

The Aftermath of the COVID-19 Crises: Establishing Resilience with Your Risk Assessment Decisions

Lynda Woodward

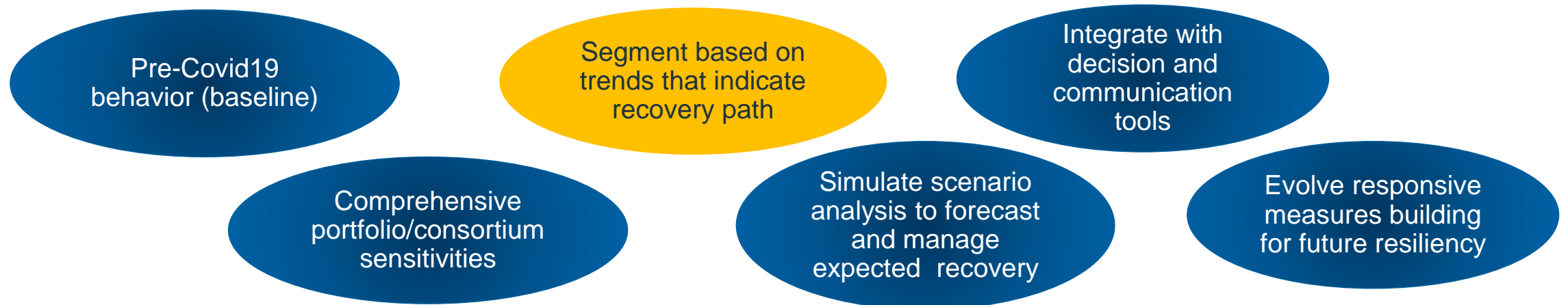
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Managing through this Black Swan Event !

Execute Your Path of Resilience



Strategize to meet client, business and regulatory trade offs



Model misbehaviour: coronavirus confounds bank risk systems

LONDON (Reuters) - The novel coronavirus has upended how banks manage lending risk, with decades of data rendered moot by a once-in-a-lifetime mix of global economic shutdowns, unprecedented government support and an uncertain path to recovery.

