

Wind Energy Finance: Mobilising European Investment in the Indian Wind Sector

Prepared for:

The EU-India Wind Energy Network

A collaboration of:

**The European Wind Energy Association
Confederation of Indian Industry
Energy Research Centre of the Netherlands
RISOE National Laboratory
Indian Wind Turbine Manufacturers Association**

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Presented by:

J. Grant Hauber, Executive Director



Energy and Infrastructure Finance Advisors

32 Maxwell Road
#03-07 White House
Singapore 065119

Tel: +65 6722 8397

Fax: +65 6725 8038

Web: www.aequero.com

Level 25, Bank of China Tower
No. 1 Garden Road
Central, Hong Kong SAR
+852 8175 0221
+852 2251 1618

Background on AeQUERO

- Boutique financial advisory firm, assisting clients
 - Structure projects
 - Raise equity capital
 - Raise non-recourse debt
- Specialise in the Asian markets
 - Korea to Indonesia
 - Philippines to India
- Cover projects in:
 - Electricity
 - Water/Wastewater
 - Natural gas infrastructure
- Development advisors
 - Holistic approach to project development
 - Balanced deals
 - Independent advice
- Offices in Singapore and Hong Kong



India wind sector

- **The Indian wind industry is a success story**
 - World's fourth largest market and growing
 - Successful domestic manufacturing base

- **There are comprehensive incentives and supports**
 - Soft loans from government-owned entities
 - Accelerated depreciation
 - Tax holidays
 - Duty concessions
 - Feed-in tariffs
 - RPS in many states
 - Third party wheeling and open access maturing
 - C-WET supporting wind data and equipment standards

European investor advantages

- **Extensive experience with wind projects**
 - Development
 - Variety of technologies
 - Variety of applications
- **Ability to adapt to a wide variety of EU wind policies and incentives**
- **Relationships/networks with a variety of funding sources – both in debt and equity**
 - Access to bilateral funding
 - *Export credits*
 - *Bilateral development agency funds*
 - Experience with multilateral development institutions
 - Institutional investors, private equity

Selling India: the challenges for EU investors

- **Paradigm:**
 - European investors view wind investments in India as high risk – for many, too high a risk to undertake.
- **Challenge:**
 - To shift perceptions toward the modern investment climate in India.
- **What investors need to understand:**
 - The Indian wind resource
 - Policies, incentives and supports
 - The macroeconomic climate
 - The available technology
 - The risks and the benefits
- **Key issue for India:**
 - Recognize that it is competing for investors in a global renewables marketplace
 - Must overcome the compound effect of incentives offered in investors' home markets as well as foreign investors' perceptions of risk.

Selling India: the challenges for Indian wind

- **The role of domestic turbine manufacturers in turnkey wind project development is unique in the World**
 - Provides a potential upside in the sale of projects at negotiated prices
 - However requires manufacturers to use substantial portions of their balance sheet capacity to fund project development – at times speculatively
 - Creates a reliance on nascent wheeling norms
 - Potentially creates a limit on the size of project that can be undertaken due to
 - Limits on balance sheet capacity
 - Practical risk limits on how much of their balance sheet they are willing to put at risk for a single deal
 - Such a structure caters to non-power sector purchasers
 - MNES has expressed concern about this
- **Arguably, project development is a non-core business for manufacturers**
 - But manufacturers are comfortable with their role
 - Makes deals simpler, faster
 - However, potentially takes energy away from the development of lucrative export opportunities(?)

Incentives and challenges of wind in India

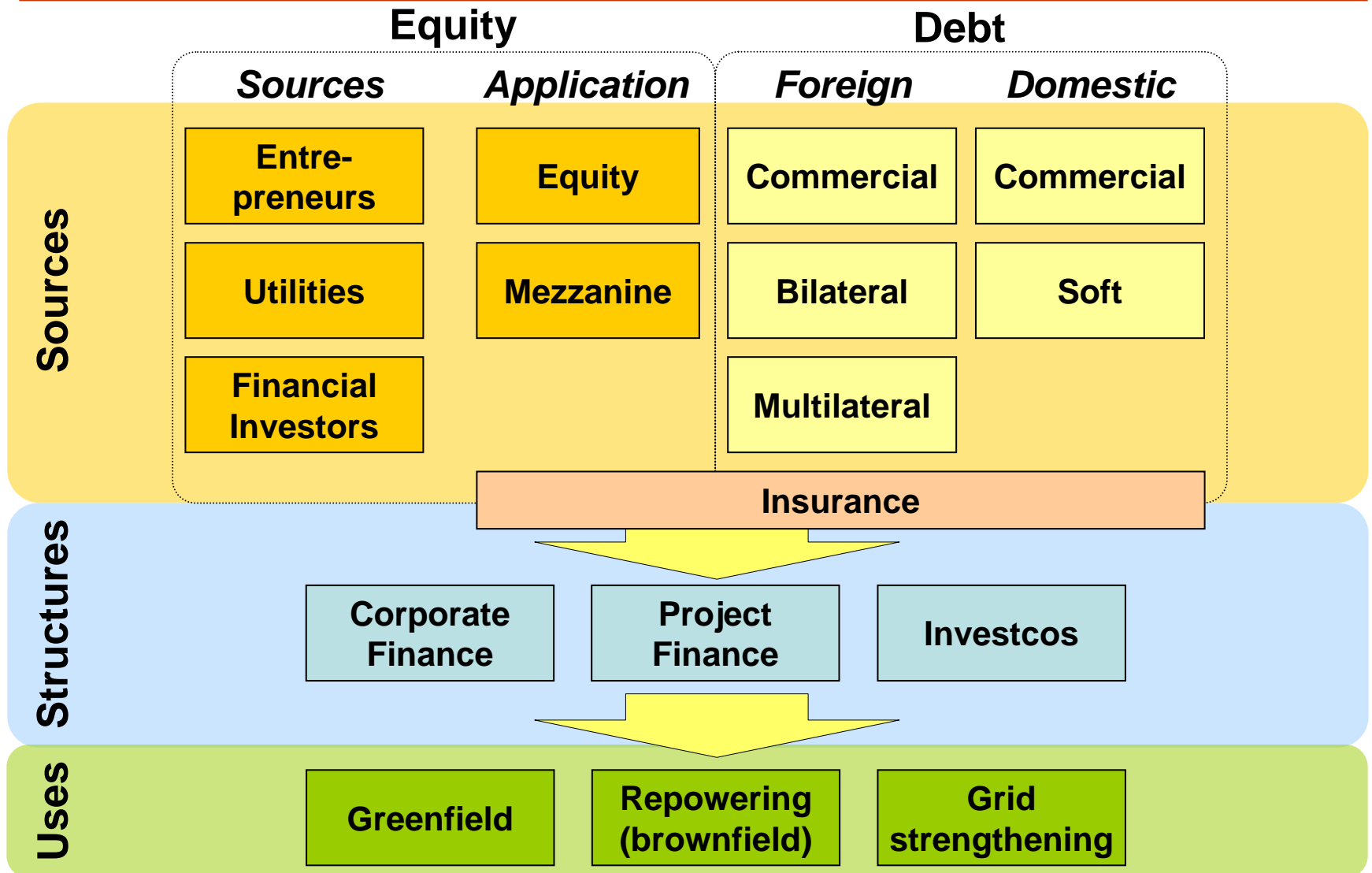
Positives

- Power sector reform
- Capital support to renewables
- Feed-in tariffs
- Tax/duty breaks
- Domestic equipment suppliers
- Domestic business partners
- Improving business environment
- Strong economy
- Skilled workforce
- Cost advantages – currently

