Chapter 16
COUNTRY RISK

• Last Class

We finished the pure **FX part** of the semester.

- FX Market: FX Rates and Theories of FX Determination

- FX Rates Forecasting

- FX Risk: Tools & Hedging

- FX Exposure: FX Risk at the firm level (TE & EE)

Topics in International Corporate Finance

- DFI: Why DFI instead of exports?

Many reasons. We emphasize Reduce Economic Exposure & International Diversification

- Multinational Capital Budgeting. Follow standard NPV process, incorporating taxes (local and foreign) & exchange rates. Use discount rates specific to the (systematic) risk of the country. Agency Problems are addressed through simulations, sometimes based on previous experience

• This Class

For the rest of the semester (3 classes), we will continue with a collection of **different topics**, ranging from country risk analysis to international bond markets and financial engineering.

• In this class, we cover
- Country Risk (Chapter 16)
- Capital Structure & the Cost of Capital (Chapter 17)
- International Bond Markets (Chapter 18)

Country Risk

Definition: Country Risk

Country risk (CR) is the risk attached to a borrower or an investment by virtue of its location in a particular country.

Example: ConocoPhillips invested in Venezuela in the 1990s to help develop the Petrozuata, Hamaca and Coroco projects, it added an additional risks to its investment portfolio: **Venezuelan country risk**.

Country Risk? In 2007, the Venezuelan government expropriated all ConocoPhillips investments without fair compensation. ¶

Note: CR is different than FX risk. CR risk can be zero and FX can be huge for a given country. The reverse, though unusual, can also happen.

• CR reflects the (potentially) negative impact of a country's economic and political situation on an MNC's or an investor's cash flows.

• CR is a **broad risk**: It includes economic risk, financial risk, political risk, etc. It affects MNC's discount rates and, thus, NPV-based decisions!

• Situations that can affect MNC's Cash flows:
  - Nationalization of subsidiaries or joint ventures.
  - Labor strikes in an industry.
  - Recession or a big macroeconomic shock.
  - A political scandal that introduces new laws or regulations.
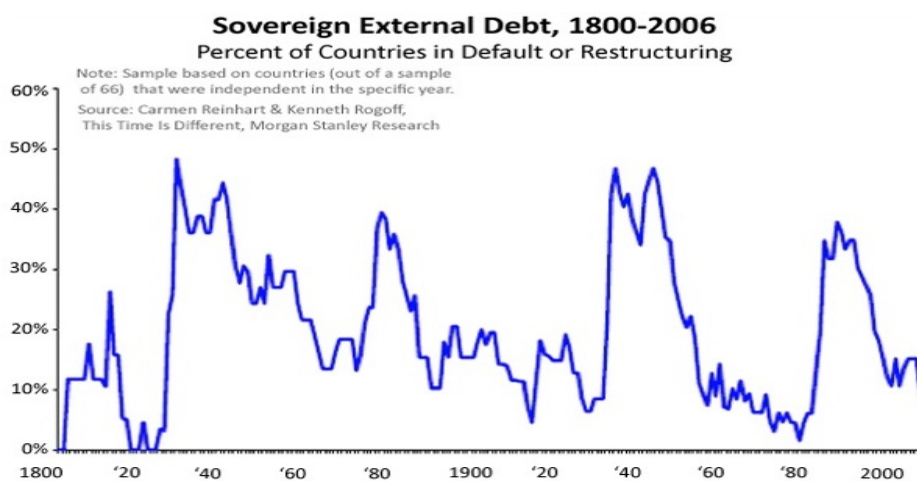 - New trade restrictions, limiting imports or exports.

Q: Does *country risk* analysis matter?

A: Look at companies investing in Ukraine & Russia in 2022, Greece in 2011 or Argentina in 2020. Value of affected assets went down significantly.

International Crisis Are Not Rare

Graph X.1
Sovereign External Debt1800 - 2006 – Taken from Reinhart and Rogoff (2011)

Sovereign External Debt, 1800-2006
Percent of Countries in Default or Restructuring

Note: Sample based on countries (out of a sample of 66) that were independent in the specific year.

Source: Carmen Reinhart & Kenneth Rogoff, This Time Is Different, Morgan Stanley Research

This graphs describes *sovereign crises,* with the associated risk, *sovereign risk.*

• Measures to reduce country risk:

     - A *cap* on the total amount invested in a particular country.

     - Diversification.

     - Credit/Political Risk Derivatives

Diversification and Country Risk (From The Economist, Sep 20, 2014)

After China's revolution in 1949 HSBC, then a purely Asian bank, lost half its business. Iran's nationalization in 1951 of the Anglo-Iranian Oil Company's assets devastated the firm, a precursor of BP.

Modern episodes:

• Repsol (Spain), fell in love with Argentina, leaving it vulnerable when YPF, the firm it bought there, was nationalized in 2012.

• First Quantum, (Canada), had made a third of its profits from a mine that the Democratic Republic of Congo nationalized in 2009.

<u>Remark</u>: Ben van Beurden, the boss of Royal Dutch Shell, recently said *diversification* is "the only way to inoculate yourself".

• Quantifying CR

CR is an important component of the Multinational Capital Budgeting process.

  - MNCs make decisions on DFI projects on the basis of NPVs.

  - MNCs use discount rates to establish NPV for projects (the higher the discount rate, the lower the chances of a project to have a NPV > 0).

Q: Where do discount rates come from?

A: For projects abroad, a key element is Country risk (CR). We need to quantify this risk.

• **Simple Idea**

Many factors affect a country's economy: political, economic, social, etc.

We want a **global indicator** that assesses the likelihood of a (negative) change in a given country's economic policy.

This indicator, reported as a single number, is called *country risk* (CR).

• Similar to *credit risk* ratings, CR is usually measured as a letter:
      A=excellent, B =good, C=bad   ⇒ Letter = Grade

• Ideally, CR gives companies and lenders a very good indicator of a country's likelihood of default.

• Credit and Interest Rate Risk for Bonds: Brief Review

Bonds are subject to two types of risk:

1) *Interest rate risk:* Risk associated to changes in interest rates.

