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TAKE CONTROL

A ROADMAP FOR GROWTH

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CCAR / DFAST 2016 —

Industry credit card preview

Experian

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Introducing:

- **Chuck Robida**
  Experian
- **Robert Stone**
  Experian

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STRESS TESTING

> “You must learn to let go. Release the stress. You were never in control anyway.”
>
> **— Steve Maraboli**
> **Life, the Truth and Being Free**

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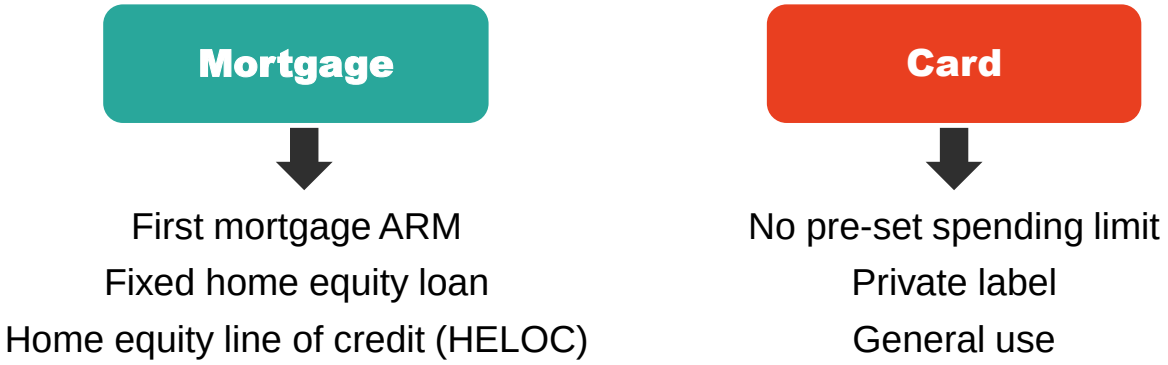
Primary approaches for stressed loss estimation

- Many alternative approaches but two basic types
  - **Top-down** approach using portfolio aggregates with macro time series
  - **Bottom-up** approach using loan level models incorporating macro and more local economic data
- Pooled models are generally inflexible to dynamic portfolios and CCAR mandates
- **Bottom-up** approach, loan-level models, have gained more favor in recent years – Experian has developed a unique conditional probabilities framework for CCAR / DFAST



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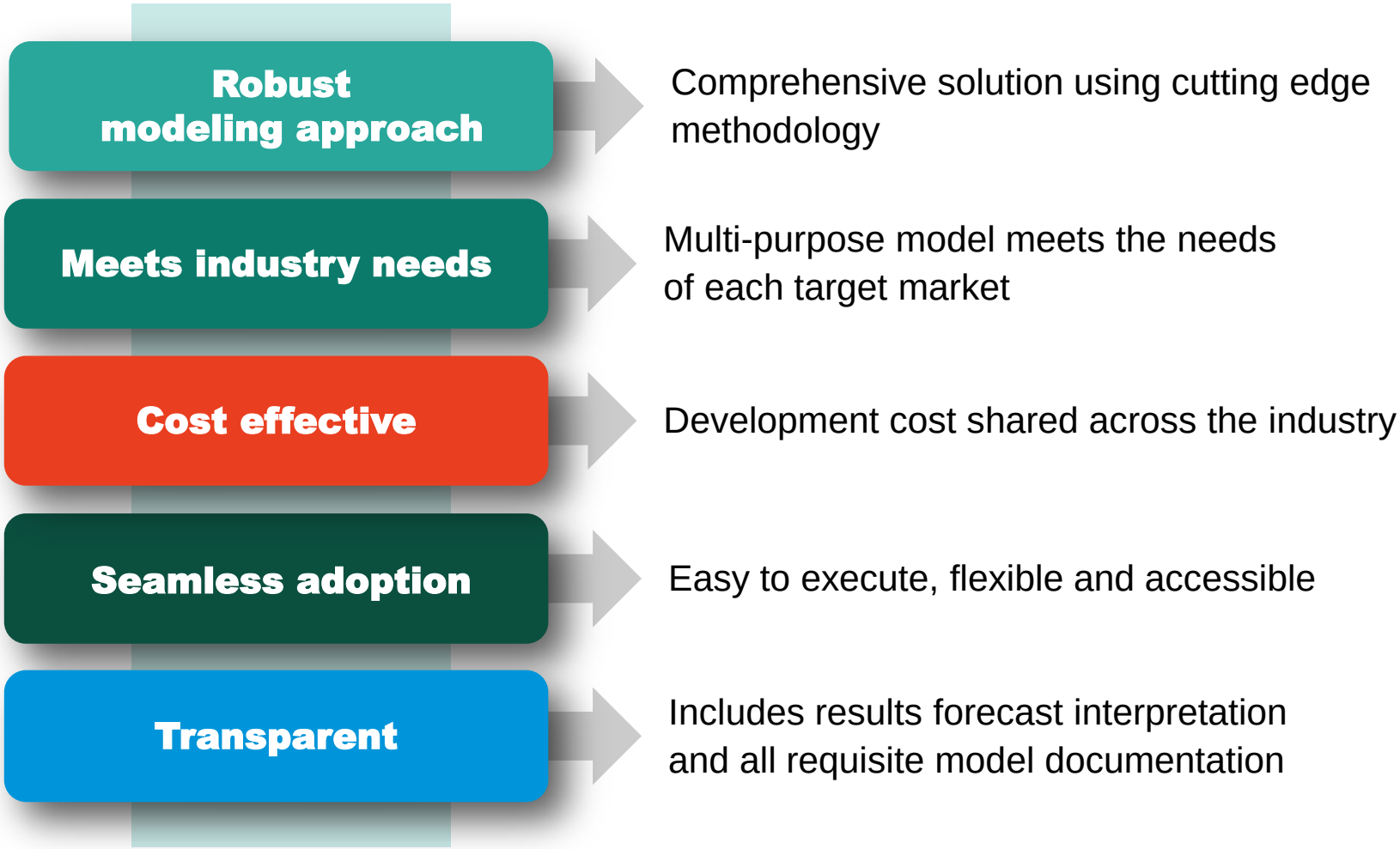
Loss forecasting
Objectives in model design



