The Commercial Law Development Program

Presents

Public-Private Partnership Webinar Series

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PPP FINANCIAL MODELS: "WHY"& "WHAT WE'RE LOOKING AT"

ABOUT CLDP

- Established in 1992, CLDP is the legal technical assistance arm of the U.S. Department of Commerce
- CLDP's mission—improve the legal environment for business worldwide
- Energy issues often play a central role in our trade and investment development work as either a primary economic catalyst (production) or barrier to economic growth (consumption)
- CLDP has provided over 20 years of technical assistance in energy law

Peter Davidson, General Counsel, U.S. Department of Commerce, launches CLDP's new Power Africa handbook, *Understanding Power Project Procurement*, before a crowd of US companies and other private sector partners

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FOCUS OF PRESENTATION

What Covered

"Shadow" Financial Model

- The model used by the Public and its advisors to analyze and structure a concession or PPP.
- While used by the Public Side, the Financial Model looks at the project finances from the **Private Perspective**.
- The Private Side also builds their own "bidder" financial model to evaluate the project.

For Whom

This presentation is for the "Public" officials who are looking at the financial models from advisors.

THE PURPOSE OF A FINANCIAL MODEL

DEFINE

Cashflow – Demonstrate the basic economic characteristics & viability of the Project:

- Project Revenues
- Operating Costs
- Financing Cashflows
- Balance Sheet

Scenarios – Evaluate alternative scenarios.

QUANTIFY

Risks – Quantify the cost of risks that are borne by each party.

Capital Needed– Estimate the amount of debt & equity required for the project, and their likelihood. (Is it **commercially viable or "bankable".**)

Project Fiscal Implications – Project the Government's liabilities & costs.

USES FOR A FINANCIAL MODEL (1)

- Project Structuring.
  - Part of Feasibility Study.
  - Evaluate Viability.
  - Scenario Analyses.
  - Sensitivity Analyses.
  - Part of Value for Money (VfM) to compare with public works option (Public Sector Comparator or PSC).
- Procurement Process: Preparation
  - Used to Set Government Budget Approvals and Bid Parameters.

Project Life Cycle

Structuring
↳ Procurement
↳ Financial Close
↳ Construction
↳ Operation

Almost all Governments use a Financial Model for:

- Project Structuring
- Budgeting for Procurement.

USES FOR A FINANCIAL MODEL (2)

- Procurement Process: Bid Review
  - Proposal or Bid Review
  - Contract Negotiations.
    Transition to Consolidated Model
- Financial Close
- Management of Project
  - Construction (eg. Negotiated Changes)
  - Operation
  - Dispute Resolution
    Force Majeure and the equilibrium clause.

Project Life Cycle

Structuring
→ Procurement
→ Financial Close
→ Construction
→ Operation

Government regulations will often define the financial model use over the project life cycle.

- The uses on this page differ globally.
- Government should have advisors evaluate the uses to help guide policy.

USES FOR A FINANCIAL MODEL (3)

Project Life Cycle

Structuring
→ Procurement
→ Financial Close
→ Construction
→ Operation

A Financial Model is NOT:

- The Economic Model.
  Both part of the Feasibility Study.
  - Economic Model: Societal benefit.
  - Financial Model: Suitability as a concession or PPP.
    (Part of analysis. Also need qualitative review.)

- An Analysis of Government Accounting Treatment.
  PPPs have accounting (IPSAS or otherwise) and IMF GFS fiscal implications, which are NOT in the financial model.

A Government should understand its accounting and fiscal rules for PPPs and concessions, and their impacts, BEFORE moving forward.

A GOOD FINANCIAL MODEL… (Does)

- Includes realistic projections – cost, revenues, operations
- Highlights the most important risks in the project
- Provides information that guides decisions on allocation of risks
- Allows users to forecast different scenarios
  (e.g., changes in scope, timing, demand, costs & financing terms)
- Demonstrates the project's direct & contingent liabilities for Government
- Illustrates the project's financial return to the private sector indicating its "bankability"

A GOOD FINANCIAL MODEL… (Design)

Consistency	Consistent organization in layout & calculations
Reliability	Tested for integrity – results are tested for accuracy
Simplicity	Don’t over complicate. Keep formulas simple for others to understand.
Focus	Model demonstrates the key economics or business of the project.

