Project Finance

Topics

- What is Project Finance?
- Examples of Projects
- Project Finance Advantages and Disadvantages
- Infrastructure Public-Private Partnerships

What is Project Finance?

Project finance may be defined as the *raising of funds* to finance an *economically separable* capital investment project, in which the providers of funds look primarily to the *cash flow from the project* to service their *loans* and provide a return on the *equity* invested.

What is Project Finance?

- Project Financing can be arranged when a particular facility or related set of assets is capable of functioning profitably as an independent economic unit (Finnerty, 1996)
- This independent economic unit involves the issuance of equity securities (for the sponsors of the project) and of debt securities that are designed to be self-liquidating from the revenues derived from project operations.

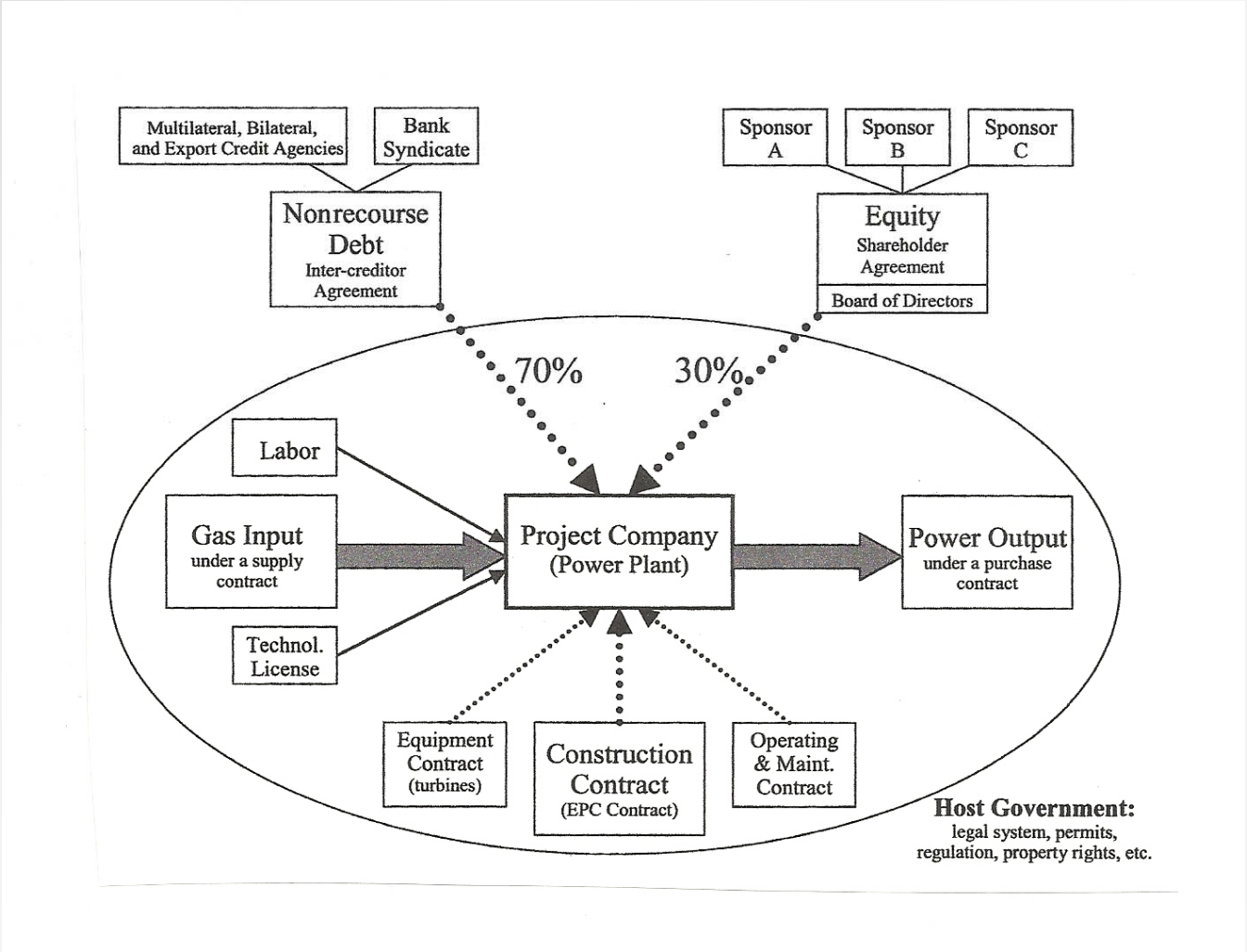
What is Project Finance?

The project is a legal entity (Special Purpose Corporation).

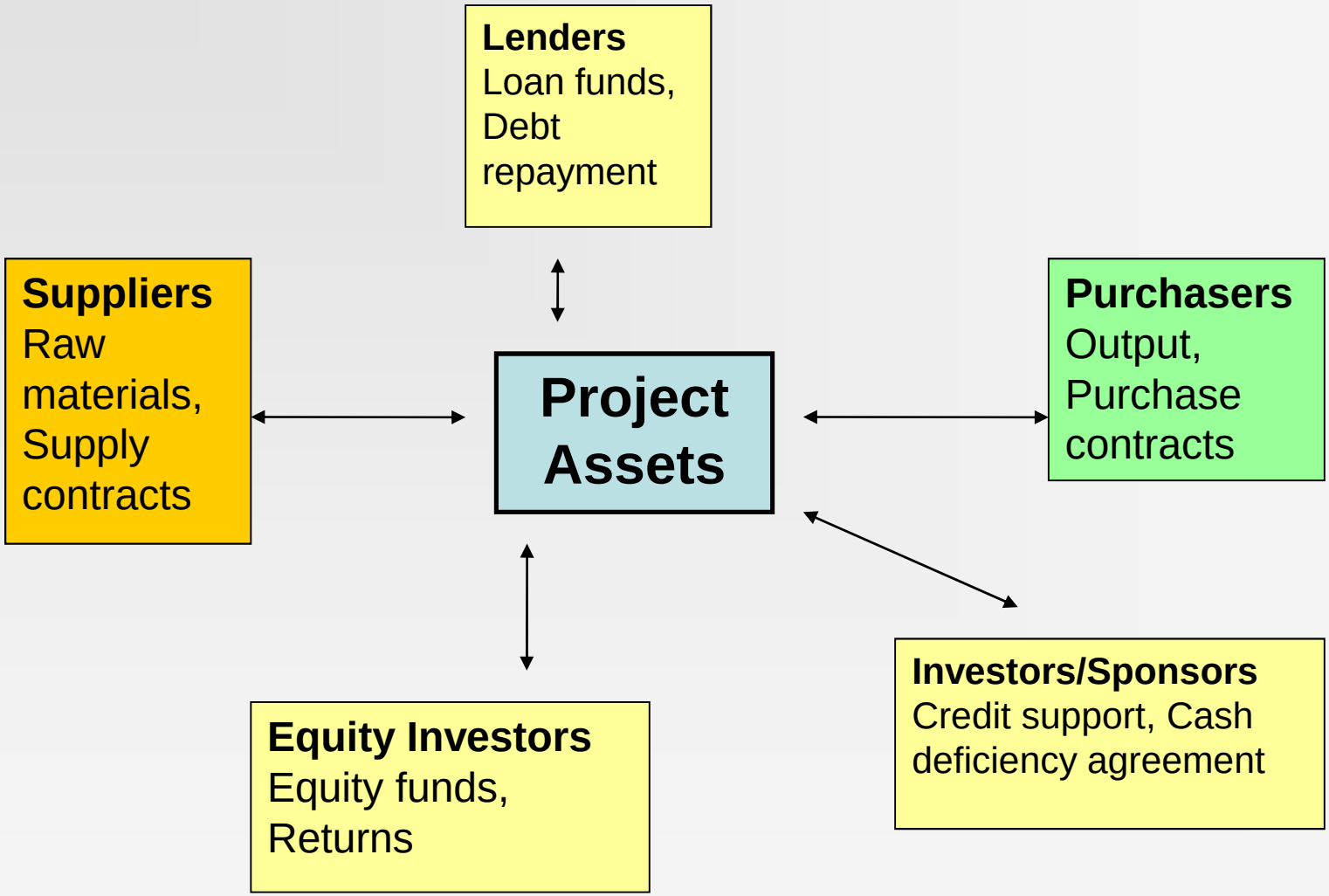
Examples: Pipelines, oil drilling projects, refineries, electricity generating facilities, hydroelectric projects, dock facilities, mines, mineral processing facilities, highways and bridges.

