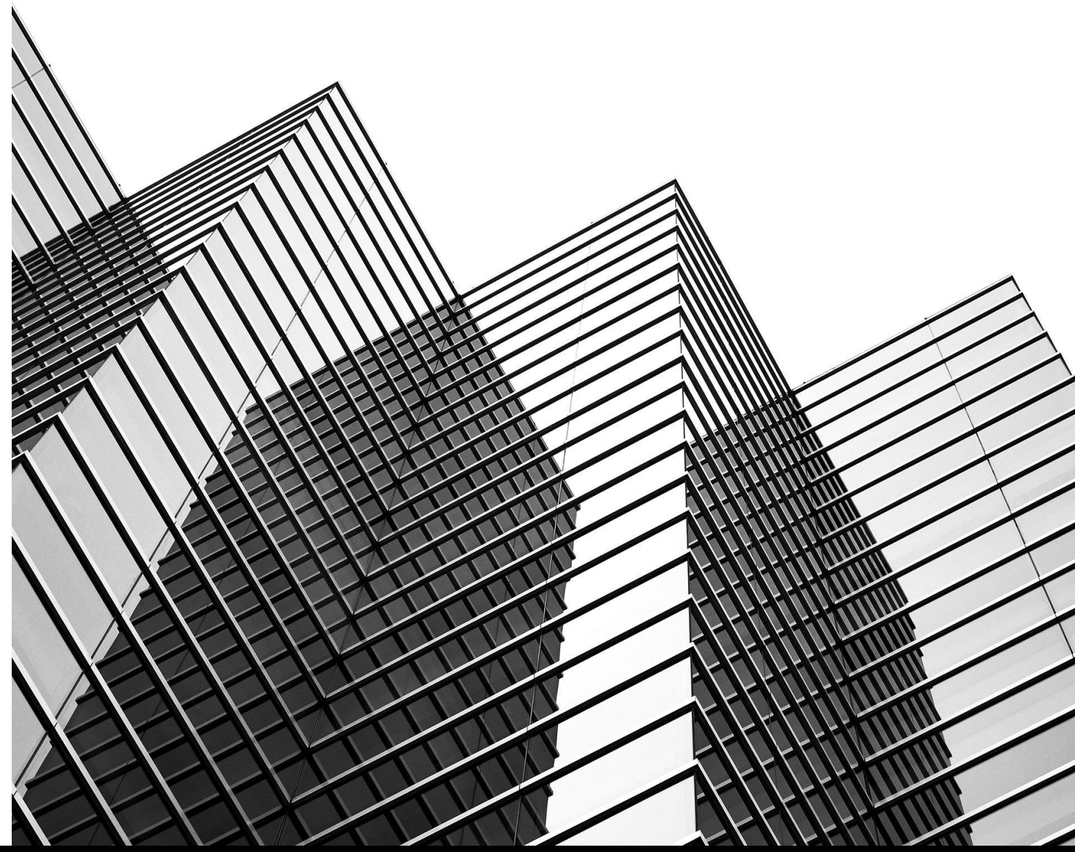
Municipal Portfolio Analysis

BlackRock Case Study

Presented by - Kaushal Kumar

Github - [Repository Link]



