

Unit 6 Basic finance

1. Invest and expenses

Investment and expenses are two concepts that are often confused, although they are totally different. Thus, the money used to build a High School is part of an investment because it is expected to generate returns while the money spent by a family on food is considered a current expense, essential for their survival, without any additional return.

1.1. Investment concept. Elements

We talk about an investment when we allocate money to some project with the hope of having some performance in the future.

Present	Period 1	Period 2	Period 3	...	Period n
Initial payment	Colletions (+)	Colletions (+)	Colletions (+)	Colletions (+)	Colletions (+)
	Payment (-)	Payment (-)	Payment (-)	Payment (-)	Payment (-)

In this way, it is correct to talk about investment in education and not spending on education.

Therefore, an investment will be made up of income (BILLS) and outflows (PAYMENTS) of money distributed throughout its life, better known as the time horizon of the investment.

The difference between the collections of a period and the payments of it is called cash flow of the investment project.

Thus, the main elements of an investment project are three:

- Disbursement or initial payment.
- Cash flows in each period.
- Time horizon or life of the investment.

1.2. Analysis of an investment. Profitability

In everyday terms, something is profitable when more benefit is obtained than what has been invested. For example, if today we invested € 100 in a business and tomorrow we recovered € 105, we would say that we have made a profitable investment.

When measuring the profitability of the previous example, we could do it in two ways:

Absolutely: $105 - 100 = € 5$

Relatively: $5/100 = 5\%$

$$Rentabilidad = \frac{\text{what was won}}{\text{what was invested}} \times 100$$

Invest	-100
Rendimiento año 1	60
Rendimiento año 2	70
TIR	19 %

The Internal Rate of Return (IRR)

To know the gross profitability of an investment, we will calculate your IRR. The example corresponds to an investment of € 100 that in the first year generates € 60 and in the second year € 70. The result is 19% gross. What would be the net profitability if getting € 100 cost us 12 percent?

1. It is an investment in which it is necessary to disburse 6,000 euros and which will provide net cash flows of 1 000, 1 500, 3 000 and 2 500 euros in the first four years, respectively. Calculate:

- a) The absolute profitability of the project.
- b) The relative profitability of the project.
- c) What profitability offers more information? Why?

2. How much money will the following investors have earned in these cases?

- a) Lucía obtains a return of 12% having invested 230 euros.
- b) Elena obtains a return of 5% having invested 350 euros.
- c) Martín obtains a profitability of 7% having invested 1,200 euros.
- d) Claudia obtains a return of 4.75% having invested 600 euros.

2. Interest and inflation

Interest and inflation are two other basic concepts when dealing with the study of finance, since both directly affect the value of money.

2.1. Interest

If today we lend money to someone with the promise that he will return it to us after a while, we expect to receive the loan (nominal) plus a denominated sum (interest) in the future.

Imagine that we lend 120 euros today to a person who promises to return us 150 euros within a year. If this finally happens, we will have charged 30 euros of interest, which is the difference between the nominal loan (120 euros) and the amount received (150 euros).

Interests = Amount received - Nominal lent

In other words, interest is the price of money. If someone needs money, you can get it by paying some interest for it, because you will have to return that money plus an additional sum.

2.2. Inflation

Can you buy the same product today with 5 euros as you bought three years ago with those 5 euros? Surely not, since the prices of goods and services go up and, as time passes, money loses value. Money buys less and less goods and services every day.

We call inflation the generalized rise in the prices of goods and services that we usually acquire. For example, if all in all, the prices of goods and services have risen 2.5% on average over the past year, our money would now buy 2.5% less. Inflation decreases the ability to buy money.

How to apply an increase in percentage terms to a figure.

Suppose that the price of a soft drink on a terrace is 1.80 euros and that the trader applies a 5 percent rise. The final price will be:

$$1.80 \times 1.05 = \text{€ } 1.89$$

How to apply a reduction in percentage terms to a figure.

Suppose that the price of a soft drink on a terrace is 1.80 euros, VAT included. The price without VAT will be:

Inflation decreases the ability to buy money. For example, if all in all, the prices of goods and services had risen 2.5% on average over the past year, now our money would be worth 2.5% less.

Inflation decreases the ability to buy money. For example, if all in all, the prices of goods and services had risen 2.5% on average over the past year, now our money would be worth 2.5% less.

2.3. The relationship between interest, inflation and profitability

Would it be profitable to invest 100 euros today if tomorrow we obtained 105 euros? It seems reasonable to say yes. However, what would happen if the 105 euros were obtained within 3 years knowing that annual inflation is 2 percent?

If the prices go up each year by 2 percent, we will need the amount of 106 euros (approximately) after 3 years in order to be able to buy the same product-s as with 100 euros today.

■ Therefore, the proposed investment would not be profitable because we would obtain 105 euros after three years and we would not have maintained even the purchasing power of the original 100 euros.

■ Therefore, when investing or lending, it is necessary to require an interest that at least covers the losses of value caused by inflation.

