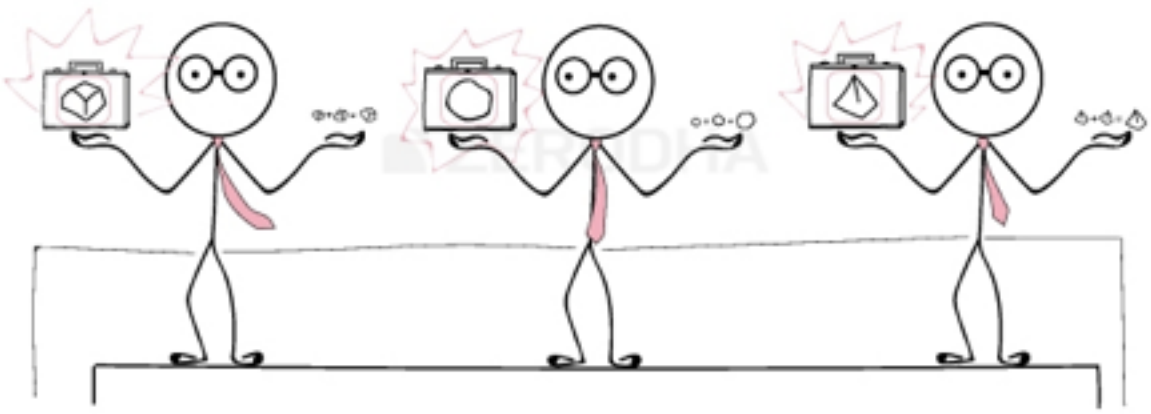
CHAPTER 6

Margin Calculator (Part 1)



6.1 The Margin Calculator

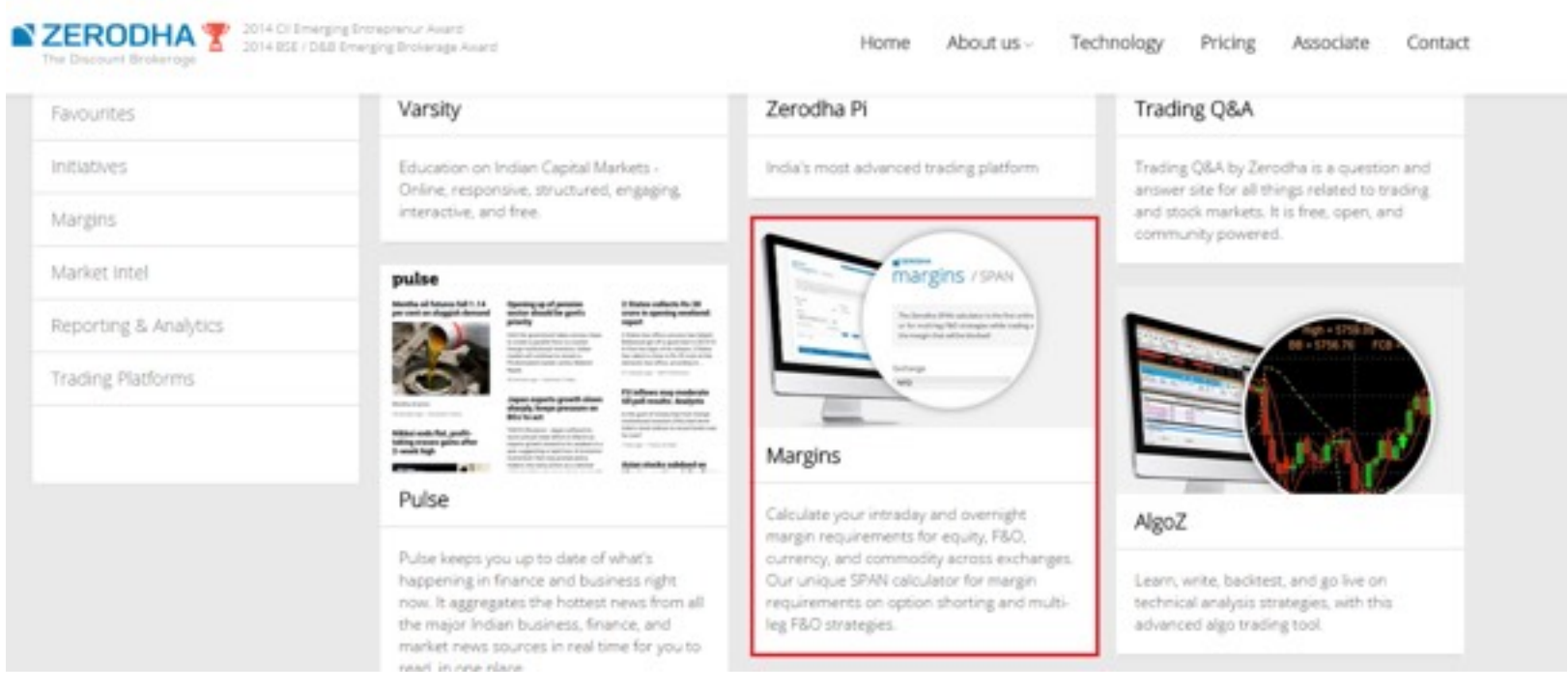
In continuation with our discussion on margins in the previous chapter, we will now discuss about the margin calculator. Over the next two chapters we will discuss about the margin calculator and also learn few associated topics related to margins.

Do recollect, in the previous chapter we learnt about the various types of margins required at the time of initiating a futures trade. Margins vary from one future contract to another as the margins depend on the volatility of the underlying. We will talk about volatility in the next module, but for now just remember that the volatility changes from one underlying to another, hence the margins vary from one underlying to another. So how do we know what is the margin requirement of a particular contract? Well, if you are trading with Zerodha, chances are you would have come across the 'Margin Calculator'.

