

# Project Finance Webinar

Presented by Paul Waterhouse & Rob Bain

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# Webinar Agenda

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**1. How to assess the various risk dimensions in Project Finance in a consistent manner**

Case study of the Ras Laffan project in the State of Qatar

**Speakers: Paul Waterhouse & Rob Bain**

**2. Benefits of benchmarking portfolio default and recovery experiences to the market**

Includes examples of analytical findings by Rob Bain on the Global Project Finance Data Consortium.

**Speaker: Rob Bain**

**3. Benefits of benchmarking internal PD & LGD risk estimates**

Includes examples of benchmarking techniques used to validate internal estimates.

**Speaker: Paul Waterhouse**

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# **How to assess the various risk dimensions in Project Finance in a consistent manner**

**Case study of the Ras Laffan project in the  
State of Qatar**

**Speakers: Paul Waterhouse & Rob Bain**

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# Project Finance

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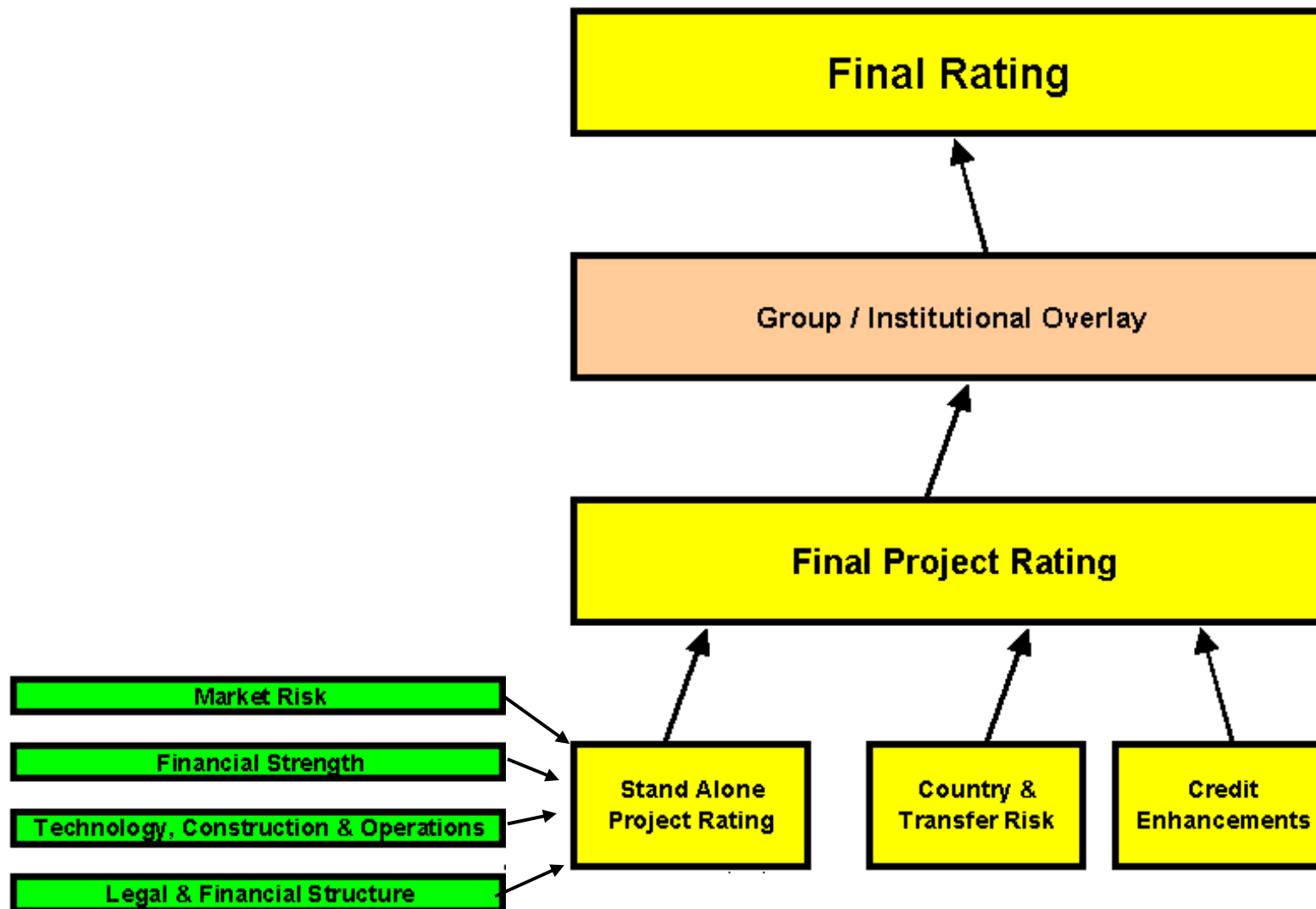
- **Purely quantitative approaches for measuring risk based on a limited set of financial metrics, such as regression and static cashflow models are not effective for assessing highly complex project financings.**
- **Quantitative measures of debt capacity or debt-service protection can only be assessed in the context of the strength of the underlying business proposition, structural provisions and contractual protections supporting a transaction (qualitative factors).**
- **This makes it challenging for credit analysis to interpret and score qualitative risk factors in an objective manner and to apply ratings criteria consistently.**

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# Project Finance Rating



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# Risk Dimensions

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- **Each of the analytical risk dimensions specific to a project is assigned a score from 1 to 10 and analysed within the framework of a qualitative judgment of their relative importance.**
- **Weightings for each of the risk areas are based on Standard & Poor's experience and credit rating criteria within project finance transactions. Typically, the importance of different risk factors depends on the risk profile of the project.**
- **The risk dimensions comprise:**
  - Market Risk
  - Financial Strength
  - Technology, Construction & Operations
  - Legal & Financial Structure

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# Market Protection and Revenue Contracts Score

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- **Focus is on the appropriateness and resilience of “contractual” framework – not on the enforceability of that framework or other aspects of risk.**
- **The first group of factors look at the basic documentation characteristics and are scored on 1 to 10 basis using the scoring guidelines in the Handbook**
  - Off-take Contracts
  - Supply Contracts
  - Concession Agreements
  - Other Revenue Contracts

