India Ratings & Research
A Fitch Group Company

Project Risk Management

Cash is king, avoid name lending

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Agenda

- Key Points to Keep in Mind
- Concept of Credit
- Assessment Methodology
- Learnings from boom and bust
- Group Linkages
- Case Study

Key Points to Keep in Mind

- Economic substance vs. Accounting classification
- Debt holders bear the downside risks with no upside possibility
- Debt is serviced from future cash flows
  - Past is an input, non-existent for greenfield assets
  - Absence of historical data a significant risk
- Credit Risk is all about evaluating business risks
- Financial risks act as constraint but do not drive credit risk on a stand-alone basis
- When in doubt, always ask “Show me the cash”
- Assess “Through the Cycle”, look for stability
  - Downgrade, in event of **structural** downside shifts
  - Upgrade, in event of **structural** upside shifts

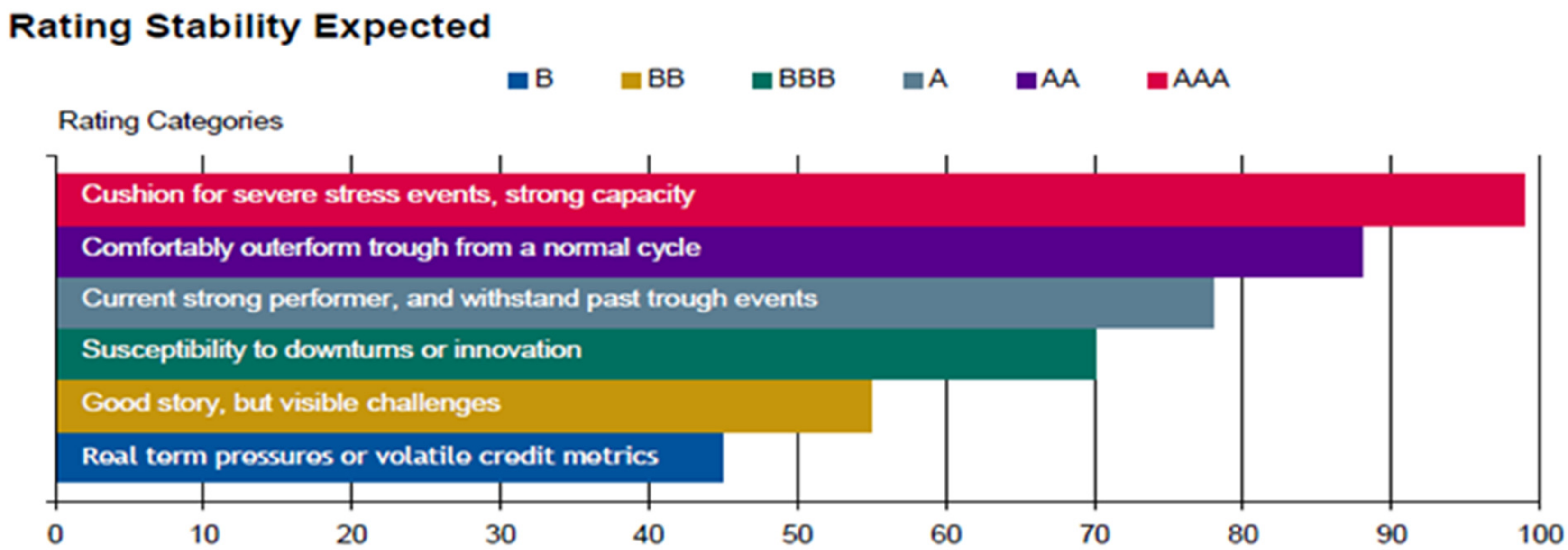
Key Points to Keep in Mind

- Rating should never be the sole driver for creditors
  - Use it as one input to the decision making
- Ratings measure Relative Vulnerability to Default on financial obligations
  - Relative benchmarking across and within industry
  - May not be strictly comparable to global entities given that it is relative within the jurisdiction
  - The best credit in the country is typically assigned a AAA, usually the Government
  - Does not measure likelihood of specific percentage of default
  - Does not opine on market value, liquidity and loss severity of the security
- Event Risks generally excluded

Concept of Credit

- Credit ratings provide an opinion on the relative ability of an entity to meet financial commitments
  - Financial Commitments such as interest, preferred dividends, repayment of principal, insurance claims or counterparty obligations (Contingent Liabilities, Derivatives Pay-off, Finance Lease Obligations)
- Credit ratings are used by investors as indications of the likelihood of receiving the money owed to them
- Estimates of Likelihood of Receiving Money->Estimated from Probability of default
- Usage of Ratings
  - Ratings(internal or external) are used for pricing the debt
  - Financial Covenants; Decisioning Trigger
  - Allocation of Regulatory Capital
  - RAROC Optimising Exposure

Economic substance of Rating Definitions



Source: Fitch.

Scenario Analysis

Ratings in a specific category are expected to behave (with respect to performance/default behaviour) in a certain way over a business cycle or adverse events.

Ratings are not only associated with likelihood of default ***but also chances of downward rating migration.***

Ex: Some thing rated in ‘A’ category should ,if evaluated properly, not jump into a ‘BBB’ category within two to three years of initial credit assessment

