

Forecasting Income Statements & Balance Sheets Using Industry Data

Brian Poi – Director of Specialized Modeling



Brian develops a variety of credit loss, credit origination and deposit account models for use in both strategic planning and CCAR/DFAST environments.

Brian provides thought leadership and guidance on the use of advanced statistical and econometric methods in economic forecasting applications.

He received his PhD and MA in economics from the University of Michigan after graduating magna cum laude from Indiana University.

Agenda

- » Current Challenges and Our Solution: Bank Call Report Forecasts
- » Forecast Methodology for Income Statements and Balance Sheets
- » Examples: Bank Forecasts Under Baseline and Stress Scenarios

Current Challenges

- » With banks' credit models having achieved sufficient rigor, regulators are shifting their attention to Pre-Provisional Net Revenue (PPNR) modeling.
- » Often difficult to produce reliable forecasts projections based on sparse internal data and the influence of idiosyncratic factors.
- » Creating timely, credible and transparent projections require:
 - Forecasts to be **consistent** with the macro assumptions.
 - Modeling techniques that fully account for cyclical economic factors.
 - Fully documented and transparent.

Robust Solution: Bank Call Report Forecasts

Econometric forecasts of income statement and balance sheet under trusted scenarios based on FDIC Call Report data.

Industry & Peer Level Forecasts	Industry-Level Forecasts Off-the-Shelf Peer Groups <ul style="list-style-type: none">- CCAR, DFAST (2)- Region (4)	Bank-Specific Level Forecasts	Individual Bank Forecasts <ul style="list-style-type: none">Own bankCompetitors: Individual, AggregatesCustom Peer Groups
--------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------

- » Industry models more accurately capture the effects of macroeconomic variables.
- » Bank-level models more realistically assess bank-specific factors affecting portfolio.
- » Overcomes limitations due to sparse/noisy data influenced by bank-specific factors.
 - History back to 1992, spanning several expansions and recessions.
 - Eliminates internal factors such as management actions and M&A activity.
- » Ability to forecast performance for individual competitors and peer groups.

Full Range of Economic Scenarios

Moody's Analytics trusted economic scenarios:

BL	Baseline / Most Likely	S5	Below-Trend Long-Term Growth
S1	Stronger Near-Term Rebound	S6	Oil Price Increase, Dollar Crash
S2	Slower Near-Term Recovery	S8	Low Oil Price
S3	Moderate Recession	CV	Constant Severity
S4	Protracted Slump	CS	Consensus Scenario

Or expanded scenarios based on the Fed's projections:

FB	Fed Baseline Scenario	FA	Fed Adverse Scenario	FSA	Fed Severely Adverse Scenario
-----------	-----------------------	-----------	----------------------	------------	-------------------------------

One Solution for Multiple Applications

Regulatory Stress Testing

- » More accurate stress testing of the entire balance sheet and income statement.
- » Industry benchmarks for internally-generated models.