Drawbacks

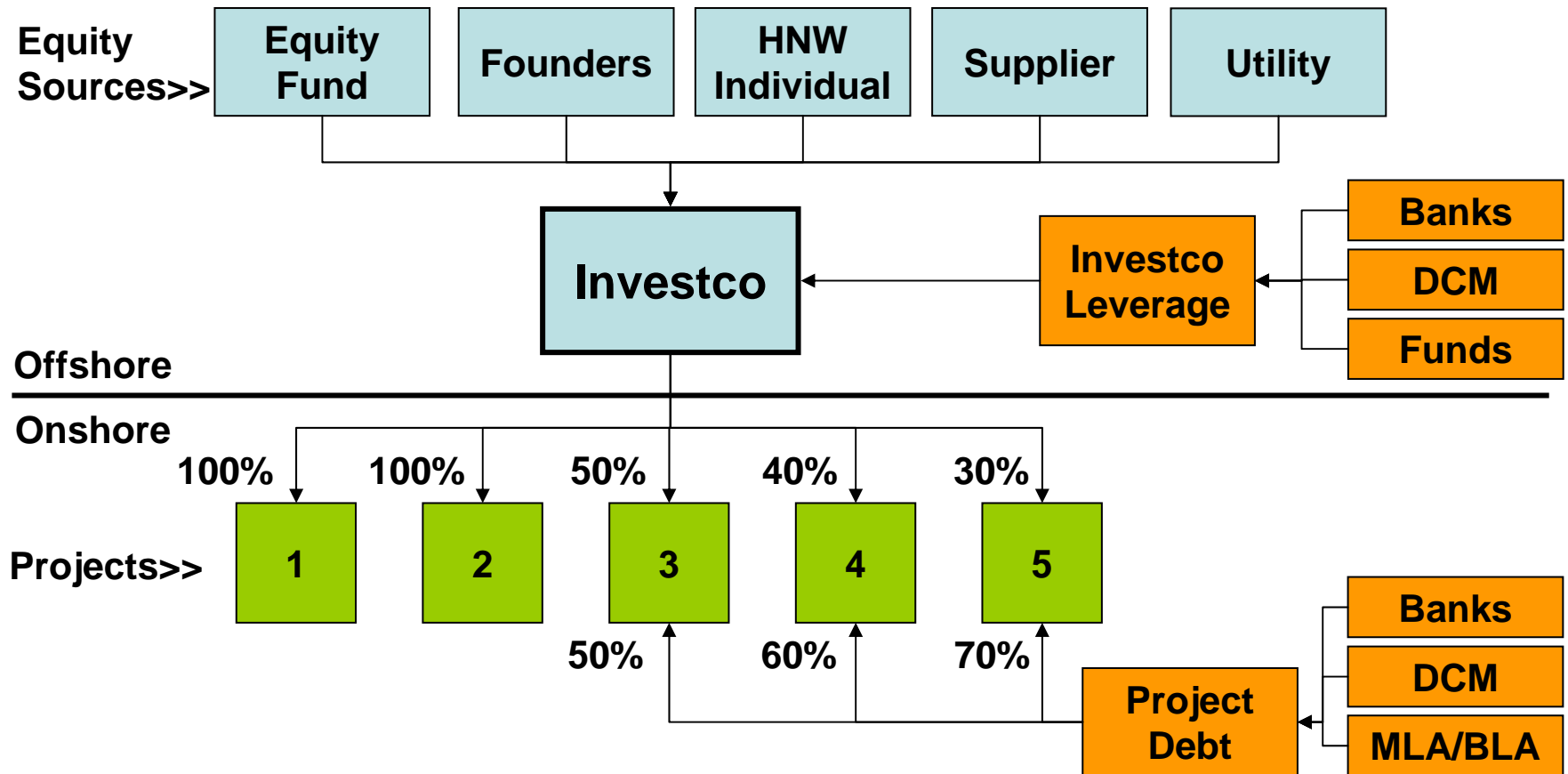
- Credit risk
- Social-political risk
- Sustainability risk
- Return requirements
- Accelerated depreciation
- Domestic buyer incentives
- Scale of investment
- Initial costs

Who, how, and where of wind project funding



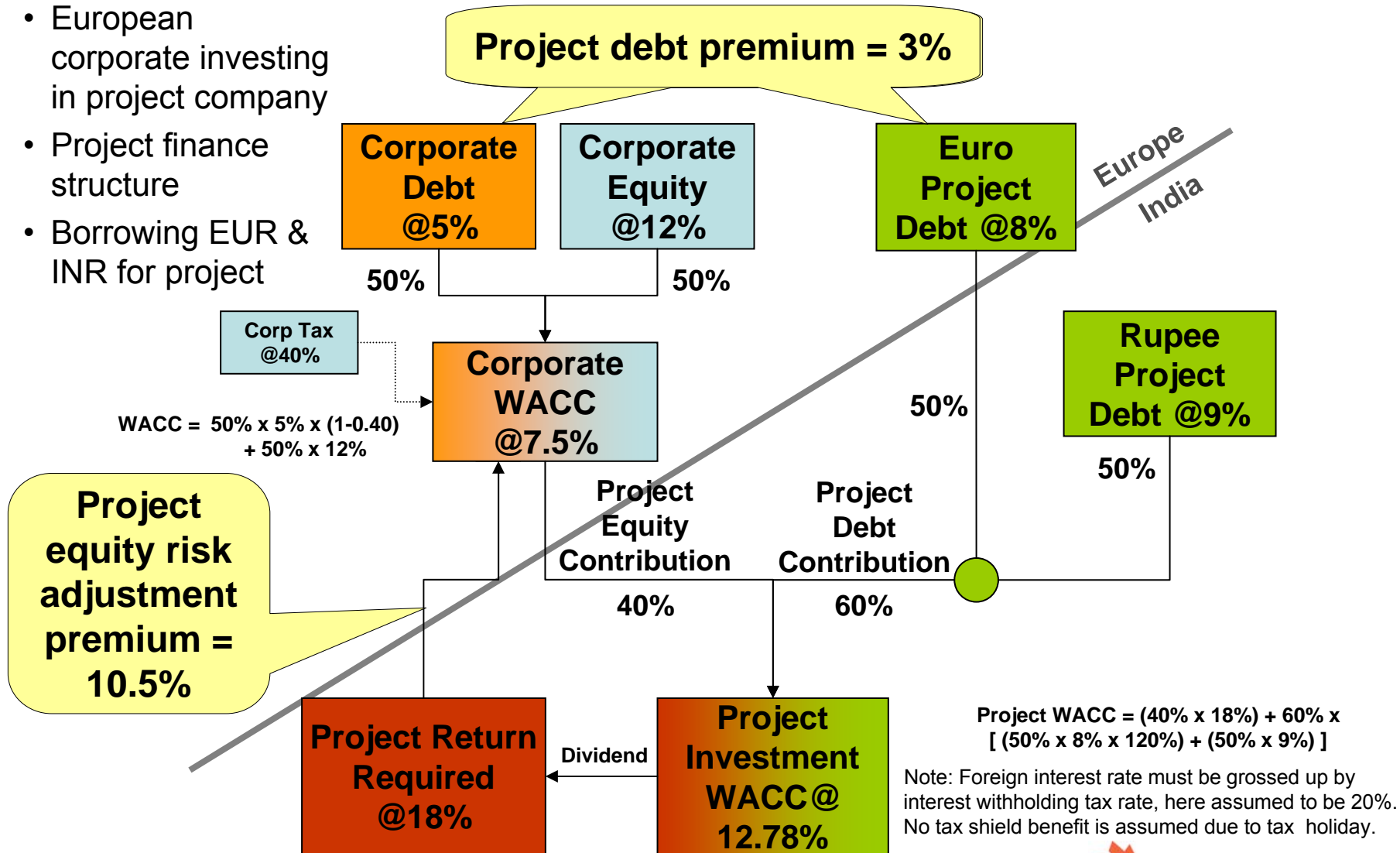
Investco structure

An investment company, or “investco”, is a way to aggregate small project/sites together to achieve scale in funding

