

Chapter 1: Assets Classes and Valuation Principles.

Assets

An **asset** can be defined as any object, tangible or intangible, that is of value to its owner.

Classification.

Due to their nature, assets can be classified as:

- **Real (or economic) asset:** These are all the assets that we know. **Ex.:** Land, buildings,
- **Financial assets:** Is an **asset for its owner** or holder and a **liability for its issuer or writer**.
Ex.: Stock of a company.

Another Classification

- **Primitive asset:** The return depends on the **financial situation of the issuer**. There are two types:
 - a. **Real Assets:** Land, buildings, equipment that were used to produce goods and services.
 - b. **Financial Assets:** It can be from **Equity (Stocks, Market Indices)** or **Fixed Income (Corporate Bonds, Treasury bills, Government bonds)**
- **Derivative asset:** The return is **not directly related on the situation of the issuer**, it depends also from the price of other assets, mainly **underlying assets**. There are two types as well:
 - a. **Real Options:** There are **not liquid assets nor tradable assets**, it is just the option of a real investment project. **Ex.:** Option of purchase of a football player.
 - b. **Financial Derivatives:** There are four of them, here you have them:
 - i. **Financial Options** on stocks, market indices, interest rates...
 - ii. **Futures contracts** on stocks, market indices, commodities... You are only **delaying maturity**.
 - iii. **Forward contracts** are contracts outside the market were, instead of doing it at that moment, **it will be done after**.
 - iv. **Swap on interest rates or currencies** is turning an asset for another one. For example, converting an asset with a variable interest rate for a fixed interest rate.

Let's explain some of this stuff

Stocks.

A stock is representing the ownership of a corporation/equity stake. You have the right to be paid the dividends, which are the results the company gets.

So, you own, as well as get paid from the profits.

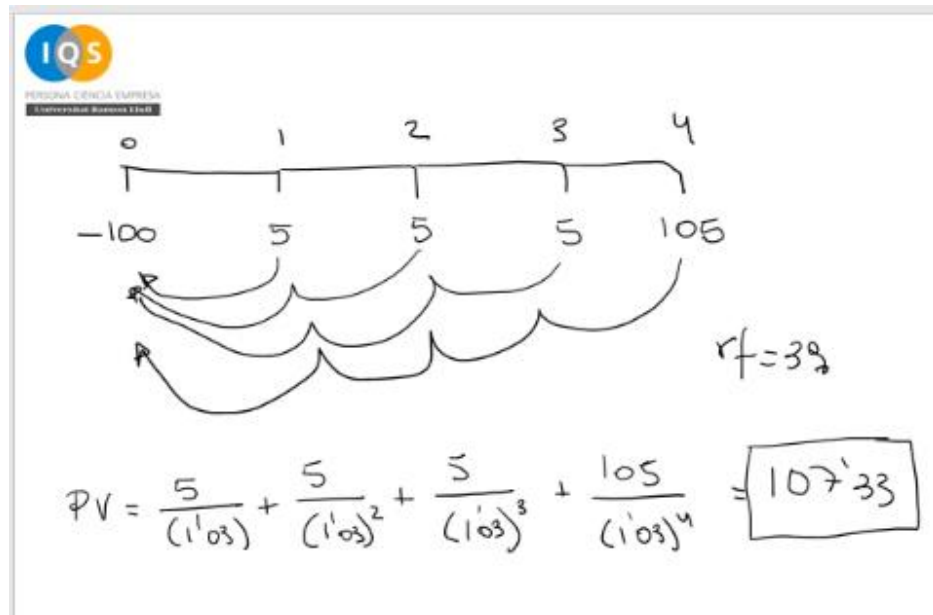
Bonds

Bonds are contract of a **loan, loaning to the issuer**.

In the bond the **amount**, **interest rate**, how **often** the issuer will make interest payments to you and the **maturity date**, everything must be specified.

Bonds as fixed income.

