

International Finance Course
LUISS Guido Carli, Academic Year 2018-2019

How to Analyse, Structure and Finance direct investments abroad, related to real assets (infrastructure, industrial plants, etc) with a project finance approach:

A greenfield project and operating assets (M&A) evaluation process

by

Federico Merola (“**FM**”)
(28th September 2018)

1. Agenda

LESSONS SEPTEMBER	TIME	PLACE - Viale Romania 32	TEACHER
lunedì 10/09	12:15 - 13:45	Aula 202 – 2 piano	Prof. Federico Merola
venerdì 14/09	11:30 - 13:00	Aula T03 – piano zero	Dr. Marco Pignoloni
lunedì 17/09	12:15 - 13:45	Aula 202 – 2 piano	Prof. Federico Merola
venerdì 21/09	11:30 - 13:00	Aula T03 – piano zero	Prof. Federico Merola
lunedì 24/09	12:15 - 13:45	Aula 401 – 4 piano	Dr. Marco Pignoloni
venerdì 28/09	11:30 - 13:00	Aula T03 – piano zero	Prof. Federico Merola
LESSONS OCTOBER	TIME	PLACE - Viale Romania 32	TEACHER
lunedì 01/10	12:15 - 13:45	Aula 401 – 4 piano	Prof. Federico Merola
venerdì 05/10	11:30 - 13:00	Aula T03 – piano zero	Dr. Marco Pignoloni
lunedì 08/10	12:15 - 13:45	Aula 401 – 4 piano	Dr. Marco Pignoloni
venerdì 12/10	11:30 - 13:00	Aula T03 – piano zero	Dr. Marco Pignoloni
lunedì 15/10	12:15 - 13:45	Aula 401 – 4 piano	Prof. Federico Merola
venerdì 19/10	11:30 - 13:00	Aula T03 – piano zero	Prof. Federico Merola
lunedì 22/10	12:15 - 13:45	Aula 401 – 4 piano	Dr. Marco Pignoloni
venerdì 26/10	11:30 - 13:00	Aula T03 – piano zero	Dr. Marco Pignoloni
lunedì 29/10	12:15 - 13:45	Aula 401 – 4 piano	Prof. Federico Merola

Federico Merola
7 ottobre 2025

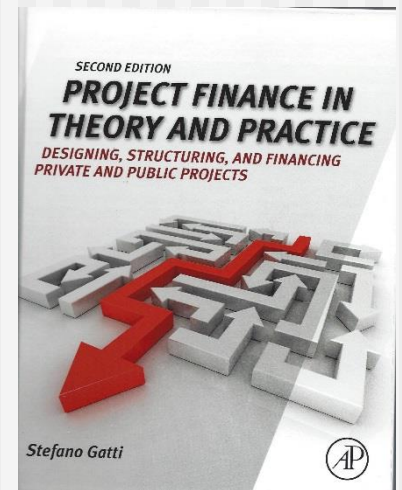
1. Agenda

LESSONS NOVEMBER	TIME	PLACE - Viale Romania 32	TEACHER
venerdì 02/11	11:30 - 13:00	Aula T03 – piano zero	Dr. Marco Pignoloni
lunedì 05/11	12:15 - 13:45	Aula 401 – 4 piano	NO LESSON/NO TEST
venerdì 09/11	11:30 - 13:00	Aula T03 – piano zero	NO LESSON/NO TEST
lunedì 12/11	12:15 - 13:45	Aula 401 – 4 piano	Prof. Federico Merola
venerdì 16/11	11:30 - 13:00	Aula T03 – piano zero	Dr. Marco Pignoloni
lunedì 19/11	12:15 - 13:45	Aula 401 – 4 piano	Prof. Federico Merola
venerdì 23/11	11:30 - 13:00	Aula T03 – piano zero	Dr. Marco Pignoloni
lunedì 26/11	12:15 - 13:45	Aula 401 – 4 piano	Prof. Federico Merola
venerdì 30/11	11:30 - 13:00	Aula T03 – piano zero	Prof. Federico Merola/Dr. Marco Pignoloni
EXAMINATIONS	TIME	PLACE - Viale Romania 32	TEACHER
10 December 2018	10:00 – 13:00	Aula INFO 301	Prof. Federico Merola/Dr. Marco Pignoloni
25 January 2019	10:00 – 13:00	Aula INFO 301	Prof. Federico Merola/Dr. Marco Pignoloni

1. Materials (2)

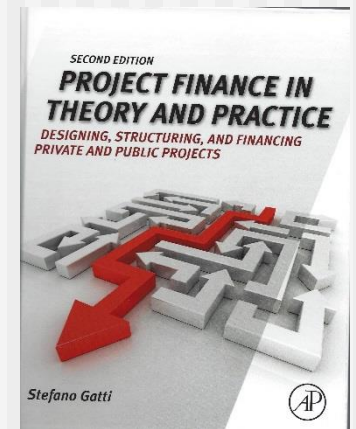
Project Finance in Theory and Practice

(by Stefano Gatti)



- ✓ **Chapter 1:** Introduction to the Theory and Practice of Project Finance (Page 1 - 14);
- ✓ **Chapter 2:** The Market for Project Financing: applications and sectors;
- ✓ **Chapter 3:** Project Characteristics, risk analysis and risk management (Page 43 – 49; 52 - 75);
- ✓ **Chapter 4:** The Role of Advisors in a Project Finance Deal (just to be read by students interested in the subject);

