DUFF & PHELPS

Valuation of Stressed Assets

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The Institute of Cost Accountants of India

Content

Sections & Pages

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Section 1

Background

Key characteristics of distressed businesses

Cause
Management
Loss of key staff
Incompetence/ weak governance
Increasing tension between directors, shareholders, lenders
Failed merger/ acquisition
Operational
Production/ product quality issues
Unhappy customers/ loss of key customers
Poor financial control
Supply chain mismanagement
Stock pile up/ working capital blockage
Litigation
Funding
Over leveraging
Inappropriate financing
External
Macroeconomic pressures
Changing markets
Increasing competition

Effect
Financial Symptoms
Deteriorating financial performance
Worsening cash flow
Financial shock
Default / covenant breach

Valuation of distressed businesses

Challenge

Significant Uncertainty

Non –Availability / Reliability of Data

No/ Limited Comparables

Compressed Timing Issues

Observations

Wide Variations in Value estimates

Difficult to obtain Financing

Higher Risk

Section 2

Standard of Value

Standards of Value

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Businesses with no imminent fear of liquidation

Synergistic Value	Typically, acquisition value by a strategic buyer
Orderly Transaction in no Distress Situation	Typically, acquisition value by a financial buyer

Distressed Companies or Businesses facing liquidation

Orderly Transaction in Distress Situation (business sale)	Sale as a going concern rather than individual assets
Orderly liquidation (piecemeal basis)	Sale as individual assets where sufficient time available for transaction
Forced liquidation (piecemeal basis)	Sale as individual assets where sufficient time not available for transaction

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Liquidation Value (1/2)

Liquidation Value as per IBC

» As per section 35 (1) of the Insolvency and Bankruptcy Code, 2016 ("IBC"), "Liquidation Value is the **estimated realizable value of the assets** of the corporate debtor if the corporate debtor were to be liquidated on the insolvency commencement date".

» Further, section 35 (2) of IBC requires the valuer to determine liquidation value using **internationally accepted valuation standards**.

Liquidation Value as per other standards

» According to the International Valuation Standards ("IVS") 104, "Liquidation Value is the amount that would be realized when an asset or group of assets are sold on a **piecemeal basis**, that is without consideration of benefits (or detriments) associated with a going-concern business".

» According to the Indian Banks' Association (IBA), "Liquidation Value describes the situation where a group of assets employed together in a business are offered for sale **separately**, usually following a closure of the business".

Liquidation Value (2/2)

Orderly Liquidation

- An orderly liquidation-based value is the one that could be realized in a liquidation sale, given a **reasonable period of time** to find a purchaser (or purchasers), with the seller being compelled to sell on an "as-is, where-is basis";

- The reasonable period of time to find a purchaser (or purchasers) depends upon asset type and market conditions.

Forced Sale

- Forced sale describes a premise where a seller is under **compulsion to sell** and that, as consequence, a proper marketing period is not possible.

- The price that could be obtained in these circumstances will depend upon a number of factors such as available time for disposal, market depth, etc. It may also reflect the consequences for the seller on failing to sell within the period available.

Fair Value (1/2)

Fair Value as per IBC

- As per section 35 (1) of the Insolvency and Bankruptcy Code, 2016 (“IBC”), “Fair value” is the estimated **realizable value** if the assets were to be exchanged between a willing buyer and seller on an arm’s length basis, as on the **insolvency commencement date**.

Fair Value as per other standards

- According to the International Valuation Standards (“IVS”) 104, “Fair Value is the estimated amount for which an **asset or liability should exchange** on the valuation date between a willing buyer and a willing seller in an arm’s length transaction, **after proper marketing** and where the parties had each acted knowledgeably, prudently and without compulsion”.
- According to International Financial Reporting Standards (IFRS) 13, ”Fair Value as the price that would be **received to sell an asset or paid** to transfer a liability in an **orderly transaction** between market participants at the measurement date”.

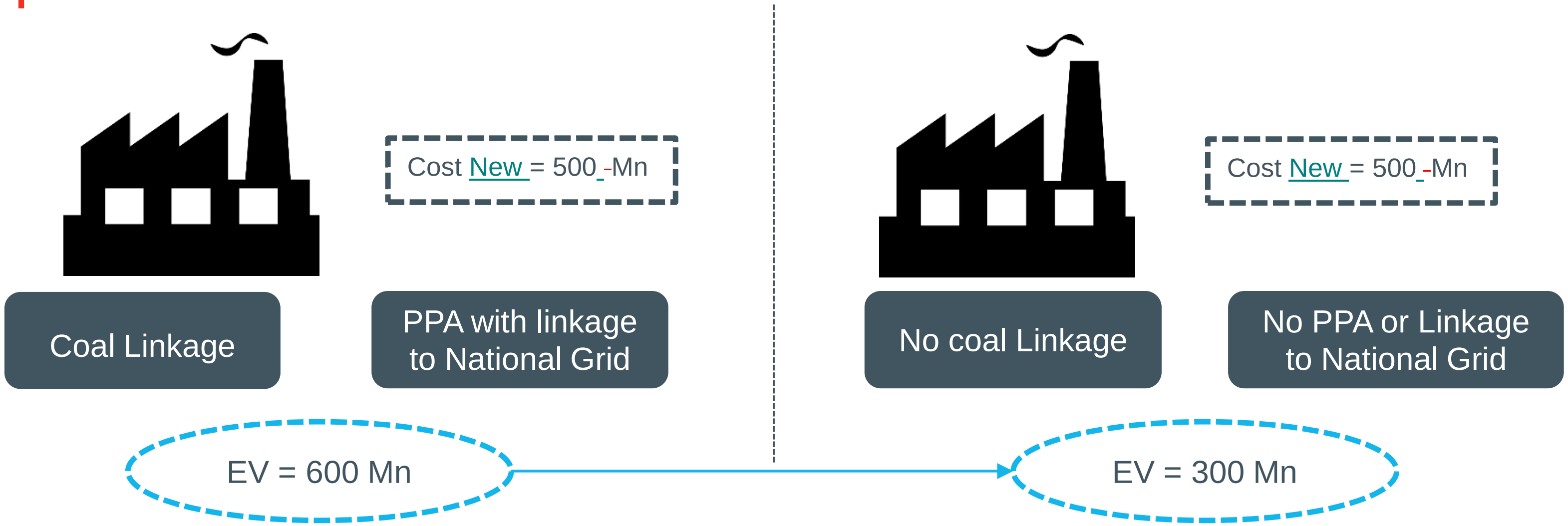
Fair Value (2/2)

Fair Value

» It is the estimated amount, expressed in terms of money, that may reasonably be expected for a property in an exchange between a willing buyer and a willing seller, with equity to both, neither under any compulsion to buy or sell, and both fully aware of all relevant facts, as of a specific date, and **assuming that the earnings support the value reported.**

» As per International Valuation Standards, to estimate the fair value of fixed assets, it is mandatory to check the existence of **economic obsolescence (EO)**, and suitably adjust the estimated Depreciated Replacement Cost ("DRC") of the fixed assets with applicable EO (if any) to arrive at the fair value. To estimate economic obsolescence, enterprise value of Company on the standalone basis is estimated using Income Approach through discounted cash flow method only if projected financial information (PFI) is made available for the analysis.

Example: Power Plants



1. There are two plants (Plant 1 & Plant 2) engaged in the generation & distribution of electricity. Plant 1 has a coal linkage agreement for supply of coal at lower than market prices and also transmits electricity directly into the national grid and has a PPA for 100% generation, whereas Plant 2 has neither of the above.

