

Margin Calculator (Part 2)

7.1 – The trade information

I'm going to start this chapter by posting the same old question again – Why do you think margins are charged? Before you get annoyed and come chasing me, let me post the answer

Margins are charged from a risk management perspective. It helps in preventing any undesired counter party default. The risk management system at the broker's office (often called the RMS system) is responsible for overseeing the overall risk management. You may be interested to know that the RMS is a computer program, and all orders placed by the clients reach the exchange only once this program approves it (which takes a fraction of a second), and there are people monitoring if everything done is right/wrong.

When you place a trade, let us say to buy a futures contract (via a buy order entry form) you are essentially conveying the following details to the risk management system (RMS) –

1. The contract you wish to buy (like TCS futures, IDEA futures etc)
2. The quantity you wish to buy (number of lots)
3. The price at which you want to buy (market or limit)

Once you place the order, the RMS system evaluates the margin requirement and allows your trade to go through (provided you have the required margin amount).

However, the information that you **don't normally** provide to the RMS system is the following –

1. The duration up to which you wish to hold your trade – is your trade intraday or you would wish to hold on to it over multiple days?
2. The stoploss point – In case the trade goes against you, at what price point you would wish to book a loss and square off the position.

Now what would happen if you provided these additional details to the RMS system? Obviously, with the additional information flowing to the RMS system; it would develop a better clarity on your risk appetite.

For example, the detail on the **duration of the trade** would let the system know how much volatility you are exposed to. If your trade is intraday, you are only exposed to 1 day volatility. However if your trade is for multiple days then you are not only exposed to multiple days volatility, you are also exposed to the ‘overnight risk’.

Overnight risk is risk of carrying the position overnight. For example assume I’m holding a long BPCL (a major oil marketing company in India) futures position overnight. BPCL is highly sensitive to fluctuations in crude oil prices. While I’m holding the BPCL futures, assume overnight the crude oil market shoots up by 5%. This will obviously have a negative impact on BPCL the next day as it becomes more expensive for BPCL to buy crude oil from the international markets. Hence by virtue of holding BPCL position overnight, I will suffer a loss, therefore a M2M cut. This is called ‘overnight risk’. Anyway, the point that I’m trying to make here is straightforward – from the RMS system’s perspective the longer you wish to hold the trade, the higher is the risk you are exposed to.

Likewise think about the **stoploss for the trade**. By **not** expressing your intended stoploss you are keeping the RMS system in total darkness with respect to your risk appetite. Do note, this is not mandatory information that you need to reveal. However, if you do, the RMS system gets more clarity on your trade. For example assume I buy BPCL futures Rs.649/-, in the absence of specifying a stoploss, I’m virtually exposed to an unlimited risk. However if I specify my stoploss as let us say Rs.9/-, then when BPCL falls to Rs.640/- (649 – 9) I would book a loss and get out of the trade. Hence there is complete clarity on the amount of risk I’m willing to take, which from the RMS system’s perspective is a valuable information.

So both – the duration and the stoploss of the trade gives more clarity about your risk appetite to the RMS system. So what does this mean to you as a trader?

Well, think about it – the more clarity you provide in terms of the risk you face, the higher clarity the RMS system develops. The more clarity it has, the lesser the margins required!

Very loosely put, think about this as an equivalent to shopping for a television at a consumer electronic store. I know this may not be very apt, but I hope the following analogy gives you the right message.

If you go to a consumer electronic store and enquire about the price of a television, the seller will assume you are a regular customer and he will quote the normal selling price. However if you tell him that you are likely to purchase 50 televisions, he will instantly drop the price.

