



# ***Advanced Overview of the Investment Management Process***

November 15, 2017



# Presented by:

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# Investment Objectives

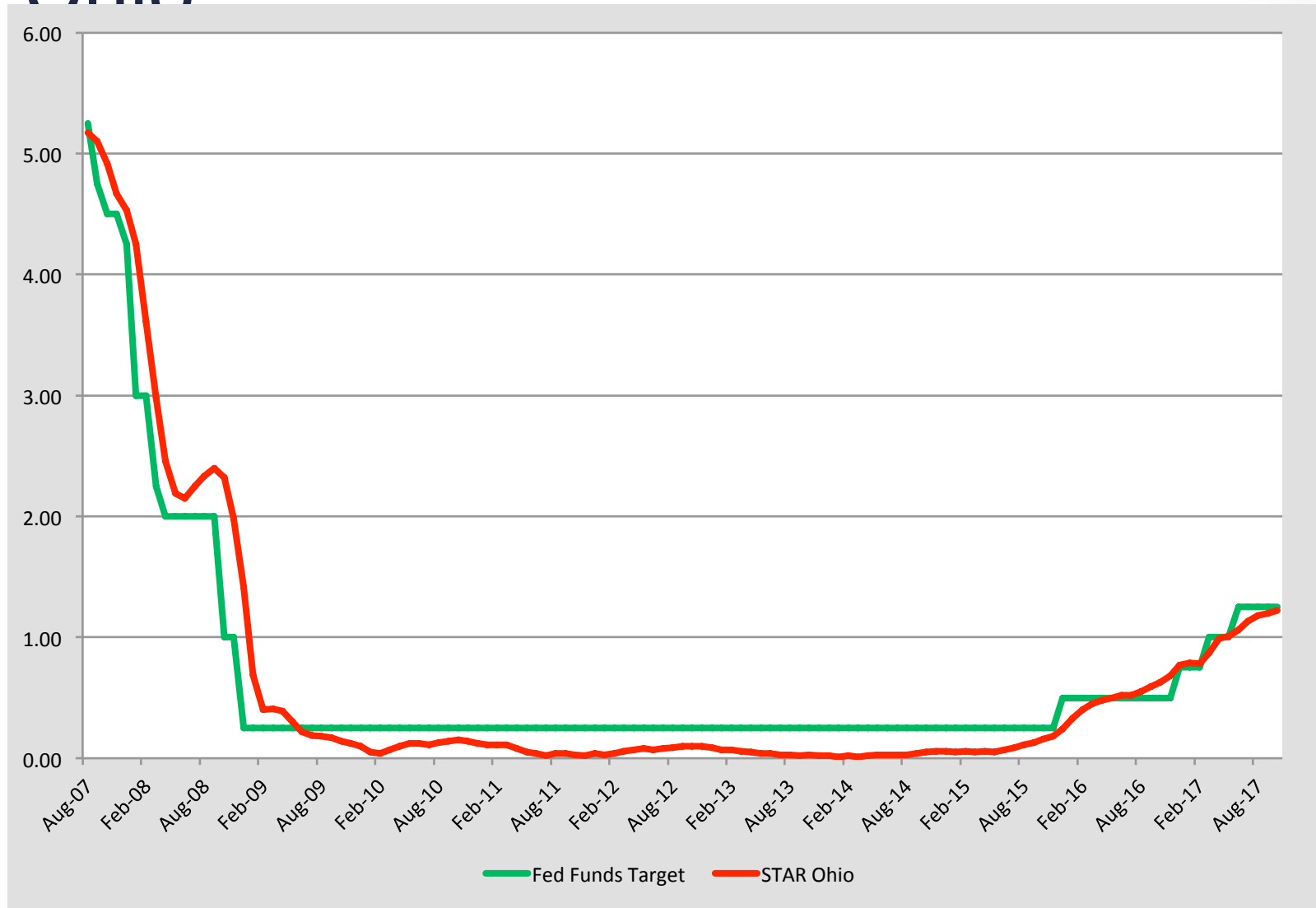
- Compliance with law (ORC 135) and investment policy
- Safety of principal
  - Credit Risk - Protecting the principal from loss
  - Interest Rate Risk - Mitigating unrealized losses
- Maintaining Liquidity
  - Meeting operating needs and other obligations without interruption.
- Yield (Return)
  - Investing public entity funds to generate a competitive market yield over time.

# Liquidity/Cash Management

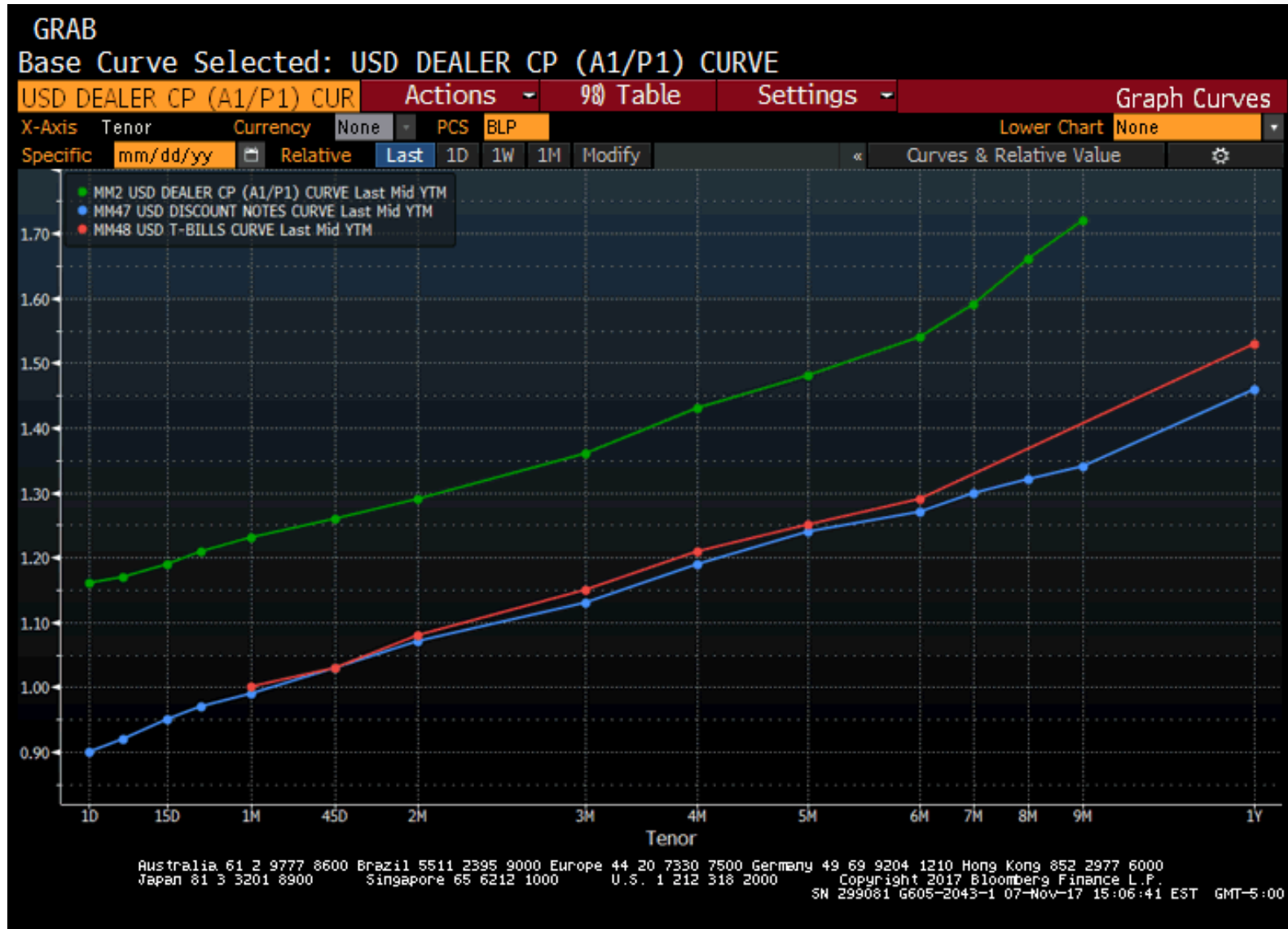
- Liquidity Percentage Method
  - Determine the minimum liquidity percentage needed to meet cash demands at any time during the year.
    - STAR Ohio, STAR Plus
    - Bank Deposits or Money Market sweep accounts
    - Repurchase Agreements
- Asset/Liability Method
  - On the basis of a cash flow analysis, match the maturities of short-term investments with projected monthly cash outflows.
    - UST Notes
    - Agency Discount Notes
    - Commercial Paper

