COMPARATIVE ANALYSIS OF TRADITIONAL BULL CALL SPREAD WITH EXTENDED LONG EXPIRY BULL CALL SPREAD IN NIFTY AT PRE-DETERMINED ENTRY AND EXIT POINTS

Priyanka Vashisht*

ABSTRACT

Background

Traditional Bull Call spread is used in mildly bullish market to gain moderate returns at a limited risk. This strategy requires buying of In the money calls and selling of equal number of Out of the Money or At the Money Calls with the same Expiry. A twist/modification can be given to this strategy by extending the expiry of In the Money bought Calls. A comparison has been made between the traditional strategy as well as the new modified strategy for a period of 42 months in Nifty (from January 2008 to June 2011) at pre-determined entry and exit points. Aim of conducting this research was to enable the Professional Stock Market Traders to choose the better strategy among the two during different phases of Stock Market.

Results

Overall, modified Bull call spread gives better results than Traditional Bull Call spread. However, performance varies during different phases of the Market. Modified strategy gives best results in range bound market. In this phase, the modified strategy gave astonishing 141% annualized returns. This research can empower the Professional Traders in Stock Market to make a choice between Tradition Bull Call Spread and Modified Strategy during different phases of the Market.

Keywords: *Comparison, Traditional Bull Call Spread, Extended Long Expiry Bull Call Spread, Nifty, Options*

*Asstt. Professor, Baddi University of Emerging Sciences and Technology, Baddi.

INTRODUCTION

Traditional Bull Call Spread is a Bullish strategy with limited gains and losses, used by the traders when the trend is mildly bullish. Bull Call spread strategy is usually constructed by buying first In the Money Calls, and selling equal number of At the Money Calls. It is also constructed by Buying At the Money Calls and selling first Out of the Money Calls. Both the bought and sold Calls have the same expiry date. If the Stock breaks down, and expiry is below the Strike price of bought Call, both the Call options become Zero on expiry. Losses/unit are limited to difference of premium paid for buying In the Money or At the Money Call options and the premium received by selling At the Money or Out of the Money Call Option. If there is upward movement in Stock, and expiry is above the Strike price of Call sold, profits/unit are limited to Difference in two strike prices plus premium received by selling At the Money or Out of The Money Call options less Premium paid for buying In the Money or At the Money Call options. For expiry between Bought and Sold Strike Price, profit/unit on expiry is limited to Expiry Value of bought Call options plus Premium received from selling the Call Options minus premium paid for buying the Call option. Maximum profit is on expiry at the strike price of sold calls, and Maximum loss is on expiry at the strike price of bought calls. If Stock expires above or below this range, Maximum Profit/ Loss will remain the same.

A modification of Traditional Bull Call spread can be constructed by extending the expiry of bought In the Money Calls by one month (series). Both the Traditional Bull Call spread and modified Bull Call spread have their own benefits and drawbacks. A Research was conducted on Nifty to compare the traditional Bull Call spread with the modified Bull Call spread. Name given to this modified strategy was Extended Long Expiry Bull Call Spread. This name was given on the basis of extended (next month) expiry for the Call bought. Aim of this research was to enable the Traders to choose between Traditional Bull Call spread and Extended Long Expiry Bull Call Spread during different phases of the Market to earn better profits. Time Period chosen for Bull Research was from January 2008 to June 2011, a total of 42 F&O Expiry months. Previous research shows that traditional Bull Call spread gives best results if entry is made at opening time of first day of a Week before monthly F&O expiry. This was chosen as entry point for both the strategies for comparison purposes.

A FEW CONCEPTS IN OPTIONS

It will be worthwhile to explain a few concepts of options in brief. Intrinsic value of a Call option is defined as the value that Call option will have if it expires immediately.

Intrinsic Value of a Call Option = Strike Price – Stock Price (futures)

Here, Strike price is the future price (prescribed before hand by the concerned Authorities) on which the Call option is bought or sold. Stock price is the price of futures Contract (with the same expiry date as of Call option) of the Stock. This can be calculated at any moment during the F&O series before expiry.

Premium of a Call Option (Market price) = Intrinsic Value + Time Value

Time Value of a Call Option is directly proportional to expiry time i.e. more the time to go for expiry, higher is the time value, and Vice Versa. On expiry, time value becomes Zero, and Premium is equal to Intrinsic Value.

