

Safely Utilizing Credit in a Public Portfolio

Managing Credit with Limited Resources

JUSTIN H. HOOGENDOORN, CFA
HEAD OF FIXED INCOME STRATEGY AND
ANALYTICS
MANAGING DIRECTOR, STRATEGIC
ANALYTICS
Tel: +1 312 267-5162
Email: justin.h.hoogendoorn@pjc.com

IGFOA ANNUAL CONFERENCE • SEPTEMBER 8–10, 2019



Credit Process Objectives

- Learn credit differentials between corporates and munis
- Go deeper to quickly evaluate credit ideas
- Incorporate BIG DATA into your process

What Drives the Most Portfolio Risk?



Interest rate risk, call risk or default risk?



GFOA Sample IP

1. *Safety*

Investments shall be undertaken in a manner that seeks to ensure the preservation of capital in the overall portfolio. The objective will be to mitigate credit risk and interest rate risk.

a. Credit Risk

The [entity] will minimize credit risk, which is the risk of loss of all or part of the investment due to the failure of the security issuer or backer, by:

- Limiting investments to the types of securities listed in Section VII of this Investment Policy
- Pre-qualifying and conducting ongoing due diligence of the financial institutions, broker/dealers, intermediaries, and advisers with which the [entity] will do business in accordance with Section V
- Diversifying the investment portfolio so that the impact of potential losses from any one type of security or from any one individual issuer will be minimized.

b. Interest Rate Risk

The [entity] will minimize interest rate risk, which is the risk that the market value of securities in the portfolio will fall due to changes in market interest rates, by:

- Structuring the investment portfolio so that security maturities match cash requirements for ongoing operations, thereby avoiding the need to sell securities on the open market prior to maturity
- Investing operating funds primarily in shorter-term securities, money market mutual funds, or similar investment pools and limiting individual security maturity as well as the average maturity of the portfolio in accordance with this policy (see section VIII).

GFOA Sample IP

Prudent Investor Standard

“The standard of prudence to be used by investment officials shall be the "uniform prudent investor act" standard and shall be applied in the context of managing an overall portfolio. **Investment officers acting in accordance with written procedures and this investment policy and exercising due diligence shall be relieved of personal responsibility...**”

IV. Standards of Care

1. *Prudence*

The standard of prudence to be used by investment officials shall be the "uniform prudent investor act" standard and shall be applied in the context of managing an overall portfolio. Investment officers acting in accordance with written procedures and this investment policy and exercising due diligence shall be relieved of personal responsibility for an individual security's credit risk or market price changes, provided deviations from expectations are reported in a timely fashion and the liquidity and the sale of securities are carried out in accordance with the terms of this policy.

Questions to Ask

- Where does the bond rank if the company goes bankrupt (senior vs junior creditor)?
- Does a company have the financial resources to pay me back?
- Has the company been able to maintain its credit ratings over time?
- Is there something that could likely change that history (e.g. acquisition)?
- Will the company remain viable until my maturity (near-term debt rollover)?
- Will I lose money if my bonds are called?

Corporates Pre-trade/Basics

Corporate Description

Starbucks Corporation retails, roasts, and provides its own brand of specialty coffee. The Company operates retail locations worldwide and sells whole bean coffees through its sales group, direct response business, supermarkets, and on the world wide web. Starbucks also produces and sells bottled coffee drinks and a line of ice creams.

Credit Ratings

	Issue	Outlook
Moody's Rating	Baa1	STABLE
S&P Rating	BBB+	STABLE
Fitch Rating	BBB+	STABLE

Source: Bloomberg, Piper Jaffray

STARBUCKS CORP

Data as of: 08/15/2019

Security Information

CUSIP	855244AN9
Equity Ticker	SBUX US
Issued:	2/28/2018
Maturity:	3/1/2023
Coupon:	3.1
144A?:	N
Sector	Consumer Discretionary
Call Feature:	MAKE WHOLE
Collateral:	SR UNSECURED
Amt Outstanding:	\$1000 MM
Still callable?:	N/A
Call Frequency:	0
Next call date:	2/1/2023
Employees	291,000

Corporate Ratings: What Does the Math Say?

Corporate Portfolio										
Corporate Portfolio Credit Ratings Allocation										
		Moody's			S&P			Average Rating %MV		5 Yr
		Long-term	%MV	Short-term	Long-term	%MV	Short-term			Default Probability
Investment Grade	Prime	Aaa	19%	P-1	AAA	19%	A-1+	AAA	19%	0.12%
	High Grade	Aa1	15%		AA+	15%		AA	52%	
		Aa2	8%		AA	8%				0.27%
		Aa3	17%		AA-	26%				
	Upper Medium Grade	A1	26%	P-2	A+	14%	A-1	A	27%	
		A2	7%		A	14%	0.54%			
		A3	1%	A-	2%	A-2				
	Lower Medium Grade	Baa1	2%	P-3	BBB+	2%	A-3	BBB	2%	
		Baa2			BBB					1.52%
		Baa3			BBB-					

Source: Moody's, Piper Jaffray

Bond Surveillance/Corporate Pre-trade

Corporate i-Snapshot

Fixed Income | Strategic Analytics

PiperJaffray

REALIZE THE POWER
OF PARTNERSHIP.

STARBUCKS CORP

Data as of: 08/15/2019

Security Information

CUSIP 855244AN9
Equity Ticker SBUX US
Issued: 2/28/2018
Maturity: 3/1/2023
Coupon: 3.1
144A?: N
Sector Consumer Discretionary
Call Feature: MAKE WHOLE
Collateral: SR UNSECURED
Amt Outstanding: \$1000 MM
Still callable?: N/A
Call Frequency: 0
Next call date: 2/1/2023
Employees 291,000

Credit Ratings

	Issue	Outlook
Moody's Rating	Baa1	STABLE
S&P Rating	BBB+	STABLE
Fitch Rating	BBB+	STABLE

Credit Ratios

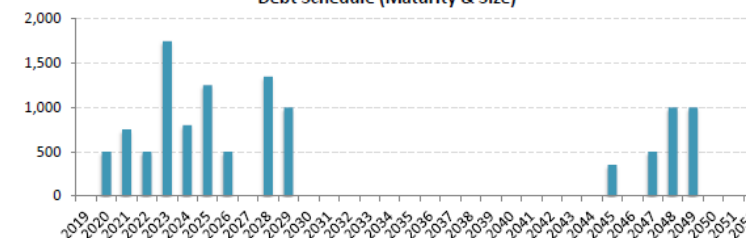
Current Ratio	2.20
Quick Ratio	1.69
Total Debt to Total Assets	39.08
Total Debt to Com Equity	807.19
Total Debt to EBITDA	2.07
Net Debt to EBITDA	1.18
EBITDA / Total Interest	30.47
EBIT / Total Interest	22.80
Financial Leverage	5.82
Cash Flow Analysis	
Cash Flow / Net Income	2.64
Dividend Payout Ratio	38.96
Cash Generated / Cash Req	3.21
Cash Dividend Coverage	2.57
Cash-oper / Sales	48.29
Eff Interest Rate	21.83
Profitability	
EBIT	3.883
Operating Margin	15.71

Corporate Description

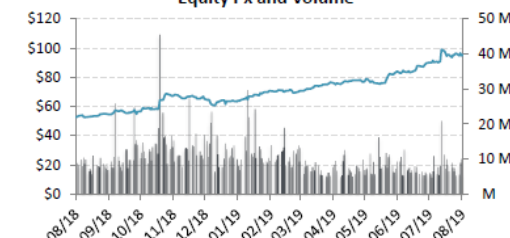
Starbucks Corporation retails, roasts, and provides its own brand of specialty coffee. The Company operates retail locations worldwide and sells whole bean coffees through its sales group, direct response business, supermarkets, and on the world wide web. Starbucks also produces and sells bottled coffee drinks and a line of ice creams.

2401 Utah Avenue South
Seattle, WA 98134
United States

Debt Schedule (Maturity & Size)