# Fed Funds Target Rate vs. STAR

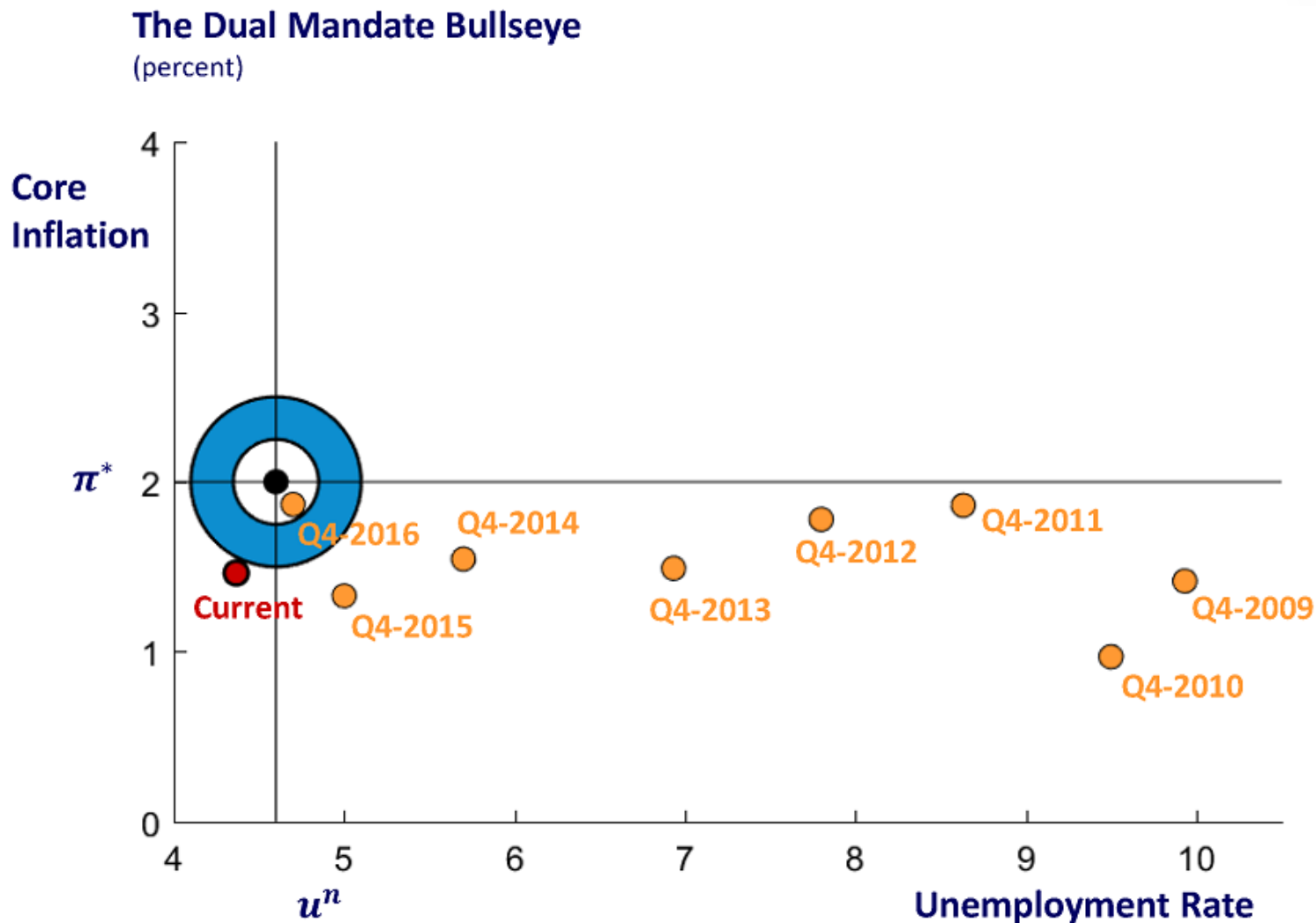
## Ohio



# Money Market Curve



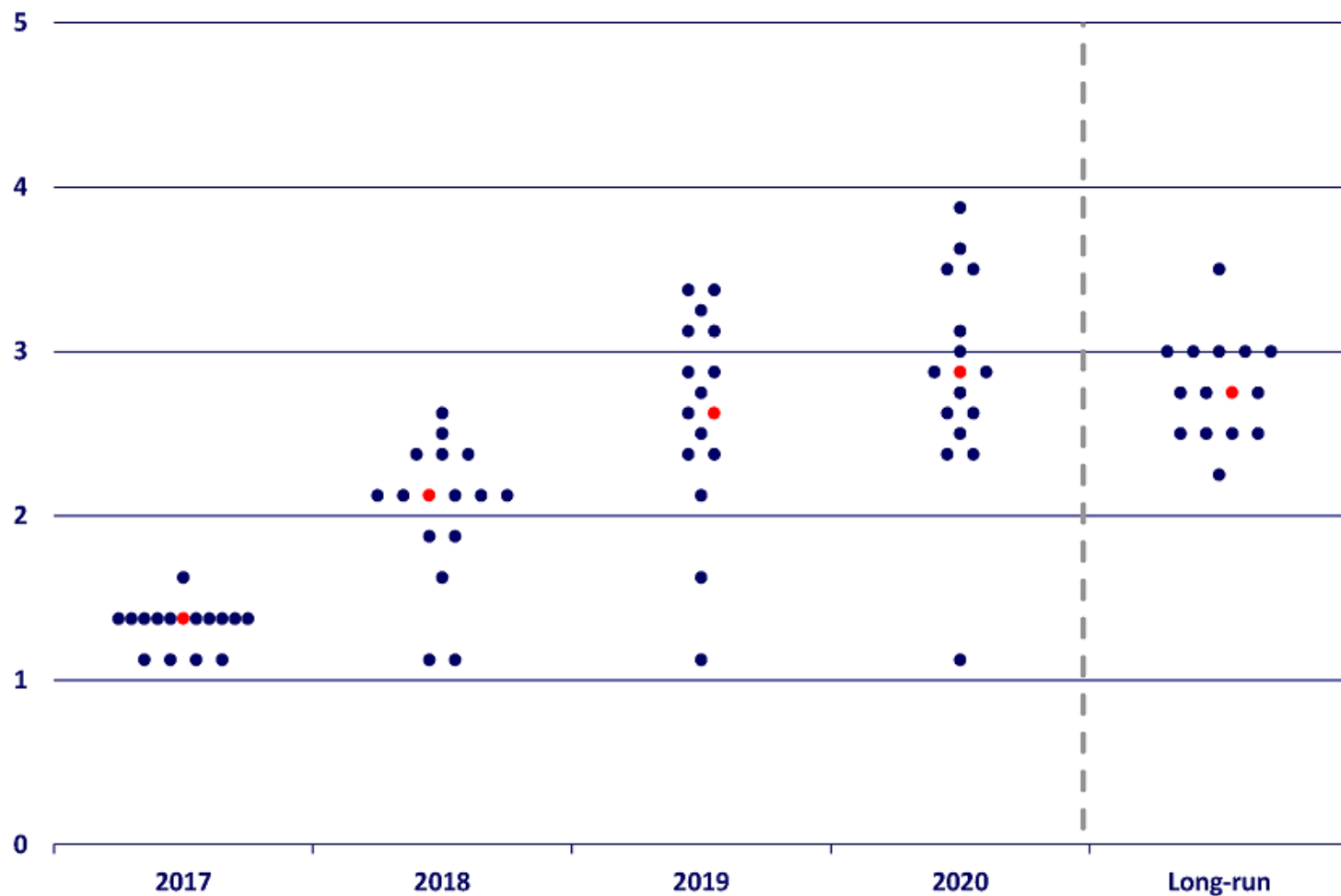