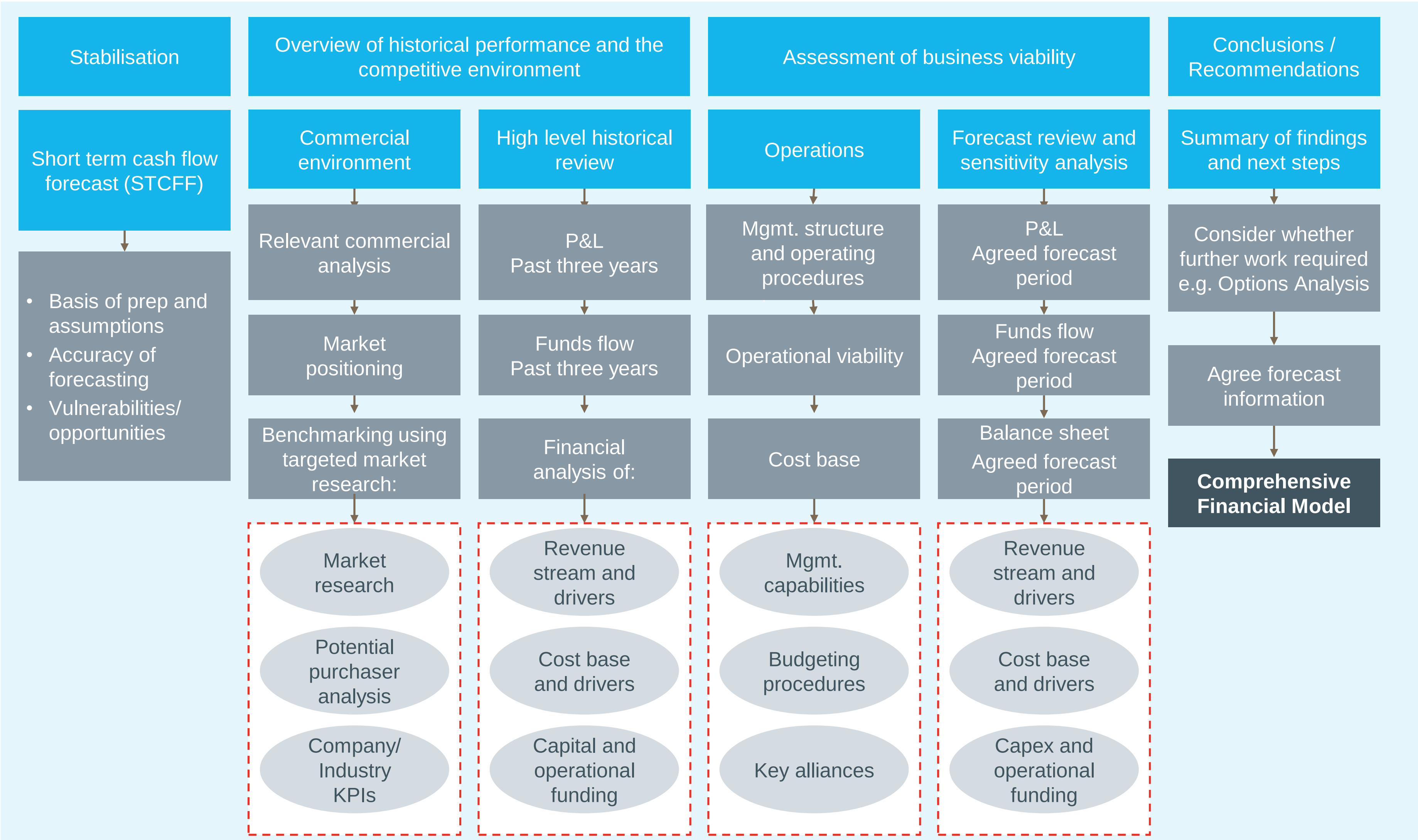
2. The two plants can be erected at the same cost (500 Mn) & have the same DRC (400 Mn). However, the EV of two plants will differ significantly due to the following reasons:

   - Coal linkage agreement will provide access to cheaper coal to Plant 1. This will lead to cheaper costs of production for Plant 1 as compared to Plant 2, resulting in higher net cash flows and EV.
   - PPA with direct linkage to national grid provides the Plant 1 with an option to generate electricity continuously as the demand is not a constraint. This provides higher revenues & benefits of economies to scale to Plant 1. Higher revenue & lower costs will lead to higher EV for Plant 1.

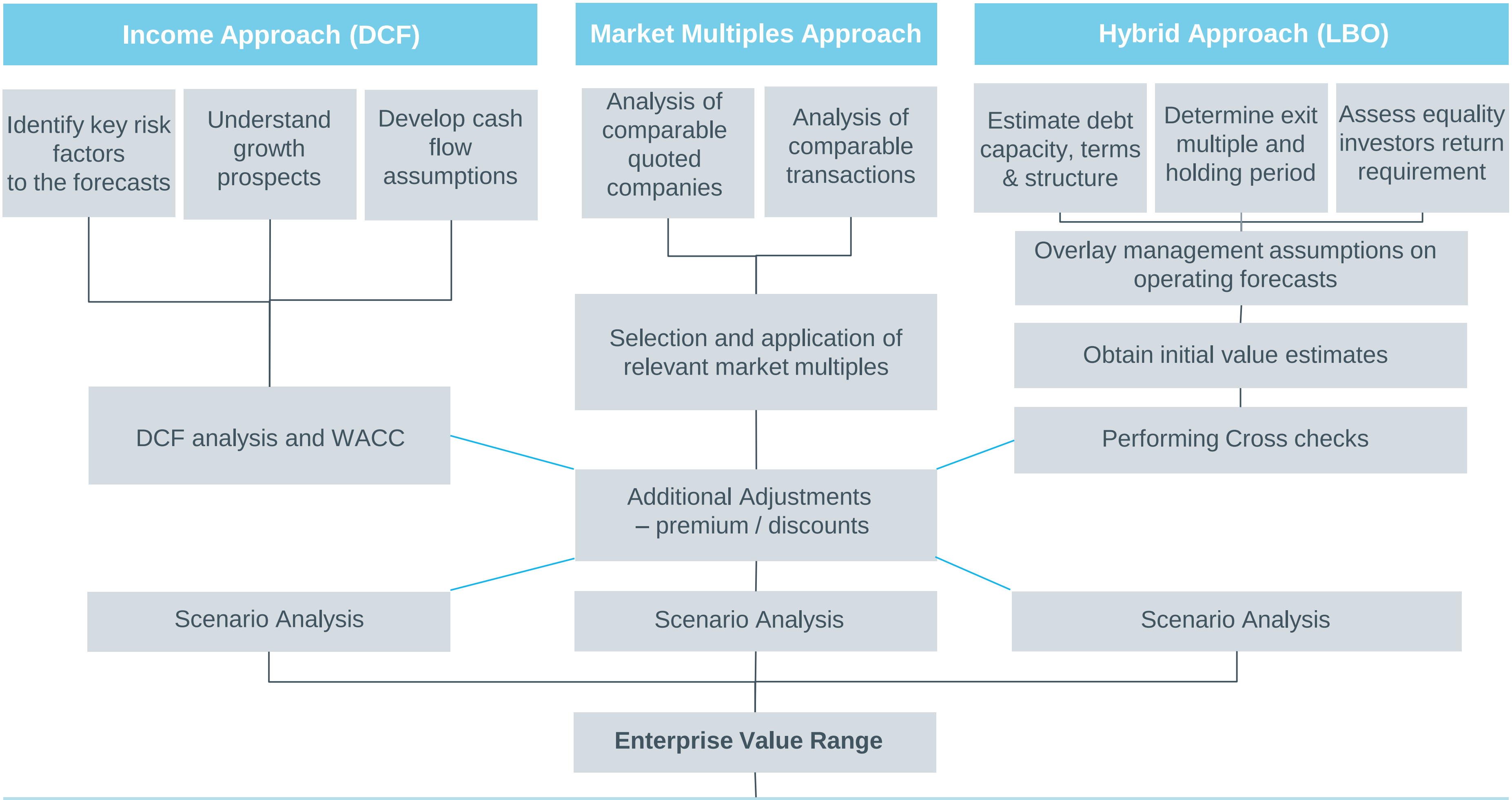
3. Plant 1's EV (600 Mn) turns out to be higher than its DRC (400 Mn), and hence, there will be no economic obsolescence. In case of Plant 2, the EV (300 Mn) is lower than DRC (400 Mn) resulting in an economic obsolescence (400 Mn – 300Mn = 100 Mn) and lower fixed asset value.