Project is a *nexus of agreements* among financially responsible parties.

What is PF?


Multilateral, Bilateral, and Export Credit Agencies
Bank Syndicate
Nonrecourse Debt
Inter-creditor Agreement
Sponsor A
Sponsor B
Sponsor C
Equity
Shareholder Agreement
Board of Directors
70%
30%
Labor
Gas Input
under a supply contract
Technol. License
Project Company
(Power Plant)
Power Output
under a purchase contract
Equipment Contract
(turbines)
Construction Contract
(EPC Contract)
Operating & Maint. Contract
Host Government:
legal system, permits, regulation, property rights, etc.

What is Project Finance?



What is Project Finance?

- Project financing can be beneficial to a company with a proposed project when:
  - The project's output would be in such strong demand that purchasers would be willing to enter into long-term purchase contracts, and
  - The contracts would have strong enough provisions that banks would be willing to advance funds to finance construction on the basis of the contracts

What is Project Finance?

Example

USA, PURPA, 1978. Small scale electricity producers.

The project is a *cogeneration* plant. Produces steam to generate electricity. The project owners may use some of the electricity produced and sell the rest to the local electric utility company. Leftover heat is used for a chemical plant.

The project sponsor is Engineering Co., which has experience in constructing and managing energy facilities. Fixed-price, *turn-key* contract.

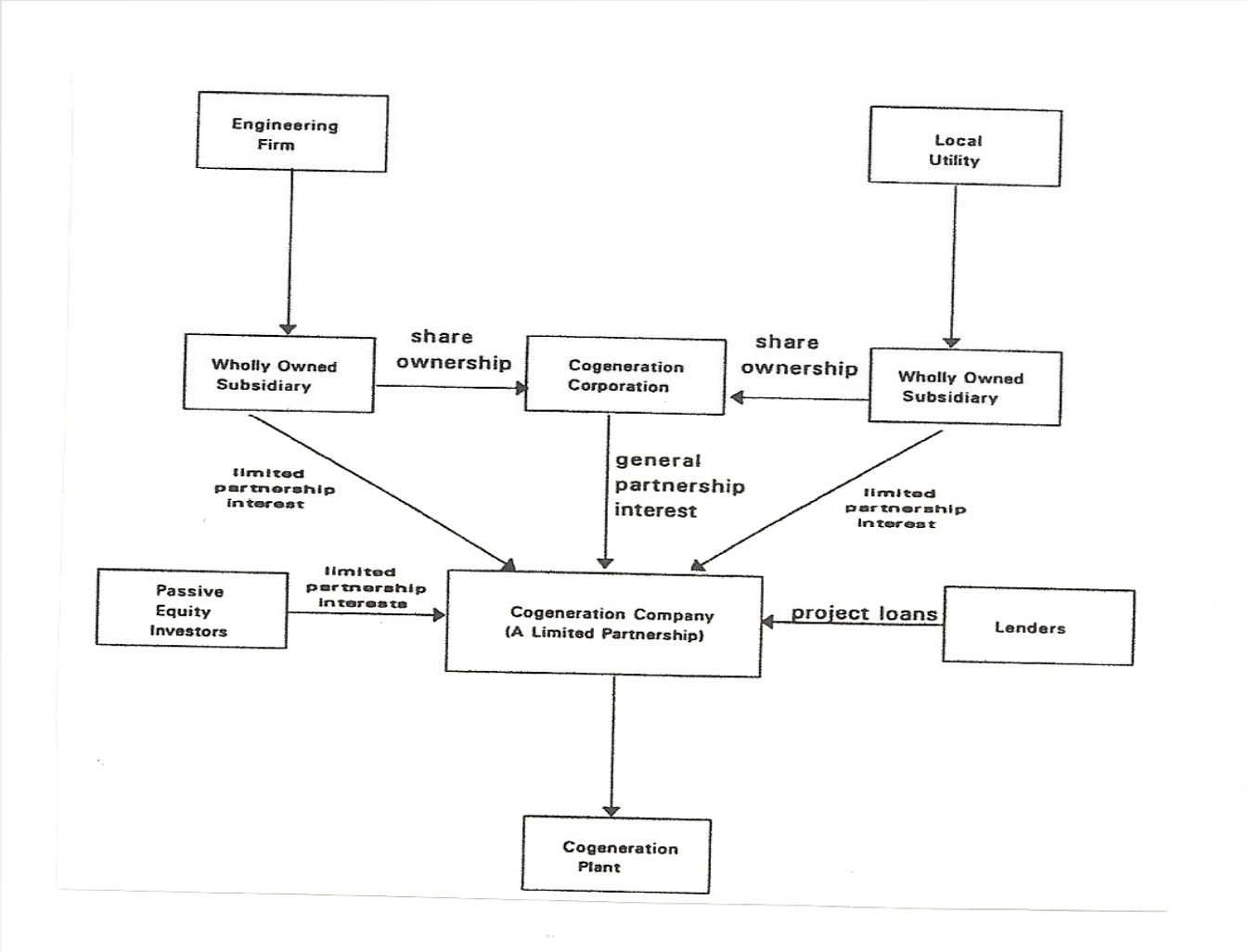
What is Project Finance?

The industrial user is Chemical Co. that agrees to purchase steam for the next 15 years.

The local Utility Co. provides gas and electricity to area customers. It agrees to supply gas and purchase electricity from the project for the next 15 years.

Institutional **equity investors and lenders** will supply the rest of funding.

What is Project Finance?



Requirements of PF

- Technical feasibility
  - Sponsors undertake extensive engineering work to verify the technological processes and design of proposed facility
  - This provides the basis for estimating the construction costs for the project
  - Contingency factors to cover possible design errors or unforeseen costs

Requirements of PF

- Economic viability
  - Marketability of project's output (price and volume)
  - Projections of operating cost
  - Determination of project's cost of capital
  - Adequacy of raw material supplies
- Creditworthiness
  - Inherent value of project assets
  - Expected profitability of the project
  - Amount of equity project sponsors have at risk

Project Finance risks

- Completion risk
  - Monetary aspect: Higher-than-anticipated inflation, underestimation of construction costs
  - Technical aspect: Higher-than-anticipated expenditures required to make project operational
- Technological risk
  - When the technology, on the scale proposed for the project, will not perform according to specifications or will become prematurely obsolete

Project Finance risks

- Raw material supply
  - In connection with natural resource investments, the adequacy of reserves
- Economic risk
  - Inefficiency of operations, insufficient output demand
- Financial risk
  - Rising interest rates, inability to service debt reapayments
- Currency risk

Project Finance risks

- Political risk
  - The possibility that political authorities in the host political jurisdiction may interfere with the timely development and/or long-term economic viability of the project
- Environmental risk
  - When the environmental effects of a project may cause a delay in development or necessitate a costly redesign
- Force majeure risk
  - Some discrete event might impair or prevent altogether the operation of the project

What is Project Finance?

