A Report on:

CASE STUDY ON LEVERAGE CONCEPT
DERIVATIVE NAME: TVS MOTORS

By

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Instrument	27th Dec 2019 to 26th March 2020	27th March 2020 to 25th June 2020
3 Month Treasury Bills	1.26%	1.07%
1 year SBI Deposit rate	1.35%	1.30%
Allotted Stock Returns (Buy and Hold)	-30.62%	26.11%
Allotted Stock Futures	-74.34%	64.65%
Allotted Stock options (using step procedure one)	-300%	58.76%
Allotted Stock options (using step procedure two)	-100%	43.82%

The above values are calculated and their working out has been clearly shown in the excel file. References are given of sites from where the data has been taken for the calculations.

About the company

- TVS Motor Company is a multinational 2 wheeler company headquartered in Chennai. It is India's third-largest motorcycle company. It is part of the TVS Group and is their largest company by size and turnover. It had a revenue of around 2.8 US Billion Dollars in the financial year 2018-19. The company is our country's 2nd largest exporter with exports in over 60 countries.
- It was incorporated in the year1978.
- The current chairman of the company is Mr Venu Srinivasan.
- The company has had various ventures with foreign firms such as Suzuki and BMW.
- The company recently bought Norton Motorcycle Company in an all-cash deal.
- TVS 2 wheelers are often associated with quality and good driving experience. They are among the pioneers who bought a change in the Indian 2 wheeler industry by introducing various enhancements to their bikes such as they were the first Indian

company to deploy a catalytic converter in a 100 cc motorcycle and the first to indigenously produce 4 stroke motorcycle engines.

- They were also the first Indian company to launch ABS in a motorcycle. This shows how concerned they are for public safety.
- The company is listed on both NSE(TVS Motors) as well as BSE (as 532343).
- It was first listed on NSE on 10th June 1992.
- TVS in total has 4 manufacturing plants. 3 in India (Hosur, Mysore and Nalagarh) and one outside India in Indonesia.

Analysis

In a hypothetical case, we have been given INR 10,00,000 for investment purposes in various instruments. We have considered two sample periods here. One is 27th December 2019 to 26th March 2020 and the other being 27th March 2020 to 25th June 2020. The two different periods are taken so that we can compare the effect coronavirus has had on investments in various types of instruments of trading.

1. **3 Month Treasury Bills:**
   In this case, we have just invested INR 10,00,000 for 3 months in the two sample periods. We take the T Bill rate prevailing for that period and calculate the interest we will earn on the investment. As we can see from the above table **the values for Sample period 1 is more as compared to Sample period 2.** This means that the T Bill rates have decreased due to the coronavirus and are providing a less yield. There can be two reasons for the decrease in the T Bill rates. One being the government will not be able to cope up with the higher interest payments as due to corona the entire economy of the country is in dire straits. Second is that people too require urgent money due to the coronavirus. They are looking for short term T Bills with higher liquidity. Hence, these reasons have led to the decrease in the T Bill rates. Investing in T bills is the safest option as it is nearly impossible that the government will default on payment. Since it is the safest it provides lower return rates as compared to other trading instruments.

2. **1-year SBI deposit Rate:**
   In this case, we invest INR 10,00,000 for 3 months in the bank in the two sample periods. We take the prevailing interest rate for the period and then calculate the maturity amount using the compound interest formula. In this case, too we find that **the rate of return earned in Sample period 1 is greater than Sample period 2**. The reason for it being that Banks too are going through a bad period due to the coronavirus and thus they are unable to provide the account holders with high-interest payment on investments.

3. **Stocks (Buy and Hold):**
   In this case, we have bought stocks worth INR 10,00,000 on the first day of each sample period and then sell them after 3 months. In this case, we see that **the returns earned for Sample period 2 are greater than Sample period 1.** This comes as a surprise as

due to coronavirus it was expected the company share values would fall but that was not the case here. During Sample period 1 we get a negative return as during that time the automobile sector had been hit and the manufacturing rate of the country had also decreased. But, just before the Corona virus hit India (around the end of March 2020) the automobile sector had just started to pick up momentum again. Also, the other reason for the increase in Sample period 2 could be that TVS motors should a greater March-end profit than that was predicted. TVS Motors is the third largest 2 wheeler manufacturer in the country and also it has paid regular dividends to its existing shareholders. These reasons would be the possible reason why their share prices have increased.

