

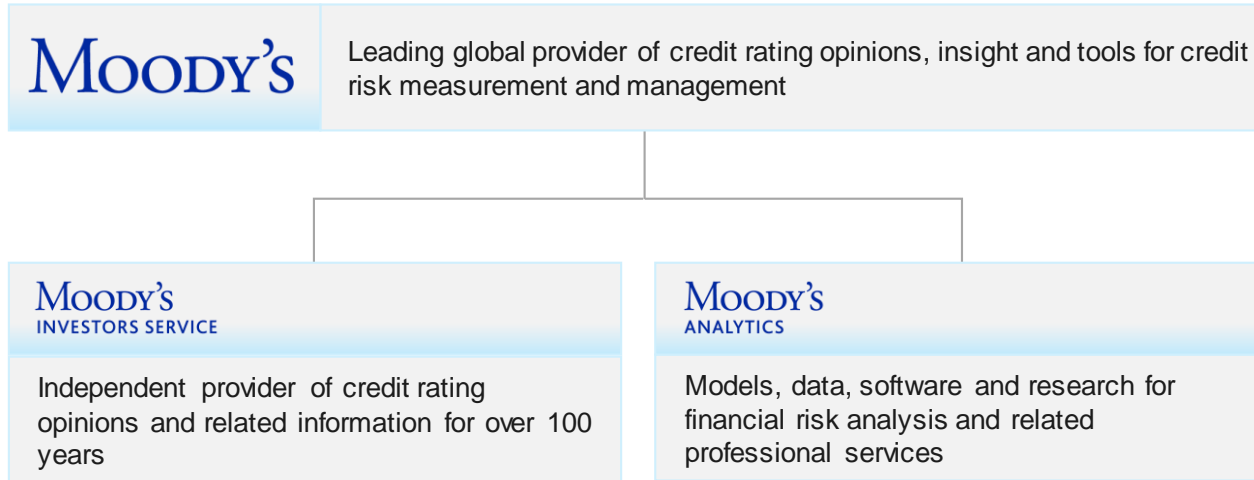


A Global Recession: Key Indicators and Implications

Cris deRitis PhD CBE®, Deputy Chief Economist, Moody's Analytics
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About Moody's Analytics



Cris deRitis



Cristian deRitis, Deputy Chief Economist at Moody's Analytics, specializes in assessing the economy's impact on household finance, housing, credit markets and public policy. Named on two U.S. patents for credit modeling, he created loss forecasting and stress testing systems for financial institutions. He joined Moody's in 2008, after serving as a director with Fannie Mae. He also was an adjunct professor of economics at Johns Hopkins University.

Michael Schwartz



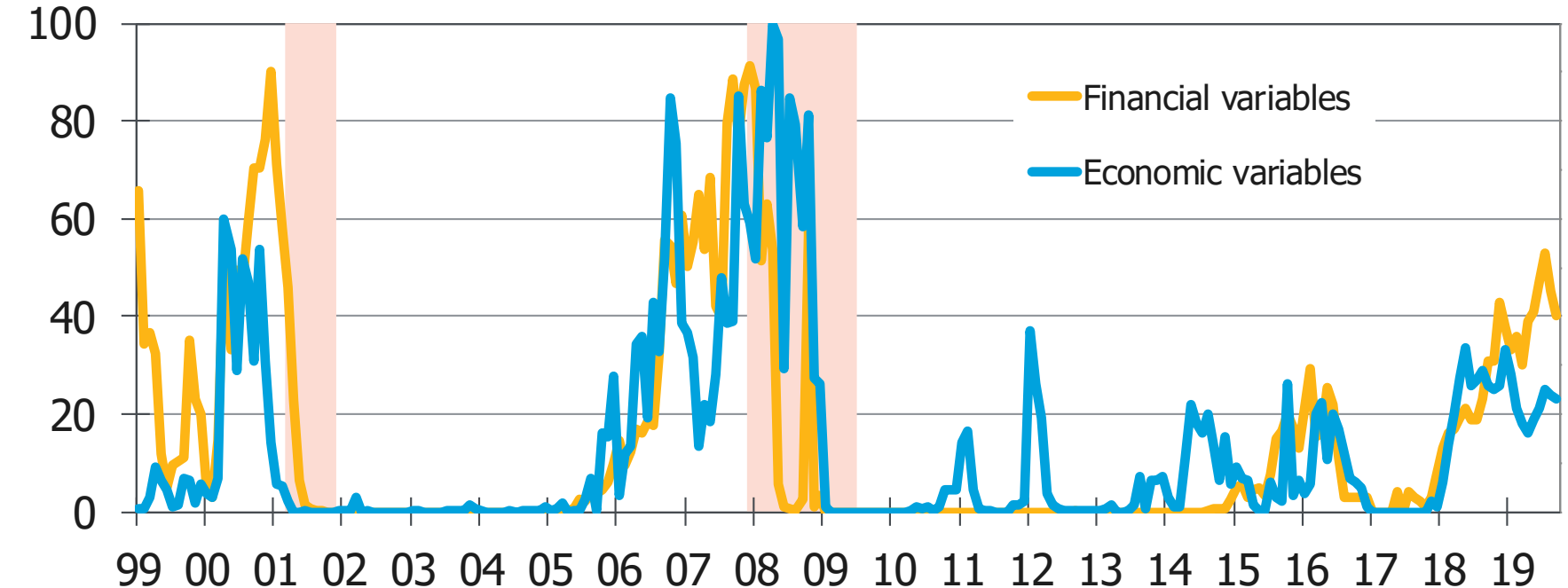
At Moody's Analytics, Michael supports the commercial strategy group, working along side risk-minded professionals to design and develop credit origination and risk measurement solutions. Prior to joining Moody's Analytics, Michael served as customer success director for fintech start-up Fundera, a marketplace created to pair small business owners with banks and alternative lenders. Michael also spent more than six years with PNC Bank, starting with the commercial underwriting group and then transitioning to the business bank segment, focusing on SBA commercial lending. Michael has a BS in finance with an economics minor from the University of Pittsburgh.

