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Financial Markets

L7 – Equity Markets

November 24th, 2025

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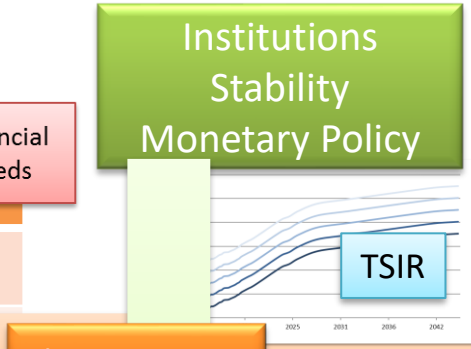
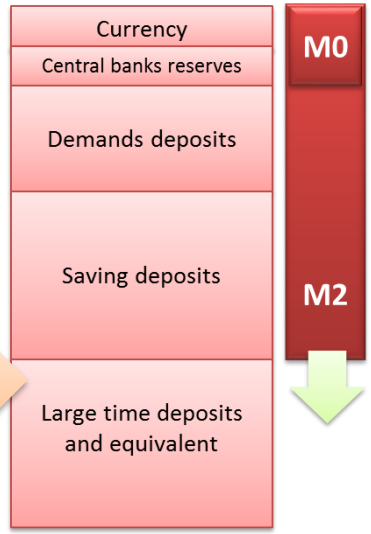
Where we are?

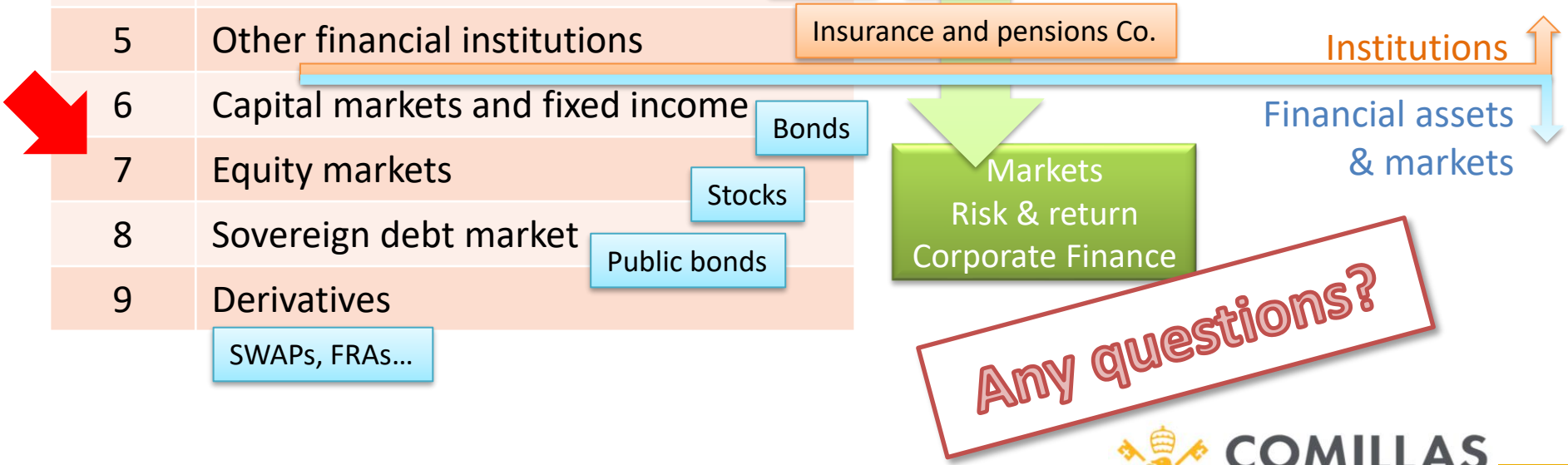
#	Lesson
1	The financial system
2	Central Banks
3	Money markets and interest rate risk
4	Credit institutions
5	Other financial institutions
6	Capital markets and fixed income
7	Equity markets
8	Sovereign debt market
9	Derivatives

And monetary policy

SWAPs, FRAs…







Any questions?

What are we going to?

- **Equity markets**
  - Introduction
  - Secondary market trading
  - Operation
  - Transactions
  - Initial public offering (IPO) process
  - Take overs
- **Equity valuation**
  - Dividend Discount Models
  - Stocks and ratios
  - From Markowitz to CAPM - Beta concept - CAPM & efficient markets
  - Stock market indexes
  - Technical analysis and Fundamental analysis
  - Activity in equity markets

L7. Equity markets

Equity markets - Introduction

- Shares grant both political and economic rights:
  - Ownership
  - The right to vote
  - Dividends
- New shares can be issued:
  - At par
  - At a premium
  - For free
- **The Preemptive Right** is born when the decision is made to increase the share capital and allows shareholders to get a number of new shares proportional to the number of old shares that they already own. Thanks to this mechanism, the old shareholders may avoid dilution.
- Rights are traded only over a limited period of time
- What can old shareholders do?
  - Exercise their rights in order not to get diluted
  - Sell their rights in the market for cash, which means that they will get diluted
  - Tail Swallow: sell some and use the cash raised to take up the rest of the offer
  - Sell only part of their rights

Equity markets – secondary market

- Two markets in Spain: “Mercado de Corros” (Open Outcry) and “Mercado Continuo” (electronic trading)
  - Mercado de Corros: traditional market which was in place when Law 24/1988 came into force. Trading in this market is marginal nowadays and has been vastly replaced with the “Mercado Continuo” or SIB – an electronic trading platform-
  - Mercado Continuo (SIB)
- An electronic platform connects the four Spanish markets: Madrid, Barcelona, Bilbao and Valencia

- Types of trading:
  - General Trading: opening session, normal trading and closing
    - Orders only not trade
  - Block Trading: large blocks are traded among institutional investors

Equity markets – orders

- **Market Orders:** It instructs the broker to buy (or sell) at the best price that is currently available
- **Limit Orders:** A limit order is an order to buy (or sell) at a specified price or better.
- **Stop Orders:** It triggers a market or limit order once a specified price has been reached. A stop order is appropriate when it is important to confirm the direction of the market before entering a trade
  - Stop Loss Orders: designed to limit the amount of money that a trade can lose, by exiting the trade if a specific price (that is against the trade) is reached
- **Conditional Orders:** Conditional orders are advanced trade orders that are automatically submitted or canceled if specified criteria are met
- **Order Duration:** In addition to market, limit, stop and conditional orders, you can also specify how long an order will be in effect. Order durations include:
  - Day - automatically expires at the end of the regular trading session if it has not been executed
  - Good-Til-Cancelled (GTC) - remains active until the trade is executed or you cancel the order
  - Good-Til-Date (GTD) – remains active until a specified date unless it has been filled or canceled
  - Immediate-Or-Cancel (IOC) - requires all or part of the order to be executed immediately –
  - Fill-Or-Kill (FOK) - must be filled immediately and in its entirety or it will be canceled – All-Or-
  - None (AON) - cancelled if the order cannot be filled in its entirety by the end of the trading session
  - Minute/s - expires after a specified number of minutes have elapsed

Equity markets – transactions

- **Spot transactions:** securities are exchanged for cash within the deadline established by the settlement system.

- In addition to Spot transactions, investors can:
  - Finance part of the acquisition price in the case of long positions and
  - Borrow the securities in order to sell them –short sales-
- When financing a long position the investor expects the price of the security to go up. When going short, the investor expects the price to go down.

- **Financing a Long position:**
  - The holder of the position owns the security and will profit if the price of the security goes up
  - The holder finances part of the acquisition price and provides its broker with collateral
  - If the market price went down, additional collateral would be required by the broker

Equity markets – transactions

- **Short sale:**
  - Short selling is the practice of selling securities that are not currently owned, and subsequently repurchasing them ("covering"). In the event of an interim price decline, the short seller will profit, since the cost of (re)purchase will be less than the proceeds which were received upon the initial (short) sale.
  - The broker will lend the securities and the investor provides collateral.
  - The investor will provide additional collateral if the stock price goes up. Money will be removed from the holder's cash balance and moved to his margin balance. If short shares continue to rise in price, and the holder does not have sufficient funds in the cash account to cover the position, the holder will begin to borrow on margin for this purpose, thereby accruing margin interest charges. Therefore, only margin accounts can be used to open a short position.
  - When a security's ex-dividend date passes, the dividend is deducted from the shortholder's account and paid to the person from whom the stock is borrowed.

