

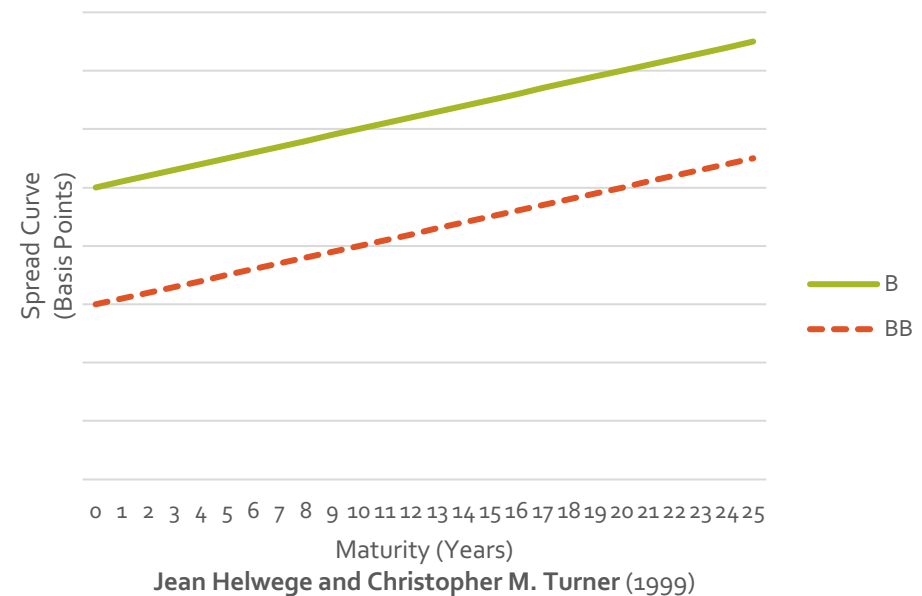
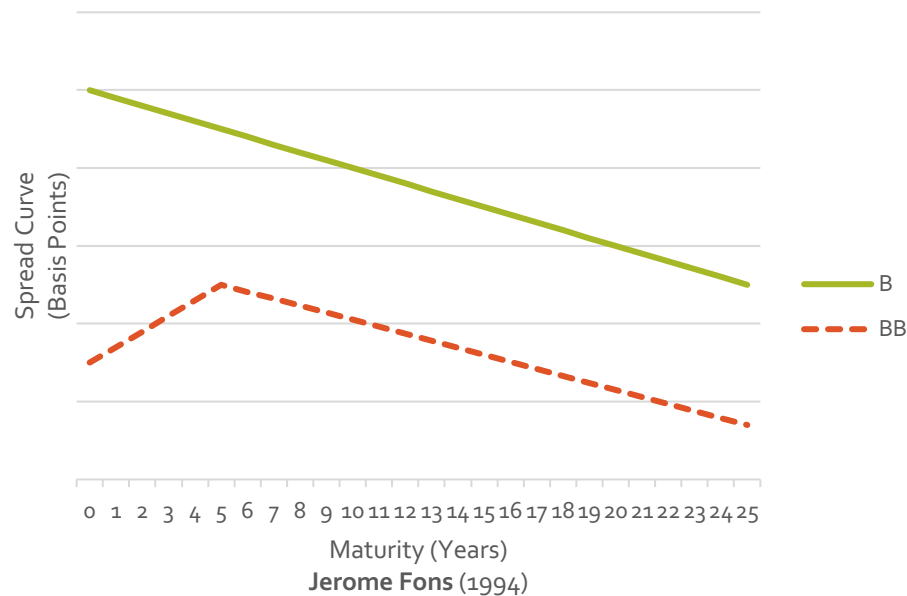
# SOLVING THE SPREAD CURVE PUZZLE

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# High Yield Spread Curve-Previous Findings



- Early researchers linked the negative slope to a crisis-at-maturity model. Helwege and Turner focused on same-issuer short and long pairs of issues.

# High Yield Spread Curve History: 10-15 Year Minus 3-5 Year *December 1996-December 2017, Monthly*



Source: ICE BofA Merrill Lynch Index System, used with permission

- Fons and Helwege/Turner were both partially right. The spread is sometimes positive and sometimes negative.

