Introduction to Excel

- **Hands-on exercises** using Market data to work with basic excel formulae

- **Strategy building in excel**
  - Moving Averages (Simple Moving Average)
  - VWAP
  - RSI

1. Work with the data file given to you.
2. Freeze the top row of column names
3. Find difference in current day prices from previous day prices
4. If prices are increasing, add label "Increase", else "Decrease"

✓ Hands-on exercises using Market data to work with basic excel formulae

✓ Strategy building in excel

– Moving Averages (Simple Moving Average)

– VWAP

– RSI

– Trading the boring consumer stock

Implementing trading strategies

- Moving Average – Prices are mean-reverting

- VWAP – Volume weighted average prices

- RSI – Relative Strength Indicator

Short term trading strategy:

- Carrying overnight positions

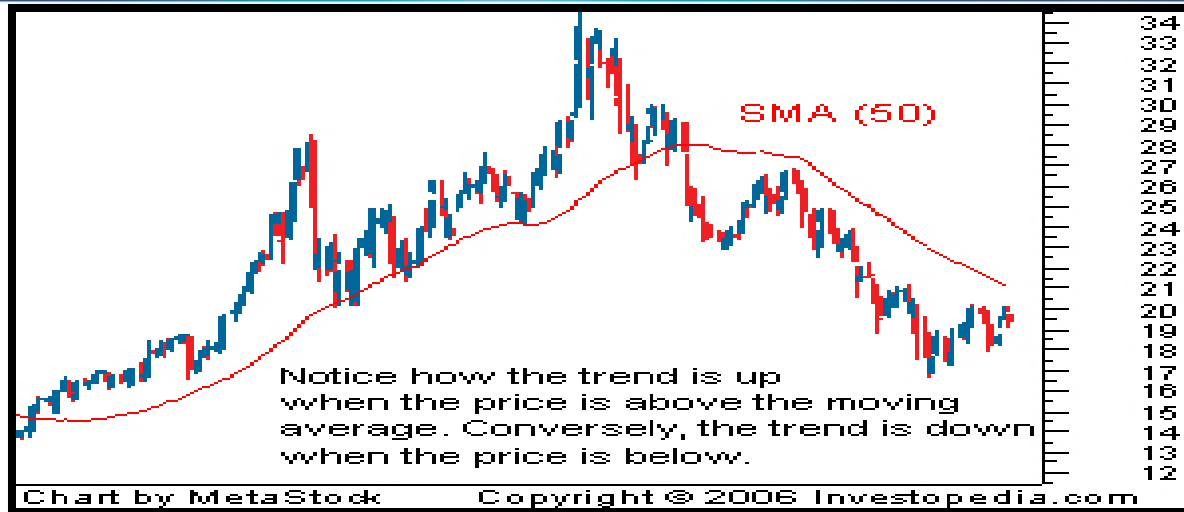- Buy at today's close and sell at tomorrow's open.

Moving Average

Moving Average is based on a simple averaging formula, as it calculates the average value of price in a given period of time.

Each day calculate average of prices in previous 'n' days.

Stock markets constantly experience rise and drops in prices which could influence decisions. These sharp peaks are not a part of the overall market trend, but just temporary shocks to the market. Moving average just normalizes the price chart by ignoring such temporary movements.

Simple Moving Average -Example

Notice how the trend is up when the price is above the moving average. Conversely, the trend is down when the price is below.

Chart by MetaStock   Copyright © 2006 Investopedia.com

Moving averages are used to identify current trends and trend reversals. Moving averages can be used to quickly identify whether a security is moving in an uptrend or a downtrend depending on the direction of the moving average.

As you can see in graph above, when a moving average is heading upward and the price is above it, the security is in an uptrend. Conversely, a downward sloping moving average with the price below can be used to signal a downtrend.

Moving Average Crossover

- Crossovers are a common way traders use Moving Averages. A crossover occurs when a short moving average crosses either above a long moving average below the long moving average.

- When short moving average is above the long moving average it is considered to be bullish.

- When short moving average is below the long moving average it is considered to be bearish.

- Moving average crossovers help you to determine when a trend is about to end and reverse.

Moving Average model building

- Assumption is that "prices are trending"

- Long moving average: 60 days
- Short moving average: 20 days

- Buy and Sell at crossovers
- When to buy/sell?
- How to calculate profits?

Moving Average Crossovers

Build the trading model

Excel steps:

- Calculate SMA in Column H
- Calculate LMA in Column I
- Calculate Trading Signal as buy/sell in Column J
- Calculate Trading Price in Column K as per the signal in column J
- Calculate Returns in Column L

Create the Profit and Loss table

- Create a table which gives the summary of
    - Total returns
    - Average Returns
    - Total positive trades
    - Total negative trades
    - Hit ratio: positive/total

VWAP

- Volume weighted average price(VWAP) is a trading benchmark that is used by traders. It is used most frequently by short-term traders and in algorithm based trading programs.

- It is used as a benchmark to decide the price at which the security should be bought or sold.

- The idea is, if you buy a security at a price lower than the VWAP it is a good buy. Similarly if you sell the security at a price higher than the VWAP then it is a good sell.

Q & A

VWAP model building

- Assumption is that "VWAP indicates the best price to buy and sell"
- Buy if price < VWAP
- Sell if price > VWAP

Building the trading model

- Excel steps:
  - Calculate typical price in the column H. Typical price is the average of high, low, and close price.
  - Calculate TPVolume in the column I by multipying typical price with the volume of the security.
  - Calculate Cumulative TPVolume in the column J by adding the current TPVolume to the previous one.

