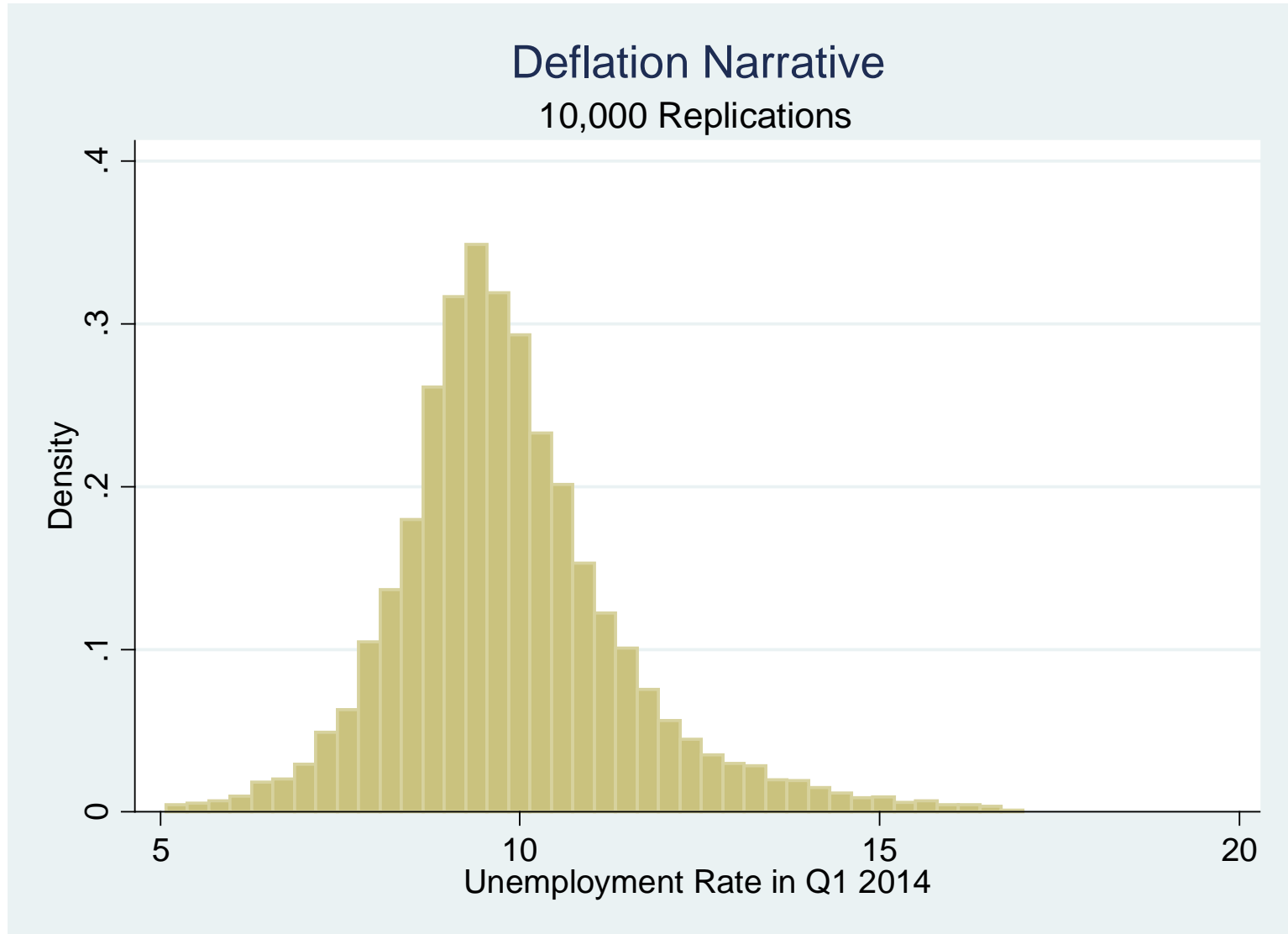


Stress Testing Using Macroeconomic Scenarios and Simulations

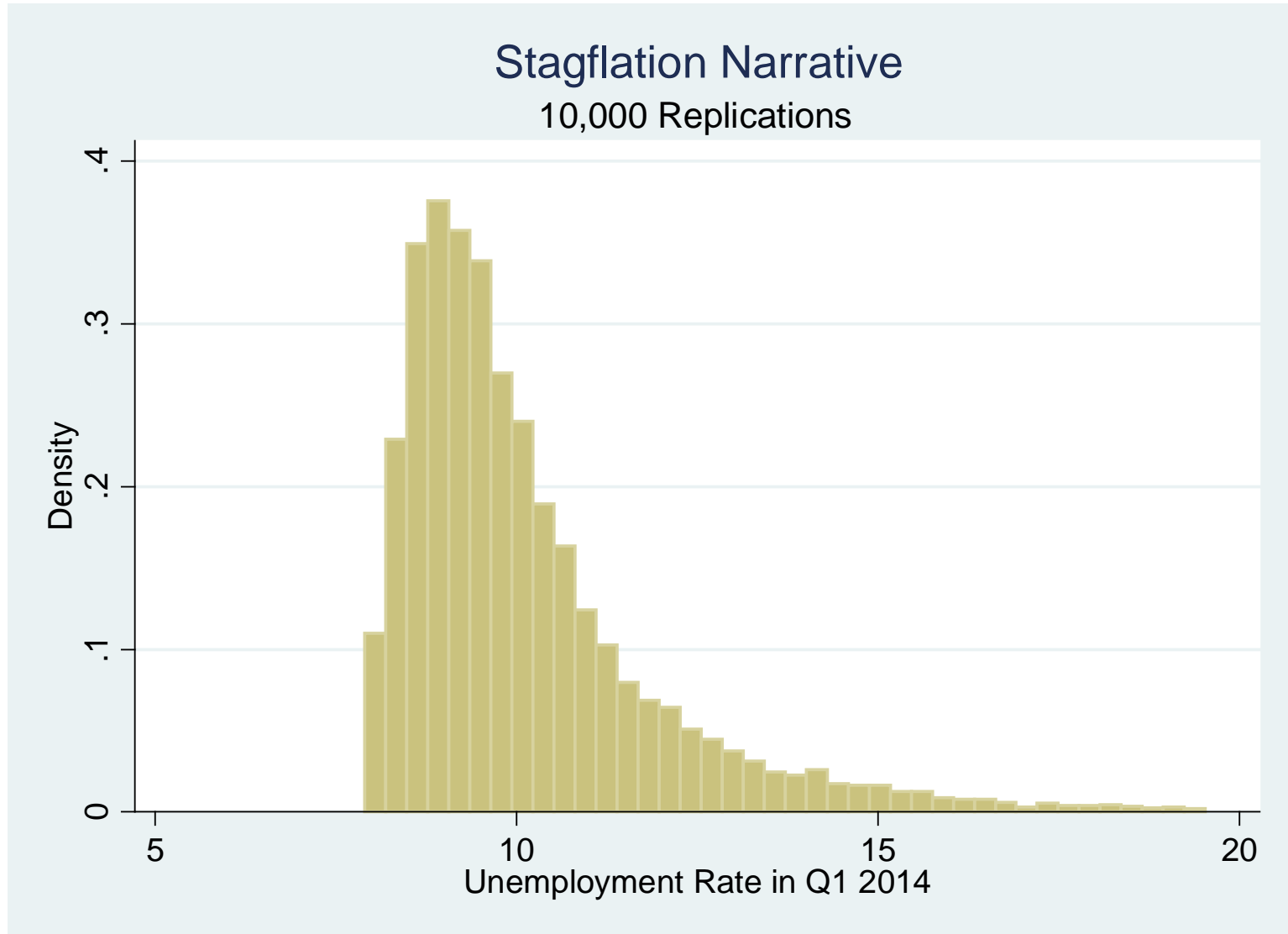
Summary of US Economic Scenarios (November 2011)

