Team 6 Executive Summary

Project Overview

This project, titled "Macroeconomic Variables and Credit Risk Dynamics," critically examines the relationship between key macroeconomic variables and their impact on credit risk, with a specific focus on delinquency rates. Analyzing a comprehensive dataset spanning from 1991 to 2023, this study investigates how fluctuations in GDP, unemployment rates, interest rates, and inflation correlate with changes in delinquency rates in the United States.

Research Motivation and Methodology

The motivation for this project stems from significant global economic upheavals, such as the 2008 financial crisis and the 2020 pandemic, which have profoundly impacted credit markets. By drawing parallels from European studies on non-performing loans, the project employs econometric models that incorporate time series data to assess the persistence of economic impacts on credit risk. The methodology involves advanced regression techniques using over three decades of data, evaluating both long-term trends and short-term economic shocks.

Data Analysis

The team utilized extensive economic datasets, primarily sourced from the Federal Reserve Economic Data (FRED) and the Organization for Economic Cooperation and Development (OECD). The analysis involved detailed statistical tests, including correlation matrices and multiple regression models, to uncover the relationship between economic indicators and delinquency rates. Key quantitative findings highlighted that a 1% increase in unemployment could lead to a 0.5% rise in delinquency rates, underscoring the sensitivity of credit markets to economic conditions.

Results and Predictions

The study's predictive models demonstrated the importance of historical economic data in forecasting future credit risks. While the models effectively captured general trends, they underpredicted delinquency rates in 2023 by 0.1% to 0.15%, indicating potential model limitations in adjusting to rapid economic changes or unforeseen events.

Conclusions and Future Directions

The project concludes that macroeconomic variables significantly influence credit risk, with economic downturns, increased unemployment, and inflation exacerbating delinquency rates. It recommends enhancing future models by incorporating monthly or weekly data and including additional variables like consumer confidence and housing market indices. The study also

suggests examining the impact of government interventions and monetary policy changes on credit risk.

Team Contributions

Team 6 brought together a multidisciplinary group of students, each contributing unique expertise in data analysis, economic theory, and model development, ensuring a rigorous approach to understanding the complex dynamics of macroeconomic variables on credit risk.

This executive summary provides a comprehensive overview of Team 6's research, showcasing their analytical depth and offering a solid foundation for policymakers and economists aiming to mitigate future credit risks in tumultuous economic times.