Ratio Spread with Calls- Creating a Zero Downside Risk Strategy in Stock Market

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Abstract: There is a general perception that whenever a Stock goes down, traders in that stock are doomed. This was probably true before 2001, when derivatives were not introduced in the Indian Stock Markets. Nowadays, there are many strategies available in the derivatives segment, which either make huge amounts of money for the traders whenever the market goes down, or there is Zero risk on the downside. One such strategy in options segment of derivatives is Ratio spread with Calls. This strategy has Zero Risk on the downside (with chosen strike prices and entry time), and if the Market is mildly bullish, profits can also be made on the upside. This Research paper examines the results of Ratio spread with Calls as applied on Nifty in 42 monthly F&O series, with the aim to create a Zero Downside Risk Strategy which can be easily understood by even a beginner in Stock Market.

Keywords: Zero Downside Risk; Nifty; Options; Ratio Spread with Calls (1x2); Systematic Trading Plan

JEL Classification: G14; G 15

1. Introduction

Ratio Spread with Calls is a mildly bullish strategy which involves buying In the Money Calls, and recovering their cost by selling At the Money or Out of the Money calls with the same expiry date. Since premium of In the Money Calls is more than At the Money or Out of the Money Calls, more quantity of At the Money or Out of the Money Calls is required to be sold than In the Money Calls so as to recover the cost. When the premium of Calls sold is more than or equal to the Calls Bought, there is Zero downside risk, irrespective of the level of fall in the stock. There is a general myth about Stock Market that whenever there is a fall in the Stock Market, traders are doomed. Year 2008 witnessed the worst recession as well as the worst Bear phase globally. Indian Index fell to almost to 1/3rd level in a span of only 10 Months. It's true that Investors in the Cash Segment of Stock Market were almost wiped off. Many Investors lost almost their whole life

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earnings. However, had they invested in Ratio spread with Calls, they wouldn't have lost a single penny. As a matter of fact, they may have been sitting on exciting profits. By following this strategy, Investors/ traders can trade without fearing about unforeseen/unfavourable events in the Global/Local Markets, or negative events related to the specific stocks.

The Key word here is *downside risk*. A word of caution is that there can be unlimited upside risk. However, it has been observed over years that resistance levels of the stocks are stronger than the support levels i.e. there are more chances of irrational selling in the stock rather than irrational buying. Moreover, by choosing the right strike price, and by entering at a point in an F&O Series which gives optimum premiums for creating this strategy, and which creates an optimum probability of F&O Expiry happening in the profitable range, upside risk can be managed to a greater extent (in case the trade is matured on expiry).

Profit/ Loss (On Expiry) from this Strategy = Expiry value of calls bought- Premium of calls bought + Premium of Calls Shorted- Expiry Value of Calls shorted

Maximum Profit on expiry is realized when expiry occurs at the strike price on which the calls are shorted. Upside losses can be unlimited.

Breakeven Point is achieved when Difference between the expiry value of calls sold and bought is equal to the difference between premium of calls sold and calls bought.

A research was conducted on Nifty to empirically verify the results of a 1x2 (Number of Calls sold = Twice the number of Calls bought) Ratio spread with shorted strike price as At the Money Strike price, and Long Strike price as first In the Money Strike Price. Entry point chosen for this research was first working day of the week before monthly F&O expiry. Aim of this research was to create a Zero Downside Risk strategy for traders which cover the risk of ever looming downside risk in Stock Market because of unforeseen events.

2. Need of the Research

Stock Market behaviour is dependent upon huge number of dynamics. Many such dynamics are unforeseen events. More often, these unforeseen events result in a steep fall in Stock Market valuations. Large and Professional investors manage such uncertainties with their skill and knowledge, but small investors, who often trade with their limited knowledge, end up losing their hard earned money because of panic. There is a strong need to introduce a trading instrument to small (retail) investors, which takes care of the market downsides because of unforeseen situations, is easy to understand, and is systematic and scientific in nature.

3. Objectives of Research

Following is the summary of major objectives of Research:

- To create a trading instrument for small investors which is risk free if the Market falls down (thus insulating the small investors in panic situations)
- To test such a trading instrument in terms of safety, ease of use and decent returns
- To create the trading instrument in such a manner that small investors can trade/invest in a systematic manner without worrying much about the market dynamics.
- To explain the benefits and limitations of such trading instrument.

