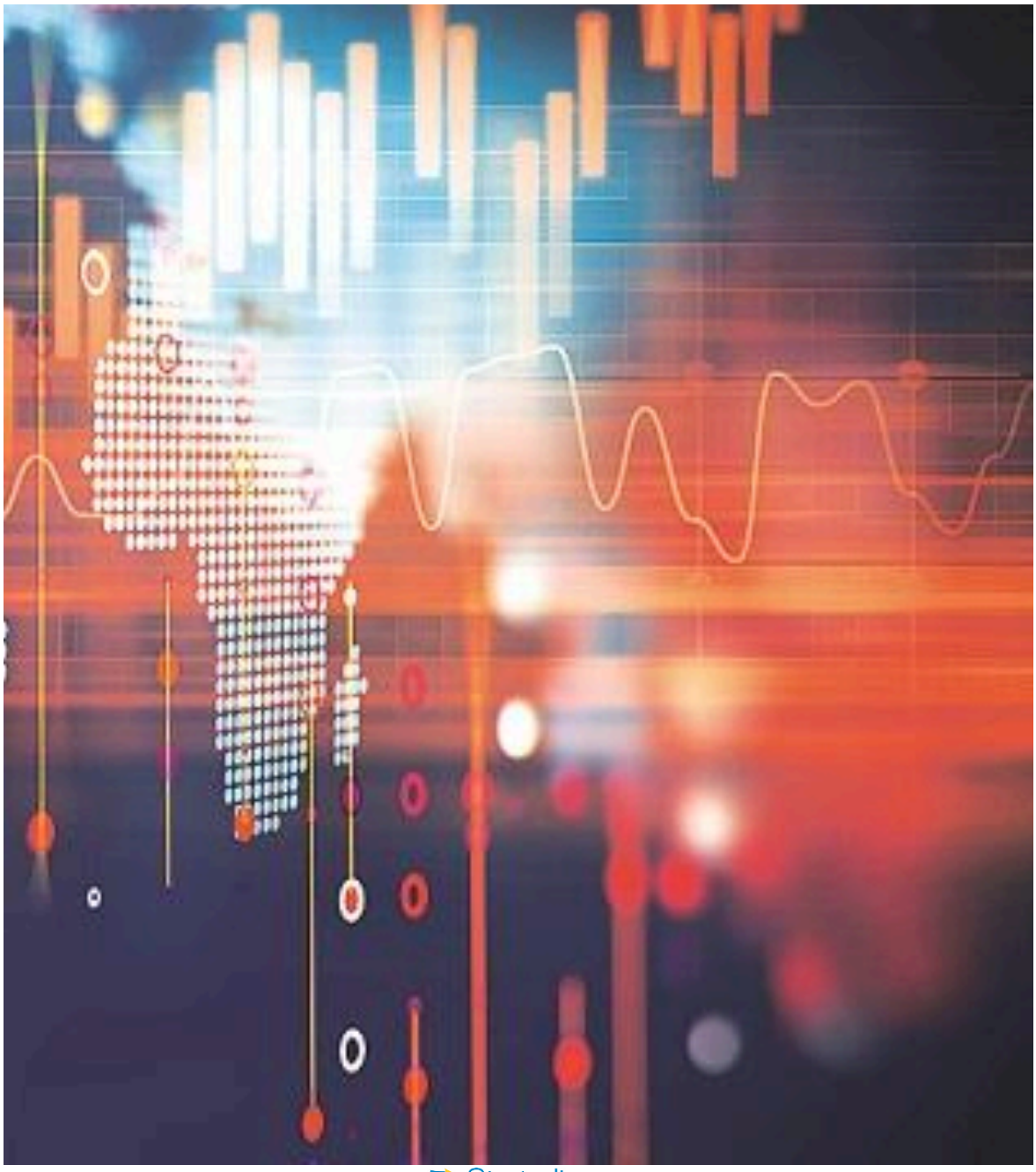
Equity and Derivatives Reference Handout



Stratadigm
ideas that work
Careers • Banking • Financial Services • Insurance

Your Personalised Reference Material !

This is not 'just a pdf'. Do not treat it so.

The **Table of Contents** is hyperlinked across the document. That allows you to browse across the document freely.

You can choose what you are reading and go back and forth as you wish.

Click here or go to the link; find infographics, videos and more!

Videos & Video-books: Connect to videos - standalone videos as well as video-books. The coverage is similar to, if not exactly, what you read here. It is accessible ***only to you.***

Complete your registration process in class and get your access. You need to login only once and go back to reading. Videos will play automatically whenever you click. Look for the icons on the page. Click & View!

Video

Videobook

Read. Listen. Watch.

Suit your mood. Suit your circumstance. On any device.

MakeMyVideo™: Ask for any input on any topic. So long as it fits in our editorial policy expect to see the video. You can even have us convert your expression of a topic into a video! Click on the icon here; or wherever you find it, when you want to use this feature!

Stratadigm
ideas that work
Careers • Banking • Financial Services • Insurance

Stratadigm
ideas that work
Careers • Banking • Financial Services • Insurance

MarketTechPro™
Markets for Ops & Tech Pros

UNDERSTANDING EQUITY

This topic is also available as a video-book! Click to view.

Table of Contents

(Click on the topic to go to that section. Click on Go to ToC on the right top of any page to come back to this place.)

What is Equity

When investors invest in the Equity or shares of a business; or company; they become owners of the business. If the company is divided into one hundred parts and each investor owns ONE part, then each investor owns 1% of the company.

Each part of the company is called a “Share”. The share is in that sense, the smallest, indivisible part of a company’s ownership. It is like an atom.

Each owner of a part of the company is called a “Shareholder”. A shareholder may own many parts: if she owns 6 parts, for e.g., she owns 6% of the company. Find out how many shares (parts) a company has; find out how many shares a person owns and you can tell what is the percentage ownership of that person. *‘Shares’, ‘stocks’ and ‘equity’: are all terms that are used interchangeably in normal conversation.*

The Idea of a Business
The Story of Financial Instruments is rooted in the challenges of starting a business. A Business person has a great business idea - But not enough money to pursue the idea.

An investor Is looking for opportunities to invest. The business person explains the idea to the investor. The investor likes the idea: agrees to invest.

Operationally, here is how that Investment process works:

- ☑ The investor gives Money which is called Investing.
- ☑ The business hands over a “Paper” which is evidence of the investment; also known as *Issuance.*
- ☑ The “Paper” contains various promises made by the business person to the investor.

In offering shares to investors, the company does the following:

1. All explanations of the idea are written down
2. All the possible benefits of the investment idea are mentioned
3. All the risks are mentioned
4. AND most important, depending on the kind of investment made, there are promises to either:
    a. Share profits of the business
5. The Rights of the Investor are clearly mentioned.

The business person is the issuer and the investor is the subscriber.

The Benefits of Shareholding

The core promise involved in Equity is that:

1. The owner of the paper becomes an owner of the business.
2. All benefits of ownership flow to the holder of the paper.
3. However, equity limits the problem associated with the failure of a business.

The business owner owns a cow. The cow is the business. He also owns the milk the cow gives.
The milk produced by the cow is the profit of the business. If a cow is owned by a group of people collectively, the produce of the cow is the only way to share ownership, without disposing of, or destroying the business, that is the cow.

Benefits of Ownership

A business makes a profit. Shareholders take some part of the profit as dividend. Shareholders in the company and through the company agree to reinvest the balance of profits in the growth plans of the business.

The profit of future years will increase as a result. The rewards of investing in the future, lie in the future.
Dividends are usually declared annually. Dividends represent the regular rewards of investment.

Businesses can make losses, too.

Shareholders have no obligation beyond the initial capital they invested in the Primary Market. This encourages risk taking as it insulates the owners from business failures and any resultant threat of insolvency.

An investor may have lost the initial amount per share which was invested in the company. But there might be many more people who have to be paid. And our company has no further cash! The shareholders will then say, “Sorry! The loss is limited to the money we originally put in to starting the company.”

This concept of limited loss encourages investors to back enterprise without fear of unlimited loss of personal wealth.

Earnings Per Share

A business is divided into a number of parts each called a share. A business makes a profit. The profit made per share is called: Earnings per Share.

To arrive at this number, take the Profit in a Year divided by Shares in the company.

To take an example:

- Apple’s Earnings Per Share is approx. $ 9.60 per share in 2017.
- Apple made $ 48 billion in profits in 2017.
- Apple has 500 billion shares in 2017.
- Dividing those two numbers we get an EPS $ 9.60.

Dividends

Dividends are determined by a company loosely on the following basis:

- Take this year’s profit (Earnings Per Share)
- Give some to shareholders in cash
- Reinvest some in your future
- Future Earnings Per Share (next year’s profit) will grow as a result
- Dividend is the distribution of (a part or all) profits in cash.
- This is the reward for participating in the risks.

Dividend Policy is about deciding how much to distribute; and how much to reinvest.
Growing / Growth companies give just enough to keep shareholders happy. The rest of the profits are reinvested.

If there are no opportunities to grow, the company will distribute all or most of the profits as dividend.

All investors in a company like for it to have good, strong or high "Earnings Per Share". Some investors prefer high dividend companies: those that payout most of the earnings. Some investors prefer companies with a ***growing*** Earnings Per Share. This implies high reinvestment of profits; or a very high growth trajectory as seen by the likes of Google or Apple Inc.

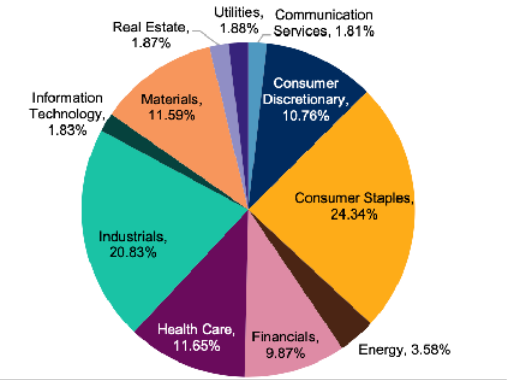
Decisions to Invest

Investors like to find a market price to invest in a share whereby the following ratio is healthy / high: “Return on Investment” or “Yield”.

This can be calculated using any of the following approaches:

1. Earnings Per Share divided by Current Market Price
2. Or by dividing Dividend by the Current Market Price: This is a little tougher: because dividend is a part of Earnings Per Share.

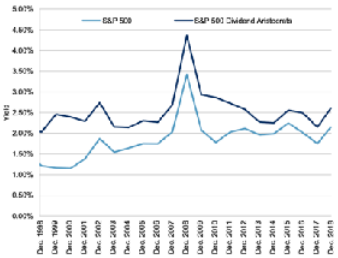
Investment guru Benjamin Graham recommends investing only in those businesses that have a steady or positive trend in dividends over a 10 year period.



