




GLOBAL NETWORK FOR INTERNATIONAL CONSTRUCTION

国际工程全球联盟

Global Network for International Construction





全球金融危机对基础设施 项目投融资的影响

THE IMPACT OF GLOBAL FINANCIAL CRISIS ON INFRASTRUCTURE PROJECT FINANCING

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The Impact of Global Financial Crisis on Infrastructure Project financing

Discussion opened from current financial crisis, and comparison with 1930s Depression.

By reviewing the current PF options in China, implications for major stakeholders are discussed.

1. Preliminary Discussion on Financial Crisis

2. A Review of 1930s Depression and Lessons for Construction

3. Major Project Financing Options Currently in China

4. Implications for Financier, Project Owner and Contractor

5. Conclusion and discussion





PRELIMINARY DISCUSSION ON FINANCIAL CRISIS



Major Events

What happened in financial sector?

Fannie Mae - 07. Sep - Nationalised
 Freddie Mac - 07. Sep - Nationalised
 Lehman Bros - 15. Sep - Collapsed
 Merrill Lynch - 15. Sep - Taken over
 AIG - 16. Sep - Part-nationalised
 HBOS - 17. Sep - Taken over
 Morgan Stanley and Goldman 21. Sep – Converted
 WaMu - 25. Sep - Collapsed and sold
 Fortis - 28. Sep - Nationalised
 Bradford & Bingley - 29. Sep - Nationalised
 Wachovia - 29. Sep - Taken over
 Hypo Real Estate /Depfa - 06. Oct - Rescue package
 RBS - 13. Oct - Part-nationalised
 Lloyds TSB - 13. Oct - Part-nationalised
 Morgan Stanley – 13, Oct – Co-invested by UFJ
 Citibank and Morgan Stanley – 14. Jan Partly merged

- What happened?
- Why had this happened?
- What it means to PF?
- What is the implication for key stakeholders?

What has the Governments done?

30. Dec, 2008 – Russia – 10,000 billion
 30. Dec, 2008 – Developed countries government Bonds issuance will create new record
 12. Dec, 2008 – Japan – Yen 23,000 billion
 12. Dec, 2008 – Australia – A\$ 4.7 billion
 6. Dec, 2008 – Oil price close to US\$ 40
 26, Nov, 2008 – EU – Euro 200 billion
 25, Nov, 2008 – UK – GBP 20 billion
 24, Nov, 2008 – US - \$ 20 billion to Citibank
 5, Nov, 2008 – China – RMB 4000 billion
 17, Oct, 2008 – Germany – Euro 500 billion
 13, Oct, 2008 – UK – GBP 37 billion to Banking sector



Discussion on Financial Crisis

Financial Market

sub-prime crisis

Securitization of
housing loan

Dissimilation of
investment banks

High leverage

Credit default
swap (CDS)

Lack of
supervision



金融危机原因分析

Marco Economics

Supply vs Demand

- In US, the consumption model based on increased capital driven cannot be sustainable
- Globally, the consumption model (in US) vs the production model (in China, India and other developing countries)
- In essence, the crisis is an adjustment of global economy, over-consumption (and its capacity) vs, over-production (and its capability)

Example:

- Current real estate market in US
- Current real estate market in China

Asset pricing ↓ ?





A REVIEW OF 1930S DEPRESSION AND LESSONS FOR CONSTRUCTION



A Review of 1930s Depression

Lessons always can be learnt from HISTORY

Consumption vs Production

Production :

- **1920s:** rapid development in public infrastructure, electronics, building construction and chemical engineering industries.
- **Why** – the WWI stopped most construction activities, after the war, construction spending up to \$7 billion each year, and the spending in 1926 is over \$11 billion.
- **Results:**
 - US GDP from 38% of the world in 1919 to 48.5% in 1929
 - Gold reserve of US: \$5 billion, over 50% of the world.

Credit expansion: production -> credit expansion

- fr 1923-1929, the issuance of securities in US: \$49 billion, only 1928 and 1929: \$ 18billion
- active trading activities drove the price of security high and high : Avg price \$98 in 1923 -> \$ 306 in 1929 -> \$ 365 at peak

A Review of 1930s Depression

Construction industry after Depression in US

After Depression, many government agencies established for construction, mainly in two systems:

- Public works: for long term objectives, \$ 4 billion
- Civil works: for public buildings, \$ 1 billion, including 180 million small construction projects (school, bridges, drainage, post office building and other public buildings)

- Before WWII, Federal government expensed \$ 18 billion for construction projects, including over 1000 airports, 120000 sports facilities, 800 school and hospitals

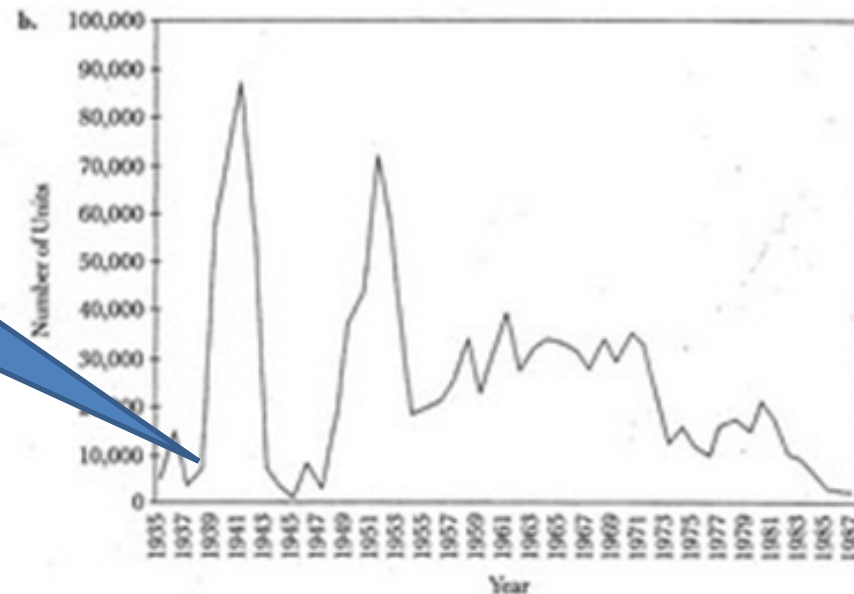
A Review of 1930s Depression

Construction industry after Depression in US

Impacts:

- employment
- public infrastructure -> long term benefit
- economic recovery
- established good mechanism and policies

BUT,
happenings in
1930s



A Review of 1930s Depression

"Uncontrolled Land Development and the Duration of the Depression in the United States"

Alexander James Field, 1988, 1992,

- 1920s economy boom
- no control, no coordination, but very active development
- >> after depression : developer and investors faced the market situation with the high transaction costs and high redevelopment cost
- >> lasting of depression in 1930s, unable to be recovered
- >> comparison with Germany and UK
- >> recovery started from 1940

Conclusion:

- construction's stable and sustainable investment and development is an important drive in any economy
- any analysis to explain the Depression cannot exclude the analysis on construction
- the reason of unable to recover of construction industry in 1930s: physical and legal detritus of unregulated land development

A Review of 1930s Depression

Back to now,

Free market philosophy ->>
Keynes

->> free market trend in
1980s

->> now, government
intervention

What we need:

- new rules of the game
- proper government control
- **New legal and financing mechanism**





MAJOR PROJECT FINANCING OPTIONS CURRENTLY IN CHINA



Major players of PF



PF options in China

Different PF options and different source of fund, with different objectives and costs

PF options/models	Source of fund	Financing cost
Own capital	Internal cash flow	0
Grant	Government	+
Bond financing	Government, project company	++
Debt /loan	Commercial bank Development Bank	+++
Equity financing	Investment bank Development Bank	++++
Lease financing	Other party	
Performance based financing contract (sharing, fixed return, or outsourcing)	Other party	
Partnering strategic alliance , Fund	Other party	
Guarantee	Other party	

PF options in China

Interaction between different options

- Own capital is most important
- Corporate bond vs equity investment
- Development Bank vs Commercial Bank
- Development Bank vs investment Bank / PE

- Guarantee vs Commercial Bank
- Guarantee vs Investment Bank
- IPO





Public vs Private

Public sector

Private sector

PPP: BOT, BOOT, BOO, DBO, LOO,



The case of Investment Bank

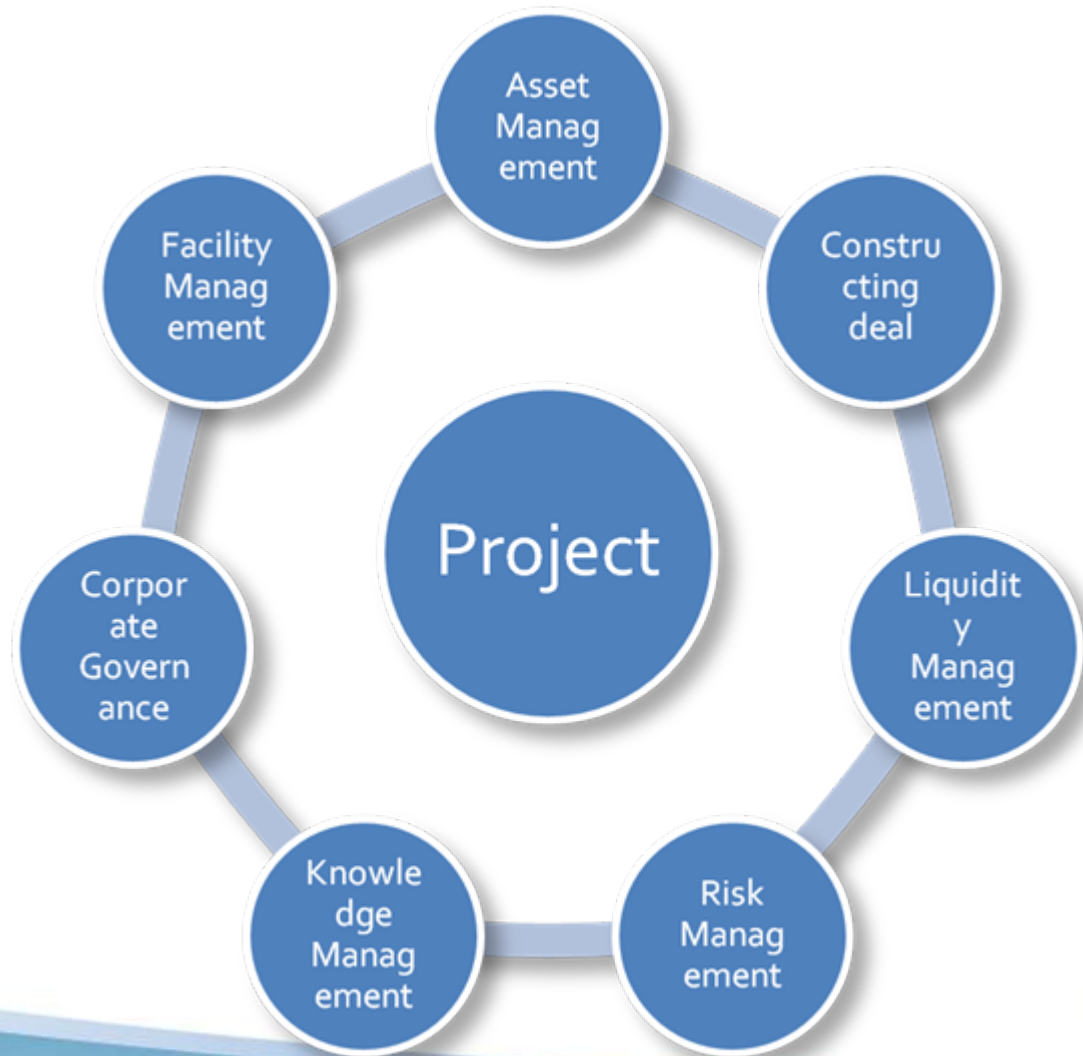
Business Model:

- (1) Successful bids –for existing infrastructure assets or the right to build new assets;
- (2) Picking of assets that with monopoly advantage (allowing maximum pricing power);
- (3) Bundling of the assets into listed funds (though with a fair amount of unlisted funds as well);
- (4) Raising of revenue from the sale of shares or units in those listed funds;
- (5) Collection of additional revenue from fees collected as fund manager;
- (6) Structuring of operating contracts and leases (often in a consortium
- (7) Creation of interrelated but notionally independent corporate and sub-corporate entities
- (8) Leverage across all of these entities and business elements.