# Periods of Positively Sloped High Yield Spread Curve

Month-Ends	High Yield OAS (bps)	
	Daily Mean	# of Std. Deviations
June, 2017-August, 2017	377	-0.75
October 2013-April 2014	399	-0.67
May, 2017	246	-1.24
November, 2006-February, 2007	280	-1.11
April, 1997-June, 1997	268	-1.15
Based on ICE BofA Merrill Lynch 3-5 Year US Cash Pay High Yield Index, ICE BofA Merrill Lynch 10-15 Year US Cash Pay High Yield Index, and ICE BofA Merrill Lynch US High Yield Index		
Source: ICE BofA Merrill Lynch Index System, used with permission		

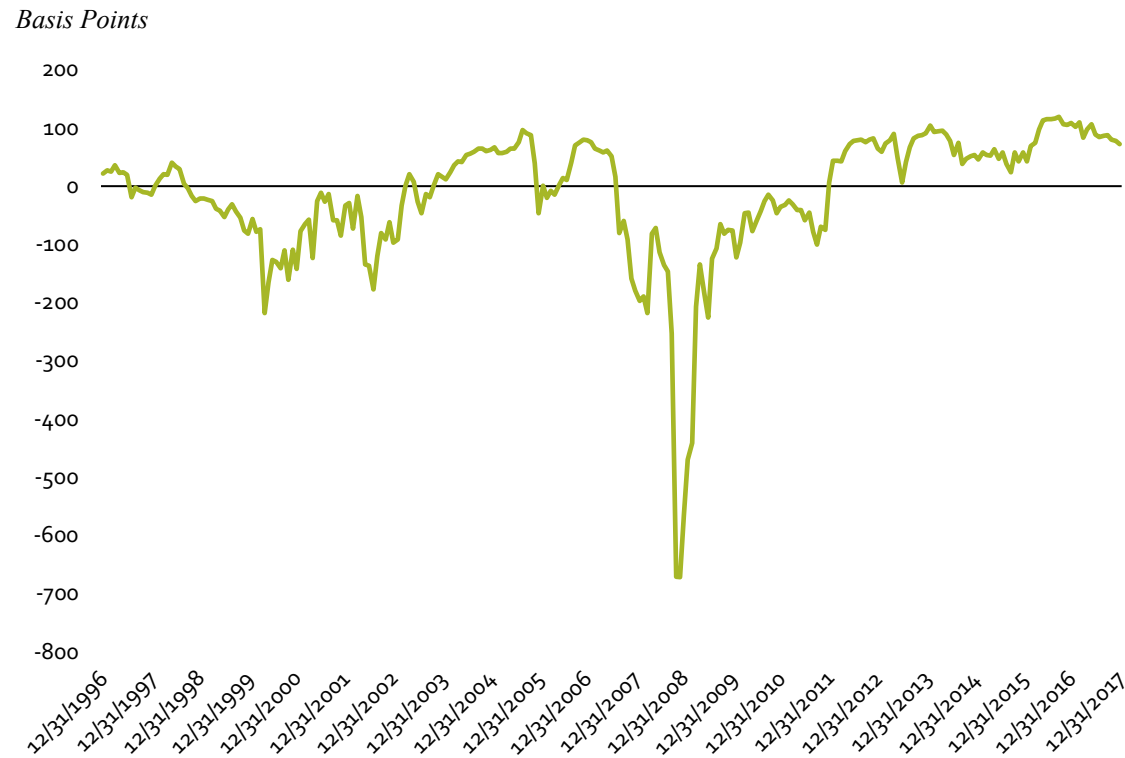
- The spread curve has been positive during periods of low concern about credit risk.

# Breakdown of High Yield Spread Curve

July 1 2015						
	10-15 Years			3-5 Years		
Rating	% of Mkt. Value	OAS (bps)	Rating	% of Mkt. Value	OAS (bps)	Difference
BB	58.28	373.56	BB	40.03	323.05	
B	27.31	456.92	B	41.64	620.68	
CCC	12.32	541.02	CCC	17.32	1,074.41	
CC-C	2.10	<u>1,098.79</u>	CC-C	1.02	<u>2,481.20</u>	
		432			600*	-168
July 21 2017						
	10-15 Years			3-5 Years		
Rating	% of Mkt. Value	OAS (bps)	Rating	% of Mkt. Value	OAS (bps)	Difference
BB	56.58	342.83	BB	38.02	208.02	
B	39.98	499.09	B	40.51	350.44	
CCC	2.88	624.28	CCC	20.29	722.81	
CC-C	0.56	<u>2,084.00</u>	CC-C	1.19	<u>1756.78</u>	
		422			386	36
Market value and option-adjusted spread totals are subject to rounding. 3-5 Year CC-C category of July 1, 2014 includes one D issue.						
*ICE BofA Merrill Lynch Index System shows a spread of 605 basis points on this date. The disparity is the result of a change in calculation method to record spreads of 10,000 basis points for all issues with actual spreads greater than that amount.						
Based on ICE BofA Merrill Lynch 3-5 Year US Cash Pay High Yield Index and ICE BofA Merrill Lynch 10-15 Year US Cash Pay High Yield Index						
Source: ICE BofA Merrill Lynch Index System, used with permission						

- The slope of the credit curve is affected by higher average credit quality in the shorter maturities.

