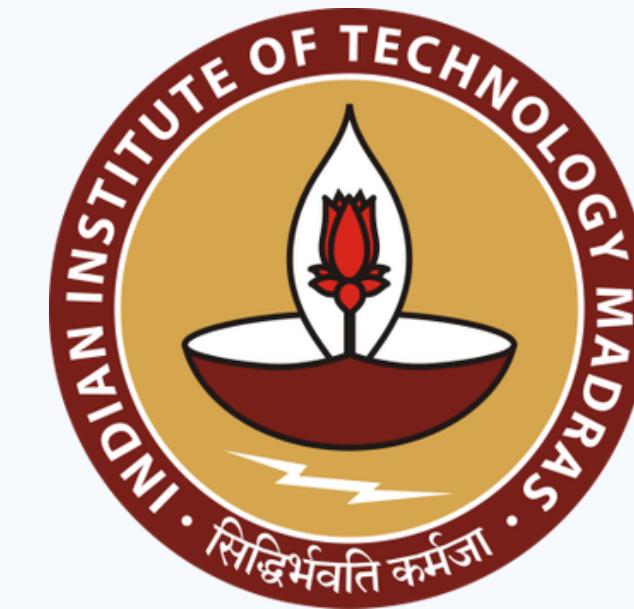


# BDM CAPSTONE PROJECT



**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

- 515 invoices
- ₹6.63 Cr revenue
- GST input-output

#### Method

- Pareto & ABC analysis
- HHI concentration
- GST anomaly detection

#### Tool

- Python (grouping & aggregation)
- Time-series analysis & visualization

### Fleet Dataset (April 2010 → June 2025)

#### Data

- 77 vehicles
- EMI & financing details

#### Method

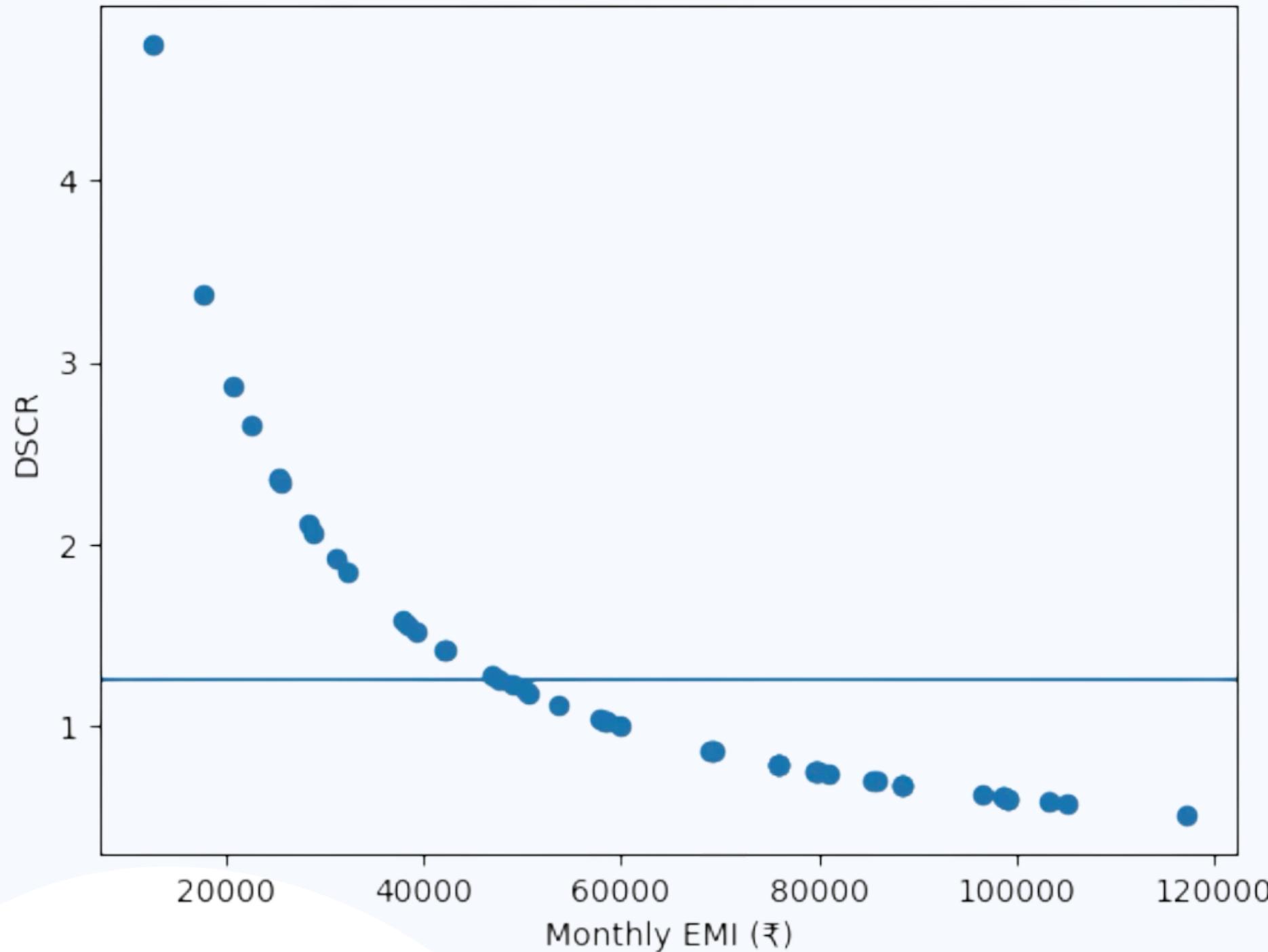
- DSCR calculation
- Scenario stress testing

