Advanced Algorithmic Trading and Portfolio Management
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Lecture- 17, Week 5

Understanding the movement of stock price has been the central debate in the area of finance. Most often there are two approaches to find the value of stock. First the fundamental valuation and second through technical analysis. The fundamental valuation approach considers those aspects of security that directly affect the long term prospects and cash flows of the underlying firm. In contrast, technical analysis focuses on short term supply demand forces and buy-sell imbalances that result in security price movements. This kind of technical analysis involves analyzing short term price trends, price patterns, examination of technical indicators such as moving average and momentum indicators.

In this lesson, we will introduce trend determining techniques which form an integral component of technical analysis. A trend is a period in which a price moves in an irregular but persistent direction. It can be in the form of uptrend or downtrend. We will discuss the Dow theory of trend determination.

Then we will define short term, medium term and long term trends. We will discuss various techniques for identifying a trend and its reversal. These include intermediate cycles, support and resistance zones, trend lines, basic characteristics of volume in trend determination and classical price patterns. Dow theory. In this video, we will introduce the Dow theory of technical trend determination by Charles Dow.

Dow Theory (Charles H Dow)

- Dow theory suggests that there are primary and secondary trends
- Majority of the securities are affected by these market-wise trends
- Dow constructed Dow Jones Industrial Average (DJIA) Index
- Based on the learnings of Dow, the Dow theory is proposed

Dow theory s goal is to determine the changes in the primary or major movements of the market. It aims to establish a trend until a reversal is proved. Dow theory is concerned with the direction of a trend and has no forecasting value as to the trend s ultimate duration or size. The theory assumes that the majority of stocks follow the underlying trend of the market most of the times. In order to measure the market, Dow constructed Dow Jones Industrial Average Index, DGIA.

Dow Theory (Charles H Dow)

Tenet (1) Averages discount everything

- Similar to portfolio theory
- Average movements of stocks in a market captures the wisdom of the market and, therefore, the demand-supply situation

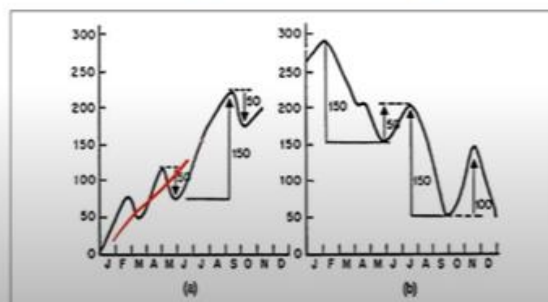
The six basic tenets of the Dow theory are as follows. First in it is averages discount everything. Indices like Dow Jones Industrial Average reflect averages of stock prices. These averages reflect the basic wisdom of the market that is aggregate judgment of the market. This kind of averaging process factors in most of the information available and captures the demand and supply in the market.

Tenet 2 suggests market has three major movements. The market has predominantly three kind of movements. The most important in this is the primary or major trend, more generally known as a bull rising or bear falling market. For example, a movement like this primary major bull or primary falling bear trend. A primary bear market is a long decline interrupted by important rallies.

Dow Theory (Charles H Dow)

Tenet (2) Market has three major movements

(a) Primary or major trend: this is the major market movement, generally known as a bull (rising) or bear (falling) market, lasting for one year to several years



Source: From Martin Pring, *Trading Systems Explained*, Marketplace Books, Columbia, Maryland, 2008.

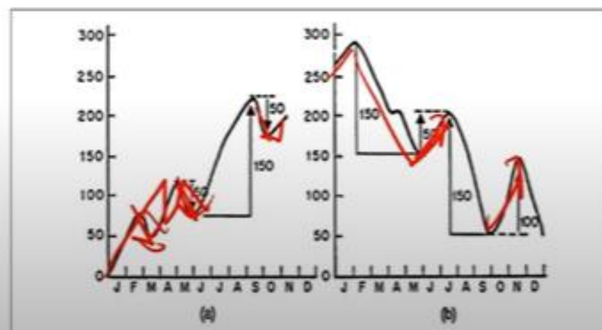
It begins as the hopes on which the stocks were first purchased are abundant. The second phase evolves as the levels of business activity and profits decline. In the third state, the bear market

reaches a climax when the stocks are liquidated regardless of their underlying value because of the depressed state of the news or because maybe of forced liquidation caused by margin calls. A primary bull market is a broad upward movement like this, normally averaging at least 18 months which is interrupted by secondary reactions. The bull market begins when the averages have discounted the worst possible news and confidence about the future begins to revive.

Dow Theory (Charles H Dow)

Tenet (2) Market has three major movements

(b) Secondary market reactions: a secondary or intermediate reaction is defined as an important decline in a bull market or advance in a bear market



Source: From Martin Pring, *Trading Systems Explained*, Marketplace Books, Columbia, Maryland, 2008.

The second stage of bull market is the response of equities to known improvements in business conditions while the third and final phase evolves from overconfidence and speculation when stocks are advanced on projections that usually prove to be unfounded. Secondary market reactions or intermediate reactions like these. A secondary or intermediate reaction is defined as an important decline in a bull market or advance in a bear market. For example, this advance in the bear market or decline like this in the bull market. Usually lasting from 3 weeks to many months during which interval the movement generally retraces from 33 to 66% of the primary price change since the termination of last preceding the secondary reaction.

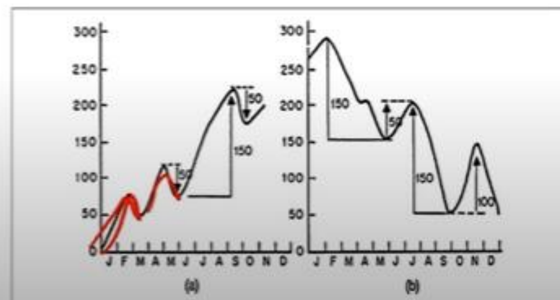
This relationship is shown in the figure here as we can see rise fall rise fall falling bear market then rise. Occasionally a secondary reaction can retrace the whole of the previous primary movement but normally the move falls within one and half to two third of the area often at the 50% mark. As discussed in greater detail the correct differentiation between the first leg of a new primary trend and secondary movement within the existing trend provides Dow Theories with their most difficult problem. Next we have intermediate cycles like this. These cycles

comprise 5 to 7 intermediate trends, 3 of which form part of prevailing trend while the remaining two run counter to that trend.

Dow Theory (Charles H Dow)

Tenet (2) Market has three major movements

Intermediary cycles: an intermediate cycle is a combination of one move in the direction of a prevailing trend and moves that are counter to the trend: combination of primary and secondary



Source: From Martin Pring, *Trading Systems Explained*, Marketplace Books, Columbia, Maryland, 2008.

In a bull market the intermediate counter trends are represented by price declines. In a bear market they form rallies that separate the three intermediate down waves as shown here. For example, this up move in the bull trend and a down move together comprise that intermediate cycle. The first one which goes in the direction of the primary trend may be called a primary intermediate price movement while the second which is in the opposite side is an important price movement that lasts from 3 weeks to 3 months occasionally longer. It normally retraces between one third to two thirds of the preceding primary intermediate trend.

This price movement which runs counter to the main trend is called a secondary movement or reaction. Since a primary intermediate trend or price movement operates in the same direction as the primary or main market trend, it almost always lasts longer than its secondary counterpart. Its price magnitude is normally much greater as well. These counter trends or reactions against the main trend are very difficult to forecast in terms of character, magnitude and duration. Intermediate movements can go either with or against the main trend which means that there is an intermediate cycle similar to a primary one.

