**Assignment:** EFS-01: Strategy Building in Equity

**Assignment Discussion Date:**

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| --- | --- |
| Q1 | Test the crossover trading methodology as provided in the “XL\_FILE\_EFS 01\_Example\_Worksheet” as used in class. Please note that you should be modelling it for Exponential Moving Average (EMA) (definition is given below, please use that) as discussed in the class instead of Simple Moving Average. Please use the data provided on "Q1 Data" Sheet of the Excel file named “XL\_FILE\_EFS-01\_AssignmentData.xlsx” given along with this assignment. Find out the optimal value of SEMA (Short Term EMA) and LEMA (Long Term EMA) for the Maximum Total returns using data Table (as shown in class) and compute the following: |
|  |  |
|  | *Definition of EMA: 5 day EMA = [(4\*(Previous day EMA) + Current day price)]/5. First value of EMA can be calculated using the Simple moving average. For the first EMA calculate Simple Moving Average* |
|  |  |
| **S No.** | **Output to be computed** |
| 1 | CAGR (Compound Annual Growth Rate) |
| 2 | Hit Ratio or Success Ratio |
| 3 | Average Profit per trade |
| 4 | Average Loss per trade |
| 5 | Average Profit per Trade to Average Loss per Trade ratio |
| 6 | Maximum drawdown (with Leverage 1) |
| 7 | Equity Curves for the leverage of 1,2,3,4 |
| 8 | Calendar year-wise Returns for: |
| 8a. | Breakup of Profit from Long Trades per year |
| 8b. | Breakup of Profit from Short Trades per year |
| 8c. | Hit Ratio per year |
|  |  |

**Important points to remember**

* **Make a data table and find out which is the best parameter. Please copy the data table and paste it as values only while submitting the assignment.**
* **The model should be dynamic in the sense, that if you change your input parameters the model's results should change accordingly**
* **Please make sure that the SEMA/LEMA is dynamic w.r.t user parameters**
* **For a long term EMA you can take any period of your choice and after that, you can check via the data table which is the long term EMA along with the short term EMA is giving you the maximum profit.**

**Outcomes**:

🡪 Columns which are used in the model.



🡪 Please find below param used across the model.

Graphical user interface, application, table, Excel

Description automatically generated

🡪Output to be computed: Below outcomes are based on (Leverage 1).

Table

Description automatically generated

🡪 Equity Curves for the leverage of 1,2,3,4.

Leverage 1:

Chart, scatter chart

Description automatically generated

Leverage 2:

Chart, histogram

Description automatically generated

Leverage 3:

Chart, histogram

Description automatically generated

Leverage 4:

Chart, histogram

Description automatically generated

🡪Calendar year-wise Returns and Hit Ratio:

Table

Description automatically generated

**🡪Make a data table and find out which is the best parameter.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Data Table** | **SEMA** |  |  |
| **LEMA** | 26.96% | 4 | 5 | 6 |
|  | 30 | **26.96%** | 19.47% | 16.44% |
|  | 40 | 25.10% | 24.33% | 17.85% |
|  | 50 | 23.52% | 20.36% | 15.68% |