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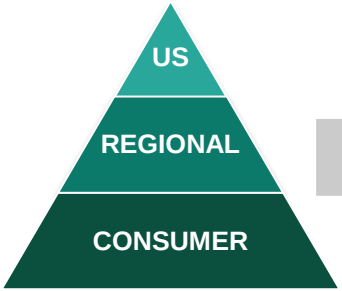
Loss forecasting
Development approach

Advanced approach to model development proven through numerous custom engagements and regulator review



$$\begin{pmatrix} C-29 \\ 30-89 \\ 90-179 \\ 180+ \\ Paid \end{pmatrix}_t^T \cdot \begin{pmatrix} P_{1,1} & P_{1,2} & \cdots & P_{1,5} \\ P_{2,1} & P_{2,2} & \cdots & P_{2,5} \\ \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & \cdots & 1 \end{pmatrix}_{t,t+1} = \begin{pmatrix} C-29 \\ 30-89 \\ 90-179 \\ 180+ \\ Paid \end{pmatrix}_{t+1}^T$$

Advanced loss forecasting models

- **Bottom up approach** with loan level models incorporating macro/ local economic data
- Pooling of accounts and aggregation to **pool-level predictions**

Markov-chain
Transition state matrix in a competing risk framework

Components of loss include:

- **PD** – Probability of default
- **EAD** – Exposure at default
- **LGD** – Loss given default

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Model development

Base competing risk framework

	0-29	30-89	90-179	DEFAULT	CLOSED
0-29	$1-\Sigma P_{1N}$	P_{12}	P_{13}	P_{14}	P_{15}
30-89	P_{21}	$1-\Sigma P_{2N}$	P_{23}	P_{24}	P_{25}
90-179	P_{31}	P_{32}	$1-\Sigma P_{3N}$	P_{34}	P_{35}
DEFAULT	0	0	0	1	0
CLOSED	0	0	0	0	1

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Data sources

Turnkey solution hosts all required data

Data sources

Account level data

- Experian credit data
- Loan level attributes

Consumer level data

- Origination and current VantageScore® credit scores

Property level data

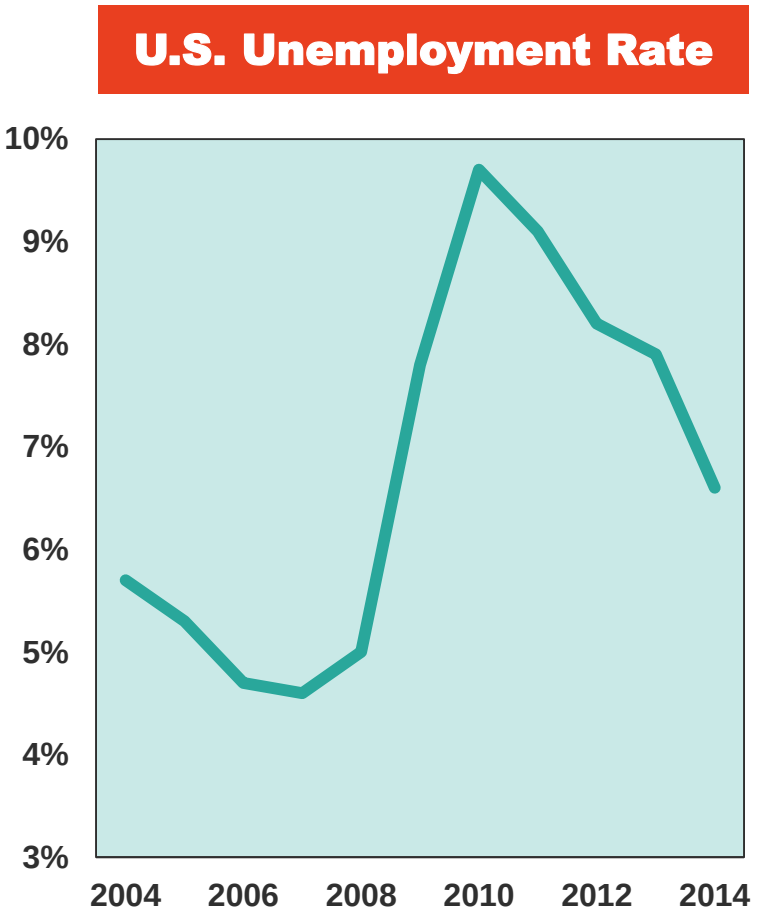
- Valuations (AVMs and HPI)
- Housing related characteristics

Economic data

- US, state and MSA stressed variables

Effortless file submission

- Client input file will align with the file formatting provided with the **FR Y-14M** file submission



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Loss forecasting
Model options

Loss forecasting models

Mortgage	Bankcard	Automotive
First mortgage ARM	No pre-set spending limit	Auto loan
Fixed home equity loan	Private label	Auto lease
Home equity line of credit (HELOC)	General use	

Loss forecasts across a series of scenarios

Baseline	Adverse	Severely adverse

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Loss forecasting

Customized for lender-specific solutions

Re-estimation of all model components for a tailored forecast

- Re-estimation of **Probability of Default (PD) model coefficients**[1] to accommodate a client's geographic footprint
- Ability to adjust **Exposure at Default (EAD) estimates** for all products using parameters for various cost components
- Ability to adjust **Loss Given Default (LGD) estimates** based on collateral valuation parameters or historical recovery rate

Based on consultation with client and evidentiary data of the peak stress during the financial crisis

[1]Experian can provide additional services to customize the PD model.