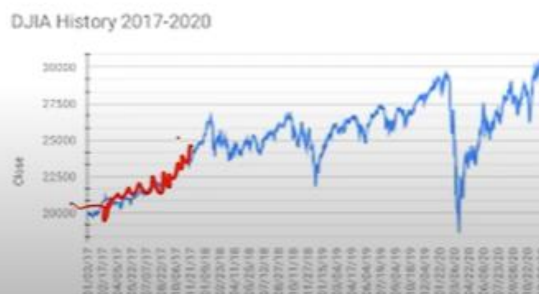
An intermediate cycle consists of a primary intermediate price movement and a secondary reaction. In a bull market, the up phase of cycle should be longer in time and greater in magnitude. The low on the secondary reaction should be higher than its predecessor. In a bear

market, the reverse conditions hold true that is declines are longer and greater while rallies are shorter and sharper but of less magnitude. Finally, we have the minor movements.

Dow Theory (Charles H Dow)

Tenet (2) Market has three major movements

c) Minor movements: very short-term movements can be a part of the primary or secondary move, no-value to long-term investors



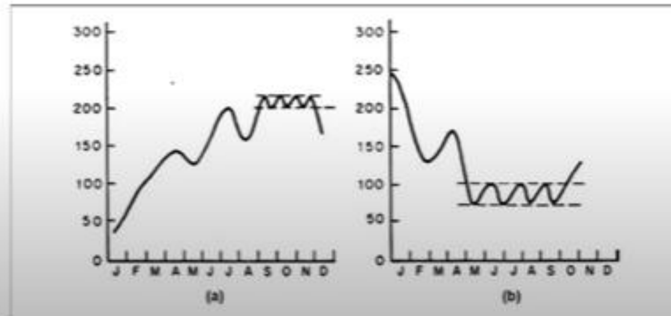
These minor movements last from a week or up to as long as six weeks. It is important only in that it forms part of primary or secondary moves. It has no forecasting value for long term investors. This is especially important since short term movements can be manipulated to some extent unlike the secondary or primary trends. These are extremely fluctuating like this.

So these are extremely fluctuating and have no long term value. Line is defined as a price movement two to three weeks or longer during which period the price variation of averages or indices moves within a range of approximately 5 percent as shown here. This often represents a digestion of gains or losses. For example, as we can see here, these lines, these are digestions of gains or losses after a down move or up move, there is a line kind of movement within a broad horizontal lines. This represents a digestion of gains or losses or a pause in the trend.

Dow Theory (Charles H Dow)

Tenet (3) Lines indicate movement

Line is defined as “a price movement two to three weeks or longer, during which period, the prices move within a small range of their mean average



Source: From Martin Pring, *Trading Systems Explained*, Marketplace Books, Columbia, Maryland, 2008.

Such a movement indicates either accumulation that is stock moving into strong or knowledgeable hands and therefore bullish or distribution that is strong move, stock moving into weak hands and therefore bearish. An advance above the limits of the line indicates accumulation and predicts higher prices and vice versa. When a line occurs in the middle of a primary advance, it is really forming a horizontal secondary movement. The fourth tenet is that price and volume relationships provide the background. The normal relationship is for volume to expand on rallies and contract on declines.

If it becomes dull on a price advance and expands on a decline, this is a warning sign that the prevailing trend may soon be reversed. This principle should be used as a background information only, since the conclusive evidence of trend reversals can be given only by the price of the respective averages that is industry sector indices. The fourth tenet is that price action determines the trend. Bullish indications are given when successive rallies penetrate peaks while the trough of an intervening decline is above the preceding trough. For example, after rising to peak prices are crossing this line.

Dow Theory (Charles H Dow)

Tenet (4) Price volume relationships provide the background

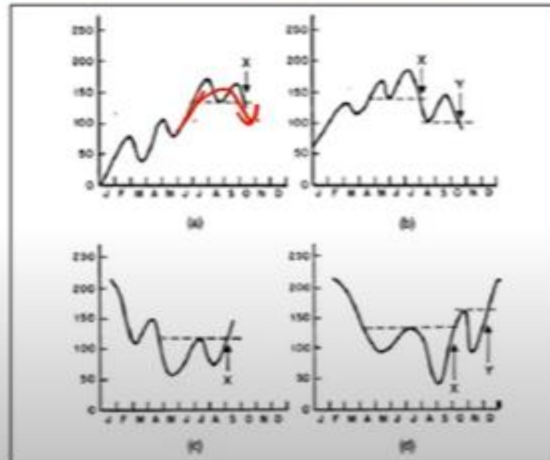
- The normal relationship is for volume to expand on rallies and contract on declines
- If it becomes dull on a price advance and expands on a decline, this is a warning that the prevailing trend may soon be reversed
- This principle should be used as background information only since the conclusive evidence of trend reversals can be given only by the price action

This is a bullish move. Similarly, this one is a bearish move. Bearish indications come from a series of declining peaks and troughs. The figure here shows a theoretical bull trend interrupted by a secondary reaction. For example, in figure A here, the index makes a series of three peaks and troughs. These are the three peaks and troughs, each higher than its respective predecessor.

Then the index rallies follow the third decline, but is unable to surpass its peak. The next decline takes the average below its low point, confirming a bear market as it does so at point X here. In example B, following the third peak in the bull market, a bear market is indicated as the average falls below the previous secondary trough. For example, here, in this instance, the previous secondary was part of a bull market. So these were part of a bull market move.

Dow Theory (Charles H Dow)

Tenet (5) Price action determines the trend



However, a bear market is indicated as the average falls below the previous secondary trough. In this instance, the preceding secondary was part of a bull market. This is a part of bull market, however, after this, some kind of bear indications are there. In this instance, the preceding secondary was part of bull market, not the first trough in a bear market as shown in example A. Many Dow Theorists do not consider penetration at point X to be example B to be A, a sufficient indication of a bear market.

So this would not be considered, this fall it will not be considered a sufficient evidence for a bear market beginning. However, they prefer to take a more conservative position by waiting for a final rally and another penetration of this here. And subsequent penetration that previous trough marked as point Y in example B. Lastly, the averages must confirm, the broad market wide indices must confirm with each other. For example, the industrial one industry, let us say transport industry should agree with goods production industry.

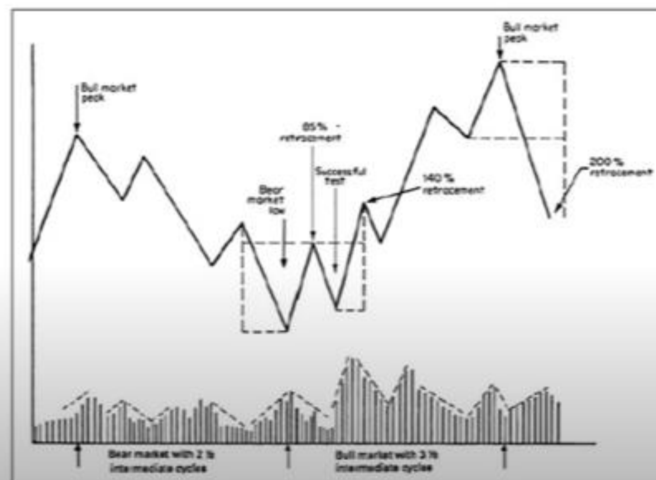
Dow Theory (Charles H Dow)

Tenet (6) The averages must confirm

The averages (broad market-wide indices) must confirm each other. The confirmation action is a more fundamental, logical, and appropriate barometer of future business conditions

The confirmation action is more fundamental and logical and appropriate by aerometer of future business conditions. Because if the two indices that is one for production, one for manufacturing or one for transportation agrees, that means some kind of solid movement is happening, some movement which is in sync and confirmed by two indicators. To summarize, in this video we discussed Dow Theory which is concerned with determining the direction of the primary trend of the market, but not its duration or size. Once confirmed by both averages, the new trend is assumed to be in existence until an offsetting confirmation by both averages takes place. Major bull and bear markets each have three distinct phases, both the identification of these phases and the appearance of any divergence in the normal volume price relationship offers useful indications that a reversal in the major trend is about to take place.