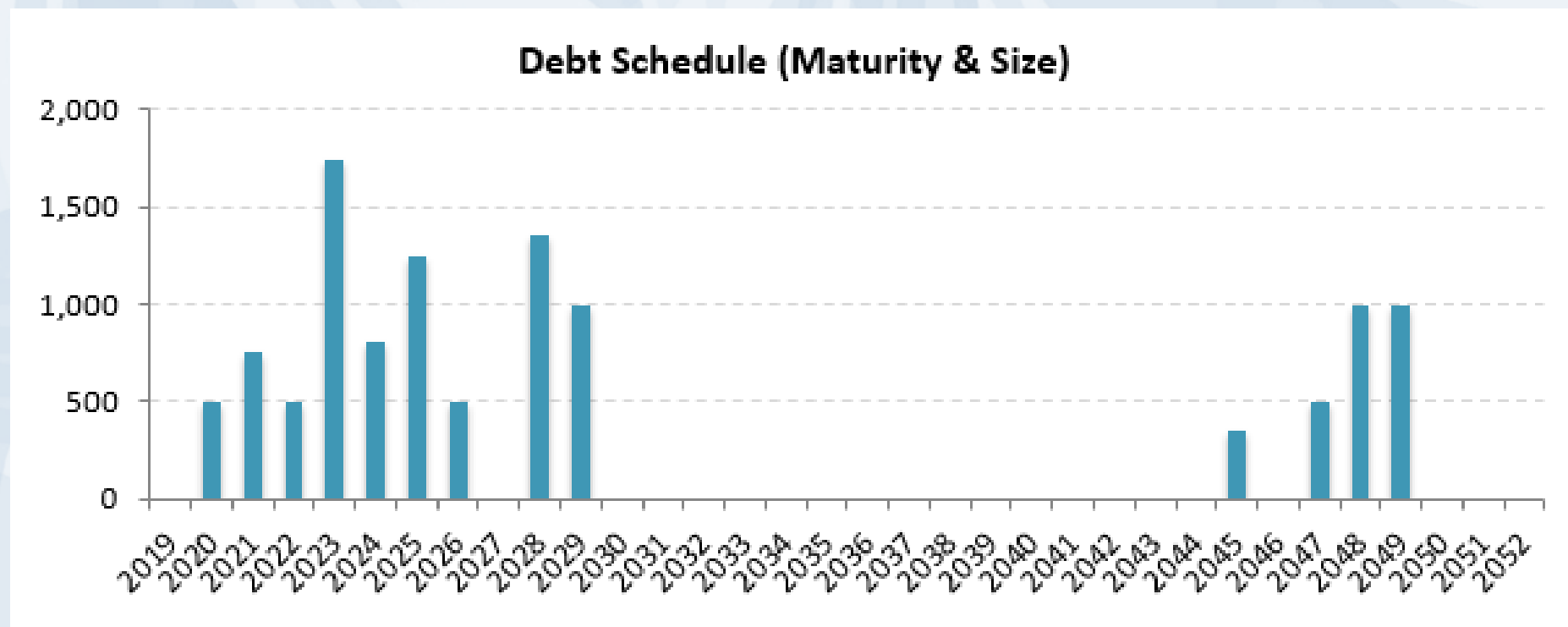
Equity Px and Volume



Financial Information

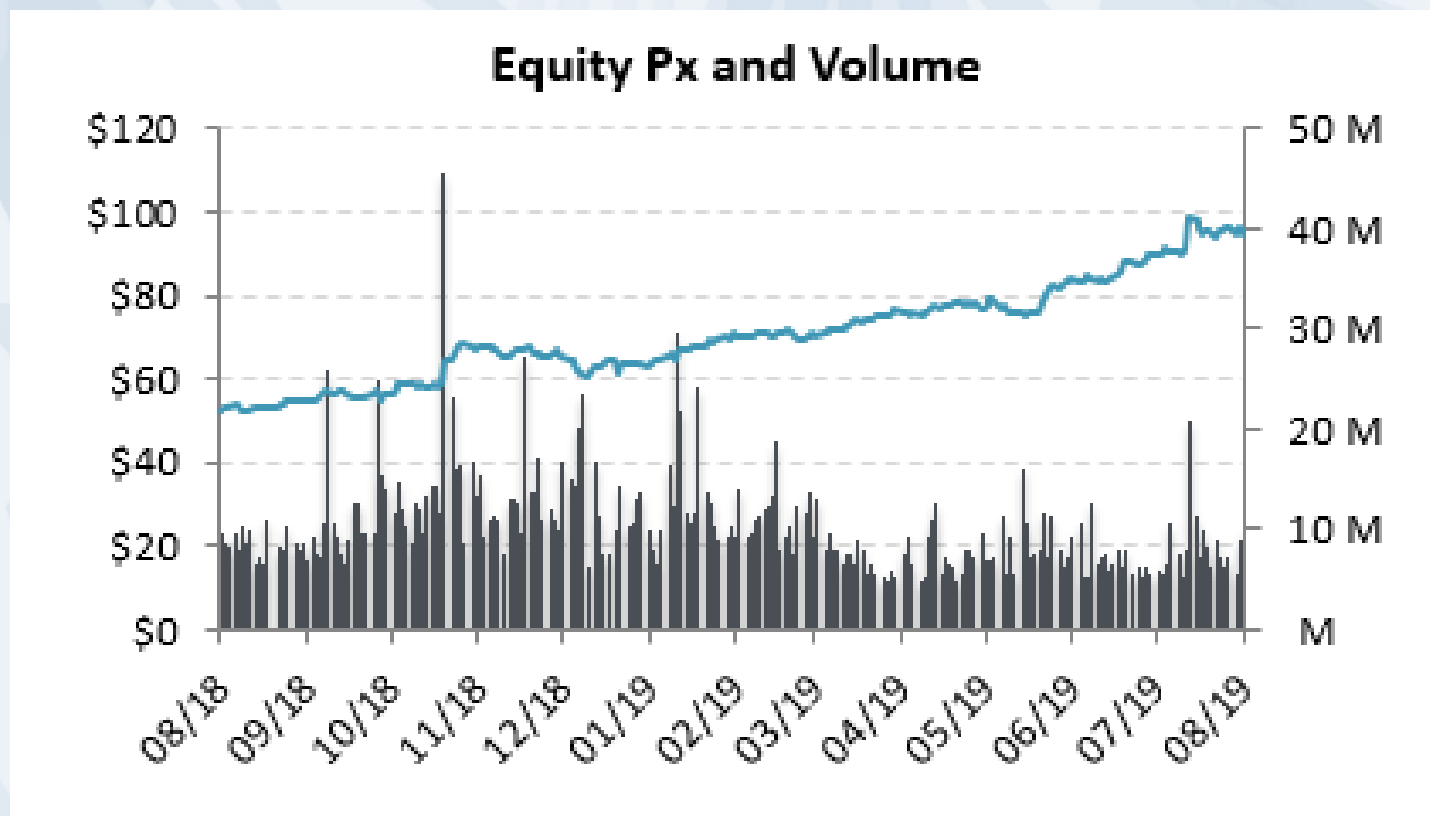
	Quarterly					Yearly				
	FQ2 2019	FQ1 2019	FQ4 2018	FQ3 2018	FQ2 2018	FY 2018	FY 2017	FY 2016	FY 2015	FY 2014
Balance Sheet Summary										
Total Current Assets	7,735	4,952	7,676	12,494	5,583	12,494	5,283	4,761	3,971	4,169
Total Long-Term Assets	13,160	12,690	12,305	11,662	11,599	11,662	9,082	9,569	8,445	6,584
Total Assets	20,894	17,642	19,981	24,156	17,182	24,156	14,366	14,330	12,416	10,753
Total Current Liabilities	5,896	5,273	5,428	5,684	5,552	5,684	4,221	4,547	3,648	3,039
Total Long-Term Liabilities	19,318	17,404	17,433	17,296	7,634	17,296	4,688	3,892	2,948	2,441
Total Liabilities	25,213	22,677	22,860	22,981	13,185	22,981	8,909	8,439	6,597	5,479
Total Shareholders' Equity	(4,319)	(5,035)	(2,879)	1,176	3,997	1,176	5,457	5,891	5,820	5,274
Income Statement Summary										
Revenue	6,823	6,306	6,633	6,304	6,310	24,720	22,387	21,316	19,163	16,448
Operating Income	1,121	858	1,016	957	1,038	3,883	4,135	4,172	3,601	3,081
Pretax Income	1,677	820	966	932	1,027	5,780	4,318	4,199	3,903	3,160
Income bef XO Items	1,373	659	760	756	852	4,518	2,885	2,819	2,759	2,068
Net Income	1,373	663	761	756	853	4,518	2,885	2,818	2,757	2,068
EBITDA	1,481	1,230	1,367	1,301	2,000	5,189	5,202	5,202	4,535	3,830
Return on Assets	18.66	17.23	15.74	23.46	28.71	23.46	20.11	21.07	23.80	18.57
Cash Flow Summary										
Net Income	1,373	663	761	756	853	4,518	2,885	2,818	2,757	2,068

Corporates Pre-trade/Debt Schedule



Source: Bloomberg, Piper Jaffray

Corporates Pre-trade/Equity Performance



Source: Bloomberg, Piper Jaffray

Corporates Pre-trade/Key Ratios and Profits

Credit Ratios

Current Ratio	2.20
Quick Ratio	1.69
Total Debt to Total Assets	39.08
Total Debt to Com Equity	807.19
Total Debt to EBITDA	2.07
Net Debt to EBITDA	1.18
EBITDA / Total Interest	30.47
EBIT / Total Interest	22.80
Financial Leverage	5.82

Cash Flow Analysis

Cash Flow / Net Income	2.64
Dividend Payout Ratio	38.96
Cash Generated / Cash Req	3.21
Cash Dividend Coverage	2.57
Cash-oper / Sales	48.29
Eff Interest Rate	21.83

Source: Bloomberg, Piper Jaffray

Profitability

EBIT	3,883
Operating Margin	15.71
Pretax Margin	23.38
Return on Assets	18.66
Return on Common Equity	
Return on Capital	42.98
Asset turnover	1.37
Acct Receivable Turnover	31.68
Gross Margin	29.74

Corporates Pre-trade/Financials

Financial Information										
	Quarterly					Yearly				
Balance Sheet Summary	FQ2 2019	FQ1 2019	FQ4 2018	FQ3 2018	FQ3 2018	FY 2018	FY 2017	FY 2016	FY 2015	FY 2014
Total Current Assets	7,735	4,952	7,676	12,494	5,583	12,494	5,283	4,761	3,971	4,169
Total Long-Term Assets	13,160	12,690	12,305	11,662	11,599	11,662	9,082	9,569	8,445	6,584
Total Assets	20,894	17,642	19,981	24,156	17,182	24,156	14,366	14,330	12,416	10,753
Total Current Liabilities	5,896	5,273	5,428	5,684	5,552	5,684	4,221	4,547	3,648	3,039
Total Long-Term Liabilities	19,318	17,404	17,433	17,296	7,634	17,296	4,688	3,892	2,948	2,441
Total Liabilities	25,213	22,677	22,860	22,981	13,185	22,981	8,909	8,439	6,597	5,479
Total Shareholders' Equity	(4,319)	(5,035)	(2,879)	1,176	3,997	1,176	5,457	5,891	5,820	5,274
Income Statement Summary	FQ2 2019	FQ1 2019	FQ4 2018	FQ3 2018	FQ3 2018	FY 2018	FY 2017	FY 2016	FY 2015	FY 2014
Revenue	6,823	6,306	6,633	6,304	6,310	24,720	22,387	21,316	19,163	16,448
Operating Income	1,121	858	1,016	957	1,038	3,883	4,135	4,172	3,601	3,081
Pretax Income	1,677	820	966	932	1,027	5,780	4,318	4,199	3,903	3,160
Income bef XO Items	1,373	659	760	756	852	4,518	2,885	2,819	2,759	2,068
Net Income	1,373	663	761	756	853	4,518	2,885	2,818	2,757	2,068
EBITDA	1,481	1,230	1,367	1,301	2,000	5,189	5,202	5,202	4,535	3,830
Return on Assets	18.66	17.23	15.74	23.46	28.71	23.46	20.11	21.07	23.80	18.57
Cash Flow Summary	FQ2 2019	FQ1 2019	FQ4 2018	FQ3 2018	FQ3 2018	FY 2018	FY 2017	FY 2016	FY 2015	FY 2014
Net Income	1,373	663	761	756	853	4,518	2,885	2,818	2,757	2,068
Depreciation and Amort	360	373	351	344	962	1,305.90	1,067.10	1,030.10	933.80	748.40
Change in Working Capital	1,839	(321)	2,249	6,810	32	6,810.00	1,062.70	213.60	322.90	1,130.00
Cash - Operating Activities	1,169	390	2,379	8,433	3,504	11,937.80	4,251.80	4,697.90	3,749.10	607.80
Capital Expenditures	(435)	(414)	(431)	(569)	(1,408)	(1,976.40)	(1,519.40)	(1,440.30)	(1,303.70)	(1,160.90)
Cash - Investing Activities	205	(201)	(510)	(665)	(1,697)	(2,361.50)	(850.00)	(2,222.90)	(1,520.30)	(817.70)
Cash - Financing Activities	1,334	(2,896)	(5,863)	(904)	(2,378)	(3,282.30)	(3,068.30)	(1,876.30)	(2,407.10)	(657.40)
Net Changes in Cash	2,708	(2,707)	(3,995)	6,864	(570)	6,294.00	333.50	598.70	(178.30)	(867.30)
Free Cash Flow	734	(24)	1,948	7,865	2,097	9,961.40	2,732.40	3,257.60	2,445.40	(553.10)

Source: Bloomberg

Corporates/Ongoing Surveillance

Corporate Analysis

City of West Palm Beach, FL

Portfolio as of: 6/28/2019 Pricing date: 6/28/2019

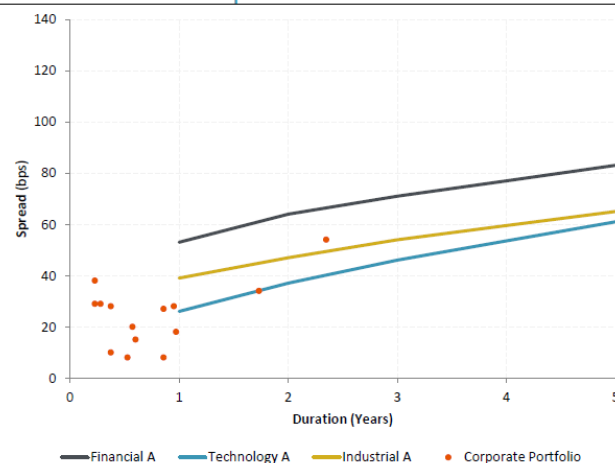
Corporate Sector Summary

Corporate Sector	Market Value (\$000)	Market Value (%)	Maturity (Years)	Market Yield (%)	Book Yield (%)
Communication					
Consumer Discretionary	6,565	59%	1.21	2.22	2.83
Consumer Staples	527	5%	0.62	2.20	2.01
Energy					
Financial	411	4%	0.24	2.44	2.08
Healthcare					
Industrial	2,599	23%	0.62	2.18	1.91
Materials					
Technology	1,106	10%	0.60	2.23	2.02
Utilities					
TOTAL	11,209				

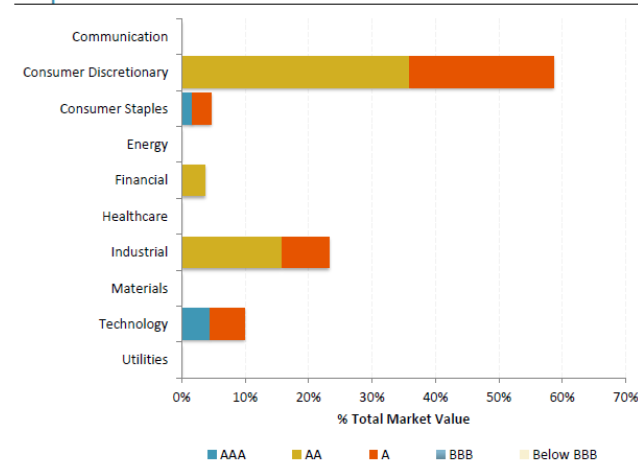
Corporate Sector & Credit Distribution

Corporate Sector	AAA	AA	A	BBB	Below BBB
Communication					
Consumer Discretionary		35.9%	22.7%		
Consumer Staples	1.6%		3.1%		
Energy					
Financial		3.7%			
Healthcare					
Industrial		15.8%	7.3%		
Materials					
Technology	4.5%		5.4%		
Utilities					