LET'S GET STARTED →

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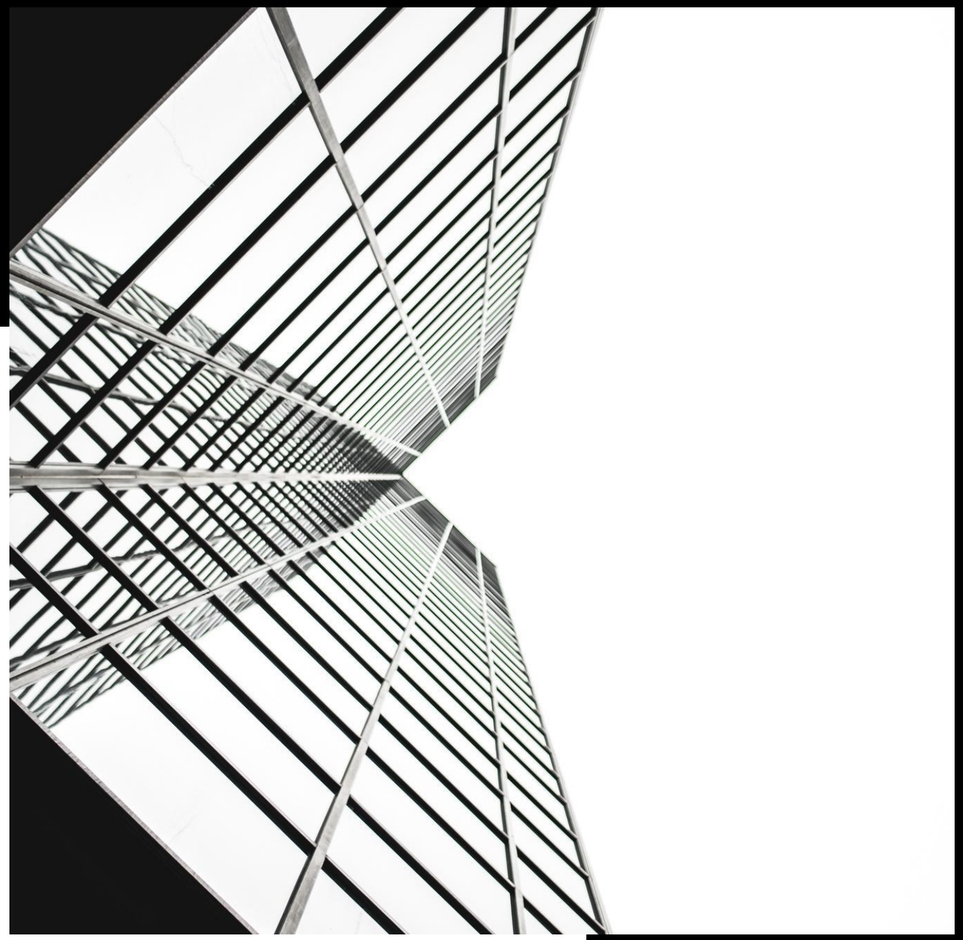
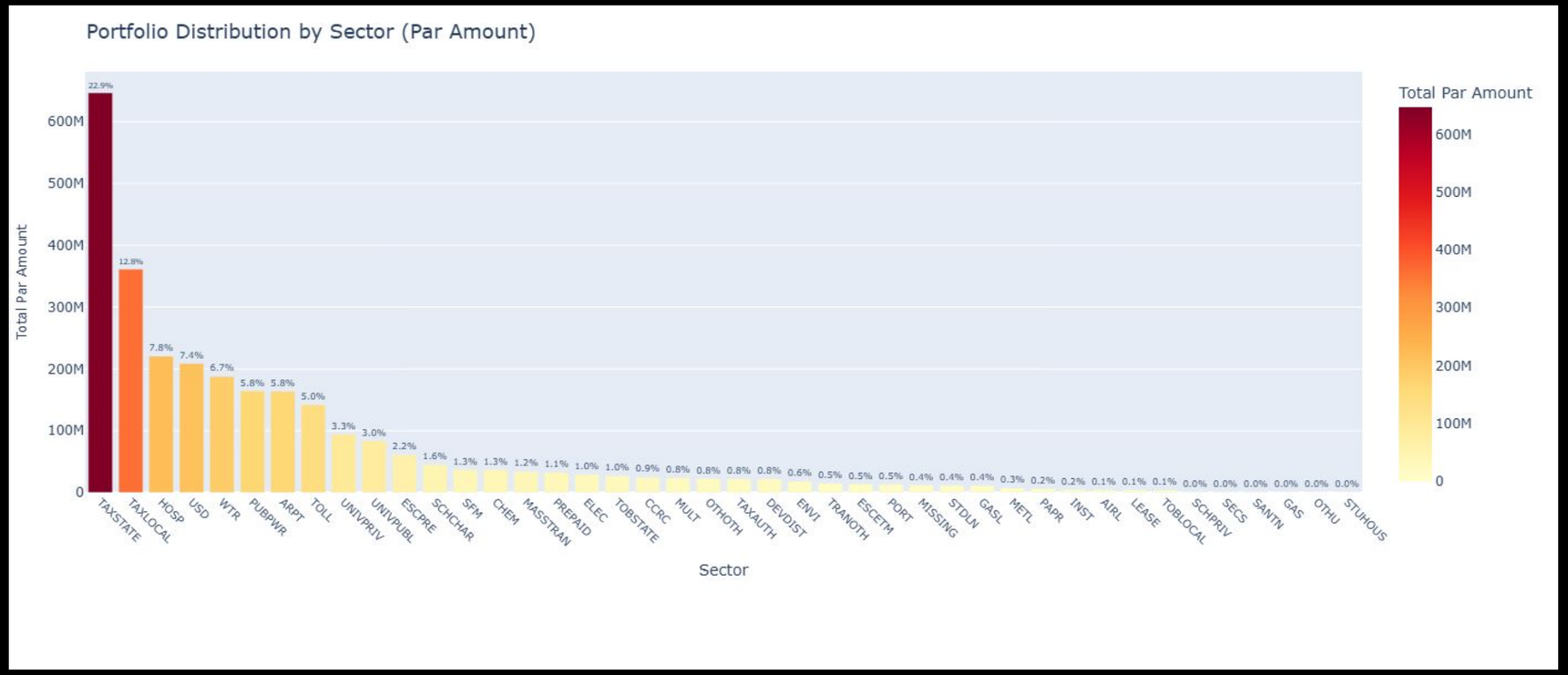