Intermediate Cycles to Identify Reversals



Such supplementary evidence is particularly useful when the action of the price averages themselves is inconclusive. In this video, we will see the examination of intermediary cycles to identify primary trend reversals. Intermediate movements can go either with or against the main trend, which means that there is an intermediary cycle similar to a primary one. For example, this is an intermediary cycle. An intermediary cycle consists of primary intermediate price movement which is this and the secondary reaction which is this.

In a bull market, the up phase of the cycle should be longer in time and greater in magnitude like this or this. The low on the secondary action should be higher than its predecessor. In a bear market, conversely, the reverse condition holds true. For example, this in a bear market, declines are longer and greater while the rallies are shorter, but of less magnitude as well. For example, if we examine a reversal from bull to bear market like this one, since volume leads price, the failure of volume to increase above the levels of the previous intermediary cycles in the up phase is a bearish sign.

Alternatively, if over a period of three to four weeks, volume expands on the intermediate rally close to the previous peak in volume, but fails to move prices significantly. It represents churning and should be treated bearishly. There are essentially two broad characteristics that suggest that the downward phase of an intermediary cycle could be the first down leg of the bear market like this. The first signal is substantial increase in volume during the price decline. For example, if this price decline along with substantial increase in volume, the second is a cancellation or retracement of 80% or more of the up phase of that same intermediary cycle.

For example, if you look at this cycle up and down, the down move is more than 80%. In fact, it is a 200% retracement of the previous up move. The greater the retracement, the greater the probability that the basic trend has reversed, especially because the retracement is in excess of 100% means that any series of rising troughs has broken, thereby placing the probabilities in favor of a change in primary trade. Similarly, reversal from a bear to bull market like this one, the first intermediate up phase of a bull market is usually accompanied by a substantial expansion in volume like this. In other words, the first up leg in a bull market attracts noticeably more volume than any of the intermediary rallies in the previous bear market.

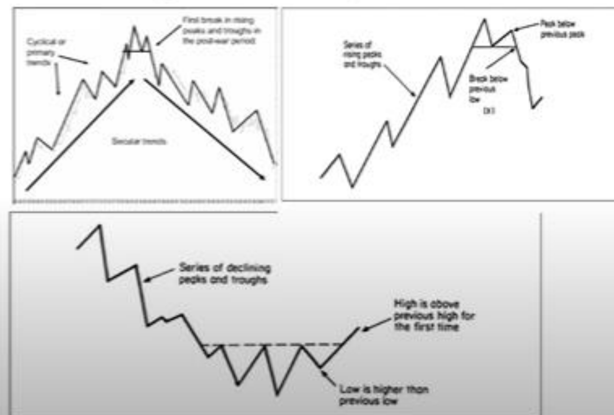
Any sign of a basic reversal occurs when prices retrace at least 80% of the previous decline. So, for example, if previous decline almost 80% of it, in fact 85% retracement is there. Again the greater the proportion of retracement, greater the odds of a reversal in the basic trend. If the retracement is greater than 100%, the odds clearly indicate that a reversal in the down trend has taken place, because the series of rising peaks will have been broken. Since volume expands substantially as the intermediate down phase during a bear market reaches a low, a shrinkage in volume during an intermediate decline could well be a warning sign that the bear market has run its course.

For example, this downward movement lacks increase in volume. For example, there is a decline in volume which suggests that bear market has run its course. This is especially true if the prices do not reach a new low during this intermediate decline, since the series of declining intermediate cycle lows, which is a characteristic of a bear market and bear market may no longer be intact. To summarize substantial increase in the volume on secondary market, intermediate price movement, which is opposite to primary trend, secondary intermediate movement or retracement is more than 60% of the primary intermediate move, volume does not substantially increase or remains dull around primary intermediate price move that is along with the trend, retracement is more than 100% or a series of rising or falling peaks

and troughs is broken. An important implications of intermediary cycle analysis or application in trend reversal is peak and trough analysis.

Peak and Trough Analysis

When the series of rising (falling) peaks and troughs is interrupted, a trend reversal is signaled



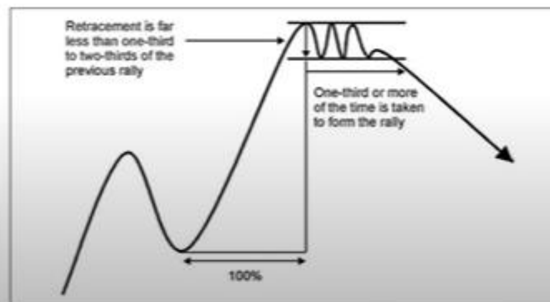
Rising market move in a series of waves where each rally being higher than its predecessor and when the series of rising peaks and troughs is interrupted, a trend reversal is signaled. For example, here we can observe a series of rising peaks and troughs. This is interrupted here, this rising peaks and troughs are interrupted here, this is a first decline or opposite move in the rising peaks and troughs which indicates some kind of reversal which indeed happens. Similarly, here rising peaks and troughs are observed which is reversed here.

So, primary trend reversal is observed here. This rising move market moves indicates series of waves. Similarly, here it is a bear run where falling peaks and troughs are observed which is reversed here. Notice that this high is above the previous high which is here and the low is higher than the previous low, all signals indicating to a primary trend reversal. An important aspect of secondary cycle is the secondary reaction and to qualify as a reaction to the prevailing trend, the move should retrace between one third to two third of the previous move. For example, this to qualify as a reaction has to retrace at least one third to two third of the up move.

In case of a lines like this, the reaction is qualified based on the duration of the line, duration how much time this line movement persists rather than the amplitude of this. So, duration is more important for the lines. To summarize this video, a typical primary trend can be divided into two and half primary intermediate cycles, each consisting of an up move or down move. In a bull market, each successive up wave should reach a new cyclical high and in a bear market each successive down wave of the intermediate cycle should reach a new low. The timing of this pattern of rising lows and falling peaks is an important but not a very final kind of signal but still a warning signal that there may be a reversal in primary trend.

Identifying Peaks and Troughs

- To qualify as a reaction to the prevailing trend, the move should retrace between one-third and two-thirds of the previous move
- In the case of lines, the reaction is qualified based on the duration (instead of magnitude)

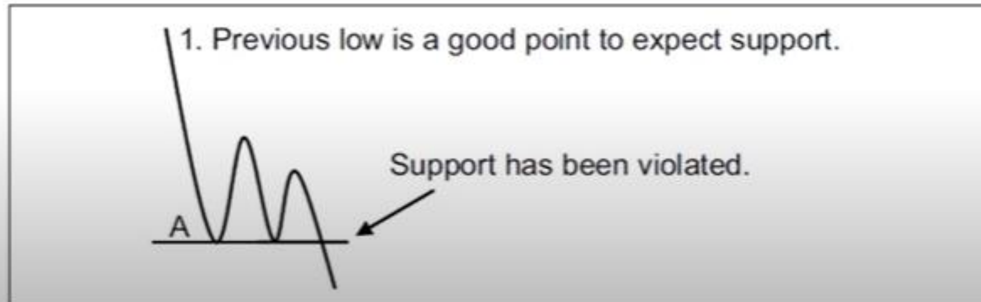


For more conclusive proofs, the analyst should derive a similar conclusion from a consensus of indicators. A secondary movement or reaction is that part of an intermediate cycle that runs counter to the main trend which may be a downward reaction in a bull market or rally in a bear market. Primary intermediate movements typically last from 3 weeks to 3 months and retrace between one third to two third of the previous primary intermediate price movement. Secondary price movements may also take the form of line or horizontal trading pattern. The character of these intermediate cycles can be used to identify primary trend reversals.