Economic Issues

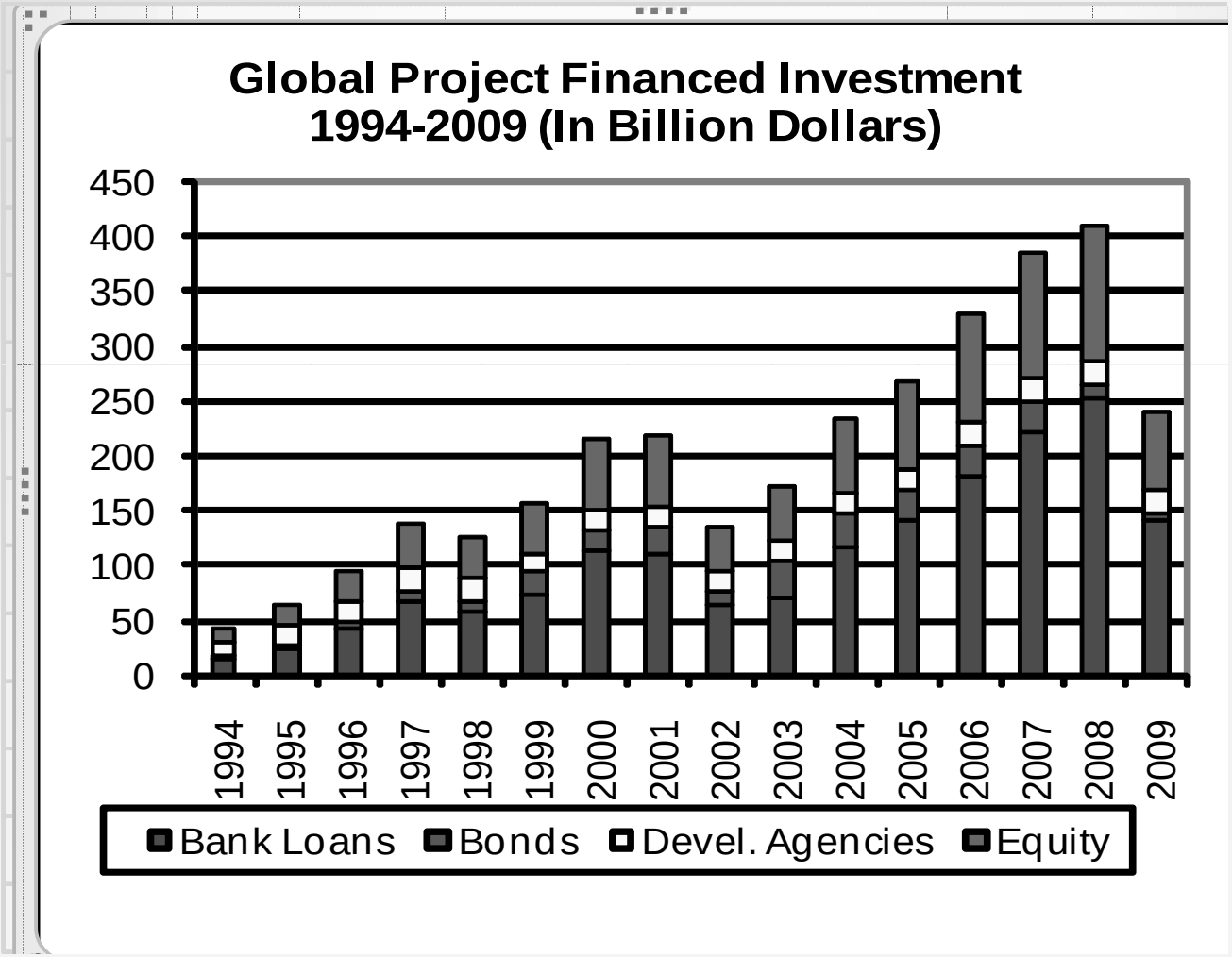
PF is mostly used in power, telecommunications, oil & petrochemicals, infrastructure or real estate (*monopoly rents* and *tangible assets*).

Size and risk considerations for firms or governments (*economies of scale* and *efficient allocation of risks*). Public policy, employment, economic growth and tax revenue considerations. Positive side effects but also *negative externalities.*

Benefits and risks: During construction phase, large outlays and *technological and environment risks*. During operation phase, payoffs distributed to investors, exposed to *market & political* risks.

What is Project Finance?

PF Statistics



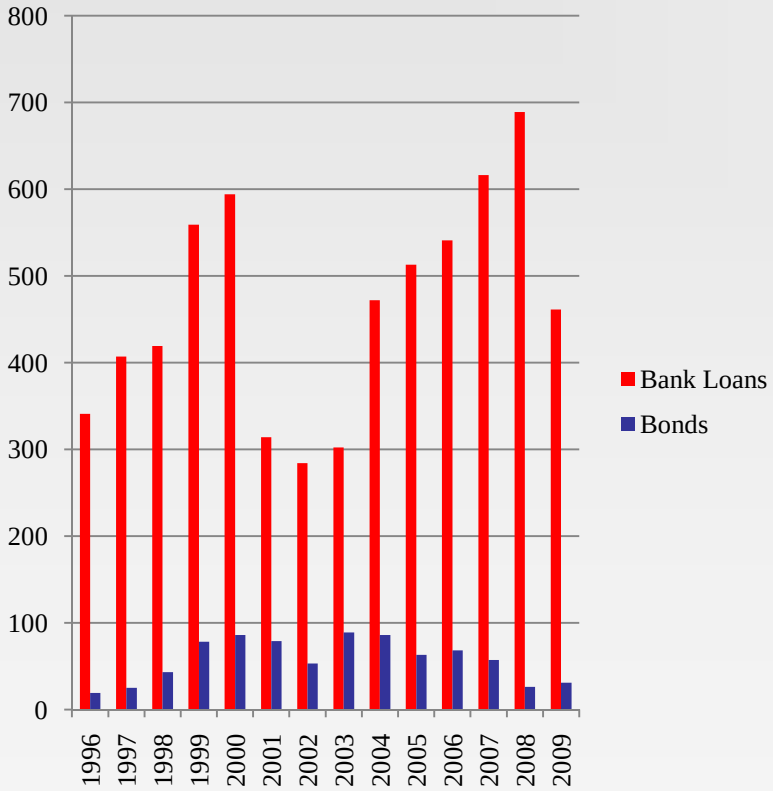
High leverage: 76% debt

High Leverage: 76% Debt

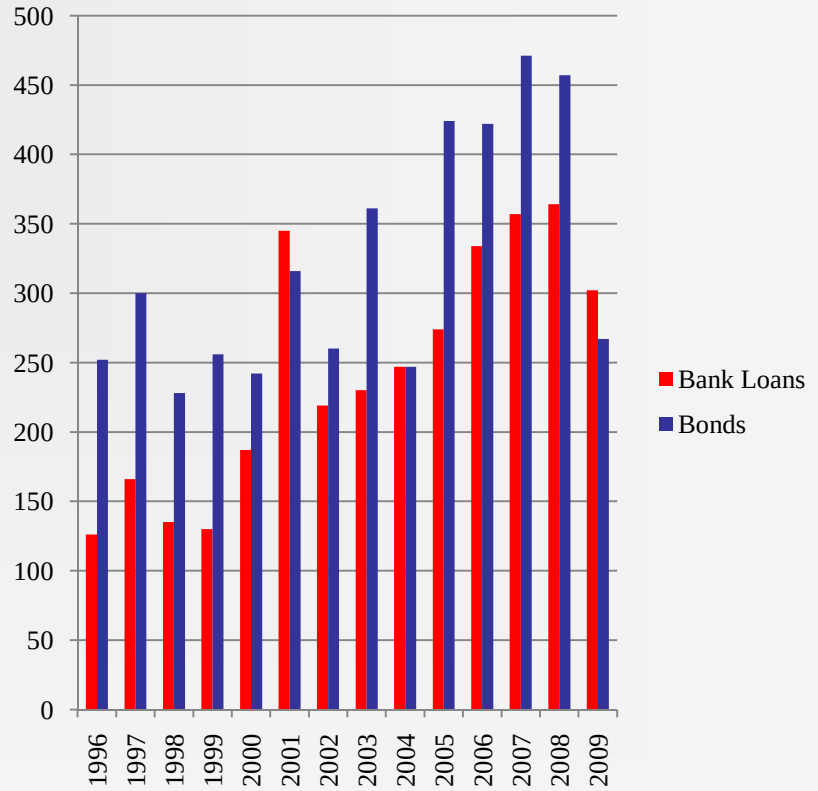
	Percentage Distribution of Debt-to-Total Capitalisation (1,149 Projects)					
	2005	2006	2007	2008	2009	Total
<50%	8	8	2	0	5	4
50%-59%	9	7	8	8	10	8
60%-69%	12	15	16	16	22	16
70%-79%	29	20	25	25	27	25
80%-89%	26	22	27	26	21	25
>90%	16	28	22	25	15	22
Mean	74	75	77	78	72	76
Median	77	79	79	80	73	77