BULL CALL SPREAD AND ITS MODIFICATION

Bull Call Spread strategy involves two components:

a) Buying of lower strike price call to gain from bullish trend of the Market

b) Selling of higher strike price call to compensate partially for buying the lower strike price call

While choosing two different strike prices for constructing Bull Call spread strategy, intrinsic value (also known as expiry value) of these Call Options is of utmost importance. When we buy In the Money Call Options, Premium paid for buying involves some component of Intrinsic value, and some component of time value. Deeper we go In the Money, more is the Intrinsic Value, and lesser is the Time Value. Similarly, when we sell At the Money or Out of the Money Calls, Premium of these Calls is 100% time value (Always true for Out of the Money Calls, and True for At the Money Calls if futures price is exactly equal to the Strike Price), as Intrinsic value for such calls is Zero. Main aim of this strategy is to partially compensate for the premium paid for buying the call option by Premium received from selling the higher Call option. We use this strategy when the market is slightly bullish (other strategies are used for highly bullish as well as bearish markets), and Stock is likely to move in a range with slightly upward bias at the time of entry. When we buy a Call deeply in the money, there is lesser time value, and premium decay because of time value will be small. This means that even if the stock remains at the purchase value on expiry, Call can be sold at almost the same value as its buying price. However, if there is a reversal in bullish trend, and Stock price starts falling, there will be higher losses because Premium paid for buying Deep In the Money Calls is higher. When we buy an In the Money Call option which is next to At the Money Call option, there is a higher component of Time Value, but Premium paid is lower than Deep In the Money Calls. Thus, on reversal of the Bullish trend, losses are lesser.

When we sell a Compensatory At the Money or Out of the Money Call, our main purpose is to gain from the decay in the Time Value. If the Stock on expiry remains at the same level, these sold calls become Zero in Value, and maximum gains are made. However, these gains from selling are limited to the premium at which these Calls were sold. In a monthly F&O series, maximum time value exists in At the Money level. More we go out of the money, lesser is the premium received on selling and lesser are the gains. Thus, when we create a Bull Call spread, we choose the two Strike prices in such a manner that losses for bought Calls (in case of reversal of bullish trend as well as from time decay) are minimal, and gains from sold calls(because of time decay) are maximum. If there is a wide difference between the two strike prices, trader is at more risk, but his potential gains can be more. If there is a lesser difference between the two strike prices, trader is at a lesser risk , but his potential gains are also lesser. As already stated, this strategy is used in mildly bullish conditions. All the above mentioned conditions to create Bull Call spread are satisfied when we sell At the money Call (to gain maximum from time value decay) and buy first In the Money Call.

Now let's give this strategy a twist. If we use At the Money Call of current series for selling, and buy first In the Money Call of next Month series, will it have some positive Impact on Profitability? Following will be the implications of this:

a) More premium will have to be paid for buying next month Call of same strike price. This will mean more risk, and hence more losses in case of Bearish conditions

b) Lesser profitability or even losses in case of extremely bullish situation. Why so, considering Bull Call spread is a Bullish strategy with equal number of In the Money long Calls and Out of the Money Short Calls? This can be explained by the fact that when a Call becomes Deep In the Money, it's premium is near to its Intrinsic Value. Consider a month in which Next month expiry first In the Money Nifty Call is purchased at Rs 244/ share, and Current month expiry At the Money Call is sold at Rs 95/ share (Example taken from opening prices of 18th April, 2011). From Historical figures, it can be extrapolated that had Nifty gained around 700 points from the entry point on expiry, difference between In the Money next month Call and Current month At the Money Call would have been around 120 points. Current month expiry At the Money Call would have been exactly at Rs 700 and next month expiry In the Money Call would have been around Rs 820. On Current month Expiry, assuming that all the Positions were squared off, Profit from Long Call would have been Rs 820-Rs 244 = Rs 576. Loss on Short Call would have been Rs 700 – Rs 95 = Rs 605. Thus, there would have been a Net loss of Rs 29/share.

c) More Profitability in case the Stock is flat to mildly positive.