Agenda Slide

- ▶ Current State of the Global Economy
- ▶ Household Finances
- ▶ Recession Risk and Severity
- ▶ Best Practices to Manage Credit Risk

Recession Odds Rise, But Next 12 Months Unlikely

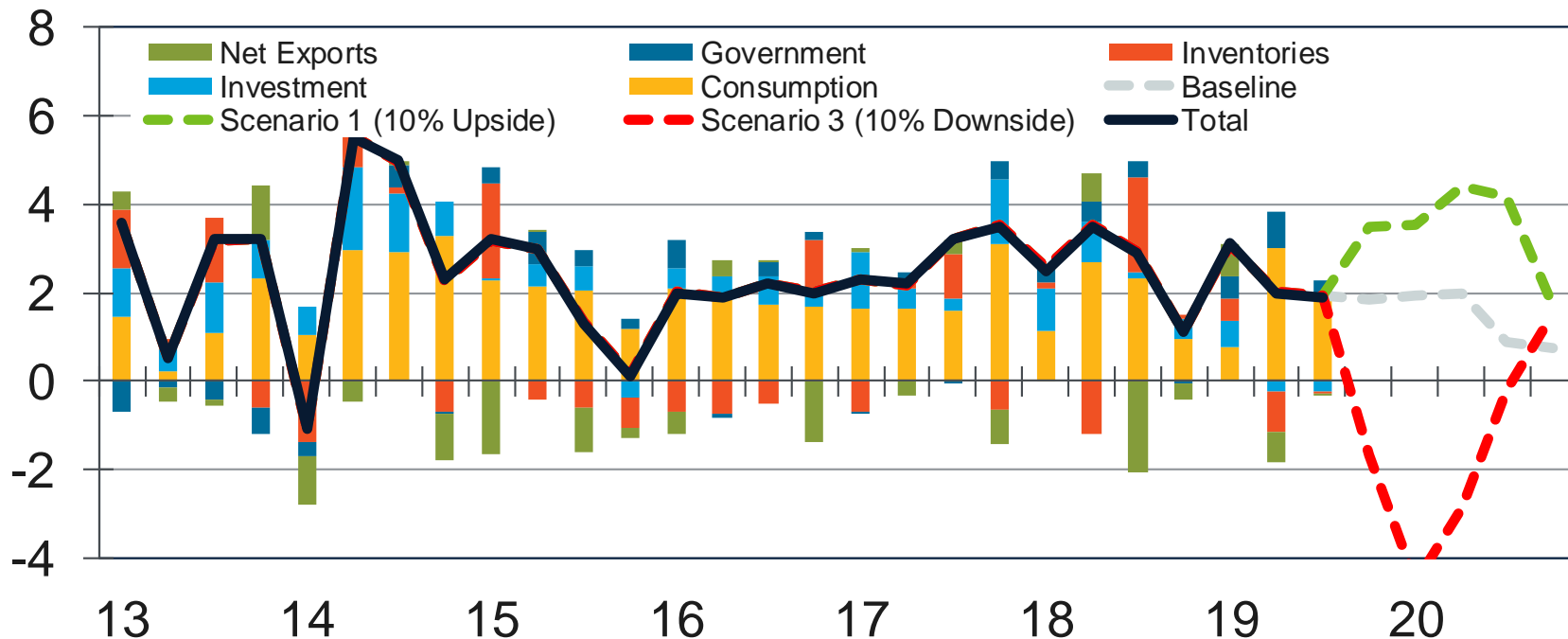
Probability of recession in 12 mo, %, using only...



Source: Moody's Analytics

Consumers Driving Growth As Businesses Hold Back

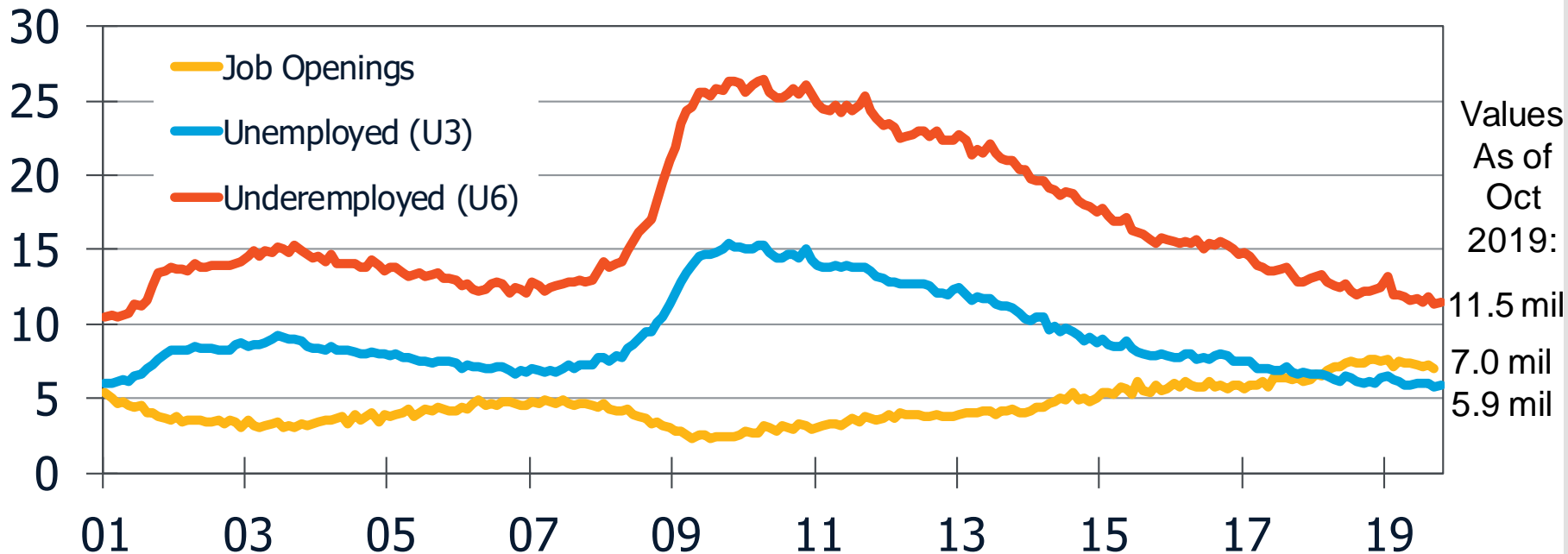
Contributions to percent change in real GDP, % qtr/qtr annualized