Bonds are fixed income as, if you wait for maturity, is the amount of what you invested. Also, you are



So, as you can see the price of the bonds are **directly affected to the interest rate**. If your bond offers a higher interest rate than the interest of that moment, then the price will be higher, if not, it will be lower.

Financial Options.**1) Option's**

An option is a contract to **buy**, we name it **(Call)** or **(Put)** when is **selling**. Obviously, when you have an option everything is specified: the **specific price** and **expiration date**.

There are two parties:

- **Owner:** It holds the option and has the right to exercise it. Obviously, I won't exercise this right if the asset price is higher than what it was determined on the option.
- **Writer:** Issued the option and, if the option is exercised, he is obligated to accomplished what has been written.

At the beginning of the contract the owner pays an option's price to the writer.

2) Futures

These are an agreement to buy or sell a set amount of a commodity or financial instrument at a ser price **in the future**. A small deposit is needed, and it only serves to delay the maturity.

3) Forward contracts

Very similar to future contracts but not traded on financial markets; **these agreements between two parties are settled outside markets**. Something that we agree today, and we do it tomorrow.

- 4) **Swaps**, you change one asset for another. Most of them are interest rate. **Ex.:** A loan that has a volatile interest turn it to a fixed interest.

Basic Financial Operations

We can distinguish four:

I. Investment

In an investment funds are **applied** to obtain a **positive rate of return**. It is not something which is certain, that is why it **implies risk**. **But the focus lays on the expected rate of return, rather than on risk.**

II. Speculation

Speculators assume **risk** searching for **profits above** the average. So, **the emphasis is on risk, and turn it into a higher return.**

III. Hedging

Its aim is to **reduce the risk** of an investment using derivatives. Then, it uses **two assets**, the asset itself, and a call option or something to secure a price on it at least.

Eliminates any possibility of either profit or loss.

IV. Arbitrage

The concept is **gaining profit without investing nor assuming any risk** since it takes advantage from **a temporary inefficiency** on the financial market. **Ex.:** Stock of a company which its value is lower than what it should, and you have a call option with a value higher than the actual price.

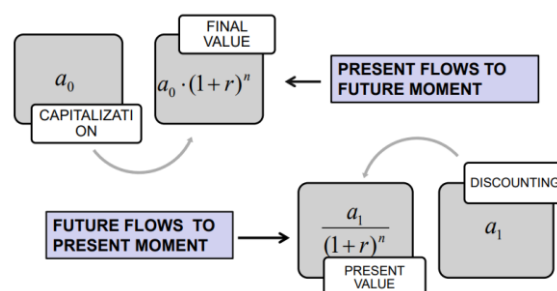
Characteristics

This is not utopic, instead, is based on in depth study of the market and:

- **Difference between price and value:** A person might have a call option lower than an overvalued stock; you sell the call option to gained some profit.
- **Combination of long-term purchases and short-term sales positions:** You buy options for the future, selling them with the price now.
- **Cancellation of risk only works if the market behaves efficient:** If the undervalue or overvalue of that asset becomes the actual value, you lose.

Capitalization and Discounting

Capitalization is turning the money we have today to the same amount but in the value of the market in the future. Instead, Discounting is doing the opposite, turning the value currently, to values in years past.



Basic definitions

Market Value

Market Value = Gross Present Value (Present Value). **Note:** Discounting makes a lot of sense, because we will have to represent all the future flows of the money into the present value.

Gross Present Value

Gross present value = Initial investment + Net Present Value (NPV)

We can get different outcomes when calculating the Gross Present Value, as you can see is not the same that we did in Corporate Finance.

- a) **If we know the sequence of expected cash-flows:** Which in the end means that you know each cashflow in the future, which is impossible. The purpose in this case is to know whether the asset is fairly or unfairly valued

Formula

E = Expected Cashflow

R = Required Return

t = time

$$PV = \sum_{t=1}^n \frac{E(a_t)}{(1 + R_{req})^t}$$

This formula does not include the Initial investment or waste as we did in corporate finance because we are calculating the Gross **Present Value**, which omits what we have invested now, which in the end is part of the value of the company put into a project which will give us profits.

