

BDM CAPSTONE PROJECT



FINANCIAL RESILIENCE ASSESSMENT AND RISK MITIGATION FOR A FLEET-BASED TRANSPORT BUSINESS

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Organization Background

- Shree Swami Samarth Travels
- B2B fleet operator (buses & cars)
- 77 vehicles
- Mumbai, Thane, Navi Mumbai
- 36 corporate & government clients

Problem Statement



Ineffective monitoring of credit exposure and EMI obligations



High revenue concentration among few clients



GST compliance risk due to data inconsistencies

DATA & METHODOLOGY

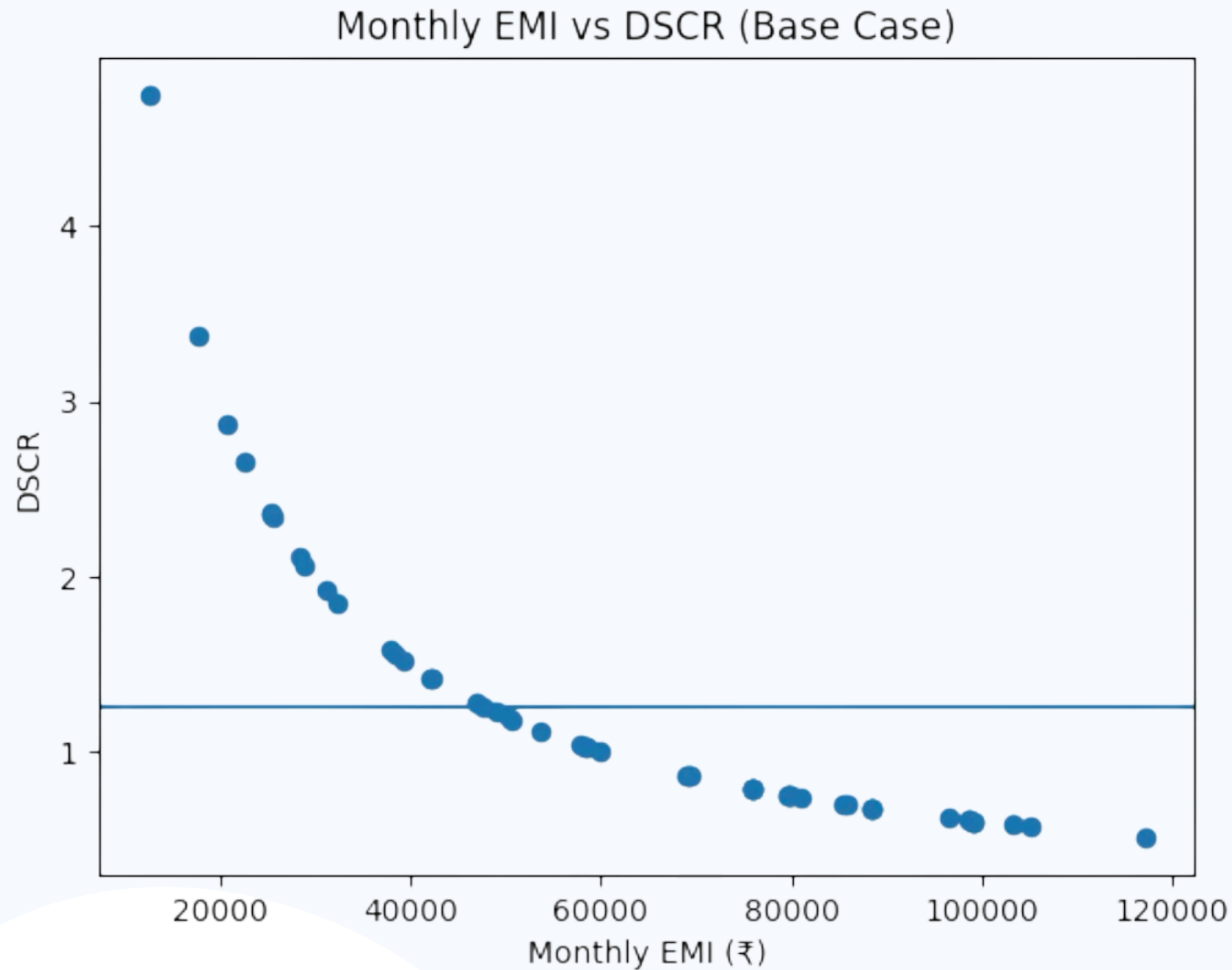
Sales & Invoice Dataset (6 Months)

| Data | Method | Tool |
|--|---|--|
| <ul style="list-style-type: none">• 515 invoices• ₹6.63 Cr revenue• GST input-output | <ul style="list-style-type: none">• Pareto & ABC analysis• HHI concentration• GST anomaly detection | <ul style="list-style-type: none">• Python (grouping & aggregation)• Time-series analysis & visualization |

