CECL Common Challenges

Empyrean Solutions

Meet Your Presenter

Market Leader in Financial Risk & Performance Management Solutions for the Banking Industry

280+

Empyrean Clients

150 EMPLOYEES

$70M - $210B

Asset Range of our Clients

staff dedicated to product development & support

80+ banks and credit unions chose Empyrean in 2023

100% products made for bankers & finance professionals

750+ financial institutions leverage the **Empyrean ALM Model**

110+

Budgeting & Planning customers since release in 2022

52

states & provinces throughout USA and Canada

Agenda

- Data gaps and segmentation trade-offs
- Forecasting, overlays, and reversion methods
- Validation, documentation, and audit friction
- Governance and cross-department alignment
- Reserve volatility and capital planning challenges

Data Gaps

- Model Accuracy and Reliability
    - CECL models require extensive historical data to establish credible loss patterns and relationships
    - Without complete historical data showing how a portfolio behaved during various economic conditions, it becomes difficult to calibrate credible adjustments
- Segmentation Challenges
    - Data gaps can force you into broader, less precise pools
    - Reduces the model's ability to differentiate risk

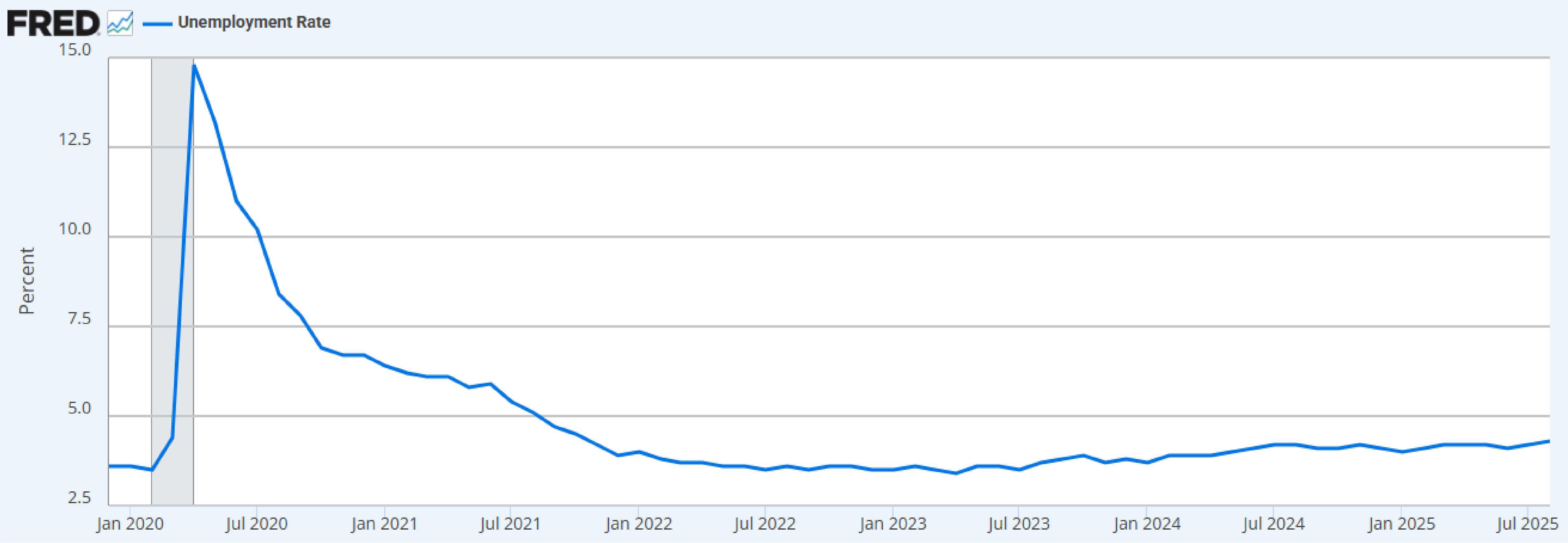
Unemployment Rate

Economic Cycles

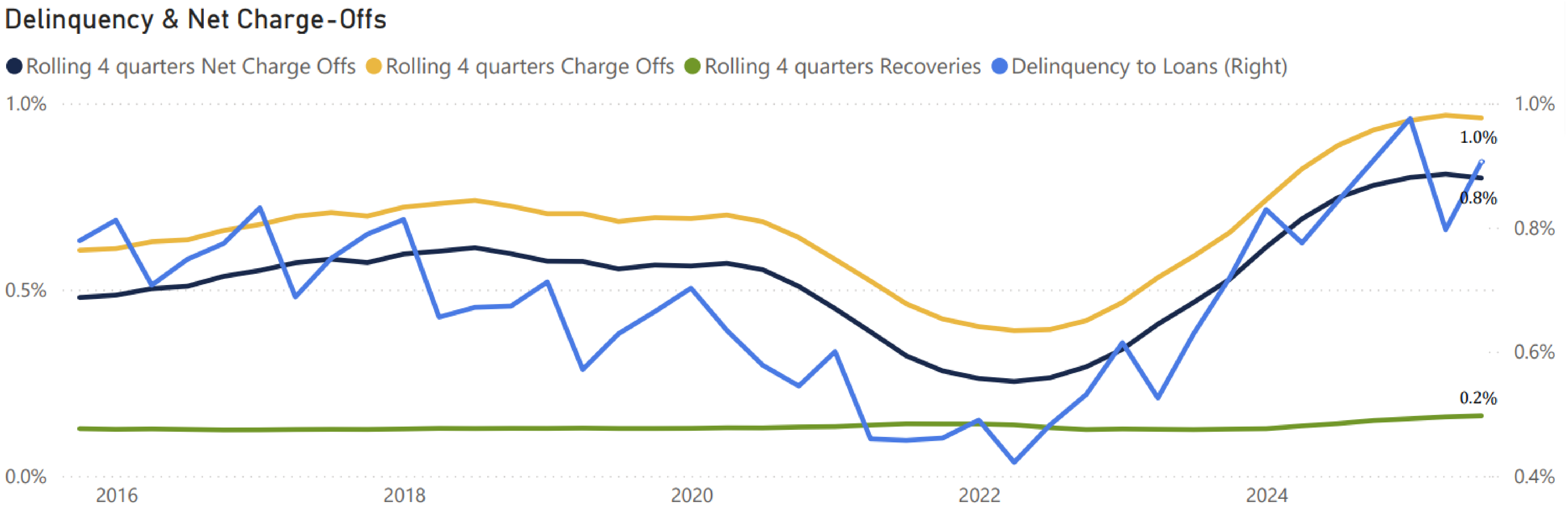
- Current Economic Cycle (Per the NBER):
  - Peak: February 2020 (2019Q4)
  - Trough: April 2020 (2020Q2)
  - Prior Peak: December 2007 (2007Q4)
- Average Business Cycle = 6.25 Years (1945-2020)