Source: Moody's Analytics

The Job Market Continues to Deliver

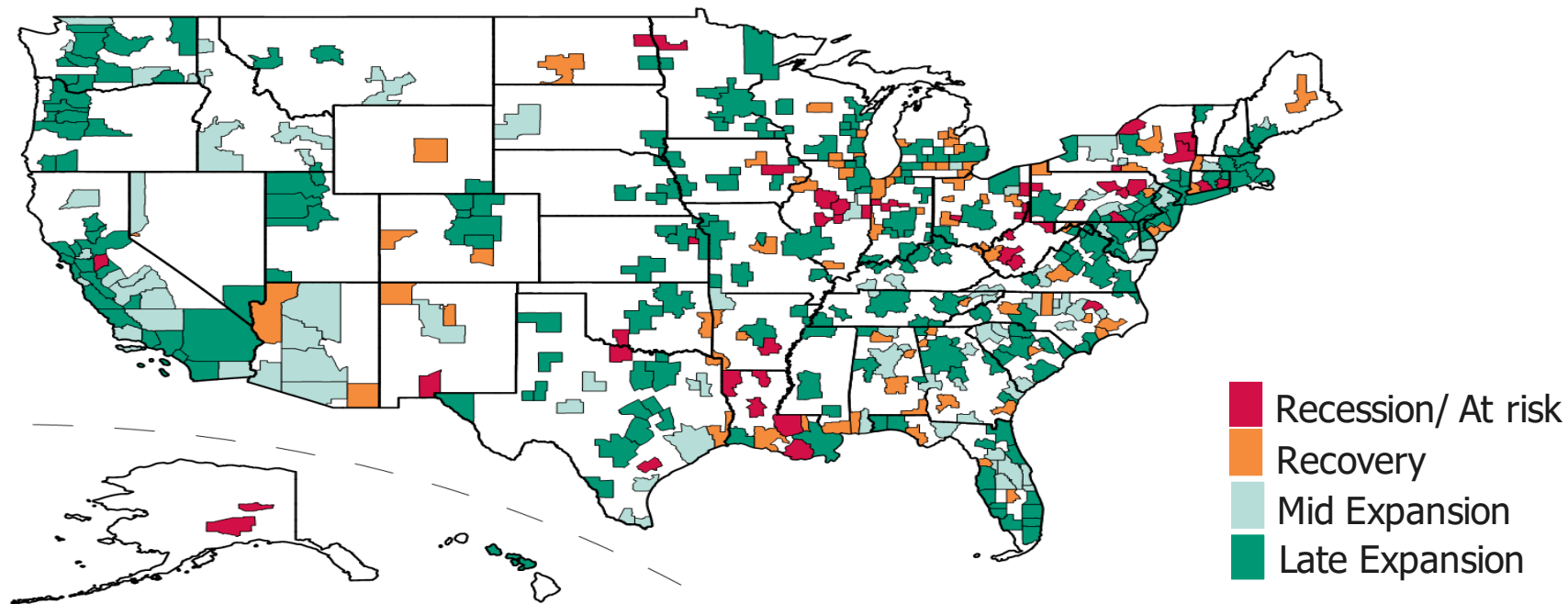
Millions



Sources: BLS, Moody's Analytics

Regional Weaknesses Start to Emerge

Business cycle status as of August 2019 data



Source: Moody's Analytics

It's All Up to Consumers; Overall Finances Healthy