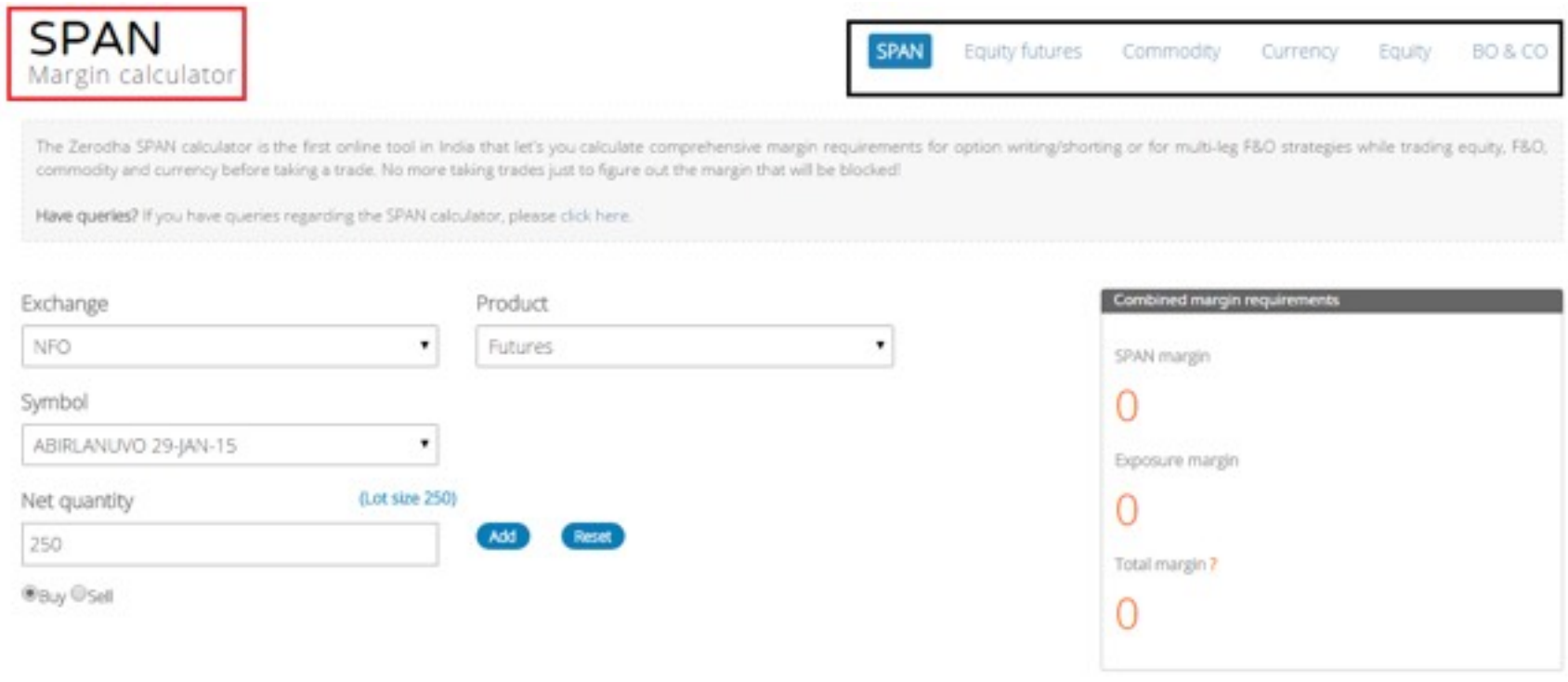
Zerodha's margin calculator is one of our popular offering, and rightly so. It is a simple to use tool that has a very sophisticated engine in the background. In this chapter I will just introduce you to the margin calculator and help you understand the margin requirement for the contract you choose. We will revisit this topic on the margin calculator when we take up the chapter on Options in the next module, at that point we will understand the complete versatility of Zerodha's margin calculator.

Let us take up a case where one decides to buy the futures contract of IDEA Cellular Limited, expiring on 29th January 2015. Now in order to initiate this trade one needs to deposit the initial margin amount. We also know that the Initial Margin (IM) = SPAN Margin + Exposure Margin. In order to find out the IM requirement, all you need to do is this –

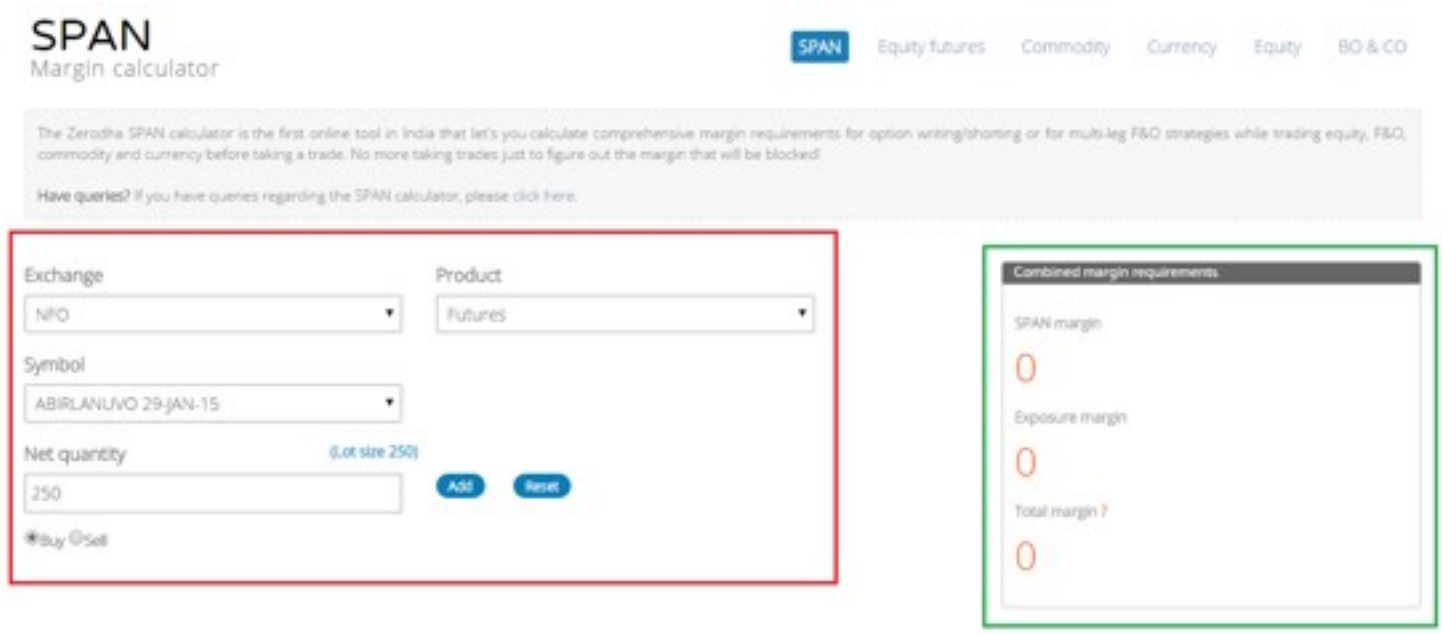
Step 1 – Visit https://zerodha.com/technology. Once you land here, click on 'Margins', I have highlighted the same in the image below



Step 2 – You will be taken to the margin calculator section. As you can see from the image below, there are many different options that are available (I have highlighted the same in black). However our focus for now will be on the first two options called 'SPAN' and 'Equity Futures". In fact by default you will land on the SPAN Margin Calculator sub page, highlighted in red.