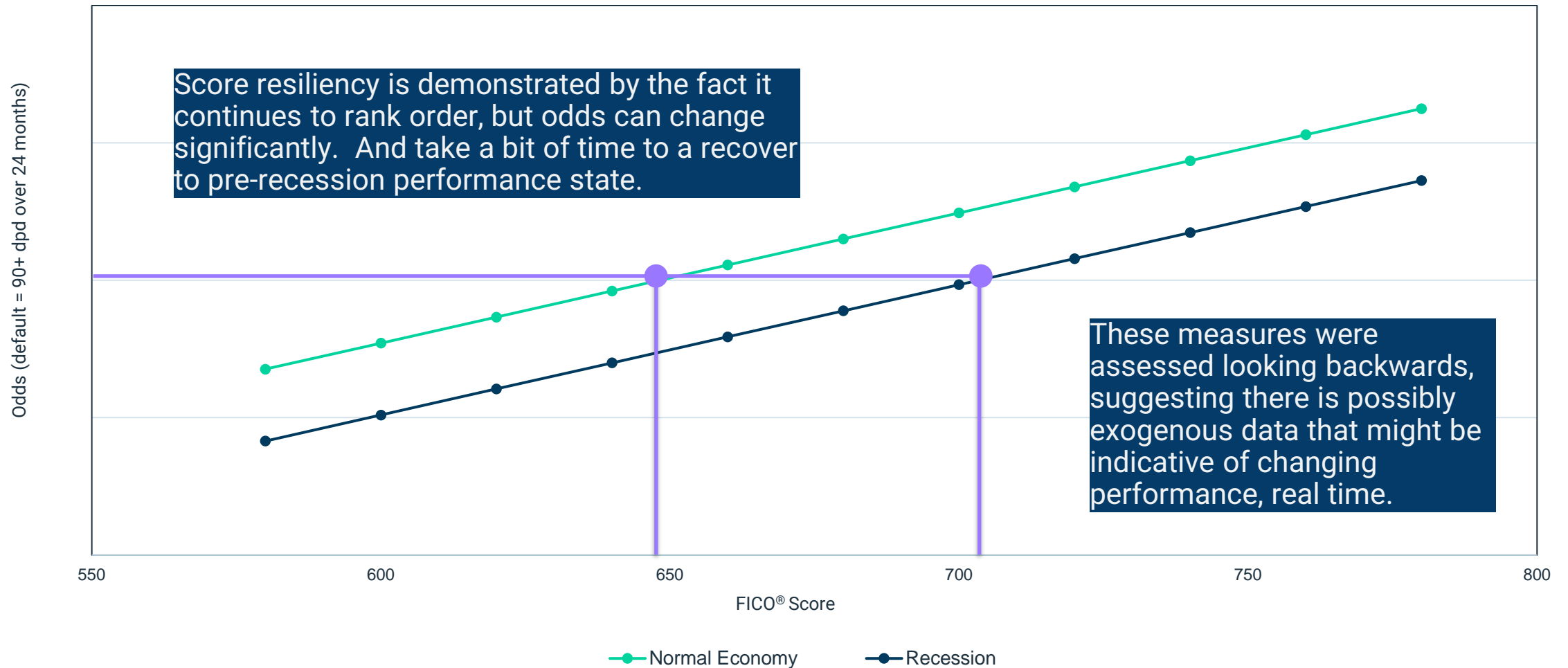
- Reuters Business News June 22, 2020

Risk Models will Continue to Rank Order Risk



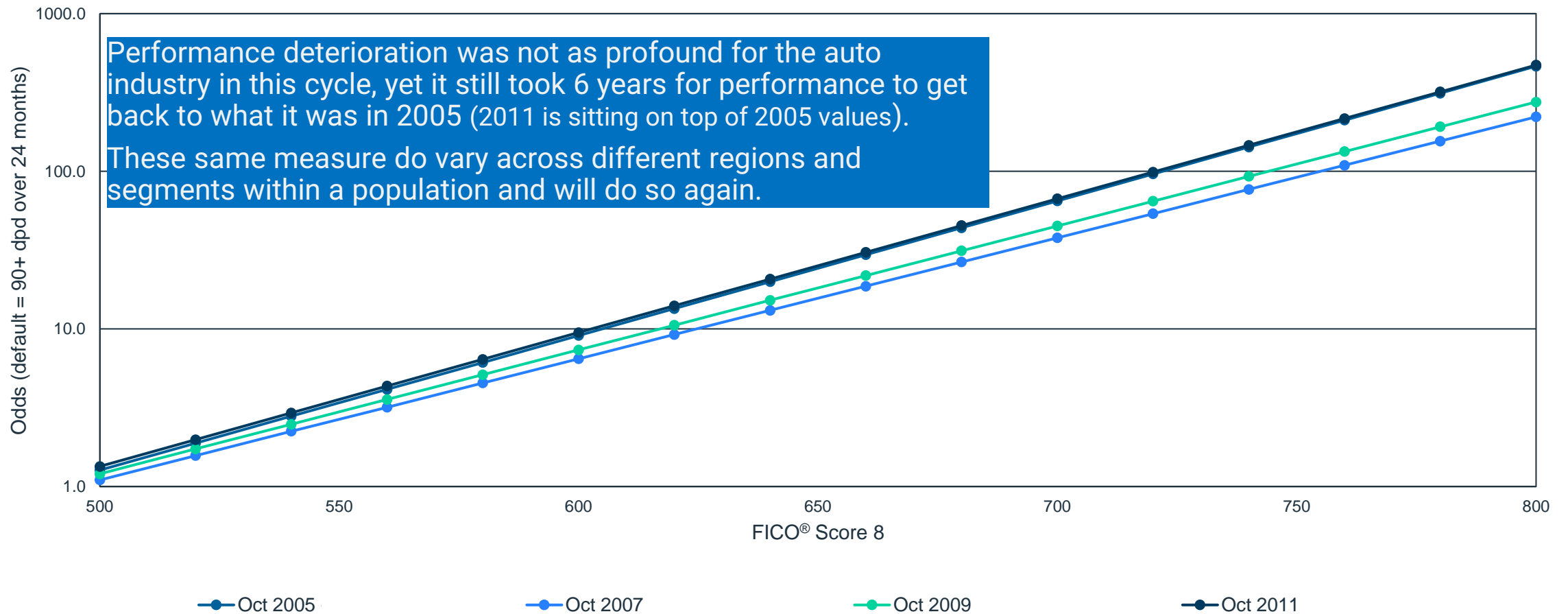
- Scores will adjust to the ebb and flow of recovering economic journey.
- Payment Holiday actions are masking short horizon risk view.
- Odds will change across the spectrum.

Odds-To-Score Relationship Can/Does Shift in Response to Changing Economic Conditions



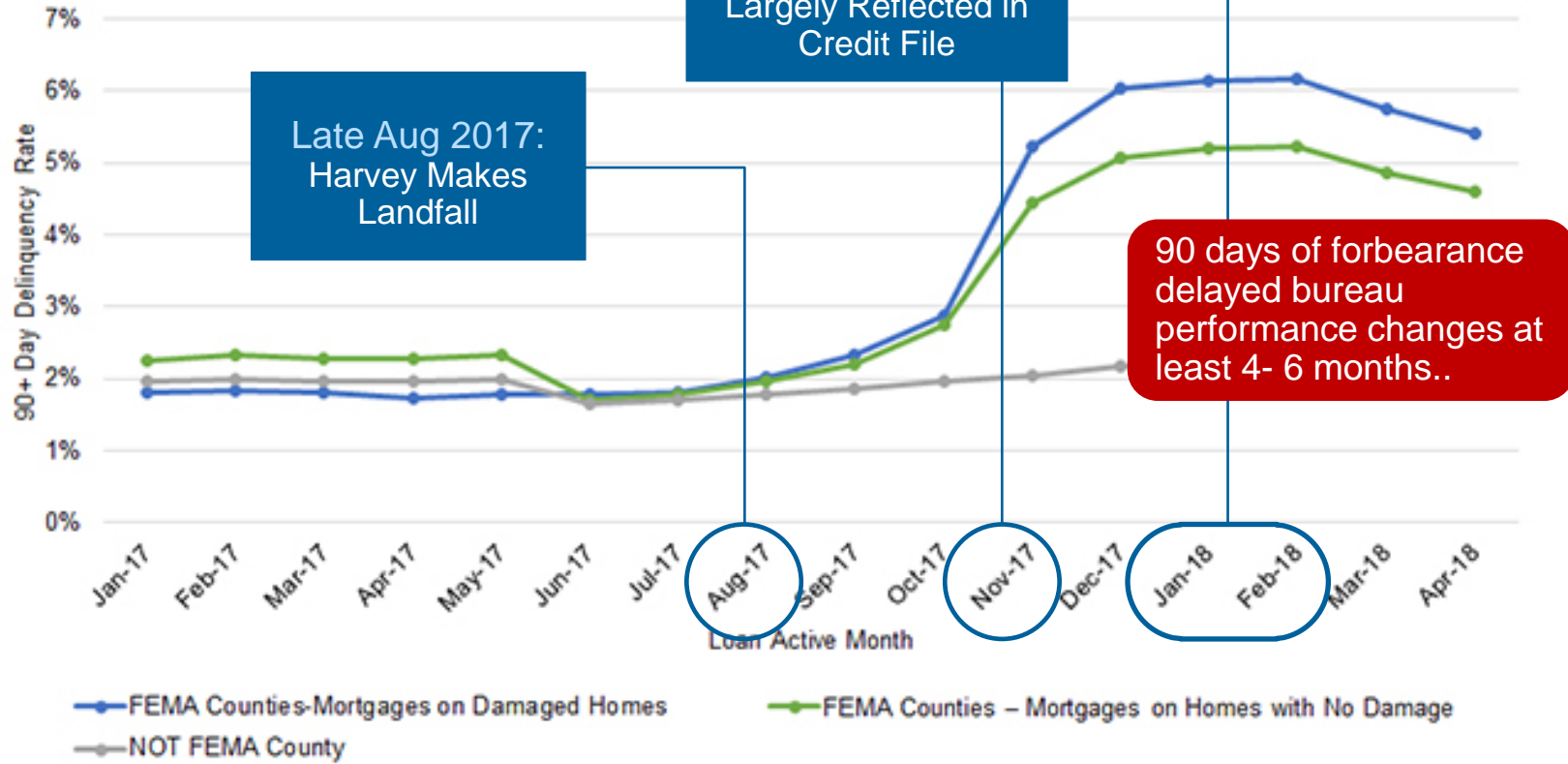
Auto Loan Odds to Score Returned to Pre-Recession Levels by 2011