The case of Investment Bank

Capability:

Involvement of engineering firms, design and consulting firms





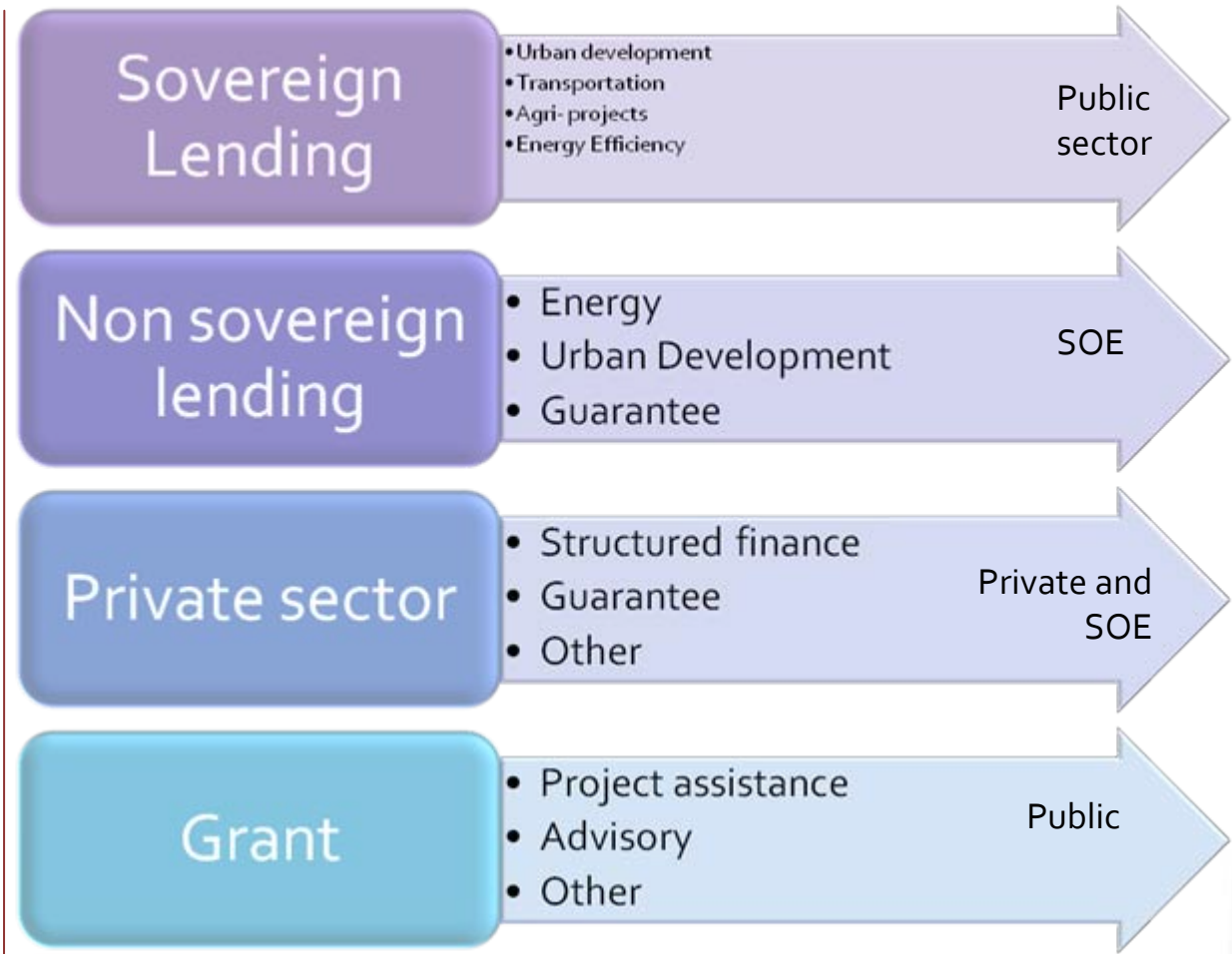
IB in Asia pacific: 2007 vs 2008

Pos.	Bank	Net revenue (\$mln)	% share
1	Macquarie Group	74	8.3
2	Deutsche Bank	73	8.1
3	Goldman Sachs	66	7.3
4	JPMorgan	53	5.9
5	Merrill Lynch	53	5.9
6	UBS	52	5.8
7	Morgan Stanley	41	4.5
8	Credit Suisse	34	3.8
9	Citi	31	3.5
10	Nomura	25	2.8
	Total	901	100

Pos.	Bank	Net revenue (\$mln)	% share
1	UBS	45	12.6
2	JPMorgan	34	9.6
3	Credit Suisse	25	7.2
4	Citi	24	6.8
5	Merrill Lynch	23	6.3
6	Macquarie Group	20	5.6
7	Goldman Sachs	16	4.6
8	Morgan Stanley	15	4.1
9	RBS	9	2.7
10	CICC	9	2.5
	Total	355	100