Sectors of the top dividend paying companies from the S&P 500

Here are some of the truisms based on these equations:

- ☑ If the Market Price is HIGH, the Yield will be low.
- ☑ If the Market Price is LOW, the Yield will be high.
- ☑ Prices tend to be high when the share is of a high growth company, or a highly valued company.
- ☑ Prices also tend to be high when the market is experiencing a cyclical boom / euphoria phase.
- ☑ Prices tend to be low for stocks might be considered past their growth years.
- ☑ Prices also tend to be low when the market is in a bear phase.



S&P research shows that the average yield of the top dividend paying

Investors do not like companies that *neither* pay out dividends *nor* have growth or new ideas to invest in.

More on Dividends: Finer Aspects

The Procedure for Declaration of Dividends or Bonus is as follows:

The Board of Directors of the company propose a dividend / bonus based on:

- Available Profits
- Accumulated Profits
- Future plans
- Dividend or Bonus is however, approved by shareholders at the annual meeting.
- They could approve something different from what is proposed by management after due discussion and voting

In some cases/ countries there is a concept of Nominal Value or Par Value of a Share. (In some countries the concept of a par value is not popular; the share is just something that has a price and a value.)

Par Value of a Share

Where nominal / par value is considered, these are the underlying concepts:

- "Par" is the "Nominal" value of a share
- This is a number decided when the company is set up
- Dividend is calculated and paid on this value

Examples:

1. Par Value: 10/-
A declared dividend of 25% is 25% on the par value. In this example: 25% of 10 = 2.50 dividend per share.

2. Par Value: 1/-
A dividend of 25% is 25% of the par value.In this example: 25% of 1/- = 0.25 dividend per share.

When a company declares it dividend, if declared as a percentage, it needs to be applied on par or face value. Law requires dividend to also be stated in terms of amount per share.

Instances of 'No Par'

In cases, where there is NO par value (many USA shares for example), dividend is declared in Dollar & Cents per share. (or Pounds and pence, etc.)

Distribution of Profits: Current & Past Profits

Companies usually distribute dividends from current year's profits, though this might not necessarily be so.

Simply put, if the profit of a year are $ 15 million the company will declare a part of this as the dividend for the year: say, $ 5 million.

Let us take an example where the dividend is in excess of the current year's profit. This can happen only if the company has Retained Earnings (i.e. profits of the past); let us assume that number stands at $ 100 million. If dividend declared is at $ 25 m

It implies that $ 10 million is used from past profits in making that dividend distribution.

Therefore, the past profits are drawn down to the extent of $ 10 m and the left over (Closing balance) of Retained Earnings will now be $ 90 million.

Bonus

To understand the issue of bonus shares we need to understand how profits flow through the Financial Statements.

There are two financial statements we will review to understanding this. The profit itself is calculated in the Income Statement, also known as the profit and loss statement. We do not need to look at that. We need to consider the Income Appropriation statement which decides how the profit will be distributed; and the Balance Sheet.

The Servicing of Capital

Shareholders Funds represent the Equity Investment that has to be serviced by the company, by paying out profits. This includes the money originally invested by shareholders in the company plus the accumulated profits of ALL past years. These can be depleted by distribution of dividends or special dividends in later years

The Buildup Of Accumulated Profits And The Issue Of Bonus

When the accumulated profits rise to high levels, shareholders tend to demand greater payouts. A BONUS issue of shares is one way to deal with it. This involves giving free, additional shares to the shareholders. And here is the impact of that act on the financial statements.

When a Bonus is Issued:

- The Accumulated Reserves (also known as Retained Earnings; Shareholders Funds) get transferred to the Capital account.
- The Equity Capital rises to 675 and reserves go to zero, if the entire reserves are given away in bonus.

The Expanded Capital Base Post-Bonus

Going back to the basics we know that this Equity Investment that has to be serviced by the company. So, when considering a Bonus Issue, one of the questions the management of the company considers is whether the future earnings of the company will be sufficient to pay dividends on the larger number of shares!

Impact of Bonus on Number of Shares in a Company

Assume that the number of shares before the Bonus Issue is 1,000.
The Bonus issue announced is: one share for every one already held.

Therefore new shares issued are 1000.

The Total number of shares *after* the Bonus Issue: is 2000

We already know that Earning Per Share is profit in a year divided by the shares in the company. If the profit made by the company is $ 4000 then: the Earnings Per Share before the bonus issue is arrived at by dividing the profit ($ 4000) by the number of shares (1000), and we get $ 4 per share.

Earnings Per Share right after Bonus is 4000 by 2000, which is $ 2 per share.

Some Aspects of a Bonus Issue

If the company has profits, but does not want to distribute cash, it can consider a Bonus Issue. A bonus helps a profitable company retain its liquid cash for deploying into business assets or its business plan.

Since, in a Bonus Issue, everyone gets shares proportionally, all shareholders retain their percentage holding in the company.

Can the company sustain dividends on the enhanced number of shares? After the Bonus Issue, will the Earnings Per Share increase again to pre-bonus levels? Those are questions that the management of the company has to think deeply about before deciding to issue bonus shares.

In the USA, the same effect is obtained by Stock Splits. One can replace the term Bonus Issue with Stock Splits and the preceding discussion remains valid.

The Paradox of Enterprise *(The background to Equity Buybacks)*

Businesses aspire to achieve a cash rich status all their lives. A good number never reach that position.

But a few companies reach a position where the cash generated is significant. The cash generating capacity becomes a huge problem for the company

Here is how that becomes a problem:

If the investment in a business is $ 1 billion and the cash generated by the business is 25% in a year then the free cashflow additionally generated by this company is $ 250 m. This amount is then reinvested in the business, so that the total money into the business is $ 1.25 billion dollars.

If the business continues to generate 25% per annum, the free cashflow generated in the next following is $ 312.5 million.

But a business cannot absorb infinite amounts of cash. Let us say only another $ 250 million can be invested in the business, then the total money in the business is 1.5 billion dollars.

Now the business has started to generate $ 375 million dollars a year.

At some point, the cash generation is so rapid that the company is unable to invest the cash further, because:

A. The business reaches a capacity level at which addition of capacity is not that simple: growing from 50 to 100 is simpler than growing from 500 to 1000

B. A business needs new ideas to put money into; in the old business it may have reached the capacity limit as noted in (a) above.

Excess Cash Goes into Bank Deposits

The business may have to keep the cash it generates in the bank since it has no other place to invest it.

Look at the returns the company now generates.

The $ 1.5 billion dollars generates the business rate of return of 25% so the company generates another $ 375 million. But the bank deposit of 375 million generates return only 6%, yielding 22.5 million dollars.

So the company earns a total of 397.5 million dollars on a total investment of 1875 million dollars. That is only 21.2% compared to what the core business generates at 25%.

The market typically takes a negative view of the decline on returns from 25% in the previous years to 21.2%. In fact, as the years progress, if the company does not find an investment opportunity this return will drop drastically as the cash in bank exceeds the amount invested in the business, progressively.

Problems for the Cash Rich Company

Return on overall assets is dropping from the traditional highs that the market has come to expect from this company.

As the company tries a high dividend payout policy it finds that the cash accretion continues at the old pace and the problem does not go away.

Earnings Per Share stagnates.

Worst of all, the market interprets the inability to invest as the company's lack of vision and plan for the future: "They have no new ideas!"

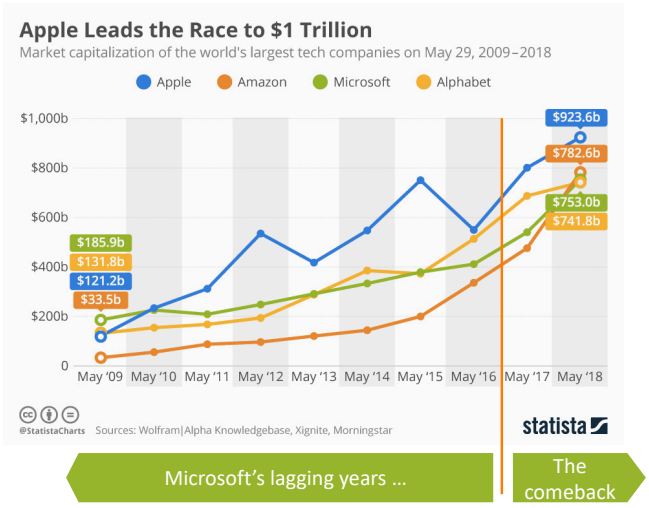
Let us look at the same problem differently.

The sources of funds for the enterprise are the original equity investment and the accumulated profits of the past.

Let us take an example of $ 800 of high yielding assets being deployed in the core business; and $ 700 of cash in the bank which is low yielding. This company has to service $ 1500 of capital. But nearly 50% of its assets are in low yielding assets.

The best real life example of this problem is from Microsoft, valid till about 2015. Microsoft, through its dominance of the operating system market, at one point had $ 52 billion in cash. Windows and Office continued to remain a cash cow. But that is not what the market was looking for.

Even as the company started to pay out more in dividends, the cash inflow did not slow. But MS did not know where to invest this money. As it happens, in the matter of innovation having money is not a solution! MS did not invent Google; nor Facebook; nor Twitter.



With the returns declining and Earnings Per Share stagnating the market took a dim view of MS's ability to innovate. The stock became a hold at 'best'; to some – looking for growth rather than value- it was a clear 'sell'. *(The situation is changed with Microsoft now dominating the enterprise service market).*

Buybacks & Treasury Stock

Buybacks

The Buyback is asSolution to the excess of cash.

In a Buyback, the company decides to buy back its own stock, in effect giving a terminal date to the perpetual nature of a share. We know that the Earning Per Share is arrived at by dividing net profits by the number of shares.

A Buyback *reduces* the denominator in that equation. Profits remaining constant, Earnings Per Share will increase. Earnings Per Share is one of the factors in determining market price of a share as seen in the formula. As Earnings Per Share goes up, the Market Price goes up.

The Market also reacts positively, as the problem of the deposit rate of return dragging down the overall Return on Assets is resolved.

A Buyback could also be initiated to consolidate the holding of a promoter group and increase their shareholding percentage in the company. Promoters or founders often do this when they feel that the stock's market price is lower than the company is worth.

The Buyback Impact On The Financials

First, use the cash to buy back shares. This reduces the Equity Capital of the company. Let us assume that the company wants to retain some cash. It plans to use $ 500 m for the Buyback. This decision sets the budget for the Buyback. The company will *offer* to Buyback; it cannot enforce the Buyback.

A company makes a Buyback offer at say $ 25 a share. This would have to be higher than the market price to be an attractive offer. Shareholders can be made an offer but cannot be forced to give in their shares. The company has a target amount (budget) for the Buyback, which in our example is $ 500.