A GOOD FINANCIAL MODEL...(Understandable)

Before

Description	2,012	2,013	2,014	2,015	2,016
Salaries & Related Expenses	45,601	50,161	52,669	55,302	60,833
Materials	15,829	8,706	8,880	9,146	9,421
Transportation	3,147	3,178	3,273	3,372	3,473
Travelling & Hotel	3,716	3,753	3,865	3,981	4,101
Subtotal	68,292	65,798	68,688	71,802	77,827
General Charges:					
Ex gratia & Compensation	457	461	475	490	504
Staff Welfare Expenses	1,412	1,427	1,469	1,513	1,559
Staff Training & Development	5,527	5,583	5,750	5,923	6,100
Stationary & Printing	379	383	394	406	418
Rent, Rates & Insurance	1,420	1,434	1,477	1,522	1,567
Electricity & Water	124	125	129	132	136
Postage, Telephone & Telex	263	266	274	282	290
Repairs & Maintenance	13,107	13,238	13,635	14,044	14,466
Subscription & Donation	571	577	594	612	631
Public relations and Publicity	2,466	2,491	2,566	2,643	2,722
Audit fees & expenses	71	72	74	76	78
Professional & Legal fees	60	61	62	64	66
Consultancy services	3,490	3,525	3,630	3,739	3,851
Administrative expenses	1,059	1,069	1,101	1,134	1,168
Safety expenses	179	181	187	192	198
Subtotal	30,586	30,892	31,818	32,733	33,756
Total	98,878	96,689	100,506	104,575	111,583

Bad formatting and structure can make a model difficult to review.

After

Description	Units	2012	2013	2014	2015	2016
Main Expenses						
Salaries & Related Expenses	GH¢'000	45,601	50,161	52,669	55,302	60,833
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Model should help highlight key results.

A GOOD FINANCIAL MODEL... (Structure)

INPUTS

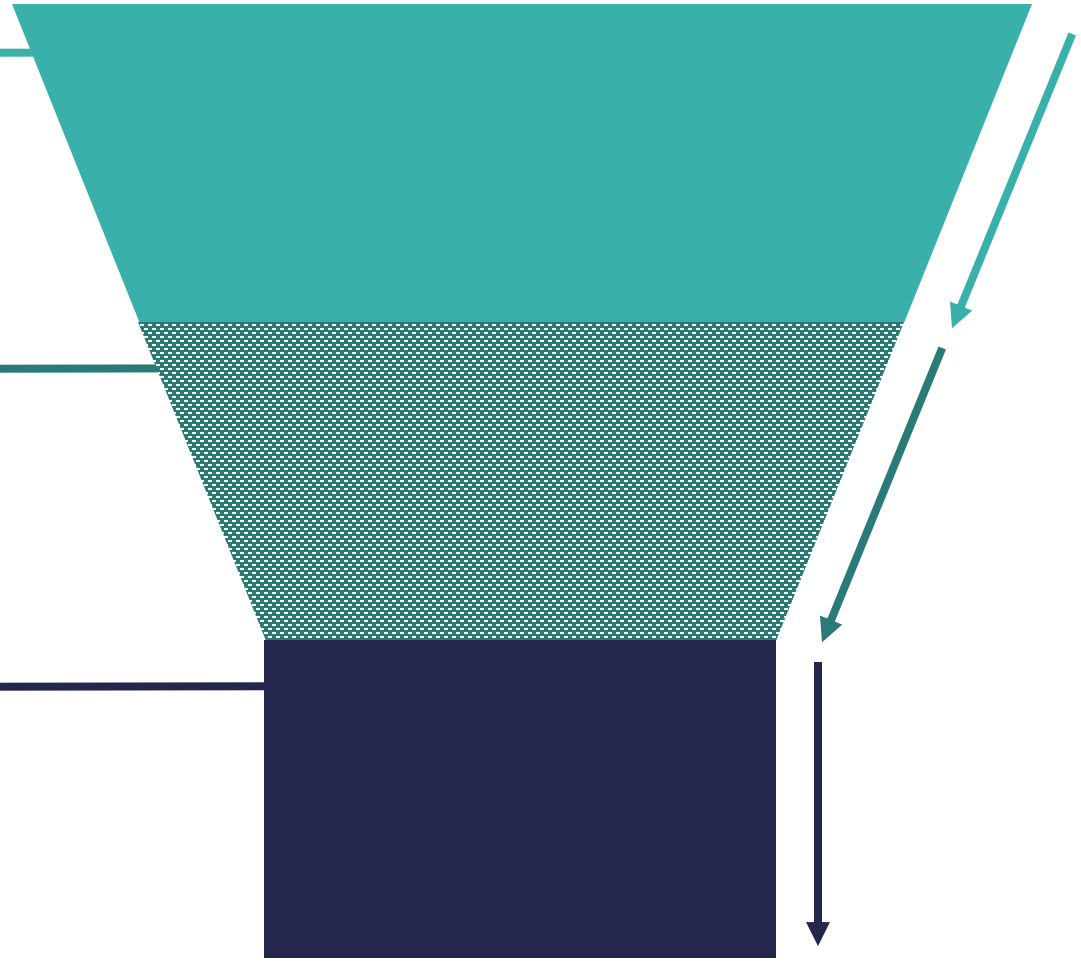
- Hard-coded inputs (assumptions)
- Identify data sources
- Group inputs according to relevant category