# Federal Reserve Dual Mandate



# Fed Dot Plot Forecast

## Target Federal Funds Rate at Year-End

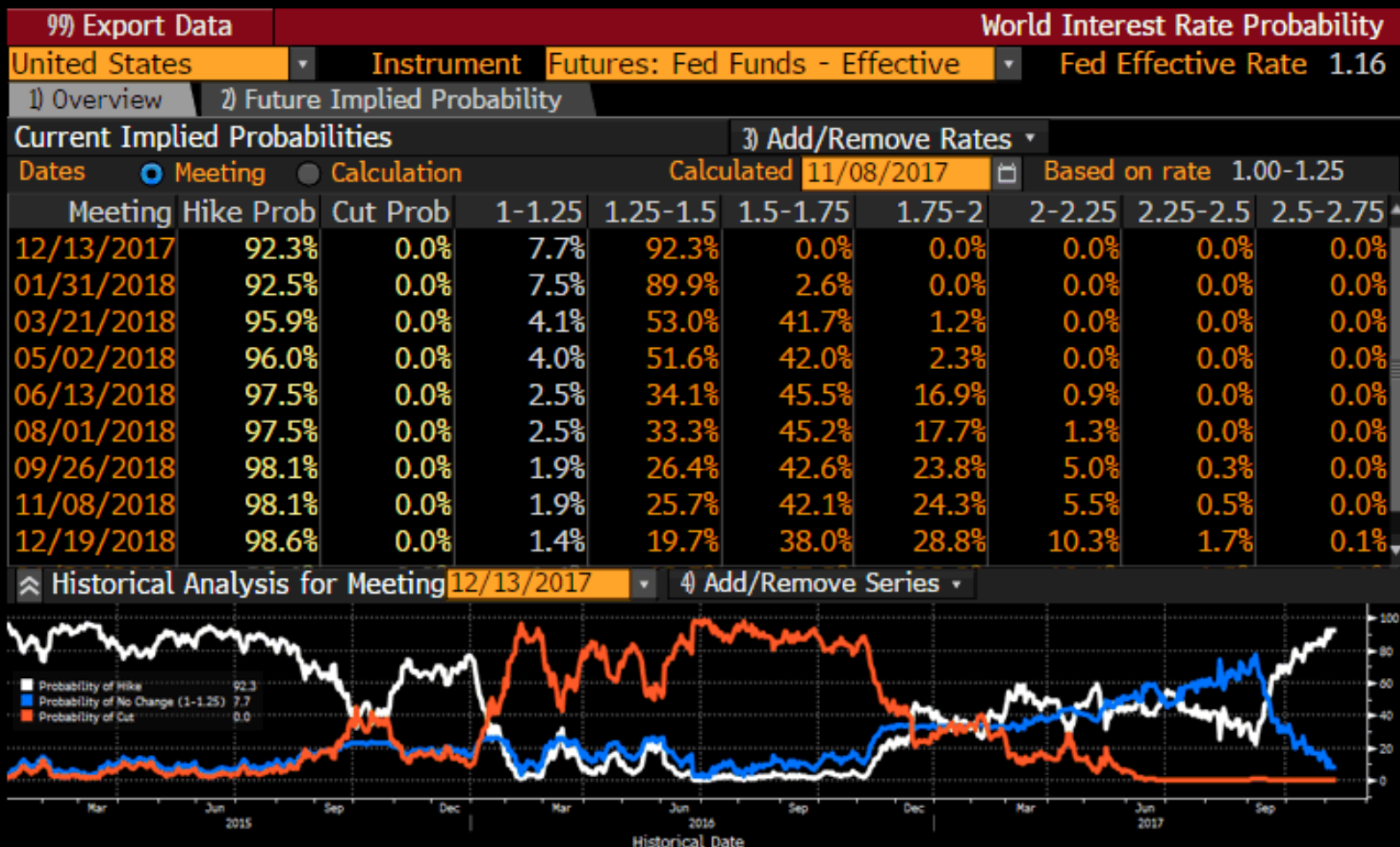
(percent)





