7. RISK ASSESSMENT IN SHARES AND OTHER FINANCIAL ASSETS PRODUCTS

Departament de finances empresarials

VNIVERSITAT DE VALÈNCIA

INDEX

- The slides in this topic are based on chapter 11 Selection of the optimal portfolio and chapter 12 The Capital Asset Valuation Model of the book Fundamentals of Corporate Finance by Jonathan Berck et al. Pearson 2019 and the CNMV Information Guide What you should know... about options and futures.

1. Combinations of two financial assets and concept of efficient portfolio.

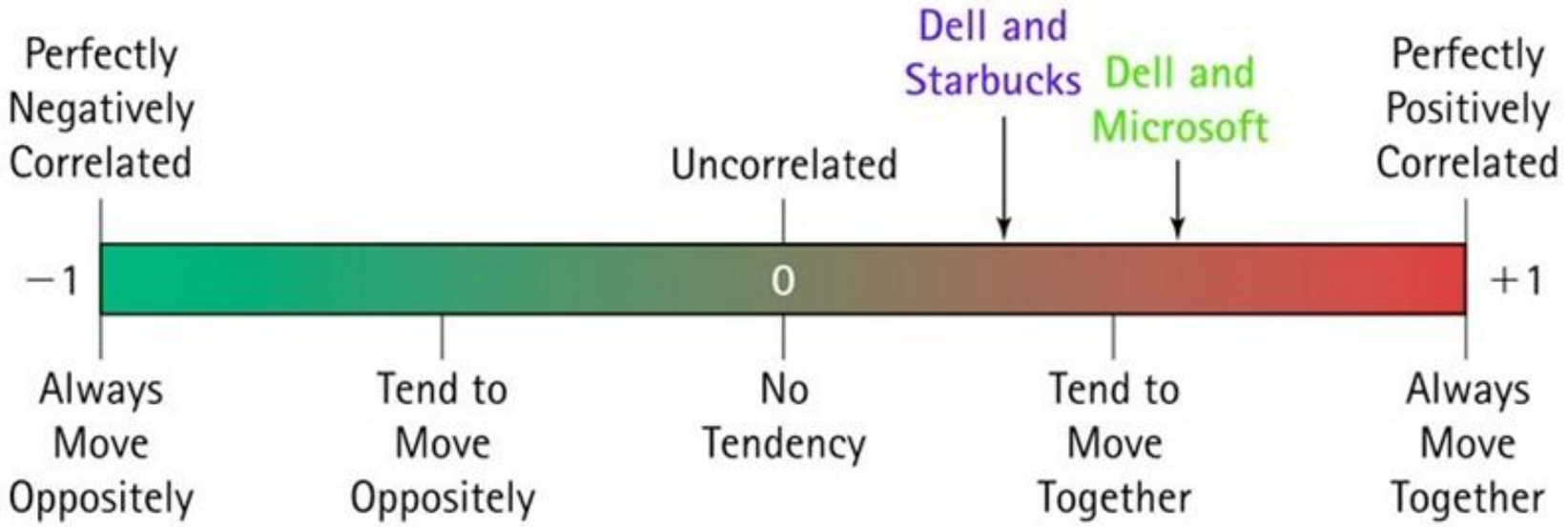
- Investors care about return, but also risk
- When we combine stocks in a portfolio, some risk is eliminated through diversification.
  - Remaining risk depends upon the degree to which the stocks share common risk.
  - The volatility of a portfolio is the total risk, measured as standard deviation, of the portfolio.

1. Combinations of two financial assets and concept of efficient portfolio

- Measuring Stocks' Co-movement: Correlation
  - To find the risk of a portfolio, we need to know the risk of the component stocks
  - The degree to which they move together
  - Correlation ranges from -1 to +1, and measures the degree to which the returns share common risk.

1. Combinations of two financial assets and concept of efficient portfolio

CORRELATION



Source: Authors' calculations based on data from moneycentral.msn.com.

1. Combinations of two financial assets and concept of efficient portfolio

- Portofolio volatility
  - The correlation is defined as:

$$Corr(R_i, R_j) = \frac{Cov(R_i, R_j)}{SD(R_i)\, SD(R_j)}$$

1. Combinations of two financial assets and concept of efficient portfolio

- Stock returns tend to move together if they are affected similarly by economic events.
  - Stocks in the same industry tend to have more highly correlated returns than stocks in different industries.
- Table 6.1 shows for various stocks:
  - The volatility of returns.
  - The correlation between these.
  - The table can be read by columns or by rows.

1. Combinations of two financial assets and concept of efficient portfolio

Standard Deviation	Apple 49%	Microsoft 28%	Target 31%	Starbucks 39%	Dell 39%	HP 32%	Berkshire Hathaway 20%
Apple	1.00	0.40	0.33	0.37	0.47	0.37	0.07
Microsoft	0.40	1.00	0.36	0.36	0.55	0.52	0.32
Target	0.33	0.36	1.00	0.49	0.40	0.44	0.37
Starbucks	0.37	0.36	0.49	1.00	0.38	0.37	0.27
Dell	0.47	0.55	0.40	0.38	1.00	0.50	0.21
HP	0.37	0.52	0.44	0.37	0.50	1.00	0.33
Berkshire Hathaway	0.07	0.32	0.37	0.27	0.21	0.33	1.00

Source: Authors' calculations based on data from moneycentral.msn.com.

Table 6.1

Estimated Annual volatilidad and Correlation for Selected Stocks.(Basedon Monthly Returns, June 2002-May 2018)

1. Combinations of two financial assets and concept of efficient portfolio

CALCULATION

Portfolio's Variance and Standard Deviation:

- The formula for the variance of a two-stock portfolio is:

$$Var(R_P) = \overbrace{w_1^2 SD(R_1)^2}^{\text{Accounting for the risk of stock 1}} + \overbrace{w_2^2 SD(R_2)^2}^{\text{Accounting for the risk of stock 2}} + \overbrace{2w_1 w_2 Corr(R_1, R_2) SD(R_1) SD(R_2)}^{\text{Adjustment for how much the two stocks move together}}$$

1. Combinations of two financial assets and concept of efficient portfolio

PROBLEM

- Volatility of a portfolio of two stocks:

- *Using the data in Table 6.1, what is the volatility of an equal-weight (standard deviation) portfolio of Dell and Microsoft stocks?*

- *What is the volatility of an equal weight (standard deviation) portfolio of Dell and Target stocks?*

1. Combinations of two financial assets and concept of efficient portfolio

Tow stocks portofolio volatility

	Weight	Volatily	Correlation with Dell
Dell	0.5	0.39	1
Microsoft	0.5	0.28	0.55
Dell	0.5	0.39	1
Target	0.5	0.31	0.40

- With the portfolio weights, volatility, and correlations of the stocks in the two portfolios, we have all the information we need to use the formula of portofolio variance to compute the variance of each portfolio.