Portfolio vs. Benchmark Spreads



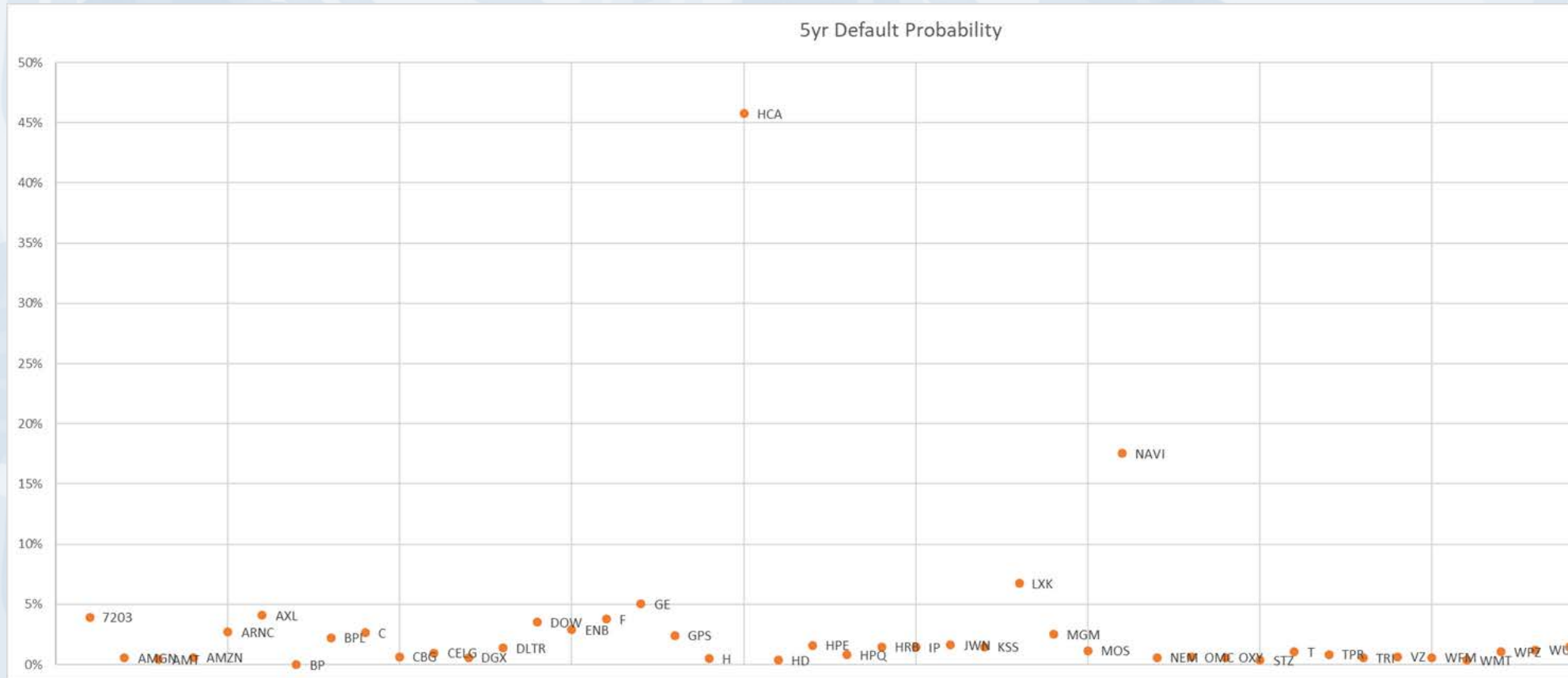
Corporate Sector & Credit Breakdown



Source: BondEdge, Piper Jaffray

IGFOA ANNUAL CONFERENCE • SEPTEMBER 8-10, 2019

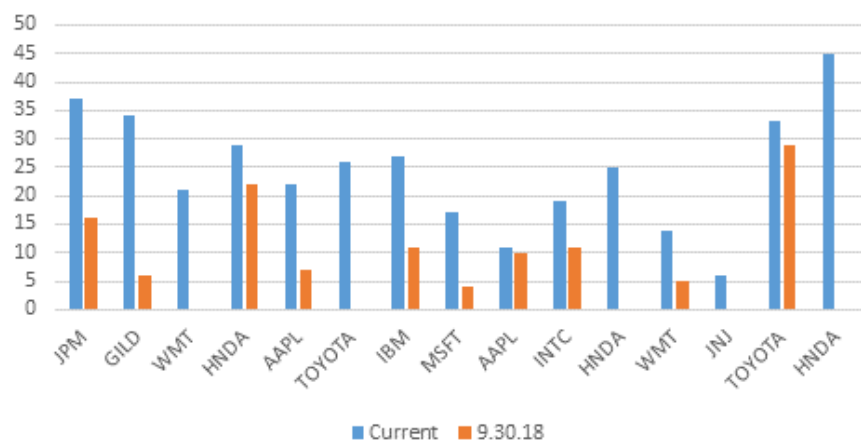
Corporates/Ongoing Surveillance



Source: Bloomberg, Piper Jaffray

Corporates/Risk-based Value

Current OAS vs. 9/30/2018 OAS

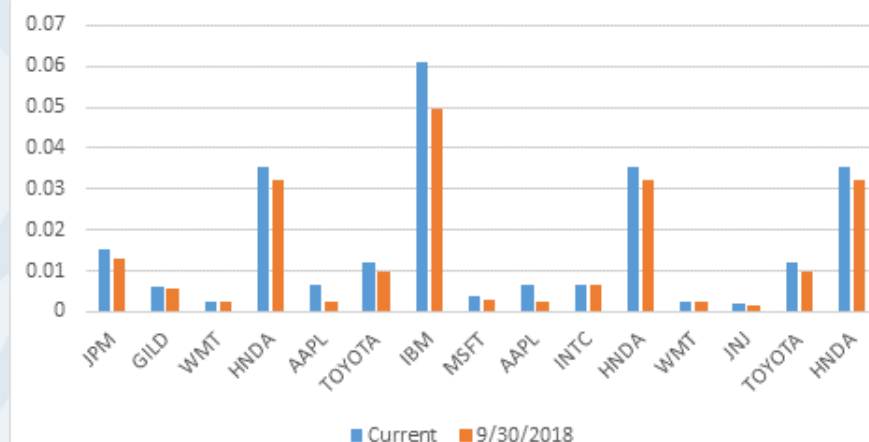


Source: Bloomberg, ICE, Piper Jaffray

Relative Value (1-10, 10 is Best)

Ticker	Current	Change
JPM	0.7	8.7
GILD	1.6	9.4
WMT	1.4	7.0
HNDA	0.1	5.5
AAPL	1.0	7.2
TOYOTA	0.6	5.0
IBM	0.1	2.0
MSFT	1.1	8.4
AAPL	0.7	3.7
INTC	0.9	8.0
HNDA	0.1	4.2
WMT	1.1	8.2
JNJ	0.9	6.5
TOYOTA	0.8	5.6
HNDA	0.2	4.2

Current Default vs. 9/30/2018 Default



Bond Surveillance/Corporates

- iSnapshots (pre-trade/extra review)
- Portfolio Surveillance
- Credit default model and relative value ranking
- Portfolio Alerts
- Interactive Analytics

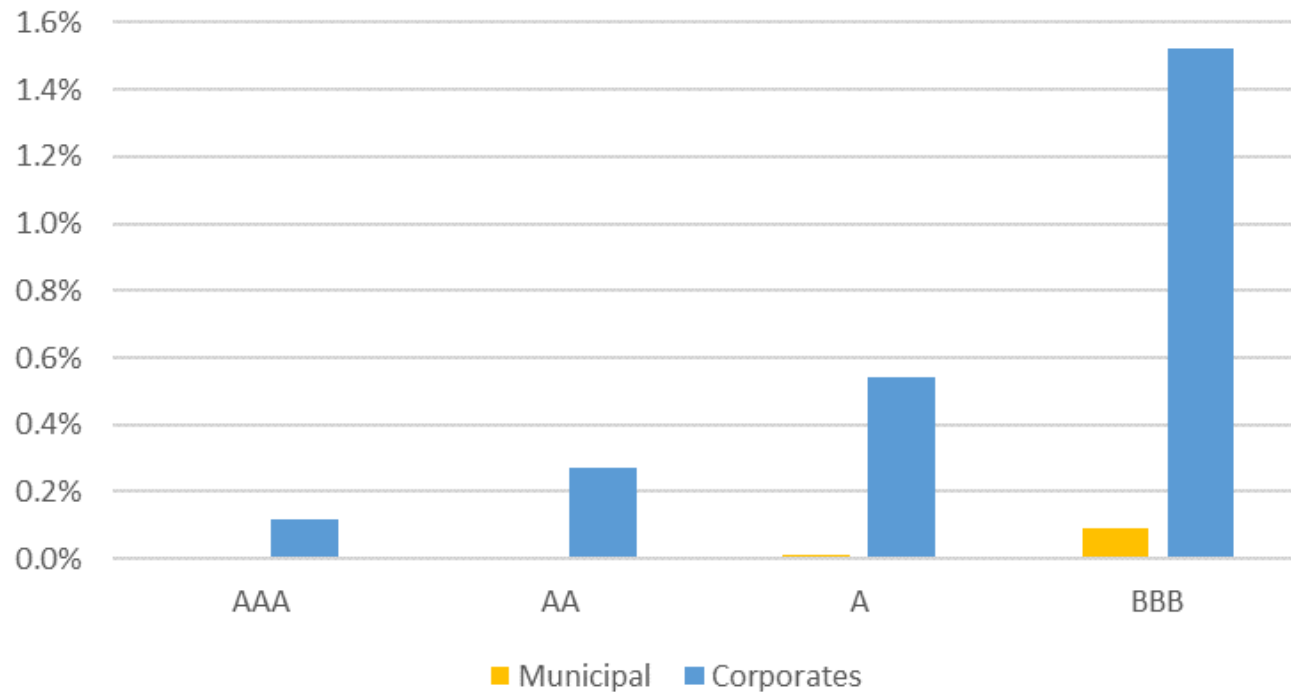
Municipal Ratings: What Does the Math Say?

Municipal Portfolio										
Municipal Portfolio Credit Ratings Allocation										
		Moody's			S&P			Average Rating %MV		5 Yr Default Probability
		Long-term	%MV	Short-term	Long-term	%MV	Short-term			
Investment Grade	Prime	Aaa		MIG 1	AAA		SP-1+	AAA		0%
	High Grade	Aa1	3%		AA+	13%		AA	100%	
		Aa2	7%		AA	66%				
		Aa3	15%		AA-	21%				
	Upper Medium Grade	A1	8%	MIG 2	A+		SP-1	A	0.01%	
		A2	4%		A					
		A3		A-		SP-2				
	Lower Medium Grade	Baa1		MIG 3	BBB+		SP-3	BBB	0.09%	
		Baa2			BBB					
		Baa3			BBB-					

Source: Moody's, S&P, Piper Jaffray

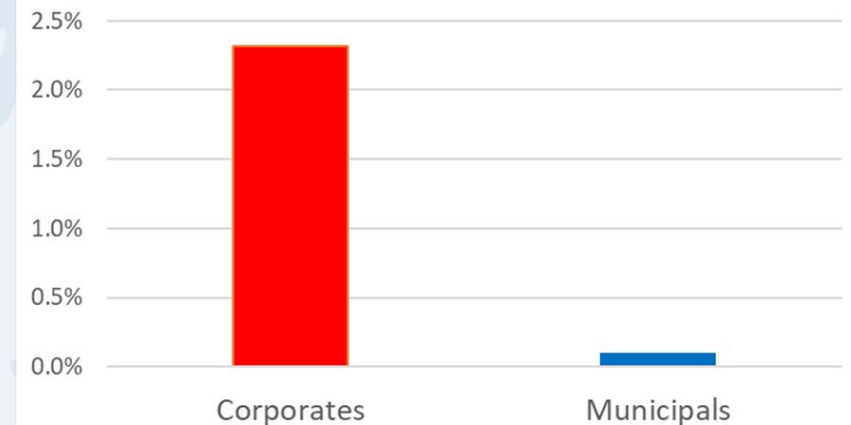
Corporates vs. Munis

5 Year Default Probability Comparison



Source: Moody's, Piper Jaffray

Default Rates over 10yr Periods (IG, 1970-2017)