Hence, Fair Value could be lower than the estimated DRC in situations of economic obsolescence.

Understanding Financial Position and Performance: Comprehensive Financial Model



Estimation of Enterprise Value



Enterprise Value Range is generally computed using a combination of Income, Market Approach, and Hybrid Approach depending upon availability of reasonable information. A scenario analysis is typically carried out to test the sensitivity of the key business drivers and to estimate the risk assumed in the underlying value

Enterprise Value Analysis

Enterprise Value ("EV") can be defined as the value of the entire business representing the total value attributable to both debt holders and equity shareholders.

Steps in Enterprise Value analysis

Key Inputs:

- Historical Financial Statements
- Techno Economic Viability Study
- Comprehensive Financial Model

Analysis:

- Income approach (DCF)
- Market approach
- Hybrid approach (LBO)

Scenario Analysis

Upside Scenario:

- Recovery in Prices
- Completion of on-going capex
- Decrease in cost of capital, etc.

Downside Scenario:

- Drop in Prices
- Low volume growth
- Increase in cost of capital, etc.

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Optimistic Case EV

Base Case EV

Pessimistic Case EV

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Section 3.1

Valuation of Tangible assets

Cost New Estimation

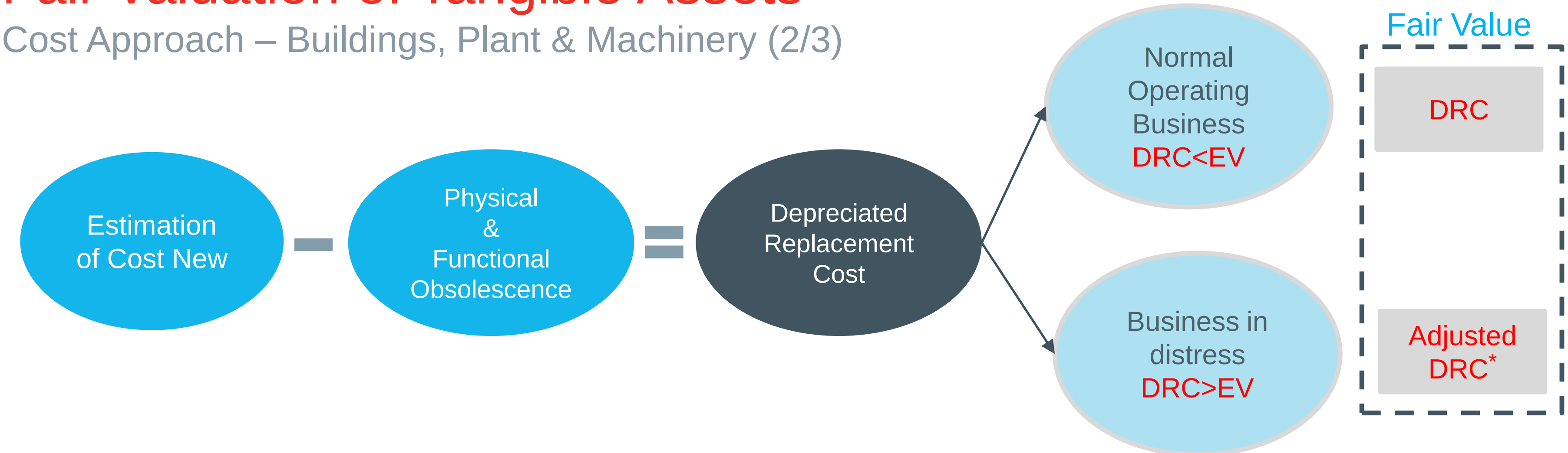
Cost Approach – Buildings, Plant & Machinery (1/3)

Estimation of Cost New

- **Reproduction Cost New**
  - It is the cost to reproduce the asset in like kind to obtain an asset that is nearly an exact duplicate of the subject asset.
- **Replacement Cost New**
  - It is the theoretical cost of current labor and materials necessary to construct or acquire a new asset of similar utility to the subject asset.

Fair Valuation of Tangible Assets

Cost Approach – Buildings, Plant & Machinery (2/3)