Unemployment Rate

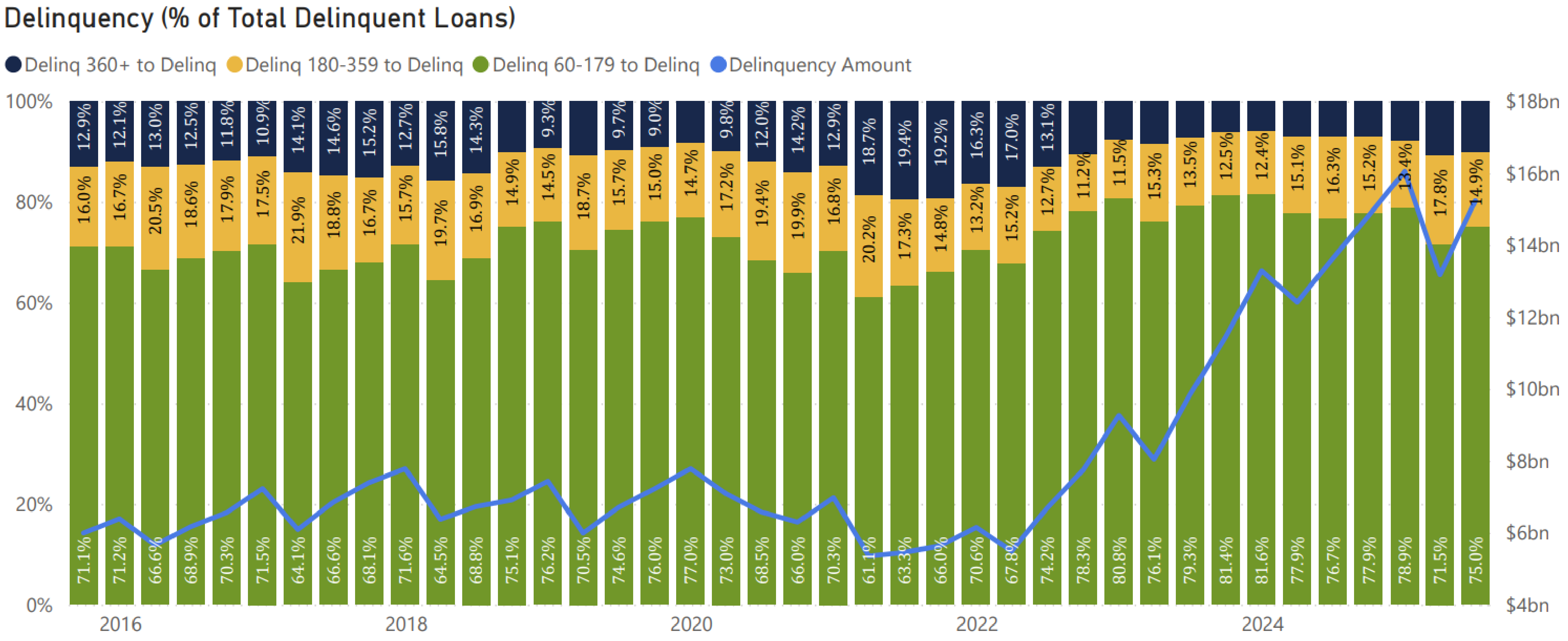
Unemployment Rate



Loss Data


Delinquency & Net Charge-Offs
Rolling 4 quarters Net Charge Offs
Rolling 4 quarters Charge Offs
Rolling 4 quarters Recoveries
Delinquency to Loans (Right)
1.0%
0.5%
0.0%
1.0%
0.8%
0.6%
0.4%
2016
2018
2020
2022
2024
1.0%
0.8%
0.2%

Peer Data


Delinquency (% of Total Delinquent Loans)
Delinq 360+ to Delinq
Delinq 180-359 to Delinq
Delinq 60-179 to Delinq
Delinquency Amount
100%
80%
60%
40%
20%
0%
$18bn
$16bn
$14bn
$12bn
$10bn
$8bn
$6bn
$4bn
2016
2018
2020
2022
2024
12.9% 16.0% 71.1%
12.1% 16.7% 71.2%
13.0% 20.5% 66.6%
12.5% 18.6% 68.9%
11.8% 17.9% 70.3%
10.9% 17.5% 71.5%
14.1% 21.9% 64.1%
14.6% 18.8% 66.6%
15.2% 16.7% 68.1%
12.7% 15.7% 71.6%
15.8% 19.7% 64.5%
14.3% 16.9% 68.8%
14.9% 75.1%
9.3% 14.5% 76.2%
18.7% 70.5%
9.7% 15.7% 74.6%
9.0% 15.0% 76.0%
14.7% 77.0%
9.8% 17.2% 73.0%
12.0% 19.4% 68.5%
14.2% 19.9% 66.0%
12.9% 16.8% 70.3%
18.7% 20.2% 61.1%
19.4% 17.3% 63.3%
19.2% 14.8% 66.0%
16.3% 13.2% 70.6%
17.0% 15.2% 67.8%
13.1% 12.7% 74.2%
11.2% 78.3%
11.5% 80.8%
15.3% 76.1%
13.5% 79.3%
12.5% 81.4%
12.4% 81.6%
15.1% 77.9%
16.3% 76.7%
15.2% 77.9%
13.4% 78.9%
17.8% 71.5%
14.9% 75.0%

