



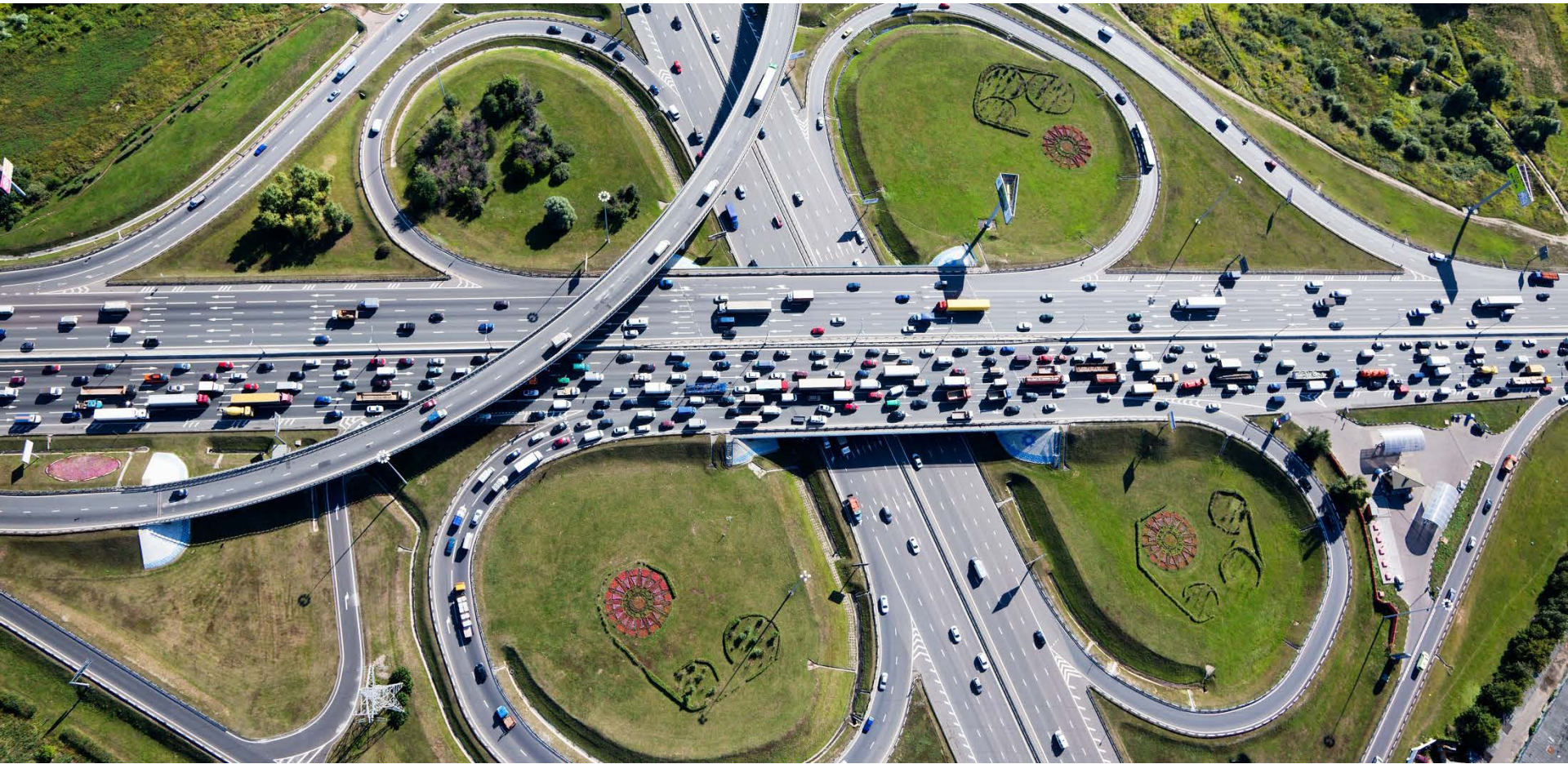
PPP模式之海外標案財務預算分析實務





Content

1. PPP Basics: What and Why
2. Evaluate PPP project risks
3. Financial Modeling for PPP Project
4. Project finance for PPP project



Public **P**rivate **P**artnership: A long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance.

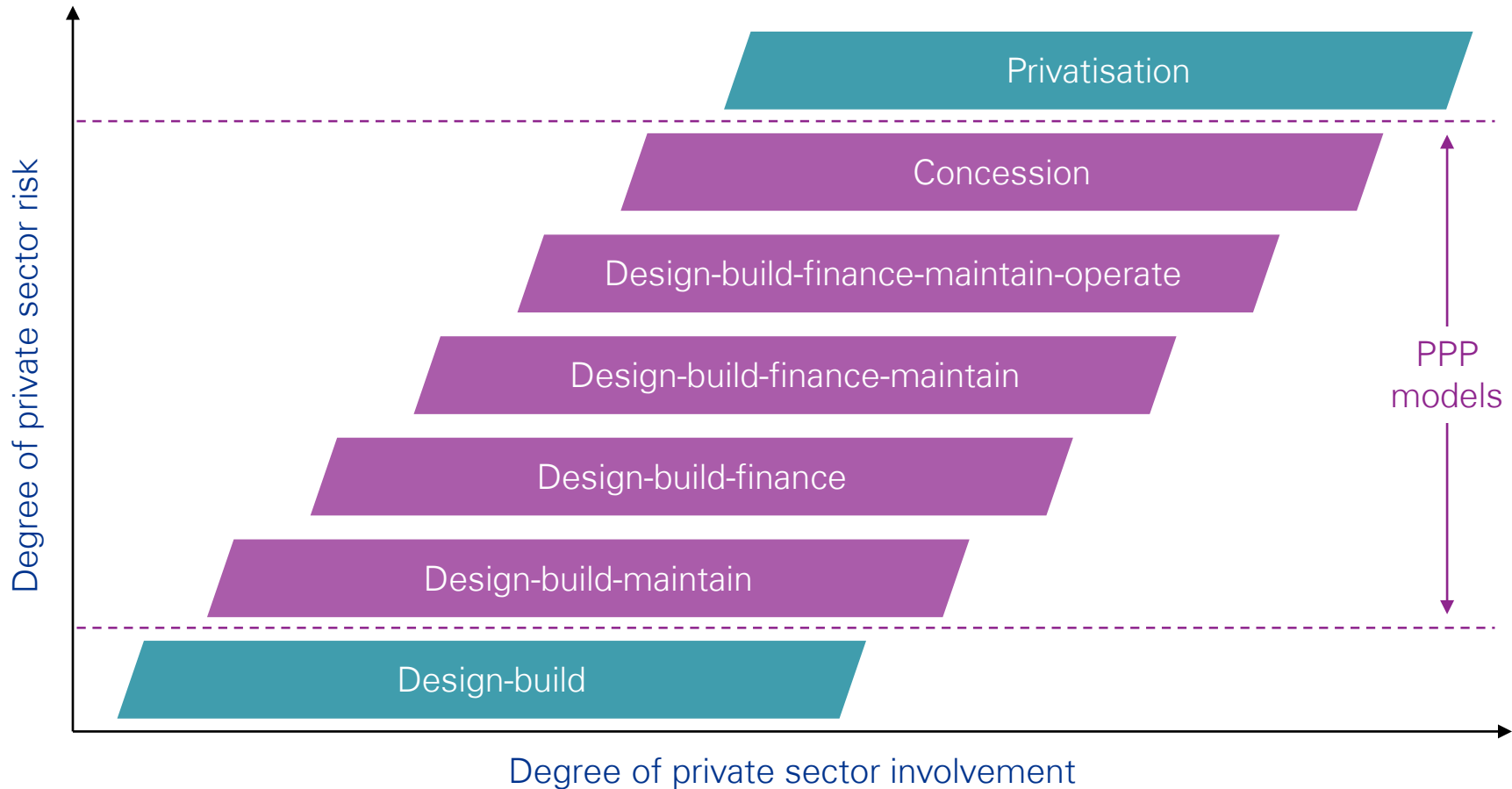
PPP Basics: What and Why



The private party can be paid by collecting fees from service users, by the government, or by a combination of the two—with the common, defining characteristic that payment is contingent on **Performance**.

