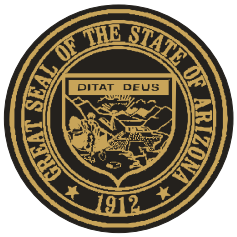
OFFICE OF THE

ARIZONA STATE TREASURER



EILEEN I. KLEIN

TREASURER

NOVEMBER 2018

Presented To:

Arizona State Board of Investment

December 27, 2018

STATE BOARD OF INVESTMENT

A G E N D A

December 27, 2018

1. Call to Order; Opening Remarks ……Eileen I. Klein, Chair
2. Approval of Minutes of November 30, 2018 BOI Meeting
3. Investment Outlook and Summary Review of Treasurer's Monthly Reports
   A. State Agency Earnings Distributions ……... Dennis Stevenson, CIO
      State Agency Operating Average Invested Balances
      State Agency Investments and Performance Reports
   B. LGIP Yield Analysis …… Jake Richardson, Portfolio Manager
      LGIP Pools Investments and Performance Reports
   C. Endowment Earnings Distributions …….Tim White, Director of Endowments
      Land Sales Monthly Proceeds Endowment Funds
      Endowment Investments and Performance Reports
4. Approval of November 2018 Report
5. General Business
   A. Cash Flow Analysis Presentation…….……Mark Swenson, Deputy Treasurer
6. Treasurer's Report ……. Eileen I. Klein, Chair
7. Market Outlook.....Harry Papp, Board Member
8. Call to the Public
9. Notice of Next Meeting
10. Adjournment

REPORT OF THE STATE TREASURER

FOR

December 27, 2018

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Minutes of
BOARD OF INVESTMENT MEETING

The regular meeting of the State Board of Investment was held on November 30, 2018 in the Office of the State Treasurer, 1700 West Washington, State Capitol, West Wing, Treasurer's Conference Room, Phoenix, Arizona. Treasurer Klein called the meeting to order at approximately 1:30 p.m.

Members Present:

Eileen I. Klein, Chair, State Treasurer, Via-Teleconference
Harry A. Papp, CFA & Managing Partner, L. Roy Papp & Associate
Beth Ford, Treasurer, Pima County
Robert Charlton, Superintendent, Department of Financial Institutions

Designee Present:

Clark Partridge, Comptroller, Arizona Department of Administration

Members Absent:

Gilbert Davidson, Interim Director, Arizona Department of Administration

1. **Call to Order; Opening Remarks:**
   Treasurer Klein called the November 30, 2018 BOI meeting to order at approximately 1:32 p.m.

2. **Approval of Minutes:**
   Mr. Papp made a motion to approve the October 30, 2018 minutes. Mr. Charlton seconded the motion. Motion carried.

3. **Investment Outlook and Summary Review of Treasurer's Monthly Reports:**

   A. **State Agency Earnings Distributions, Operating Average Invested Balances, Investments and Performance Reports**
   Chief Investment Officer, Dennis Stevenson, distributed his outlook and highlighted the results of the State Agency performance for the month of October 2018. See memo.

   B. **LGIP Yield Analysis, Pools Investments and Performance Reports**
   Portfolio Manager, Jake Richardson, distributed his outlook and highlighted the results for the Local Government Investment Pools performance for the month of October 2018. See memo.

   C. **Endowment Earnings Distributions, Land Sales Monthly Proceeds, Investment and Performance Reports**
   Director of Endowments, Tim White, distributed his outlook and highlighted the results for the Endowment performance for the month of October 2018. See memo.

4. **Approval of October 2018 Report:**
   Mr. Papp made a motion to approve the October 2018 Report. Ms. Ford seconded the motion. Motion carried.

5. **Treasurers Report:**
   Treasurer Klein provided the Board with a brief Treasurer's Report which included an update on the operations of the office.

6. **Proposed Changes to the Investment Policy:**
   Investment Analyst, Eric Stivers presented the Proposed Changes to the Investment Policy to the Board.

   Ms. Ford made a motion to approve the Proposed Changes to the Investment Policy. Mr. Papp seconded the motion. Motion carried.

7. **Budget Outlook:**
   Mr. Richard Stavneak, Director, Joint Legislative Budget Committee, provided the Board with a Budget Outlook presentation.

8. **Market Outlook:**
   Mr. Papp provided the Board with a brief Market Outlook.

9. **Call to the Public:**
   There was no Public comment.

10. **Notice of Next Meeting:**
    Treasurer Klein advised the Board that the next regular meeting of the Board of Investment will be Thursday, December 27, 2018 at 1:30 p.m. at 1700 West Washington, State Capitol, West Wing, Treasurer's Conference Room, Phoenix, Arizona.