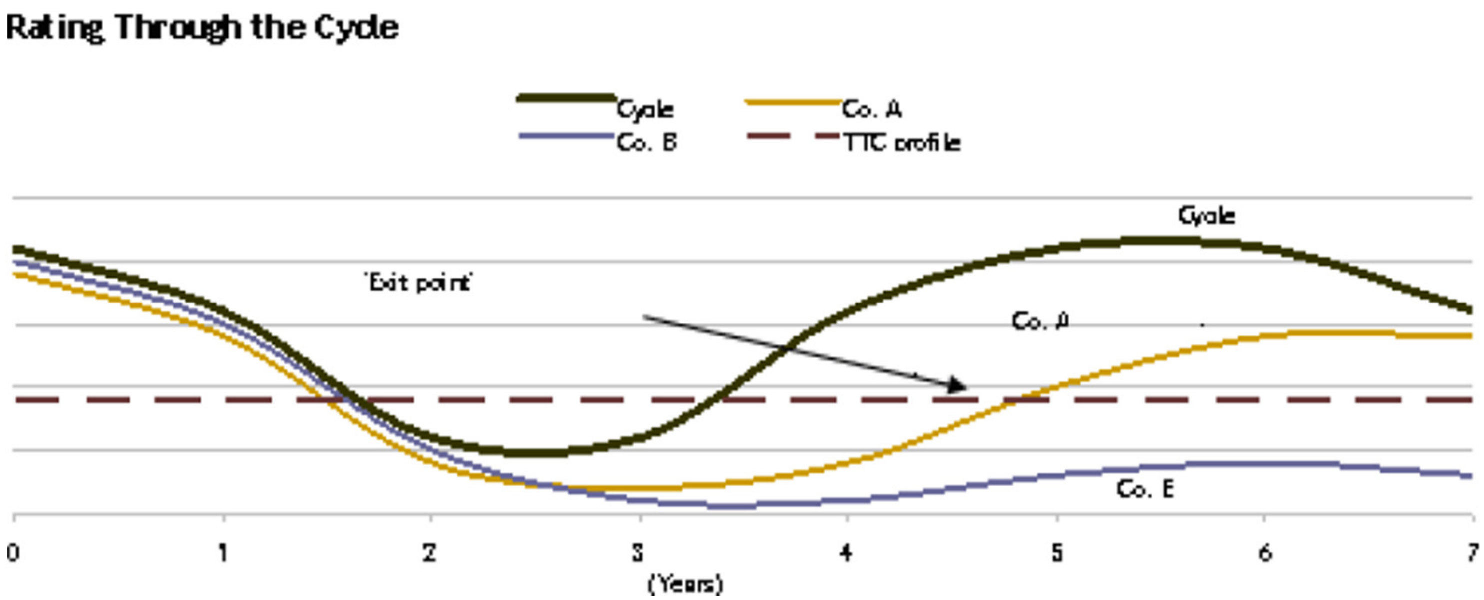
Rating Behavior Expectations Under Scenarios

Rating	Base	Downside	Extreme Events
AAA	Excellent	Excellent	Good
AA	Excellent	Good	Satisfactory
A	Good	Good	Satisfactory
BBB	Good	Satisfactory	Some Migration Down
BB	Satisfactory	Some Migration Down	Near Default
B	Satisfactory	Migration towards Default	Default
CCC or Lower	Near Default	Default	Default

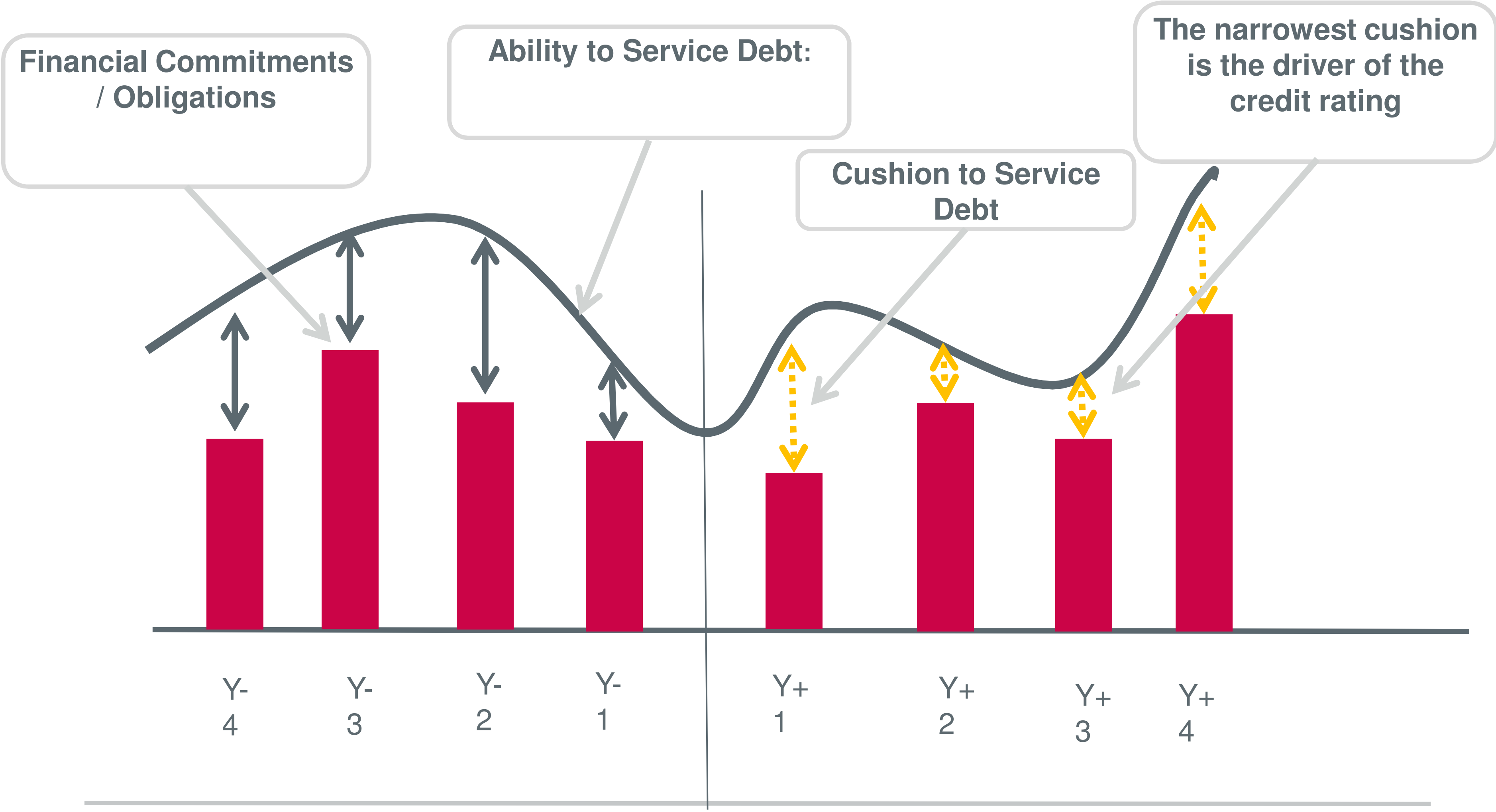
Through The Cycle Approach

Investment Grade Rating should be able to tolerate a business cycle trough without significant downgrade and default.

