TECHNICAL ANALYSIS

Objective

Technical Analysis involves analyzing historical price charts to anticipate price movements in financial assets. This topic covers basic concepts of reading charts and understanding of different types of charts. Detailed explanation of Dow and Elliot Wave theory has been covered which form the basis of technical analysis.

Agenda

Technical Analysis

- Assumptions
- Fundamental vs. Technical Analysis
- Charts
- Trends
- Channels
- Supports/ Resistance
- Pivot Points
- Waves
  - Dow Theory
  - Elliot wave
  - Fibonacci Retracement
  - GANN angle

Technical Analysis

- TA studies supply and demand in a market in an attempt to determine what direction, or trend, will continue in the future
- It attempts to understand the emotions in the market by studying the market itself, as opposed to its components
- Relies on past market data
  - Price
  - Open Interest
  - Volume
  - Time
- Can be applied to any market

TA: Assumptions

- The market discounts everything
  - All Information is accounted by the market
  - Rational and irrational thoughts of the participants are taken in the price of security
- Price moves in trends
  - Trend once established, will move in that direction rather than against
- History tends to repeat itself
  - Price movement previously happened can happen again

Why TA works ?

- Self Fulfilling Prophecy
  - All chart followers do the same thing and follow same indicators
  - Too many traders making same decisions affect the markets

- It's a Science
  - Papers published establish validity of TA
  - It depicts a psychology of the market

Components

- **Price**: is the quantity of payment or compensation given from one party to another in return for goods or services
- **Volume** is the number of contracts traded in a given period of time
  - Used to confirm trends and chart patterns
  - Volume moves with the trend
  - Price is preceded by volume
- **Open Interest** is total number of derivative contracts, that have not been settled in the previous time period for a specific underlying security
- **Time period** for which the market is analyzed

Technical vs. Fundamental Analysis

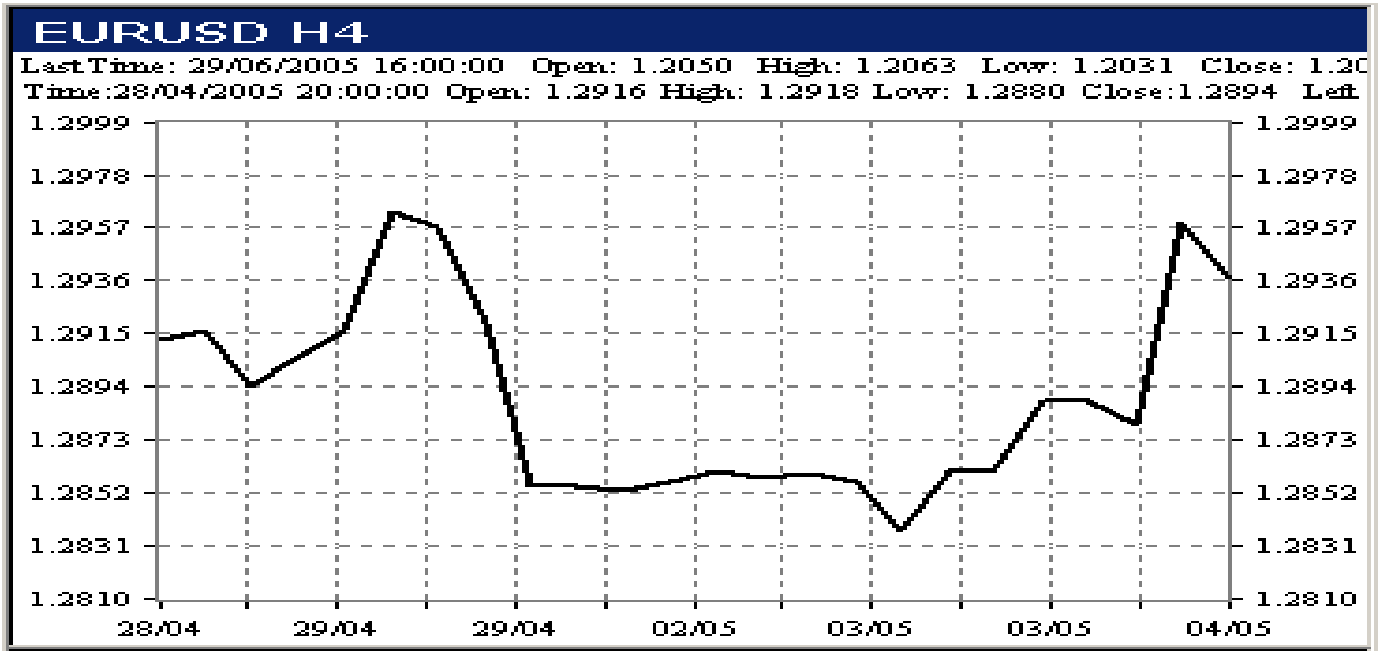
- Charts vs. Financial Statements
- Time Horizon: Short term vs. Long Term
- Trading vs. Investing
- TA: Looks for Support and Resistance
- FA: Looks for Overvalued or Undervalued securities
- Use of both to improve results