Shareholders makes a choice; and a certain number of shares come up for Buyback.

If the Buyback number requires less/ equal to $ 500 m (which is the Buyback budget) then *all* shares offered in Buyback will be accepted.

If the Buyback number requires more than $ 500 m, then the budget is exceeded. In this case, shares will be bought back in proportion to the quantum offered.

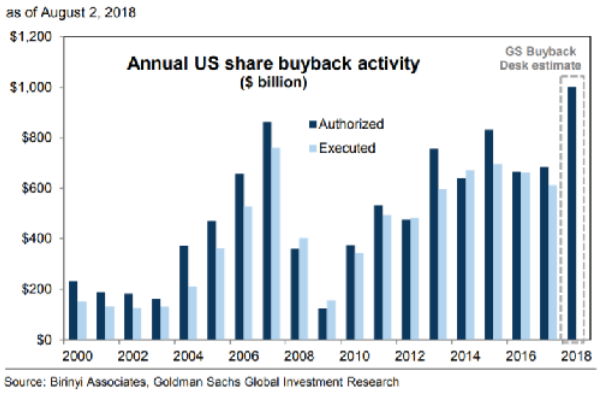
Example:

> Existing Equity is $ 300.
> Reserves are $ 1200.
> All of this is property of, belongs to shareholders, totaling to $ 1500.
>
> The budget for the Buyback is $ 500; covering 20 shares
> If the Buyback number is within budget, say, $500: (20 shares @ $ 25) *all* shares offered in Buyback will be accepted. So, 20 shares are bought back. The remaining shares in the company are 40 shares (called 'outstanding shares').

When the Buyback Number Exceeds the Budget

Let us say that the shares offered for Buyback require a budget of $1000: (40 shares @ $25).
Shares will be bought back in proportion. Since the offered amount is twice the budget, only half will be accepted.

For every 2 shares offered in Buyback, ONE will be accepted.
40 were offered; 20 will be accepted and bought back. The remaining shares outstanding in the company: are now 40 shares. The cash remaining on the balance sheet in this example is $ 200.



Treasury Stock

If there were originally 60 shares and 20 shares were bought back, these 20 are classified as Treasury Stock now. The remaining shares now, called “Outstanding Shares”, are 40.

Therefore, There are various states of Equity Capital as seen below:

- Authorized shares: are The number planned for, when the company was formed.
- Issued Shares: Of the authorized capital, The number issued to raise capital is a part, 60 in this example.
- Treasury Stock: The number bought back is this example is 20
- Outstanding shares are The number held by shareholders; for which the company is answerable to holders; which the company has to service through dividends and various other distribution such as bonus issues, stock splits etc.

Treasury stock is:

- Authorized
- Is considered to be issued because it was once sold (once issued, always issued)
- But is no longer outstanding
- Because it has been bought-back

Consider this example:

Toyota Motor Corp has 35 million shares issued. It buys back 12.5 million. Later, the company needs to expand its capital and issues shares total 5 million. What is the total number of outstanding shares and how much is the Treasury Stock? Does the CFO need to check how much is the authorized capital is, before issuing the shares?

Answer: If the newly issued shares exceed the Buyback you need one check to make sure that the total shares issued are within the initial authorization. *(It can be easily increased, anyway.)*

In this instance, there had been a Buyback of 12.5 m shares; of that only 5 million is being reissued. 7.5 million still remains in Treasury Stock. Therefore there is no need to check Authorized Capital levels.

Rights issues

A Company Might Want To Add Capacity

Let us say that a company plans an Additional factory for $ 300. The company cannot take any more loans, As we assume Its loan taking capacity is full up. The company plans to raise more equity. The company will offer the opportunity to invest to *existing* shareholders as a matter of their *right*. That is called a Rights Issue.

Rights Issues are meaningful when the company has been rewarding shareholders; performing well. Rights are usually offered at a discount to market price to further reward existing shareholders.

Example:

A company has 10 million shares each trading at $ 40. The company is looking to add a factory and decides to issue 2 million new shares for $ 35 each: that is a discount of $ 5 to market price.

This is a 1 share for every 5 held Rights Issue. Mr. X has 5 shares in the company when this announcement is made. What are his options?

Option 1

Buy the one share. For this he has to pay $ 35.
Total shares after rights: 6

Option 2

Sell the “right”.
Mr. X will be able to collect no more than $ 5 which is the difference between the market price and the rights price for him as an existing shareholder.

Option3

Allowing the rights to lapse. This would be a mistake considering he is getting it at a discount.

Preferential Issues *(The opposite of Rights)*

In a Rights Issue existing shareholders are given a right to invest additional sums in the company. The right is proportional to the number of shares already held.

By contrast, in a Preferential Issue (also known as a Private Placement), a particular investor is preferred and invited to invest - excluding existing shareholders. Do remember, *all* capital raising, even a Preferential Issue / Private Placement, requires approval of existing shareholders.

Existing shareholders approve of such issues because:

1.They themselves do not have the money to further invest
2.The incoming investor has brand and strategic value which goes beyond just the infusion of cash in to the company.

Warrants

Growing an Enterprise can be viewed as an alternate layering of equity and debt.

Initially a company is funded by the founder promoter. We assume no one will give a new company a loan.

Profits that the company makes are reinvested in the business; such a strategy is true of early, growing years. Now the company is able to raise equal amount of debt.

If we assume that a new project of $ 150, is partly funded by equity to the extent of last years earnings of $ 25 the company might be able to take a loan $ 125.

We skip a few years of profitable and go forward in time. We assume that the company's equity is now $ 200 and it is able to raise fresh loans of $ 200.

As profits are earned and retained, equity goes up. As equity increases, the debt taking capacity increases too.

In this fashion every time the company's equity rises (either through profits or through the raising of additional capital via public issues), its capacity to take on debt increases. The increase in equity plus debt provide capital for new projects, leading to growth.

The Attractiveness Of Warrants

As the company grows through this layering of equity and debt, its share price rises because of the success it enjoys. When the equity share of the company is traded in the market at $ 25, a debt issue could be undertaken. Let us assume that the expected future price of the share is at $ 50. This possibility of appreciation in price can be leveraged in the issuance of debt. As we now know, companies typically layer the issuance and growth of equity with debt.

To this issue of Debt the company could add a warrant. The warrant allows the holder of the debt, to buy into the equity of the company at a discount to *possible* future market price.

If the investor view is that these warrants will be inherently valuable, lenders may be willing to provide debt at *lower* than market rates. if the company executes the project on time, this lower cost of debt will make the company's project particularly successful and profitable.

The warrants may later prove worthless, if the company does not successfully complete its project.

Therefore, a warrant is an instrument attached to another financial instrument that entitles the holder to buy a security at a pre-determined price. Warrants are detachable and traceable separately.

American / Global Depository Receipts ADR / GDR

A Company seeking overseas investors might be unwilling or unqualified to issue securities in an overseas market. For instance, the USA has specific standards for reporting and corporate governance. A company from an Emerging Market like India might find that expensive to comply with.

The existing shares of this company in its country of origin are held by domestic investors. Those are typically held at Registrars, Depositories or Custodians.

As a first step in the issuance of the ADR, new shares are *created* but not *issued/sold* locally. A Global Custodian is appointed and against the new shares, ADRs are created and issued in the overseas territory.

The overseas investor invests in or buys the Depository Receipt. In doing so, the investor is clearly a taking a risk in leaving the jurisdiction (USA) where it has special rights, protection and standards of governance and compliance..

There is a pre-determined ratio of ADR/GDR to shares; and an example makes things clear.

- 3 shares of the Indian company HDFC are equivalent to one ADR listed on the New York Stock Exchange
- One share of the Indian company Infosys represents two ADRs on the New York stock exchange.

On NYSE:

Top 10 Most Liquid DR Programs

By Trading Value[1]

Issuer	Country	Exchange	YTD June 2017 Value (USD Billions)
Alibaba Group Holding Ltd	China	NYSE	$191.1
Baidu Inc	China	NASDAQ	$53.1
Vale SA	Brazil	NYSE	$45.0
NetEase Inc	China	NASDAQ	$42.6
JD.com Inc	China	NASDAQ	$39.2
Teva Pharmaceutical Industries Ltd	Israel	NYSE	$37.1
Royal Dutch Shell PLC	UK	NYSE	$35.8
Petroleo Brasileiro SA	Brazil	NYSE	$33.2
BP PLC	UK	NYSE	$27.3
Novartis AG	Switzerland	NYSE	$26.7

By Trading Volume[1,2]

Issuer	Country	Exchange	YTD June 2017 Volume (Millions)
Vale SA	Brazil	NYSE	4,923.4
Petroleo Brasileiro SA	Brazil	NYSE	3,559.3
Ambev SA	Brazil	NYSE	2,882.6
ArcelorMittal	Luxembourg	NYSE	2,448.3
Gazprom PJSC	Russia	LSE	2,049.2
Nokia OYJ	Finland	NYSE	1,813.2
Alibaba Group Holding Ltd	China	NYSE	1,608.2
Itau Unibanco Holding SA	Brazil	NYSE	1,574.2
Banco Bradesco SA	Brazil	NYSE	1,432.2
Cemex SAB de CV	Mexico	NYSE	1,186.4

Source: Bloomberg and Depositary DataInterchange.

[1]Data as of June 30, 2017.

[2]DR trading volume has been unadjusted for certain corporate actions including stock splits, stock dividends, and rights offerings

Let us look at Some Aspects of ADRs/ GDRs:

- ☑ American Depository Receipts: are issued in USA
- ☑ Global Depository Receipts: are issued in offshore locations like Luxembourg
- ☑ The quoted price of Shares in the local market and of the Depository Receipts in the overseas market must match each other.

Price Differences between the Depository Receipt and the Underlying Security

We stay with our examples to understand the dynamic here.

We know that 3 shares of the Indian company HDFC are equivalent to one ADR listed on the New York Stock Exchange

Assume one share of HDFC is quoted at INR 2,100
3 shares are worth INR 6,300
INR 6,300 is equal to US $ 90 at INR 70 per dollar.
1 ADR should therefore quote at exactly at $ 90

Institutional/ Professional Traders like Hedge Funds watch these rates carefully and try to take advantage of any differences. Arbitrage *always* involves buying what is lower priced while selling whatever is higher price, *at the same instant.*

Preferred Stock *(not to be confused with preferential Issues)*

Common Shares & Preference Shares

The equity share we have been discussing this far is also known as 'common stock'. These shares represent full ownership with all the rights, advantages and risks described.

Preference Shares are shares which combine certain features of debt and other features of equity.