11. **Adjournment:**
    Mr. Partridge made a motion to adjourn the BOI meeting. Mr. Papp seconded the motion. Upon unanimous approval the BOI Meeting was adjourned at 3:14 p.m.

Respectfully Submitted by:

Christine Thurston

Christine Thurston

Approved by:

Eileen I. Klein
Chair

27 December 2018
Date

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OFFICE OF THE
ARIZONA STATE TREASURER

EILEEN I. KLEIN
TREASURER

Investment Summary | November 2018

Overall Performance – Where We Are Now |

- State Agency Pools:
  - Total assets: $6,155,585,448
  - November earnings distributed: $11,167,066 (+82.48% YoY)
  - Fiscal YTD earnings distributed: $50,805,934 (+71.34%)

Outlook |

The Federal Reserve did raise interest rates .25bp. on December 19 as expected. The committee also indicated future rate increases will be data dependent in the coming year with a high likelihood of at least two more hikes. The Federal reserve has two mandates; low employment and maintain control of inflation. Unemployment rates are at historic lows and the Fed is calling for a 2%+ inflation rate and a 2% GDP. Currently our country is the only developed economy raising interest rates. Most European nations ten-year sovereign debt trades at/or near zero interest. This will continue to cause foreign capital flows to be invested in American debt and assets.

Strategy: Monthly Commentary |

After the latest rate increase we have added duration largely through one- and two-year treasuries. We have already allocated some of our investments to fixed and floating rate US government and corporate notes and bonds that have interest rate floors or put provisions as protection against a change in interest rate trends. This protection gives us upside participation and downside protection for a minimal cost to yield.

Alternative Scenarios |

There are several scenarios we continue to monitor which could change our expectations.

Federal government shutdown due to impasse between executive and legislative branches

The Chinese trade war escalates.

A massive jolt to inflation due to rising world food or crude oil costs.

European nation leaves the Euro.

Dennis Stevenson, CIO

State Agency Investment Pool Balances |

	November 30, 2018	November 30, 2017	FY Change
Pool 2 FF&C	$1,141,877,851	$1,077,474,064	+$64,403,787
Pool 3 Internal	$1,746,380,500	$1,314,822,107	+$431,558,393
Pool 3 External	$106,375,341	$104,739,752	+$1,635,589
Pool 4 Gov.	$1,240,387,903	$1,007,313,928	+$233,073,975
Pool 10 Internal	$1,079,952,050	$943,749,414	+$136,202,636
Pool 10 External	$98,343,934	$216,271,204	-$117,927,270
Pool 12 CAWCD	$415,813,865	$389,167,874	+26,645,991
Pool 16 ECDHB	$326,454,001	$348,117,941	-$21,663,940
TOTAL STATE AGENCY	**$6,155,585,448**	**$5,401,656,287**	**+$753,929,161**

Dennis Stevenson, CIO

Local Government Investment Pools (LGIP) Summary

Overall Performance – Where We Are Now |

- Local Government Investment Pools:
  - Total assets: $3,441,628,219
  - Total earnings: $6,158,519; +$2.9MM over November 2017
  - Total fiscal year yields:
    - Pool 5: 2.14%; 107bps higher than November 2017
    - Pool 7: 1.98%; 102bps higher than November 2017
    - Pool 500: 2.31%; 62bps higher than November 2017
    - Pool 700: 1.97%; 51bps higher than November 2017

Strategy: Short-term Pools 5 & 7 |

The short-end of the yield curve moved higher this month as we saw another 25bp hike in the Fed Funds rate in December. This move will continue to increase the yields and earnings of our short-term investment pools. In anticipation of this, we had been targeting the FOMC meeting and now have over half a billion in securities maturing this week to be reinvested at higher rates. The LGIP overall saw earnings increase $144 million MoM, with Pool 7 increasing more than $240 million and Pool 5 decreasing by $100 million. Our participants are very active in these two pools, which are intended to be used like a checking account, so we will maintain a daily liquidity target of 15%. Pool 5 will continue to invest in high-quality assets maintaining a 5 to 10% U.S. Treasury target allocation. Pool 7, our full faith and credit fund, will continue to ladder out maturities gradually, slightly extending duration over time.