SCENARIO		REAL GDP	MEDIAN HOME PRICE	Fed Funds Target	UNEMPLOYMENT
S1	Stronger Recovery	Real growth of 1.9% in 2011, 3.6% in 2012	Expected to grow -4.6% in 2011 and 1.1% in 2012	The funds rate is expected to end 2011 at 0.15% and 2012 at 0.5%	Ends 2011 at 9.0%
BL	Baseline Current	Real growth of 1.8% in 2011, 2.6% in 2012	Peak-to-trough decline of 28%, turnaround in early 2012	The funds rate is expected to end 2011 at 0.08% and 2012 at .04%	Ends 2011 at 9.0%
S2	Mild Second Recession	Real growth of 1.8% in 2011, 0.1% in 2012	Peak-to-trough decline of 35%, turnaround late 2012	The funds rate expected to end 2011 at 0.07% and 2012 at 0.04%	Peaks at 11.4% in early 2013
S3	Deeper Second Recession	Real growth of 1.7% in 2011, -1.6% in 2012	Peak-to-trough decline of 39%, turnaround late 2012	The funds rate expected to end 2011 at 0.06% and 2012 at 0.04%	Peaks at 13.5% in early 2013
S4	Complete Collapse Depression	Real growth of 1.7% in 2011, -2.3% in 2012	Peak-to-trough decline of 45%, turnaround in late 2012	The funds rate expected to end 2011 at 0.05% and 2012 at 0.04%	Peaks at 14.8% in late 2013
S5	Aborted Recovery Below-Trend Long-Term Growth	Real growth of 1.8% in 2011, 1.8% in 2012	Peak-to-trough decline of 29%, turnaround in late 2013	The funds rate expected to end 2011 at 0.05% and 2012 at 0.04%	Peaks at 9.7% in late 2012
S6	Fiscal Crisis Oil Price Increase, Dollar Crash, Inflation	Real growth of 1.8% in 2011, 1.3% in 2012	Peak-to-trough decline of 35%, turnaround in late 2013	The funds rate is expected to end 2011 at 0.3% and 2012 at 3.5%	Peaks at 12.9% in early 2014, ends 2011 at 9.1%

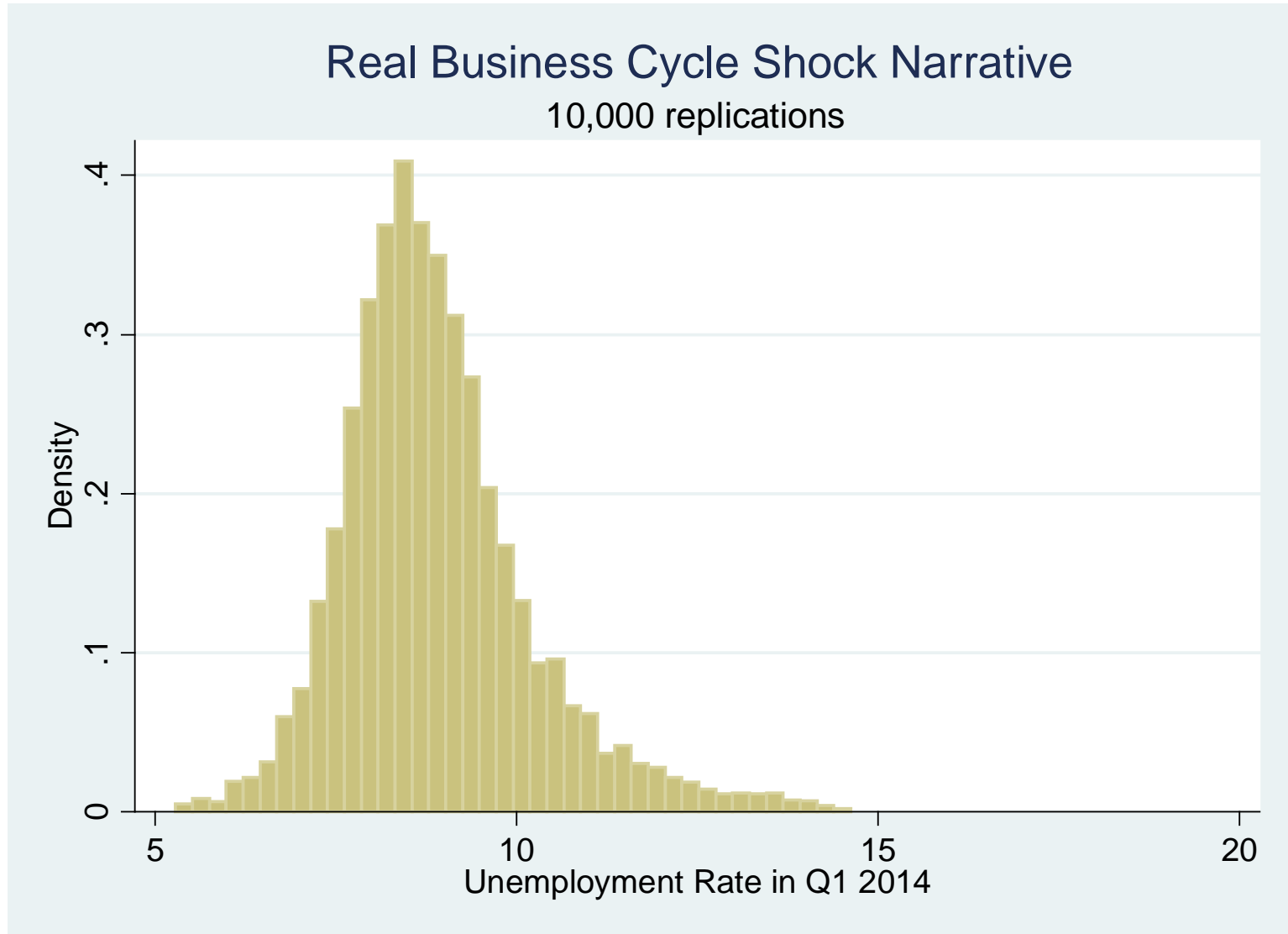
Scenarios Can Now Be Extended to Monte Carlo Sims



