Risk Management Principles of International Project Finance

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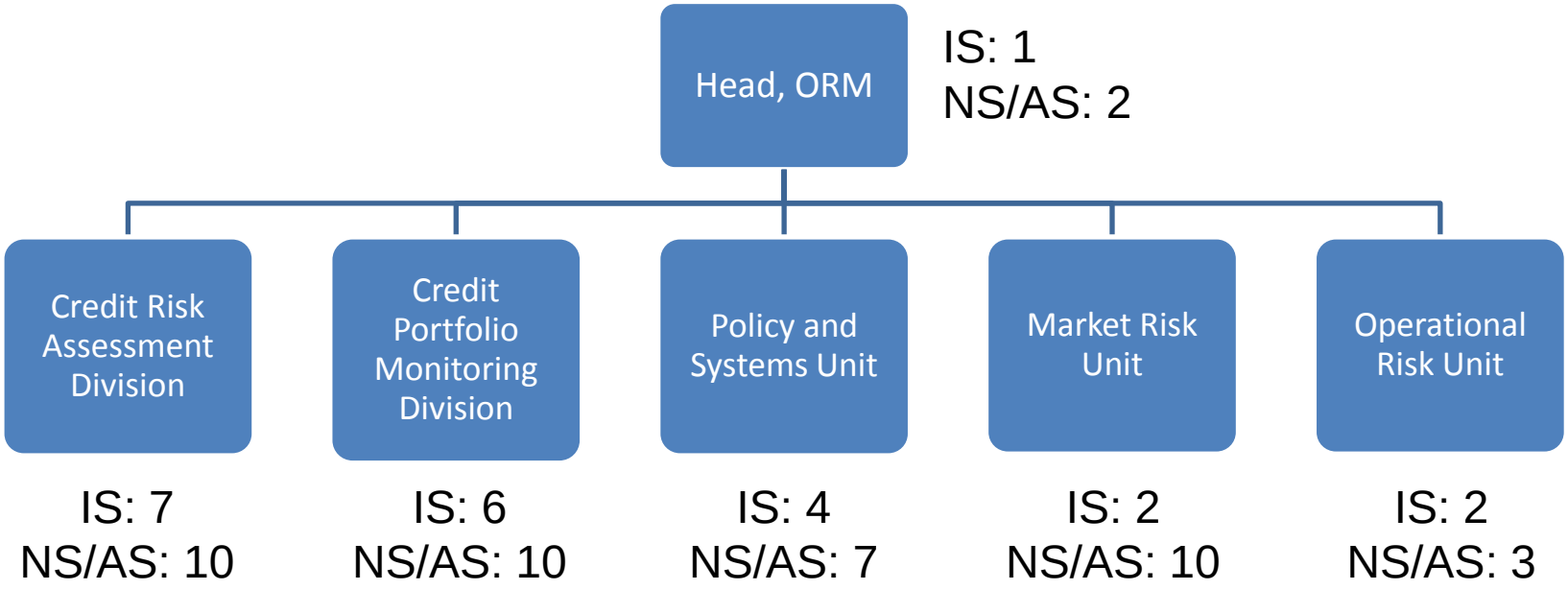
Introduction to ADB's Office of Risk Management

Created in 2005 as a unit with 12 staff, ORM is now an office with 64 staff working in 2 divisions and 3 units



Office of Risk Management (cont'd)

The primary role of ORM is to ensure that ADB's financial and operational risk exposures are in line with its risk-bearing capacity and AAA rating

Credit Risk Assessment Division

- Analyze risks of new non-sovereign transactions (debt, equity, guarantees), assign risk ratings, and make recommendations on risk mitigants, deal structuring, and pricing.

Credit Portfolio Monitoring Division

- Monitor existing transactions, validate deal team's annual and quarterly reviews, and update risk ratings.
- Approve waivers/amendments, manage workout accounts, and maintain, analyze, and report aggregate portfolio data.