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Experian forecast results

National results

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CCAR / DFAST 2016 bankcard loss forecast

Data from Experian credit file

- Month-end December 2015
- Five percent random sample
- Bankcard accounts only – revolving

Observation exclusion

- Deceased
- Charge off / bankrupt
- Closed with $0 balance

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CCAR / DFAST 2016 bankcard loss forecast

Results

- National
- Sample of CCAR banks
- Non-CCAR issuers

Three scenarios

No assumption for new acquisitions

Metrics (unconditional)

- PD
- Closed
- Loss

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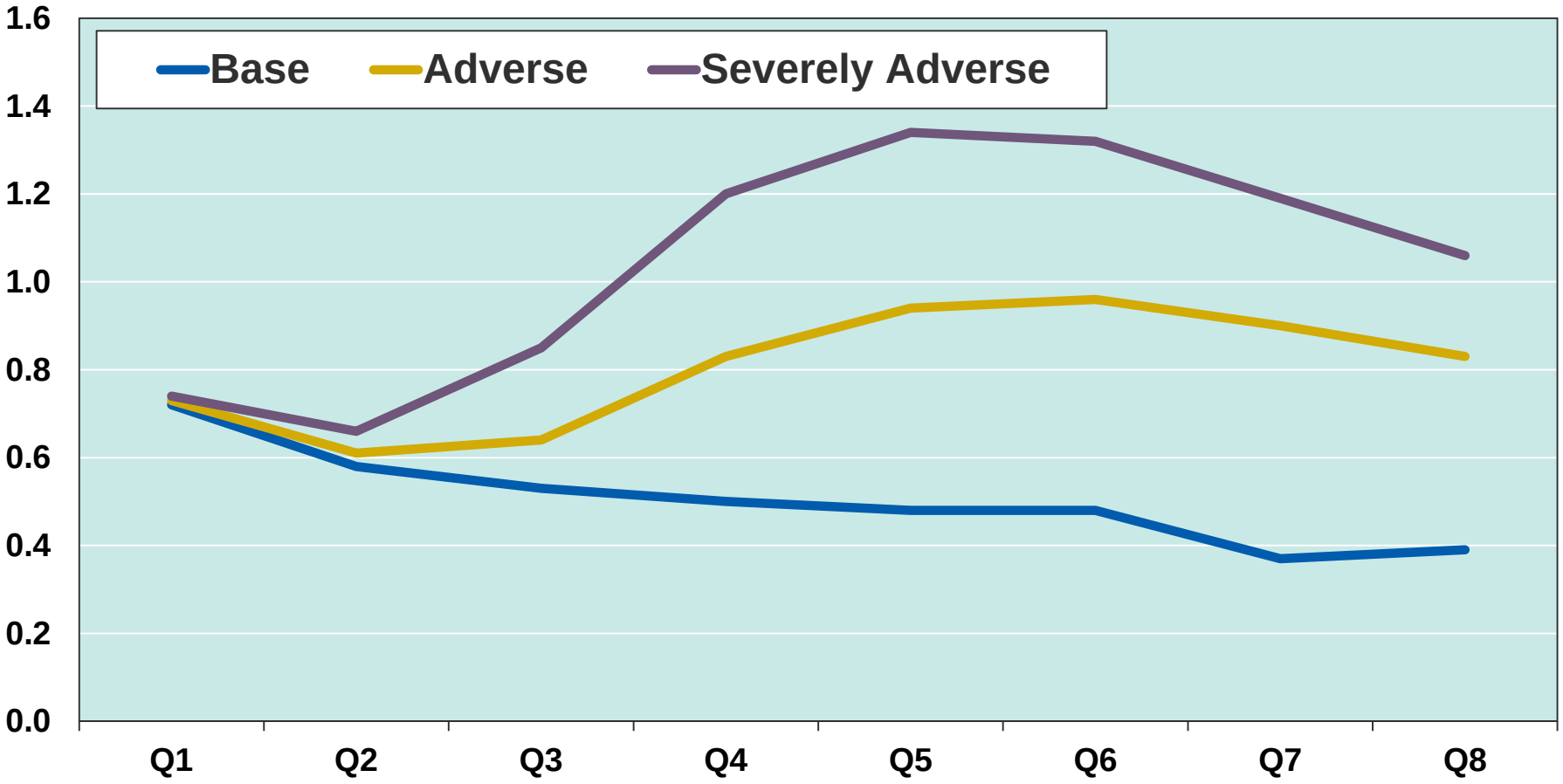
National quarterly PD