# Fed Funds Futures

GRAB

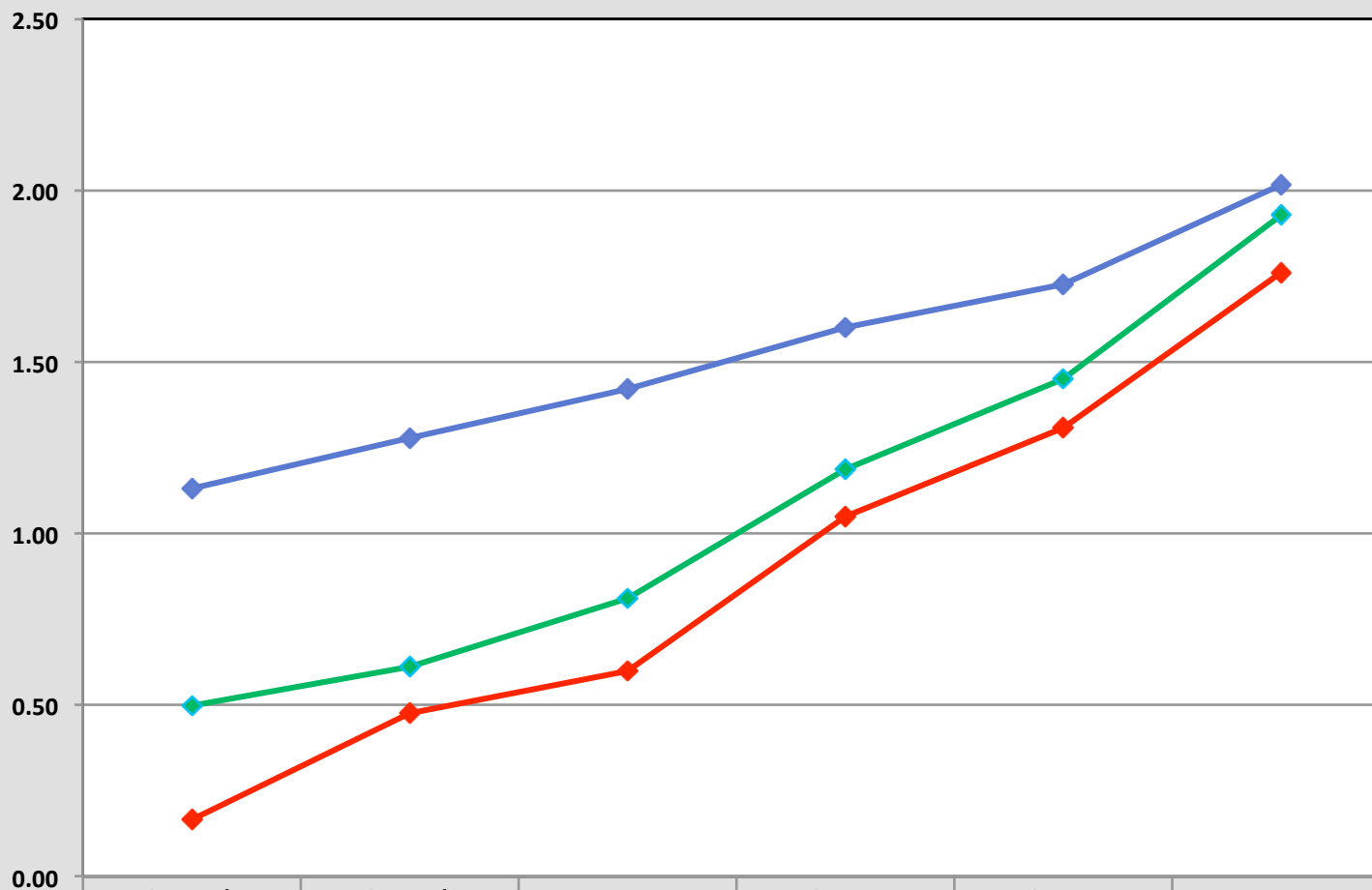


Australia 61 2 9777 8600 Brazil 5511 2395 9000 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000  
 Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000  
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 SN 299081 G717-4459-1 08-Nov-17 16:03:10 EST GMT-5:00

# Investment Strategy – Core Portfolio

- Determine target duration
  - Duration measures a bond's price sensitivity relative to a change in interest rates.
  - The absence of defined parameters is an invitation for speculation and unnecessary risk.
  - Federal Reserve Policy
  - Shape of the yield curve
- How to deploy investments?
  - Laddering
  - Bar Bell
- Evaluate risk/return characteristics of each security, as well as the effect on the total portfolio.
  - Identify yield spreads between asset classes and types.
  - Compare new issues vs. secondary offerings.

# U.S. Treasury Yield Curves



|            | 3 Month | 6 Month | 1 Year | 2 Year | 3 Year | 5 Year |
|------------|---------|---------|--------|--------|--------|--------|
| 12/31/2015 | 0.17    | 0.48    | 0.60   | 1.05   | 1.31   | 1.76   |
| 12/31/2016 | 0.50    | 0.61    | 0.81   | 1.19   | 1.45   | 1.93   |
| 10/31/2017 | 1.13    | 1.28    | 1.42   | 1.60   | 1.73   | 2.02   |

# Bond Pricing

- There is an inverse relationship between bond price and the yield of the bond and bonds can be bought or sold at 3 different price levels:
  - **Par** – Bonds are commonly issued at Par or 100.00
  - **Discount** – Bonds can also trade a price below Par or at a discount. The price of a discounted bond would be below 100.00, increasing your YTM.
  - **Premium** – Bonds can also be traded at premium price levels, or a price above Par, decreasing your YTM.
- Bond prices can also be expressed as a discount rate:
  - No stated coupon is associated with the security.
  - Total cost is the Net Present Value, which is determined based on the maturity date and discount rate.