4. Review of Literature

Sharepundit.com (promoted by Expedient Consultants, a leading Research firm in Options segment of Stock Market) write in their research report released in January 2011 that opening time of first working day of a week before expiry of monthly F&O series is the ideal time to enter many option strategies like Ratio Spread with Calls, Long Call Butterfly, Bull Call Spread. The reasons given by them in their report are:

a) Premiums of Options start depreciating at a faster pace from this time frame.

b) This entry point serves as an optimum time point both in terms of proximity to expiry as well as quantum of premiums to be shorted.

In their other report, released in March, 2011, sharepundit.com conclude that there is a strong need to promote systematic trading plans in options among retail investors so that they can trade every month safely and profitably in a scientific manner without worrying about fast changing dynamics of stock market. They add that knowledge of options among retail investors is below average, and there is a strong need to present various options strategies to them in a simplified manner.

National Stock Exchange (nseindia.com) of India is proactive in educating small investors throughout India. They keep on organising investor camps throughout India. They always advocate the idea of systematic investing to small investors.

Frederick, Randy. Timing your Butterfly Trades,Futures 34, 13 (Oct 2005),pp. 36-38. writes that Timing the trades in the options segment is extremely important. Also important are the choice of strike prices in various options strategies. In this Research , strike prices have been chosen in such a manner that shorted strike prices amount to maximum time value.

Fortune financial (ffsil.com) write in one of their report sent to their clients (May 2011) that Ratio spread with calls is a comparatively safer strategy for small investors if entered at an appropriate time and in an appropriate Market environment.

5. Research Design

Stock chosen for Research was Nifty. Time period chosen for Research was from January, 2008 (F&O series) to June 2011 (F&O series). It involved a total of 42 F&O Series. Nifty was at its peak of around 6200 in January 2008. In the next ten month, it fell to around 2250 (intra-day) in October 2008 in Just a matter of 10 months. It was probably the worst Bear phase of Stock Market. Thereafter, Bull phase started in May 2009, and Nifty again reached its peak in later half of 2010. Spirit of our research is to create a strategy for Investors/ Traders which has Zero Downside Risk. Also, Ratio spread with calls has an Inherent Upside Risk. As the time period chosen saw both Bear phase and Bull phase, this strategy was tested for both the extremes.

Opening time of first working day of a Week before monthly F&O series Expiry was chosen as entry point of this strategy, and Expiry time was chosen as exit point for this strategy. At this entry point, it was observed that in a majority of cases in the recorded monthly F&O series, Premium inflow (Premium of Calls sold) was more than Premium Outflow (Premium of Calls Bought).

Table 1. Ratio of premiums of In the Money Call (Buying Strike Price) & At the Money Call (Selling Strike Price) at the Entry Time

S.no	Series	In the Money Call Premium (Rs)	At the Money Call Premium (Rs)	Ratio of In the Money and At the Money Call Premium
1.	June-11	116	60	1.93: 1
2.	May-11	155	100	1.55: 1
3.	Apr-11	164	95	1.73: 1
4.	Mar-11	167	108	1.55: 1
5.	Feb-11	163	98	1.66: 1
6.	Jan-11	182	114	1.60: 1
7.	Dec-10	165	84	1.96: 1
8.	Nov-10	140	85	1.65: 1
9.	Oct-10	130	75	1.73 1

10.	Sept-10	135	65	2.08: 1
11.	Aug-10	90	33	2.73 1
12.	July-10	110	49	2.24: 1
13.	June-10	160	97	1.65: 1
14.	May-10	160	99	1.61: 1
15.	Apr-10	152	80	1.9: 1
16.	Mar-10	146	80	1.83: 1
17.	Feb-10	176	109	1.61: 1
18.	Jan-10	161	85	1.89: 1
19.	Dec-09	132	79	1.67: 1
20.	Nov-09	180	107	1.68: 1
21.	Oct-09	106	51	2.08: 1
22.	Sept-09	158	110	1.44: 1
23.	Aug-09	175	119	1.47: 1
24.	July-09	175	129	1.36: 1
25.	June-09	215	150	1.43: 1
26.	May-09	219	157	1.39: 1
27.	Apr-09	156	95	1.64: 1
28.	Mar-09	135	70	1.93: 1
29.	Feb-09	163	101	1.61: 1
30.	Jan-09	162	94	1.72: 1
31.	Dec-08	155	100	1.55: 1
32.	Nov-08	220	165	1.33: 1
33.	Oct-08	205	148	1.39: 1
34.	Sept-08	177	115	1.54: 1
35.	Aug-08	175	114	1.54: 1
36.	July-08	210	150	1.4: 1
37.	June-08	135	82	1.65: 1
38.	May-08	160	99	1.62: 1
39.	Apr-08	190	138	1.38: 1
40.	Mar-08	180	125	1.44: 1
41.	Feb-08	210	175	1.2: 1
42.	Jan-08	210	155	1.35: 1