Number and size of debt capital

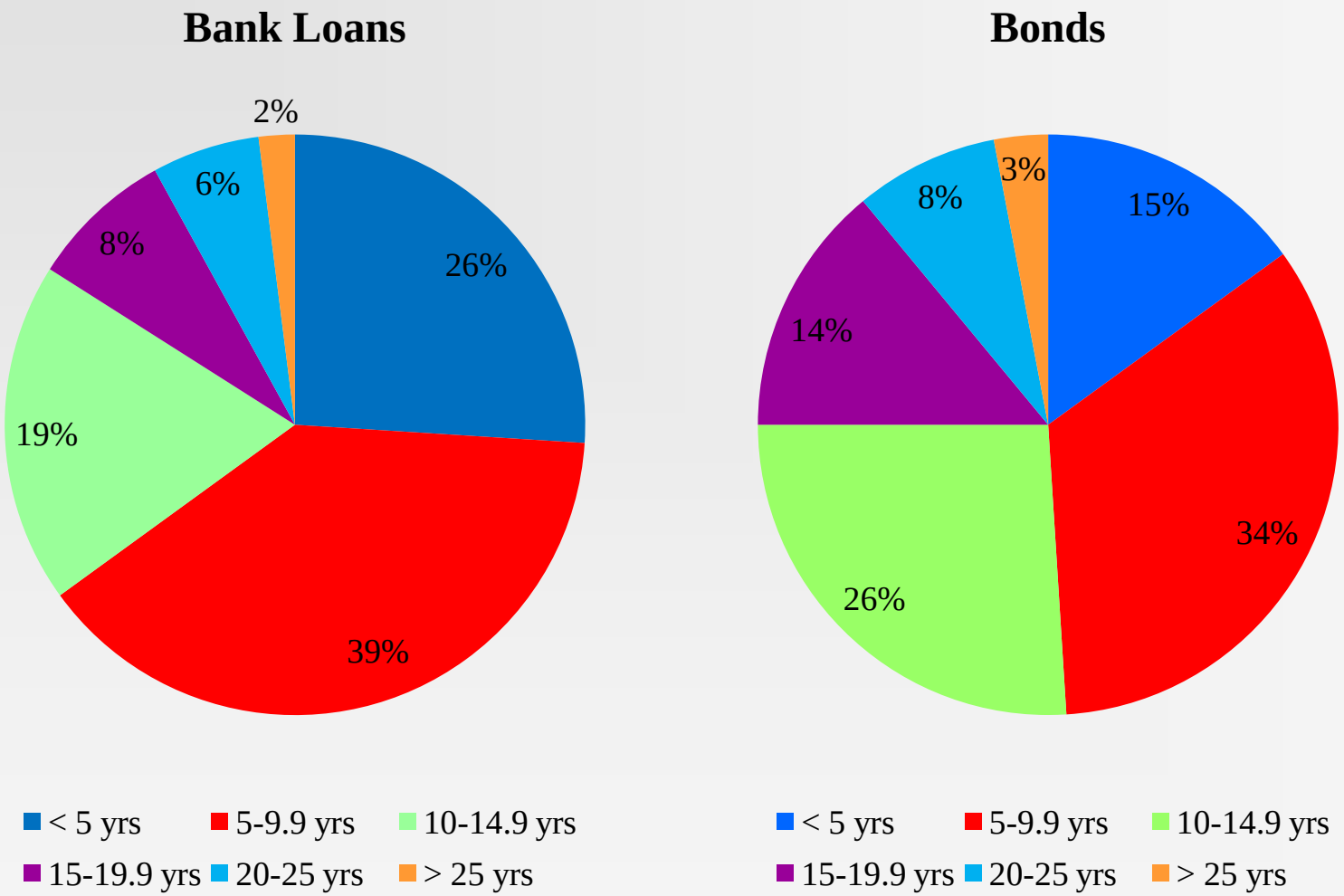
Number of projects with



Average size (in million $)