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# Market Protection and Revenue Contracts Score

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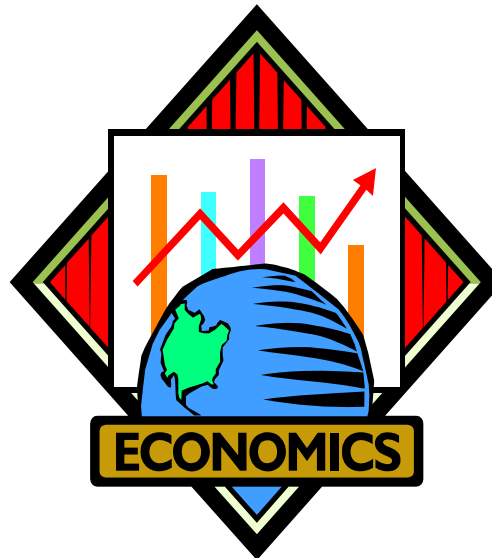
- **The second group of questions examine the extent to which the Contractual framework is appropriate for high-level risks & the extent to which the framework is durable.**
  - Is there risk of political pressure to renegotiate contract potentially causing economic distress in the project?
  - Is the project in spite of existence of revenue contracts substantially exposed to market risk, inflation or foreign exchange risk?
  - Are there provisions for International Arbitration?
  - Does the tenor of the relevant revenue contracts match or exceed the tenor and repayment schedule of the financing?
- **The third group of questions examine the credit quality of the “material” counter-parties to the Contractual framework**
  - Generally the maximum rating of revenue off takers, suppliers, concession providers, other market risk takers.

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# Competitive Market Exposure

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- **How competitive is the project relative to its peer group?**



- **Does the project have a sustainable competitive advantage?**

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# Competitive Market Position Score

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- **Market on which product is sold**
- **Type of Regulator**
- **Project's cost quartile of producers**
- **Project has sustainable competitive advantage on technology, location, infrastructure, reserves, etc**
- **Demand / Supply Balance**
- **Long term market outlook**
- **Project's comparative economics**

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# Financial Strength

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- ***The Key Question:***

**“Does the project have the ability to generate sufficient revenues to cover O&M expenses, nonrecurring items, capital replacement expenditures, taxes and annual fixed charges of principal and interest, under a number of forecast scenarios?”**

- **Key Analytic Issues to Evaluate are:**

- **Quality and certainty of cash flow**
- **Potential exposure to market volatility**
- **Robustness under stress scenario analyses**
- **Capital Structure and Financial Flexibility**
- **Impact of assumption changes:**
  - **Macro factors:** inflation risk, interest rate risk, currency risk; market liquidity risk
  - **Project Specific factors:** feedstock and product price changes, capacity availability, other operating assumptions.
- **Coverage of fixed obligations**
- **Credible forecast results**

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# Financial Strength Score

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- **Financial Ratio Score**
  - For the Generic Template the financial ratio score must be input manually based on the guidance & nature of the sector
- **Financial Covenants Met?**
  - If “No” then the score for this risk dimension is set to “10”.
- **Other Financial Aspects**
  - The lowest of the scores assigned to the following attributes
    - Is project sensitive to market risk, interest, inflation FX?
    - Probability of a downside scenario leading to a debt service break-even
    - It is demonstrated that project has ability to generate cash flows to fund major maintenance reserve funds as well as capital expenditure funds
    - Loans are amortising
    - Refinancing Risk (if loans are partly amortized or bullet)
- **Counterparty Risk**

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# Technology, Construction & Operations Score

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## Has construction phase been completed?

- “Yes” assigns “N.A” to the Construction questions

## Construction Questions:

- Turn-key contract date certain, price fixed
- There has been an Independent Engineers review of the project
- Are budget and schedule credible, not aggressive?
- Is project technology and design suitable for the purposed project?
- Are the vendors and contractors experienced?
- Are there construction and equipment guarantees?
- Does EPC-contract have damage provisions for delays, etc. (counterparty risk on EPC-contractor or LoC, performance bond)?
- Does the project benefit from IE oversight throughout completion including completion certification?

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# Technology, Construction & Operations Score

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- **Post-Completion & General Questions:**
  - Is technology commercially proven and currently used?
  - Installed costs
  - Are siting and permits completed and non contestable? (has process been transparent and amicable?)
  - According to recognized impact study are environment guidelines complied with?
  - Are the project's O&M adequate according to independent engineer review?

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# Legal Structure

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- **Creation of the Obligation to Pay**
- **Nature of the Documentation and Other Safeguards**
- **Does “non-recourse” mean what it says?**
- **Do the documents work and are they all Legal?**
- **Is the project legally permitted to engage in the business being rated:**
  - **Restrictions on powers, permitting?**
- **Does the project’s structure protect lenders from insolvency of project participants?**
- **Can someone else get creditors’ money?**
- **Are lenders secured to the level appropriate to the rating?**

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# Legal and Financial Structure Score

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## SPE-status

- Is project bankruptcy remote and SPE?
- Is entity forbidden to merge or consolidate without consent of lenders?
- Are anti-filing mechanisms in place (e.g. insolvency filing by an insolvent parent)?

## Collateral, security and enforcement

- Are all documents legal, valid and binding? Are opinions available?
- Are lenders able to foreclose documentation and collateral in the event of default (e.g. local law formalities, cost of enforcement)? Are opinions available?
- First perfected security on all project assets, contract, permits on accounts necessary to run the project if applicable, step in rights, no material restrictions exist on the ownership of land or the operation of the project by a foreign entity
- Are there reserve accounts for O&M, major maintenance, capital expenditure (environment)?
- Trust accounts (for cross border debt/cash flows)?