RESEARCH DESIGN

Stock chosen for Research was Nifty. Entry point chosen was opening time of a week before current month F&O expiry. Exit point was Expiry for current month F&O series. Reference entry point was Nifty futures price (Current expiry) on opening time of first working day of a Week before current month F&O expiry. At the money Calls for selling were chosen as follows:

a) If Nifty for instance was between 5000 and 5049, 5000 was chosen as At the Money Strike price for selling

b) If Nifty for instance was between 5049 and 5099, 5100 was chosen as At the Money Strike price.

One Strike price before At the Money Strike price (Current expiry) was chosen as In the Money Strike price (Current expiry) for buying in case of traditional Bull Call spread

One Strike price before At the money Strike Price (Current expiry) was chosen as In the Money Strike Price (Next expiry) in case of Extended Long Expiry Bull Call Spread.

Equal amount of Calls were bought and sold. Expiry price of all these Calls was noted on expiry of Current month for each F&O monthly series. All these prices were recorded from nse.com, official website of National Stock Exchange.

Time Period chosen for Research was from January 2008 to June 2011. This time period witnessed one extremely bearish phase, one extremely bullish phase, and one phase of range bound movement of Nifty. Thus, this time period provided the opportunity to test this strategy in different trends of Market.

Margin required for shorting (selling) one Call is equal to the margin required for buying / selling 1 Lot of Nifty futures. On an average, 10% margin is required for the same. For instance if Nifty is at 5000, and lot size of Nifty is 50, Rs 25000 was required as Margin Money (10% of 5000x50). If an In the Money Call is bought and another call is sold (as in our case), Brokers don't charge Margin for Purchase of In the Money Call. It was assumed that the Trader had Rs 32,500 (Decided on the basis of margin required in the beginning of research period, as well as keeping an excess margin of around Rs 4000) in the beginning, and he created one lot of this strategy every month. Excess Margin was kept to finance any kind of losses emerging on Monthly basis. It was decided in the beginning of research that in case of deficit in Margin for a particular month (i.e. the cumulative amount being less than the margin required to invest in one lot), deficit amount would be shown as an additional

investment, and profitability would be calculated with adjustments made for this deficit amount. In case there is no deficit margin, profitability would be calculated on Rs 32,500.

On an average, 11 calendar days were involved as investment period each month (total of 462 calendar days in the whole research period), and hence net annualized return was adjusted accordingly. It was assumed that the trader either invested his amount in some other mode during the remaining period of the month, or kept this investment with him/her.

Brokerage & Taxes are accounted for in the calculations @ Rs 25/ Lot. At entry point, Brokerage & Taxes are charged on all the three call options of the strategy. However, on expiry, Brokerage & Taxes are charged for only in the money Options (at the time of expiry). Traders need not exercise out of the money options and can let them expire without paying Brokerage & Taxes.

Total Time period of Research was further sub-divided in to three Phases as follows:

a) Bearish Phase- January 2008 to March 2009

b) Bullish Phase- April 2009 to December 2010

c) Range Bound- January 2011 to June 2011

Apart from the comparison for overall period, specific profitability comparisons were also made for these Sub-periods. Net annualized return during these sub-periods was also adjusted in the same manner as mentioned above. Comparisons were also made for Maximum Potential Downside risk from both the strategies.

TABULATION OF RESULTS

Table 1: Profitability calculated for each Monthly series/ Annualized Return/Margin Requirement for Traditional Bull Call spread

S.no	Series	Margin Required (In Rs)	Profit/ Loss (In Rs)	Cumulative Amount (At the end of F&O Series)	Deficit Margin (In Rs)*
1.	June-11	26870	2100	40625	None
2.	May-11	27670	-2225	38525	None
3.	Apr-11	29160	725	40750	None
4.	Mar-11	27050	1950	40025	None
5.	Feb-11	26730	-175	38075	None
6.	Jan-11	28200	1500	38250	None
7.	Dec-10	29500	850	36750	None
8.	Nov-10	30445	-2800	35900	None
9.	Oct-10	30375	-2800	38700	None
10.	Sept-10	29725	1400	41500	None
11.	Aug-10	27265	975	40100	None
12.	July-10	26880	1850	39125	None
13.	June-10	25690	1750	37275	None
14.	May-10	25090	1850	35525	None