Charts

- Graphical representation of price, volume, OI among others against time
- Time Scale
  - X-axis or Bottom axis
  - Intra Day(1min, 5min, 1hourly), Daily, Weekly, Monthly
- Price Scale
  - Y-axis or Right hand Axis
  - Linear or logarithmic
- Displays historical prices of securities

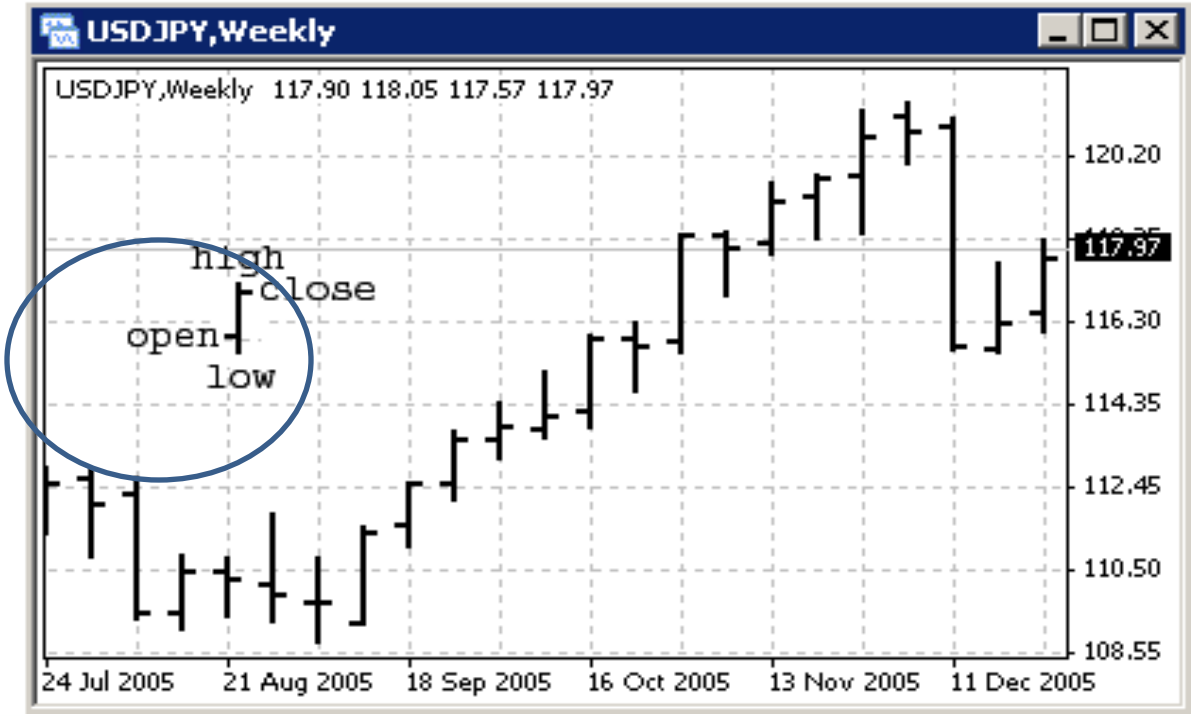
Line Chart

- Represents only the closing prices over a set period of time
- Line is formed by connecting the closing prices over the time frame



Bar Chart

- A **bar chart** or **bar graph** is a chart with rectangular bars with lengths proportional to the values that they represent
- Price vs Time
- High
- Low
- Open
- Close

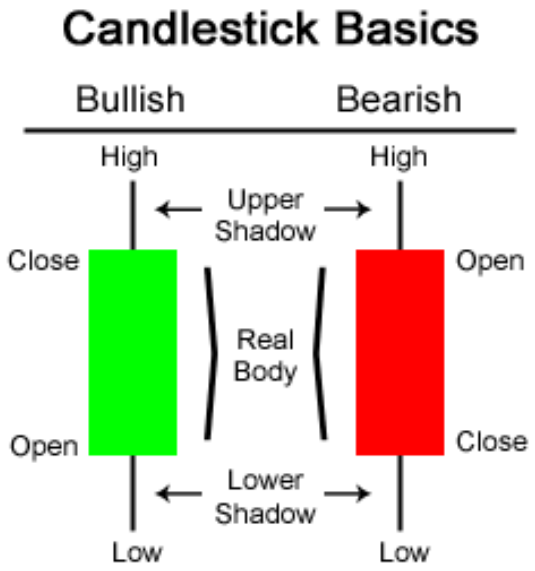


Candlestick Charts

- Candlestick chart is similar to a bar chart
- Difference comes in the formation of a wide bar on the vertical line, which illustrates the difference between the open and close
- Rely heavily on the use of colors