Equity markets – examples

- **Financing a long position**
  - On 4th May 1,000 shares are acquired at 14.05 Euros. We finance the acquisition at 7% p.a. and are required a 25% collateral.
  - The shares are sold at €15.25 on 24th July.
  - What is the profit made and the return obtained? How does it compare with a transaction with no financing?

We buy 14.050€ of shares.
We sell 15.250€ of shares.
25% of collateral = 3.512,50€
4th May – 24th July: 81 days.
Loan: 14.050-3.512,50 = 10.538,50€
Loan on 24th of July: 10.538,50 * (1+7%)^(81/365) = 10.696,91€
Financial expenses: 159,41€
Profit made = 15.250 – 14.050 – 159,41 = 1.040,59€
Return = 1.040,59 / 3.512,50€ = 29,63%

Equity markets – examples

- **A short sale**
  - 1,000 shares are sold at 8.83 Euros per share on 18th April.
  - The shares are acquired at 7.96 Euros per share on 24th July.
  - The initial collateral amounts to 25% and is remunerated at 2% a year.
  - What is the profit obtained in the transaction and the implicit return?

We sell 8.830€ of shares.
We buy 7.960€ of shares.
25% of collateral = 2.208,00€
18th April – 24th July: 97 days.
Remuneration = 2.208,00 (1+2%)^(97/365) – 2.208,00 = 11,81€
Profit made = 8.830 – 7.960 +11,81 = 881,81€
Return = 881,81 / 2.208,00€ = 39,94%

Equity markets – Initial Public Offerings (IPOs)

- Reasons for an IPO:
  - Financing,
  - Liquidity,
  - Public image,
  - Family wealth planning, …

- IPOs are usually designed by investment banks and follow several stages: General Assembly Agreement, drafting of the documentation – Prospectus, etc-, reporting to the CNMV, price setting, etc
- Initially, a price range is set
- Once the bookbuilding process is finalized, the final price is fixed
- There are usually two tranches – for retail and institutional investors
- Please refer to specific document on IPOs

Equity markets – Take overs (I)

RD 1066/2007 27 July

- A takeover is compulsory if political control – in terms of voting rights- is reached. If the obligation to launch a takeover is not met, then the political rights cannot be exercised.

- The takeover must be launched within one month after control has been reached and must address ALL shareholders. Control is reached when:
  - 30% or more of voting rights are held or
  - the number of appointed Board Members exceeds 50%

- Takeovers must be launched at a price equal to or higher than the highest price paid by the bidder over the twelve-month period prior to the takeover announcement.

Equity markets – Take overs (II)

- Takeovers must be filed with the CNMV
- Bidders must provide guarantees when launching a takeover:
  - If the price is paid in cash, either a bank guarantee or a deposit are required;
  - If the price is paid in stock, such stock must be readily available.

- A Prospectus must be prepared when a takeover is launched.

- The target company must prepare a detailed report about the takeover, including pros and cons

- The management team of the target company may look for another bidder ("white knight"). The new bidders will have to increase the offer price or alternatively expand the reach of the offer to new shareholders

- Takeovers are irrevocable but conditions can be improved

Dividend Discount Model

A stock is a claim to future dividends

- Consider the distribution of next year's dividend, D_1, and price, P_1
- Find the required rate of return, k, with CAPM
- Fundamental-value of the stock at time 0 is V0:

$$V_0 = \frac{E(D_1) + E(P_1)}{1+k} \Leftrightarrow k = \frac{E(D_1) + E(P_1)}{V_0} - 1$$

- Assume that the market is efficient so that the price, P_0, equals the fundamental value, V_0
- Use the fundamental value equation repeatedly:

$$V_0 = \frac{E(D_1) + E(P_1)}{1+k} = \frac{E(D_1)}{1+k} + \frac{E(P_1)}{1+k} = \frac{E(D_1)}{1+k} + \frac{E(D_2) + E(P_2)}{(1+k)^2}$$

$$= \frac{E(D_1)}{1+k} + \frac{E(D_2)}{(1+k)^2} + \frac{E(D_3)}{(1+k)^3} + \frac{E(D_4)}{(1+k)^4} + \ldots$$

Dividend Discount Model

Zero Dividend Growth

- Suppose that dividends are constant: $E(D_1)=D_0$, $E(D_2)=D_0$, etc.
- Using the DDM:

$$V_0 = \frac{E(D_1)}{1+k} + \frac{E(D_2)}{(1+k)^2} + \frac{E(D_3)}{(1+k)^3} + \ldots = \frac{D_0}{1+k} + \frac{D_0}{(1+k)^2} + \frac{D_0}{(1+k)^3} + \ldots = \frac{D_0}{k}$$

Constant Dividend Growth

- Gordon Growth Model (GGM)
- Suppose that expected dividends grow at a rate g

$E(D_1)=(1+g)D_0$, $E(D_2)=(1+g)^2D_0$, etc.

$$V_0 = \frac{E(D_1)}{1+k} + \frac{E(D_2)}{(1+k)^2} + \frac{E(D_3)}{(1+k)^3} + \ldots$$

$$= \frac{D_0(1+g)}{1+k} + \frac{D_0(1+g)^2}{(1+k)^2} + \frac{D_0(1+g)^3}{(1+k)^3} + \ldots$$

$$= \frac{D_0(1+g)}{k-g} = \frac{E(D_1)}{k-g}$$

Two-Stage DDM

The Gordon growth model assumed that the growth rate of earnings is constant forever. This is a serious simplification. It seems important to incorporate a stage of fast growth, in which pay-out ratio is low (retention is high), and a stage of slower growth, when the payout ratio is high. This is how we often think of the life-cycle of a company. The company starts out as a fast growing, dynamic enterprise, and as it grows, it matures and the growth rate slows down.

A good example is Microsoft: for 18 years, Microsoft decided not to pay out any dividend. It grew very fast plowed back all of its earnings. But in Feb 2003 year, Microsoft started distributing dividends. It is no longer considered a growth company (current P/E ratio is 10)

Suppose that you estimate that a company's growth will reach its "long-run" level of g after 3 years. Then, in 2 years its price is

$$P_2 = \frac{E[D_3]}{k-g}$$

and the current value is

$$P_0 = \frac{\mathrm{E}(D_1)}{1+k} + \frac{\mathrm{E}(D_2)}{(1+k)^2} + \frac{P_2}{(1+k)^2}$$

Instead of estimating the future growth rate, one can estimate future P/D ratio or P/E ratio

Suppose at the end of 2005 you estimated:

- SBUX would pay no dividends 2006-09
- SBUX's 2010 dividend per share will be 0.50
- After 2010, SBUX's (dividend) growth rate will be 9%
- SBUX's required return is 10%

Using the two-stage DDM, what is the fundamental value of SBUX at the end of 2005?

Starbucks

Valuation Ratios Under the GGM

- **Price-dividend ratio**

$$\frac{P_0}{D_0} = \frac{1+g}{k-g}$$

- **Price-earnings ratio**
  - $D_0=(1-b)E_0$ with "earnings retention ratio" of b

$$\frac{P_0}{E_0} = \frac{(1+g)(1-b)}{k-g}$$

- **Price-to-book ratio (market-to-book ratio)**
- **Price-to-sales ratio**

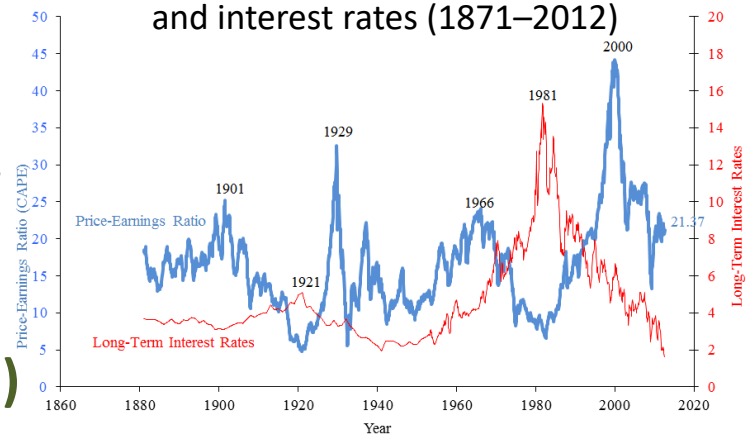
Stock Pricing –Ratios

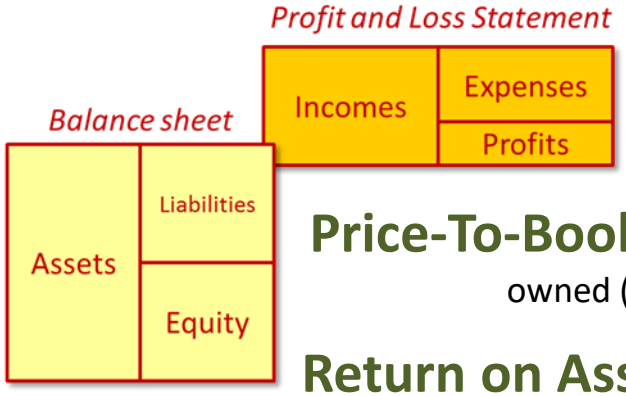
PER (Price-to-earnings ratio)

$$PER = \frac{Stock\ Price}{Earnings\ Per\ Share}$$

PER <10 Undervalued (*or business could decrease*).
10<PER<20 Fair value
20<PER Overvalued (*or business could grow*)

Robert Shiller - Irrational Exuberance.
S&P composite real price–earnings ratio and interest rates (1871–2012)





Price-to-Sales (P/S)

Price/Cash Flow (P/CF)

Price-To-Book Value (P/BV): How much you're paying for every dollar of assets owned (market capitalization divided by difference between assets and liabilities.