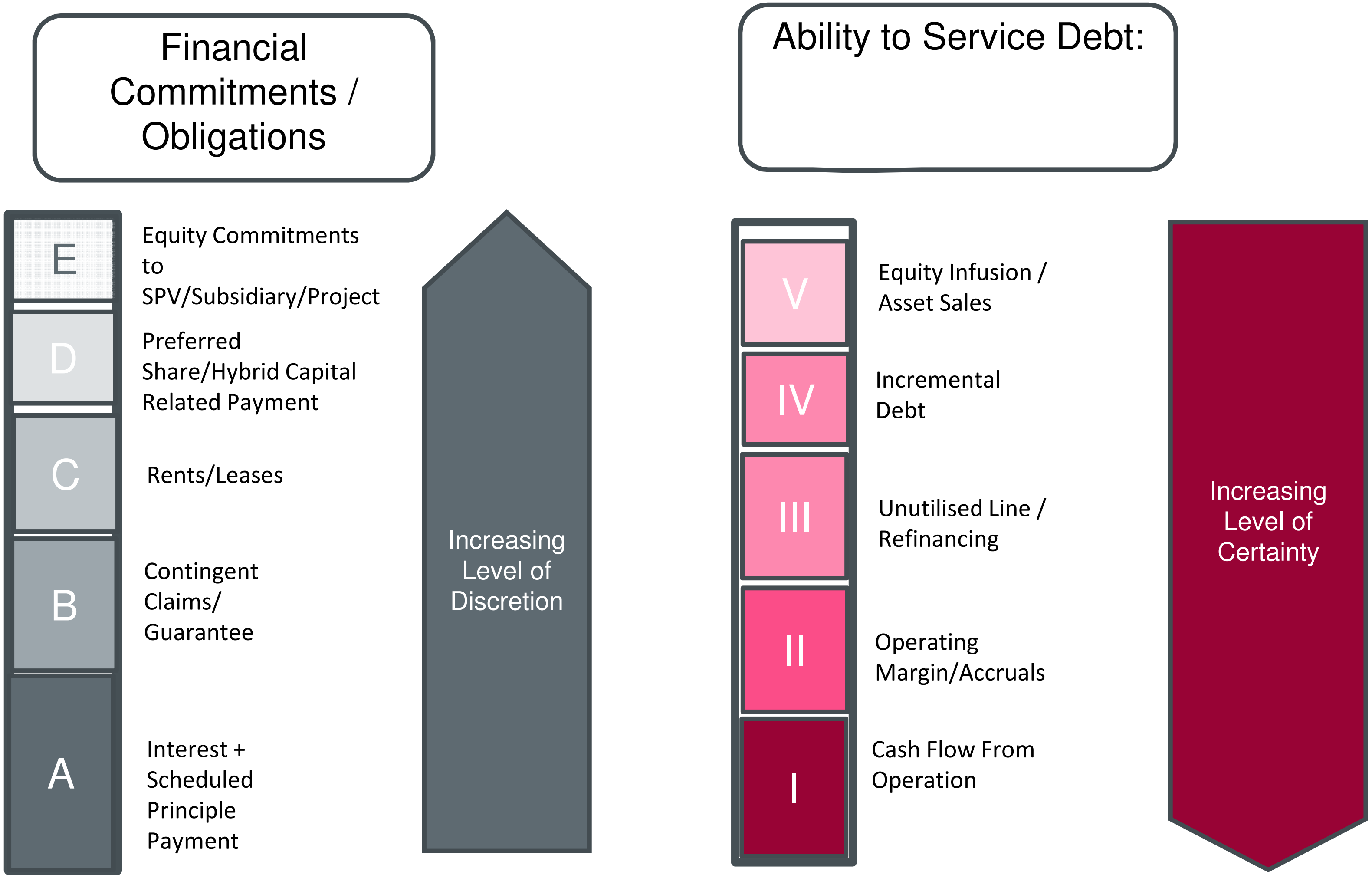
Higher the investment grade rating, higher should be its ability to withstand higher intensity downturns without significant downgrade and default