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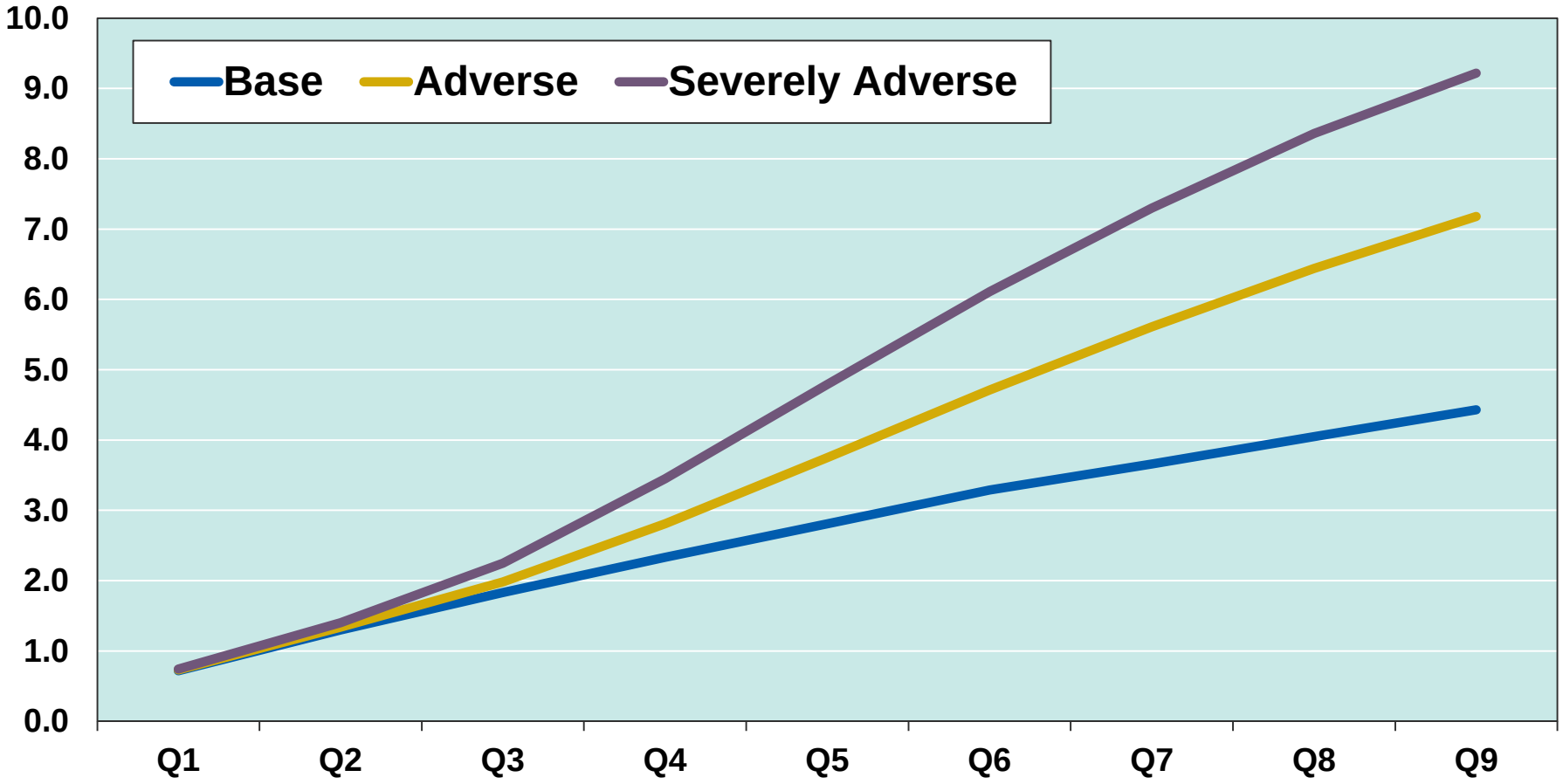
National cumulative PD



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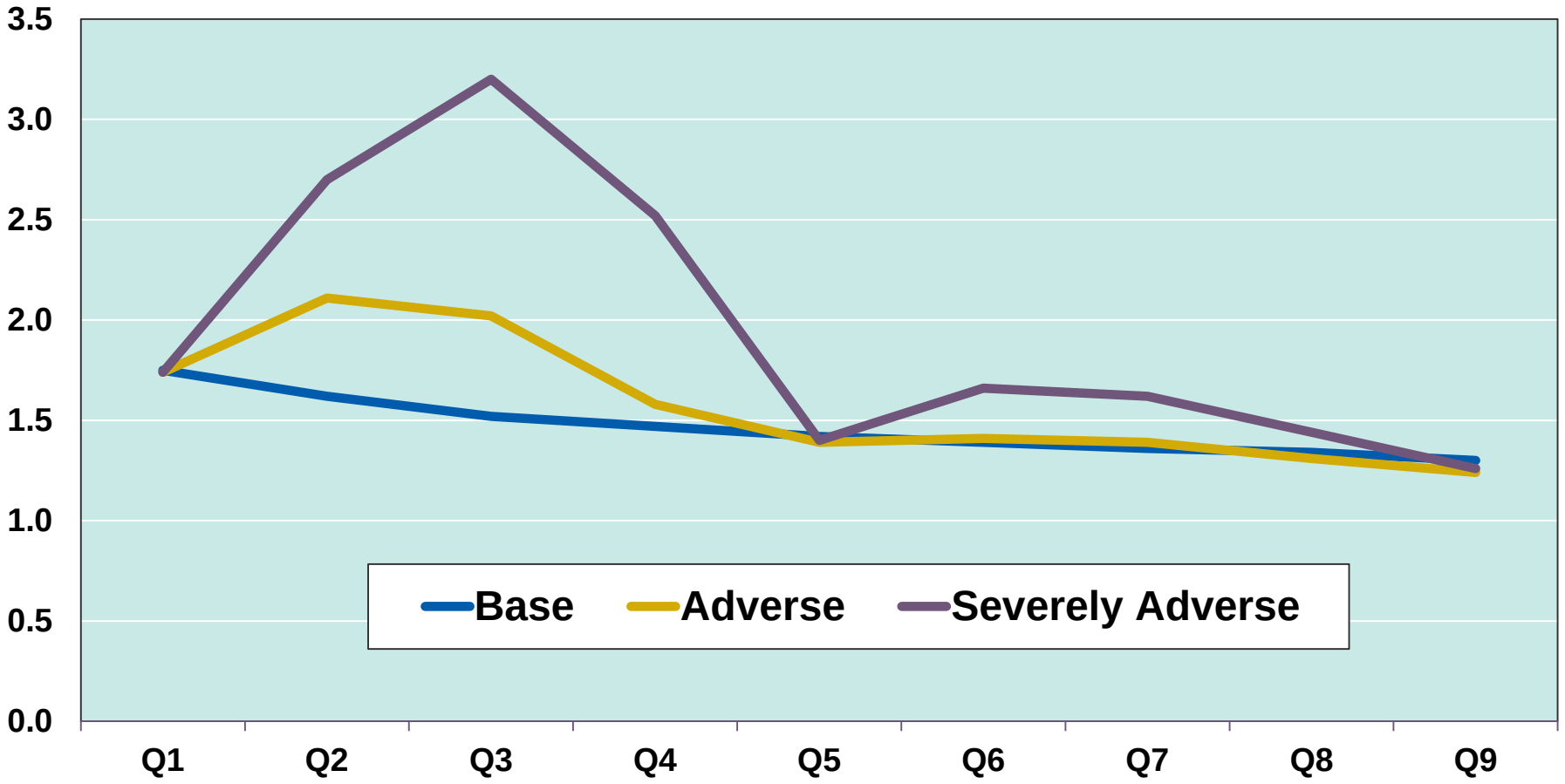
National quarterly closed rate



