

**Meeting Between Staff of the Federal Reserve Board, the Office of the Comptroller of the  
Currency (OCC), the Federal Deposit Insurance Corporation (FDIC),  
and the State of Washington  
November 20, 2014**

**Participants:** David Emmel, Dafina Stewart, Kevin Littler, Adam Trost (Federal Reserve Board)

Tena Alexander, James Weinberger, Tiffany Eng (OCC)

Kyle Hadley, Eric Schatten, Greg Feder, Suzanne Dawley (FDIC)

Ellen Evans (Office of the State Treasurer, State of Washington), Dustin McDonald (Government Finance Officers Association), Shaun Rai (Montague DeRose and Associates)

**Summary:** Staff of the Federal Reserve Board, the OCC, and the FDIC met with representatives of the office of the State of Washington to discuss the Liquidity Coverage Ratio rule, which implements the Basel III liquidity standards in the United States, and its treatment of securities issued by states and municipalities. Representatives of the State of Washington presented data on Washington state's issuance of municipal bonds and discussed the impact of the exclusion of municipal securities from the class of high-quality liquid assets on municipal markets.

Attachment



# Trading Liquidity Analysis

*November 20, 2014*



## Executive Summary

- The State of Washington has prepared a detailed analysis of trading in the State's General Obligation Bonds ("WA GO Bonds") and representative corporate bonds
- Key findings:
  - *Trading Analysis:* Trading volumes, trade par amounts and trading frequency all compare favorably to corporate bonds in stable and volatile market environments
  - *Diverse Market Participants:* Trading flows are balanced in all market environments; most trades in stressed market conditions are sales to end investors
  - *Orderly Markets:* A review of two turbulent market periods – the Financial Crisis and the May-August 2013 bond market sell-off – shows orderly trading and relatively modest price declines for WA GO Bonds
  - *Robust Primary Market:* Successful primary market sales in volatile markets offers further evidence of strong liquidity
- The analysis clearly supports the designation of the WA GO Bonds as Level 2B High Quality Liquid Assets



# Background To Trading Analysis



## Trading Analysis: WA GO Bonds vs. Microsoft and Exxon

- State of Washington general obligation debt
  - WA GO Bonds are secured by the full faith, credit and taxing power of the State
  - Tax-exempt, fixed-rate Various Purpose (VP) and Motor Vehicle Fuel Tax (MVFT) General Obligation Bonds
  - VP and MVFT GO Bonds price identically in the primary and secondary markets
  - Trading data source: EMMA (Municipal Securities Rulemaking Board public website)
- Microsoft Corporation senior unsecured bonds (“Microsoft Bonds”) and Exxon Corporation senior unsecured bonds (“Exxon Bonds”)
  - Fixed rate USD public, senior, unsecured bonds
  - Trading data source: Bloomberg Finance, LLP

	State of Washington	Microsoft	Exxon
Total Outstanding 2014	18,443,000,000	15,200,000,000	NA
Total Outstanding 2013	17,692,000,000	8,450,000,000	NA
Total Outstanding 2008	13,680,000,000	-	6,800,000,000
Credit	General Obligation	Senior Unsecured	Senior Unsecured
Credit Ratings	Aa1/AA+/AA+	Aaa/AAA/AA+	Aaa/AAA/NR
Maturity Structure	Annual Serial Bonds	Index-eligible Bullets	Index-eligible Bullets
Debt Service Structure	Level Annual P&I Payments	Interest Only + Balloon	Interest Only + Balloon
CUSIPs	Multiple Per Issue	Single Per Issue	Single Per Issue

