Financial Derivatives - Overview

Derivatives are financial contracts with their respective values linked to the value of an underlying asset.

Derivatives are complex, difficult to value financial instruments used for various purposes, such as hedging or getting access to additional assets or markets. In that context, they allow its buyer or seller to 'bet' on positive or insure (hedge) against negative price movements of an underlying asset. Having been around for some 4,000 years, later reported by Aristotle and Thales, they originated in relations to agriculture. Today, the underlying can be any asset, index, interest rate or else. Derivatives gained popularity with the introduction of new valuation techniques in the 1970s, when markets started rapidly developing. Theoretical frameworks for derivatives-related valuation methodologies were developed by Robert Merton and Myron Scholes, Nobel Prize laureates, Fischer Black and others.

Futures, forwards, options and swaps are common types of derivatives, with most of them traded Over-The-Counter (OTC). Some of the contracts, however, such as options and futures, are traded on specialized exchanges, like the CME (Chicago Mercantile Exchange and Chicago Board of Trade), the Korea Exchange, or Eurex.

Forwards as well as futures are bilateral agreements that one party will buy a certain product from the other for a fixed price at a fixed date in the future. Both, forwards and futures are essentially the same in their nature. Whereby forwards are more flexible though, because the parties can customize the underlying commodity as well as the quantity of the commodity or the date of transaction. Futures, on the other hand, are standardized contracts that are traded on exchanges (futures market).

An option is technically an optional future: The buyer of an option has the right but not the obligation to purchase or sell a certain quantity of a certain good for a certain price at some time in the future. Options anticipating a rise in the price of the underlying asset are referred to as 'call options' (calls), whereas options anticipating a price decrease are referred to as 'put options' (puts). - Based on the option type, the buyer can exercise the option on maturity date only (European style) or on any date before maturity (American style).

Swaps are derivative contracts that allow the exchange of cash flows between two parties. Typically, they involve the exchange of a fixed cash flow for a floating one. The most popular types of swaps are interest rate swaps, commodity swaps, and currency swaps. They allow investors to protect themselves from fluctuations, such as in interest rates or currency exchange rates. More speculative investors, on the other hand, may actually 'bet' on them.

A Credit Default Swap (CDS) is a contract in which the buyer purchases protection against a default on a loan issued by a third party. The buyer makes a series of payments to the seller and the seller pays out if a default occurs. - In a Total Return Swap (TRS) one party makes payments based on a set rate, either fixed or variable, while the other one makes payments based on the return of an underlying asset, including both, the income it generates and any capital gains. Hence, it transfers credit and market risk of the underlying: In essence, the receiving party gains full financial exposure to an asset without actually owning it. – Increasingly relevant derivatives providing hedges against natural catastrophes, rainfall, temperature or snow are foremost individually agreed between private parties.

Benefits of derivatives are, among others:

- Enable hedging risk exposure (i.e. profits in the derivative may offset losses in an underlying).
- Facilitate price determination of an underlying (e.g. spot prices of futures can serve as an approximation of a commodity price).
- Enhance market efficiency (as can be structured to replicate an underlying´s payoff).
- Enable access to unavailable assets or markets (e.g. interest rate swaps may obtain more favourable interest rate terms relative to direct borrowing).

Issues in regards to derivatives are, among others:

- Potentially carrying high risk (amid high volatility combined with complex price finding mechanisms / valuation), especially on the sell-side.
- Speculative features (as widely regarded as means of speculation).
- Counterparty risk (as some OTC-traded contracts do not include due diligence with potential of counterparty defaulting).

TYPES OF DERIVATIVES

FORWARD COMMITMENTS	CONTINGENT CLAIMS
FORWARDS	OPTIONS
FUTURES	CREDIT DERIVATIVES (CDS)
SWAPS	
BOTH PARTIES HAVE AN OBLIGATION TO COMPLETE	SELLER HAS AN OBLIGATION TO COMPLETE BUYER HAS A RIGHT TO COMPLETE

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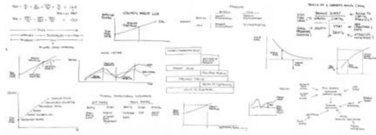

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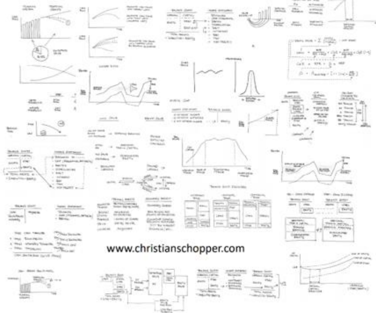

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