2) *Credit/default risk:* Risk associated to the probability of default (& not receiving principal and interest payments after default)

Credit rating agencies describe/measure the risk with a *credit rating* (a letter).

Implication: The higher the grade, the lower the yield (YTM) of the bond.

For any company borrowing money, the YTM is set by a spread, reflecting credit risk, over **base rate** (usually, *risk-free rate*):

      YTM = **Base rate** + Credit Risk Spread

Note: For us, the risk-free rate of a country is set by the YTM of government bonds.

   Risk-free rate for country J = **YTM of government bonds of Country J**.

• **General Idea**

From a big data set (with a lot of economic, socioeconomic and political variables), we produce a single measure (a letter).

• **Two approaches to measure CR (and get a grade)**

(1) Qualitative – collect data, get opinions from "experts" ⇒ *consensus* grade.

(2) *Quantitative* – collect data, process data with a computer model ⇒ grade.

(1) Qualitative Approach: Talk to experts (politicians, union members, economists, etc.) to form a *consensus* opinion about the risk of a country.
⇒ **Consensus opinion** = Final grade.

(2) *Quantitative Approach*: Start with some quantifiable factors that affect CR. Use a formula to determine numerical scores for each factor. Calculate a weighted average of the factors' numerical scores.
⇒ **Weighted average of scores** = Final grade.

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(1) Qualitative Approach is considered *"subjective."*
(2) Quantitative Approach is considered "*objective.*"

We will emphasize the Quantitative Approach.

• **Pros**
- It is **simple**
- It allows cross-country and across time comparison.
• **Cons**
- It is **too simple**.
- In practice, ratings tend to converge (*herding*).
- Not a lot of predictive power.

Note: Ideally, rating companies are independent. But, they have incentives to accommodate clients (countries).

CR: Is it really a good indicator of economic problems/default?

The lack of predictive power for many crisis is a major criticism.

Example: A month before the 1997 Asia crisis, South Korea was rated as Italy and Sweden. Then, Fitch went from rating Korea as **AA-** (*investment grade*) to **B-** (*junk*) in one month. Other rating agencies replicated the same dramatic sudden change in Korea's CR rating.

In early 1998, Fitch justified the situation:

"There were no early warnings about Korea from us or, to the best of our knowledge, from other market participants, and our customers should expect a better job from us." ¶

Similar sudden downgrades occurred during the 2009-2013 European debt crisis with Greece, Ireland, Italy, Portugal, and Spain (PIIGS).

• Practical use of CR

• We associate CR to the **spread over** a base, global **risk-free rate**, say U.S. T-bills. We call the spread, *CR spread* or *CR premium*.

$\Rightarrow$ CR influences the interest on the debt issued by a government of a country (& the discount rate on foreign projects!).

That is, suppose country DX issues new debt, the yield is determined by:

$$\textbf{Yield}_{\textbf{DX-debt}} = \textbf{Base Rate} + CR\,Spread$$

Example: Setting yields for Mexico (actually, the Mexican government)

Data:

Mexico's grade: BBB -a *CR spread* of 140 bps (1.40%) over US Treasuries

Base Rate Yield (US Treasuries yield): **4%**

$$\textbf{Yield}_{\textbf{Mex}} = \textbf{4\%} + 1.40\% = \textbf{5.40\%}$$

Note: This is a **USD** yield. To translate it to MXN, we use linearized IFE:

$$\textbf{Yield}_{\textbf{Mex}}\textbf{ (MXN)} \approx \textbf{Yield}_{\textbf{Mex}}\textbf{ (USD)} + \text{E}[e_f].$$

Example (continuation):
$$\text{Yield}_{\text{Mex}} \text{ (MXN)} \approx \text{Yield}_{\text{Mex}} \text{ (USD)} + E[e_f].$$

To calculate $E[e_f]$, we can use linearized PPP. Data:

$E[I_{\text{MEX}}] = 7\%$

$E[I_{\text{US}}] = 2\%$ $\qquad \Rightarrow E[e_f] = E[I_{\text{MEX}}] - E[I_{\text{US}}] = \textbf{5\%}$

$\qquad \Rightarrow \textbf{Yield}_{\textbf{Mex}} \textbf{ (MXN)} \approx \textbf{5.40\%} + \textbf{5\%} = \textbf{10.40\%.}$

• **Yield$_{\text{Mex}}$ (MXN)** becomes the risk-free rate for projects in Mexico, used to the discount CFs in MXN. That is:

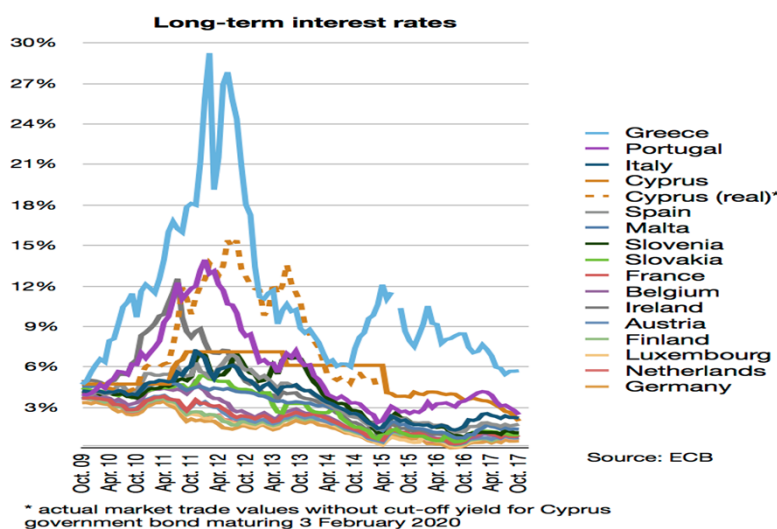$\qquad$ Discount Rate Project$_{\text{Mex}}$ = **Yield$_{\text{Mex}}$** + project's risk premium.

Suppose an oil company is investing in a project in Mexico and sets a **3%** project's risk premium. Then,

$\qquad$ Discount Rate Oil Project$_{\text{Mex}}$ = **10.40%** + **3%** = **13.40%**.