Scenarios Can Now Be Extended to Monte Carlo Sims

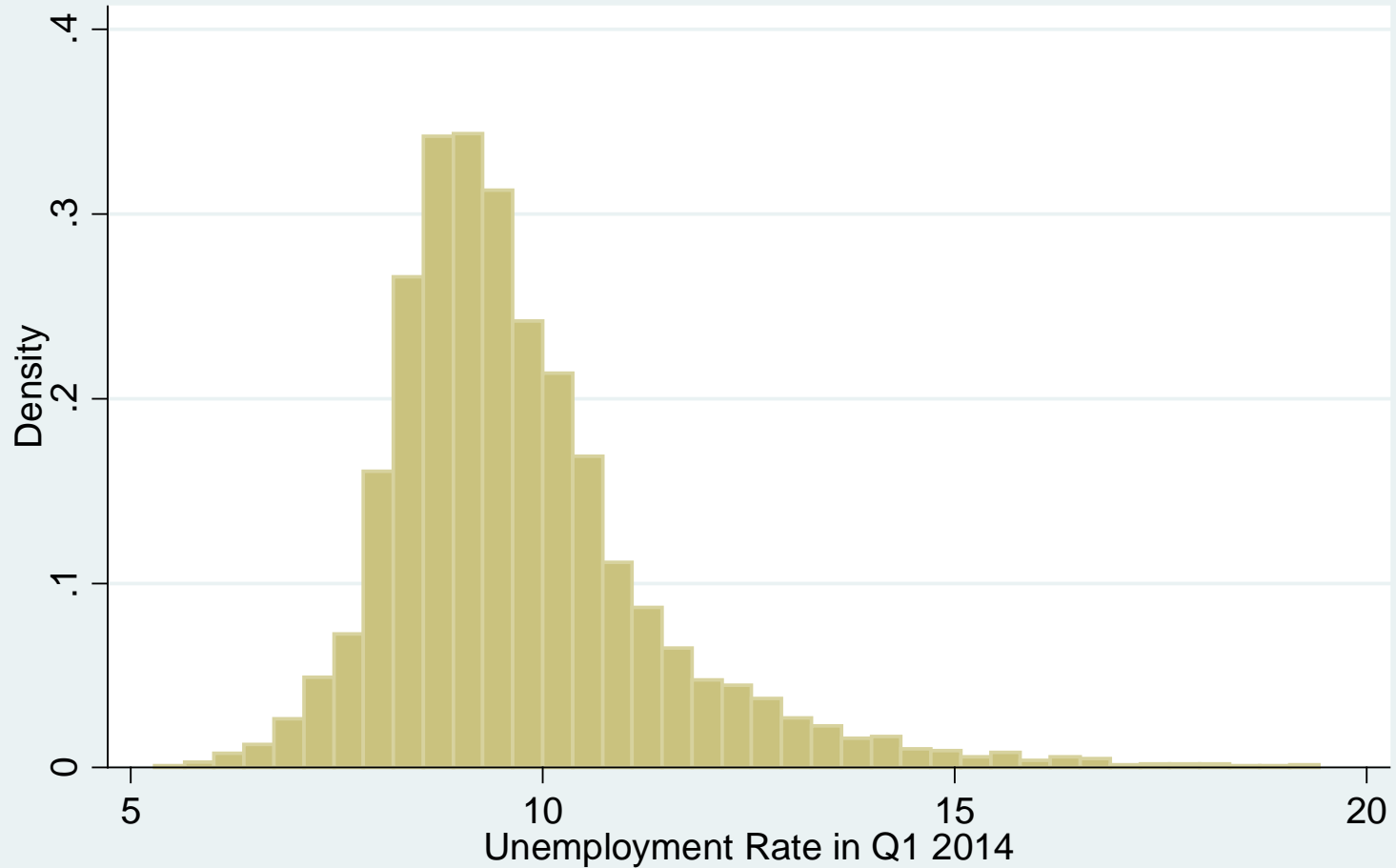


Scenarios Can Now Be Extended to Monte Carlo Sims

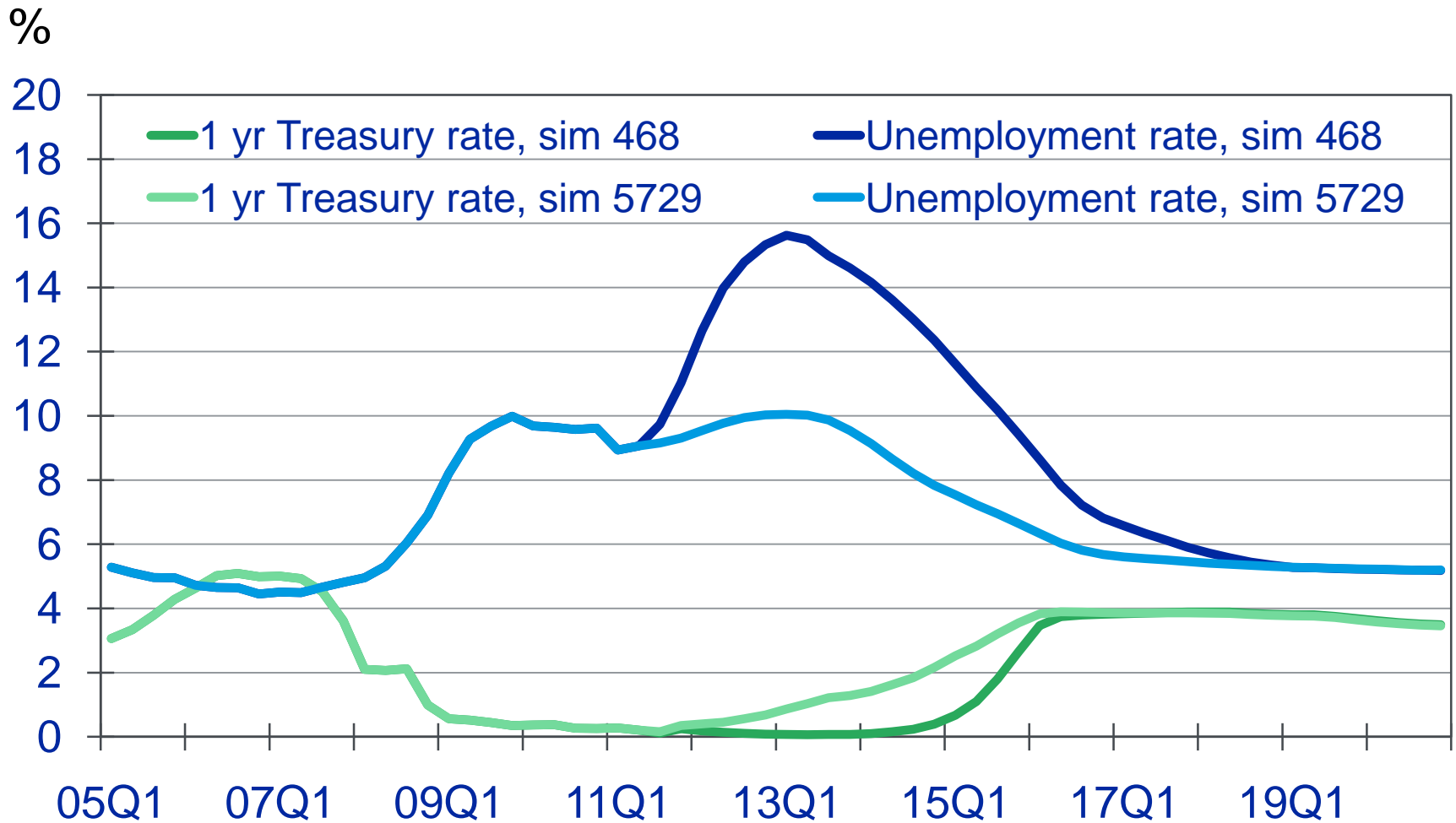


Scenarios Can Now Be Extended to Monte Carlo Sims

Combination: 20% Deflation, 50% Stagflation, 30% RBC
10,000 Replications



Simulations Are Always Internally Consistent



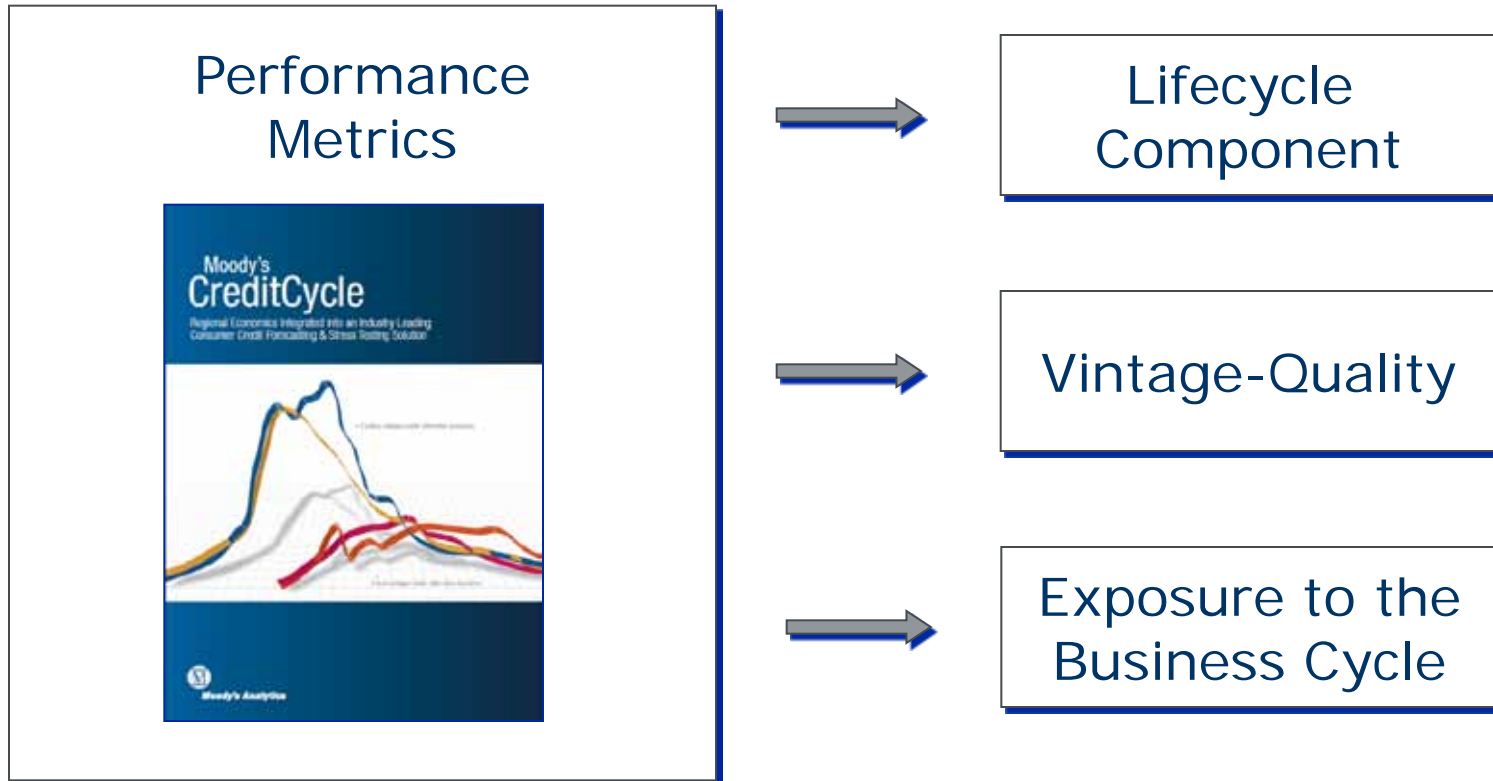
Source: Moody's Analytics

Stress Testing Consumer Credit Portfolios

What does Moody's CreditCycle do?

- Identifies performance drivers through consumer credit modeling against:
 - External environment/ economic conditions
 - Internal business strategy / credit policy decision
- Forecasts future performance based on internal policy and external factors (credit and economic cycles)
- Stress tests exposure using a flexible platform; allows users to quantify their exposure under severe conditions as dynamic environment changes (significantly increases analysis and reporting flexibility)