#### Tool

- Python (ratio computation)
- Threshold-based risk tagging

# DSCR vs EMI Analysis

Monthly EMI vs DSCR (Base Case)

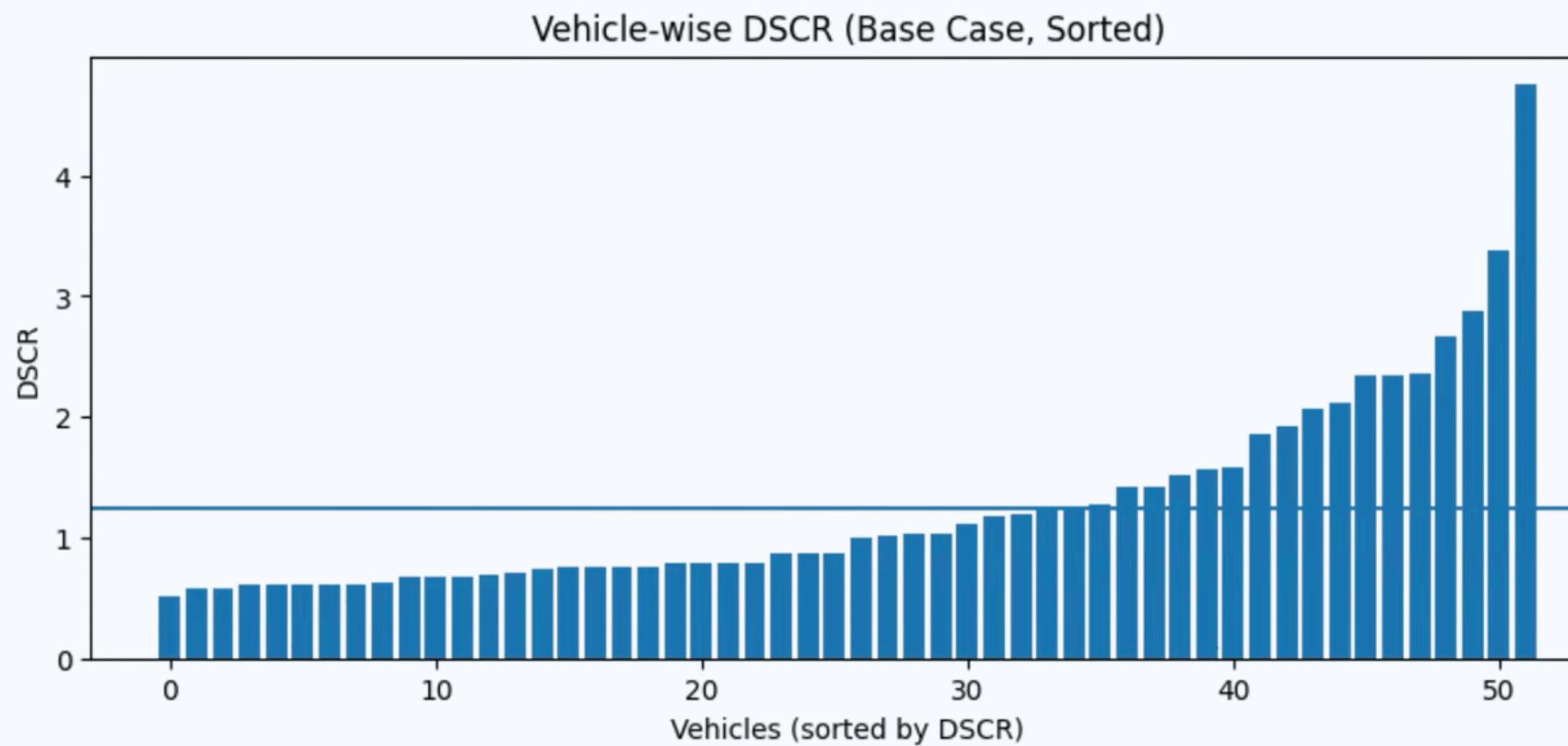