# US Treasury Actives

GRAB

United States

BGM

1) Actions

3) Settings

Fixed Income Trading

16:52

4) Actives

5) Bills

6) Notes

7) TIPS

8) Strips

9) Sprds

Bills

Bonds

Notes

Curve Trades

Other Markets

Australia 61 2 9777 8600 Brazil 5511 2395 9000 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000 Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2017 Bloomberg Finance L.P. SN 299081 6717-4459-1 08-Nov-17 16:52:21 EST GMT-5:00

# New Issue Agency Bonds

GRAB  
4 <G0> to Set Current Selection as Default

95) Actions - 96) Alerts - 97) Export - 98) Summary 9) Set Homepage New Issue Monitor

Selection U.S. Agencies (NIM 2) 1) Show Filters 2) Clear Filters Issues & News

Real Time Monitoring Issue History Date Range 10/08/17 - 11/08/17

|      | Date ↓ | Issuer/Headline                        | Coupon | Maturity | Spread | Curr  | Outst | Book Mgr    | Note         |
|------|--------|--|--------|----------|--------|-------|-------|-------------|--------------|
|      |        |  | All ↓  | All ↓    | All ↓  | All ↓ | All ↓ |             |              |
| 101) | 16:18  | FED HOME LN BANK                       | 1.500  | 03/08/19 |        | USD   | 2.94B | MIZ-sole    | INCREASE     |
| 102) | 15:39  | FREDDIE MAC                            | STEP   | 11/25/20 |        | USD   | 100   | JEFF-sole   | 3-NC6MO BERM |
| 103) | 15:16  | FREDDIE MAC                            | STEP   | 11/28/22 |        | USD   | 25    | CF,KGS      | 5-NC3MO BERM |
| 104) | 13:32  | *FHLB PASSES GLOBAL BOND ISSUANCE SLOT |        |          |        |       |       |             |              |
| 105) | 12:52  | FED HOME LN BANK                       | 1.750  | 06/12/20 |        | USD   | 2.17B | HSBC,MS,RBS | INCREASE     |
| 106) | 12:50  | FED FARM CREDIT                        | 1.650  | 11/15/19 |        | USD   | 95    | MIZ-sole    | 2-NC         |
| 107) | 12:32  | FED FARM CREDIT                        | 2.020  | 10/17/22 |        | USD   | 55    | FCS,WFS     | 5-NC         |
| 108) | 12:27  | FED FARM CREDIT                        | 2.620  | 11/15/27 |        | USD   | 10    | FCS-sole    | 10-NC        |
| 109) | 11:42  | FED HOME LN BANK                       | 1.500  | 11/13/18 |        | USD   | 10    | MIZ-sole    | 1-NC         |
| 110) | 11:42  | FED HOME LN BANK                       | 1.625  | 06/14/19 |        | USD   | 4.43B | BNYM,MS     | 7-NC INC     |
| 111) | 11:34  | FED HOME LN BANK                       | 2.375  | 12/13/19 |        | USD   | 1.16B | JOINT LEADS | 6-NC INC     |
| 112) | 11:11  | FED FARM CREDIT                        | FRN    | 11/15/19 |        | USD   | 225   | DAIWA       | 11/15/17     |
| 113) | 10:51  | FED FARM CREDIT                        | 2.720  | 11/15/24 |        | USD   | 55    | JOINT LEADS | 7-NC1 CONT   |
| 114) | 10:50  | FED FARM CREDIT                        | 2.230  | 11/15/22 |        | USD   | 120   | JOINT LEADS | 5-NC1 CONT   |
| 115) | 10:48  | FED FARM CREDIT                        | 2.090  | 11/15/21 |        | USD   | 110   | JOINT LEADS | 4-NC1 CONT   |
| 116) | 10:18  | FREDDIE MAC                            | 1.750  | 11/27/19 |        | USD   | 500   | BCLY,TDSEC  | 2-NC3MO BERM |
| 117) | 10:05  | FED HOME LN BANK                       | FRN    | 12/10/18 |        | USD   | 230   | BofAML      | 0000         |
| 118) | 9:12   | FREDDIE MAC                            | 2.150  | 02/25/22 |        | USD   | 25    | FTN,MS      | 4.25-NC6MBER |

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# Benchmark Agency Bullets

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Agencies

BGM

1) Actions

3) Settings

Fixed Income Trading

16:54

4 OTR

5 Shorts

6 2-30yr

8 Sub

9 MTN

10 Callables

11 Supras

21) 2yr

22) 3yr

23) 5yr

24) 7yr

25) 10yr

26) 30yr

11) T1 $\frac{3}{4}$  N20

99-30 / 99-30 $\frac{1}{4}$

1.771 - 1.769

01) T1 $\frac{3}{4}$  N20

99-30 / 99-30 $\frac{1}{4}$

1.771 - 1.769

32) FNMA 1 $\frac{1}{2}$  620

-0.25 / -3.50

1.769 - 1.734

33) FNMA 1 $\frac{1}{2}$  720

2.25 / 0.25

1.794 - 1.771

34) FHLB 1 $\frac{3}{8}$  920

4.75 / 3.75

1.819 - 1.806

35) FHLMC 1 $\frac{5}{8}$  920

4.25 / 2.75

1.814 - 1.796

36) FNMA 1 $\frac{1}{2}$  N20

5.75 / 2.25

1.829 - 1.791

37) FNMA 1 $\frac{7}{8}$  D20

7.00 / 4.00

1.842 - 1.809

38) FHLB 1 $\frac{3}{8}$  221

8.00 / 3.75

1.852 - 1.806

39) FNMA 1 $\frac{3}{8}$  221

9.75 / 6.00

1.869 - 1.829

40) FNMA 1 $\frac{1}{4}$  521

10.25 / 6.75

1.874 - 1.836

41) FHLB 1 $\frac{1}{8}$  721

13.25 / 8.00

1.904 - 1.849

42) FNMA 1 $\frac{3}{8}$  021

19.50 / 13.00

1.967 - 1.899

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Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000

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# Dealer Inventory

GRAB

97) Settings - 98) Output - 100) Feedback Page 1/1 DPN

**KeyBank Capital Markets** United States Agencies-Bullets @MSG Contributor 16:55:01  
 KeyBank Capital Markets Zoom - 100%