As of 2019 Q3

INCOME



\$16.5 T

Disposable Income

4.6% Growth Yr/Yr

WEALTH



\$107 T

Net Worth

4.9% Growth Yr/Yr

DEBT



\$15.2 T

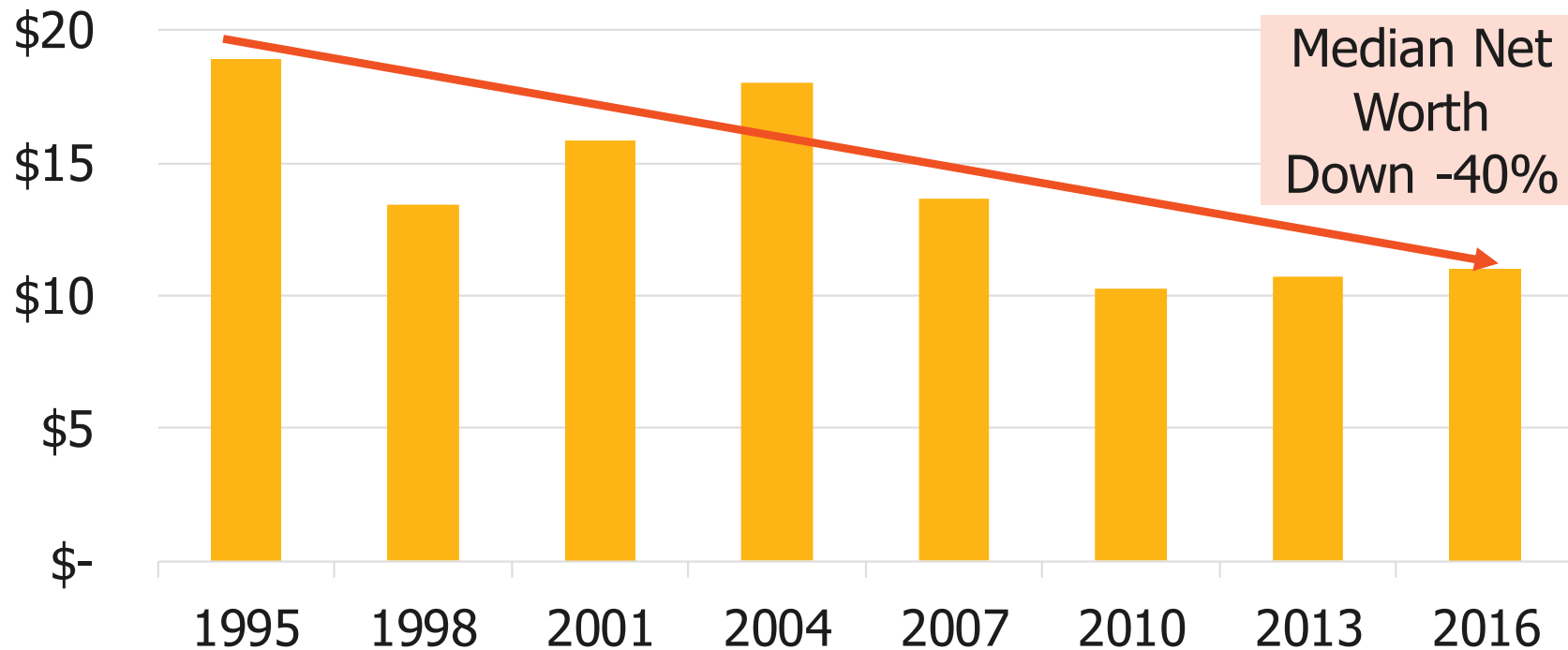
Outstanding Debt

3.2% Growth Yr/Yr

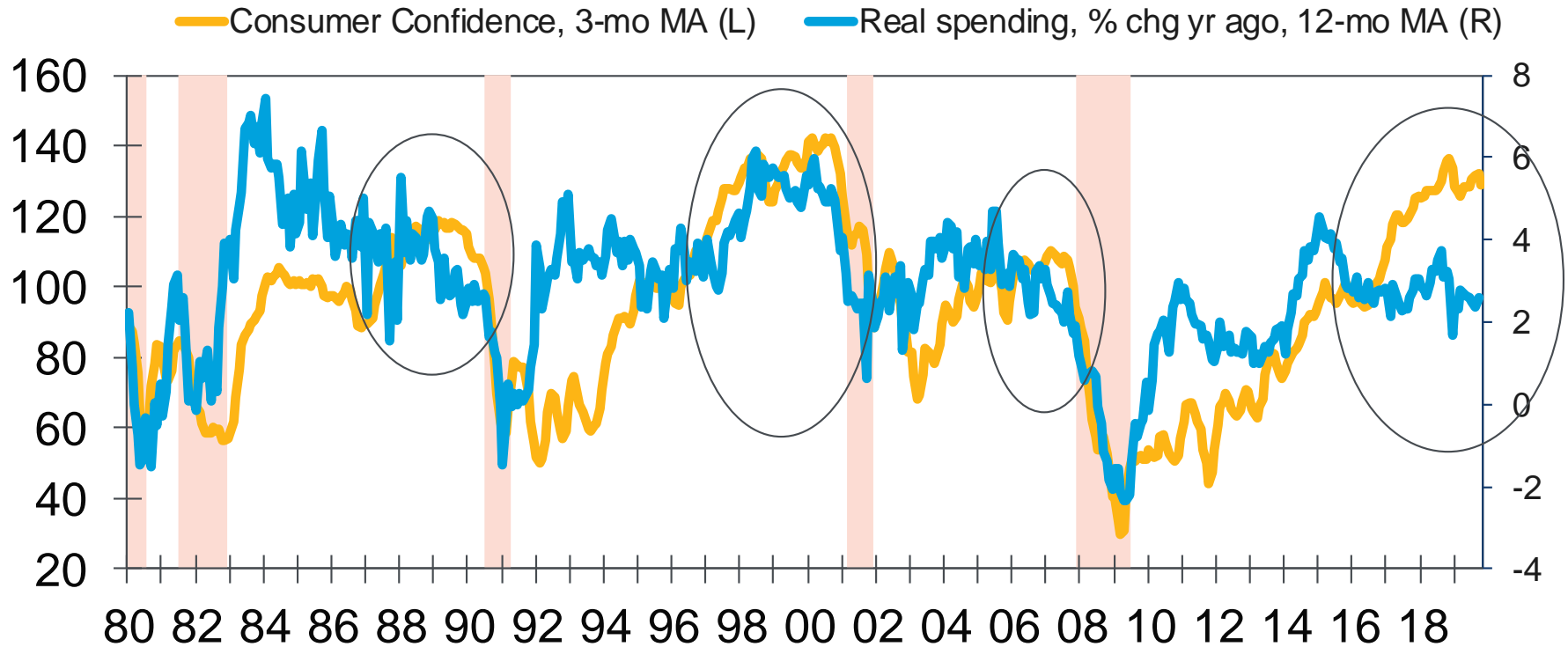
Sources: Federal Reserve, Moody's Analytics