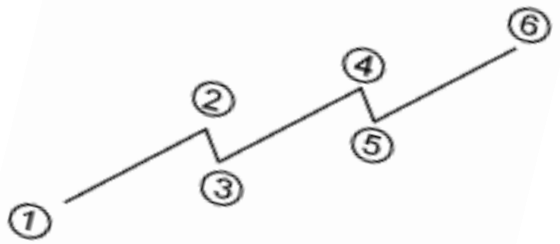
➢ Close > Open => Green or white or Blank

➢ Close < Open => Red or black or filled



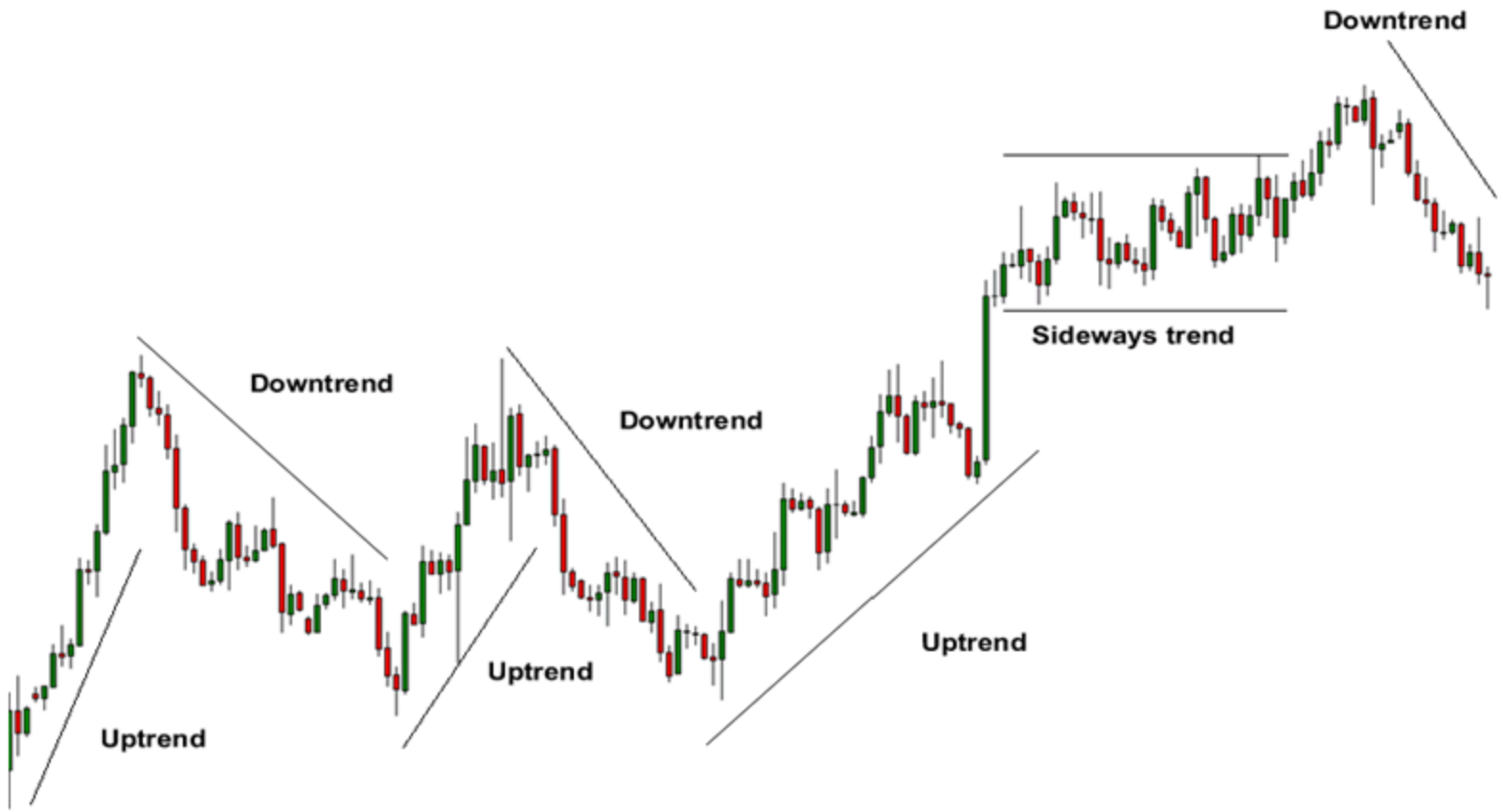
Trend

- Trend is the general direction in which a security or market is headed
- An uptrend is classified as a series of higher highs and higher lows, while a downtrend is one of lower lows and lower highs



- A downtrend occurs when each successive peak and trough is lower than the ones found earlier in the trend
- A sideways or horizontal trend happens when there is little movement up or down in the peaks and troughs