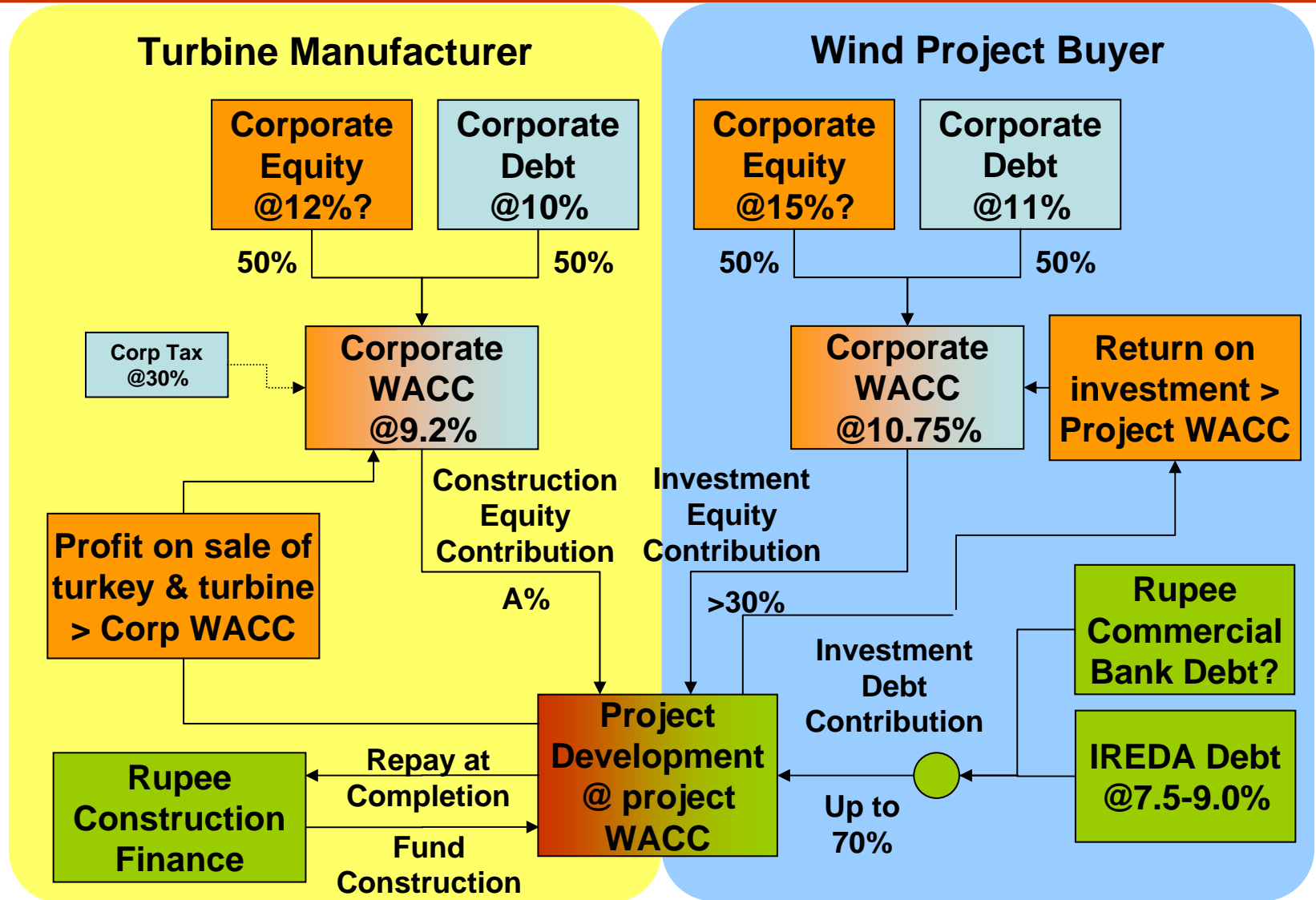


Corporate vs. project cost of capital: example

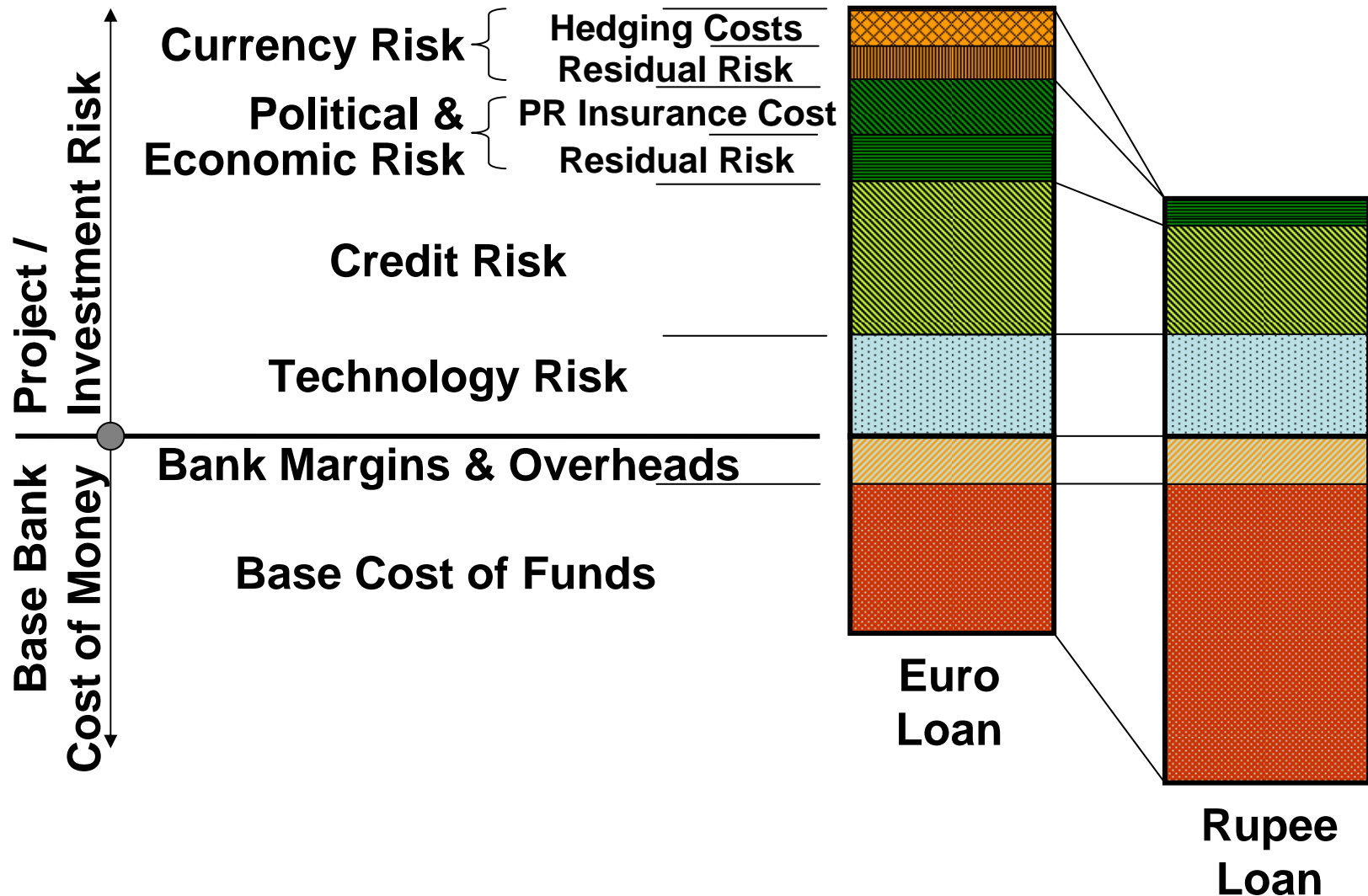
- European corporate investing in project company
- Project finance structure
- Borrowing EUR & INR for project