Sector Allocation of Portfolio Exposure

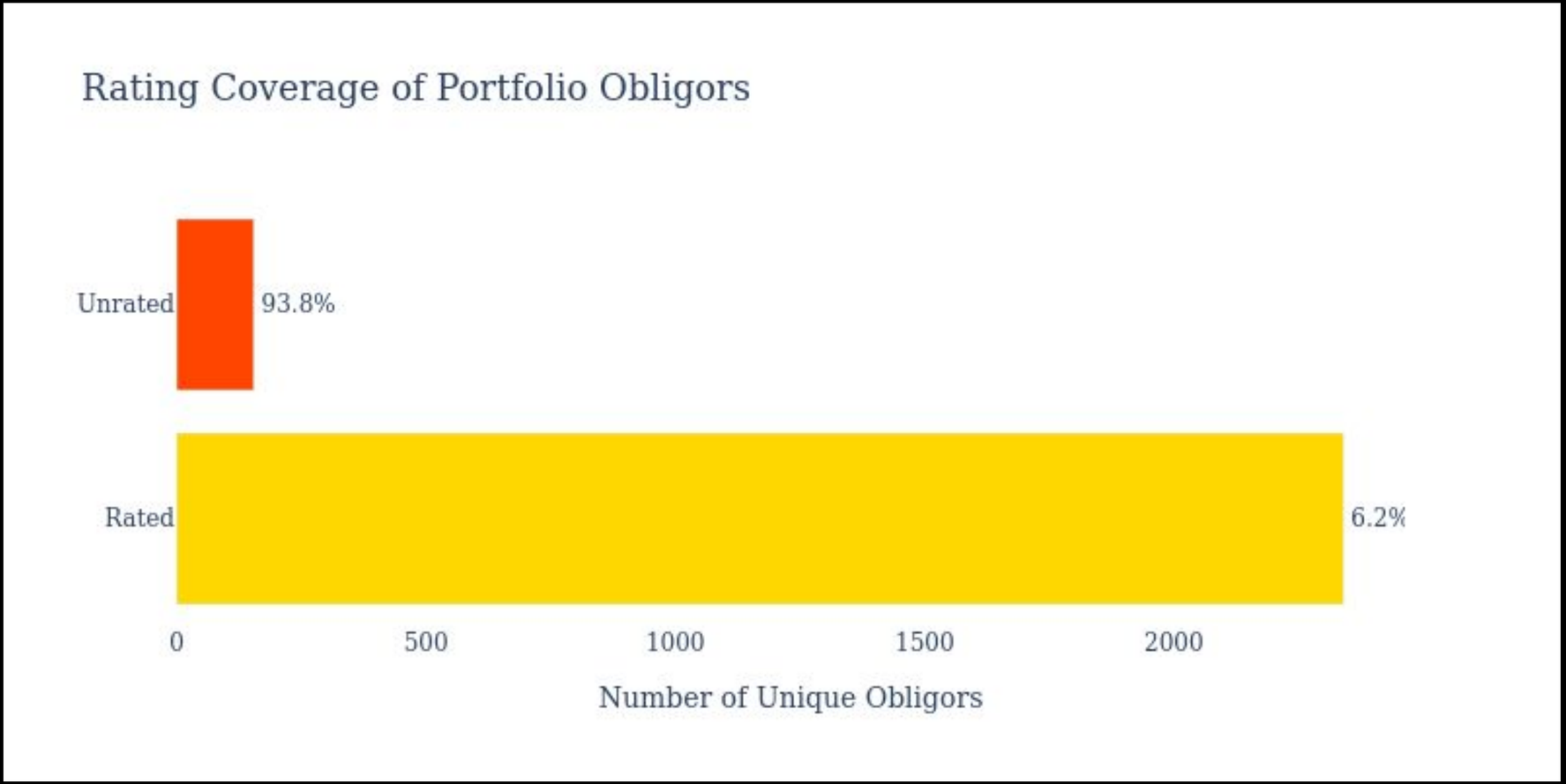


- TAXSTATE dominates at 22.9% of total par amount.
- TAXLOCAL is next with 12.8%.
- Sectors like HOSP, USD, WTR, PUBWR contribute smaller but notable shares.
- Many sectors contribute <1%, showing a long-tail distribution.