Return on Assets (ROA) and Return on Equity (ROE)

Debt to Equity and Debt to Assets (Debt Ratios)

Times x EBITDA

Markowitz: one stock

t=0		t=1
X_0	⇒	$\bar{r}$; σ^2

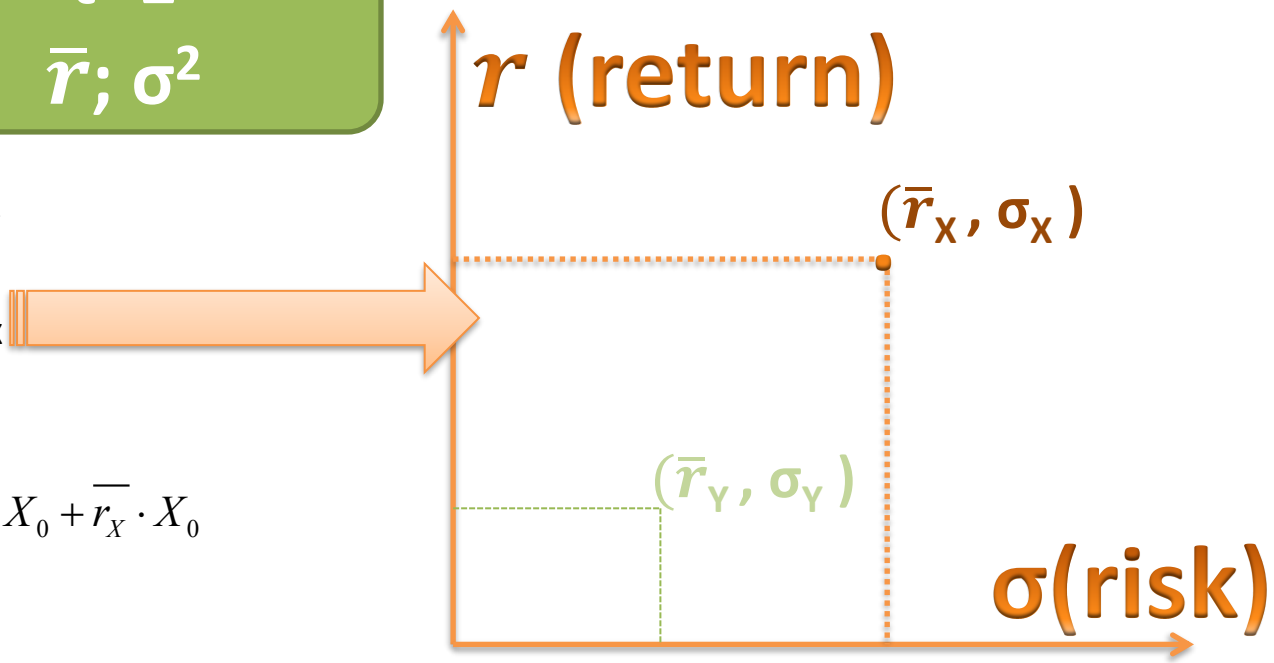
We have one stock: S_i=**X**

X: **for t = 0** X_0

for t = 1 $\bar{r}_X$; σ_X

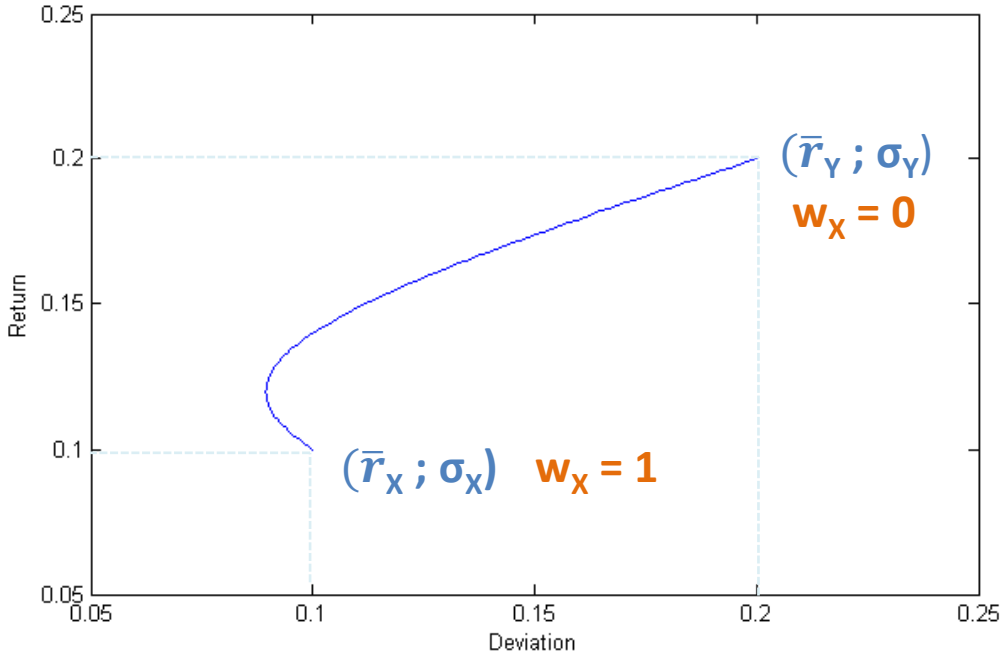
Only matters if it helps:

$$\overline{r_X} = \frac{\overline{X}_1 - X_0}{X_0} \Rightarrow \overline{X}_1 = X_0 + \overline{r_X} \cdot X_0$$



What if we have a second stock?

Markowitz: two stocks



$w_X + w_Y = 1$ { $w_X = 1$ then $w_Y = 0$; $w_X = 0$ then $w_Y = 1$

Example:

We have two stocks X and Y with:

$\bar{r}_X = 0{,}1$; $\sigma_X = 0{,}1$

$\bar{r}_Y = 0{,}2$; $\sigma_Y = 0{,}2$

$\sigma_{XY} = 0$

Then:

$$\bar{r}_P = w_X * 0{,}1 + w_Y * 0{,}2$$

$$\sigma^2_P = w^2_X * 0{,}01 + w^2_Y * 0{,}04 + 2 * w_X * w_Y * 0 =$$

$$0{,}01 w^2_X + 0{,}04 w^2_Y$$

Markowitz: two stocks – correlation

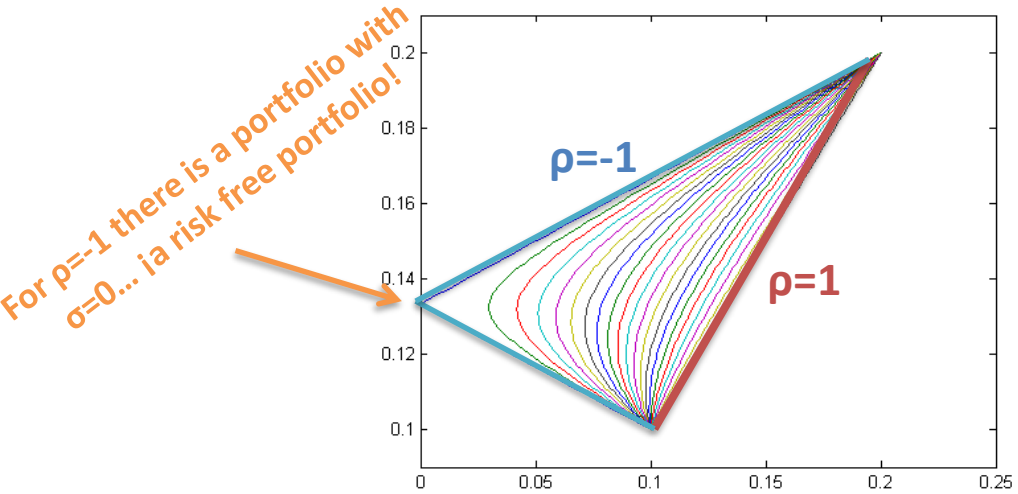
Now let's see what happens with the covariance