PPP Basics: Procurement models

PPP normally 'bundles' together multiple project phases or functions:



PPP Basics: Procurement models

The contractual model defines the roles of public and private sectors as well as how project risks are shared

| ○ - Retained by Public Sector ● - Transferred to Private Sector | Design | Construction | O&M | Financing | Market / Utilization | Collection |
|--|--------|--------------|-----|-----------|----------------------|------------|
| Design Bid Build | ○ | ● | ○ | ○ | ○ | ○ |
| Design Build | ● | ● | ○ | ○ | ○ | ○ |
| Design Build Finance | ● | ● | ○ | ● | ○ | ○ |
| Design Build/Maintain | ● | ● | ● | ○ | ○ | ○ |
| Design Build Finance Operate (Availability Payment) | ● | ● | ● | ● | ○ | ○ |
| Design Build Finance Operate (Shadow User Fee) | ● | ● | ● | ● | ● | ○ |
| Design Build Finance Operate (Real User Fee) | ● | ● | ● | ● | ● | ● |

PPP Basics: PPP Value Drivers

What Government hope to achieve through PPP : The PPP value drivers that can improve value for money in infrastructure provision.



- 1 Whole-of-life costing
- 2 Risk transfer
- 3 Upfront commitment to adequate maintenance, and predictability and transparency of whole-of-life costs
- 4 Focus on service delivery
- 5 Innovation
- 6 Asset utilization
- 7 Mobilization of additional funding
- 8 Accountability

PPP Basics: PPP applications

Characteristics of a sector where a PPP model might be considered

- 'Non-core' service
- Definable business or cost centre
- Limited integration with other services
- Ability to charge user fees
- Impact of failure relatively low

Characteristics of a sector where a PPP model would not likely be considered

- Importance of maintaining public confidence and/or safety
- Policy control not easily imbedded in a contract
- Impact of failure relatively high

Sectors where PPPs have been implemented

- Highways, bridges, rail and transit
- Airport and air navigation
- Water treatment, transmission and distribution
- Power generation, transmission and distribution
- Gas transmission and distribution
- Marine and ports
- Justice/corrections
- Hospitals and healthcare

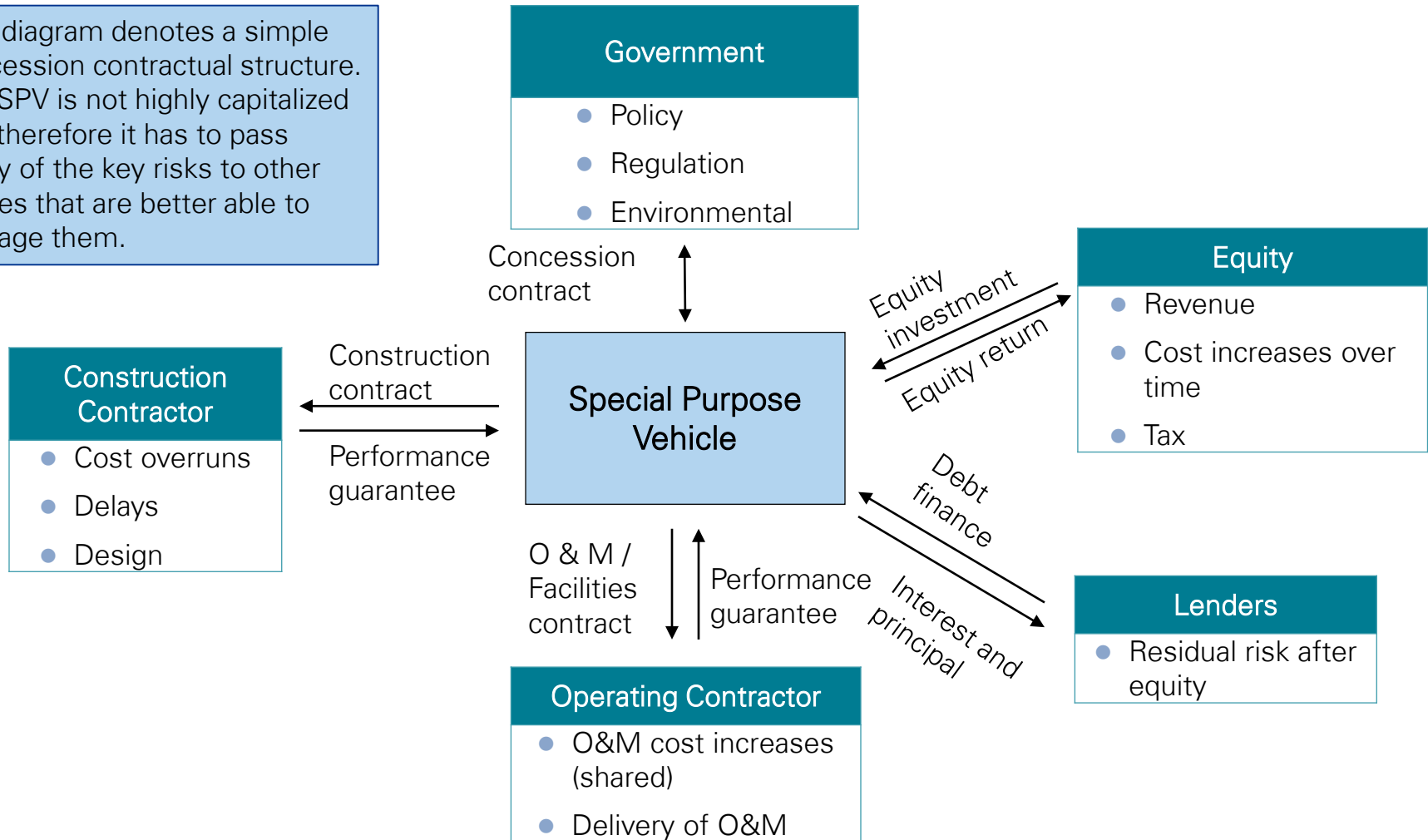


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Evaluate PPP: Basic risk allocation example (DBFO)

This diagram denotes a simple concession contractual structure. The SPV is not highly capitalized and therefore it has to pass many of the key risks to other parties that are better able to manage them.



Evaluate PPP: Common Risk for PPP

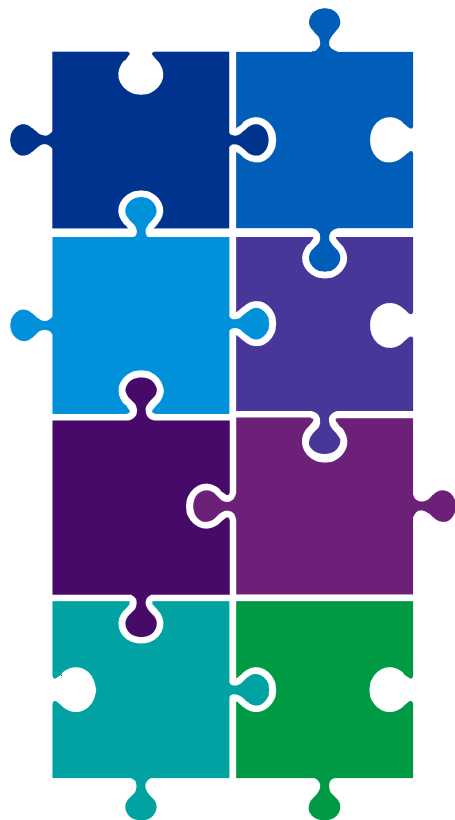
| Type of risk | Description |
|---|---|
| Site risks | risks associated with the availability and quality of the project site, such as the cost and timing of acquiring the site, needed permits or assuring rights of way for a road, the effect of geological or other site conditions, and the cost of meeting environmental standards |
| Design, construction, and commissioning | the risk that construction takes longer or costs more than expected, or that the design or construction quality means the asset is not adequate to meet project requirements |
| Operation | risks to successful operations, including the risk of interruption in service or asset availability, the risk that any network interface does not work as expected, or that the cost of operating and maintaining the asset is different to what was expected |
| Demand, and other commercial risk | the risk that usage of the service is different to what was expected, or that revenues are not collected as expected |
| Regulatory or Political | the risk of regulatory or political decisions, or changes in the sector regulatory framework, that adversely affect the project. For example, this could include failure to renew approvals appropriately, unjustifiably harsh regulatory decisions, or in the extreme, breach of contract or expropriation |
| Change in legal framework | the risk that a change in general law or regulation adversely affects the project, such as changes in general corporate taxation, or in rules governing currency convertibility, or repatriation of profits |
| Sponsor, or default | the risk that the private party to the PPP contract turns out not to be financially or technically capable to implement the project |
| Economic or financial | the risk that changes in interest rates, exchange rates or inflation adversely affect project outcomes |
| Force Majeure | the risk that external events beyond the control of the parties to the contract, such as natural disasters, war or civil disturbance, affect the project |
| Asset ownership | risks associated with ownership of the assets, including the risk that the technology becomes obsolete or that the value of the assets at the end of the contract is different from what was expected |