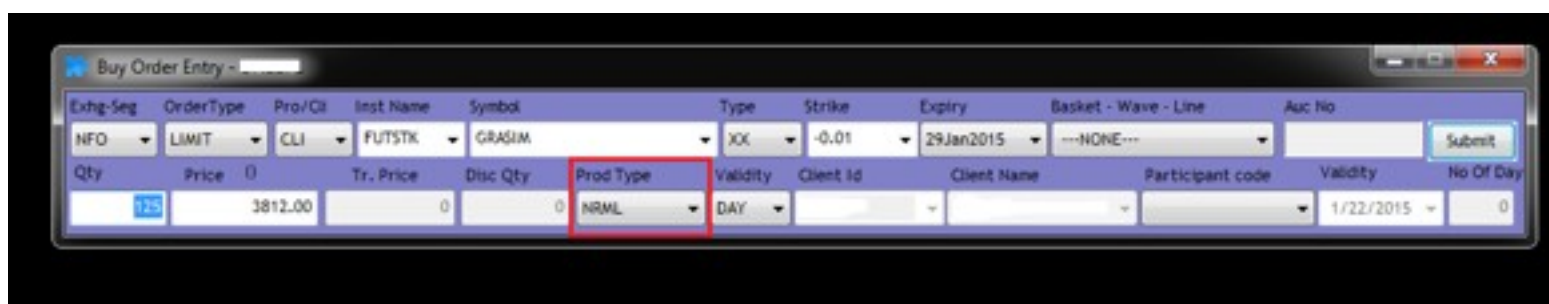
In addition if you tell him you are carrying the cash with you and are willing to finish the transaction right away, he will drop both his jaws and the prices even lower. The point is – as and when the shop keeper gets more information about the transaction, the more attractive the price gets.



7.2 – The Product types

So far, one thing is clear, the more information (in terms of risk) you are willing to convey to the RMS system, the lesser is the margin required. Needless to say, the lesser the margins required, the more you can do with your capital. So, how does a trader convey this information to the RMS system? Well, there are specific product types that are meant for this purpose. While placing an order (to either buy or sell) you can specify the product type. There are many Product types and they vary from one another mainly in terms of their functionality and the information they convey to the RMS system. While the core functionality of these product types is standard, every broker calls them with different names. I will of course talk about the product types used at Zerodha, if you are still trading with another broker, I would request you to speak to them and identify the nomenclature used.

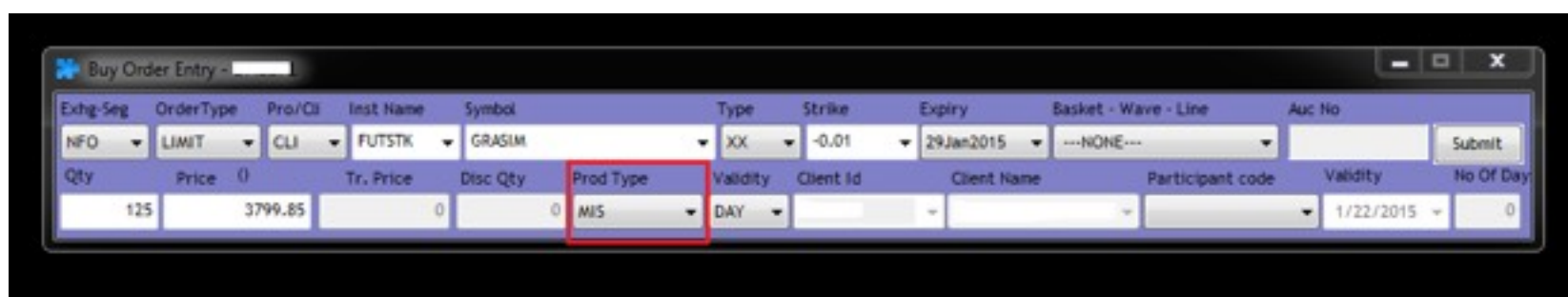
NRML – NRML is a standard product type. Use this when you intend to buy and hold the futures trade.



Remember when you use NRML, the risk management system has no additional information on the length of your trade (as you can continue to hold the contract till expiry) nor does it have any information on the stoploss. You suffer losses (and therefore continue to pump in the required margins). Hence because of the lack of clarity the broker's RMS system charges you the full margins (i.e. SPAN and Exposure).

Use NRML when you intend to buy and hold the futures position over multiple days. However do remember you can use NRML product type for intraday as well.