Segmentation

CECL Pool	Granular

• 1-4 Family Mortgage
  • Owner Occupied
  • Non-Owner Occupied
	• 1-4 Family Mortgage
	  • Primary
	    • Fixed
	    • Variable
	  • 2nd Home
	    • Fixed
	    • Variable
	  • Commercial
	    • Fixed
	    • Variable

Forecasting, Overlays, and Reversion Methods

- Forecasting Sources
  - Consistent, systematic approach with documentation
- Qualitative Overlays
  - Templated approach with support
    - Economic data, Internal Data
  - Scenario Weighting / Analysis
- Reversion Methodologies
  - Documented support for reversion selection
  - Dynamic reversion periods

Forecasting Sources

Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assumptions of projected appropriate monetary policy, September 2025

Percent

Variable	Median[1]					Central Tendency[2]					Range[3]				
	2025	2026	2027	2028	Longer run	2025	2026	2027	2028	Longer run	2025	2026	2027	2028	Longer run
Change in real GDP	1.6	1.8	1.9	1.8	1.8	1.4–1.7	1.7–2.1	1.8–2.0	1.7–2.0	1.7–2.0	1.3–2.0	1.5–2.6	1.7–2.7	1.6–2.6	1.7–2.5
June projection	1.4	1.6	1.8		1.8	1.2–1.5	1.5–1.8	1.7–2.0		1.7–2.0	1.1–2.1	0.6–2.5	0.6–2.5		1.5–2.5
Unemployment rate	4.5	4.4	4.3	4.2	4.2	4.4–4.5	4.4–4.5	4.2–4.4	4.0–4.3	4.0–4.3	4.2–4.6	4.0–4.6	4.0–4.5	4.0–4.5	3.8–4.5
June projection	4.5	4.5	4.4		4.2	4.4–4.5	4.3–4.6	4.2–4.6		4.0–4.3	4.3–4.6	4.3–4.7	4.0–4.7		3.5–4.5
PCE inflation	3.0	2.6	2.1	2.0	2.0	2.9–3.0	2.4–2.7	2.0–2.2	2.0	2.0	2.5–3.2	2.2–2.8	2.0–2.4	2.0	2.0
June projection	3.0	2.4	2.1		2.0	2.8–3.2	2.3–2.6	2.0–2.2		2.0	2.5–3.3	2.1–3.1	2.0–2.8		2.0
Core PCE inflation[4]	3.1	2.6	2.1	2.0		3.0–3.2	2.5–2.7	2.0–2.2	2.0		2.7–3.4	2.2–2.9	2.0–2.4	2.0–2.2	
June projection	3.1	2.4	2.1			2.9–3.4	2.3–2.7	2.0–2.2			2.5–3.5	2.1–3.2	2.0–2.9		
Memo: Projected appropriate policy path															
Federal funds rate	3.6	3.4	3.1	3.1	3.0	3.6–4.1	2.9–3.6	2.9–3.6	2.8–3.6	2.8–3.5	2.9–4.4	2.6–3.9	2.4–3.9	2.6–3.9	2.6–3.9
June projection	3.9	3.6	3.4		3.0	3.9–4.4	3.1–3.9	2.9–3.6		2.6–3.6	3.6–4.4	2.6–4.1	2.6–3.9		2.5–3.9

Forecasting Sources

Home / Expert Resources / 2025 Overall U.S. and Georgia Economic Outlook

Topics: Agricultural Development, Economy

2025 Overall U.S. and Georgia Economic Outlook

This publication is part of the 2025 Georgia Ag Forecast series.

AP 130-3-01 Save PDF

Table 2. Georgia Baseline Forecast, 2024-2025.

Georgia	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
Gross domestic product (in billions of 2017$)	602.3	639.2	655.8	661.1	681.6	698.0
Percent change	-3.0	6.1	2.6	0.8	3.1	2.4
Nonfarm employment (thousands)	4,425.1	4,598.1	4,810.3	4,904.7	4,977.6	5,027.5
Percent change	-4.5	3.9	4.6	2.0	1.5	1.0
Personal income (billions of $)	552.2	606.1	617.6	646.1	677.8	709.6
Percent change	6.9	9.8	1.9	4.6	4.9	4.7
Housing permits, total	55,827	67,223	77,752	63,621	67,280	70,428
Percent change	3.7	20.4	15.7	-18.2	5.8	4.7
Unemployment rate (percent)	6.5	3.9	3.1	3.2	3.7	4

