Outline For Prepared Remarks

Where we are today

Macro sensitivity analysis and reliance on the Great Recession

Modeling considerations and solutions
Where We Are Today

• What’s different in 2018 vs. 2008?

CCAR!

• Establishment, enhancement of *model governance, model risk management*, other oversight processes

• Review/revision of *underwriting criteria, servicing, operations, compliance*
  – End-to-end process re-engineering

• *Data/infrastructure investment*

• *Dedicated R&D* especially on loss modeling and stress testing
  – Evolution of modeling approaches
  – Exploration of fundamental relationships between loan performance and predictors
  – Benchmarking practices

• What else is different?
Consumer revolving debt at $1T again. Loss rates near historical lows. Just like 2008?
Macro Sensitivity Analysis: Variables With Complete Cycles Since 2008

- Generally strong association between losses and these macros will produce reliable statistical relationships for stress test models.
- Longer history should reinforce these relationships.

1 Charge-Off Rate on Credit Card Loans, Top 100 Banks Ranked by Assets, Percent, Quarterly, Seasonally Adjusted
2 Civilian Unemployment Rate, Percent, Quarterly, Seasonally Adjusted
3 Real Gross Domestic Product, Percent Change from Preceding Period, Quarterly, Seasonally Adjusted Annual Rate
4 All-Transactions House Price Index for the United States, Index 1980:Q1=100, Quarterly, Not Seasonally Adjusted

SOURCE: Economic Research Division, Federal Reserve Bank of St. Louis
Macro Sensitivity Analysis: Variables Without Complete Cycles Since 2008

### Charge-off Rate\(^1\) vs. Prime Rate\(^2\)

- Longer history with more macro cycle/variability would be needed to derive reliable statistical relationships for these macros.
- Recent trends in these may point toward emerging risks that warrant attention:
  - Interest rates
  - Consumer leverage
- What is different between 2018 and 2008?
  - Prime Rate ~170bps lower
  - TDSR ~300 bps lower

### Charge-off Rate\(^1\) vs. Debt Service Ratio\(^3\)

1 Charge-Off Rate on Credit Card Loans, Top 100 Banks Ranked by Assets, Percent, Quarterly, Seasonally Adjusted
2 Bank Prime Loan Rate, Percent, Quarterly, Not Seasonally Adjusted
3 Household Debt Service Payments as a Percent of Disposable Personal Income, Percent, Quarterly, Seasonally Adjusted

SOURCE: Economic Research Division, Federal Reserve Bank of St. Louis
Considerations and Solutions

• **What data is available?**
  - Aggregate portfolio charge-offs, cohort/vintage curves, account level data over time
    - For account-level models, is data sufficient to model defaults? Other competing risks?
    - Account characteristics – internal plus external (i.e. credit bureau)
    - Event history
    - Macro variables
    - What granularity is available (especially important for segment/account-level models)?
    - Is history long enough to measure valid correlations to macro variables?
    - Does history contain at least one downturn?

• **How are Risk ID/emerging risk and scenario design processes integrated into the modeling?**

• **Build vs. buy?** Do robust frameworks exist for model development and validation? What is the governance?

• **How will results be benchmarked?** What benchmarks are available?