- After computing the portfolio's variance, we can take the square root to get the portfolio's standard deviation.

1. Combinations of two financial assets and concept of efficient portfolio

CALCULATION

Volatility of a portfolio of two stocks

- **For Dell and Microsoft, the portfolio variance is:**

$$
\begin{aligned}
Var(R_p) &= w^2_{DELL} SD(R_{DELL})^2 + w^2_{MSFT} SD(R_{MSFT})^2 \\
&\quad + 2 w_{DELL} w_{MSFT} Corr(R_{DELL}, R_{MSFT}) SD(R_{DELL}) SD(R_{MSFT}) \\
&= (0.50)^2 (0.39)^2 + (0.50)^2 (0.28)^2 + 2(0.50)(0.50)(0.55)(0.39)(0.28) \\
&= 0.08766
\end{aligned}
$$

The standard deviation, therefore:

$$SD(R_p) = \sqrt{Var(R_p)} = \sqrt{0.08766} = 0.2951, \text{or } 29.61\%$$

1. Combinations of two financial assets and concept of efficient portfolio

CALCULATION

Volatility of a portfolio of two stocks

- For Dell and Target, the portfolio variance is:

$$
\begin{aligned}
Var(R_p) &= w_{DELL}^2 SD(R_{DELL})^2 + w_{TGT}^2 SD(R_{TGT})^2 \\
&\quad + 2 w_{DELL} w_{TGT} Corr(R_{DELL}, R_{TGT}) SD(R_{DELL}) SD(R_{TGT}) \\
&= (0.50)^2 (0.39)^2 + (0.50)^2 (0.31)^2 + 2(0.50)(0.50)(0.40)(0.39)(0.31) \\
&= 0.08623
\end{aligned}
$$

The standard deviation, therefore:

$$SD(R_p) = \sqrt{Var(R_p)} = \sqrt{0.08623} = 0.2936, \text{or } 29.36\%$$

1. Combinations of two financial assets and concept of efficient portfolio

Volatility of a portfolio of two stocks

INTERPRETATION

- The weights, standard deviations, and correlation of the assets are needed to calculate the variance and standard deviation of the portfolio. Here, the standard deviation of the portfolio was calculated for Dell and Microsoft and obtained 29.61%, and for Dell and Target and obtained 29.36%. Keep in mind that the Dell and Target portfolio is less volatile than any of the individual stocks. It is also less volatile than the Dell and Microsoft portfolio. Although Target is more volatile than Microsoft, the lower correlation with Dell carries greater benefits from portfolio diversification.

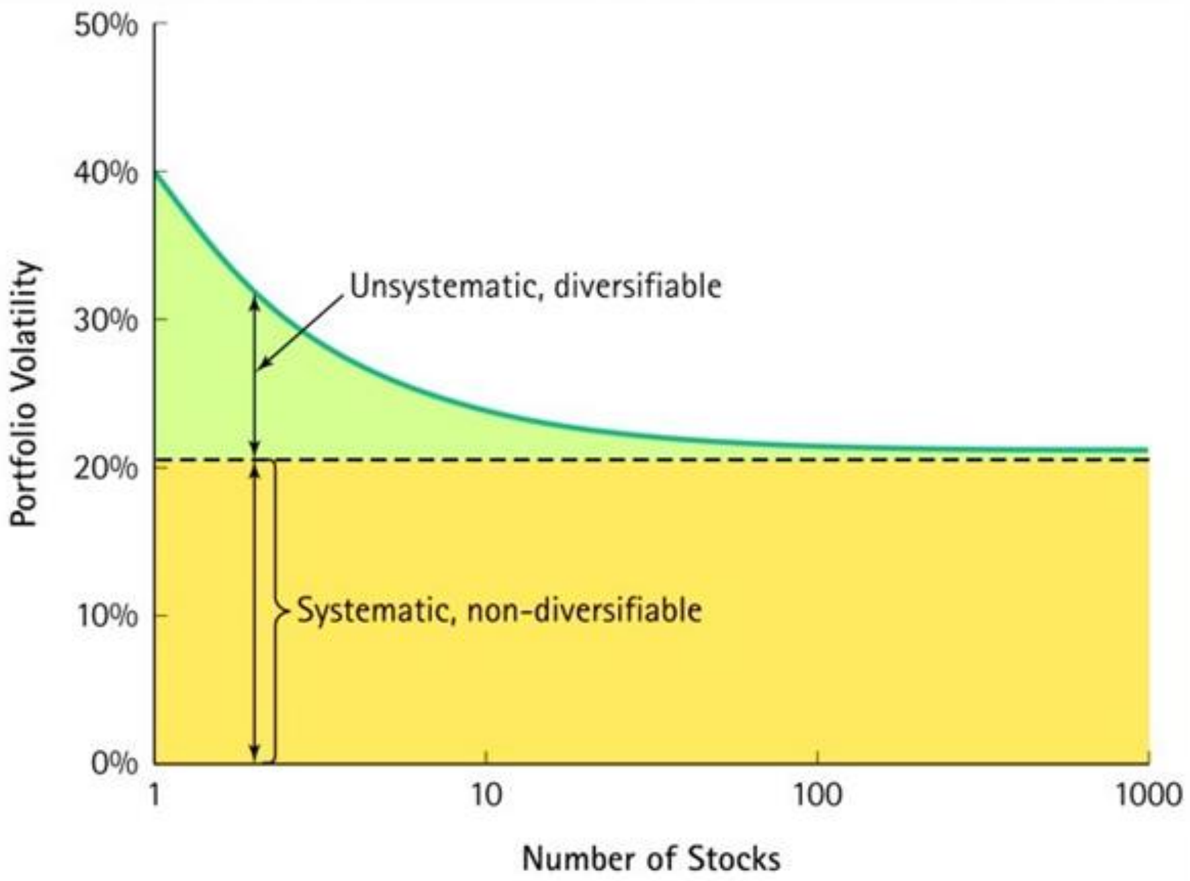
1. Combinations of two financial assets and concept of efficient portfolio

Volatility of an equal weighted portfolio versus the number of assets

Panel (a)

No. Stocks	Portfolio Volatility
1	40.0%
2	32.0%
3	28.8%
4	27.1%
5	26.0%
10	23.7%
15	22.9%
20	22.5%
25	22.2%
30	22.1%
50	21.7%
100	21.5%
1000	21.2%

Panel (b)



2. Systematic risk measurement

- Our goal is to understand and model the relationship between return and risk:
  - Quantify the relationship between expected return and risk.
  - Multiple uses in finance.