Fleet Dataset (April 2010 → June 2025)

| Data | Method | Tool |
|---|--|---|
| <ul style="list-style-type: none">• 77 vehicles• EMI & financing details | <ul style="list-style-type: none">• DSCR calculation• Scenario stress testing | <ul style="list-style-type: none">• Python (ratio computation)• Threshold-based risk tagging |

DSCR vs EMI Analysis

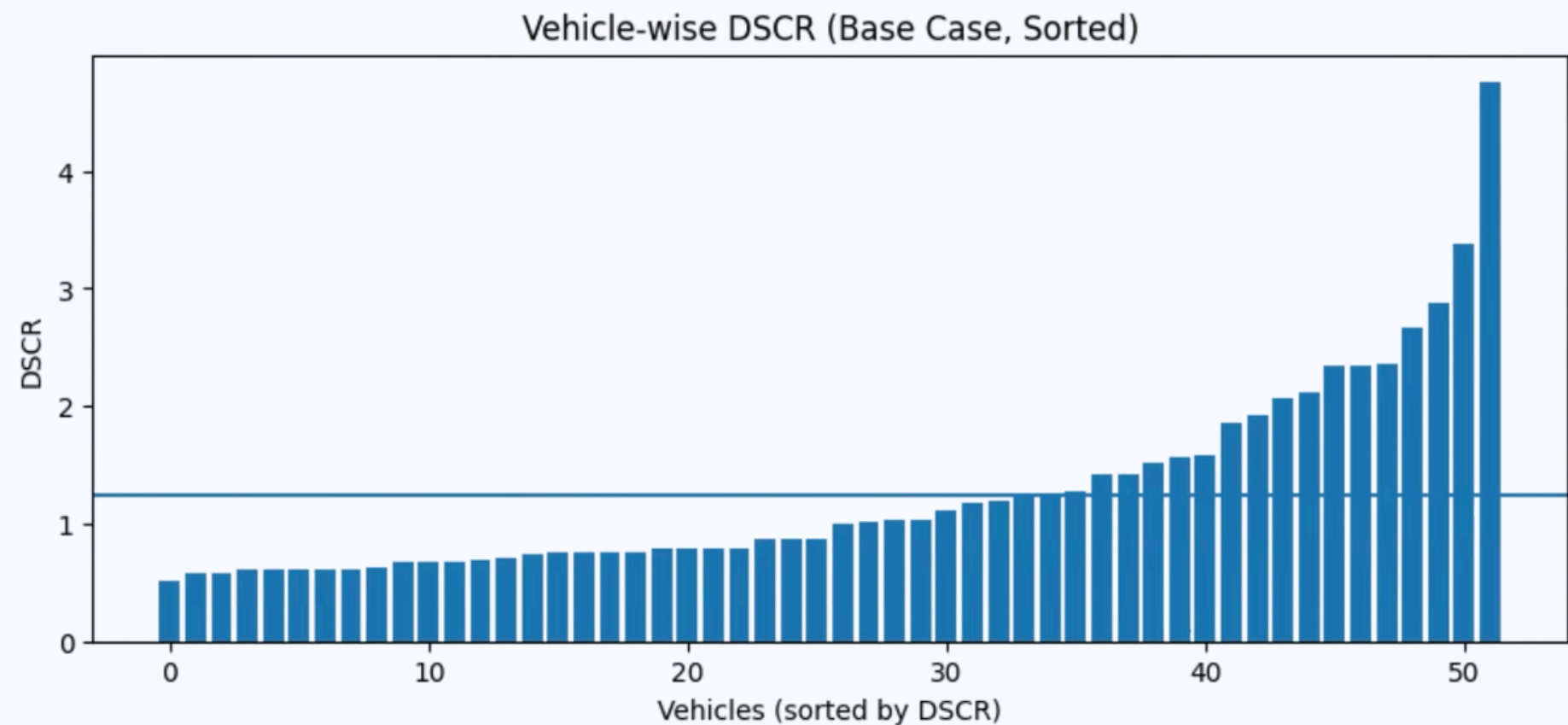


- Higher EMI → Lower DSCR
- Low EMI vehicles mostly safe (>1.25)
- High EMI vehicles below threshold
- Stress driven by financing structure