Margin Intraday Square off (MIS) – Zerodha's MIS is a pure intraday product, meaning all trades placed as MIS product type will indicate that the trade will last only for the day. You cannot select MIS as an order type and expect the position to be carried forward to the next day. You have to mandatorily cut the position by 3:20PM, failing which the RMS system will do the same.



Now because the product type is MIS, the RMS system clearly knows that it is an intraday trade, which is a notch better than NRML **in terms of information flow**. Remember, when the trade is intraday, the trader is exposed to only 1 day's volatility. Hence the margin requirement is lower compared to the NRML margins.

Cover order (CO) – The concept of cover order is simple. To begin with, similar to MIS, the cover order (CO) is also an intraday product. However the CO conveys additional information in terms of stoploss. This means, at the time of placing a CO, you will have to specify the stoploss as well. Hence CO conveys both the vital information –

1. The length of the trade which is intraday

2. The stoploss, which is the maximum loss you will bear in case the trade moves against you

The snapshot below shows the buy CO form –

Buy Cover Order Entry - [Window Title]

Buy Market Order

Exhg-Seg	Pro/Cli	Inst Name	Symbol	Type	Strike Price	Expiry Date
NFO	CLI	FUTSTK	GRASIM	XX	-0.01	29Jan2015

Qty	Disc Qty	Client Id	Client Name	Participant code	Remarks
125	0				

Stop Loss Market Sell

Trigger Price Range	Perc max	Tr. Price
3675.25-3818.80	3.76	3675.20

Submit

The area highlighted in black is where one is required to specify the stoploss. Of course, I will not get into the logistics bit, explaining how to place a CO from the trading terminal, as we have already done that through an article in z-connect.

The point that I want you to be aware is this – by placing a CO, you are not only conveying that your trade is intraday, but also conveying the maximum loss you are willing to bear. Hence by virtue of this, the margins should drop considerably (even lower than MIS).

Bracket Order (BO) – The bracket order is quite versatile. Consider the BO as an improvisation over the cover order. Needless to say, a BO is an intraday order, which means all BO orders have to be squared off within the day on or before 3:20PM. While placing a BO, you will have to mention a few other things –

1. The stoploss – At what place you would like to get out of the trade in case the trade moves against you
2. The Trailing stoploss – This is an optional feature where you can trail your stoploss. We have not spoken about “The trailing stoploss” so far. We will discuss the same towards the end of this chapter. But for now just remember the BO gives you an option to trail your stoploss, in fact this is one of the most popular feature of a BO
3. Target – If the trade moves in your favor, the BO also requires you to specify the price at which you would like to book the profits

The BO sends your order to the exchange where simultaneously you can specify the target and the stoploss. This is a huge relief to active traders as it helps them in many ways. Of course for the logistics bit on how to place a BO, you can check out this article as it beautifully explains what needs to be done.

The snapshot below shows the BO buy order form, the green box highlights the SL placements –

The screenshot shows the 'Buy Bracket Order Entry' window. At the top, there are dropdown menus for 'Exhg-Seg' (NFO), 'OrderType' (LIMIT), 'Pro/Cl' (CLI), 'Inst Name' (FUTSTK), 'Symbol' (GRASIM), 'Type' (XX), 'Strike Price' (-0.01), and 'Expiry Date' (29Jan2015). Below these are input fields for 'Qty' (125), 'Price ()' (0), 'Disc Qty' (0), 'Validity' (DAY), 'Client Id', 'Client Name', 'Participant code', and 'Remarks'. The bottom section, highlighted by a green box, contains two main areas: 'SqrOff Sell' and 'StopLoss Sell'. Each area has radio buttons for 'LTP' (selected), 'ATP', 'Absolute', and 'Ticks'. There are also input fields for 'Trailing Ticks' and a 'Submit' button.

If you think about the Bracket Order, the trader is conveying to the RMS system the same set of information as that of the CO. In addition through the BO, the trader is also conveying the target price. Now what difference does the information on the target price make to the RMS system? Well, it literally makes no difference to it from the risk management perspective. Remember the RMS is only worried about your risk, and not your reward. Hence for this reason, the margin charged for BO and CO is the same.