Building the trading model

- Calculate Cumulative Volume in the column K by adding the current Volume to the previous one.

- Finally calculate VWAP in the column L by dividing the cumulative TPVolume by cumulative volume.

Building the trading model

- Calculate Trading Signal as buy/sell in Column M
- Calculate Trading Price in Column N as per the signal in column M
- Calculate Returns in Column O

Create the Profit and Loss table

- Create a table which gives the summary of
  - Total returns
  - Total trades
  - Total positive trades
  - Total negative trades
  - Hit ratio: positive/total

Q & A

RSI-Relative Strength Indicator

- RSI is one of the most popular indicators used to measure the momentum of stock market.

- The Relative Strength Index helps you decide if a stock is overbought or oversold.

- It's a momentum-based oscillator and is a widely used technical analysis tool.

- RSI compares recent upwards movements to recent downwards movements in the closing price of a stock.

Calculating RSI

- RSI is defined by this equation.

- RSI = 100 – 100/(1+ MAR)

- Here MAR is the Moving Average Ratio also known as Relative Strength.

- RSI varies between 0 and 100.
- A stock is generally considered overbought if RSI moves above 70, or oversold if its RSI moves below 30.
- If the stock price reaches new highs, but the RSI does not rise above its previous high, then the stock price is due to fall.
- When the RSI moves above 50, the average gains outweigh the average losses; this is considered bullish.
- When the RSI falls below 50, the average losses outweigh the average gains; this is considered bearish.

RSI trading model building

- Assumption is that "RSI tells us about overbought and oversold shares"

- RSI >70 , Sell the shares

- RSI<30 , Buy the shares

Adjusted close

RSI
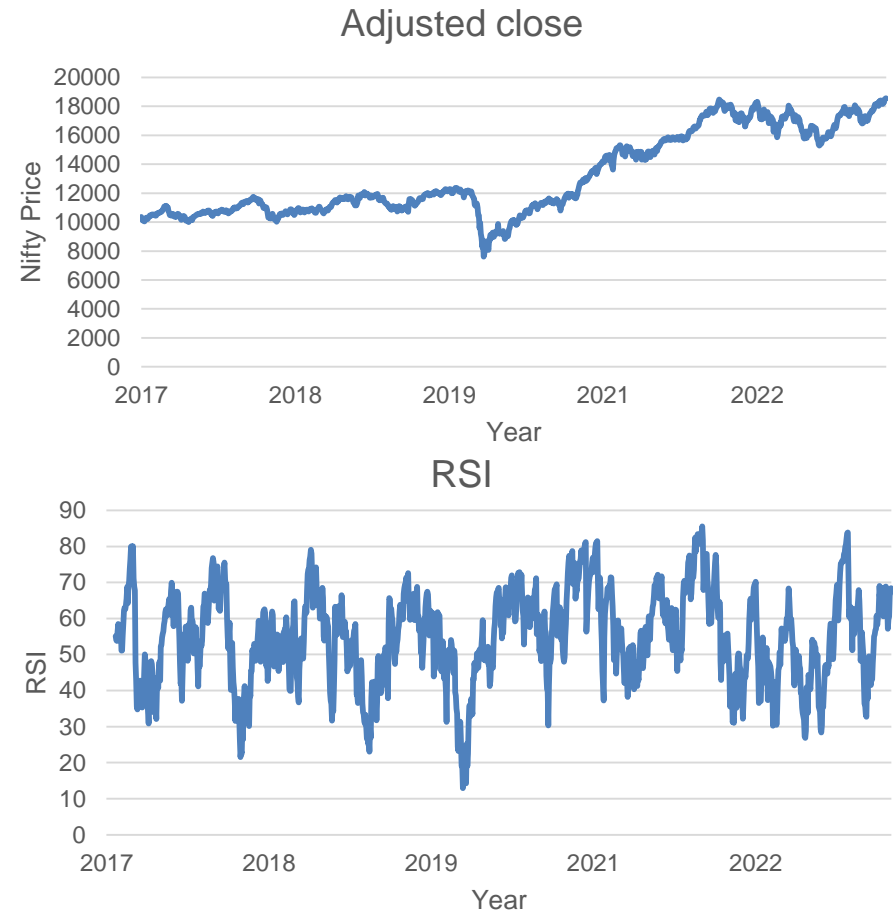
Building the trading model

- Excel steps:
  - Calculate price difference in the column H. It's the difference between closing prices on each day.
  - Calculate gain in the column I.
  - Calculate loss in the column J.

Building the trading model

- Calculate the average gains for first two weeks in the column K
- Calculate the rest of the average gains using [(previous average gain × 13 + current gain) / 14].
- Calculate the average loss for first two weeks in the column L
- Calculate the rest of the average losses using [(previous average loss × 13 + current loss) / 14]

Building the trading model

- The value of MAR is the average gain divided by average loss . Calculate it in column M.
- Calculate the 14 day RSI using the formula in slide 23.
- The moving average smoothens the impact of large price movements

Create the Profit and Loss table

- Create a table which gives the summary of
  - Total returns
  - Total trades
  - Total positive trades
  - Total negative trades
  - Hit ratio: positive/total

Trading the boring stock

- http://www.quantifiedstrategies.com/trade-the-boring-consumer-stocks-when-they-open-down-and-yesterday-was-a-down-day/

Q & A