The MXN CFs will be discounted using **13.40%** as the discount rate. ¶

Example: During the European debt crisis (2009-mid 2010s), yields of European government bonds became very dispersed. ¶

Long-term interest rates

Source: ECB

* actual market trade values without cut-off yield for Cyprus government bond maturing 3 February 2020

● What explains the difference between the yields in Germany and Portugal, Italy, Greece & Spain? Country Risk Spread (there is no FX risk!).

• **Risk Rating Method (Check list)**

• Weighted average of grades for four major aspects of a country:

- Economic Indicators (financial condition)
- Debt management (ability to repay debt)
- Political factors (political stability)
- Structural factors (socioeconomic conditions)

The grades (between **0** and **100**) for each factor are a function of "*fundamental data*." For example, the economic indicator's grade depends on GDP per capita, GDP growth, inflation, interest rates, etc.

A specific formula is used to compute the grades. For example,

Score(EI) = α_0 + α_1 GDP growth + α_2 Inflation + α_3 Productivity + ...

Regressions and experience will determine the coefficients (α_0, α_1, α_2,...). We expect GDP growth & inflation to have $\alpha_1 > 0$ and $\alpha_2 < 0$.

• **Risk Rating Method (Check list)**

• Final score (& CR letter) will be determined by a weighted average:

Final Score = ω_{EI} Score(EI) + ω_{DM} Score(DM) + ω_{PF} Score(PF) + ω_{SF} Score(SF)

<u>Note</u>: Weights should be non-negative and add up to 1:

$$\sum_j \omega_j = 1, \qquad \text{–i.e., } \omega_{EI} + \omega_{DM} + \omega_{PF} + \omega_{SF} = 1.$$

Q: Where are the weights and the formulae for the grades coming from?

A: This method seems more "*objective*," because it is based on hard economic data, but weights and formula for grades may be "subjective."

   ⇒ CR is more an art, than a science.

• CR is a broad concept. It is possible to treat *political risk* as a separate risk. Why? Political risk can be insured (many governments subsidize it) & if political risk is independent of systematic risk, it does not affect discount rates.

● **Risk Rating Method (Check list)**

The model can deliver different forecasts, according to the **investment or loan horizon**:

- Short-term

- Medium-term

- Long-term

⇒ Weights and grades can change depending on your horizon.

For example:

(a) **Short-term**: More weight to debt management & political factors.

(b) **Long-term**: More weight to economic indicators & structural factor.

Remark: Once we have the final grade, we use it to set a **spread** in basis points (bps) over base rate, usually a risk free rate.

TABLE 16.1
Conversion Table of a Country's Grade into a Rating and Spreads over US Treasuries

Overall grade	Rating	Interpretation	Spread (in bps)	Average
91-100	AAA	Excellent	10-70	50
81-90	AA		50-100	70
71-80	**A**		**80-130**	100
61-70	BBB	Average risk	110-220	160
51-60	BB		190-300	240
41-50	B		270-410	350
31-40	CCC	Excessive risk	360-490	450
21-30	CC		450-700	570
10-20	C		700+	800
0-10	D	In Default	(debt in arrears)	

Note I: A rating of BBB or better is considered "***investment grade***."

Note II: A rating of BB or less is considered "***junk***." In the U.S., the usual spread of junk debt is between 400 to 600 bps over 1-yr T-bills. Range is very wide: Spreads can go over 2600 bps.

Note III: As time to maturity increases, the spread (in bps) also increases.

**Example:** Bertoni Bank evaluates the country risk of country DX.

	Short-term Horizon			**Medium-term Horizon**		
Factor	**Weight**	**Grade**		**Weight**	**Grade**	
Economic	.3	80	24	.3	70	21
Debt managt	.3	90	27	.2	70	14
Political	.3	67	20.1	.2	50	15
Structural	.1	75	7.5	.3	60	12
Total			**78.6**			**63**
Short-term ranking: **A**				Medium-term ranking: **BBB**		

$\Rightarrow$ *Short-term* debt (in USD) of country DX gets a spread in the **80-130 bps** range, say **93 bps** over US Treasuries; while *medium-term* debt gets a higher spread, say **128 bps**.

Suppose the *short-term* US Treasuries yield **4%** (s.a.). Then,

YTM_{DX} (*short-term,* in USD) = **4%** (s.a.) + **0.93%** (s.a.) = 4.93% (s.a.). ¶

Example: Evolution of Country Risk Ratings for Developed markets (2016-2023), aggregated by BBVA, in **2024**. ¶

https://www.bbvaresearch.com/en/publicaciones/country-risk-annual-report-2024/
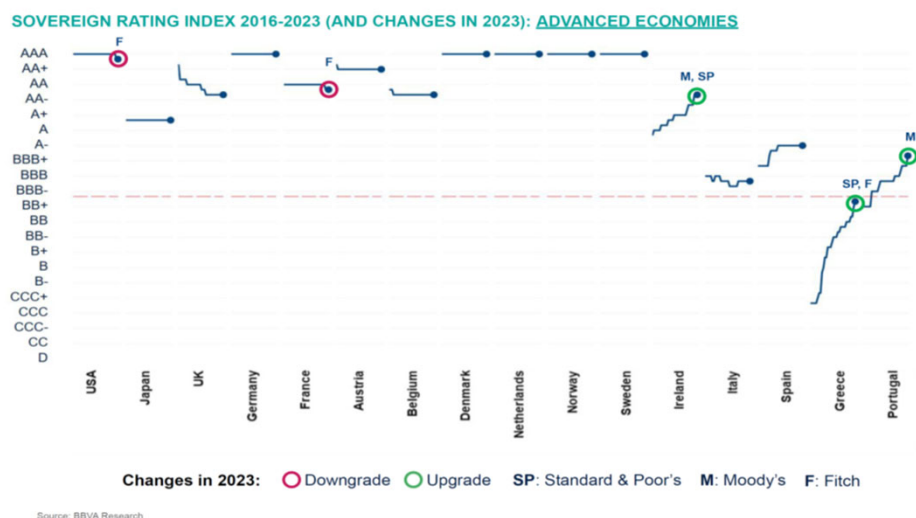
Example: But, not always.