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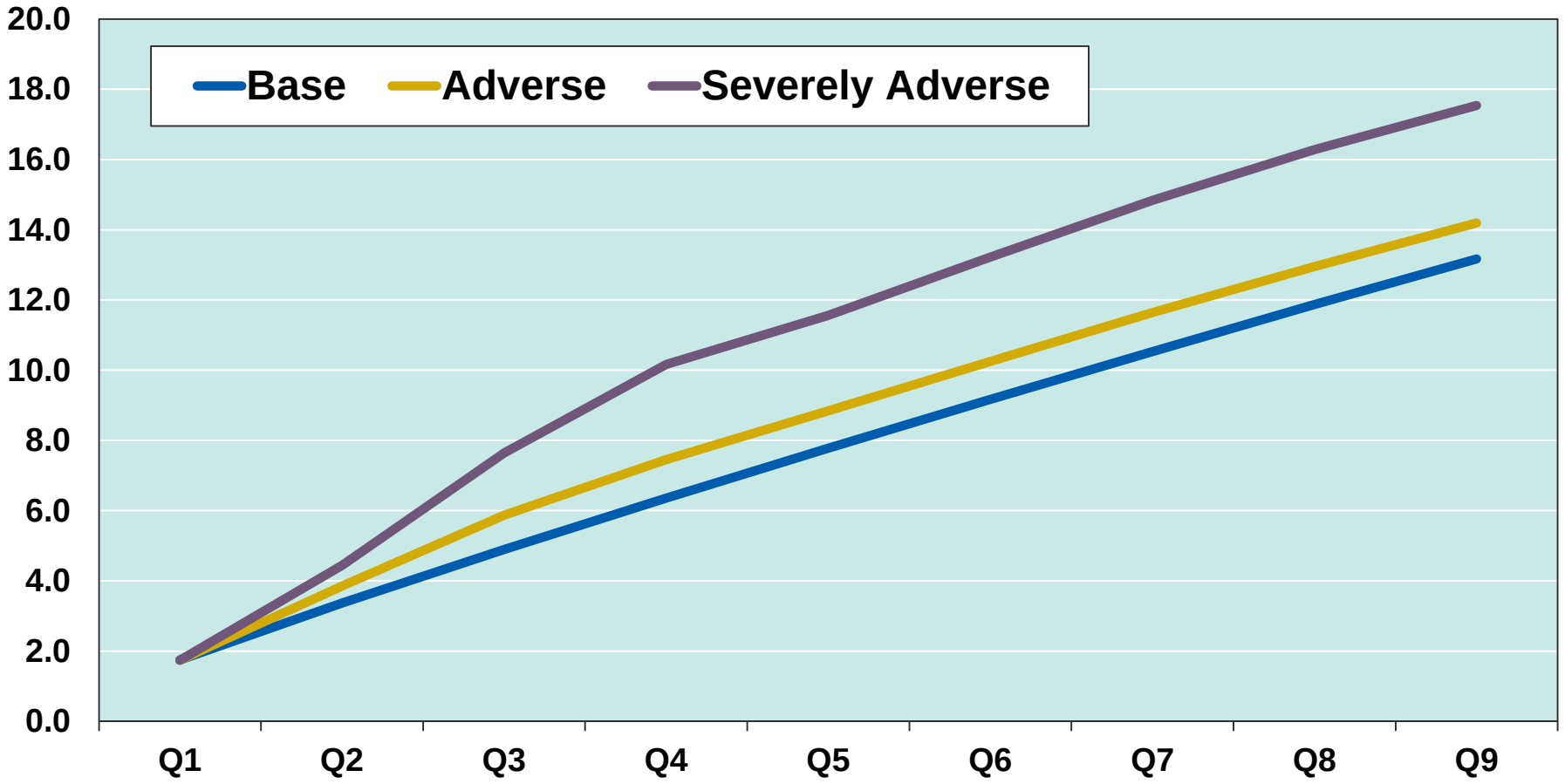
National cumulative closed rate