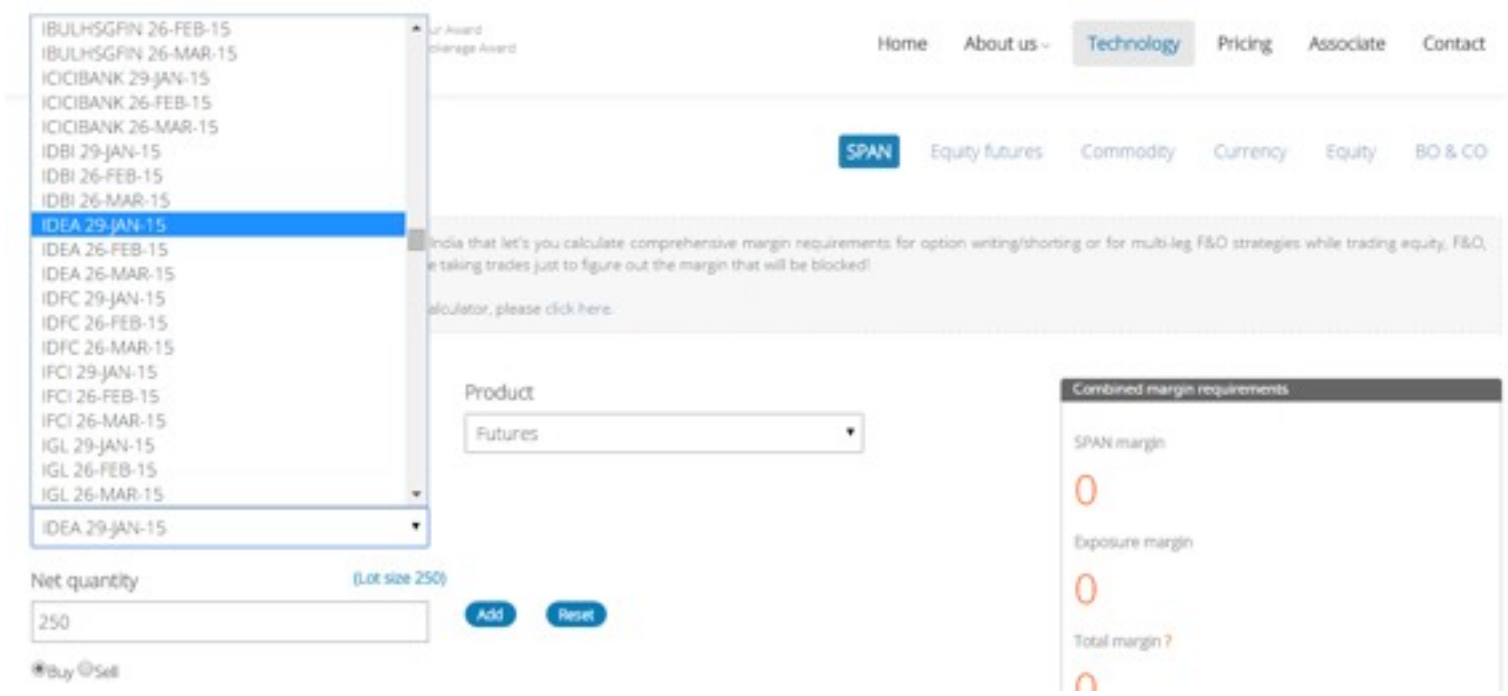
Step 3 – The SPAN Margin Calculator has two main sections within it, let us inspect the same –



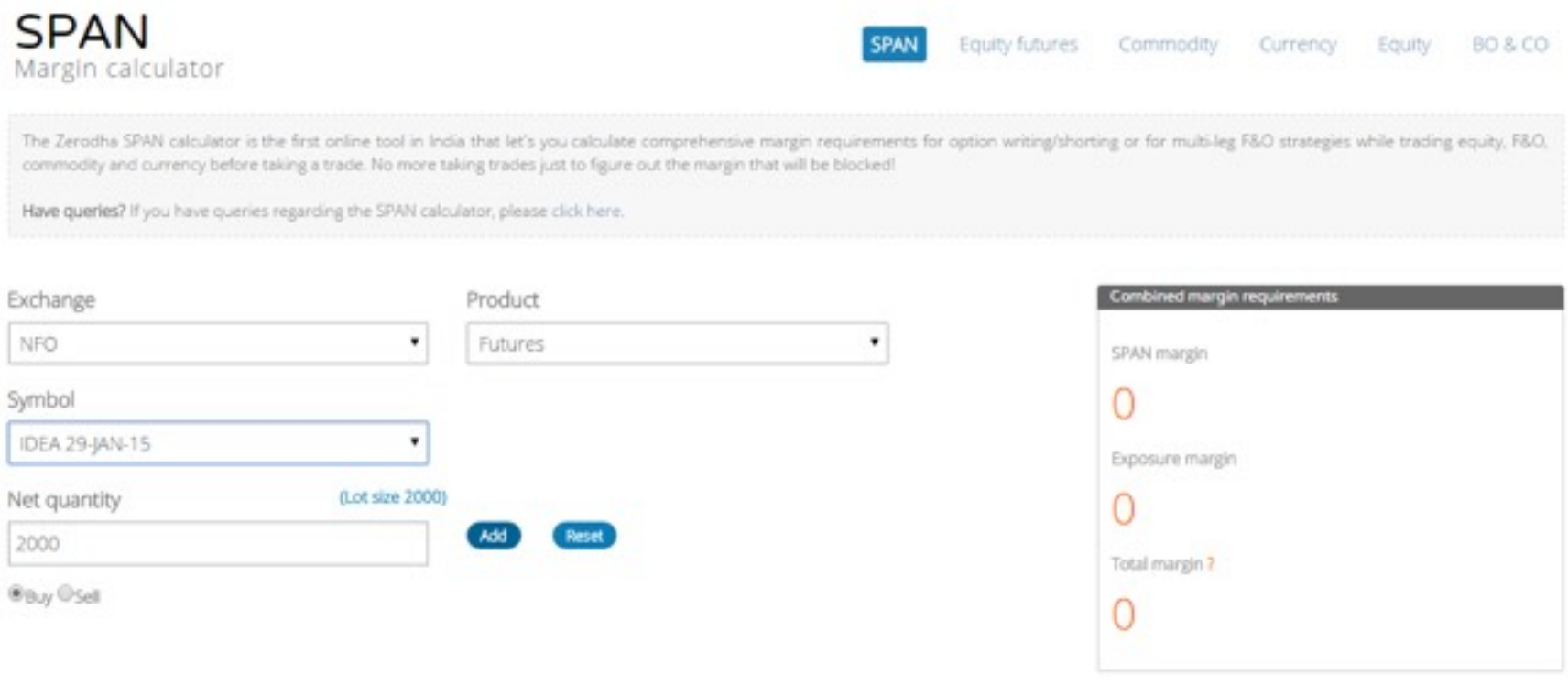
The resection has 3 drop down menu options. The 'Exchange' drop down option basically requires you to choose the exchange in which you wish to operate. Select –