1. Materials (2)



- ✓ **Chapter 5:** Valuing the project and Project Cash Flows (**NO** ! Replaced by slides and lessons);
- ✓ **Chapter 6:** Financing the Deal (page 167 – 186; 188 – 197; 204 – 215; 217 - 231; 246 – 249;)
- ✓ **Chapter 7:** Legal Aspects of Project Finance (to be decided on the basis of material provided)

Export Credit and ECAs: slide will be provided;

Financial Modelling: Chapter 5 of the book will be replaced by slides and other material given by MP

1. Useful Information

For any question/clarification you may use the following email addresses:

- ✓ fmerola@luiss.it (for general questions and meetings)
- ✓ marco.pignoloni@arpinge.it (for questions regarding Financial Modelling Practice);

<http://docenti.luiss.it/merola/> (for general information regarding the Agenda and Examination)

Our availability for meetings will be on Mondays (from 2.00 to 3.00 pm) and on Fridays (1:00 – 2:00 pm), upon request. If necessary, other days may be agreed upon request.

Risk Analysis



2. Risk Analysis

- The Risk Analysis in a PF deal is fundamental in order to evaluate the **eligibility** for its sponsors and the **bankability** for the lenders;
- All the risks of a project have to be:
 - Identified;
 - Analysed and quantified;
 - Covered, mitigated and/or shared among participants/ counterparties to/of the deal
 - Managed

2. Risk Analysis

- Risk is a crucial factor in project financing.
- It is responsible for unexpected changes in the capability of the project to **repay costs, debt service** and/or **pay dividends to the shareholders;**
- A successful project financing initiative is based on a careful **analysis of all risks** the project **may suffer** during its economic life.
- Cash flows can be affected by various risks and if such risks have not been properly **assessed** and **hedged** from the beginning, they can generate a **cash shortfall (risk of project default);**

2. Risk Analysis

- There are **three basic strategies** that an SPV may implement in the order to handle the risk and/or to mitigate its impact:
 - 1) Retain the risk:** The SPV believes that cost/benefit comparison does not justify the third parties' risk allocation; common in corporate finance structures
 - 2) Allocate the risk to a counterparty:** it represent the cornerstone of the project financing transactions. Every counterparty must bear the cost of the risk it is the best able to control and manage it.
 - 3) Cover the risk with professional players (Insurance companies, ECAs):** Some risks can be taken by the ECAs or the insurance companies against payment of a premium

2. Risk Analysis

- 1) Retain the risk**: common in a corporate financing setting. Less expensive solution. Project management and internal procedures are fundamental for the prevision and control of the risk.
- 2) Allocate the risk to a counterparty (Risk sharing)**: the network of contracts set up by the SPV becomes the bulk of an effective risk management tool;
- 3) Cover the risk with professional players** (Insurance companies, ECAs): risks to heavy, remote or difficult to allocate may be insured. Insurance companies may manage such risks because they include them in large portfolios based on statistical methodology with sound calculation of probabilities.

2. Risk Analysis

The key concept in a PF risk-sharing approach is the following: Project risks must be allocated equitably between all parties involved in the transaction, with the objectives of assigning risks to the contractual player best able to control and manage them ⁽¹⁾

(1) Negotiation Power may be a distortionary element to the extent that does not allow to achieve the above mentioned goal

2. Risk Analysis – main area of analysis

A. GENERAL INFORMATION.

- Executive Summary;
- Objectives;
- Organisation;
- Output/services.

C. SPONSORS.

- History and track record;
- Economic-Financial soundness
- Role in the Project and commitment (how is a certain Project?)
 - Potential conflict of interests.

E. COST OF THE PROJECT.

- Detailed cost assumption;
- Capex and Working Capital;
- Operating and Financial Costs;
- Other cost including cost over-runs.

B. INSTITUTIONAL PICTURE - Country

- Regulation impacting the project
- Tax rules;
- Licenses, permits and concessions;
- Public Authorities involvement & Independent Authorities;
- Guarantees

D. MARKET.

- Market analysis;
- Information on players and structure of the sector
- Market trends;
- Potential position of the project in the market.

F. ENVIRONMENTAL IMPACT.

- Analysis of the potential environmental impact;
- National and International Regulation impacting the Project
- SPV's policies on environment;
- Risk analysis of any environmental impact

2. Risk Analysis – main area of analysis

G. TECHNOLOGY.

- Technology to be used
- Maturity and track record (Pilot projects)
- Technology providers;
- O&M

H. FINANCIAL STRUCTURE.

- Equity and quasi equity;
- Debt;
- Terms and conditions of the Senior Debt;
- Other potential financial sources;
- ECAs and Multilateral

I. ECONOMIC-FINANCIAL ASSUMPTIONS

- Economic Assumptions;
- Tariffs and revenues;
- Operational costs;
- Financial Profile of the deal;
- Debt Repayment capability;
- Main economic-financial indicators

J. CONTRACTS.

- Various Contracts and social commitments;
- Concession Contracts;
- Offtaker/Purchase contracts;
- O&M & etc.