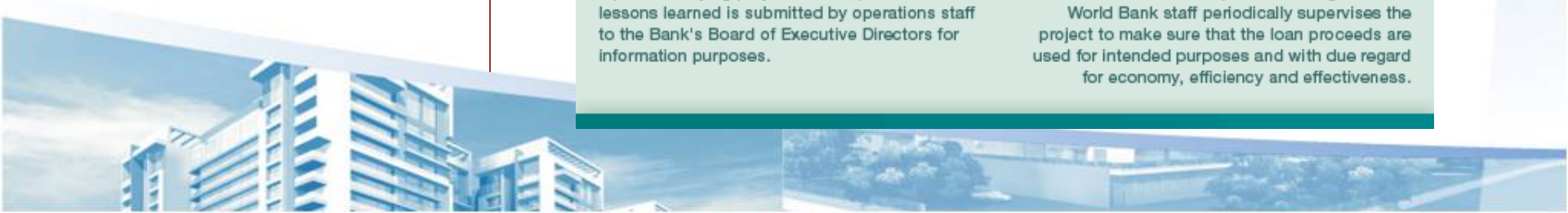
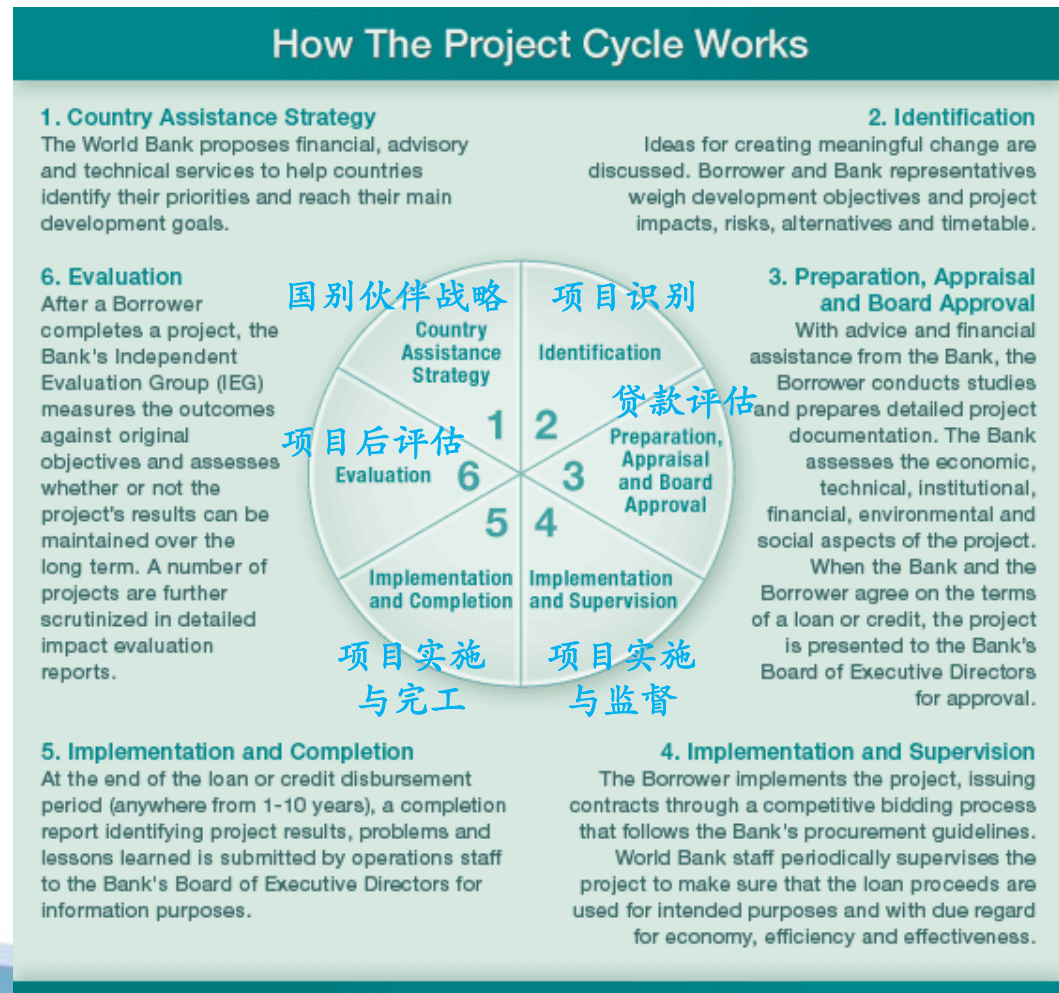
The case of Development Bank

IFI:

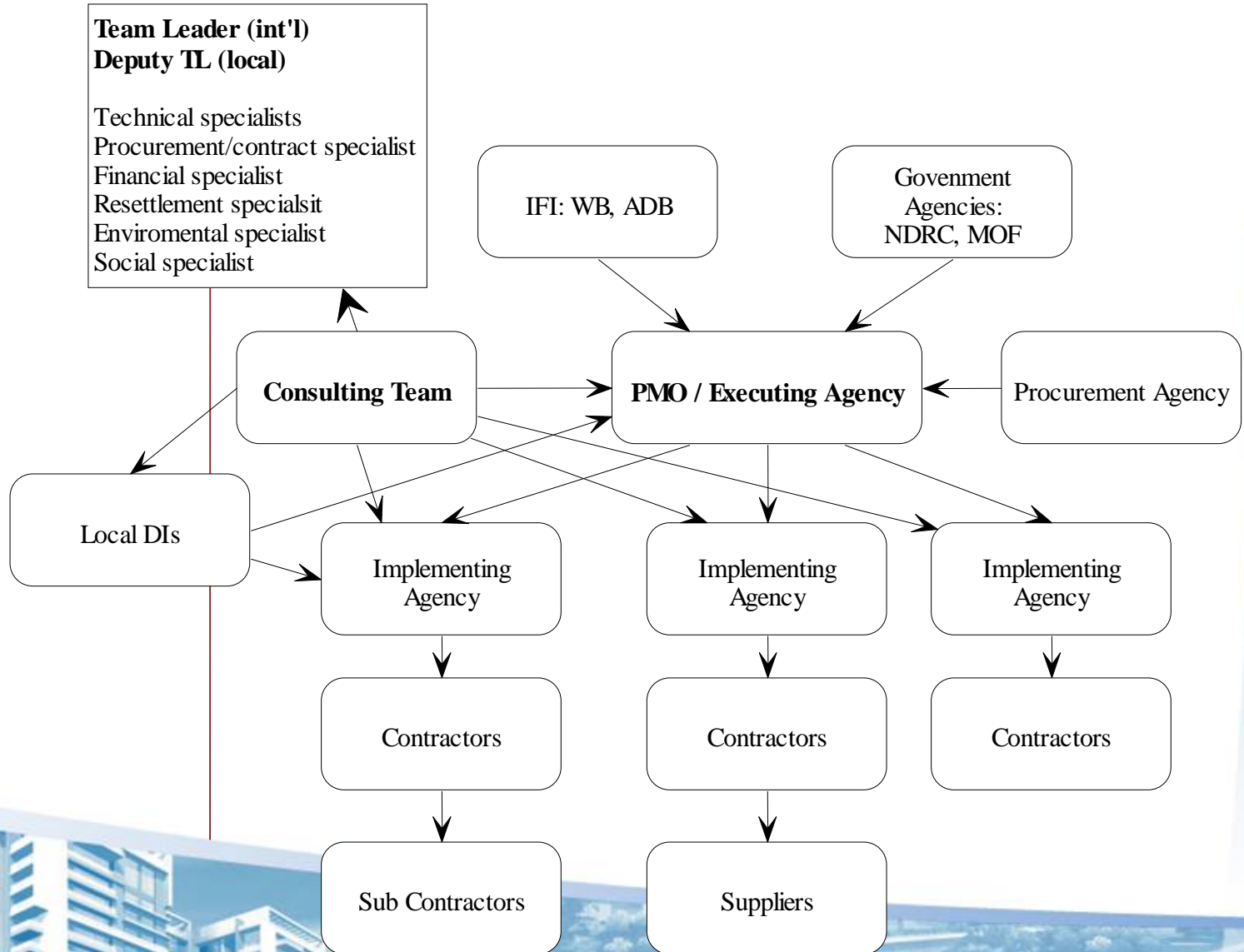


DB project development model

Involvement of Engineering firm, design and consulting firms



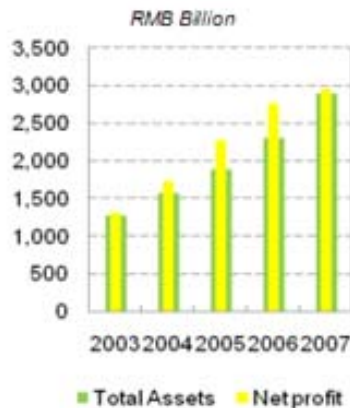
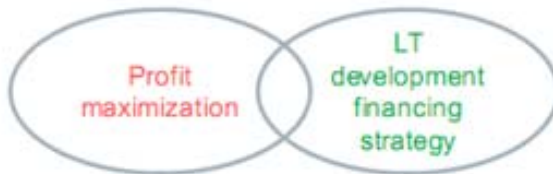
IFI Project structure



CDB commercializing

Obtained commercial bank license to commercialize, albeit with strategic business focus priority

Trade-off between commercial benefit and strategic benefit of long term development financing



Type	Outstanding Loan	YoY
Infra	2230.16	
SME	34.31	48%
Low-income housing	30.17	149%
Education	2.8	
Rural Infra	310.6	
Total loan	2261.68	12.27%

- Commercialization transform can lay out by business model change into a market-driven financial institution

CDB Business Scope

Commercial Banking
Credit lending for customers, especially for infra or pillar industry projects

Funding Operation
RMB/Foreign currency denominated debt securities insurance

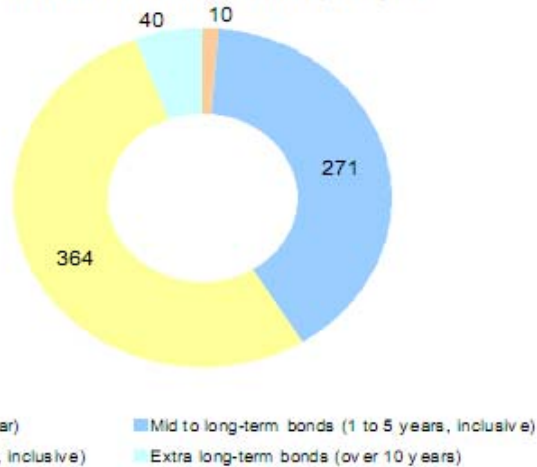
Asset Management
PE/VC JV Funds (China-Belgium PE Fund)
Oversea Equity Investment Funds (China-Pakistan Inv.)

Investment Banking
Bonds Underwriting
M&A Financial solution

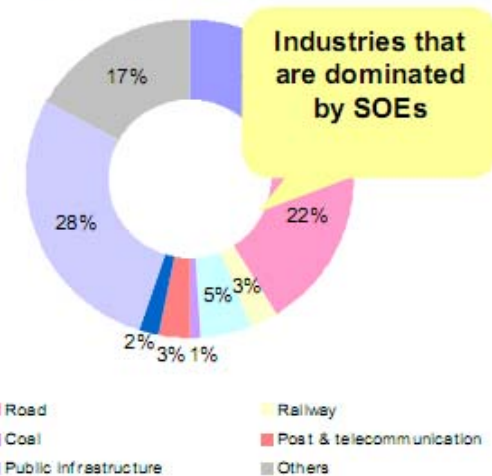


CDB

Total Bonds Disbursements By Lengths



Total Loan Disbursements By Sectors



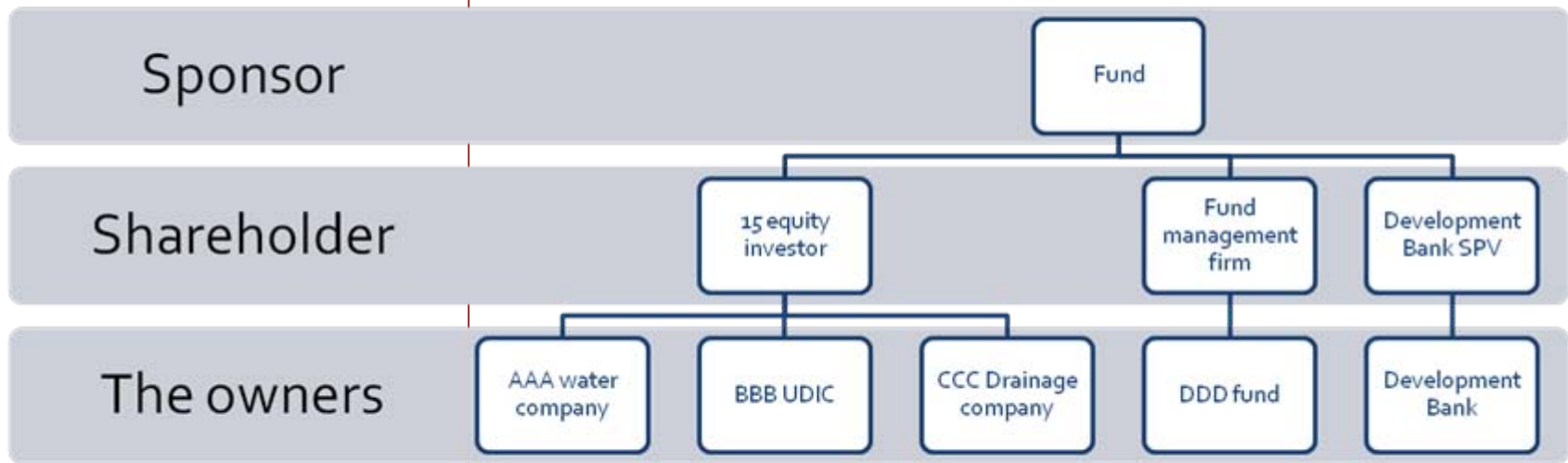
- China Development Bank's strategic focus:
 - Supporting the development of the State's infrastructure and pillar industries
 - Promoting coordination in regional development and restructuring key industries
 - Facilitating the development of new rural communities
 - Promoting international cooperation steadily and supporting the implementation of the state's "go global" strategy
 - Focusing on initiatives that enhance people's livelihood through supporting sectors that have traditionally been facing funding constraints