As an approximate rule, the stronger the intermediate rally in a bull market and vice versa, the less the retracement is likely to. In this video, we will discuss the application of support and resistance zone in identifying price trend reversals. Support indicates buying in sufficient volumes to arrest a downtrend in prices and resistance indicates selling in sufficient volumes to stop the rise for the time. A good support point is a low in recent memory. Think of support as a temporary floor for prices and resistance.

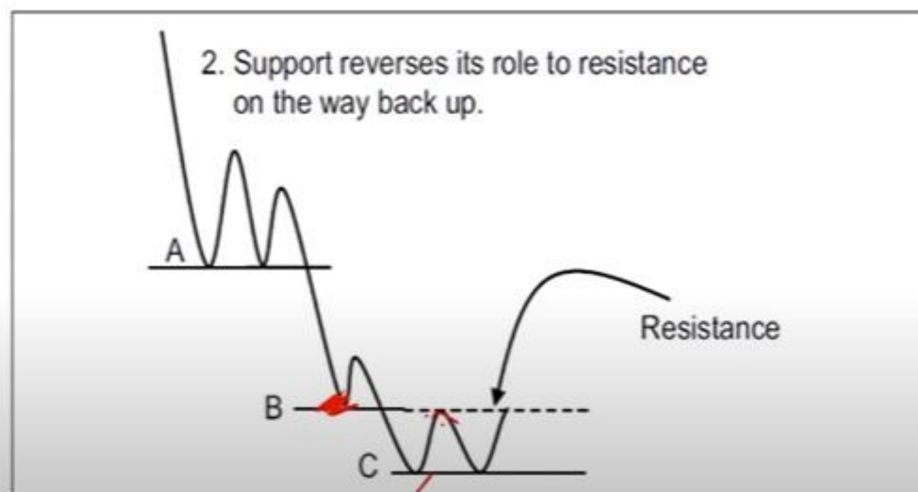
Support and Resistance Zones

Support indicates buying sufficient volumes to arrest a downtrend in prices, and resistance indicates selling sufficient volumes to stop the rise for the time



For example, point A here serves as a low in recent memory. Think of support as a temporary floor for prices and resistance as a ceiling. Point A here is considered to be as a temporary support area as we can see here. The price finds bottom at A, moves up, then falls back on A and again finds a support. The third time it violates the support, the price finds a temporary support in B next time as we can see here, this B point is the next support. Again, C also proves to be a support point, but note that the rallies are reversed now and now B becomes the resistance zone.

Support and Resistance Zones



So the support reverses its role here as you can see the B point to resistance on the way up. A previous high or low is a potential support resistance level as we can see here. We see the price rally through resistance B and A. We can see here, this B is acting as resistance and again A here acts as a resistance which were previous support levels and the ensuing decline then finds again support at A.

So after it crosses, then again A acts as support. Therefore, resistance reverses its role to support on the way down. To summarize this, we have established that previous highs and lows are potential support or resistance level. Highs are important because various market participants may have bought close to or add the actual high for a move. When prices decline, the normal human being response is not to take a loss but to hold on that way the pain of actually realizing a loss can be avoided. As a result, when the price returns to the old high, those who bought at that level have great motivation to sell in order to break even.

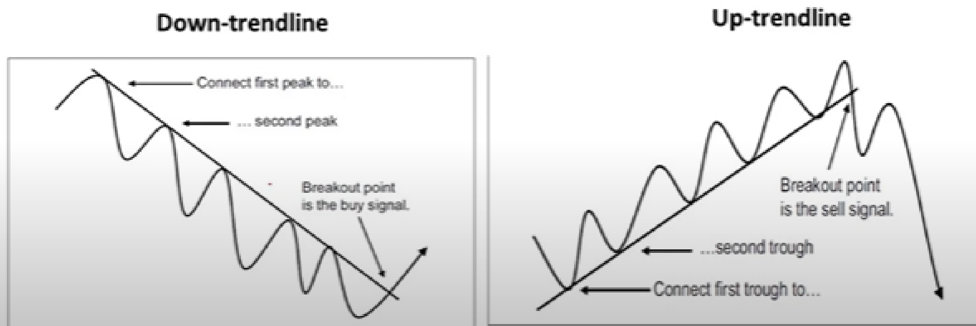
Consequently, they liquidate. Also those who bought at lower prices have a tendency to take profits at the old high since that is the top of family ground. By the same token, any prices above the old high look expensive to potential buyers. Consequently, there is less enthusiasm on their part so they begin to pull away from the market. When a price rallies and then falls back on the previous low, these bargain basement prices appear to be potential buys. After all, they miss the opportunity the first time prices retreated to this level and they are therefore thankful to have another chance.

For the same reason, sellers are reluctant to part with their securities as prices approach the previous low since they saw them bounce before and naturally wonder why the same process should not be repeated. In this video, we will discuss the application of trend lines in identifying primary trend reversals. A trend line is a straight line connecting either a series of ascending bottoms like this in a rising market or the tops of a series of peak rallies, peaks of this declining, descending series of rallies. The prices joining the lows are called uptrend lines. So this is an uptrend line and those connecting the tops are downtrend lines like this.

Trend Lines

A trend line is a straight line connecting either a series of ascending bottoms in a rising market or the tops of a descending series of rally peaks

Down-trendline **Up-trendline**

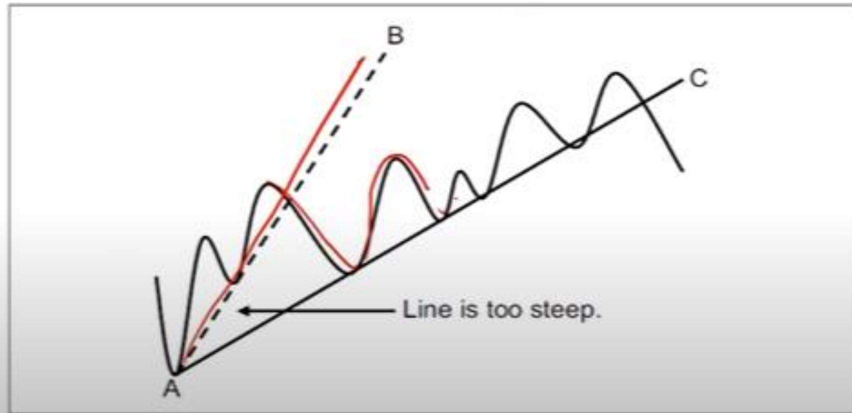


When the prices break above the trend line like this in a falling series of tops, then a trend reversal is given. Opposite is true for a uptrend line like this. So if it is crossing from here towards down, then it is a signal of reversal. There are certain characteristics that are often employed to identify trend reversals with a trend line. For example, volume associated with a trend line violation or breakpoint is an important indicator.

A substantially high volume or substantially high volume in a particular direction where cross is appearing is an indicator that market may be churning or taking a turn. The larger the length of a duration of a trend line, the higher the strength of that trend line and therefore its violation is also very significant signal. More the number of times a trend line has been touched, for example, more number of time a trend line has been touched or acted as a support or resistance zone, greater its significance. However, many times a very steep uptrend line may be broken, but it may not result in change in trend, but only a continuation pattern rather than trend reversal.