K. GUARANTEES & Security Package.

- Guarantee provided;
- Other risk mitigations factors;
- Insurance coverage

3. Risk Analysis – major macro-risks

- ✓ **Project Risk**: all the possible events which may impact on the expected performance of a project;
- ✓ **Country Risk**: all the risks specifically associated with the investment (in infrastructure) in a foreign country.

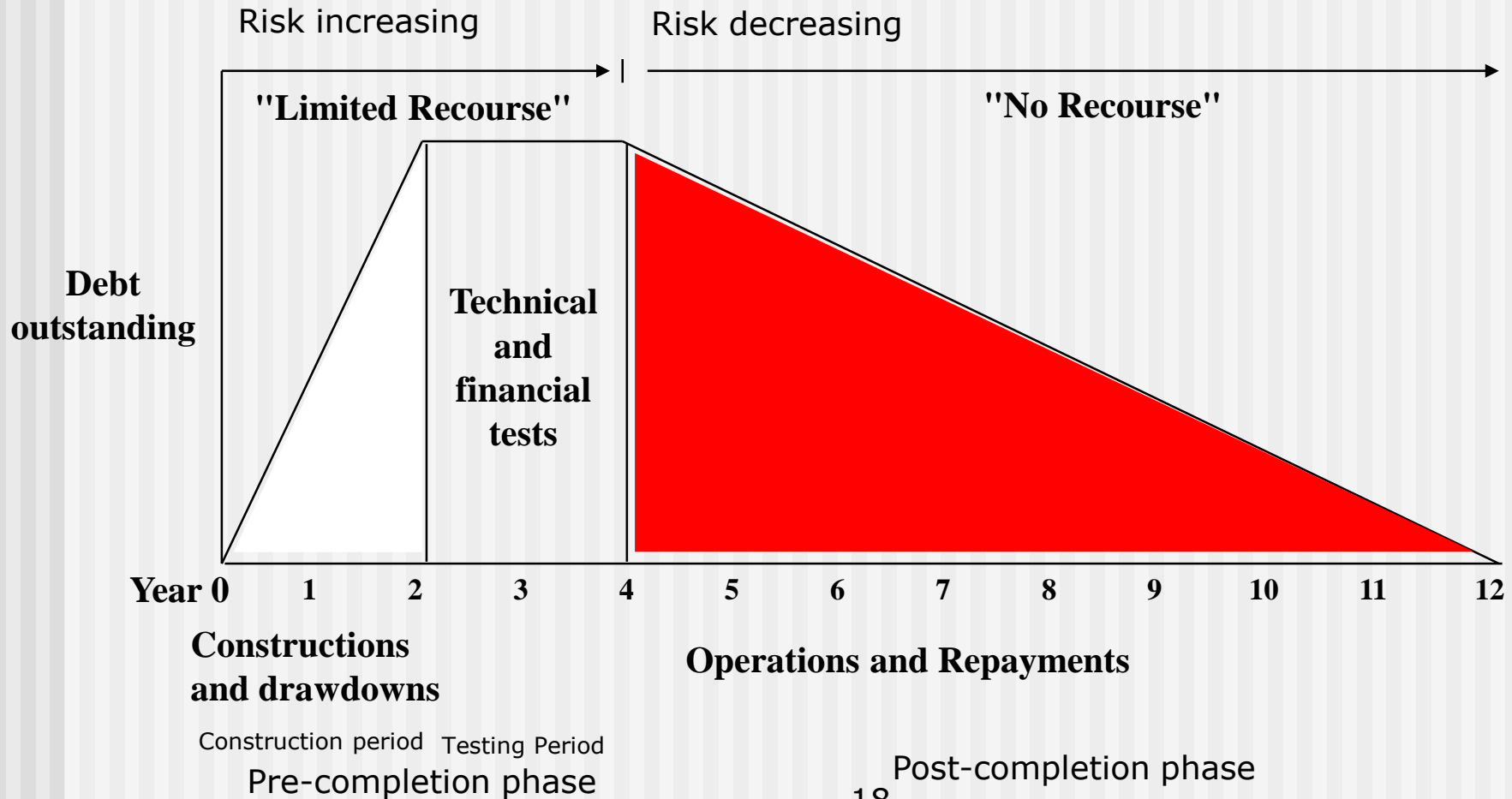
3. Risk Analysis – Project risks

Divided in

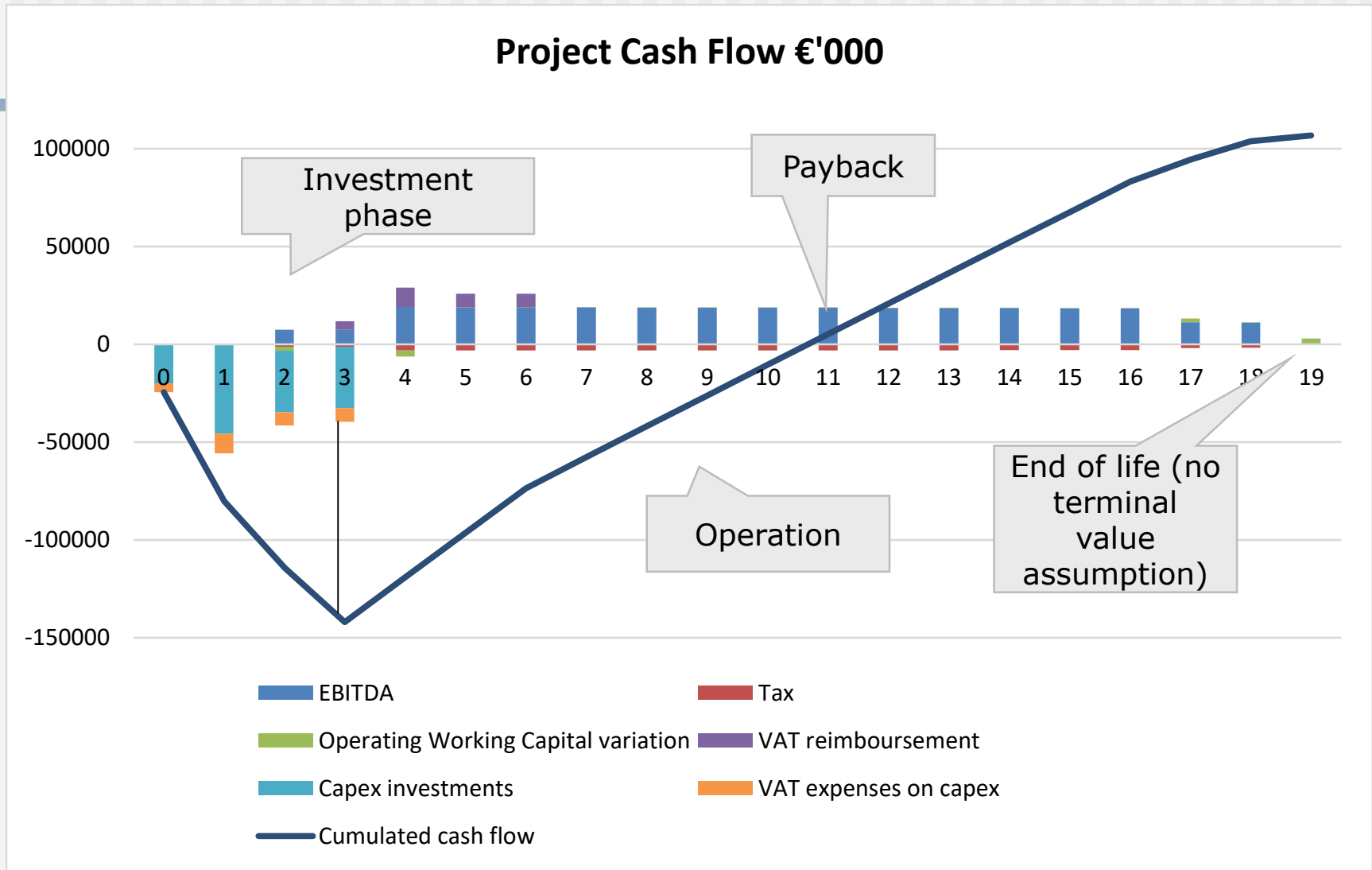
- ✓ Pre-completion risks
