in various corporate social responsibility initiatives, focusing on education, healthcare, and environmental sustainability. Its financial performance is closely monitored in the Indian market, reflecting its consistent growth and success. Titan has received numerous awards and recognition for its products, design, and corporate governance. While primarily operating in India, it has also expanded its presence internationally in select markets.



TITAN Income Statement Analysis:-

Operating income during the year rose 40.9% on a year-on-year (YoY) basis.

The company's operating profit increased by 47.6% YoY during the fiscal.

Operating profit margins witnessed a fall and down at 11.9% in FY23 as against 11.4% in FY22.

Depreciation charges increased by 10.5% and finance costs increased by 37.6% YoY, respectively.

Other income grew by 44.1% YoY.

Net profit for the year grew by 49.0% YoY.

Net profit margins during the year grew from 7.6% in FY22 to 8.1% in FY23

No. of Mths Year Ending		12 Mar-22*	12 Mar-23*	% Change
Net Sales	Rs m	287,990	405,750	40.9%
Other income	Rs m	2,380	3,430	44.1%
Total Revenues	Rs m	290,370	409,180	40.9%
Gross profit	Rs m	32,830	48,450	47.6%
Depreciation	Rs m	3,990	4,410	10.5%
Interest	Rs m	2,180	3,000	37.6%
Profit before tax	Rs m	29,040	44,470	53.1%
Tax	Rs m	7,060	11,730	66.1%
Profit after tax	Rs m	21,980	32,740	49.0%
Gross profit margin	%	11.4	11.9	
Effective tax rate	%	24.3	26.4	
Net profit margin	%	7.6	8.1	

TITAN Income Statement 2022-23

TITAN Balance Sheet Analysis

- The company's current liabilities during FY23 stood at Rs 133 billion as compared to Rs 105 billion in FY22, thereby witnessing an increase of 26.2%.
- Current assets rose 28% and stood at Rs 224 billion, while fixed assets rose 25% and stood at Rs 45 billion in FY23.



 Overall, the total assets and liabilities for FY23 stood at Rs 269 billion as against Rs 210 billion during FY22, thereby witnessing a growth of

TITAN Balance Sheet as on March 2023

No. of Mths Year Ending		12 Mar-22*	12 Mar-23*	% Change	
Networth	Rs m	92,970	118,440	27.4	
Current Liabilities	Rs m	105,120	132,640	26.2	
Long-term Debt	Rs m	20	0	-100.0	
Total Liabilities	Rs m	210,070	268,650	27.9	
Current assets	Rs m	174,540	223,890	28.3	
Fixed Assets	Rs m	35,530	44,580	25.5	
Total Assets	Rs m	210,070	268,650	27.9	

TITAN Cash Flow Statement Analysis

- TITAN's cash flow from operating activities (CFO) during FY23 stood at Rs 14 billion on a YoY basis.
- Cash flow from investing activities (CFI) during FY23 stood at Rs -18 billion on a YoY basis.
- Cash flow from financial activities (CFF) during FY23 stood at Rs 5 billion, an improvement of 213% on a YoY basis.
- Overall, net cash flows for the company during FY23 stood at Rs 130
 million from the Rs 380 million net cash flows seen during FY22.

TITAN Cash Flow Statement 2022-23

Particulars	No. of months	12	12	% Chango	
	Year Ending	Mar-22	Mar-23	% Change	
Cash Flow from Operating Activities	Rs m	-7,240	13,700	-	
Cash Flow from Investing Activities	Rs m	11,640	-18,110	-	
Cash Flow from Financing Activities	Rs m	-4,030	4,570	-	
Net Cash Flow	Rs m	380	130	-65.8%	

^{*} Results Consolidated Interim results exclude extraordinary / exceptional items



Current Valuations for TITAN

- The trailing twelve-month earnings per share (EPS) of the company stands at Rs 36.9, an improvement from the EPS of Rs 24.8 recorded last year.
- The price to earnings (P/E) ratio, at the current price of Rs 3,144.8, stands at 85.3 times its trailing twelve months earnings.
- The price to book value (P/BV) ratio at current price levels stands at 23.6 times, while the price to sales ratio stands at 6.9 times.
- The company's price to cash flow (P/CF) ratio stood at 55.2 times its end-of-year operating cash flow earnings.