Let us now keep the above discussion in perspective and look into few other options available on Zerodha's margin calculator.

7.3 – Back to the Margin Calculator

Here is a quick recap – in the previous chapter we introduced Zerodha's margin calculator. The objective of the margin calculator is straight forward. It helps the trader figure out how much margin is required for the contract he wishes to trade. In our quest to understand the same we also understood concepts of expiry, rollover, and spread margins. With the help of this chapter, we are now clear about the information flow to the RMS system and its impact on the applicable margins. Let us keep these in perspective and look at the other two options highlighted in red provided in the margin calculator – “Equity Futures” and “BO&CO”. Here is a snapshot, highlighting these features –

The Zerodha SPAN calculator is the first online tool in India that let's you calculate comprehensive margin requirements for option writing/shorting or for multi-leg F&O strategies while trading equity, F&O, commodity and currency before taking a trade. No more taking trades just to figure out the margin that will be blocked!

Have queries? If you have queries regarding the SPAN calculator, please click here.

Securities under ban: HDIL

Exchange

NFO

Product

Futures

Symbol

ABIRLANUVO 29-JAN-15

Net quantity

(Lot size 250)

250

Add

Reset

Buy Sell

Combined margin requirements

SPAN margin

0

Exposure margin

0

Total margin

0

Equity Futures – The equity futures section in the margin calculator is a ready reckoner, as it helps the trader understand the following –

1. The NRML margin required for a particular contract
2. The MIS margin required for a particular contract
3. The number of lots that a trader can buy for the given amount of money in his trading account

The Equity Futures section contains nearly 475 contracts (as of January 2015). To understand this better, let us take up a few tasks. We will solve these tasks by using the Equity Futures section of the margin calculator. And hopefully in the process you will understand how to use the section better.

Task 1 – A trader has Rs.80,000/- in his trading account. He wants to buy ACC Cements Limited Futures expiring 26th February 2015 and hold the same for 3 trading sessions. Find out the margin requirement for this contract. He also wants to trade Infosys January futures for intraday, what is the margin required? Does he have sufficient margins to initiate both the trades?

Solution – Let us deal with the ACC futures first. Since the trader intends to hold the futures contract for 3 working days, we need to look for NRML margins. Do note, this task can be achieved by using the SPAN calculator as well. We discussed this in the previous chapter. However the Equity Futures calculator has a few more advantages over a SPAN calculator.

Visit the Equity Futures section and you can see all the contracts listed here, scroll till you find the desired contract. I have highlighted the same in green. Do notice, the calculator is also listing the contract's expiry date, lot size, and the price at which the contract is trading.

The black vertical box highlights the NRML margin for each contract.

#	Contract	Expiry	Lot size	Price	NRML Margin	MIS Margin	
1	ABIRLANUVO	29-JAN-15	250	1847.9	57838	23135	CALCULATE
2	ABIRLANUVO	26-FEB-15	250	1860.65	58228	23291	CALCULATE
3	ABIRLANUVO	26-MAR-15	250	1876.45	58655	23462	CALCULATE
4	ACC	29-JAN-15	250	1544.5	48343	19337	CALCULATE
5	ACC	26-FEB-15	250	1556.55	48686	19474	CALCULATE
6	ACC	26-MAR-15	250	1567.85	49020	19608	CALCULATE
7	ADANIEN	29-JAN-15	500	506.65	31706	12682	CALCULATE
8	ADANIEN	26-FEB-15	500	510.3	31922	12769	CALCULATE
9	ADANIEN	26-MAR-15	500	511	32065	12836	CALCULATE
10	ADANIPTS	29-JAN-15	1000	329.95	41317	16527	CALCULATE
11	ADANIPTS	26-FEB-15	1000	332.1	41585	16634	CALCULATE
12	ADANIPTS	26-MAR-15	1000	334	41850	16740	CALCULATE
13	ADANIPOWER	29-JAN-15	8000	46.15	47420	18968	CALCULATE

From the table, it is clear that the ACC Feb 2015 requires a margin of Rs.48,686/-.