Credit Risk Distribution Across Rating Buckets

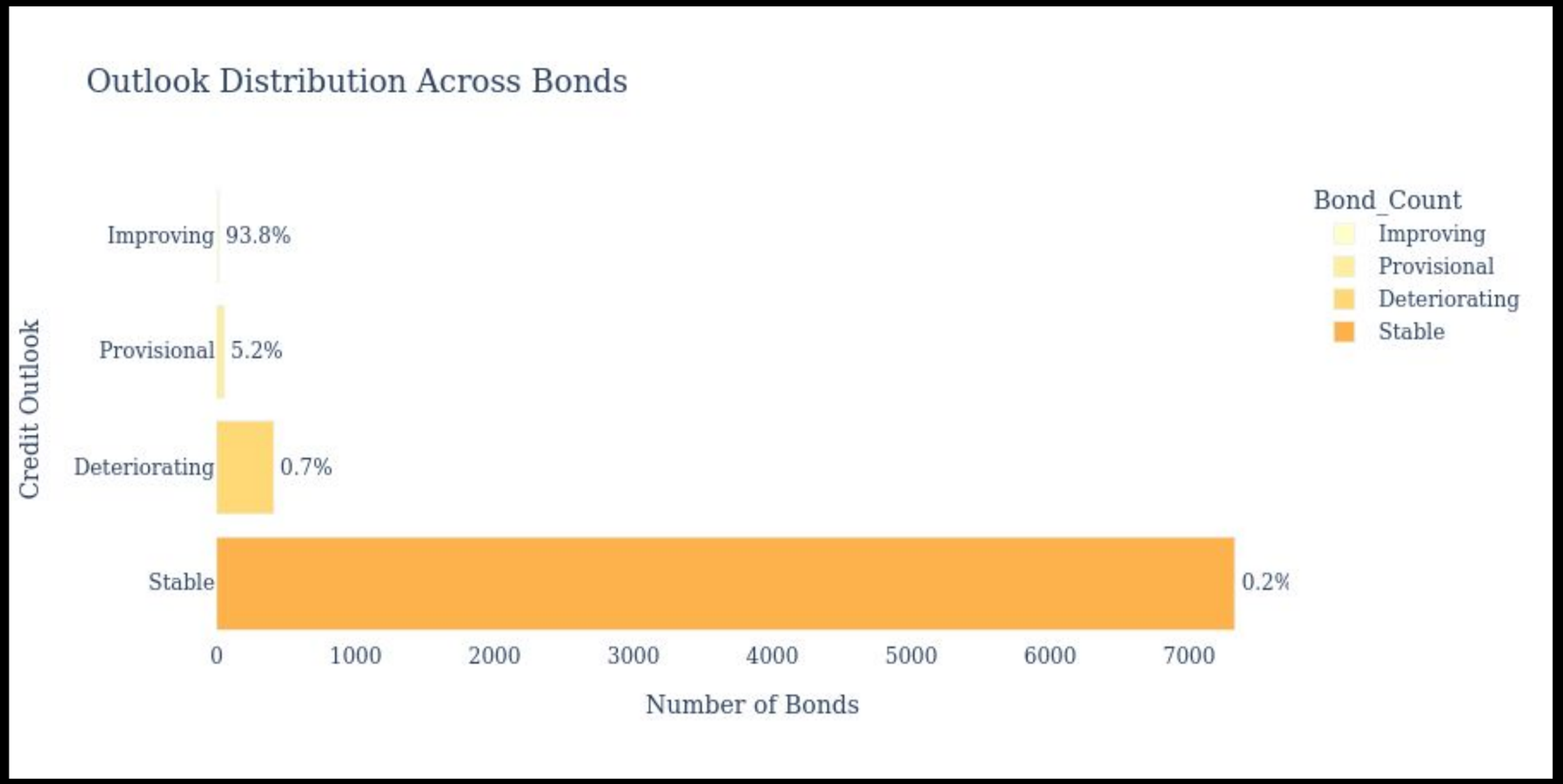
- The portfolio is largely concentrated in AA-rated obligors (53.6%).
- A-rated obligors form the next largest group (37.3%).
- AAA (2.9%), BBB (3.6%), and HY (2.7%) make up a small portion.
- Overall, the portfolio reflects a high credit quality, with most obligors rated A or better.

Extent of Rating Coverage in the Portfolio



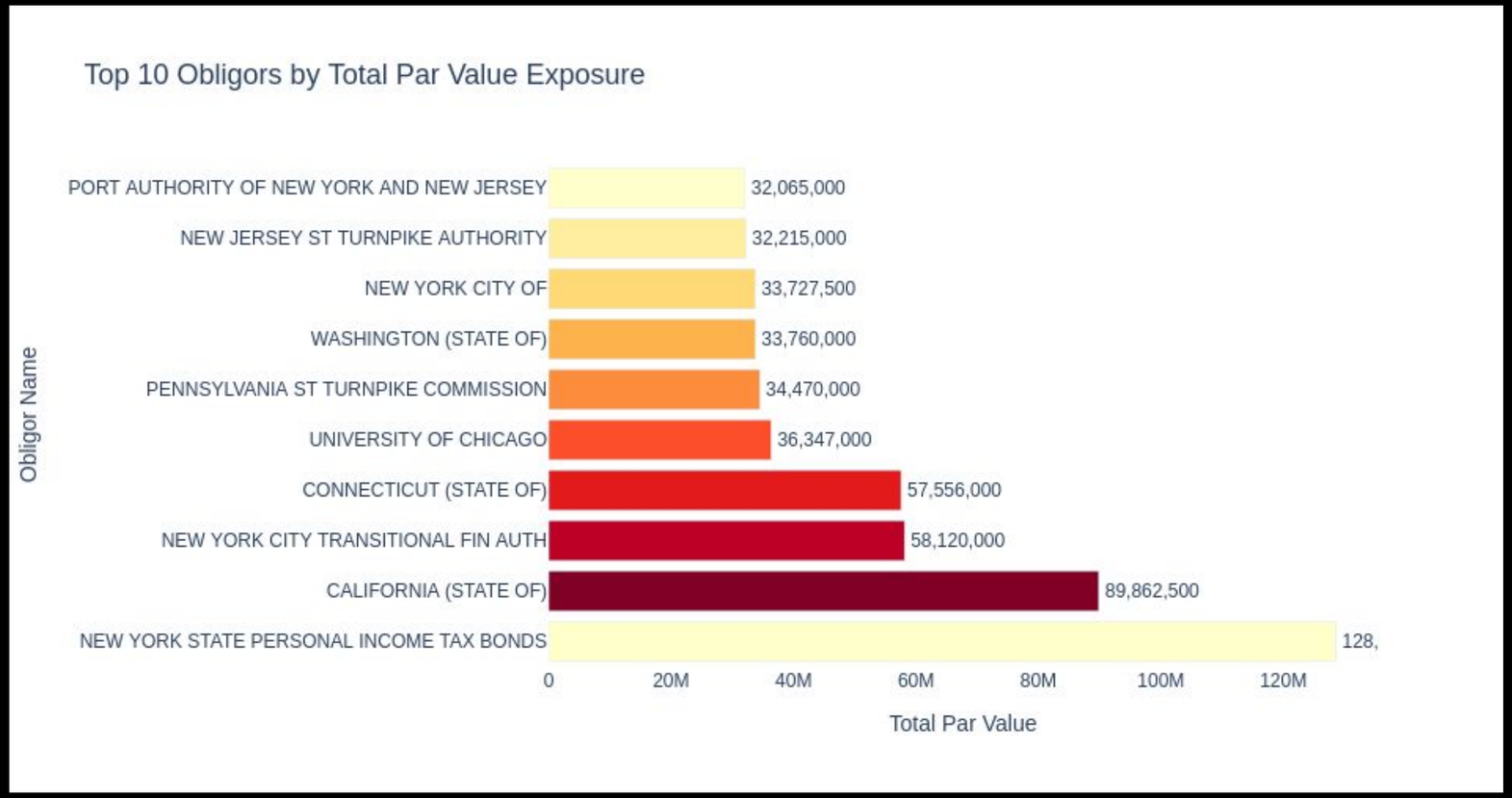
- 93.8% of obligors are unrated.
- Only 6.2% have an external rating.
- Indicates limited rating coverage in the portfolio.