1. NFO if you wish to trade Futures on NSE
2. MCX if you wish to trade commodity futures on MCX
3. CDS if you wish to trade currency derivatives on NSE

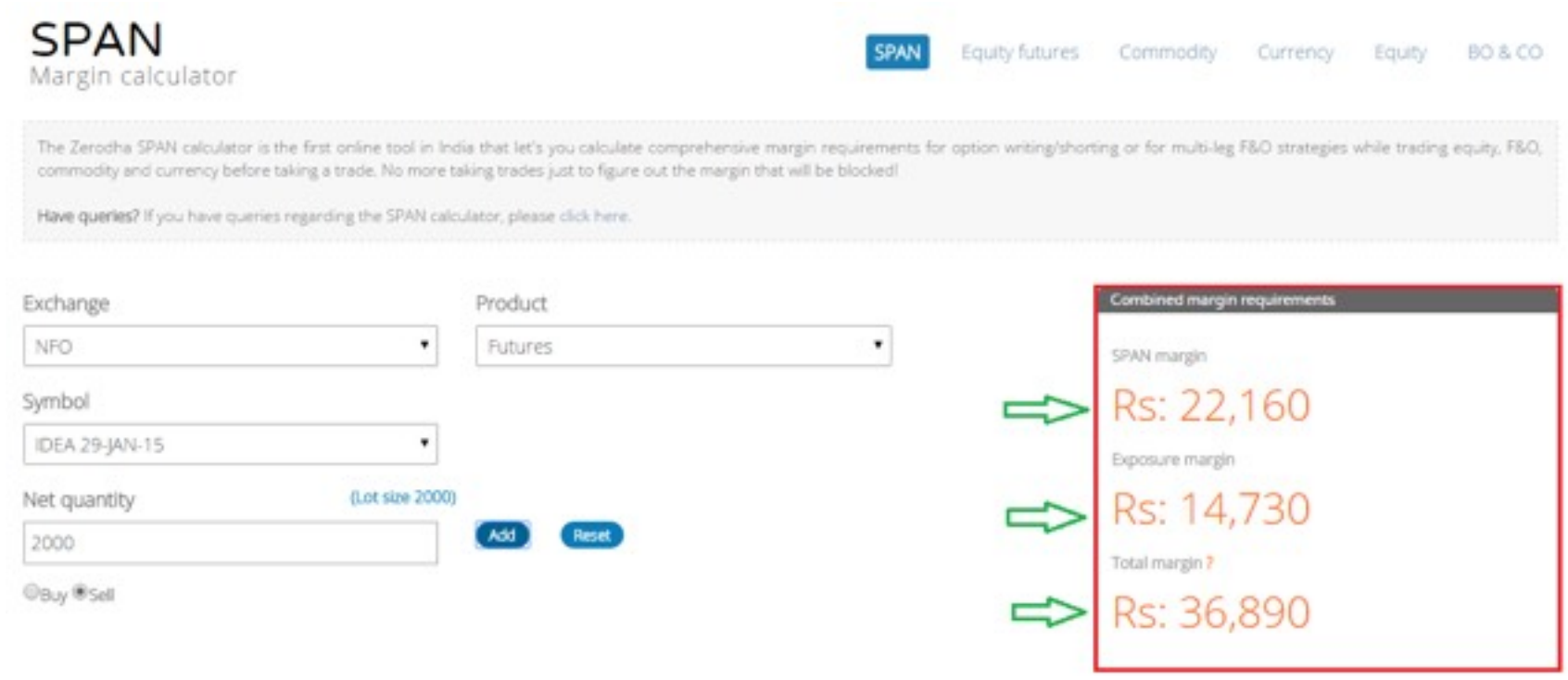
The next drop down on your right is the 'Product'; choose Futures if you wish to trade a futures contract, or if you wish to trade options, select Options. The third drop down menu is the list of symbols where all the futures and option contracts are made available. From this drop down menu, simply choose the contract you wish to trade. Since we are interested in IDEA Cellular Limited expiring on 29th Jan, I have selected the same, please see the image below –



Step 4 – Once you select the futures contract, the Net Quantity automatically gets pre populated to 1 lot. If you wish to trade more than one lot, then you need to enter the new quantity manually. Notice in the image below, as soon as I select IDEA futures contract, the net quality has changed to the respective lot size, which is 2000. If I wish to trade say 3 lots, then I have to type in 6000 (2000 * 3). Once this is done simply click on the radio button, either a buy or sell (depending on what you wish to do) and finally click on the blue "add" button



Once you instruct the SPAN calculator to add the margins, it will do the same and it will give you the split up between the SPAN, Exposure, and the total Initial margin. This is as shown below, highlighted in the red box –