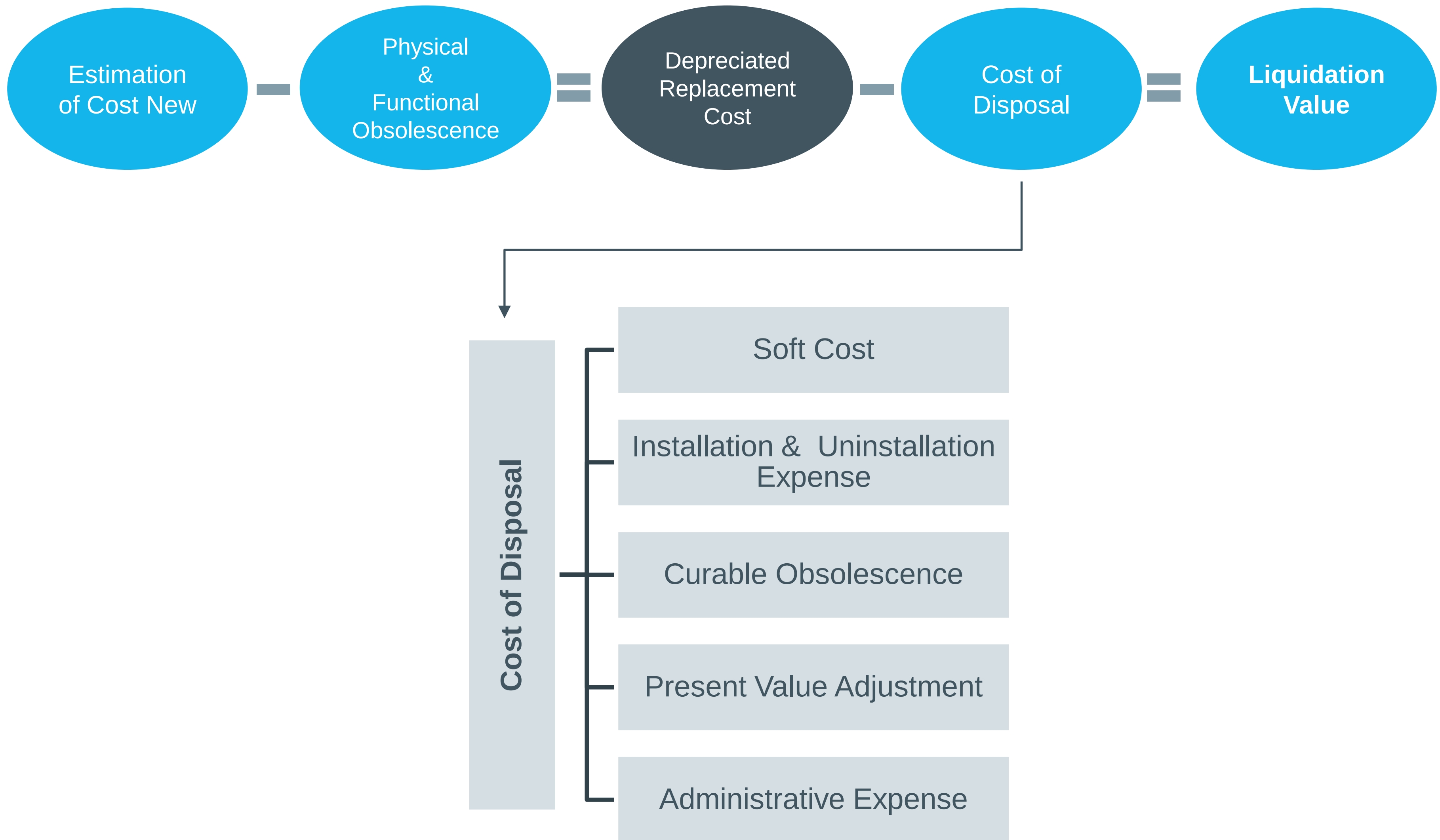
* Adjustment for Economic Obsolescence

Estimation of Fair Value

- The cost new of an asset is estimated by reproduction and/or replacement cost method. This cost new is further adjusted for physical deterioration and functional obsolescence, in addition to Economic Obsolescence (EO), as applicable. The value concluded after such adjustments, can be referred to as fair value ***(i.e. Fair Value = DRC – EO)***.
- Economic Obsolescence is derived using the Income Approach and/or the Market Approach and compared with the DRC of the business / plants on a going concern basis and concluding on the lower of the two values. ***In other words, if the DRC of a certain plant is higher than its EV, its fair value cannot be more than the value of the future cash flows it can generate.***

Tangible Assets - Liquidation Value Estimation

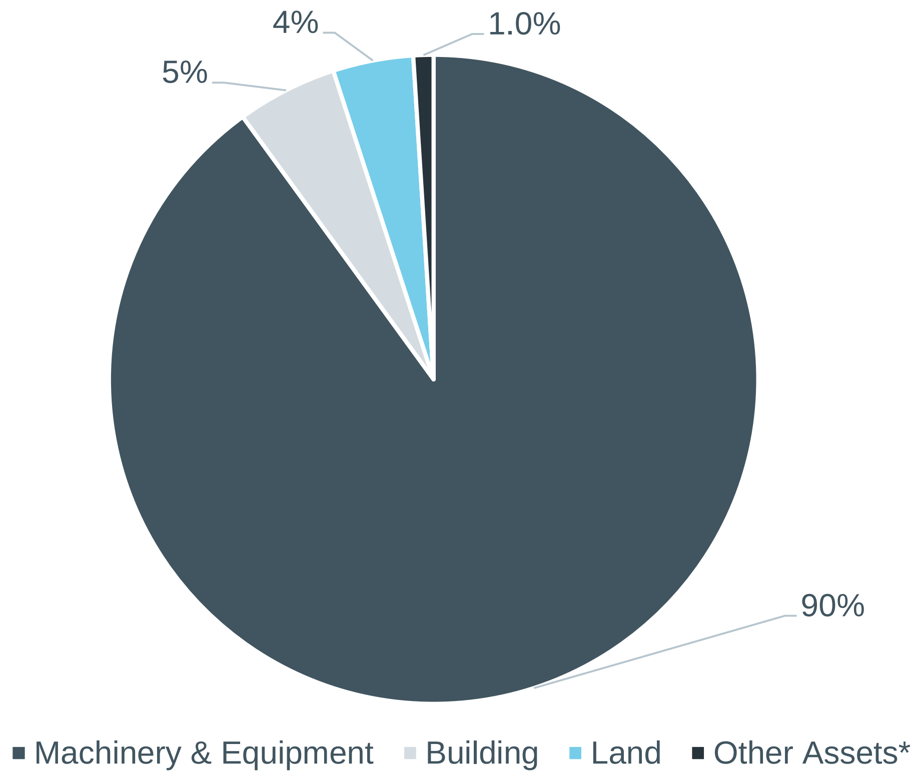
Cost Approach – Buildings, Plant & Machinery(3/3)



Section 3.2

Case Study - Liquidation valuation of a Steel Plant

Investment Cost Break-up (1/8)



Types of Tangible Assets

1) Machinery & Equipment
2) Building
3) Land
4) Other Assets

** Other assets includes - Computer & IT Equipment, Furniture & Fixture, Office Equipment, Vehicles*

Cost Benchmarking (2/8)

Benchmark Cost Range for Flat Product

INR 6,500 Crs. per MTPA

Estimated Cost New

~ INR 6,300 Crs. per MTPA

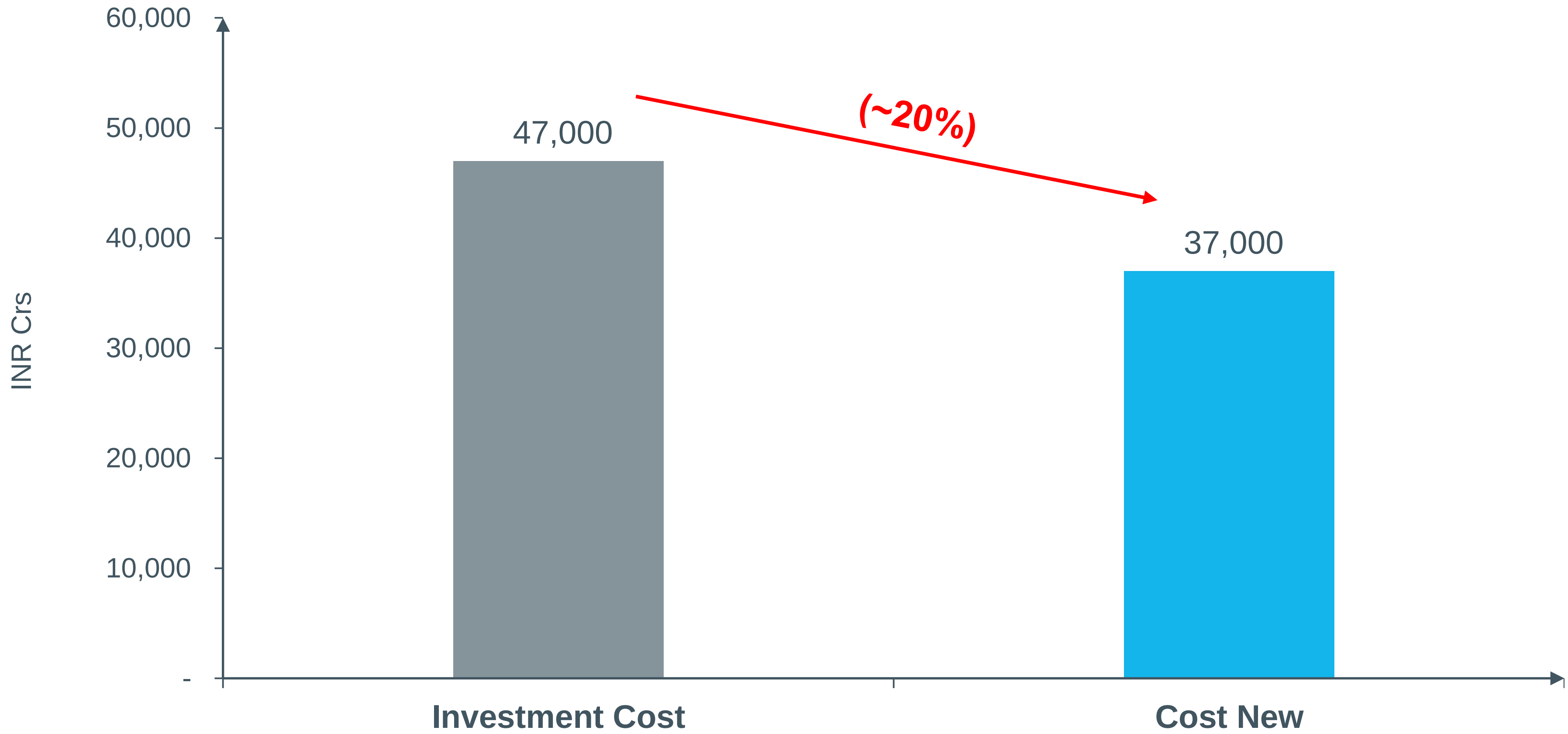
Major Units

- Raw Material Handling
- Beneficiation plant
- Pellet plant
- Sinter plant
- Blast Furnace
- Direct Reduced Iron (DRI)
- Steel Melt Shop
- Casters
- Mill - Hot/Cold Strip Mill
- Utilities & Other Assets

Units beyond benchmark cost

- Captive Power Plant
- Pipe Mill
- Cold Rolling Mill Complex

Investment vs Cost New - Machinery & Equipment (3/8)



Reasons for difference in value:

- Delay in plant commissioning
- Capitalization of forex exchange fluctuation
- Other unknown factors

Sample Check by Market Approach (4/8)

Sample Working – Hot Strip Mill

Reproduction Cost
INR 6,500 Crs.