Features of Debt in a Preference Share

Preference shares pay a fixed rate of dividend. Almost all preference share issues involve repayment of the principal amount invested. Preference Dividend has several styles: cumulative dividends are added up in years where money is insufficient to repay; in non-cumulative, the missed year's dividends are never recouped.

Features of Equity in a Preference Share

In the event of insolvency/ corporate failure, the preference shareholder gets its principal back only just before the equity shareholder. This implies a higher level of risk than lenders. Preference share investors are expressing their support and faith in the enterprise; yet they have a need for steady cash flow by way of dividend.

Summing-up the Features

- ☑ Payment of 'dividend' as a percentage of the amount invested
- ☑ The investment will be repaid
- ☑ Higher priority in repayment in event of insolvency as compared to Equity
- ☑ Gets any repayment from insolvency only if all lenders are repaid
- ☑ The risk of loss due to insolvency of the company and low priority in repayment does not matter if the company does well; and that is the best the investor is taking.

Investors in Preference Shares are indicating:

1.Willingness to support the enterprise by putting money at risk
2.Seek repayment when the enterprise is successful
3.But require regular income stream from the investment

While we speak of Equity and Preference as distinct investment themes, quite often institutional investors will put in a sum of money into a company: as a mix of Equity, Preference Shares and Debt. It is a part of that institution's portfolio management process.

Other Aspects of Preference Shares

- Dividends: preference dividends are a FIXED rate and are not linked to the company's performance; nor do they vary: they are fixed.
- Cumulative Preference Shares: if the company does not have profits to pay the annual dividend, the shortfall is carried forward and paid when the company has the money to pay.

- Non- Cumulative PS: if the preference dividend is not paid in a year, it lapses; not carried forward.
- Convertible PS: can be converted to Equity on certain conditions.
- Non Convertible PS: are repaid (redeemed); cannot be converted

The name of the Preference Share is prefixed with the dividend and also often carries the characteristics in the name of the issue:

Example:
8% Cumulative Convertible Preference Share
$8 Convertible Preference Share
$8 Non Cumulative Redeemable Preference Share

Cumulative, Non-cumulative Dividends: And Impact On Common Shareholders

Non- Cumulative Preference Shares: by example

A company has one share of an $ 4 preferred stock and one share of common stock outstanding. It pays out all its earnings in dividends. Let us see how this dividend is paid out if the preference share is Non-cumulative; and then how much remains available to pay common shareholders.

In the first year only 1 dollar of earnings are available for any kind of dividend. Of the 4 dollars of preference dividends to be paid, only 1 dollar can be paid as a result. There is no profit available for equity shareholders.

In the second year there are no profits, and so no one gets any dividends.

Since it is a Non-cumulative Preference Share, if any dividend is unpaid, it simply lapses.

In the third year the company earns $ 7/-. After paying $ 4 to preference shareholders, $ 3 are available to equity shareholders.

We see from this that when earnings are sufficient, preference dividend is paid in full.

In the last year $ 15 of profits are made. Preference shareholders get their $ 4 and equity shareholders get $ 11.

This demonstrates that when earnings are aplenty, the Preference Shareholder gets nothing more; the equity shareholder gets all the upside.

Cumulative Preference Shares

Let us see how dividends are paid out if the preference share is Cumulative; and how much remains for equity shareholders.

Nothing is payable to equity shareholders unless the cumulative dues to preference shares are paid off.

In Cumulative Preference Shares: we track how much is due for each period.
The Preference Share dividend *actually* paid reduces the dues.
Till this due is reduced to zero, nothing will be available for equity shareholders.

In the first year, the unpaid balance is due and is carried forward.
In the second year, Even if there are NO earnings the dues pile up, add up.
In the third year we see that even if Earnings rise, if the accumulated dues of preference shareholders are not paid, nothing can flow to equity. It is the fourth year where Finally the equity shareholder gets something!

Where preference dividends were not cumulative, the equity shareholder started getting returns from the third year onward, one year earlier than in the cumulative case.

The Security Identifier for Equity

At creation, every security, equities included, must have an ISIN. The International Securities Identification Number (ISIN) is an alphanumeric code that uniquely identifies a security.

An ISIN consists of a two character country code, a nine digit number and one check digit.

Each country where ISIN numbers are used has a single national numbering agency to assign numbers using that country code. This guarantees that the same ISIN cannot be issued to two different securities.

If you go to www.ISINCODES.com all ISINs can be searched.

The example of Facebook's ISIN is given here.

ISSUER NAME	ISIN	CUSIP	SECURITY TYPE	ISSUE DATE	COUNTRY
FACEBOOK, INC.	US30303M1027	30303M102	COMMOM STOCK	MAY 18, 2012	US

In this, the 'old' CUSIP number is seen to be subsumed in ISIN. (An explanation of CUSIP as an identifier is follows)

CUSIP in USA

CUSIP stands for Committee on Uniform Securities Identification Procedures. Formed in 1962, this committee developed a system (implemented in 1967) that identifies securities, specifically U.S. and Canadian registered stocks, and U.S. government and municipal bonds.

The CUSIP number consists of a combination of nine characters, both letters and numbers, which act as a sort of DNA for the security - uniquely identifying the company or issuer and the type of security.

The first six characters identify the issuer and are assigned in an alphabetical fashion; the seventh and eighth characters (which can be alphabetical or numerical) identify the type of issue; and the last digit is used as a check digit.

The CUSIP Service Bureau is operated by Standard & Poor's on behalf of the American Bankers Association (ABA).

SEDOL in UK

An identification code, consisting of seven alphanumeric characters, that is assigned to all securities trading on the London Stock Exchange and on other smaller exchanges in the U.K.

Risks in Equity

From a risk analysis perspective there are two broad benefits to be had from owning equity

- Distribution of Profits: equity has an uncertainty related with this cash flow benefit
- Gains in the price of the security: this is market driven and there is uncertainty related with movements in price

Risks of Owning a Business

1. The Risk that the business does not do well – and makes losses
2. The Risk that the business makes profits; but this is lower than that available from fixed income: so that the risk-reward ratio is breached and no additional benefit is had from holding equity
3. The risk that the company is liquidated
4. The risk that on liquidation the assets prove inadequate to repay the investors their original investment amount

Market Risk

This is the Risk of loss (in trading/ investment book) arising from exposure to equities.A stock is bought at a particular price. The market price goes down. The risk of making such a loss is market risk.

Unless the investor runs Market Risk – the investor cannot run the possibility of making a gain.
It is this act of BUYING that causes exposure: resulting in Market Risk. Bought or Sold *anything*: Equities, Forex, Interest Rate Products, Commodities: the dynamics are the same. And the definition and impact of market risk is the same .

Liquidity Risk

This is the risk that there are no buyers or sellers in a stock on a given day; so that, even though the stock has value, it is theoretical because it becomes impossible to sell!

Attitude To Risk Of Different Market Participants

All investors who wish to own a company over a longer period of time end up buying equities.
Long term investors closely watch the fundamental performance of the company.

They see value in the cash flow stream that a company generates and the resultant dividend to them.

They also know that over a period of time others too will appreciate the performance of this company: the resultant increase in market prices of the share is to their advantage. The price line shows increase in value over time. This line has to be driven by a consistent/ growing Earnings Per Share in the eyes of the Long Term Investor.

However, long term investors are not one single lump of undistinguishable participants; there are a number of different categories within this group.

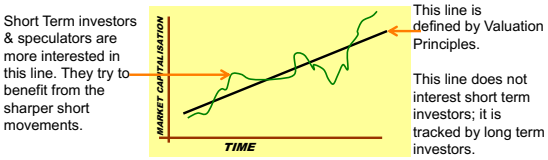
Speculators and Traders

Shorter term investors and speculators also buy and sell shares. While their investment horizon or perspective is fundamentally different from that of the long term investor, these participants are essential to the day-to-day liquidity in the market.

Short term Investors trade in and out to benefit from short term movements in prices.

The price of an equity share is defined by Valuation Principles.

The line representing long term value does not interest short term investors; it is tracked by long term investors.

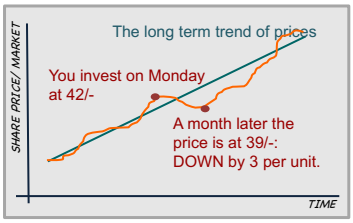


Short Term investors & speculators are more interested in the volatility in the short term. They try to benefit from the sharper short movements.

Short term investors tend to cause price volatility which sometimes bothers the Long Term Investor and are said to hinder capital attraction.

Equity investments are risky. Companies / businesses may turn out to be different than how they look. They may fail. Even where the company is a great one and the long term outlook of the market is positive, the short term movements can be extremely disturbing.

In the chart shown below, the green line reflects the long term trend of prices



Let us assume that this is sure to happen for the sake of this discussion (even though there are never any guarantees in markets)

The squiggly orange line is how markets / share prices ACTUALLY move. Sometimes up and at other times down.

You invest on Monday at 42/-
A month later the price is at 39/-: DOWN by 3 per unit.
How do you feel when this happens?

Some investors cannot ignore such downward movements. They panic. Equity investment is not for such investors – even if the money in investible for the longer term. Equity investing requires the ability to stay focused on the long term prospects: not the short term volatility.

Exchange Risk – As A Component Of Price Risk

If an investor holds equity in a market which is in a different currency zone then in addition to conventional price risk the investment carries the risk of exchange rate risk.

If the currency of the invested country depreciates then the value of the investment depreciates too!

Case of Exchange Risk

A US based investor invests $ 1,000 in India.
The $/INR is at 45: so INR 45,000 gets invested.
1,000 shares of X & Co are bought @ 45/-.

In the first part of the calculation the Share price might go to Rs. 60/- and the investor sells getting Rs. 60,000. The return is 33%!

In the second part the investor seeks to take back dollars from the Indian market. The $/INR rate is @ 68: Rs. 60,000 is converted and the US investor gets back $882/-.

This is less than the original amount invested even though the stock did very well. This is the impact of exchange rate movements.

Primary and Secondary Markets:

Financial instruments are issued in a market: the market for money – financial markets. This market in which the paper is first issued, when it is created by the issuer, is referred to as the Primary Market. The paper issued s also referred as, “Security.” It may also be referred as a “financial Instrument.”

‘Paper’ = ‘Security’ = ‘Financial instrument.’

All are used synonymously, though there are different types of paper in financial markets.

The advantage of issuing paper to the investor is that it allows the investor to sell the investment and raise cash, if needed.

The investor sells the paper on the market,and realizes cash. This market, in which a paper that was previously issued can be sold and cash realized, is called the Secondary Market. This ability to encash the investment when needed is an attraction to the investor.

Secondary Market Trades

What happens in secondary trades?