- Higher EMI → Lower DSCR
- Low EMI vehicles mostly safe ( $>1.25$ )
- High EMI vehicles below threshold
- Stress driven by financing structure

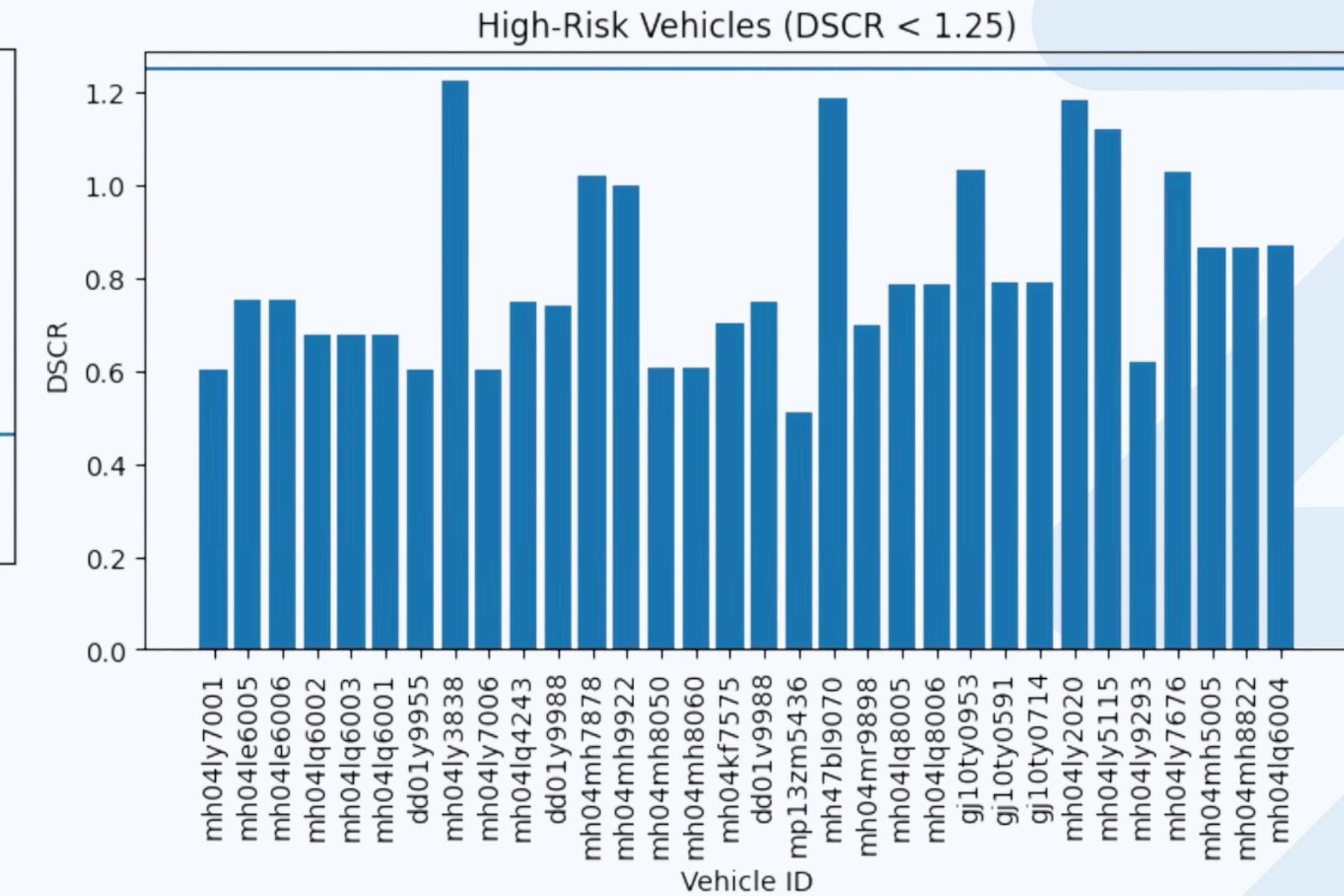
Insight:

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

## Vehicle-wise DSCR



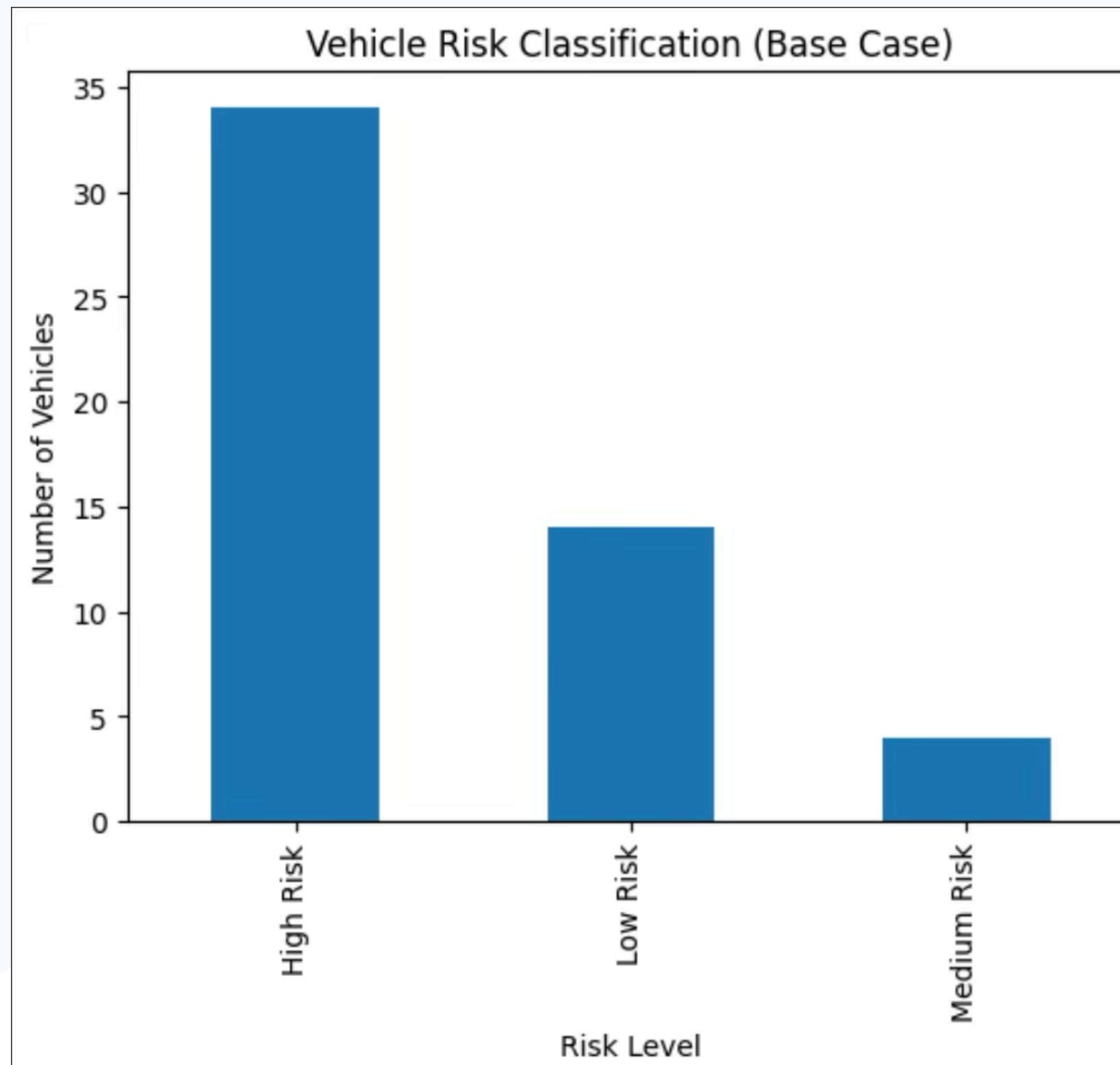
## High Risk Vehicles



Insight:

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