- However, the majority of the funds goes to the industries that are dominated by large state-owned enterprises



Infrastructure Fund

- A water fund in China



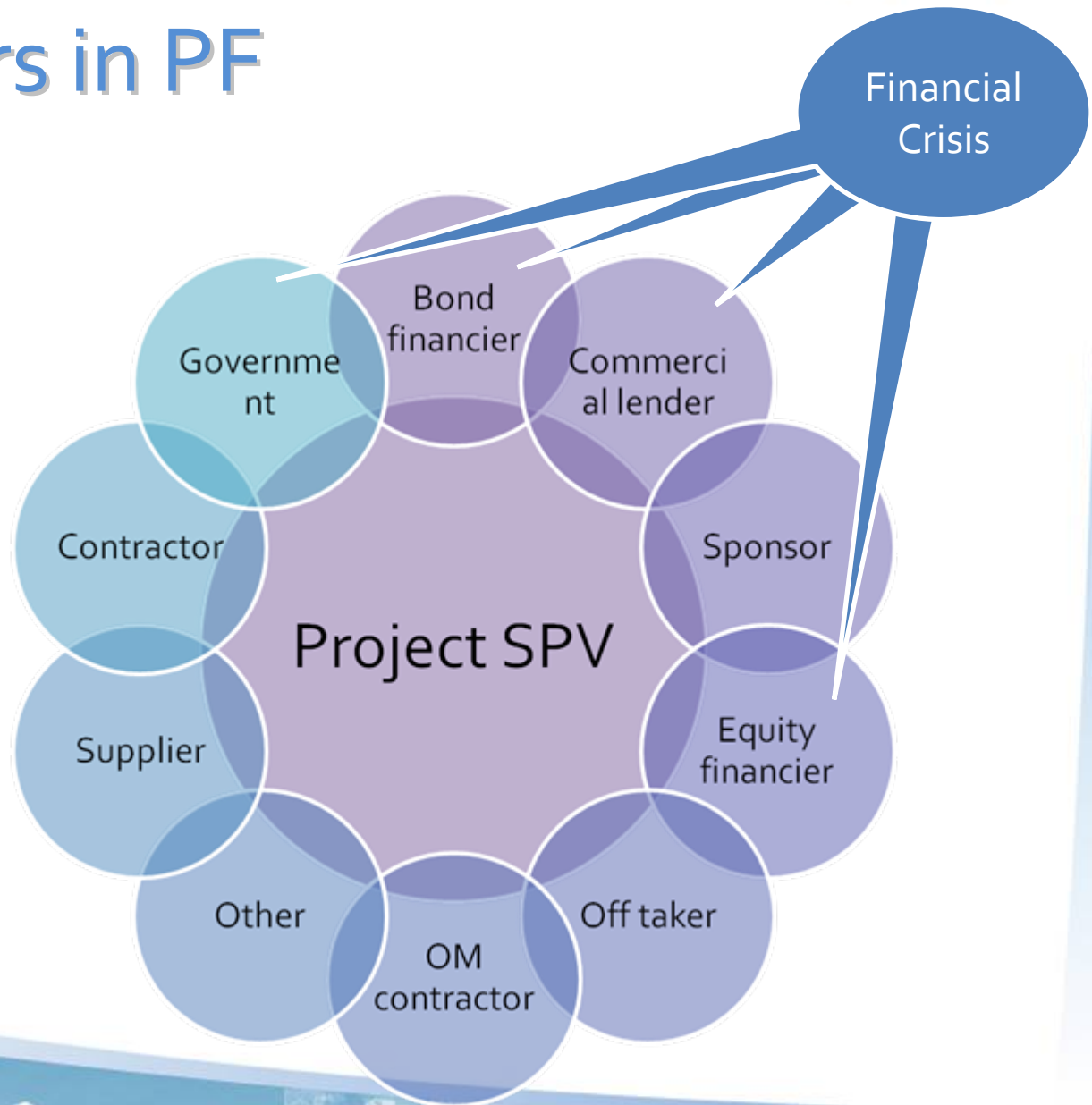


IMPLICATIONS FOR FINANCIER, PROJECT OWNER AND CONTRACTOR



Stakeholders in PF

- Shareholders' Agreement
- Implementation Agreement
- Loan and Security Agreements
- OffTaking Agreement
- Concession Agreement
- Supply Agreement
- Construction contract
- OM Contract
- Guarantees



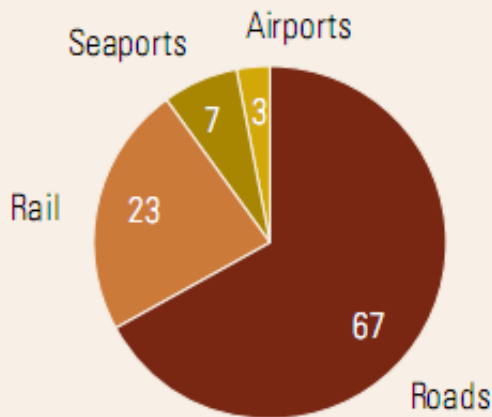
2005-2010 PF market: overall and PPP

The pipeline

Projected volume of planned investments in public-transportation infrastructure for selected countries, 2005–2010¹