Capital Planning

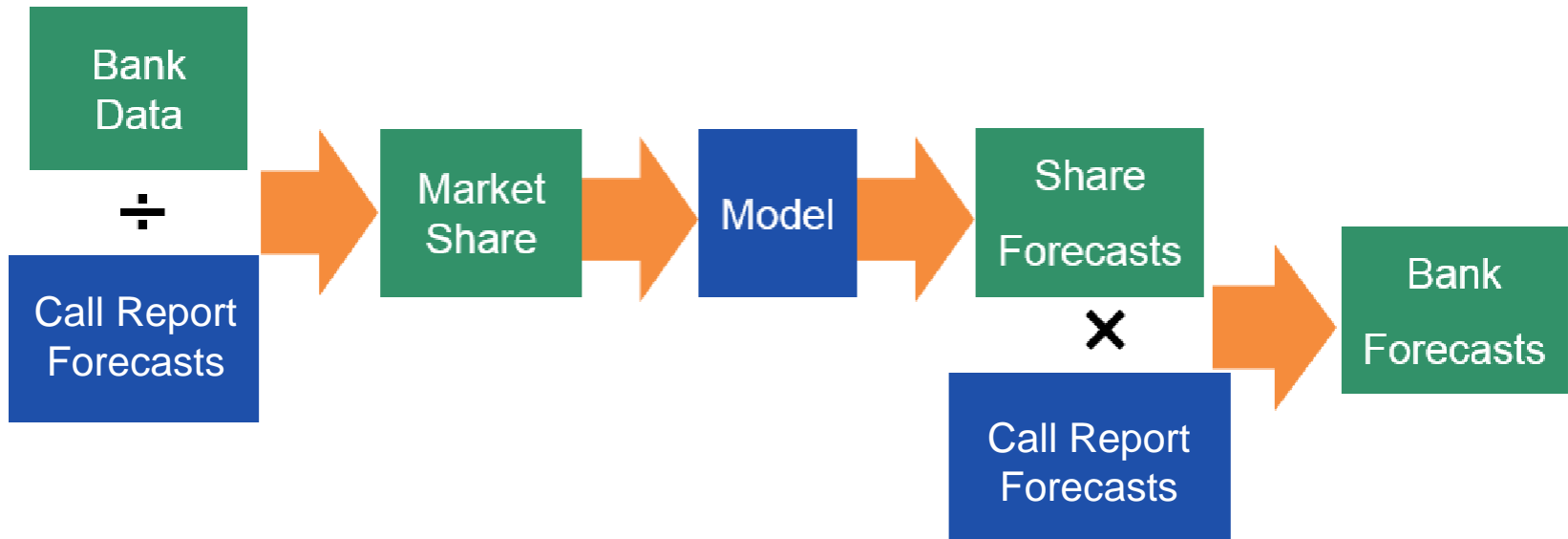
- » Can be used to guide capital planning and budgeting.
- » Make more informed enterprise risk management decisions.

Strategic Planning

- » Evaluate portfolio growth and market share vs. the industry to identify strengths, risks and opportunities.
- » Inform M&A decisions based on a better understanding of value vs. the industry.

Accurate Approach to Bank-level Forecasts

Industry PPNR forecasts combined with forecasts of the bank's market share produce more accurate bank-level projections of sales and volume.



Robust Forecasting Methodology

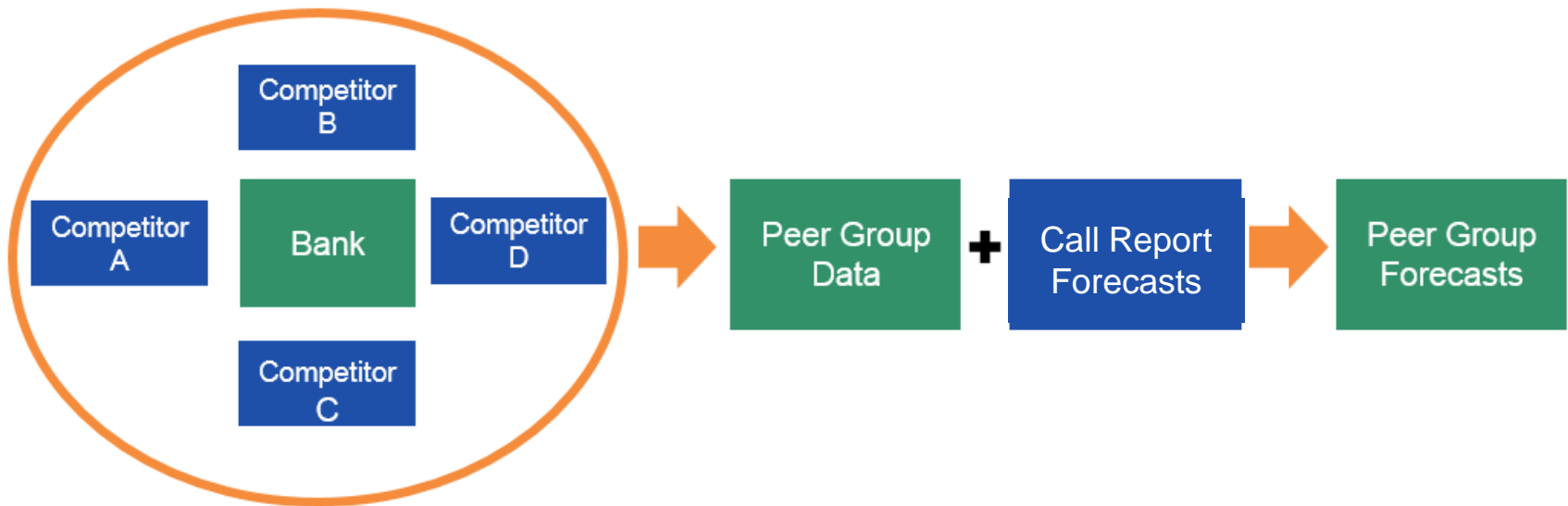
Income Statement Categories	Asset Categories	Liability Categories
Net interest margin Interest income Interest expense Non-interest income Non-interest expense	Total assets Bank credit - Securities, C&I, Mortgage, Consumer Cash Interbank loans Trading gains Loan & lease losses	Total liabilities Deposits Bank borrowing Trading losses Net due to related foreign offices