- To recap
  - With a large enough portfolio, you can diversify away all unsystematic risk, but it will not eliminate systematic risk.

3. Capital asset pricing model (CAPM)

- For many of the studies in finance it is necessary to know the relationship between the risk of the asset and the expected return.

- The CAPM Equation relates risk and expected return.

–Only systematic risk determines the expected return.

  - The specific risk of the assets is diversifiable and does not justify extra performance

3. Capital asset pricing model (CAPM)

- The CAPM Equation relates risk and expected return

The expected return on any investment is determined by:

- A risk-free rate to compensate for inflation and the time value of money, even without the risk of losing money
- A risk premium that varies with systematic risk.

Expected return =
Risk-free rate + Risk premium for systematic risk

3. Capital asset pricing model (CAPM)

- The Capital Asset Pricing Model (CAPM)

–The equation for the expected return on an investment (Eq. 6.1):

$$E[R_i] = r_f + \beta_i (E[R_{Mkt}] - r_f)$$

Market premium risk

- rf: *Risk free asset return*
- β: *Beta*
- RMkt: *Market return*

3. Capital asset pricing model (CAPM)

- The CAPM indicates that the expected return on any investment is equal to the risk-free asset plus a risk premium that is proportional to the amount of systematic risk in the investment.
  - The risk premium is equal to the market risk premium times the systematic risk measured by the beta of the investment (βi).
  - This return is also called the required return on investment.

3. Capital asset pricing model (CAPM)

CALCULATION

Beta calculation

$$\beta_i = \rho_{im} \frac{\sigma_i}{\sigma_m}$$

- ρ_{im} = Market and stock correlation
- σ_i = Stock standard deviation
- σ_m = Market standard deviation

Beta	Marke risk	Example	Interpretation
<1	Lower systematic risk	0,5	Half the systemic risk as the benchmark
= 1	Equal systematic risk	1	Same systematic risk as benchmark
> 1	More systematic risk	1,2	20% more systematic risk than the benchmark

3. Capital asset pricing model (CAPM)

PROBLEM

- *Suppose the risk-free return is 3% and you measure the market risk premium to be 6%.*

- *Apple has a beta of 1.6. According to the CAPM, what is its expected return?*

3. Capital asset pricing model (CAPM)

SOLUTION
APPROACH

- We can use the CAPM equation to calculate the expected return based on the CAPM. To apply the equation, you need the market risk premium, the risk-free return, and the beta of the stock. We have all the inputs.

4. Capital asset pricing model (CAPM)

CALCULATION

- Using the equation 6.1:

$$E[R_{AAPL}] = r_f + \beta_{AAPL}\,(E[R_{Mkt}] - r_f) = 3\% + 1.6\,(6\%) = 12.6\%$$

3. Capital asset pricing model (CAPM)

INTERPRETATION

- Since Apple's beta is 1.6, investors will demand a 9.6% risk premium over the risk-free rate to offset the systematic risk on Apple stock. The total expected return will be 12.6%.

3. Capital asset pricing model (CAPM)

- The Security Market Line (SML)
  - The CAPM implies a linear relationship between the expected return and the beta of an asset.
  - This line appears drawn in the next figure as the line between the risk-free asset (with a beta of zero) and the market (with a beta of one); it is called security market line (SML).

3. Capital asset pricing model (CAPM)

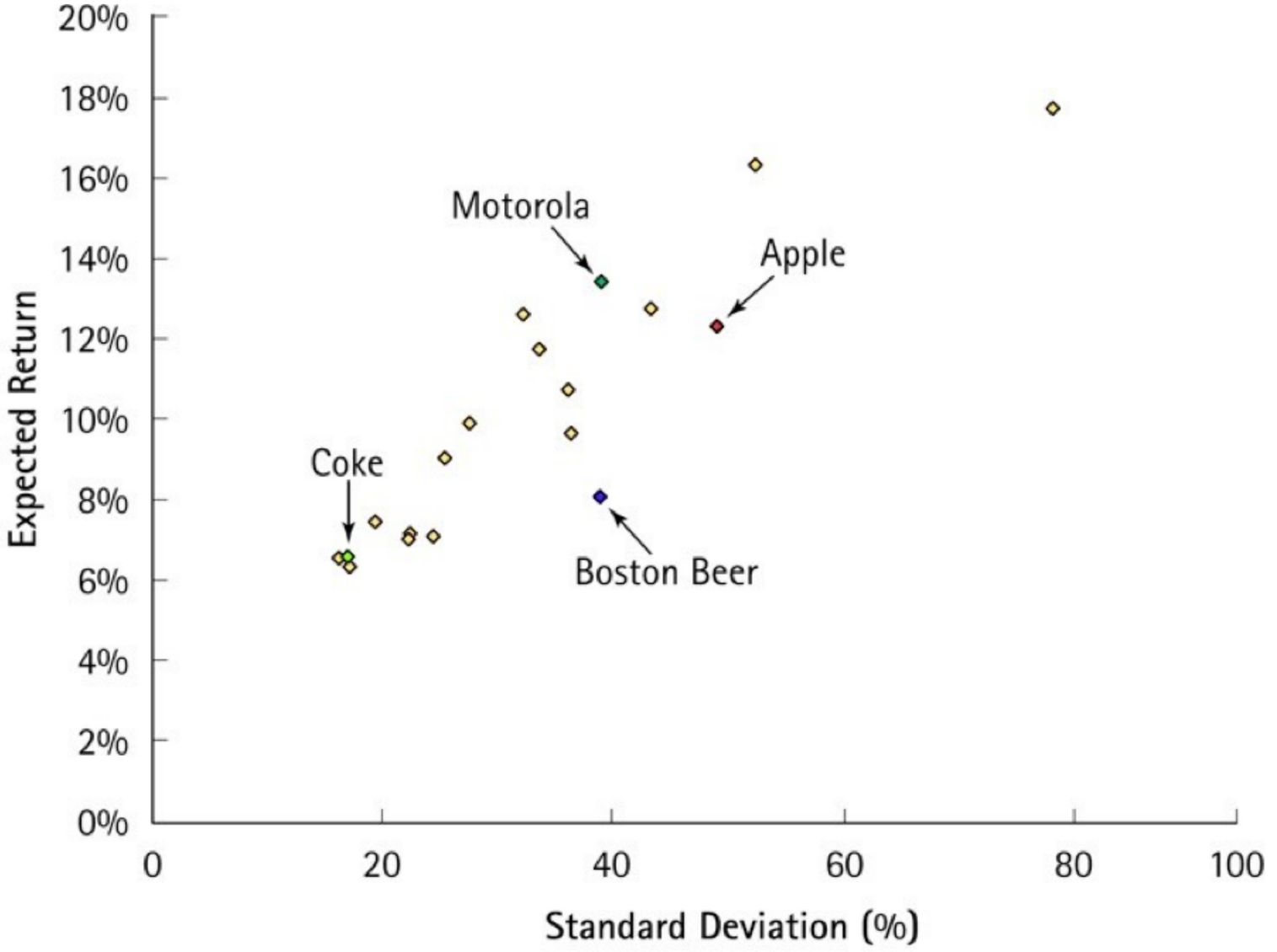
- The Security Market Line (SML)

–There is no clear relationship between standard deviation (Volatility) and expected return.