Replacement Cost
INR 4,600 Crs.

Concluded Cost New
INR 4,600 Crs.

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DRC – 1,800 Crs
Cost of Disposal – 30% to 40%

1) *Physical Obsolescence*
2) *Functional Obsolescence*
3) *Cost of disposal (soft, installation, cost to remove, cost to cure, admin expenses and liquidation discounts)*

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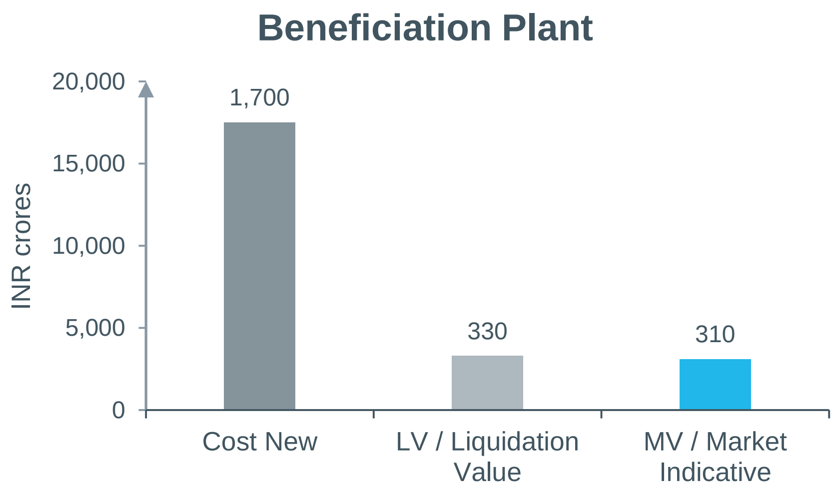
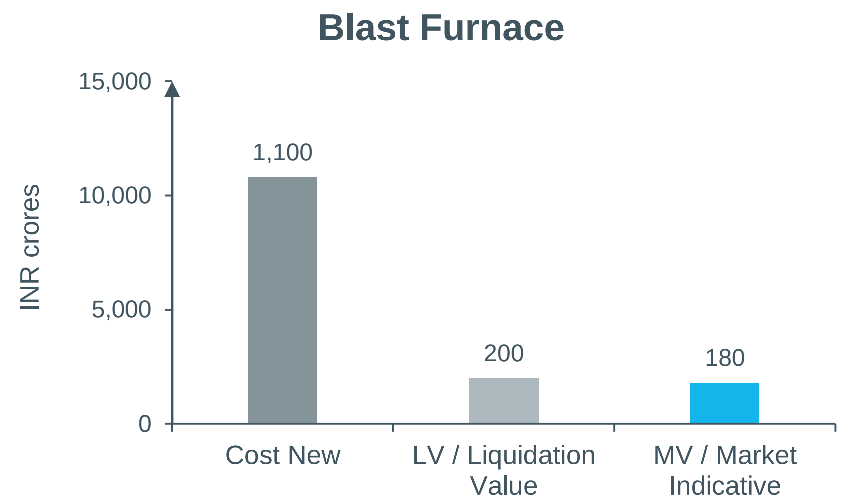
Value In Exchange/ Liquidation Value
INR 700 Crs.

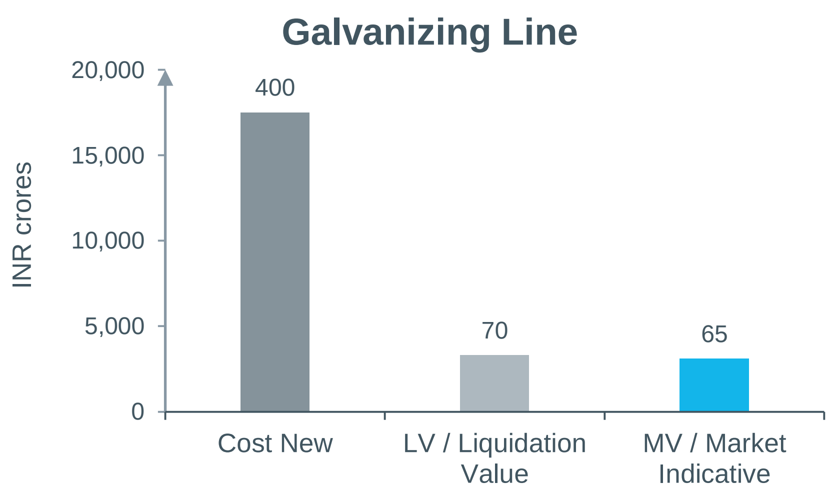
Market Indicative
INR 650 Crores.
(Budgetary - Subject to negotiation)

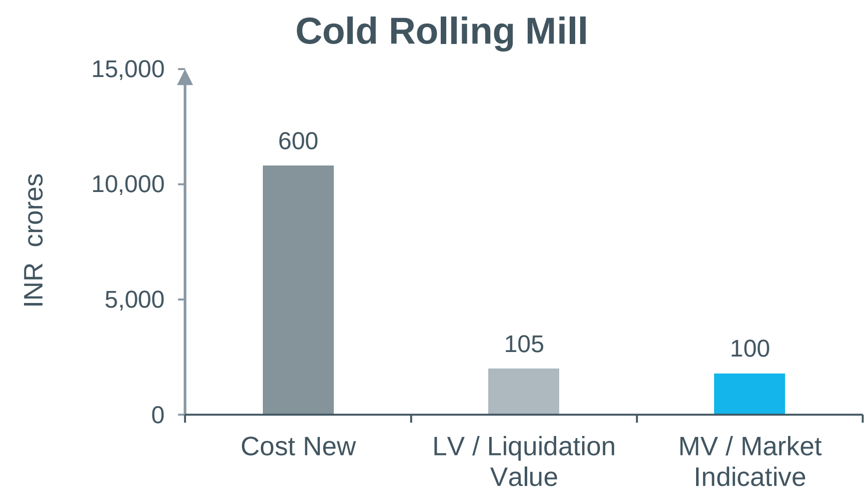
Concluded Liquidation Value
INR 700 Crores

Other Sample Checks by Market Approach (5/8)