First remember the correlation coefficient

$$\rho_{XY} = \frac{\sigma_{XY}}{\sigma_X \sigma_Y} \Rightarrow \sigma_{XY} = \rho_{XY}.\sigma_X \sigma_Y$$

ρ is always between 1< ρ <-1

If ρ = 1 then there is perfect (+) correlation
ρ = -1 then there is perfect (-) correlation
ρ = 0 then there is no correlation



Example:

We have two stocks X and Y with:

$\bar{r}_X$ =0,1 ; σ_X=0,1

$\bar{r}_Y$ =0,2 ; σ_Y=0,2

$\sigma_{XY} \neq 0$

And then:

$$\bar{r}_P = 0{,}1.w_X + 0{,}2.w_Y$$

$$\sigma^2_P = 0{,}01.w^2_X + 0{,}04.w^2_Y + 2.w_X.w_Y.\sigma_{XY}$$

Markowitz: three stocks

t=0		t=1
$S_{i,0}$	⇒	$\bar{r}_i$; σ_i^2 ; σ_{ij}

We have three stocks: S_i=**X**, S_j=**Y** and S_K=**Z**

X: t=0 X_0 t=1 $\bar{r}_X$; σ_X

Y: t=0 Y_0 t=1 $\bar{r}_Y$; σ_Y

Z: t=0 Z_0 t=1 $\bar{r}_Z$; σ_Z

$\sigma_{XY} = 0$

and the covariances are σ_{XY}^2 , σ_{XZ}^2 and σ_{YZ}^2

Portfolio:

$$P = w_X.X + w_Y.Y + w_Z.Z$$

Then:

$$\bar{r}_P = w_X\bar{r}_X + w_Y\bar{r}_Y + w_Z\bar{r}_Z$$

$$\sigma_P^2 = w_X^2\sigma_X^2 + w_Y^2\sigma_Y^2 + w_Z^2\sigma_Z^2 + 2.w_X.w_Y.\sigma_{XY} + 2.w_X.w_Z.\sigma_{XZ} + 2.w_Y.w_Z.\sigma_{YZ}$$

Example:

We have three stocks X, Y and Z with:

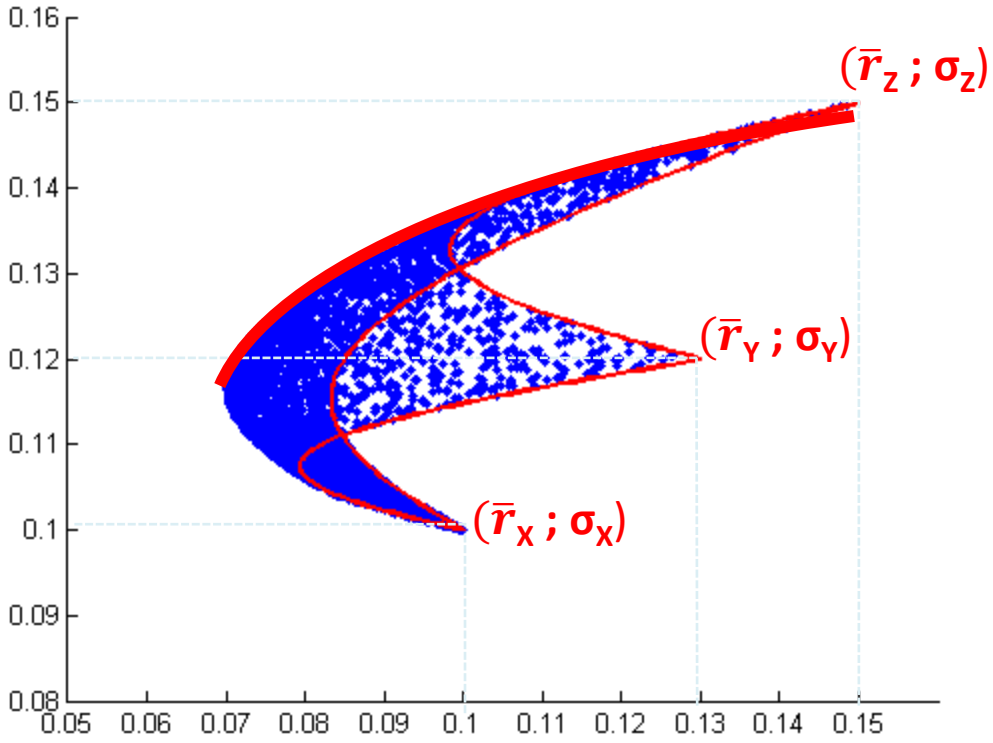
$\bar{r}_X$ =0,1 ; σ_X=0,1

$\bar{r}_Y$ =0,12 ; σ_Y=0,13

$\bar{r}_Z$ =0,15 ; σ_Z=0,15

σ_{XY} = 0,10 ; σ_{XZ} = 0,13 ; σ_{YZ} = 0,15

Markowitz: three stocks – efficient frontier



Example:

We have three stocks X, Y and Z with:

$\bar{r}_X = 0{,}1$; $\sigma_X = 0{,}1$

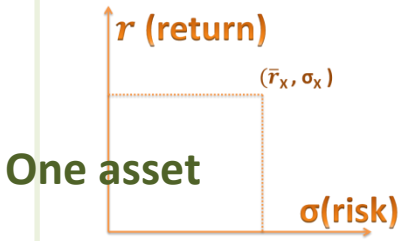
$\bar{r}_Y = 0{,}12$; $\sigma_Y = 0{,}13$

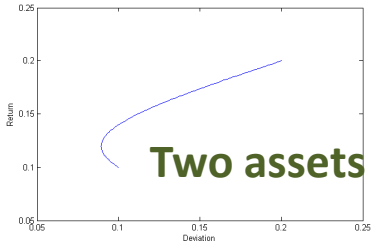
$\bar{r}_Z = 0{,}15$; $\sigma_Z = 0{,}15$

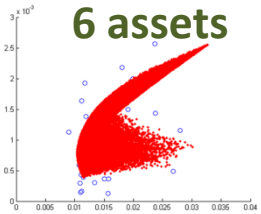
$\sigma_{XY} = 0{,}10$; $\sigma_{XZ} = 0{,}13$; $\sigma_{YZ} = 0{,}15$

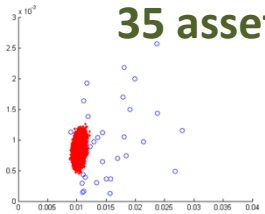
With three or more assets, all the possible portfolios are located in a cloud, and not all portfolios have the same performance. There are portfolios that are better than others.

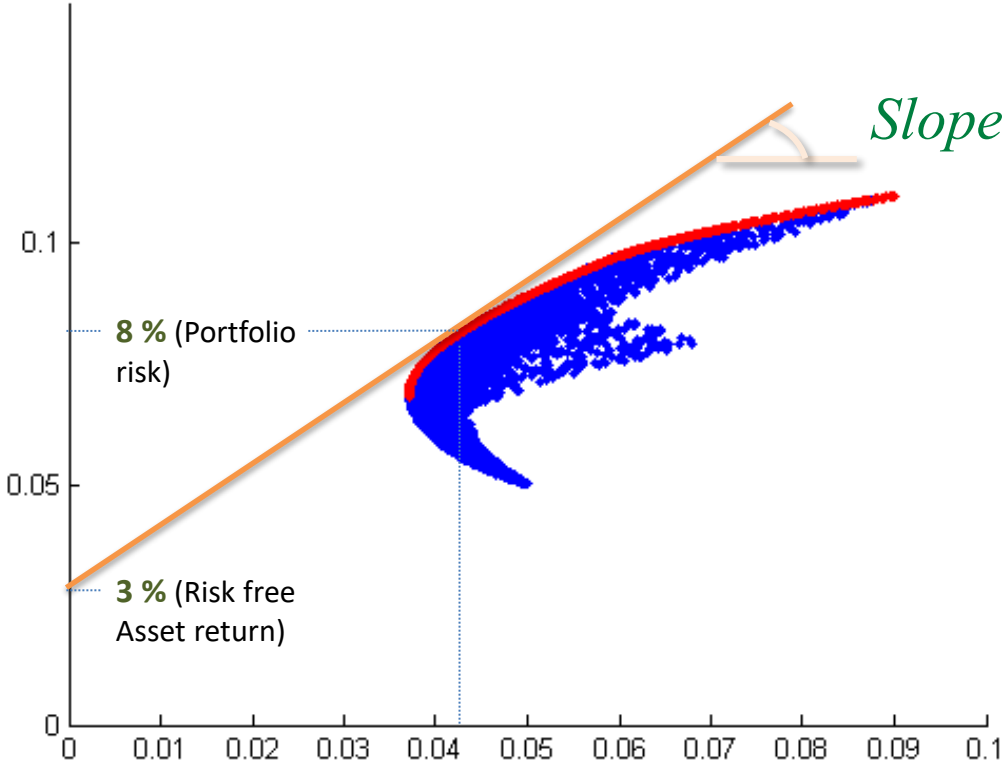
Markowitz: several assets











From Markowitz to CAPM

Capital Market Line (CML)