- ✓ Post-completion risks

Ps: Country/political risks may occur during the pre and post completion phase

3. Risk Analysis – Risk profile of a project



3. J-Curve



3. Risk Analysis – Major Pre completion risks

- ✓ Project management (planning)
- ✓ Construction (timing, costs and quality/performance defined)

3. Risk Analysis – Major Post completion risks

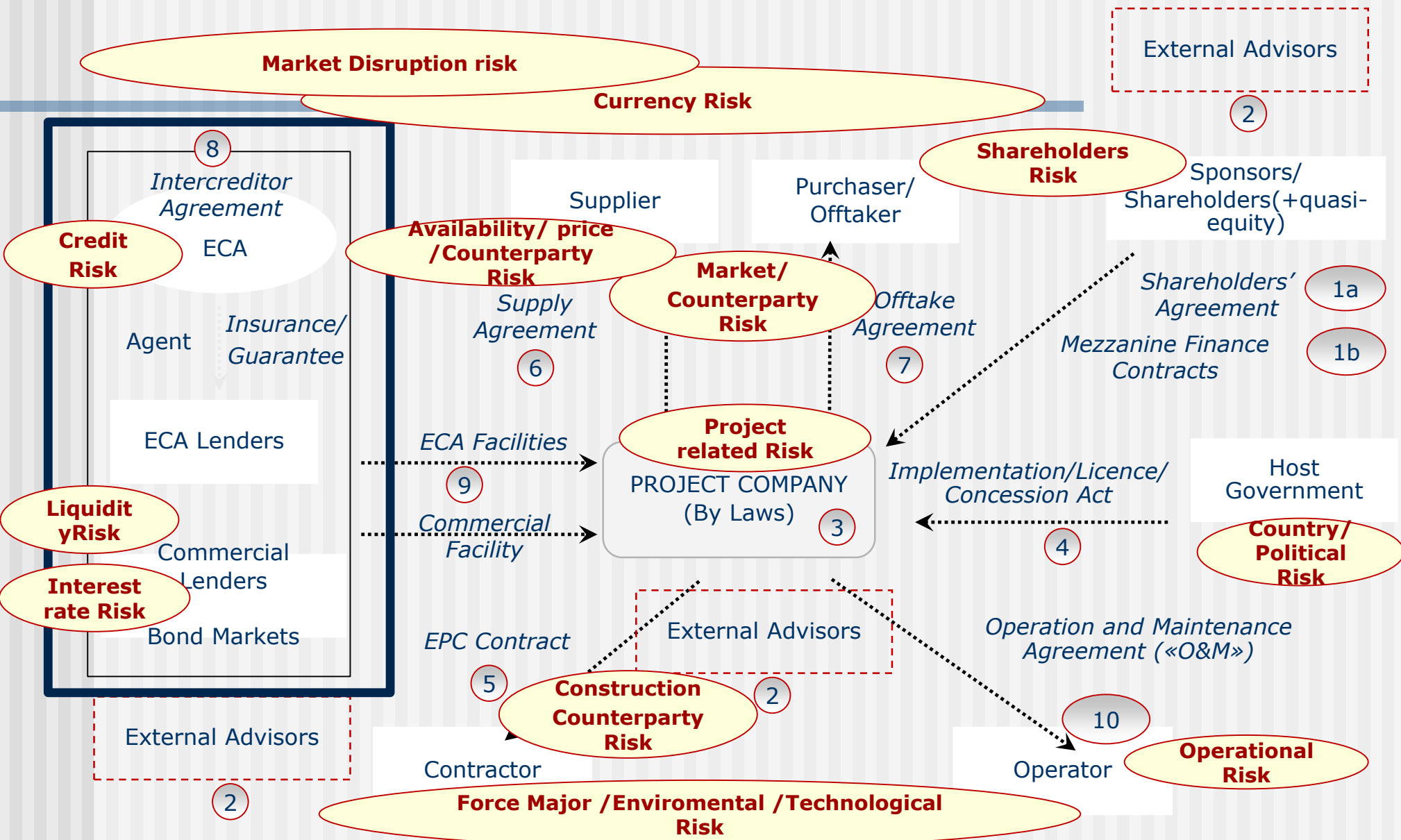
- ✓ Supply risks (quality, quantity and prices);
- ✓ Operating risk (project management)
- ✓ Performance Risk
- ✓ Commercial risks (demand and prices);