- The relationship between security and return for individual assets is only apparent when we measure market risk rather than total risk.

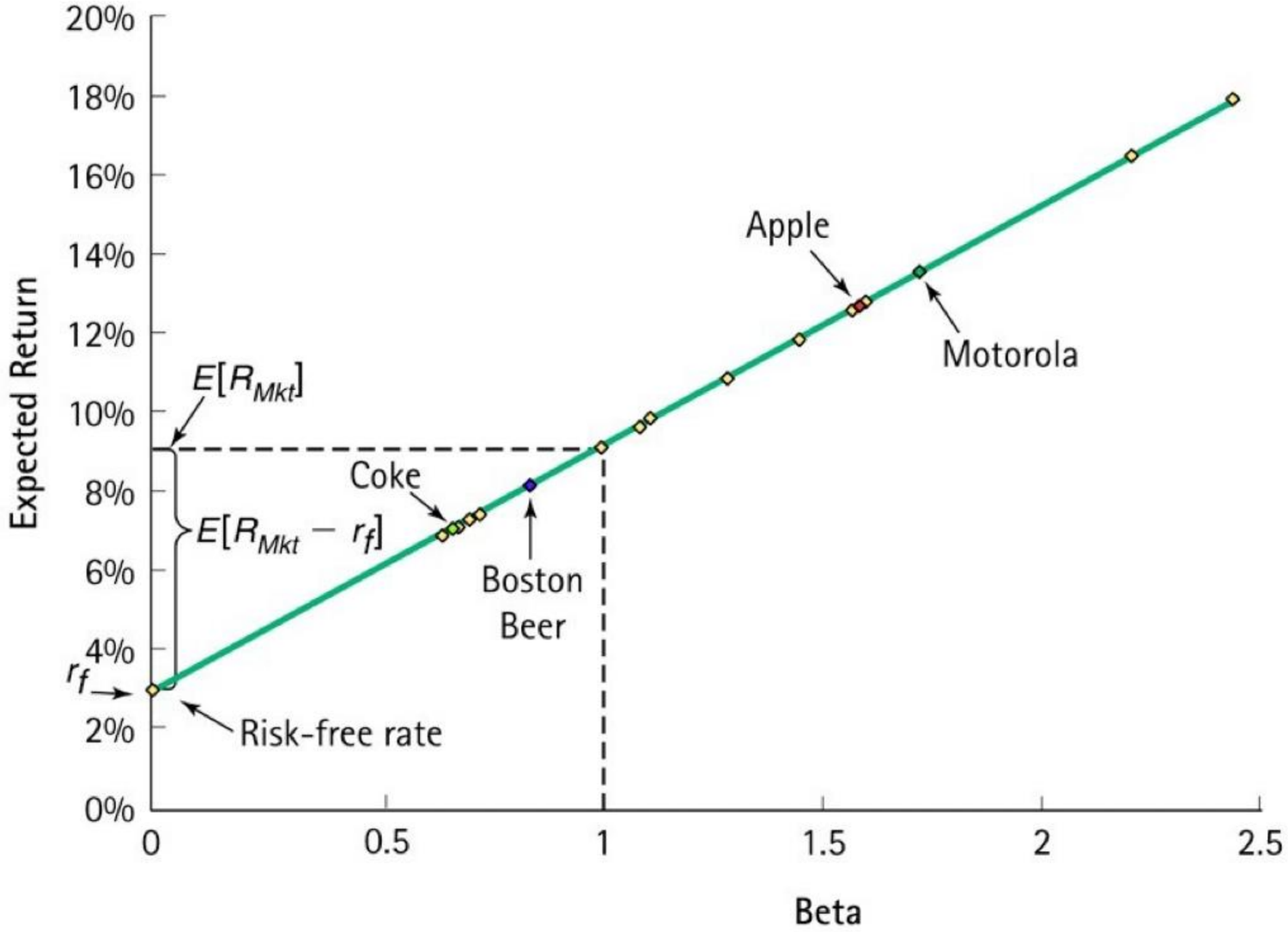
3. Capital asset pricing model (CAPM)

Figure 6.1
Expected Return, Volatility, and Standard Deviation



3. Capital asset pricing model (CAPM)

Figure 6.1
Expected Return, Volatility, and Beta



3. Capital asset pricing model (CAPM)

- The Capital Asset Pricing Model (CAPM) recap

  - Investors require a risk premium proportional to the amount of systematic risk they are bearing.

  - We can measure systematic risk using beta (β)

3. Capital asset pricing model (CAPM)

- The Capital Asset Pricing Model (CAPM) recap
  - El The CAPM says we can compute the expected (required) return of any investment using the following equation

$$E[R_i] = r_f + \beta_i(E[R_{Mkt}] - r_f)$$

which, when graphed is called the security market line.

- If the stock underperforms the CAPM, it is **overvalued**.
- If the stock outperforms the CAPM, it is **undervalued**

4. Financial derivatives

- Derivative products are financial instruments whose value derives from the evolution of the prices of another asset called the underlying asset. The underlying asset can be very diverse: a stock, a portofolio, a fixed income security, a currency, an interest rate, a stock index, a commodity and more sophisticated products, or even inflation or credit risks.

- A derivative is a forward contract in which all the details are set out at the time of the agreement, while the actual exchange occurs at a future time.

4. Financial derivatives

In other words: imagine that we are going to buy a kilo of oranges from the supermarket. Normally, the agreement and the transaction are carried out at the same time, that is, the agreed price is paid upon delivery of the kilo of oranges. Suppose now that we agree with the greengrocer to sell us a kilo of oranges for next week at the price they are today.

This agreement could be considered a derivative or forward contract: we have fixed the details of the agreement, the quantity and the price at the present time, although the effective exchange will be made at a future date.