CALCULATIONS

- Uses inputs to make calculations
- No hidden assumptions (eg, inflation)
- Show each calculation step

OUTPUTS

- Cashflow
- Balance Sheet
- Returns to Investors
- Ratios or Indicators
- Graphs



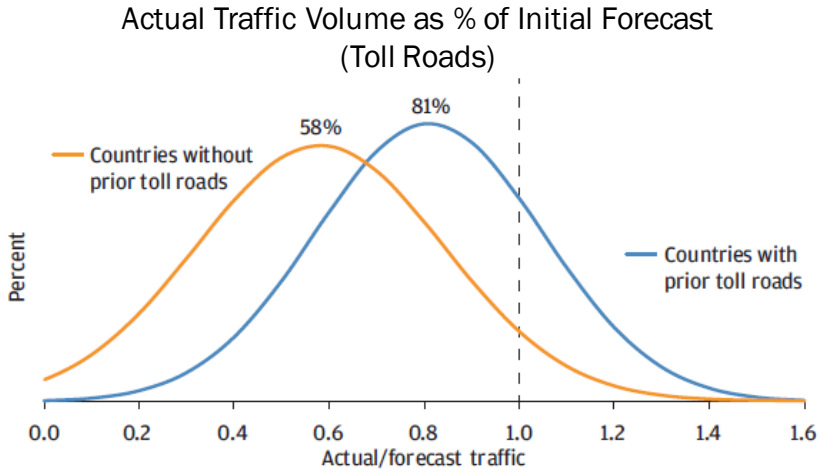
A GOOD FINANCIAL MODEL... (Assumptions)

A Financial Model is only as good as the Assumptions.

Are the sources of the assumptions documented?
Do the assumptions make sense based on prior experience?
(Test with outside sources)

Assumptions (Homework Needed)

- Construction and O&M Costs
  - Including ROW, Utility Relocation, Environmental
- Financing Cost, Structure, and Requirements
- Revenues
  - Market Study



Source: Robert Bain, *Error and Optimism Bias in Toll Road Traffic Forecasts* (University of Leeds, 2009). Graph by JP Morgan 2014.

Even with the best of assumptions:

- They will be wrong.
- Thus, the Model needs **Sensitivity Analyses**.
- The analyses are used for risk analysis and assignment.

A GOOD FINANCIAL MODEL... (Limits)

- Financial Model Sensitivity Analyses do a good job analyzing risks like traffic or construction costs.
- However, **Non-Linear Contingent Risks** are not easily modelled. Examples:
  - Civil unrest. (Riots at toll booths.)
  - Flooding or landslides.
  - Land acquisition problems.
  - Non-compete clauses. (e.g., a government decision to improve a parallel road or railroad.)
- Termination is another non-linear risk that, though the value can and should be calculated, is difficult to evaluate.

Ultimately, the contract defines the risks and conditions, not the model. Some risk items (even financial ones) are difficult to estimate in the model, and do not show up in sensitivity analyses.

WHAT ARE WE LOOKING AT?

The financial model takes the inputs (assumptions), makes calculations, and shows the outputs.

- The Dashboard is a summary of key assumptions and results.
  - User Fees or Government Subsidies needed to be “commercially viable”.
  - Key indicators for debt and equity.
  - Downside risks or upside benefits.