Strategy: Intermediate Pools 500 & 700 |

The intermediate LGIP pools will remain defensive but look to start extending duration heading into 2019. The Federal Reserve changed their narrative in the latest December meeting, being more data dependent and monitoring more global and financial developments for future economic outlook. Pool 500 will maintain its 5% monthly liquidity target for participant action. We will begin to add fixed-rate high quality assets in this pool. Pool 500 will continue to target a 5% U.S. Treasury allocation for safety and liquidity purposes. Pool 700 will target a 10 to 15% monthly liquidity target. We will manage duration with cash in the first half of 2019 prior to laddering out maturities, via U.S. Treasury bills and notes, as we progress throughout the new year.

LGIP Investment Pool Balances |

	November 30, 2018	November 30, 2017	FY Change
Pool 5 LGIP	$1,598,197,810	$1,424,724,276	+$173,473,534
Pool 7 LGIP FF&C	$1,358,703,854	$1,455,193,232	-$96,489,378
Pool 500 LGIP Med.	$348,739,130	$329,350,743	+$19,388,387
Pool 700 LGIP Med FF&C	$135,987,425	$141,307,158	-$5,319,733
TOTAL LGIP	**$3,441,628,219**	**$3,350,575,409**	**+$91,052,810**

Jake Richardson, Portfolio Manager

Endowment Summary

Overall Performance – Where Are We Now |

- Highlights:
  - PLETF 10-year annualized total return now 9.59%
  - PLETF 1-year annualized total return beats bench by 54bps
  - Prop 123 monthly distributions highest ever

Big Picture:

- PLETF fair market value at $5,857,470,397
- Monthly distributions continue at record levels of $28.8MM
- FYTD2019 distribution increased from $115.1MM to $143.9MM; up $11.4MM vs FYTD2018
- PLETF outperforming benchmark by +27bps FYTD; +54bps for the trailing 12 months
- Total annualized 1-Year return was 2.73% vs Benchmark 2.19% – better by +54bps overall
- Annualized 10-Year total return through October is 9.59% versus October at 9.29% - better by+ 30bps
- Fair Market Value up $102MM MoM; Down $4.1MM YoY
- Unrealized Gains: $3.03B (Up $44.6MM or 1.49% YoY)
- November Realized Gains: $18.4MM
- November TRR PLETF 1.53% vs Benchmark 1.56% - just shy of the benchmark by 3bps
- Pool 205 lagged the FTSE BIG Index by 4.5bps; **+168bps** YTD
- Three out of five PLETF investment pools outperformed benchmarks in November

Equity Strategy: Stay the Course; Long-Term Horizon |

We continue to view our equity exposure as a long-term driver of returns for the PLETF. Exposure to U.S. equities has been a tremendous value-add over time and though markets periodically move through market correction phases, long-term equilibrium has rewarded patient investors with positive returns that outpace inflation and build trust value in *real* terms. The period beginning in early October has clearly dealt investors with increased volatility. SmallCaps and MidCaps have fallen into official bear market status (-20% from peak). However, as equity prices have dropped, valuation multiples are making them appear cheaper on a price/earnings (P/E) basis which historically entice investors to return and reward those that stayed the course. Our equity exposure was 62.16% at month-end. SmallCaps have historically outperformed the asset classes we hold. As the PLETF is invested in perpetuity, our goal is to take advantage of this historic outperformance over time. Since inception, our SmallCap exposure has returned 12.29% (+8bps MoM), still outperforming the MidCap exposure at 9.35% (+15bps MoM), our LargeCap exposure at 5.18% (+9bps MoM), and our fixed income return of 4.50% (+1bp MoM). We will continue to passively invest in the individual components of the various indices per our investment policy on a market capitalization-weighted basis, although we are examining the merits of other strategies including equal capitalization-weighted and low-volatility index components.

Fixed Income Strategy: Add UST Duration; Continue to Lighten Corporates |

With the recent inversion of the 2/5's portion of the yield curve and market concern about fed actions, trade tensions, and global slowing, bonds have rallied significantly. While our significant YTD outperformance has come from defensive positioning against rising rates with shorter durations, we will likely reduce our relatively short duration position versus our benchmark, in fact we reduced it by 0.07 years MoM . Our portfolio is extending as Prop 123 distributions are being met and could extend much greater should we need to rebalance by selling fixed income

Tim White, Director of Endowments

into this strength and buy equities into recent weakness. We followed our strategy of lightening up corporate exposure and increasing UST exposures by letting corporate bonds mature and moving into short cash equivalents within Pool 123. We now hold four months of liquidity in that pool for timely school payments. Credit spreads did widen under stress as we anticipated.