Keybank Capital Markets -> Fixed Income -> Agency Offerings -> Bullets

|     |       |        |        |            | Ask    |         |               |           | Issue |          |
|-----|-------|--------|--------|------------|--------|---------|---------------|-----------|-------|----------|
|     | Size  | Ticker | Coupon | Maturity   | Spread | Price   | Benchmark     | Cusip     | Size  | Notes    |
| 1)  | 1250  | FNMA   | 1.750  | 01/30/2019 | -5.000 | 100.186 | T1 ½ 10/31/19 | 3136FTZ25 | 250mm |          |
| 2)  | 6000  | FNMA   | 1.500  | 08/28/2019 | 4.000  | 99.672  | T1 ½ 10/31/19 | 3136G0YK1 | 105mm |          |
| 3)  | 2650  | FFCB   | 1.550  | 09/27/2019 | 4.000  | 99.750  | T1 ½ 10/31/19 | 3133EG2D6 | 350mm |          |
| 4)  | 12965 | FNMA   | .000   | 10/09/2019 | 26.500 | 96.422  | T1 ½ 10/31/19 | 313586RC5 | 5.8b  | Sub debt |
| 5)  | 11390 | FHLB   | 2.375  | 12/13/2019 | 6.500  | 101.361 | T1 ½ 10/31/19 | 3130A0JR2 | 1b    |          |
| 6)  | 20317 | FHLMC  | 1.500  | 01/17/2020 | 8.500  | 99.507  | T1 ½ 10/31/19 | 3137EAE5  | 3.5b  |          |
| 7)  | 1350  | FNMA   | 1.420  | 02/05/2020 | 10.000 | 99.288  | T1 ½ 10/31/19 | 3136G1C98 | 50mm  |          |
| 8)  | 2320  | FNMA   | 1.750  | 03/06/2020 | 11.000 | 99.987  | T1 ½ 10/31/19 | 3135G0UU5 | 250mm |          |
| 9)  | 500   | FHLMC  | 1.500  | 03/30/2020 | 12.500 | 99.369  | T1 ½ 10/31/19 | 3134G8RP6 | 25mm  |          |
| 10) | 1365  | FHLB   | 1.750  | 06/12/2020 | 0.500  | 99.939  | T1 ¾ 11/15/20 | 313383HU8 | 2.2b  |          |
| 11) | 122   | FNMA   | 1.250  | 08/28/2020 | 7.000  | 98.398  | T1 ¾ 11/15/20 | 3136G3Y58 | 120mm |          |
| 12) | 1500  | FNMA   | 1.500  | 10/15/2020 | 6.000  | 99.065  | T1 ¾ 11/15/20 | 3136G0P62 | 50mm  |          |
| 13) | 25425 | FFCB   | 1.750  | 10/26/2020 | 5.500  | 99.788  | T1 ¾ 11/15/20 | 3133EHJ95 | 427mm |          |
| 14) | 200   | AID    | 1.471  | 09/29/2021 | 24.500 | 97.980  | T1 ¾ 11/15/20 | 903724BL5 | 1b    |          |
| 15) | 11395 | FNMA   | 2.000  | 01/05/2022 | -3.500 | 100.099 | T 2 10/31/22  | 3135G0S38 | 3bln  |          |
| 16) | 15815 | FHLB   | 2.000  | 09/09/2022 | 4.500  | 99.748  | T 2 10/31/22  | 313380GJ0 | 781mm |          |
| 17) | 9400  | FNMA   | 2.000  | 10/05/2022 | 6.000  | 99.675  | T 2 10/31/22  | 3135G0T78 | 2b    |          |
| 18) | 2500  | CANADA | 2.000  | 11/15/2022 | 7.000  | 99.622  | T 2 10/31/22  | 135087H64 | 3b    |          |
| 19) | 2669  | TVA    | 6.750  | 11/01/2025 | 14.000 | 130.797 | T2 ¾ 08/15/27 | 880591CJ9 | 1.35b |          |
| 20) | 1026  | TVA    | 4.625  | 09/15/2060 | 72.000 | 124.604 | T2 ¾ 08/15/47 | 880591EJ7 | 1 bln |          |



# Adjusting the Portfolio

- Bond Swap: Selling one security in order to use the proceeds to purchase another.
- Reasons to swap include:
  - Adjust the portfolio duration
  - Realize capital gains
  - Increase portfolio earnings
  - Purchase additional future value