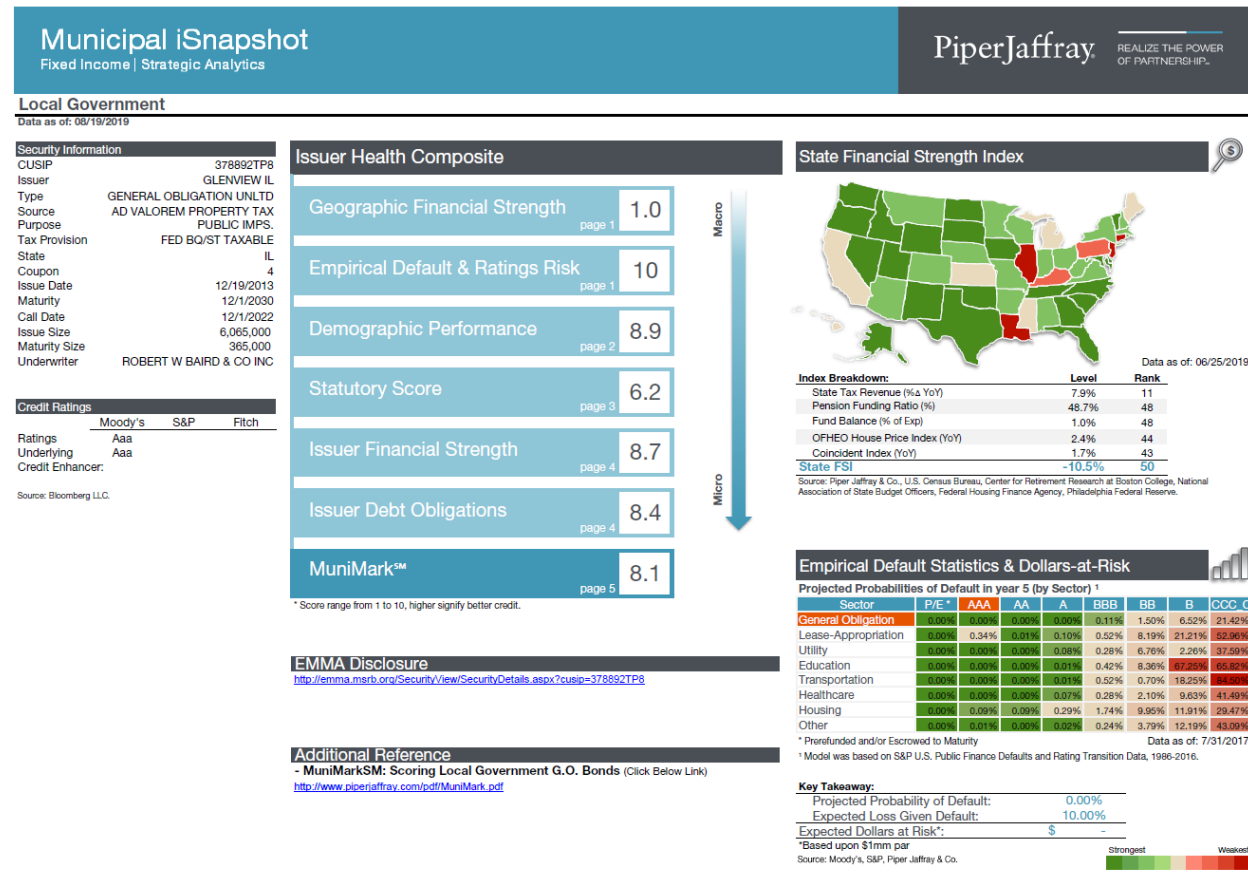


Bond Surveillance/Municipals

- Monthly reporting and surveillance reports
- Real time alerts
- In-depth financial data with issuer rankings
- Proprietary models on default, demographic and financial strength
- Statutory scores and models to measure issuer willingness to pay
- iSnapshots available for a detailed credit dive on holdings
- Interactive analytic capabilities

Municipals/Pre-trade

- Local Government
 - City
 - County
 - District
- State Governments
- Water & Sewer
- Higher Education
- Public Power
- Healthcare
- Housing
- Transportation
 - Toll Roads
 - Ports
 - Airports



Municipals/Pre-trade/Demographics

Local Government | Demographics

Issuer Information

CUSIP: 378892TP8

Issuer: GLENVIEW IL

Population

	Trend	2018	2017	2016	2015	2014
Local Population (thousands)		45.1	45.4	45.5	45.4	45.2
Local 5yr change in Population (%)		-	0.5	0.4	0.3	-
Local Population Density (#/sq. mi.)		3.2	3.3	3.3	3.3	3.2
Local Households (thousands)		17.0	17.1	17.1	17.0	16.9
Local Family Households (thousands)		12.4	12.5	12.5	12.5	12.4

Employment

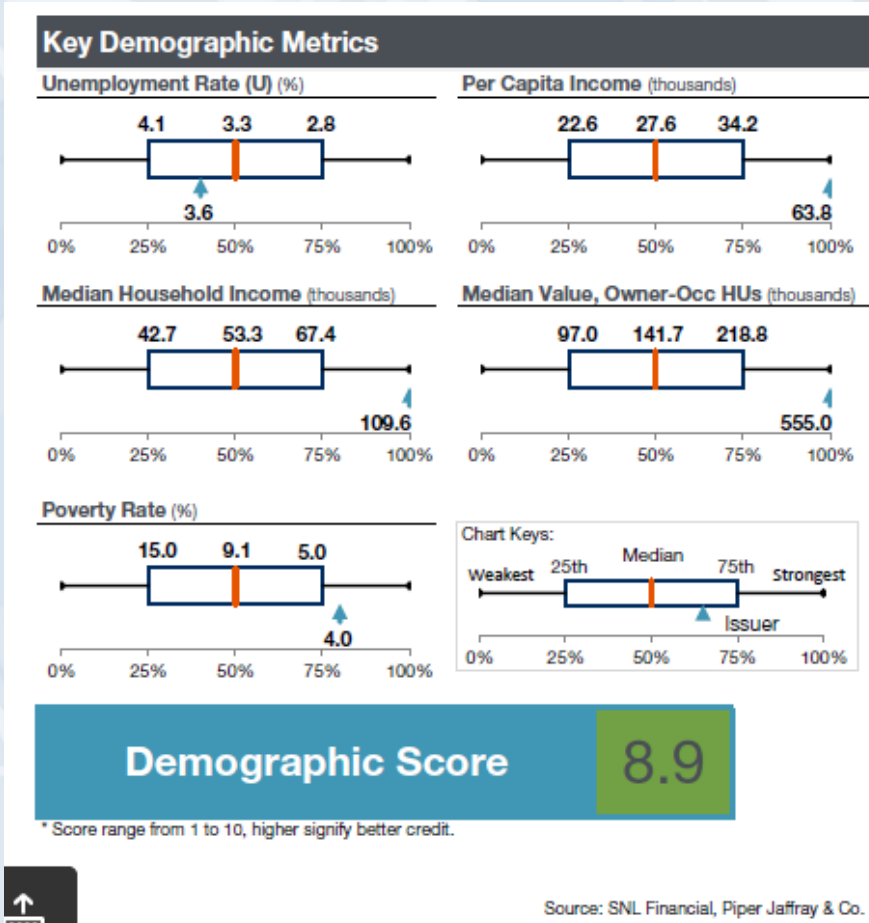
	Percentiles (25/50/75)	Current Year Percentile Rank	Trend	2019/05	2019/04	2019/03	2019/02	2019/01
Unemployment Rate (U) (%)								
County	4.1 3.3 2.8	40%		3.6	3.7	3.7	4.0	4.5
State	3.8 3.2 2.9	30%		3.6	4.0	4.5	4.7	5.2
National	-			3.4	3.3	3.9	4.1	4.4

Income

	Percentiles (25/50/75)	Current Year Percentile Rank	Trend	2018	2017	2016	2015	2014
Per Capita Income (thousands)								
Local	22.6 27.6 34.2	100%		63.8	55.6	50.8	49.7	45.5
County	23.3 26.9 31.0	90%		36.6	33.0	31.6	30.1	28.0
State	29.1 31.8 36.7	70%		35.4	32.8	31.6	30.4	28.7
National	-			33.6	31.5	30.0	28.8	27.7
Median Household Income (thousands)								
Local	42.7 53.3 67.4	100%		109.6	95.0	90.4	91.9	84.8
County	42.8 49.4 58.0	90%		63.8	58.7	56.7	54.5	50.7
State	52.9 59.4 69.1	70%		64.9	61.0	59.6	58.0	54.8
National	-			61.0	57.5	55.6	53.7	51.6

Source: SNL, Piper Jaffray

Municipals/Pre-trade/Demographics



Municipals/Pre-trade/Financial Ratios

Local Government Financials							
Issuer Information		Issuer: GLENVIEW IL					
CUSIP: 378892TP8							
Debt Statistics & Ratios							
	Percentiles (25/50/75)	Current Percentile	Trend	2018	2017	2016	2015
Direct Net Debt Outstanding			↘		63.2	73.6	85.2
Overall Net Debt Outstanding			↘		243.9	234.0	247.4
Direct Net Debt as % of Full Value	1.9 1.0 0.4	57%	↘		0.9	1.0	1.4
Direct Net Debt Per Capita (\$)	2,252 1,247 601	41%	↘		1,343.1	1,581.8	1,853.8
Debt Burden (Overall Net Debt as % Full Value)	4.6 3.1 1.9	45%	↘		3.3	3.2	4.1
Overall Net Debt Per Capita (\$)	4,885 3,159 2,093	20%	↘		5,183.1	5,026.8	5,382.9
Debt Service as % of Operating Expenditures	11.2 6.9 3.9	84%	↘		3.3	3.4	3.1
Payout, 10 Years, All Tax-Supported Debt (%), Current Value				93.1			
Tax Base Statistics and Ratios							
	Percentiles (25/50/75)	Most Recent	Trend	2018	2017	2016	2015
Total Full Value			↗		7,392	7,392	6,045
Full Value Per Capita (\$)	65 95 147	78%	↗		157.1	158.8	131.5
Average Annual Increase in Full Value (%)	0.0 1.6 3.7	48%	↘		1.4	0.1	(5.8)
Top Ten TaxPayers as % of Total, Most Recent Value	13.3 8.9 5.9	60%	↘		7.6	7.7	9.4
Financial Statistics & Ratios							
	Percentiles (25/50/75)	Current Percentile	Trend	2018	2017	2016	2015
General Fund							
Total General Fund Revenues			↗		71.8	65.6	69.4
Total General Fund Balance			↗		29.8	25.5	26.2
General Fund Balance as % of Revenues	23.1 39.0 61.5	54%	↗		41.4	38.9	37.8
Available General Fund Balance			↗		29.6	25.3	25.7
Available GF Fund Balance as % of Revenue	20.4 34.0 53.6	61%	↗		41.2	38.6	37.1
Unassigned General Fund Balance			↗		26.5	25.3	25.7
Unassigned GF Fund Balance as % of Revenue	14.0 25.8 42.9	68%	↗		36.9	38.6	37.1
Operating Fund							
Total Operating Funds Revenues			↗		70.8	64.6	66.6
Total Operating Fund Balance			↗		30.2	25.8	26.6
Operating Funds Balance as % of Revenues	24.7 40.3 64.4	53%	↗		42.6	40.0	39.9
Available Operating Funds Balance			↗		30.0	25.7	26.1
Available Op Fund Balance as % of Revenue	21.5 34.3 54.6	62%	↗		42.4	39.8	39.2
Unassigned Operating Fund Balance			↗		26.5	25.3	25.7
Unassigned Op Fund Balance as % of Revenue	12.4 22.2 36.3	76%	↗		37.5	39.2	38.7
Net Cash							
General Net Cash as % of General Revenues	21.3 34.9 56.0	48%	↗		33.6	31.7	30.7
Operating Net Cash as % of Operating Revenues	24.8 39.5 64.1	42%	↗		34.7	32.8	32.5