10-year government bonds: Q1 2023 (from Bloomberg, March 13).

Americas 10-Year Government Bond Yields

COUNTRY	YIELD	1 DAY	1 MONTH	1 YEAR	TIME (EDT)
United States »	3.57%	-13	-13	+158	4:59 PM
Canada	2.77%	-22	-34	+78	4:59 PM
Brazil	13.04%	-18	-37	+64	4:56 PM
Mexico	9.10%	+6	+27	+64	4:59 PM

Europe, Middle East & Africa 10-Year Government Bond Yields

COUNTRY	YIELD	1 DAY	1 MONTH	1 YEAR	TIME (EDT)
Germany »	2.25%	-25	-11	+201	12:59 PM
United Kingdom »	3.36%	-27	-3	+188	12:59 PM
France	2.79%	-21	-2	+208	12:59 PM
Italy	4.17%	-13	+1	+233	12:59 PM
Spain	3.35%	-19	+5	+212	12:59 PM
Netherlands	2.62%	-23	-6	+212	12:59 PM
Portugal	3.18%	-19	-2	+209	12:59 PM
Greece	4.24%	-5	+9	+171	12:59 PM
Switzerland	1.10%	-20	-24	+82	12:59 PM

• Ratings tend to converge (*herding*?); but they do not necessarily have the same impact on yields.

Example: Spread on government European bonds: **Nov 11. 2014** (during the Euro-debt crisis).

Higher risk (PIIGS), higher spread! ¶

European Bond Yields and Spreads

Yields online between 9:00am to 5:30pm CET.

Time snapshot: 14/11/2014 - 5:29 PM CET

Country	Yield	Spread*	Close†	Change‡
Germany (1% 15 Aug 2024)	0.79	-	0.80	-0.01
France (1.75% 25 Nov 2024)	1.15	+ 35	1.17	-0.02
Belgium (2.6% 22 Jun 2024)	1.07	+ 28	1.10	-0.03
Italy (2.5% 1 Dec 2024)	2.35	+ 156	2.37	-0.01
Spain (2.75% 31 Oct 2024)	2.20	+ 141	2.13	0.07
Denmark (1.75% 15 Nov 2025)	1.03	+ 23	1.02	0.00
Finland (2% 15 Apr 2024)	0.89	+ 10	0.91	-0.01

Higher spreads

From MTS Indices: http://www.mtsindices.com/european-bond-spreads.

Example: Country Risk in Practice

Euromoney produces semi-annual CR analysis of 189 countries using a panel of 400+ experts. *Euromoney* rates 6 categories with a score (ECR, from 0 to 100).
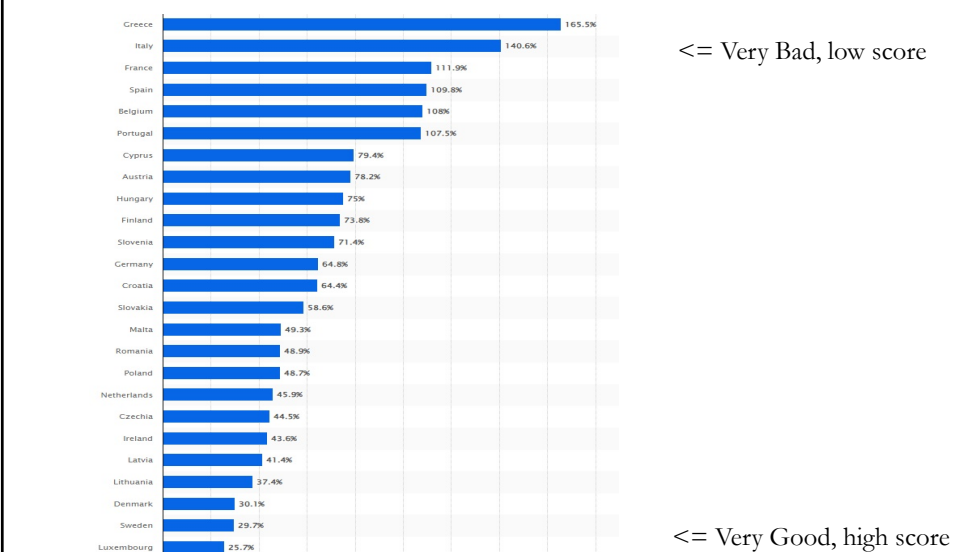
• Categories and weights:

Economic performance	-30%
Political Risk	-30%
Structural assessment	-10%
Debt indicators: Debt/GDP; Debt service/X; & X-M/GDP	-10%
Credit rating: Moody's or S&P's or Fitch IBCA's rating	-10%
Access to bank finance/Capital markets: Grade from 0 to 10	-10%

The first three categories are (mainly) qualitative and the last three categories are (mainly) quantitative.

Based on the weighted average for each country, each country is placed on a Tier, with **Tier 1** = AAA (80 - 100); and **Tier 5** = C (0 - 35.9). ¶

Example: Country Risk in Practice

Euromoney's experts evaluate each category for each country and grade them from 0 to 100. For example, they look data like Debt-to-GDP for the category **Debt Indicator** (10% weight) and grade it:

Country	Value	
Greece	165.5%	<= Very Bad, low score
Italy	140.6%	
France	111.9%	
Spain	109.8%	
Belgium	108%	
Portugal	107.5%	
Cyprus	79.4%	
Austria	78.2%	
Hungary	75%	
Finland	73.8%	
Slovenia	71.4%	
Germany	64.8%	
Croatia	64.4%	
Slovakia	58.6%	
Malta	49.3%	
Romania	48.9%	
Poland	48.7%	
Netherlands	45.9%	
Czechia	44.5%	
Ireland	43.6%	
Latvia	41.4%	
Lithuania	37.4%	
Denmark	30.1%	
Sweden	29.7%	
Luxembourg	25.7%	<= Very Good, high score

Example: Country Risk in Practice

• *Euromoney* CR ratings – Top 10 **1982 - 2019**

Euromoney Country risk scores top 10 overall

	1982				2019	
Rank	Country	ECR Score		Rank	Country	ECR Score
1	UK	100		1	Singapore	88.75
2	Sweden	100		2	Norway	88.45
3	France	99		3	Switzerland	88.36
4	Denmark	98.4		4	Denmark	86.55
5	Belgium	94		5	Sweden	86.23
6=	New Zealand	88		6	Luxembourg	86.02
6=	Australia	88		7	Netherlands	84.56
8	Austria	87.5		8	Finland	84.02
9	Netherlands	87.3		9	Australia	83.01
10	Canada	87		10	Canada	82.85
14	Singapore	86.2				

Source: Euromoney Country Risk

Remark: Five out 10 countries remain in the Top 10 after almost 40 years!