Odds to Score on Existing Auto Loans



Natural Disaster Related Performance Timeline

Figure 1: 90+ Day Delinquency Rate for TX



Source: CoreLogic data

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<https://www.corelogic.com/blog/2018/09/the-impact-of-natural-catastrophe-on-mortgage-delinquency.aspx>



Lessons learned to bring to this crisis

- During the last financial crisis
 - Full impact understanding required retrospective analysis
 - CB based research was helpful as an overall diagnostic/benchmark but, with lagged information
 - Crisis exposed the limitation of analytic approaches – 1) lack of data that explains the **motivation** behind behaviors and 2) too little focus on the differences in current times versus historical cycles 3) recent **observed** data needed in time of crisis to predict future behavior
- FICO Priority Now
 - Engage with clients on urgent priorities now, and on-going to the next steady state.
 - Adjusting analytics to **look forward** to navigate this big change
 - Focus on understanding consumers in this new context
 - Review contextual knowledge beyond the data we typically use as our “lens”

Imagine all of these individuals have a FICO® Score of 680

They each took their own unique credit journey to get there.

Some are resilient
to an economic
downturn.

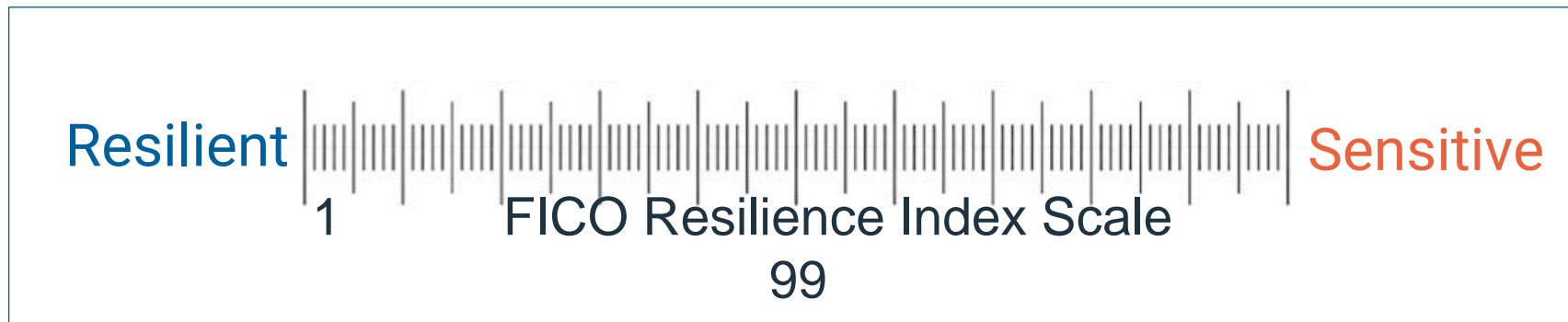
While others are
more sensitive to
a downturn.

R&D Finding: Even within narrow FICO® Score bands, a range of “economic stress resilience” can be observed.

FICO® Resilience Index

Designed to differentiate levels of “economic stress resilience” within narrow FICO® Score bands


- Rank-orders consumers based on their sensitivity to economic stress
- Helps lenders identify “latent” credit risk within their portfolios that could manifest during periods of economic disruption
- Designed for use in conjunction with the FICO® Score (non-correlated)
- Score ranges from 1 to 99 (lower → more resilient; higher → more sensitive)




FICO® Resilience Index Differentiates Resilient vs. Sensitive Consumers

| 90+ DPD Rate | All Consumers @ FICO® Score 680 | 20% Most Sensitive @ FICO® Score 680 | 20% Most Resilient @ FICO® Score 680 |
|-----------------|------------------------------------|-----------------------------------------|-----------------------------------------|
| Normal Economy | 12.5% | 14.0% | 11.8% |
| Great Recession | 20.7% | 29.3% | 13.7% |

Bad rates were 65% higher for consumers with a 680 FICO Score in the Great Recession.



For consumers in the top FRI quintile, the **bad rate was more than double** that in the normal economy.