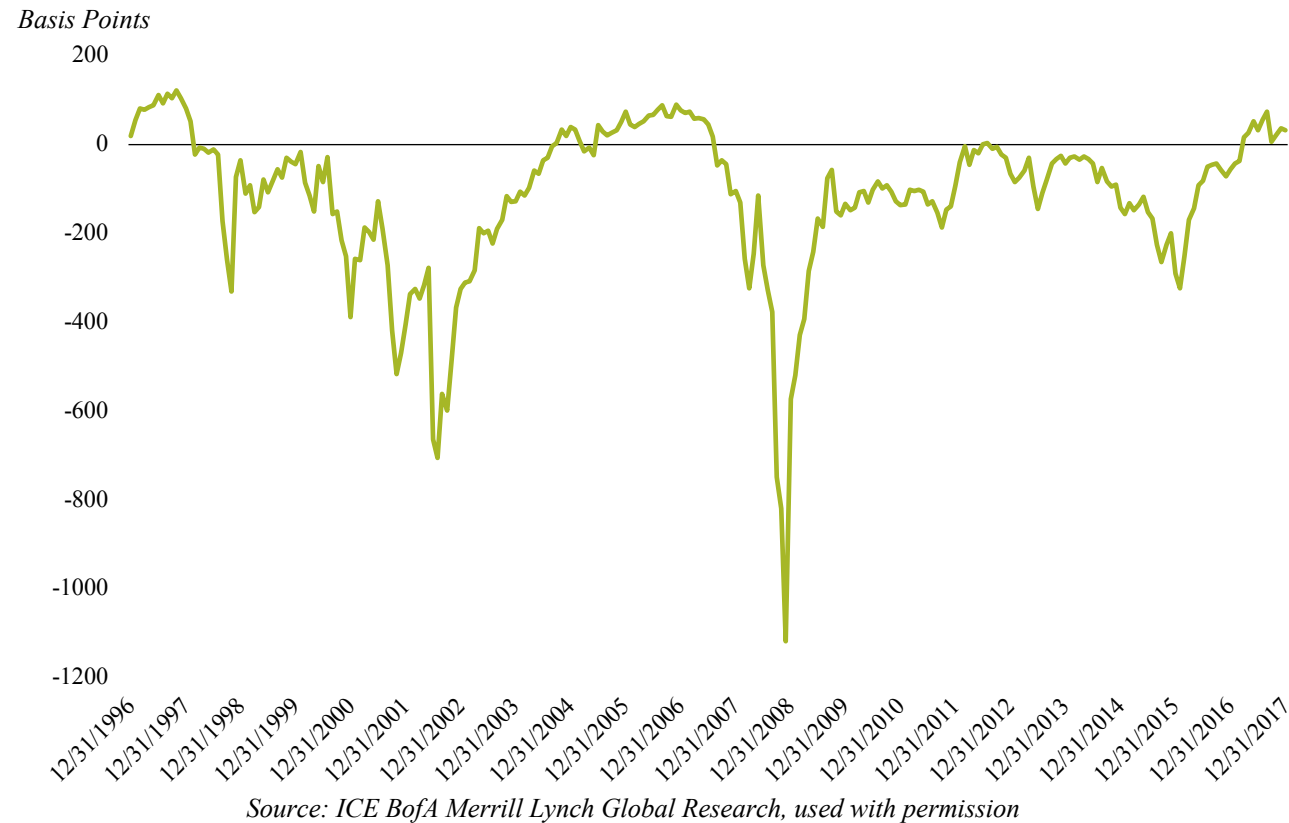
# BB Option-Adjusted Spread: 8+ Years Minus 3-5 Years *December 1996-December 2017, Monthly*