Bearing this in mind, we think interest rates may still eventually rise but the curve will stay flat in line with wall street economists' consensus. We feel it prudent to have room for duration extension from possible sale of shorter bonds in Pool 205 should we trigger 42.5% fixed income exposure at month end. Our duration is currently shorter than the benchmark by 2.24 years at 3.60 years (-0.04 MoM) versus 5.84 (-0.11MOM) for the SBBIG Index; -0.07 net change MoM. Note the forward-looking Bloomberg Bond Yield Forecast compiled by averaging 56 Wall Street economists' forecasts:

95) Chart 96) Export Page 1/3 Bond Yield Forecasts

Region G7 Spread 2 Year - 10 Year

	Rate	Market Yld	Q4 18	Q1 19	Q2 19	Q3 19	Q4 19	Q1 20	Q2 20	Q3 20	Q4 20	Q1 21
	United States											
1)	US 30-Year	3.03	3.30	3.35	3.46	3.49	3.51	3.62	3.65	3.66	3.64	3.65
2)	US 10-Year	2.79	3.13	3.14	3.24	3.28	3.29	3.35	3.36	3.39	3.37	3.46
3)	US 5-Year	2.64	2.95	3.05	3.14	3.20	3.26	3.32	3.30	3.32	3.35	
4)	US 2-Year	2.64	2.92	2.95	3.06	3.10	3.12	3.16	3.18	3.20	3.15	3.16
5)	US 3-Month Libor	2.82	2.74	2.85	3.01	3.12	3.19	3.19	3.19	3.20	3.16	3.21
6)	Fed Funds Rate - Upper Bound	2.50	2.50	2.70	2.90	2.95	3.05	3.05	3.00	3.00	2.95	2.90
7)	Fed Funds Rate - Lower Bound	2.25	2.25	2.43	2.63	2.73	2.81	2.78	2.75	2.75	2.72	2.69
	2 Year - 10 Year Spread	0.15	0.21	0.19	0.18	0.18	0.17	0.18	0.18	0.19	0.22	0.30

Endowment Monthly Land Sale Proceeds |

- +$42.2 MM in November.
- +$17.4 MM vs October.
- +$60.6 MM FYoY

Endowment Prop 123 Distributions |

- $28.8 MM total/$26.8 MM for K-12 successfully distributed on time from Pool 123
- FYTD K-12 distribution $133.9MM; up $10.6MM YoY
- Pool 123 mechanism working well (increased to 3-4 months laddered liquidity)

Pool Performance |

Portfolio 3Yr standard deviation was 6.34 versus benchmark at 6.50; Portfolio is less risky/volatile versus benchmark.

Equity/Fixed Income Pools:

- Pool 201 LargeCap Equity matched the S&P 500 at +2.04%.
- Pool 203 MidCap Equity underperformed the S&P 400 by 6bps MOM at 3.06%.
- Pool 204 SmallCap Equity outperformed the S&P 600 by 3bps MOM at 1.53%.
- Pool 205 significantly underperformed the SBBIG Index by 4.5bps MOM; continues to outperform by +168bps YTD.
- Pool 123 returned +0.32% for November, outperforming benchmark by 13bps.

Tim White, Director of Endowments

EARNINGS DISTRIBUTION - INVESTMENT POOLS
NOVEMBER 2018

Recipient	Earnings Distributed NOVEMBER 2018	Fiscal YTD 18/19	Fiscal YTD 17/18	Change from Previous Year	Fiscal YTD Investment Management Fees Received
General Fund *	$3,546,072	$15,217,261	$7,908,531	92.4%	
2 State Agencies - Full Faith & Credit	1,646,530	7,373,239	3,939,115	87.2%	210,168
3 State Agencies - Diversified (Combined) **	1,804,120	9,096,279	5,968,059	52.4%	371,912
4 State Agencies - Gov	2,017,587	7,995,644	3,966,193	101.6%	249,358
5 LGIP	2,993,906	12,957,333	5,422,155	139.0%	332,070
7 LGIP Gov	2,181,690	9,567,088	4,995,827	91.5%	274,604
9A Public School Credit Enhancement ***	0	0	0	0	23,017
10 Restricted Operating	782,344	3,875,771	2,497,662	55.2%	272,575
12 CAWCD Medium-Term	797,293	3,859,426	2,606,768	48.1%	91,617
16 ECDH Medium-Term	683,393	3,388,314	2,764,717	22.6%	85,570
Subtotal	**$16,452,936**	**$73,330,355**	**$40,069,027**	**83.0%**	**$1,910,889**
NAV POOL					
500 LGIP - Med Term	681,487	3,359,242	2,320,461	44.8%	79,802
700 LGIP - FF&C Med Term	191,162	899,314	881,262	2.0%	30,557
Total	**$17,325,585**	**$77,588,911**	**$43,270,750**	**79.3%**	**$2,021,248**
NOVEMBER 2017 TOTALS	**$9,299,212**				**$1,877,024**