Insight:

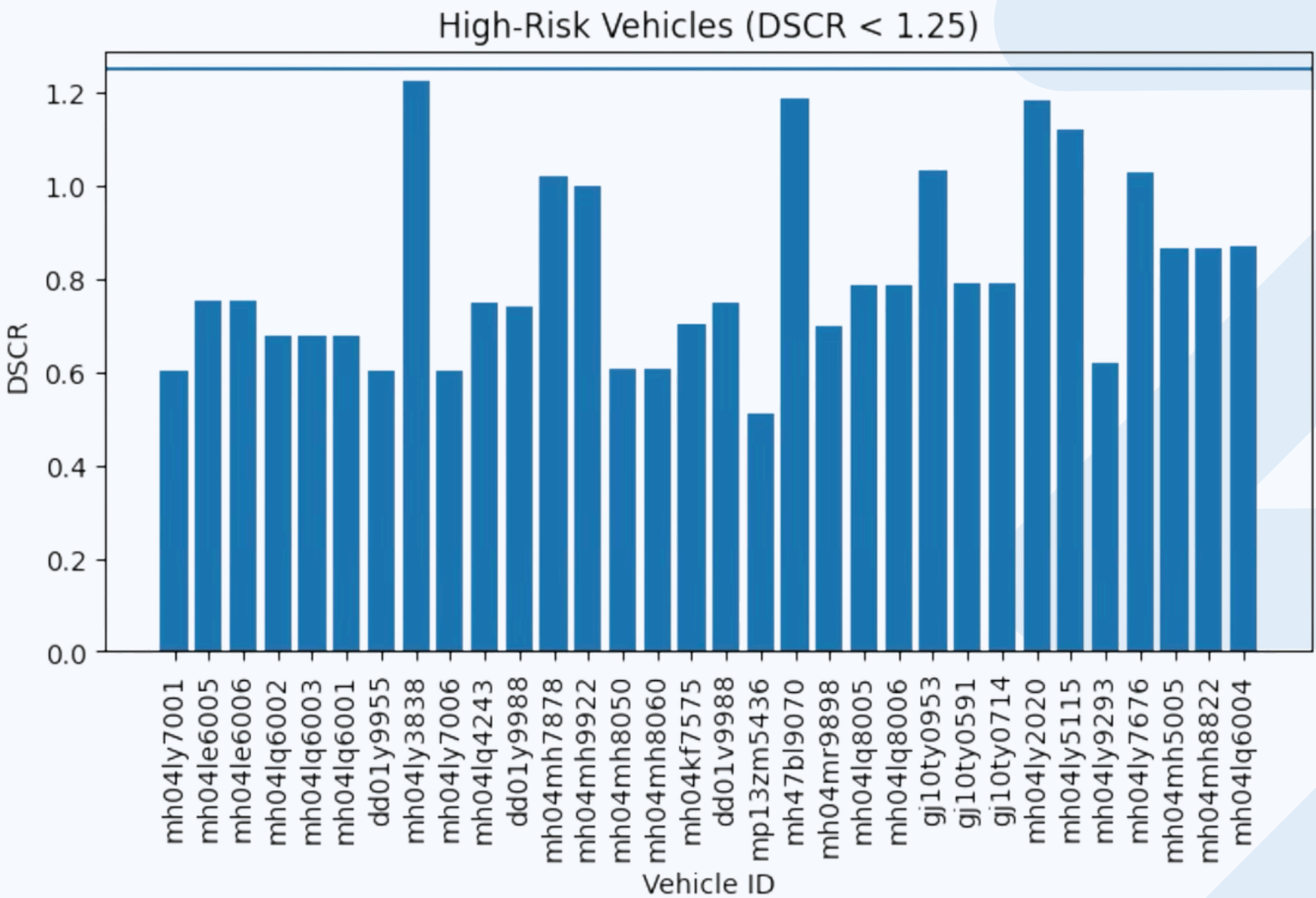
High EMI vehicles consistently show lower DSCR, proving that repayment stress is driven by financing burden rather than operational revenue.