4. Financial derivatives

Every investor assumes the so-called price risk (the uncertainty about how the price of the asset will move):

- When he already owns that asset and a drop in its value causes him losses
- When, instead of making your purchase today, he prefers to wait for a time believing that the price is going to fall

4. Financial derivatives

- Derivative contracts allow to manage this price risk mainly in two ways:
  - Helping to reduce it in the so-called hedging operations, in which the investor already owns the asset and wants protection against adverse price movements
  - As a investment, in which the investor bets on the direction and width of the route that the price of an asset will take during a determined period

4. Financial derivatives

Types of derivatives:

- Futures: A future is a forward contract negotiated in an organized market, whereby the parties agree to buy and sell a specific amount of a security (underlying asset) on a predetermined future date (settlement date), at an agreed price of advance (future price)

- Example:
- A stock is currently trading at 45 euros. There is the possibility to buy a futures contract today to purchase the stock in 3 months at a price of 45.28 euros.
- Similarly, a person can also sell a futures contract in which they commit to selling a stock in 3 months at a price of 45.28 euros.

5. Financial derivatives

INTERPRETATION

If one believes that the stock price of XYZ will experience a significant appreciation from today to three months, two alternatives are presented:

1.Buying the stock today for 45 euros.
2.Purchasing a futures contract on the said stock with a three-month maturity, for which they will have to pay 45.28 euros on the maturity date.

5. Financial derivatives

INTERPRETATION

2. Buy a futures contract on said share with a maturity of three months and for which you must pay 45.28 euros on the maturity date.

If the second alternative is chosen and, remembering that the futures contract requires buying at the agreed price (45.28 in this case) on the maturity date, the profit or loss will be produced by comparing the price of XYZ shares on the maturity date and the price of the futures contract.

Assuming that XYZ shares are trading at $50 on the maturity date, you will make a profit of $4.72 (50 – 45.28).

On the other hand, if the share traded at 35 euros, a loss of 10.28 would have been incurred, since the obligation to pay 45.28 euros has been assumed for something that is worth 35 euros on the market that day.

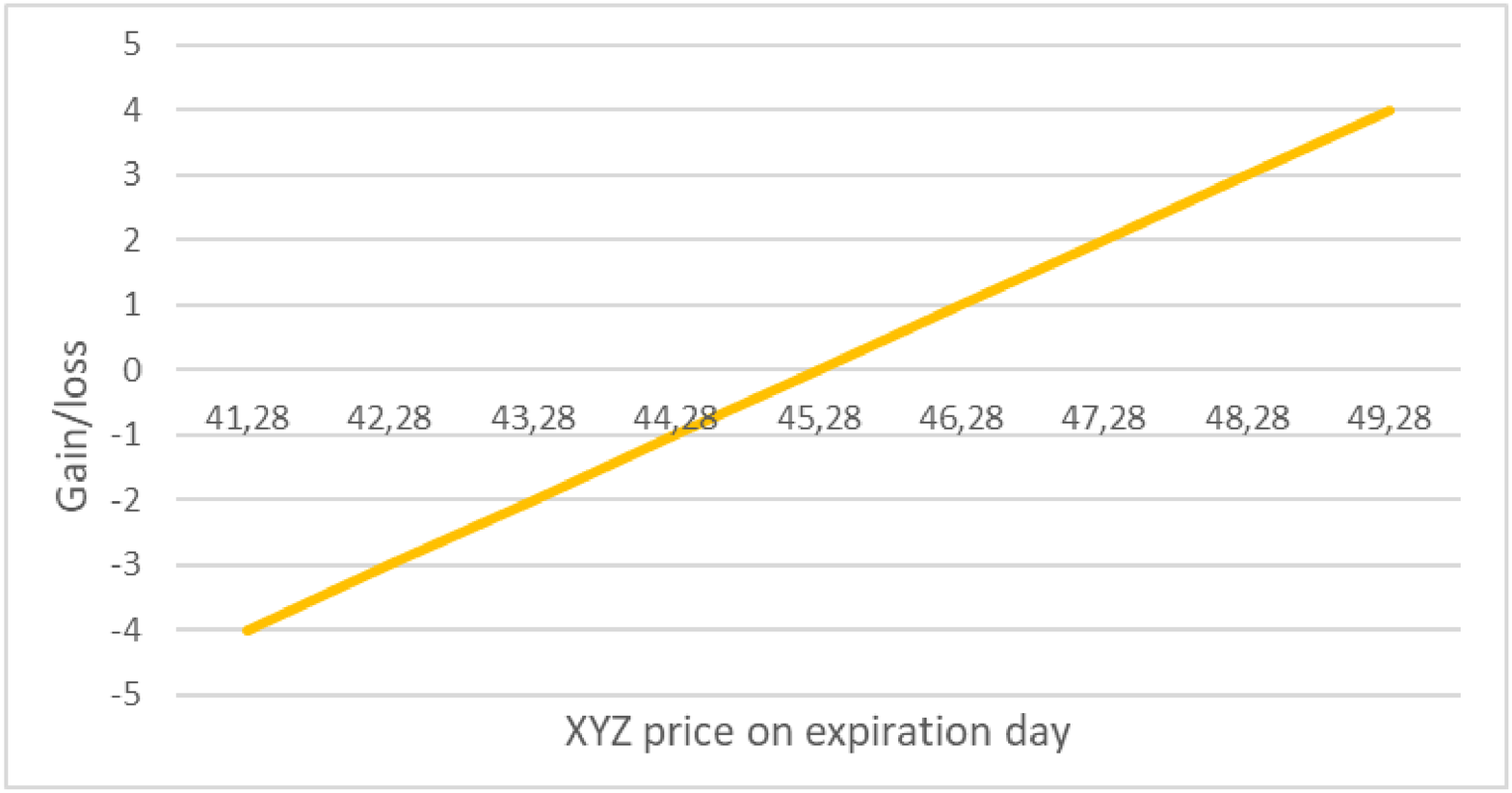
5. Financial derivatives

Possible profit or loss depending on the price at the expiration price

XYZ price on expiration day	Futures contract price	Gain/loss
41,28	45,28	-4
42,28	45,28	-3
43,28	45,28	-2
44,28	45,28	-1
45,28	45,28	0
46,28	45,28	1
47,28	45,28	2
48,28	45,28	3
49,28	45,28	4

5. Financial derivatives

Graphic representation



5. Financial derivatives

Types of derivatives:

Option: An option is a contract that grants its buyer the right, but not the obligation, to buy or sell a certain amount of the underlying asset, at a certain price called the exercise price, in a stipulated period of time or maturity.

The shares can grant a right to buy or a right to sell:

- The purchase option is called a call option
- The sell option is called a put option

Conceptually, an option is similar to the operation of paying a travel agency for a deposit or reservation for a cruise that you want to take next summer. With the down payment, you reserve the right to purchase the cruise at a certain price, at a future date. On that date, the travel agency has the obligation to sell you the cruise at the agreed price. But if you change your mind, you do not have the obligation to pay the rest of the amount; you just lose the signal

5. Financial derivatives

Options:

In options, since they are contracts and not values, it is not necessary to buy first to later sell, but it is possible to sell first and, if applicable, then buy. For this reason, it is essential to distinguish between the situation of the buyer and that of the seller.