Trend Line Breaks

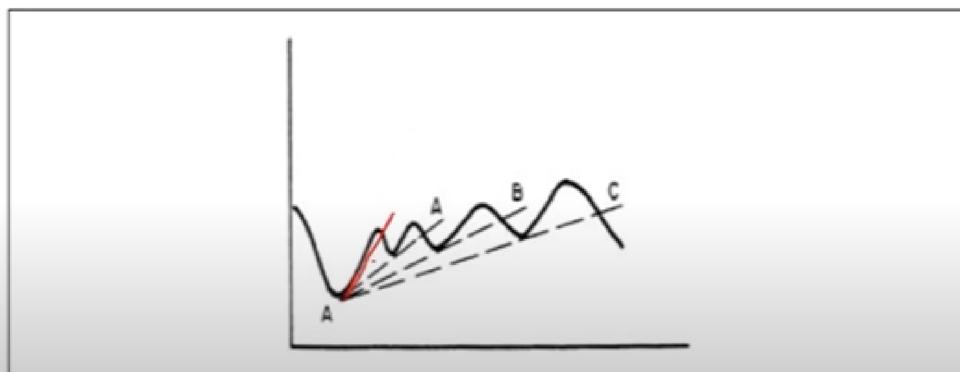
Steep angle of descent



For example, let us see here. Here you can see a very steep trend line is broken. However, that has not resulted in a trend reversal, but rather more of a continuation, but with a less steep trend line. Similarly, there is a corrective fan principle where a very steep trend line is violated only resulting in a less steep trend line. To summarize, the completion of a price pattern can signify or violation of trend line which is sort of completion of a price pattern. It can signify either a reversal in the previous turn or then it can, in that case it is known as reversal pattern or just the resumption of previous trend.

Trend Line Breaks

Corrective fan principal



Then it is called consolidation or continuation pattern as we saw in this corrective fan principle. Similarly, the penetration of trend line in the opposite direction may result, also result in a

reversal of the current trend or continuation as well. Some of the examples we have seen in this video. Thus, whenever a trend line is violated, many times odd favor a change in trend. That change can either be an actual reversal or a sideways trading range like trading in lines as we have already seen something like this trading in ranges or trading in lines following an uptrend or downtrend.

Trend Line Violation/Reversal of a Trend

- The volume associated with a trend line violation/break point is an important indicator
- The larger the length (duration) of a trend line, the higher the strength of the trend line violation/break point signal
- More number of times a trend line has been touched (i.e., acted as support/resistance), the greater its significance
- A very steep (up or down) trend line may be broken to result in continuation pattern rather than trend reversal

Further clues to the significance of a specific trend line violation can be gleaned from volume characteristics as well. For example, if a series of ascending peaks and troughs is accompanied by progressively lower volume, it is a sign that the advance is running out of steam since volume is no longer going with the trend. So, if volume does not go with the trend, it is a sign the trend may reverse. In this instance, a trend violation is likely to be of greater significance than if volume had continued to expand with each successive value. It is not necessary for a downside penetration to be accompanied by high volume, but a violation that occurs as activity expands emphasizes the bearish undertone because of the obvious switch in the demand supply balance in favor of sellers.

In this video, we will discuss the basic principles of interpretation with volume. Volume has certain specific characteristics with a given trend. For example, it gives greater depth to the weight of evidence. Volume not only measures the enthusiasm of buyers and sellers, but it is also a variable that is independent of price in capturing the arrival of information. So, when price and volume patterns are compared, it is important to see whether they are in agreement or they are in divergence.

And if the probability favor, if they are in agreement, then the probability favors extension of a trend. But if they disagree, that tells us that underlying trend is not as strong as it looks on the surface. A lot of clues to the significance of particular pattern or trend reversal can be gleaned from volume characteristics. For example, if a series of ascending peaks and troughs is accompanied by progressively lower volume, it is a sign that the advance is running out of

speed, since volume no longer going with the trend. In this instance, a trend line violation is likely to be of a greater significance than if volume had continued to expand with each successive rally.

Volume Characteristics

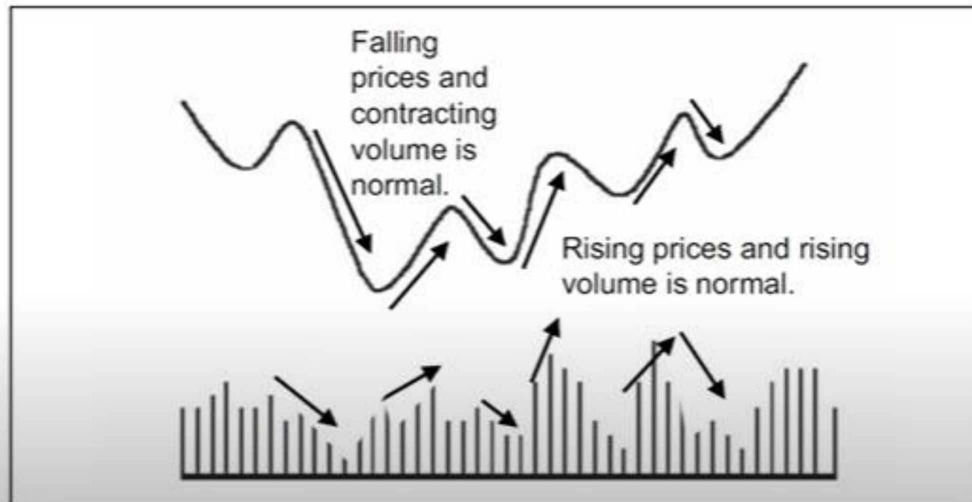
- Volume gives greater depth to the weight of the evidence
- Volume not only measures the enthusiasm of buyers and sellers but also is a variable that is independent of price
- When price and volume patterns are compared, it is important to see whether they are in agreement. If so, the probabilities favor an extension of the trend
- If price and volume disagree, this tells us that the underlying trend is not as strong as it looks on the surface

It is not necessary for a downtrend line penetration to be accompanied by high volume. But a violation that occurs as activity expands emphasizes the bearish undertone because of the obvious switch in the demand-supply balance in favor of sellers. Let us look at this diagram here. For example, falling prices and contracting volume like here falling prices and contracting volume is a normal situation.

And rising prices and rising volume is also a normal situation. The first and very important principle is that volume goes with the trend. So it is normal for normal activity for volume to expand in a rising market and contract in a declining one. The combination of rising volume and rising price is also normal as we saw, it indicates that things are in gear. Volume normally leads the price during a bull move, a new high in the price that is not confirmed by the volume should be regarded as a red flag warning that the prevailing trend may be about to reverse. For example, if you look at the price trend, which is on the upside compared with this the volume, volume and price are in divergence, volume is falling while price is rising, which indicates that volume is not in agreement with price and therefore some kind of trend reversal is due which actually happens afterwards.

And therefore, rising prices accompanied by a trend of falling volume is an abnormal situation. It indicates a weak and suspect rally or rising peaks and troughs and indicator that bear market may come shortly or price trend reversal may happen. Essentially, volume measures a relative enthusiasm of buyers and sellers. When it shrinks as prices rise, the advance occurs only because there is lack of selling rather than sponsorship or force from the buyers. Sooner or later, the trend will reach a point where sellers become more motivated and at that point, prices will start to pick up on the downside.

Volume Goes with the Trend



One clue is provided when activity increases noticeably, the prices starts to decline. Let us look at this diagram here. Please note volume normally leads price during a bull move. For example, you can see here there is a up bull move. A new high in price which is not confirmed by the volume like this volumvollue is falling while peaks and troughs are rising.