15.	Apr-10	26000	1300	33675	None
16.	Mar-10	25610	1600	32375	None
17.	Feb-10	24190	1550	30775	None
18.	Jan-10	26195	-3850	29225	None
19.	Dec-09	24950	2250	33075	None
20.	Nov-09	25205	1250	30825	None
21.	Oct-09	25815	-2800	29575	None
22.	Sept-09	24055	2500	32375	None
23.	Aug-09	22500	2100	29875	None
24.	July-09	22210	2600	27775	None
25.	June-09	22710	-3300	25175	None
26.	May-09	21450	800	28475	None
27.	Apr-09	17000	1050	27675	None
28.	Mar-09	13565	1650	26625	None
29.	Feb-09	14585	-3150	24975	None
30.	Jan-09	14075	1500	28125	None
31.	Dec-08	14850	-1975	26625	None
32.	Nov-08	14165	75	28600	None
33.	Oct-08	15605	-2900	28525	None
34.	Sept-08	20460	1800	31425	None
35.	Aug-08	22090	-3100	29625	None
36.	July-08	20670	1900	32725	None
37.	June-08	22775	-2700	30825	None
38.	May-08	25590	-3100	33525	None
39.	Apr-08	23470	2300	36625	None
40.	Mar-08	22910	2150	34325	None
41.	Feb-08	26530	2475	32175	None
42.	Jan-08	28455	-2800	29700	None
43.	Total		8125		
44.	Adjusted Annualized Return (%) = 19.75%				

(Initial amount was Rs 32,500. Profit/Loss was added to/subtracted from this amount after every month's expiry. Cumulative amount was the net amount left with Trader at the end of every month's expiry.)*

Table 2: Profitability calculated for each Monthly series/ Annualized Return/Margin Requirement for Extended Long Expiry Bull Call Spread

S.no	Series	Margin Required (In Rs)	Profit/ Loss (In Rs)	Cumulative Amount (At the end of F&O Series)	Deficit Margin (In Rs)*
1.	June-11	26870	-450	47375	None
2.	May-11	27670	1725	47825	None
3.	Apr-11	29160	1975	46100	None
4.	Mar-11	27050	400	44125	None
5.	Feb-11	26730	2900	43725	None
6.	Jan-11	28200	1750	40825	None
7.	Dec-10	29500	-1000	39075	None
8.	Nov-10	30445	-4425	40075	None
9.	Oct-10	30375	1175	44500	None
10.	Sept-10	29725	1100	43325	None
11.	Aug-10	27265	1475	42225	None

12.	July-10	26880	1600	40750	None
13.	June-10	25690	-1850	39150	None
14.	May-10	25090	2150	41000	None
15.	Apr-10	26000	4400	38850	None
16.	Mar-10	25610	400	34450	None
17.	Feb-10	24190	2550	34050	None
18.	Jan-10	26195	-4825	31500	None
19.	Dec-09	24950	100	36325	None
20.	Nov-09	25205	5200	36225	None
21.	Oct-09	25815	-5175	31025	None
22.	Sept-09	24055	-700	36200	None
23.	Aug-09	22500	2100	36900	None
24.	July-09	22210	1000	34800	None
25.	June-09	22710	-2275	33800	None
26.	May-09	21450	1150	36075	None
27.	Apr-09	17000	2150	34925	None
28.	Mar-09	13565	-1300	32775	None
29.	Feb-09	14585	-1425	34075	None
30.	Jan-09	14075	450	35500	None
31.	Dec-08	14850	1875	35050	None
32.	Nov-08	14165	3175	33175	None
33.	Oct-08	15605	-4975	30000	None
34.	Sept-08	20460	6050	34975	None
35.	Aug-08	22090	-825	28925	None
36.	July-08	20670	3650	29750	None
37.	June-08	22775	-4575	26100	None
38.	May-08	25590	-3825	30675	None
39.	Apr-08	23470	-1400	34500	None
40.	Mar-08	22910	1400	35900	None
41.	Feb-08	26530	5725	34500	None
42.	Jan-08	28455	-3725	28775	None
43.	Total		14875		
44.	Adjusted Annualized Return (%) = 36.16%				

(Initial amount was Rs 32,500. Profit/Loss was added to/subtracted from this amount after every month's expiry. Cumulative amount was the net amount left with Trader at the end of every month's expiry.*)

Table 3: Profitability calculated for three different sub-periods for both Traditional Bull Call spread and Extended Long Expiry Bull Call Spread