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Experian forecast results

Issuer results

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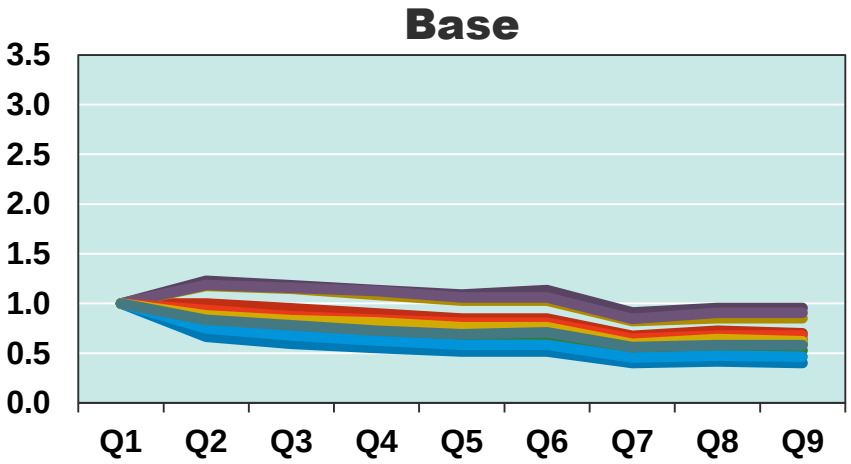
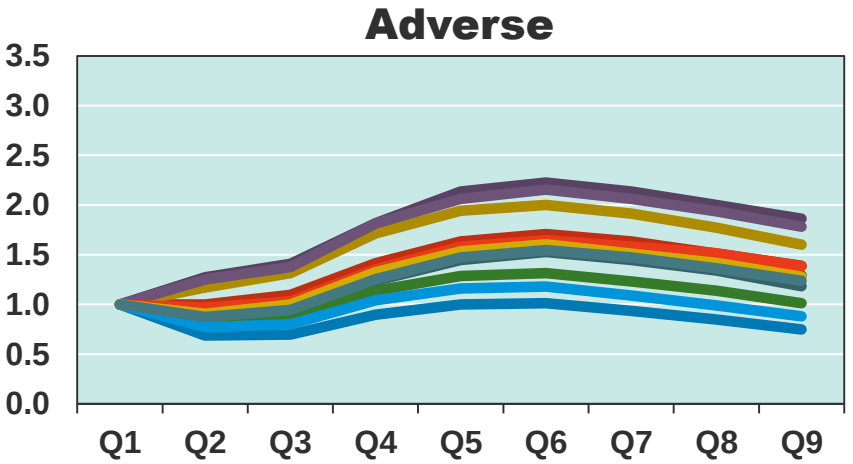
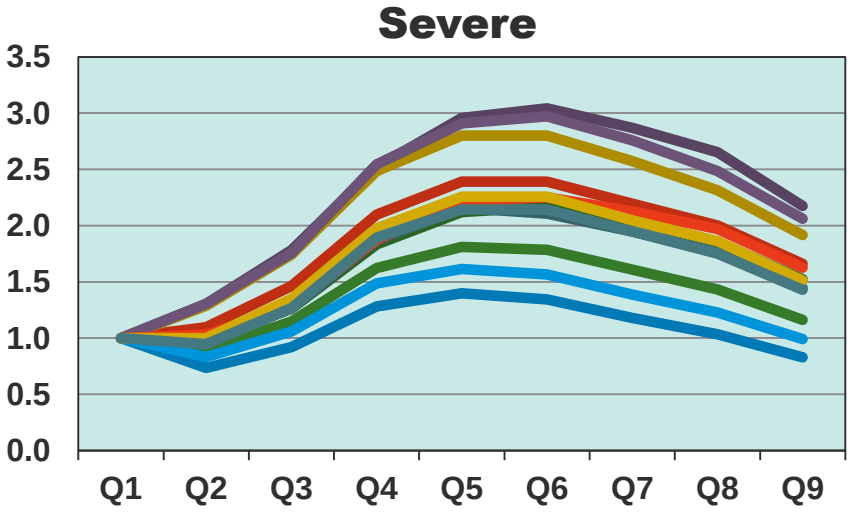
Issuer quarterly PD normalized to Q1







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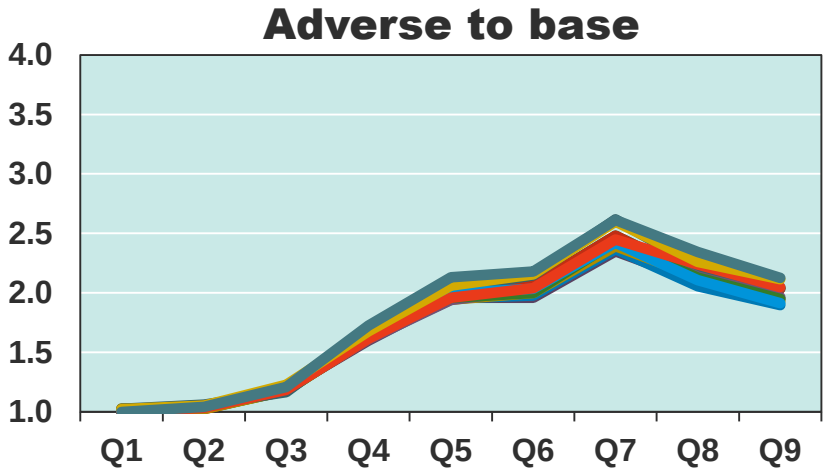
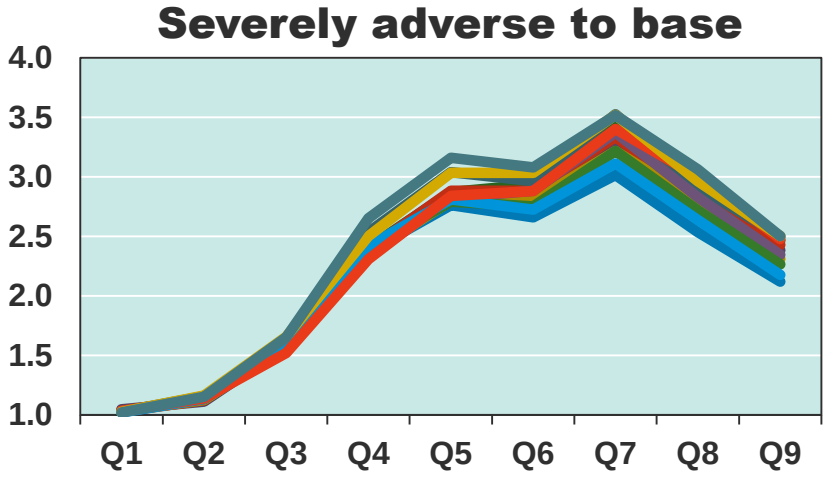
Sensitivity of PD by scenario to base





- Ratio of adverse, severely adverse to base by issuer
- Significant variation by issuer
  - Range of 2.3 to 2.6 for adverse
  - Range of 3 to 3.5 for severely adverse
- Ratio a function of portfolio characteristics
  - Not geography
  - Not cumulative PD