3. Risk Analysis – Major Risks during both phases

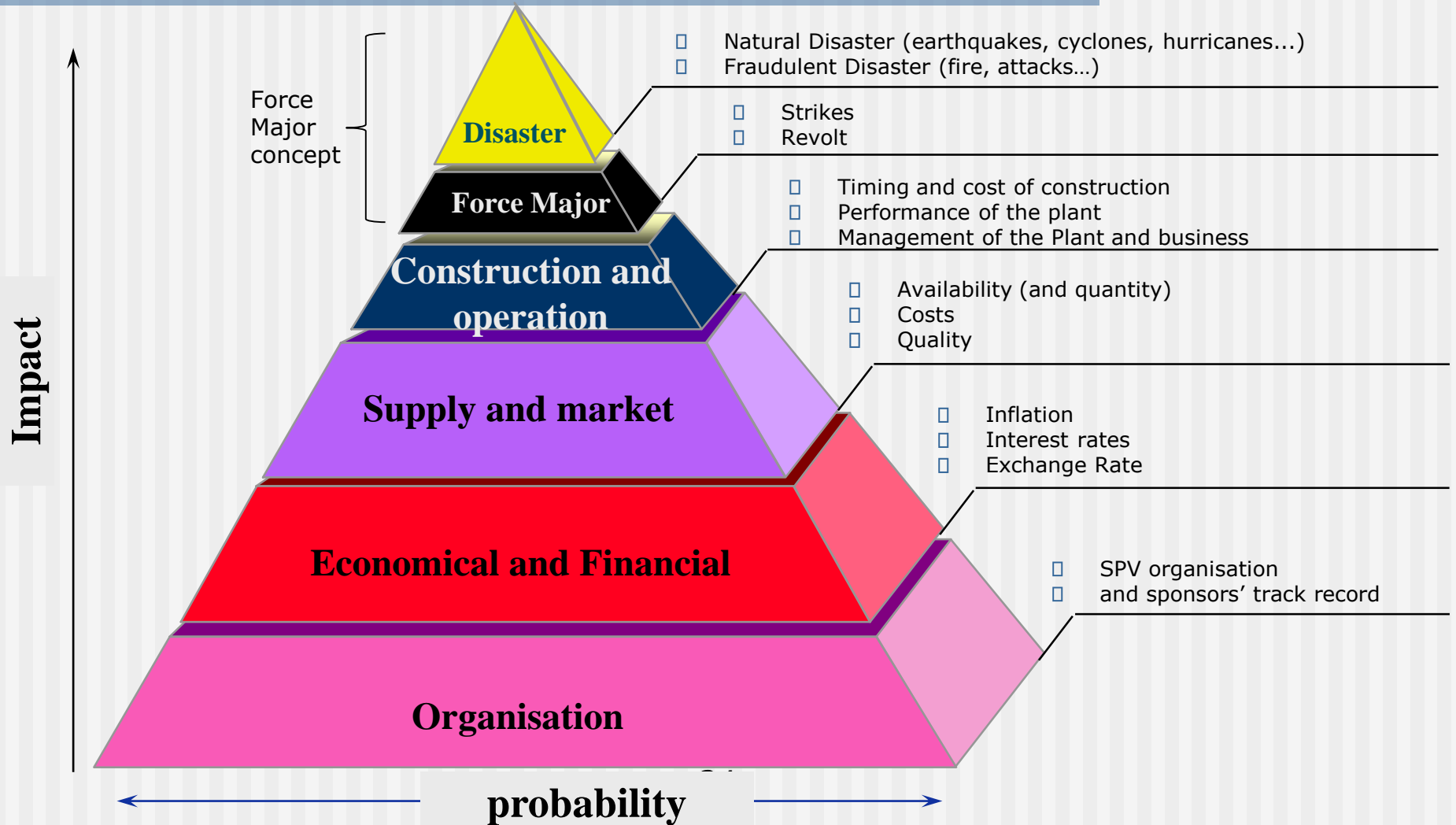
- ✓ Sponsors and deal structure (**commitment**, potential conflict of interests; alignment of interests; soundness of various players and the complex risk sharing)
- ✓ Technological (risks of performance for not tested technologies and rapid obsolescence during operation);
- ✓ Financial (exchange rate, interest rates, inflation rate);
- ✓ Environmental;
- ✓ Regulatory Risk
- ✓ Force Major.
- ✓ Political Risk/Country risk
- ✓ Legal Risk
- ✓ Credit/Counterparty risk
- ✓ Other