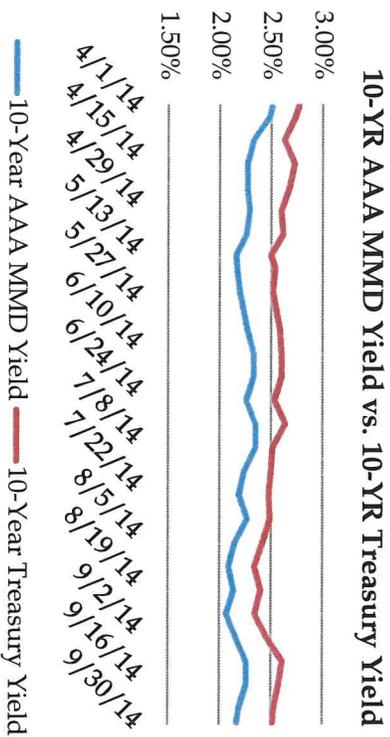


# Time Periods Analyzed

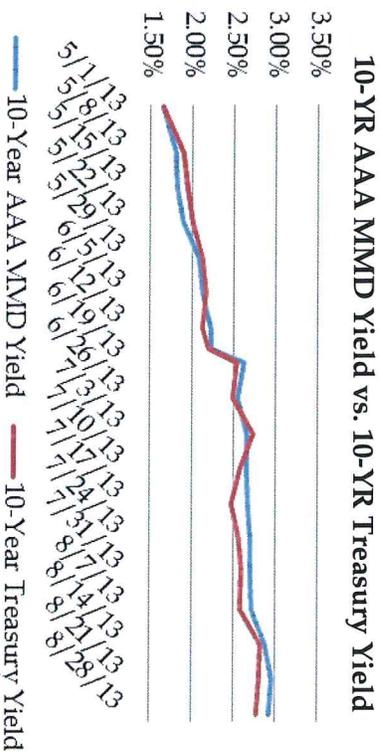
## Time Periods Analyzed

**April – September 2014:** Recent, stable market conditions  
**May – August 2013:** Significant bond market sell-off  
**September – October 2008:** Financial Crisis

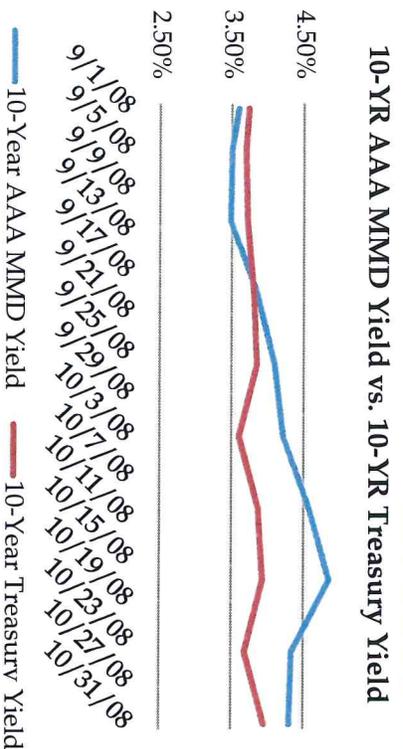
### Stable Market April 1, 2014 - September 30, 2014



### Bond Market Sell-Off May 1, 2013 - August 31, 2013



### Financial Crisis September 1, 2008 - October 31, 2008





# Results of Trading Analysis



## Trading Analysis: Results

- WA GO Bonds demonstrate strong trading liquidity in stable markets and in times of financial stress and market volatility
  - In stable markets over the last six months, trade metrics on WA GO Bonds compare favorably with those of a highly rated corporate bond
  - Similar evidence of robust trading in stressed markets: during the Financial Crisis (Sep – Oct 2008) and significant bond market sell-off (May – Aug 2013)

	Stable Market Apr - Sep 2014		Bond Market Sell-Off May - Aug 2013		Financial Crisis Sep - Oct 2008	
	State of Washington	Microsoft	State of Washington	Microsoft	State of Washington	Exxon
Total Par Traded	5,360,310,000	2,360,690,000	3,235,900,000	2,144,077,000	1,854,050,000	432,330,000
Traded Par/Outstanding # of Trades	29%	16%	18%	25%	14%	6%
% of Trading Days with Trades	1,053	910	651	770	332	N/A
	95%	98%	94%	99%	86%	80%
Average Trade Par	5,030,122	2,594,165	4,970,661	N/A	5,584,488	N/A
Median Trade Par	2,500,000	2,000,000	2,250,000	N/A	2,500,000	N/A
Max Trade Par	49,550,000	5,000,000	40,195,000	N/A	34,475,000	N/A
Avg. Par Traded Per Trading Day	42,207,165	18,588,110	37,626,744	24,931,128	42,137,500	9,825,682
Median Par Traded per Trading Day	19,830,000	17,250,000	22,710,000	21,621,500	37,907,500	7,650,000
Avg. Trades per Trading Day	9	7	8	9	9	N/A
Median Trades per Trading Day	7	7	7	8	8	N/A