Policy and Systems Unit

- Develop and maintain risk management policies, models and methodologies.
- Develop and maintain risk management IT systems.
- Coordinate with relevant departments for annual review of ADB's ratings by rating agencies.
- Provide training on risk assessment and related methodologies.

Market Risk Unit

- Manage market, credit, and counterparty risks in treasury operations, oversee derivative collateral management, and perform valuation of derivatives and borrowings for financial reporting.

Operational Risk Unit

- Manage enterprise-wide operational risks.

What is Project Finance

Project finance refers to the structured financing of a distinct legal and economic entity where lenders look solely to that entity's cash flows for repayment with limited or no recourse to the ultimate sponsor(s) and with all other assets, contracts and rights serving as collateral.

Common Elements of Project Finance

There are four basis characteristics in any project financing:

1. **Project company as obligor**

   - Usually a newly created special purpose vehicle (typically in the form of a limited liability company).
   - Formed by the project sponsors and capitalized with equity or subordinated debt.
   - Financially and legally independent from the sponsors.
   - Sole purpose is to undertake the project.
   - Bears all rights and obligations arising from the project.
   - Bears all risks that have not been contractually transferred to other parties.

2. **Cash flow-based lending**

   - Primary source of repayment comes solely from the cash flows generated by the project.
   - The project must be able to generate sufficient cash flows to cover operating expenses as well as debt service.
   - Extensive cash flow modeling is required to confirm the project's bankability.
   - The value of project assets pledged as security is typically not as important, except in a bankruptcy situation.

Common Elements of Project Finance (cont'd)

3. **Limited or non-recourse**
   - Project sponsors are generally liable only up to the amount of their capital contribution (non-recourse) or to a limited extent above and beyond this amount (limited-recourse).
   - Nonrecourse project finance is where lenders do not have any direct recourse to the sponsors either through loan or other project guarantees.
   - Limited-recourse project finance provides some recourse to the sponsors either through completion guarantees, contingency funding or debt-service shortfall support. However, sponsor liability remains limited (generally released after construction and commissioning or capped at a fixed amount).
   - Distinct from corporate finance. In corporate finance, credit is based on an evaluation of the borrower's historical financial condition, operating performance and profitability with lenders enjoying full recourse to the borrower's balance sheet (on-balance sheet financing). In project finance, credit is based on the projected future cash flows of the project itself, shielding the sponsor's balance sheet and preserving its borrowing capacity (off-balance sheet financing).

4. **Contract-based risk sharing**
   - At the core of any project financing is the objective of contractually allocating risks to counterparties best placed to assume and manage them.

Applications of Project Finance

- Project finance structures are best suited to industries/sectors where projects can be structured separately from the sponsors.
- Can be applied to a broad range of nonfinancial sectors where projects have a clear business and economic basis and where risks can be clearly identified upfront.
- Structuring a project financing is much more costly than a corporate finance deal. This is due to the technical, financial and legal due diligence required to assess the transaction and negotiate project contracts as well as the ongoing monitoring performed for the life of the project.
- As such, project finance is only worthwhile for large-scale projects, which are typically in the infrastructure sector.
- Infrastructure refers to the physical assets and related services that provide an essential public service. It is typically long-lived, have high barriers to entry, are highly regulated, and provide stable, long-term cash flows. There are two forms of infrastructure: economic and social.
- Economic infrastructure comprises five general categories: (i) *transport* such as roads, bridges, rail, airports, ports, etc.; (ii) *natural resources* such as oil & gas, mining, etc.; (iii) *power* generation and transmission (conventional and renewable energy); (iv) *telecommunications* (mobile, fixed-line, internet, etc); and (v) *utilities* such as electricity distribution, water supply, waste management, etc.
- Social infrastructure refers to entities that provide key social services such as schools, hospitals, sports and recreation facilities, arenas, prisons, etc.