# Risk Classification

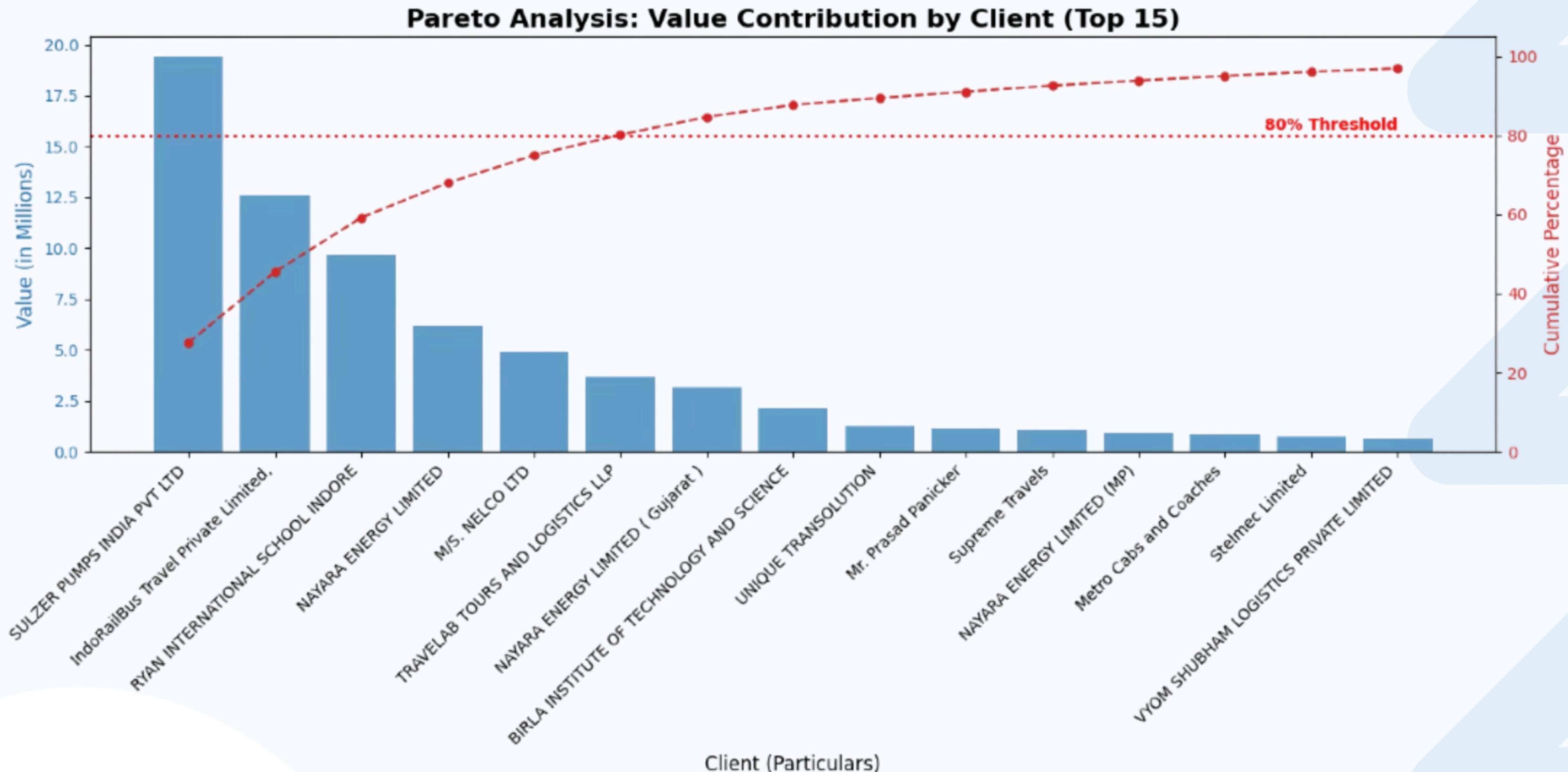


- 44% vehicles in high-risk zone
- Limited vehicles maintain safe coverage
- Majority clustered near critical threshold
- Indicates weak repayment buffer across fleet