Per Share Data/Valuations

No. of Mths Year Ending		12 Mar-22*	12 Mar-23*
Sales per share (Unadj.)	Rs	324.4	457.0
TTM Earnings per share	Rs	24.8	36.9
Diluted earnings per share	Rs	24.8	36.9
Price to Cash Flow	X	86.7	55.2
TTM P/E ratio	X	102.4	85.3
Price / Book Value ratio	X	19.9	17.3
Market Cap	Rs m	1,850,264	2,049,553
Dividends per share (Unadj.)	Rs	7.5	10.0

^{*} Results Consolidated Interim results exclude extraordinary / exceptional items

Source: Accord Fintech, Equitymaster



Ratio Analysis for TITAN

Solvency Ratios:

- <u>Current Ratio</u>: The company's current ratio improved and stood at 1.7x during FY23, from 1.7x during FY22. The current ratio measures the company's ability to pay short-term and long-term obligations.
- Interest Coverage Ratio: The company's interest coverage ratio improved and stood at 15.8x during FY23, from 14.3x during FY22. The interest coverage ratio of a company states how easily a company can pay its interest expense on outstanding debt. A higher ratio is preferable.

Profitability Ratios:

- Return on Equity (ROE): The ROE for the company improved and stood at 27.6% during FY23, from 23.6% during FY23. The ROE measures the ability of a firm to generate profits from its shareholders' capital in the company.
- Return on Capital Employed (ROCE): The ROCE for the company improved and stood at 40.1% during FY23, from 33.6% during FY22. The ROCE measures the ability of a firm to generate profits from its total capital (shareholder capital plus debt capital) employed in the company.
- Return on Assets (ROA): The ROA of the company improved and stood at 13.3% during FY23, from 11.5% during FY22. The ROA measures how efficiently the company uses its assets to generate earnings.



Key Ratio Analysis

No. of Mths Year Ending		12 Mar-22*	12 Mar-23*
Current ratio	x	1.7	1.7
Debtors' Days	Days	1	1
Interest coverage	x	14.3	15.8
Debt to equity ratio	х	0.0	0.0
Return on assets	%	11.5	13.3
Return on equity	%	23.6	27.6
Return on capital employed	%	33.6	40.1

^{*} Results Consolidated Interim results exclude extraordinary / exceptional items

Source: Accord Fintech, Equitymaster

The ratio/financial analysis of TITAN reveals:

- Operating profit margins witnessed a fall and down at 11.9% in FY23 as against 11.4% in FY22.
- Net profit margins grew from 7.6% in FY22 to 8.1% in FY23.
- Debt to Equity ratio for FY23 stood at 0.0 as compared to 0.0 in FY22.

Here's the ratio/financial analysis of TITAN for the past 5 years.

	FY19	FY20	FY21	FY22	FY23
Operating Profit Margin (%)	10.0	11.7	7.9	11.4	11.9
Net Profit Margin (%)	7.0	7.1	4.5	7.6	8.1
Debt to Equity Ratio (x)	0.0	0.0	0.0	0.0	0.0



TECHNICAL ANALYSIS

1 Month Expectations(2024 January end):



Upon scrutinizing the weekly temporal spectrum of Titan Company stocks spanning from October to December 2023, a discernible pattern emerges: numerous MACD crossovers manifesting predominantly during the mid to final weeks of December. Throughout November '23, bullish sentiments prevailed, persisting into December, albeit transitioning towards a stance characterized by neutrality or slight bullishness.