Example: Country Risk in Practice

• *Euromoney* CR ratings

- *Congo* (**2021**: **36.80** – World Ranking: 130)
2011: 28.89 (World ranking: **139**. In 2001, Congo ranked **180**th.)

- *Romania* (**2021**: **58.53** – World Ranking: 52)
2011: 49.09 (World ranking: **72**. In 2001, Romania ranked **89**th.)

- *China* (**2020**: **58.62** - World Ranking: 50)
2011: 63.55 (World ranking: **40**. In 2001, China ranked **45**th.)

- *Taiwan* (**2019**: **69.10** - World Ranking: 23)
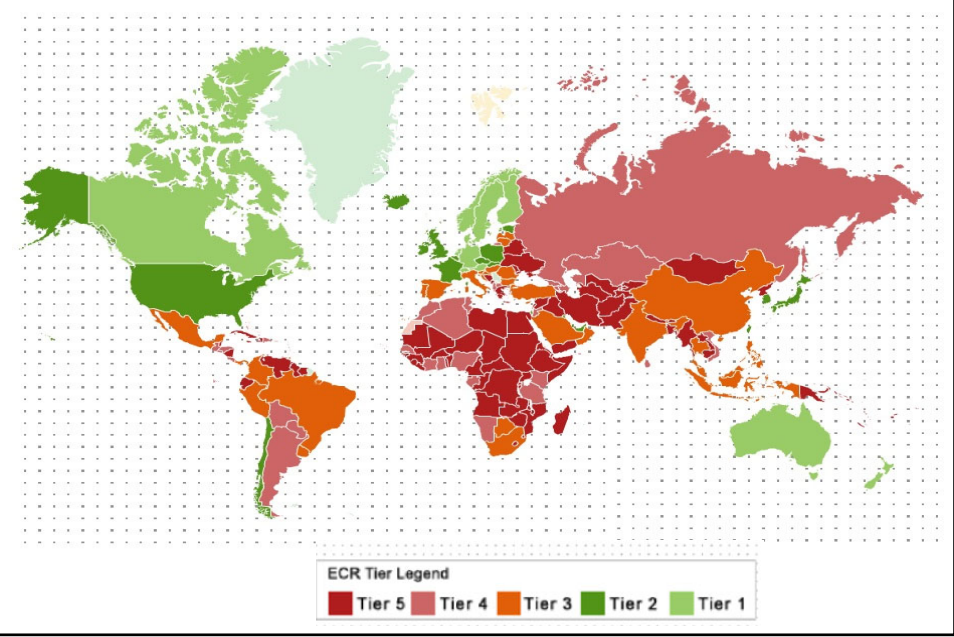2011: 80.04 (World ranking: **18**. In 2001, Taiwan ranked **28**th.)

- *Singapore* (**2019**: **88.75** - World Ranking: **1**)
2011: 87.48 (World ranking: **6**. In 2001, Singapore ranked **14**th.)

• As expected, there is a wide dispersion of CR across countries. Ratings tend to be **persistent** over time.

Example: *Euromoney,* *World* Country Risk February 21, 2018
World Country Risk weighted average: 42.77 (**B** rating or Tier 4)