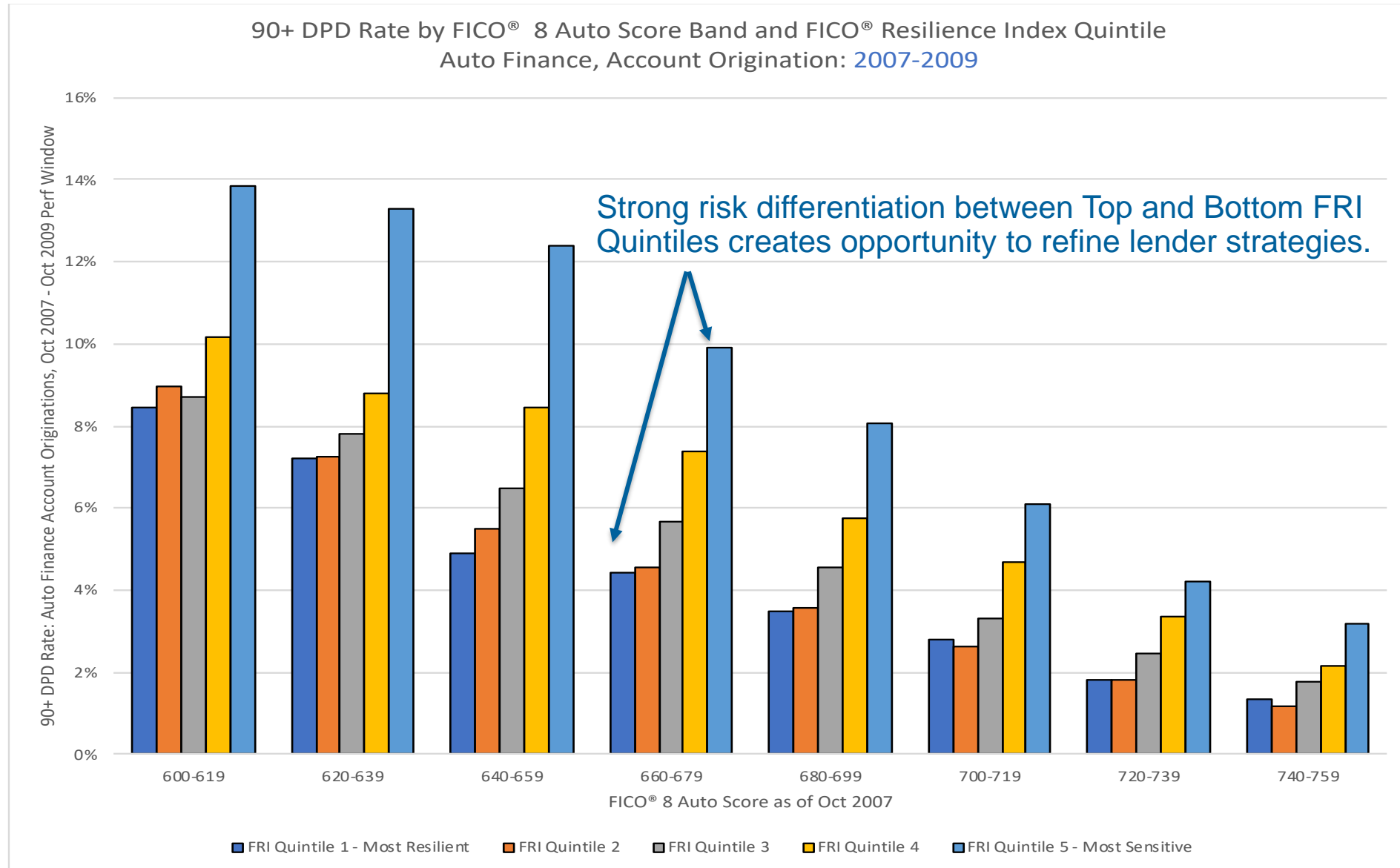
In contrast, for consumers in the bottom FRI quintile, the bad rate was **only slightly higher**.