* Note: Pool 15 AHCCCS Operating Earnings are reported in General Fund
** Note: Pool 15 AHCCCS Operating Management Fees are reported in Pool 3 State Agencies Diversified (Combined)
*** Note: Pool 9A represents $80 million invested in School Funding Obligations; earnings on this investment revert to the General Fund

OPERATING MONIES
AVERAGE INVESTED BALANCE
Through November 30, 2018
(in millions)

Month	Fiscal Year 2016/2017	Fiscal Year 2017/2018	Fiscal Year 2018/2019
JULY	$2,012	$1,635	$1,824
AUGUST	1,504	1,303	1,495
SEPTEMBER	1,694	1,455	1,594
OCTOBER	1,672	1,473	1,813
NOVEMBER	1,633	1,417	1,912
DECEMBER	1,693	1,400	
JANUARY	2,255	2,140	
FEBRUARY	2,306	2,244	
MARCH	1,968	1,937	
APRIL	1,961	1,980	
MAY	2,215	2,279	
JUNE	2,147	2,407	
Y-T-D Average	**$1,720**	**$1,467**	**$1,728**
Full Year Average	**$1,922**	**$1,806**	

STATE AGENCY POOLS
PORTFOLIO EARNINGS ANALYSIS
NOVEMBER 2018

FUND	DESCRIPTION	Current Month 11/30/18	Prior Month 10/31/18	Prior Year 11/30/17	Net Asset Value Per Share
2	STATE AGENCIES - FULL FAITH & CREDIT	1,825,365	1,617,542	906,615	0.9906
3	STATE AGENCIES - DIVERSIFIED				
	INTERNAL MANAGERS	2,880,748	2,868,025	1,403,746	0.9948
	EXTERNAL MANAGERS	193,694	193,826	134,627	0.9947
	FUND 3 TOTAL	3,074,441	3,061,850	1,538,373	0.9948
4	STATE AGENCIES - GOV	2,406,575	1,922,669	993,698	0.9946
9A	PUBLIC SCHOOL CREDIT ENHANCEMENT	185,834	170,983	97,753	0.9906
10	RESTRICTED OPERATING				
	INTERNAL MANAGERS	2,005,266	2,003,518	1,218,356	0.9924
	EXTERNAL MANAGERS	126,239	138,727	178,768	1.0014
	FUND 10 TOTAL	2,131,505	2,142,245	1,397,124	0.9949
12	CAWCD MEDIUM-TERM	797,293	804,244	565,036	0.9943
15	AHCCCS OPERATING	62,660	79,898	60,396	N/A
16	ECDH MEDIUM-TERM	683,393	686,303	560,580	0.9862
	TOTAL STATE AGENCIES	11,167,066	10,485,736	6,119,574	

STATE AGENCY POOLS
PORTFOLIO YIELD ANALYSIS
NOVEMBER 2018

FUND	DESCRIPTION	Current Month 11/30/18	Prior Month 10/31/18	Prior Year 11/30/17
2	**STATE AGENCIES - FULL FAITH & CREDIT**	2.20%	2.03%	**1.25%**
	50% Trailing 3-mo T-bill /	2.56%	2.51%	**1.41%**
	50% Bloomberg Barclays 1-3 year UST			
3	**STATE AGENCIES - DIVERSIFIED**			
	INTERNAL MANAGERS	2.37%	2.24%	**1.42%**
	EXTERNAL MANAGERS	2.20%	2.14%	**1.57%**
	COMBINED	2.36%	2.23%	**1.43%**
	50% 1 month T-bill /	2.63%	2.59%	**1.46%**
	50% Bloomberg Barclays 1-3 year US Agg			
4	**STATE AGENCIES - GOV**	2.34%	1.87%	**1.29%**
	50% Trailing 3-mo T-bill /	2.56%	2.51%	**1.41%**
	50% Bloomberg Barclays 1-3 year US Gov			
9A	**PUBLIC SCHOOL CREDIT ENHANCEMENT**	2.20%	2.03%	**1.25%**
10	**RESTRICTED OPERATING**			
	INTERNAL MANAGERS	2.26%	2.21%	**1.58%**
	EXTERNAL MANAGERS	1.42%	1.39%	**0.96%**
	COMBINED	2.19%	2.13%	**1.46%**
	50% Trailing 3-mo T-bill /	2.66%	2.59%	**1.49%**
	50% Bloomberg Barclays 1-3 year US Agg			
12	**CAWCD MEDIUM-TERM**	2.39%	2.35%	**1.83%**
	25% S&P LGIP Index /	2.84%	2.78%	**1.66%**
	75% Bloomber Barclays 1-3 year US Agg			
15	**AHCCCS OPERATING**	0.61%	0.93%	**0.60%**
16	**ECDH MEDIUM-TERM**	2.51%	2.44%	**1.96%**
	25% S&P LGIP Index /	2.84%	2.78%	**1.66%**
	75% Bloomber Barclays 1-3 year US Agg			