Municipals/Pre-trade/Pension Liabilities

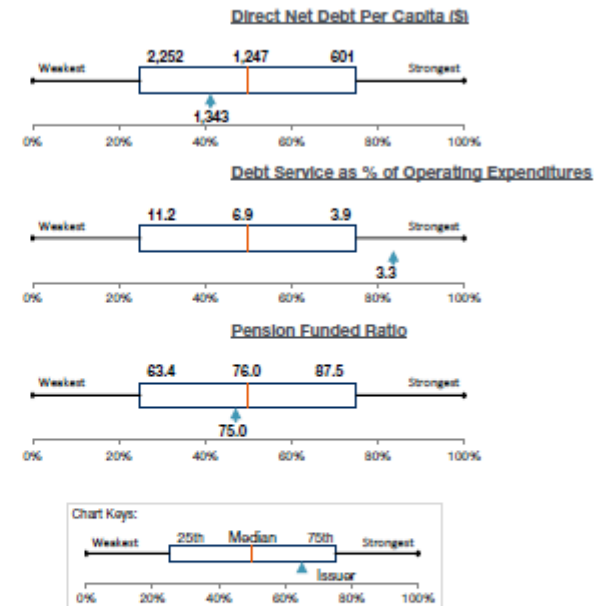
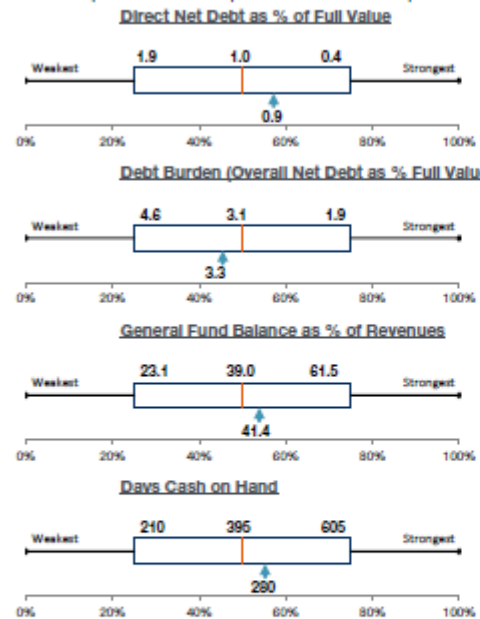
Pension Statistics and Ratios							
	Percentiles (25/50/75)	Current Percentile	Trend	2018	2017	2016	2015
Pension Statistics							
Issuer Contribution			↘		8.4	8.7	20.0
Calculated Total Actuarial Requirements - net of support			↗		7.5	8.6	7.1
Calculated Total Contributions - net of support			↗		7.9	8.0	19.2
Calculated Total Actuarial Shortfall - net of support			↗		(0.4)	0.7	(12.1)
OPEB Contributions			↗		0.5	0.4	0.4
Unfunded Liability							
Accrued Liabilities			↗		314.7	292.0	270.9
Reported Assets			↗		235.9	206.7	199.3
Unfunded Liabilities			↗		78.7	85.3	71.6
Liabilities			↗		485.1	425.8	401.7
Assets			↗		235.9	206.7	199.3
ANPL - net of support			↗		249.2	219.1	202.4
ANPL - net of support (AVG)			↗		223.5	176.2	144.4
Ratios (%)							
Calculated Total Actuarial Requirements - net of support / Op Rev	8.5 5.4 3.1	13%	↗		10.6	13.4	10.7
Calculated Total Contributions - net of support / Op Rev	8.5 5.9 3.7	11%	↘		11.2	12.3	28.9
Calculated Total Actuarial Shortfall - net of support / Op Rev	0.2 0.0 -0.5	89%	↗		(0.6)	1.0	(18.2)
OPEB Contributions / Op Rev	2.6 0.5 0.0	46%	↗		0.7	0.7	0.6
(ANPL - net of support) / Op Rev	2.4 1.7 1.1	10%	↘		3.5	3.4	3.0
(ANPL - net of support) / Full Value	3.5 2.0 1.1	26%	↘		3.4	3.0	3.3
Pension Funded Ratio	63.4 76.0 87.5	47%	↘		75.0	70.8	73.6

(All units expressed in Millions of Dollars unless otherwise indicated.)
Source: Moody's MFRA, Piper Jaffray & Co.

Municipals/Pre-trade/Key Financial Metrics

Key Financial Metrics

Chart: Box size represents 25% ~ 75% percentiles of similar municipalities



Financial Score

8.7

Debt Obligations Score

8.4

* Score range from 1 to 10, higher signify better credit.

Municipals/Pre-trade/Empirical Default Risk

Empirical Default Statistics & Dollars-at-Risk

Projected Probabilities of Default in year 5 (by Sector) ¹

Sector	P/E *	AAA	AA	A	BBB	BB	B	CCC C
General Obligation	0.00%	0.00%	0.00%	0.00%	0.11%	1.50%	6.52%	21.42%
Lease-Appropriation	0.00%	0.34%	0.01%	0.10%	0.52%	8.19%	21.21%	52.96%
Utility	0.00%	0.00%	0.00%	0.08%	0.28%	6.76%	2.26%	37.59%
Education	0.00%	0.00%	0.00%	0.01%	0.42%	8.36%	67.25%	65.82%
Transportation	0.00%	0.00%	0.00%	0.01%	0.52%	0.70%	18.25%	84.50%
Healthcare	0.00%	0.00%	0.00%	0.07%	0.28%	2.10%	9.63%	41.49%
Housing	0.00%	0.09%	0.09%	0.29%	1.74%	9.95%	11.91%	29.47%
Other	0.00%	0.01%	0.00%	0.02%	0.24%	3.79%	12.19%	43.09%

* Prerefunded and/or Escrowed to Maturity

Data as of: 7/31/2017

¹ Model was based on S&P U.S. Public Finance Defaults and Rating Transition Data, 1986-2016.

Key Takeaway:

Projected Probability of Default:	0.00%
Expected Loss Given Default:	10.00%
Expected Dollars at Risk*:	\$ -

*Based upon \$1mm par

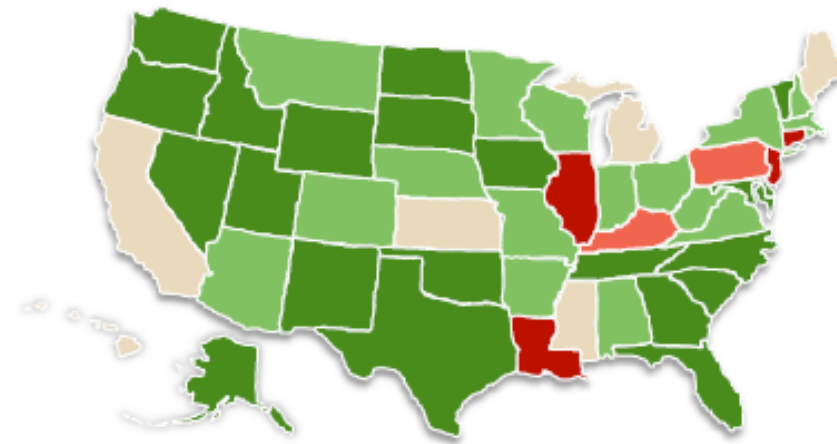
Source: Moody's, S&P, Piper Jaffray & Co.



Municipals/Geographic Strength

- Tax Revenue Growth
- Pension Funding Ratio
- Fund Balance
- Home Prices
- Coincident Index

State Financial Strength Index














Data as of: 06/25/2019

Index Breakdown:	Level	Rank
State Tax Revenue (%Δ YoY)	7.9%	11
Pension Funding Ratio (%)	48.7%	48
Fund Balance (% of Exp)	1.0%	48
OFHEO House Price Index (YoY)	2.4%	44
Coincident Index (YoY)	1.7%	43
State FSI	-10.5%	50

Source: Piper Jaffray & Co., U.S. Census Bureau, Center for Retirement Research at Boston College, National Association of State Budget Officers, Federal Housing Finance Agency, Philadelphia Federal Reserve.

Municipals/Strength in the Midwest

Data as of: 6/25/2019

State	10-year State G.O. Spread*	Financial Strength Index	3yr FSI Trend	Financials			Economic		Credit Rating (Moody's/ S&P/Fitch)	PJC Rank	12mo Issuance (% of 5yr avg.) (mn)
				Tax Revenue	Pension	Fund Balance	OFHEO HPI	Coincident Index			
IA	9	1.9%		3.0%	82.3%	12.4%	4.3%	2.3%	Aaa/AAA/AAA	2.0	1393 (66%)
IL	143	-10.5%		7.9%	48.7%	1.0%	2.4%	1.7%	Baa3/BBB-/BBB	10.0	9971 (71%)
IN	10	0.8%		-1.2%	60.8%	13.5%	7.2%	1.6%	Aaa/AAA/AAA	2.9	3365 (71%)
MI	14	-1.2%		5.0%	62.5%	13.2%	6.5%	0.7%	Aa1/AA/AA	4.5	5924 (70%)
MN	6	0.2%		1.3%	80.7%	13.1%	6.4%	1.1%	Aa1/AAA/AAA	3.4	4780 (69%)
MO	3	1.0%		-0.8%	71.4%	9.8%	5.1%	2.0%	Aaa/AAA/AAA	3.8	1934 (45%)
ND	14	4.2%		19.6%	69.0%	37.2%	2.9%	3.1%	Aa1/AA+/NR	1.4	661 (76%)
NE	12	0.9%		3.1%	88.8%	14.6%	2.5%	1.9%	Aa1/AAA/NR	2.8	1606 (59%)
OH	11	0.5%		1.7%	74.7%	10.5%	5.9%	2.3%	Aa1/AA+/AA+	3.1	5147 (57%)
SD	10	3.5%		2.1%	100.0%	10.7%	7.4%	3.5%	Aaa/AAA/AAA	1.5	686 (83%)
WI	10	0.3%		3.9%	100.0%	5.7%	6.1%	2.0%	Aa1/AA/AA+	3.3	5954 (77%)

Sources: Philadelphia Fed, FHFA, Center on Budget and Policy Priorities, MMD, Moody's, S&P, U.S. Census Bureau, Piper Jaffray & Co.

Municipals/Pre-trade/Statutory Risk

Measures Governmental Willingness to Protect Muni Bondholders

- ✓ Balanced Budget Priority
 - ✓ System Support Framework Priority
 - ✓ Pension Reform Framework
- } Drives Actions to Avoid a Problem
-
- ✓ Chapter 9 Bankruptcy Legislative Priority
 - ✓ Payment Structure Priority
- } Measures level of control/choice within municipality to off-load debt after problem arises

Disclaimer:

State constitutions and laws vary. This model represents generalized classifications and cannot take into account all variations and specific/unique applications of law. It's application and discussion is only for helpful assistance to understand these generalized differences between geographic regions, government types, etc.

The specific provisions of state constitutions and/or laws should be reviewed, along with the official statement, to determine whether they are applicable to any specific General Obligation Debt.

Municipals/Pre-trade/Statutory Risk

Local Government | Statutory

Issuer Information

CUSIP: 378892TP8

Issuer: GLENVIEW IL

Governmental Statutory Framework**

Issuer State

IL

Issue Type

City

Taxability

Unlimited

Statutory Score

6.2

* Score range from 1 to 10, higher signify better credit.

Balanced Budget Priority

- Legal necessity of a municipality to balance its budget
- Can municipality increase revenues?
- Are revenue streams predictable?
- Can municipality decrease expenditures?



System Support Priority

- Systemic support availability from other governmental units.
- Governmental framework requiring transparency, accountability, and predictability of financial reports.



Pension Reform Framework

- What is the Legal basis for protection of public pension rights under state laws?
- State Constitution, Contractual Agreement, Property rights, Gratuity (original Federal Protections)



Bankruptcy Legislative Priority

- Ability of the municipality to declare bankruptcy
- If able, are there significant additional steps, outside of local municipal control, required to follow prior to declaration



Payment Structure Priority

- Are there limits in the entities taxing ability?
- How strong Are revenue set asides and/or statutory appropriations, and is there a statutory lien in place?