*Note: trading data for all trades with a par amount of \$1 million or greater*



## WA GO Bond Trades by Maturity

- There is active trading of WA GO Bonds in all maturity ranges in both stable and stressed markets
- Trading activity across all maturities ensures sufficient price information and transparency at all points on the yield curve

Stable Market			
4/1/2014 through 9/30/2014			
Maturity	Trade Count	Total Par	Median Par
0-5 Years	225	894,925,000	2,500,000
5-10 Years	318	1,918,745,000	3,765,000
10-15 Years	240	1,095,480,000	2,482,500
15-20 Years	189	815,395,000	2,000,000
20-30 Years	81	635,765,000	4,500,000

Bond Market Sell-Off			
5/1/2013 through 8/30/2013			
Maturity	Trade Count	Total Par	Median Par
0-5 Years	98	370,340,000	1,700,000
5-10 Years	146	620,060,000	3,000,000
10-15 Years	217	1,270,520,000	3,175,000
15-20 Years	127	601,060,000	1,960,000
20-30 Years	63	373,920,000	1,535,000

Financial Crisis			
9/1/2008 through 10/31/2008			
Maturity	Trade Count	Total Par	Median Par
5-10 Years	21	48,430,000	1,500,000
10-15 Years	78	346,665,000	1,650,000
15-20 Years	133	821,875,000	4,750,000
20-25 Years	100	637,080,000	3,095,000



## Market Participants: Trading Flows

- Trading flows in WA GO Bonds are well balanced in all time periods analyzed
- Notably, there is no spike in customer sales during down markets and, in fact, customer purchases comprise the greatest portion of trade flows in these down markets
- Market liquidity not overly reliant on inter-dealer trade flows

	Stable Market Apr - Sep 2014		Bond Market Sell-Off May - Aug 2013		Financial Crisis Sep - Oct 2008	
	State of Washington	Microsoft	State of Washington	Microsoft	State of Washington	Exxon
Customer Sold Volume	1,386,355,000	905,186,000	792,135,000	NA	575,625,000	NA
Customer Sold % of Volume	26%	38%	24%	NA	31%	NA
Customer Bought Volume	2,053,285,000	869,902,000	1,484,100,000	NA	747,425,000	NA
Customer Bought % of Volume	38%	37%	46%	NA	40%	NA
Inter-dealer Volume	1,920,670,000	585,602,000	959,665,000	NA	531,000,000	NA
Inter-dealer % of Volume	36%	25%	30%	NA	29%	NA



# Price Volatility Analysis



## Price Volatility During Down Markets

- Price declines in times of market stress have been identified as a key factor in assessing liquidity
- WA GO Bond maximum 30 calendar-day price declines of 16% during the Financial Crisis and 9% during the 2013 bond market sell-off are well below the 20% threshold specified for Level 2B corporate bonds