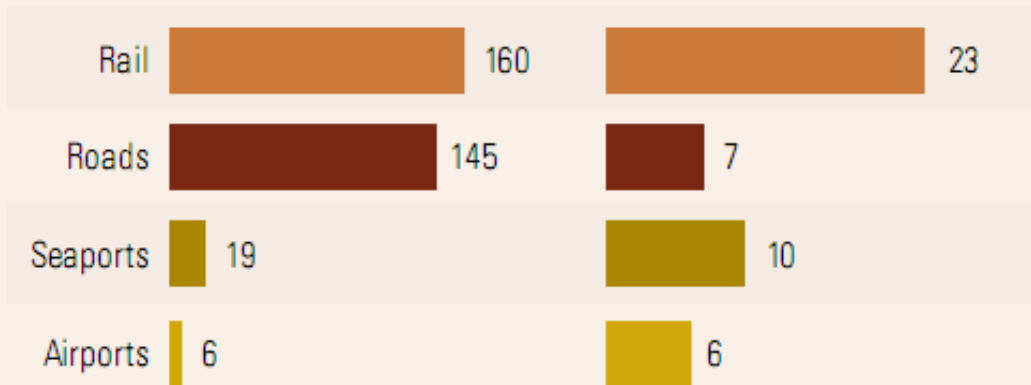
Total investments, %

100% = \$3 trillion



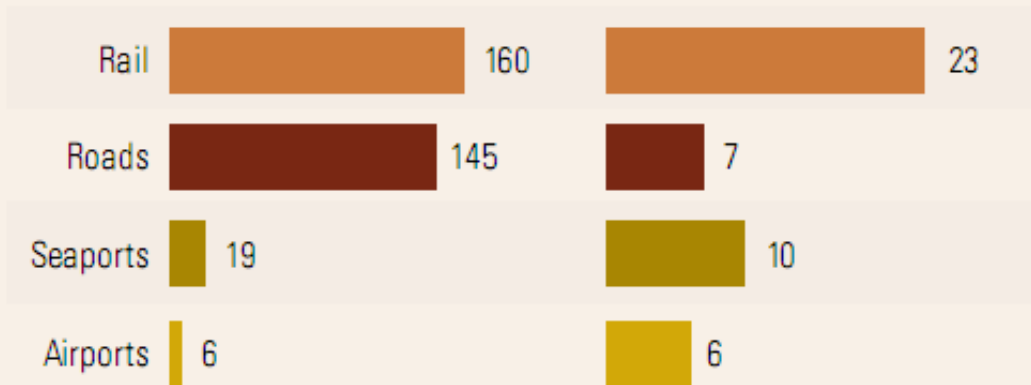
Public-private-partnership investments, \$ billion²

Total = \$330 billion



Public-private-partnership investments as % of total

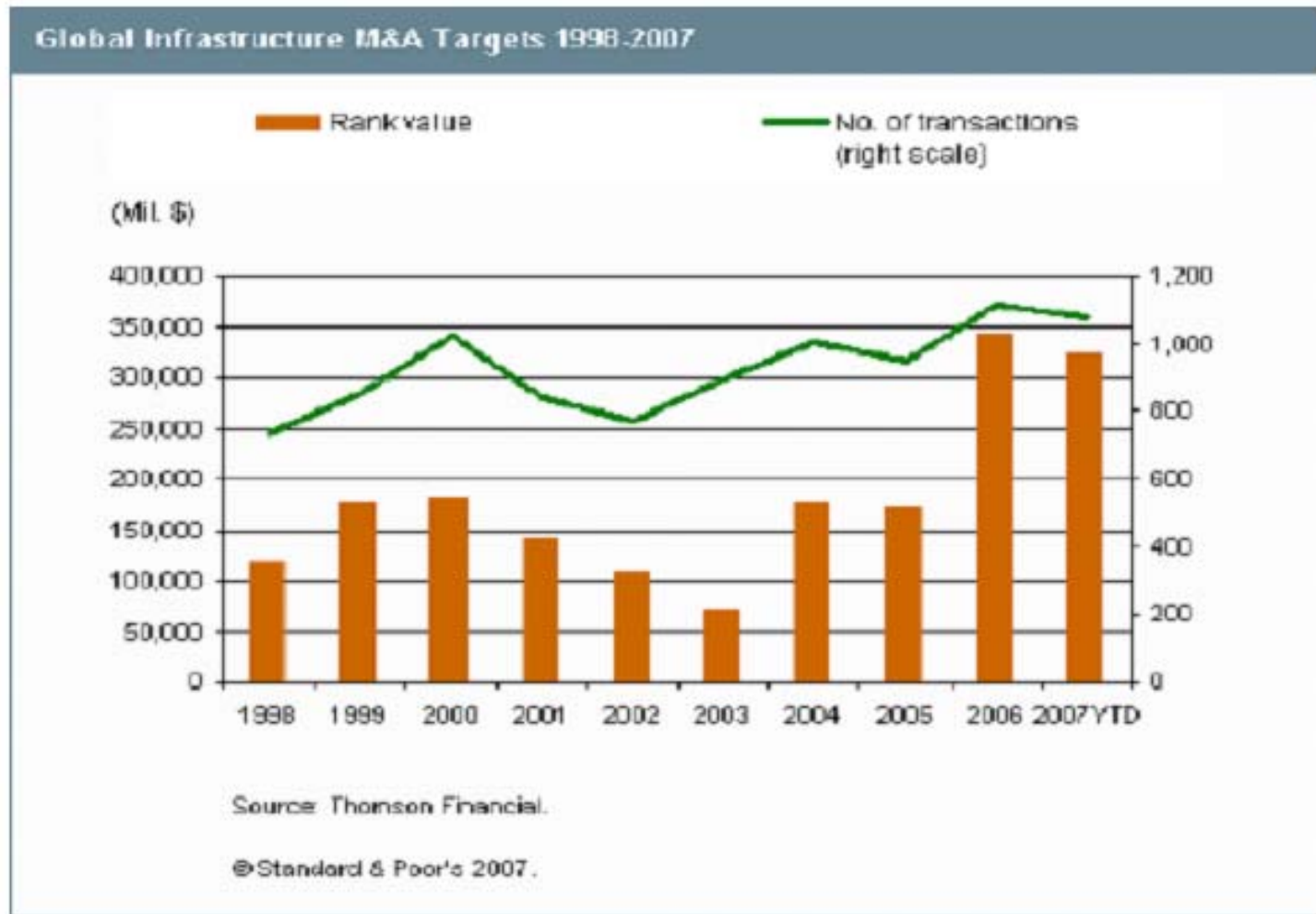
11% of all planned investments



¹Global total extrapolated from country data weighted by GDP; for Australia, Brazil, China, France, Germany, India, Italy, Japan, Portugal, Russia, South Korea, Thailand, United Kingdom, and United States; breakdown by transportation mode not available for Australia and Portugal.

²Estimated value of required private investment in publicly owned infrastructure.