Assessment of Weakest Link



Concept of Credit: Hierarchy of Credit Components



Long Term vs Short Term

Rating Correspondence

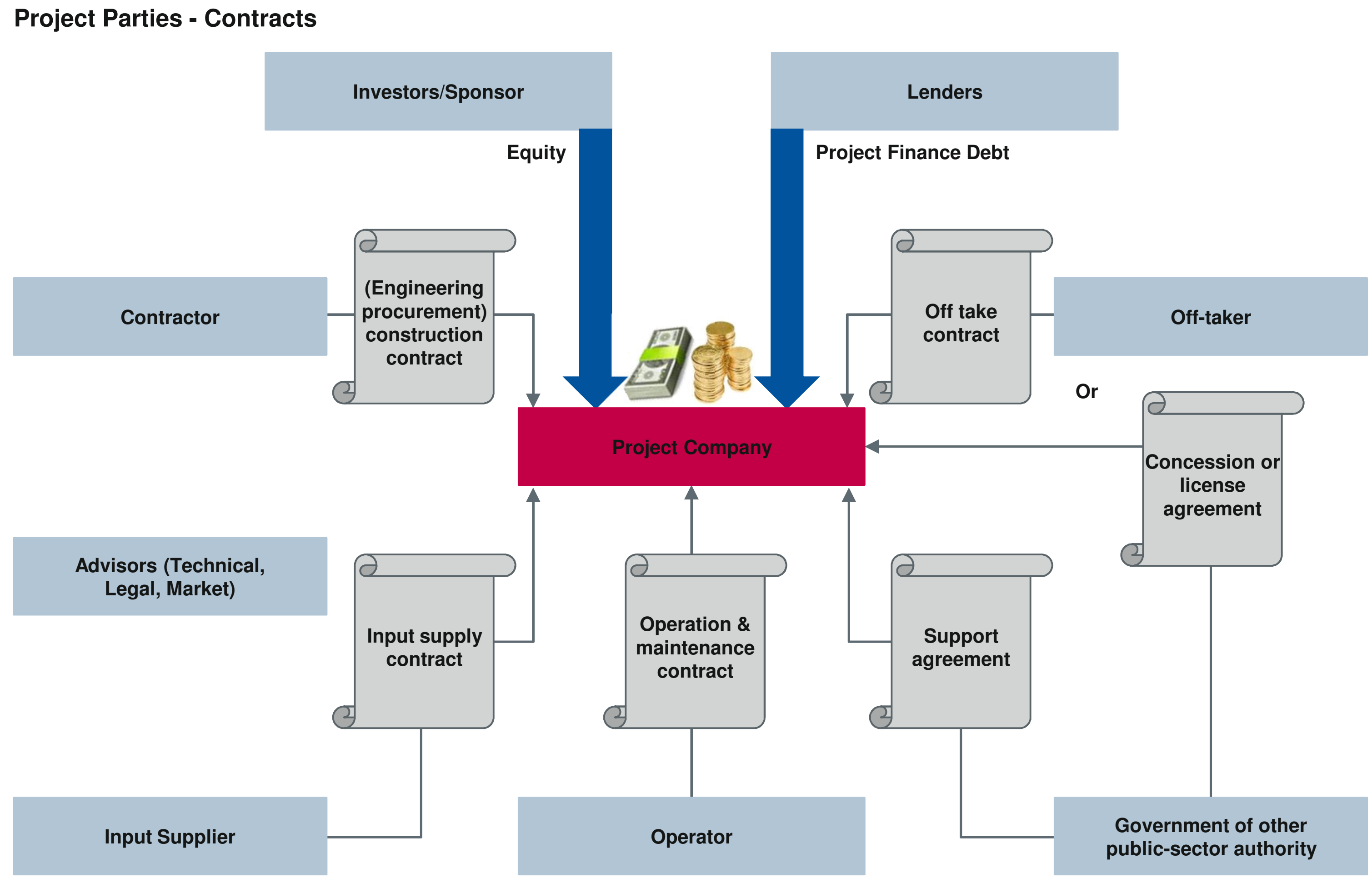
Long-Term IR	Short-Term IR
IND AAA	IND A1+
IND AA+	IND A1+
IND AA	IND A1+
IND AA-	IND A1+
IND A+	IND A1+ or IND A1
IND A	IND A1
IND A-	IND A1 or IND A2+
IND BBB+	IND A2+ or IND A2
IND BBB	IND A2 or IND A3+
IND BBB-	IND A3
IND BB+ to IND BB-	IND A4+
IND B+ to IND B-	IND A4
IND C	IND A4
IND D	IND D

Rating Criteria for Project Loans

Key characteristics of project loans

- Repayment dependent on cash flows from standalone project or assets
  - Including those that may encompass projects across locations
- Segregation of cash flows (SPVs or equivalent segregation)
  - Power, transportation, telecommunications, oil & gas, mining and social infrastructure
- Generally conceived on BOT/BOOT basis
- Ratings are assigned to individual instruments
  - Loss given default not incorporated

Representative Project Dynamics



Key Rating Drivers

Completion Risk

- Completion on time and within budget
- Contractor experience
- External Support

Revenue Risk

- Stability of cash flows
- Historical analysis

Operations Risk

- Operator's experience and credit profile\
- Operating Cost assumptions

Debt Structure

- Amortization profile, associated hedging
- Reserves, Financial Covenants

Debt Service and Counterparty Risk

- Financial flexibility
- Liquidity profile and Leverage
- Off-taker, Concession Grantor

Structure and Information

- Quality & experience of sponsor
- Strength of legal structure

Structure and Information

Ownership, Sponsors and Project structure

- Quality of sponsors has an asymetric relationship
  - Weak sponsors may lower rating, strong sponsors cannot substantially elevate rating unless there is binding performance or financial guarantees
  - Strong sponsors typically provide greater comfort in managing stress scenarios
  - Technical capability critical to ascribe benefit in a rating
- Ownership structure
  - Complexity, relationship with contractors, multiple owners, potential for change of ownership and flexibility to resolve project issues
  - Sponsors commitment – investment, guarantees, covenants, committed capitalisation, strategic importance
- Project structure
  - Liabilities assessed through employees, trade debt, taxation, environmental and tax issues
  - Inter-creditor agreements for classes of debt
  - SPP not segregated analysed based on parent subsidiary relationship. Could constrain ratings

Structure and Information

Legal, Regulatory and Use of Experts

- Stability of the regulatory environment
  - Dispute resolution
  - Independence of an SPV issuer, collateral rights, or statutory ownership restrictions
  - Legal strength of contracts
- Expert Reports
  - Status of the expert, experience
  - Importance directly linked to materiality of experts forecast or opinion to ratings
  - Where reports are not sufficiently supported, complete or reliable and are critical for the rating, Ind-Ra may refuse to provide a rating
- Information quality
  - Information quality could constrain a rating or could lead to a refusal to assign rating
  - Timeliness and quality of information is evaluated
  - Data sources if used for a rating decision are highlighted

Completion Risk

Contractors, Cost Structure, Delay Risk

- Contractors
  - Experience, credit quality and track record
  - Financial capacity to complete projects, performance guarantees or performance bonds
  - Third party engineers role critical in assessing performance guarantees
- Cost Structure
  - Allocation of costs and risks
  - Fixed price contracts need to incentivise strong contractors
  - Budgeted contingencies to replace contractors, review by third party engineers
- Delay Risk
  - Risk mitigation through contracts, third party support
  - Retentions, penalty payments, long stop dates and liquidated damages
  - Third party engineers comments on reasonableness of caps for liabilities

Completion Risk

Technology risk

- Critical for cash flow
  - Established technology easier to assess
  - Third party engineers to assess reasonableness of new technologies
  - Warranties for performance supported by financial capability

Operation Risk

Operator, costs and supply

- Operator
  - Contract periods are longer with a wide range of complexity
  - Risk assessment of operator compensation to the risks and performance of the contract
  - Warranties for performance supported by financial capability
- Costs
  - High variable costs, exposure to unanticipated costs is reviewed
  - Contracts and risk mitigation a positive
  - Life cycle costs to factor future capital expenditure
- Supply
  - Risk of disruptions as well as price changes
  - Long term contracts with credit quality of supplier commensurate to debt rating
    - Pass through in costs or limited ability to pass through

Operation Risk

Technology risks

- Technology Risk
  - Proven vs. new
    - Proven also need adequate maintenance
  - Lender engineers role critical