Evaluate PPP: Risk Allocation

Risk Allocation varies by projects and sectors: Draft PPP contract can reveal the risk appetite of the public party.

| | Public | Private | Shared |
|---------------------------------|--------|---------|--------|
| Completion risk | | v | |
| Construction risk | | v | |
| Currency and interest rate risk | | v | v |
| Demand risk | v | v | v |
| Design risk | | v | |
| Disruptive technology risk | v | v | v |
| Early termination risk | | | v |
| Environmental and social risk | | v | v |
| Force Majeure risk | | | v |
| Inflation risk | v | v | v |
| Insurance risk | | v | v |
| Land Purchase and Site risk | v | v | v |
| Maintenance risk | | v | |
| Political risk | v | | v |
| Change of law risk | v | | v |
| Resource of input risk | | v | v |
| Revenue risk | | v | |
| Strategic risk | | v | |

Evaluate PPP: Key factors to a successful PPP project



| | | | |
|---|---|--|---|
|  Mix of International Expertise and Local Partner Sponsorship |  Disciplined Control Toward Time and Project Complexity |  Notice of Political Risks like Regulations and Policies |  Predictable and Sustainable Deal Flow |
|  Public Sector Delivery Capacity |  Engage Financiers in an Early Stage to Pay for the Infrastructure |  Gain Stakeholder Support to Raise Capital |  Assess and Manage Key Social and Environmental Impacts |

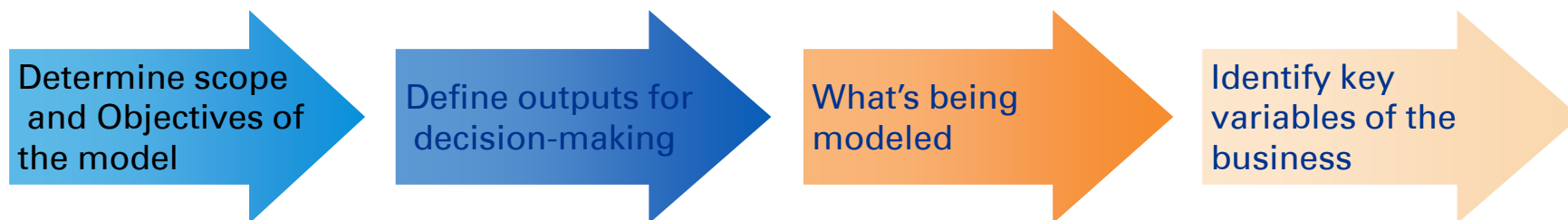


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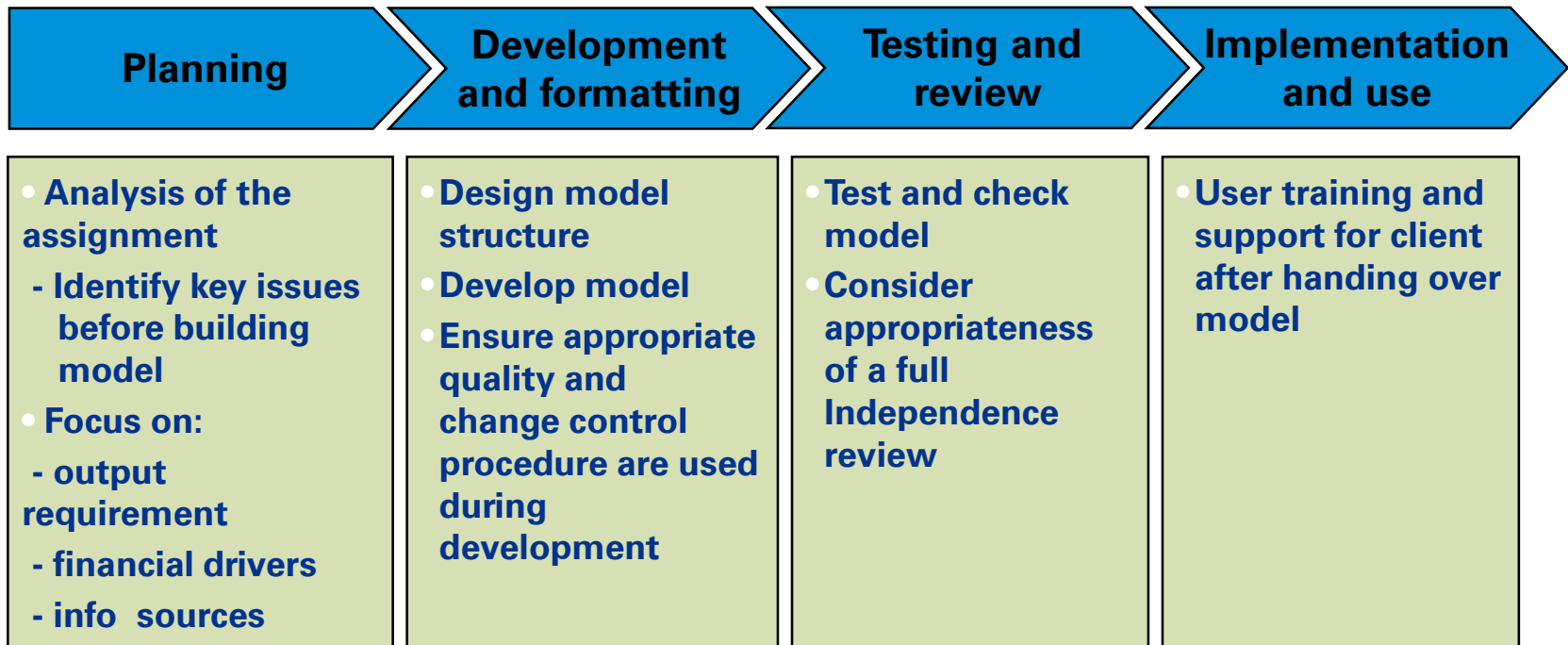
Introduction to Financial Modelling

- A financial model has become a critical tool used by organizations to understand business risks and make important strategic decisions. An effective model is robust and flexible, yet user-friendly, so that it can be used to analyze the impact of operational parameters on the value and viability of a business.