Distribution of Credit Outlooks Among Obligors



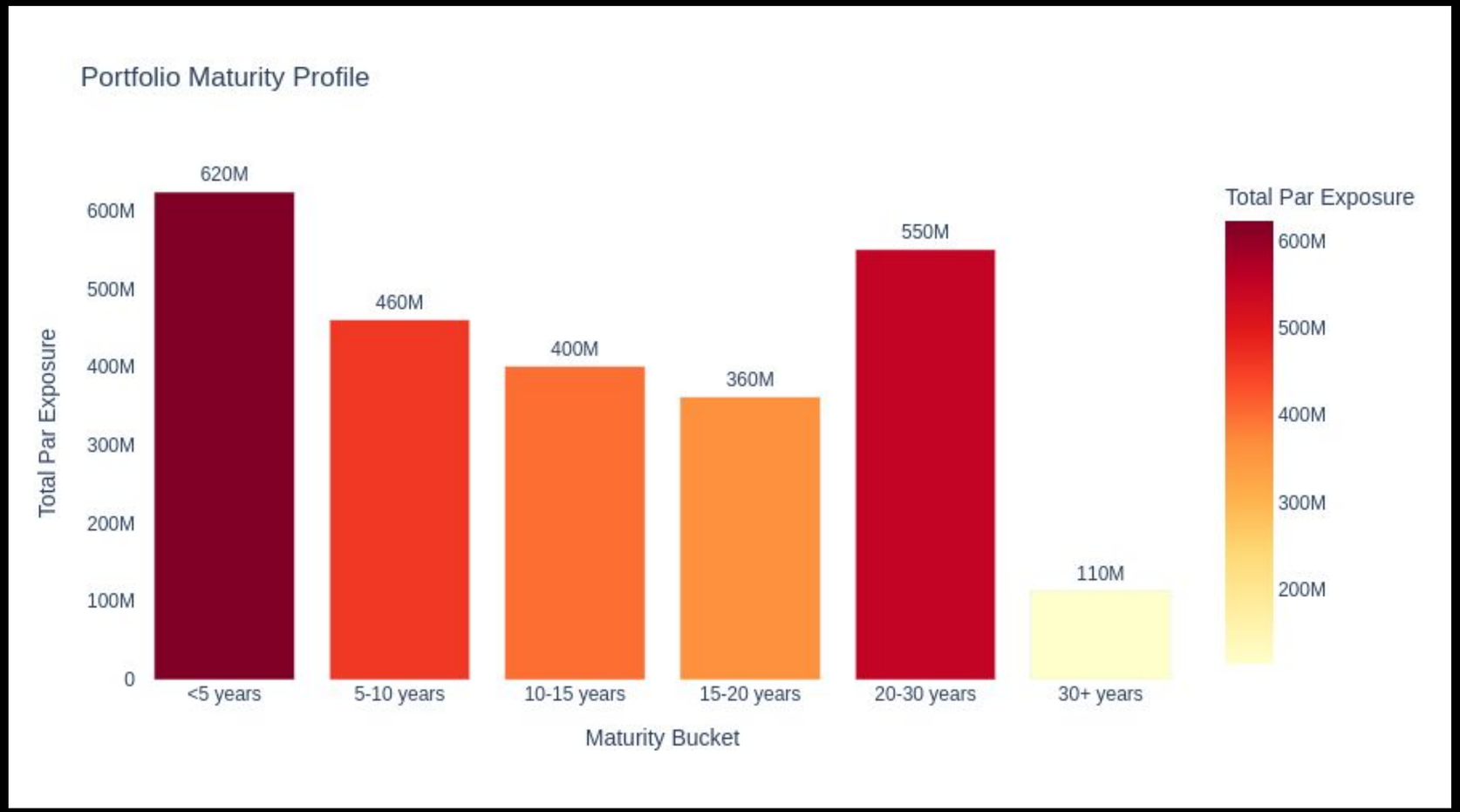
- Stable outlook dominates, representing the vast majority of bonds.
- Deteriorating, Provisional, and Improving outlooks are minimal, each under ~1% except Provisional (~5%).
- The portfolio is largely concentrated in stable credit outlooks.