Consumer Credit Forecasting Modeling Approach

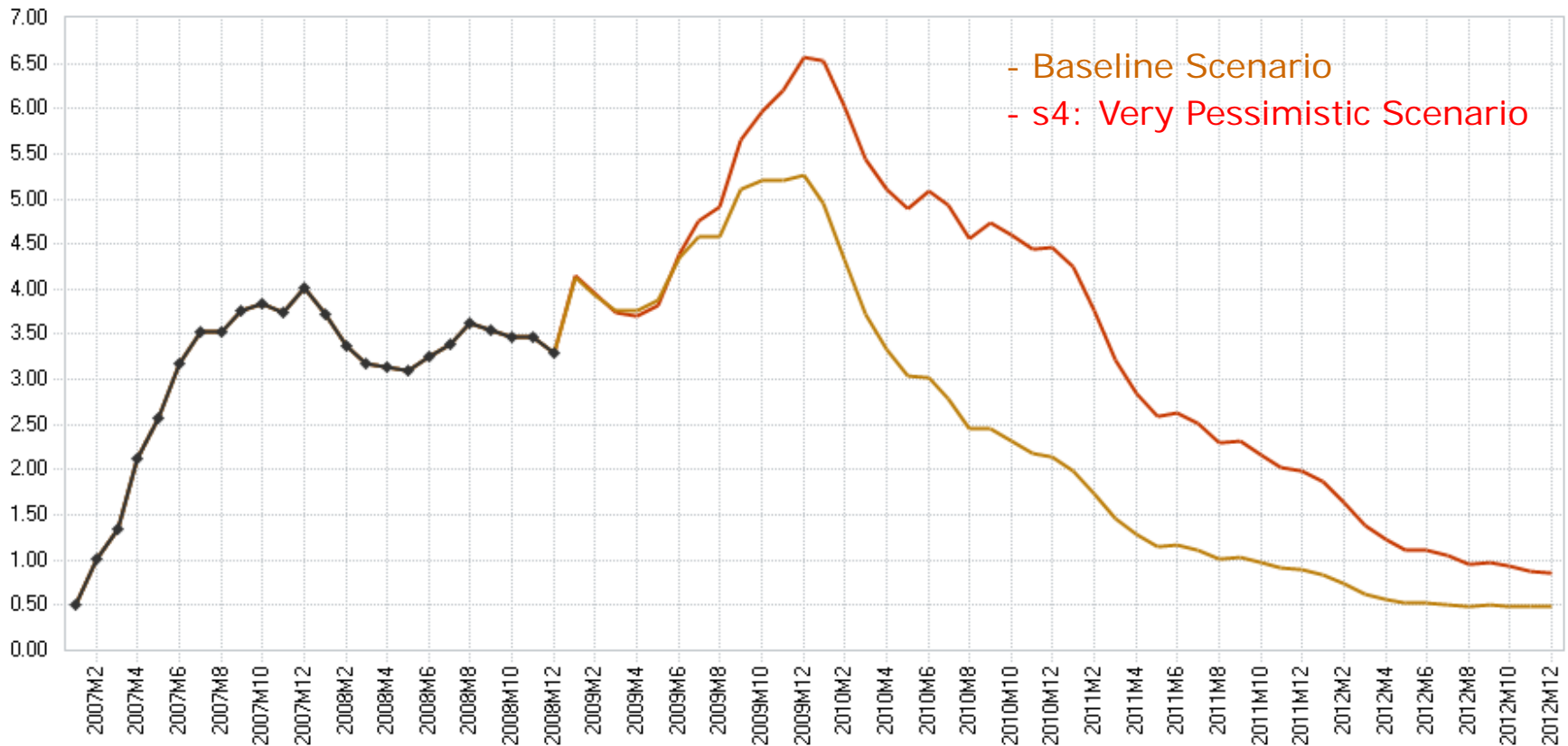


Consumer Credit Forecasting

Modeling Approach

Exposure to the Business Cycle

Total delinquency rate (% of orig. \$) under different economic scenarios

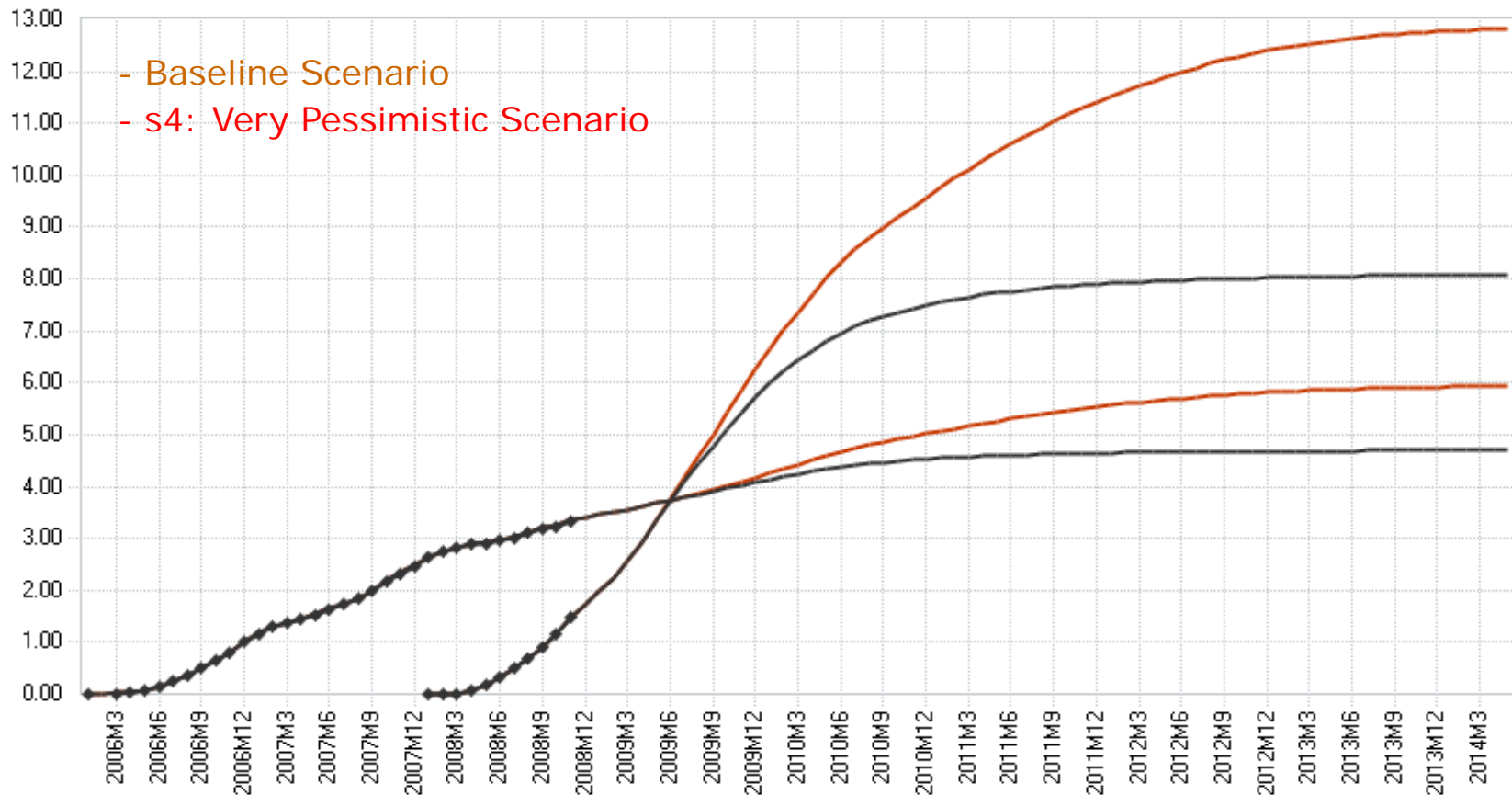


Consumer Credit Forecasting

Modeling Approach

Exposure to the
Business Cycle

Cumulative loss rate (% of orig. \$) under different economic scenarios



Stress Testing Structured Assets: Default, Prepayment and Loss Curves

Our Model: A system of equations model using state-of-the-art techniques that explicitly account for economic conditions

Pool performance time series
(e.g., CPR, CDR, LGD Vectors)

= f

Pool & Loan-level components

- » Attributes (i.e. LTV, FICO, collateral type) define quality across pools
- » Economic conditions at origination matter for pool quality
- » Early delinquencies also serve as proxies for underlying pool quality
- » Econometric technique for unobserved effects (static/dynamic)

Business cycle exposure component

- » Explicit connection between pool performance and macroeconomic drivers provides the ability to stress test holdings and run “what-if” scenarios

Lifecycle component

- » Takes into account the shape of the performance curve over pools' life

Note: For more information, please request our white paper.