The buyer of an option has the right, but not the obligation, to buy or sell (depending on the type) at maturity; on the contrary, the seller of the option is obligated to buy or sell if the buyer decides to exercise his right.

Upon the maturity date, the buyer will decide whether or not he is interested in exercising his right, based on the difference between the price set for the operation (exercise or strike price) and the price of the underlying in the market at that time. in cash (in the case of shares, their price). The price of the option is what the buyer pays to obtain that right and is called the premium.

5. Financial derivatives

Options:

The premium is really the subject of negotiation. The buyer of options only has rights and no obligations, therefore his losses are limited to the premium paid — with this position he has sold the risk to a third party.
On the contrary, the option seller collects the premium, but only has obligations and assumes the possibility of having to bear unlimited losses.

Therefore, the seller of the option always keeps the premium, whether or not the option is exercised and regardless of the final losses that may cause having bought the risk from another agent

5. Financial derivatives

Options call:

The buyer acquires the right, but not the obligation, to buy the underlying at a certain price on the established maturity date, while the call seller assumes that obligation. When an investor buys a call option, he expects the value of the underlying to rise in the markets; that is, he has bullish expectations.

If when the maturity date arrives, his bet is correct and the price of the underlying is higher than the exercise price set in the contract, he will be interested in exercising the option, since he can buy the cheaper underlying asset.

Conversely, if the price does not rise as expected and the exercise price is higher than that of the underlying, he will not exercise the option and will lose the investment made, that is, the premium.

5. Financial derivatives

Call options (EXAMPLE)

•The shares of company XYZ are currently trading at 5 euros. There are bullish expectations and it is expected that within a month its price will be 6 euros.

An investor buys a call option on these shares that gives her the right to buy them at 5.5 euros on the expiration date, paying a premium of 0.5 euros.

- If the share within a month is listed at €5, he would not exercise the right, since he would be buying a share for €5.5 when it is worth €5. Therefore, he would lose the previously paid premium of €0.5
- If the share within a month is trading at €6, he would exercise the right, since he would be buying a share for €5.5 when it is worth €6. His profit would be 6- 5.5 -0.5= 0
- If the share within a month is trading at €6.5, he would exercise the right, since he would be buying a share for €5.5 when it is worth €6.5. His profit would be 6.5- 5.5 -0.5= €0.5

5. Financial derivatives

Call options. Buyer (EXAMPLE)

Quote of XYZ at the expiration date	Exercise of the option	Operation result
3,5	No	-0,5
4	No	-0,5
4,5	No	-0,5
5	No	-0,5
5,5	Indifferent	-0,5
6	Yes	0
6,5	Yes	0,5
7	Yes	1
7,5	Yes	1,5

5. Financial derivatives

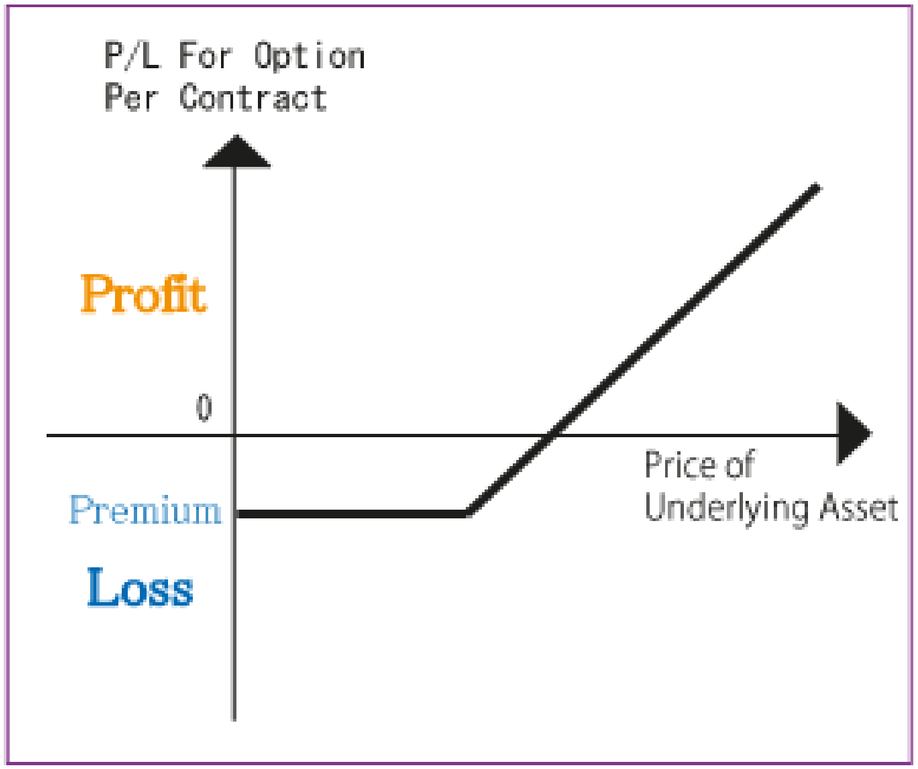
INTERPRETATION *CALL OPTIONS*

- The seller of the call option would receive the premium and in exchange for this income, on the expiration date, he is assuming the obligation to deliver the XYZ shares at the exercise price (in all cases in which the buyer decides to exercise his right).
- The higher the price of XYZ shares at the time of expiration, the less advantageous the operation will be for the seller of the call option, since he has the obligation to deliver at the exercise price some shares that at that moment may have a much higher price, having to assume the losses caused.
- The sale of a call supposes limited gains and the possibility of unlimited losses and vice versa in the purchase.