Furthermore, graphical analysis unveils a noteworthy trend wherein share prices gravitate proximate to the upper band but in close vicinity to the mid-average line of the Bollinger Bands. This configuration implies an imminent tendency towards a marginal descent in prices. Consequently, the overarching sentiment veers towards the spectrum of slightly bullish to neutral expectations.



2 Month Expectations(2024 February end):



Analyzing the Relative Strength Index (RSI) trajectory, it becomes evident that the indicator surpasses the 70 threshold before retracing downward. The RSI, fluctuating between zero and 100, conventionally denotes overbought conditions when exceeding 70 and oversold conditions when falling below 30. Consequently, scrutinizing the RSI of our stock reveals a nuanced interpretation: a hint of bearish sentiment for January, followed by a stabilization of the RSI line, culminating in a projection of neutral to slightly bullish expectations for the subsequent months.

We have used the three months data from October-December 2023 (for predicting the stock movement for the next 2 months by using three technical indicators i.e. MACD(Moving Average Convergence and Divergence) ,SMA(Simple Moving Average) and EMA(Exponential Moving Average) respectively. Further on we have also used Fundamental analysis



for our stocks so that we could have long term surety of having good returns from the firm.

1. The MACD indicator, or Moving Average Convergence Divergence.

The MACD is calculated by subtracting the 26-day exponential moving average (EMA) from the 12-day EMA. This calculation produces a single line, which is then plotted on a chart along with a signal line, typically a 9-day EMA of the MACD line. The crossing of the MACD line and the signal line can be interpreted as buy or sell signals, depending on the direction of the crossover. Additionally, the MACD histogram can be plotted below the MACD line, which represents the difference between the MACD line and the signal line. A positive histogram indicates that the MACD line is above the signal line, suggesting bullish momentum, while a negative histogram indicates bearish momentum. Overall, the MACD is a useful tool for identifying trends, momentum, and potential reversal points in a market.





MACD Analysis of Titan Company from October 2023 to December 2023 Overview

The MACD (Moving Average Convergence Divergence) indicator is a trend-following momentum indicator that shows the relationship between two moving averages of a security's price. Analyzing the MACD for Titan Company from October 2023 to December 2023 reveals important insights into the stock's price movements.

Calculation of MACD Line, Signal Line, and Histogram

- MACD Line: The MACD line for Titan Company during this period is calculated by subtracting the 26-period Exponential Moving Average (EMA) from the 12-period EMA.
 - The MACD Line value: 146.54
- Signal Line: The signal line is the 9-day EMA of the MACD line.
 - The Signal Line value: 170.06
- Histogram: The histogram represents the difference between the MACD line and the signal line.
 - The Histogram value: -23.52

Trend Analysis

- MACD/Signal Line Bearish Crossover: The MACD line crossed below the signal line, indicating a mild bearish trend.
- Sustaining Bearish Crossover: The MACD line continued to sustain below the **s**ignal line, reinforcing the bearish sentiment.

Observations

- The MACD analysis indicates a bearish trend for Titan Company during the specified period, supported by the MACD line consistently staying below the signal line.
- The histogram also reflects the bearish sentiment as it remains in negative territory, indicating the strength of the bearish trend.



Conclusion

The MACD analysis suggests that Titan Company experienced a roller coaster from bearish momentum in October 2023 to slightly bullish in December 2023. The sustained bearish crossover and the negative histogram values indicate a prevalent downward trend in the stock's price during this period.

For further insights and refined analysis, additional technical indicators and chart patterns could be considered to complement the MACD analysis.

2. EMA(Exponential Moving Averages)

The EMA indicator, or Exponential Moving Average, is a type of moving average commonly used in technical analysis to smooth out price movements and identify trends in financial markets. Unlike the simple moving average, which gives equal weight to all data points, the EMA gives more weight to recent data points. This is achieved by applying a greater weight to the most recent prices, which makes the EMA more responsive to changes in price.