US RMBS & HEL: Summary of model inputs

Group	Variable	Vector								
		30 day delinquency	60 day delinquency	90+ day delinquency	CDR	Foreclosure	LGD	Net Chargeoff	CPR	Principal
Origination conditions	LTV				X	X	X	X	X	
	FICO	X	X	X	X	X		X		X
	Top Originators	X	X	X	X	X	X	X	X	X
	Vintage Year	X	X	X	X		X	X	X	X
	Loan Type	X	X	X	X	X	X	X	X	X
Economic Conditions at Origination	Fed Funds	X	X	X						X (relative to WAC)
	Home Prices	X	X	X						
	GDP						X			
	Unemployment Rate				X	X		X		
Current Economic Conditions	Disposable Income	t, t-3	t, t-3	t-3						
	Home Prices (HP)	t, t-6	t, t-6	t-6		t-3				
	Change in HP since 0						t	t	t	
	Negative Equity Dummy						t		t	
	Unemployment Rate	t-3	t-3	t-3	t-1			t		
	Avg. Hourly Earnings	t-6	t-6	t-6						
	GDP						t			
	Personal Bankruptcies									
	REFI Volume						t-12	t		
	Fed Funds									t
	Debt Service Burden							t-6		t
	Existing Home Sales									t-12
Mort. REFI Originations							t-12		t	
Pipeline connections	30 day delinquency									t
	90+ day delinquency				t-3	t-3				
	Foreclosure									
	Unobserved effect (CDR)							X	X	X
Other Variables	Lifecycle * Loan Type	X	X	X				X	X	
	Lifecycle * Economic	X		X				X		
	Loan Type*Economic	X						X		
	Dec 2005 Bankruptcy Law									

Notes: All models include nonlinear terms for the lifecycle (age in months), and seasonality factors (month)

EMEA RMBS: Summary of model inputs

Group	Variable	30 day delinquency	60 day delinquency	90+ day delinquency	CDR	Foreclosure	Repossession	LGD	Net Chargeoff	CPR	Principal
Origination conditions	LTV				X			X			
	WAC									X	
	Master Trust	X		X	X			X			
	Country		X		X	X	X	X	X	X	X
	Product Line	X		X		X	X	X	X	X	X
	Loan Type	X		X							
Current Economic Conditions	Home Prices			X	X			X			
	GDP										X
	Unemployment Rate	X	X	X	X	X	X		X		
Current Economic Conditions	Home Prices (HP)				t	t	t		t	t	
	10-Year Bond Rate									t	
	Unemployment Rate	t	t	t	t	t	t		t		
	GDP		t	t							
	Employment										t
Pipeline connections	60 day delinquency			t, t-3	t-3	t-3	t-3				
	90 day delinquency				t, t-3				t-3		
Other Variables	Lifecycle * Economic		X								
	Country*Economic							X			
Life-cycle	Number of knots	4	4	4	4	4	3	4	4	4	4

US Auto Loans, Leases, Motorcycle, RVs and Boats: Summary of model inputs

Group	Variable	Vector							
		30 day delinquency	60 day delinquency	90+ day delinquency	CDR	Repossession	Net Chargeoff	CPR	Principal
Origination Conditions	Weighted Average Coupon (WAC)								X
	Weighted Average Maturity (WAM)								X
	Loan Type	X	X	X	X	X	X	X	X
Economic Conditions at Origination	Unemployment Rate	X	X	X	X	X	X		
	Prime Rate							X	
	Used Car Prices	X	X	X	X	X	X		
	New Car Prices				X	X	X		
Current Economic Conditions	GDP	t, t-3	t, t-3	t, t-3	t, t-3	t, t-3	t, t-3	t, t-3	
	Unemployment Rate	t	t	t	t	t	t	t	
	Relative Unemployment Rate	t	t	t	t	t	t	t	
	Relative Prime Rate								t
	Used Car Prices	t	t	t	t	t	t		
	Relative Used Car Prices	t	t	t	t	t			
	Relative New Car Prices							t	t
	Automobile Sales								t
	Automobile Registrations	t	t	t	t	t	t		
	Personal Bankruptcies	t	t	t	t	t	t		
Mortgage Loan-to-Value Ratio	t	t	t	t	t	t			
Pipeline connections	30 day delinquency		t						t
	60 day delinquency			t					
	90+ day delinquency				t	t			

Notes: All models include nonlinear terms for the lifecycle (age in months), and seasonality factors (month)

US Student Loans: Summary of model inputs

Group	Variable	Vector							
		30 day delinquency	60 day delinquency	90+ day delinquency	Forbearance	Deferment	Prepayment Rate	Default	Recovery
Origination Conditions	Repayment (% of original balance)	X			X	X	X	X	X
	Forbearance (% of original balance)	X			X	X	X	X	X
	Deferment (% of original balance)	X			X		X	X	X
	In School (% of original balance)	X			X	X	X	X	X
	Grace (% of original balance)	X			X		X	X	X
	Claims Filed (% of original balance)	X			X		X	X	X
	Vintage	X		X	X	X	X		X
	Loan Type	X	X	X	X	X	X	X	X
	Master Trust			X		X	X		
Current Economic Conditions	GDP				t-1				
	Unemployment Rate	t-6		t	t		t-12	t	
	Unemployment		t-12		t-1, t-12				
	Employment					t			t-12
	Labor Force	t-6					t-12		
	Labor Force Participation Rate				t-6				
	Avg Hourly Earnings	t-6			t	t			t
	Net Worth for Households				t	t		t	t
	Personal Disposable Income						t-1		
	Personal Income							t	
	Debt Service Burden					t			
	Fed Funds						t	t-6	
Unemployment Insurance Initial Claims				t					
Pipeline connections	30 day delinquency		t						
	60 day delinquency			t					
	90+ day delinquency					t		t	
	Default Rate								t-12
	Forbearance Rate						t-6		
Other Variables	Lifecycle * Economic				X	X	X		
	Inactive	X		X			X		

Notes: All models include nonlinear terms for the lifecycle (age in months), and seasonality factors (month)

US Credit Cards: Summary of model inputs

Group	Variable	Vector					
		30 day delinquency	60 day delinquency	90+ day delinquency	Principal Payment	Chargeoff	Yield
Origination Conditions	Master Trust	X	X	X	X	X	X
	Top Originators	X	X	X	X	X	X
	Vintage Year	X	X	X	X	X	X
	Loan Type	X	X	X			
Current Economic Conditions	GDP				t-3		t
	Unemployment Rate				t-6	t	t-6
	Employment	t	t	t			
	Relative Prime Rate						
	Avg. Hourly Earnings	t	t	t			
Pipeline connections	30 day delinquency		t				
	60 day delinquency			t			
	90+ day delinquency				t	t	
	Principal Payment Rate						t
	Chargeoff Rate						t
Lifecycle	Number of knots	3	3	3	3	3	3

My Data Catalogs Search

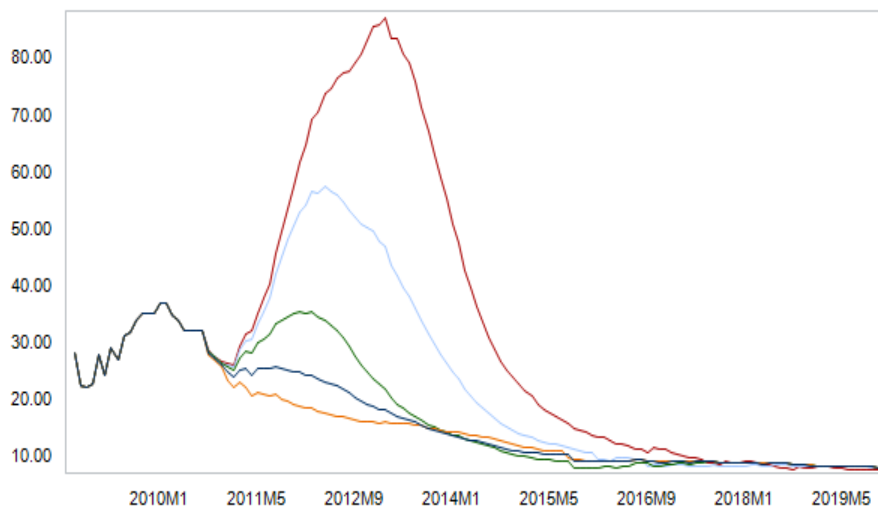
Example of model ...