India wind project investment format



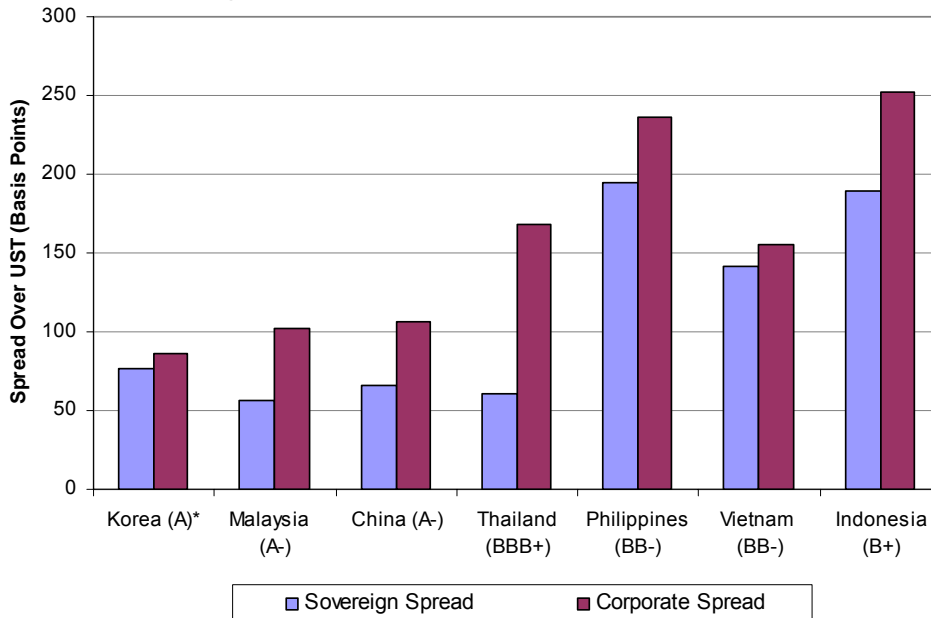
Debt cost of capital



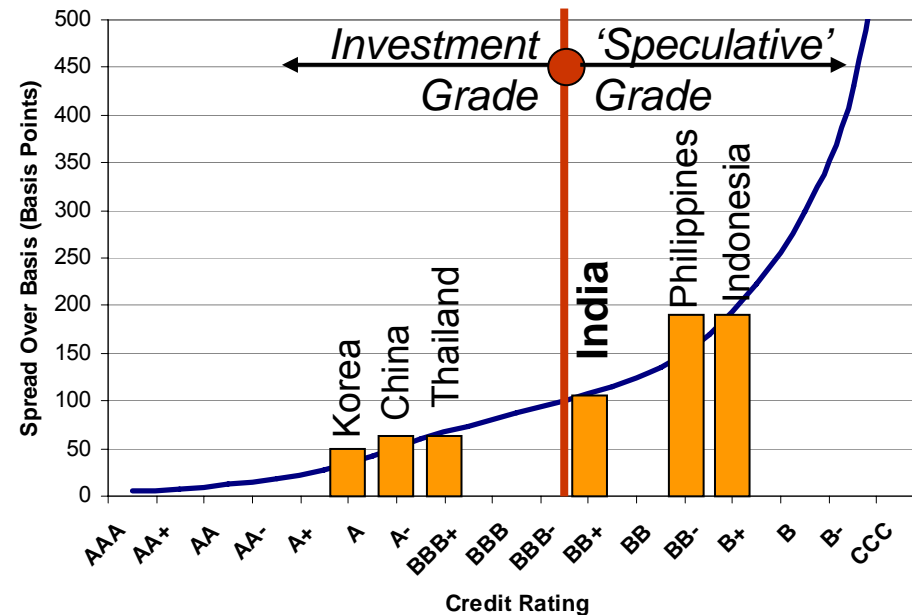
Credit rating vs debt cost of capital

- The debt capital markets require exponentially higher risk margins as credit ratings drop
- In India's case, its BB+ sovereign rating adds a minimum of 100 bp to the cost of borrowing.
- For sub-sovereign debt (e.g. utilities, SOEs), this spread can be considerably higher

Sovereign and Corporate Spreads Over US Treasuries (in USD)