| CUSIP                              | Issuer | Par Value     | Stated Rate | Maturity Date | Purchase Date | DTM   | YTM   | Market Value  | Accrued Interest At Purchase | Current Principal | Book Value    |
|------------------------------------|--------|---------------|-------------|---------------|---------------|-------|-------|---------------|------------------------------|-------------------|---------------|
| Commercial Paper - Discount        |        |               |             |               |               |       |       |               |                              |                   |               |
| 46640PUB7                          | JPM    | 615,000.00    | 1.170       | 7/11/2017     | 10/14/2016    | 101   | 1.194 | 609,603.38    |                              | 609,603.38        | 609,603.38    |
| 63873JZF0                          | NATXNY | 570,000.00    | 1.460       | 12/15/2017    | 3/23/2017     | 258   | 1.493 | 563,827.85    |                              | 563,827.85        | 563,827.85    |
| CP - Discount Totals               |        | 1,185,000.00  |             |               |               | 176   | 1.338 | 1,173,431.23  | 0.00                         | 1,173,431.23      | 1,173,431.23  |
|                                    |        |               |             |               |               |       |       |               |                              |                   |               |
| Federal Agency - Coupon (NC)       |        |               |             |               |               |       |       |               |                              |                   |               |
| 3137EADH9                          | FHLMC  | 1,000,000.00  | 1.000       | 6/29/2017     | 1/23/2014     | 89    | 1.143 | 1,000,311.00  | Received                     | 995,200.00        | 995,200.00    |
| 3133EEJ50                          | FFCB   | 1,000,000.00  | 1.030       | 5/11/2018     | 5/11/2015     | 405   | 1.099 | 999,312.00    |                              | 997,970.00        | 997,970.00    |
| 3130A6AL1                          | FHLB   | 1,025,000.00  | 1.150       | 8/14/2018     | 8/14/2015     | 500   | 1.185 | 1,025,077.90  |                              | 1,023,944.25      | 1,023,944.25  |
| 3130A5NC9                          | FHLB   | 275,000.00    | 1.300       | 10/30/2018    | 6/11/2015     | 577   | 1.311 | 275,320.38    |                              | 274,901.00        | 274,901.00    |
| 3136G0P54                          | FNMA   | 500,000.00    | 1.200       | 4/17/2019     | 9/4/2015      | 746   | 1.34  | 498,667.50    | Received                     | 497,533.00        | 497,533.00    |
| 3134G93L9                          | FHLMC  | 1,000,000.00  | 1.250       | 8/15/2019     | 9/15/2016     | 866   | 1.25  | 987,674.00    | Received                     | 1,000,000.00      | 1,000,000.00  |
| 313380FB8                          | FHLB   | 500,000.00    | 1.375       | 9/13/2019     | 9/21/2015     | 895   | 1.452 | 498,385.50    | Received                     | 498,516.50        | 498,516.50    |
| 3136G0T68                          | FNMA   | 500,000.00    | 1.330       | 10/24/2019    | 9/21/2015     | 936   | 1.522 | 497,764.50    | Received                     | 496,200.00        | 496,200.00    |
| 3134G9AA5                          | FHLMC  | 375,000.00    | 1.225       | 10/28/2019    | 5/16/2016     | 940   | 1.225 | 371,595.00    | Received                     | 375,000.00        | 375,000.00    |
| 3134G9CP0                          | FHLMC  | 775,000.00    | 1.300       | 2/13/2020     | 5/13/2016     | 1,048 | 1.304 | 767,234.50    |                              | 774,883.75        | 774,883.75    |
| 3130A8QS5                          | FHLB   | 250,000.00    | 1.125       | 7/14/2021     | 7/15/2016     | 1,565 | 1.269 | 242,183.00    | Received                     | 248,262.50        | 248,262.50    |
| 3135G0N82                          | FNMA   | 500,000.00    | 1.250       | 8/17/2021     | 8/19/2016     | 1,599 | 1.334 | 485,649.50    |                              | 497,975.00        | 497,975.00    |
| Fed. Agency (NC) Totals            |        | 7,700,000.00  |             |               |               | 737   | 1.257 | 7,649,174.78  | 0.00                         | 7,680,386.00      | 7,680,386.00  |
|                                    |        |               |             |               |               |       |       |               |                              |                   |               |
| Federal Agency - Coupon (Callable) |        |               |             |               |               |       |       |               |                              |                   |               |
| 313383BF7                          | FHLB   | 450,000.00    | 1.000       | 2/12/2018     | 1/20/2016     | 317   | 1.089 | 449,326.80    | Received                     | 449,190.00        | 449,190.00    |
| 3136G2P27                          | FNMA   | 535,000.00    | 1.150       | 9/28/2018     | 9/30/2015     | 545   | 1.15  | 533,117.87    |                              | 535,000.00        | 535,000.00    |
| 3135G0Q30                          | FNMA   | 270,000.00    | 1.180       | 9/27/2019     | 1/13/2017     | 909   | 1.45  | 267,685.29    | Received                     | 268,069.50        | 268,069.50    |
| 3133EGMP7                          | FFCB   | 250,000.00    | 1.440       | 1/19/2021     | 7/20/2016     | 1,389 | 1.475 | 241,332.00    | Received                     | 249,625.00        | 249,625.00    |
| 3134G9X77                          | FHLMC  | 500,000.00    | 1.470       | 1/27/2021     | 7/27/2016     | 1,397 | 1.47  | 486,197.00    |                              | 500,000.00        | 500,000.00    |
| Fed. Agency (C) Totals             |        | 2,005,000.00  |             |               |               | 861   | 1.297 | 1,977,658.96  | 0.00                         | 2,001,884.50      | 2,001,884.50  |
|                                    |        |               |             |               |               |       |       |               |                              |                   |               |
| Treasury Securities - Coupon       |        |               |             |               |               |       |       |               |                              |                   |               |
| 912828TH3                          | USTN   | 1,000,000.00  | 0.875       | 7/31/2019     | 11/9/2015     | 851   | 1.502 | 989,414.00    | Received                     | 977,343.75        | 977,343.75    |
| 912828S76                          | USTN   | 555,000.00    | 1.125       | 7/31/2021     | 2/21/2017     | 1,582 | 1.842 | 538,263.42    | 362.21                       | 538,089.84        | 538,452.05    |
| Treas. Securities Totals           |        | 1,555,000.00  |             |               |               | 1,111 | 1.623 | 1,527,677.42  | 362.21                       | 1,515,433.59      | 1,515,795.80  |
|                                    |        |               |             |               |               |       |       |               |                              |                   |               |
| Investment Totals                  |        | 12,445,000.00 |             |               |               | 750   | 1.316 | 12,327,942.39 | 362.21                       | 12,371,135.32     | 12,371,497.53 |

# Discounted UST Purchase

GRAB

|  |           |                     |  |                           |            |
|--|-----------|---------------------|--|---------------------------|------------|
| T 1 <sup>1</sup> / <sub>8</sub> 07/31/21 Govt          |           | Settings ▾          |  | Yield and Spread Analysis |            |
|  |           |                     |  | 95 Buy                    | 96 Sell    |
| 1) Yield & Spread                                      |           | 2) Yields           |  | 3) Graphs                 | 4) Pricing |
| 5) Custom  |           | 6) Description      |  |                           |            |
| T 1 <sup>1</sup> / <sub>8</sub> 07/31/21 ( 912828576 ) |           |                     |  | Risk                      |            |
| Price  | 96.953124 | (96.9531243)        |  | Duration                  | 4.341      |
| Settle   | 02/21/17  | Maturity 07/31/2021 |  | Modified Duration         | 4.301      |
| Street Convention                                      |           | 1.842               |  | Risk                      | 4.173      |
| US Government Equivalent                               |           | 1.842               |  | Convexity                 | 0.209      |
| True Yield   |           | 1.840               |  | DV ▾ 01 on 555M           | 232        |
| Equiv 1 ▾ /Yr Compound                                 |           | 1.851               |  | YV ▾ 0.031                | 0.00749    |
| Japanese Yield (Simple)                                |           | 1.868               |  | Invoice                   |            |
| Mmkt (Act/ 36 ▾ )                                      |           |                     |  | Face                      | 555 M      |
| Current Yield  |           | 1.160               |  | Principal                 | 538,089.84 |
| After Tax (Inc 43.400 % CG 23.800 %)                   |           | 1.061               |  | Accrued (21 Days)         | 362.21     |
| Issue Price = 99.734. OID Bond with Market Discount.   |           |                     |  | Total (USD)               | 538,452.05 |

# What's it worth now?

GRAB

Bond Matures on a SATURDAY

T 1 <sup>1</sup>/<sub>8</sub> 07/31/21 Govt

Settings

Yield and Spread Analysis

95 Buy

96 Sell

1) Yield & Spread

2) Yields

3) Graphs

4) Pricing

5) Custom

6) Description

T 1 <sup>1</sup>/<sub>8</sub> 07/31/21 ( 912828S76 )

Price

97-09 <sup>3</sup>/<sub>4</sub> (97.3046875)

Settle

11/09/17

Maturity

07/31/2021

Risk

Duration

3.647

Modified Duration

3.613

Risk

3.527

Convexity

0.150

DV

01 on 555M

YV

0.031

196

0.00886

Invoice

Face

555 M

Principal

540,041.02

Accrued (101 Days)

1,713.64

Total (USD)

541,754.66

Street Convention

1.877

US Government Equivalent

1.877

True Yield

1.875

Equiv 1 /Yr Compound

1.886

Japanese Yield (Simple)

1.900

Mmkt (Act/ 360 )

Current Yield

1.156

After Tax (Inc 43.400 % CG 23.800 %)

1.082

Issue Price = 99.734. OID Bond with Market Discou...