Municipals/Pre-trade/Overall Risk Profile

MuniMark Detail Report								
Category	Data Point	5yrs Trend	Previous Year			Current Period		
			Data Period	Data Value	Score	Data Period	Data Value	Score
Demographic	Entity Population	↗	2017	45,353	8.1	2018	45,053	8.1
	5yr Change in Population (%)	↗	2017	0.46	5.7	2018	0.02	5.0
	Unemployment Rate (%)	↘	2018	4.50	9.5	2019	3.60	10.0
	Per Capita Income	↗	2017	55,554	10.0	2018	63,768	10.0
	Median Household Income	↗	2017	94,964	10.0	2018	109,626	10.0
	Full Market Value per Capita (\$)	↗	2016	158,770	10.0	2017	157,060	10.0
	5yr Change in Full Value (%)	↗	2016	1.44	7.2	2017	3.97	10.0
	Ten Largest Taxpayers as % of Full Value	↘	2016	7.72	8.1	2017	7.65	8.2
					8.5			8.9
Financial	General Fund Balance as % of Revenues	↘	2016	38.88	9.9	2017	41.43	10.0
	Days Cash on Hand (Governmental Activities) (Days)	↘	2016	267	9.9	2017	280	10.0
	YoY Change in Governmental Activities Operating Revenues (%)	↘	2016	(5.86)	2.1	2017	8.06	10.0
	5yr Avg Governmental Activities Operating Revenues to Oper Expenses (x)	↘	2016	1.00	5.3	2017	1.00	5.6
					6.5			8.7
Debt Obligations	Direct Net Debt as % of Full Value (%)	↘	2016	1.00	9.3	2017	0.86	9.9
	Direct Net Debt per Capita (\$)	↘	2016	1,582	5.8	2017	1,343	6.7
	Overall Net Debt as % of Full Value (%)	↘	2016	3.17	7.8	2017	3.30	7.7
	Debt Service as % of Operating Expenses (%)	↘	2016	3.36	9.2	2017	3.29	9.3
	Unfunded Pension Liabilities as % of Full Value (%)	↘	2016	1.15	7.7	2017	1.06	7.9
					8.0			8.4
Proprietary	Governmental Statutory Score		2018	6.2	6.2	2019	6.2	6.2
	Geographic Financial Strength		2018	1.0	1.0	2019	1.0	1.0
	Empirical Default and Ratings Risk		2018	10.0	10.0	2019	10.0	10.0
					5.9			5.9
MuniMark					7.4			8.1

NRSRO Rating
(Underlying)

Rating
Date

Moody's
Aaa
12/6/2013

S&P

Fitch

MuniMarkSM

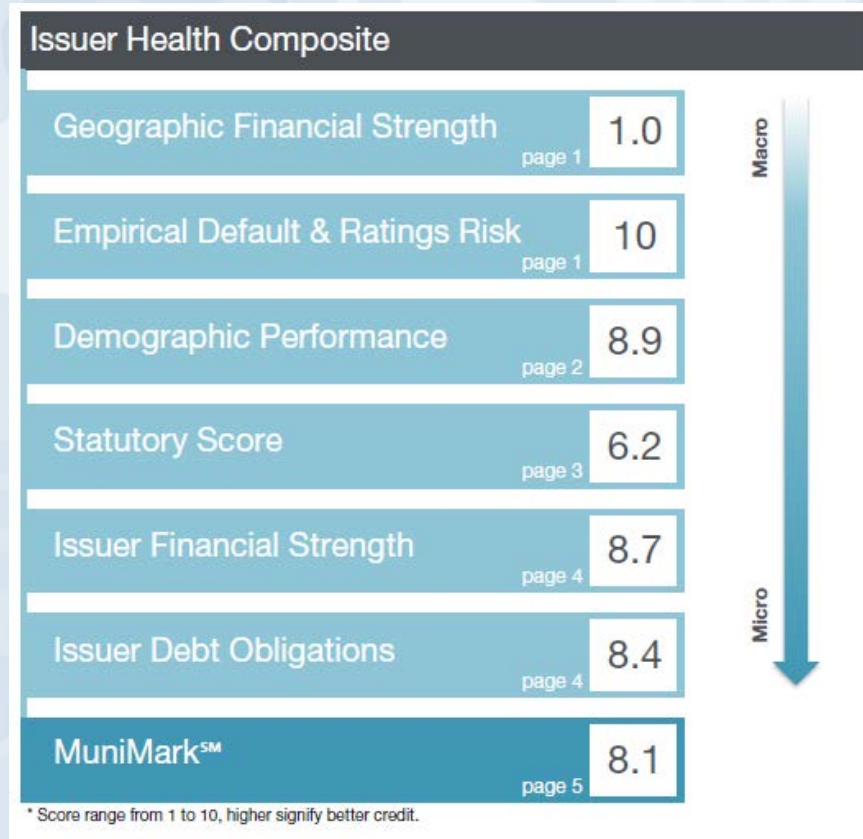
8.1

Source: Piper Jaffray, Moody's MFRA, S&P Capital IQ, SNL Financial, Bloomberg LLC.

* Score range from 1 to 10, higher signify better credit.

**Percentile Rank versus similar municipalities, range from lowest (0%) to highest (100%).

Municipals/Pre-trade/Overall Risk Profile



EMMA Disclosure

<http://emma.msrb.org/Security/View/SecurityDetails.aspx?cusip=378892TP8>

Additional Reference

- MuniMarkSM: Scoring Local Government G.O. Bonds (Click Below Link)

<http://www.piperjaffray.com/pdf/MuniMark.pdf>

Municipals/Pre-trade/Overall Risk Profile

MuniMarkSM > 8.0 = **Prime grade**: Economic and demographic, financial and debt factor metrics are significantly above sector peers and trends are generally favorable, suggesting significant resources are available for the repayment of debt

MuniMarkSM >= 6.5 < 8.0 = **High grade**: Economic and demographic, financial and debt factor metrics compare favorably to sector peers and trends are generally favorable, suggesting considerable resources are available for the repayment of debt

MuniMarkSM >= 5.0 < 6.5 = **Medium grade**: Economic and demographic, financial and debt factor metrics are in line with, or slightly below, those of sector peers or trends may show evidence of weakness and a need for increased monitoring. Metrics suggest satisfactory resources are available for the repayment of debt.

MuniMarkSM >= 3.5 < 5.0 = **Low grade**: Economic and demographic, financial and debt factor metrics are below those of sector peers, or trends indicate significant weakening of key measures, suggesting resources available for the repayment of debt are limited or are pressured. Additional review warranted to gain insight into economic and financial performance and identify any risks present to repayment of debt.

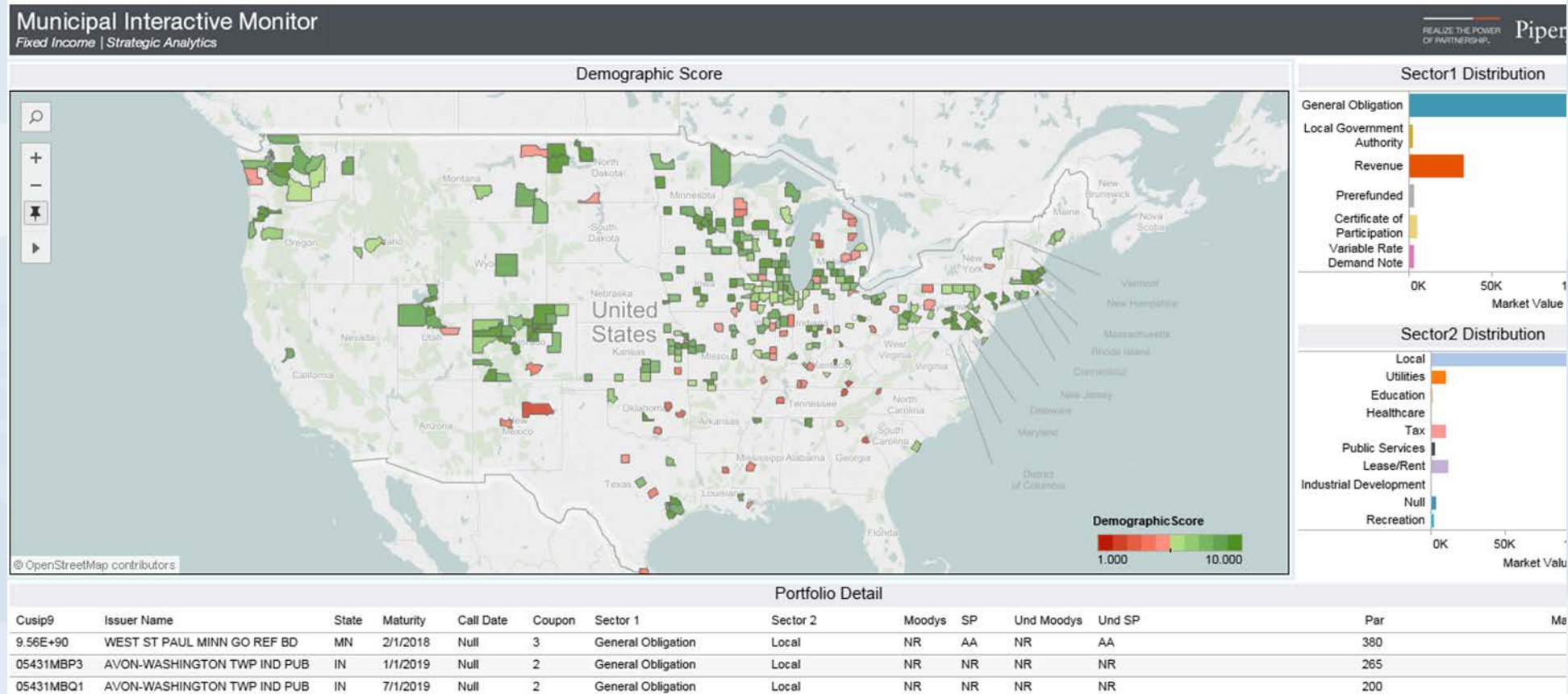
MuniMarkSM < 3.5 = **Speculative**: Economic and demographic, financial or debt factor metrics are well below sector peers or trends are unfavorable, indicating significant pressure on an entity's resources and ability to repay debt. May also indicate critical information is unavailable. Additional review is warranted to fully understand the entity's operations and risks regarding repayment of debt.

Municipals/Surveillance

Local Government Cities	Demographic									Financial				Debt					Proprietary Models						
									General Fund Balance as				Direct Net Debt as % of Full Value		Overall Net Debt as % of Full Value		Debt Service as % of Operating Expense		Unfunded Pension Liabilities as % of Full Value		Govt Statutory Score		Empirical Default & Ratings Risk		Muni Mark (Data Coverage)
	Population	Syr Chg in	Unemploy	Per Capita	Household	Full Market	Syr Chg in	Ten Largest	% of	Days Cash	YoY Chg in	Syr Avg	Debt as %	Debt per	Debt as %	% of	% of	% of	% of	Score	FSI	Risk			
	(000)	Population	ment Rate	Income	Income	Value per	Full Value	as % of Full	Revenues	on Hand	Operating	Operating	of Full	Capita	of Full	Operating	Liabilities	Value	Value						
		(%)	(%)	(\$000)	(\$000)	(\$000)	(%)	Value	(%)	(Days)	Revenue	Revenue	Rev to	Value	(\$)	Value	Expense	as % of Full	Value						
25th Percentile		-0.59	5.1	23.3	42.8	65.2	0.00	13.27	22.88	220	-1.39	1.00	2.03	1,966	4.77	14.0	3.32								
50th Percentile		-0.09	4.1	26.9	49.4	95.1	1.67	8.90	38.45	424	3.43	1.02	1.06	1,125	3.06	8.3	1.91								
75th Percentile		0.54	3.3	31.0	58.0	146.7	3.81	5.89	60.32	667	8.64	1.10	0.49	529	1.83	4.7	0.78								
Obligor(s):	% Credit Exposure: 2.57%																								
Denver, CO	707.2	3.05	2.4	39.8	59.1	152.6	6.52	9.32	9.2	30.12	223	7.34	1.05	1.31	2,001	5.02	10.8	1.15	NA	8.8	9.0	8.5 (High)			
CUSIP	Par	Moody's	S&P	Credit Enhancement				EMMA Disclosure																	
24917DAE3	500.0	Aa3	AA-	NONE				http://emma.msrb.org/SecurityView/SecurityDetails.aspx?cusip=24917DAE3																	