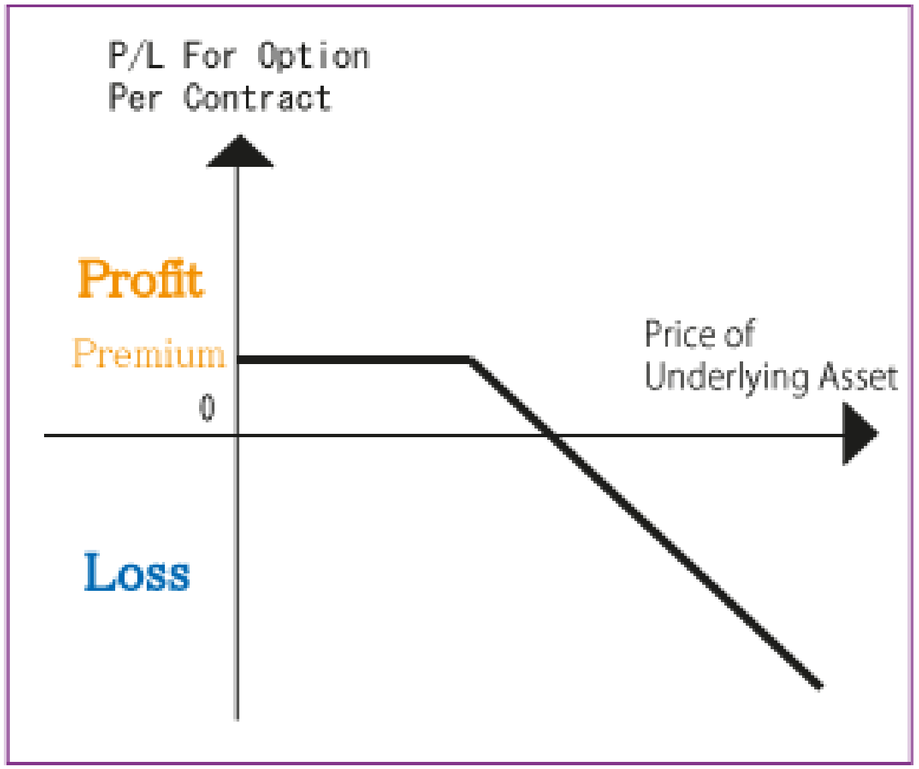
5. Financial derivatives

Call options

P/L for the buyer of Call



P/L for the seller of Call



5. Financial derivatives

Put options:

In a put or put option, the buyer has the right, but not the obligation, to sell the underlying at a fixed price on the expiration date. The put seller assumes that obligation. The purchase of a put option is justified when the investor has bearish expectations.

If the price of the underlying decreases, you will want to exercise the option and sell at the strike price, which is higher. Otherwise, he will not exercise it and will lose the premium.

5. Financial derivatives

Put options(EXAMPLE)

•An investor buys a put option to ensure that she can sell the XYZ share for €5 a month from now for a premium of €0.5.

- If the share within a month is listed at €5.5, he would not exercise the right, since he would be selling a share for €5 when it is worth €5.5. Therefore, he would lose the previously paid premium of €0.5
- If the share within a month is trading at €4.5, he would exercise the right, since he would be selling a share for €5 when it is worth €4.5.His profit would be 5- 4.5 -0.5= 0
- If the share within a month is trading at €4, he would exercise the right, since he would be selling a share for €5 when it is worth €4. His profit would be 5- 4 -0.5= 0.5

5. Financial derivatives

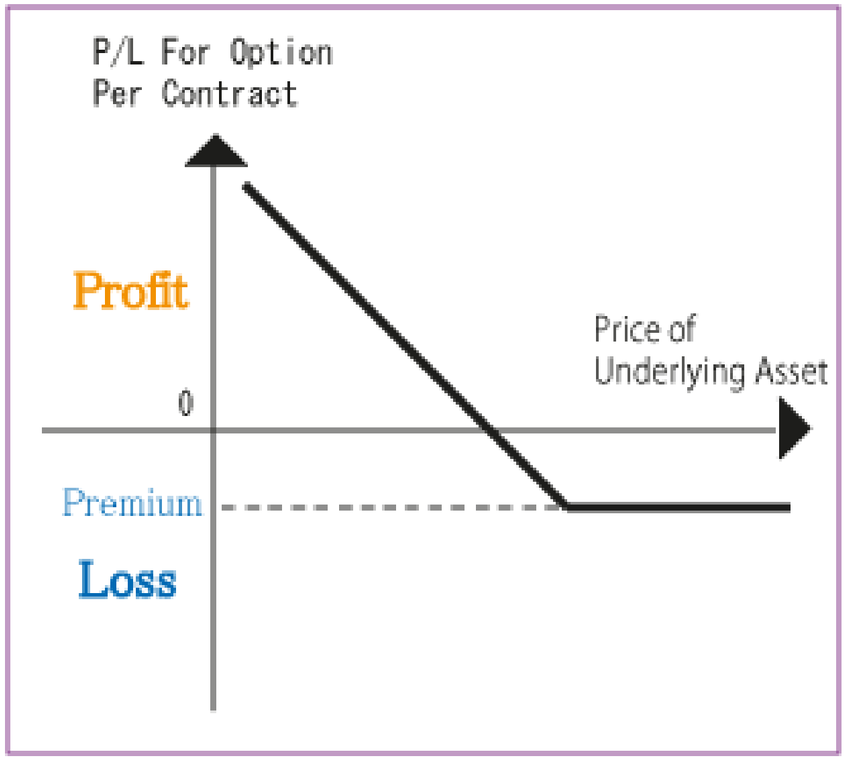
Put options

Quote of XYZ at the expiration date	Exercise of the option	Operation result
3,5	Yes	1
4	Yes	0,5
4,5	Yes	0
5	Indifferent	-0,5
5,5	No	-0,5
6	No	-0,5
6,5	No	-0,5
7	No	-0,5
7,5	No	-0,5

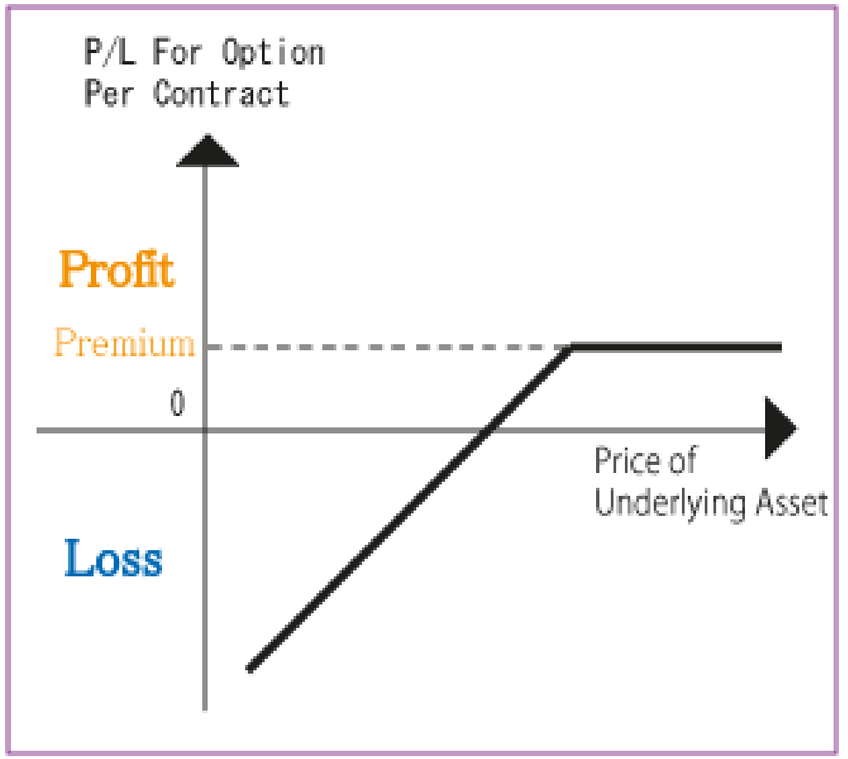
5. Financial derivatives

Put options

P/L for the buyer of Put



P/L for the seller of Put



5. Financial derivatives

There are two types of options: European and American.
In a European option, the right (to buy or sell) can only be exercised on the expiration date. (For the purposes of our class exercises, we will assume they are European options).
In an American option, the right (to buy or sell) can be exercised at any time from the purchase of the option until the expiration date.