To find out the margin requirement for Infosys, I need to scroll down till I spot Infosys January contracts or simply type “Infy” in the search box provided.

Product type	Name	Used for
NRML	Normal	Overnight/positional or intraday trade futures using NRML with margins mentioned below. Once a position taken as NRML, it can be held till the expiry provided the requisite NRML margin present in the trading account.
MIS	Margin Intraday Square off	Intraday trade using MIS for additional leverage (40% of NRML margin) between 9:15 AM and 3:20 PM. All open MIS positions get squared off at 3:20 PM.
CO	Cover Order	Please use the Bracket Order & Cover Order calculator for CO calculations

ZeroDha is among select few brokerages which settle with NSE on T+0 and hence has the lowest margin(NRML) requirement for trading futures for overnight/positional.

Securities under bin: HDIL

Last updated: 22 Jan 2015

#	Contract	Expiry	Lot size	Price	NRML Margin	MIS Margin	
235	INFY	29-JAN-15	250	2166.3	67698	27079	CALCULATE
236	INFY	26-FEB-15	250	2178.85	68123	27249	CALCULATE
237	INFY	26-MAR-15	250	2190.6	68537	27415	CALCULATE

As we can see, Infy’s NRML margin is Rs.67,698/- (highlighted in the black arrow) and MIS margin is Rs.27,079/- (highlighted in the red arrow). Do note the MIS margin amount is drastically lower compared to the NRML margin,

Clearly since the trade is for intraday the trader can choose MIS product type and benefit from a lower margin requirement, which is Rs.27,079/-. Do note, the trader can select NRML product type even for intraday, there is no harm doing so. But when one does this, the NRML margin amount gets blocked. If one is clear in his mind about the trade being intraday, then it makes sense to opt for MIS and efficiently use the capital available.

Anyway, the trader's total margin requirement would be –

1. 48,686/- towards the ACC contract (NRML margin as the trader wishes to hold the position for 3 days)
2. 27,079/- towards the Infosys contract (MIS margins as it is a pure intraday product).
3. Total margin of Rs.75,765/- (48,686 + 27079)

Clearly since the trader has Rs.80,000/- in his account, he can initiate both the trades.

Task 2 – A trader has Rs.120,000/- in his trading account. How many lots of Wipro January Futures can he buy on an intraday basis and on a multiple day basis?

Solution – Search for Wipro in the search box provided. Next to the MIS margin column, there is an option to click on “Calculate” (highlighted in green arrow). Click on the same.

Product type	Name	Used for
NRML	Normal	Overnight/positional or intraday trade futures using NRML with margins mentioned below. Once a position taken as NRML, it can be held till the expiry provided the requisite NRML margin present in the trading account.
MIS	Margin Intraday Square off	Intraday trade using MIS for additional leverage (40% of NRML margin) between 9:15 AM and 3:20 PM. All open MIS positions get squared off at 3:20 PM.
CO	Cover Order	Please use the Bracket Order & Cover Order calculator for CO calculations

Zerodha is among select few brokerages which settle with NSE on T+0 and hence has the lowest margin(NRML) requirement for trading futures for overnight/positional.

Securities under ban: HDL

Last updated: 22 Jan 2015 Equity SPAN margin (PDP)

#	Contract	Expiry	Lot size	Price	NRML Margin	MIS Margin	
463	WIPRO	29-JAN-15	500	586.55	36818	14727	<div style="display: inline-block; text-align: center;"> </div> <div style="float: right; text-align: right;"> CALCULATE </div>
464	WIPRO	26-FEB-15	500	591.55	37088	14835	CALCULATE
465	WIPRO	26-MAR-15	500	597.6	37390	14956	CALCULATE

After you click on it, a form sort of window opens up, you just need to enter –

1. The amount of cash in your trading account (by default this is set to Rs.100,000/- you can edit the same to meet your requirement)
2. The price at which the contract is trading (in fact this is pre-populated)

Have a look at the screen shot below –

The screenshot shows a web interface for calculating the margin for Wipro futures on 29-Jan-15. It features input fields for 'Cash available' (120000) and 'Price' (586.55), a 'Go' button, and a table showing margin requirements for NRML (36806) and MIS (14722) product types. Below the table, it indicates the 'Number of lots that can be bought' as 3 for NRML and 8 for MIS.