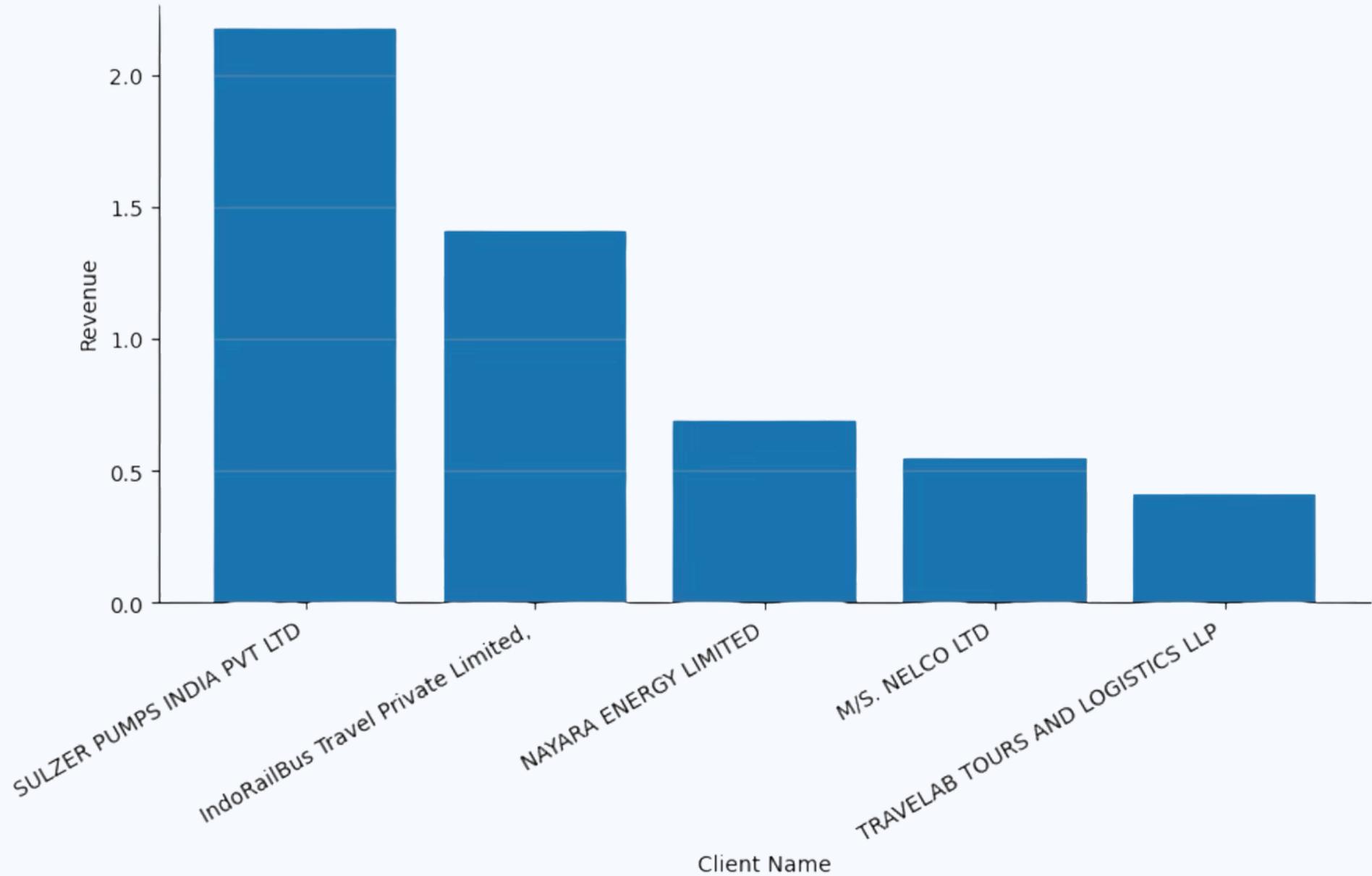
## Recommendations

- 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

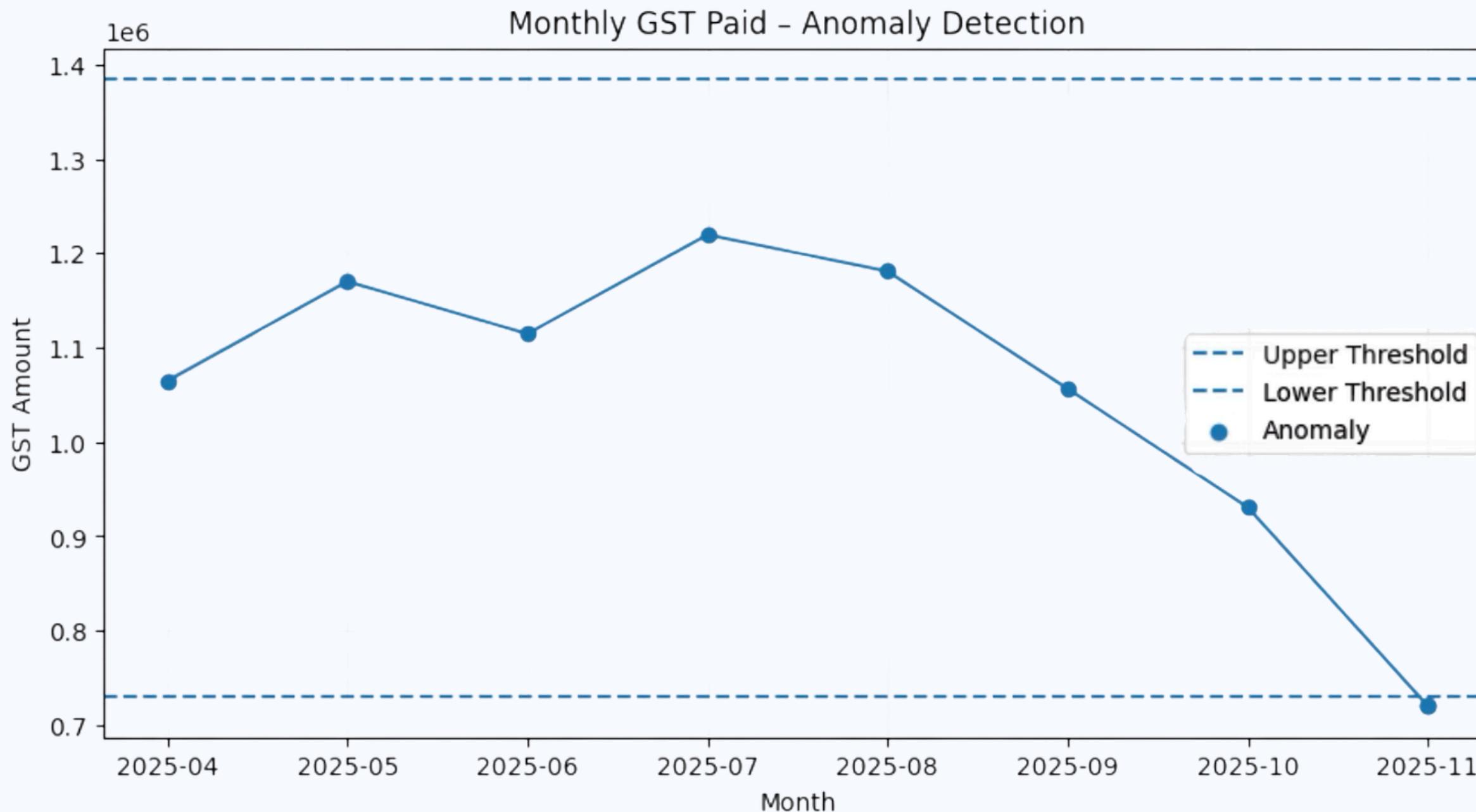


- Top 5 clients contribute 78.6% of total revenue
- Largest client alone accounts for 32.6%
- HHI score: 1785 indicating moderate-high dependency
- Revenue stability exposed to limited client base