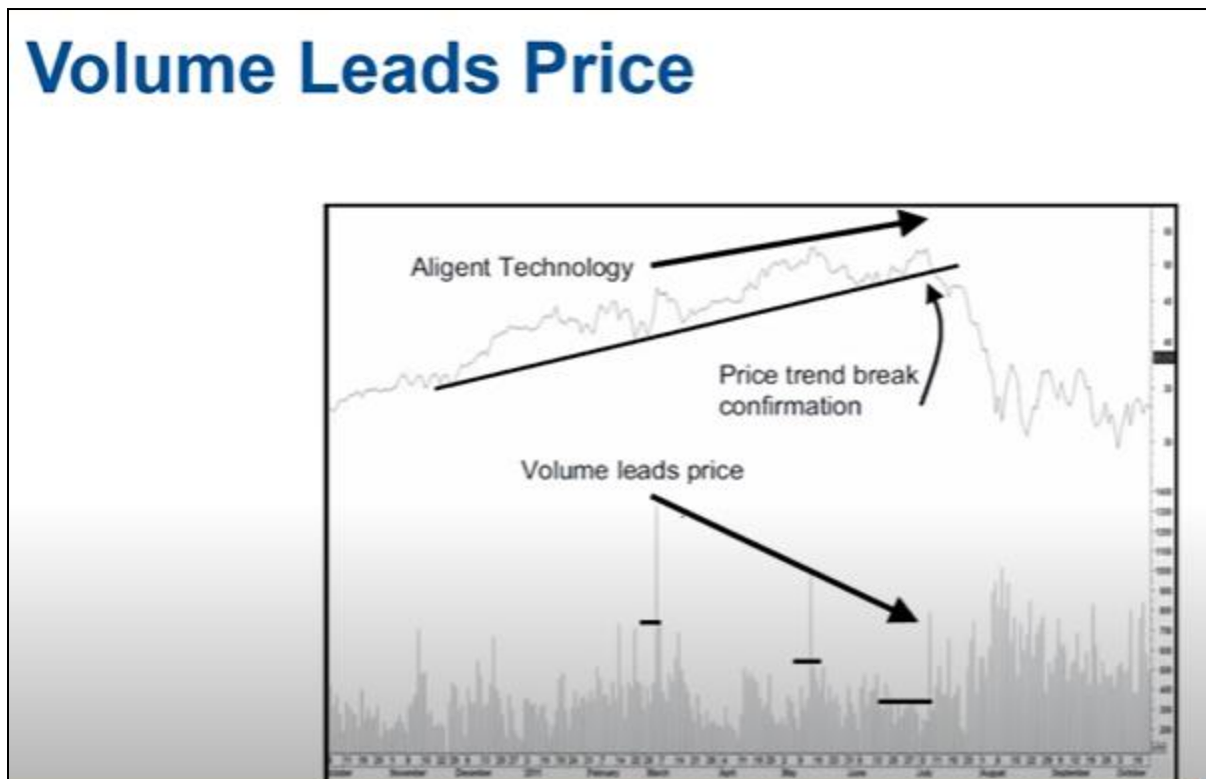
Volume Characteristics

- The first and most important principle is that volume typically goes with the trend. It is normal for activity to expand in a rising market and contract in a declining one
- The combination of the rising volume and rising price is normal. It indicates that things are in gear
- Volume normally leads price during a bull move. A new high in price that is not confirmed by volume should be regarded as a red flag, a warning that the prevailing trend may be about to reverse

Therefore, they are not in agreement and not confirmed by volume. It should be regarded as a red flag warning that prevailing trend may about to reverse like this as it is happening here. In this figure, the price peaks at point C, yet the average volume reaches its maximum at point A. After which there is a decline in volume, rising prices accompanied by a trend of falling

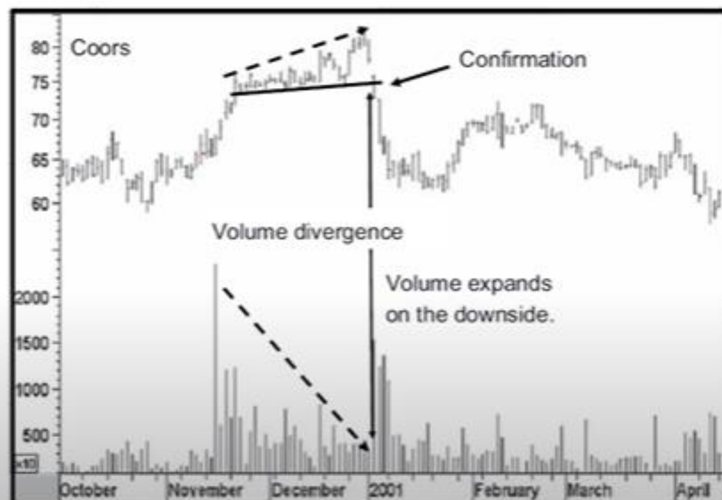
volume is an abnormal situation and indicates a weakened suspect rally. So, this rally suspect and therefore, it is a bear market characteristic that bear market may be about to begin soon. Notice in the second diagram also, there is a rise in price which is accompanied with the sharp fall in volume which is bearish and is reflected in the subsequent sharp downfall in prices.

So, rising prices and falling volume is a bearish characteristic. Also, falling prices and rising volume is bearish which indicate, for example, here falling prices which accompanied by significant increase in volume indicates rising or some kind of force by sellers and therefore indicates that a bear market or fall in prices is about to happen. Also, please note the characteristic of volume change in bull and bear markets. For example, in a normal bull market, rising prices are accompanied by rising volume and falling prices are accompanied by falling volume. In contrast, in a bear market, often falling prices like this are accompanied with rising volume while rising prices are accompanied with falling volume.



So, there is a very different relationship between volume and price in bull and bear markets. Often, when price and volume do not agree, some kind of reversal is expected. For example, here, while the prices have risen, volume has fallen and do not agree with prices and therefore some kind of divergence between volume and price is set up and therefore some after some time there is a line kind of movement trading happening in line or in within certain range and then there is a sharp fall. Also please notice that when the prices fall, there is a sharp increase in volume on the off side, this volume expands when the prices fall, which indicates that some kind of bear run is taking place. This diagram also indicates that, notice that this bear market is characterized by volume declines as price rises. So, wherever there is a rise in price, volume declines, which means volume does not agree with price when there is increase in price because a bear market run is continuing.

Price Volume Divergence

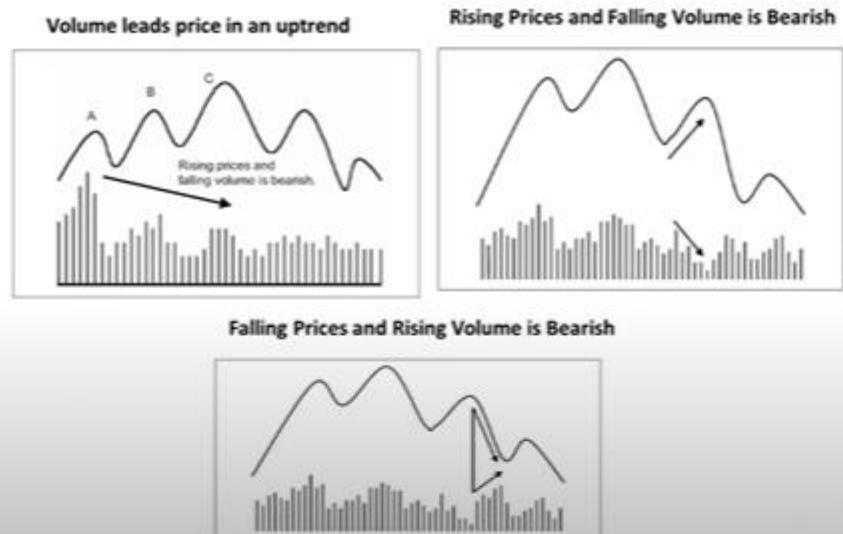


Volume Characteristics

- Rising prices accompanied by a trend of falling volume is an abnormal situation. It indicates a weak and suspect rally and is a bear market characteristic
- Volume measures the relative enthusiasm of buyers and sellers. When it shrinks as prices rise, the advance occurs because of a lack of selling rather than sponsorship from buyers
- Sooner or later, the trend will reach a point where sellers become more motivated. After that, prices will start to pick up on the downside
- One clue is provided when activity increases noticeably, the price starts to decline