Approach to build up a financial model

The Process can be divided into four key steps:



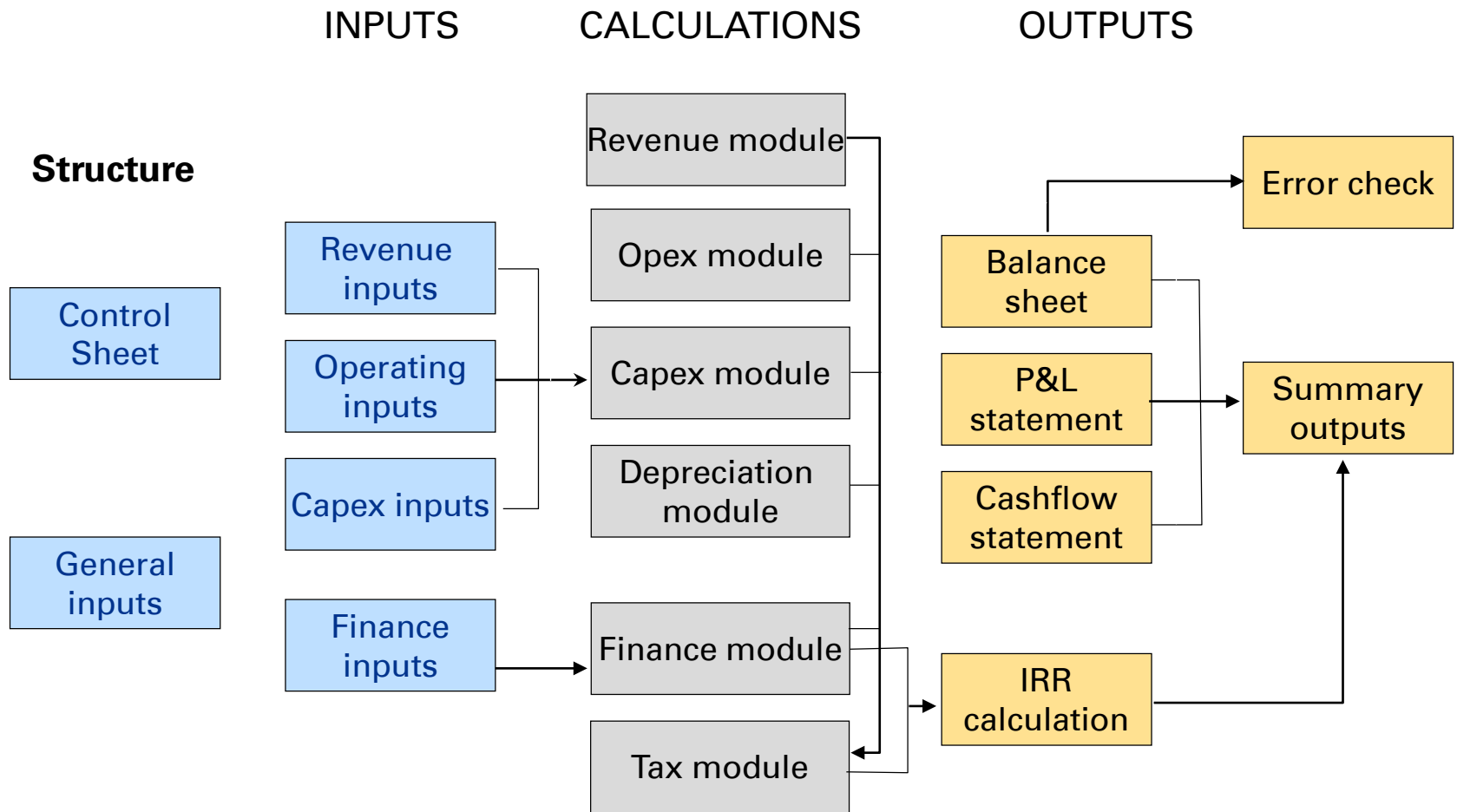
Focus should be on:

- A systematic process
- A consistent product

Understand the business

- What are the key drivers of the business / project?
 - Sales, consulting revenue, one-off project revenue
 - Cyclical business tied to GDP or some other economic indicator
 - Exposure to commodity prices
 - Earnings denominated in foreign currencies
- What are the key business risks?
 - Commodity risk
 - Foreign exchange risk
 - Construction delays
- Any unique aspects of the business?
 - Complex shareholdings or tax-related transactions
 - Obscure debt or equity instruments used in funding
- Working capital can be important
 - How does it apply to the business being modelled and do the results make sense?

Example of a financial model structure



Defining outputs for decision- making

What are the required outputs and formats for reports to decision-makers?

| Decision-maker | Likely information requirement |
|--------------------|---|
| Company management | <ul style="list-style-type: none"> ● Financial statements ● Profitability ratios ● EPS impact |
| Debt financiers | <ul style="list-style-type: none"> ● Debt coverage ratios (e.g. DSCR, ICR, LLCR) ● Gearing ratios ● Financial statements |
| Project sponsors | <ul style="list-style-type: none"> ● Financial statements ● Debt service, bank ability, yield ● Sensitivity analysis |
| Equity financiers | <ul style="list-style-type: none"> ● Pre and post tax IRR ● Running yield, payback ● Tax position |

Key Model Outputs

When developing an integrated model that will be reviewed by the sponsors and lenders, there are several key model outputs:

- **Summary worksheet**
- Statement of sources and uses
- Minimum and average DSCR and LLCR(including date of minimum)
- Equity IRR
- Graph of outstanding debt balances, equity cash flows, coverage ratios(actual vs. minimum), CFADS vs. debt service and cash account balances
- Repayment schedules and gearing
- **Integrated financial statement:** Conform to local financial reporting standards
- **Cash flow waterfall:** Consistent with terms set out in procurement documents and lenders' term sheets



Project assessment

| Project cash flows and Project IRR are used as an indication of performance | | | |
|---|--|--|---|
| Category | Project IRR | Project cash flows | Possible outcome |
| 1.) | <ul style="list-style-type: none"> ● Strong project IRR | <ul style="list-style-type: none"> ● Project cash flows are sufficiently high and likely exceed the private sector's equity return requirement | <ul style="list-style-type: none"> ● May yield a concession/ lease payment to the public sector |
| 2.) | <ul style="list-style-type: none"> ● Positive project IRR | <ul style="list-style-type: none"> ● Overall, cash flows for the project are positive but on their own are not sufficient to cover the cost of private sector capital | <ul style="list-style-type: none"> ● Project will require an upfront injection of public funds from the public sector |
| 3.) | <ul style="list-style-type: none"> ● Project IRR does not exist or is close to zero | <ul style="list-style-type: none"> ● Estimated project cash flows are negative | <ul style="list-style-type: none"> ● There is a need for public funds during the construction and operating phase of the project |

What are the assessment indicators for the project?

Project cash flows

- On a pre-financing basis
- Base level taxes may also be incorporated based on project cash flows (i.e ignoring the impact of depreciation and interest on debt)
- If a subsidy or concession payment is known in advance, this amount should also be included in the determination of Project IRR.

Project IRR

- The discount rate that equates the present value of project cash inflows to project cash outflows.
- Provides a good preliminary measure of the extent to which the project “pays for itself”
- Analogous to the Weighted Average Cost of Capital (“WACC”) for the project, WACC is an important indicator when assessing high-level project feasibility.

What are the assessment indicators for the project?