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# Legal and Financial Structure Score

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## Project Lending agreement

- **Governing law of financing documents?**
- **Are there provisions for international arbitration?**
- **Legal risk profile and business object of the project can unilaterally be changed without approval of lenders**
- **Are restrictions in place regarding intercompany loans?**
- **Can funds for dividends only be released if project has demonstrated that it has sustainable increased debt service coverage (i.e. not just a single point in time increase)?**
- **Is entity restricted to issue debt senior or pari passu to the existing project debt?**
- **Are there intercreditor agreements?**

## Other aspects

- **Critical information is frequently, completely and timely disclosed**

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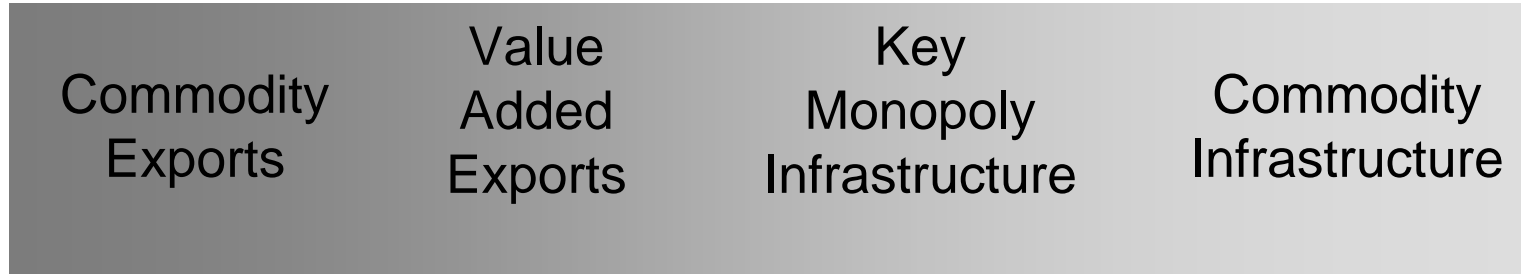
# Sovereign Risk

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- **The risk that the sovereign state in which the project is located will by sovereign act actively or passively allow the performance of the project, its internal or external cash flows, or its necessities to be adversely affected.**
- **Typically a ceiling to the rating unless:**
  - Exportable commodity with little domestic market.
  - Strategically important project to sovereign & sponsor.
  - A hard currency transaction.
  - Offshore trustee protects cash flows
  - Project operates independently of the government.

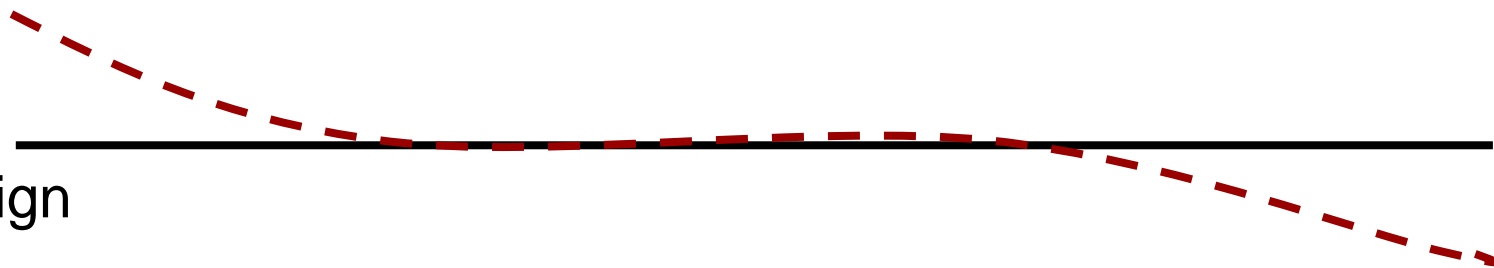
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# Sovereign Risk



Project Rating

Sovereign Rating



- Crude Oil
- LNG
- Unprocessed Ore

- Automobiles
- Steel
- Processed Ore

- Airports
- Ports
- Bridges

- Toll Roads
- Power Plants
- Water Facilities

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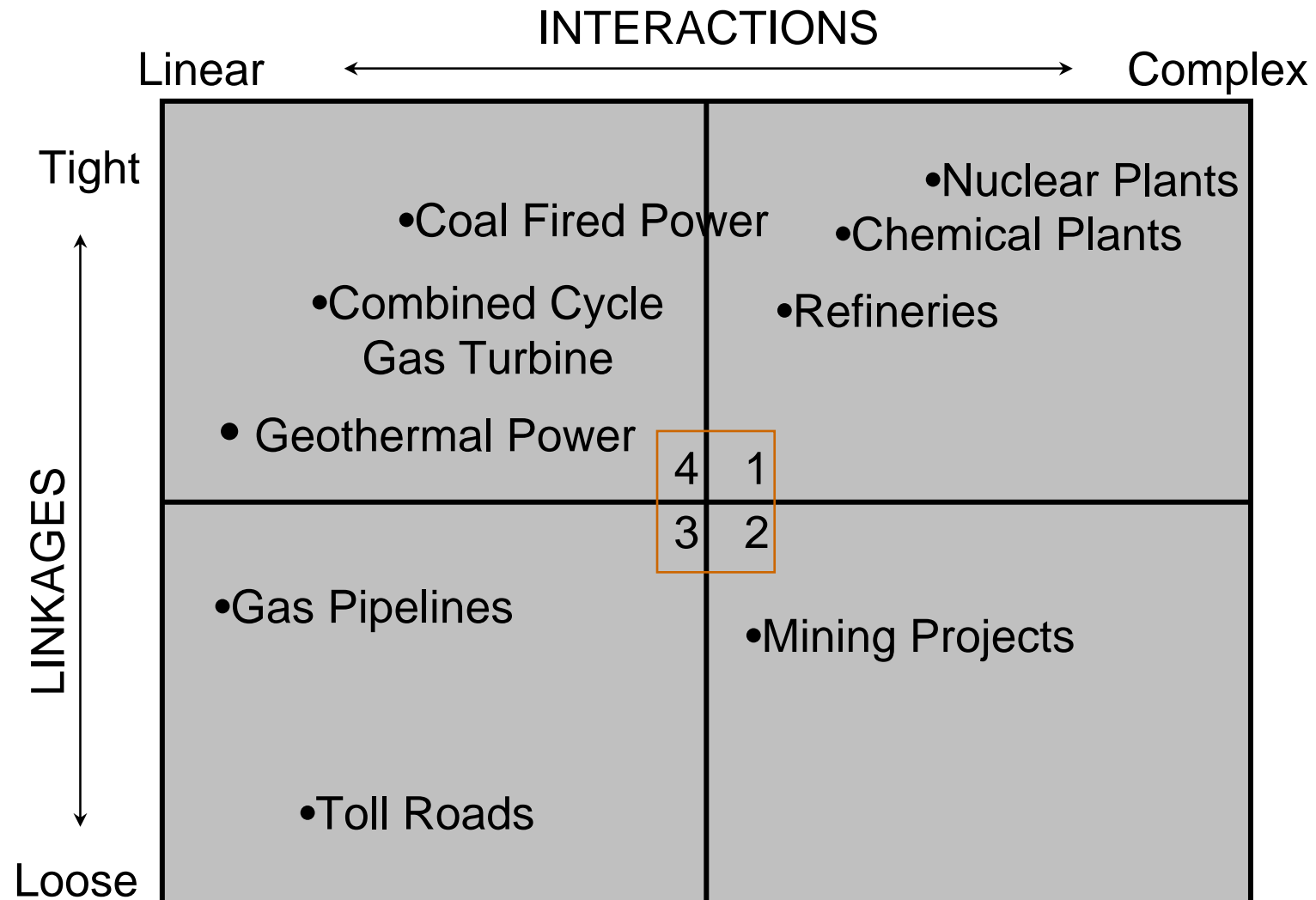
# Force Majeure Risk