Trends: Example

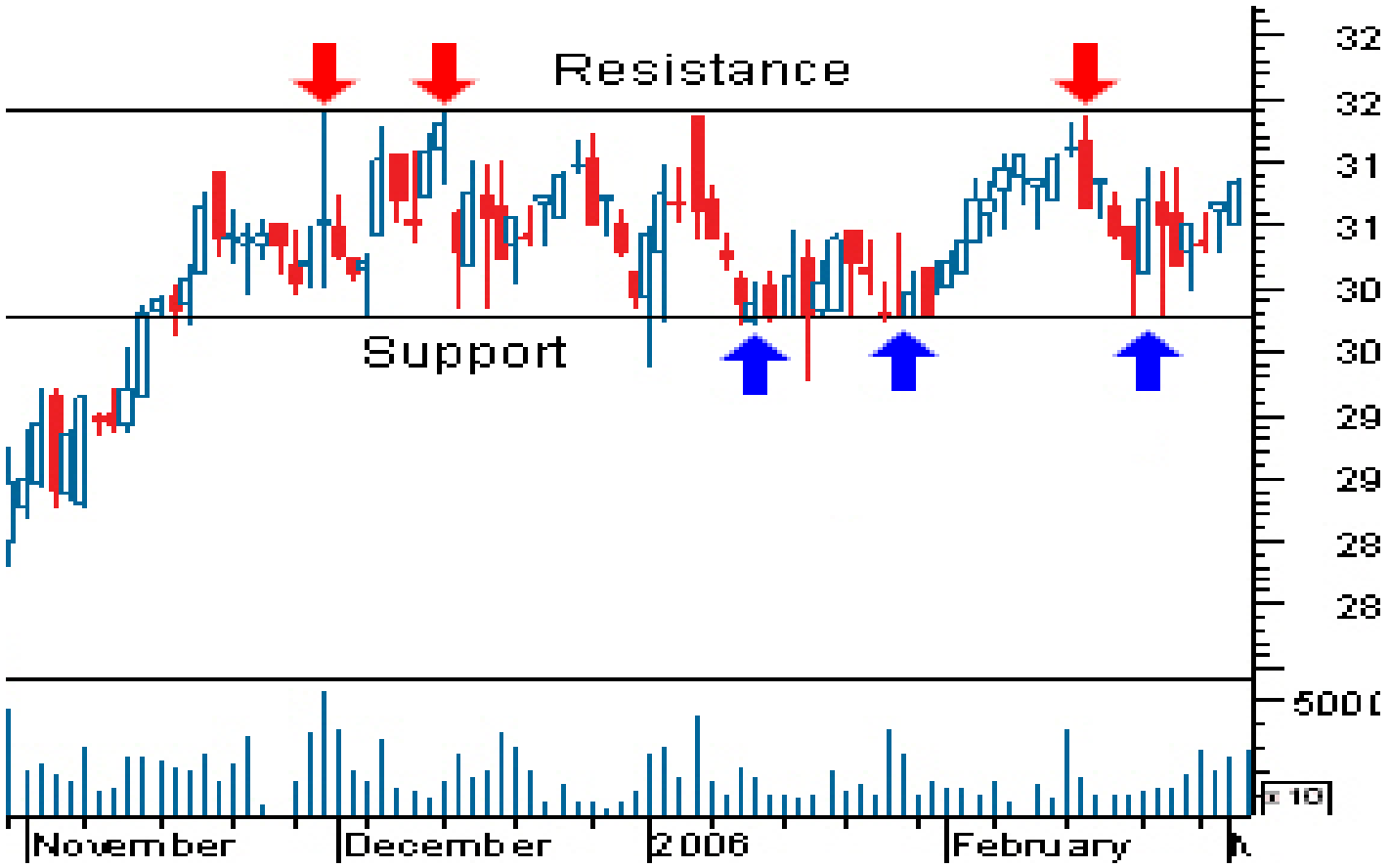


Types of Trend (Time)

Support and Resistance

- Support is the price level through which a stock or market seldom falls (Blue arrows)
- Resistance, on the other hand, is the price level that a stock or market seldom surpasses (Red arrows)
- Logic
  - Market psychology and
  - Supply and demand
- Role Reversal
  - Support acts as resistance once it is broken
- Generally, its not a specific price, but a small range of prices
- Round numbers like 10, 50, 100 and 1,000 act as psychological levels

Support and Resistance



Channels

- The channel is a corridor, within which the price chart is moving, limited by the support line below and the resistance line above
- Types
  - bull - ascending channel
  - bear - descending channel
  - flat or range (trendless)
- Rules
  - The longer price is moving within the channel, the higher probability that it will break it
  - It is better to play in the direction of the main trend

Channel: Example

Dow Theory

- Derived from 255 Wall Street Journal editorials written by Charles H. Dow (1851–1902)
- Has been in existence and practiced for more than 100 years
- Published in *The Wall Street Journal*. Traders still apply its components

Tenets of Dow Theory

- The market has three movements
  - “Main movement", primary movement or major trend may last from less than a year to several years
  - “Medium swing", secondary reaction or intermediate reaction may last from ten days to three months and generally retraces from 33% to 66% of the primary price change
  - “Short swing" or minor movement varies with opinion from hours to a month or more