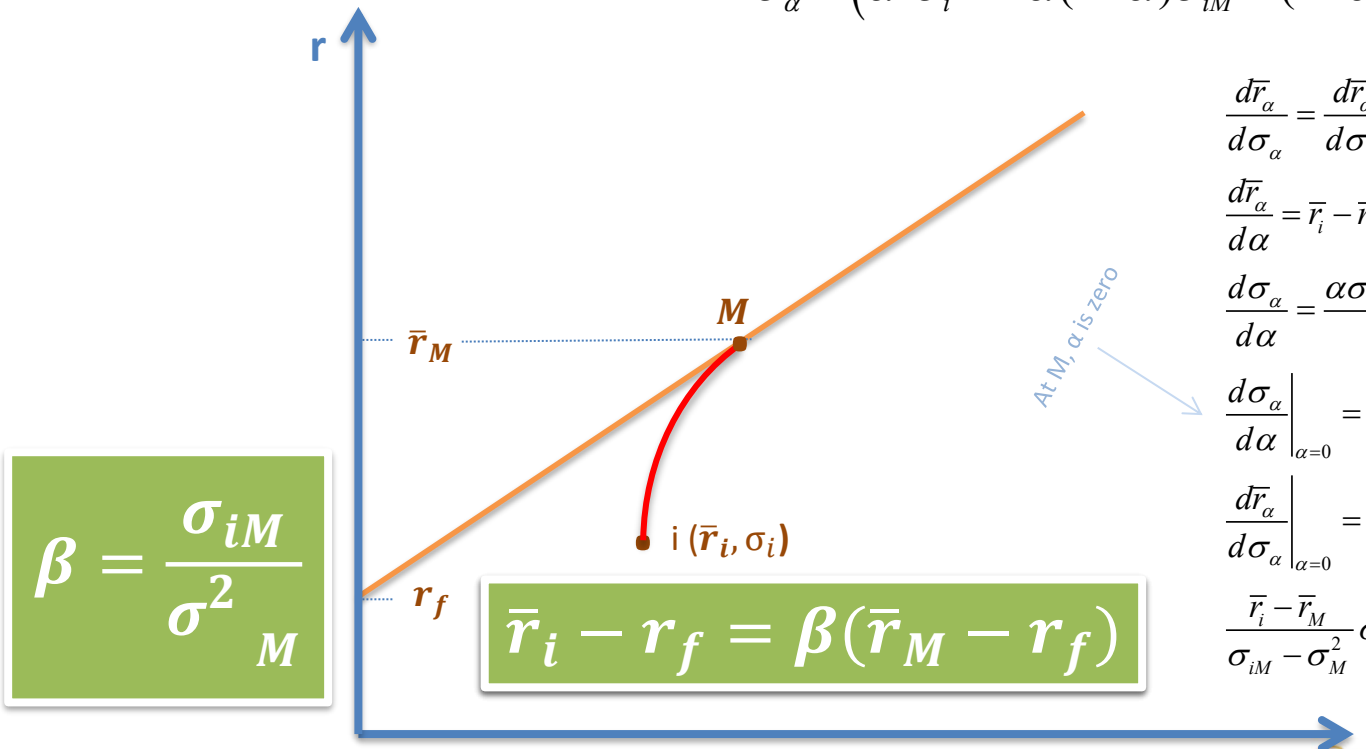
$$\bar{r} = r_f + \frac{\bar{r}_M - r_f}{\sigma_M}\sigma$$

Ok, we have a line but, what happens with individual assets?

We can make a portfolio between M (market portfolio) and i

$$\bar{r}_\alpha = \alpha \bar{r}_i + (1-\alpha)\bar{r}_M$$

$$\sigma_\alpha = \left(\alpha^2\sigma_i^2 + 2\alpha(1-\alpha)\sigma_{iM} + (1-\alpha)^2\sigma_M^2\right)^{1/2}$$



We are looking for the slope in M, that must be equal to the slope of CLM

$$\frac{d\bar{r}_\alpha}{d\sigma_\alpha} = \frac{d\bar{r}_\alpha / d\alpha}{d\sigma_\alpha / d\alpha}$$

$$\frac{d\bar{r}_\alpha}{d\alpha} = \bar{r}_i - \bar{r}_M$$

$$\frac{d\sigma_\alpha}{d\alpha} = \frac{\alpha\sigma_i + (1-2\alpha)\sigma_{iM} + (\alpha-1)\sigma_M^2}{\sigma_M}$$

At M, α is zero

$$\left.\frac{d\sigma_\alpha}{d\alpha}\right|_{\alpha=0} = \frac{\sigma_{iM} - \sigma_M^2}{\sigma_M}$$

$$\left.\frac{d\bar{r}_\alpha}{d\sigma_\alpha}\right|_{\alpha=0} = \frac{\bar{r}_i - \bar{r}_M}{\sigma_{iM} - \sigma_M^2}\sigma_M$$

Both slopes are equal

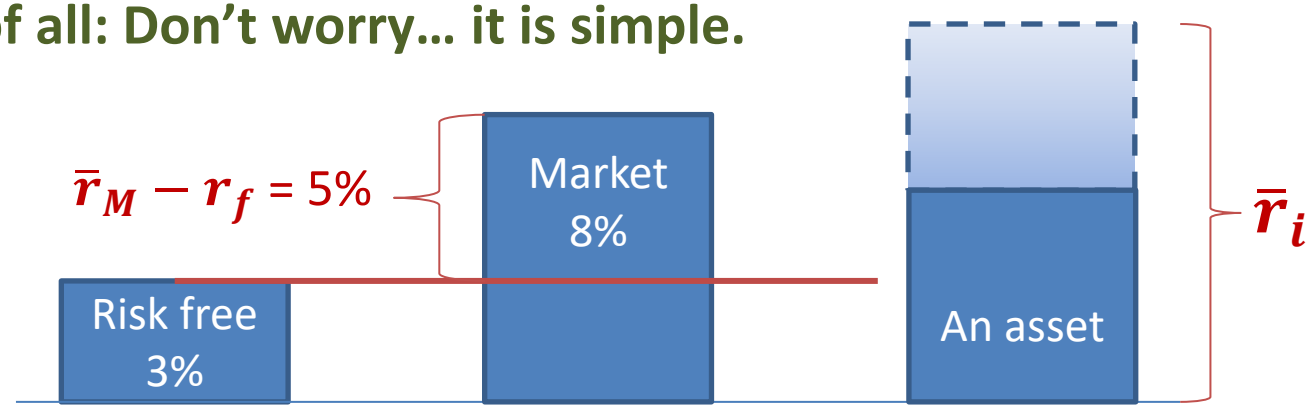
$$\frac{\bar{r}_i - \bar{r}_M}{\sigma_{iM} - \sigma_M^2}\sigma_M = \frac{\bar{r}_M - \bar{r}_f}{\sigma_M}$$

$$\beta = \frac{\sigma_{iM}}{\sigma^2_M}$$

$$\bar{r}_i - r_f = \beta(\bar{r}_M - r_f)$$

CAPM – Beta concept

First of all: Don't worry… it is simple.



$$\bar{r}_i = r_f + \beta(\bar{r}_M - r_f) = 3\% + 5\%.\ \beta$$

$$\beta = \frac{\sigma_{iM}}{\sigma_M^2}$$

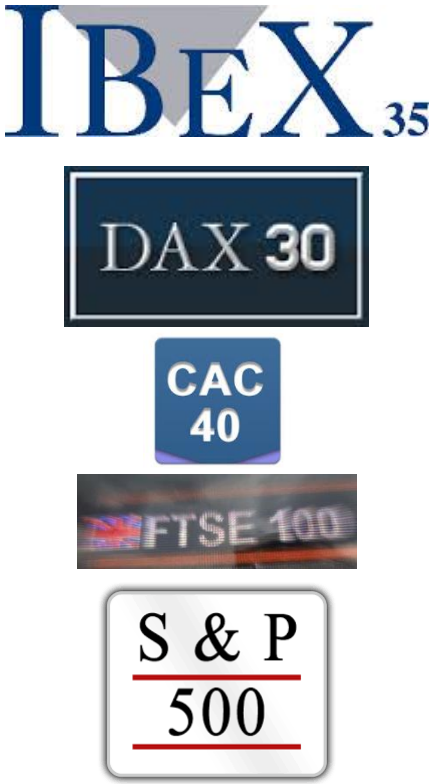
Generally speaking: we expect aggressive companies or highly leveraged companies to have high betas, whereas conservative companies whose performance is unrelated to the general market.