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- **Difficult to mitigate, unanticipated events**
  - Natural: i.e. Acts of God
  - Political
- **Very low probability of occurring, but potentially devastating effects of project's operation and ability to service debt**
- **Such events do not excuse a project from debt service**
- **A strong project would have a clear definition of force majeure and will request the sponsors to absorb any residual force majeure risk not specifically assumed by other parties.**
- **Typical Force Majeure Events: War, insurrection, civil disorder, Act of God, earthquake, plague, strikes.**
- **Atypical Force Majeure: Guerrilla attacks (in Colombia), regulatory act (in Ohio)**

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# Force Majeure Risk



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# Credit Enhancements

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- Political risk insurance for emerging market deals.
- "B" loan structures that cover currency inconvertibility risk.
- Sponsor guarantees and limited liquidity lines.
- Monoline insurance to bring triple-'B' category deals to triple-'A'.
- Contingent Capital.



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# Project Finance PD Template Case Study: Ras Laffan

## Robert Bain

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# Agenda

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- 1. Project Overview**
- 2. Application of Risk Solutions PD Template (Energy)**
- 3. Recap & Round-Up**

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## I. Ras Laffan Project Overview

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## Project Overview

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- **Ras Laffan is a 6.6 mtpa LNG liquefaction plant located in the State of Qatar that began commercial production in April 1999.**
- **Ras Laffan primary owned by Qatar Petroleum (63%) and Exxon Mobile (25%)**
- **The project produces natural gas from Qatar's North Field under a long-term agreement with the government of Qatar and liquefies it in a two-train 6.6 mtpa plant**
- **The project generates about two-thirds of cash flow by selling up to 4.92 mtpa of LNG to Kogas on a free-on-board basis through 2024.**
- **Remaining cash flow comes primarily from selling spot the non-contracted LNG volumes along with condensate from natural gas production.**

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## Project Overview

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- The project has committed to supply 3.84 million tonnes of LNG to Kogas between 2004 and 2008.
- RasGas Co. Ltd. (OPCO) performs all O&M activity.
- Operational performance has been very strong, and O&M costs are expected to decline materially through 2010 through economies of scale of spreading over seven LNG trains.
- Strong financial performance is supported by high oil prices, but break-even pricing is also favorable.
- The project has a solid structure, with contract payments made in dollars to an offshore trustee, which allocates the proceeds to O&M and debt service.
- The ability to issue additional debt or undertake unrelated operations is tightly restricted.
- *The rating of Ras Laffan will be made using 2007 information, in particular financials.*

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## II. Application of Risk Solutions' PD Template (Energy)

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## III. Recap & Round-Up

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# Final Project Rating- February 2004

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## S&P's Public Rating of Ras Laffan is "A-" as of February 2007

### This rating is reflective of:

- A 25-year take-or-pay sale and purchase agreement with Korea Gas Co. Corp. provides sales volume assurance.
- Korean liquefied natural gas (LNG) demand growth continues to grow as gas-fired power generation and residential gas use continues to increase.
- Ras Laffan's position as one of the world's lowest-cost sources of LNG ensures that it can compete economically with the vast majority of new and existing LNG projects.
- Exxon Mobil Corp.'s \$200 million contingent price support further prevents a debt-service shortfall in a low oil price scenario
- Qatar Petroleum's North Field's 900 trillion cubic feet of economically recoverable natural gas reserves ensure that the project will not confront gas reserve depletion risk.
- Ras Laffan remains a key asset of QP and Exxon Mobil, which are increasing their long-term natural gas investment in Qatar.
- Ras Laffan's excellent financial performance has exceeded pro forma numbers since 1996.
- Long-term market and commodity price uncertainty

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## Project Summary- Template Outcome

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• Market Projection and Revenue Contracts	5.0	BBB
• Competitive Market Position	2.0	AA
• Market Risk Exposure	2.0	AA
• Financial Strength	5.0	BBB
• Technology, Construction & Operations	4.0	A-
• Legal & Finance Structure	6.0	BB+
• <b><u>Implied Project Rating</u></b>	<b>4.0</b>	<b>A-</b>
• Country Risk Cap	3.0	
• Implied Project Rating after Country Risk	4.0	
• Force Majeure Adjustment (notches)	None	
• Credit Enhancements (notches)	None	
• <b><u>Final Project Rating</u></b>	<b>4.0</b>	<b>A-</b>

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## **Benefits of benchmarking portfolio default and recovery experiences to the market**

