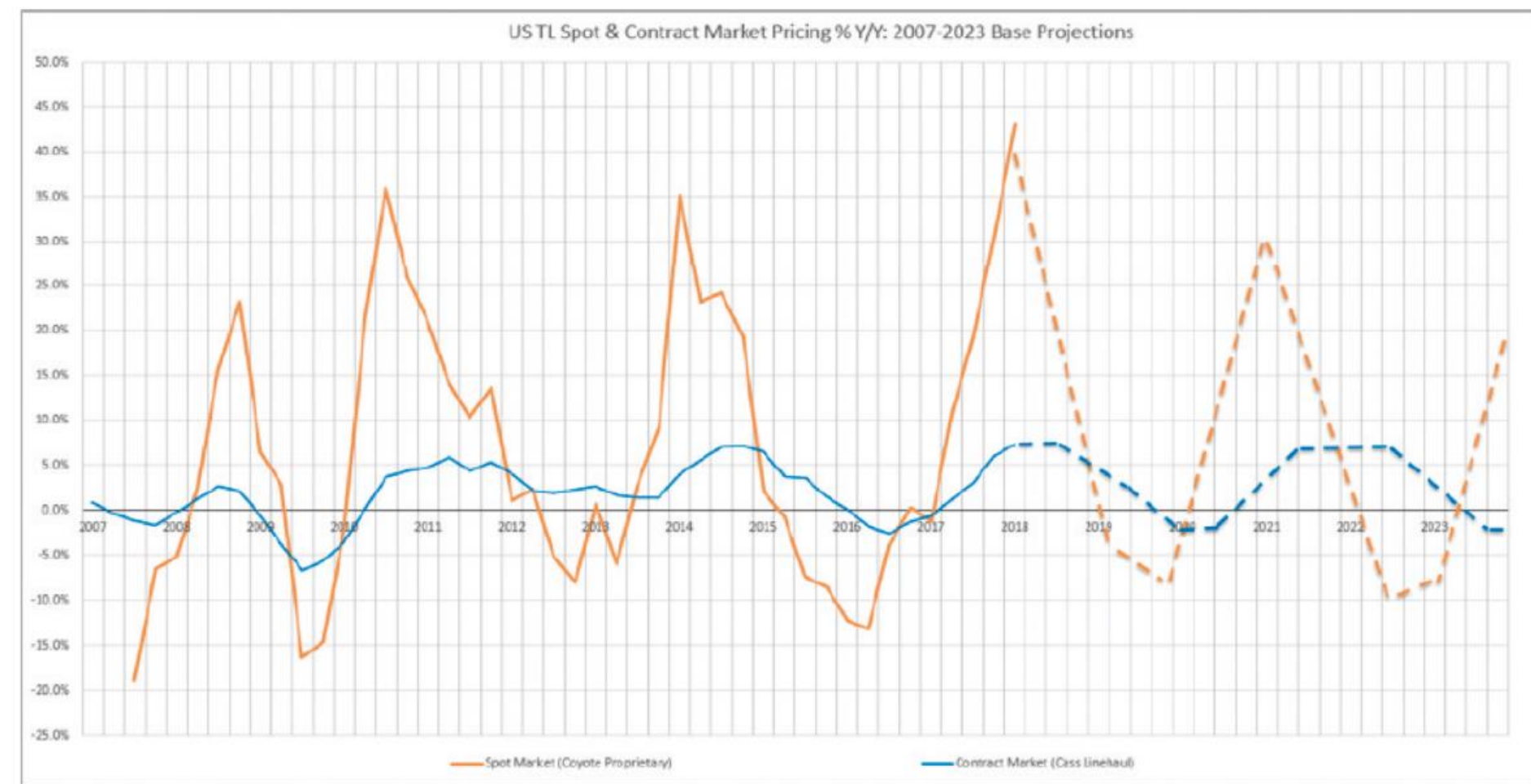


Maksat Taibek, SCM 2022
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Dynamic Approach to Freight Transportation Pricing

Motivation / Background

Typically, transportation contracts are binding in price but non-bidding in volume for both shippers and carriers. During tight market, the existing design of freight contracts are ineffective. Therefore, the proposed Index Linked Freight Contract (ILFC) accounts for price changes and provides flexibility