Distribution of Debt maturities



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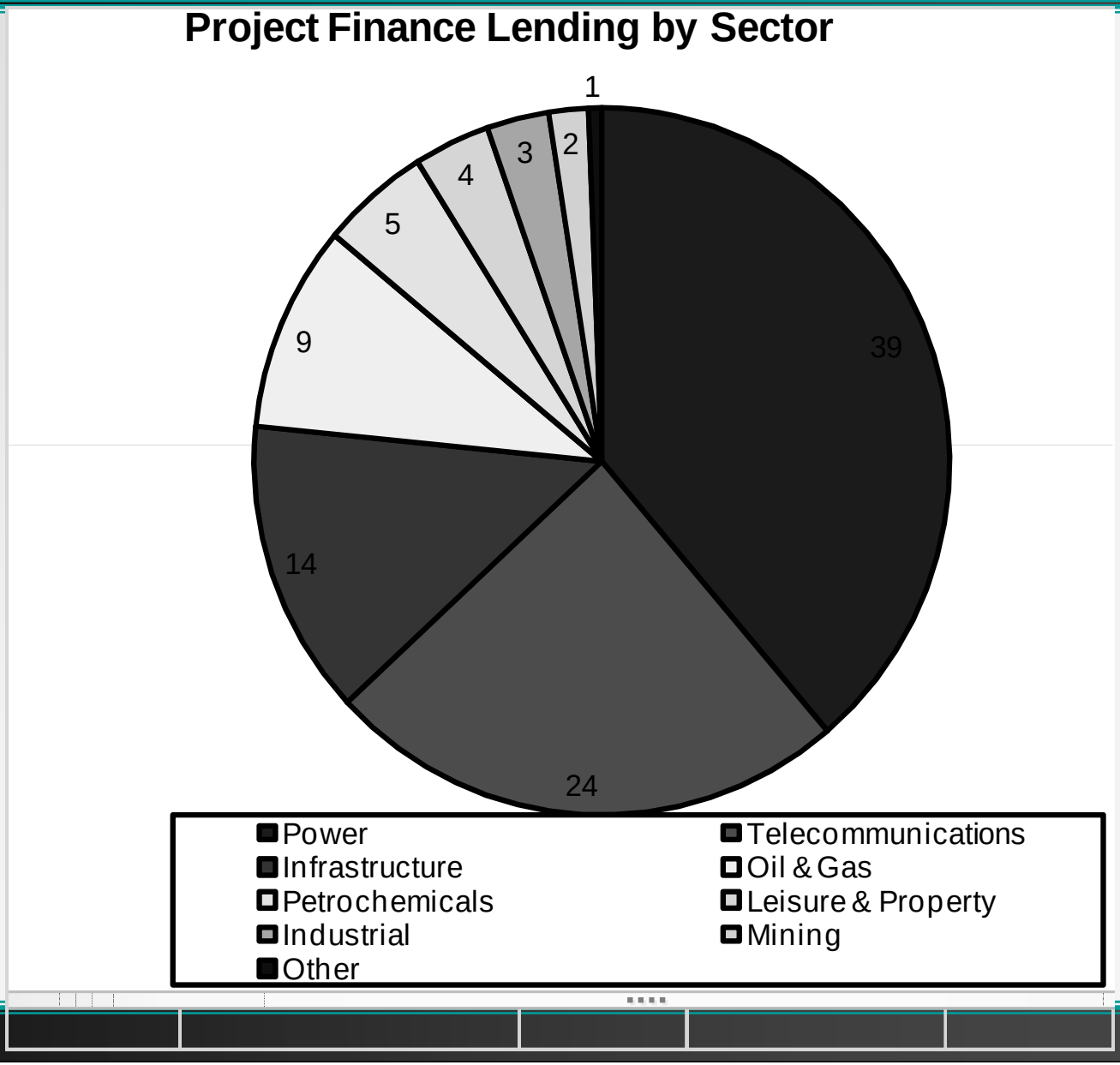
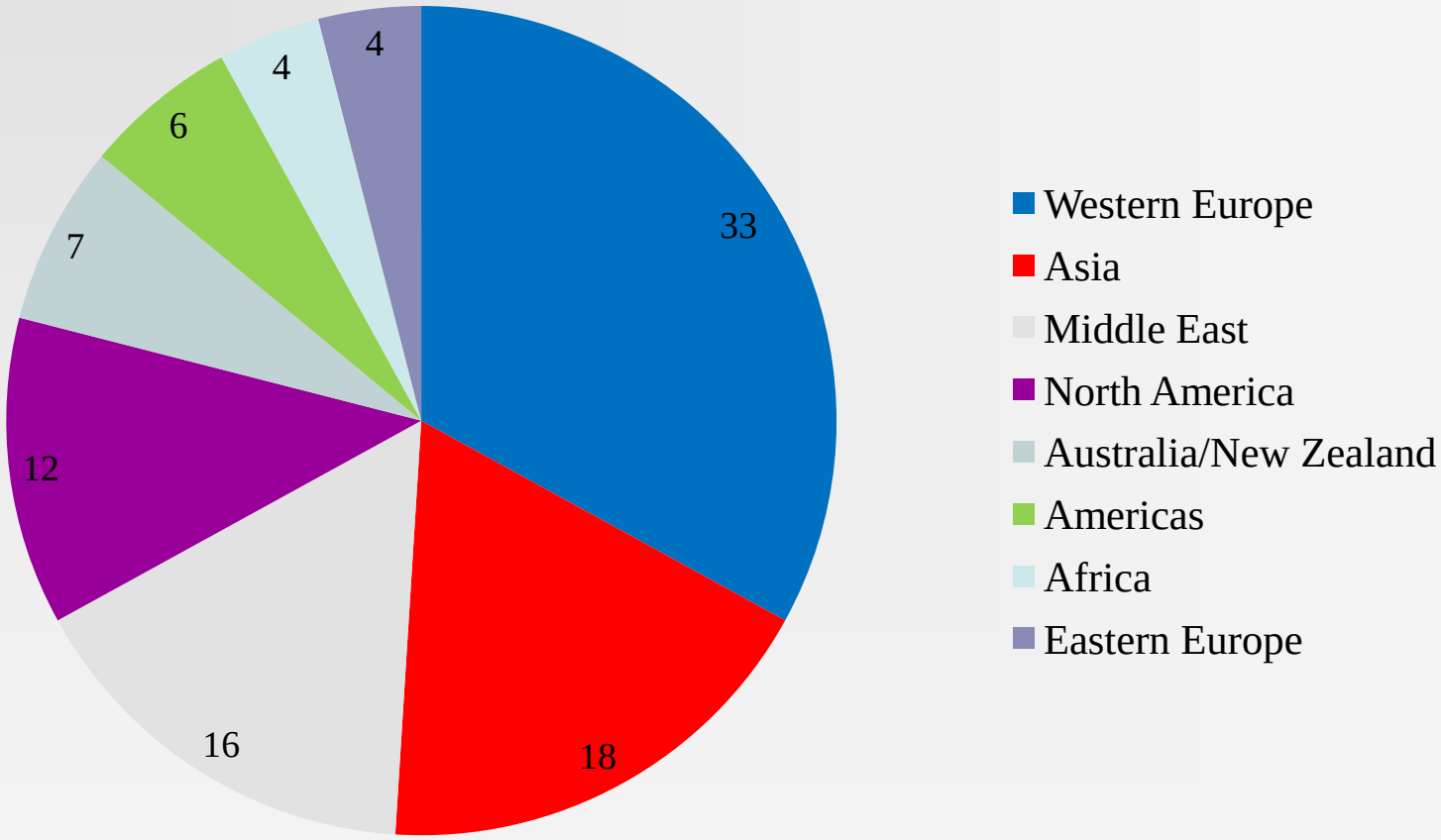
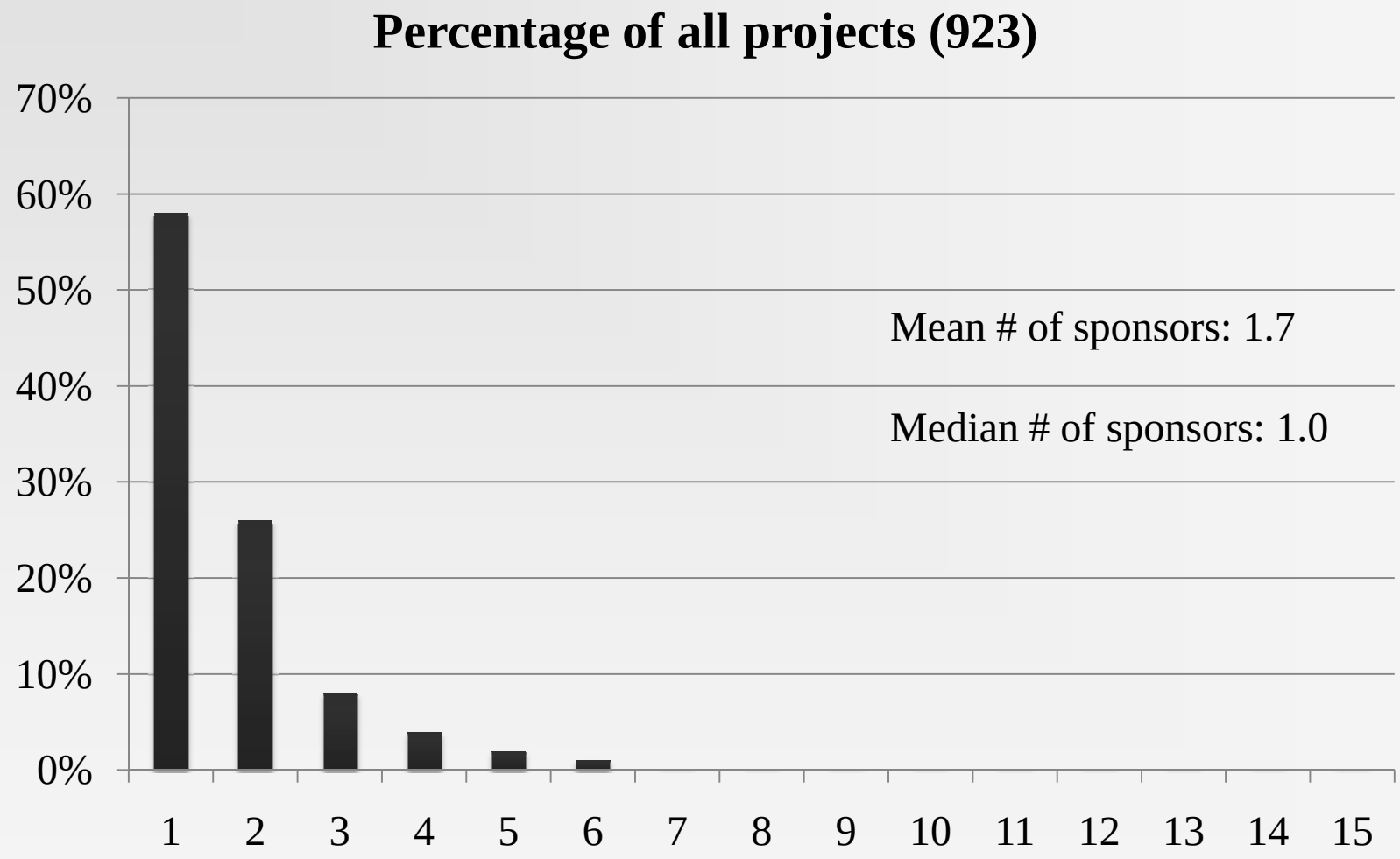