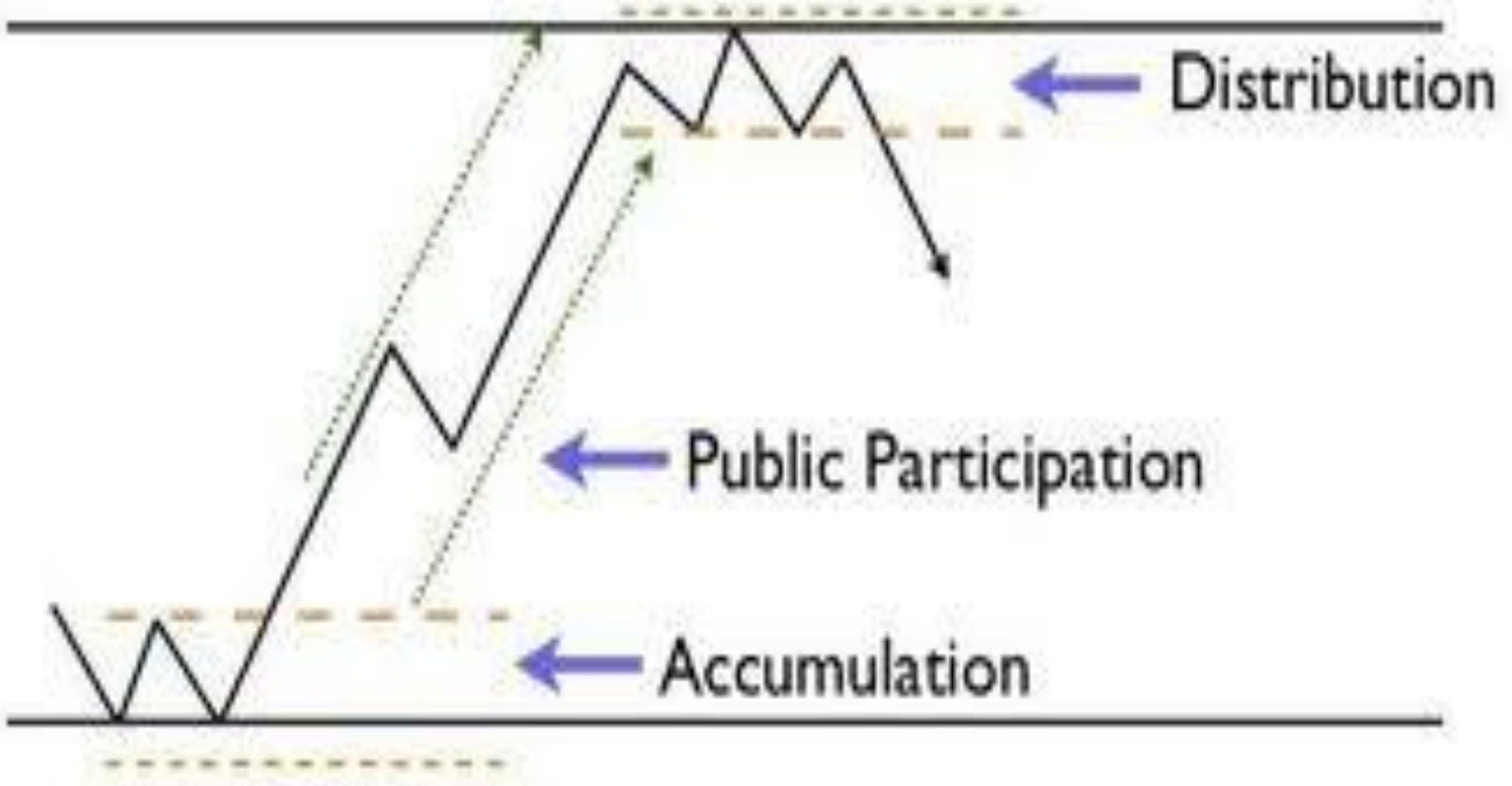
Tenets of Dow Theory

- Market trends have three phases
  - **Accumulation phase :** period when investors are actively buying (selling) stock against the general opinion of the market. Stock price does not change much
  - **Public participation phase:** period with rapid price change occurs. Trend followers and other technically oriented investors participate
  - **Distribution phase:** period with rampant speculation. At this point, investors begin to distribute their holdings to the market

Tenets of Dow Theory

- The stock market discounts all news
  - Quickly incorporates any news which occurs in market
- Stock market averages must confirm each other
  - All sectors must move in same direction at same time
- Trends are confirmed by volume
  - Price move at low volume is false movement
- Trends exist until definitive signals prove that they have ended
  - Market noise doesn't have significant effect