...But Millennials Doing Worse Than Prior Generations

Median Net Worth of Households Under 35 Years Old, inflation-adjusted 2016 \$



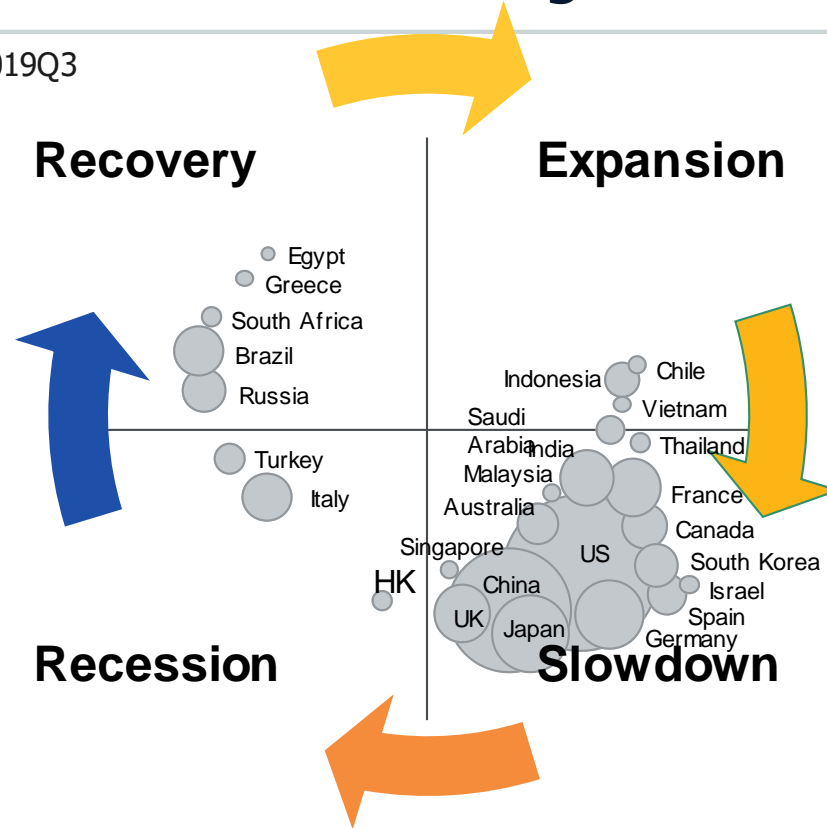
Hard and Soft Data Sends Mixed Signals



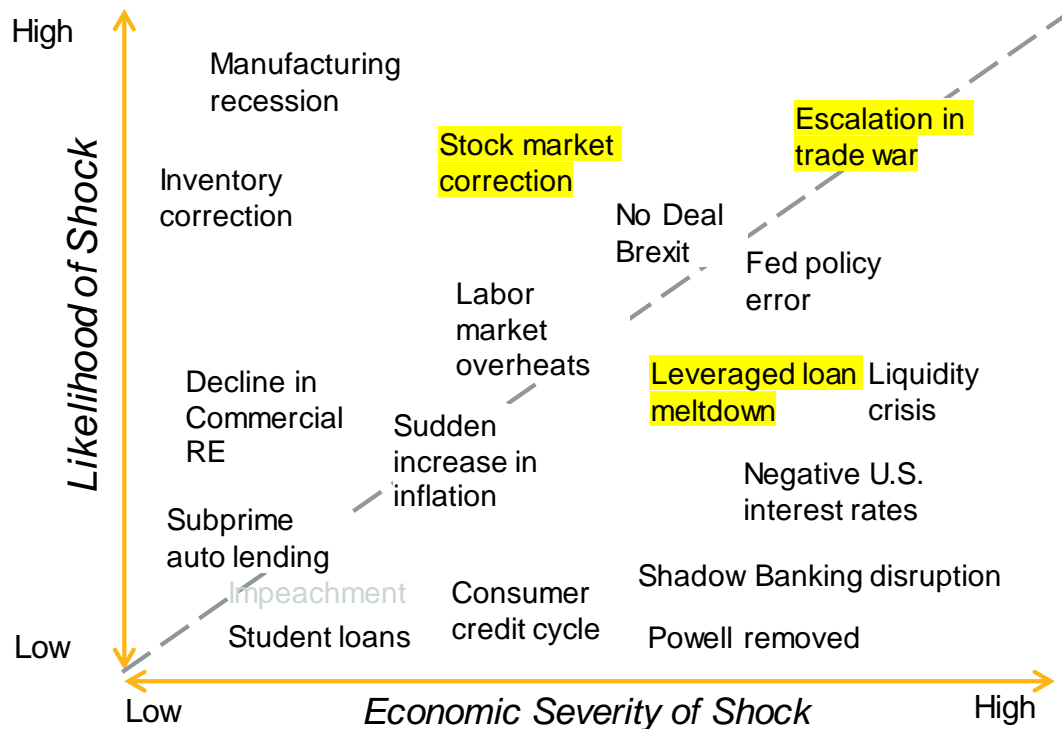
Sources: Conference Board, BEA, Moody's Analytics

Global Recession Risks Are Rising

Circle size = Real GDP, USD, 2019Q3



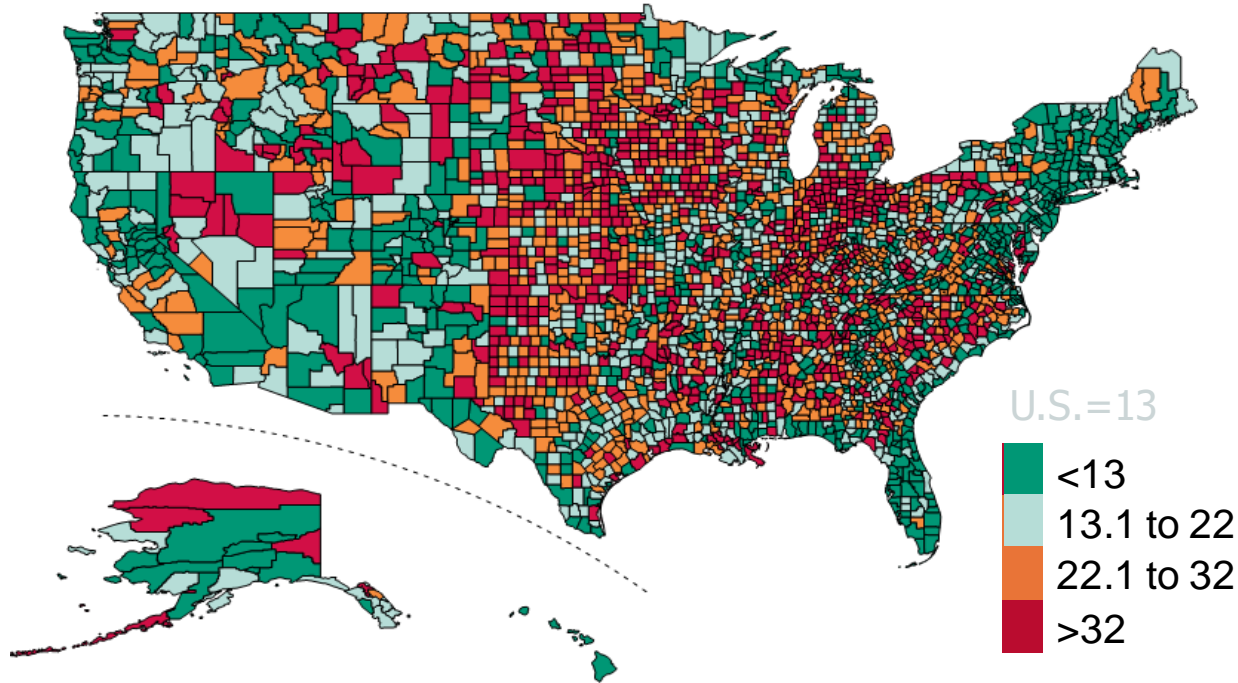
What Could Go Wrong?