- b) **Only know the Expected Rate of Return, the Required Return and the Initial investment:** The purpose is to proceed subsequently according to the valuation carried out in the previous point.

Formula

a_0 = Initial Investment

E = Expected Cashflows

R = Required Return

$$PV = \frac{a_0 \cdot E}{R_{req}}$$

Jokes

- What kind of shoes does ninjas wear?
- Sneakers!

- Why can't a nose be 12 inches long?
- Because then it would be a foot.

- What do you call someone with no body and no nose?
- Nobody knows

Net Present Value

Careful because this is a part of the formula to calculate the **gross present value**. This is the formula we used in Corporate Finance, but we have different options:

A. We know the sequence of expected cash-flowsFormula

a_0 = Initial Investment

E = Expected Cashflows

R = Required Return

t = time

$$NPV = -a_0 + \sum_{t=1}^n \frac{E(a_t)}{(1 + R_{req})^t}$$

B. When we only have the E, R and the initial investmentFormula

a_0 = Initial Investment

E = Expected Cashflows

R = Required Return

$$NPV = \frac{a_0 \cdot E}{R_{req}} - a_0$$

Special Cases of Present Value

a) Sequence of constant cash-flows in a finite horizon: Basically, when we have a rental.

Formula

a = Cashflow

R = Required Return

n = Time or period

$$PV = \frac{a}{R_{req}} \cdot \left(1 - \frac{1}{(1 + R_{req})^n} \right)$$

b) Sequence of constant cash-flows in perpetuity: This formula we have seen it.

Formula

a = Cashflow

R = Required Return

$$\lim_{n \rightarrow \infty} PV = \frac{a}{R_{req}}$$

Jokes

- I am on a seafood diet.
- I see food and I eat it.

- I'm reading a book about anti-gravity
- It's impossible to put down!

c) Sequence of cash-flows that increase at a steady growth rate in a finite horizon:

Nothing to say here.

Formula

a = Cashflow

g = growth rate

R = Required Return

$$PV = \frac{a - a \cdot \left(\frac{1+g}{1+R_{\text{req}}} \right)^n}{R_{\text{req}} - g}$$

d) Previous sequence of cash-flows that increase at a steady growth rate in perpetuity:

This is the formula we have seen in finance, not the previous one.

Formula

a = Cashflow

g = growth rate

R = Required Return

$$\lim_{n \rightarrow \infty} PV = \frac{a}{R_{\text{req}} - g}$$

As long as I am investing in a company, we wanted to be 0 because it is efficient the market, you get what you pay for, what you were expecting it. The second one is what you are required in return.

The role of Risk in asset valuation

Since an asset is risky, preference for risk must be included in its valuation.

Certainty Equivalent

It is the amount of money which one investor would exchange a risk asset (Sell it or buy it).

Formula

Certainty Equivalent = Expected Value + Risk Premium

Required Rate of return

The difference between the rate of return that a risk averse investor asks to an asset and the risk free interest rate is the risk premium.

Formula

Required rate of return = Risk free interest rate + Risk premium

Joke

- What do you call a can opener that doesn't work?
- A can't opener

Risk Attitudes

Types

- a. **Neutral:** Does not care about assuming risk or not.
 - **Risk Premium** = 0
 - **Certainty Equivalent** = Expected value
- b. **Averse:** Accepts to renounce to some expected value in order to avoid risk
 - **Risk Premium** > 0
 - **Certainty Equivalent** < Expected Value
- c. **Risk lover (risk propensity):** Wants risk in his investments. He only renounces if he or she receives an additional compensation
 - **Risk Premium** < 0
 - **Certainty Equivalent** > Expected value

Interesting video

Sorry, but let's laugh a little



← Christmas Holidays

TERM 2 →

<https://youtu.be/gbxSpLDQehg>