Vehicle-wise DSCR



DSCR safety threshold = 1.25

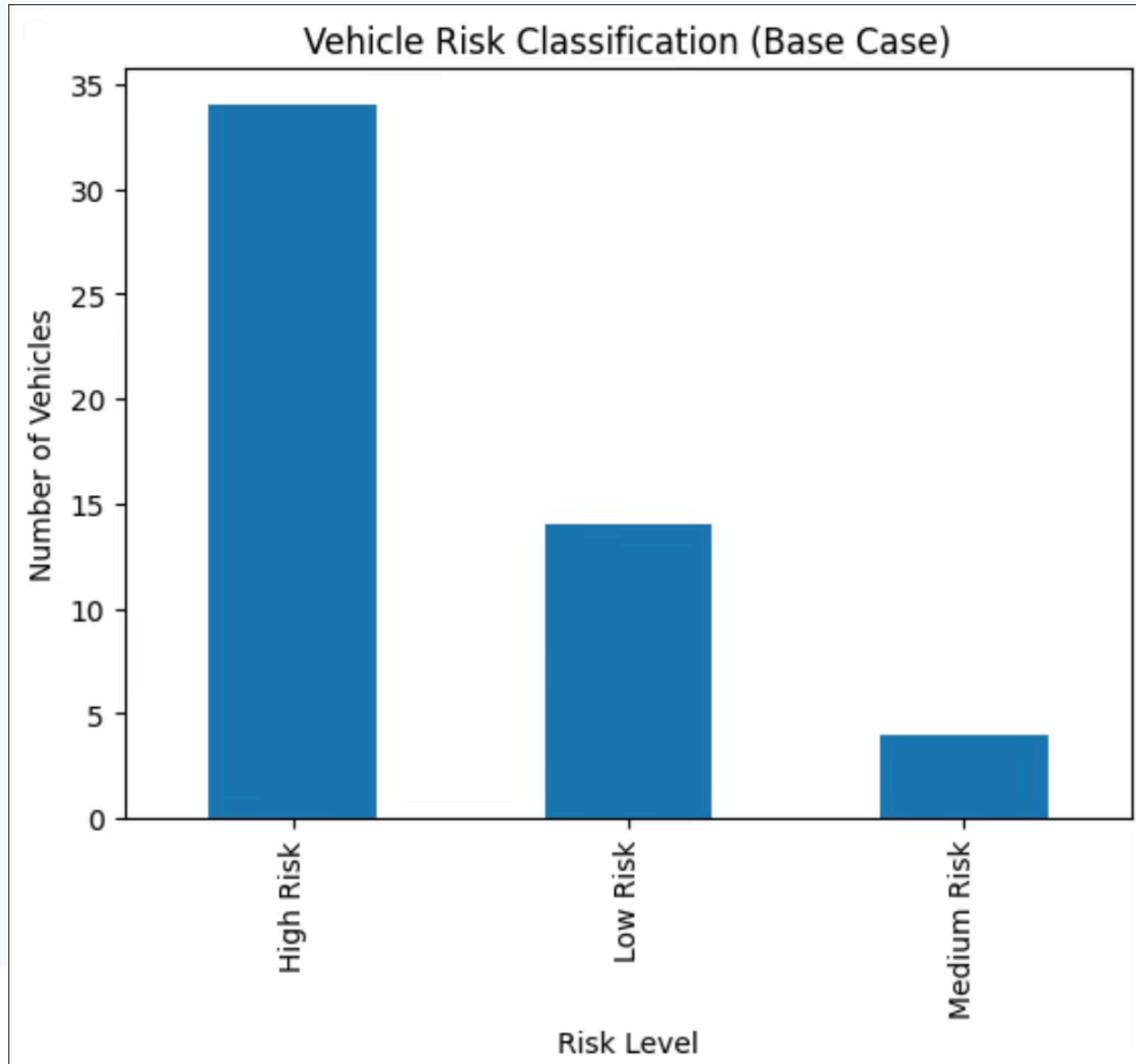
High Risk Vehicles



Insight:

DSCR by vehicle shows a significant portion of the fleet is concentrated in the vulnerable coverage range.