The SPAN calculator is suggesting the following –

SPAN Margin = Rs.22,160/-

Exposure Margin = Rs.14,730/-

Initial Margin (SPAN + Exp) = Rs.36,890/-

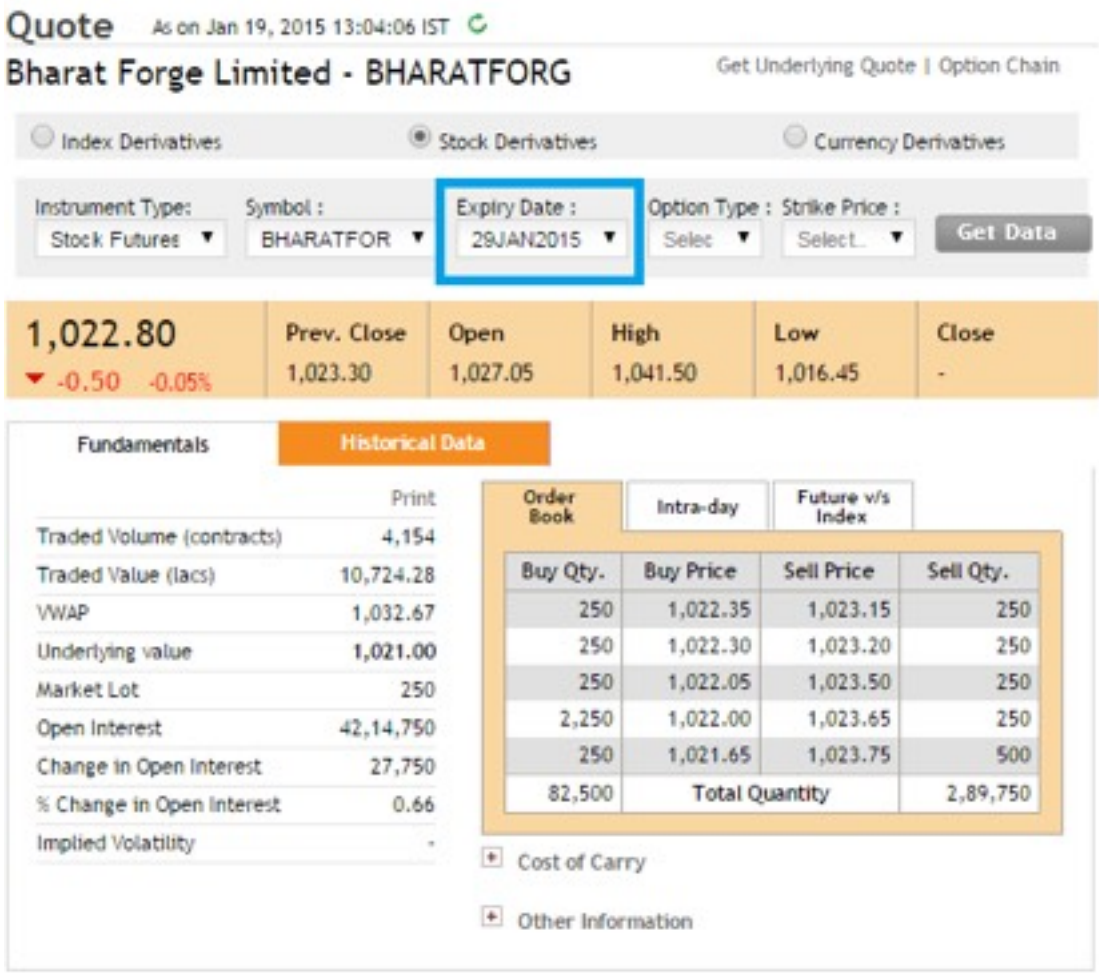
With this, you know how much money is required to initiate the futures trade on IDEA Cellular; it is as simple as that! The next interesting section within the margin calculator is the "Equity Futures". We will discuss the same in the next chapter, however, before we proceed to understand this, let us quickly understand 3 more topics namely the Expiry, Spreads, and Intraday order types. Once we understand these topics, we will be placed better to understand the "Equity Futures" on the margin calculator.

6.2 – Expiry

In the earlier chapters, we briefly figured out what the 'Expiry' of a futures contract means. Expiry specifies the last date up to which the contract lasts, beyond which it will cease to exist. Consider this, if I buy IDEA Cellular Limited futures contract at 149/- expiring on 29th January 2015, with an expectation that it will hit 155, it simply means that this move to 155 has to pan out by 29th January 2015. Obviously if the price of IDEA is below 149 before the expiry then I have to book a loss. Even if the price of IDEA futures hits 155 (or in fact any price above 149) on 30th January 2015 (1 day after the expiry) it is of no use to me as the contract has already expired. In simple words, when I buy a futures contract, it has to move in my favor on or before the expiry day, else there is no point.

Does it really have to be so rigid? Is there any flexibility in terms of going beyond the stated expiry date? Let me illustrate what I mean –

I know that the Central Government budget is expected sometime around the last week of February 2015, which is a little more than a month away (considering today is 19th Jan 2015). I personally expect a good budget this time around, and I'm also hopeful that the manufacturing sector will significantly benefit from the budget in the backdrop of the 'Make in India' campaign. Given this, I would like to bet that Bharat Forge, a manufacturing major will significantly benefit from the upcoming budget. To be precise I expect Bharat Forge to rally from now, all the way till the budget (pre budget rally). Therefore in order to exploit my directional point of view on Bharat Forge, I would like to buy its futures today. Have a look at the snapshot below –



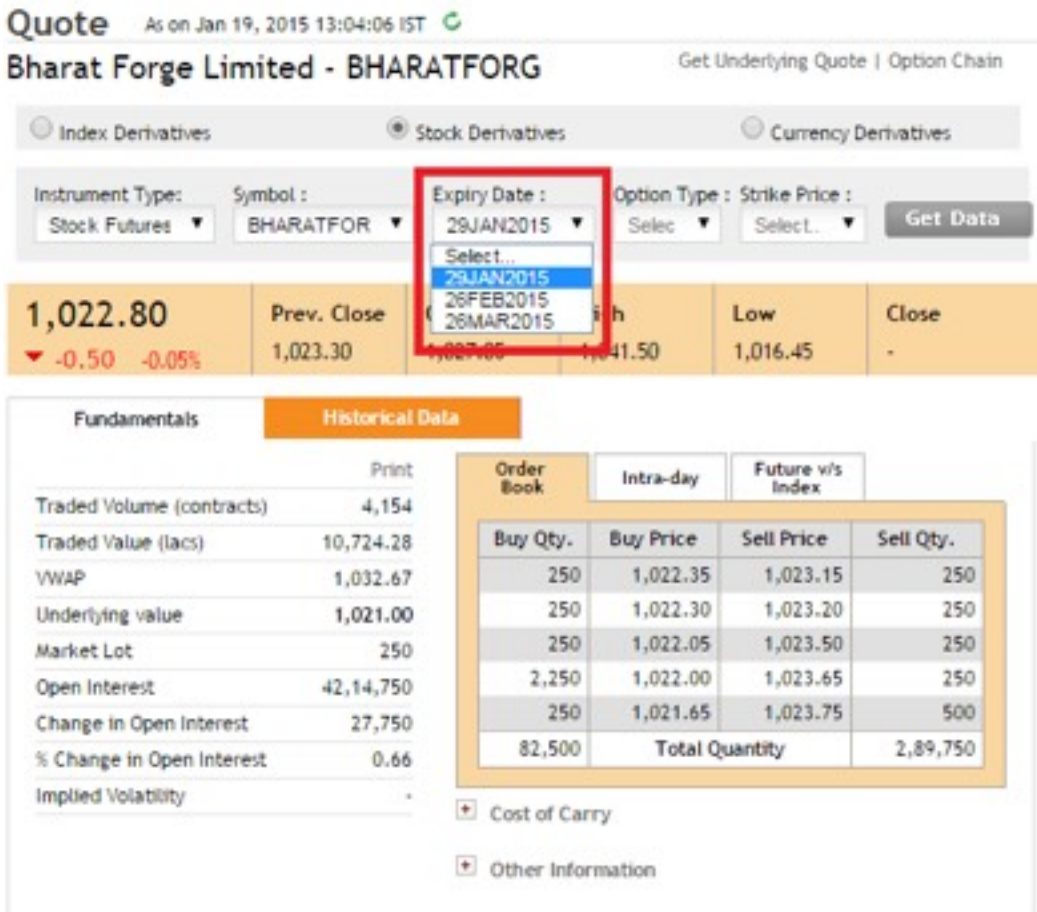
Bharat Forge January 2015 contract is trading at Rs.1022/-, but here is a situation – my view is that Bharat Forge will rally from now, all the way till the last week of Feb 2015. But If I buy the futures contract as shown above, then it expires on 29th Jan 2015, leaving me stranded half way through.