- » Data sourced from FDIC Statistics on Depository Institutions (call report) database.
- » Granular approach emphasizes internal forecast consistency across components.
- » Forecasts based on Moody's Analytics US Macro model for more than 1,800 economic variables consistent with the latest CCAR scenarios.
- » Forecasts updated quarterly.
- » Scenarios updated monthly.

Peer Group Analysis

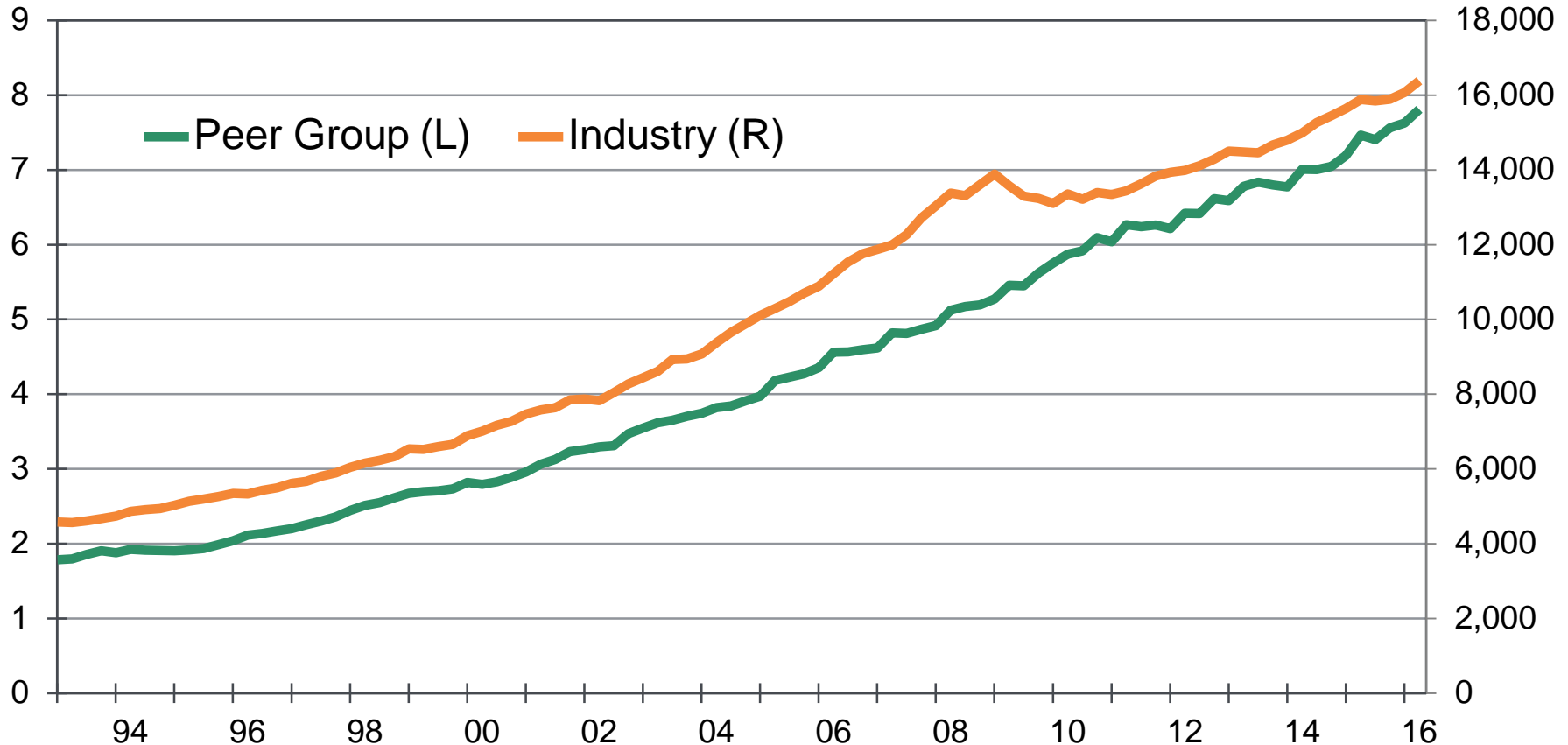
Forecast financials based on a subset of your peers.