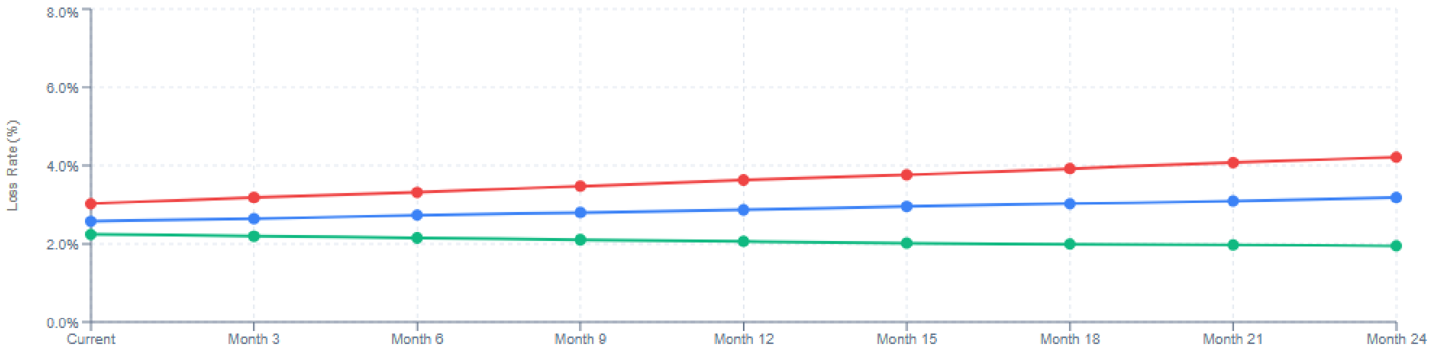
Source: The Selig Center for Economic Growth, University of Georgia Terry College of Business.

Forecasting

- Perform and document correlation analysis between economic variables and historical losses
  - Important to document factors that correlate well, as well as the ones that don't
- You must quantify the qualitative
  - If using a scorecard approach, further justification for risk selections are beginning to be the new normal
  - Avoid double counting between the forecast, and the qualitative factors
- Document the Forecast Period
  - 12 vs. 24 months vs. Other
- Period over Period Change Analysis
  - When forecast assumptions change quarterly, trace why changes occurred and whether they reflect new information

Qualitative Overlays

- Create templates for qualitative adjustments that require specific inputs:
  - Risk identification
  - Gap analysis
  - Calculation methodology
  - Governance approval
- Scenario weighting continues to be a popular approach.
  - Multiple variable can be included in scenarios
  - Ties well to sensitivity analysis / stress testing



Baseline Scenario
Loss rates decline from 2.24% to 1.95% over 24 months as economic conditions stabilize and portfolio quality improves.

Adverse Scenario
Loss rates increase to 3.18% by month 24 reflecting moderate economic stress and higher default rates across segments.

Severely Adverse
Loss rates reach 4.21% under severe stress conditions with significant portfolio deterioration and elevated charge-offs.

Reversion

- The selection of historical periods for mean reversion lacks support at many institutions.
  - "Why are you reverting over 4 quarters?"
- Should you evaluate different reversion methods?
  - Mean Reversion with Decay Functions
    - assume economic indicators initially revert quickly when far from historical norms, then slow as they approach equilibrium
  - Probability Weighted Reversion
    - Probability-weighting multiple lookback windows. They might assign 40% weight to the last complete credit cycle, 35% to the past 20 years, and 25% to the longest available history. This acknowledges uncertainty about which historical period best represents through-the-cycle conditions
  - Conditional Reversion
    - Make reversion conditional on other factors
    - Reflecting economic relationships where lagging indicators don't improve until leading indicators recover

Validation, Documentation, and Audit

- Judgment-based elements of CECL create audit challenges.
    - Auditors expect challenge processes and evidence that alternatives were considered.
    - Meeting minutes, challenge questions, and documentation of why certain approaches were selected over others.
- Data integrity issues
    - Auditors discover inconsistencies between what's reported in CECL models and source system data.
        - Data transformation process
        - Data validation
    - Examples include charged-off loans being excluded, modification dates don't match, settings don’t match results