Revenue Risk

Availability, price and volume

- Revenue Framework
  - Contracted vs. merchant based revenues
    - Contract terms need to be clearly understood
- Performance Requirements
  - Availability and output, timeliness or efficiency of output
  - Ability to pass on liabilities to sub contractors
- Broader demand risk
  - Merchant facilities or contracts expiring earlier than debt repayment
  - Competitive pressures
  - Price Risk

Debt Structure

Debt Characteristics and Terms, Structural features

- Structural features
  - Covenants and triggers to trap cash flows supporting debt service
  - Covenants to restrict additional debt, restrict payments to sponsors or equity holders when financial conditions are deteriorating
  - Priority of payments
- Security package and creditor rights
  - Step in rights pre default
  - Cross default mechanisms
- Refinance Risk
  - Structurally weaker than full amortisation
    - Limited refinancing with structural mechanisms to facilitate refinance could be mitigating factors

Debt Service and Counterparty risk

Base case, project stresses and financial stresses

- Base Case
  - Reasonable assumptions
  - Generally conservative
- Project stresses
  - Delays, input and output costs, demand or utilisation values
- Financial stresses
  - Interest rates, currency hedges, inflation etc.
  - Default of a counterparty
- Common metrics used
  - DSCR, Gearing/leverage ratio
  - Project life coverage and Loan Life coverage ratio
- Counterparty risk and peer comparisons

Lessons from the boom and bust

Realistic assumptions, alignment of incentives

- Interest Rate assumptions flawed
  - Future rates will be similar to present rates
  - Made a no. of projects unviable as rates inched up
- Pro rated equity before debt is released
- Debt structuring allowed limited cushion on ramp up risks
- Common shareholders and EPC contractors meant limited skin in the game for sponsors after 2-3 years
- Name lending, inability to act when sponsors deteriorated
- Double leveraging
- ECB borrowings – Short term gains vs long term viability
- Undue risks taken before all necessary approvals in place

Lessons from the boom and bust

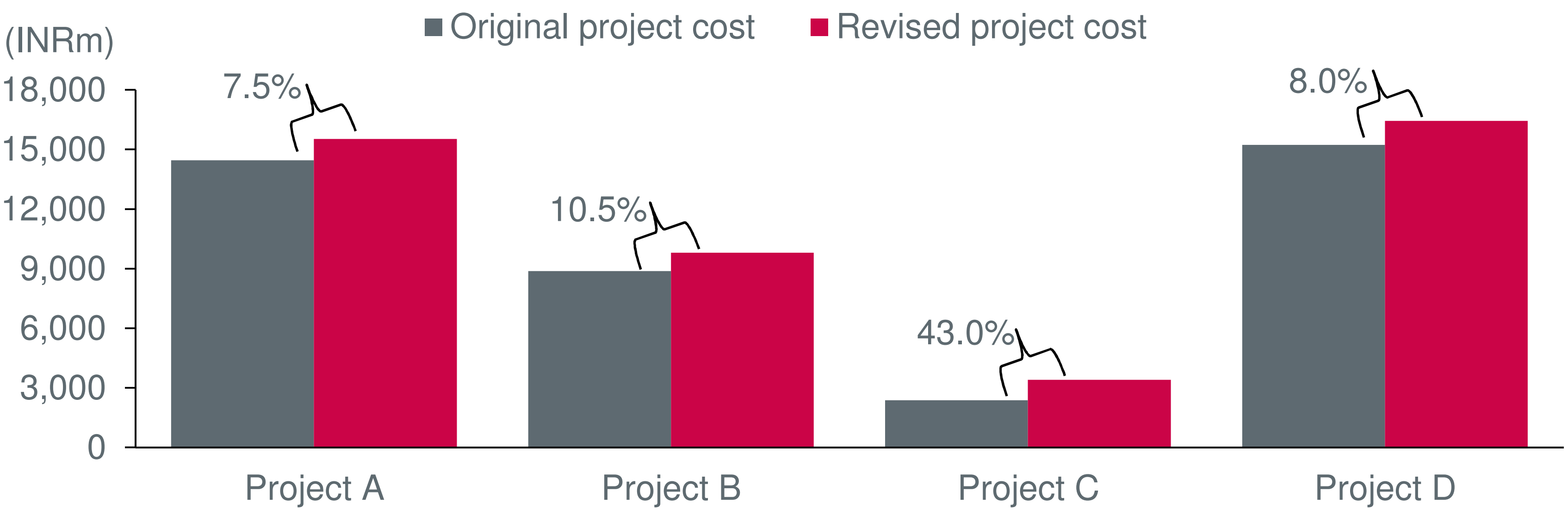
Realistic assumptions, alignment of incentives

- Traffic estimates highly optimistic
- Amortisation vs refinancing
- Overestimation of counterparty risks