ECR Tier Legend
Tier 5 | Tier 4 | Tier 3 | Tier 2 | Tier 1

• **Other Maps: Coface 2024**

162 COUNTRIES UNDER THE MAGNIFYING GLASS

BUSINESS DEFAULTING RISK | A1 | A2 | A3 | A4 | B | C | D | E
VERY LOW | LOW | SATISFACTORY | REASONABLE | FAIRLY HIGH | HIGH | VERY HIGH | EXTREME
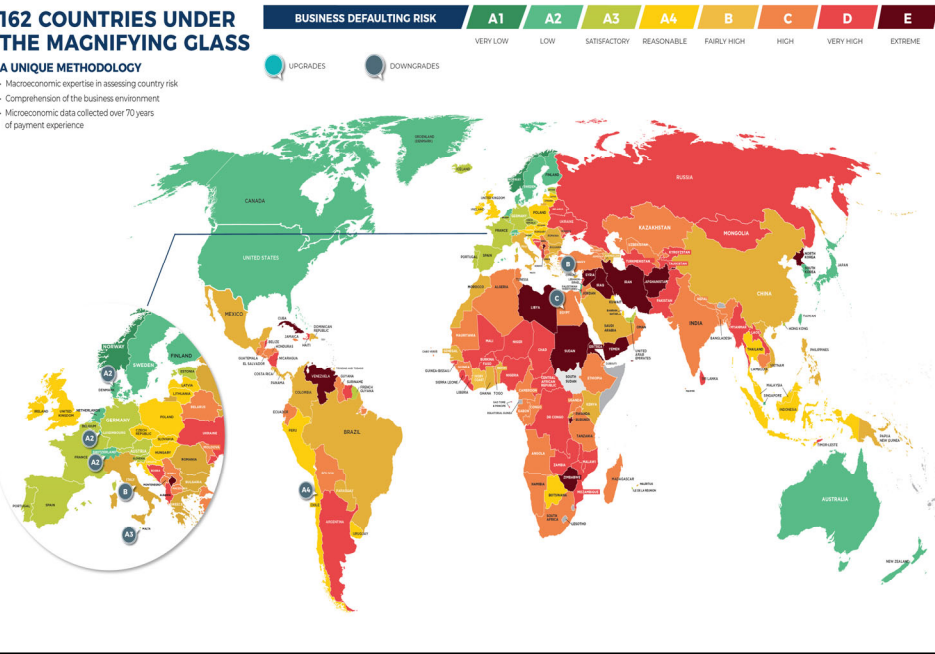
A UNIQUE METHODOLOGY
Macroeconomic expertise in assessing country risk
Comprehension of the business environment
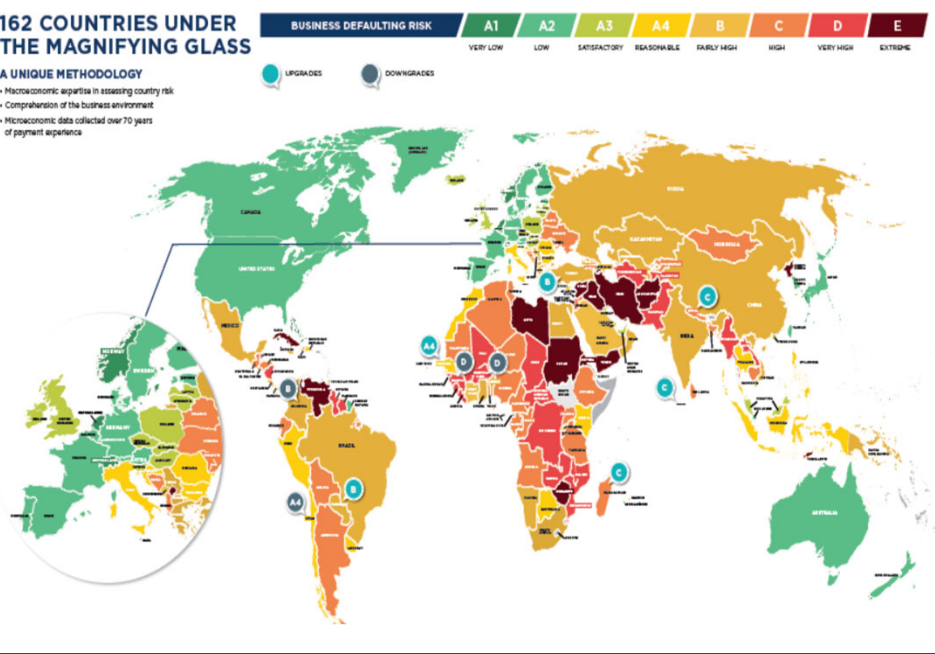Microeconomic data collected over 70 years of payment experience

UPGRADES   DOWNGRADES
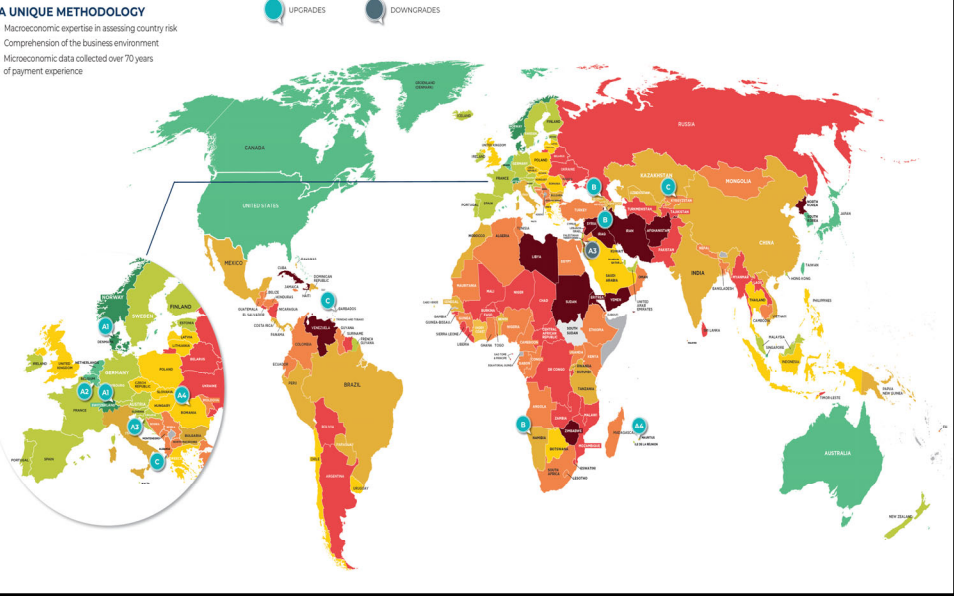
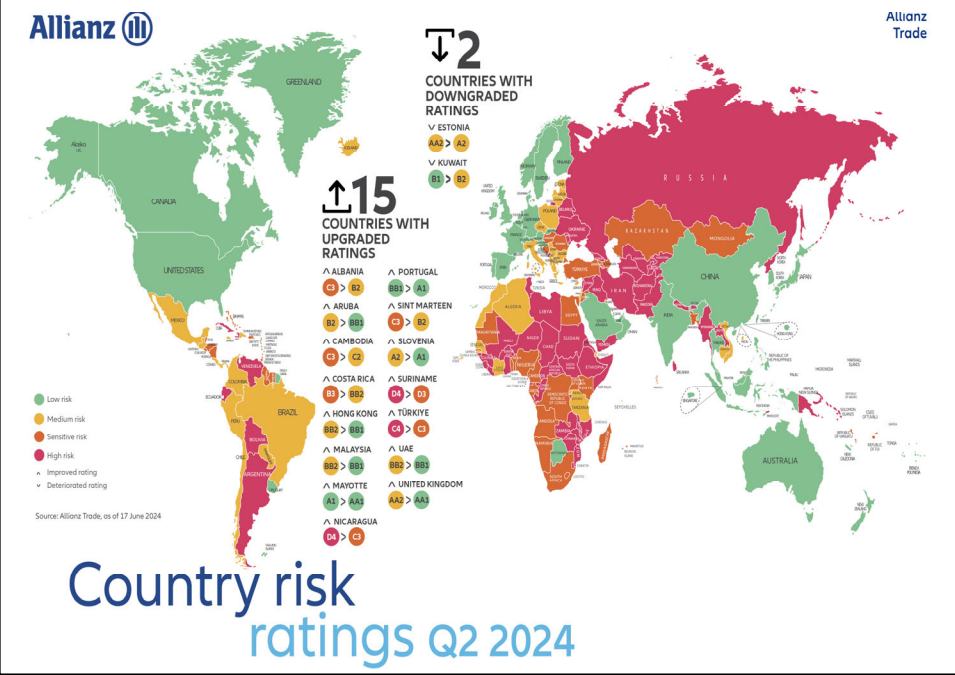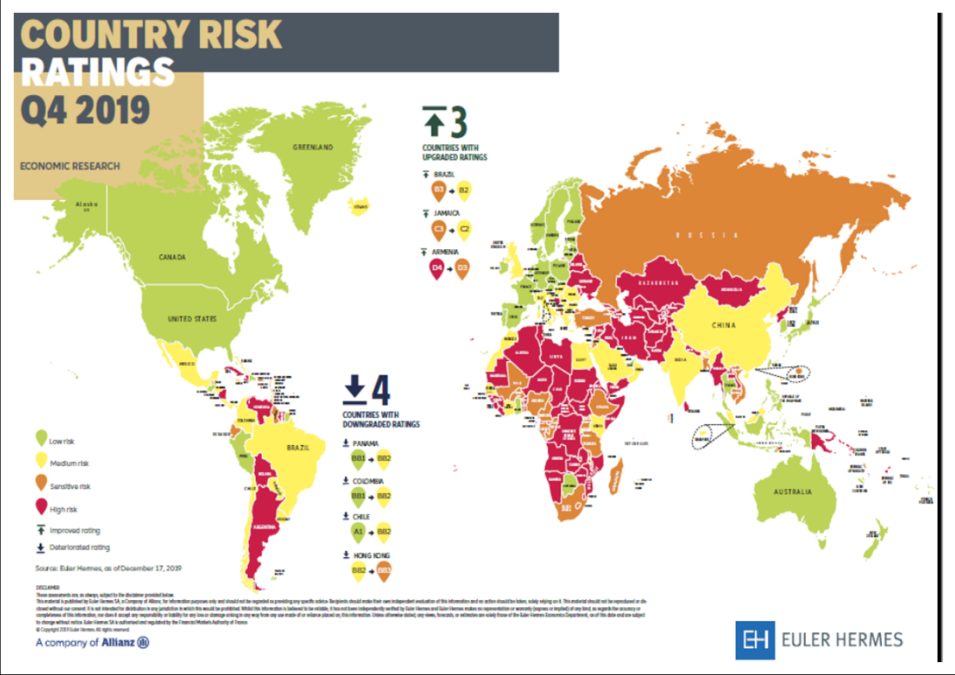- **Other Maps: Coface 2022**