- » Facilitates evaluation and forecasting of a bank's competitive landscape.
- » Custom peer groups can be defined by geography or from a list identified by the bank.
- » Peer group forecasts can be used to form individual bank shares and forecasts.



Central Texas Peer Group and Industry Assets

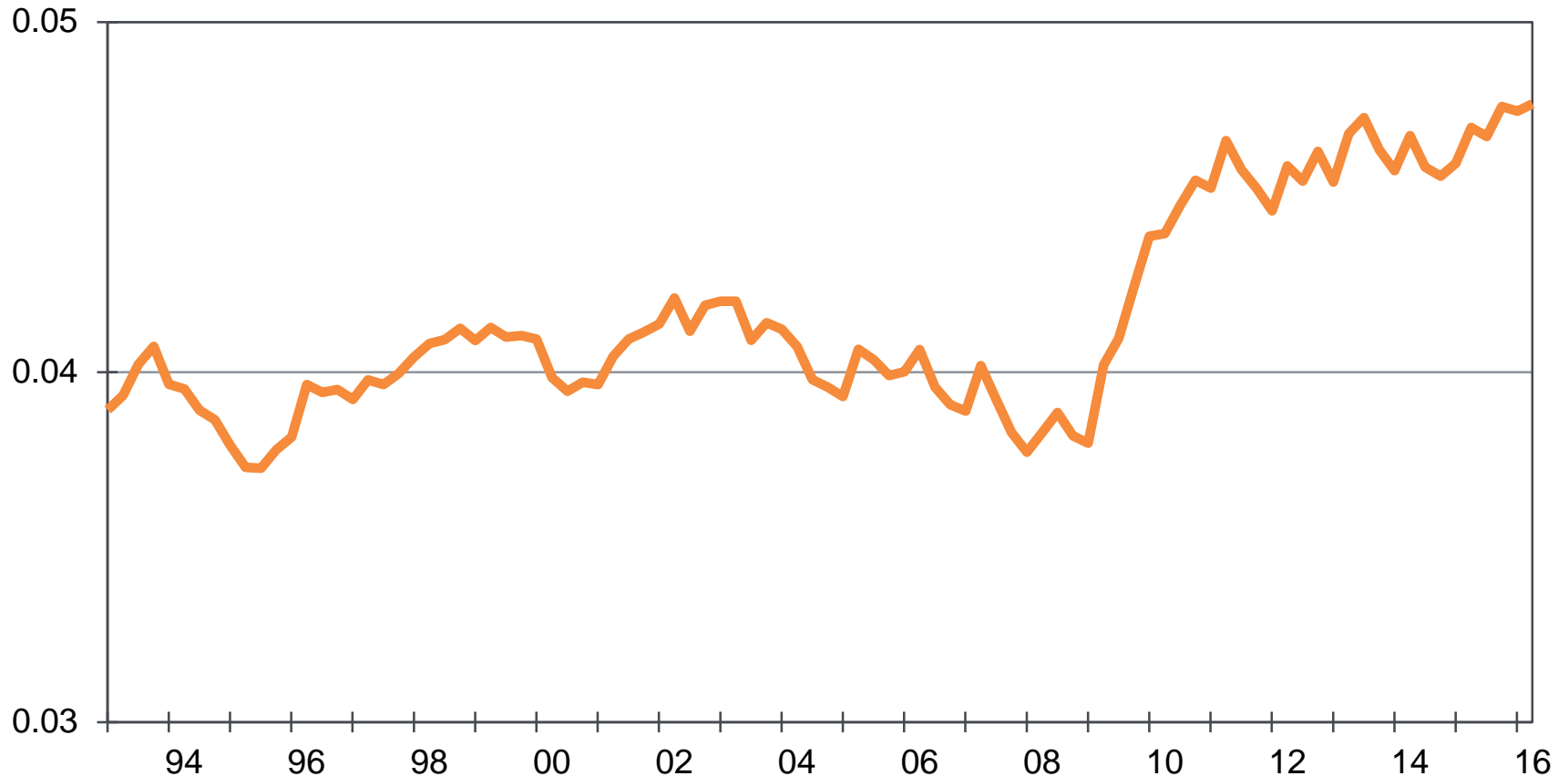
\$ bil



Sources: FDIC Statistics on Depository Institutions, Moody's Analytics

Peer Group Assets as a Share of Industry

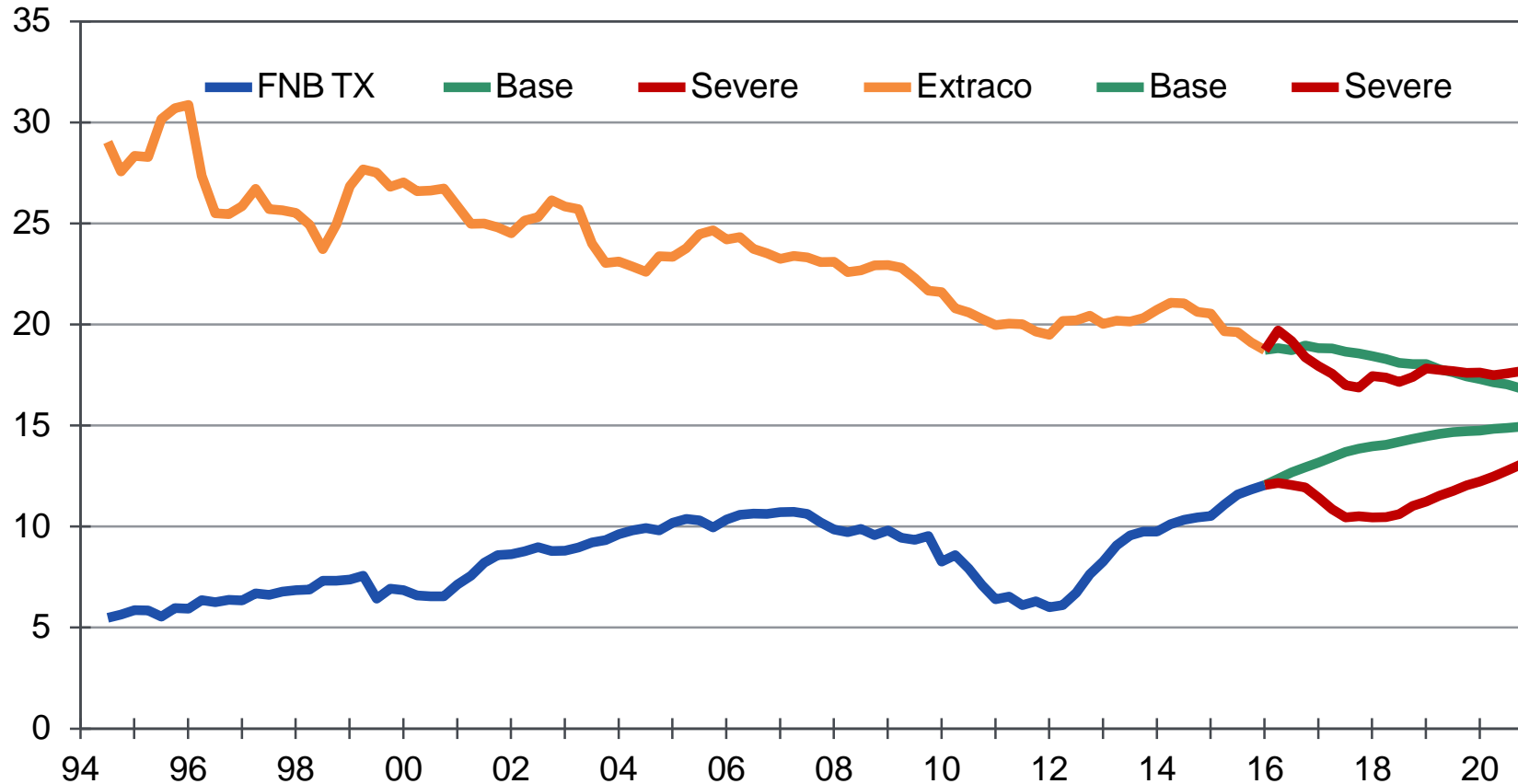
Pct.