Save Options Schedules View Data Apply Template Download Chart

Dates: Enter start and end date Start: 10/31/2008 End: 01/31/2020 Set

Example of model output: US RMBS Deal
Delinquency Rate Curve: 90 days or more (% Current Balance)

Last Modified Nov 15, 2010



Series	Color	Transformation	Y-Axis
Baseline (October 2010): 90 or More	Red	None	Left
Stronger Near-term Recovery Scenario	Orange	None	Left
Mild Second Recession Scenario	Green	None	Left
Deeper Second Recession Scenario	Blue	None	Left
Complete Collapse, Depression Scenario	Dark Blue	None	Left

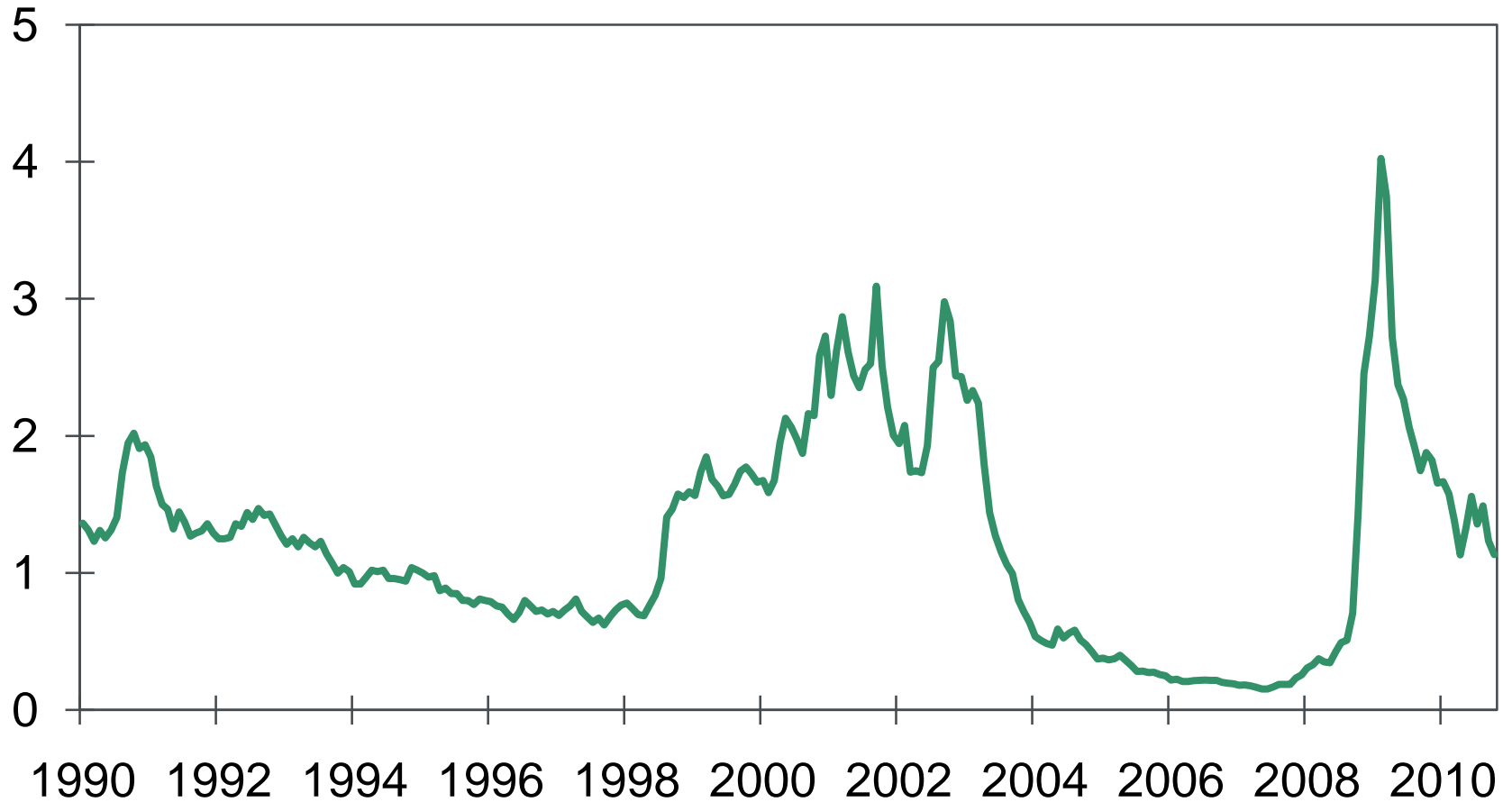
View Chart Statistics

- Moody's PDS
- Forecast
- By Pool
- Delinquencies
 - Total (\$)
 - 30-Day and Greater
 - 30-59 Day
 - 60-Day and Greater
 - 60-89 Day
 - 90-Day and Greater
 - As % of Original Collateral Balance
 - 30-Day and Greater
 - 30-59 Day
 - 60-Day and Greater
 - 60-89 Day
 - 90-Day and Greater
 - As % of Current Collateral Balance
 - 30-Day and Greater
 - 30-59 Day
 - 60-Day and Greater
 - 60-89 Day
 - 90-Day and Greater
- Default
 - Total (\$)
 - As % of Current Collateral Balance
 - CDR (Annualized %)
- Foreclosure
 - Total (\$)
 - As % of Current Collateral Balance
- Real Estate Owned (REO)