EMA Analysis of Titan Company from October 2023 to December 2023 Exponential Moving Average (EMA) Calculation

- 5-day EMA: Ranges from 3633.47 to 3652.85
- 12-day EMA: Ranges from 3639.6 to 3647.76
- 20-day EMA: Ranges from 3644.92 to 3650.2
- 35-day EMA: Ranges from 3648.4 to 3651.56



50-day EMA: Ranges from 3665.95 to 3668.86

EMA Trend Analysis

- The 5-day EMA values indicate short-term price trends, while 50-day EMA values provide a longer-term perspective.
- The EMA analysis reflects fluctuating values over the specified period, with the 50-day EMA showing a relatively stable trend compared to the shorter-term EMAs.

Observations

The EMA analysis demonstrates the varying price trends of Titan Company stock over the specified period.

The shorter-term EMAs exhibit more sensitivity to recent price movements, while the longer-term EMAs offer a smoothed representation of the stock's price action.

Conclusion

The EMA analysis of Titan Company from October 2023 to December 2023 indicates fluctuating trends in the stock's price movements. Investors and traders can use the EMA values to gain insights into short and long-term price trends and make informed decisions regarding their trading strategies.

For a comprehensive analysis, other technical indicators and chart patterns should be considered in conjunction with the EMA analysis.

3. SMA(Simple Moving Average)

The SMA (Simple Moving Average) indicator is a commonly used technical analysis tool that calculates the average price of an asset over a specified period of time. It is calculated by adding the closing prices of the asset over the specified time period and then dividing that sum by the number of periods. For example, a 50-day SMA would calculate the average closing price of an asset over the previous 50 Days.





SMA Analysis of Titan Company from October 2023 to December 2023 Simple Moving Average (SMA) Calculation

- 5-day SMA: Ranges from 3643.01 to 3655.34
- 12-day SMA: Ranges from 3639.68 to 3638.89
- 20-day SMA: Ranges from 3616.48 to 3621.62
- 35-day SMA: Ranges from 3679.59 to 3682.42
- 50-day SMA: Ranges from 3675.89 to 3676.39

SMA Trend Analysis

- The 5-day SMA provides insights into short-term price trends, while the 50-day SMA offers a longer-term perspective.
- The SMA analysis illustrates varying trends in the stock's price movements over the specified period.

Conclusion

The SMA analysis of Titan Company from October 2023 to December 2023 indicates fluctuating trends in the stock's price movements. Investors and traders can utilize the SMA values to gain insights into short and long-term price trends and make informed decisions regarding their trading strategies. For a comprehensive analysis, other technical indicators and chart patterns should be considered in conjunction with the SMA analysis.



Strategy 1:STRAP

The strap strategy is a bullish options tactic that involves buying two in-the-money call options and one out-of-the-money put option, all with the same strike price and expiration date.

Options purchased on Jan 1, 2024 with 1 month maturity (expires on 25 Jan 2024) and market Price of Titan(S0) on Jan 1, 2023 was 3677.15

Expectation: This approach is geared towards **profiting from a significant rise in the underlying asset's price** while limiting potential losses.

Here are the steps involved in executing a Strap strategy:

1.) Buy two in-the-money call options:

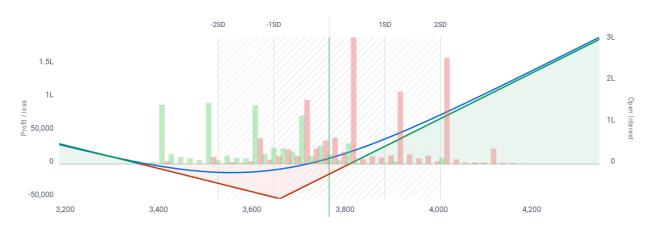
2.) Buy an out-of-the-money put option:

Where,

Cash flow on Dec 1,2023(t=0): 2(116.45) + 66.95 = 299.85 (outflow of cash)



