

“TECHNICAL ANALYSIS”

T.A = Technical Analysis
 F.S = Financial Statements
 C.F = Cash Flows
 ROC = Rate of Change
 RSI = Relative Strength Index

S.D = Standard Deviations
 M.A = Moving Average
 M.V = Market Value
 MACD = Moving Average
 Convergence/Divergence

13. a

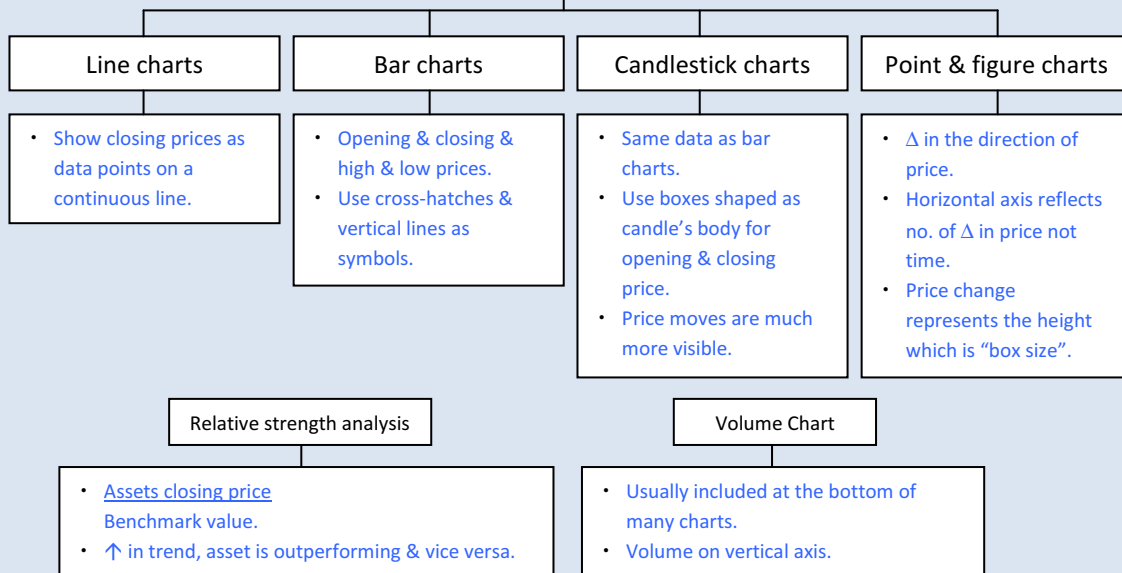
- Study of collective market sentiment.
- Prices are determined by interaction of supply & demand.
- Key assumption of T.A is that EMH does not hold.
- Usefulness is limited in illiquid markets as well as markets subject to large outside manipulation.

Comparison	
Technical Analysis	Fundamental Analysis
• Share price & trading volume	• Intrinsic value
• Data is observable	• Use F.S & other information
• Can applied on assets without C.F	

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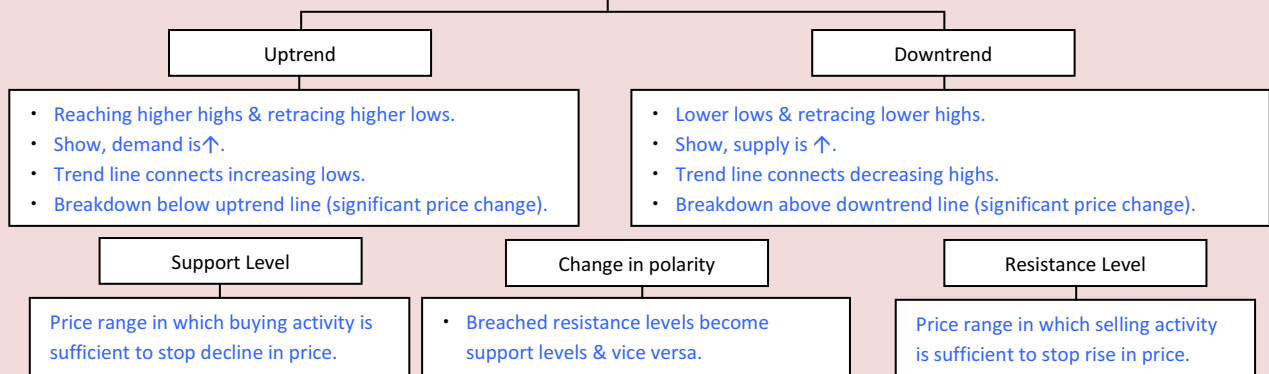
- Charts of price & volume.
- Exponential price change ⇒ charts on a log scale.
- Time interval reflects horizon of interest.

Types of price charts



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Trend in prices



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Reversal Patterns

- Signals the end of a trend
- Head & shoulder patterns must be preceded by uptrend & inverse H&S must be preceded by downtrends.
- Analyst use size of H&S pattern to project price target.

Double top & triple top

- Indicate weakening buying pressure. (Similar to H&S).
- Selling pressure appears after resistance level.
- Double bottom & triple bottom for downtrends.

Continuation Patterns

Used to predict the resumption of a market trend.

Triangles

- Form when the range between high and low prices narrows.
- Can be symmetrical, ascending or descending.
- Suggest buying & selling pressure roughly equal.
- Measuring implication: height of triangle at formation.

Rectangles

- Form when trading temporarily range b/w support & resistance level.
- Is a form of continuation pattern with one formed by connecting the high prices and the other by connecting the lows.
- Flags & pennants ⇒ Form over a short period of time, on a daily price chart.