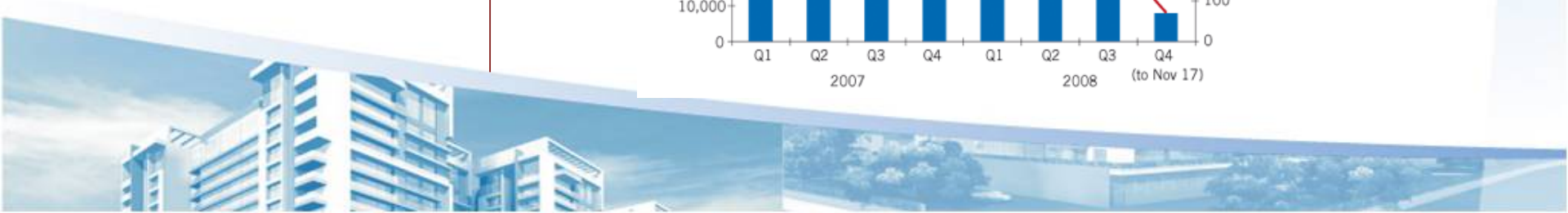
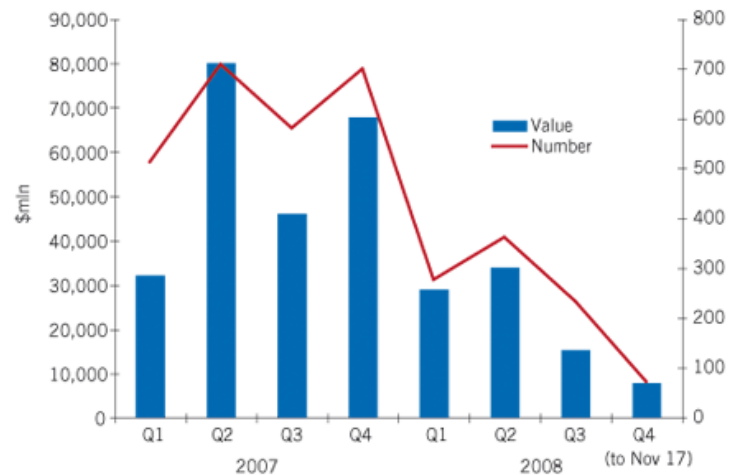
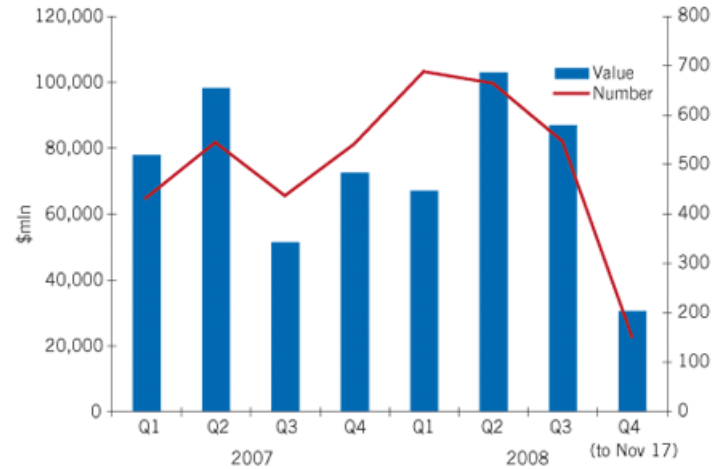
PF market – Prior crisis



But Now :

Investment Bank In Asia Pacific:

- Asia-Pacific (ex Japan) all DCM volume by quarter
- Asia-Pacific (ex Japan) all ECM volume by quarter



Implication

Financiers

Collected fund -> various channel ,
M&A -> chasing limited good quality
infrastructure assets

Assets Price increase -> pricing system
distorted

Credit Crunch :

- Asset multiplier higher, unite equity price lower
- Leverager sacrificed credit

More diversified and complicated PF
structure



Implication

Financiers

Drawn from Part 3
analysis

- Liquidity and credit crunch

- Higher capital cost
- Limited capital amount
- More complicated structure
- More strict covenants
- Lower leverager
- Increased spread range
- Decreased active investment Banker
- Enhanced credit mechanism - IB, DB enhancement product (guarantee, 1998 Asian Crisis)

- For Green field projects

- Debt market deteriorated, cost increased
- Less PE and equity investors
- Devaluated capital for infrastructure assets
- More public sector involvement
- Value of brown fields project more decreased





Implication

For public sector

Public sector in China - drawn from Part 2 analysis

- Existing ownership problem may create more challenges
- Revenue generating system – problem
- Privatization system risks - less private involvement, more challenges to public sectors
- Infrastructure fund - with government involvement - diversify risks
- Policy and regulatory issues – more sensitive



Implication

Project owners

- Project owners

- voluntary bankruptcy risk: economic value of the project, covenant conditions
- non-voluntary bankruptcy risks: corporate governance, market turbulence
- Restructuring debt: IB, DB vs SOE
- Restructuring deals: enhanced credit PF
- Program management (DB's experience in China)
- Innovated Procurement system – (next generation of PPP)





Implication

- Contractors

- Systematically mindset change

- Lessons from 1930s: how to adapt into current situation
- “Do more with less “

- Best PM practice pertinent in China

- Build a culture of project management within the organization.
- Integrate planning, design and construction oversight into a seamless project delivery process.
- Develop and utilize a formal “Release for Construction Process”.
- Manage Right-of-way acquisition, utility relocation and environmental permitting as you would design.
- Establish a “shadow” project management accounting system that is an effective tool for the project manager.
- Never rely on software to manage your projects.
- Respect the project managers.





CONCLUSION AND DISCUSSION



A Summary

Cause and lessons of the crisis regarding construction: supply vs demand

1. The situation in 1929 depression
2. The current situation
3. The unbalanced development
 - Credit Crunch
 - Mispricing of Assets

Implication:

1. Legal and regulatory improvement
2. Government intervention
3. Relationship between project owner and financier:
improvement on PF models
 - D/E, P/E adjustment
 - More diversified mechanism
4. Relationship between Project owner and contractor:
improvement of procurement system
 - Risk and Transaction cost : adjustment of risk

A stylized graphic of a globe showing the Americas, positioned in the top-left corner of the slide.

Dr. Jiang Hongbin is Vice President of CCDI Group (China Construction Design International). He was Senior Procurement Officer of Asian Development Bank.

Dr. Jiang had 16 years of professional experience in infrastructure project management. He had undertaken management of highway projects, urban water supply and sewerage projects, thermal and hydro power projects, irrigation projects in 13 countries. He has publications of academic papers in the 1st tier international referred journals and conferences.

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