## 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  $-2\sigma$  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

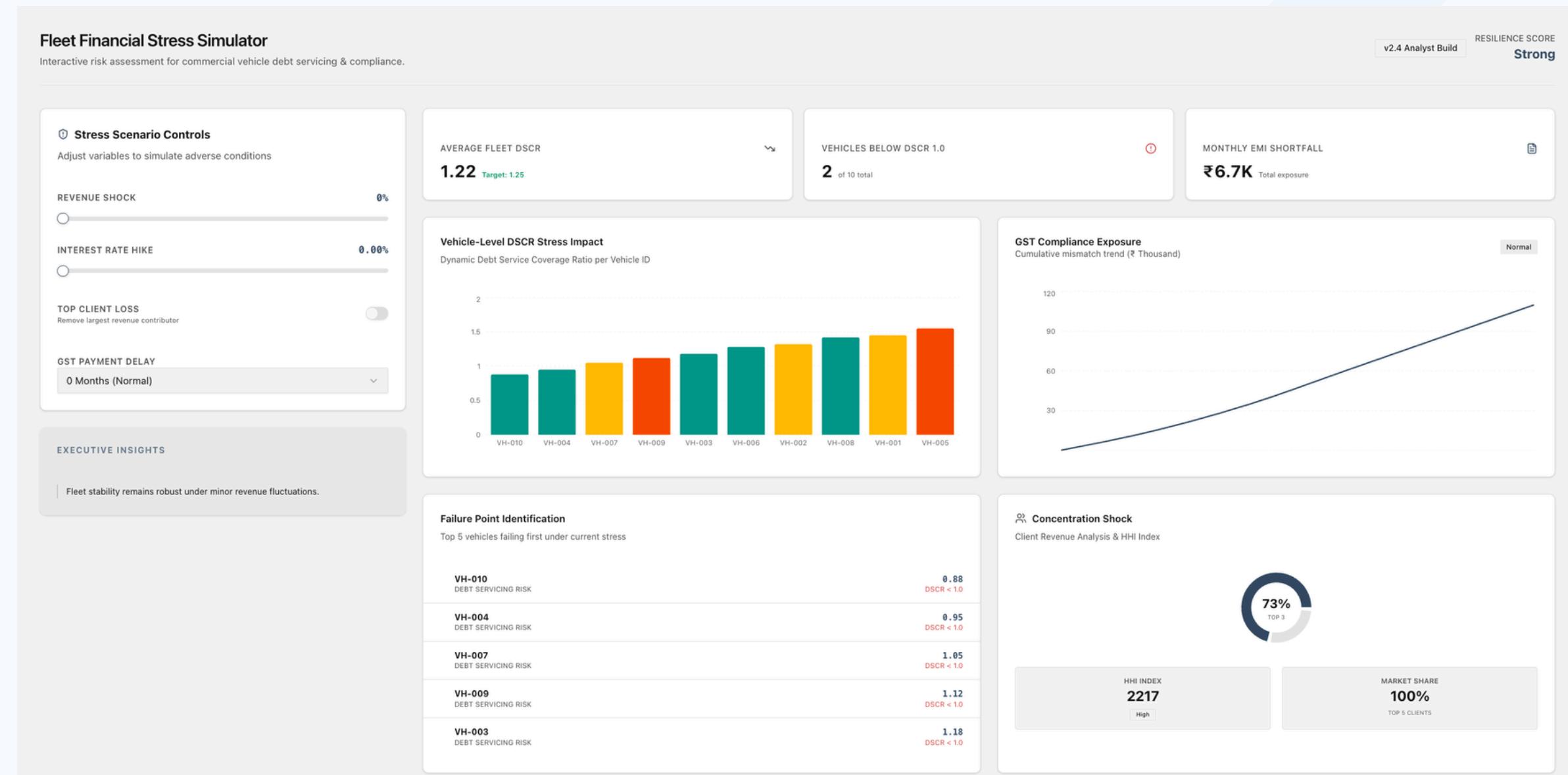
Real-time stress testing: DSCR, Client Revenue, GST

## 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