Consumers Very Sensitive to Economic Stress Disproportionately Drive Losses

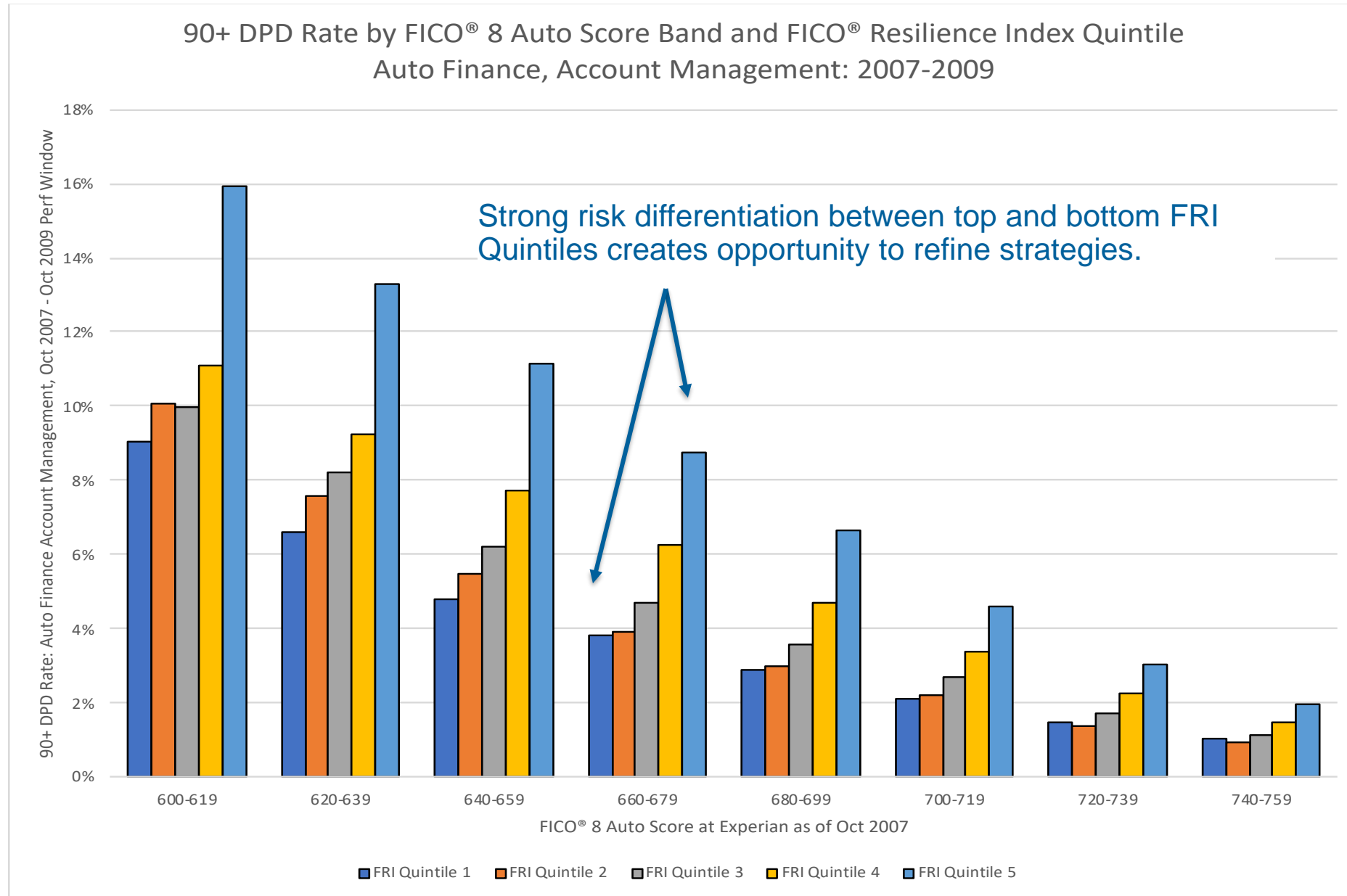
| All Industries, Account Management Population | | |
|-----------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| FICO® Score 8 Band | Percent of Score Band That is "Very Sensitive" (FRI 70+) | Percent of All Trade Lines 90 Days past Due within Score Band Observed on "Very Sensitive" Consumers during 2007-2009 |
| 580-599 | 5.6% | 19.1% |
| 600-619 | 7.9% | 25.5% |
| 620-639 | 10.9% | 32.2% |
| 640-659 | 13.8% | 38.1% |
| 660-679 | 15.1% | 40.0% |
| 680-699 | 14.9% | 38.6% |
| 700-719 | 12.7% | 32.6% |
| 720-739 | 10.1% | 28.1% |
| 740-759 | 7.4% | 21.6% |
| Total Population | 6.4% | 23.2% |

FICO® Resilience Index Provides Additional Rank Ordering During Stressed Economy

Auto Originations, 2007-2009



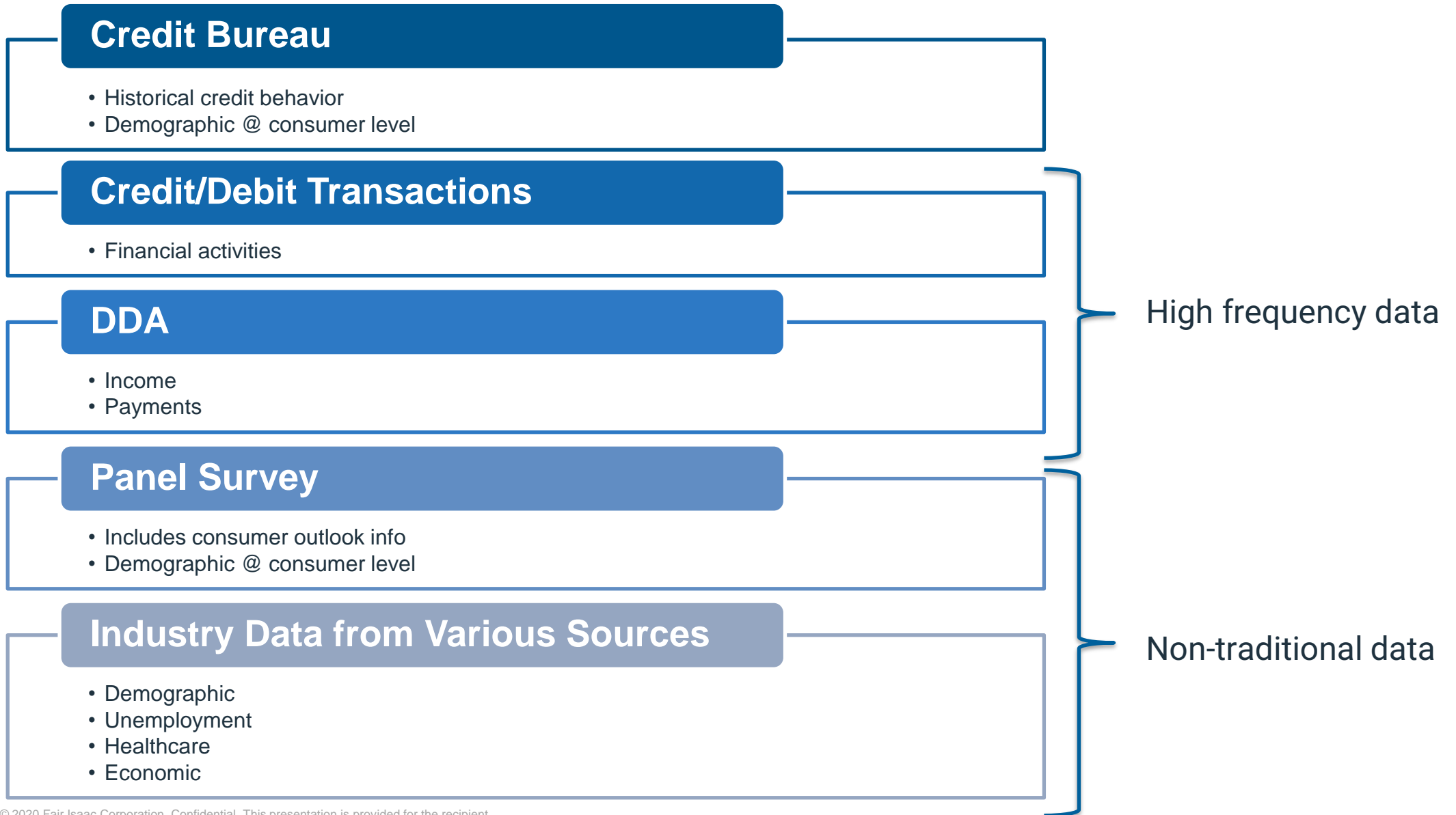
FICO® Resilience Index Provides Strong Additional Ranking in Stressed Economy