As the shares are traded in the secondary market, it is the owners that keep changing. The change in ownership has nothing to do with the company except that it maintains records of who the new buyer is. Money changes hands between the buyer, or the new owner, and the seller, or the old owner. Which, too, has nothing to do with the company.

So what purpose does the trading of shares serve for the company?

1. Investors know that if a share is traded, they can get their money back through the secondary market whenever they want. This promise of liquidity encourages them to invest.
2. The management of the company gets a signal on how its performance is perceived by the market through share price movements.
3. When the company wishes to raise capital the traded price gives and indication of the price at which it may be able to issue fresh shares.

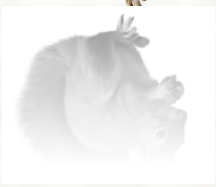
Have an Idea? Need an Input?
Use MakeMyVideo™!

Click the Icon above.

An Introduction to Derivatives

Derivatives are an important class of financial instrument and represent a financial market segment that has long exceeded the growth rates of both equity and bond markets. Derivatives are very different from securities. They are financial instruments that derive their value from that of an underlying financial product, commodity or market variable. While derivatives instruments are mainly designed to protect against and manage risks, they are often also used for arbitrage, speculative and investment purposes. They facilitate the pricing of risk and play an important role in price discovery across financial markets. A derivative is a contract concluded between a buyer and a seller concerning a transaction to be affected at a future point in time. The life of a derivatives contract (i.e. the period of time between the conclusion of the contract and its fulfilment or termination) varies greatly, ranging from a few days to several decades. In the course of its life, the value of the derivatives contract will fluctuate in line with the fluctuations in the value of the underlying asset.

Derivatives can exist only if the Underlying Asset exists.



Just like objects and their reflections or shadows!

Role of Derivatives

The economic role of underlying markets is investment and consumption. In contrast, the economic role of derivatives is risk management.

The market price of underlying assets is subject to change by demand-supply forces. All market participants know what the current market price is, but every market participant is not certain about what would be the price on a future date. This uncertainty is called price risk or market risk. Derivatives are tools to manage this price risk.

We must note here that risk is related to the return. Return is the change between the current price (which is known) and the future price (which is unknown). The return could be favourable, resulting is profit; or unfavorable, resulting in loss. Profit and loss are thus two faces of return: profit is positive return and loss is negative return. Whether there will be profit or loss is uncertain, and this uncertainty is called risk. Thus, risk is defined as the uncertainty about future return

Derivatives are risk management tools for price risk. They are not financing, liquidity or cash management tools. Examples of financing tools are bonds and equity instruments; and examples of liquidity or cash management tools are money market instruments (e.g. repo/reverse repo in the fixed income market, FX swap in forex market, etc).

Business situations that demonstrate the use of Derivatives

Buyers of Products: illustration

Golden Bakes is looking to launch a range of branded cookies nationwide. As a part of its marketing strategy it wishes to price its cookies lower than national brands. It also needs to hold its price steady for the next 18 months.

How is Golden Bakes to hold prices steady if it does not know the price of wheat for the next 18 months? It needs to fix the price of inputs as far into the future as possible. It should not happen that after it fixes the sale price, the price of wheat goes up significantly. In this case, Golden Bakes will either make a loss; or it will have to increase the price – thereby damaging its marketing strategy.

To further compound its problem, Golden finds that the price of wheat has been all too unpredictable.

Sellers of Products

Saudi Arabia would like to make sure that the next 100 million barrels of oil it sells generates at least USD 6 billion in revenues. ($ 60 / barrel).

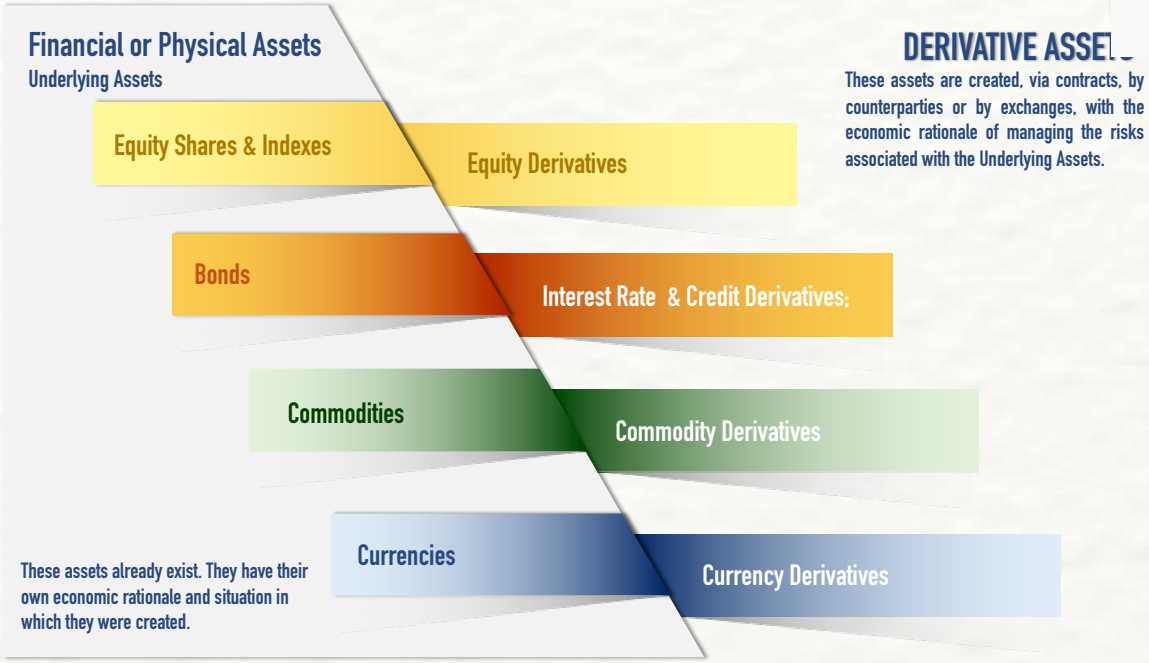
As an oil producing state, the Kingdom of Saudi Arabia is heavily dependent on oil revenues. If oil prices drop, the country goes into deficit. Oil used to be closer to $ 140/- (2007). In 2015 it has hovered as low as $ 40/-. The fluctuations in oil price confound the best brains in the business.

The Role of Derivatives – applied

Golden Bakes will buy wheat at a price agreed today. The wheat and cash will exchange hands at the settlement date in the future. With the price thus fixed, Golden Bakes will know at what rate to price its biscuits.

Saudi Arabia will sell oil at a price agreed today. The oil and cash will exchange hands at the settlement date in the future. With the sales price fixed, Saudi can manage its budget based on this price.

Classes of Underlying Products and Derivatives



Basic Trade Characteristics

The Separation between Trade and Settlement Dates

Derivatives are traded on a particular date with an agreement to settle the trade sometime in the future.

There exists a price and a future expectation of price for the underlying asset today: the Trade Date. There emerges a price in the cash market on that future settlement date. A difference between the two is inevitable and there lies story of derivatives pricing.

Types of Settlements:

It is important to understand the types of settlements to understand how derivatives operate.

Physical Settlement

If a product is physically settled, it means there will be TWO flows.

- The BUYER must pay CASH for the purchase.
- The SELLER must deliver SECURITIES for the sale.

In Cash Markets (the market for immediate delivery) you can *only* carry out physical settlements.

Cash Settlement

In a cash settlement, there is only one flow: the loser in the trade must pay the gainer in the trade in cash. It is sometimes called a financial settlement. There is no difference in the two phrases.

Who loses in a Trade?

So, how to determine who is the loser in a trade? This is done by comparing:

- the Agreed Price which was fixed on the Trade Date with
- the Market Price which is fixed on the Settlement Date

If the Agreed Price is HIGHER than the Market Price the loser is the person who "Agreed to Buy" (colloquially referred to as the buyer).

For example:

- Agreed to buy oil at $50 a barrel on Jan 1.
- Market price on settlement date (Jan. 1): $ 45.

The person who agreed to buy at $50 has lost $5 per barrel and must pay this amount per barrel to the person who agreed to sell.

If the Agreed Price is LOWER than the Market Price the loser is the person who "Agreed to sell" (colloquially referred to as the seller).

For example:

- Agreed to sell oil at $50 a barrel on Jan 1.
- Market price on settlement date: $ 55.

The person who agreed to sell at $50 has lost $5 per barrel and must pay this amount per barrel to the person who agreed to sell.

Types of Derivatives

There are four types of Derivatives:

Forwards
An agreement to buy (sell) an agreed quantity of a particular product at an agreed price on the trade and to be settled at a date in the future. This agreement is made between the two parties one-to-one; i.e. Forwards are OTC trades.
Example: an agreement to buy 1000 barrels of oil, made today, at Rs. 3,750 per barrel. Settlement (cash and oil to be exchanged) a month from now.

Futures
Structurally, it is exactly the same as above. A futures is traded on an exchange (as opposed to forwards, which are one-to-one or OTC traded.)

Options
A right [but not an obligation] to buy (sell) an agreed quantity of a particular product at an agreed price on the trade and to be settled at a date in the future. These are further discussed in this document.

The right to buy is termed a CALL; the right to sell is termed a PUT. The holder of an option uses it only if it is favourable.

Swaps
Swaps are agreements between two parties to exchange cash flows in the future according to a prearranged formula. They can be regarded as portfolios of forward contracts. The two commonly used swaps are:

- ✓ Interest rate swaps
- ✓ Currency swaps

Application of Forwards – a simple derivative: Fx example.

For an Importer

L&T buys equipment worth USD 100,000 from Caterpillar of USA receiving 3 months credit; Caterpillar gives L&T time to pay the dues.

On that date the Spot Rate for the US dollar-Indian rupee was: 1 USD = INR 60/-

The situation of a future payment worries the L&T Treasury Head:

- ✳ Will INR appreciate or depreciate vis-à-vis USD?
- ✳ What if rupee goes to Rs. 80/$? Will I end up paying Rs. 8 million instead of Rs. 6 million three months from now?
- ✳ Can I crystallize my liability?
- ✳ Can I hedge my risk?

Solution:

- ✓ Enter into a Forward
- ✓ Buy USD 100,000
- ✓ Delivery 31/12/20XX
- ✓ @ 1 USD = INR 60.50

The Forward Contract is entered into on 01/10/XX, when L&T comes to know of the obligation to pay. The USD and INR change hands only on 31/12/XX which is the contracted date. Now the Treasury Head knows that on 31/12 INR 6.05 m is needed and that it will convert to the required $ 100,000.

On Settlement Date (31/12/XX) :

1. L&T will transfer INR 6,050,000 to MyBank.
2. MyBank will transfer USD 100,000 to L&T.

A forward is Physically Settled, which means the asset (US dollars) changes hands for payment in Indian rupees.