Credit Rating Implication for Cost of Debt

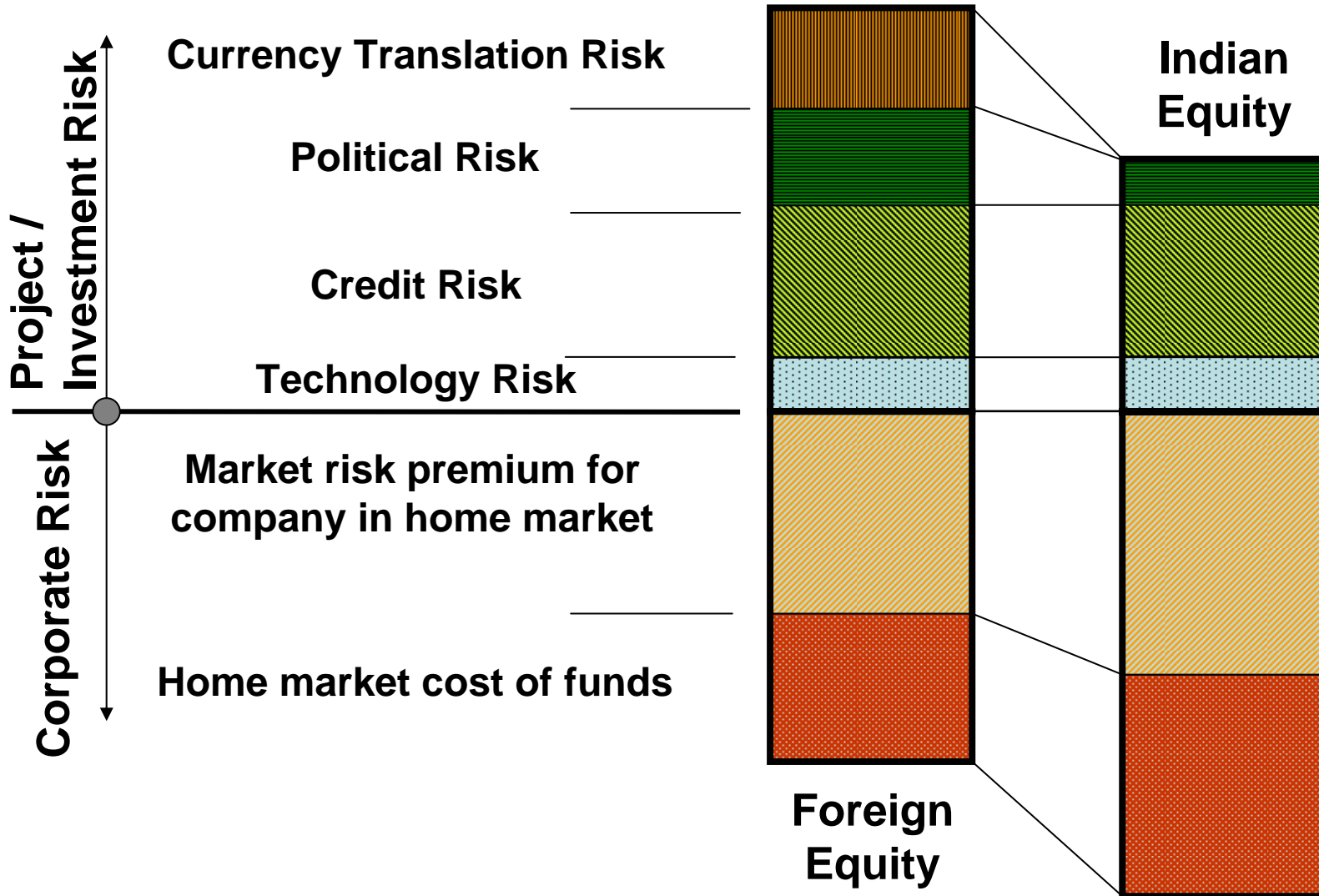


Sources: *Credit ratings: Standard & Poor's; Sovereign spreads: www.asianbondsonline.adb.org 18 April 06; Corporate spreads: HSBC Asian US Dollar Bond Index, 13 April 06 (HSBC proprietary corporate proxies)

What makes foreign currency debt expensive

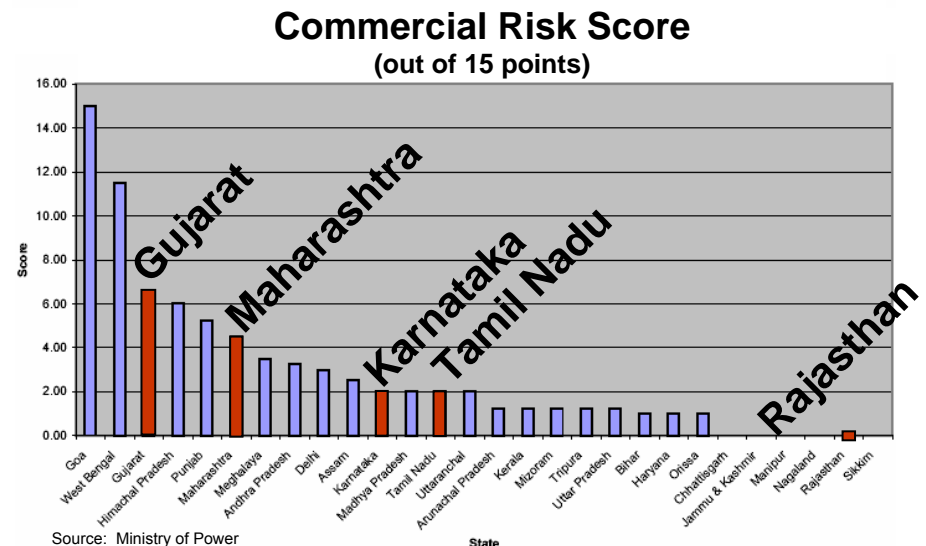
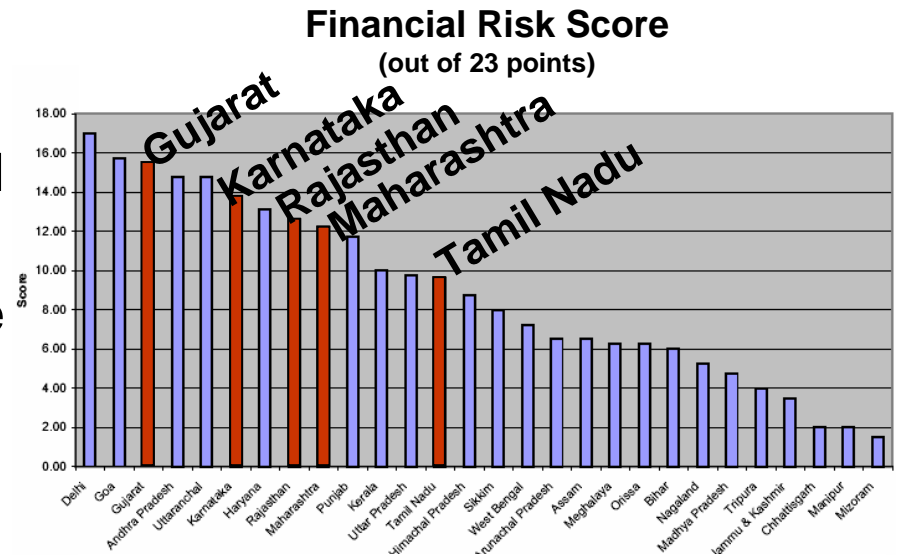
- **Risk perception**
 - Perception is reality
 - Regardless of what is actually going on in lenders home markets
 - This directly impacts cost of funds
- **Currency risk**
 - Uncertainty about pricing of sovereign risk in market due to lack of market-based benchmark
 - Limit on ability to lay off risk through hedging and cost of such hedges
- **Interest withholding tax**
 - Borrowers need to gross up interest charges to cover the 10-20% withholding tax on foreign interest payments

Equity cost of capital



Credit risk

- SEB/Utility credit risk is the number one issue impacting the attractiveness of the Indian wind sector
- Payment risk under PPA's is the key criteria lenders use to assign lending margins
 - Alternatively, they will seek on-going support from equity or other guarantors, increasing cost
- MoP's on-going SEB score card assessment illustrates the level of commercial development required
 - The top 5 wind states are shown



Source: Ministry of Power

Financial risk scores are out of 23 points. All except five states scored below 50% on this metric.