Project Finance Lending by Region



No. of equity sponsors



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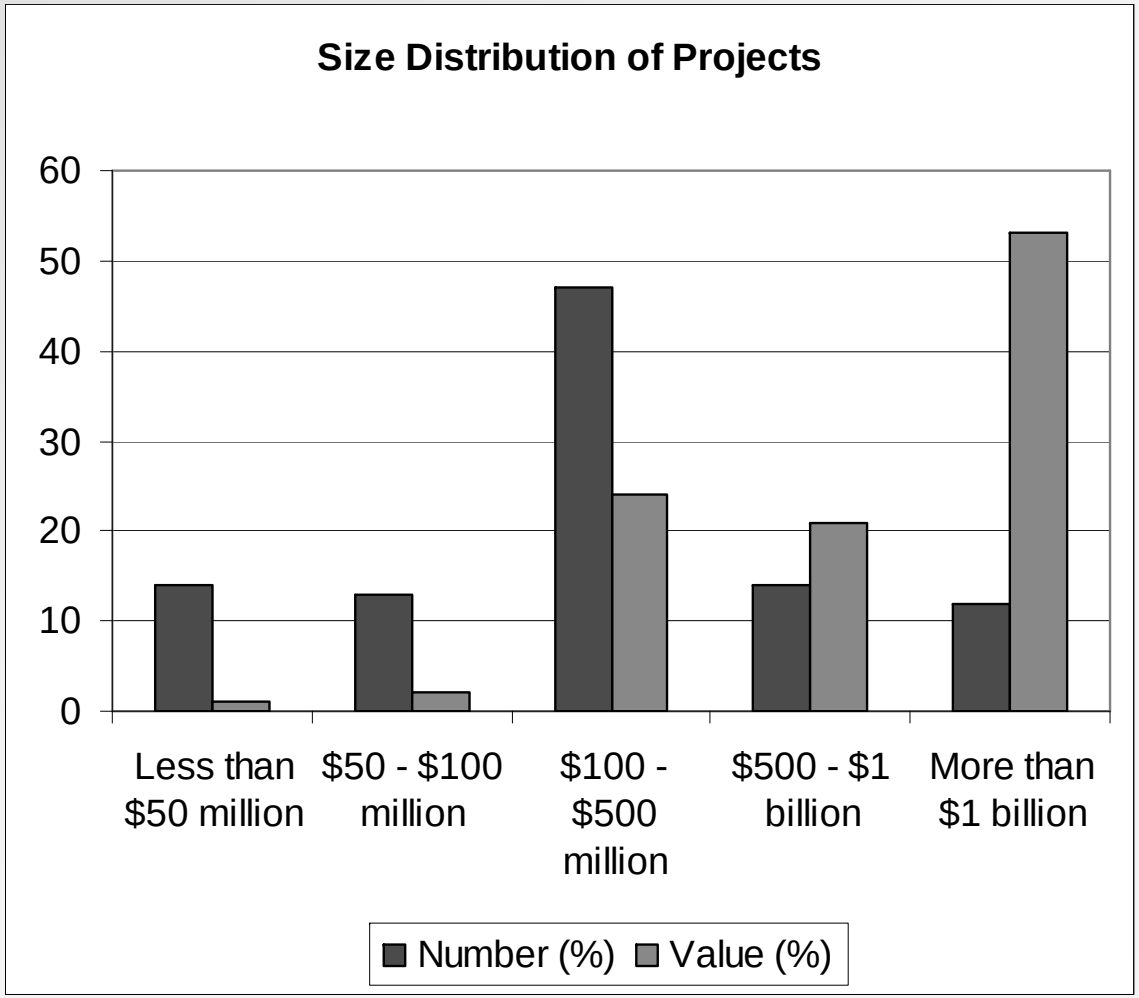
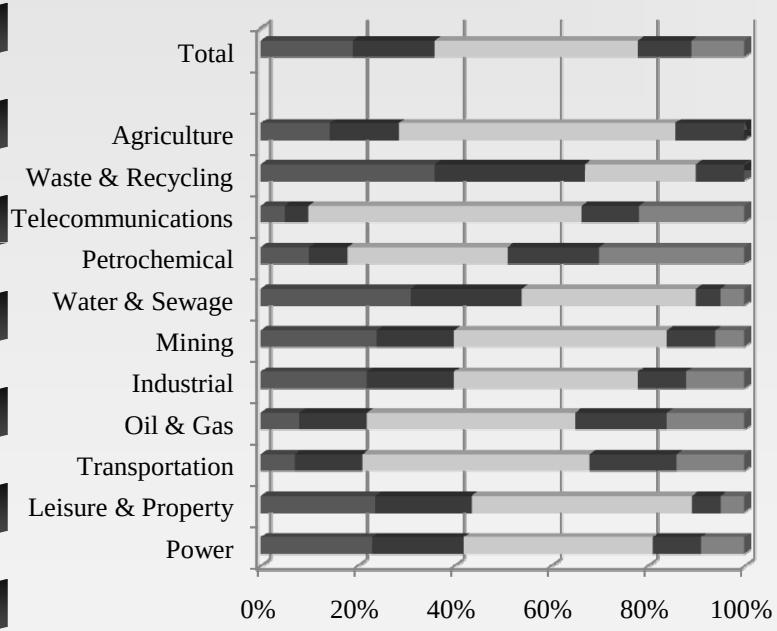
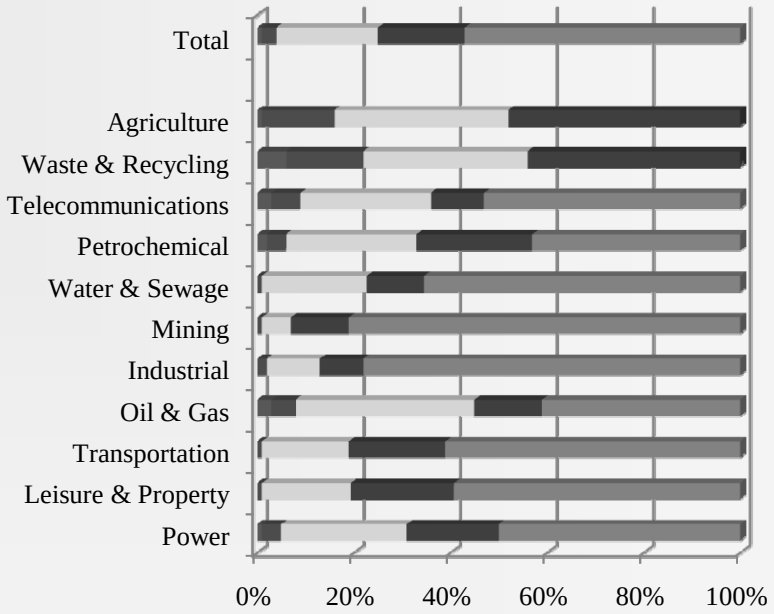


Size Distribution by Sector

By the number of projects



By the value of projects



Examples of Projects

Rion-Antirion Bridge www.gefyra.gr

The bridge was projected to cost about €800 million coming from equity capital (10%), Greek state financial contribution (45%), European Investment Bank (45%, loan guaranteed by pool of banks).