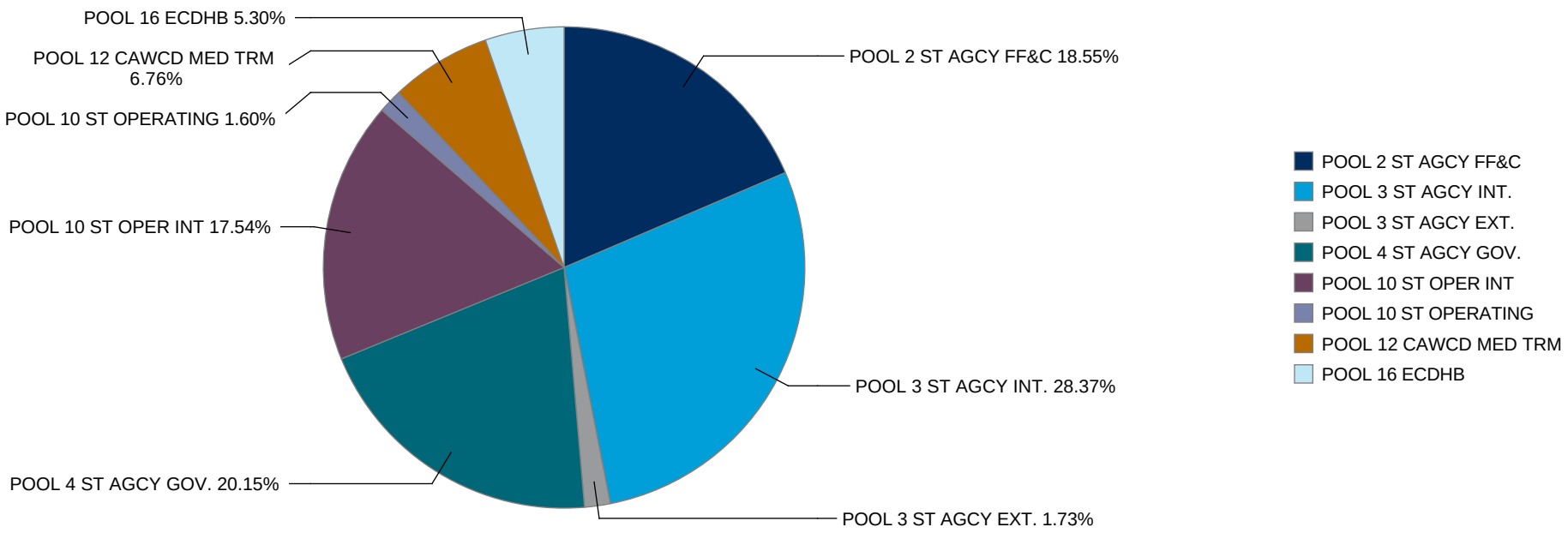
NOTE - all benchmark measurements were revised in October 2018; prior period benchmarks were also changed to reflect the revised measures