Top Obligors by Par Value Exposure



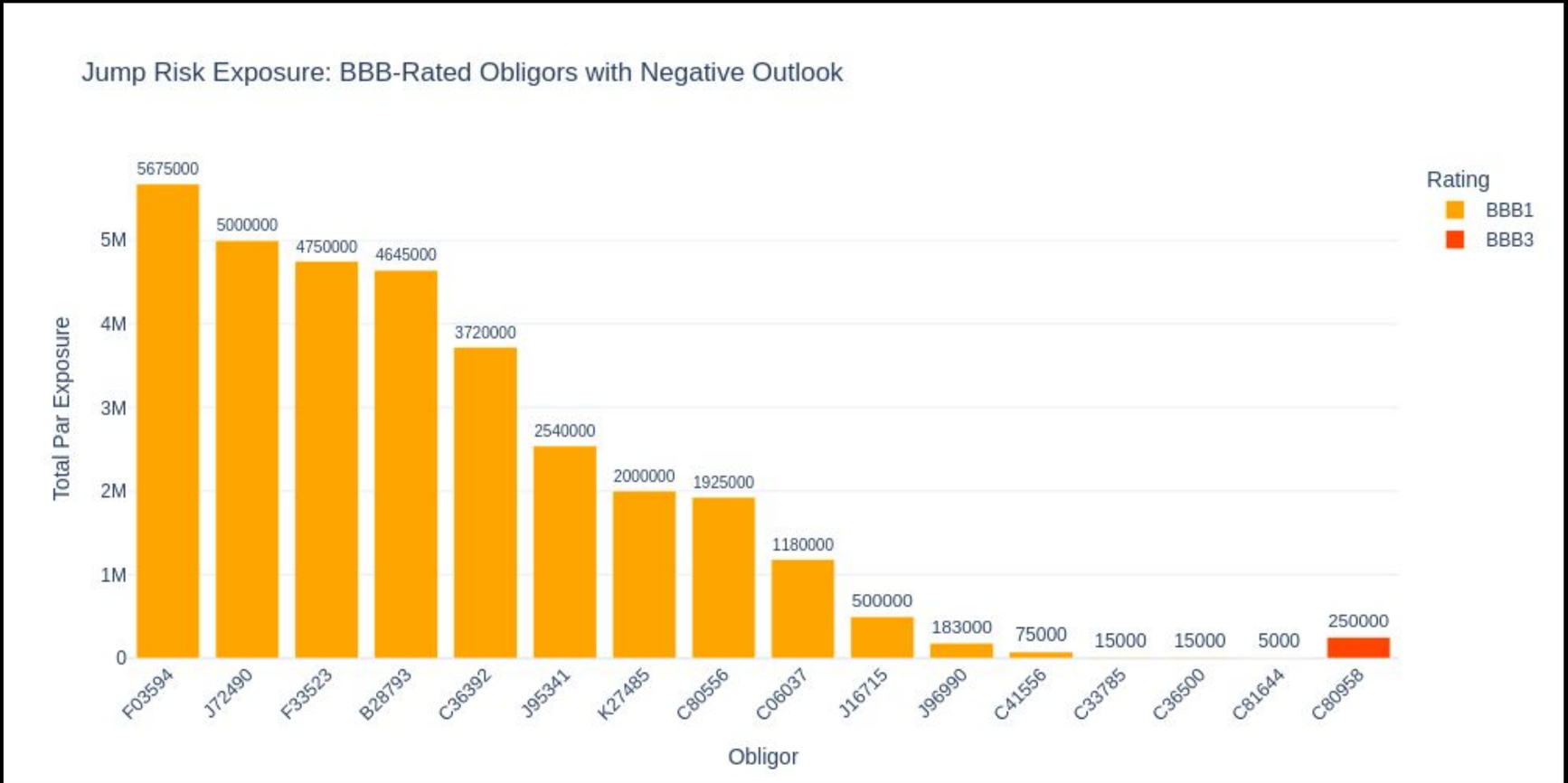
- Top exposure: NY State PIT Bonds (~128M).
- CA State and NYC TFA follow (~90M, ~58M).
- Few obligors dominate the portfolio.