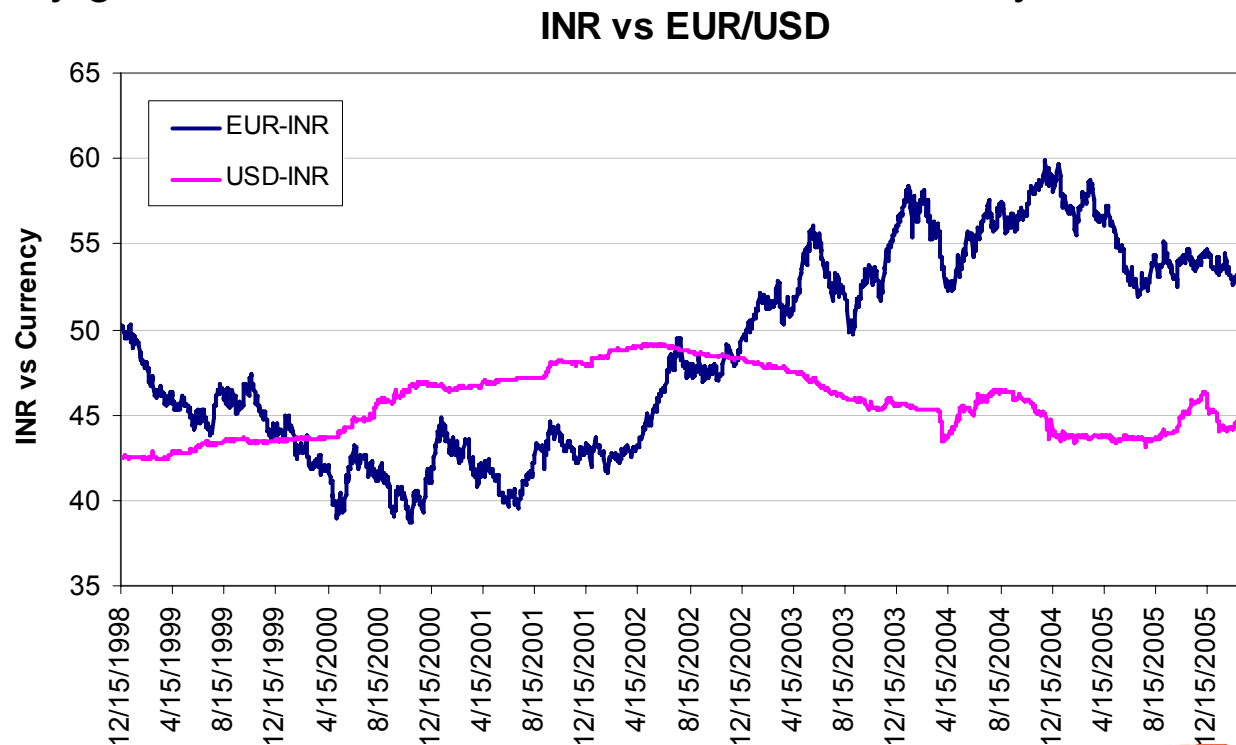
Commercial viability scores are out of 15. The status of the public utilities is plainly evident from this metric.

Long-term sustainability risk

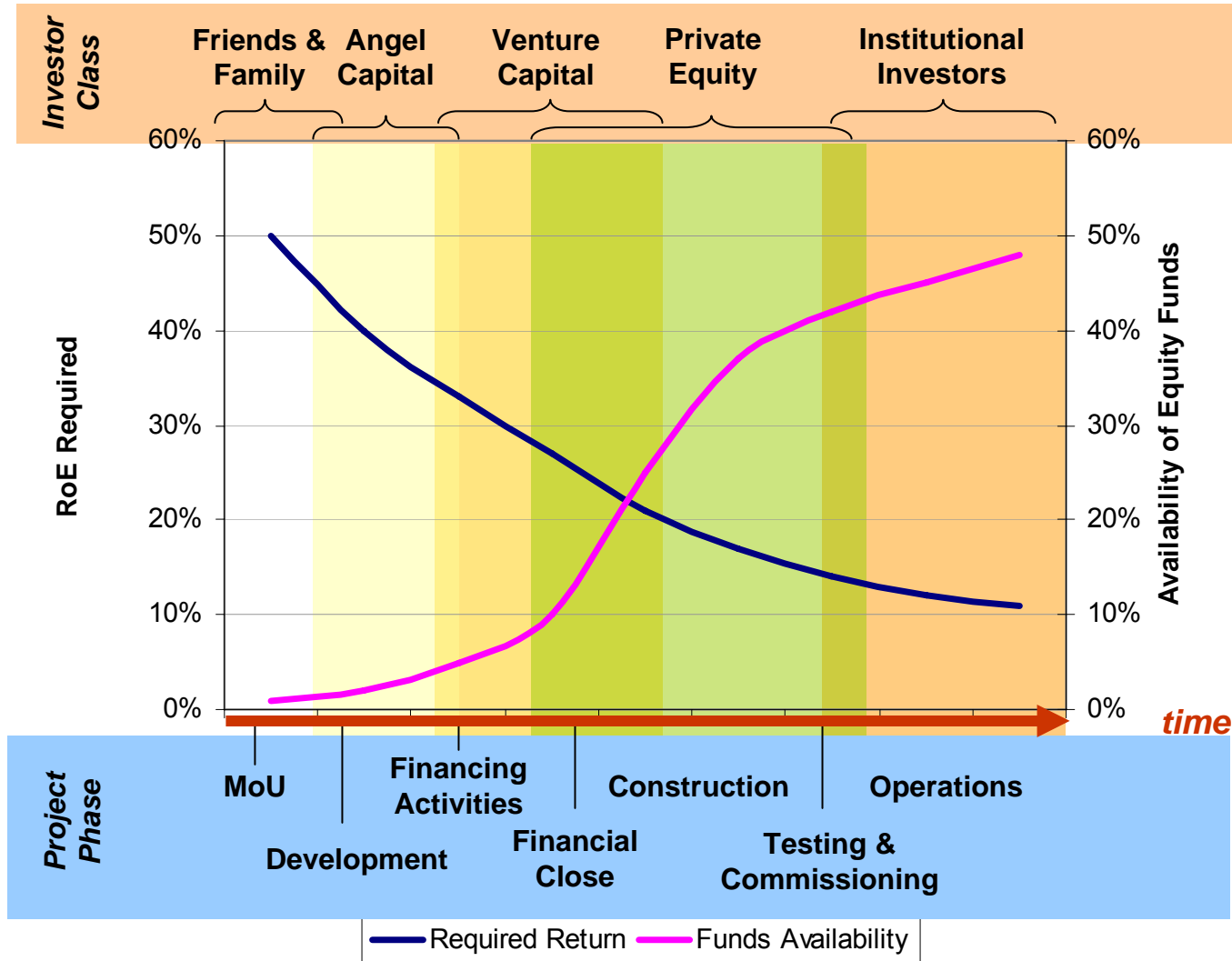
- Credit risk is related closely to long-term project sustainability
- Currently incentives/supports are needed to encourage renewable energy investments
 - Feed-in tariffs support renewables development
 - These tariffs range from INR2.50-4.00/kWh – well above average conventional on-grid tariffs to wholesale generators
 - Some of these tariffs have unlimited escalation over the life of their PPAs
- Renewables subsidy/incentive programmes exacerbate the fiscal deficit woes at SEBs/utilities
 - Ultimately require additional direct subsidy from State budgets
 - States with the largest renewable portfolios are the most at risk
- On-going cost of supporting large-scale renewable energy portfolios needs to be assessed
- There is significant political risk associated with renewables programmes
 - Changes of government could see revision of the incentives depending on fiscal and economic climate at the time

Currency risk

- Euro-INR exchange rates have experienced significant volatility over time
- USD-INR has fared better, trading in a 10% band over past 8 years
- Absence of a deep, long-term and cost-effective swap market does not allow investors viable options to lay-off currency risk
- Investors will not gamble on the prospect of currency strengthening, especially given the sensitive nature of Indian economy