Sub-Period	Traditional Bull Call Spread (Rs)	Net Annualized Return from Traditional Bull Call Spread (%)	Extended Long Expiry Bull Call Spread (Rs)	Net Annualized Return from Extended Long Expiry Bull Call Spread (%)
January 2008 to March 2009	(-5875)	(-39.99%)	300	2.04%
April 2009 to December 2010	10125	49.23%	6300	30.63%

January 2011 to June 2011	3875	65.94%	8300	141%

Table 4: Maximum potential Downside monthly losses for both Traditional Bull Call spread and Extended Long Expiry Bull Call Spread

Series	Traditional Bull Call Spread (Rs)	Extended Long Expiry Bull Call Spread (Rs)	Series	Traditional Bull Call Spread (Rs)	Extended Long Expiry Bull Call Spread (Rs)
June-11	2750	6200	Sept-09	2350	8450
May-11	2700	6700	Aug-09	2750	6600
Apr-11	3400	7400	July-09	2250	7400
Mar-11	2900	6900	June-09	3200	9200
Feb-11	3200	8050	May-09	3050	8000
Jan-11	3350	8000	Apr-09	3000	8300
Dec-10	4000	8250	Mar-09	3200	6200
Nov-10	2700	7950	Feb-09	3050	6300
Oct-10	2700	7050	Jan-09	3350	7650
Sept-10	3450	7000	Dec-08	2700	7000
Aug-10	2800	5800	Nov-08	2700	7200
July-10	3000	6500	Oct-08	2800	10050
June-10	3100	7850	Sept-08	3050	6700
May-10	3000	7250	Aug-08	3000	6750
Apr-10	3550	4450	July-08	2950	4100
Mar-10	3250	6550	June-08	2600	8100
Feb-10	3300	7000	May-08	3000	8300
Jan-10	3750	7400	Apr-08	2550	8800
Dec-09	2600	7050	Mar-08	2700	8700
Nov-09	3600	8100	Feb-08	1700	8450
Oct-09	2700	6650	Jan-08	2700	7100
Total Maximum Potential Downside Loss from Traditional Bull Call Spread= Rs 124450			Total Maximum Potential Downside Loss from Extended Long Bull Call Spread= Rs 307450		

* Calculated assuming that both the Call options in both the strategies become Zero on Exit Point

FINDINGS AND CONCLUSIONS

- Overall annualized profit from Traditional Bull Call spread was 19.75% and overall annualized profit from Extended Long Expiry Bull Call spread was 36.16% (From Tables 1 &2). Thus, net annualized profit from Extended Long Expiry Bull Call spread was almost double than Traditional Bull Call spread.
- From January 2008 to March 2009, which was an extremely bearish phase in the Market (when Nifty went to almost 1/3rd in a matter of 10 months, and recovered marginally), there was an annualized loss of 39.99% from Traditional Bull Call spread (From Table 3). On the contrary, there was an annualized gain of 2% on Extended Long Call Expiry Bull Call spread. This return was not great, but at least, the Principal amount was secure. This was an achievement for a Bullish strategy, considering the overall bearish Global conditions during this period. However, traders should avoid using any of the two strategies during bear phase.
- April 2009 to December 2010 was a recovery phase for the Market, and Nifty regained its loss ground. Nifty again touched 6300 during this period (it touched 2250 in October 2008, and recovered only marginally till March 2009), and this period qualifies as extremely bullish phase. Net annualized gain from Traditional Bull Call spread was 49.23%, and net annualized gain from Extended Long Expiry Bull Call spread was 30.63%. Thus, in extremely bullish conditions Traditional Bull Call spread performs better. This confirms the hypotheses that in extremely bullish conditions, Traditional Bull Call spread is better of the two.
- From January 2011 to June 2011, Nifty was range bound. Traditional Bull call spread gave annualized returns of 65.94%, and Extended Long Expiry Bull Call spread gave annualized returns of 141%. Comparatively, Extended Long Expiry Bull Call spread gave more than double returns.
- On the parameter of Maximum Potential Downside risk, Traditional Bull Call spread was the safer option (Table 4). However, there was a mismatch if we see the actual P/L figures. By the logic of Maximum Potential Downside Risk, Extended Long Expiry Bull Call spread should have given more losses in the Bearish Phase (January 2008 to March 2009) of the Market. However, Losses from Traditional Bull Call spread were as high as 39.99 % during this phase. On the contrary, there was a gain of