Source: Moody's, S&P, Piper Jaffray

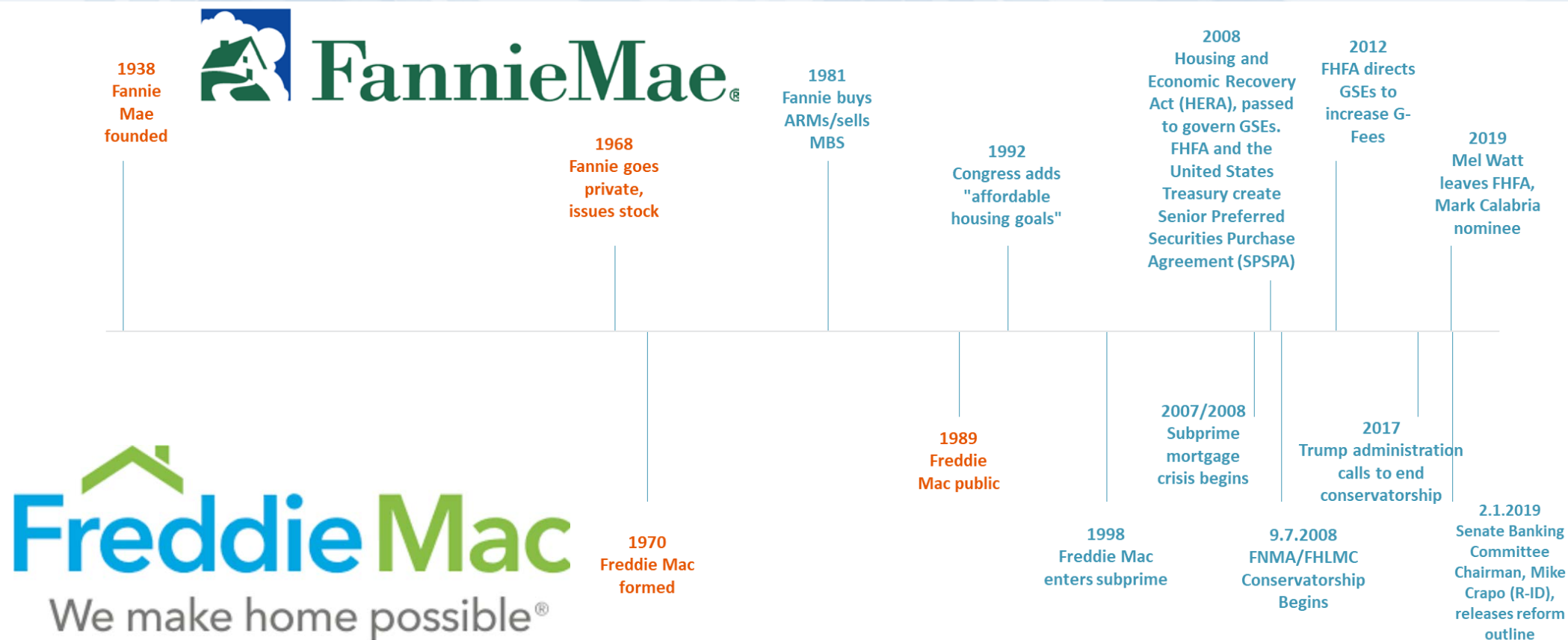
Municipals/Interactive Analytics



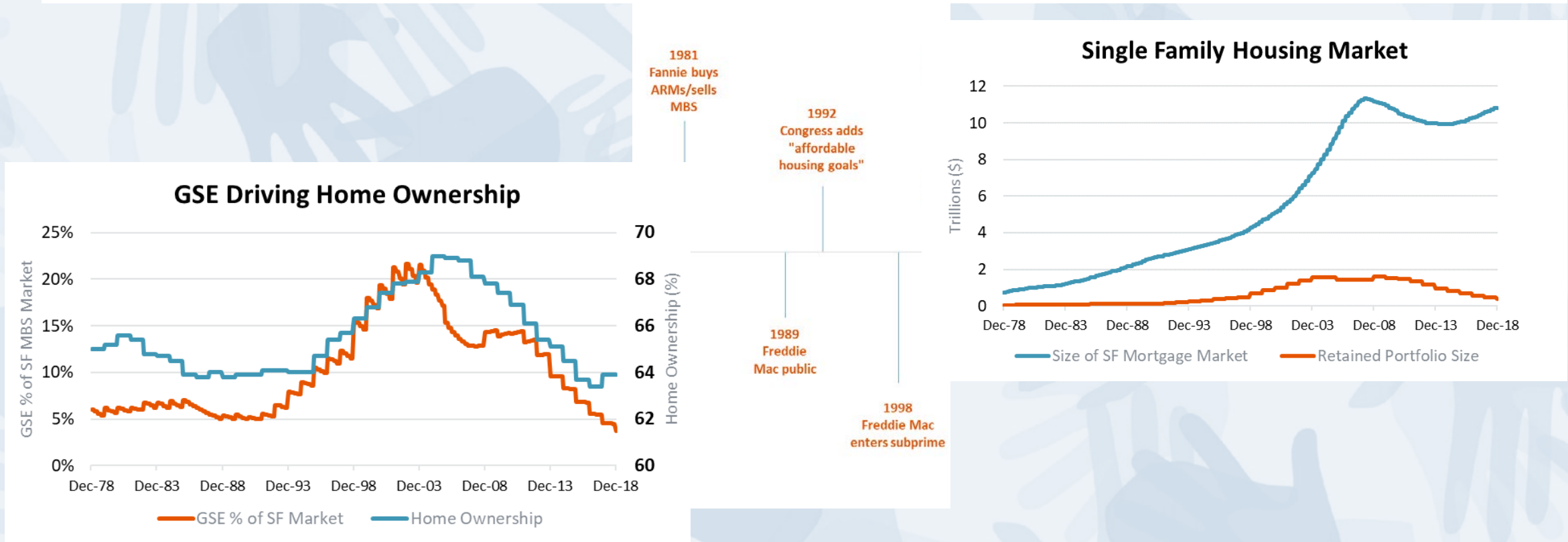
Government Agency/GSE Reform

- GSE Reform
- Housing Market Expectations
- Supply/Demand Trend
- Agency Calls and Expectations

Government Agency/GSE Reform



Growth of the Mortgage Market and GSE Role



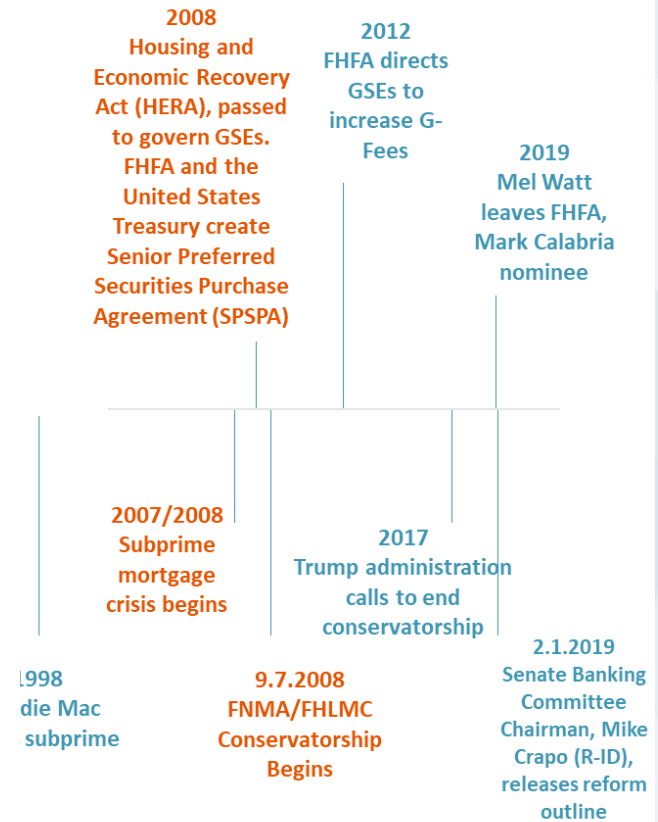
Source: Bloomberg, Piper Jaffray

Conservatorship

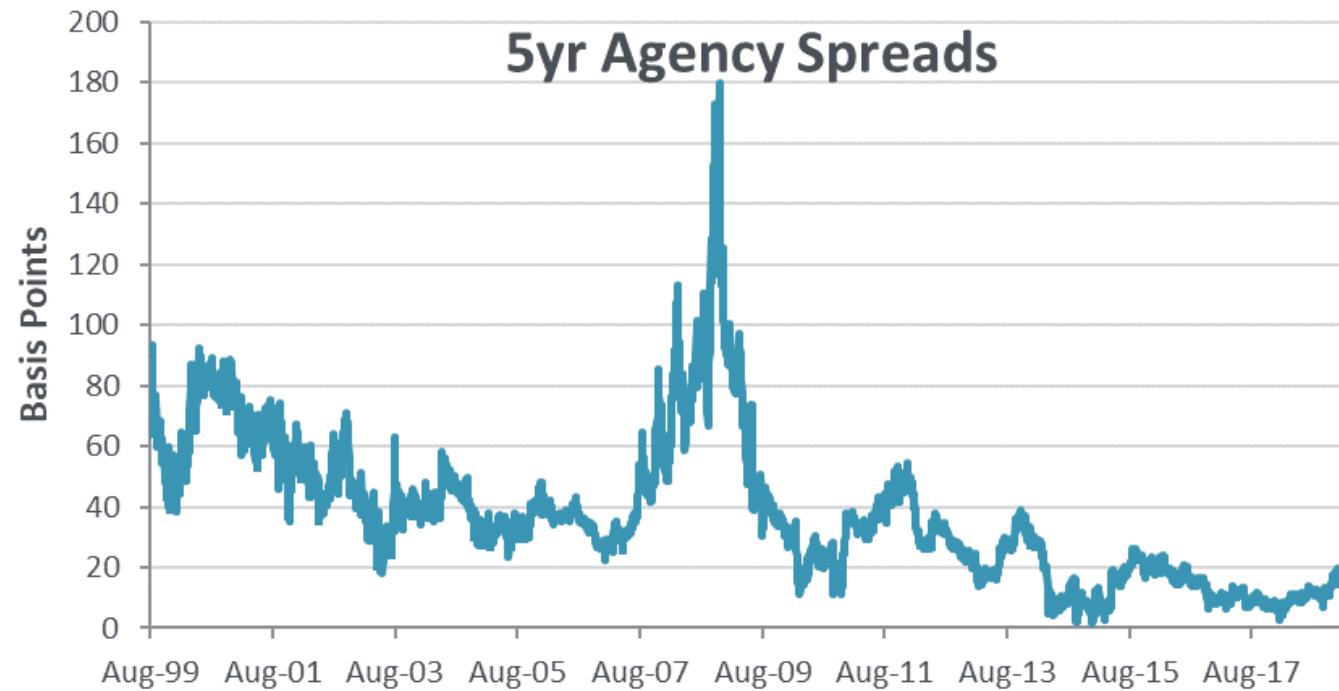
Chart 4: Representative Price and Spread Levels on Fannie Mae and Freddie Mac Securities

	5/30/2008	9/5/2008	9/8/2008	Change Since May 30th	Change, 1 Day	Current Rating
Common Stock						
FNMA	27.02	7.04	0.73	-97%	-90%	
FHLMC	25.42	5.10	0.88	-97%	-83%	
Preferred Equity						
FNM 8.75% Series 08-1	49.88	17.56	1.45	-97%	-92%	Ca/C
FRE 6.55% Series Y	22.51	10.90	1.90	-92%	-83%	Ca/C
Subordinated Debt (Spread, Bps)						
FN 6.25% '11	120	605	181	61	-424	AA2/BBB+ **
FN 4.625% '13	150	402	218	68	-184	AA2/BBB+ **
FH 5.75% '16	136	383	174	38	-209	AA2/BBB+ **
Senior Debt (Spread, Bps)						
2-Year	51	88	51	0	-37	Aaa/AAA
5-year	63	94	60	-3	-34	Aaa/AAA
10-year	54	76	47	-7	-29	Aaa/AAA
Conventional Mortgages (Nominal Spreads, Bps)						
15-year 5%	162	205	167	5	-38	Aaa/AAA
20-year 5.5%	187	223	185	-2	-38	Aaa/AAA
30-year 5.5%	194	225	191	-3	-34	Aaa/AAA