- **Other Maps: Coface 2020**

- **Other Maps: Allianz (Euler Hermes) 2024**

- **Other Maps: Allianz (Euler Hermes) 2019**

• Other Maps: Marsh Political Risk 2019

• Other Country Risk Indicators

• Given the lack of predictive power of CR, a single indicator may not be enough. There are other indexes that may be also signal the *true* riskiness of a country –i.e., they can be correlated with the CR.

• Popular indicators

- A.T. Kearny: *Globalization Index* (it measures a country's global links) - A.T. Kearny: *FDI confidence index* (survey of MNCs indicating the likelihood of investment in specific markets).

- World Economic Forum: *Global competitiveness index* (it uses indexes to rate growth environment and opportunities).

- Institute for Management Development *World Competitiveness index*.

- PWC: *Opacity Index* (it measures the adverse impact of opacity of capital - the cost of borrowing funds- in different countries).

- Heritage Foundation: *Index of economic freedom* (absence of government obstructions).

● **Other Country Risk Indicators**

• Popular indicators

- Fraser Institute: *Index of Economic Freedom*

- UNDP: *Human Development Index* (HDI is a composite index measuring average achievement in life expectancy, education, and standard of living).

- Nord Sud Export (NSE) index (market potential assessment for foreign investor

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● **Other Country Risk Indicators**

• Popular indicators: Summary

In general, we see countries' rankings moving in a similar range (say, Japan is between 9 and 28; USA between 1 and 15); but not always.

The economic freedom rankings of Brazil and China create huge intervals for these countries, far away from the others.

Country	Euromoney (2011)	Global'n (2007)	GCI - WEF (2011)	WCI - IMD (2011)	Opacity (2009)	Economic Freedom (2011)
Brazil	41	67	53	44	28	99
China	40	66	26	19	45	138
Japan	25	28	9	26	16	22
UK	17	12	10	20	2	14
USA	15	7	5	1	6	10

• **Country Risk : Implications**

• Country/Political risk affects the expected cash flows of an investment. MNCs need to account for this type of political risk when evaluating international projects.

• In general, companies try to adjust the expected cash flows by decreasing them by an amount that reflects the probability of a loss due to country/political risk.

• It is complicated how to calculate the probability distribution associated with country/political risk.

Example: Suppose HAL, a U.S. MNC, is considering a project in Hong Kong with an initial investment of **USD 10 million** and a duration of 4 years with the following expected cash flows (in USD), including liquidation/sale at the end of Year 4:

|	Year 1	Year 2	Year 3	Year 4
Free CF	1.114M	1.486M	1.811M	13.524M

The MNC uses the usual **15%** discount rate for this type of project. Then,

$$\textbf{NPV (in M)} = \textbf{-10} + \left\{ \frac{1.114}{(1+.15)} + \frac{1.486}{(1+.15)^2} + \frac{1.811}{(1+.15)^3} + \frac{13.524}{(1+.15)^4} \right\}$$

$$= \textbf{USD 1.0155 M} > 0 \quad \Rightarrow \text{Yes, HAL undertakes project.}$$

But, we have ignored political risk. Suppose the MNC thinks there is a P_i probability of expropriation every year. Assume, for simplicity, that after expropriation the CFs = 0 –that is, there is no recovery.