Clearly since my directional view goes beyond the January expiry period, I need not be bound to buy the January expiry contract. In fact for reasons similar to this, NSE allows you to select a contract that suites the expiry requirement.

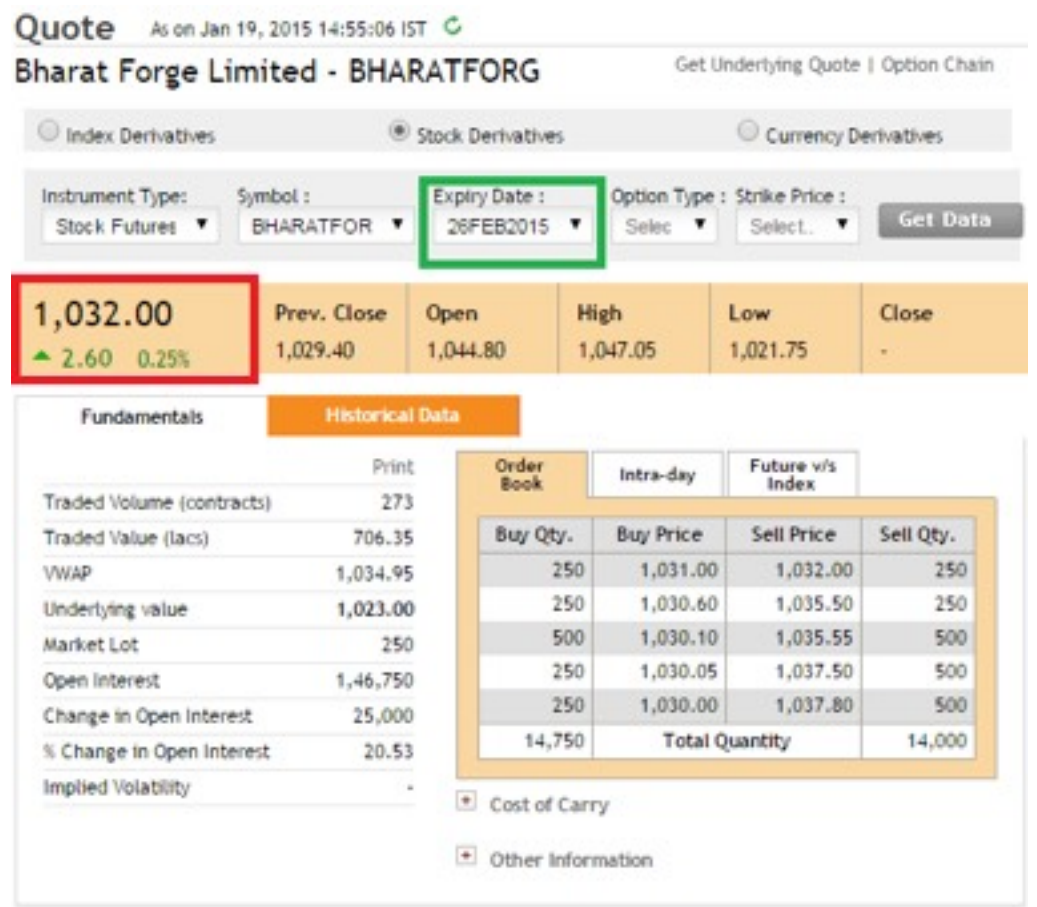
At any given point, NSE allows us to buy a futures contract with 3 different expiries. For example we are in the month of January; hence we have 3 contracts of Bharat Forge with different expiry –

1. 29th January 2015 – This is called the **near month** contract or the **current month** contract
2. 26th February 2015 – This is called the **mid month** contract
3. 26th March 2015 – This is called the **far month** contract

Have a look at the image below –



As you can see, from the expiry drop-down menu, I can choose any contract between the current month, mid month, or far month based on my specific requirement. Needless to say, I would choose the mid month contract expiring on 26th Feb 2015 in this particular case (as shown be-low) –



One thing that stands out clearly is the change in futures price. The contract expiring on 26th Feb 2015 is trading at Rs.1,032/- while at the same time the contract expiring on 29th Jan is trading at Rs.1,022.8/-. Which means the mid month contract is more expensive compared to the current month contract. This is always the case; the larger the time to expiry, the higher is the price. In fact as I write this, Bharat Forge Limited's March contract expiring on 29th March 2015 is trading at Rs.1,037.4/-.

For now just remember this – The current month futures price should be less than mid month futures price, which should be less than far month futures price. There is a mathematical reason for this, the same will be discussed when we take up the futures pricing formula.

Also, here is another important concept you need to remember – As I had mentioned earlier, at any given point the NSE ensures there are 3 future contracts (current, mid, and far month) available to trade. For now we know, Bharat Forge contract is expiring on 29th January 2015. This means the January contract can be traded till 3:30PM on 29th January 2015, after which it will cease to exist. So does that mean from 29th January 2015 onwards, the January contract goes out of the system leaving behind just the February and March contract?

Not really, till 3:30PM on January 29th 2015 the January contract is available, after which it will expire. On 9:15AM 30th January 2015, NSE will introduce April 2015 contract. So on 30th January we will have three contracts –

1. The February contract would now graduate as the current month contract from being the mid month contract until the previous day

2. The March contract would now be considered the mid month contract (graduated from being far month the previous day to mid month now)

3. The April contract, which is newly introduced, becomes the far month contract.

Likewise when the February contract expires, NSE will introduce the May contract. Hence the market will have March, April, and May contracts to trade. So on and so forth.

Anyway, continuing with Bharat Forge Limited futures contract example, because I have a slightly long term view, I can buy the futures contract expiring on 26th February 2015 and hold the February contract till I deem appropriate. However, there is another alternative as well – instead of buying the February contract, I can go ahead and buy the January contract, hold on to it till around expiry, and very close to expiry, I can square off the January contract and buy the February contract. This is called a '**rollover'**.

If you watch business news regularly, around the expiry time the TV anchor's usually talk about the 'rollover data'. Well, don't get too confused about this, in fact it is quite straight forward. All they are trying to convey is a % measure on how many traders have 'rolled over' (or carried over) their existing positions from the current month to the mid month. If there are many traders rolling over their existing long positions to the next month then it is considered bullish, likewise if a lot of traders are rolling over their existing short positions to the next month then it is considered bearish. This is as simple as that. Now is this a proven technique to draw any concrete inference about the markets? Not really, it is just a perception of the market.

So under what circumstances would one want to rollover rather than buy a long dated futures contract? Well, one of the main reasons for this is the ease of buying and selling aka 'The liquidity'. In simple words, at any given point there are more number of traders who prefer to trade current month contract as compared to the mid or far month contract. Obviously when there are more traders trading the same contract the ease of buying and selling gets better.