Risk Classification

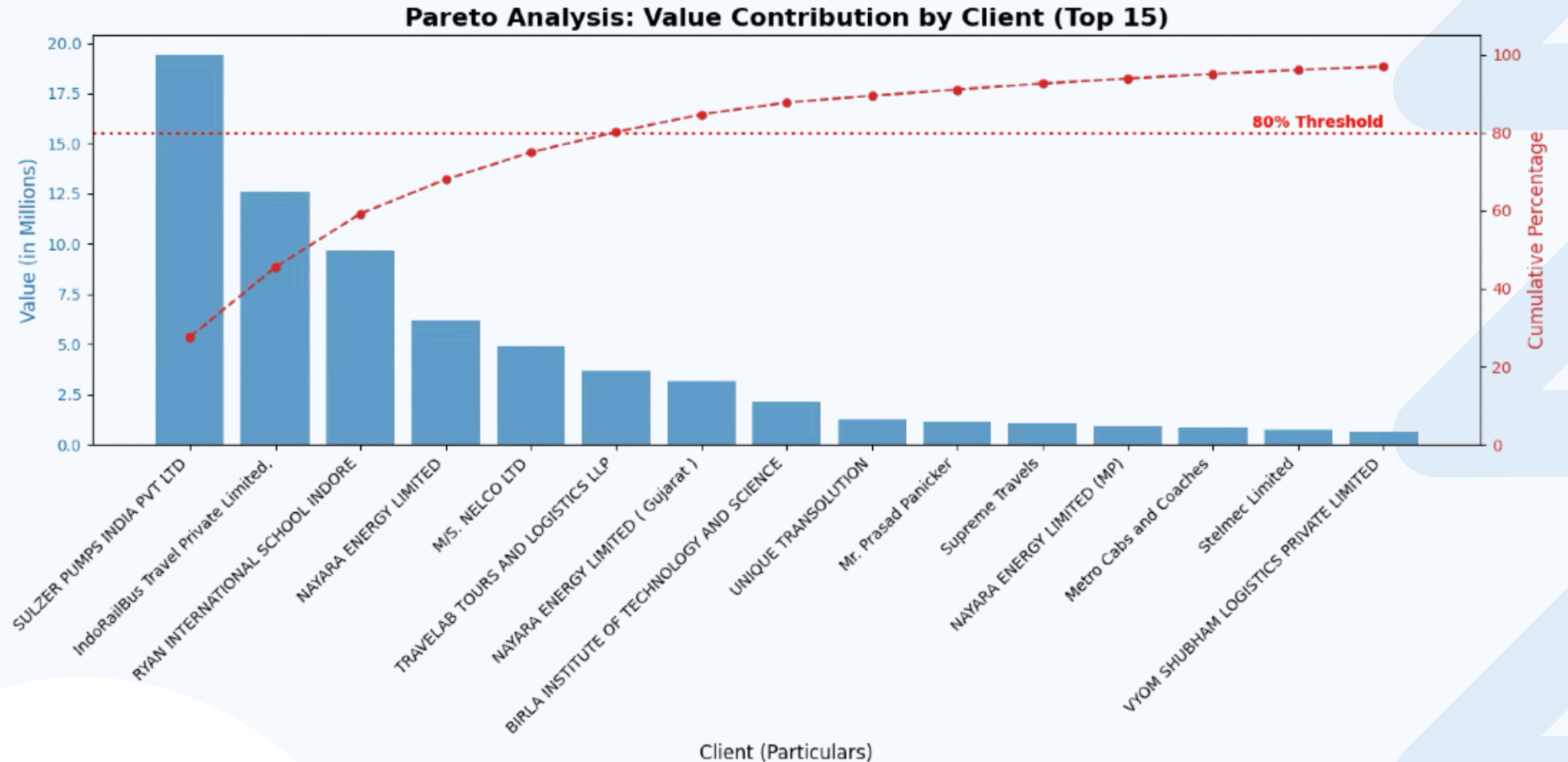


- 44% vehicles in high-risk zone
- Limited vehicles maintain safe coverage
- Majority clustered near critical threshold
- Indicates weak repayment buffer across fleet