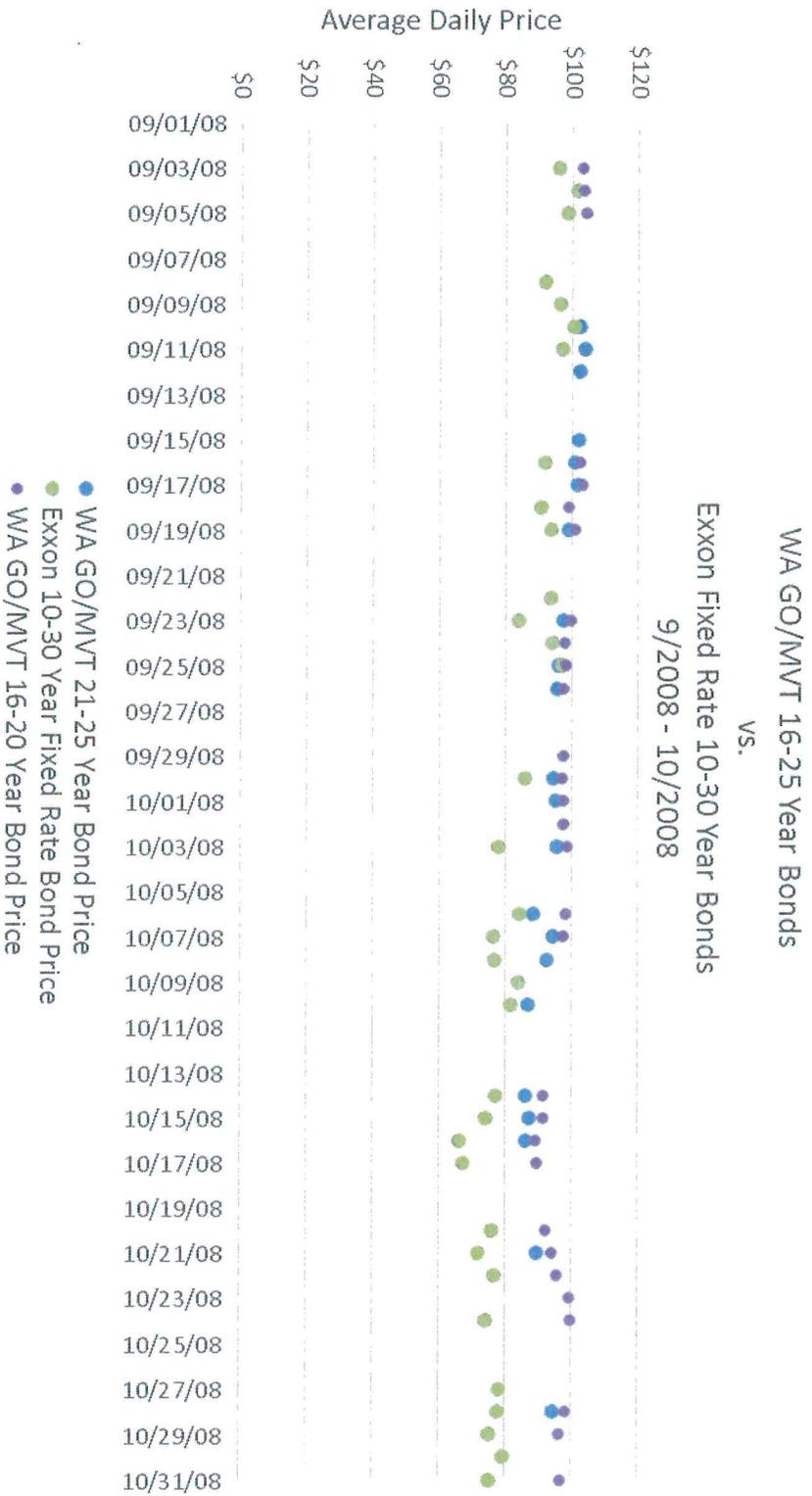
Max Price Declines - Financial Crisis 9/1/2008 through 10/31/2008			
Coupon	State of Washington (15-20 Year Maturities)	State of Washington (20-25 Year Maturities)	Exxon (10-30 Year Maturities)
5%	13%	16%	N/A
5-6%	N/A	N/A	32%

Max Price Declines - Bond Market Sell-Off 5/1/2013 through 8/30/2013			
Coupon	State of Washington (15-20 Year Maturities)	State of Washington (20-25 Year Maturities)	Microsoft (10-30 Year Maturities)
2%	N/A	N/A	5%
3%	5%	N/A	11%
4%	8%	9%	8%
5%	6%	7%	7%



## Price Volatility During Down Markets

- WA GO Bond trading during the Financial Crisis was orderly
- Price trends similar to but less severe than representative corporate bonds