Profit Diagram:



Payoff Matrix:

	-	
POSITION	ST <k< th=""><th>ST>=K</th></k<>	ST>=K
Long Call	0	2(St - 3660)
Long Put	3660- St	0
Net Payoff	3660- St	2(St - 3660)
Profit	3660- St - 299.85	2(St - 3660) - 299.85
	3360.15 - St	2St - 7619.85



Breakeven price: 1) 3360.15 - St = 0 => St = ₹3360.15

2) 2St -7619.85 = 0 => St = ₹3809.9

Lot Size: 175

Max Profit: Unlimited

Max Loss/share: 299.85

Max Loss: 299.85*175 = 52473.75

On Jan 25,2024 :- Market Price of Titan share =₹3770.20 (St > K)

Profit Realized/share : 2*3770.2-7619.85 = -₹79.45 **Profit Realized** : (3254.6-3624.4)*175 = -₹13903.75



Strategy 2:Reverse Jade Lizard

The Reverse Jade Lizard is a financial option trading strategy that involves selling a call and put option and buying a put option.

Options purchased on Jan 1, 2024 with 2 months maturity(expires on 29 Feb 2024) and market Price of Titan(S0) on Jan 1, 2024 was 3677.15

Expectation:- The price of the underlying asset remains **range-bounded**, typically between the strike prices of the put and call options sold. However, if the price of the underlying asset rises above the higher strike price call option, the trader's losses can be unlimited.

Here are the steps involved in executing a Reverse Jade Lizard:

1. Sell an out-of-the-money call:

2. Sell an out-of-the-money put:

3. Buy a further out-of-the-money put:

Where **K1<K2<K3**

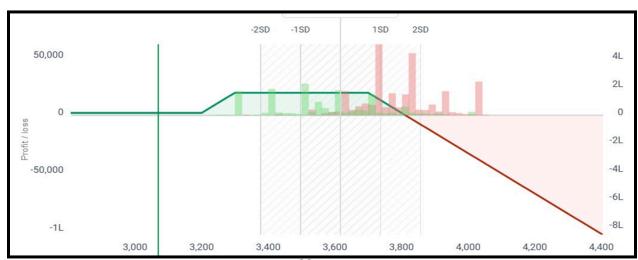
<u>Strategy</u>

Buy an OTM put : K1 = 3200, p1 = 32.00Sell an OTM put : K2 = 3300, p2 = 54.15Sell an OTM call : K3 = 3700, p3 = 89.75

Cash flow on Jan 1,2023(t=0) : (P) = 32 - 54.15 - 89.75 = -₹111.9(inflow of cash)



Profit Diagram:



Payoff Matrix:

Position	ST<3200	3200<=ST<33 00	3300<=ST<37 00	ST>=3700
Long put at 3200 for p1	3200 - ST	0	0	0
Short put at 3300 for p2	ST - 3300	ST -3300	0	0
Short call at 3700 for p3	0	0	0	3700 - ST
Net Payoff	-100	ST - 3300	0	3700 - ST
Net Profit	-100 + 111.9	ST - 3300 + 111.9	111.9	3700 -ST +111.9
	₹11.9	₹ (ST - 3188.1)	₹111.9	₹ (3811.9 - ST)



Analysis

Breakeven Price: 3811.9 - ST = 0 : - ST = 3811.9

Lot Size: 175

Max Profit/share: ₹111.9

Max Profit: 111.9 * 175 = ₹19,583

Max Loss: Unlimited

On Feb 29,2024 :- Market Price of Titan share = ₹3619.80

Profit Realized : 111.9*175 = ₹19,583



Strategy 3:Short Strangle (Right Skewed)

A strangle is an options strategy in which the investor is selling an out-of-the-money (OTM) call option and an out-of-the-money (OTM) put option simultaneously with the same expiration date but different strike prices.