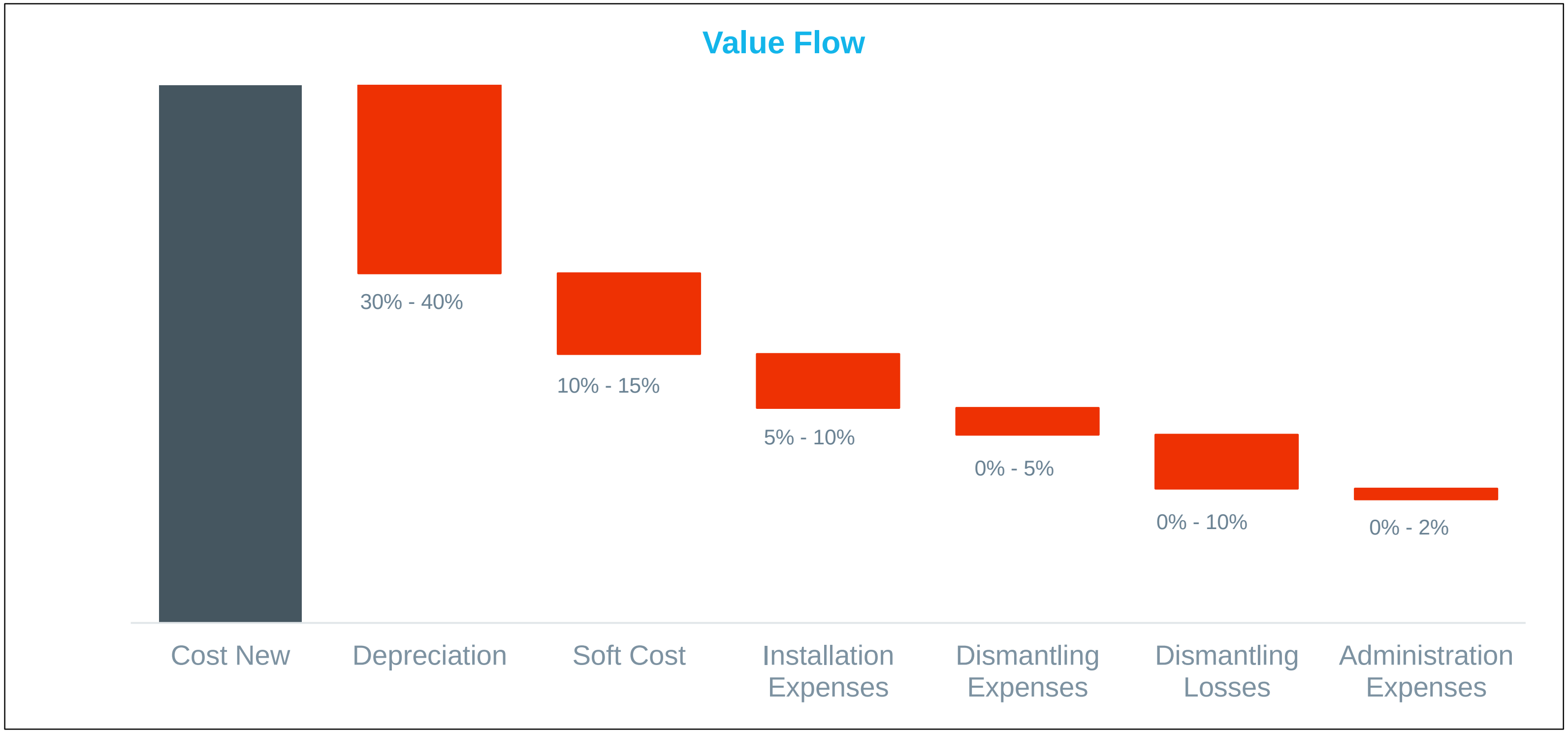




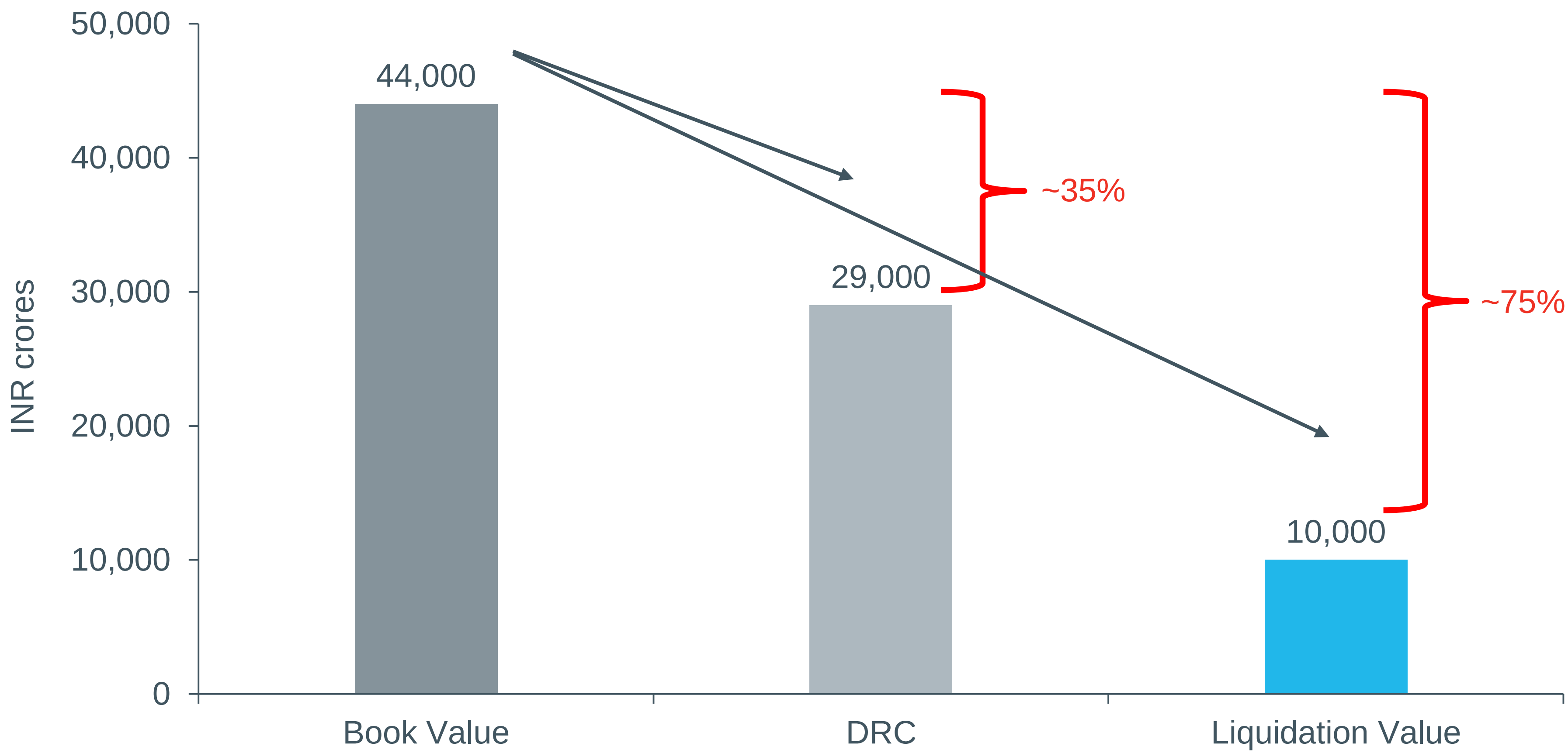




Other Sample Checks by Market Approach (6/8)