Equity cash flows

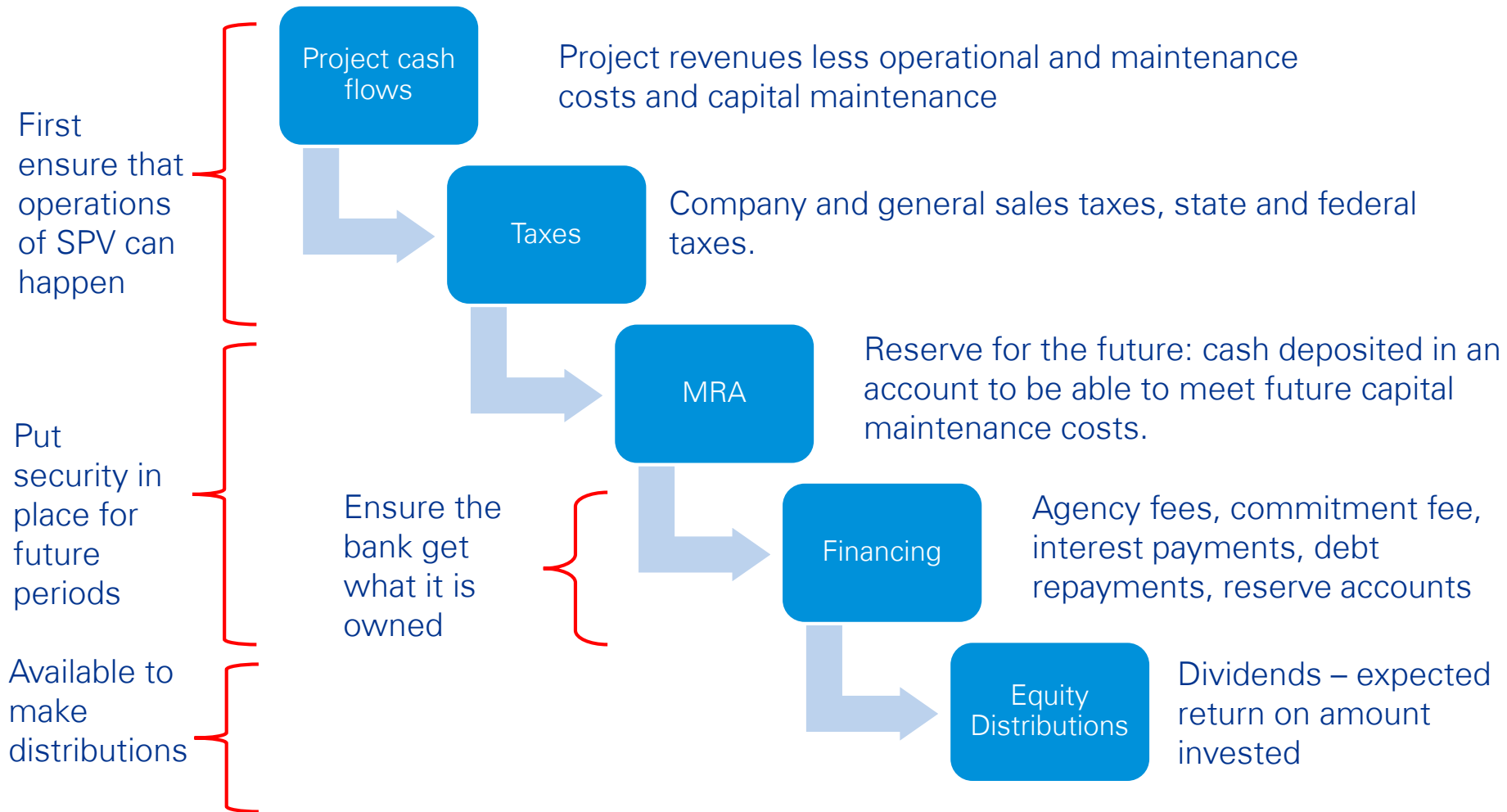
- Consist of the equity invested and the dividends/ net equity cash flows returned

Equity IRR

- The discount rate that equates the present value of equity subscriptions to the present value of equity distributions
- An important output measure in any private sector model
- Most meaningful when presented on a post-tax basis i.e. after all project company taxes have been paid
- Modelers should check methodology against client requirements i.e. timing of injections/ repayments, cash vs. committed basis, dividends vs. all remaining cash flows
- Debt structuring has a significant impact on Equity IRR

Priority of payments during operations

Cash waterfall



Other assessment indicators

- **NPV**

- Sum of the discounted cash flows of the project at a particular time T

Present Value = $\frac{\text{Cash Flow}}{(1 + i)^n}$

Where:
i = discount rate
n = period number

- An indicator of how much value the project adds
- Appropriately risked projects with a positive NPV could be accepted

- **Nominal Payback period**

- The time it takes to recover an investment
- Ignores the time value money

- **Discounted Payback period**

- Time period T when the NPV becomes zero

Best techniques to prepare model

| Techniques | Benefits |
|--|---|
| 1. Separate inputs, calculations and results | <ul style="list-style-type: none"> • Easier locate the inputs • Easier to summarize the assumptions |
| 2. Use separate worksheets and sections to display different 'themes'. | <ul style="list-style-type: none"> • Enable readers to quickly navigate throughout worksheets |
| 3. Use consistent formatting throughout the workbook | <ul style="list-style-type: none"> • Easily distinct between different inputs and outputs sources. • Customize and improve the appearance of worksheets |
| 4. Use consistent formulae per row or column. | <ul style="list-style-type: none"> • Model is more robust, transparent • Easier to test and build. • Change in timing of events can be performed automatically |
| 5. Use each column for the same time period throughout the model. | <ul style="list-style-type: none"> • Easier to follow and give a sense of consistency |
| 6. Logical calculation flow- refer to the left and above | <ul style="list-style-type: none"> • Reader- friendly • Speed up calculation |
| 7. Do not imbed hard coded numbers into calculations | <ul style="list-style-type: none"> • Greater transparency • Greater flexibility |
| 8. Do not hide columns or rows | <ul style="list-style-type: none"> • Model becomes less transparent when hidden. |
| 9. Limits use of range names. | <ul style="list-style-type: none"> • Can give formulae more 'meaning'. |
| 10. Avoid external links | <ul style="list-style-type: none"> • External source files may be amended, renamed or moved while main workbook is closed. |
| 11. Avoid circularities | <ul style="list-style-type: none"> • Model may not calculate fully. |
| 12. Keep it simple | <ul style="list-style-type: none"> • Use efficient and less volatile formulae • Break down complex formulae into several simple calculations. |

Outputs & Testing

We can build checks into the model to help identify formulae errors and areas where the model may not be operation as intended

➤ Possible model coding errors

- Balance sheet does not balance
- Debt does not fully amortize
- Sources do not equal uses
- Macro copy / paste differences
- Net cash flow from cash waterfall does not equal cash flow statement
- Total reserve account deposits do not equal releases
- Target gearing not achieved by end of construction

➤ Project issues

- Ratios breach covenants
 - Reserve account funding errors / accounts are not suitably filled
 - Insufficient debt tail
 - Negative cash / use of overdraft facility required
 - Actual IRR does not equal target IRR
- ## ➤ Possible model coding errors
- Depreciation rates do not sum to 100%
 - Inputs outside of the contract start and end dates

Characteristics of good models

Outcomes

- Delivers outputs and outcomes to support decision making

Clarity

- Calculations and outputs are logical and transparent
- Easy to use
- Well documents

Integrity

- Free from mathematical errors
- Inter-relationships between inputs and variables are correct
- Integration is safeguarded, e.g. Error checks, protection, etc.

Flexibility

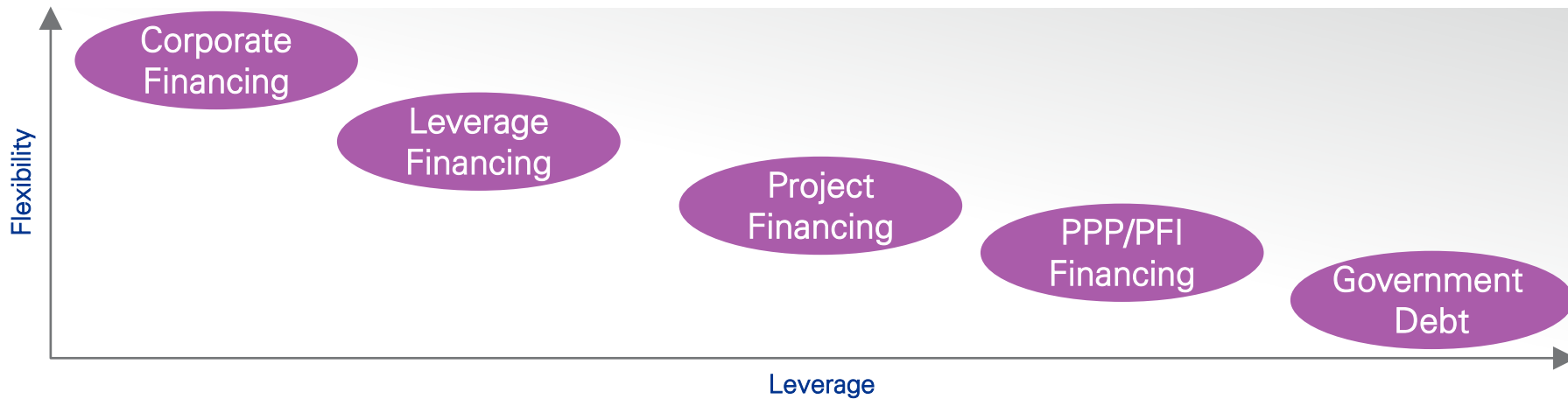
- Able to cope with changing requirements
 - Clarity and accuracy maintained



