Derivatives 1 (BFF2751) Notes

Hull, J. C. (2017). *Options, futures and other derivatives* (9th global edition). Harlow, Essex: England: Pearson Education.

Contents:

Introduction to Derivatives: Forward and Futures Contracts

Reasons Derivatives Exist

- Fluctuating gold prices, a mining company cannot be sure what price they will get when their gold is extracted and processed ready for sale.
- Fluctuating exchange rates, an Australian importer who is invoiced in USD will fear a decline in the value of the AUD.
- Volatility in share markets, fund managers fear another market crash like 1987 or 2008 which will reduce the value of their portfolios.
- Fluctuating interest rates, a company which knows it will need to borrow money in six-months time will fear a rise in interest rates.

Derivatives

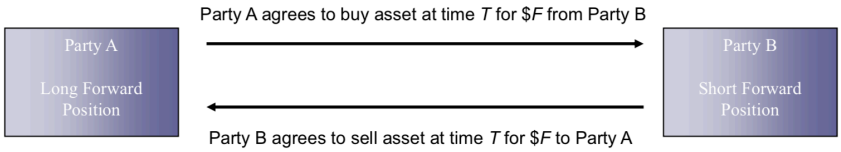
A derivative security is an instrument whose value depends on the value of another variable. The underlying variable might be a traded asset (e.g. stocks, market indices, exchange rates, interest rates…), commodity (gold, oil, gas) or something more exotic (electricity, rainfall, temperature). Examples include forwards, futures, swaps and options.

Forward Contract:

A forward contract is an agreement to either buy or sell an asset at a specified price on a specified future date. There are always 2 parties to a forward contract.

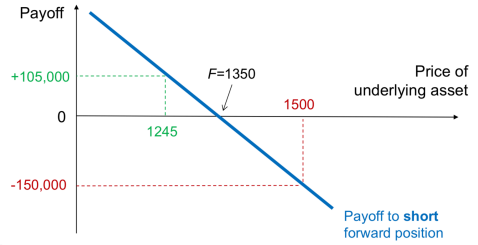
- **Long forward position** – the party who takes a long forward position is contracted to buy the underlying asset.
- **Short forward position** – the party who takes a short forward position is contracted to sell the underlying asset.
  - F = delivery price for the forward contract
  - T = time remaining until delivery

Forward contracts are traded in the over-the-counter (OTC) market (an informal market where traders communicate by phone and/or computer. It is a network of traders working at financial institutions, corporations or fund managers. Because they are arranged informally between two parties, forward contracts can be highly customised (size, timing, delivery, underlying asset). Each party bears some credit risk, as the delivery under the contract is not guaranteed. Hence, there is some risk that the counterparty defaults.



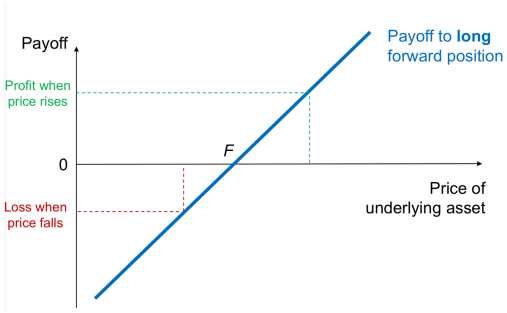
With a **short** forward position:

- You make a profit when the price of the underlying asset falls
- You make a loss when the price of the underlying asset rises



With a **long** forward position:

- You make a profit when the price of the underlying asset rises
- You make a loss when the price of the underlying asset falls



Forward Contracts v Futures Contracts

	Forwards	Futures
Traded where?	Over the counter	On exchanges
Terms of contract are	Tailored to your needs	Highly standardised
Delivery date is	Tailored to your needs	A range of standard delivery months
Settlement occurs	At expiry	Marked to market daily
What happens to the underlying asset?	Often physically delivered	Contract is usually closed out prior to expiry
Any credit risk?	Yes, some	None