**Includes examples of analytical findings by Rob Bain on the Global Project Finance Data Consortium.**

**Speaker: Rob Bain**

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# Consortium Objectives

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- **Project Finance is a “strong” asset class**
  - Banks concerned about the conservative Basel capital adequacy assumptions
  - Anecdotal evidence of high post-default recoveries
  - Very little empirical evidence on defaults and recoveries in the asset class
- **Empirical Evidence required by banks**
  - Benchmarking portfolio against “the market”
  - Support pricing and analysis
  - Better understanding in general of post-default behaviour

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## **Consortium Coverage**

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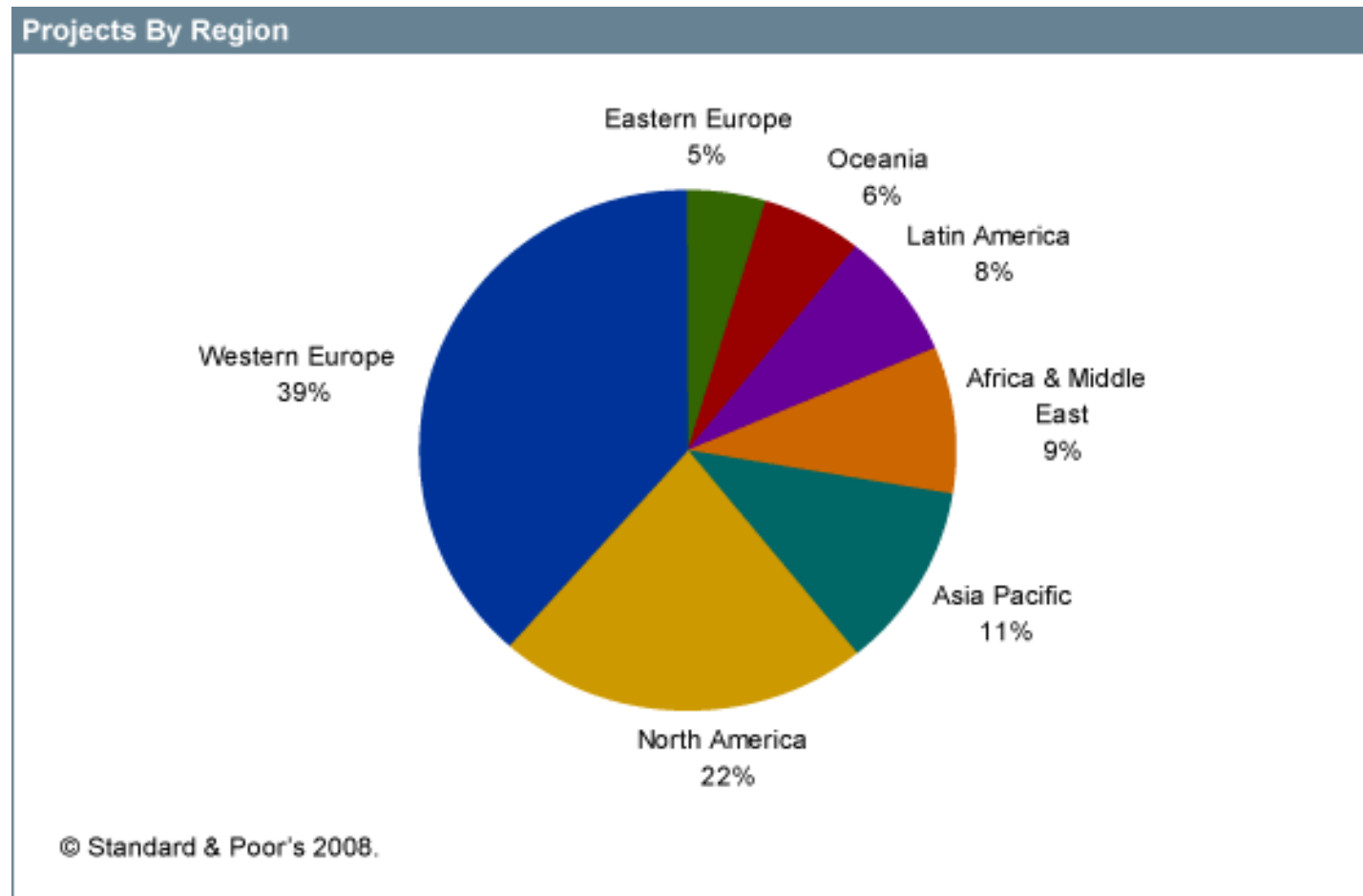
- **Originally initiated by four global banks in 2001 led by Citigroup**
- **Currently includes 22 project finance lenders globally**
- **Participating banks contribute data (based on data requirements approved by steering committee) annually on a confidential basis to Standard & Poor's who aggregate and analyse it**
- **5,136 projects representing the vast majority of global project finance syndicated loans, providing a representative and robust dataset to calculate reliable benchmarks. (# based on 2008 PF Study)**
  - **385 defaulted projects**
  - **296 projects emerged from default**

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# Database Descriptive Statistics