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Characteristics of debt financing instruments



| Characteristics | |
|-----------------|---|
| Corporate | <ul style="list-style-type: none"> ■ Loan facilities and/or bonds issued to capital markets; on balance sheet with full recourse; simple structuring |
| Leveraged | <ul style="list-style-type: none"> ■ Debt on balance sheet with recourse; structuring can include senior, subordinated, and mezzanine tranches ■ Key ratio is debt to EBITDA; traditional bullet repayment has been replaced with cash sweep/amortisation |
| Project | <ul style="list-style-type: none"> ■ Project finance which can be on or off balance sheet with limited recourse ■ Key ratio is loan to project life coverage; ring-fenced security with cash sweep/amortisation |
| PPP/PFI | <ul style="list-style-type: none"> ■ Project finance whereby the underlying asset is underpinned by contracts between public and private entities |

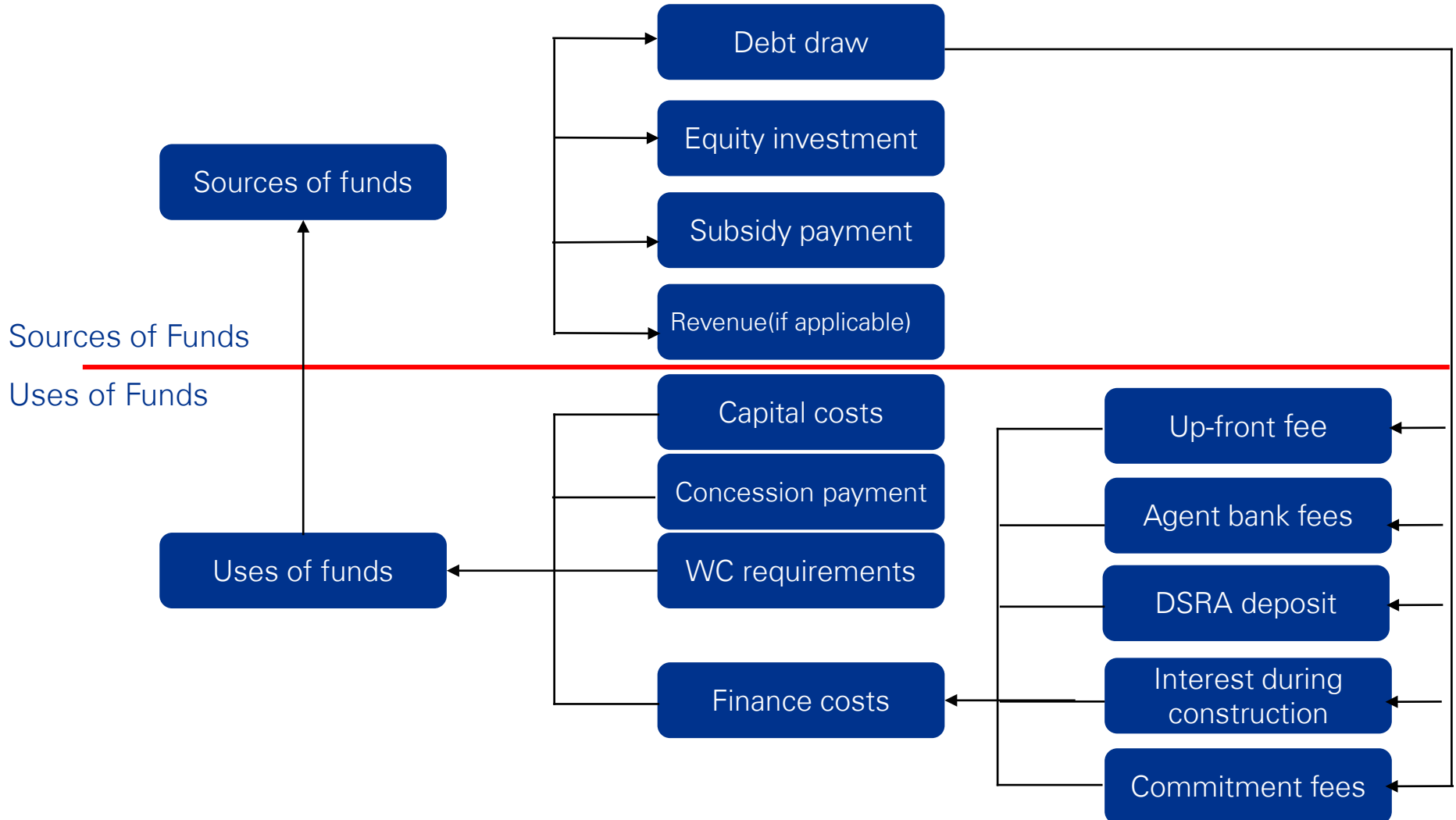
What is project finance?

- Long-term financing of infrastructure and industrial projects based upon the projected cash flows of the project rather than the balance sheets of its sponsors
- Non-recourse loans
- Financing decision supported by financial modeling
- The financing is typically secured by all of the project assets, including the revenue-producing contracts.
- Project lenders are given a lien on all of these assets and are able to assume control of a project if the project company has difficulties complying with the loan terms.