For an Exporter

Glaxo Smithkline of UK sells capsules worth USD 1 m to Walmart in the USA. Glaxo extends 3 months credit to Walmart giving them time to pay the dues..

On 01/10/XX - Spot Rate: 1 GBP = 1.95 USD

The situation of a future realisation of sales proceeds worries the GSK Treasury Head:

- ✳ Will GBP appreciate or depreciate vis-à-vis USD?
- ✳ What if GBP/USD goes to 3/-? Will I get only GBP 333,333 instead of GBP 512,000 three months from now?
- ✳ Can I crystallize my asset?
- ✳ Can I hedge my risk?

Solution:

- ✓ Enter into a Forward:
- ✓ SELL USD 1000,000 –
- ✓ Delivery 31/12/20XX
- ✓ @ 1 GBP = USD 2

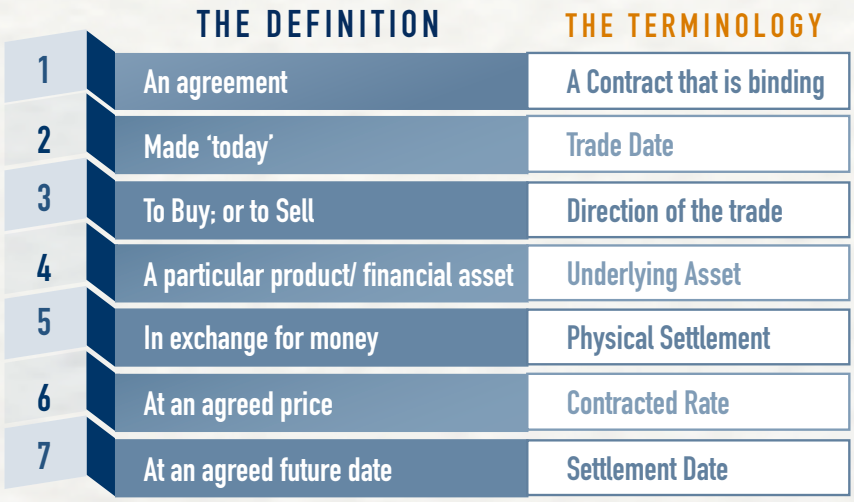
The Forward Contract is entered into on 01/10/XX, when GSK comes to know how much it is to get. USD and GBP change hands only on 31/12/XX which is the settlement date.

Now the Treasury Head knows that on 31/12 GBP 500,000 will arrive and plan expenses/cashflows accordingly.

On Settlement Date (31/12/XX) :

1. GSK will transfer USD 1 m which it gets from WalMart to MyBank.
2. MyBank will transfer
3. GBP 500,000 to GSK.
4. The forward is a Physically Settled

The Forward Contract Definition



Margining in Derivatives Contracts

Margins are needed as a "security" by the exchange to ensure that both parties to a trade stick to their obligations. Who is more likely to default: a buyer or a seller?

Anyone who could lose is a potential defaulter, so s/he need not pay for losses made. This can happen to both buyers as well as sellers. Therefore, both parties to a trade need to place margins.

An Initial Margin is required to be placed (paid in) as soon as a trade is initiated. The exchange may specify:

- Margin as a % of Contract Value as the initial margin OR
- Margin as a sum of money per contract.

For instance, for Corn, the margin required is $ 1,650 per contract which works out to approximately 9% of contract value at current price levels.

Once a trade has been initiated the trader makes or loses money as the market prices move.

A order buys one contract on Gold at $1,560/-.

- If markets, go to $ 1,570/- he is a gainer.
- If markets, go to $ 1,550/- he is a loser.
-

It should be remembered that this is $ 10 per ounce and the contract is for 100 oz.

As a trader makes losses the initial margin that he placed gets eroded. Conversely, if he makes gains the margin account swells.

Initial Margin (IM)

- Is a good faith margin
- Paid by both Buyer and Seller (Why? Because either party could lose money)
- Is set by the Exchange for ET Derivatives; no interest is paid by the margin taker on the amount.
- Is set by mutual agreement for OTC Derivatives. In OTC margins in cash may fetch interest at an agreed rate.

Maintenance Margin (MM)

Is the level below which margin should not drop. The initial margin is constantly adjusted by losses and as a result it drops. This drop should not go below MM level.

Variation Margin (VM)

Positions are 'marked to market' (MtM). MtM involves comparing the original agreed price with the market value on the MtM date. If MM level is breached, or if no MM is set, then the Variation amount must be topped up immediately. At every succeeding MtM date, the market value previously noted is compared with with market value on the new MtM date.

Assume the original agreed price to be 10. On MtM #1 if the market value is 12, 12 is compared to 10 to arrive at the gain or loss.

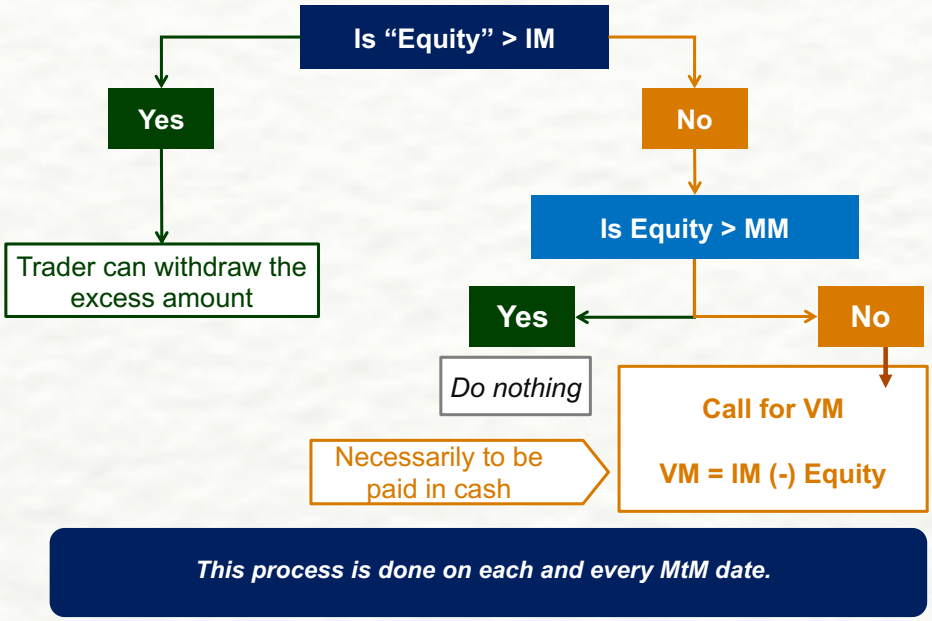
On MtM #2, if the market value is 15, then 15 is compared to market value at MtM# 1 and not the original agreed price.

In this manner, ongoing gains and losses are computed from the last calculation date to the present calculation date.

Evaluation of MtM positions follows the rule-set given below:

Evaluate all outstanding positions on the basis of current traded price of the contract.

Compute “EQUITY”. Equity = Margin +/- gain or loss from the Mark to Market process



SPAN

SPAN as a method of margining was developed by Chicago Mercantile Exchange. The name SPAN comes from combining the letters highlighted here: **S**tandard **P**ortfolio **AN**alysis. Now, it is used in most exchanges today to compute the margining for clearing members. However, trading members that operate OTC continue to follow the traditional form of margining.

SPAN considers the entire portfolio in a client account – not trade by trade – in calculation of margins. The Portfolio approach captures the diversification effect and lowers the overall risk – and therefore the margin is lower, overall.

Initial margin is linked to a ‘daily updated’ VaR model. Value at Risk is a measure denominated in dollars and represents:

1. the MAXIMUM amount that could be lost
2. Over a period of time
3. With a measure of certainty (its never 100% certain!)

For instance:

1. "$ 43 million could potentially be lost."
2. 'Over a day, due to volatility during this period.'
3. 'We can say this with a 99% confidence level.'

SPAN generates 16 different VaRs based on scenarios.

Lets develop our understanding of SPAN from a working perspective.

SPAN takes measures of risk and applies them on a Portfolio

It considers the data points: *What are the risk measurements looking like at this time?*
It applies them to the portfolio position: *What are positions the trader holds?*

Both inputs contribute to the development of the span margin number. SPAN considers specific variables that reflect market risk – and takes the measures as often as needed: but at least once a day

VARIABLES are the driving factors that result in outcomes – in this instance, these are the contributory factors to Market Risk.

Then a data feed inputs the value of the each Variable at that point in time.

Portfolio data is already *available internally with the broker. It includes the products known as Futures & Options; It includes positions: both Longs & Shorts.*

By developing specific scenarios more VaR numbers are generated.

Specifically:

1. A change in the **price of the underlying** can cause the value of derivatives to change:
   - ➡ *SPAN considers 8 possible price movements **(price scenarios)***

2. A change in volatility can cause the value of derivatives to change:
   - ➡ *SPAN considers 2 possible volatility levels **(volatility scenarios)***

So we have *8 price scenarios X 2 volatility scenarios* = 16 VaR numbers.

Pick the **WORST** Number from this array: that shall be the initial margin.

Price Changes	Volatility	
	UP	DOWN
No Change *(base case)*	# 1	#8
Up: 33%	#2	#9
Up: 66%	#3	#10
Up: 100%	#4	#11
Down: 33%	#5	#12
Down: 66%	#6	#13
Down: 100%	#7	#14
Extreme Up 300%	#15	
Extreme Down 300%	#16	

You can see in the chart above that 16 numbers are generated. (*The cells are numbered just to help you count 16. Each cell would actually be filled with a value)*

Remember: this is done for each portfolio comprising a number of trades.

Pick the WORST number: that's the Initial Margin that each trader has to deposit.

You cannot just 'look' at this table and know which the worst number will appear. It is a factor of number of things. Just to give you an intuitive sense of that, a portfolio that is short will GAIN as prices go DOWN.

This calc can be done a number of times during the day, too, to update the risk assessment/ margins. *(More frequent assessments and popups are important on high volatility trading days.)*

SPAN applies to all those that have taken positions – and are exposed to Market Risk. It therefore applies to every client. Client margin obligations are aggregated at the broker-level. There is no offsetting of one clients position or obligations with another. All are simply to be added. A broker may have a proprietary portfolio or positions, so those, too, have to be added.

Brokers usually work through Clearing Members. These Clearing Members are larger brokerages that have the infrastructure necessary to help process other smaller broker's transactions and aggregate them on behalf of the exchange as a service.

In so far as margins are concerned it is just an aggregation once again of the sums to be deposited as Initial Margin. There is no offsetting of positions.

Story Time!