U.S.
Government
Senior Preferred
Equity
Investment

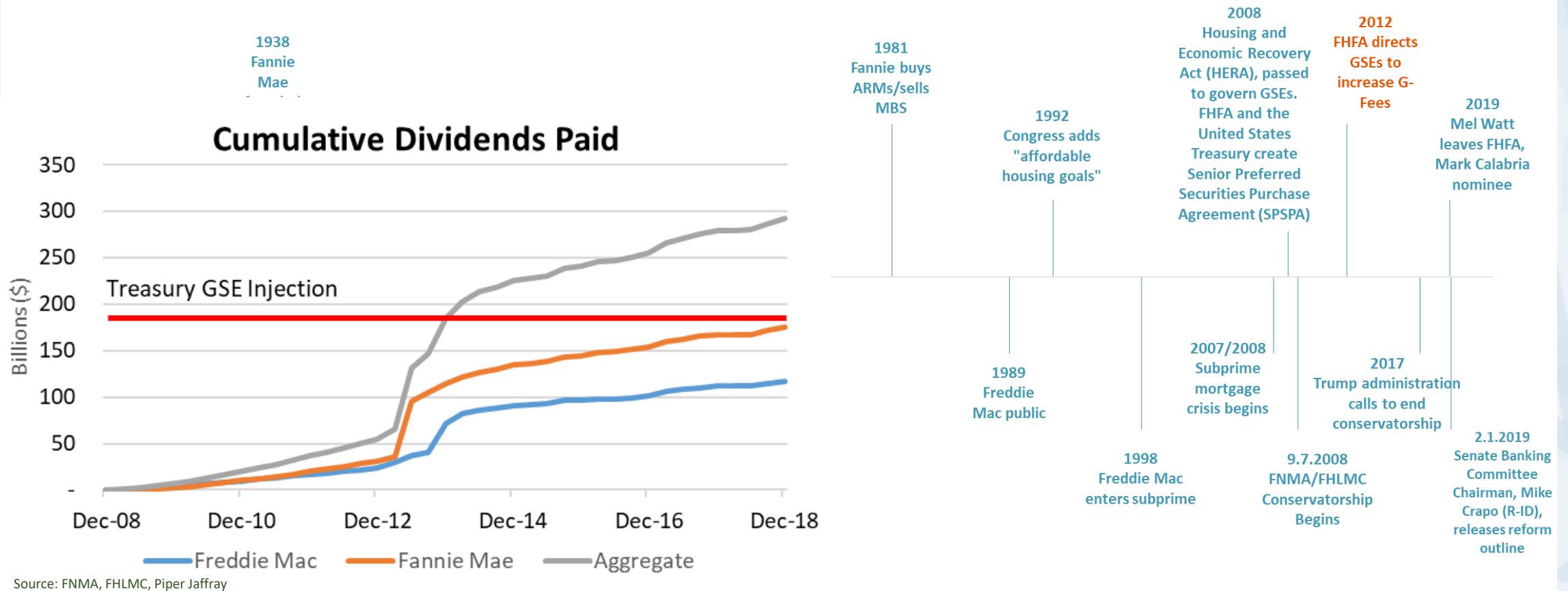


Conservatorship



Source: Bloomberg, Piper Jaffray

Government Agency/GSE Reform

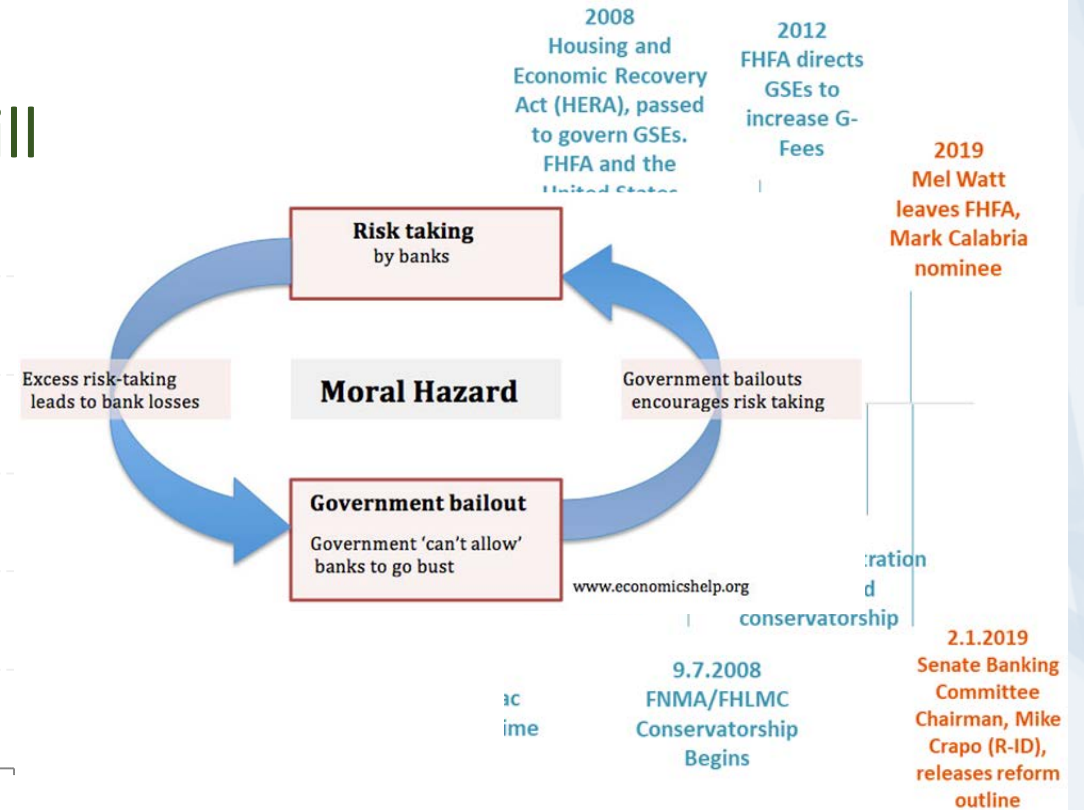
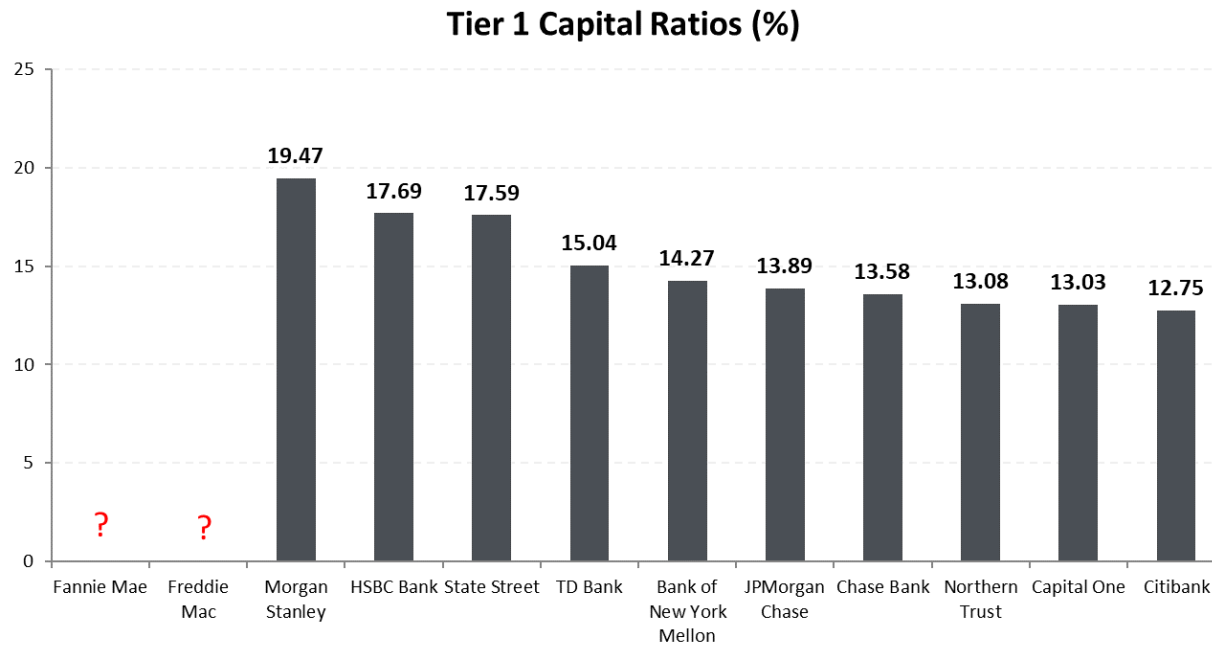


Government Agency/FHFA Goals

- Maintain, in a safe and sound manner, credit availability and foreclosure prevention activities for new and refinanced mortgages to foster liquid, efficient, competitive, and resilient national housing finance markets (40%)
- Reduce taxpayer risk through increasing the role of private capital in the mortgage market (30%)
- Build a new single-family infrastructure for use by the Enterprises and adaptable for use by other participants in the secondary market in the future (30%)

Government Agency/FHFA Goals

- Mark Calabria FHFA director
- Obstacles: Capital cushion, Political will



Disclosures

The material contained herein is not a product of any research department of Piper Jaffray & Co. or any of its affiliates. Nothing herein constitutes a recommendation of any security or regarding any issuer; nor is it intended to provide information sufficient to make an investment decision. The information provided is herein not intended to be and should not be construed as a recommendation or "advice" within the meaning of Section 15B of the Securities Exchange Act of 1934.

The information contained in this communication has been compiled by Piper Jaffray & Co. from sources believed to be reliable, but no representation or warranty, express or implied, is made by Piper Jaffray & Co., its affiliates or any other person as to its accuracy, completeness or correctness. All opinions and estimates contained in this communication constitute Piper Jaffray & Co.'s judgment as of the date of this communication, are subject to change without notice and are provided in good faith but without legal responsibility. Past performance is not a guide to future performance, future returns are not guaranteed, and a loss of original capital may occur.

Nothing in this communication constitutes legal, accounting or tax advice or individually tailored investment advice. This material is prepared for general circulation to clients and may have been prepared without regard to the individual financial circumstances and objectives of persons who receive it. The investments or services contained in this communication may not be suitable for you and it is recommended that you consult an independent investment advisor if you are in doubt about the suitability of such investments or services.

Every state in the U.S., and most countries throughout the world have their own laws regulating the types of securities and other investment products which may be offered to their residents, as well as the process for doing so. As a result, any specific securities discussed in this communication may not be eligible for sale in some jurisdictions. This communication is not, and under no circumstances should be construed as, a solicitation to act as securities broker or dealer in any jurisdiction by any person or company that is not legally permitted to carry on the business of a securities broker or dealer in that jurisdiction.

In providing information contained herein to a municipal entity or obligated person, Piper Jaffray (i) is not providing discretionary investment advice recommending an action to any municipal entity or obligated person recipient (ii) is not acting as an advisor providing discretionary investment advice to any municipal entity or obligated person and (iii) does not owe a fiduciary duty pursuant to Section 15B of the Exchange Act to any municipal entity or obligated person with respect to the information and material contained in this communication. Piper Jaffray is acting for its own interests, and any municipal entity or obligated person recipient of this information should discuss any information and material contained in this communication with any and all internal or external advisors and experts that the municipal entity or obligated person deems appropriate before acting on this information or material.

To the fullest extent permitted by law neither Piper Jaffray & Co., nor any of its affiliates, nor any other person, accepts any liability whatsoever for any direct or consequential loss arising from any use of this communication or the information contained herein. No matter contained in this document may be reproduced or copied by any means without the prior consent of Piper Jaffray & Co. Piper Jaffray & Co. may buy from or sell to customers on a principal basis for its own account or as an agent for another person in the securities or related derivatives that are the subject of this communication (in reliance on Rule 206(3)-1, we will not obtain client consent for each principal trade).

Piper Jaffray & Co. has or may have proprietary positions in the securities or in related derivatives that are the subject of this communication. Piper Jaffray & Co. may have been manager or co-manager of a public offering of securities of the issuer within the past twelve months. Additional information is available upon request.

Piper Jaffray outgoing and incoming e-mail is electronically archived and recorded and is subject to review, monitoring and/or disclosure to someone other than the recipient. This e-mail may be considered an advertisement or solicitation for purposes of regulation of commercial electronic mail messages. If you do not wish to receive commercial e-mail communications from Piper Jaffray, visit: www.piperjaffray.com/do_not_email to review the details and submit your request to be added to the Piper Jaffray "Do Not E-mail" directory. For additional disclosure information, see www.piperjaffray.com/disclosures.

Piper Jaffray Companies (NYSE: PJC) is a leading investment bank and asset management firm. Securities brokerage and investment banking services are offered in the U.S. through Piper Jaffray & Co., member SIPC and FINRA; in Europe through Piper Jaffray Ltd. and Simmons & Company International Limited, authorized and regulated by the U.K. Financial Conduct Authority; and in Hong Kong through Piper Jaffray Hong Kong Limited, authorized and regulated by the Securities and Futures Commission. Asset management products and services are offered through five separate investment advisory affiliates—U.S. Securities and Exchange Commission (SEC) registered Advisory Research, Inc.; Piper Jaffray Investment Management LLC, PJ Capital Partners LLC and Piper Jaffray & Co.; and Guernsey-based Parallel General Partners Limited, authorized and regulated by the Guernsey Financial Services Commission.

© 2019 Piper Jaffray & Co., 800 Nicollet Mall, Suite 1000, Minneapolis, MN 55402-7036



IGFOA ANNUAL CONFERENCE • SEPTEMBER 8–10, 2019