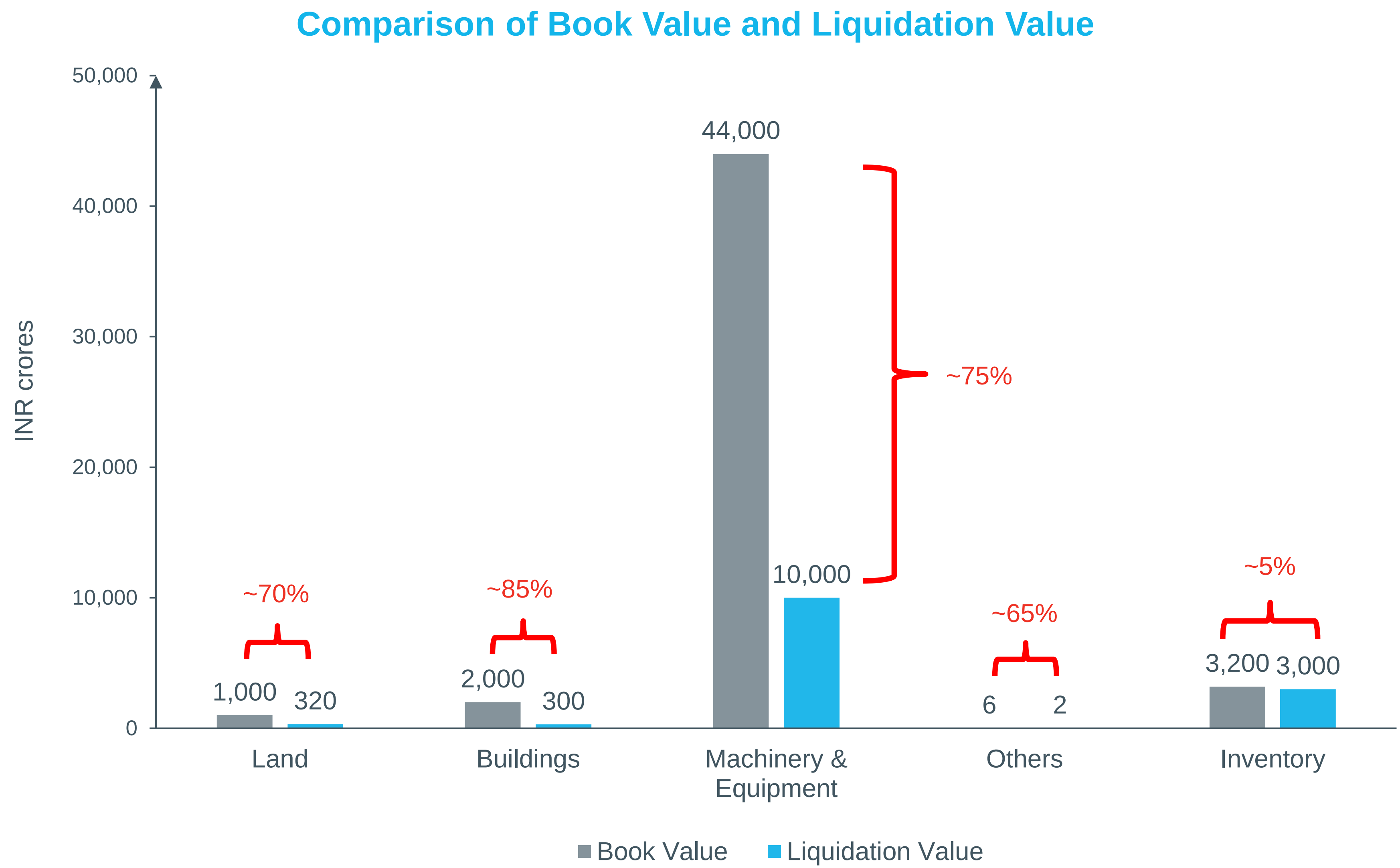
Value Comparison – Machinery & Equipment (7/8)



Key Points:

- Depreciated Replacement Cost is ~35% less than the Book value of asset in case of Machinery
- Liquidation value is ~75% less than the Book value of asset in case of Machinery

Fixed Asset Summary (8/8)



Section 3.3

Valuation of Other Assets

Trade Receivables

Other Assets (1/3)

Provisioning criteria	Category	Adjustment factor
Expected Credit Loss analysis	0 < Due < 365	Category-wise provision matrix in line with the ECL analysis of comparable companies.
All dues over 365 days	Due > 365	(i) 100.0 percent provision due to uncertainty associated with recovery from these customers. (ii) Percentage provision in line with the ECL analysis of comparable companies.
Cases of Bad debt	Overall	100.0 percent provision considered for bad debts outstanding under both liquidation and going concern scenario.
Ongoing Legal Cases & NCLT cases	Overall	100.0 percent provision considered due to uncertainty associated with recovery from these customers.
Debtors with less than INR 0.1 Mn balance	Various Categories	(i) Recoverability from the debtors amounting to less than INR 1 lac considered to be Nil giving cognizance to the time and efforts required for such recovery in case of liquidation scenario. (ii) Recoverability from the debtors amounting to less than INR 1 lac considered as realizable in case of going concern scenario.

Illustrative ECL analysis

Age brackets (in days)	0-30	31-60	61-90	91-120	121-150	151-365	>365
Third Party	0.0%	0.0%	1%	3%	4%	20%	100.0%
Related Party	0.0%	0.0%	2%	6%	7%	40%	100.0%

Note: For the purposes of illustration, we have used the provision matrix of a listed comparable company.

Inventories

Other Assets (2/3)

Inventories

Asset Class	Typical Approach	Remarks
Raw Material & Raw Material-In-Transit	Net Realizable Value (NRV)	• For Raw Material, the value of raw material items are based on net realizable value/ current rates prevailing in the market, adjusted for any raw material stored in non-saleable condition.
Work in Progress (WIP)	Net Realizable Value	• For Work in progress, the value of WIP inventory is based on the net realizable value/ current rates prevailing in the market of the respective item, which is adjusted with cost-to-complete and the profit margins.
Finished Goods	Net Realizable Value	• For Finished Goods, the value of finished goods is based on the net realizable value/ current rates prevailing in the market, which is adjusted with the profit margins.
Stores & Spares	Net Realizable Value	• For Stores & Spares items, the value of stores and spares is based on recoverable value of the stores and spares keeping in view the nature of each item and its marketability.
Scrap	Cost Approach – Book Value	• For Scrap, the book value is tested for consistency with the applicable scrap rate prevailing in the market at the time, and accordingly adjusted keeping in view the nature of each item and its marketability.

Key Points:

- Under Liquidation Scenario, freight/ transportation cost as a percentage of sales is considered based on high level industry benchmarking to calculate the higher end of Liquidation Value.
- Further, a discount of 5-10 percent is considered (wherever applicable) to calculate the lower end of Liquidation Value.

Investments

Other Assets (3/3)

Income Approach

The value is developed on the basis of capitalization of the net earnings that would be generated if a specific stream of income can be attributed to an asset or a group of assets.

- Income Capitalisation
- Discounted Cash Flow

This is mainly the primary approach in valuing the investment interest.

Market Approach

The value of the appraised asset is estimated through an analysis of recent sales/ transactions of comparable items.

- Comparison Method

This is the secondary approach in our analysis and may be applied as a reasonability test in case of 'Value in Use' premise.

Cost Approach

The value is determined through fair market value of all the assets and liabilities present on the balance sheet of the subject entity and calculating the net book value.

- Net Asset Value Method

Incase of the identified assets of investment interest are non-operating in nature, this approach may be applied.

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About Duff & Phelps

Duff & Phelps is the premier global valuation and corporate finance advisor with expertise in complex valuation, disputes and investigations, M&A, real estate, restructuring, and compliance and regulatory consulting. The firm's more than 2,000 employees serve a diverse range of clients from offices around the world. For more information, visit www.duffandphelps.com.

Appendix 2

About Duff & Phelps

Duff & Phelps

Duff & Phelps is the global advisor that protects, restores and maximizes value for clients in the areas of valuation, corporate finance, investigations, disputes, cyber security, compliance and regulatory matters, and other governance-related issues. We work with clients across diverse sectors, mitigating risk to assets, operations and people.