Most (not all) of the risks common to the pre and post-completion phase are hedged by an almost exclusive use of insurance contracts or derivatives contracts

Main parties involved in a PF deal & related risks



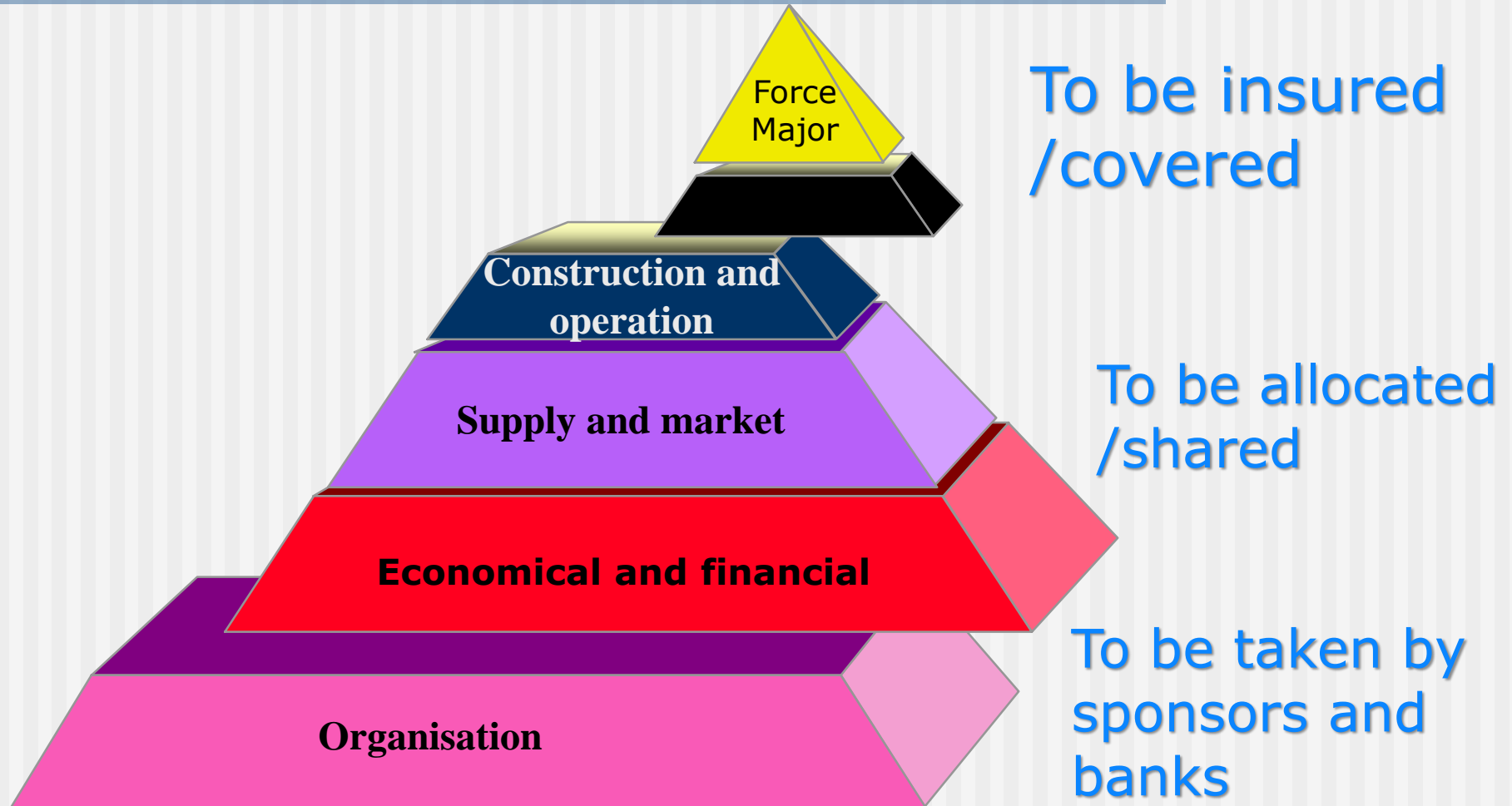
3. Risk Analysis – the Pyramid of risks



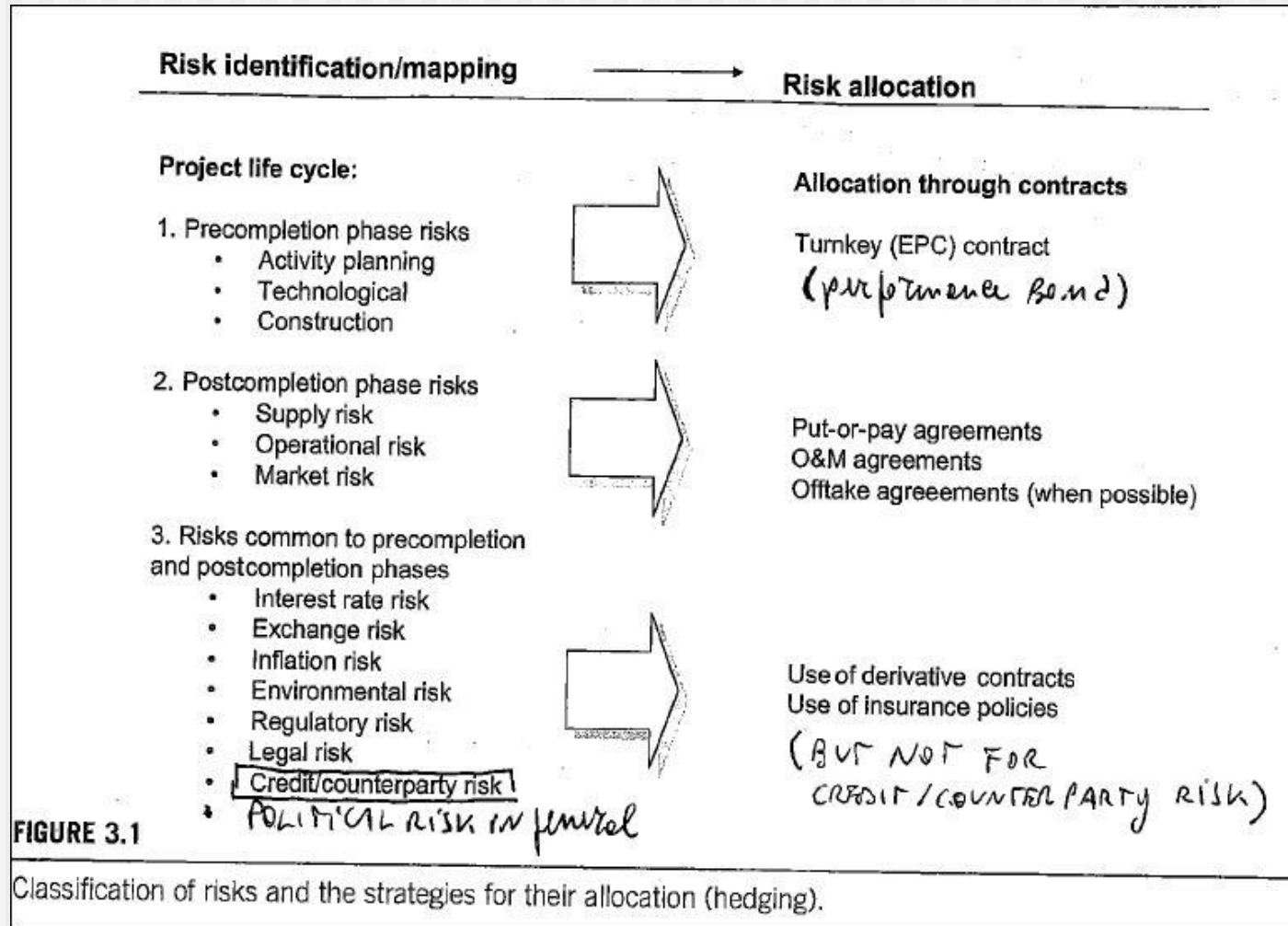
3. Risk management

key principles:

- Risks have to be allocated on those parties which are more capable to manage them;
- It may be preferable to sustain a pre-determined cost rather than take uncertainty



3. Risk management



The risk management activity is based on three main options:

- Retain a risk;
- Transfer (share) a risk by means of project contracts;
- Cover risks by means of derivatives contracts or insurance policies

4. Risk Analysis – Major general risks



3. Risk Analysis – Force Major

- ❑ **Force major** is a common clause in contracts that essentially regulates liabilities or obligations when an extraordinary event or circumstance beyond the control of the parties occurs;
- ❑ It may refer to political situation such as a war, strike, riot, **etc**,
- ❑ or to event described by the legal term as act of God (hurricane, flood, earthquake, volcanic eruption, etc.);
- ❑ Force Major risks have to be covered, to the extent possible, by means of private and governmental insurance (ECAs)
- ❑ All risks of damages suitable to be insured are supposed to be covered by including a certain insurance cost on the Business Plan rather than bringing a potential risk of impact on the Project's cash flows.