Learnings: The Bane of Cost Overruns

Regulatory and legal risks significant, poor cost estimation

Comparison – Estimated Total Project Cost vs. Actual Total Project Cost

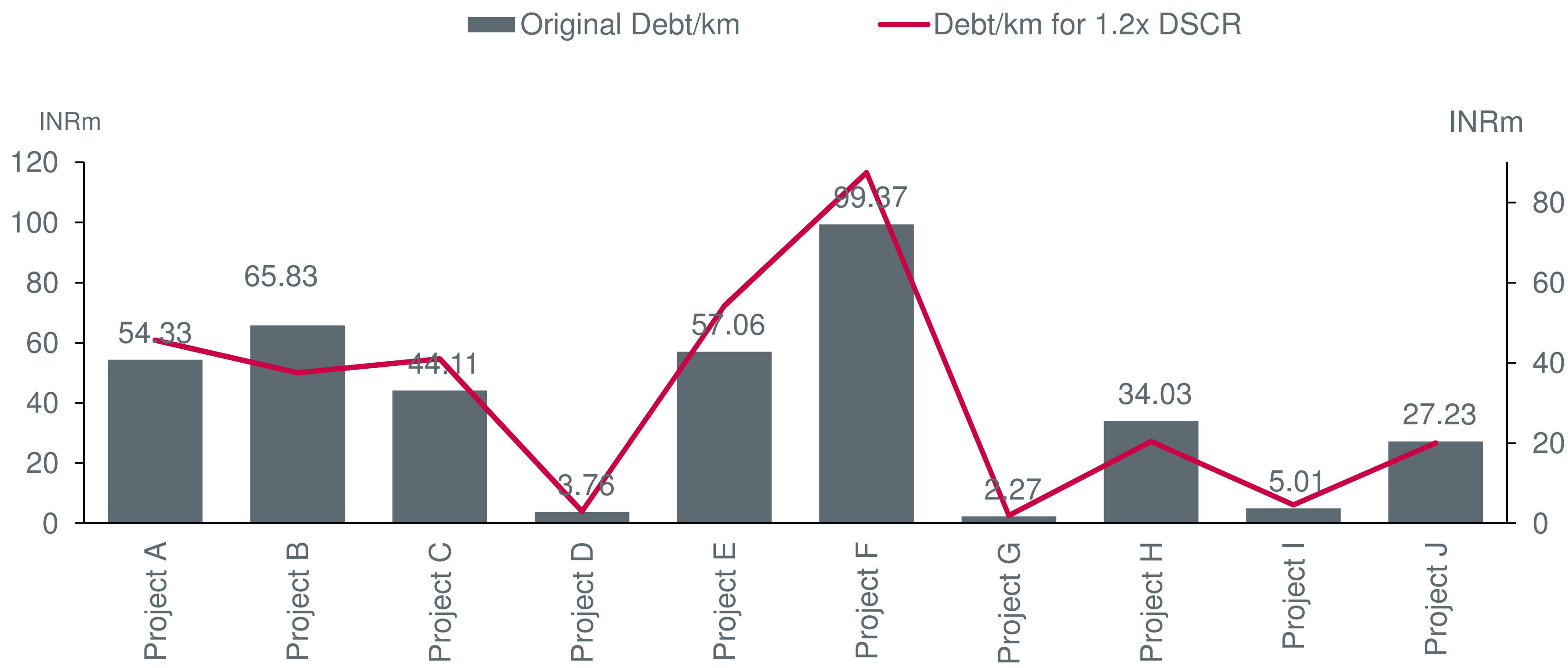


Source: Ind-Ra

- % of sample Ind-Ra projects with cost overrun : 35%
- Range of cost overrun : 7.5-43%
- Additional equity/unsecured loan equity : 18-38%

Higher Gearing- An Issue

Risks not appropriately allocated, double leveraging



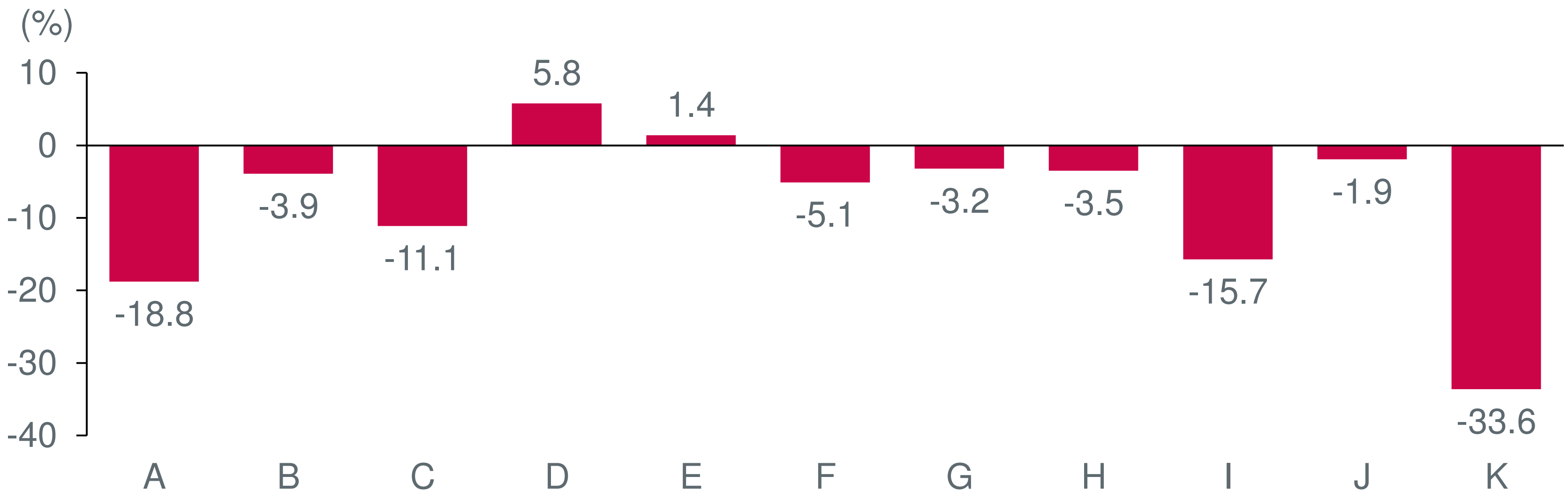
Source: Ind-Ra

- Average debt reduction for 1.2x DSCR : 19% for sample priojects
- Period considered : FY17-FY25