# Potential Liquidity in 2019...

GRAB

T 1 1/8 07/31/21 Govt

Settings

Yield and Spread Analysis

95 Buy

96 Sell

1) Yield & Spread

2) Yields

3) Graphs

4) Pricing

5) Custom

6) Description

T 1 1/8 07/31/21 ( 912828576 )

Price 96.953124 (96.953124)

Settle 07/31/19 Maturity 07/31/2021

Street Convention 2.700

US Government Equivalent 2.700

True Yield 2.693

Equiv 1 /Yr Compound 2.718

Japanese Yield (Simple) 2.731

Mmkt (Act/ 36 )

Current Yield 1.160

After Tax (Inc 43.400 % CG 23.800 %) 1.562

Issue Price = 99.734. OID Bond with Market Discount.

Risk

Duration 1.983

Modified Duration 1.957

Risk 1.897

Convexity 0.048

DV 01 on 555M 105

YV 0.031 0.01647

Invoice

Face 555 M

Principal 538,089.84

Accrued (0 Days) 0.00

Total (USD) 538,089.84

# Potential Liquidity in 2020...

GRAB

T 1 1/8 07/31/21 Govt

Settings

Yield and Spread Analysis

95 Buy

96 Sell

1) Yield & Spread

2) Yields

3) Graphs

4) Pricing

5) Custom

6) Description

T 1 1/8 07/31/21 ( 912828576 )

Price 96.953124 (96.953124)

Settle 07/31/20 Maturity 07/31/2021

Street Convention 4.270

US Government Equivalent 4.270

True Yield 4.246

Equiv 1 /Yr Compound 4.315

Japanese Yield (Simple) 4.302

Mmkt (Act/ 36 ) 4.233

Current Yield 1.160

After Tax (Inc 43.400 % CG 23.800 %) 2.478

Issue Price = 99.734. OID Bond with Market Discount.

Risk

Duration 0.997

Modified Duration 0.976

Risk 0.947

Convexity 0.014

DV 01 on 555M 52.53

YV 0.031 0.03301

Invoice

Face 555 M

Principal 538,089.84

Accrued (0 Days) 0.00

Total (USD) 538,089.84

# Cash Basis Portfolio Accounting

- Public entity investment reports use cash basis portfolio accounting.
  - Purchase cost remains level to the maturity or sale date.
    - Premiums are not amortized; discounts are not accreted (Exception: Premiums may be amortized over the life of the security through the application of realized income).
  - Income is reported when received (realized).
    - Purchase cost is reduced by the amount of purchased accrued interest at the next interest payment date.
  - Realized income is shown as proceeds minus cost.

# Reconciling Income

- A “pay-in” is made by the Public Entity evidencing a receipt of funds.
  - Interest Income - Coupon payments received by the custodian.
    - First pay-in will be coupon payment received less the amount of purchased accrued interest:  $\$3,121.88 - 362.21 = \$2,759.67$
    - Pay-in complete coupon payment on all subsequent payment dates.
  - Capital Gains - The difference between the proceeds (maturity, sale, called bond) and the original investment cost.
    - If bond is held until maturity, par value minus cost:  
 $\$555,000.00 - \$538,089.84 = \$16,910.16$

\$



# UST Purchase at a Premium

|   |                   |                   |                           |
|---|-------------------|-------------------|---------------------------|
| GRAB  |                   |                   |                           |
| T 2 1/4 07/31/21 Govt                               |                   | Settings          | Yield and Spread Analysis |
|   |                   | 95 Buy            | 96 Sell                   |
| 1) Yield & Spread                                   |                   | 2) Yields         | 3) Graphs                 |
| 4) Pricing  |                   | 5) Custom         | 6) Description            |
| T 2 1/4 07/31/21 ( 912828WY2 )                      |                   | Risk              |                           |
| Price   | 101.732 (101.732) | Duration          | 4.249                     |
| Settle  | 02/21/17          | Modified Duration | 4.210                     |
| Maturity  | 07/31/2021        | Risk              | 4.289                     |
| Street Convention                                   | 1.842             | Convexity         | 0.203                     |
| Treasury Convention                                 | 1.842             | DV 01 on 555M     | 238                       |
| True Yield  | 1.840             | YV 0.031          | 0.00729                   |
| Equiv 1 /Yr Compound                                | 1.850             | Invoice           |                           |
| Japanese Yield (Simple)                             | 1.828             | Face              | 555 M                     |
| Mmkt (Act/ 36 )                                     |                   | Principal         | 564,612.60                |
| Current Yield                                       | 2.212             | Accrued (21 Days) | 724.41                    |
| After Tax (Inc 43.400 % CG 23.800 %)                | 1.043             | Total (USD)       | 565,337.01                |
| Issue Price = 100.000. Bond Purchased with Premium. |                   |                   |                           |

# Liquidity with Premium Purchase?

|  |                        |                   |                           |
|--|------------------------|-------------------|---------------------------|
| GRAB   |                        |                   |                           |
| T 2 ¼ 07/31/21 Govt                                    |                        | Settings          | Yield and Spread Analysis |
|  |                        | 95 Buy            | 96 Sell                   |
| 1) Yield & Spread                                      | 2) Yields              | 3) Graphs         | 4) Pricing                |
| T 2 ¼ 07/31/21 ( 912828WY2 )                           |                        | 5) Custom         | 6) Description            |
| Price  | 99.129574 (99.1295738) | Risk              |                           |
| Settle   | 07/31/19               | Maturity          | 07/31/2021                |
| Street Convention                                      | 2.700                  | Duration          | 1.967                     |
| Treasury Convention                                    | 2.700                  | Modified Duration | 1.941                     |
| True Yield   | 2.693                  | Risk              | 1.924                     |
| Equiv 1 /Yr Compound                                   | 2.718                  | Convexity         | 0.048                     |
| Japanese Yield (Simple)                                | 2.708                  | DV 01 on 555M     | 107                       |
| Mmkt (Act/ 36 )  |                        | YV 0.031          | 0.01625                   |
| Current Yield  | 2.270                  | Invoice           |                           |
| After Tax (Inc 43.400 % CG 23.800 %)                   | 1.530                  | Face              | 555 M                     |
| Issue Price = 100.000. Non OID Bond with Mkt Discount. |                        |                   |                           |
|  |                        | Principal         | 550,169.13                |
|  |                        | Accrued (0 Days)  | 0.00                      |
|  |                        | Total (USD)       | 550,169.13                |

# Investment Management Process

- Ensure a large enough cash position is kept to meet operating needs, but that it is not excessive.
- Manage the core portfolio in conjunction with macro views on the direction of interest rates.
- Build a portfolio of liquid investments that generates stable and competitive yields over time.