Source: Coyote Logistics Research

Key Question / Hypothesis

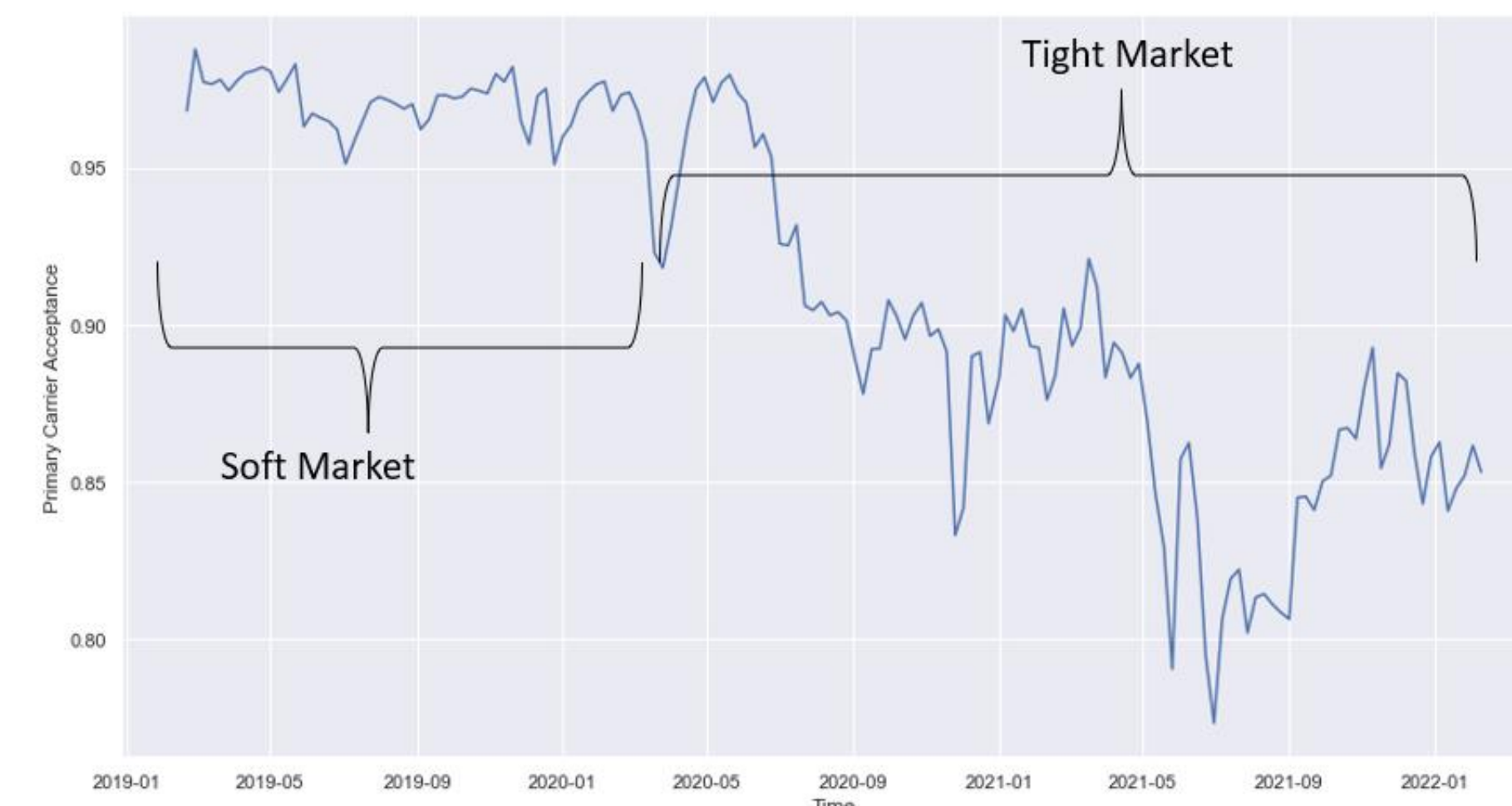
How can Index Linked Freight Contracts (ILFC) capture volatility risk to reduce freight cost, improve service level, and improve shipper-carrier relationships?

Relevant Literature

Acocella, A., Caplice, C., & Sheffi, Y. (2020). Elephants or goldfish? An empirical analysis of carrier reciprocity in dynamic freight markets.
 Sinha, A., & Thykandi, R. (2019). Alternate Pricing Model for Transportation Contracts
 Caplice, C., & Sheffi, Y. (2003). Optimization-based procurement for transportation services



The Problem



- Primary carrier acceptance reduced from **97% to 85%** between 2019-2021
- Cost per mile increase from **\$3.2 to \$4.8**
- Transportation cost **increase by 35%** from 2019 to 2021