Traffic Forecasting Remains a Challenge

Optimism of traffic estimates

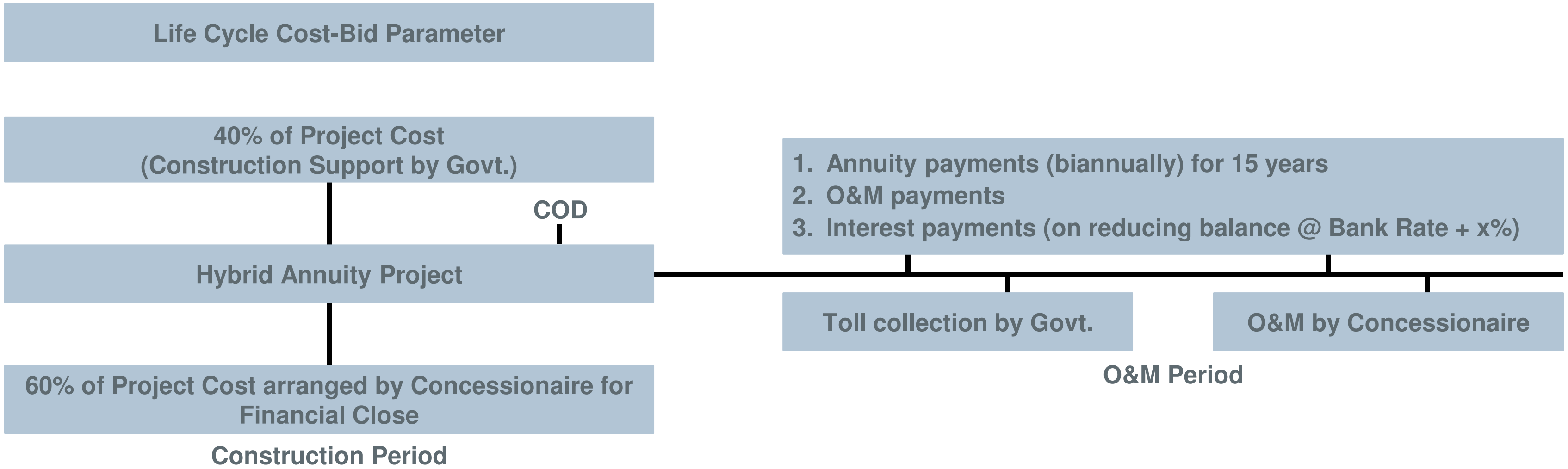
Underperformance



Source: Ind-Ra

- 50% projects have alternate routes
- Passenger cars account for 13% of revenue
- No material change in traffic composition

Hybrid Annuity Model



Source: Ministry of Road Transport and Highways (MoRTH)

Major advantages

- Reduced funding risk
- Developers are not required to shoulder the traffic risk
- Comfort to lenders

Hybrid Annuity Model – Key Comparatives

Particulars	Toll/annuity concessions	HAM concession
Elimination of traffic risk	In toll projects, the revenue risk is borne by the Concessionaire	NHAI shall pay 60% of Bid Project Cost in biannual instalments during operation period. These will be paid in 30 sculpted instalments over 15 years. Along with annuity payment, interest payments on the reducing balance of completion cost shall be received at an interest rate equal to the applicable bank rate plus 3% with bi-annuity payment
No loss of annuity if COD is delayed	There could be a reduction in the number of annuities received	No loss in number of annuities, since it is fixed.
Inflation adjustment	Annuity amount is fixed	Protection against unexpected inflation increase is addressed. O&M payable shall be adjusted to a Price Index multiple which constitutes 70% of WPI and 30% of CPI
Involvement of NHAI during construction	Entire project cost was funded by concessionaire	NHAI shall fund 40% of project bid cost which results in lower equity commitment from concessionaire
Project cost considered in case of termination	NHAI project cost	Actual project cost/debt due shall be considered for termination payment