Risk Management and Project Finance

- Since the success of any project financing relies solely on the viability of the project itself, extensive analysis of the project's technical, economic, financial and legal merits is required.
- Effective risk management is, therefore, one of the core principles in project finance.
- A comprehensive risk management process follows four key steps: (i) risk identification; (ii) risk assessment and measurement; (iii) risk allocation; and (iv) risk monitoring.
- The project has two options in managing risk: transfer the risk or retain it.
- Risk transfer is accomplished via a series of contractual arrangements among the various parties involved in the project. In the event a risk materializes, the project party responsible assumes the risk and the project is protected. Through a balanced risk sharing arrangement, the project is able to undertake large-scale, capital-intensive projects whose risks are too great for any single party to bear on its own.
- It is important to note that an optimal risk structure does not eliminate project risks. Rather, it allocates risks to the project parties best placed to assume and manage them.
- Any residual risks that cannot be allocated to one of the project parties can be insured or assumed by the project itself (self-insurance).
- Ongoing project monitoring is performed to help identify and address problems early on before project viability is compromised.

Classifying Project Risks

- Project risks can be categorized in various ways.
- One common method is based on the project timeline with risks grouped according to their relevance during the project's pre-completion and post-completion stages.
- For instance, construction risk is only relevant during the pre-completion stage whereas market risk applies only during post-completion stage.
- Another method is to classify risks that are inherent to the project (endogenous) versus those that exist outside the project (exogenous).
- Examples of endogenous risks are construction, technology and O&M risks, while exogenous risks include interest rate risk, foreign exchange risk and various political, regulatory and legal risks.
- The following slides summarize the typical risk factors in international project finance. While not exhaustive, they provide a glimpse of key risks, their impact on the project and the various options available to mitigate them.

Project Risks and Mitigants

Type of Risk	Definition	Impact on Project	Mitigants
1. Sponsor Risk	• Risk arising from inexperienced sponsors, inability to inject required equity and additional capital support, and failure to ensure project completion and stable operations.	• Sponsors are responsible for conceptualizing and realizing the project. • Sponsors provide core equity and additional capital as well as technical and management support during construction and often times have long-term supply and purchase obligations to the project during operations. • Project underperformance or failure typically results from weak technical or management experience as well as poor sponsor planning.	• Financially strong, highly experienced sponsors. • Preference for strategic sponsors for their technical, management and industry experience; financial sponsors also welcome to provide additional sources of equity and hybrid capital, to ensure quality control and to independently verify project viability. • Large equity stake makes it expensive for sponsors to abandon the project; forces sponsors to address issues to safeguard their investment.

Project Risks and Mitigants

Type of Risk	Definition	Impact on Project	Mitigants
			• Clear shareholder agreement which sets out rights and obligations among sponsors and between sponsors and the project. • Upfront or pro-rata injection of equity; escrow accounts or letters of credit to backstop sponsor capital obligations. • Minimum shareholding during life of project debt.

Project Risks and Mitigants

Type of Risk	Definition	Impact on Project	Mitigants
2. Construction and Completion Risk	• Risk that project will not be completed on time due to design changes, technical difficulties, adverse weather, site inaccessibility due to poor supporting infrastructure, failure to obtain permits, etc. • Risk that the project does not meet required specifications.	• Cost overruns. • Suboptimal project operations. • Greenfield vs. brownfield.	• Fixed-price, date-certain, turnkey EPC contracts with reputable contractors guaranteeing completion, cost and performance with built-in liquidated damages. • EPC wrap ensures project meets design and technical specifications through performance guarantees on the technology included in the project. • Additional contingency and escalation amounts in total project cost estimates. • Incorporating excess capacity to ensure target capacity met.

Project Risks and Mitigants

Type of Risk	Definition	Impact on Project	Mitigants
			• Sponsor support/ guarantees for project completion or debt service. • Project insurance. • Sufficient infrastructure including access roads, power, water, etc. • Unqualified LTA opinion.
3. Equipment / Technology Risk	• Risks from deploying new or unproven equipment or technology.	• Higher operational downtimes. • Suboptimal or failed project.	• Use of technology previously deployed in similar projects and geographies (tried and tested). • Reliable manufacturers. • Performance guarantees and maintenance agreement with original equipment manufacturer. • Unqualified LTA opinion.