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S&P 500

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1000+
PROFESSIONALS

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500+
PROFESSIONALS

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73% of Fortune 100 companies

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72% of the 25 largest private equity firms in the PEI 300

68% of the 25 largest hedge funds in the Alpha Hedge Fund 100

70% of top-tier private equity firms in 2017

WE RANK

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#1 Global Fairness Opinion Provider[1]

#4 U.S. Middle Market M&A Advisor over the past 5 years[2]

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Best Cyber Security Services Provider – HedgeWeek 2018

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Best Corporate Investigations Provider – NLJ 2018

Best Data Security Provider – NLJ 2018

Best Managed IT Services Provider – NLJ 2018

Best Global Risk and Investigations Consultant – NLJ 2018

Thought Leader in Digital Forensics, Arbitration and Investigations – Who's Who Legal 2018

Forrester **Wave Leader** Customer Data Breach Notification and Response Services – 2017

1. Source: Published in Thomson Reuters' "Mergers & Acquisitions Review - Full Year 2017."
2. Source: Thomson Financial Securities Data (U.S. deals $75M < $225M, including deals without a disclosed value). Full years 2013 through 2017.
3. Source: Who's Who Legal 2018: Forensic and Litigation Consulting.
4. Source: 2018 IAM

Enhancing Value Across a Range of Expertise

VALUATION ADVISORY

Valuation and consulting for financial reporting, tax, investment and risk management purposes

- Valuation Services
- Alternative Asset Advisory
- Real Estate Advisory
- Tax Services
- Transfer Pricing
- Fixed Asset Management and Insurance Solutions

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Objective guidance to management teams and stakeholders throughout restructuring, financing and M&A transactions, including independent transaction opinions

- M&A Advisory
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- Solvency Opinions
- Transaction Advisory
- ESOP and ERISA Advisory
- Commercially Reasonable Debt Opinions
- Distressed M&A and Special Situations

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- Disputes
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- Security Risk Management
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- Financial projections and transaction modeling

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- Financial due diligence
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- Accretion/Dilution analyses
- Carve-out analyses
- Solvency opinions
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- Tax valuations

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- Sell-side due diligence

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- Dispute analysis/litigation support
- Post acquisition disputes
- Shareholder disputes
- Expert witness testimony

Our Services

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Transfer Pricing
Business Valuation
Fresh Start Accounting
Complex Securities Valuation
Strategic Value Advisory
Machinery and Equipment Valuation

Alternative Asset Advisory
Portfolio Valuation
Complex Asset Solutions
Secondary Market Advisory Services

Real Estate Advisory
Real Estate Valuation and Consulting
Real Estate Restructuring
Loan Services/Debt Advisory
Lease Renegotiation
Right of Way Appraisal
Cost Segregation
Property Asset Management and Optimization
Transaction Due Diligence

Fixed Asset Management and Insurance Solutions
Property Insurance Appraisal
Fixed Asset Inventory and Reconciliation
IT Fixed Asset Inventory Services
Fixed Asset Componentization
Property Record Outsourcing

CORPORATE FINANCE

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ESOP and ERISA Advisory
Transaction Advisory Services
Financial Sponsors Group
Distressed M&A and Special Situations
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Fairness Opinions
Solvency Opinions
ESOP and ERISA Advisory
Commercially Reasonable Debt Opinions

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Appraisal Institute

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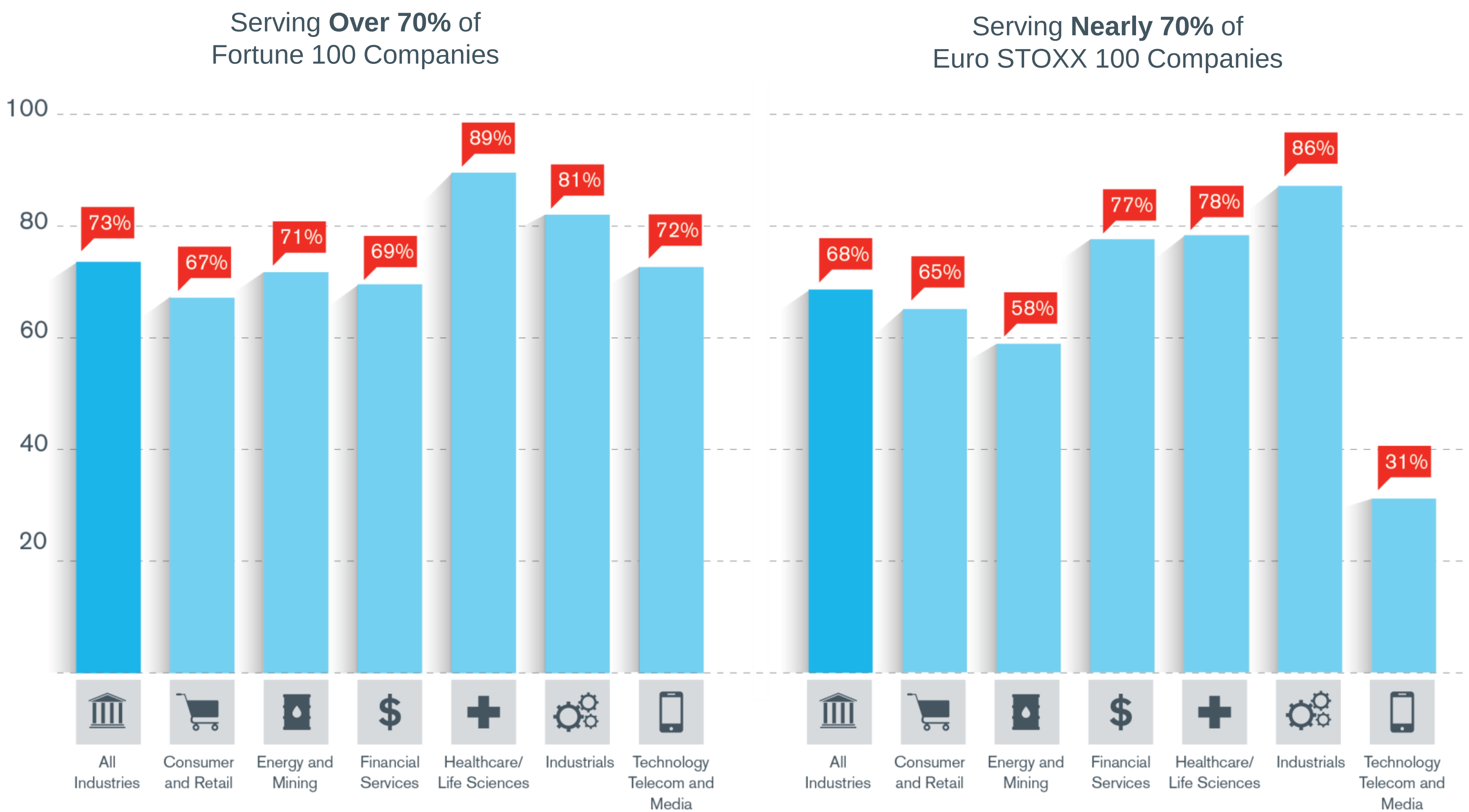
Industry Expertise



Merchant Banking Services

Duff & Phelps India Private Limited is a SEBI Registered Category I Merchant Bank.

We can provide Fairness Opinions as well as valuation services in compliance with any of the following policies/ Acts:

Merchant Banking services provided by Duff & Phelps

Companies Act 2013 Compliance Requirements

Investing in other companies using share swaps

Preferential issue of shares

Providing exit to minority shareholders

Issuing sweat equity or shares for non-cash consideration

Income Tax Act Compliance Requirements

Indirect transfer of assets from foreign companies (compliance with Section 9 of IT Act)

Transactions in unquoted shares, required to comply with Section 56 of the IT Act – ESOP Valuations

SEBI Compliance Requirements

Merger or demerger transaction

Delisting of public companies

Transactions in REIT and InvIT assets

Share acquisition of infrequently traded listed entity

Buyback or capital reduction

FEMA/ RBI Compliance Requirements

Issue or transfer of shares between resident and non-resident shareholders

Issue of shares to person(s) resident outside India