Source: Ind-Ra

Relative Ranking of Sectors

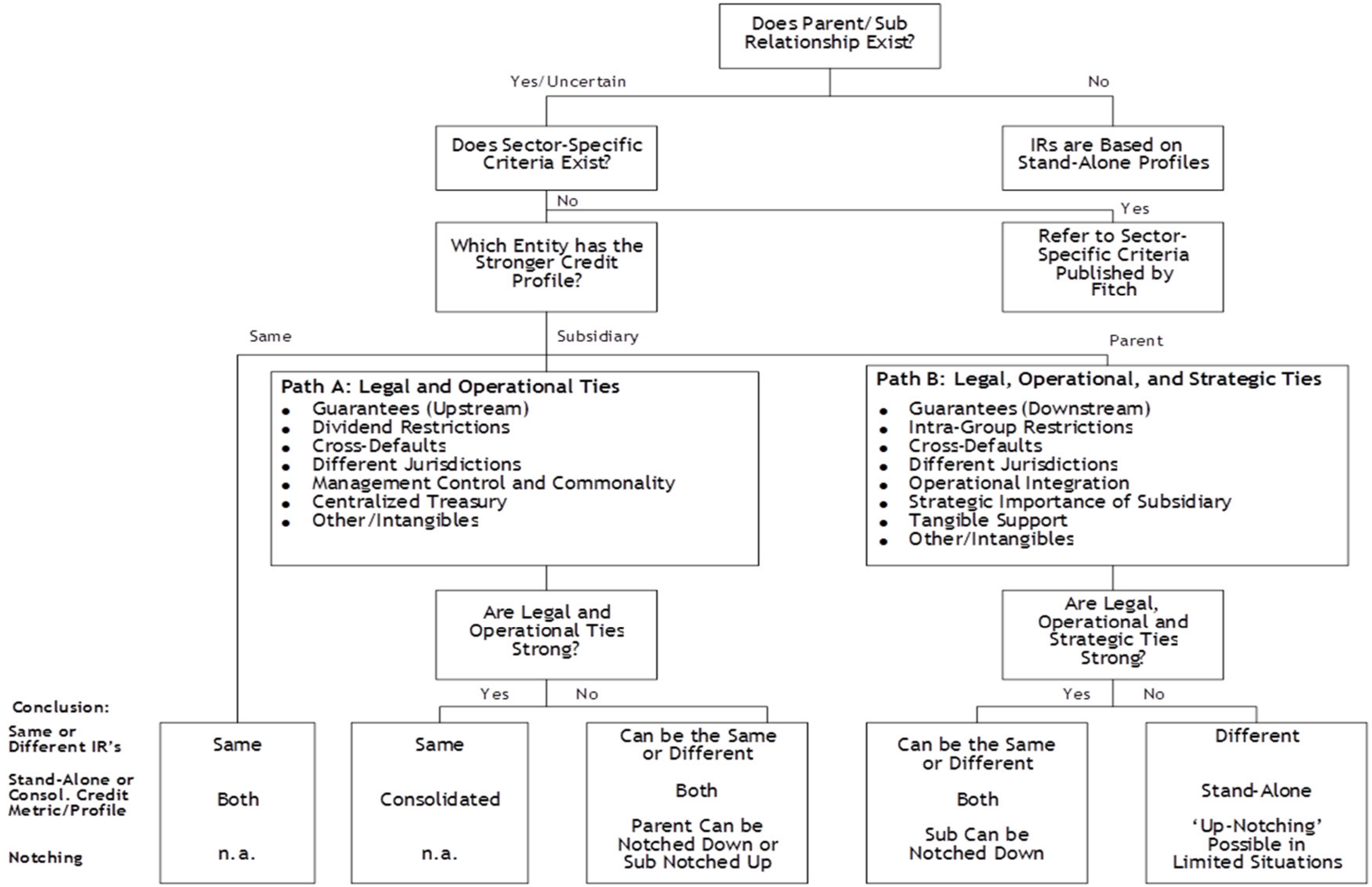
Relative Ranking of Sectors

Approach:	(i)	(ii)		(iii)
Sector	Opinion of ranking	Volatility EBITDA historical standard deviation	Largest decline in EBITDA: Historical low	Final ranking: Below/At/ and above average risk profile
Regulated Utilities	Lower average	5-10%	Positive	Below
Energy Utilities	Lower average	5-10%	10%-30%	Below
Food Retail	At average	5-10%	0%-10%	Below
Pharmaceutical	At average	5-10%	10%-30%	Below
Alcoholic Beverages	At average	10-20%	0%-10%	Below
Advertising	At/above average	5-10%	0%-10%	At/above
Capital Goods	Above average	10-20%	0%-10%	At/Above
Telecom	At average	10-20%	10%-30%	At/Above
Business Services	At average	10-20%	10%-30%	At
Basic Building Materials	At/above average	10-20%	10%-30%	At/Above
Non-food Retail	At/above average	10-20%	10%-30%	At
Packaged Food	At/above average	10-20%	10%-30%	At
Oil & Gas Production	Above average	10-20%	10%-30%	At/Above
Global Mining	Above average	20-40%	10%-30%	Above
Chemicals	Above average	10-20%	10%-30%	Above
Automotive Manufacturing	Above average	20-40%	above 40%	Above
Aerospace & Defence	Above average	20-40%	above 40%	At/Above
Automotive Supply	Above average	High	above 40%	Above
Technology	Above average	High	High	Above
TV Broadcasting	At/above average	Insufficient Data		Above
Steel	Above average	High	High	Above
Shipping	Above average	Insufficient Data		Above
Oil Refining	Above average	Insufficient Data		Above

Source: Fitch

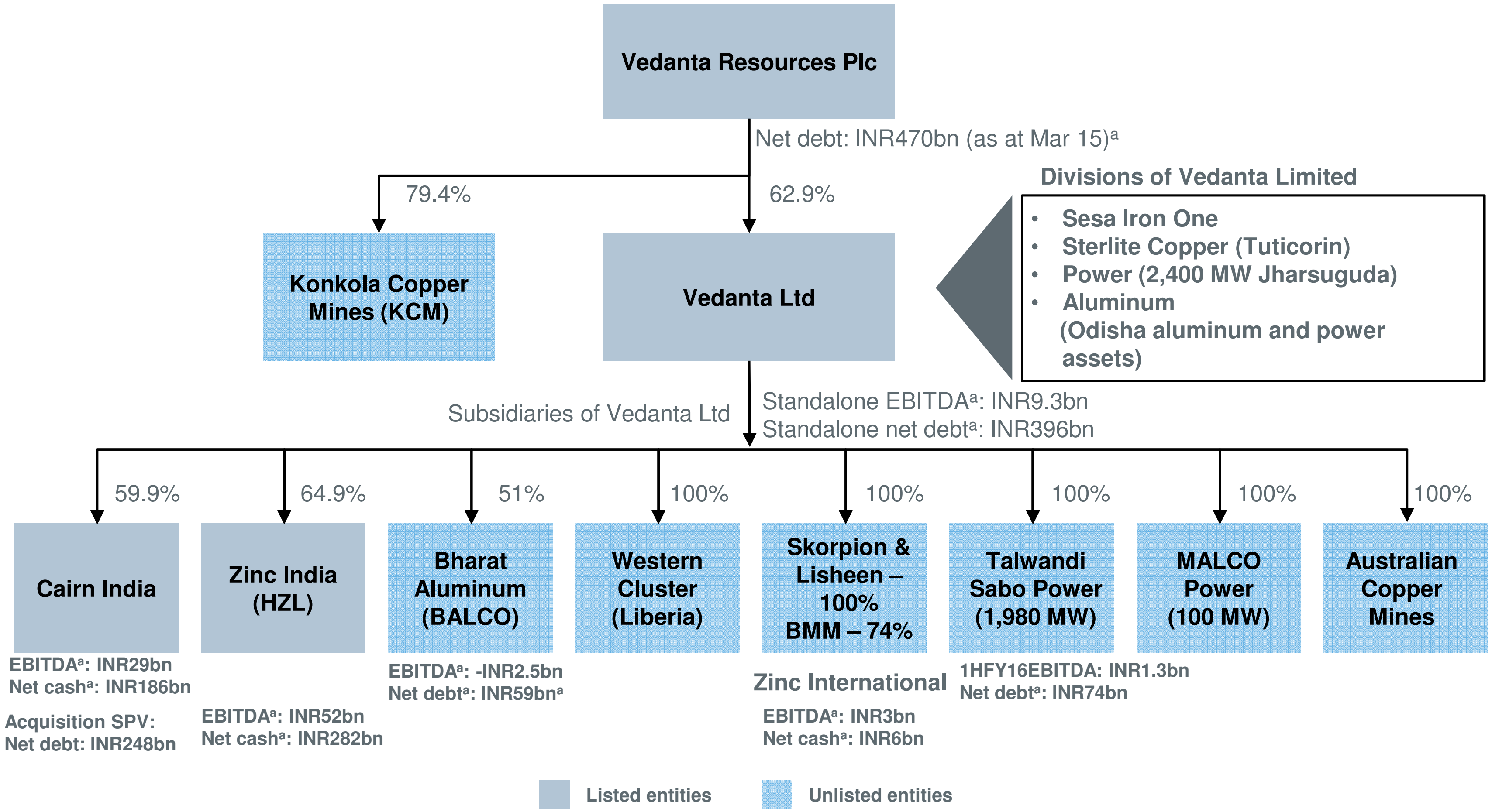
Group Linkages

LCF Outline



IR - Issuer rating ; n.a. - Not applicable
Source: India Ratings

Group Structure



Note: Shareholding based on basic share outstanding as on 31 December 2015
[a] 9m EBITDA/Net debt/Net cash at Dec 15
Source: Vedanta Limited

Case Study 1 – Vedanta Resources

Please go through the document shared and share your analysis on

i) If you had to lend to Vedanta Limited, how would you go about analysing its risks ?

ii) Would you use the consolidated approach or the standalone approach?

iii) How would you assess entities like HZL, Cairn India, BALCO, Talwandi Sabo ?

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