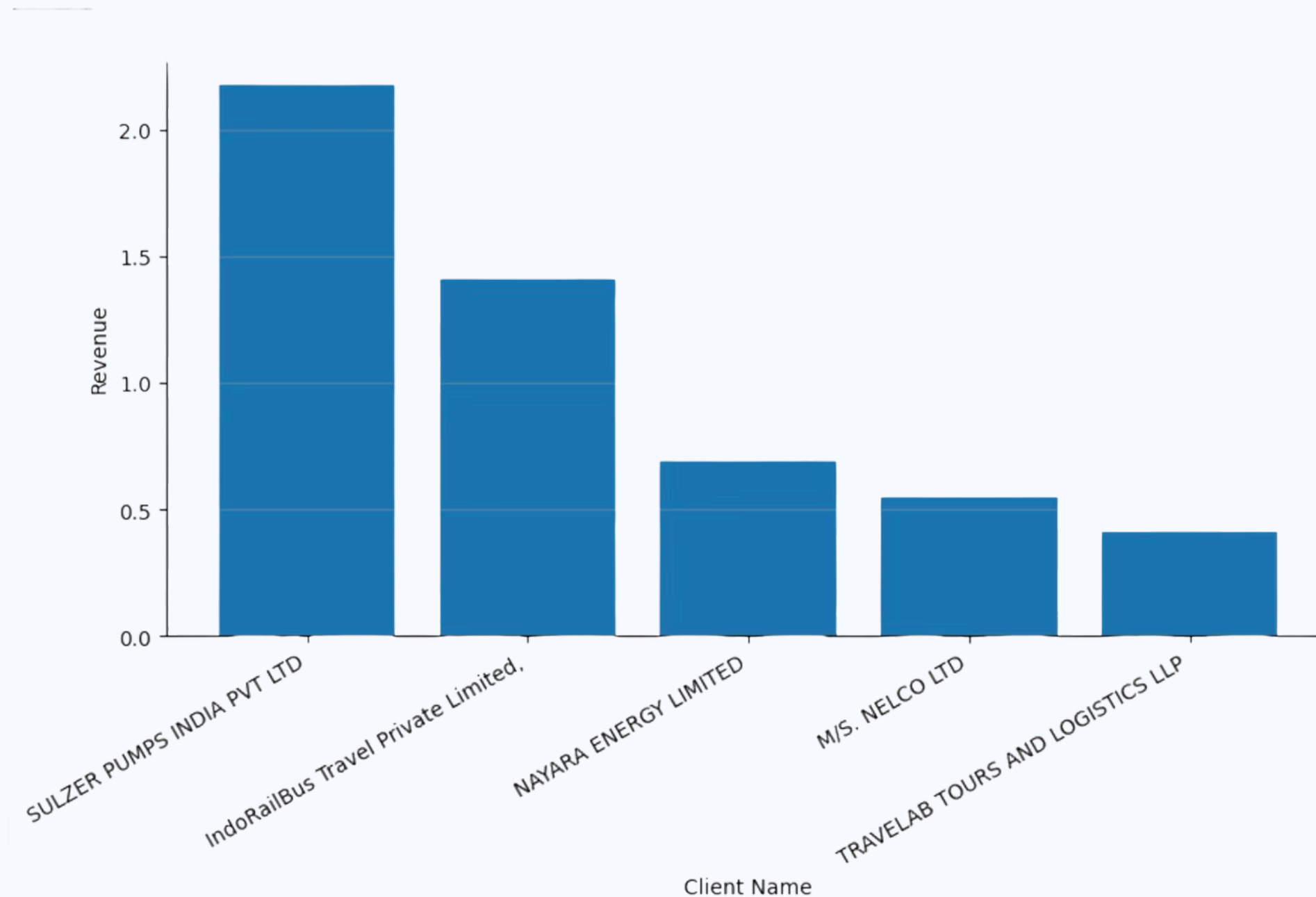
Recommendations

- Restructure 5 bottom vehicles, reduce EMI
- Freeze new purchases until fleet DSCR >1.4
- Redeploy underperforming vehicles
- Cap EMI/revenue, exit persistent loss-makers