OFFICE OF THE ARIZONA STATE TREASURER

November 30, 2018

STATE AGENCY

Manager Allocation



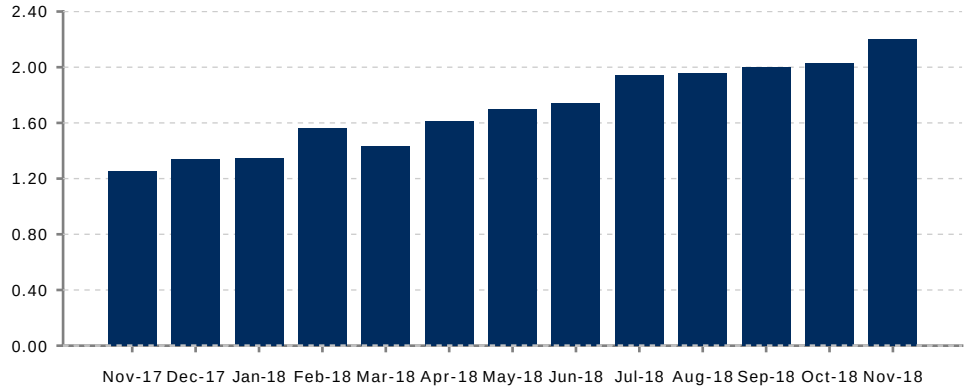
	Market Value	% of Portfolio
POOL 2 ST AGCY FF&C	1,141,877,851	18.6
POOL 3 ST AGCY INT.	1,746,380,500	28.4
POOL 3 ST AGCY EXT.	106,375,341	1.7
POOL 4 ST AGCY GOV.	1,240,387,903	20.2
POOL 10 ST OPER INT	1,079,952,050	17.5
POOL 10 ST OPERATING	98,343,934	1.6
POOL 12 CAWCD MED TRM	415,813,865	6.8
POOL 16 ECDHB	326,454,001	5.3
TOTAL STATE AGENCY	6,155,585,448	100.0

OFFICE OF THE ARIZONA STATE TREASURER

November 30, 2018

POOL 2 ST AGCY FF&C

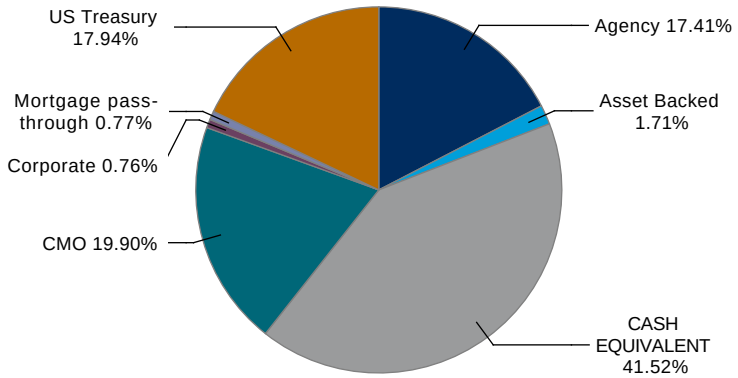
Net Yield



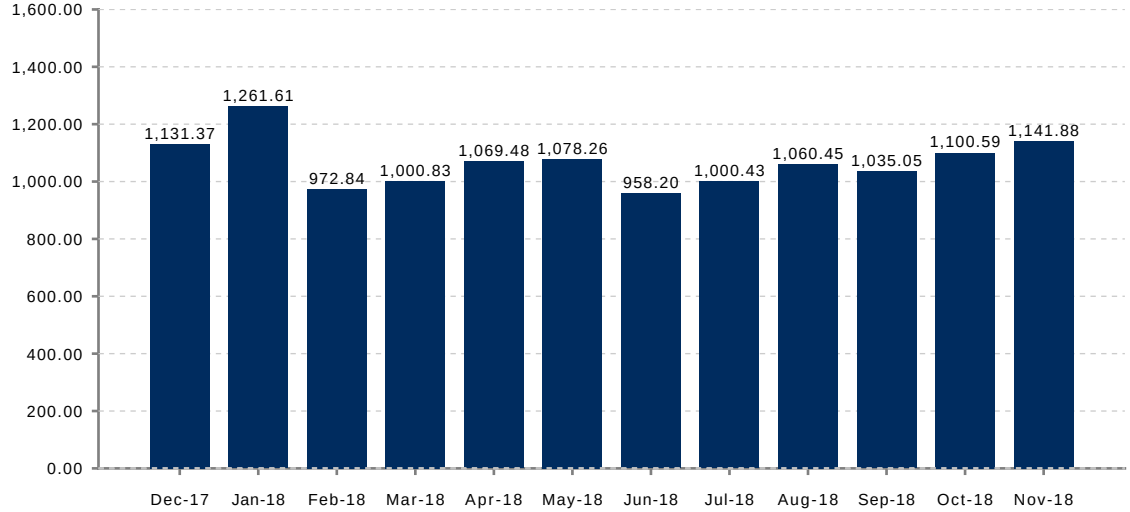
	Current Mth	Prior Mth	1 Year Ago
POOL 2 ST AGCY FF&C	2.20	2.03	1.25