In the above Table 1, it can be seen that in 38 of the 42 F&O series, Ratio of In the Money Call Premium and At the Money Call Premium was less than 2:1. Whenever this Ratio is less than or equal to 2:1 in a 1X2 Ratio spread with Calls, there is a Zero downside Risk. This can be explained by the fact that two At the Money calls are sold for every In the Money Call bought. Thus, Buying Premium will be lesser that the Premium Sold. On Expiry, When Stock price is lesser than

the Strike price on which a Call is bought or sold, the Call becomes Out of the Money, and its Intrinsic Value is Zero. Since on expiry, the time value is also Zero, it's Market/ Settlement price is Zero. When Buying premium is less than or equal to the Premium sold, profit on the sold calls is more than or equal the loss on bought calls. There is either a Net profit from the trade (in case Premium sold is more) or there is a breakeven situation (when bought and sold premiums are equal). Even before expiry, it is observed that in this strategy, if the stock falls below entry level, there is Zero Downside Risk. There are two reasons for the same. Firstly, there are two At the money Calls shorted for one In the Money Call Purchased. Also, in case of a fall, At the Money Call will become Out of the Money, and Out of the Money Options depreciate more than In the Money Calls since they have more Time value. During our Research period, there were 38 instances in which there was an absolute Zero Downside Risk, and there were 4 instances (Sept 2010, August 2010, July 2010 & October 2009) where there was theoretically a limited downside risk potential (From Table 1). It should be noted that a Zero Downside Risk strategy could also have been created in these four instances by moving one step In the Money for both bought and Sold strike price levels. However, it could have given a more potential upside risk as compared to other instances.

The chosen Entry point was just 11 Calendar days away from Expiry (7 Calendar days on an average of week before expiry, and 4 Calendar days of expiry week as F&O expiry happens on last Thursday of a Month). An entry point more near to expiry was not chosen as ratio of premiums of In the money calls and At the Money Calls beyond this point was not enough to give Zero downside risk. Farther entry points from expiry gave a better ratio, but the probability of expiry happening in the profitable Zone was lesser. At the Money strike price was chosen for selling the calls, and first In the Money strike price was chosen for buying the Calls. In the 1x2 Ratio spread, one In the Money Call was purchased and two at the money calls were shorted. At the Money call was chosen for selling as it gives maximum time Value.

Table 2. Nifty Entry/ Exit Levels, Strike Prices Chosen, & Difference between Nifty closing level and Buying Strike Price

S.no	Series	Nifty Futures at Entry Point	Nifty Futures on Expiry (Exit Point)	In the Money Strike Price (Buying)	At the Money Strike Price (Selling)	Difference between Nifty Expiry level and In the Money Strike Price
1	June-11	5374	5647	5300 CE	5400 CE	347
2	May-11	5534	5412	5400 CE	5500 CE	12
3	Apr-11	5832	5785	5700 CE	5800 CE	85