Current challenges

- Payment holidays are masking short-term risk view, so can I trust my risk models?
- Need to understand better how customers are impacted by COVID-19 and will recover over different timelines.
- Introducing new sources of data can create operational hurdles when resources are already tight.
- Need to understand how the book of business will perform under best and worse case scenarios
- How do we capture our learnings and adapt our assumptions/strategies?

Broadening our lens into the consumers' COVID-19 experience



Current challenges

Models developed on historical data don't differentiate significant onset of economic change

“History doesn't repeat itself, but it often rhymes”

— Mark Twain

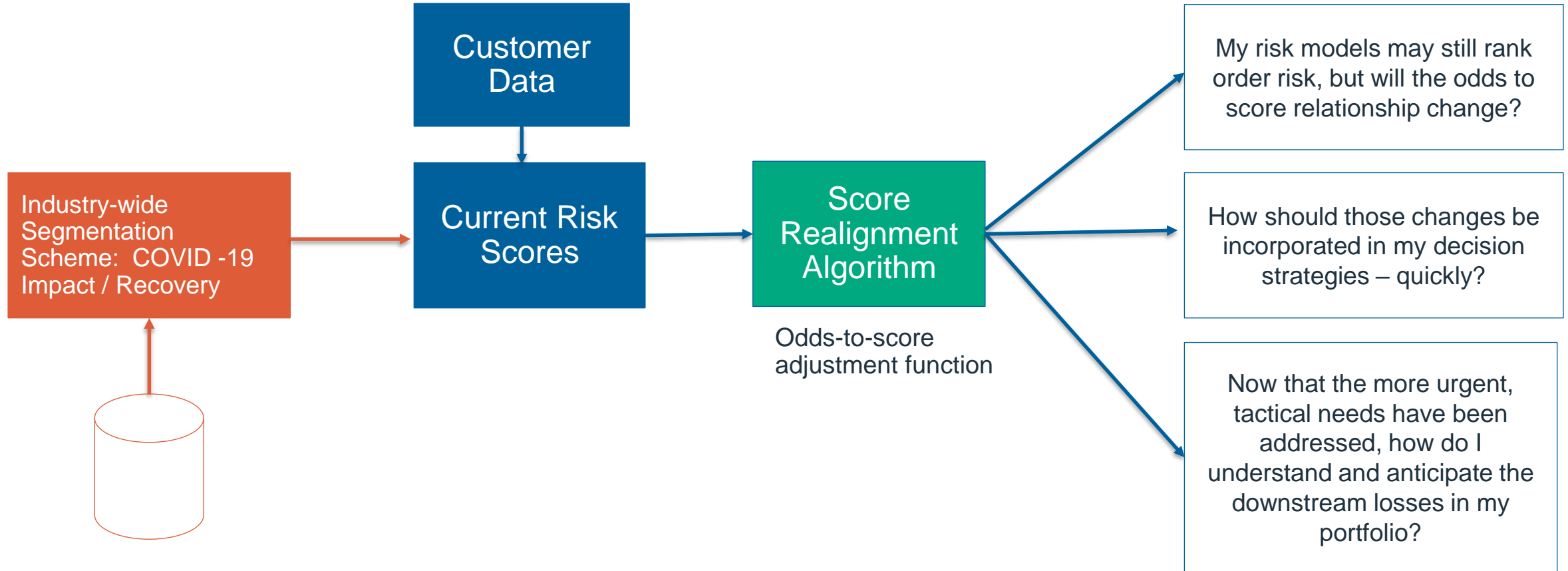
My risk models may still rank order risk, but will the odds to score relationship change?

How should those changes be incorporated in my decision strategies – quickly?

Now that the more urgent, tactical needs have been addressed, how do I understand and anticipate the downstream losses in my portfolio?