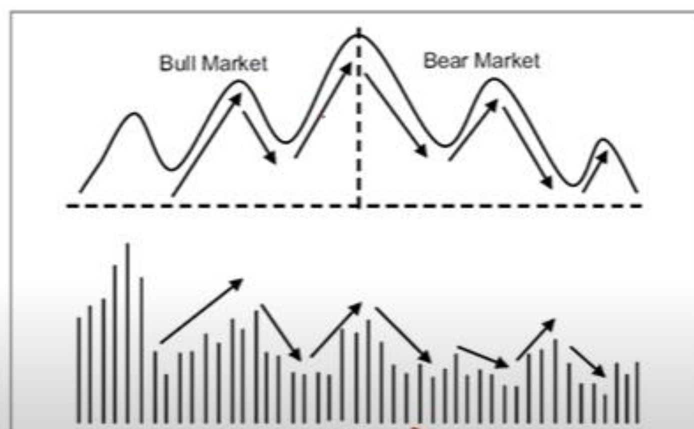
To summarize, in this video, we discussed that volume provides an important piece of information. Often, it provides a leading information indicator to judge whether a pattern is solid or some kind of reversal is about to take place. For example, if volume agrees with price, then it appears that the trend may continue for some time or it is solid and strong. However, if volume does not agree with price and therefore the trend is weak and may reverse. For example, we discussed that in bull market, rising prices are accompanied with rising volume and vice versa, while in bear market, the trend is opposite.

Volume Leads Price in an Uptrend

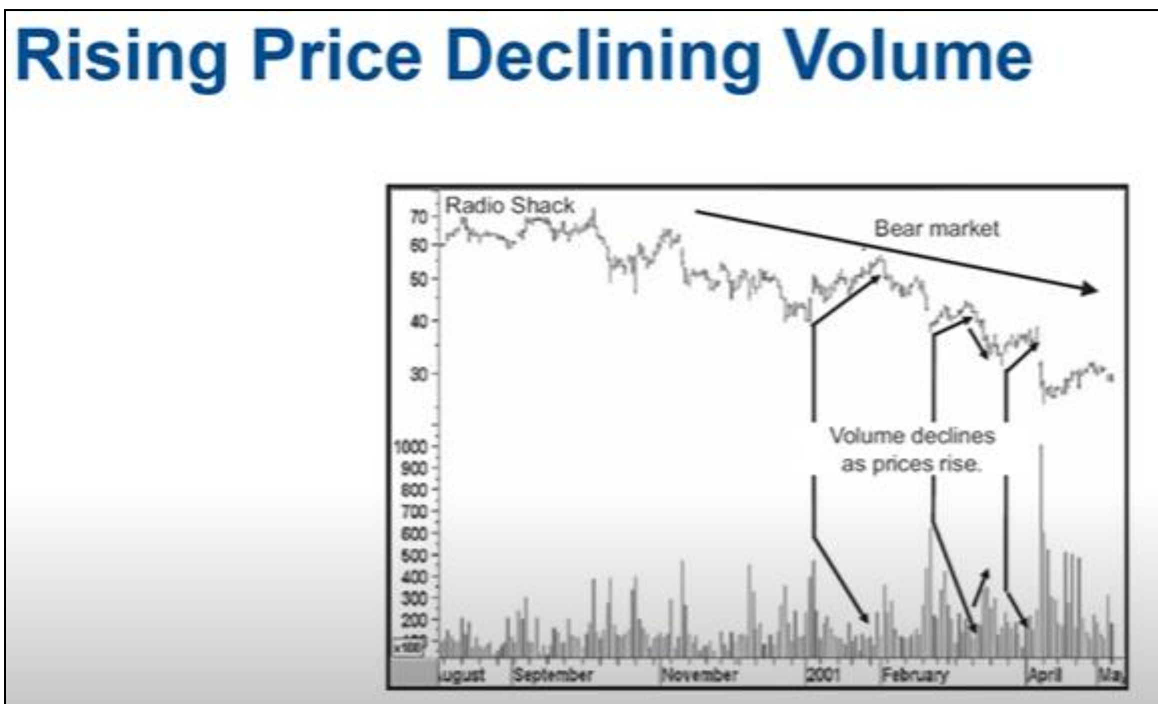


Classical price patterns. In this video, we will examine some of the often employed classical price patterns that are often used to examine the strength of a price trend. Here, in the figure, we have a typical market cycle in which there are three trends, one is up, sideways and down. The sideways trend is essentially a horizontal or transitional trend which separates two major market movements, for example, up and down and down and up. The transition between a rising and a falling trend are often signaled by identifiable trade trading ranges known as price patterns like this. To the market technician, the transitional phase has great significance because it marks the turning point between a rising and falling market.

Volume Characteristics Change in Bull and Bear Markets



If prices have been advancing, the enthusiasm of the buyers has outweighed the pessimism of sellers up to this point and prices have risen accordingly. During the transition phase, the balance becomes more or less even until finally for one reason or another, it is tipped in a new direction as the relative weight of selling pushes the trend of prices down. At the termination of a bear market, the reverse process like this occurs. These transition phases are almost invariably signaled by clearly defiable price patterns or formations whose successful completion alerts the technician to the fact that a reversal in trend has taken place like this. This phenomena is illustrated in figure here which shows the price action at the end of a long rising trend.



As soon as the price rises above the line BB, it is in the transitional area although this is apparent only sometime after the picture has developed. Once into the area, the price rises to the line AA which is the resistance. The word resistance is used because at this point the price shows opposition to a further rise. When the demand-supply relationships come into the balance, the market quickly turns in the favor of sellers because prices react. This temporary reversal may occur because buyers refuse to pay for a security or because the higher price attracts more sellers.

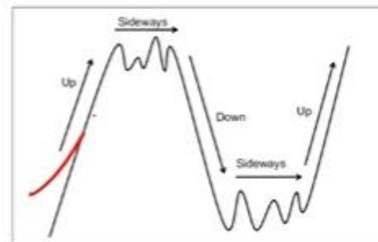
For a combination of these two reasons, the important fact is that the relationship between the two groups is temporarily reversed at this point. A vice versa explanation can be provided by this kind of movement where prices have fallen and then again the trading is the ranges after which a reversal occurs. The transition or horizontal phase here as we saw separating rising

and falling prices trend discussed here is a pattern known as rectangle. So this is often referred to as the rectangle pattern because prices fluctuate between the rectangle inside the rectangle.

This corresponds to the line formation developed from the Dow theory. So it is similar to that line formation. The rectangle is specific in this figure, marking the turning point between the bull and bear phases like this and this is termed as a reversal pattern. Reversal patterns at the market tops are known as distribution areas or patterns where the security is distributed from strong informed participants to weak uninformed ones and therefore at those market bottoms are called accumulation patterns. So this is the distribution patterns where security moves to weak uninformed hands and therefore fall in prices and here you can say this is accumulation pattern where security passes from weak and uninformed participants to strong informed participants and therefore this kind of rise in prices, strengthening of prices. Notice in the diagram here the prices breaks to the upside reinforcing the series of rising peaks and troughs that precede the formation of a rectangle.

Classical Price Patterns

- A typical market cycle comprises three trends: up, sideways, and down
- The sideways trend indicates a transition phase between two major movements

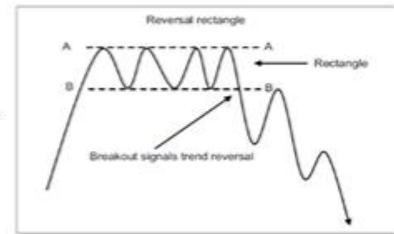


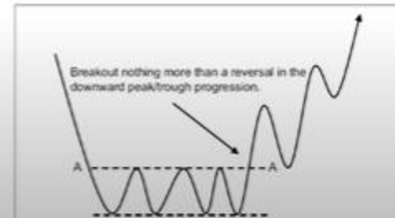
- These sideways or trading ranges are often called price patterns
- During these trading ranges, there is an even balance between buyers and sellers
- At the end of this range (completion of the price pattern), balance is shifted in favor of buyers or sellers

So after this rectangle there is a breakout upside thereby reforming the underlying trend. In this case the collective phase associated with the formation of the rectangle would temporarily interrupt the bull market. So there is a temporary interruption. Such formations are referred to as consolidation or continuation pattern. So there is a continuation of the earlier trend before that transitionary phase.