- β < 1: the stock price is less risky than the market (fluctuate less)
- β > 1: the stock price is more risky than the market (fluctuate more)

It looks like a correlation coefficient: $\rho_{XY} = \frac{\sigma_{XY}}{\sigma_X \sigma_Y}$

CAPM – Beta concept

What is the market?



Share	Beta
ABENGOA "B"	1,73
ABERTIS A	0,84
ACCIONA	1,26
ACS	1,09
AMADEUS	0,54
ARCELORMITT.	0,89
B.POPULAR	1,64
B.SABADELL	1,48
BANKIA	1,5
BANKINTER	1,38
BBVA	1,3
BME	0,81
CAIXABANK	1,31
GAMESA	1,66

Share	Beta
GAS NATURAL	0,62
GRIFOLS	1
IAG	1,26
IBERDROLA	0,63
INDITEX	0,99
INDRA A	1,01
JAZZTEL	0,78
MAPFRE	0,99
MEDIASET	1,09
OHL	1,13
R.E.C.	0,61
REPSOL	0,81
SACYR	1,85

What is Beta?

What market we choose if is not an IBEX35 Co?
What length of time for calculate variances?
When we start the calculation?

Example: (50% Debt 8%rm 1%rf 5%kd 0% taxes)
Beta = 1,2 WACC = 7,2%
Beta = 1,5 WACC = 8,2%

$$K_E = r_f + \beta(\bar{r}_M - r_f)$$

$$\beta_{lev} = \beta_{unlev}\left(1 + (1-t)\frac{D}{E}\right)$$

From: http://www.bolsamadrid.es/docs/Sbolsas/InformesSB/Mensual.pdf August 2016

Cód. Sym.	Indices Indices	Volatilidades Volatility				Betas Betas			
Sesiones Sessions		250	120	60	20	250	120	60	20
A3M	C N	40,55	39,96	49,35	32,59	1,08	1,03	1,11	1,53
ABE	I D	24,14	20,46	24,92	12,32	0,65	0,53	0,55	0,59
ABG		157,00	87,72	104,26	70,47	0,94	0,88	0,88	0,23
ABG.P		161,73	114,65	125,42	77,50	1,10	1,22	1,16	0,99
ACS	I N D	32,87	30,07	36,33	18,79	1,00	0,88	0,89	1,04
ACX	I D	44,47	35,76	39,35	18,26	0,93	0,72	0,72	0,67
ADV	S	54,26	54,44	39,24	34,38	0,38	0,45	0,47	0,10
ADZ		36,24	38,87	46,51	50,80	0,21	0,15	0,11	-1,75

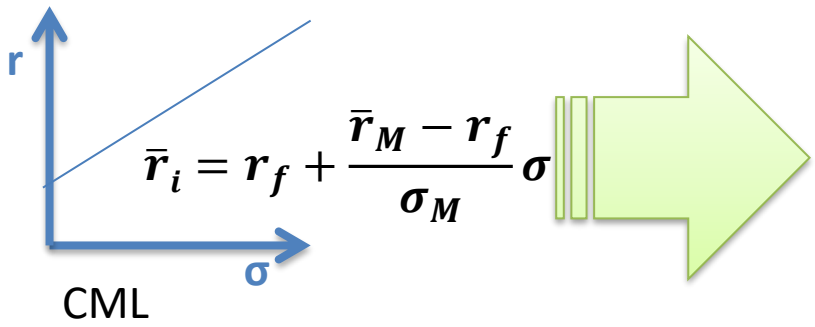
CAPM – Life is easier

No more σ and σ²… we will deal with β

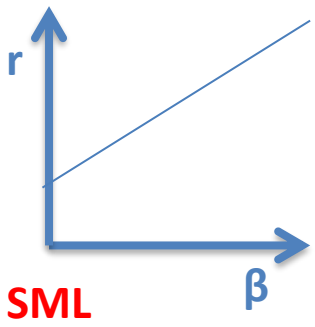
Working with portfolios

$$\sigma_P^2 = \sum_{ij} w_i w_j \sigma_{ij} = w_1^2\sigma_1^2 + w_2^2\sigma_2^2 + 2w_1w_2\sigma_{12} + \ldots \quad \Rightarrow \quad \beta_P = \sum_i w_i\beta_i = w_1\beta_1 + w_2\beta_2 + \ldots$$

Capital Market Line (CML) vs. Security Market Line (SML)



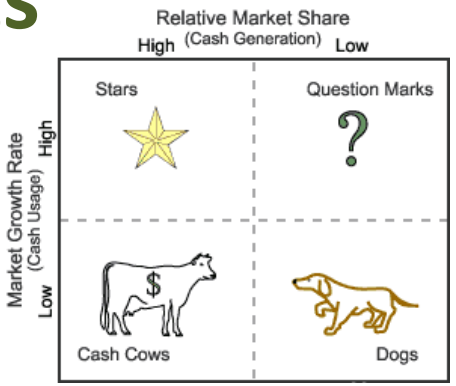
CML



SML

$$\bar{r}_i = r_f + \beta(\bar{r}_M - r_f)$$

CAPM & Efficient markets



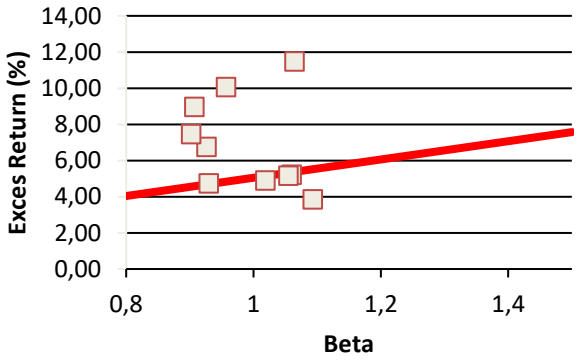
- 1952 – Markowitz
- 1964 – Sharpe CAPM
- 1969 – Fama: Efficient Market Hypothesis (EMH):
  - ✓ Weak-form efficiency
  - ✓ Semi-strong form efficiency
  - ✓ Strong-form efficiency

Anomalies = (apparent) violations of EMH

- January/small firm anomaly
- Book-to-market effect: high B/M firms (value firms) have higher abnormal returns than low B/M firms (growth stocks)
- Others: momentum, reversals, post-earnings announcement drift,…
- There are >50 anomalies documented in the published literature

Group all stocks each year in 10 portfolios, sorted on their book-to-market ratio (B/M deciles)
Calculate value-weighted excess returns on these portfolios
Run a SCL regression for each portfolio

- What are the βs?
- What are the average returns?
- What are the αs?