Bill Ackman of Pershing Square decided to short Herbalife stock using all possibilities and for his short exposure was required to place significant margins.

Herbalife would simply not go down! And Bill would not throw in the towel. In terms of Variation Margins Bill Ackman paid in hundreds of millions of dollars each year for several years, to carry his position forward.

Bill Ackman gave up after about 5 years losing about a billion dollars; may be more!

The margins he paid in were collected by the counterparties to his trades who made over a billion in profits, including the famous activist shareholder Carl Icahn.

Futures Contracts

A futures contract is simply a forward contract traded on an Exchange.

Its features are:

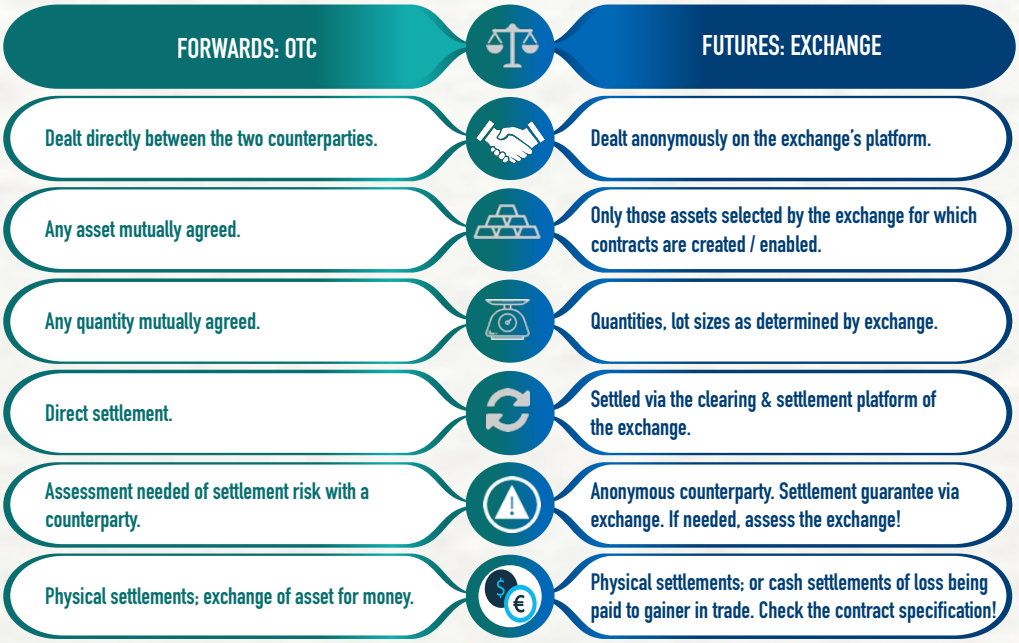
- ✓ Listed and Traded on an exchange
- ✓ On various underlying assets as offered by the Exchange
- ✓ On standardized terms and conditions set by the Exchange
- ✓ All operational features seen in an EXCHANGE are seen in futures orders, trades, confirmation, settlement

Forwards & Futures - Differences & Similarities

Forwards & Futures are Identical

- ✓ Both are obligations.
- ✓ Whether to buy or to sell.
- ✓ A particular financial asset
- ✓ In exchange for money.
- ✓ To be made on future date (the Settlement Date)
- ✓ At a price agreed today (on Trade Date)

Forwards & Futures are different



Options

Options are distinct from all other contracts. While the buyer and seller in other contracts are defined with respect to the underlying asset, the buyer and seller in option contracts are defined with respect to the rights and obligations.

In other financial contracts, both the counterparts have an obligation to perform the contract.

Options are different.

One counterparty has the 'right but not the obligation' to use (or exercise) the option.

The other counterparty to the option contract has an obligation to fulfil. That obligation is triggered when the first party exercises the option.

The counterparty that has the 'right without the obligation' is called the Buyer. The other party to the trade is the one who gave that right; the Writer of the option. The Writer has an obligation. It is useful to think of this counterparty as the Writer, rather than the Seller, at least till one is completely familiar with options and associated dynamics of operation.

The Option Buyer pays a Premium (P) to buy the right.

This premium (P) is an immediate cash inflow to the Writer. Whether it is a profit or not is determined by whether the option is exercised or not.

Options confer the right, to either Buy or to Sell, the underlying asset. There is a specified price at which the underlying asset is exchanged called the Strike Price. This 'right without the obligation' is available only for a specific period, a limited life. The end of that period is called 'expiry'.

Thus, the option contract specifies five features.

1. Underlying asset on which the privilege of right-without-obligation exists
2. Nature of privilege (i.e. whether to buy or sell underlying asset)
3. Price of privilege (premium; P)
4. Price of underlying asset (strike price, K)
5. Period of privilege (expiration)

Take note of the difference between the price of privilege (P) and price of the underlying asset (K).

Option Basics

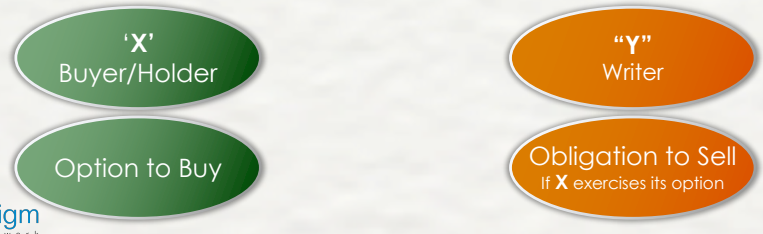
Nature of Buyer's Right and Option Type

The option buyer's right can be:

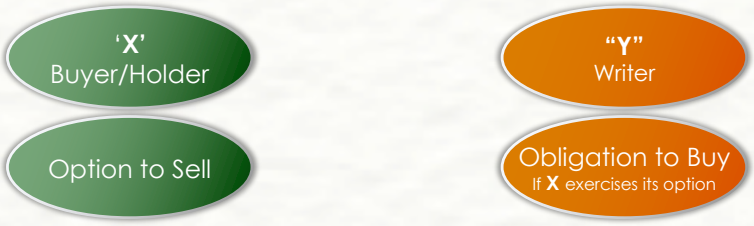
- The right to buy the underlying asset; or
- The right to sell the underlying asset

Those are two types of options.

Call option: the 'option buyer' has the right (but not the obligation) to buy the underlying asset from the writer. (A good way to remember this term is to note that the option buyer "calls" for the underlying asset from the writer.)



Put option: the 'option buyer' has the right (but not the obligation) to sell the underlying asset to the writer. (A good way to remember this term is to note that the option buyer "puts" the underlying asset to the writer.)



Options can be Profitable for the Buyer

An option can be profitable for an option buyer *but* only if the price of the underlying moves in its favor.

Here is how that can happen:

The Profitability of a Call Option

The buyer of a Call has the right (but not obligation) to buy the asset, paying the agreed price, the strike price (K) for it.

When is it likely to exercise this option? When it is profitable to do so!

When is that? When, after buying the asset for K it can sell it off in the open market at the current market price (CMP) which is higher.

> *Example*: a trader bought a Call on crude oil at K: $ 90 a barrel. After some time, the price of oil rises and goes to $ 102. The trader can exercise the call and buy it for $90 from the writer of that call. It now goes on to the open market and sells the oil for $ 102 making a neat profit of $ 12 a on a barrel of oil. If the trader had bought Calls on a million barrels of oil the total money made would be $ 12 million.

- Call Options that yield a profit (K is lower than CMP) on exercise are called "In The Money" or ITM.
- Call Options that do not yield a profit (K higher than CMP) are called 'Out of the Money' or OTM.

In the above example if the price of oil had fallen to $ 75 why would the trader buy at K:90 when oil is available in the market at $ 75. The trader would simply let the option expire. That is what is meant by 'right but not the obligation'.

The trader will exercise the option if it is ITM and yields a profit. That is a right. But the same trader will ignore an OTM option; it is not obliged to use the call it holds.

A Call option that is at K (K = CMP) is called "At the Money"; this option too, will be left unused by the holder of the Call.

In The Money	**ITM**	A status which is profitable to holder
		Holder has a right to **buy** at a rate cheaper than market rate
		K **<** **CMP**
Out of the Money	**OTM**	A status which is NOT profitable to holder
		Holder has a right to **buy** at a rate costlier than market rate
		K **>** **CMP**
At the Money	**ATM**	A status at which holder is indifferent
		K **=** **CMP**

The Profitability of a Put Option

The buyer of a Put has the right (but not obligation) to sell the asset, receiving the agreed price, the strike price (K) for it.

When is it likely to exercise this option? When it is profitable to do so!

When is that? When, the trader can buy the asset in the open market for a lot less and then sell it to the writer of the option at the higher price, K. That means CMP is lower than K.

> *Example: a trader bought a Put on crude oil at K: $ 90 a barrel. After some time, the price of oil falls to $ 75. It now goes on to the open market and buys oil from there for $ 75. It then exercises the put and sell it for $90 collecting that amount from the writer of that put. It thus makes a neat profit of $ 15 a on a barrel of oil. The trader If the trader had bought Puts on a million barrels of oil the total money made would be $ 15 million.*

- Put Options are that yield a profit (K is higher than CMP) on exercise are called "In The Money" or ITM.
- Put Options that do not yield a profit (K lowerer than CMP) are called 'Out of the Money' or OTM.

> *In the above example if the price of oil had risen to $ 102 why would the trader sell at K:90 when that same oil could be sold in the market at $ 102. The trader would simply let the option expire. That is what is meant by 'right but not the obligation'.*

The trader will exercise the option if it is ITM and yields a profit. That is a right. But the same trader will ignore an OTM option; it is not obliged to use the call it holds.

A put option that is at K (K = CMP) is called "At the Money"; this option too, will be left unused by the holder of the Put.