- Other Primary Pages:
  - Inputs (Construction, O&M, Revenues)
    - Not Just Costs, but dates, scenario alternatives, oversight, and personnel.
  - Debt (Financing) & Taxes
  - Cashflow, Profit & Loss, Balance Sheet
  - Misc: User Manual, Termination Values, WACC

WHAT ARE WE LOOKING AT?

How does the model work? It solves for the:
Revenues: User Fees or Availability Payment (Subsidies) which
Fulfill the automatic checks (indicators); and
Pay the investors (debt and equity).

- The model will "goal seek" until a solution:
  - Provides enough money to construct and operate the project;
  - Meets minimum ratios or automatic checks; and
  - Meets the capital requirements.
- Some key checks or indicators are:
  - Debt Coverage Ratios (MinDSCR, LLDSCR, PLDSCR);
  - Min Equity Ratios Required
  - Min Cash Balances or Reserves

A "commercially viable" model fulfilling the above does not mean it is affordable for the government.

*Example below shows an error when the model **does not meet** the **Min DSCR** requirement (in this case **1.3x**).*

Ratios	
Min DSCR	1.19x
Average DSCR	1.37x
PLDSCR	1.56x
Project IRR	13.1%
Project IRR	21.6%

Checks	
Balance Sheet Balances	OK
Cash Flow Positive	OK
Senior Leverage within Maximum	OK
Total Leverage within Maximum	OK
Sources Match Uses	OK
Max Principal within Limit	OK
Min DSCR	ERROR

WHAT ARE WE LOOKING AT?

Typical Dashboard with Indicators; Automatic Checks; and Graphs of Finances.

Solves for Payment which

Primary Results

Scenario Switch	Escenario 1 *switch*
Base Scenario	Escenario 1

Principales resultados del modelo

Equity IRR Before Taxes	15.0258%
Equity After Taxes	13.4095%
IRR Dividends	**10.4587%**
IRR Dividends and Sub Debt	**10.4587%**
IRR Sub Debt	n.a

Checks

Upfront Financing Requirements	OK
Balance	OK
Min Cash Balances	OK
Senior Debt Indicators	OK
Subordinate Debt Indicators	OK
Initial S&U	OK
Min Equity Contributions Met	OK

Capital Summary

Senior Debt			Initial Capital Structure		
			Equity	30%	%
Term	14.75	years	Sub Debt (Mezz)	0%	%
Repayment Date	31/10/2032	years	Senior Debt	70%	%
Tail	5.50	years	**TOTAL**	**100%**	
Indicadores Deuda			**Capital**		
DSCR Average (Total Revs)	1.29x		Desembolso inicial sobre ca	50%	%
DSCR Average (just AP)	1.20x				
LLDSCR	1.31x				
PLDSCR	2.03x				
Indicadores Apalancamiento			Availability Payment (Subsidy) Required		
RRPP/Fuentes Financiación mín	33.48%		**$** **76,775** /year		
Capital Social / FFPP desembolsados mín	100.00%				
Capital Social / Inversión	25.89%				