Classical Price Patterns

- The transition area comprises resistance and support zones
- These are the point of temporary reversals: shifting of balance between buyers and sellers
- The transitional or horizontal phase separating rising and falling price trends discussed earlier is a pattern known as a rectangle (line from DOW theory)
- Here, a reversal pattern is shown

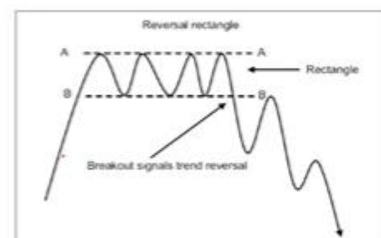


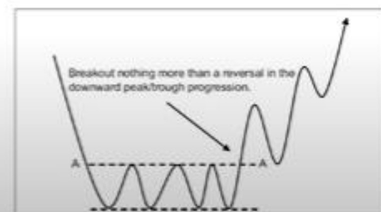


Next we have head and shoulders pattern that are probably the most reliable of all the patterns. They occur both at the market tops and bottoms as we can see here in the figure. So there is a market top and bottom also. This figure as we can see here a typical head and shoulder distribution pattern where it moves from strong to weak hands while the bottom one is accumulation kind of pattern. It consists of a final rally ahead separating two smaller although not necessarily identical rallies or shoulders like this and this. If the two shoulders were the trends of immediate duration the first shoulder would be the penultimate advance in the bull market.

Classical Price Patterns

- Reversal patterns at market tops are known as distribution areas or patterns (where the security is "distributed" from strong, informed participants to weak, uninformed ones)
- Those at market bottoms are called accumulation patterns (where the security passes from weak, uninformed participants to strong, informed ones



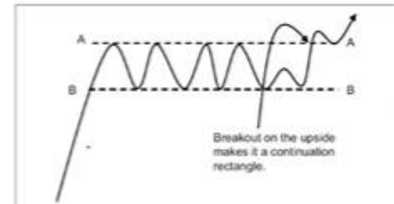


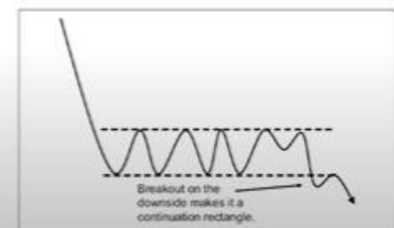
So this shoulder is like penultimate advance in the bull market and the second shoulder is probably the first bear market rally. The head of course would represent the final intermediate rally in the bull market. Here please note the volume characteristic are of critical importance

in assessing the validity of these patterns. Activity is normally heaviest during the formation of left shoulder like this. So here you can see the activity is heaviest at the left shoulder and also tends to be quite heavy as prices approach its peak.

Classical Price Patterns

- The price breaks to the upside, reinforcing the series of rising peaks and troughs that precede the formation of the rectangle, thereby reaffirming the underlying trend: consolidation or continuation patterns
- In this case, the corrective phase associated with the formation of the rectangle would temporarily interrupt the trend

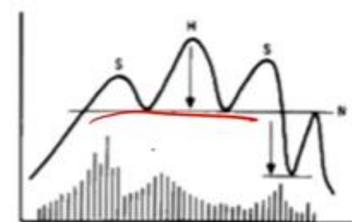


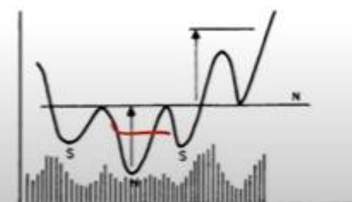


The real tip of that head and shoulder pattern is developing comes with the formation of right shoulder which is this one or this one in the opposite pattern which is invariably accompanied by a distinctly lower volume like here. Quite often the level of volume contracts as the peak of the right shoulder is reached and line joining the bottoms of the two shoulders is called neckline. So this is the neckline here. If you look at carefully at the figure you will appreciate the violation of the neckline. This violation of neckline also represents a signal that previous series of rising peaks and troughs has now been broken and given way to at least one declining peak and trough like this.

Classical Price Patterns

- Head and shoulders (H&S) are probably the most reliable of all chart patterns
- They occur at both market tops and market bottoms: accumulation and distribution
- It consists of a final rally (the head) separating two smaller, although not necessarily identical, rallies (the shoulders)
- Volume characteristics are of critical importance in assessing the validity of these patterns

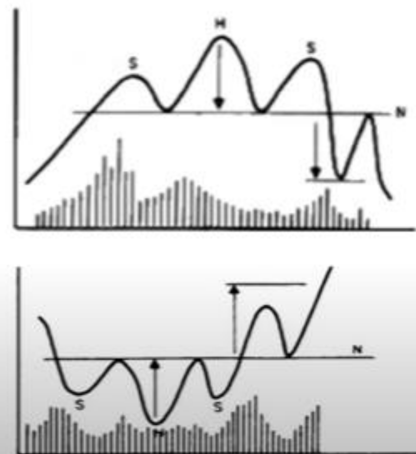




The right shoulder represents the first lower peak at the bottom of the move following the breakdown a lower trough. Moreover since a right shoulder rally should be accompanied by a trend of shrinking volume like this one that develops under the context of heavy volume provides a clue that the top will fail. The figure at the bottom this is a reverse classic classical reverse head and shoulder pattern this shows head and shoulder pattern at a marked bottom. This is also called inverse head and shoulder a reverse head and shoulder or head and shoulder bottom. Normally the volume is relatively high at the bottom of the left shoulder here and during the formation of the head. The major factor to which to watch for is activity on the right shoulder which should contract during the decline to the trough and expand substantially on the breakout.

Classical Price Patterns

- Right shoulder peak accompanies lower volume in the direction of previous trend and expands with breakout
- The line joining the bottoms of the two shoulders is called the neckline and represents the support area
- The violation of the neckline represents a signal that the previous series of rising/falling peaks and troughs have been broken



So here the volume will expand in the breakout. To summarize in this video we discussed some of the most important classical price trends for example side up down and sideways top and bottom formations rectangular patterns reverse rectangular patterns and head and shoulder patterns reverse head and shoulder patterns and trading in ranges. We also saw some of the continuation and reversal patterns which we explained with the help of accumulation and distribution of stocks from weak to strong and strong to weak hands. To summarize this lesson technical analysis deals with identifying temporary supply demand mismatches.

A very important development in this regard is Dow theory by Charles Dow. The theory has 6 postulations. Averages discount everything. Second market has 3 types of movements primary or major trend secondary reaction and minor movements. Third lines indicate movement.

Price and volume relationships provide the background. Fifth price action determines the trend. And six averages must confirm. Moving on an intermediary cycle comprises an up and down move in a primary bull or bear run. These intermediary cycles are very important in identifying

trends and reversals. There are various price formations and patterns that are used to identify the strength of a trend and chances of its reversal. These include support and resistance zones, trend line violations and classical price patterns such as sideways, rectangles, breakouts, head and shoulder patterns.

Next trend lines are lines connecting rising troughs and falling peaks. A down cross of an uptrend line and vice versa price movement indicates chances of reversal. Volume also offers important information in examining the strength of a trend and chances of reversal. For example, volume movements that agree with price indicate the strength of the trend. Volume movements that do not agree indicate weakness in the current trend. Price volume relationship changes its nature in bull versus bear run. Thank you.