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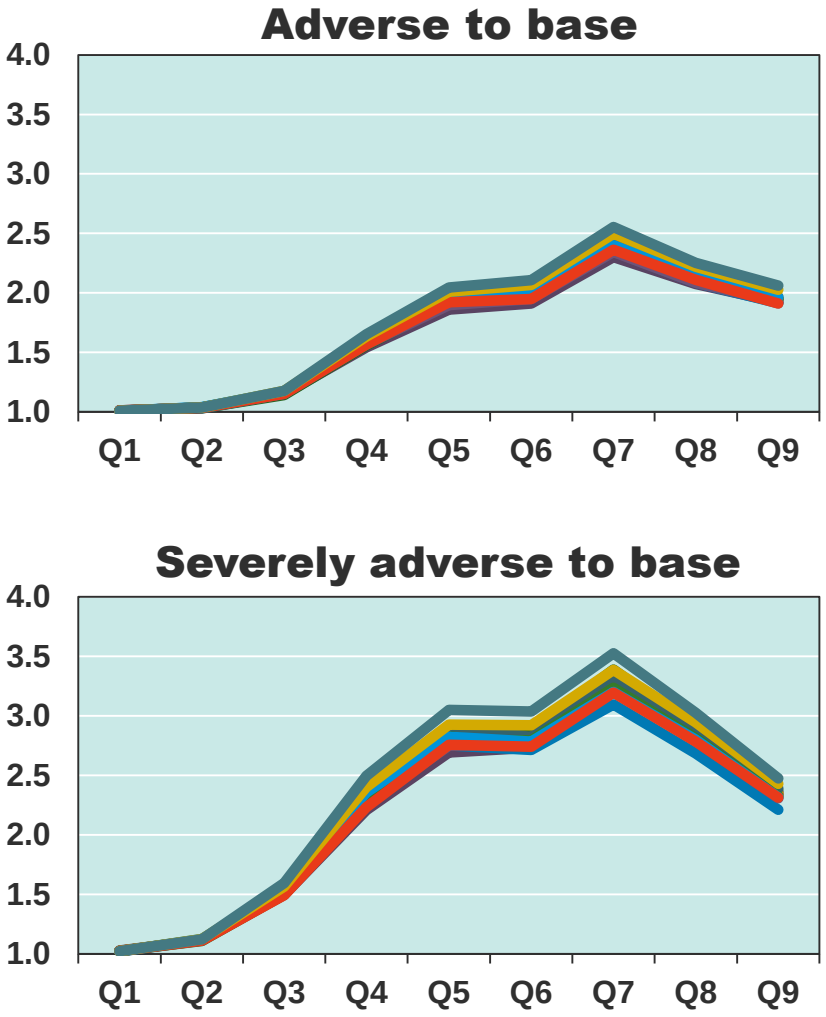
Sensitivity of loss $ by scenario to base



- Ratio of adverse, severely adverse to base by issuer
- Slight change compared to PD
  - Range of 2.3 to 2.6 for adverse
  - Increase in range of 3.1 to 3.5 for severely adverse
  - Greater overlap
- Change in order
  - Impact of account management

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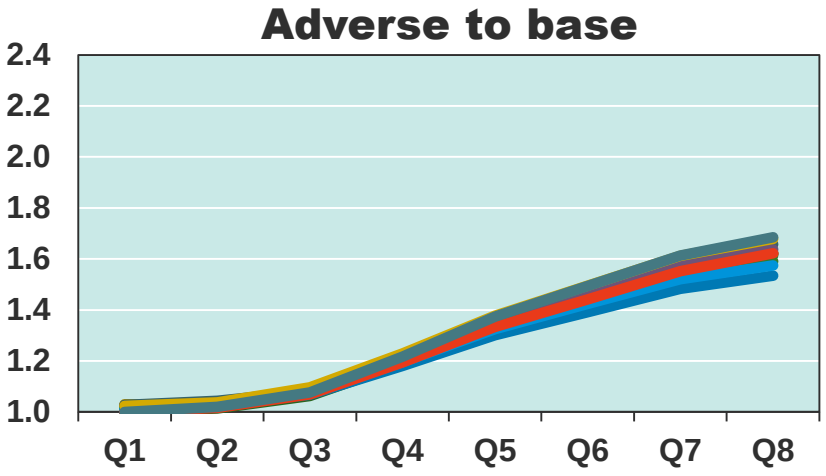
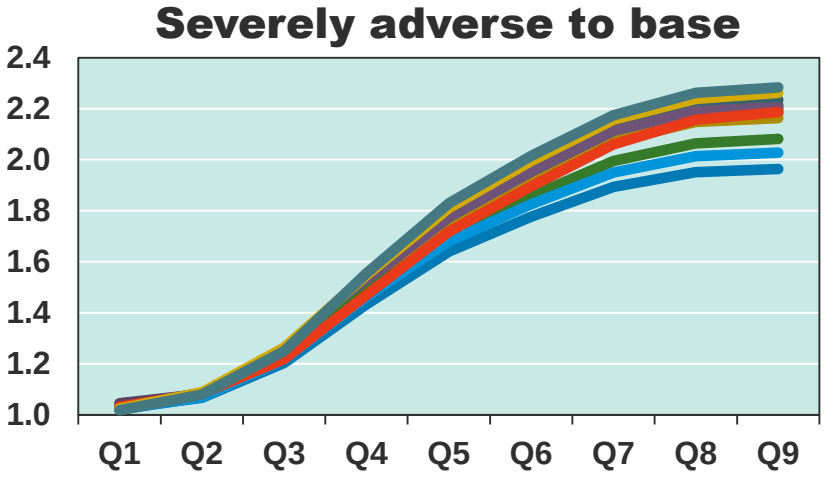
Sensitivity of cumulative PD by scenario to base





- Ratio of adverse, severely adverse to base by issuer
- Cumulative mutes variation
- Meaningful variation by issuer
  - Range of 1.5 to 1.7 for adverse
  - Range of 2.0 to 2.3 for severely adverse
- Ratio a function of portfolio characteristics
  - Not geography
  - Not magnitude of cumulative PD