6.3 – Sneak Peak into Spreads

We are now at a very interesting stage. You may find some of the discussion below a bit confusing, but just read through this and try to grasp as much as you can. At the right time in future we will talk more about this in detail.

Just think about these two contracts –

1. Bharat Forge Limited Futures, expiring on 29th January 2015
2. Bharat Forge Limited Futures, expiring on 26th February 2015

For all practical purposes these are two different contracts, priced slightly differently, both derives its value from the same underlying i.e. Bharat Forge Limited, hence they behave exactly the same. Meaning if Bharat Forge stock price in the spot market goes up, then both January futures and February futures price would go up. Likewise if Bharat Forge stock price in the spot market goes down, then both January futures and February futures price would go down.

At times there are opportunities created where by simultaneously buying the current month contract and selling the mid month contract or vice versa, one can make money. Opportunities of this type are called 'Calendar Spreads'. How to identify such opportunities and setup trades is a different topic altogether. We will discuss this soon. But at this moment, I want to draw your attention to the margins aspect.

We know why margins are charged – mainly from the risk management perspective. Now, what kind of risk would exist if we are buying the contract on one hand and selling the same type of contract on the other? The risk is drastically reduced. Let me illustrate this with numbers –

Scenario 1 – Trader buys only Bharat Forge Limited's January Futures

Bharat Forge Spot Price = Rs.1021/- per share

Bharat Forge January contract Price= Rs.1023/- per share

Lot Size = 250

After buying, assume the spot price drops to Rs.1011/- (10 point fall)

Approximate futures price = Rs.1013/-

P&L = (10 * 250) = Rs.2500/- loss

Scenario 2 – Trader buys January and sells February Futures

Bharat Forge Spot Price = Rs.1021/- per share

Long on Bharat Forge January contract at Rs.1023/- per share

Short on Bharat Forge February contract at Rs.1033/- per share

Lot Size = 250

After setting up this trade, assume the spot price drops to 1011 (10 point fall)

Approximate price of January Futures = Rs.1013/-

Approximate price of February Futures = Rs.1023/-

P&L on January Contract = (10*250) = Rs.2500/- loss

P&L on February Contract = 10*250 = Rs.2500/- profit

Net P&L = – 2500 + 2500 = 0

Scenario 3 – Trader sells January and buys February Futures

Bharat Forge Spot Price = Rs.1021/- per share

Short on Bharat Forge January contract at Rs.1023/- per share

Long on Bharat Forge February contract at Rs.1033/- per share

Lot Size = 250

After setting up this trade, assume the spot price increases to 1031 (10 point increase)

Approximate price of January Futures = Rs.1033/-

Approximate price of February Futures = Rs.1043/-

P&L on January Contract = 10*250 = Rs.2500/- Profit

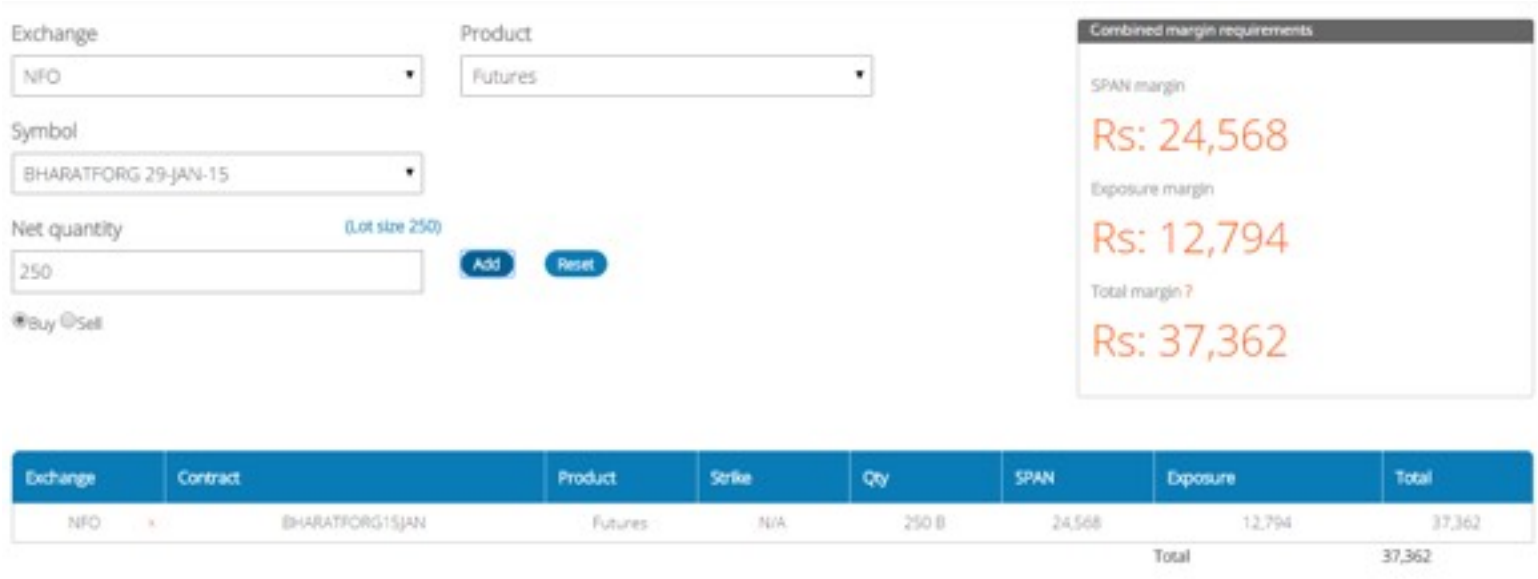
P&L on February Contract = (10*250) = Rs.2500/- Loss