Sources: FDIC Statistics on Depository Institutions, Moody's Analytics

Net Loan and Lease Share Forecasts

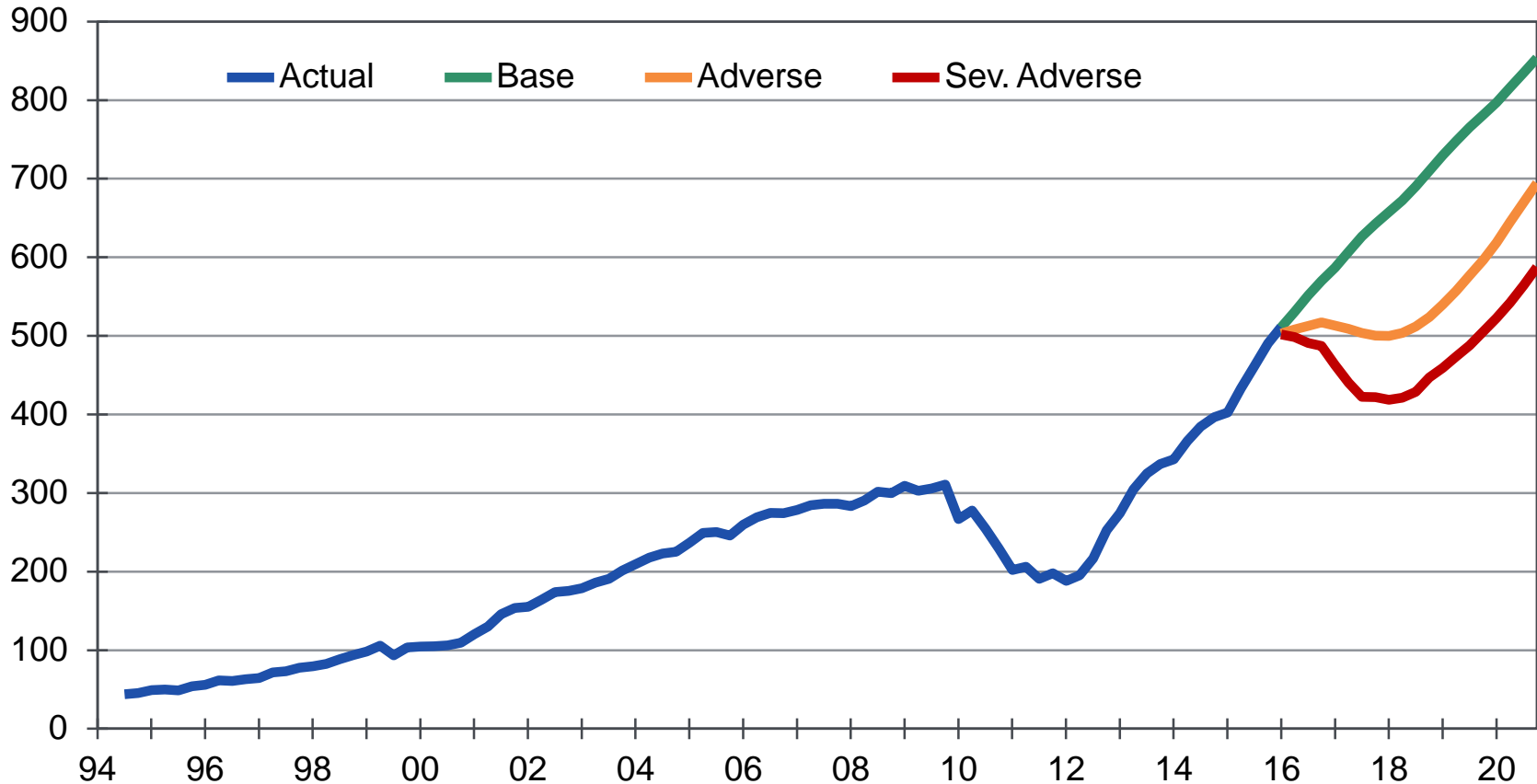
Pct. of Peer Group



Sources: FDIC Statistics on Depository Institutions, Moody's Analytics

FNB Texas Net Loans and Leases Forecast

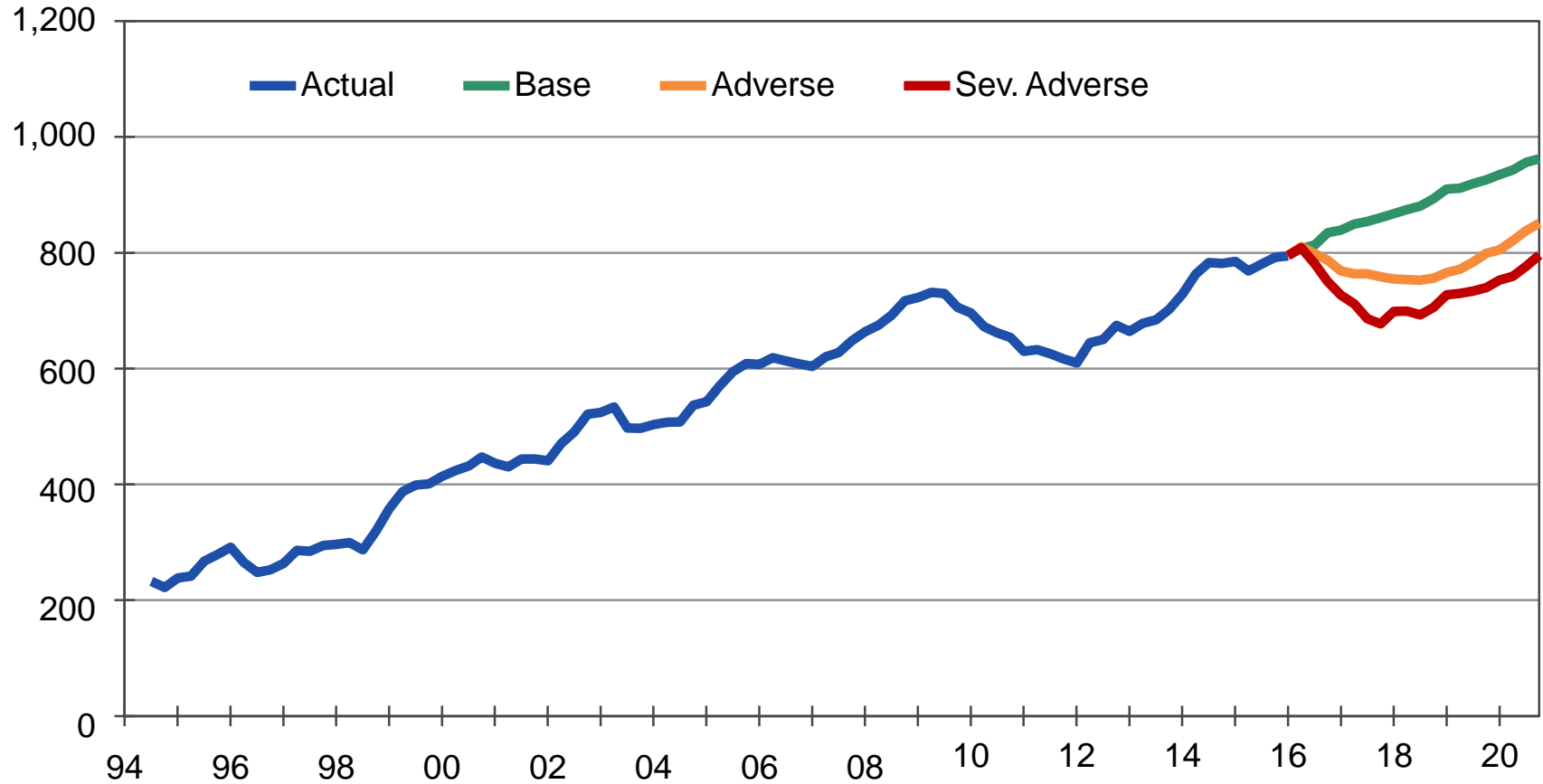
\$ mil



Sources: FDIC Statistics on Depository Institutions, Moody's Analytics

Extraco Net Loans and Leases Forecast

\$ mil



Sources: FDIC Statistics on Depository Institutions, Moody's Analytics

Moody's Analytics Bank Call Report Forecasts

Econometric forecasts of income statement and balance sheet under trusted scenarios based on FDIC Call Report data.

- » Forecasts at the industry, individual bank, and peer group level.
- » Industry models more accurately capture the effects of macroeconomic variables.
- » Bank-level models more realistically assess bank-specific factors affecting portfolio.
- » Overcomes limitations due to sparse/noisy data influenced by bank-specific factors.
 - History back to 1992, spanning several expansions and recessions.
 - Eliminates internal factors such as management actions and M&A activity.
- » Ability to forecast performance for individual competitors and peer groups.

© 2016 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.

CREDIT RATINGS ISSUED BY MOODY'S INVESTORS SERVICE, INC. AND ITS RATINGS AFFILIATES ("MIS") ARE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND CREDIT RATINGS AND RESEARCH PUBLICATIONS PUBLISHED BY MOODY'S ("MOODY'S PUBLICATIONS") MAY