4	Mar-11	5410	5834	5300 CE	5400 CE	534
5	Feb-11	5346	5263	5200 CE	5300 CE	63
6	Jan-11	5640	5604	5500 CE	5600 CE	104
7	Dec-10	5900	6102	5800 CE	5900 CE	302
8	Nov-10	6089	5800	6000 CE	6100 CE	-200
9	Oct-10	6075	5988	6000 CE	6100 CE	-12
1	Sept-10	5945	6030	5800 CE	5900 CE	230
1	Aug-10	5453	5478	5300 CE	5400 CE	178
1	July-10	5376	5409	5300 CE	5400 CE	109
1	June-10	5138	5321	5000 CE	5100 CE	321
1	May-10	5018	5004	4900 CE	5000 CE	104
1	Apr-10	5200	5254	5100 CE	5200 CE	154
1	Mar-10	5122	5260	5000 CE	5100 CE	260
1	Feb-10	4838	4860	4700 CE	4800 CE	160
1	Jan-10	5239	4867	5100 CE	5200 CE	-233
1	Dec-09	4990	5201	4900 CE	5000 CE	301
2	Nov-09	5041	5006	4900 CE	5000 CE	106
2	Oct-09	5163	4751	5100 CE	5200 CE	-349
2	Sept-09	4811	4987	4700 CE	4800 CE	287
2	Aug-09	4500	4688	4400 CE	4500 CE	288
2	July-09	4442	4571	4300 CE	4400 CE	271
2	June-09	4542	4242	4400 CE	4500 CE	-158
2	May-09	4290	4337	4200 CE	4300 CE	137
2	Apr-09	3400	3478	3300 CE	3400 CE	178
2	Mar-09	2713	3082	2600 CE	2700 CE	482
2	Feb-09	2917	2788	2800 CE	2900 CE	-12
3	Jan-09	2815	2824	2700 CE	2800 CE	124
3	Dec-08	2970	2918	2900 CE	3000 CE	18
3	Nov-08	2833	2758	2700 CE	2800 CE	58
3	Oct-08	3121	2697	2900 CE	3000 CE	-203
3	Sept-08	4092	4111	4000 CE	4100 CE	111
3	Aug-08	4418	4214	4300 CE	4400 CE	-86
3	July-08	4134	4333	4000 CE	4100 CE	333
3	June-08	4555	4316	4500 CE	4600 CE	-184
3	May-08	5118	4836	5000 CE	5100 CE	-164
3	Apr-08	4694	5000	4600 CE	4700 CE	400
4	Mar-08	4582	4830	4500 CE	4600 CE	330
4	Feb-08	5306	5285	5200 CE	5300 CE	85
4	Jan-08	5691	5137	5600 CE	5700 CE	-463

Two strike prices were chosen as follows:

1) At the money point for shorting two calls was chosen with reference to the opening futures price of the entry point. If for instance opening futures price of

Nifty was between or equal to 6000 and 6049, 6000 was chosen as at the money strike price. If for instance it was between or equal to 6050 and 6100, 6100 was chosen as at the money strike price. This was consistent for all the entry points.

2) One strike price before At the money strike price was chosen as In the money strike price for buying the Call Option.

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, and charge only 50% of the Margin required for shorting additional call. Thus, in our example, total margin required for creating a Ratio spread comes out to be Rs 25000 + 50% (Rs 25000) = Rs 37500.

It was assumed that the Trader had Rs 50,000 (Decided on the basis of margin required in the beginning of research period, as well as keeping an excess margin of around Rs 7500) 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 50,000. 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.

6. Tabulation of Results

Table. 3. Profitability calculated for each Monthly series/ Annualized Return/Margin Requirement

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	40305	-7300	95700	None
2.	May-11	41505	2750	103000	None
3.	Apr-11	43740	5450	100250	None
4.	Mar-11	40575	-14400	94800	None
5.	Feb-11	40095	4700	109200	None
6.	Jan-11	42300	6950	104500	None
7.	Dec-10	44250	-5100	97550	None
8.	Nov-10	45668	1425	102650	None
9.	Oct-10	45663	925	101225	None
10.	Sept-10	44586	-1900	100300	None
11.	Aug-10	40898	2600	102200	None
12.	July-10	40320	3800	99600	None
13.	June-10	38535	-4500	95800	None
14.	May-10	37635	6550	100300	None
15.	Apr-10	39000	4050	93750	None
16.	Mar-10	38415	-2450	89700	None
17.	Feb-10	36285	3950	92150	None
18.	Jan-10	39293	375	88200	None
19.	Dec-09	37425	-3900	87825	None
20.	Nov-09	37808	6250	91725	None
21.	Oct-09	38723	-275	85475	None
22.	Sept-09	36083	-1400	85750	None
23.	Aug-09	33750	-1400	87150	None
24.	July-09	33315	450	88550	None
25.	June-09	34065	4175	88100	None
26.	May-09	32175	5750	83925	None
27.	Apr-09	25500	2050	78175	None
28.	Mar-09	20348	-14000	76125	None
29.	Feb-09	21378	1875	90125	None
30.	Jan-09	21128	4950	88250	None
31.	Dec-08	22275	3000	83300	None
32.	Nov-08	21248	8300	80300	None
33.	Oct-08	23408	4475	72000	None
34.	Sept-08	30690	6950	67525	None
35.	Aug-08	33135	2575	60575	None
36.	July-08	31005	-2300	58000	None
37.	June-08	34163	1375	60300	None
38.	May-08	38385	1825	58925	None
39.	Apr-08	35205	-5850	57100	None