CAPM & Efficient markets

- 1993 – Fama and French argue that this evidence is not inconsistent with the EMH

$$E[r_i] - r_f = \beta_{iM}(E[r_M] - r_f) + \beta_{iS} SMB + \beta_{iBM} HML$$

- 2013 – Fama, Hansen, and Shiller got the Nobel Prize

Capitalization and Trading Volumes as a % of GDP

	Capitalization /GDP	Trading / GDP
USA	143,1	138,6
Tokyo	99,8	133,7
London	94,6	49,4
Euronext	81	39
Germany	51,3	36,7
Spain	55,7	68,8

- As regards the US, the numerator is the combined total of NYSE and NASDAQ
- The London data includes data from the Borsa Italiana, integrated in the London SE group, and the GDP of both countries
- Euronext includes France, the Netherlands, Belgium and Portugal

Stock Market Indices

- Not all the stocks included in an Index are equally weighted. They are usually weighted according to:
  - The traded volume
  - Market capitalization
- Certain indices are used as underlying for other financial products, like options and futures
- Ibex 35
  - 35 largest stocks in the Spanish market, weighted according to their free- float and market caps
- Other European Indices:
  - DAX
  - CAC 40
  - MIB, etc

Major World Indices

Index	Last	High	Low	Chg.	Chg. %	Time
Dow 30	18,847.49	18,869.92	18,806.06	-21.20	-0.11%	17:40:00
S&P 500	2,170.60	2,172.60	2,166.55	+6.40	+0.30%	17:40:14
Nasdaq	5,257.02	5,274.80	5,236.25	+38.62	+0.74%	17:40:00
SmallCap 2000	1,295.43	1,298.64	1,290.00	-4.05	-0.31%	17:40:30
S&P 500 VIX	13.72	14.65	13.69	-0.76	-5.25%	17:24:00
S&P/TSX	14,710.58	14,713.93	14,618.34	+112.13	+0.77%	17:25:00
TR Canada 50	249.89	250.00	248.74	+1.42	+0.57%	17:39:00
Bovespa	59,657.46	59,961.38	58,322.32	+473.96	+0.80%	14/11
IPC	45,685.76	46,142.20	45,277.57	+379.28	+0.84%	17:20:00
DAX	10,735.14	10,748.31	10,666.17	+41.45	+0.39%	16:35:15
FTSE 100	6,792.74	6,820.52	6,753.18	+39.56	+0.59%	16:34:58
CAC 40	4,536.53	4,541.46	4,504.35	+27.98	+0.62%	16:40:13
Euro Stoxx 50	3,052.25	3,053.84	3,029.95	+12.45	+0.41%	16:35:15
AEX	450.54	451.52	448.66	+3.78	+0.85%	16:40:09
IBEX 35	8,687.10	8,707.90	8,620.60	+28.90	+0.33%	16:29:59
FTSE MIB	16,682.37	16,763.78	16,545.87	-3.96	-0.02%	16:37:26
SMI	7,909.20	7,930.97	7,853.28	+12.35	+0.16%	16:35:15
PSI 20	4,404.16	4,426.09	4,383.43	+33.32	+0.76%	16:29:57
BEL 20	3,486.33	3,508.10	3,470.86	-8.68	-0.25%	16:29:45
OMXS30	1,466.46	1,467.28	1,445.50	+23.38	+1.62%	16:35:00
OMXC20	817.52	817.52	809.73	+7.98	+0.99%	16:05:00
MICEX	2,017.06	2,032.04	2,009.34	-4.93	-0.24%	15:50:00

SOURCE: http://www.investing.com/
Date: 15/11/2016

IBEX 35

- The Ibex 35 index is composed of the 35 securities listed which are most liquid over a control period.
  - The control period is the six-month interval prior to the date of the review
  - The liquidity factors taken into account are:
    - Trading volume in Euros
    - The quality of such trading volume, considering the quality of bid-ask spreads, turnover, etc.
- The Ibex 35 Technical Advisory Committee ensures that the index calculation is carried out according to the Technical Regulations. Additionally, according to such Regulations, the Committee may decide to remove a stock from the Index when its average capitalization computable in the index is lower than 0.30% of the average index capitalization during two consecutive control periods
- Formula used in the calculation of the Index value:

$$Ibex\ 35(t) = Ibex\ 35(t-1)\frac{\sum_{i=1}^{35} Cap_i(t)}{\sum_{i=1}^{35} Cap_i(t-1) \pm J}$$

Where Cap means Market Capitalization, i.e. number of shares (S) multiplied by price (P) and J represents the amount used to adjust the value of the Index due to capital increases and reductions

IBEX 35

- The number of each company's shares taken for calculation of the index value is adjusted by a free float factor as follows:

Free Float Band (FF)	Free float factor
< = 10%	10%
10% < FF < = 20%	20%
20% < FF <= 30%	40%
30% < FF <= 40%	60%
40% < FF <= 50%	80%
50% < FF	100%

- There is a maximum weighting of 20% allowed for each component in the index reviews
- The base value of the Index is 3,000 at the close of trading on 29 December 1989

Other IBEX indexes

- **IBEX Medium Cap**
  - Composed of the 20 securities listed which, excluding the 35 securities of the Ibex 35, have the greatest free float adjusted capitalization and which meet the following requirements for liquidity within the control period:
  - Percentage of free float capital greater than 15%
  - Annulized rotation on free float capital greater than 15%

- **IBEX Small Cap**
  - Composed of the 30 securities listed which, excluding the 35 securities of the Ibex 35 and the 20 securities of the Ibex Medium Cap, have the greatest free float adjusted capitalization and which meet the same requirements for liquidity as the IBEX Medium Cap.

- **IBEX Top Dividendo**
  - Composed of the 25 securities listed which, belonging to Ibex 35, Ibex Medium Cap or Ibex Small Cap, offer the highest dividend yield during the control period. In this case, the control period is defined as the 12-month period prior to the review date.

IBEX 35 evolution

IBEX 35

Nombre	Precio	Volumen (€)	Capit (M€)	PER	Rent. /Div.
ABERTIS	12,44	36.010.361,07	12.285,68	16,6	5,71%
ACCIONA	64,7	8.936.527,58	3.701,83	20,8	3,92%
ACERINOX	12,16	16.492.883,46	3.345,94	45,6	3,80%
ACS	27,65	38.282.251,59	8.673,73	12,4	4,13%
AENA	121,2	45.943.135,45	18.067,50	18,4	2,69%
AMADEUS	40,3	31.471.814,87	17.675,77	19,8	2,23%
ARCELORMITTAL	6,64	18.874.799,90	20.396,17	0	0,00%
BANKIA	0,89	33.010.937,31	10.204,35	11,7	3,41%
BANKINTER	7,15	17.710.663,40	6.422,40	14	3,22%
BBVA	6	146.081.096,08	39.373,42	10,6	5,19%
CAIXABANK	2,94	41.553.663,60	17.364,29	13,1	4,52%
CELLNEX TELECOM	13,14	20.564.907,98	3.014,20	43,3	1,52%
DIA	4,59	20.304.500,37	2.847,12	12,1	4,33%
ENAGAS	22,89	31.903.653,70	5.450,30	13,5	5,87%
ENDESA	18,03	28.311.032,11	19.205,76	14,6	6,90%
FERROVIAL	16,42	31.555.614,52	12.104,31	33,9	3,17%

Nombre	Precio	Volumen (€)	Capit (M€)	PER	Rent. /Div.
GAMESA	18,54	40.913.559,30	5.169,27	18,4	1,29%
GAS NATURAL	16,12	28.676.436,52	16.156,13	12,4	6,11%
GRIFOLS	18,43	12.405.574,68	7.851,44	20,6	1,71%
IAG (IBERIA)	5,25	23.564.545,11	11.176,86	6,11	4,32%
IBERDROLA	5,65	103.420.450,92	35.996,64	13,9	5,25%
INDITEX	31,29	83.952.274,88	97.722,62	29,6	2,20%
INDRA	9,45	62.392.962,02	1.559,59	20,4	0,00%
MAPFRE	2,72	18.705.223,46	8.336,35	11	5,03%
MEDIASET	9,723	8.332.180,21	3.278,28	17,9	5,40%
MELIA HOTELS INTL	10,63	2.492.972,61	2.434,82	26,6	0,66%
MERLIN PROP.	9,49	19.263.298,86	4.439,33	16,1	4,04%
POPULAR	0,92	44.330.129,46	3.840,13	0	0,00%
REE	16,67	23.250.875,01	9.033,33	14,4	5,03%
REPSOL	12,36	74.397.580,70	18.108,03	11,4	6,28%
SABADELL	1,31	22.505.306,93	7.269,54	9,34	5,35%
SANTANDER	4,37	187.318.389,01	62.977,69	10,1	4,81%
TECNICAS REUNIDAS	33,35	11.126.969,53	1.862,45	13,1	4,36%
TELEFONICA	8,04	167.910.498,02	39.307,48	13,9	6,59%
VISCOFAN	42,69	7.508.239,94	1.987,41	15,9	3,26%