Governance and Cross-Department Alignment

- Credit Unions focus on documenting the model itself but neglect to document the end-to-end process: data sourcing, validation procedures, review protocols, and approval hierarchies
- Change control represents another weakness.
    - Credit Unions modify assumptions or methodologies quarter-to-quarter without proper documentation of what changed, why it changed, and who approved it.
    - Change logs and approval protocols

Detailed Audit Log

Timestamp	Step	Action	Entity	Description
09/11/25 14:13:19	2: Model	step_navigation	CECL Workflow Step 2 workflow_navigation	Navigated from Step 3 (Process) to Step 2 (Model)
09/11/25 14:13:18	3: Process	step_navigation	CECL Workflow Step 3 workflow_navigation	Navigated from Step 4 (Q Factors) to Step 3 (Process)
09/11/25 14:13:17	4: Q Factors	step_navigation	CECL Workflow Step 4 workflow_navigation	Navigated from Step 5 (Reports) to Step 4 (Q Factors)
09/11/25 11:24:21	5: Reports & Publishing	publish	Zach Demo project_completion	Published final CECL results for project "Zach Demo"
09/11/25 11:24:19	5: Step 5	approval	Step 5 step	Step 5 approved by sarah.mitchell
09/11/25 11:22:42	5: Reports	step_navigation	CECL Workflow Step 5 workflow_navigation	Navigated from Step 4 (Q Factors) to Step 5 (Reports)
09/11/25 11:22:38	4: Step 4	approval	Step 4 step	Step 4 approved by sarah.mitchell

Governance and Cross-Department Alignment

Current Expected Credit Loss (CECL) is an accounting standard that focuses on how financial institutions estimate and recognize credit losses on their assets, requiring them to consider lifetime expected losses.

Asset and Liability Management (ALM) is a broader strategy that involves managing the balance sheet to optimize the risks and returns related to both assets and liabilities, including interest rate risk and liquidity

BOTH exercises take the current state and apply a forecast to simulate results

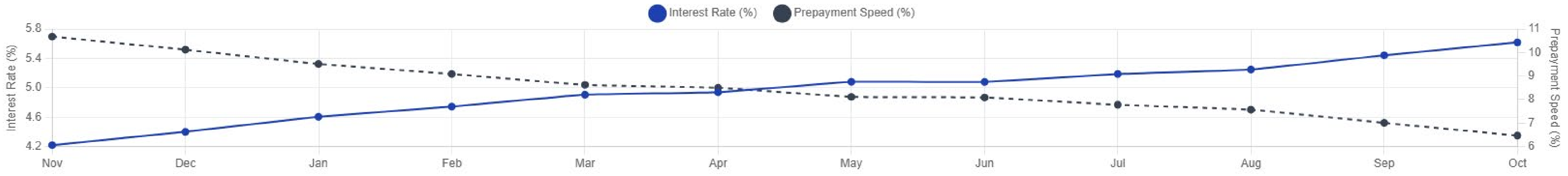
Similar Inputs

Fixed 30yr

121 loans

Interest Rate & Prepayment Speed Trends

Rate: 5.62%(+0.18%) Prepay: 6.5%(-0.5%)

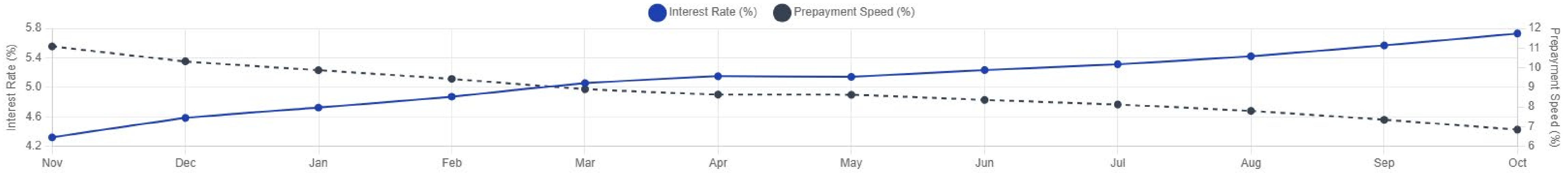


Fixed 15yr

141 loans

Interest Rate & Prepayment Speed Trends

Rate: 5.73%(+0.16%) Prepay: 6.8%(-0.5%)