Project Risks and Mitigants

Type of Risk	Definition	Impact on Project	Mitigants
4. Supply Risk	• Occurs when the project cannot secure essential inputs for production and operations (e.g. raw materials or power). • Also when input quantity and/or quality falls short of technical requirements or is available at desired quantity and quality, but at a price higher than anticipated.	• Lack of availability and/or higher price volatility of project inputs will squeeze margins. • Suboptimal plant operations.	• Long-term fixed supply contracts (put-or-pay or throughput) specifying quantity, quality and price (with adjustments for inflation). Supplier must compensate for higher costs in event of lower supply delivered. • Call options or futures contracts on base commodities. • Adequate infrastructure/ logistics for delivery of supplies; responsibility of supplier.

Project Risks and Mitigants

Type of Risk	Definition	Impact on Project	Mitigants
5. Market Risk	• Risk of lower-than-expected market demand or prices for project output or service. • Can be impacted by competition in the market or availability of substitutes. • Merchant risk is when the project does not enter into any long-term sales arrangements and instead sells output on the spot market, resulting in exposure to both volume and price risk.	• Lower cash flow generation and debt service capacity.	• Confirm market demand/supply dynamics through an independent market assessment. • Long-term take-or-pay offtake contracts (e.g. power purchase agreement) specifying minimum volumes and price (including escalation for inflation, cost and minimum guaranteed return) with sufficient tail. • Tolling arrangements remove market risk entirely as the toller supplies fuel for free and takes all electricity generated. The project provides a conversion service in exchange for the tolling fee.

Project Risks and Mitigants

Type of Risk	Definition	Impact on Project	Mitigants
			• Put options or forward contracts. • Model downside cases to gauge cash flow sensitivity to volume and price volatility.
6. O&M Risk	• Arises when the project underperforms due to poor maintenance or other operational issues.	• Operational downtimes. • Lower efficiency. • Higher operating or maintenance costs. • Lower cash flow generation and debt service capacity.	• Long-term O&M service contract with experienced operator (ideally original equipment manufacturer) including minimum performance guarantees and contractual penalties. • Training and regular maintenance provided by original equipment manufacturer. • Step-in rights to replace the operator. • Insurance for downtimes.

Project Risks and Mitigants

Type of Risk	Definition	Impact on Project	Mitigants
7. Counterparty Risk	• Performance and credit risk under various project agreements including failure to deliver supplies/services or make payments.	• Default under a project agreement.	• Investigate reputation, track record and creditworthiness of contract counterparties. • Secure parent or third-party guarantees, performance bonds or standby letters of credit.
8. Interest Rate Risk	• Risk arising from changes in interest rates affecting floating rate loans.	• Higher debt service obligations and pressured coverage ratios.	• Fixed-rate borrowing. • Interest rate swaps. • Interest rate caps, floors and collars.

Project Risks and Mitigants

Type of Risk	Definition	Impact on Project	Mitigants
9. Foreign Exchange Risk	• Arises when the currency of the project cash flows is different from the currency of project debt. • Related to convertibility risk when a government institutes capital controls.	• Depreciation of the home currency increases the project's debt burden.	• Match-funding project debt to revenues including a mix of foreign/local currency loans. • Forwards, futures, options and cross-currency swaps. • Indexing offtake agreements to exchange rates. • Offshore escrow accounts to trap foreign currency cash flows.
10. Sovereign / Political / Country Risk	• Risks arising from breach of contract, expropriation, creeping nationalization, transferability, convertibility political violence, changes in law, taxation, regulations, lack of government stability, etc.	• Loss of project viability.	• Government guarantee or counterindemnity. • Partial risk guarantees (ADB). • Political risk insurance (MIGA, ECAs, private insurers). • Involvement of development agencies. • Involvement of local sponsors, lenders and other project parties. • International arbitration.