Usos y Aplicaciones en Construcción

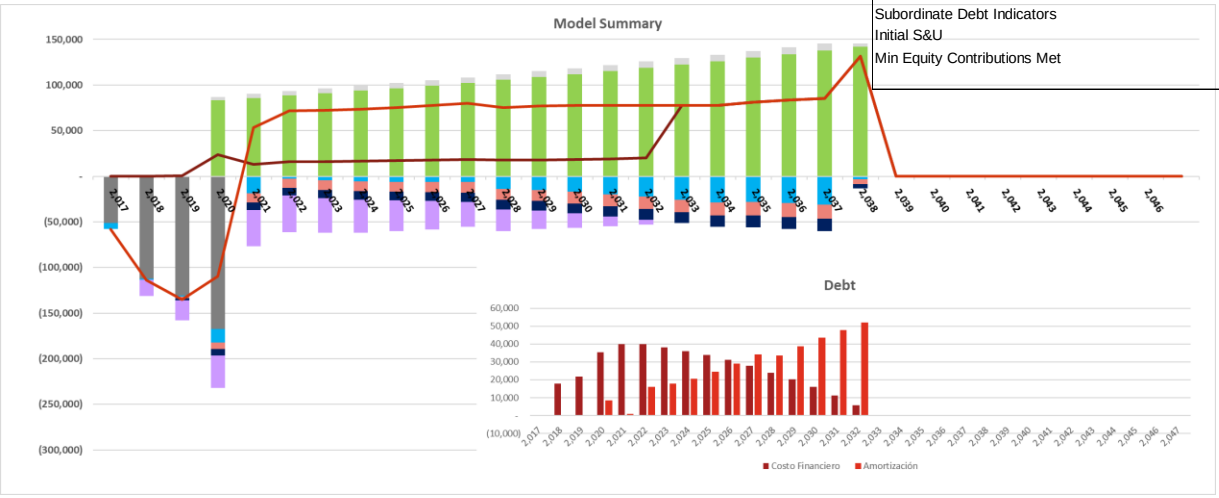
		000s		000s
1	Construction (excl Taxes)	468,564	AP During Construction	83,337
2	Supervision (Third Party)	11,255	Senior Debt	367,284
3	Admin	6,353	Sub Debt	0
4	Trusteee Misc	757	Equity	157,407
5	Financing costs	56,551		
6	Working Capital	57,053		
7	Concession Admin	5,531		
8	Taxes	1,964		
9				
10				
	Total Uses	**608,028**	**Total Sources**	**608,028**

Meets Equity Targets

Meets Checks

Meets Debt Targets

Balances S&U



WHAT ARE WE LOOKING AT?

WACC vs Equity IRR.

As noted, the financial model solves until a target "IRR" is met for investors.

- When a private company develops a **"Bidder Financial Model".**
  - Evaluates debt;
  - Considers alternative investments for Equity "IRR" to target;
  - Solves model to determine bid.
- For the Government **"Shadow Financial Model"**:
  - Advisors can use a similar approach. However, some countries may consider the "Equity IRR" to be less transparent. (Comparable equity returns may not be entirely public.)
  - Many countries use a **Weighted Average Cost of Capital (WACC).** WACC is a blend of debt cost assumptions (Kd) and a theoretical ROE by looking at equity market returns for a similar sector adjusted for sovereign risk (Ke). All inputs are documentable.

The two approaches provide theoretically similar, but not identical, results. Differences include

- WACC implicitly assumes a constant leverage ratio. However, leverage is dynamic.
- Theoretical WACC equity returns (Ke) can vary materially from market expectations. Possibly because of analysis periods and changes in sovereign yields or spreads, or market perceptions of comparables.

CONCLUSIONS

1. **The Financial Model is only as good as the inputs.**
   Check the assumptions with outside sources.

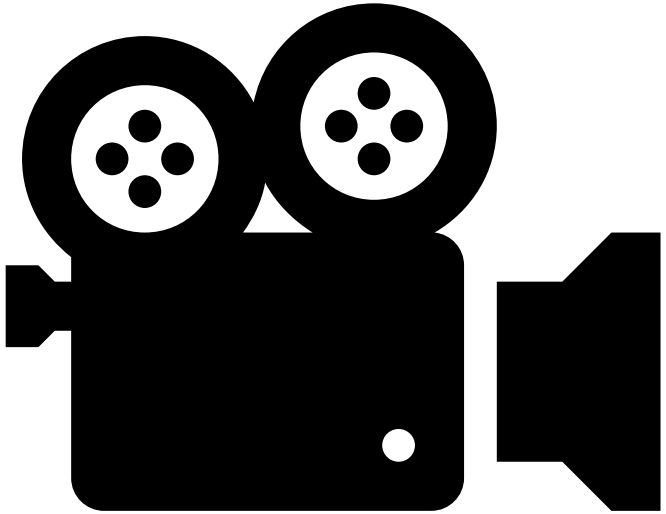
2. **Don't over complicate the model.**
   Keep it as simple as the project will allow. The model needs to be understandable when reviewed.

3. **Numbers can be wrong. Run sensitivity analyses.**
   Understand the impacts if results differ, and the potential contingent liabilities.
   Understand the fiscal and accounting implications for the Government.

4. **Clearly set policy on the use of the model.**
   Look at international best practices, and review with multiple sources and advisors.
   Understand the use of the model in different stages of a project.

Upcoming Webinars

- Business Case Development
- Unsolicited Proposals
- Life Cycle Costs
- Project Agreements



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