Source: Moody's Analytics

Effects Not Equal: Regional Casualties of the Trade War

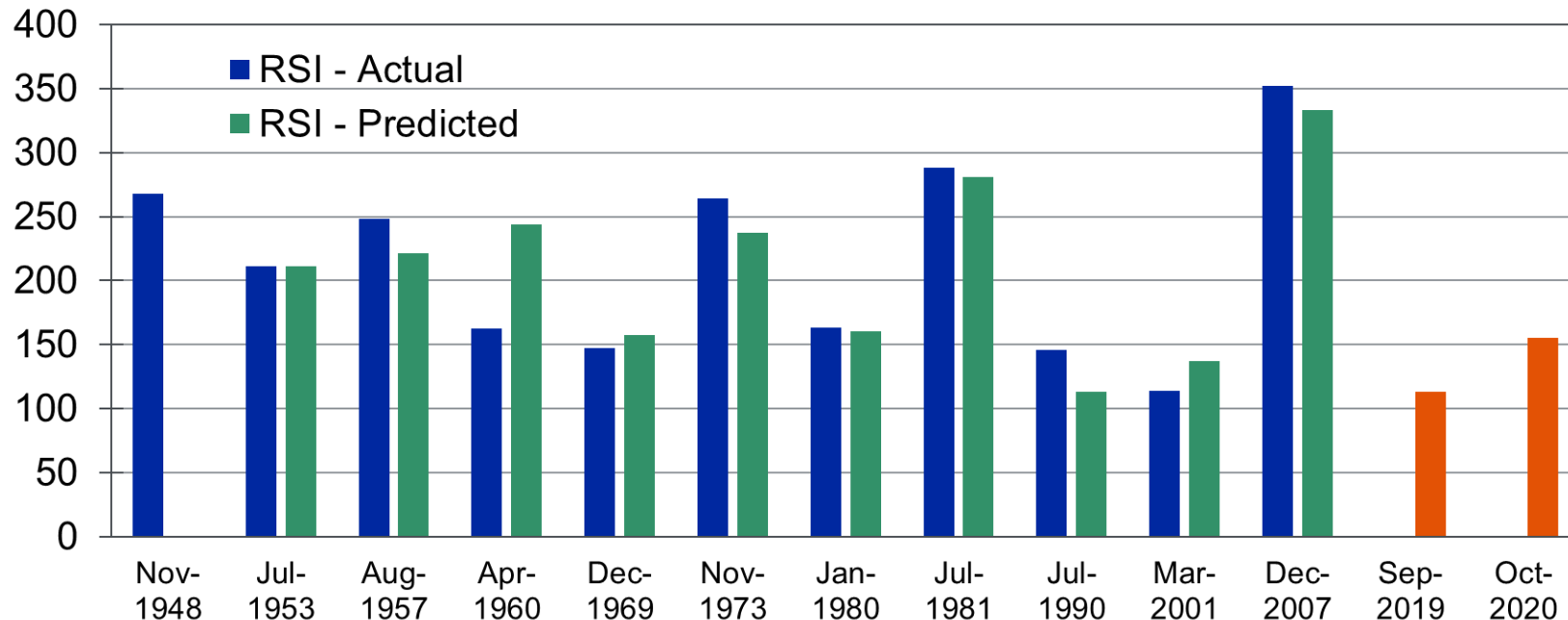
% of GDP in industries impacted by Chinese retaliatory tariffs



Sources: BEA, Moody's Analytics

Fundamentals Suggest Next Recession Won't Be Severe...

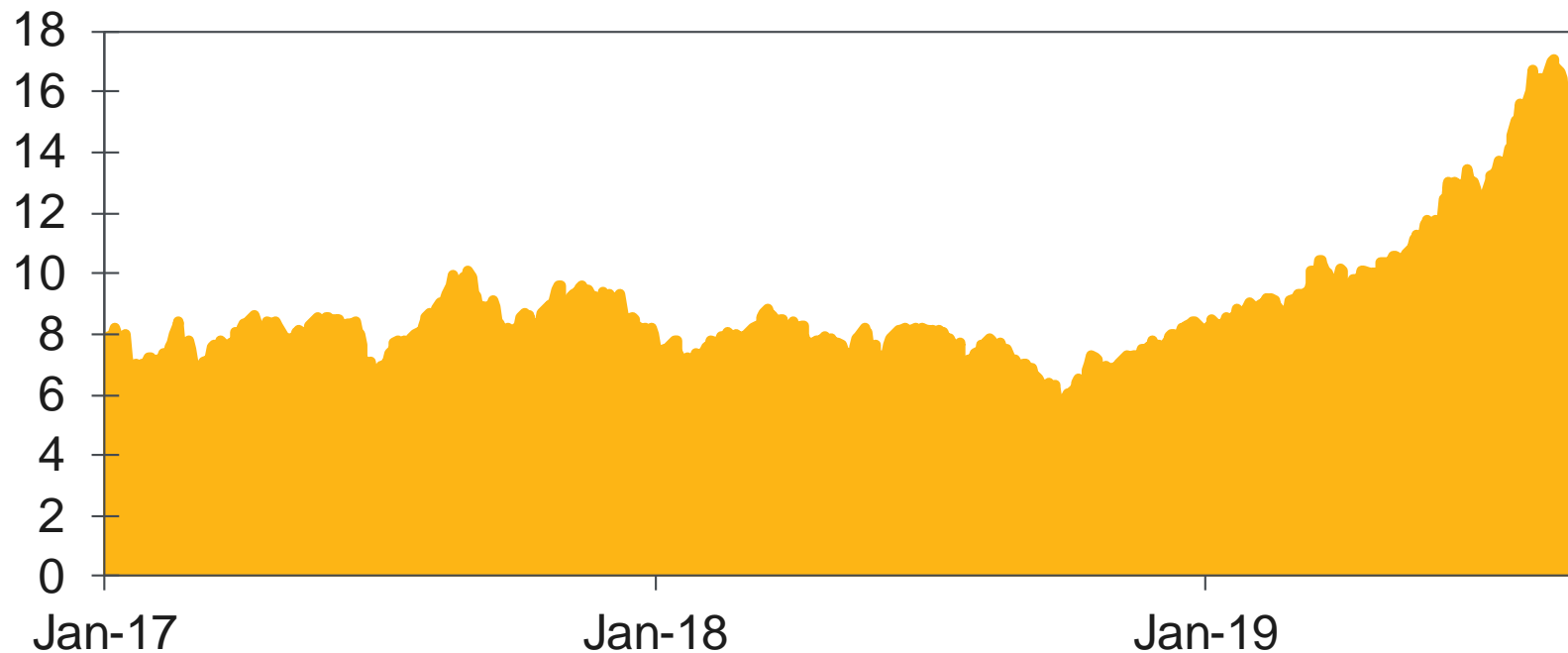
Recession Severity Index, composite of key indicators