Current challenges

Augment and translate

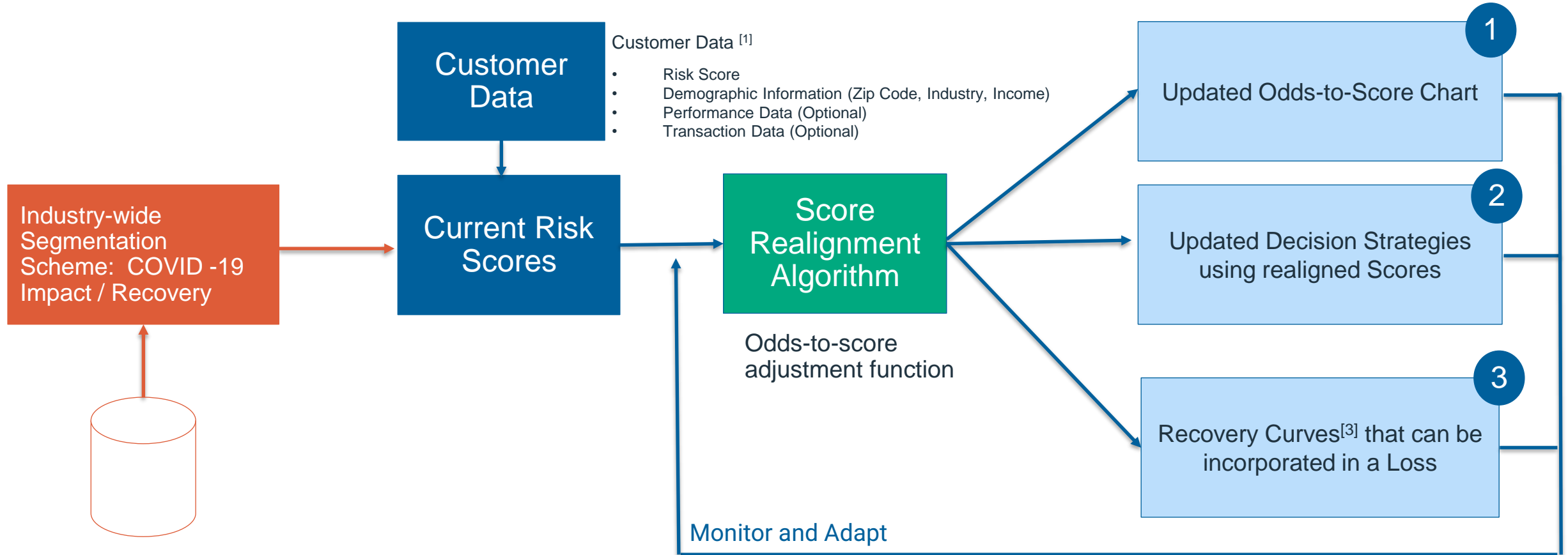


External Data - examples

- Unemployment @ MSA level
- Industry
- Region
- Income
- Pre-COVID Risk Bands

COVID-19 Score Adjustment Methodology

Data Requirement and Output



External Data ^[2] - examples

- Unemployment @ MSA level
- Industry
- Region
- Income
- Pre-COVID Risk Bands

[1] Customer data should include at minimum Risk Score variable and zip code. Zip code is used to match to some of the external data.

[2] Some external data elements change over time.

[3] Simulation of Recovery Curves will require multiple scenario creation by tweaking the assumptions in the PD and odds-

to-scores adjustment

Illustration of bringing in COVID-19 insights

**Customer Profile
(December 2019)**

Industry – Food Services
City – Pasadena, CA
Behavior Score – **600**

**“High Impact Region and Industry”
Segment Metrics**

Unemployment YoY increase: 40%
Pre-COVID delinquency rate: 4%
Payment holidays taken: 60%
Discretionary spending YoY decrease: 80%

**Customer Profile
(April 2020)**

Industry – Food Services
City – Pasadena, CA
Behavior Score – **525**

You provide summary data of what you know about your customer today, including the risk score and related expected odds