Methodology

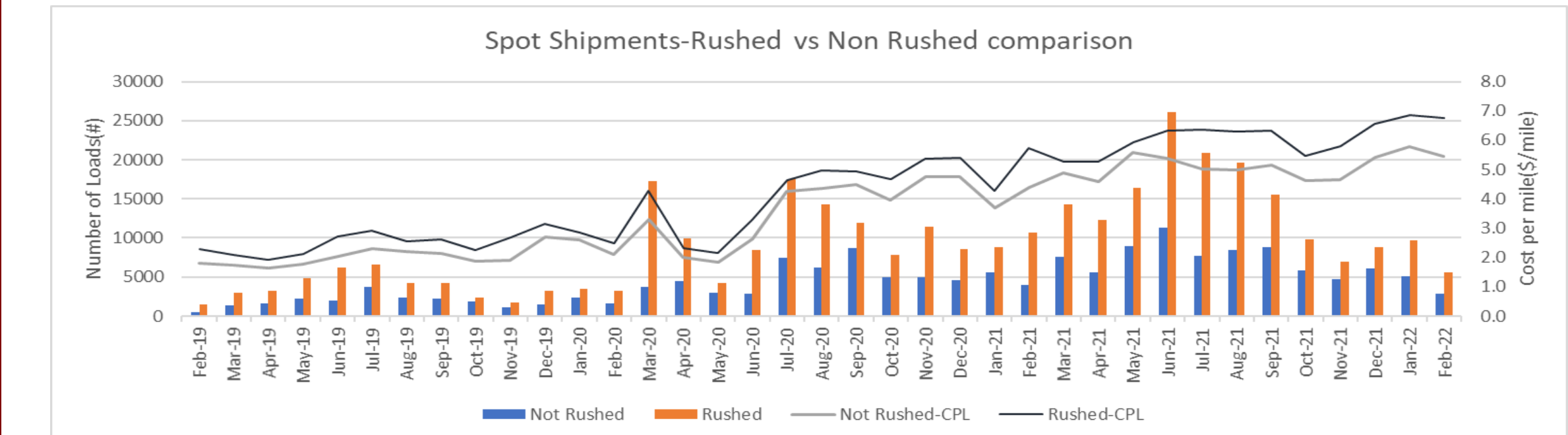
Data Processing

Data Analysis

Modeling

Index Contract

Initial Results



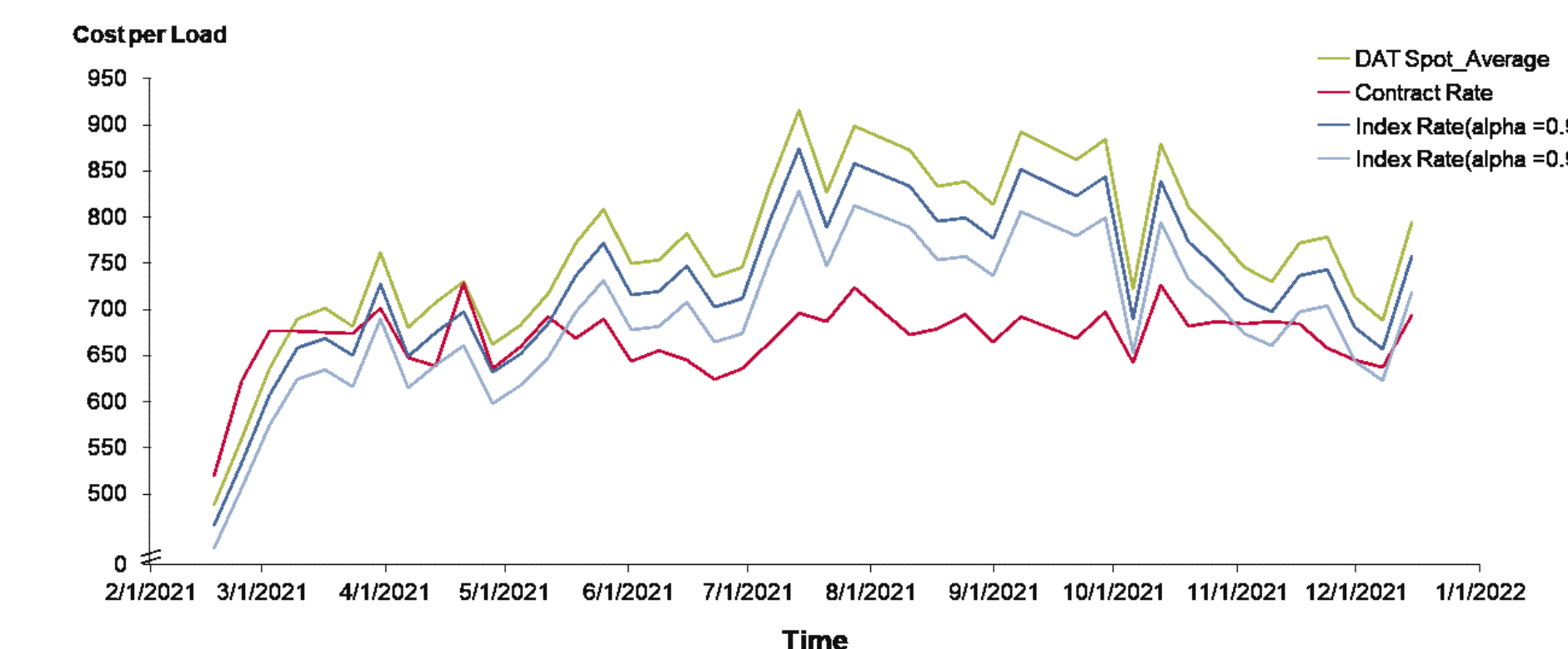
- Percentage of spot shipments have gone up **from 9% in 2019 to 28% in 2021**
- Rushed spot loads accounted for ~2/3rd of spot shipments and are **~35% expensive** compared to non-rushed contract loads.

Data: 2019-2021



Expected Contribution

- Proposed Index Linked Freight Contract(ILFC)
- Identified key lane, load and carrier characteristics which influence spot loads
- Increased primary carrier acceptance rate using DAT as index



Maksat Taibek



Vikas Chandra