Dow Theory

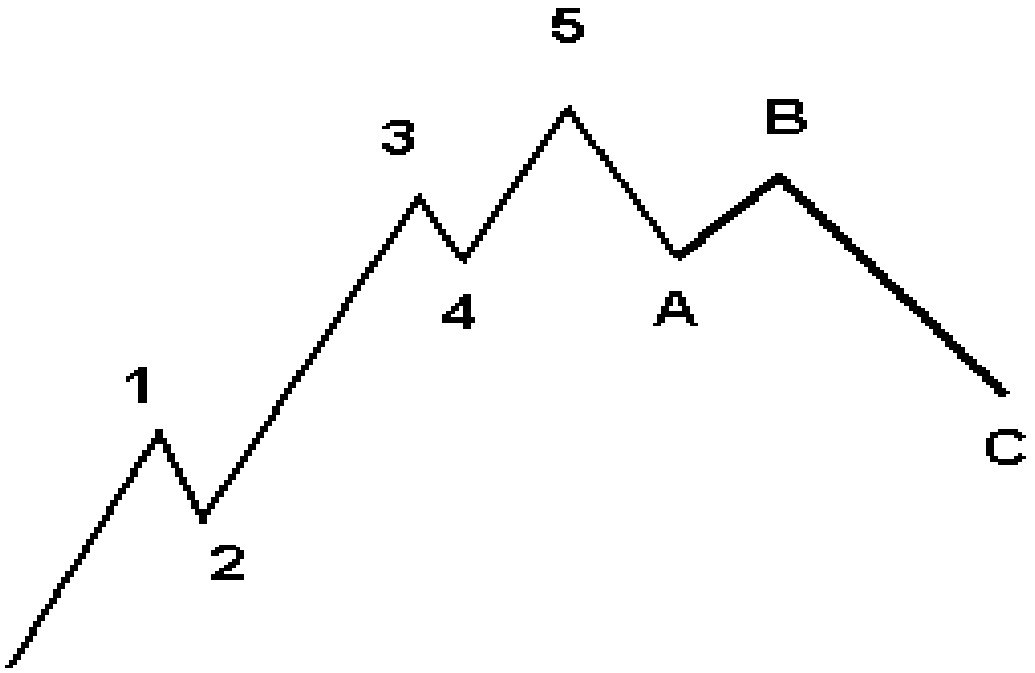


Dow Theory Example

Elliot Wave

- Ralph Nelson Elliott(1871–1948), a professional accountant, developed the concept in the 1930s
- Market prices unfold in specific patterns
- Collective investor psychology (or crowd psychology) moves from optimism to pessimism and back again in a natural sequence
- Five waves and three waves at all degrees of trend
- Waves 1, 3, and 5 are "motive" waves, and each motive wave itself subdivides in five waves
- Waves 2 and 4 are "corrective" waves, and subdivide in three waves
- Motive waves always move with the trend, while corrective waves move against it

Wave



Types of Waves

- **Grand supercycle**: multi-century
- **Supercycle**: multi-decade (about 40-70 years)
- **Cycle**: one year to several years (or even several decades under an Elliott Extension)
- **Primary**: a few months to a couple of years
- **Intermediate**: weeks to months
- **Minor**: weeks
- **Minute**: days
- **Minuette**: hours
- **Subminuette**: minutes

Wave Characteristic

- **Wave 1**
  - Rarely obvious at its inception
  - First wave of a new bull market begins, the fundamental news is almost universally negative
  - Volume might increase a bit as prices rise
- **Wave 2**
  - Wave two corrects wave one
  - The news is still bad
  - Bearish sentiment quickly builds
  - Some positive signs appear for those who are looking
  - Volume should be lower during wave two than during wave one
  - Prices usually do not retrace more than 61.8%

Wave Characteristic

- **Wave 3:**
  - Wave three is usually the largest and most powerful wave in a trend
  - News is now positive and fundamental analysts start to raise earnings estimates
  - Prices rise quickly, corrections are short-lived and shallow
  - Anyone looking to "get in on a pullback" will likely miss the boat
  - Midpoint, "the crowd" will often join the new bullish trend
  - Wave three often extends wave one by a ratio of 1.618:1
- **Wave 4:**
  - Typically corrective
  - Prices may sideways for an extended period
  - Retraces less than 38.2% of wave three
  - Volume is well below than that of wave three
  - Good place to buy a pull back
  - Fourth waves are often frustrating because of their lack of progress in the larger trend

Wave Characteristic

- **Wave 5**
  - Final leg in the direction of the dominant trend
  - News is almost universally positive and everyone is bullish
  - Many average investors finally buy in, right before the top
  - Volume is often lower in wave five than in wave three
  - Momentum indicators start to show divergences
  - At the end of a major bull market, bears may very well be ridiculed
- **Wave A**
  - Corrections are typically harder to identify than impulse moves
  - Fundamental news is usually still positive
  - Analysts see the drop as a correction in a still-active bull market
  - Some technical indicators that accompany wave A include
    - increased volume
    - rising implied volatility in the options markets and
    - possibly a turn higher in open interest in related futures markets