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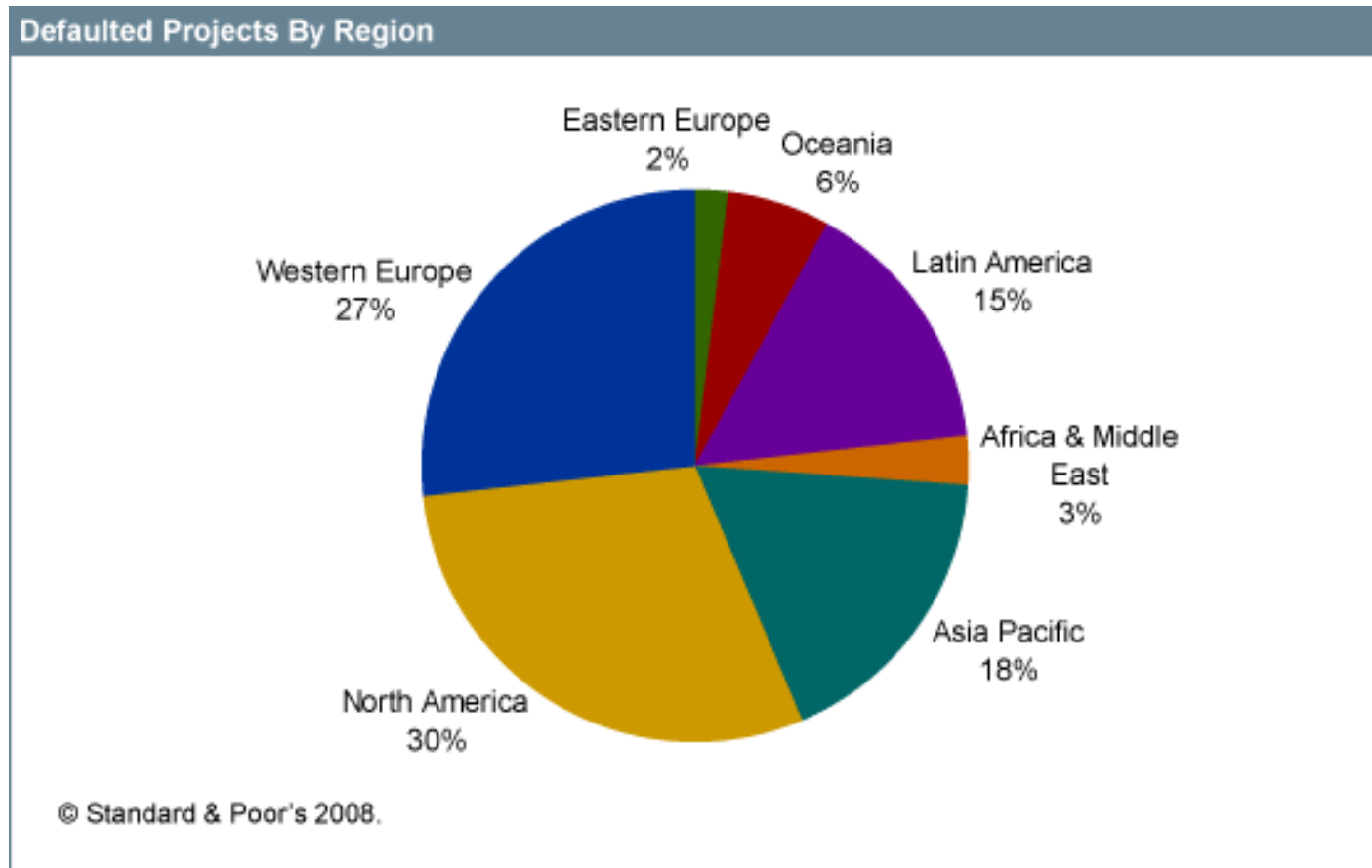
- Over the past 8 years the effort has produced a truly global database



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# Defaults by Region

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# Data Pooling Consortium for Project Finance

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- **Deliverables: comprehensive annual report including:**
  - Ability to view, sort and segment the data based on sectors, countries and timeframes
  - Ability for user to compare proprietary with the aggregate data
  - Commentary in addition to aggregate statistics
  - Distribution of projects by geography, sector , year of origination and year of default
  - Cumulative and marginal historical default rates, time to default and time in distress
  - Recovery statistics per geography and individual sectors
  - Recovery rates on an individual anonymous basis (by geography and sector)
  - Correlations

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# **Project Finance Consortium Benefits**

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- **Low cost relative to benefits**
- **Data collection - low collection effort**
- **Data consistency across all members**
- **Global participation**
- **Contains the vast majority of the global market for project finance deals**
- **Powerful analytics – data quality and coverage allows for reliable statistics**

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# Consortium Advantages

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- **Validation of internal (or third party) models**
  - Portfolio level comparison of predicted default & recovery relative to internal business mix and underwriting protocols
- **Initial reserving for projects that become classified as default**
  - Leveraging the global data on post-default recovery experience and the evolutions exhibited by actual defaulted (and fully recovered projects).
- **Pricing / RAROC**
  - Harnessing the global experience in the context of the internal business mix to assist with pricing and RAROC models.
- **Realistic internal capital allocation**
  - For institutions adopting a standardized or foundation-based approach for regulatory capital.
- **Pillar II Capitalization / Stress Testing**
  - Analysis of trends and volatility in PD and LGD experience facilitates strong empirical evidence for the establishment of capitalization on a basis consistent with the institution's desired risk target as well as stress testing
- **Early warning indicator**
  - Where internal experience appears at odds with the market.
- **Derivation of Basel II consistent PD (& LGD) rates**
  - Data is collected on a range of "default" definitions and provides a valuable insight into how historical data collected on different definitions should be adjusted in analysis.

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# Overview

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**“Benchmarking” has evolved to become a major cornerstone of risk management.**

**It is a key discipline stretching from:**

- its role in the conception and construction of simple risk models,
- to its role within ongoing risk assessment,
- to its employment by Regulators within Pillar 2 (regulatory review),
- to its increasing role within Pillar 3 (market disclosure & transparency)

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## Project Finance PD Suite

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## **Project Finance PD Suite- What is it?**

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- **A methodology to assist with the evaluation of the default probability (“PD risk”) associated with project finance risks**
- **An empirically-calibrated, expert-judgement, rules-based model reflecting S&P’s PF debt rating criteria**
- **An objective methodology for analysing PF credits (esp. credit weaknesses) on a logical, consistent (standardised) and comprehensive basis**

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## **Project Finance PD Suite- What does it comprise?**

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- **Template spreadsheets for scoring project finance transactions**
- **Template handbook containing:**
  - **Objective scoring guidelines for each risk factor**
  - **Analytical discussion of project finance**
  - **Specific guidance and differentiated financial benchmarks for sub-sectors including:**
    - Infrastructure
    - Energy
    - Natural resources
    - PPP/ PFI
- **Technical documentation relating to the construction, conceptual soundness and performance of the template**

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## **Project Finance PD Suite- How is it used by clients?**

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- **As the “core” component of their IRS (internal rating system) for evaluating project finance PD risk.**
- **As a tool for benchmarking the performance and conceptual soundness of project finance PD assessment tools built in-house.**
- **To provide a 2<sup>nd</sup> opinion on project finance PD risk as an integral input to the overall assessment.**
- **To provide a 2<sup>nd</sup> opinion on project finance PD risk as a “check & balance” process.**
- **As an expert judgement overlay to enhance cash flow & simulation based model assessments.**