C&I Loans – Stressed EDF

Aggregate Default Probability Tracks Business Cycles

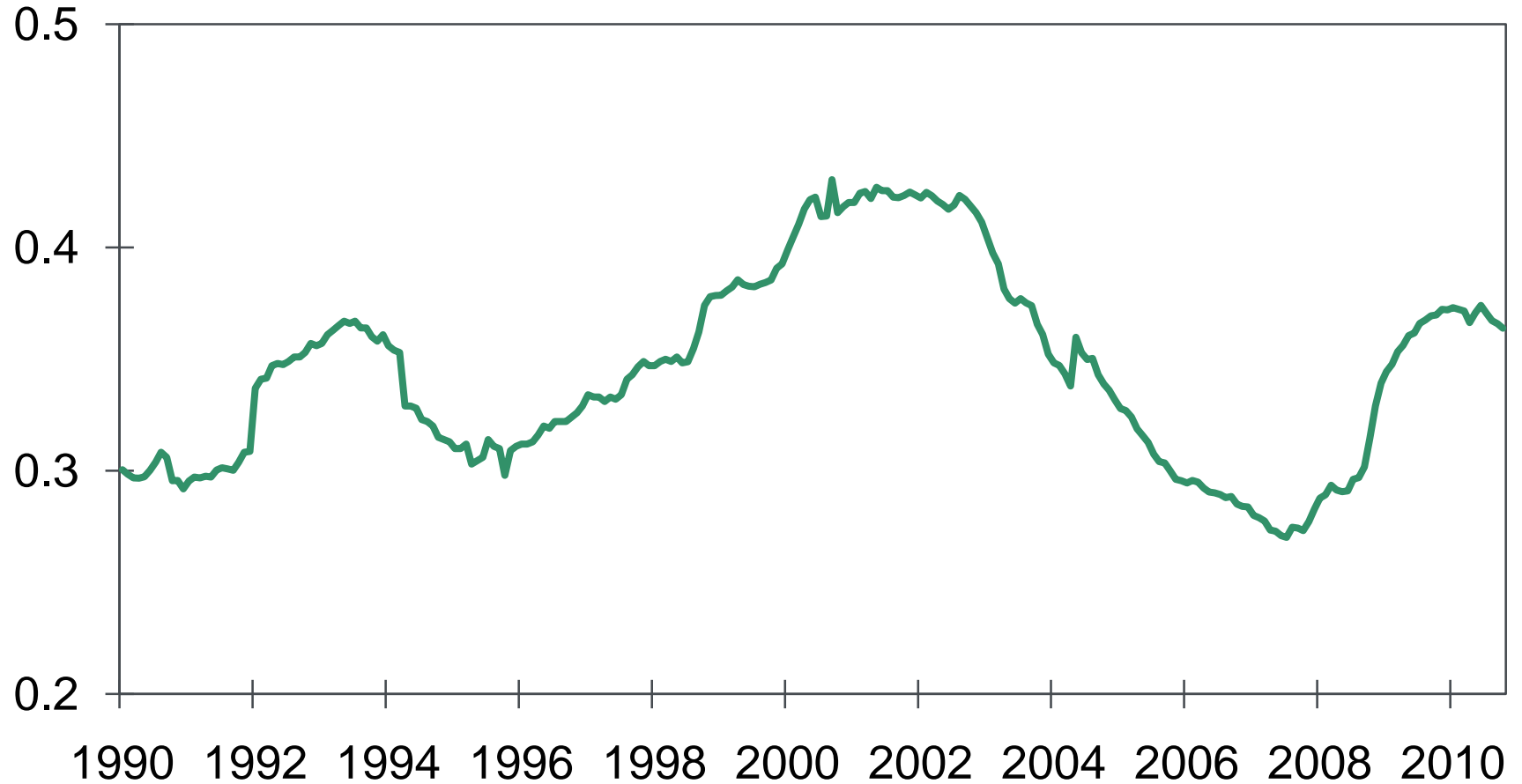
All Listed U.S. Firms, Median EDF, %



Source: Moody's Analytics

All Listed U.S. Firms

Median asset volatility, %



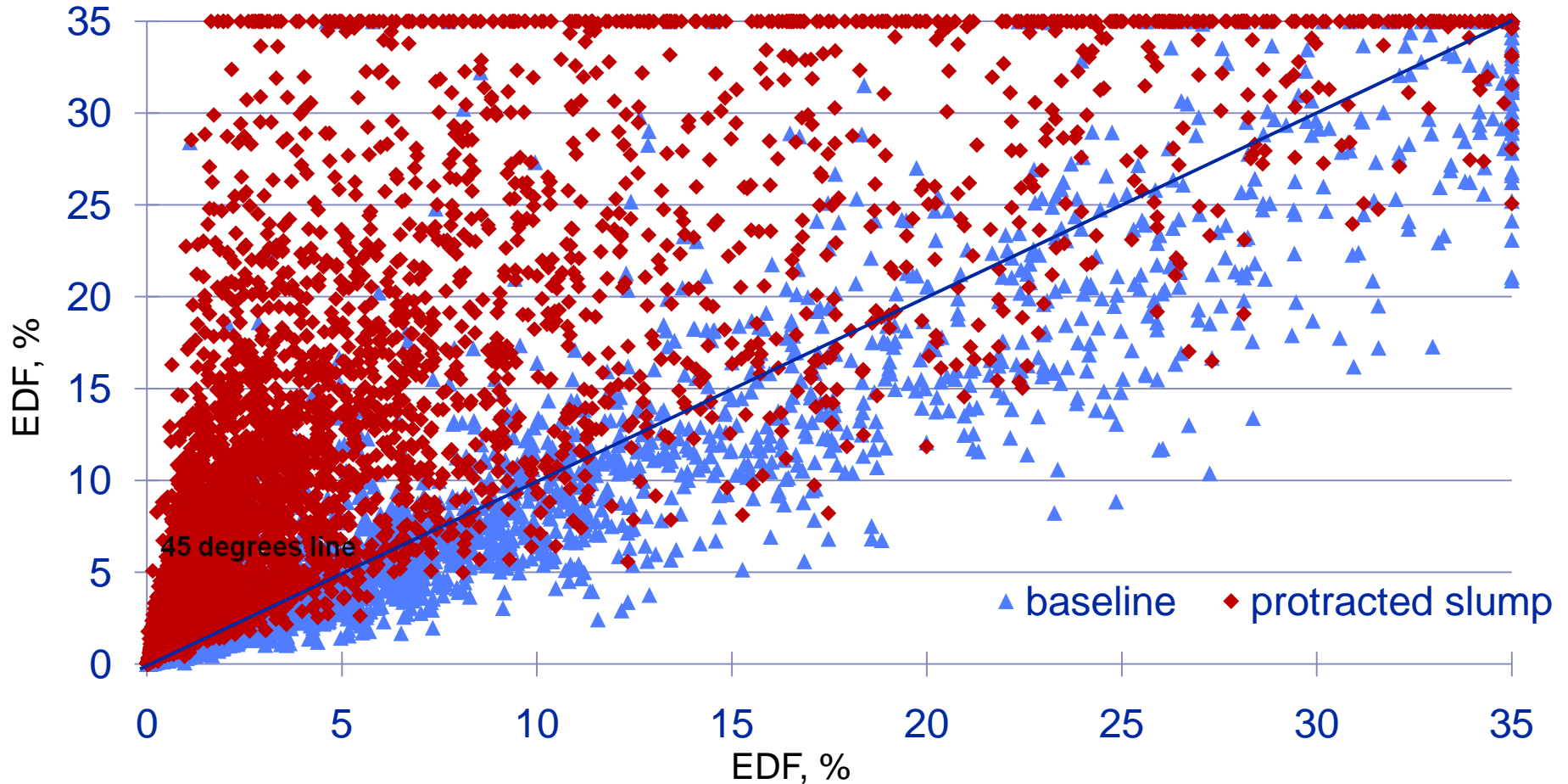
Source: Moody's Analytics

Model Specification

- Three equations are estimated for each of the three components of EDF.
- Lagged dependent variables and ARIMA effects are used to model persistence. Fixed effects capture time invariant firm level heterogeneity.
- The three equations are solved as a system of structural equations, recognizing that the three factors evolve interdependently.
- The economic indicators include CPI, PPI, GDP, Personal Consumption Expenditures, Fixed investment, Retail Sales, Industrial Production, Exports, Stock Price Index, VIX, Unemployment rate, 10-year Constant Maturity Securities, Moody's bond yield, Junk bond yield, and crude oil price.
- Each macroeconomic variable interacts with industry and investment grade dummies. Hence, the coefficients differ across industries and ratings.
- The economic condition of a few countries is determined to be the primary influence on firms in a particular region. For example, for the US and Canada, US data is employed. For West European countries, Germany and the US are assumed to drive the behavior of EDF.

Stressed-EDFs, All industries

1-year ahead EDFs (y axis) vs. EDFs as of July 2011 (x axis)



Source: Moody's Analytics