3. Risk Analysis – Country risks

- ✓ **Country Risk**: In general terms these risks include *political risk*, *exchange rate risk*, *economic risk*, *sovereign risk* and *transfer risk* (which is the risk of capital being locked up or frozen by government action).
- ✓ However, in a PF contest, **country risk is mainly composed of:**
 - ❖ **Political risk;**
 - ❖ **transfer and convertibility risk** (*i.e.* the risk a government imposes capital or exchange controls that prevent an entity from converting local currency into foreign currency and/or transferring funds to creditors located outside the country)
 - ❖ **force majeure** (war, expropriation, revolution, civil disturbance, floods, earthquakes).
- ✓ The country risk classifications **are not** sovereign risk classifications and should not, therefore, be compared with the sovereign risk classifications of private credit rating agencies (CRAs).

3. Risk Analysis – Political Risk

- ✓ **Political risk:** is the risk that an investment's returns could suffer as a result of political changes or instability in a country (as a change in government, legislative bodies, other foreign policy makers or military control):
 - ❖ **Political risks are notoriously hard to be quantified** because there are limited sample sizes or case studies when discussing an individual nation;
 - ❖ **Some political risks can be insured** by international agencies or other government bodies (ECAs)
- ✓ **Sovereign risks:** is the risk that a foreign central bank will alter its foreign exchange regulations, significantly reducing or completely nullifying the value of its foreign exchange contracts. It also includes the risk that a foreign nation will either fail to meet debt repayments or not honor sovereign debt payments.

3. Political Risks Insurance

Risks	Events of default
Expropriation	Any discriminatory action by the host government which deprives or prevents the Guarantee Holder from exercising its ownership rights in, or effective control of the guaranteed investment
Transfer and convertibility	Any action by the host government which prevents, directly or indirectly, the Guarantee Holder from legally converting or transferring outside of the host the dividends, profits or other monetary benefits/returns derived from the investment
Political violence	Any political disorder or turmoil or conflict which can cause: i) destruction or disappearance of, or physical damage to, tangible assets in the host country functional to the investment project; ii) total inability of the project enterprise to conduct operations essential to its overall financial viability as a going concern for the duration of the applicable waiting period; iii) business interruption.
Breach of Contract	Contracting party's actual failure or refusal to perform (or a clear indication of its intentions to not perform) its obligations under the contract.

4. Risk Analysis – Completion Risk



4. Risk Analysis – Completion Risk

The most relevant completion risk is the construction risk, being the risk that a project will:

- not be brought into operation successfully
- not be able to pass its completion test (insufficient performance)
- be underperforming (sufficient but reduced performances)
- be completed with a substantial delay
- cost more than expected (cost overruns);

As a consequence, the most important risk mitigation factor is the track record and soundness of the General Contractor as well as the Construction Contract

4. Completion Risk coverage under the *security package*

EPC (Engineering, procurement and construction) contract:

- ❑ The most common project finance construction contract is the engineering, procurement and construction (EPC) contract.
- ❑ An EPC contract generally provides for the obligation of the contractor to build and deliver the project facilities on a lump sum turnkey basis, i.e., at a certain pre-determined fixed price, by a certain date, in accordance with certain specifications, and with certain performance warranties.
- ❑ The EPC contract is quite complicated in terms of legal issue, therefore the SPV and the EPC contractor need sufficient experience and knowledge of the nature of project to avoid their faults and minimize the risks during contract execution.

4. Completion Risk coverage under the *security package*

1. The Construction company or the consortium of construction companies is the player winning the tender for designing and building the plant/asset;
2. Usually Sponsors prefer to have one main **General Contractor**, committing directly to the SPV for the overall construction, and coordinating various *sub-contractors* (**EPC Contract** – *engineering, Procurement and Construction*);
3. In order to mitigate major construction risks, the EPC contract is usually a **lump-sum (=fixed price) turnkey contract;**

4. Completion Risk coverage under the *security package*

4. Under a lump-sum turnkey contract, the General Contractor is responsible for delays, cost overruns and performances;
5. **Delays:** usually penalties are applicable (as well as early completion bonus);
6. **Cost Overruns:** the GC has to bear costs exceeding the maximum fixed price plus an additional amount of extra-costs agreed with the SPV (*covered cost overruns*);
7. **Liquidated damages:** penalty fees to be paid by the GC to the SPV in case **performance** tests on various variables do not reflect the agreed standard

4. Completion Risk coverage under the **security package**

□ Basic contents of an EPC contract are:

- ❖ Description of the project
- ❖ Price and Payment
- ❖ Completion date
- ❖ Completion guarantee and liquidated damages (LDs)(related to actual loss/financial costs and loss of revenues)
- ❖ **Performance bond/guarantee and LDs**
- ❖ Contingencies and accepted (financed) cost overruns
- ❖ Cap under LDs

□ The SPV is still exposed to a certain degree of construction cost overruns since subcontractors may not be liable for all risks or not be able to absorb all risks.

□ Indeed, after the construction phase is completed, the credit risk of a project is expected to decrease.

4. Risk Analysis – Completion Risk

- The Pre-completion phase is the riskiest phase of a PF deal;
- The Construction risk is the most relevant pre-completion risk (together with some risks arising in both, the pre- and post completion phase)
- Construction risk is rarely taken by the SPV and is usually transferred (to the maximum possible extent) to the GC by means of the EPC Contract (which may also be one or more sponsors of the project, shareholders of the SPV)
- Lenders may be available to take construction risk only if:
 - ✓ The GC is sufficiently sound and with reliable track record;
 - ✓ The EPC contract is acceptable to them;
 - ✓ The lenders are comfortable with the technology