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## **Project Finance PD Suite- Strengths**

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- 1. Approved for IRB approach in numerous countries**
- 2. Regarded as “best practice” by many regulators – with alternative methodologies being benchmarked against it**
- 3. A market standard - 1 in 4 new transactions assessed with the assistance of this suite**
- 4. Proven methodology**
- 5. High performance**
- 6. Intuitive and user-friendly for project finance analysts**
- 7. Demonstrated analytical link to observed default rates of S&P facilitates validatable quantification of the template result**

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## **Project Finance PD Suite- Performance**

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- **Based on samples comprising public ratings, credit estimates commissioned by clients and shadow ratings commissioned by clients performance tests have revealed:**
- **60-70% exact hit (i.e. same as S&P opinion)**
- **90-100% within +/- 1 notch from S&P opinion**

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# Project Finance PD Suite- Scope of Application

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## Project finance is the raising of funds

- To finance an economically separable capital investment project
- In which the providers of the funds look to the cash flow from the project as the only source of funds to service their loans and to provide the return on the equity invested in the project

## Project finance consists of

- A group of agreements and contracts among lenders, project sponsors, the issuer and other interested parties that creates a business enterprise organization that...
  - Will issue a finite amount of debt upon inception
  - Will operate in a focused line of business, and
  - Will ask that lender to look only to a specific asset to generate cash flow as the sole source of principal and interest payments, and collateral

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# Project Finance PD Suite- Scope of Application

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**A project finance will typically exhibit the following characteristics:**

- **Involves a financing vehicle for the project**
- **Limited or no recourse to sponsors**
- **Is typically off balance sheet for sponsors**
- **Insulated from sponsor / parent downside risk)**
- **Issuer typically displays 'special purpose' status that limits activities**
- **Lenders rely on future cash flow of the project for payment**
- **Restricts management discretion on of debt amortization & use of cash flows**
- **Follows the primary principle that project risks should be contractually allocated to the parties able and willing to accept those risks**
- **Normally 'ring-fenced' (legally & economically self-contained)**
- **Usually raised for a new project rather than an established business**
- **High (initial) ratio of debt to equity (70% - 90%)**
- **Project has a finite life (debt must be fully repaid by the end of this life)**
- **Main security for lenders is the project company's contracts, licenses and/or ownership of rights**

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# Validation

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## Validation: Construction

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- The validation of the constructional aspects of a IRS involves examining the rigour of the development (or build) process itself as well as the adequacy of documentation.
- For low default sectors, by definition, there is unlikely to be a fully credible and appropriate in-house default experience.
- A robust construction process will therefore ideally include, as a matter of course, external information pertaining to both third party default experience – and more importantly – the methodology utilised by those third parties.

# Validation: Construction

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**Practical considerations (for low data sectors) are:**

- **The in-house experience is deficient on its own to demonstrate the robustness of any theoretical risk evaluation process. The in-house experience should therefore be supplemented as much as possible by other sources of data and information.**
- **The existence of a robust, credible third-party methodology represents a rich source of such additional information. Even if the third party methodology is ultimately rejected (during the construction process) its consideration – and a coherent, documented rationale for its dismissal – should form an integral component of the construction process.**

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## Validation: Construction

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- **If the intent is to ultimately employ the default rates observed for risk evaluations produced by a third party as expected default rates for the internal model or tool then it would be reasonable to assume that the internal methodology should be broadly aligned with that of the third party. Methodologically, it is difficult to rationalise or justify the internal employment of observed default rates from a divergent methodology. Equally, absent sufficient credible experience default data it would be challenging to robustly rationalise dismissal of proven third party methodologies.**
- **Therefore within the low data sector a benchmarking of the conceptual soundness of the selected methodology against third-party methodologies (with track records) is a key component of validating the construction process – even if the third-party methodology is ultimately rejected in full or in part.**

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# Validation: Conceptual Soundness

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**Under Basel II para 462, banks are allowed to map their internal rating grades against external ratings, under the following conditions:**

§ 462 ... Banks may associate or map their internal grades to the scale used by an external credit assessment institution or similar institution and then attribute the default rate observed for the external institution's grades to the bank's grades.

- Mappings must be based on a comparison of internal rating criteria to the criteria used by the external institution and on a comparison of the internal and external ratings of any common borrowers.
- Biases or inconsistencies in the mapping approach or underlying data must be avoided.
- The external institution's criteria underlying the data used for quantification must be oriented to the risk of the borrower and not reflect transaction characteristics.
- The bank's analysis must include a comparison of the default definitions used, subject to the requirements in paragraph 452 to 457.
- The bank must document the basis for the mapping.

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## **Validation: Conceptual Soundness**

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**Conceptual soundness benchmarking involves addressing the following issues through a comparison of two methodologies:**

- To what extent are consistent risk factors employed in the two methodologies?**
- Will the presence of additional risk factors (or absence of some risk factors) have a material impact on credit assessment outcomes?**
- Are risk factors accorded a similar weight or importance?**
- Are risk factors aggregated in a similar way to arrive at a stand-alone credit risk rating?**
- Is the impact of group support, government support and structural subordination taken into consideration in the same way?**

**Essentially, should the two methodologies be expected to produce consistent outcomes (if appropriately applied)?**

# Validation: Performance Testing

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- **Do the two methodologies produce similar credit risk assessments when applied to the same cases – and are observed divergences material? (Performance Testing Validation).**
  - **Over time?**
  - **For all material parts of the portfolio to which the methodology will be applied?**

## **Areas of investigation for low-data sectors:**

- **Distribution of outcomes**
- **Granularity**
- **Ratings / PD migration stability**
- **Predictiveness**