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Price based Indicators

Moving avg. lines

- Mean of closing prices over a specified number of periods.
- The longer the time-frame used to create M.A "n", smoother the avg. line.
- Uptrend price is higher than moving avg. & vice versa.
- M.A for different periods can be used together.
- Golden cross: Short-term M.A. crosses from underneath long-term M.A, buy signal. Dead cross: Short-term M.A crosses from above long-term moving average, sell signal.

Bollinger bands

- Based on S.D from average price over last n periods.
- Analyst draw high & low bands above & below n-period M.A
- Long-term investors may buy (sell) when price significantly exceeds (falls below) the upper (lower) bound.
- Contrarian strategy ⇒ Buy (sell) when price reaches the upper (lower) band.

Oscillators

- Tool to identify overbought or oversold market.
- Based on M.P but scaled so that they "oscillate" around a value or between two values.
- Charts used to identify convergence or divergence of oscillator & M.P
- Convergence ⇒ same pattern as security, divergence ⇒ Oscillators demonstrate vice versa.

Examples of oscillators

ROC or Momentum

- $100 \times \text{Diff. b/w last closing price \& closing price } \times \text{ days ago.}$
- Buy when oscillator into crosses positive territory & vice versa.
- Can be around 0 or around 100.

RSI

- Ratio of $= \frac{\text{Total price } \uparrow}{\text{Total price } \downarrow}$
- Oscillate b/w 0-100 .
- Value > 70 ⇒ overbought.
- Value < 30 oversold.

MACD

- Use exponentially smoothed M.V
- Oscillate around 0 but not bounded.
- MACD and signal lines used in technical analysis in three ways: Crossover between signal line and the MACD; trends lines on the MACD itself; and the MACD in or outside range.

Stochastic oscillator

- Calculated from latest closing price & highest & lowest prices.
- Use two lines bounded 0 & 100.
- %k = diff. b/w latest price & recent low as % of diff. b/w recent high & lows.
- Average of the last three %K values calculated daily.

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Non-Price-Based Indicators

- Sentiment indicators ⇒ to gain insight into trends.
- Bullish ⇒ increasing prices, bearish ⇒ decreasing prices.
- Opinion polls ⇒ measure investors' sentiments directly.

a. Sentiment Indicators

1. Put/Call Ratio

- Put/call ratio = $\frac{\text{Put volume}}{\text{Call volume}}$
- ↑ Ratio ⇒ market sentiment is extremely negative; likely increase in price.
- Viewed as contrarian indicator.
- Extremely high ratio ⇒ bearish outlook & vice versa.

2. CBOE Volatility Index (VIX)

- Measure volatility of options on S&P 500 stock index.
- High VIX ⇒ fear declines in stock market.
- Technical analysts interpret VIX in contrarian way.

3. Margin Debt

- ↑ in M.D, ↑ buying, when reach their limit, buying ↓, prices ↓, investor sell securities to meet margin calls.
- ↑ M.D coincides with ↑ prices & ↓ M.D with ↓ prices.

4. Short Interest Ratio

- Short interest is no. of shares borrowed & sold short.
- Short interest ratio = $\frac{\text{short interest}}{\text{Avg. daily trading volume}}$.
- Some analysts may believe that if ratio increases market should express decrease in price and vice versa.

b. Flow of funds indicators

- Useful for observing changes in demand & supply of securities.

1. Arms index or short-term trading index (TRIN)

- Measure of funds flowing into or out of advancing & declining stocks.
- $TRIN = \frac{\text{No. of adv. Issue} / \text{No. of declining issue}}{\text{Volume of adv. Issue} / \text{volume of declining issue}}$
- Index value close to 1 ⇒ flowing evenly to advancing & declining stocks.
- Value > 1 ⇒ majority in declining stocks, value < 1 ⇒ majority in advancing stocks.

2. Margin debt

- ↑ Margin debt ⇒ investor wants to buy more stocks & vice versa.

3. Mutual fund cash position

- Ratio of = fund's cash/total assets.
- Uptrend ⇒ ratio ↓ & vice versa.
- T.A analysts view as contrarian indicator.

4. New equity issuance

- IPO add to supply of stocks.
- Secondary issues do not increase the supply of stock but rather increase shares available for trading.
- Issuer tends to issue when market peaks, so issuance coincide with high price.

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- Cycle theory is study of processes that occur in cycles.

Cycle Periods

Presidential Cycles

Tied to U.S. Presidential elections cycle with the third year being prior to election year.

Decennial Patterns

Broken down on the basis of the last digit in the year; years ending with a 0(5) have had the worst (best) performance.

Kondratieff wave

54-year

Kondratieff wave

18-year Cycle

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Elliott wave theory

- Financial market prices \Rightarrow described by interconnected set of cycles.
- Waves \Rightarrow chart patterns, uptrend \Rightarrow 5 upward waves, 3 downwards & vice versa in downtrend.
- Ratios of the size of the subsequent wave \Rightarrow Fibonacci ratios.
- Fibonacci sequence starts with the numbers 0, 1 and 1, and the each subsequent number in the sequence number in the sequence is the sum of the two previous numbers.
- Ratio of 0.618 and 1. 618 used to project price targets.

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Intermarket analysis

- Analysis of interrelationship among M.V of asset classes (e.g. stocks, bonds)
- Relative strength ratio \Rightarrow to identify outperforming asset class, then assets within class.