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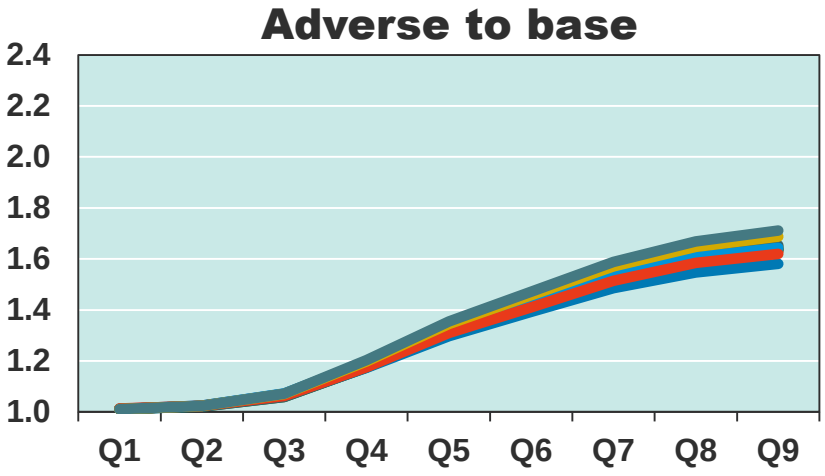
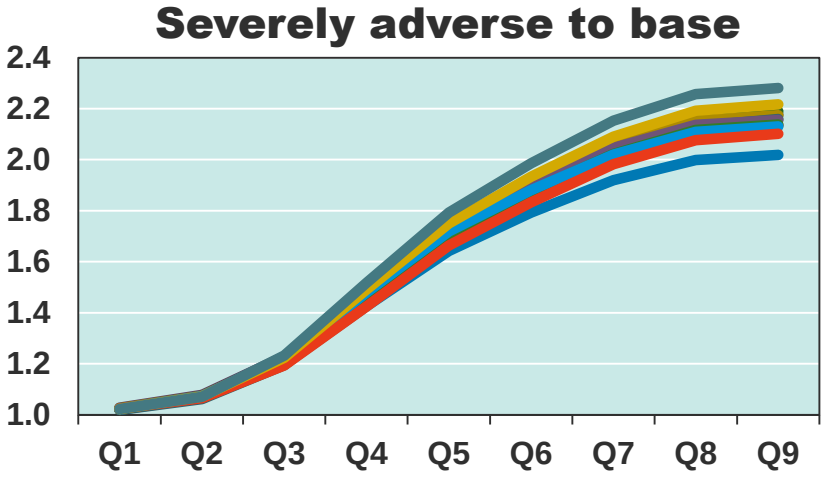
Sensitivity of loss $ by scenario to base





- Ratio of adverse, severely adverse to base by issuer
- Change in distribution compared to PD
- Reordering
- Range similar

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You can complete the survey in the mobile app or request a paper survey.

Vision Conference
Breakout Session Survey

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1. How would you rate the presenters' knowledge?
☐ Excellent ☐ Above average ☐ Average ☐ Below average ☐ Poor

2. How would you rate the presenters' delivery?
☐ Excellent ☐ Above average ☐ Average ☐ Below average ☐ Poor

3. How would you rate the presenters' time management?
☐ Excellent ☐ Above average ☐ Average ☐ Below average ☐ Poor

4. How useful was the session information?
☐ Very useful ☐ Somewhat useful ☐ Neutral
☐ Somewhat not useful ☐ Not useful

5. How would you rate the session on being current?
☐ Very current ☐ Somewhat current ☐ Neutral
☐ Somewhat not current ☐ Not current

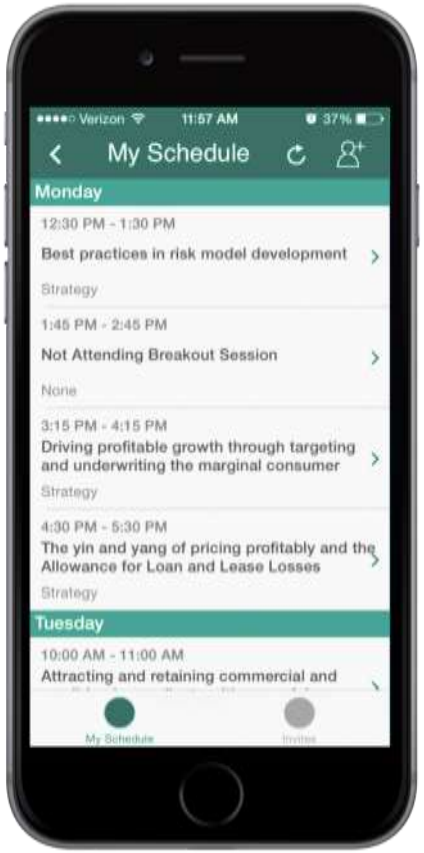
6. How relevant was the session content to the title and description?
☐ Very relevant ☐ Somewhat relevant ☐ Neutral
☐ Somewhat not relevant ☐ Not relevant

7. How would you rate the level of content?
☐ Too advanced ☐ Just right ☐ Too basic

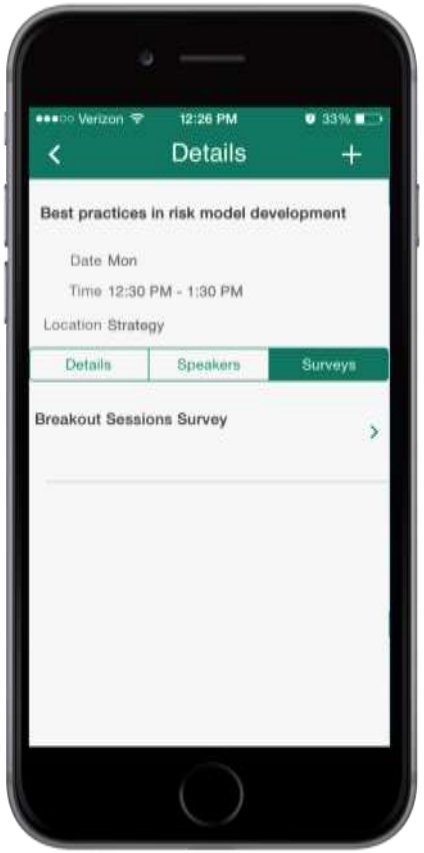
8. Why did you attend this session? (Check all that apply.)
☐ Relates to my business ☐ The presenter(s) ☐ Interest in new product
☐ Compelling session description ☐ Increase product knowledge

9. Do you have any additional comments?

1 Select the Survey button and complete



2 Select the breakout session you attended



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