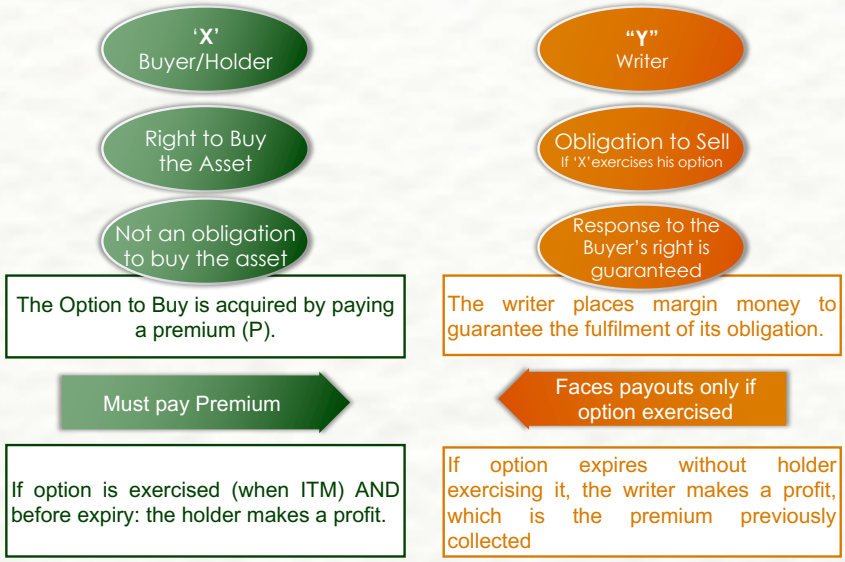
In The Money	**ITM**	A status which is profitable to holder		
		Holder has a right to **sell** at a rate higher than market rate		
		K	**>**	**CMP**
Out of the Money	**OTM**	A status which is NOT profitable to holder		
		Holder has a right to **sell** at a rate lower than market rate		
		K	**<**	**CMP**
At the Money	**ATM**	A status at which holder is indifferent		
		K	**=**	**CMP**

The Position of the Writer

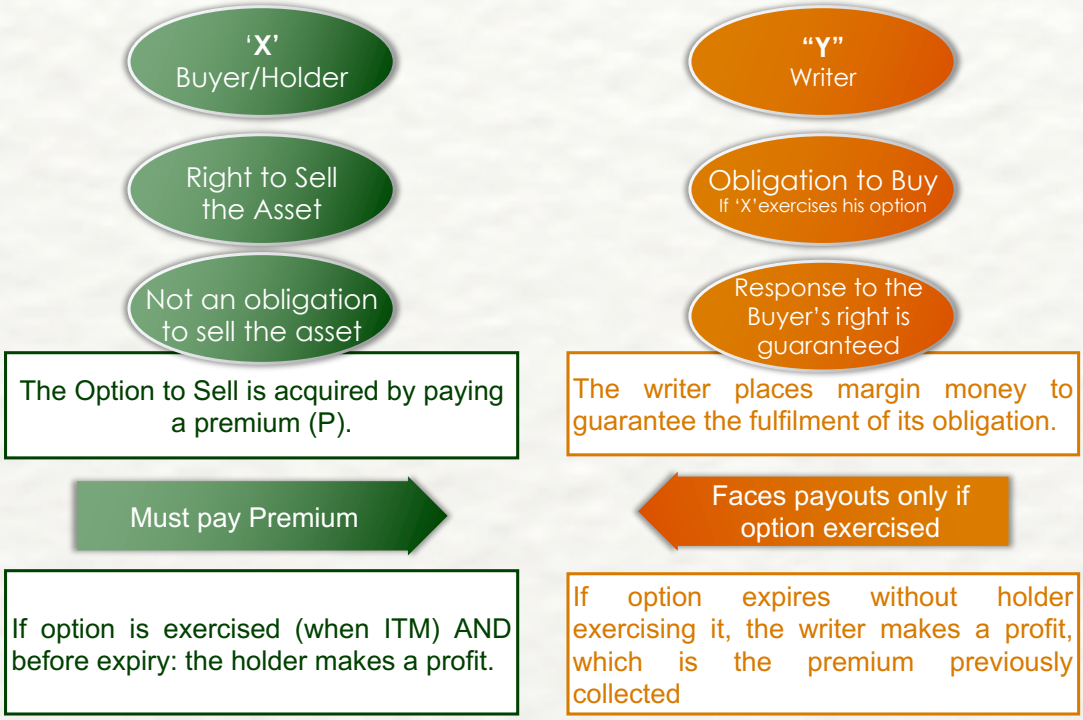
In each instance, the gain made by the buyer/holder of an option is the loss of the writer. If the option buyer does not use the option / exercise it then the premium (P) collected earlier when the option was written is the profit of the writer. The P cannot be treated as profit till after the expiry of the option, unused.

The charts below summarise the relative positions of the two counterparties and the essentials of each Option Type.

The Call



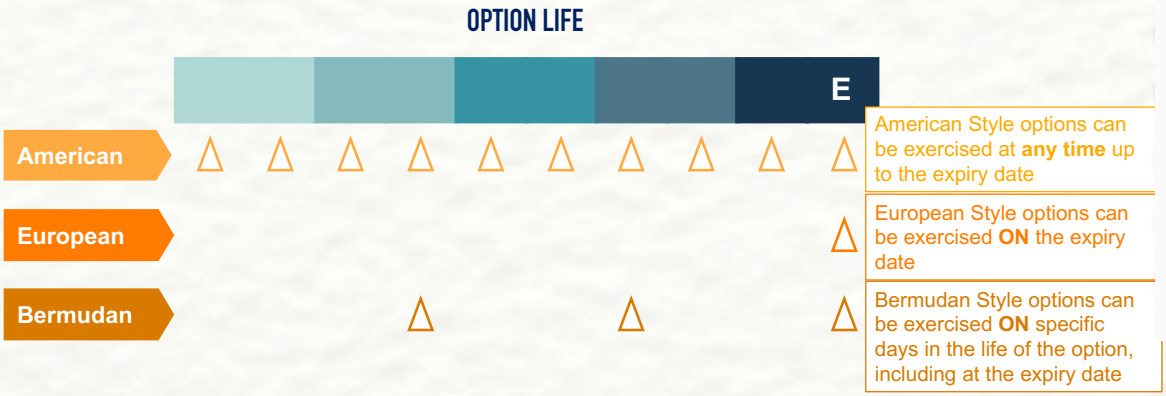
The Put



Option Styles

Option style defines the time of exercise by option buyer. Three styles are distinguished as follows.

- ➡ European style: buyer can exercise his right only on the last day of option's life
- ➡ American style: buyer can exercise his right anytime during option's life
- ➡ Bermudan style: buyer can exercise his right on select, specified dates (e.g. last day of every month/quarter, etc) during option's life



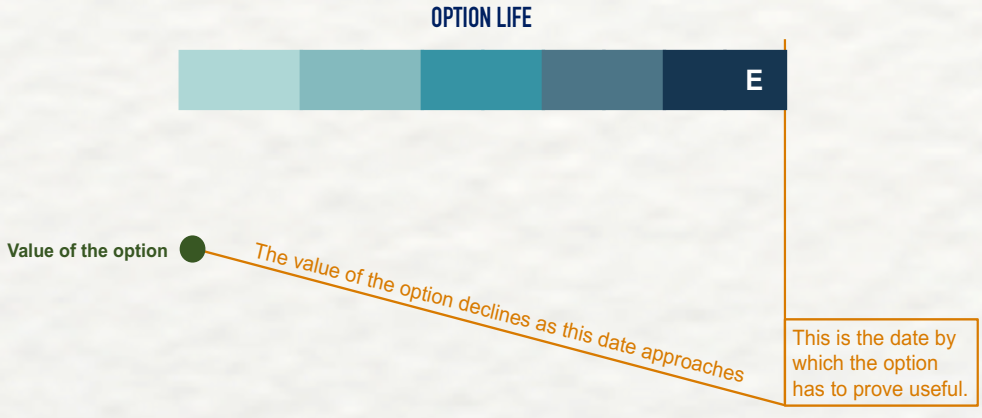
It might seem as if an American-style option offers to its buyer more than other styles offer, and therefore carry a slighter higher price. However, having a right to exercise anytime may not always confer additional benefits. Exercising the option kills the option and premature exercise, in some cases, is like killing the goose that lays the golden eggs.

The Decay of an Option

As seen from the Option Styles, an option has only a limited life. If it is going to yield profits to the holder it needs to go ITM before expiry. If it is OTM / ATM on expiry, it will expire worthless.

As time moves on and expiry nears, the probability that an option goes ITM declines and this is seen in the reducing value of the option as seen in the premium for that option.

Option writers typically are looking to earn money from option decay and their views will look to options that they write (whether calls or puts) expiring worthless. We will see more of this thought process in the section on options strategies



Strategies Associated with Hedging

The strategies discussed so far are independent of what an entity might have in its core portfolio. The strategies could be used by speculators such as hedge funds.

However, there are a couple of strategies which those with an underlying exposure could use. This is called hedging.

A fund manager might hold assets and worry about a potential decline in prices. The same fund manager might think the market is really going nowhere in the short-run; why not make money with some option strategy? The risk is limited by just delivering the stock if things go against the market view and the market does in fact run up.

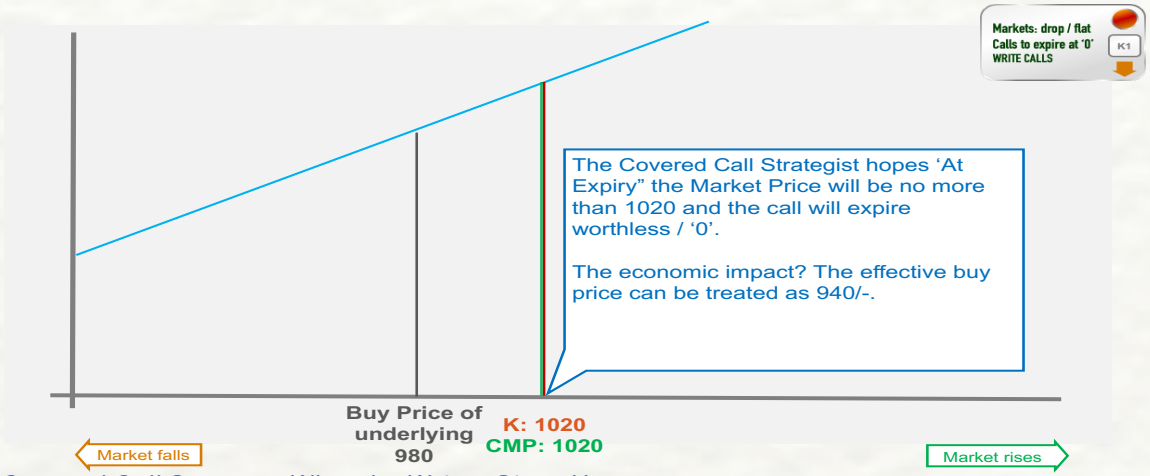
The Covered Call

The trader holds an asset and does not see the market going up in particular in the short run. This does not serve the strategy of holding an asset which is basically to see the value rise in the portfolio. The trader decides to go Short Call; with market not going up one might as well squeeze a few extra cents in profits to boost portfolio returns.

Should the market shoot up unexpectedly, instead of losing money the trader will merely deliver the asset. Its loss is the opportunity it lost from holding on to that asset. Part of that is offset by the premium it collected in going Short Call.

One can view the Covered Call as defining the maximum one can earn from holding an asset, owing to the nature of the strategy.

Covered Call Strategy: Best Case Scenario



Covered Call Strategy: What the Writer Gives Up