Options purchased on Jan 1, 2023 with 3 months maturity (expires on 29 Feb 2024) and market Price of Titan(S0) on Jan 1, 2023 was Rs 3640.

Expectation : This approach is a **neutral strategy** with limited profit potential.

Here are the steps involved in executing a Short Strangle:

1. Sell out-of-the-money call options:

Strike Price - K1, Premium - p1

2. Sell in-the-money put option:

Strike Price - K2, Premium - p2.

Where, Spot Price St = 3640, K1 = 3760, K2= 3620, P1=54, P2= 66.25.

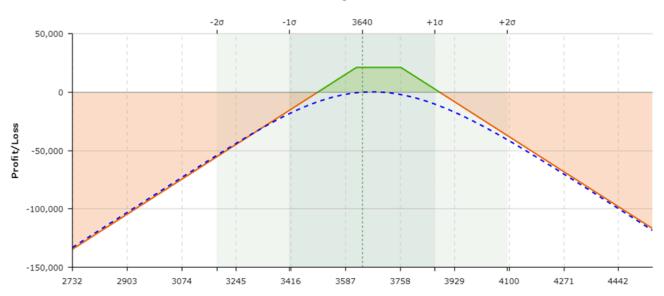
Type of Speculator: Non-directional Speculator.

Cash flow on Dec 1,2023 (t=0):

P1+P2 = 54+109.3 = 163.3. (Inflow of cash).



Profit Diagram:



Payoff Matrix:

Position	ST<3620	3620<=ST<3 760	ST>=3760
Short put at 3300 for p2	ST - 3620	0	0
Short call at 3700 for p3	0	0	3760 - ST
Net Payoff	ST-3620	0	3760 - ST
Net Profit	ST-3620+16 3.3	163.3	3760 −ST +163.3
	ST-3456.7	₹163.3	3923.3 - ST



Analysis

- **Break even Price**: B1 = 3456.7 & B2 = 3923.3
- Max Loss = Unlimited
- Max Profit/share = ₹163.3
- On Feb 29,2024 :- Market Price of Titan share = ₹3619.80.
- **Lot size=**175.
- Total Profit realized on 29th Feb=175*(163.3)= ₹28,577.5



Strategy 4:Bull Call Spread Strategy

A bull call spread consists of one long call with a lower strike price and one short call with a higher strike price. Both calls have the same underlying stock and the same expiration date. (lower strike).

Options purchased on Jan 1, 2024 with 1 month maturity(expires on 25 Jan 2024) and market Price of Titan(S0) on Jan 1, 2024 was 3677.15

Expectation: Bullish, Profit is limited if the stock price rises above the strike price of the short call, and potential loss is limited if the stock price falls below the strike price of the long call

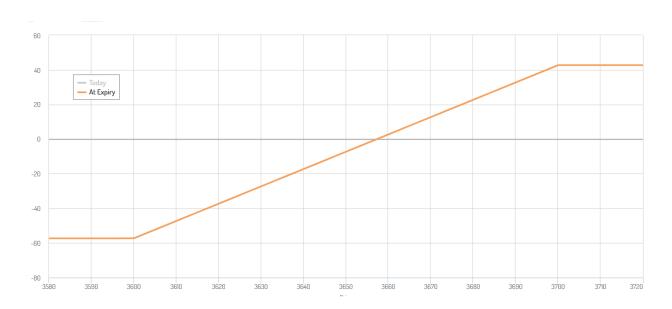
The strategy's overall goal is to reduce costs and break even on a buy call. Because the investor will only profit when the stock price or index rises, this technique is used when the investor is bullish.