Wave Characteristic

- **Wave B**
  - Prices reverse higher
  - Many see as a resumption of the now long-gone bull market
  - Right shoulder of a head and shoulders reversal pattern
  - The volume during wave B should be lower than in wave A
  - Fundamentals are probably no longer improving, but they most likely have not yet turned negative
- **Wave C**
  - Prices move impulsively lower in five waves
  - Volume picks up, and by the third leg of wave C, almost everyone realizes that a bear market is firmly entrenched
  - Wave C is typically at least as large as wave A and often extends to 1.618 times wave A or beyond

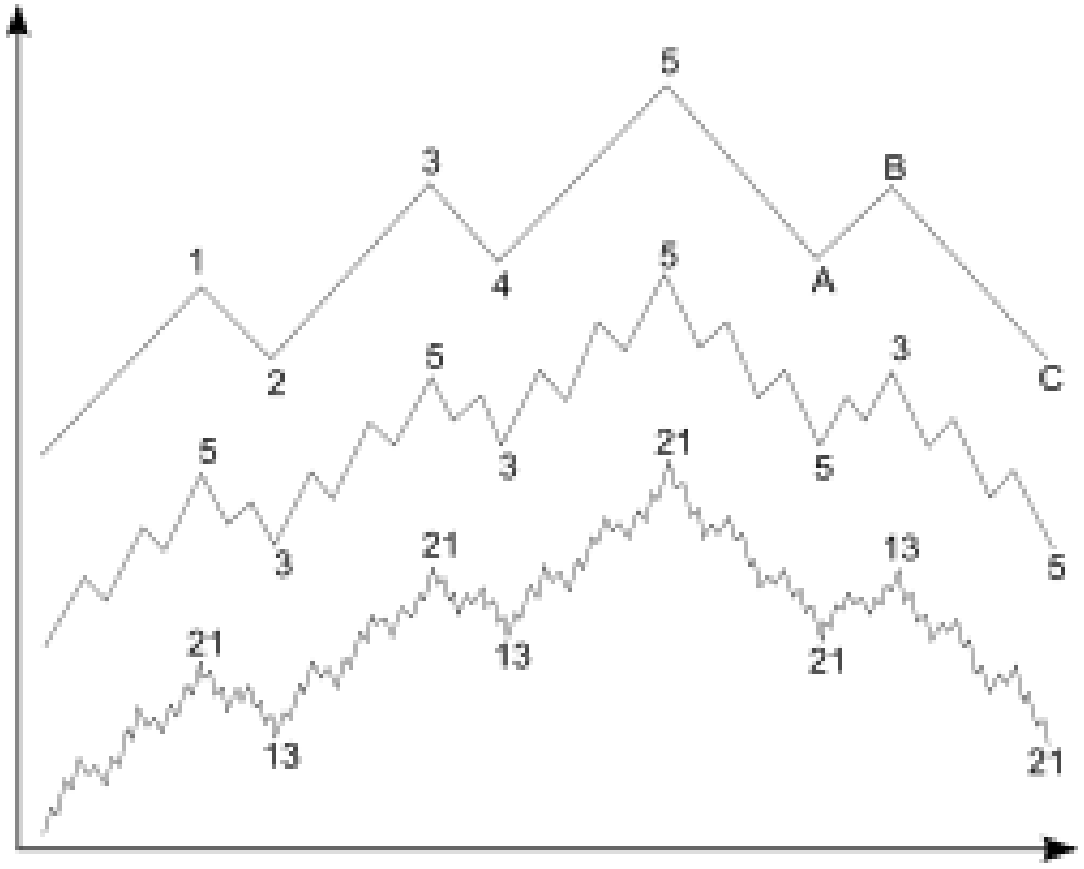
Three rules:

- Wave 2 always retraces less than 100% of wave 1
- Wave 3 cannot be the shortest of the three impulse waves, namely waves 1, 3 and 5
- Wave 4 does not overlap with the price territory of wave 1, except in the rare case of a diagonal triangle