5. Financial derivatives

Futures and options are organized financial products traded on stock exchanges.
This means that transactions occur according to the rules and procedures established by a stock exchange.
These derivatives are traded on the Spanish Official Futures and Options Market (MEFF). This entity is responsible for regulating, controlling, and supervising these financial assets.

MEFF is part of the Bolsas y Mercados Españoles (BME) group, which operates all stock markets and financial systems in Spain.

Similar markets exist in other countries as well.

5. Financial derivatives

BME a SIX company — MEFF

Derivados Financieros | Derivados Commodities | Normativa | Tecnología | Sala de Prensa | Sobre Nosotros

FUTUROS

22/12/2023 12:59:00

VENCIMIENTO	TIPO	COMPRA			VENTA			ÚLT.	VOL.	APER.	MÁX.	MIN.	ANT.
		ORD.	VOL.	PRECIO	PRECIO	VOL.	ORD.						
15 mar. 2024	Entrega	2	35	39,38	39,46	40	3	-	0	-	-	-	39,52
Volumen Total									**0**				

OPCIONES

22/12/2023 12:59:00

◉ Americanas ○ Europeas ◉ Call ○ Put 22/12/2023

STRIKE	COMPRA			VENTA			ÚLT.	VOL.	APER.	MÁX.	MIN.	ANT.
	ORD.	VOL.	PRECIO	PRECIO	VOL.	ORD.						
26,89	1	150	12,01	12,30	150	1	-	0	-	-	-	12,26
27,82	1	150	11,08	11,37	150	1	-	0	-	-	-	11,33
28,79	1	150	10,11	10,40	150	1	-	0	-	-	-	10,36
29,75	1	150	9,15	9,44	150	1	-	0	-	-	-	9,40
30,71	1	150	8,19	8,48	150	1	-	0	-	-	-	8,44
31,68	1	150	7,23	7,52	150	1	-	0	-	-	-	7,47
32,63	1	150	6,28	6,57	150	1	-	0	-	-	-	6,52
33,60	1	150	5,31	5,60	150	1	-	0	-	-	-	5,55
34,55	1	150	4,36	4,65	150	1	-	0	-	-	-	4,60
35,51	1	150	3,40	3,69	150	1	-	0	-	-	-	3,64
36,47	1	150	2,44	2,73	150	1	-	0	-	-	-	2,68
37,43	1	150	1,55	1,70	150	1	-	0	-	-	-	1,72
38,38	1	150	0,60	0,75	150	1	-	0	-	-	-	0,78

5. Financial derivatives

Additionally, there are over-the-counter (OTC) markets where financial assets are traded directly between two parties, outside the regulation of a centralized stock market.

These OTC financial transactions are carried out by specialized brokers and investment banks (hedge funds).

Some OTC derivatives include CFDs (Contracts for Difference), forwards, Forex, swaps, and cryptocurrencies.

CFDs (Contracts for Difference) involve the investor not owning the underlying asset (stock, index, commodities, etc.), and what is exchanged is the price difference between the quoted price of the underlying asset and the derivative.

For example, if one buys an OTC future (called forward) on a stock, the buyer will receive the difference between the stock's quoted price and the value of the future, but not the stock itself.

5. Financial derivatives

Swaps:

Swaps are contracts between two parties agreeing to exchange an agreed-upon amount of money. They typically reference interest rates and are set for a future date. Interest rate swaps are among the most popular, involving exchanges of fixed-rate interest payments for variable-rate interest payments.

Forwards:

Forwards are contracts between two parties to buy or sell specific financial derivatives, underlying assets, at a specific price on a future date. Similar to a futures contract.

FOREX:

The foreign exchange market (also known as Forex or FX) is a global and decentralized market where currencies are traded. This market was created to facilitate the monetary flow resulting from international trade. The daily trading volume moves around five trillion dollars, trading in one day what Wall Street can move in a month. (Source: Eleconomista)

5. Financial derivatives

Key takeaways

- The notional value of outstanding over-the-counter (OTC) derivatives rose to $632 trillion at end-June 2022, up from $598 trillion at end-2021. This marks a continuation of the moderate upward trend evident since end-2016.
- The gross market value of outstanding OTC derivatives, summing positive and negative values, rose noticeably in the first half of 2022, to $18.3 trillion, led by increases in interest rate derivatives. The value of some commodity derivatives surged against the background of rising food and energy prices.
- The end-June 2022 derivatives data benefit from data reported by a broader set of reporting dealers, as part of the BIS Triennial Central Bank Survey.[1] Dealers that report only every three years accounted for 9% of the notional value of outstanding derivatives at end-June 2022, unchanged from the 2019 Survey.

bis.org

5. Financial derivatives

Global FX trading hits record $7.5 trln a day - BIS survey

By **Marc Jones** and **Alun John**

October 27, 2022 3:03 PM GMT+2 · Updated a year ago

reuters.com

5. Financial derivatives

Short Selling:

Short selling, also known as "going short" or simply "shorting," is an investment strategy in which an investor sells a financial asset (such as stocks) that they do not own at the moment, with the intention of buying it back later at a lower price. In other words, the investor is betting that the price of the asset will decrease in the future.

5. Financial derivatives

Short Selling:

The process generally works as follows:

1.The investor borrows the financial asset they plan to sell short, typically through an intermediary such as a broker.

2.The investor immediately sells the asset in the market, obtaining the proceeds from the sale.

3.At a later date, the investor buys the same asset in the market at a (hopefully) lower price.

4.Finally, the investor returns the borrowed asset to the original lender.

5. Financial derivatives

Short Selling:

The investor's profit or loss is determined by the difference between the initial selling price and the subsequent buying price, after accounting for any costs associated with the transaction. Short selling is a risky strategy because, in theory, losses can be unlimited if the price of the asset rises significantly instead of decreasing.

This practice is commonly used in financial markets to take advantage of bearish opportunities or to hedge risks in a portfolio. However, it is important to note that short selling can be complicated and is subject to regulations and restrictions in many markets.