Examples of Projects

***Agreement 1*: Gefyra S.A. (the project) has signed a *concession contract* with the State for the design, construction, financing, maintenance and operation of the bridge.**

***Agreement 2*: The *design and construction contract* for the bridge was between Gefyra and Kinopraxia Gefyra (the contractor).**

***Agreement 3*: The *checker contract* between Gefyra and Buckland & Taylor Ltd, an engineering consultancy.**

***Agreement 4*: Under the *supervision engineer contract* between Gefyra and FaberMaunsell Ltd., the engineering consultancy.**

***Agreement 5*: The *financial contribution agreement* between the State and Gefyra involves a subsidy from the State of €200 million.**

Examples of Projects

***Agreement 6*:** The *shareholders undertaking* involve Gefyra, Vinci, J&P, Elliniki Technodomiki, Volos Technical Company, Athena, Proodeftiki and Sarantopoulos. The Gefyra shareholders have committed to pay in €46.5 million as share capital and to issue bank letters of credit.

Financial Agreements. Under the *master facility agreement* between European Investment Bank (EIB) and Gefyra, a 25-year, 370 million loan is granted to Gefyra.

Under the *letter of credit facility agreement* between Gefyra and commercial banks, letters of credit guarantee payment to EIB in the case of Gefyra default.

Examples of Projects

Hibernia www.hibernia.ca

The Hibernia offshore oil field is owned jointly by ExxonMobil Canada (33%), Chevron Canada Resources (27%), Petro-Canada (20%), Canada Hibernia Holding Corporation (8.5%), Murphy Oil (6.5%) and Norsk Hydro (5%). It produces about 230 thousand BPD.

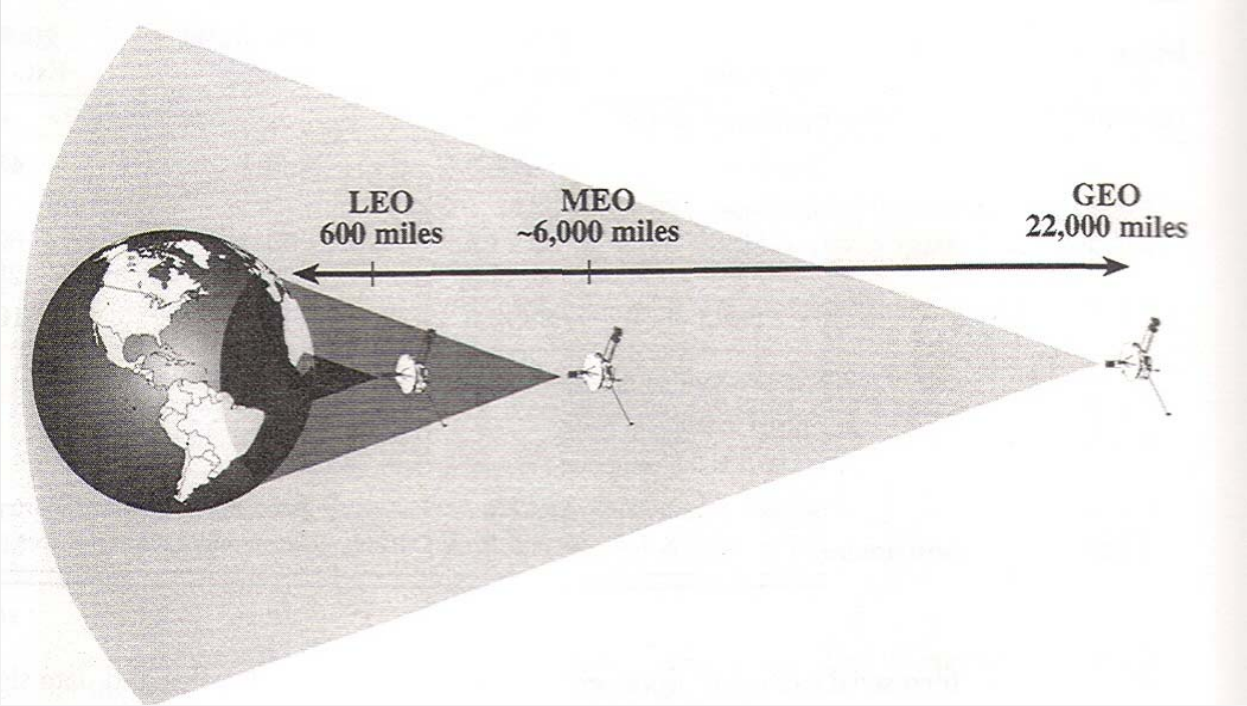
Examples of Projects

Trans Alaska Pipeline System (TAPS) www.alyeska-pipe.com

TAPS was constructed between 1974 and 1977. The 1,286 km oil pipeline cost around $8 billion. Owners: BP (47%), ConocoPhillips Transportation (28%), Exxon Mobil (20%), Koch Alaska Pipeline Co. (3%), and Unocal (2%). Exxon Valdez, 1989.

Examples of Projects

Iridium LLC www.iridium.com



The $5.5 billion project was backed by Motorola was planned to offer global phone and data transmission services via 77 low-orbit satellites. The project went bankrupt possibly because it had too much debt (60%) and misestimated demand for its services.

Examples of Projects

Yangtze River Three Gorges Dam, 长江三峡工开发, www.ctgpc.com

The largest hydroelectric power dam in the world. Fully operational in 2009, 18.2 MW capacity, producing enough energy to cover 3% of China's needs. Budget: About €20 billion, mainly from State and power generation. Controversy. Relocation of 1.13 million people.

Examples of Projects

Petrozuata www.pdvsa.com

Project to extract, transport and refine Venezuelan heavy oil, *syncrude*. Capacity: 160 thousand BPD. Ownership: Conoco (50.1%), Maraven (49.9%).
Budget: $2.43 billion (40% equity, 60% debt).

Recent developments: Sovereign risks. ***Nationalization of assets, review of contracts, charges of tax evasion, etc***. President Chávez.

Rationale for PF

- Should the firm undertake the project as part of its overall asset portfolio and finance the project on its general credit or should the firm form a separate legal entity to undertake the project?
- What amount of debt should the separate legal entity incur?
- How should the debt contract be structured?

PF Advantages & Disadvantages

- ***Organization***

  Project can be organized as a partnership or limited liability company.

  The project has a finite life, and so does the legal entity that owns it.

  Project assets and cash flows are segregated from sponsors.

- ***Control and Monitoring***

  Management is subject to closer monitoring than in a typical corporation.

  Segregation of assets facilitates greater accountability to investors.

  Contracts contain provisions that facilitate monitoring.

PF Advantages & Disadvantages

- ***Allocation of Risk***

  Creditors have limited or no recourse to the project sponsors.

  Risks are allocated among parties best able to bear them.

- ***Free Cash Flow***

  Managers have limited discretion.

  Free cash flow must be distributed to equity investors.

- ***Agency Costs***

  Agency costs are reduced.

  Management incentives are easier tied to performance.

  Closer monitoring by investors.

  Underinvestment problem is reduced.