Maturity Distribution of Portfolio Holdings



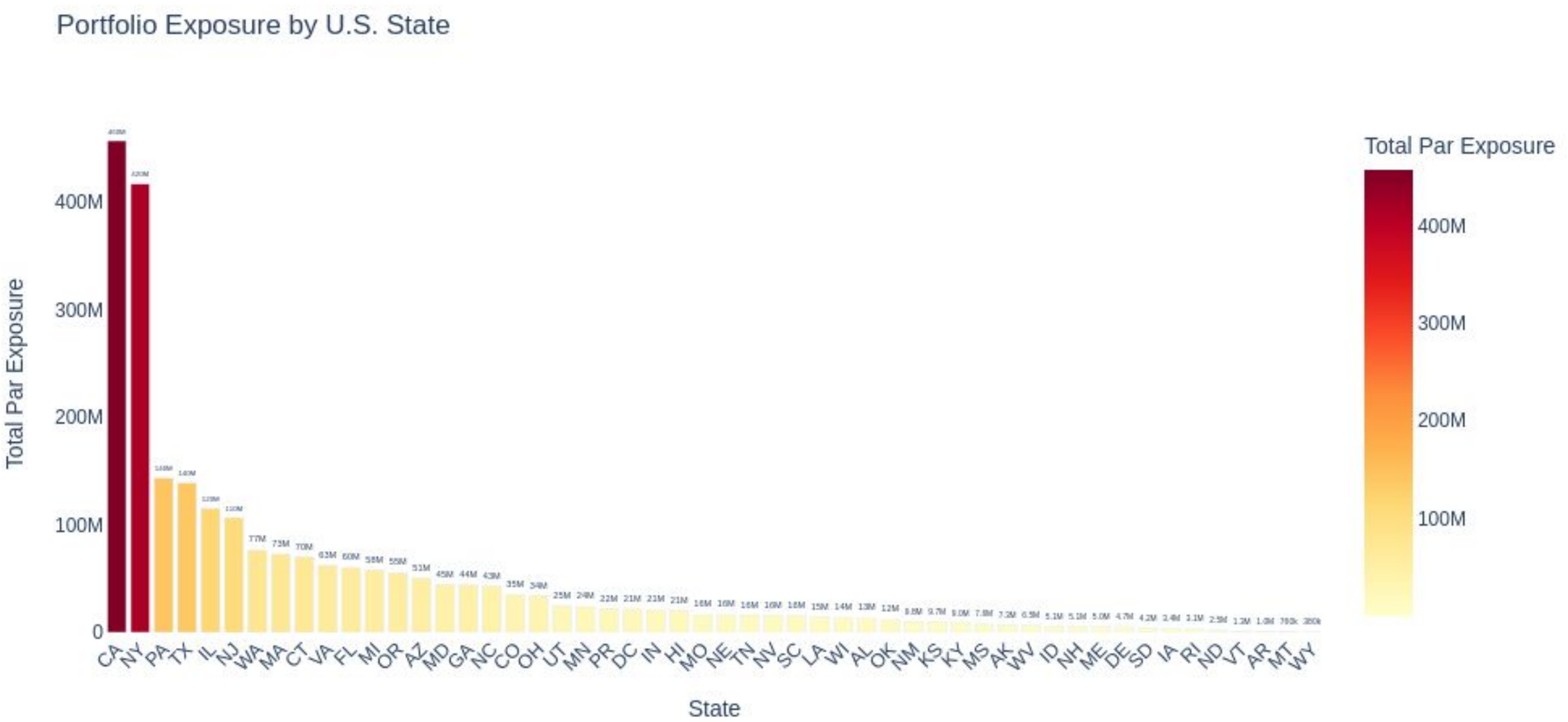
- The portfolio is concentrated in <5 years (620M) and 20–30 years (550M) buckets.
- Mid-range maturities (5–20 years) show balanced exposure (360M–460M).
- 30+ years represents the smallest exposure (110M).

Identifying Potential Jump-to-Junk Risks



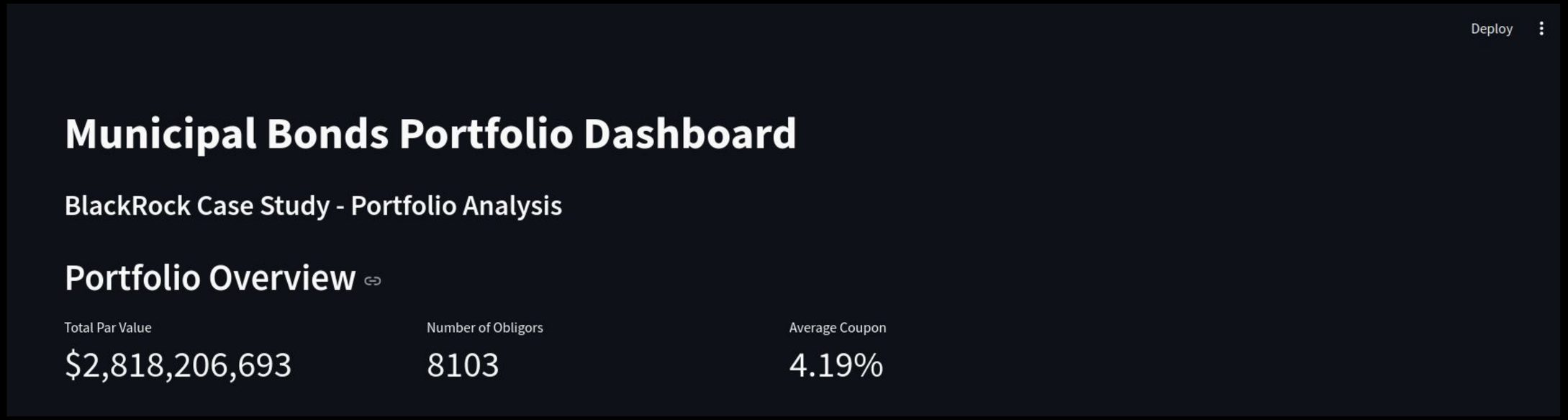
- Jump risk exposure is concentrated: top 3 obligors make up the largest share
- Majority are BBB1 rated; BBB3 obligors have much smaller exposures.
- Exposure drops sharply beyond top obligors, forming a long tail of minor risks.