Sources: Moody's Analytics

...But World of Negative Rates Untested

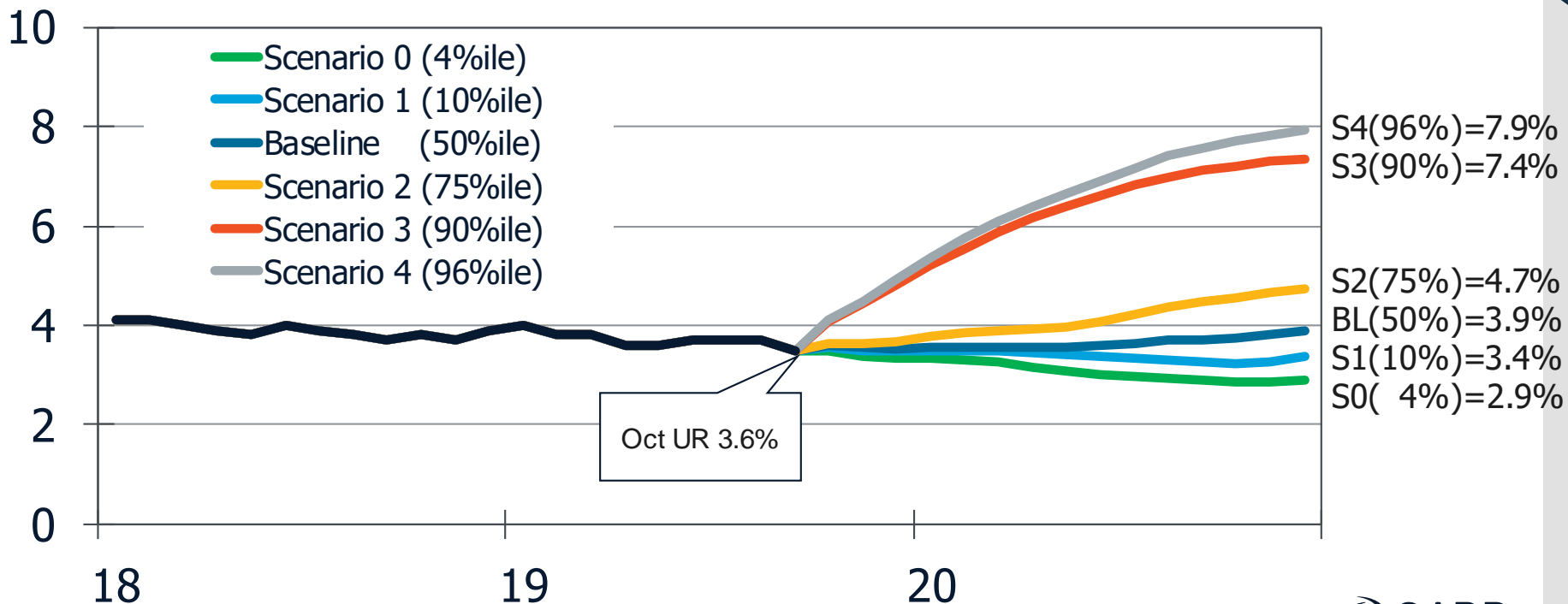
Global aggregate of negative-yielding debt, \$ tril



Sources: Barclays, Bloomberg, Federal Reserve, Moody's Analytics

Consider the Alternatives

Unemployment rate, %

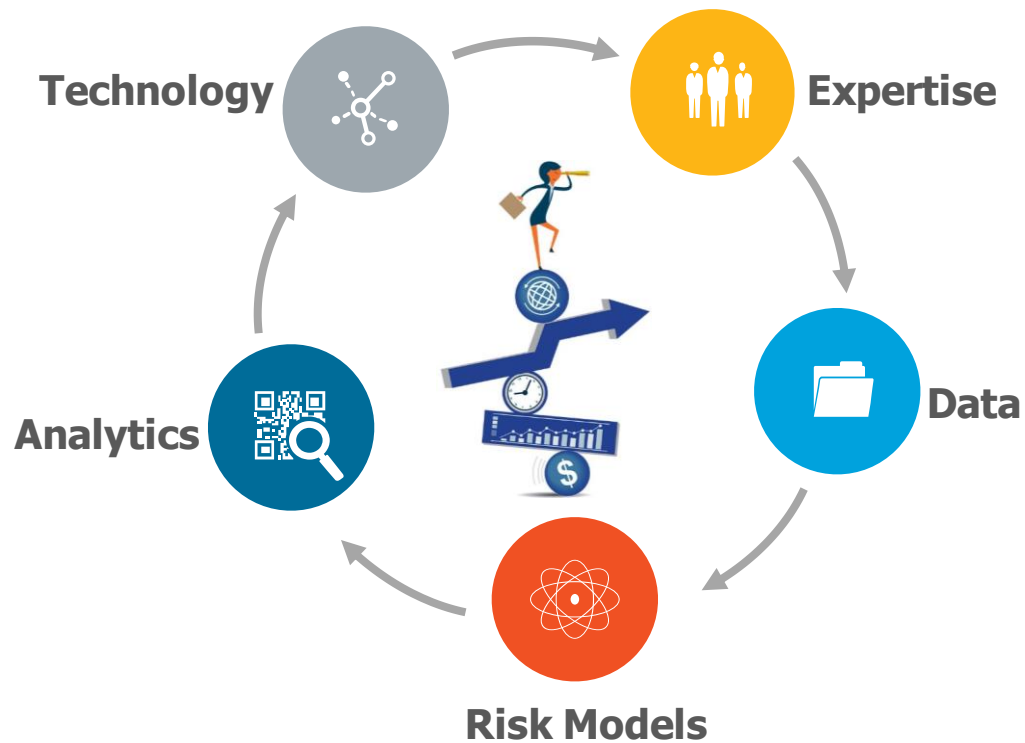


Sources: BLS, Moody's Analytics

What to Watch? Recession Tracker @ www.economy.com

Indicator	Type	Months to Recession	Threshold	Risk
Unemployment rate - NAIRU	Leading	30 to 36	0	High
Financial stress index	Leading	11 to 15	>1	Low
Housing permits	Leading	10 to 12	Yr/Yr decline	Low
Yield curve 10-yr minus 3 mo	Leading	8 to 15	0	Moderate
Yield curve 10-yr minus 2-yr	Leading	8 to 14	0	Moderate
TED spread	Leading	7 to 8	>100 basis points	Low
Consumer Confidence	Leading	5 to 10	30 point decline from peak	Low
Jobless claims	Leading	4 to 5	>253k	Low
S&P 500	Leading	3 to 9	20% correction	Low
ISM Manufacturing index	Leading	3 to 6	43.2	High
Net % of banks tightening lending standards on C&I Loans	Leading	1 to 5	>20%	Low
Hours worked for production workers	Leading	1 to 10	Yr/Yr decline	Moderate
Unemployment rate	Coincident	0	Increase of 0.25%	Low
Core capital goods orders	Coincident	0	Yr/Yr decline	Low
Industrial production	Coincident	0	Yr/Yr decline	Moderate
ISM nonmanufacturing index	Lagging	1	49	Low
Employment	Lagging	2 to 4	Yr/Yr decline	Low
Real GDP	Lagging	3 to 6	< potential growth	Moderate