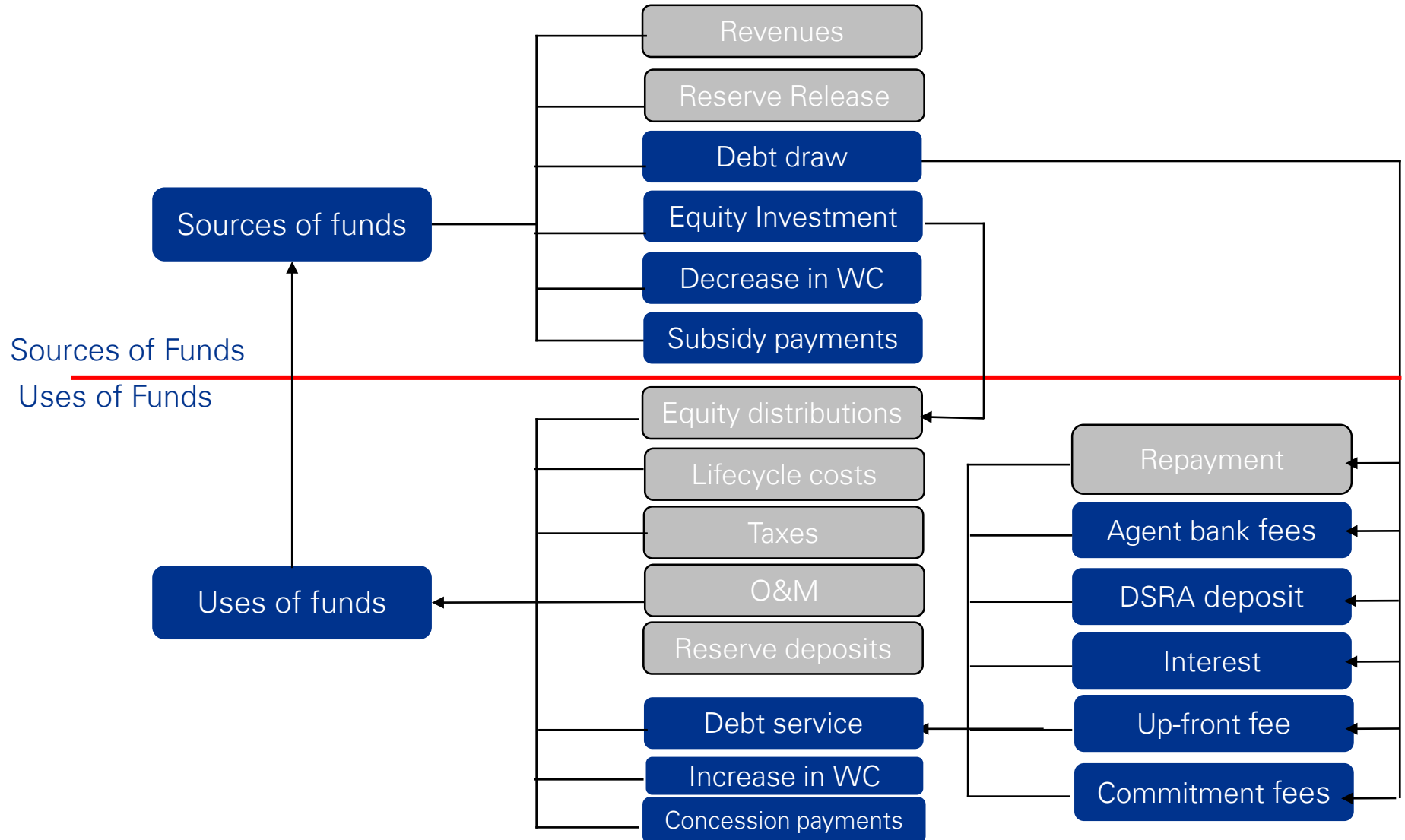
Comparison with corporate finance

| Area | Project Finance | Corporate Finance |
|---------------|--|--|
| Financing | <ul style="list-style-type: none"> Financiers consider at cash flows of a single asset(The project) for repayment. | <ul style="list-style-type: none"> Financiers consider at the overall cash flows derived from a range of assets and businesses. |
| Project Risks | <ul style="list-style-type: none"> Limited ' risk contamination' between the project and the rest of the investor's business. | <ul style="list-style-type: none"> The balance sheet of the borrower is exposed to the project risk. If the project fails, creditors will be able to make claims against all the borrowers' assets. |
| Security | <ul style="list-style-type: none"> No/ limited guarantees for project finance debt. Project contracts are usually the main security for lenders; project companies' physical assets are likely to be worth much less than the debt. | <ul style="list-style-type: none"> All assets of the company can be used for security. Have access to cash flows from the whole spread of the business; hence even if the project fails, corporate lenders can be repaid. |
| Duration | <ul style="list-style-type: none"> Project has a finite like. The debt must be repaid by the end of this life. | <ul style="list-style-type: none"> The company is assumed to remain in business for an indefinite period and losses can be rolled over. |
| Control | <ul style="list-style-type: none"> Lenders exercise close control over activities of Project Co to ensure value of project is not jeopardized. | <ul style="list-style-type: none"> Management of company run the business as they see fit. |

Sources and uses summary-during construction



Sources and uses summary-during operation



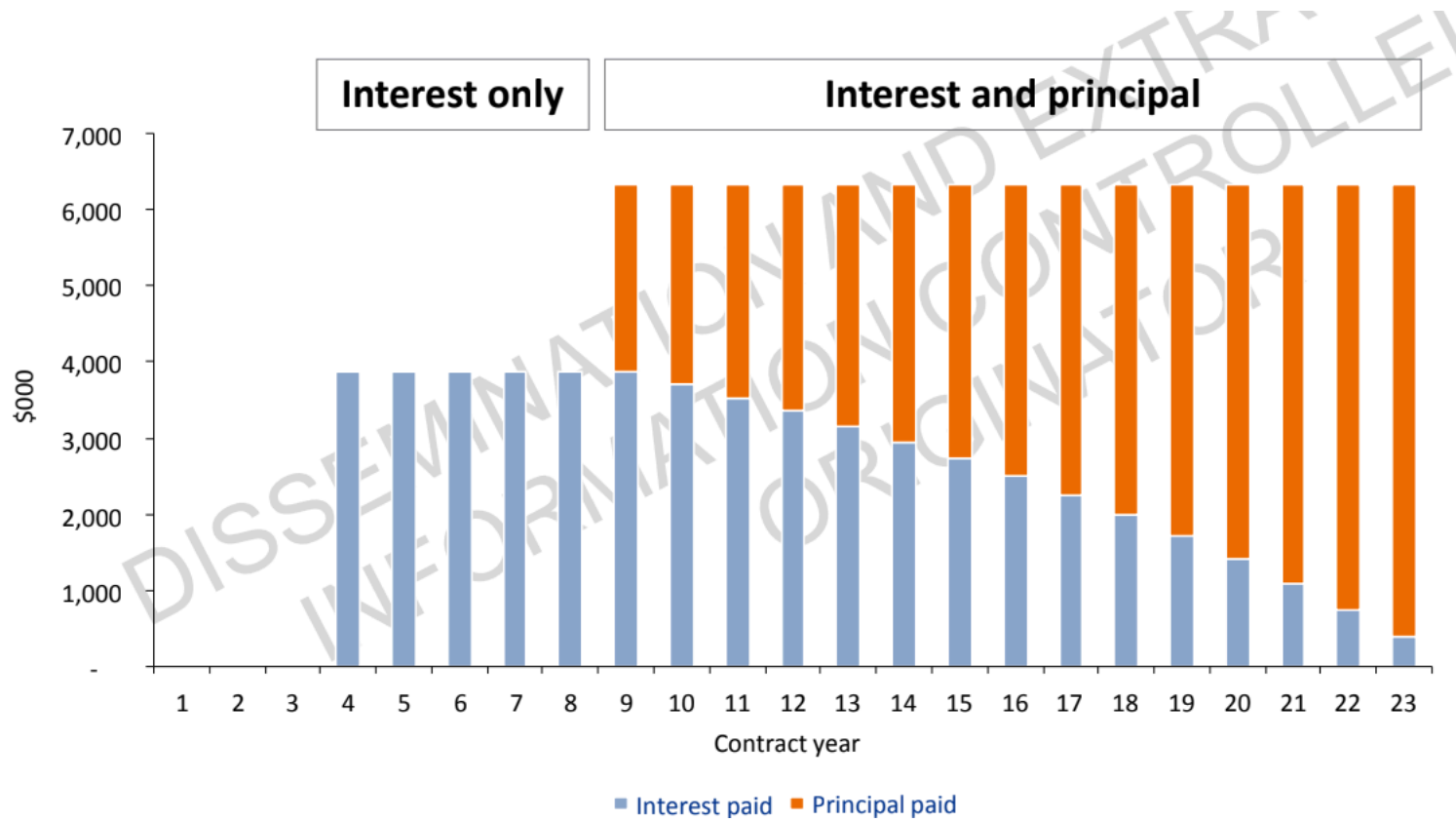
Financing Fees

| Fee type | Why? | When? | How? |
|------------------------|---|--|---|
| Arrangement fee | <ul style="list-style-type: none"> Cover costs of setting up transaction | <ul style="list-style-type: none"> One off At financial close | <ul style="list-style-type: none"> % of total facility size |
| Agency fee | <ul style="list-style-type: none"> Admin fee | <ul style="list-style-type: none"> Ongoing | <ul style="list-style-type: none"> Annual amount, usually indexed and higher during construction |
| Wrap fee | <ul style="list-style-type: none"> Cost of obtaining monoline insurance for the term of the debt | <ul style="list-style-type: none"> Usually a mixture of an upfront payment and a periodic payment For accounting purpose the cost is usually capitalized over the life of the loan | <ul style="list-style-type: none"> % of total facility size % of outstanding debt balance |
| Commitment fee | <ul style="list-style-type: none"> Cost of keeping funds available for project | <ul style="list-style-type: none"> While debt is available but fully drawn or until headroom is cancelled Calculated periodically(e.g drawdowns) Paid in arrears (e.g. quarterly as stated in term sheet) | <ul style="list-style-type: none"> % of total debt available but not drawn down % of prevailing debt margin |

Debt Repayment

First 5 years of operations: level interest payments

Nest 15 years: level debt service (interest and principal)



Debt service cover ratio

- Definition

Debt service cover ratio (DSCR) =

Cash flow available for debt service (CFADS) / Debt Service

- *Where:*
 - CFADS= revenues less operating costs less other cash costs (tax, capex..)
 - Debt service = senior interest plus senior debt repayment
- One period measure of cash flow versus debt repayment
- Indicate how closely debt service is sculpted to CFADS
- Time period used:
 - Semi annual
 - 12 months forward looking (forecast)
 - 12 months rolling (historic)
- Lenders will specify the minimum DSCR