*Source: ICE BofA Merrill Lynch Global Research, used with permission*

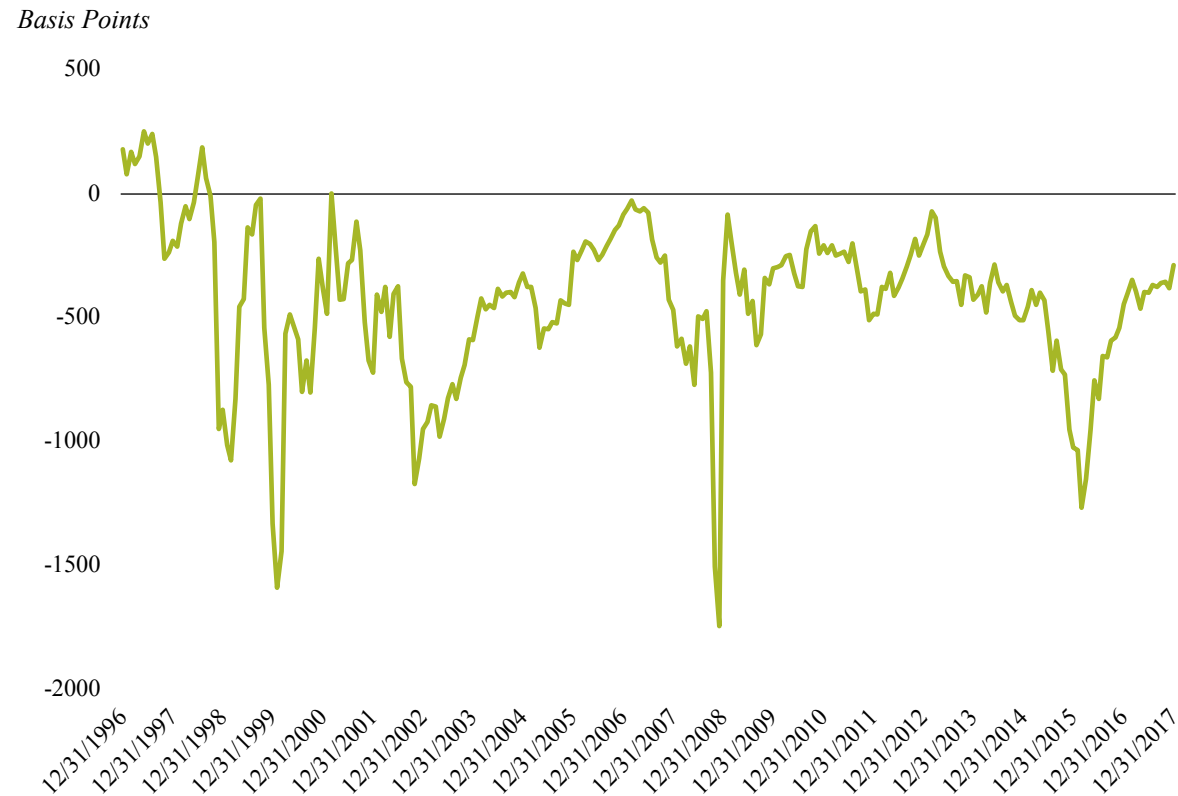
- Positively sloped curves are most frequent in the BB sector...

## B Option-Adjusted Spread: 8+ Years Minus 3-5 Years *December 1996-December 2017, Monthly*



- ...comparatively rare in the B sector...

## CCC & Lower Option-Adjusted Spread: 8+ Years Minus 3-5 Years *December 1996-December 2017, Monthly*



*Source: ICE BofA Merrill Lynch Global Research, used with permission*

- ... and almost nonexistent in the CCC + Lower sector.



# Maximum Slope of High Yield Credit Curve by Rating

Rating	Date	OAS on High Yield Index (Basis Points)	# of Std. Devs. vs. Mean
BB	9/30/2016	497	-0.3
B	10/31/1997	299	-1.0
CCC & Lower	5/31/1997	268	-1.1
Source: ICE BofA Merrill Lynch Index System, used with permission			

- Correlation analysis shows that over time, the wider the high yield spread is, the lower the basis-point differential between short- and long-dated high yield bonds.

# Positively Sloped Credit Curves as % of Total Observations

## Random Sample of Same-Issuer Bonds

Rating	7/31/2017	Count	11/30/2008	Count
BB	100.0	10	0.0	10
B	90.0	10	10.0	10
CCC & Lower	71.4	<u>7</u>	10.0	<u>10</u>
Total	100.0	27	6.7	30

Source: ICE BofA Merrill Lynch Index System, used with permission

- These findings enable us to reject the idea that negatively sloped curves are an illusion resulting from maturity-based differences in credit quality.

# Spread Comparison-Contrasting Credit Conditions (Illustration)

			Yield-to-Maturity (%)			
Coupon	Maturity	Price	High Yield	Comparable	Spread	Credit
	(Years)		Issue	Treasury	(bp)	Curve (bp)
Low-Default-Risk Conditions						
6	3	97.336	7	2	500	
6	8	88.348	8	2.5	550	50
High-Default-Risk Conditions						
6	3	60	26.02	2	2,402	
6	8	60	14.65	2.5	1,215	-1,187
Shaded items are derived. All others are given.						
Source: FridsonVision LLC						

# THANK YOU!

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The findings in this presentation are drawn from research originally published by S&P Global Market Intelligence/LCD. They will be published in full in the summer 2018 issue of *Journal of Fixed Income*