INCLUDE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL, FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS AND MOODY'S OPINIONS INCLUDED IN MOODY'S PUBLICATIONS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S PUBLICATIONS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. CREDIT RATINGS AND MOODY'S PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND CREDIT RATINGS AND MOODY'S PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. NEITHER CREDIT RATINGS NOR MOODY'S PUBLICATIONS COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS AND PUBLISHES MOODY'S PUBLICATIONS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS AND MOODY'S PUBLICATIONS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS OR MOODY'S PUBLICATIONS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the rating process or in preparing the Moody's Publications.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY SUCH RATING OR OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any rating, agreed to pay to Moody's Investors Service, Inc. for appraisal and rating services rendered by it fees ranging from \$1,500 to approximately \$2,500,000. MCO and MIS also maintain policies and procedures to address the independence of MIS's ratings and rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold ratings from MIS and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at www.moody.com under the heading "Investor Relations — Corporate Governance — Director and Shareholder Affiliation Policy."

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001.

MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors. It would be reckless and inappropriate for retail investors to use MOODY'S credit ratings or publications when making an investment decision. If in doubt you should contact your financial or other professional adviser.

Additional terms for Japan only: Moody's Japan K.K. ("MJJK") is a wholly-owned credit rating agency subsidiary of Moody's Group Japan G.K., which is wholly-owned by Moody's Overseas Holdings Inc., a wholly-owned subsidiary of MCO. Moody's SF Japan K.K. ("MSFJ") is a wholly-owned credit rating agency subsidiary of MJJK. MSFJ is not a Nationally Recognized Statistical Rating Organization ("NRSRO"). Therefore, credit ratings assigned by MSFJ are Non-NRSRO Credit Ratings. Non-NRSRO Credit Ratings are assigned by an entity that is not a NRSRO and, consequently, the rated obligation will not qualify for certain types of treatment under U.S. laws. MJJK and MSFJ are credit rating agencies registered with the Japan Financial Services Agency and their registration numbers are FSA Commissioner (Ratings) No. 2 and 3 respectively.

MJJK or MSFJ (as applicable) hereby disclose that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MJJK or MSFJ (as applicable) have, prior to assignment of any rating, agreed to pay to MJJK or MSFJ (as applicable) for appraisal and rating services rendered by it fees ranging from JPY200,000 to approximately JPY350,000,000.

MJJK and MSFJ also maintain policies and procedures to address Japanese regulatory requirements.

Moody's Analytics
help@economy.com
+1.610.235.5299

