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# CIFA

## SECTION 6

# DERIVATIVES ANALYSIS

## STUDY TEXT

PAPER NO: 18

REVISED ON: APRIL 2020

## INTRODUCTION

Following our continued effort to provide quality study and revision materials at an affordable price for the private students who study on their own, full time and part time students, we partnered with other team of professionals to make this possible.

This Study Text covers KASNEB syllabus and contains past examination past papers and our suggested answers as examples which are provided by a team of lecturers who are experts in their area of training. The book is intended to help the learner do enough study and practice on how to handle exam questions and this makes it easy to pass kasneb exams.

Special appreciation and recognition goes to FA Kegicha William Momanyi (MBA Accounting, CPA, CISA and CCP), Johnmark Mwangi (MSc Finance, CPAK, BCom Finance), and FA Bramwel Omogo (B.sc Acturial Science, CIFA, CIIA final level and ICIFA member)

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# CHAPTER ONE

## INTRODUCTION TO DERIVATIVE MARKETS AND INSTRUMENTS

### **Derivatives markets and instruments**

Derivatives - is a financial instrument that offers a return based on the returns of some other underlying assets i.e. its return is derived from another instrument hence the name. Derivative performance is based on the performance of an underlying instrument.

The underlying asset is often referred to the underlying and it trades in the market where buyers and sellers meet and decide on the price then the seller delivers the asset to the buyer and receives payment.

A Cash price or spot price-refers to the price you immediate purchase of the asset. A derivative has a defined and limited life which means a derivative contract initiates on a certain date and terminates on a later date. A derivative payoff is determined and /or made or the expiration date in most cases.

A derivative contract is an agreement between two parties in which each party does something for the other e.g an insurance contract where one party pays the other and in return receives coverage against potential losses.

### **Derivatives trade in the following markets;**

#### **Exchange Traded Market**

They have standard terms and features and they have organized derivative trading facilities e.g. a future exchange as an option exchange.

#### **Over the counter markets**

In these markets derivative contracts refers to any transaction created by two parties anywhere else. Such contracts are highly customized and not regulated.



## **Types of Derivatives**

Derivatives can be classified into two major classifications

1. Forward commitment
2. Contingent claims

### **Forward Commitment**

These are contracts in which two parties enter into an agreement to engage in a transaction at later date at a price mentioned at start date

Under these types of commitments, we have

- i. The exchange traded futures
- ii. Over the counter contracts.

### **Characteristics of forward commitment**

- i. Are agreement between two parties in which one party agrees to buy from the other party an underlying asset( stocks, bonds, interest rates, currency exchange rate and commodities like food, gold at a future date at a price established at start)
- ii. Parties specify all the forward contract terms and conditions hence it is highly customized.
- iii. Each party is subject to the possibility that the other party will default
- iv. They are largely unregulated and operate in a private market. They are private because parties want to keep them private and not because they are illegal or corrupt.
- v. Are (forward, future and swaps) firm and binding agreement to engage in a transaction in a future date.

They obligate each party to complete their transaction or to offset the same by engaging in another transaction that settles each party's financial obligation to the other.

## CONTINGENT CLAIMS

These are contracts in which payoff occurs if a specific event happens. They are generally referred to as option.

**An option** is a financial instrument that gives one party the right but not the obligation to buy or sell an underlying asset from one to another party at a fixed price over a specified period of time.

