CASE STUDY
—PUBLIC-PRIVATE PARTNERSHIPS: THEORY, PRACTICE, AND CASES

DAY 4, OCTOBER 26, 2012

"Financing PPP Projects"

To Review the Key Concepts

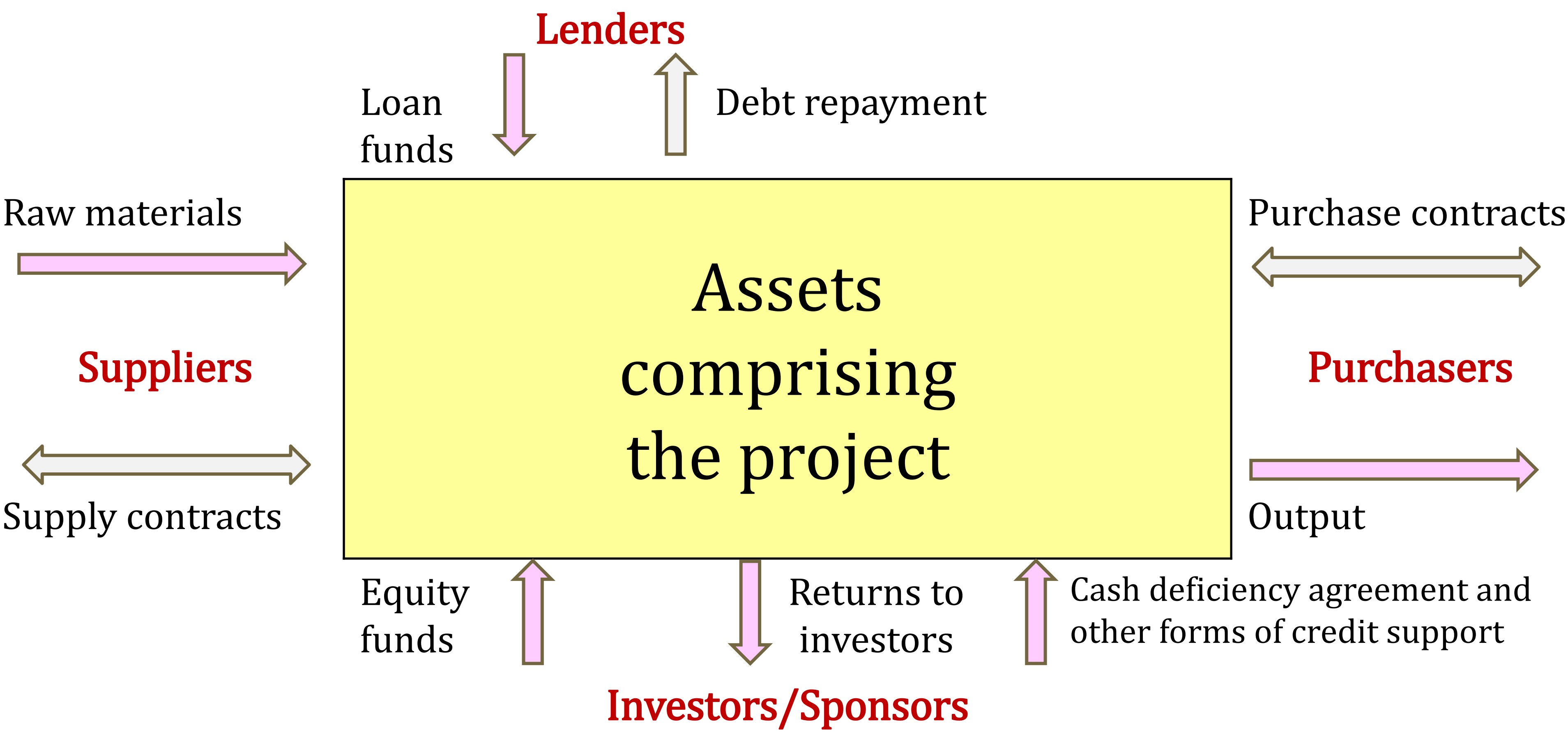
Private sources of finance for PPPs

- Limited-recourse finance, or “project finance”

vs

- Corporate finance

Private sources of finance for PPPs (continued)