Equity fund source-stage-return relationship



Equity: Time of entry issues

- **The earlier in the development cycle, the higher the required return**
- **Limited number of investors interested in early stage project development**
 - Supply-demand-risk relationship dictates the need for higher return to such investors
- **Most investors in Asian infrastructure require project returns that are in the *high teens-to-low twenties***
 - Most of these projects have cash flow coming from government or state-owned entities
 - If a given project has a long-run return in the higher range (i.e. 20%+) and an economic or political stress event occurs, that project is likely to be among the first to take the hit
 - Thus a reasonably low return needs to be targeted in order to maintain long-term viability of the asset
 - This is incompatible with many foreign investors needs/requirements

Foreign investor return requirements

- Need to look at a cross-border investment from the perspective of the foreign investor's home market
 - What is needed to satisfy shareholder requirements in their home country?
- For most Western investors, the required return for a $\beta=1.0$ investment in India is around 20-21%

Expected Equity Market Returns for Investments in India & Belgium				
	Investment Destination			Expected Home Mkt Return
Investor Origin	India	Belgium	Difference	
Australia	21.50%	12.12%	9.38%	12.95%
Canada	20.79%	10.75%	10.04%	10.18%
France	21.52%	12.58%	8.94%	12.34%
Germany	20.57%	11.26%	9.31%	11.14%
Japan	18.17%	8.96%	9.21%	10.02%
United Kingdom	19.60%	11.88%	7.72%	11.41%
Credit Rating	BB+	AAA		

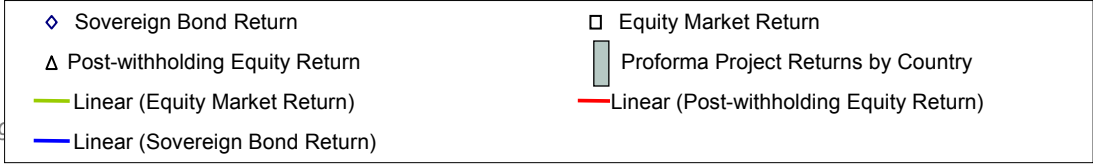
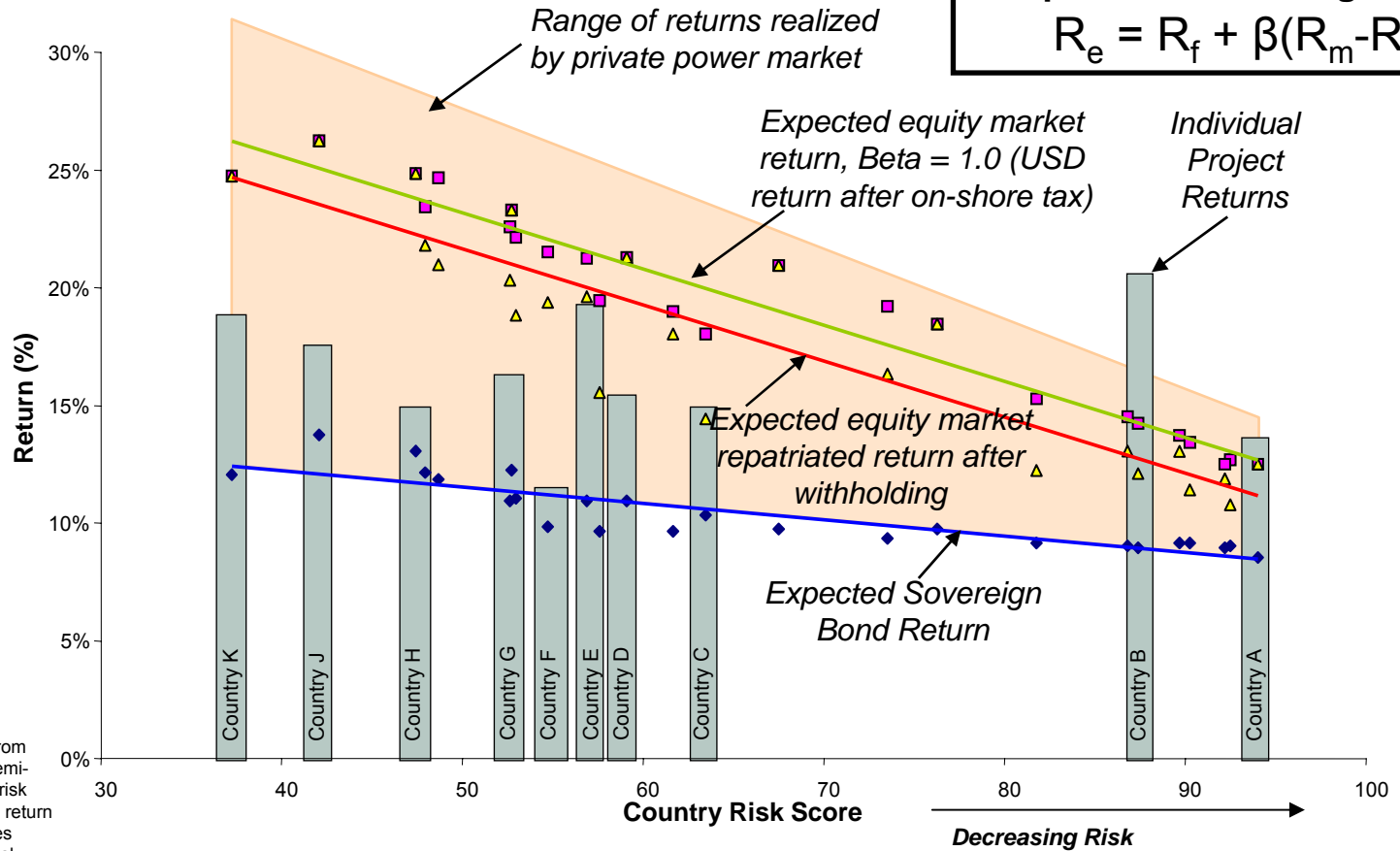
Source: based on analysis conducted by Ibbotson Associates in their publication International Cost of Capital Perspectives Report 2005, available for a charge from www.ibbotson.com.

Investment returns need to reflect risk

What is an appropriate level of investment return to compensate for risk?