OPTION	STRIKE PRICE	PREMIUM
LONG CALL	K1= 3600	C1=152.65
SHORT CALL	K2=3700	C2= 95.35

Cost of Strategy = 152.65 - 95.35 = ₹57.3/share(**OUTFLOW**)



Profit Diagram:



Payoff Matrix:

POSITION	St<3600	3600 <st<3700< th=""><th>St>3700</th></st<3700<>	St>3700
LONG CALL(K1)	0	St-3600	St-3600
SHORT CALL(K2)	0	0	3700-St
PAY-OFF	0	St-3600	100
PROFIT	-₹57.3	St-3657.3	₹42.7



Analysis

- ➤ Maximum Profit = ₹42.7
- ➤ Maximum Profit per Lot = ₹7472.5
- > Maximum Loss = ₹57.3
- > Maximum Loss per Lot = ₹10,027.5
- > Break-Even Price = ₹3657.3
- ➤ Actual Spot Price at Maturity = ₹3715
- ➤ Realized Profit/share = ₹42.7 (At Maturity)
- > Maximum Profit per Lot = ₹7472.5 (At Maturity)



Strategy 5:Call Ratio Front Spread

The Call Ratio Spread is implemented by buying one In-the-Money (ITM) or At-the-Money (ATM) call option and simultaneously selling two Out-the-Money (OTM) call options of the same underlying asset with the same expiry. Strike price can be customized as per the convenience of the trader.

Options purchased on Jan 1, 2024 with 1 month maturity(expires on 29 Jan 2024) and market Price of Titan(S0) on Jan 1, 2024 was 3677.15

Expectation : Moderately Bullish , This strategy has limited risk on the downside because the purchased calls provide some protection.

Here are the steps involved in executing a Call Ratio Front Spread:

1.) Buy 1 ITM/ATM Call:

Strike Price - K1, Premium - p1

2.) Sell 2 OTM Call:

Strike Price – K2, Premium – p2

Where **K1 < K2**

Cash flow on Jan 1,2023(t=0) : (P) = 392.95 - (2*30.85) = 331.25(outflow of cash)



Strategy:

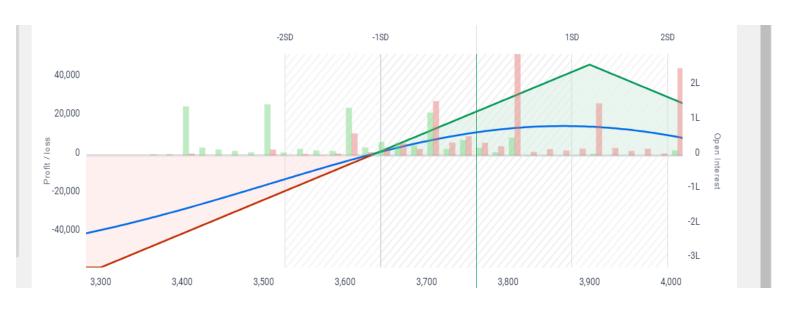
OPTION	STRIKE PRICE (in Rs./share)	PREMIUM (in Rs./share)
Long ITM Call	k1=3300	P1=392.95
2 Short OTM Call	k2=3900	P2=30.85

Payoff Matrix

OPTION	St<3300 (in Rs./share)	3300 <st<3900 (in Rs./share)</st<3900 	St>3900
1 Long ITM Call(k1)	0	St-3300	St - 3300
2 Short OTM Call(k2)	0	0	2*(3900-St)
Net Payoff	0	St - 3300	2*3900 - 3300 - St
Profit	-331.25	St -3300 - 331.25	2*3900 - 3300- St - 331.25
	-331.25	St - 3631.25	4168.75 - St



Profit Diagram



Analysis

Breakeven Price: a.) St - 3631.25 = 0 :- ST = 3631.25

b.) 4168.75 - St = 0 :- St = 4168.75

Lot Size: 175

Max Profit/share: ₹268.75

Max Profit : 268.75 * 175 = ₹47,031

Max Loss: Unlimited

On Jan 25,2024 :- Market Price of Titan share = ₹3770.20

Profit Realized: (3770.25 - 3631.25) *175 = ₹24,325



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