Key Factors in Managing the Credit Lifecycle



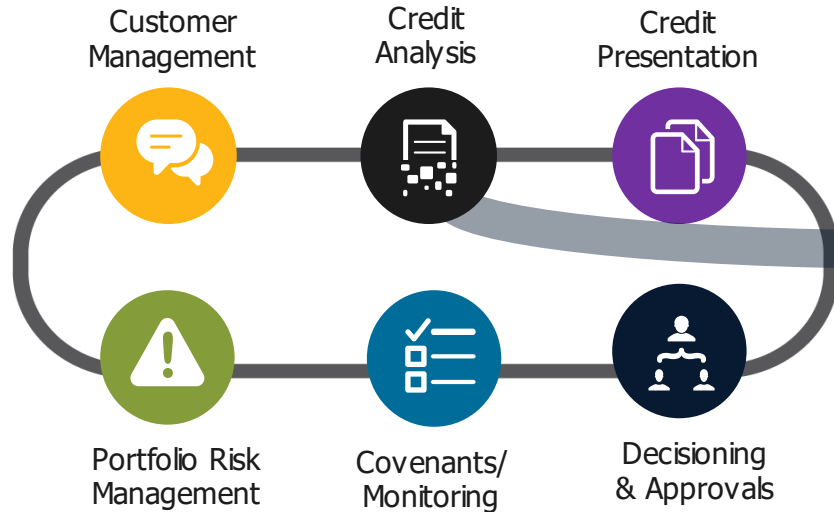
Application via Credit Lifecycle Management Platform

Data Automation



- Seamless Integration to critical data sources
 - Private Firm Financial Data
 - IRS Data
 - Customer Information Portal
 - AI & Machine Learning

Loan Origination & Lifecycle Management Solution



Credit Risk Solutions



**PD & LGD
Profitability
Calculations**



**Deal
Analytics**



Peer Analysis

Providing Consistent Risk Measures and Deal Analytics



Expected Default Frequency (EDF)

Provides probability of default for private firms and public firms



Loss Default (LGD)

Provides analysis of the EL, EAD, and LGD of the proposed deal



CRE Analysis

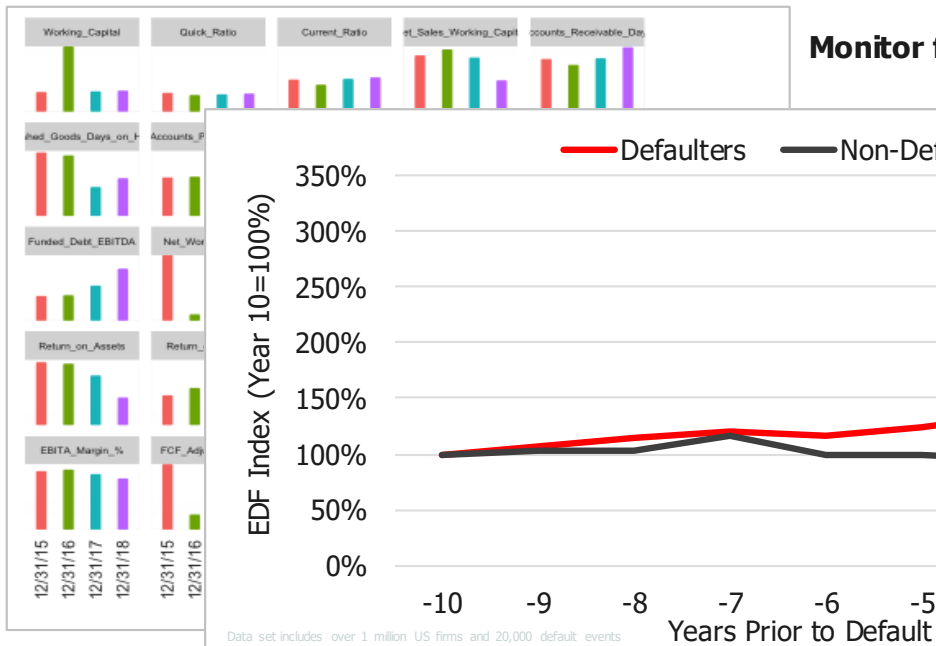
Effectively structure your CRE deals



Risk Return

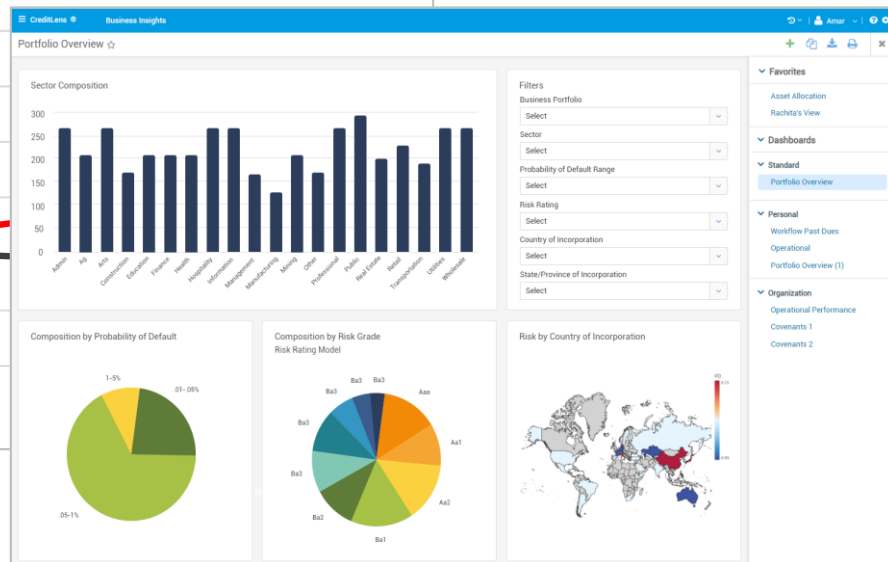
Profitability and pricing tool of the deal

Early Warning Strategies for Tracking and Monitoring



Monitor financial ratios yielding early warning indicators

Leverage EXISTING data for portfolio reporting and monitoring



Credit Cycle Adjusted models begin showing differentiation vs. non-defaulters as early as 6 years prior to default

Creating a culture of risk awareness®

garp.org

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