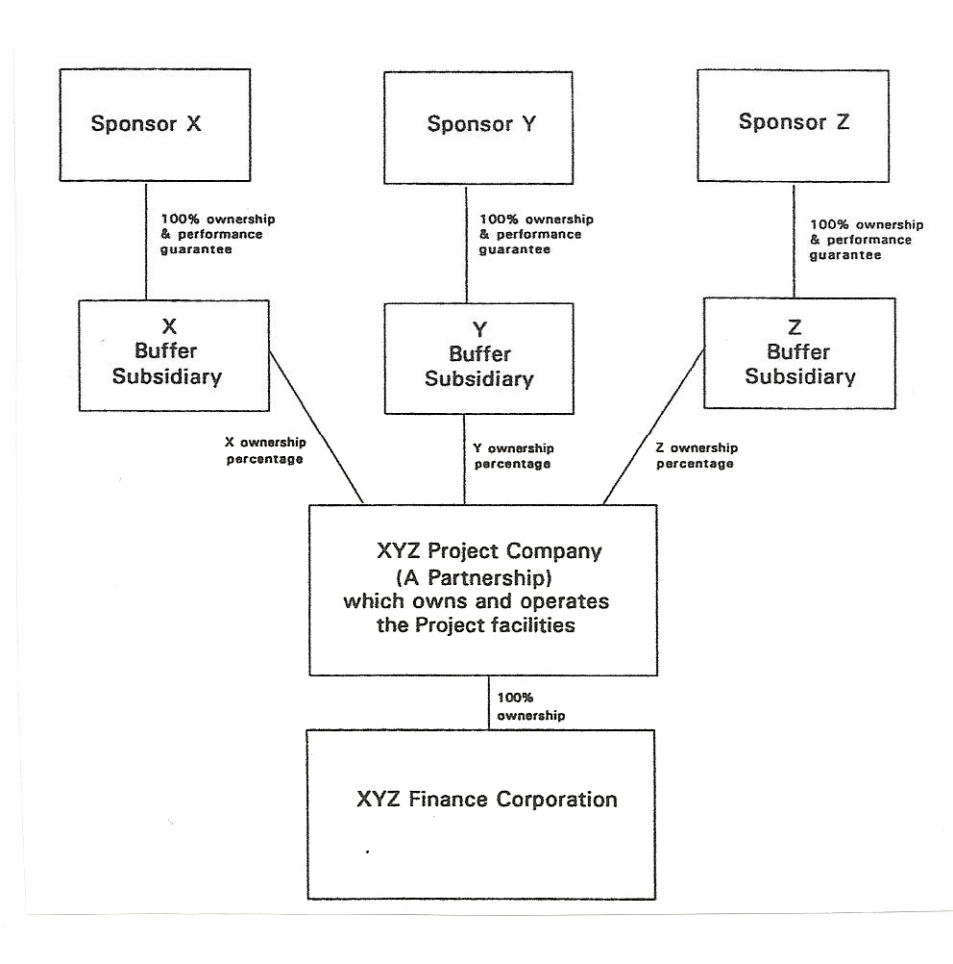
  Financial flexibility is preserved.

PF Advantages & Disadvantages

- ***Structure of Debt Contracts***
  - Creditors look to specific assets for their debt service.
  - Debt contracts are tailored to project characteristics.
- ***Debt Capacity***
  - Individual projects can obtain higher leverage than usual.
  - Sponsor firms are able to expand their debt capacity.
- ***Bankruptcy***
  - Resolving financial distress is less costly.
  - Project is insulated from sponsor's possible bankruptcy.
  - Lenders have limited chances to recover payment in comparison to lending to corporations.
- ***Transaction and Other Costs***
  - Higher transaction, contracting and information costs.
  - Financing arrangements are time-consuming.

Costs can exceed benefits!

Structure


Sponsor X
Sponsor Y
Sponsor Z
100% ownership & performance guarantee
100% ownership & performance guarantee
100% ownership & performance guarantee
X Buffer Subsidiary
Y Buffer Subsidiary
Z Buffer Subsidiary
X ownership percentage
Y ownership percentage
Z ownership percentage
XYZ Project Company (A Partnership) which owns and operates the Project facilities
100% ownership
XYZ Finance Corporation

Typical contractual arrangements

- The purpose of contractual security arrangements is to apportion the risks among the project sponsors, the output purchasers and other parties involved.
- These contractual arrangements serve as a means by which the requisite credit support is conveyed to the project.
- These are categorised into
  - Direct security interest in project facilities
  - Security arrangements covering completion
  - Security arrangements covering debt service (purchase & sale contracts)
    - Take-if-Offered contracts: Obligates the purchaser of the project's output or services to accept delivery and pay for the output and services that the project is able to deliver.
    - Take-or-Pay contracts: Obligates the purchaser of the project's output or services to pay for the output and services whether or not the purchaser takes delivery.

Typical contractual arrangements

- Hell-or-High-Water contract: There are no “outs”, even in adverse circumstances beyond the control of the purchaser; the purchaser must pay in all events, even if no output is delivered
- Throughput agreement: Typically employed in connection with an oil or petroleum product pipeline financing; during a specified period of time the operators ship through the pipeline enough product to provide the pipeline with sufficient cash revenues to pay all of its operating expenses and meet all of its debt service obligations; typically supplemented with a cash deficiency agreement (“keep well” agreement)
- Cost-of-Service contract: The contract requires each obligor to pay its proportionate share of project costs as actually incurred, in return for a contracted share of the project’s output
- Tolling arrangements: The project company levies tolling charges for processing a raw material that is usually owned and delivered by the project sponsors

Typical contractual arrangements

- Raw material supply agreements
- Supplemental credit support
  - Financial support agreement: Can take the form of a letter of credit or similar guarantee.
  - Cash deficiency agreement: Designed to cover any cash shortfalls that would impair the project company's ability to meet its debt service requirements .
  - Capital subscription agreement: Obligates one or more creditworthy parties to purchase, for cash, securities issued by the project entity, to the extent required to enable the project entity to cover any cash shortfall.
  - Clawback agreement: Represents an undertaking to contribute cash to the project to the extent the project sponsors (1) received any cash dividends from the project company or (2) realised any project-related tax benefits on account of their investments in the project.
  - Escrow fund: Lenders may require the project to establish an escrow fund that typically contains between 12 and 18 months' debt service.

Infrastructure Public-Private Partnerships

- Joint partnerships between public and private sectors for the construction, financing, operation and ownership of projects such as toll-bridges.
- Private firms aim at high returns.
- States benefit from a) fast and economically effective construction and management of the project, b) tax collection and c) indirect side effects.
- Political benefits within the political cycle.
- Private Finance Initiative (PFI) was established in the UK in 1992.
- Examples of PFI: A rail link to Heathrow airport (£320 million), Channel Tunnel Rail Link (£2.7 billion), and hundreds of smaller projects involving roads, prisons, hospitals and subways.

Infrastructure Public-Private Partnerships

PPP Models

Perpetual Franchise Model: Private entities finance and operate the project under a perpetual franchise from the host government. These entities retain title to the assets. All the financial support for project-related borrowings is provided by private entities.

Build-Operate-Transfer (BOT) Model: Private entities receive a franchise to finance, build and operate the project for a fixed period of time, after which ownership would revert to the host government. In return for the ownership reversion, the host government might be asked to furnish some (limited) credit support for project borrowings.

Build-Transfer-Operate (BTO) Model: Private entities design, finance and build the project. They transfer legal title to the host government immediately after the project facility passes its completion tests. The private entities then lease the project facility back from the public authorities for a fixed term. Under this model the host government has, at most, a very limited responsibility for the project's financial obligations.

Infrastructure Public-Private Partnerships

Buy-Build-Operate (BBO) Model: A private firm buys an existing facility from the host government, modernises or expands it, and operates it as a regulated, profit-making public use facility.

Lease-Develop-Operate (LDO) Model: A private firm leases an existing publicly owned facility and surrounding land from the host government. It then expands, develops, and operates the facility under a revenue-sharing contract with the host government for a fixed term. The host government holds legal title.

Wraparound Addition: A private firm expands an existing government-owned core facility. The private firm holds legal title to the addition only, thus ownership is shared.

Temporary Privatization: A private firm takes over operation and maintenance of an existing government-owned facility. It then expands or repairs the facility, operates it, and collects user charges long enough to recover the cost of the expansion/repair.

Infrastructure Public-Private Partnerships

Speculative Development: A private firm identifies an unmet public need. Then, with the consent of the host government, it embarks on the process of planning and obtaining permits at its own expense and risk. After the private firm demonstrates the project's financial feasibility and develops a workable design, the host government joins in the development process, perhaps by contributing to the financing of the project.

Value Capture: Seeks to convert a portion of the private benefits of increased commercial activity to public use.

Use-Reimbursement Model: This model is distinguished by having the host government enter into a utilisation contract with the project company.

Internet Link & References

www.people.hbs.edu/besty/projfinportal

Esty, B. C., 2004, *Modern Project Finance: A Casebook*, John Wiley & Sons, New York

Finnerty, J. D., 1996, *Project Financing: Asset-Based Financial Engineering*, John Wiley & Sons, New York