Capital Asset Pricing Model:

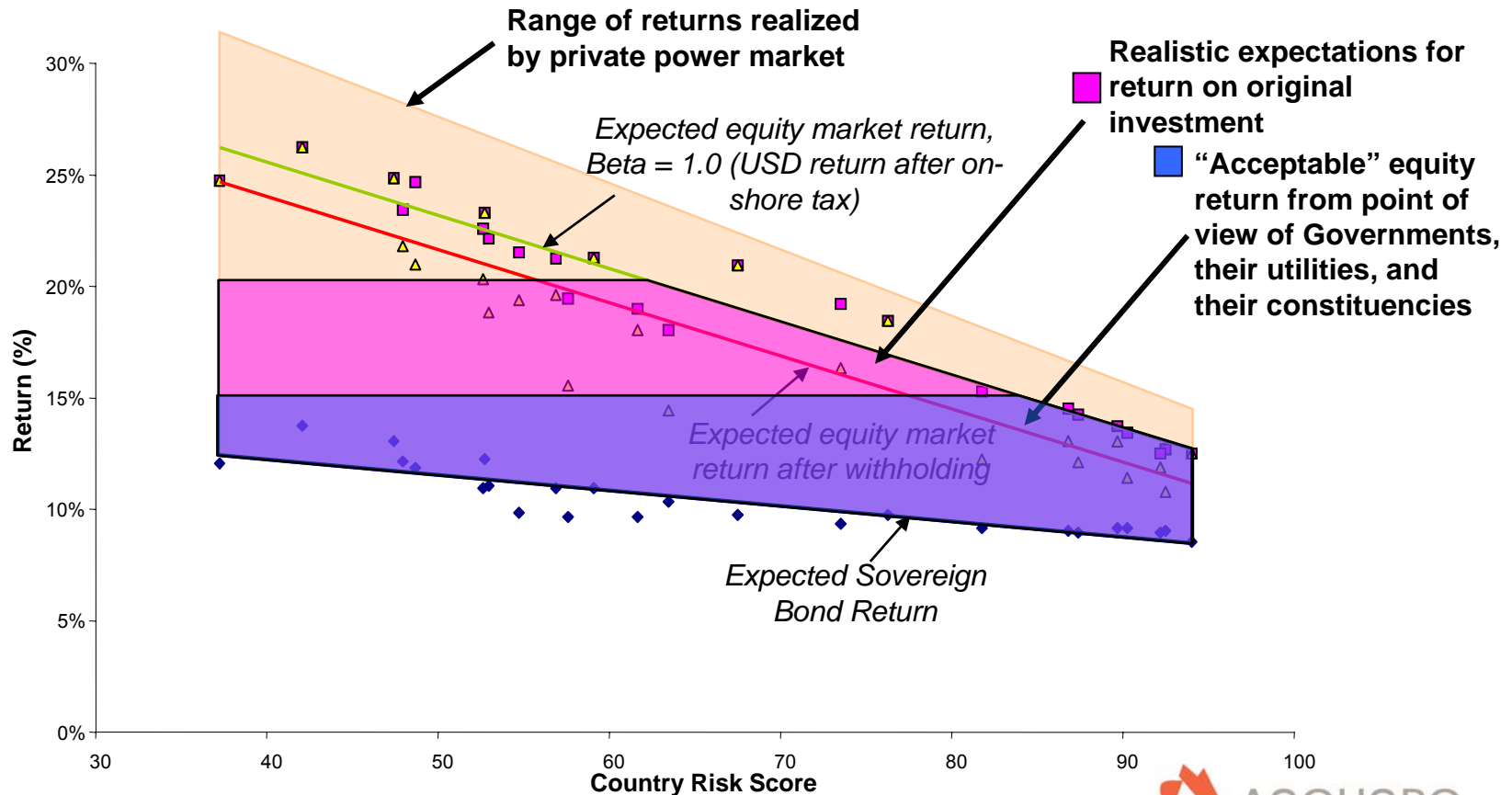
$$R_e = R_f + \beta(R_m - R_f)$$



1. Country Risk Score is from Euromoney Magazine's semi-annual ranking of country risk
 2. Expected equity market return is from Ibbotson Associates International Cost of Capital
 3. Project returns are sourced from proprietary information obtained by PA Consulting Group

The emerging reality of global investments

- **Governments and consumers will only tolerate a certain absolute level of return – generally no higher than 15-16% – regardless of the risk involved**



What if? Development of wind IPP in India

What funds are available to a foreign investor developing an IPP wind farm in India?

- Joint venture partners
- Soft Rupee loans
 - IREDA
 - Power Finance Corporation
 - Rural Electric Corporation
- Domestic commercial banks
- Foreign funding
 - Bilateral support
 - Export credit
 - Bilateral investment loans/guarantees
 - Multilateral support
 - Partial risk guarantees
 - Direct loans, co-financing

Environmental value-adders

- **Certified Emission Reduction certificates (CERs)**
 - Tradable rights secured via CDM under Kyoto protocol
 - Highly marketable in Europe; not so valuable if kept in India
 - Currently taxed in India as an export of a good;
 - A policy that discourages investment
 - Shifts investor emphasis toward subsidy/support packages
- **Renewable Portfolio Standards (RPS)**
 - Currently set out as quantitative targets
 - However with little ‘carrot-and-stick’ support
 - Tradable Green Certificates
 - Offer opportunity for generating valuable, market-priced rights
 - Market-driven means for building up national renewable portfolio
 - Do you make this market state-specific or national?

Credit enhancements

- **Continued reforms**
 - Fundamental commercial, economic operations is still the best support
- **State/National RPS market?**
 - Create a valuable, transparently-priced asset
 - Take pressure off of feed-in tariff supports by providing alternative value
- **Capital controls**
 - Continued liberalisation of capital account liquidity
- **Taxation**
 - No duties on equipment
 - Consider exempting interest withholding tax on foreign loans
- **Capital innovation**
 - Shift funding responsibility to the commercial finance sector
 - Contingent on continued reform and interim support to SEBs/utilities
- **Use of Power Trading Corp?**
 - Ability to provide partial 'sovereign' cover in a way that allows use of fund/guarantees from agencies like EIB
 - National renewables energy trading market?

Conclusions

- Indian wind industry is designed around the subsidies and supports offered
 - The industry is making a good go of it!
- Those incentives – especially the accelerated depreciation benefit – do not incentivise owners to operate/maintain plants over long term
- Wheeling tariffs, grid issues potentially hold back development
 - Greater clarity and harmony required regarding wheeling and grid code
- Incentives in India are heavily weighted toward smaller scale captive use developments
- In context of SEB finances, above average on-grid tariff is decreasingly sustainable as renewables portfolios grow
 - Fiscal/commercial stability is the key to long-term success
 - Stand-by PPA's for direct sale to third parties can help to provide back-up support

Conclusions

- Current industry structure in India is manufacturer focused and difficult to see IPP developer entry
 - Better and more relevant wind data needed
 - Process for obtaining land difficult
 - Incentives need better alignment for a utility/IPP-type investor
- Cross-border borrowing:
 - Corporate finance basis: Only suitable for Indian corporates with major Euro/USD receivables
 - Project finance basis: Why do it? Borrow Rupees!
- **Perhaps European capital is already finding its way into the Indian market in the most efficient way possible: through manufacturing joint ventures!**

Recommendations

- Modify renewable policy to shift investment incentives away from a focus on depreciation benefit
 - This would shift focus on long-term sustainability of asset (and green energy source)
- Improve, crystalise and harmonise wheeling charges as part of open access
 - Need balanced approach
- Wind resource
 - Programme of comprehensive and relevant wind data measurement
- Environmental adders
 - Development state or national RPS markets backed by strong penalties for non-attainment
- Project innovation
 - Tap the innovation of developers based on reducing capital costs, availing of project finance
- Capital innovation
 - Shift funding emphasis to commercial sources to spur capital innovation
 - Create investment environment needed to spur limited recourse finance
 - Have renewable energy classified as “priority sector”



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J. Grant Hauber
Executive Director

32 Maxwell Road
#03-07 White House
Singapore 065119
Tel: +65 6722 8397
Fax: +65 6725 8038

Web: www.aequero.com

Duncan Ritchie
Executive Director

Level 25, Bank of China Tower
No. 1 Garden Road
Central, Hong Kong SAR
+852 8175 0221
+852 2251 1618