Net P&L = + 2500 – 2500 = 0

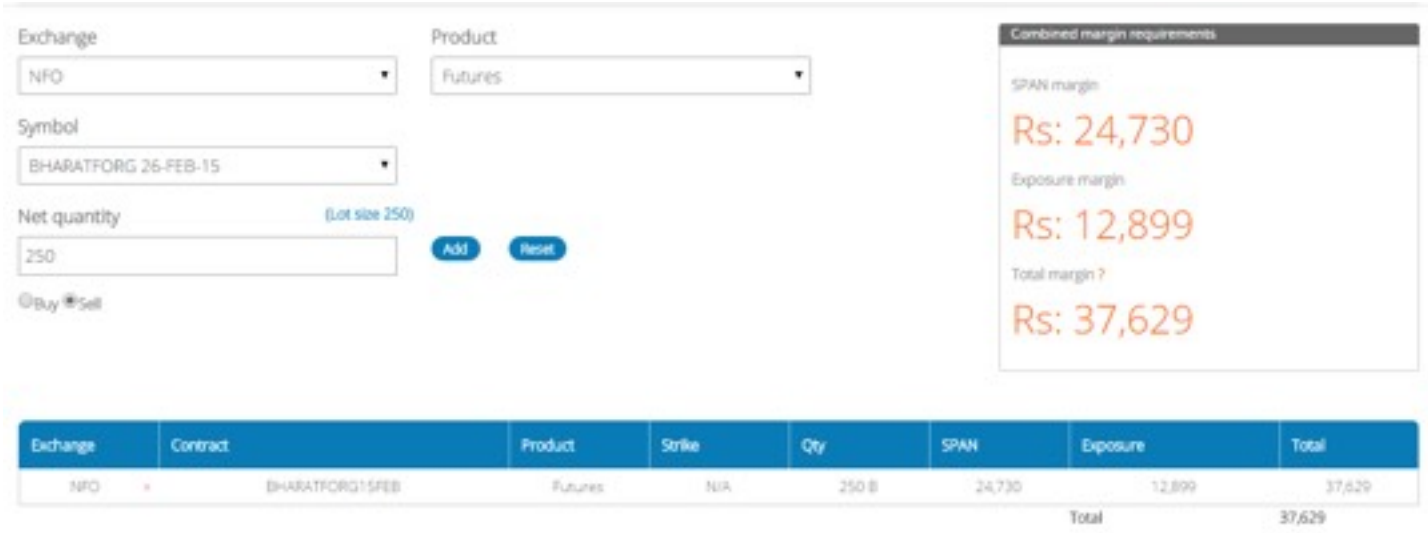
Clearly, the point that I'm trying to make here is that when you are long on one contract and short on another contract, the risk is virtually reduced to zero. However it is not completely risk free, one has to account for the liquidity, volatility, and execution risk etc. But by and large the risk reduces drastically. So when risk reduces drastically, the margins should also reduce drastically.

In fact this is what happens, have a look at the following snapshots –

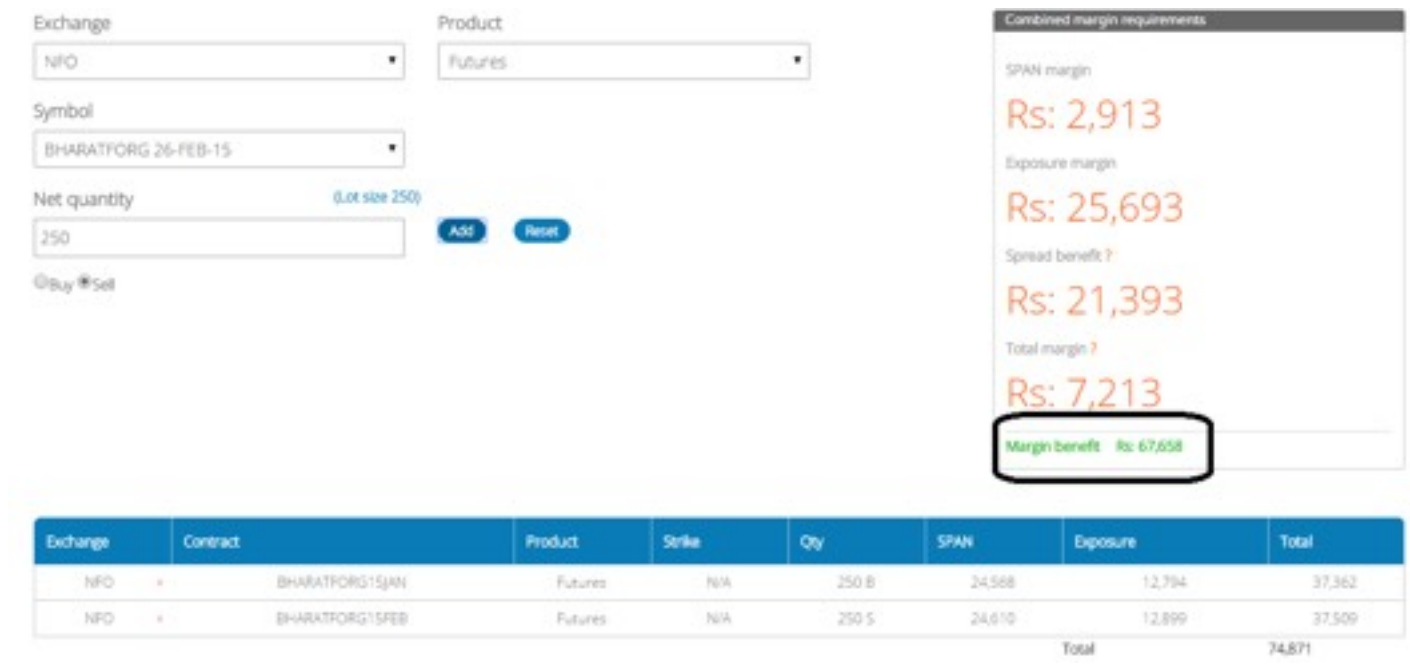
This is the margin requirement (Rs.37,362/-) when we intend to buy January contracts of Bharat Forge



This is the margin requirement (Rs.37,629/-) when we intend to sell February contracts of Bharat Forge



And this is the margin requirement (Rs.7,213/-) when we intend to buy January contract and sell February contract simultaneously.



As you can see, individually the January and February contracts require Rs.37,362/- and Rs.37,629/- respectively. Hence a total of Rs.74,991/-. However when a futures contract is bought and sold simultaneously the risk reduces drastically, hence the margin requirement. As we can see from the image above, the combined position just requires a margin of Rs.7,213/- only. Another way to look at it would be from a total of Rs.74,991/-, Rs.67,658/- i.e. Margin Benefit (highlighted in black) is reduced and the benefit is passed on to the client. But do remember this – A simultaneous long and short position is built only when opportunities arise. These opportunities are called the 'Calendar Spread'. If the calendar spread opportunity is not there, then there is no point initiating such trades.

Key Takeaways from this chapter

1. Zerodha's margin calculator is a simple tool that lets you calculate the margin required for a futures contract

2. The margin calculator has many versatile features inbuilt

3. The margin calculator gives the split up between the SPAN and Exposure margin

4. At any given point, NSE ensures there are three contracts of the same underlying which expire on 3 different (but consecutive) months

5. A trader can choose the contract of his choice based on the expiry data

6. The contract belonging to the present month is called 'Current Month Contract', the next month contract is called 'Mid Month', and the 3rd one is called "Far Month Contract'

7. On every expiry the current month contract expires and a new far month contract is introduced. In the process, the mid month contract would graduate to the current month contract

8. Calendar spread is trading technique which involves buying a certain month contract and selling another month contract simultaneously for the same underlying

9. When a calendar spread is initiated, the margins required are lower since the risk is drastically reduced