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# Credit Risk Assessment

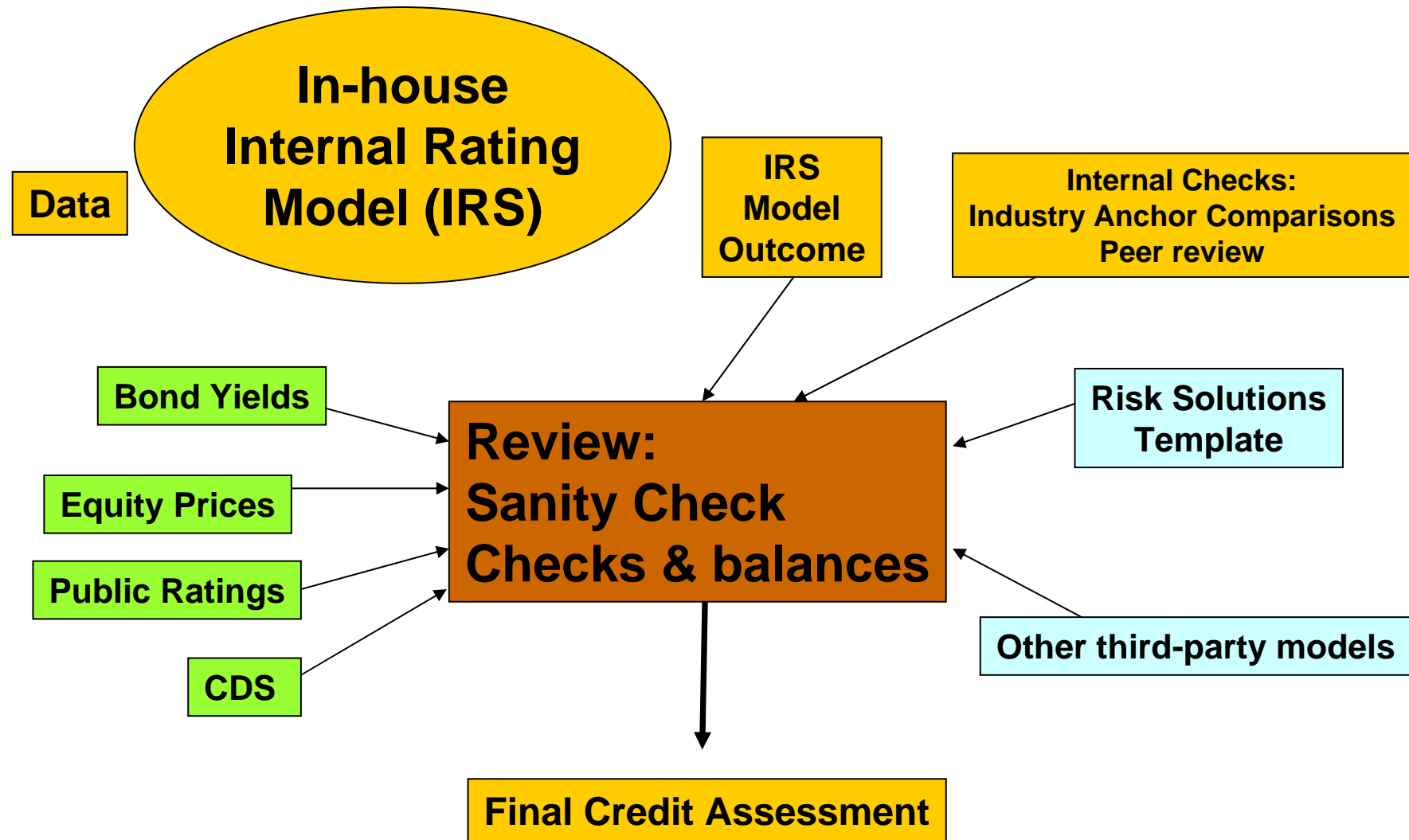
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# Credit Risk Assessment



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# Credit Risk Assessment

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**“Best practice” for credit risk assessment has evolved beyond sole reliance on an in house “core” model to also take into consideration other indicators of credit risk.**

## **Key considerations:**

- **All models have short-comings so considering other indicators of risk provides a robust “check & balance” process.**
- **A divergence between the core model outcome and other indicators does not mean the core model outcome is wrong – but it does flag the need for a second look or closer scrutiny of the case concerned.**
- **Understanding the strengths & weaknesses or both the core in-house model and other indicators employed is essential to effectively utilizing such processes.**
  - Ignoring other indicators (without due consideration) may be dangerous.
  - Taking “worst case” indicator of outcome is conservative but negative for the business – and not really assessing risk

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# Credit Risk Assessment

Indicator	Strengths	Weaknesses
<b>Industry Anchor Comparisons</b> <b>Peer Analysis</b>	<b>Assists to ensure individual obligors &amp; facilities evaluated consistently within sectors and across sectors</b>	<b>Does not address any specific model deficiency</b>
<b>CDS</b> <b>Bond yield movements</b> <b>Equity price movements</b>	<b>Can react rapidly to new market information about obligor</b>	<ol style="list-style-type: none"> <li>1. Influenced by demand / supply considerations</li> <li>2. May “over-react” in periods of turmoil</li> <li>3. Requires analyst to “split out” PD and LGD components</li> <li>4. Market far from perfect</li> <li>5. Short-term</li> <li>6. Not all obligors have public debt / equity</li> <li>7. Challenging to predict future movements under stress scenarios</li> </ol>
<b>Public Ratings</b>	<b>Independent TTC view on PD (and LGD for some facilities)</b>	<ol style="list-style-type: none"> <li>1. Not all obligors publicly rated</li> <li>2. TTC – short-term PD varies over the cycle</li> <li>3. Challenging to predict future movements under stress scenarios</li> </ol>

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# Credit Risk Assessment

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## RS Templates:

- Can separately evaluate both PD and LGD for all obligors and facilities across a wide range of sectors.
- Designed as an objective framework to replicate S&P PD rating and LGD assessment methodologies.
- Can be applied in a TTC or PIT approach.
- Can predict prospective outcomes under specified stress scenarios.
- Increasingly a “market standard” in some specialized sectors.
  - So added benefits under Pillar 2 & 3
- Such templates and other third-party models can provide a powerful compliment to internal checks & balances and public information.

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# Contacts

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