Project Title

FDIC Call Report Fixed Income Trading Activity Tracker and Predictive Bank Scoring System

Overview

We are seeking an AI and machine learning developer to build a system that:

- Pulls FDIC Call Report data automatically using the FDIC Public API.

- Tracks depository institutions' (banks and credit unions) fixed income securities activity, liquidity positions, and capital ratios over time.

- Scores institutions from 1 to 10 based on their activity level in bond trading.

- Predicts future activity scores using machine learning models based on historical trends and key financial metrics.

This system will assist our fixed income trading desk in targeting banks that are active bond buyers.

Key Objectives

- Data Collection: Use FDIC APIs to pull quarterly call report data.

- Scoring Algorithm: Develop a scoring system (1–10) based on several financial variables.

- Trend Monitoring: Track changes quarter-over-quarter in banks’ bond portfolios.

- Predictive Analytics: Build a machine learning model to forecast banks likely to increase fixed income purchases.

Functional Requirements

1. Data Sources

- FDIC Call Report API (mandatory)

- Pull fields including:

- Securities Held to Maturity (HTM)

- Securities Available for Sale (AFS)

- Mortgage-Backed Securities (MBS) Holdings

- Municipal Securities (MUNI) Holdings

- Corporate Bond Holdings

- Cash and Due From Banks

- Repo (Federal Funds Sold/Purchased)

- Capital Ratios (Tier 1 Capital, Total Equity)

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Loans and Leases:

Deposits:

Securities Held to Maturity (HTM):   
Securities Available for Sale (AFS):

U.S Treasury Securities

U.S Government agency

Municipal Bonds

Mortgage-Backed Securities (MBS)  GNMA Holdings:

Mortgage-Backed Securities (MBS)  Fannie Holdings:

CMO:

Commercial MBS:

ABS:

Structured Financial Products

Corporate Bond Holdings:   
Cash and Due From Banks:   
Repo (Federal Funds Sold/Purchased):  
Capital Ratios (Tier 1 Capital Ratio):   
Total Equity Capital:   
Total Assets:  
Bank Identifiers: CERT (Certificate Number),(Bank Name)

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2. Scoring Model (Baseline Rules)

- Score each institution quarterly between 1–10.

- Variables considered:

- Size of fixed income securities holdings relative to total assets.

- Growth/decline in bond holdings quarter-over-quarter.

- Cash positions relative to assets.

- Capital ratios and liquidity positions.

- Use of repo markets.

- Bonus points for growing securities portfolios or declining cash balances.

3. Predictive Machine Learning Model

- Train model using historical call r

- Outputs structured reports (CSV, Excel, or Google Sheets).

- Well-documented and reproducible code.

Nice-to-Have (Optional Enhancements)

- Dashboard for visualizing bank scores over time (Plotly, Dash, or Streamlit).

- Automatic scheduled data pulls (quarterly refresh).

- Alert system for score changes.

Skills Required

- Python (pandas, scikit-learn, requests)

- API Integration (especially FDIC.gov API)

- Machine Learning (supervised modeling experience)