CFs for the next 4 year are given by the following diagram:
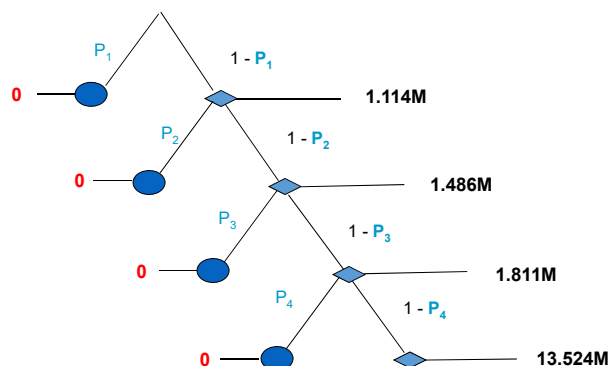
Assume that P_i = P –that is, a constant– and set **P = 5%**. Then,

NPV (in M) $= \textbf{-10} + \{\frac{1.114}{(1+.15)} * \textbf{.95} + \frac{1.486}{(1+.15)^2} * (\textbf{.95})^2 + \frac{1.811}{(1+.15)^3} * (\textbf{.95})^3 +$
$+ \frac{13.524}{(1+.15)^4} * (\textbf{.95})^4\} = \textbf{-USD .747 M} < 0 \quad \Rightarrow \text{No!}$

In practice, it is difficult to compute the P_i's in the previous Example.

Sometimes, it is easier to calculate *break-even probabilities* and, then, compare them with other the probabilities used in other projects or with the experience of a company or expert.

In the previous example, the break-even probabilities, p_{BE}, can be derived from solving the following equation:

NPV (in M) $= \textbf{-10} + \{\frac{1.114}{(1+.15)} * (1 - p_{BE}) + \frac{1.486}{(1+.15)^2} * (1 - p_{BE})^2 +$
$+ \frac{1.811}{(1+.15)^3} * (1 - p_{BE})^3 + \frac{13.524}{(1+.15)^4} * (1 - p_{BE})^4\}$

Example: Using trial and error (or Excel or R), HAL determines
$$p_{BE} = \textbf{0.027964}$$

<u>MNC's rule</u>: If $p_{BE} < .03 \Rightarrow$ The U.S. MNC undertakes the project. ¶

- **Country Risk : Insurance**

• NPV calculations are easier if there is insurance: MNC just adjust the expected cash flows by the cost of insurance and proceed as usual.

• There is an active market for Country Risk Insurance.

- Sovereign Risk can be insured by the private market or CDS (swaps).

- Political Risk can be insured by international organizations (**World Bank**), governments and private insurance companies (**AIG**, **Zurich**, etc.)

• Political risk is available for different events:

◊ Political violence: Revolution, civil unrest, terrorism, war, etc.

◊ Expropriation or confiscation of assets.

◊ Repudiation of contracts.

◊ Cancellation of credit or guarantees.

◊ Business interruptions.

◊ Currency inconvertibility, blockage of funds.

- **Country Risk: Insurance**

• Political risk insurance policies tend to be standardized, but can be adapted for specific situations. For larger investments or complex situations, tailor-made policies are common, with a syndicate of several insurers providing coverage.

• The private market is usually used for complex investments that require a great deal of customization.

• The U.S. government, through the ***Overseas Private Investment Corporation*** (**OPIC**) has been providing political risk insurance to U.S. international investors since 1971.

• The World Bank also offers political risk insurance through its ***Multilateral Investment Guarantee Agency*** (**MIGA**), which was established in 1988.

• **Country Risk: Insurance**

Example: Suppose HAL gets fully insured against political risk. It insured the full amount for each year. The premium is **1.5%** annual. That is,

$$\textbf{NPV} \text{ (in M)} = \textbf{-10} + \left\{ \frac{1.114 * \textbf{.985}}{(1 + \textbf{.15})} + \frac{1.486 * \textbf{.985}}{(1 + \textbf{.15})^2} + \frac{1.811 * \textbf{.985}}{(1 + \textbf{.15})^3} + \right.$$

$$\left. + \frac{13.524 * \textbf{.985}}{(1 + \textbf{.15})^4} \right\} = \textbf{USD 0.8502} > 0$$

$$\Rightarrow \text{Yes! HAL undertakes project. ¶}$$

• The example is very simple. In practice, MNCs cannot get insurance for 100% of cash flows, usually they can get covered from 50% to 90%.

• **Country Risk: Insurance**

In practice, MNCs cannot get insurance for 100% of cash flows, usually they can get covered from 50% to 90%.

Example (continuation): Now, HAL gets insurance against political risk for **70%** of the CFs. The premium is **1.5%** annual and **P = 5%**. That is,

$$\textbf{NPV (USD M)} = \textbf{-10} + \left\{ \frac{1.114 * \textbf{.985}}{(1 + \textbf{.15})} + \frac{1.486 * \textbf{.985}}{(1 + \textbf{.15})^2} + \frac{1.811 * \textbf{.985}}{(1 + \textbf{.15})^3} + \right.$$

$$\left. + \frac{13.524 * \textbf{.985}}{(1 + \textbf{.15})^4} \right\} * \textbf{.70} +$$

$$+ \left\{ \frac{1.114}{(1 + \textbf{.15})} * \textbf{.95} + \frac{1.486}{(1 + \textbf{.15})^2} * (\textbf{.95})^2 + \right.$$

$$\left. + \frac{1.811}{(1 + \textbf{.15})^3} * (\textbf{.95})^3 + \frac{13.524}{(1 + \textbf{.15})^4} * (\textbf{.95})^4 \right\} * \textbf{.30}$$

$$= \textbf{USD 0.37122} > 0 \Rightarrow \text{YES! ¶}$$

- **Country Risk: Insurance**

In many situations, once expropriation happens, the company files a claim and the company gets a one-time payment.