2.04% in Extended Long Expiry Bull Call spread (Table 3). This can be explained with the fact that Intrinsic value of Out of the money Calls become Zero on expiry. In Bearish months, when Nifty was below the first In the money strike price, both the Call options (bought and sold) became Zero in Traditional Bull Call Spread. However, this was not the case in Extended Long Expiry Bull Call spread. In the money Calls (bought) on expiry were out of the money in this also. However, the Expiry of these Calls was about a month after the expiry of At the Money (sold) calls of current series, and had positive expiry value. Thus, At the Money calls were squared off at maximum profit, and In the money calls had positive value while squaring off (absolute value varied depending on the absolute level of expiry). Whereas, losses were made in Traditional Bull Call spread even if expiry was at or just lesser than strike price of Bought In the Money Calls, there was a clear profit in such cases in Extended Long Expiry Bull Call spread.

- If we see the P/L figures in all the three phases of Market (Table 3), Extended Long Expiry Bull Call spread has lesser returns only in extremely bullish phase. However, if we talk on absolute terms, annualized return of 30.63% even during this phase is respectable. For small retail investors, it is extremely difficult to identify the exact phase and nature of the market. Such investors can adopt Extended Long expiry Bull call spread in all phases of the market. They can simply enter this strategy at opening time of first working day of the Week before current month expiry, and square off their positions just before expiry. However, if they can identify the different phases of the market, they can instead choose Traditional Bull Call spread in extremely bullish phases.
- A word of caution for the investors/ traders is that these returns are calculated only for a fixed entry and exit point. Returns can vary if they enter and exit at different points. Moreover, disciplined investing is required if they wish to make returns from both the strategies. If we look at Table 1 &2, there may be gains in some months and losses in other months. A longer term approach to these strategies will ensure an overall decent profit.

REFERENCES

1. Andersen, L., J. Andreasen, and D. Eliezer (2002). Static replication of barrier options: Some general results. The Journal of Computational Finance 5 (4),pp. 1–25.
2. Andreasen, J. (2001). Behind the mirror. Risk 14 (11).

3. Bardos, C., R. Douady, and A. Fursikov (1998). Static hedging of barrier options with a smile: An inverse problem.
4. Becherer, D. (2001). Rational Hedging and Valuaton with Utility-Based Preferences. Ph. D. thesis, Technical University of Berlin.
5. Black, F. and M. Scholes (1973). The pricing of options and corporate liabilities. Journal of Political Economy pp. 81, 399–417.
6. Breeden, D. T. and R. H. Litzenberger (1978). Prices of state-contingent claims implicit in option prices. Journal of Business 51 (4), pp. 621–651.
7. Broadie, M., P. Glasserman, and S. Kou (1999). Connecting discrete and continuous path–dependent options. Finance and Stochastics pp. 3, 55–82.
8. Carr, P., K. Ellis, and V. Gupta (1998). Static hedging of exotic options. The Journal of Finance 53 (3), pp. 1165–1190.
9. Derman, E., D. Ergener, and I. Kani (1994). Forever hedged. Risk 7 (9), 139–145.
10. Fouque, J., G. Papanicolaou, and R. Sircar (2000). Derivatives in Financial Markets with Stochastic Volatility. Cambridge University Press.pp.98.
11. Frederick, Randy. Timing your Butterfly Trades,Futures 34, 13 (Oct 2005),pp. 36-38.
12. Schachermayer, W. (2001b). Optimal investment in incomplete markets when wealth may become negative. Annals of Applied Probability 11 (3), pp. 694–734.
13. Schweizer, M. (1991). Option hedging for semimartingales. Stochastic Processes and their Applications 37, pp.339–363.
14. Taleb, N. (1996). Dynamic Hedging: Managing Vanilla and Exotic Options. John Wiley & Sons, Inc.
15. Toft, K. B. and C. Xuan (1998). How well can barrier options be hedged by a static portfolio of standard options? The Journal of Financial Engineering 7 (4), pp.147–175.
16. Zariphopoulou, T. (2001). A solution approach to valuation with unhedgeable risks. Finance and Stochastics pp.5, 61–82.

WEBSITES

1. www.angelbroking.com
2. www.cboe.com
3. www.cbot.com
4. www.ffsil.com
5. www.nse.com
6. www.reliancemoney.com
7. www.sharekhan.com