Date: 15/11/2017

30 Top Companies on EuroStoxx50

	Name	Country	Currency	Exchange	Type of Security	Rating	Primary Listing	Industry Classification	Weighting
1	TOTAL	France	EUR	Euronext Paris	Equity	Aa1	CAC 40 Index	Oil & Gas	5,14%
2	SANOFI	France	EUR	Euronext Paris	Equity	A1	CAC 40 Index	Health Care	4,41%
3	SIEMENS	Germany	EUR	XETRA	Equity	Aa3	CDAX Index	Industrial Goods & Services	4,26%
4	BAYER	Germany	EUR	XETRA	Equity	A3	CDAX Index	Chemicals	3,79%
5	SAP ST.	Germany	EUR	XETRA	Equity	-	CDAX Index	Technology	3,65%
6	BASF	Germany	EUR	XETRA	Equity	A1	DAX Index	Chemicals	3,65%
7	ANHEUSER-BUSCH INBEV	Belgium	EUR	-	Equity	-	-	Food & Beverage	3,63%
8	ALLIANZ	Germany	EUR	XETRA	Equity	Aa3	CDAX Index	Insurance	3,39%
9	DAIMLER	Germany	EUR	XETRA	Equity	A3	CDAX Index	Automobiles & Parts	3,15%
10	BANCO SANTANDER	Spain	EUR	Mercado Continuo Espana	Equity	Baa1	IBEX 35 Index	Banks	3,04%
11	BNP PARIBAS	France	EUR	Euronext Paris	Equity	Baa2	CAC 40 Index	Banks	3,03%
12	UNILEVER NV	Netherlands	EUR	Euronext Amsterdam	Equity	A1	Amsterdam Exchanges Index	Personal & Household Goods	2,79%
13	ING	Netherlands	EUR	Euronext Amsterdam	Equity	-	Amsterdam Exchanges Index	Banks	2,48%
14	AXA	France	EUR	Euronext Paris	Equity	A2	CAC 40 Index	Insurance	2,30%
15	DT.TELEKOM	Germany	EUR	XETRA	Equity	Baa1	CDAX Index	Telecommunications	2,22%
16	LVMH	France	EUR	Euronext Paris	Equity	A1	CAC 40 Index	Personal & Household Goods	2,16%
17	BANCO BILBAO VIZCAYA	Spain	EUR	Mercado Continuo Espana	Equity	Baa2	IBEX 35 Index	Banks	1,87%
18	L'OREAL	France	EUR	Euronext Paris	Equity	-	CAC 40 Index	Personal & Household Goods	1,87%
19	SCHNEIDER ELECTRIC	France	EUR	Euronext Paris	Equity	A3	CAC 40 Index	Industrial Goods & Services	1,84%
20	AIR LIQUIDE	France	EUR	Euronext Paris	Equity	A1	CAC 40 Index	Chemicals	1,81%
21	TELEFONICA	Spain	EUR	Mercado Continuo Espana	Equity	Baa2	IBEX 35 Index	Telecommunications	1,80%
22	DANONE	France	EUR	Euronext Paris	Equity	A3	CAC 40 Index	Food & Beverage	1,73%
23	ASML HLDG	Netherlands	EUR	Euronext Amsterdam	Equity	Baa2	Amsterdam Exchanges Index	Technology	1,67%
24	VINCI	France	EUR	Euronext Paris	Equity	Baa1	CAC 40 Index	Construction & Materials	1,64%
25	SOC.GENERALE	France	EUR	Euronext Paris	Equity	A2	CAC 40 Index	Banks	1,59%
26	INDITEX	Spain	EUR	Mercado Continuo Espana	Equity	-	IBEX 35 Index	Retail	1,58%
27	IBERDROLA	Spain	EUR	Mercado Continuo Espana	Equity	Baa1	IBEX 35 Index	Utilities	1,58%
28	AIRBUS GROUP	France	EUR	Euronext Paris	Equity	A2	CAC 40 Index	Industrial Goods & Services	1,57%
29	INTESA SANPAOLO	Italy	EUR	Milan Stock Exchange	Equity	Baa2	FTSE Italia All-Share Index	Banks	1,54%
30	ENI	Italy	EUR	Milan Stock Exchange	Equity	A3	FTSE Italia All-Share Index	Oil & Gas	1,52%

Technical analysis

Technical analysis is a security analysis methodology for forecasting the direction of prices through the study of past market data, primarily prices and volume

Technical analysts believe that investors collectively repeat the behavior of previous investors. Because investor behavior repeats itself so often, technicians believe that recognizable and predictable price patterns will develop on a chart

Technicians using charts search for price patterns, such as “head and shoulders”, lines of support, resistance lines, etc.

The efficient-market hypothesis contradicts the basics of technical analysis by stating that past prices cannot be used to profitably predict future prices

- Chartists say that irrational human behavior influences stock prices, and that this behavior leads to predictable outcomes
- Research in the field of Behavioral Finance concludes that people are not the rational participants the efficient-market hypothesis makes them out to be

Fundamental analysis

Equity Research analysts compare the intrinsic value of a stock with its market price in order to draw conclusions about its over or undervaluation and issue SELL or BUY recommendations

Equity Research analysts take into account the following information:

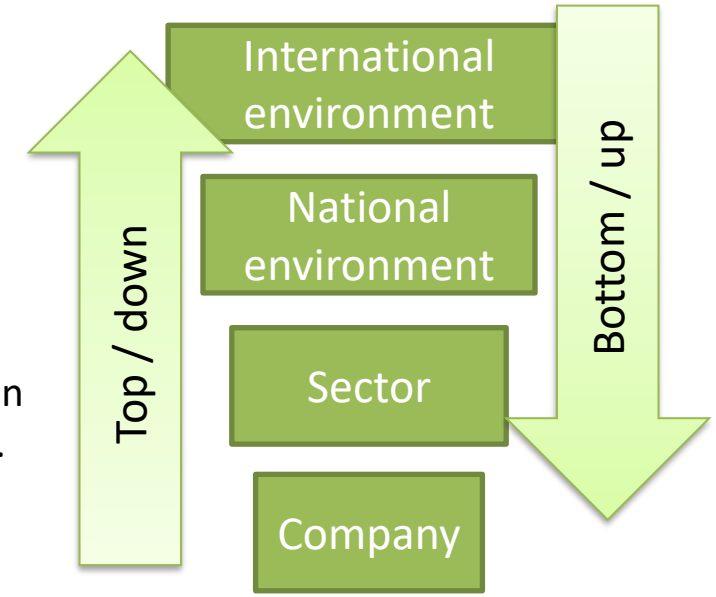
- Company information: historical financials and forecasts
- Sector and macroeconomic data
- Financial market information, etc.

Two main valuation methodologies are used:

- Discounted Cash Flows and
- Trading Multiples (PER, EV/EBITDA, EV/EBIT,….)

Trading multiples allow to draw conclusions about under/overvaluation within an uniform sample. It uses main accounting data and market prices as the basis for analysis.
Necessary steps:

- Identify comparable companies
- Ensure that comparables' financials are consistent and recurrent – i.e. one-offs must be adjusted

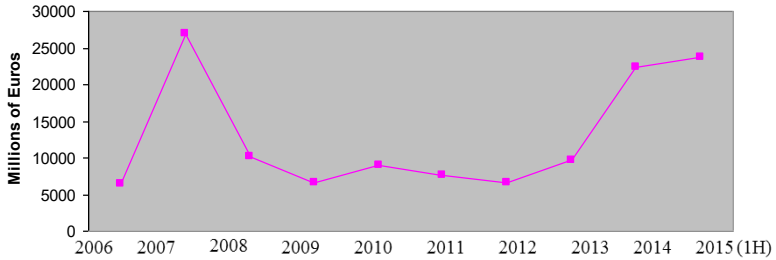


Who are the main investors in Equities?

Retail investors account for only a minor part of equity trading worldwide

The main investors are mutual and pension funds, sovereign funds and insurance companies

Total volume of IPOs, private placements, rights issues and convertible issues



Main 2015 Deals

Issuer	Deal	Size (Eur billion)
Banco Santander	Private Placement	7,5
Aena	IPO	4,2
Telefónica	Rights issue	3,0
Cellnex	IPO	2,1
Banco Sabadell	Rights issue	1,6
Abertis	Private Placement	1,1
Merlin Properties	Rights issue	0,6
Talgo	IPO	0,6
Saeta Yield	IPO	0,4

Compañía	Fondo	Participacion
Abertis	CVC	15%
ACS	SouthEastern Asset	5%
	Fondo Soberano Noruego	1%
Amadeus	Blackrock	5%
	Fondo Soberano Noruego	2%
Ferrovial	SouthEastern Asset	5%
	Fondo Soberano Noruego	2%
Grifols	Capital Group	10%
	Blackrock	7%
IAG	F. Templeton	8%
	Blackrock	5%
Iberdrola	Qatar Investment	8%
Indra	Fidelity	11%
	Fondo Soberano Noruego	3%
Repsol	Temasek	6%
Tecnicas Reunidas	Causeway Capital	5%
Viscofan	Marathon Asset	5%

Thanks