Cash available	Price	NRML	MIS
120000	586.55	36806	14722

Number of lots that can be bought

NRML	MIS
3	8

The calculator suggests that I can trade up to 3 lots of Wipro futures under the NRML product type, considering NRML margin is Rs.36,806/- per lot. Also, under the MIS product type, I can trade up to 8 lots, considering the margin requirement is just Rs.14,722/- per lot.

And with that, we know all the functionalities of the Equity Futures section of the margin calculator, as easy as that. We now move over to the BO&CO calculator.

7.4 – BO & CO Margin Calculator

Both bracket order and cover order have similar margin requirements for reasons we discussed earlier. Using the BO&CO calculator is quite simple; in fact it is quite similar to the SPAN calculator. In the following snapshot, I'm trying to calculate the margin requirement for Biocon Futures expiring on February 2015. Notice, I have selected everything that I need to, except for the stoploss.

The screenshot shows the Zerodha BO&CO Margin Calculator interface. It includes dropdowns for 'Segment' (NFO) and 'Product' (Futures), a 'Symbol' dropdown (BIOCON 26-FEB-15), a 'Price' input field (418), a 'Quantity to trade' input field (500), and a 'Stop loss' input field (0). A 'Calculate' button is visible. On the right, a 'Margin requirements' panel shows 'Actual value' (Rs 0), 'Margin required' (Rs 0), and 'Leverage' (0x).

Segment: NFO Product: Futures

Symbol: BIOCON 26-FEB-15

Price: 418

Quantity to trade: 500 (Lot size 500)

Stop loss: 0

Margin requirements:

- Actual value: Rs 0
- Margin required: Rs 0
- Leverage: 0x

Without selecting the stoploss, I proceed and press the ‘calculate’ button. Notice when I do so, the calculator calculates the default stoploss that one can choose and the margin required. Now once I mention the stop loss, the calculator calculates the amount as shown below

The screenshot shows the Zerodha BO&CO calculator interface. At the top, a yellow banner states: "Zerodha is the first brokerage in India to allow Bracket Orders & Trailing Stoploss on F&O." Below this, the form is divided into two main sections. The left section contains input fields for "Segment" (set to NFO), "Product" (set to Futures), "Symbol" (set to BIOCON 26-FEB-15), "Price" (set to 418), "Quantity to trade" (set to 500, with a note "(lot size 500)"), and "Stop loss" (set to 403). There are also radio buttons for "Buy" and "Sell", and "Calculate" and "Reset" buttons at the bottom. The right section, titled "Margin requirements", displays the results: "Actual value" as Rs 2,09,000, "Margin required" as Rs 9,062, and "Leverage" as 23.1x.

As per the BO&CO calculator, the stoploss one can choose is Rs.403. Of course you can vary the stoploss to any point, and the margins will change accordingly. Anyway, the margin required is Rs.9,062/-, which is remarkably lower compared to NRML margin of Rs.26,135/- and MIS margin of Rs.11,545.

7.5 – The trailing stoploss

Before we conclude this chapter, let us briefly discuss the ‘trailing stoploss’. The concept of trailing stoploss finds its application in bracket orders and in general plays a crucial role while trading. Hence I guess it is important to know how to trail your stoploss. Consider this situation (in fact most of us would have been in this situation) – you buy a stock at Rs.250, with an expectation that the stock price will hit Rs.270 sooner or later. You keep a stoploss at Rs.240 (just in case the trade goes against you), and hope for the best.

Things move as expected, the stock rallies all the way from Rs.250 to Rs.265 (just a few Rupees away from your target of Rs.270), however thanks to market volatility it starts to retrace back...all the way to hit your stoploss at Rs.240. So in essence you saw profits coming in for a brief while, but were eventually forced to book a loss. How do you deal with such a situation? More often than not we are always put in such a spot, where we are right about the overall direction but get ‘stopped out’ due to market volatility.