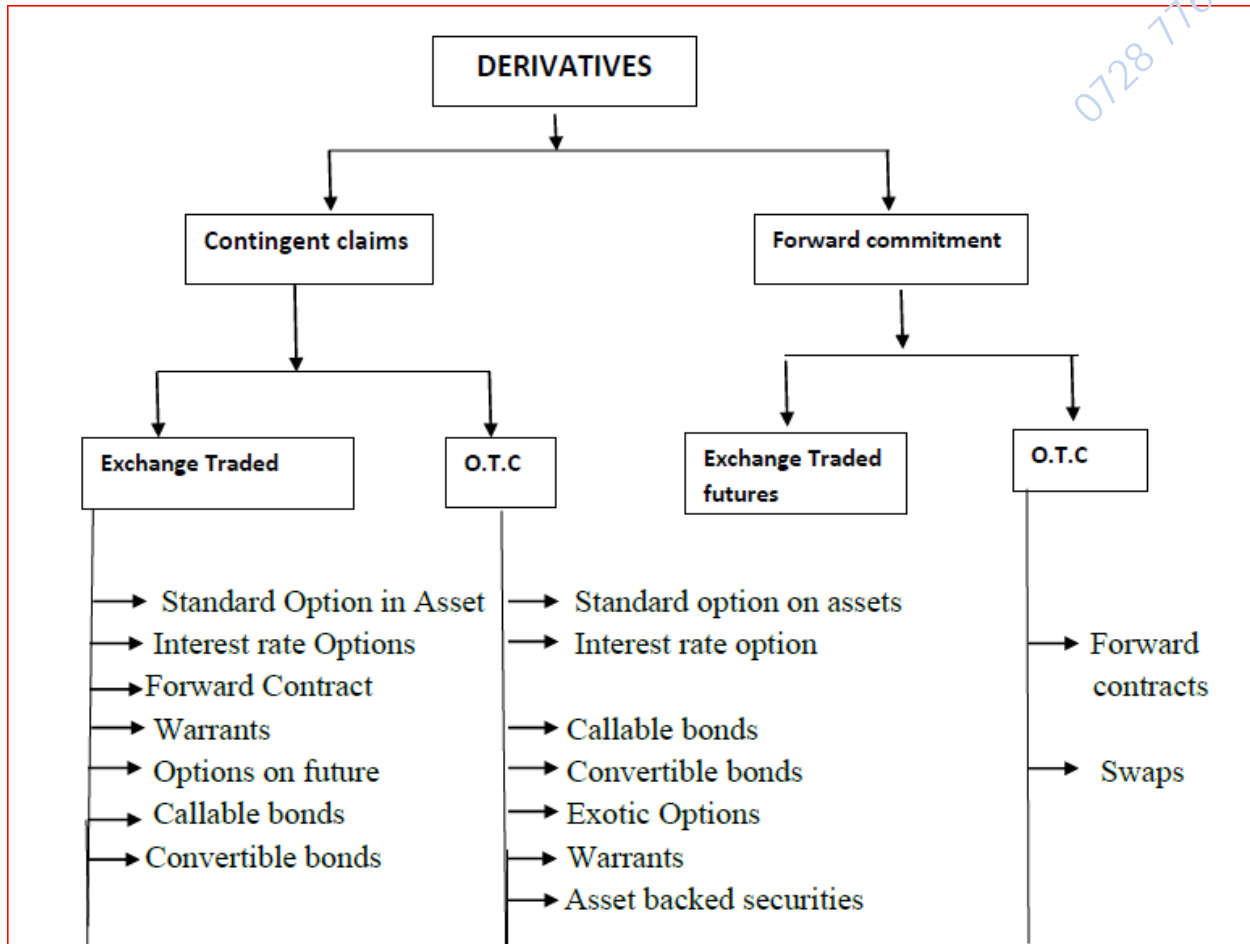
An option that gives the right to buy is a call option while one that give the right to sell is a put option.

### Characteristics of contingent claims

- i. They give to only one party a right to buy or sell the underlying and not a commitment to do so.
- ii. To acquire this right the buyer pays premium or the option price
- iii. The payoff of an option is contingent upon an event taking place
- iv. Options can either be customized (OTC)/ contracts or exchange listed standardized contracts that are traded in the option exchange.

Examples of option include:

- i. The standard options(calls and puts)
- ii. Convertible bonds
- iii. Callable bonds
- iv. Asset backed securities (they give the pre-payment option)



### Purpose of Derivative Markets

1. **Price Discovering.** Future markets provide valuable information about the prices of the underlying asset on which futures are based. In the future market, the price of the contract with the shortest time to expiration often serves as a proxy for the price of the underlying asset. Price of all future contracts serve as prices that can be accepted by those who trade contracts in place facing uncertain future prices. Forward and swap allow users to substitute a sign locked in price for the uncertainty of the future spot prices and thereby permit the same form of price discovery as do future.
2. **They reveal volatility of the underlying asset price -** This is revealed by option since volatility of underlying is a critical factor in the pricing of the

options. It's therefore possible to infer what investors feel about volatility for the price options.

3. **Risk management (Hedging)** - Is the process of identifying desired level of risk, identifying the actual level of risk and altering the actual level of risk to equal the desired level of risk.
4. **Hedging**- is the reduction and elimination of the risk while speculation is the assumption of risk by a given party. Since derivatives lock in the price at the beginning of the contracts they play a role in risk management by eliminating uncertainties.
5. **To improve the market efficiency for the underlying**-Efficient markets are fair and competitive and they do not allow one party to easily take money from the other.  
**In** derivative market, prices are set in such a way that the party makes extra gains without consuming extra risks i.e. no arbitrage opportunities
6. **Relatively low transaction costs of derivative contracts**-derivatives are designed to provide a means of managing risk e .g an insurance cannot be viable if its cost is too high to the value of the insured asset thus derivatives must have low transaction cost otherwise they won't exist.
7. Catalyze growth of financial markets

### **Criticism of derivative market**

1. Complexity - derivatives are found by most investors to be complicated and for this reason they are used improperly thereby delivering undesirable results
2. Lack of understanding by the users which leads to losses incurred by these users.
3. Derivatives are mistakenly characterized as a form of legalized gambling yet the benefits of derivatives extend much further a cross society while organized gambling incurs social costs such as addiction and irresponsibility.

### **Elementary pricing of derivatives.**

- **Arbitrage:** it occurs when equivalent assets or combination of assets sell for two different prices.