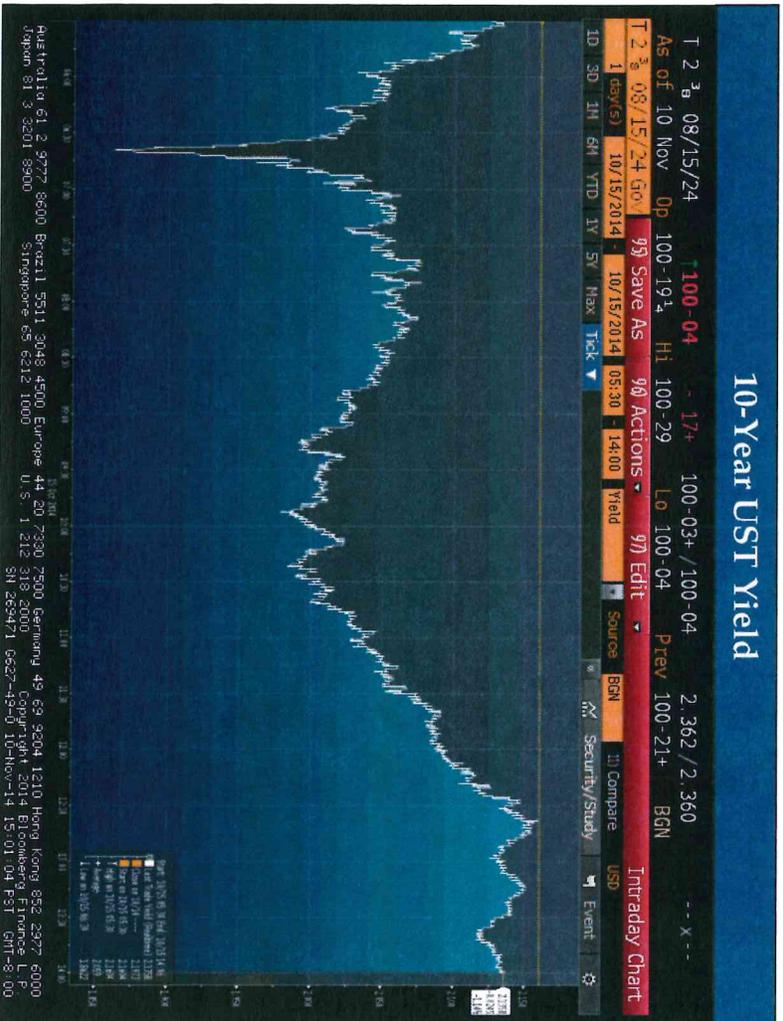


# Primary Market Liquidity



## Primary Market Liquidity

- The State scheduled the competitive sale of \$934 million refunding bonds on October 15, 2014 (\$626.8 million VPGO Bonds and \$307.3 million of MVFT GO Bonds)
- The fixed income markets experienced significant intra-day market volatility on October 15
- Despite volatility in the Treasury, equity and oil markets, the State proceeded with the sale



10-Year UST Yield			
	Time (ET)	Yield	Change
Open Yield	8:30 AM	2.16%	
Intra-day Low Yield	9:38 AM	1.86%	-0.30%
Intra-day High Yield	3:37 PM	2.16%	0.30%
Close Yield	5:00 PM	2.13%	-0.03%



## Primary Market Liquidity

- Bonds were sold via the municipal market's standard electronic competitive bid process
  - Bid award based on lowest True Interest Cost (TIC) for each issue
  - Dealers commit to underwrite the entire bond issue (all-or-none bid)
  - Limited pre-selling to investors given uncertainty regarding which bidder would be successful
- The State received five bids on each series
  - Bids were aggressive and tight, with the winning bidders committing \$746 million and \$369 million on the two series
- Bidding process provides strong evidence of dealers' confidence in secondary market liquidity

\$626,765,000 Series R-2015C Various Purpose General Obligation Refunding Bonds 8:00 am PT - October 15, 2014		
<b>Bid Par Amount:</b>	<b>\$626,765,000</b>	
<b>Number of bids:</b>	<b>5</b>	
Bid Results	TIC (%)	Variance From Winning Bid (%)
Bank of America Merrill Lynch	2.843874	0.000246
J.P. Morgan Securities	2.844120	0.023457
Barclays Capital	2.867331	0.055235
Citigroup Global Markets	2.899109	0.205944
Morgan Stanley & Co.	3.049818	

\$307,285,000 Series R-2015D Motor Vehicle Fuel Tax General Obligation Refunding Bonds 8:30 am PT - October 15, 2014		
<b>Bid Par Amount:</b>	<b>\$307,285,000</b>	
<b>Number of bids:</b>	<b>5</b>	
Bid Results	TIC (%)	Variance From Winning Bid (%)
J.P. Morgan Securities	2.947695	0.014039
Bank of America Merrill Lynch	2.961734	0.014889
Citigroup Global Markets	2.962584	0.035053
Barclays Capital	2.982748	0.142235
Morgan Stanley & Co.	3.089930	