Well, thanks to the technique of ‘trailing your stoploss’ you can prevent yourself from being in this situation. In fact at times trailing stoploss gives you a chance of making a better profit than you originally thought about.

Trailing stoploss is a simple concept. All one needs to do is adjust the stoploss based on the movement in the stock. Let me illustrate this with an example. Here is a typical trade setup –

Trade type	Long
Script	Infosys
Instrument	Futures
Futures Price	Rs.2175/-
Target	Rs.2220/-
Stoploss	Rs.2150/-
Risk	Rs.25 (2175 – 2150)
Reward	Rs.45 (2220 – 2175)

Clearly the idea is to go long at Rs.2175 and keep a stoploss at Rs.2150. The idea is to adjust the stoploss as and when the price moves in the direction of the trade. To be precise, for every 15 points of price move in the direction of the trade the SL can be adjusted accordingly. The SL can be adjusted to any level with an idea of locking in the profits. When you adjust the SL with an intention to lock the profits, it is called “Trailing Stop Loss”. Do note, in this example I have randomly opted for a 15 point move, but in reality it can be any kind of price move. Have a look at the following table, as and when the price moves 15 points in the trades favor, I trail my SL and thereby lock in certain amount of profit.

Day	Trade Price	Pts moved in trades favor	Stop Loss	Thoughts with respect to the stoploss	Potential P&L (keeping the SL in perspective)
1	2175	0	2150	SL at initial level	Risk of losing Rs.25
2	2181	6	2150	SL at initial level	Risk of losing Rs.25
3	2176	1	2150	SL at initial level	Risk of losing Rs.25
4	2182	7	2150	SL at initial level	Risk of losing Rs.25
5	2190	15	2175	Price moves in trade favor(15 points), so increase the SL	No Profit No Loss
6	2202	27	2175	SL of 2175 has not been hit, hence stay in the trade	No Profit No Loss
7	2195	20	2175	SL of 2175 has not been hit, hence stay in the trade	No Profit No Loss
8	2190	15	2175	SL of 2175 has not been hit, hence stay in the trade	No Profit No Loss
9	2202	27	2175	SL of 2175 has not been hit, hence stay in the trade	No Profit No Loss
10	2209	34	2200	Price moves another 15 points in trade favor, so increase the SL	Locking in a Profit of Rs.25
11	2212	37	2200	SL of 2200 has not been hit, hence stay in the trade	Locking in a Profit of Rs.25
12	2222	47	2220	Another 15 points move, original target has been hit. Trail the SL	Locking in a profit of Rs.45
13	2229	54	2220	SL of 2220 has not been hit, hence stay in the trade	Locking in a profit of Rs.45
14	2235	60	2230	Another 15 points move in trade favor, so increase the SL	Locking in a profit of Rs.55
15	2230	55	SL triggered	Square off the Trade	Book profit of Rs.55

Do note, the original price target was Rs.2220, but thanks to the trailing SL technique, I can ride the momentum and close in on a higher profit.

Key takeaways from this chapter

1. The more information one conveys to the RMS system in terms of trade duration and stoploss the lesser is the margin requirement
2. Use NRML product type when you want to initiate a trade and carry it overnight
3. NRML margins are the highest (SPAN + Exposure)
4. MIS is a pure intraday trade, hence the MIS margin is lesser than the NRML margin
5. In a MIS trade only time information is conveyed (intraday) but not the information about the stoploss
6. A cover order (CO) is also an intraday product, besides in a CO one has to specify the stoploss
7. A CO conveys both the time and the SL information, hence margins are lesser than MIS
8. The margins for a Bracket Order (BO) is similar to a CO
9. In a BO product type one has the option to specify both the SL and target price at one go. Besides one can also trail the stop loss
10. A trailing SL technique requires one to adjust the SL as and when the script moves in favor of the trade
11. A trailing SL is a great way to ride the momentum in a script
12. There are no fixed rules for trailing, one can choose the trailing SL based on the market situation