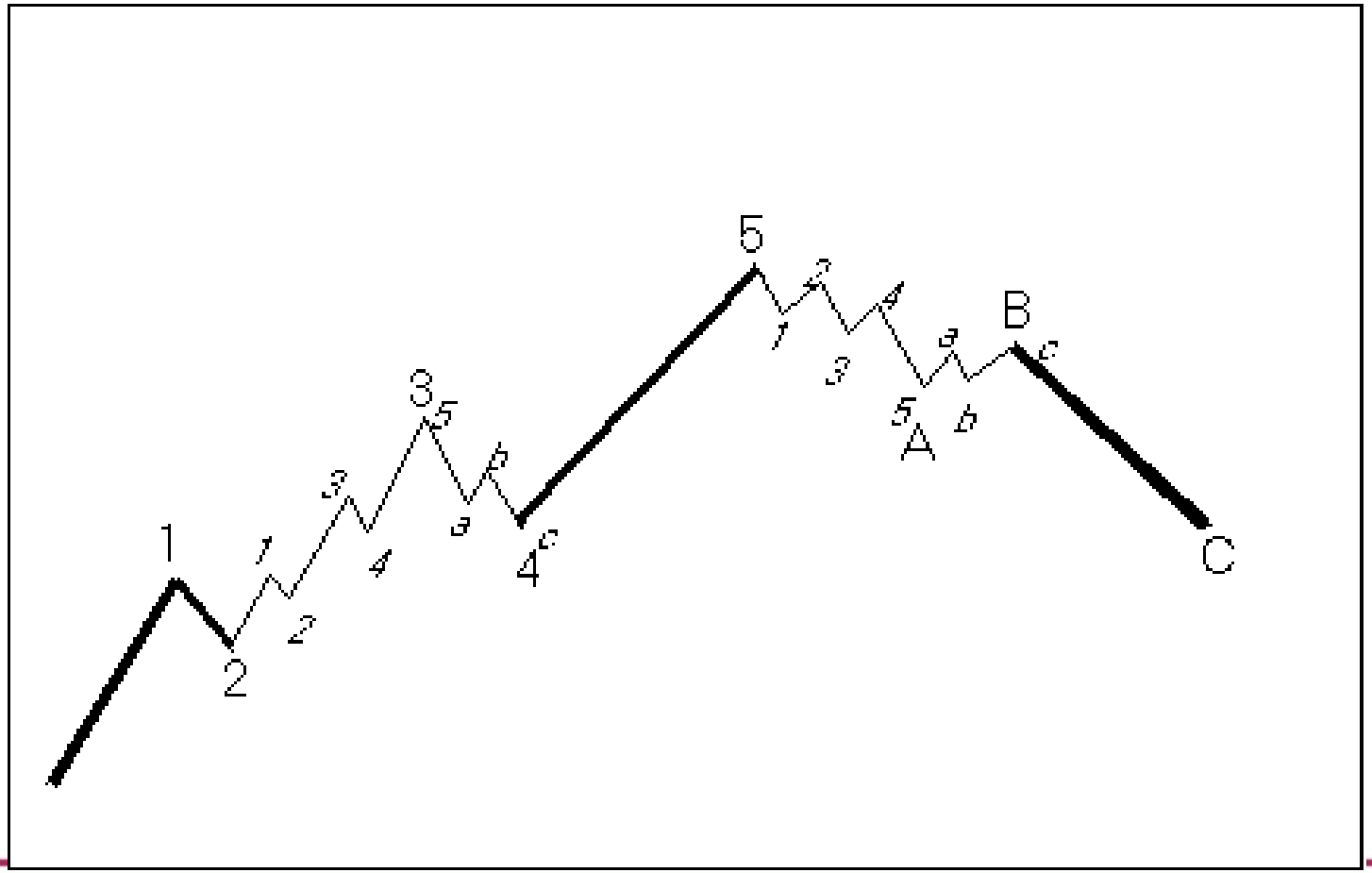
- Common guideline
  - waves 2 and 4 will often take alternate forms
  - a sharp move in wave 2, for example, will suggest a mild move in wave 4
  - Corrective wave patterns unfold in forms known as zigzags, flats, or triangles. In turn these corrective patterns can come together to form more complex corrections

Example

5,13,21 WAVE COUNT



Wave within Wave



Pivot Points

- Pivot Points are those price levels based on
  - Previous day OHLC to act as
  - Levels of support and resistance for next day
- Most widely used formula for calculating pivot points:
  - R2 = P + (H - L) = P + (R1 - S1)
  - R1 = (P x 2) – L
  - P = (H + L + C) / 3
  - S1 = (P x 2) – H
  - S2 = P - (H - L) = P - (R1 - S1)

Gann Angle

- The **Gann Angles** are named after W. D. Gann, a 20th century market theorist
- The legitimacy of Gann's techniques has been seriously questioned
- Most important angle Gann called the 1x1 or the 45° angle
- Other important angles were the 2x1, the 3x1, the 4x1, the 8x1, and the 16x1
- When the angles are drawn in a group, they are often called a Gann fan
- Angles may either be drawn ascending from price bottoms, as just described, or descending from price tops
- When the trend is up and the price stays in the space above an ascending angle without breaking below it, the market is strong
- When the trend is down and the price remains below a descending angle without breaking above it, the market is weak
- The market shows its relative strength or weakness according to the angle it is above or below
- When an up trending price reverses and breaks under an ascending angle
  - The tendency of the price is to go to the next nearest angle below it

Example Gann Fan

Fibonacci Retracement

- The four basic Fibonacci retracement levels are calculated as 23.8%, 38.2% 50.0% and 61.8% of the impulse
- 0.0% is considered to be the start of the move or impulse, while 100.0% is the high point of the move
- Trading is done on the basis of Levels

Example


0%
23.60%
38.20%
50%
61.80%
76.40%
100%
70
65
60
55
50
Sep.
Oct.
Nov.
Dec.
Jan.02
Feb.
Mar.
Apr.
May