Loan life ratio ratio and Project life cover ratio

Loan life cover ratio (LLCR)

- Definition

NPV of future cash flows / outstanding debt balance

- *Where:*

NPV of future cash flows =

- Discounted cash flows available for debt service, during the life of the loan i.e until debt is repaid
- Plus project account balance
- Plus debt service reserve account balance
- Discounted rate for NPV = interest rate or weighted average cost of debt (multiple facilities)
- Use the next period's cash flow as the first cash flows in the calculation and divide by the carried forward debt balance

Project life cover ratio (PLCR)

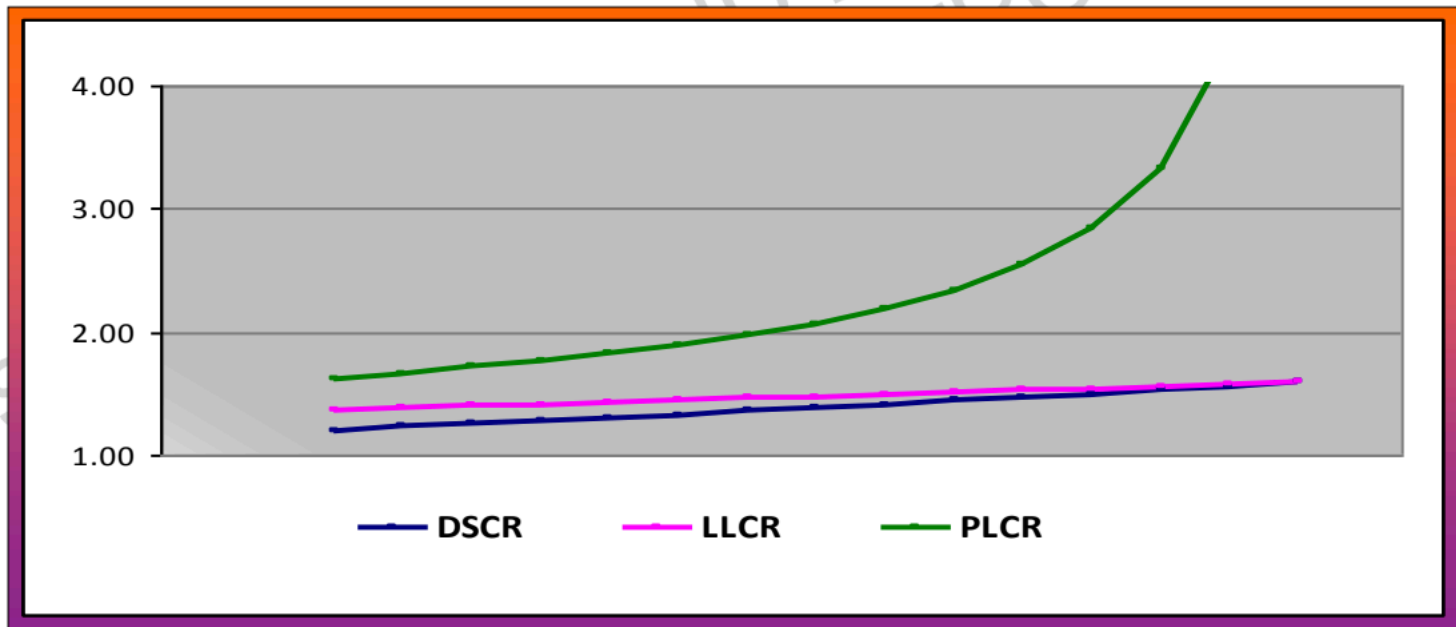
- Similar to LLCR but calculated over/ using the **entire contractual term** i.e includes cash flows in the debt tail

Minimum requirement from lender's perspective

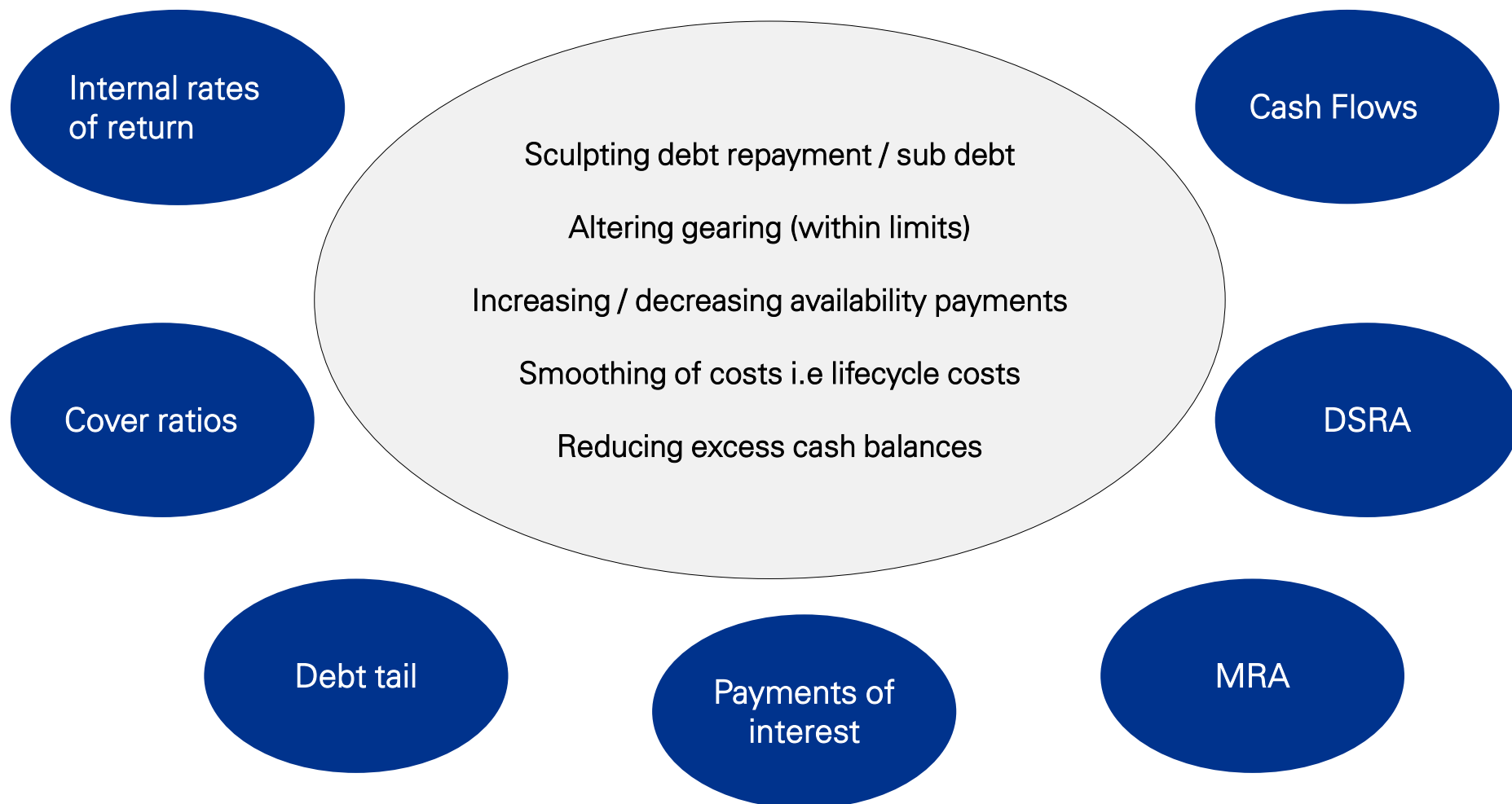
Lowest to highest

- Debt service cover ratio (DSCR)
- Loan like cover ratio (LLCR)
- Project like cover ratio (PLCR)

* Most lenders(banks) require a minimum DSCR of 1.20x.



Ensuring debt conditions are met





Thank you

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