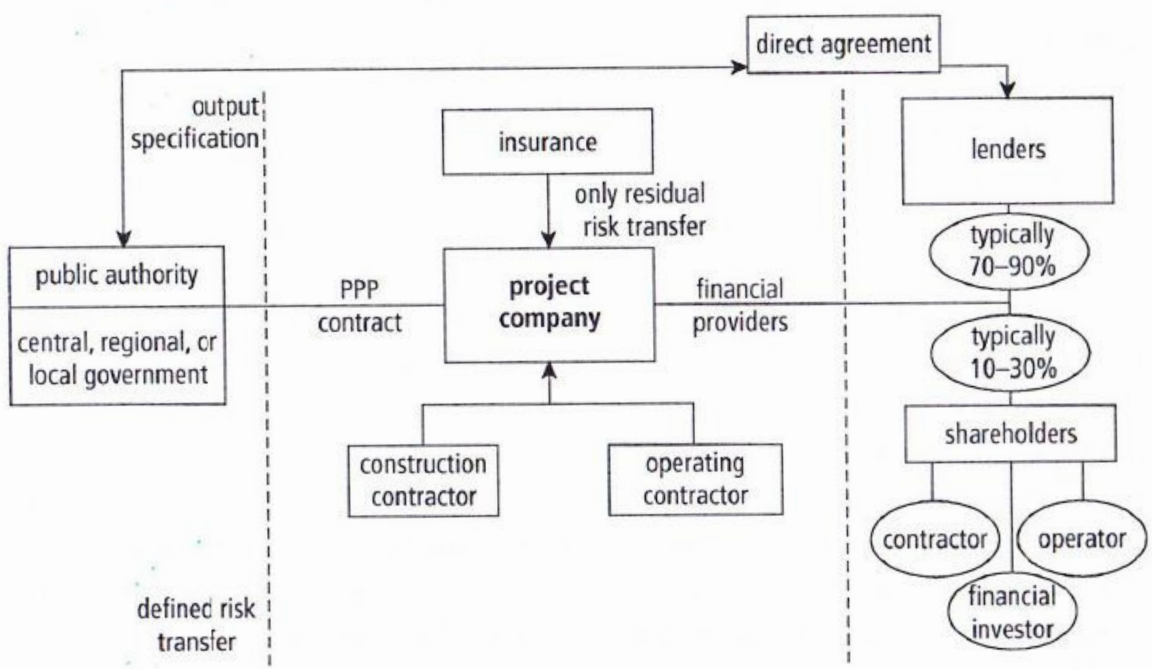


Private sources of finance for PPPs (continued)

- Equity, to be provided by investors in the project, with a "*first in, last out*" nature
- Third-party debt, to be provided by banks or through financial instruments such as bonds

Private sources of finance for PPPs (continued)

Figure 5.1 Typical Contractual Structure of a Public-Private Partnership



Source: Authors.

Source: page 59, World Bank/PPIAF (2011)

- Question: *What does the "first in, last out" nature of equity mean in financing PPP projects?*
- Question: *Which is more expensive, equity or debt, in financing PPP projects?*
- Question: *How could we lower the overall funding costs of a PPP project assuming you could change the debt-to-equity ratio ("gearing" or "leverage")?*

Private sources of finance for PPPs (continued)

Benefit of leverage on investors' return

		Low leverage	High leverage
	Project cost	1,000	1,000
(a)	Debt	**500**	**900**
(b)	Equity	**500**	**100**
(c)	Revenue from project (*p.a.*)	75	75
(d)	Interest rate on debt (*p.a.*)	5%	6%
(e)	Interest payable [(a) x (d)]	25	54
(f)	Profit [(c) - (e)]	50	21
	Return on equity [(f) / (b)]	10%	21%

Source: page 120, Yescombe (2007)

Private sources of finance for PPPs (continued)

- Question: *What would be the likely debt-to-equity ratio when a project is perceived as riskier than the other?*
- Question*: What would be the likely debt-to-equity ratio for a project when the domestic banking sector have limited capacity or experience to provide long-term debt required for PPP projects?*

Private sources of finance for PPPs (continued)

- Question: *What are the major constraints that project sponsors (leading investors) will most likely face in using corporate finance for a large-scale infrastructure project?*
- Question: *In limited-recourse finance,* w*hat are the main assets that lenders can rely on as security?*

Private sources of finance for PPPs (continued)

