Financial Derivatives.

Financial instruments whose payoff depends on the value of another financial variables (example; price of a stock, price of a bond, exchange rate).

If we invest in financial derivatives then the profit and loss in the future time point will depend the price. ~~unlike in case~~ of bonds or stocks

Actually there is no direct relation between financial derivatives and bonds and stocks, but the profit & loss depends on the movement of the values of some underlying assets.

Mathematically, the payoff or the profit of financial derivatives are actually a function of value of the sets of assets at time when the financial derivative is executed.

Option pricing is actually done by making a function of the return of the underlying assets at a future time point.

Derivatives

→ Derivatives are ~~not~~ typically not related to physical assets or business opportunities
In financial derivatives we have two parties who sit together to chalk out the terms and conditions of financial derivatives.

→ Out of the two parties, there will be one party who will receive payments and another party they will make the payment.

This particular payment will depend on the financial variable which is known as underlying

→ **Underlying Assets**

Financial variables on which these payments are dependent are called Underlying Assets.

Zero-sum Game

→ In case of financial derivative, the profit of one party becomes the loss of other party. which is called zero-sum game.

If Profit of one person is added to the loss of another party it ends up to zero. that's why it is called Zero-sum game or zero addition game.

→ Initially the way financial derivatives are priced is that no parties is likely to lose money, but eventually as the asset price evolves and a final payoff is made, it ends up being basically a zero-sum game, where one party loses and one party wines.

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Three different kind of Derivatives

Forward. Futures. Swaps and Option. →

1. Futures & Forwards :-

Futures :- These are contracts where one party agrees to buy the underlying assets, maybe a stock, maybe a bond or some other assets., at future predetermined date which is similar to maturity date of a bond, at a predetermined price.

So basically there is two parties say, Party A and Party B and they are going to involved in future and forward agreement, where party A tells party B, 'ok I am going to give you this particular product and party B says 'okay, I will pay you this amount of money for the product.

So, at some present point of time two parties aggree upon a supply ~~agreement~~ arrangement where the supply will actually or the transaction will actually take place at a future time point which is predetermined at a price which is also predetermined.

So, at present, the parties basically make the deal but that deal will be executed and money will be actually exchanged at some future time point. This contract is legally binding contract.

Difference Between Futures and Forwards.

Futures	Forwards.
For futures, ① Money exchange is complex. because, when the agreement is signed and suppose that the agreement is to exchange the good for money at a future time point 6 months down the line and then depending on the movement of the underlying price at some point, one party or the other is likely to default on this agreement.	① One time money exchange in future.

Futures | Forward

So, we have margin account which is like a security deposit account where both parties put a certain amount of money and periodically ~~to~~ typically on day to day basis money is move from one security account or security deposit account to the other security deposit account and the money flows from the account of the party which might default in the future because the asset price has moved down, is transfered to the account of the other party which is less likely to default and this continuous exchange of money takes place in this manner until the ~~forit~~ final expiration. (maturity date).

2. Futures are more exchange-traded and because of that we have to put more safeguards into place because futures are something where no net worth individuals might invest. So, in order to protect such investors exchange ~~hape~~ have put this mechanism of security deposit account.

This exchange traded continuous until the maturity date when the product takes place.

2. In case of forwards, this is mostly done over the counter agreements between large financial institution or a financial instituti and one of the clients

> On a future date when we make payments and this future payment is called 'Futures Price' in case of 'Futures' and 'Forward Price' in case of 'Forwards'

Regular Market Price → 'Spot' price

Spot price is the price on which a customer purchase an asset.

Suppose a customer goes to the market and signs an agreement so that she / he will buy the certain product in future time ~~that~~ then it becomes a futures price or a forwards price.

but if he decide to buy the product immediately right then and there on the spot, the particular price is called 'Spot Price'. Because it is a price that is being quoted on the spot for immediate purchase.