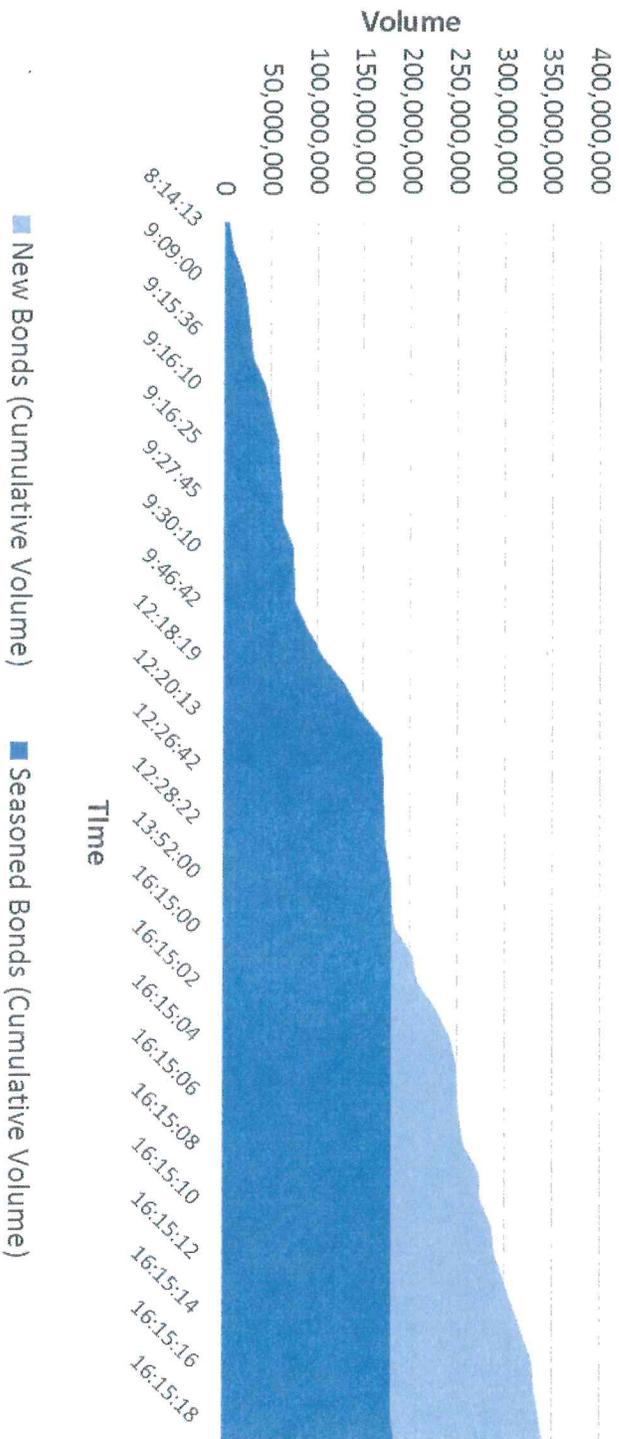


## Primary Market Liquidity

- On October 15, trading in WA GO Bonds was very active, both in seasoned bonds as well as in the newly issued bonds

Total Trading Volume:	341,130,000
Seasoned Bond Trading Volume:	180,580,000
New Bond Trading Volume:	160,550,000

State of Washington GO Bond Cumulative Trading Volume  
October 15, 2014





## Conclusion



## Executive Summary

- The State of Washington has prepared a detailed analysis of trading in the State’s General Obligation Bonds (“WA GO Bonds”) and representative corporate bonds
- Key findings:
  - *Trading Analysis:* Trading volumes, trade par amounts and trading frequency all compare favorably to corporate bonds in stable and volatile market environments
  - *Diverse Market Participants:* Trading flows are balanced in all market environments; most trades in stressed market conditions are sales to end investors
  - *Orderly Markets:* A review of two turbulent market periods – the Financial Crisis and the May-August 2013 bond market sell-off – shows orderly trading and relatively modest price declines for WA GO Bonds
  - *Robust Primary Market:* Successful primary market sales in volatile markets offers further evidence of strong liquidity
- The analysis clearly supports the designation of the WA GO Bonds as Level 2B High Quality Liquid Assets