Examiner’s Handbook

Stress Testing

- Determine whether bank management and risk management functions provide credible challenges to loan and portfolio level stress testing policy, concentration limits policy, risk ratings policy, collateral valuation policy, and loss mitigation strategies
- Determine whether bank management and risk management functions provide credible challenges to loan and portfolio level stress testing, concentration limits, risk ratings, collateral valuation, and loss mitigation strategies
- Evaluate the effectiveness of management’s actions to identify, measure, monitor, and control credit risk given significant changes in market conditions, interest rates, and geopolitical events.

Reserve Volatility and Capital Planning Challenges

"Traditional capital planning assumed relatively predictable allowance levels with gradual changes tied to portfolio growth and observable credit migration."

Charge-Offs

Charge-Offs and Recoveries Amount Rolling 4 quarters

	Charge-Offs	Recoveries	Net Charge-Offs
2016 06	$4,969M	$977M	$3,992M
2017 06	$6,135M	$1,084M	$5,051M
2018 06	$7,080M	$1,217M	$5,863M
2019 06	$7,062M	$1,316M	$5,746M
2020 06	$7,515M	$1,419M	$6,096M
2021 06	$5,381M	$1,630M	$3,751M
2022 06	$5,067M	$1,670M	$3,397M
2023 06	$8,694M	$1,829M	$6,866M
2024 06	$14,097M	$2,231M	$11,867M
2025 06	$15,842M	$2,662M	$13,180M

Charge-Offs and Recoveries Change Rolling 4 quarters

	Charge-Offs	Recoveries	Net Charge-Offs
2016 06	13.8%	6.2%	15.9%
2017 06	23.5%	11.0%	26.5%
2018 06	15.4%	12.3%	16.1%
2019 06	-0.3%	8.1%	-2.0%
2020 06	6.4%	7.8%	6.1%
2021 06	-28.4%	14.8%	-38.5%
2022 06	-5.8%	2.5%	-9.4%
2023 06	71.6%	9.5%	102.1%
2024 06	62.1%	22.0%	72.8%
2025 06	12.4%	19.3%	11.1%

Reserve Volatility and Capital Planning Challenges

- Weighted scenario approaches with gradual weight shifts
- More frequent calculation runs
- Period over period change analysis
- Scenario planning extends beyond traditional stress testing to include "CECL stress" scenarios—situations where economic forecasts deteriorate without actual credit problems materializing

Period over Period Change Analysis

High-Level Results Comparison

Total Estimated Loss
Current: $89.5M +5.3%
Previous: $85.0M

Portfolio Balance
Current: $4.0B +2.0%
Previous: $3.9B

Loss Rate
Current: 2.24% +7bps
Previous: 2.17%

Segment-Level ECL Comparison

Segment	Current ECL	Previous ECL	Variance ($)	Variance (%)
HTM Investments	$16.1M	$16.2M	$-44,750	-0.3%
Commercial Real Estate	$25.1M	$23.0M	+$2.1M	+9.2%
Residential Loans	$19.7M	$19.6M	+$134,250	+0.7%
Commercial & Industrial	$18.8M	$17.0M	+$1.8M	+10.5%
Consumer Loans	$9.8M	$9.4M	+$492,250	+5.3%

Key Variance Drivers

Modest Portfolio Growth
Portfolio balance increased by 2.0%, resulting in proportional ECL increases while maintaining stable loss rates.

Minor Economic Adjustments
Slight adjustments to economic scenario weightings resulted in 5% ECL increase, indicating stable credit environment.

Model Methodology Updates
No significant methodology changes. Variance primarily driven by portfolio composition and economic environment updates.

Thank You

- Questions or Feedback? Please reach out here:
  - Zach Englert: Zach.Englert@empyreansolutions.com
  - Empyrean Solutions: Hello@EmpyreanSolutions.com
- Empyrean Solutions Website: https://empyreansolutions.com/