Revenue Concentration



Revenue Concentration

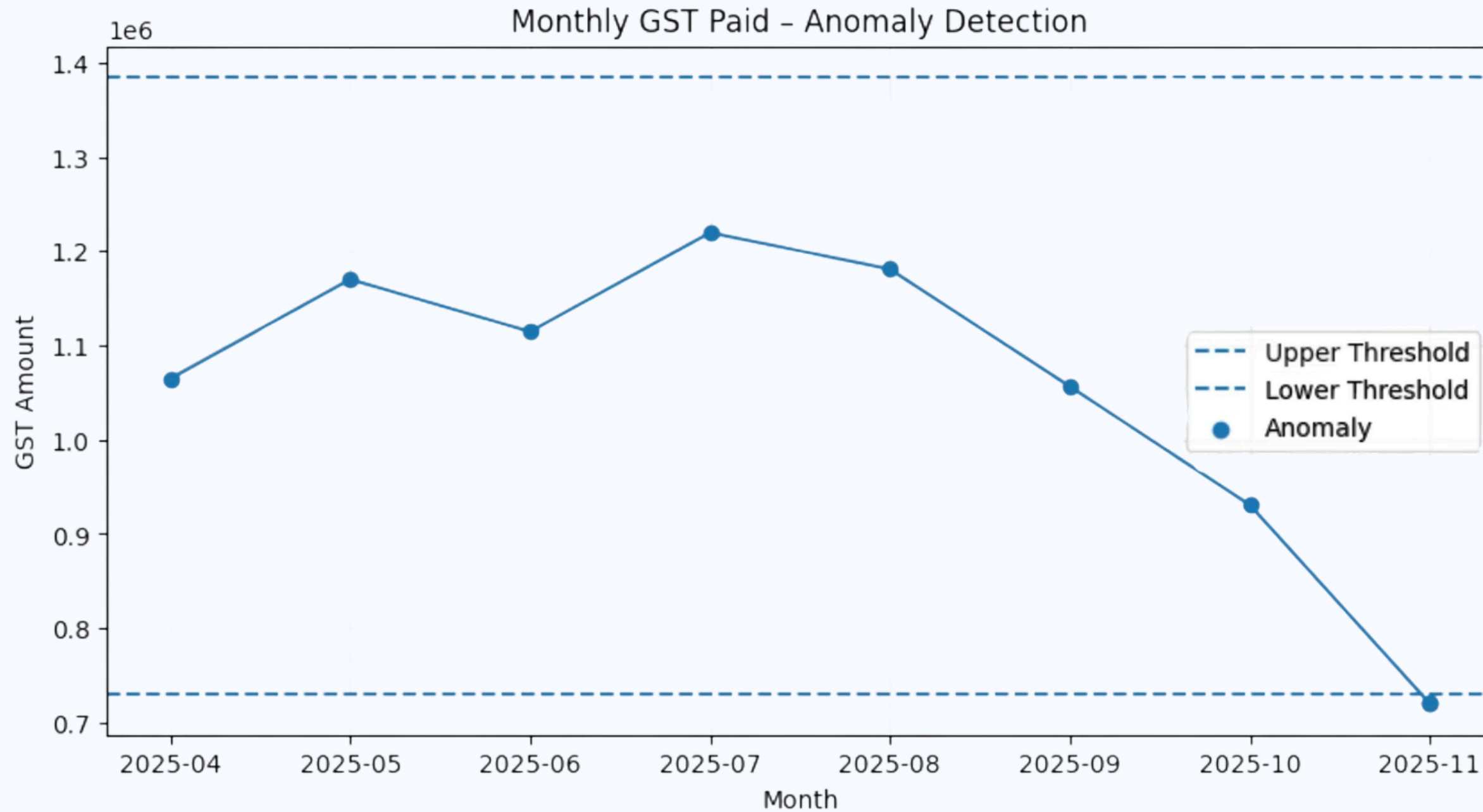


- Top 5 clients contribute 78.6% of total revenue
- Largest client alone accounts for 32.6%
- HHI score: 1785 indicating moderate-high dependency
- Revenue stability exposed to limited client base

Recommendations

- Retain top 5 clients, upsell mid-tier
- Acquire 6-8 mid-tier clients
- Limit single client $\leq 20\%$ revenue

GST Compliance



- Anomaly Identified: Significant -2σ statistical downward breach
- Observed Gap: ₹86,589 shortfall below the minimum reporting threshold

Recommendations

- Fix missing GSTINs, reconcile anomalies
- Mandatory GSTIN validation
- Monthly GST reconciliation