Project Risks and Mitigants

Type of Risk	Definition	Impact on Project	Mitigants
11. Force Majeure Risk	• Risks arising from war, terrorism, strikes, natural disasters ("acts of God"), etc.	• Loss of project viability.	• Cannot be contractually allocated to project parties. • Insurance and force majeure provisions in project documents.
12. Legal and Regulatory Risk	• Project finance does not work without a supportive legal and regulatory framework. • Examples include difficulty in enforcing contracts, contract renegotiation or repudiation, delays in securing approvals, permits and licenses, poor legal systems, etc. • Typically driven by political considerations such as ensuring lower prices for consumers.	• Adverse regulatory changes could impact project viability including cash flow generation and debt service.	• Legal due diligence including confirmation that contract enforceability is enshrined in law. • Choose countries with transparent regulatory frameworks to ensure contracts are upheld and disputes are resolved expeditiously.

Project Risks and Mitigants

Type of Risk	Definition	Impact on Project	Mitigants
13. Environmental and Social Risk	• Risk that the project will negatively impact the environment, local inhabitants, etc.	• Environmental, health, safety and other social issues can impact cash flow generation, consume management resources or create animosity among various stakeholders.	• Thorough environmental and social due diligence. • Focus on environmentally friendly sectors.
14. Syndication Risk	• Failed syndication of a project financing.	• Insufficient project funding. • Banks with larger-than-desired final hold positions.	• Full underwriting is where the lead arranger commits to provide the full amount of the project debt, taking the risk of sell-down but earning a higher fee. • Best-efforts basis is when the lead arranger agrees to underwrite a portion of the loan and places the balance in the market. The project takes the risk of a failed syndication.

Project Risks and Mitigants

Type of Risk	Definition	Impact on Project	Mitigants
15. Exit Risk	• In situations where the investment is made in the form of project equity instead of debt, there is the risk of inability to exit the investment at the desired time or valuation.	• Potential disruptions in operations due to changes in ownership, management.	• Put option to other shareholders. • Trade sale. • IPO.

Project Finance Structuring

- In addition to allocating risks to the project parties best placed to manage them, securing project insurance, and retaining any remaining risks (e.g. self-insuring), financial structuring can provide additional risk mitigation to ensure a successful project financing.
- The project's security package generally consists of a mortgage on physical assets, assignment of project accounts including DSRA and other escrow accounts (offshore and onshore), recourse to sponsor support, share pledges, step-in rights under the various project agreements, proceeds from insurance, and financial covenants (e.g. DSCR, LLCR). The quality of the security package is essential to effective risk mitigation.
- An appropriate split between debt and equity should be negotiated to ensure comfortable debt service and to secure long-term sponsor commitment to the project. Mezzanine capital could be explored to further cushion senior project debt.
- Debt service may be sculpted to better match project cash flows.
- A cash sweep mechanism could be instituted allowing for sharing of excess cash when available between sponsors and lenders while shortening the project's weighted average loan life.
- Strict dividend distribution tests and cash waterfalls can ensure adequate and sustainable debt service.

Why is Risk Management Important?

- Project finance requires significant amounts of capital, mostly borrowed.
- In most investment decisions, higher risk should be compensated by higher returns.
- In project finance, however, the project lenders take on a significant amount of risk with limited upside potential. That is, their return is limited to the credit spread (risk premium) charged while they are exposed to the risk of a complete loss of principal in the event of a project failure.
- An understanding of risk is essential as this is the only way to institute appropriate mitigation measures and protect the investment.
- An S&P survey covering syndicated project financings from the early 1990s onwards confirmed that project finance transactions typically experience lower default rates and higher recoveries than corporate finance deals. This is due to the more extensive risk structuring and monitoring required in a typical project financing.
- To be successful, project finance professionals require significant levels of expertise, particularly in risk management and structuring.