4. **Stock Future Options:**

In this case, we find out the three-month far price for the two Sample periods and close out the deal on the last day of maturity. As it is a futures contract we are obligated to pay some amount of margin amount as security. Also, we are obligated to fulfil the contract i.e. in this position since we are longing for the futures contract we are obligated to buy the stock on the maturity of the contract. To find out the margin amount, I have used 6 months prior stock price data to find the standard deviation. The standard deviation found is then annualised and then is used as the margin % value. In this case, we have taken the margin % value to be constant for the entire sample period. This margin % is used to calculate the number of contracts bought. While dealing in futures contracts we make use of the leverage concept. By investing INR 10,00,000 we can buy more shares than we could afford. Also, the payment for them has to made on maturity so we don't need to have the money at that moment. But taking on leverage increases riskiness. We can control a larger number of shares as compared to stocks but the losses if incurred are huge. We can see that from the values in the table that **returns for Sample 2 period are much more as compared to Sample period 1.** Sample period 1 has a strike price higher than the stock price on 26th March but we are forced to go through with the contract as we are obligated.

5. **Stock Options:**

For the analysis of the stock options instrument, we have used two different methods. A call option gives the person longing an option whether to go ahead or not with the contract. He is not obliged unlike in the future.

i. **Step one procedure:**

In this method we use the rolling month strategy as the open interest value for a far month options contract is zero. We divide each sample period into three parts (1 month each) for calculation purposes. On the first day for each of the three divided parts, we find the strike price and call option premium for the current options contract. We then invest INR 10,00,000 in buying the contracts. This amount is a one-time investment. We don't get it back whether we honour the contract or not. Here too we are using the leverage concept. Then at the end of each month, we compare the strike price to the stock price. If the strike is the price is less as compared to the prevailing stock price we go ahead with the deal. If not we incur a loss of INR 10,00,000. Also, if we occur a profit we need to subtract the ten lakhs to get the net profit. If at the end of the first month we have some money left with us we invest it again in options contract otherwise we borrow another INR 10,00,000. As we can see from the values **above the returns of Sample period 2 is greater than Sample period 1.** The return for

Sample period 1 is -300% which means that for each of the three months the options contract was not honoured. Thus providing a loss of -300%.
The leverage concept can be seen in options as we can have control over more shares with 10 lakhs than we could by normal stock trading. Also as seen from the return % for Sample period one that the loss % incurred if the contract doesn't go in our favour is very high.
The above method explained is used to calculate the return % for both the sample periods.

ii. **Step two procedure:**

In this method, we make use of the binomial pricing theorem. We have calculated the annualised standard deviation for the stock returns for the past 6 months for both periods. This is also known as the margin %. This value is used to calculate the probabilities of upside(u) and downside(d). These values of 'u' and 'd' help us in calculating the max and minimum possibilities of prices of the stocks on maturity. After this we use the formula p = (e^(r*t) -d)/u-d)
Using the value of 'p' which is a probability value we are able to predict the option right option price for our investment. For the strike price calculation we first predict the future price of stock on maturity by normal compound interest formula where the rate is the annualised return of the stock for the past 6 months . This value(rate) is got using the CAPM model. For the strike price we choose the closest value to the predicted stock price so as to minimize losses if any. Then after three months we compare the stock price on maturity with our strike price. If the strike price is less we buy the stock otherwise we don't.
From the values in the table above we can see **the rate of return of Sample period 2 period is greater than that of Sample period 1.** Sample 1 has a 100% as the strike price is higher than the stock price on maturity.
The detailed structure for the binomial tree is shown in the excel file. This diagram will further help understand the method.

Conclusion:

- To sum up the case study we can conclude by saying that an investor would have done better in-sample period 1 if he would have invested in options like T Bills or Bank Deposits. But, if the investor was ready to take some more risk and invest in options like stock trading, options and futures he would have gained profit in Sample period 2.
- For the first period, the investor would have earned the most by investing in T bills with a return of 1.35%.
- For Sample period 2, the investor would have gained maximum profit if were to invest in futures contracts. (64.65%)

- We have also seen that how by using the leverage concept we can have control of a huge number of shares. A number which is more than what we can pay for. But, along with there is a certain risk involved. As seen in Sample period 1 the investor would earn huge losses if he used the leverage concept and bought future and options contracts. Contrary to that he earned huge gains too using it in the second sample period. Thus I would end by saying that if an investor is willing to take risks and is well prepared for losses then he should go for derivatives like options and futures. Otherwise, a normal person can earn certain sure shot returns by investing in banks and T Bills.

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