2% price increase	Year 1	Year 2	Year 3	Year 4
Money needed to maintain	100	102	104,04	106,12
Purchasing power		(100x1,02)	(102x1,02)	(104,04x1,02)

1. Jan lent Marc 1,000 euros last year at an annual interest rate of 5%.

a) How much interest will Marc pay a year later?

b) If inflation that year was 3%, what amount will Joan receive after one year?

c) How much money will he really have earned?

2. Lucia intends to invest 3,000 euros in a project whose estimated duration is 5 years. Knowing that the estimated inflation each of those five years will be around 3 percent:

a) How much should Lucia recover after five years if she wants to obtain a real annual return of 4 percent?

b) How much should I recover at least?

3. Trade and exchange rate

Trade between countries has always existed and history tells us episodes when it has been restricted and others when, on the contrary, it has proliferated. We are currently immersed in what we call globalization, a phenomenon whose basic characteristics include the intense growth of international trade.

3.1. Why is international trade important?

International trade brings with it a series of advantages:

- From the point of view of consumers, there is greater competition among producers, which facilitates the acquisition of quality goods and services at reasonable prices.

- From the point of view of production, countries that are exposed to international competition allocate their resources (labour and capital) more efficiently, allocating them to those activities that generate greater welfare.
- From the point of view of the entrepreneur, there is an enormous market in which to offer his product as well as the challenge of leading his activity along the path of excellence, which will lead him to reason a value proposition that will facilitate business success.

3.2. What is the exchange rate? Does it influence international trade?

The exchange rate is the price of one currency expressed in terms of another. This concept allows us to know, for example, how many dollars we can get with a euro or, in the opposite case, how many euros we could get with a dollar.

The exchange rate is important for people who trade between countries and its variations may imply that a product is considered expensive or cheap. Let's see an example:

Imagine that we are manufacturers of an X product that we sell at a price of 1 euro per unit. Imagine, in addition, that we sell the X product in the United States (we export).

Let's imagine that the exchange rate is € 1 = 1,3707 USD. In that case, a citizen of the United States who wants to buy our product (which we sell at 1 euro) must pay 1,3707 dollars. For the American citizen, our product costs 1,3707 dollars.

What would happen if the exchange rate was € 1 = 1,2843 USD?

3.3 Who determines the exchange rate?

Currently, the vast majority of countries have flexible exchange rate regimes; that is, the price of one currency based on another is determined through supply and demand in the largest market in the world: the currency market.

■ Thus, a highly demanded currency will tend to become more expensive. In this case, we will talk about a STRONG currency.

■ A highly offered currency will tend to become cheaper. We will talk about a WEAK currency.

A strong euro that buys many dollars (USD) makes products with prices expressed in USD more attractive, but makes products with prices expressed in euros more expensive. In other words, a strong euro favours imports and harms exports.

4. Basic financial concepts

In this last section we will try to address a whole series of basic financial concepts that are essential to maintain the financial integrity of personal assets.

4.1. Finance maxims

- All the money that is borrowed today must be returned in the future along with the interest generated, so it is necessary to analyse if you will be able to return it.
- All the money that is lent today will have to generate the sufficient yields in the future as to compensate the present sacrifice to renounce it.
- Higher performance is always higher risk. There are no financial products «miracle»

4.2. Basic financial concepts

Next, we will present some of the simplest financial concepts necessary to understand the basic functioning of finance.

- Creditor: person who is the holder of a collection right.
- Debtor: person obliged to pay.
- Nominal: initial amount invested or borrowed.
- Amount: final amount received after an investment. It is the nominal plus the interest.
- Interest: amount received by the person lending to the person obliged to pay. Normally, it is a percentage (interest rate) of what is borrowed or what remains to be repaid.
- Interest rate: cost of the debt for the debtor and return on the investment or loan for the creditor. It is expressed as a percentage and related to a period of time (monthly, semi-annual, annual).
- Term: duration of the financial operation.

Example: Lucia deposits 1,000 euros in a financial institution that offers an interest rate of 1% per year. She will keep the deposit for one year. How much money will she have after that year?

Creditor: Lucia.

Debtor: Financial institution

Nominal: 1,000 euros

Interest: $1,000 \times 0.01 \times 1 \text{ year} = € 10$

Amount: $1,000 + 10 = 1,010 €$

4.3. Basic financial instruments

Undoubtedly, the bank account is the most used financial product since the vast majority of people and companies are holders of one or several of them, in order to comfortably manage their usual expenses and income.

To mobilize available funds in a checking account, you can use:

- Debit card: mobilizes existing funds in the bank account in purchase operations. It is one of the most used means of payment today.
- Credit card: mobilizes available funds in the bank account in purchase operations. The liquidation of these movements takes place in the month following that of the operation.
- Check: mobilizes existing funds in the bank account in commercial operations. Usually used in merchant traffic.

3. Calculate the money you should pay within 18 months if a person lends you 2,500 euros at an annual interest rate of 7%.

4. In the previous exercise:

- a) Who would be the creditor?**
- b) Who would be the debtor?**
- c) How much would the interest amount be?**
- d) What would be the nominal? And the amount?**
- e) When is the deadline of the operation?**