Geographic Exposure Across U.S. States

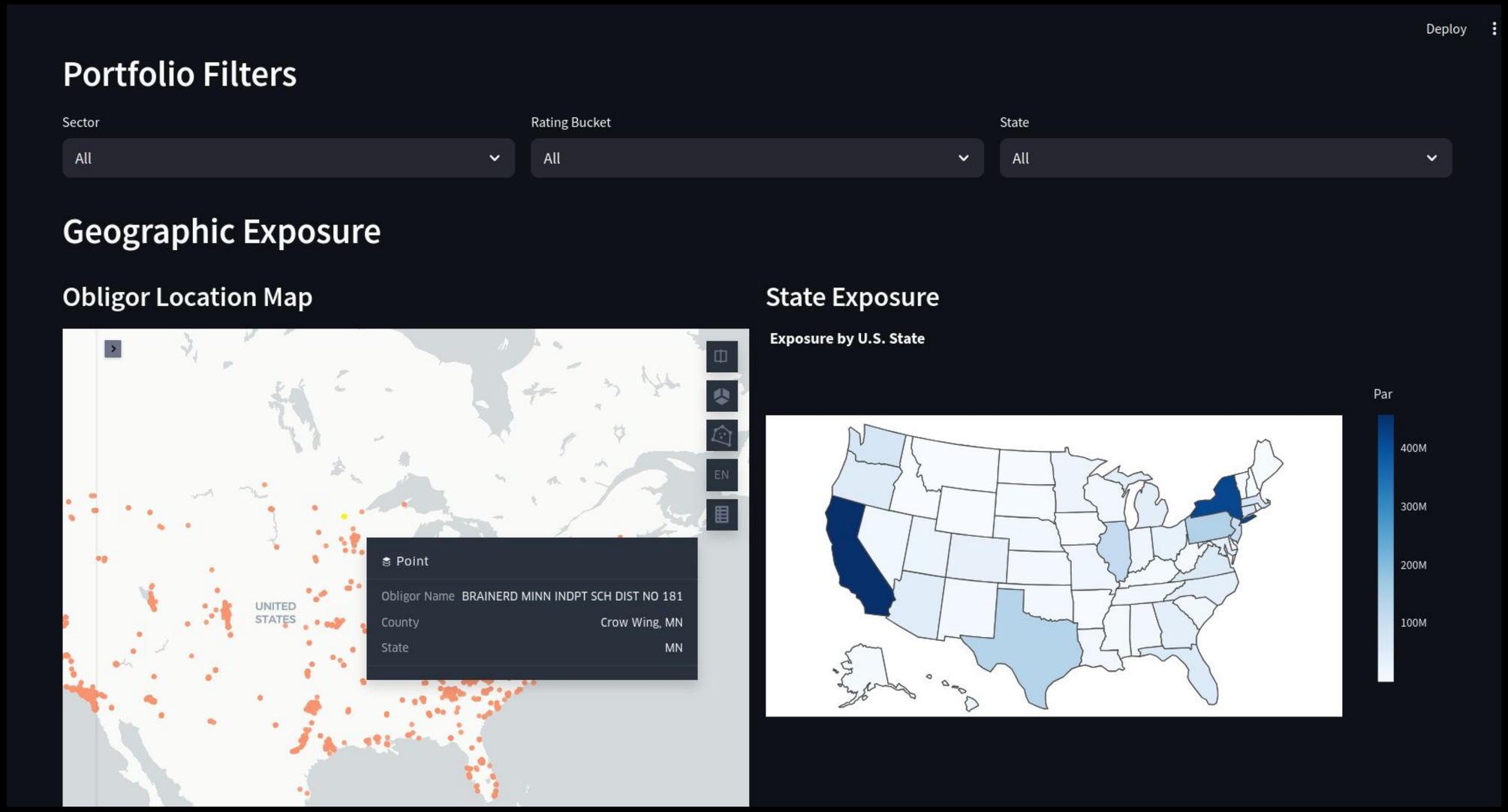


- CA and NY dominate exposure (>400M each).
- Few other states (e.g., PA, TX, NJ) have significant but smaller shares.
- Long tail of many states with minor exposure.

Dashboard Overview



Dashboard Overview



Key Insights

- Sector Concentration: TAXSTATE (22.9%) and TAXLOCAL (12.8%) dominate; long tail of minor sectors.
- Credit Quality: Majority in AA (53.6%) and A (37.3%); 93.8% obligors unrated.
- Maturity Profile: Balanced between <5 years and 20–30 years; low 30+ years exposure.\
- Geographic Exposure: Heavy exposure in California & New York; diversified across other states.
- Jump Risk: Concentrated in a few BBB1-rated obligors with >4.5M exposure.
- Top Obligors: NY State PIT (~128M), CA State (~90M), NYC TFA (~58M) lead in exposure.

Takeaways:

Concentration in sectors and obligors; strong credit quality;
unrated risk exists; maturity and jump risk require monitoring.

GenAI Use

- Utilized LLMs for identifying optimal color scales to enhance visual clarity across charts and maps.
- Explored best tools for map-based visualization, selecting Plotly and Folium for interactive geographic representation.
- Received guidance on data caching strategies to improve dashboard performance and reduce API load times in Streamlit.
- Leveraged GenAI for debugging complex plotting errors and ensuring visualizations aligned with professional standards.
- Used GenAI to refine statistical analysis approaches and determine appropriate visual formats for categorical data.

CREATED BY KAUSHAL KUMAR