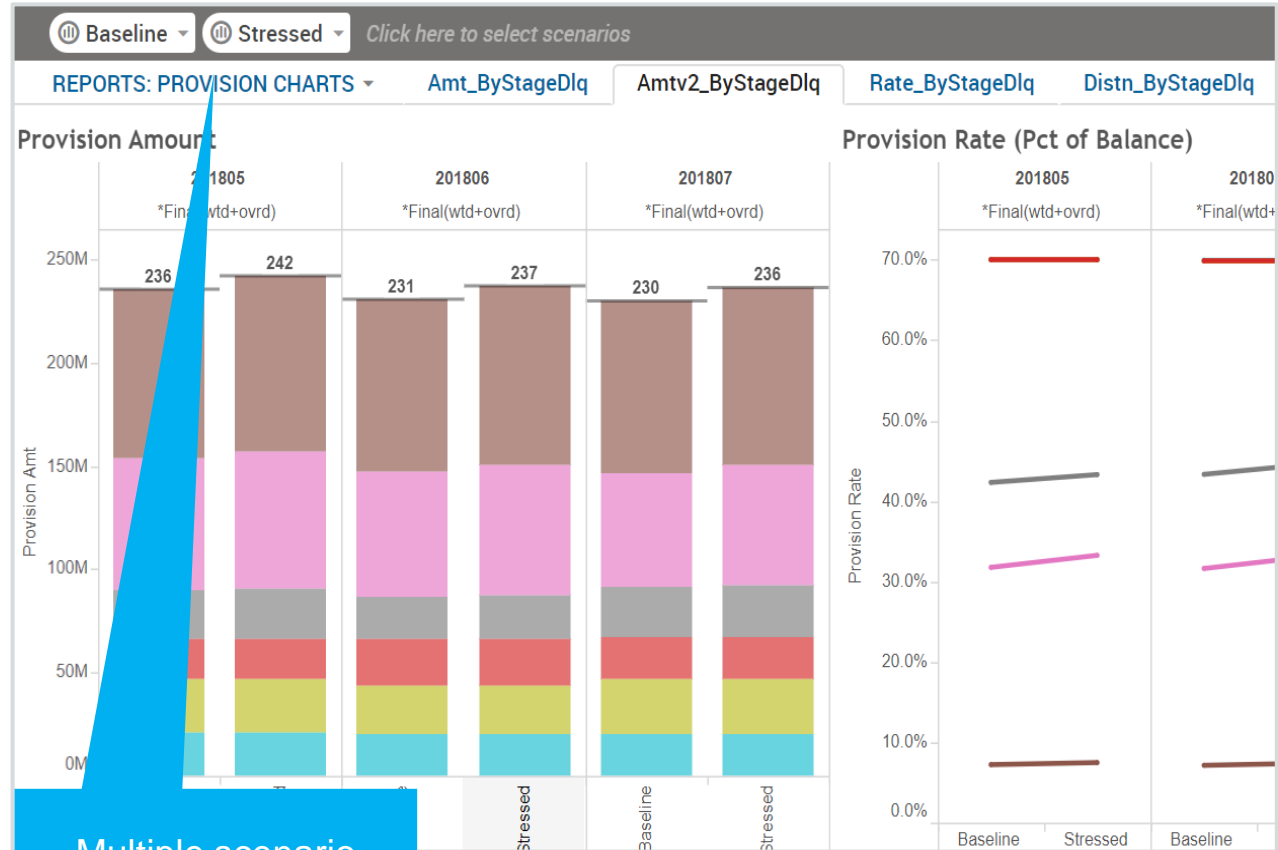
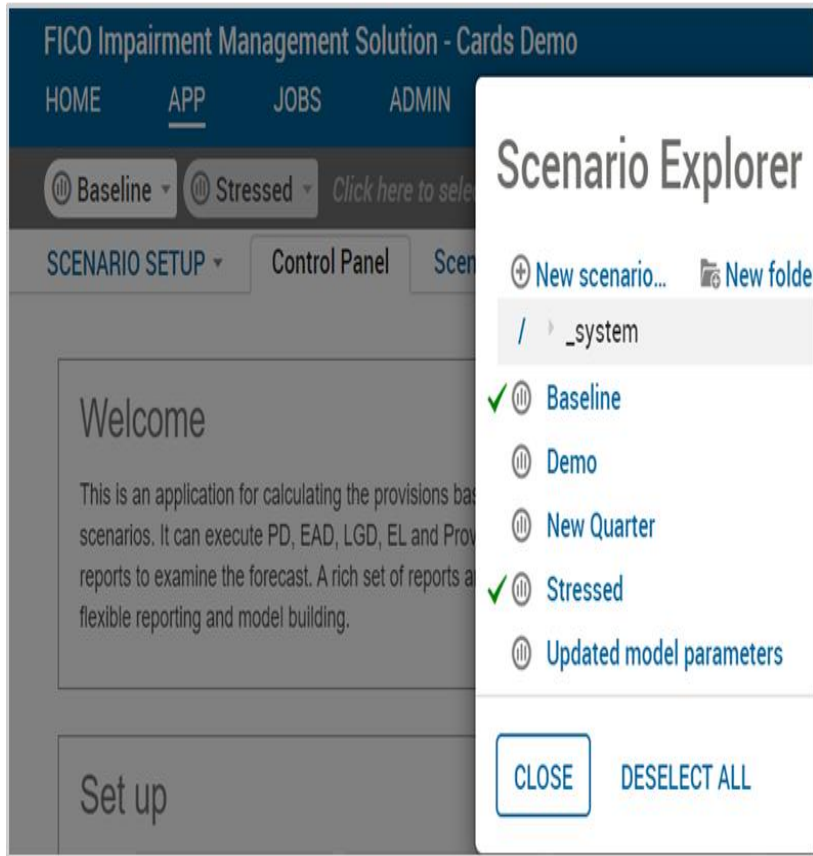
FICO will apply the COVID-19 impact/recovery segmentation and work with you to incorporate your updated expectations of risk at the segment level.

FICO will deliver back to your data with the adjusted score values that reflects the updated expectation of performance odds given the current insight.

Adjusted score insight is now used in decision strategy changes such as;

- Acceleration from passive to aggressive collections
- Movement to repossession
- Improved pricing terms
- Sale of a used vehicle versus new

FICO Xpress Insights Scenario Analysis Tool



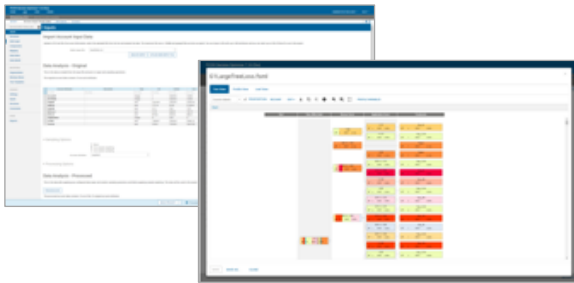
Multiple scenario assessment

Performance Simulation

- Enables you to
 - Explore variety of measures for multiple scenarios
 - Compare scenario performance versus baseline to view variations and core drivers
 - Efficiently facilitate stakeholder discussion
- Benefit of using a tool to do that versus your BAU process
 - Accommodates analyst and business user with user friendly UI
 - Efficient use of time and resource
 - Adaptability to new information with visual performance assessment
 - Rigorous application of assumptions and testing

FICO Xpress Insights Scenario Analysis Tool

Data, Model & Decision Analysis



- Single point of truth for data
- Data & Model
- Profiling
- Scenario Impact Analysis

Integration & APIs



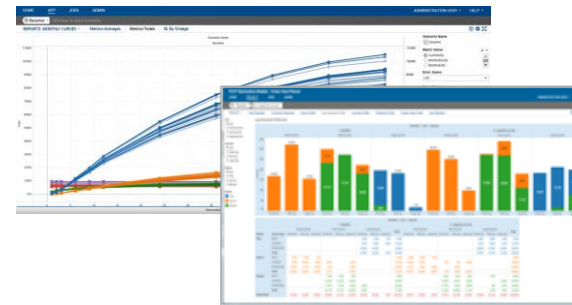
- Integrate 3rd Party Modelling Products
- Wide Range of Data Connectors
- Access to Optimization Solvers

Decision Support



- What-if analysis
- Side-by-side comparison
- Built-in Scenario Management
- Standardized KPI evaluation & reporting

Simulation & Stress Testing



- Basic to Advanced Simulation of baseline & challenger decisions
- Easily apply stress factors & change assumptions
- Sensitivity Analysis
- Performance forecasting

Thank You!

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