Cover Ratios—level principal repayments

Assumptions:

Project cost	1,000
Debt to equity ratio	90:10
PPP contract term	25 years
Loan term	23 years, paid in equal annual principal instalments
Interest rate	6% p.a.
Required equity IRR	15%

Source: page 163, Yescombe (2007)

Private sources of finance for PPPs (continued)

Cover Ratios—level principal repayments

Year	0	1	2	3	20	21	22	23	24	25	Total
(a) CADS		95	95	95	95	95	95	95	95	95	2,375
Lenders' viewpoint:											
(b) Loan repayments		39	39	39	39	39	39	39			900
(c) Interest payments		54	52	49	9	7	5	2			648
(d) Total debt service [(b) + (c)]		93	91	88	49	46	44	41			1,548
(e) Year-end loan outstanding	900	861	822	783	117	78	39	0			
ADSCR [(a) / (d)]		1.02	1.05	1.07	1.96	2.06	2.17	2.29			
Average ADSCR		1.50	1.52	1.54	2.12	2.17	2.23				
LLCR [(NPV(a)*) / (e)]	1.30	1.33	1.36	1.39	2.16	2.23	2.29				
Average LLCR	1.73	1.75	1.77	1.79	2.23	2.26					
PLCR [(NPV(a)) / (e)]	1.35										
Average life of loan	12 years										

Source: page 163, Yescombe (2007)   * : to year 23.

Private sources of finance for PPPs (continued)

Cover Ratios—level principal repayments

Year	0	1	2	3	20	21	22	23	24	25	Total
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(d) Total debt service [(b) + (c)]		93	91	88	49	46	44	41			1,548
(e) Year-end loan outstanding	900	861	822	783	117	78	39	0			
Investors' viewpoint:											
Equity investment	-100										
Distributions [(a) – (d)]		2	4	7	46	49	51	54	95	95	827
IRR	15%										
Payback period	c. 9 years										
Source: page 163, Yescombe (2007)											

Types of risk mitigation

- Partial-credit guarantees
- Full-credit or “wrap” guarantees
- Export credit agencies
- Debt underpinning
- Political risk guarantees and guarantee funds
- Other forms of guarantees (e.g., minimum revenue guarantee)

Other sources of funding

- Public sector funded development banks
- Viability gap funding

“Cases from Brazil: Metro Line 4”

Case Study: Sao Paulo Metro Line 4, Brazil

- 30-year contract (concession agreement)
- The public sector (Companhia do Metropolitano de Sao Paulo) is responsible for construction of the metro line.
- The private sector is responsible for operation and maintenance as well as for the supply of trains and signaling and control systems.

Case Study: Sao Paulo Metro Line 4, Brazil (continued)

Source: Railway Gazette International [http://www.railwaygazette.com/home.html]

Case Study: Sao Paulo Metro Line 4, Brazil

- Public sector financing for construction of the metro line was provided by the World Bank and the JBIC.
- Private sector financing for the concessionaire responsible for operation and maintenance as well as for the supply of trains and signaling and control systems was led by the IDB.

Case Study: Sao Paulo Metro Line 4, Brazil (continued)

- Financial close in October 2008
- US$392 million for phase 1
  - Debt US$309 million
  - Equity US$83 million
- Consortium: Via Quatro (Concessionaria da Linha 4 do Metro de Sao Paulo)
- Financiers: IDB, Banco Santander, Southern Missouri Bancorp, KfW, Banco Espirito Santo, BBVA, Societe Generale, West LB

Case Study: Sao Paulo Metro Line 4, Brazil (continued)

- Question: *Why was the private sector not responsible for construction of the metro line?*
- Question: *What risks is the private sector faced with while being responsible for operation and maintenance as well as for the supply of trains and signaling and control systems?*

Case Study: Sao Paulo Metro Line 4, Brazil (continued)

- Question: *How could the concessionaire cope with the situation where the state government requires commitment to financing the second phase, which is at the discretion of the state government?*
- Question: *How could the concessionaire cope with the situation where the state government is not on time in completing the construction?*

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* *Please feel free to send me e-mails with any question about the course or if you want to make an appointment. To help me not to miss your incoming e-mails,* ***please start the subject line with "5140489" (Course No.)*** *when you send e-mails to Nishizawa's.*