Interactive Risk Assessment Dashboard

Purpose

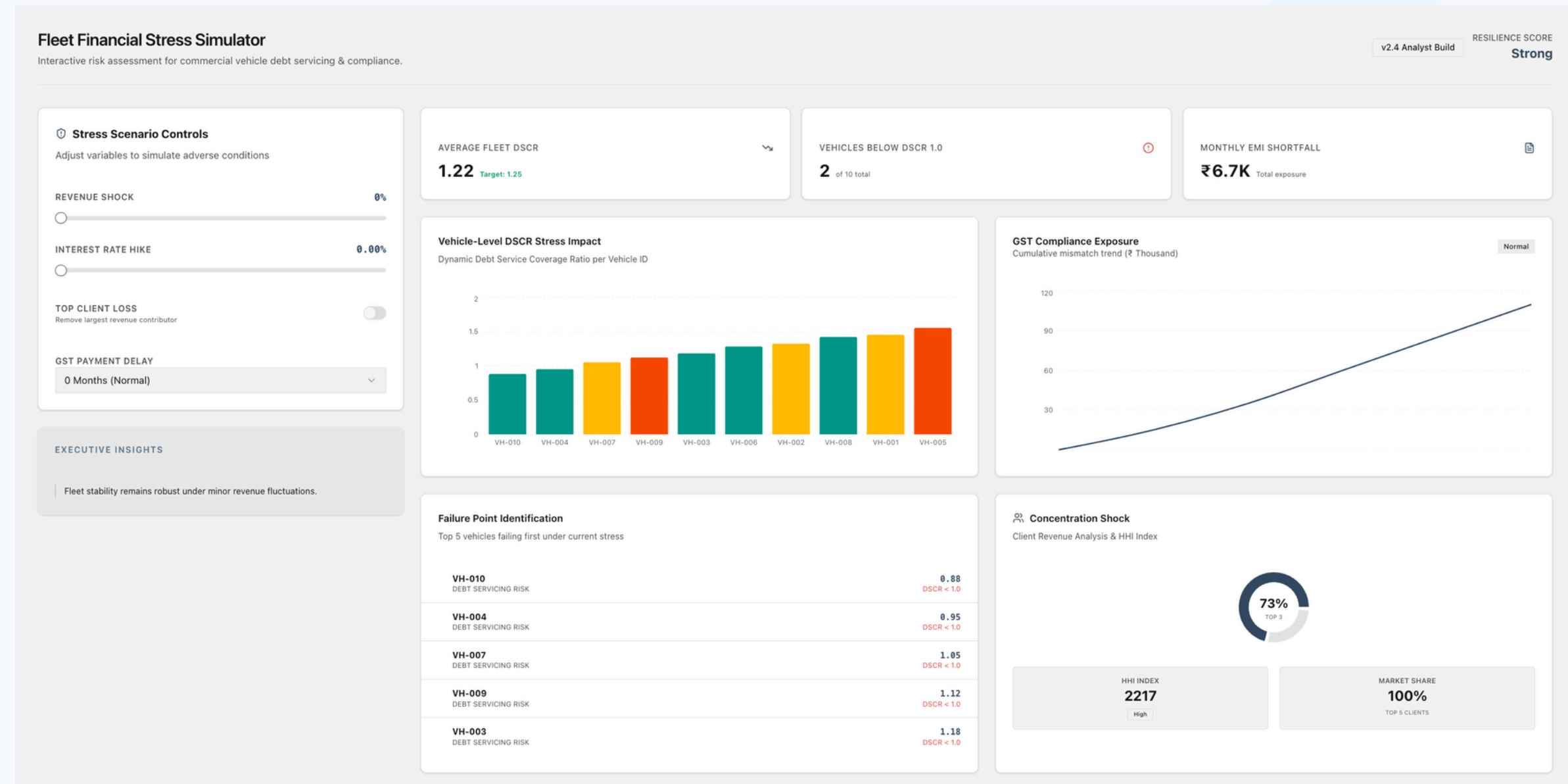
Real-time stress testing: DSCR, Client Revenue, GST

Key Highlights

- Simulate revenue & EMI stress
→ vehicle-level DSCR
- Track high-risk vehicles & client concentration dynamically
- Visualize GST anomalies

Implementation

- React + Charting libraries
- Frontend-only, hosted on Vercel





THANK
YOU