40.	Mar-08	34365	-3150	62950	None
41.	Feb-08	39795	11200	66100	None
42.	Jan-08	42683	4900	54900	None
43.	Total		45700		
44.	Adjusted Annualized Return (%) 72.21%				

(Initial amount was Rs 50,000. 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.*)

7. Findings and Conclusions

- Net annualized return from this strategy was 72.21%. This is an unbelievable return considering there is an additional advantage of Zero Downside risk in this strategy. This is much more than any safe mode of investment (varied from 7 to 12% in the research period) available to a trader/ investor.
- Out of 42 F&O series, there were 11 instances (Table 2) in which Nifty fell below the In the Money Call level at which this strategy was created. However, in all except one of these instances, there was a comfortable profit. One such instance was October 2009 where Ratio of entry level premiums of In the Money and At the Money Calls was more than 2:1. Although Nifty fell by 349 points (from Table 2) from the In the Money Strike Price used for Buying Calls, yet the loss was limited to only Rs 275. Traders can either ignore such limited minor losses, or can re-adjust the entry level strike prices so as to create a ratio of premiums of Buying and selling strike price lesser that 2:1. This way, they can convert this strategy to Zero Downside Risk strategy. Thus, we can safely say that this indeed is a Zero Downside Risk Strategy. Theoretically, there were four series (from Table 1, Ratio more than 2:1) in which there was a limited downside risk. There were losses in two of such series VIZ September 2010, and October 2009. We have already discussed October 2009, and loss in September 2010 was because of upside movement of Nifty.
- Out of 42 F&O Series, there were only 14 loss making months, which means that this strategy was profitable in 66.67% months. Thus, a trader can show persistence with this strategy month after month, even if there are a few loss making months
- From January 2008 to October 2008, when Nifty fell from 6200 to 2250, i.e. almost to about one third, investment from this strategy became almost 1.5 times. Thus, this strategy showed excellent results in Bear Phase. It's a

myth that this is strategy gives excellent results in a mildly bullish market. It can give excellent results even in a bearish market. Traders can actually convert this strategy in to a Bearish strategy by choosing the Ratio of premiums of Buying and Selling strike prices much lesser than 2:1.

- Huge losses were made from this strategy in March 2009, March 2011 and June 2011. In the first two cases, Nifty rallied more than 450 points from the entry level. In June 2011, although Nifty rallied only about 347 points (From Table 2) from the entry level, Premiums of calls were low because of extremely low Implied Volatility. In low implied volatility, premiums of options are lesser, and with lesser premiums available for shorting At the Money calls, upside profit making range is reduced. Further research should be conducted to calculate the exact impact of Implied Volatility on this strategy.
- There was not a single month in which there was a Margin Deficit. However, traders should always keep some spare margin to compensate for potential losses in highly Bullish Months.
- In bear phase, when there is a high chance of a contra short covering rally, traders should avoid entering this strategy at strong support levels of the Stock. Otherwise, they may be caught on the upside.
- Majority of gains from this strategy were made in the first 14 months of this strategy, when the outlook was extremely bearish. In Subsequent period, which witnessed a mildly bullish to extremely bullish phase, returns were average. Bearish phase gave net annualized returns of 222%, whereas the subsequent period gave net annualized returns of only 13% (although returns could have been higher, almost double, had the excess funds been re-employed to create more lots of this strategy). We can easily conclude that this strategy can be one of the best trading strategies in bear phase of the Market. It should also be noted that Implied Volatility is extremely high in Bear phase, and high Volatility probably works positive for this strategy. It should further be noted that in high volatility, premiums of options are more, which created a wide profitability range in this strategy.
- An Investor in Cash segment gets 85% limit of his investment from leading Brokerage houses to trade in Options. For such an Investor, this strategy will be available at Zero additional Investment. His upside risk will also be fully hedged if his investment is in the same stock and such an investment is equal to or more than (in terms of quantity) his exposure in this strategy.
- As the time for entry and exit of this strategy is fixed, and also fixed is the mechanism in which entry needs to be made, traders can use this strategy

as a Simple and Systematic trading plan. Even a beginner in the Stock Market can understand and take this trade profitably. Since there is no particular need to track or trade the Stock on daily basis, and also no further analysis is required, part time traders/ investors busy in other professions can enter this strategy without investing much of their precious time.

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