Asset Allocation

	Ending Market Value
POOL 2 ST AGCY FF&C	1,141,877,851



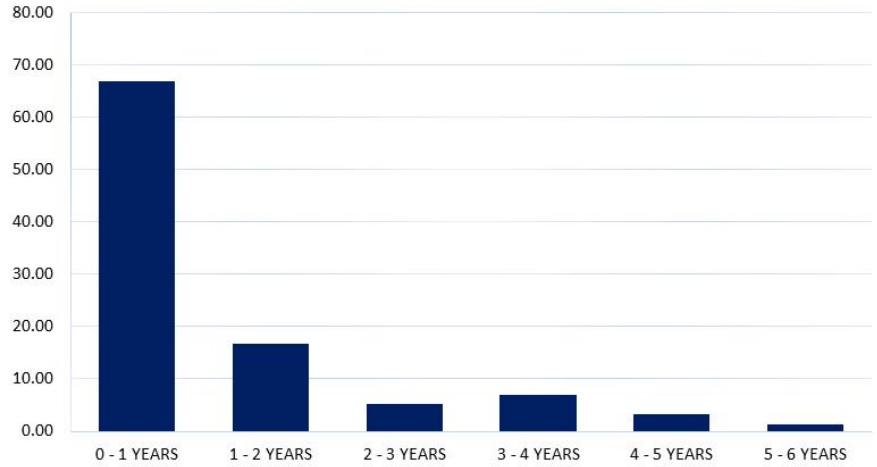
Net Asset Values over Time ($MM)



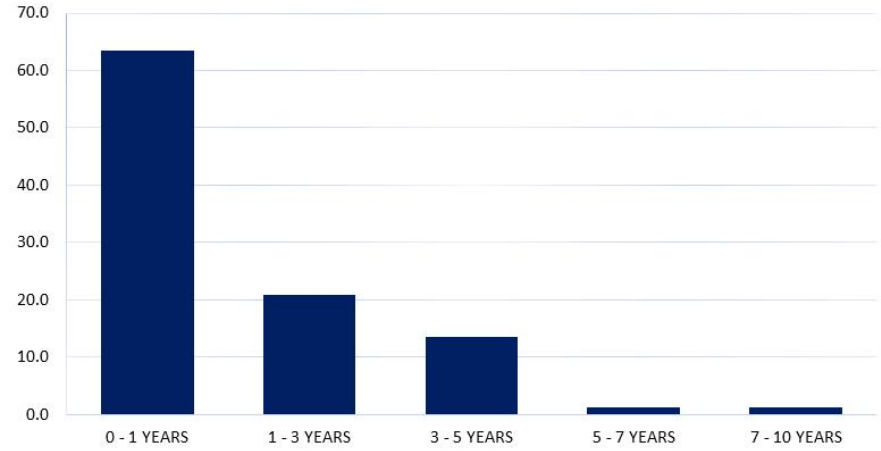
Top 10 Holdings

Security Name	Ending Market Value	% of Portfolio
POOL 2 ST AGCY FF&C		
DAIWA CAPITAL MARKETS	200,012,611	17.52
CREDIT AGRICOLE REPO	102,790,337	9.00
US TREASURY N/B	80,264,951	7.03
TREASURY BILL	69,180,222	6.06
MIZUHO	66,905,662	5.86
WELLS FARGO REPO	55,013,322	4.82
UNITED STATES TREAS BI	44,496,846	3.90
TREASURY BILL	39,364,689	3.45
US TREASURY N/B	25,140,455	2.20
OVERSEAS PRIVATE INV C	25,119,260	2.20

Duration Distribution



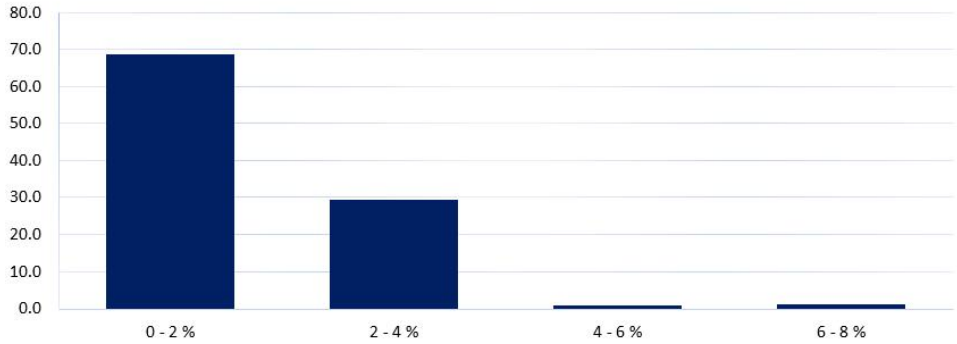
Expected Maturity Distribution



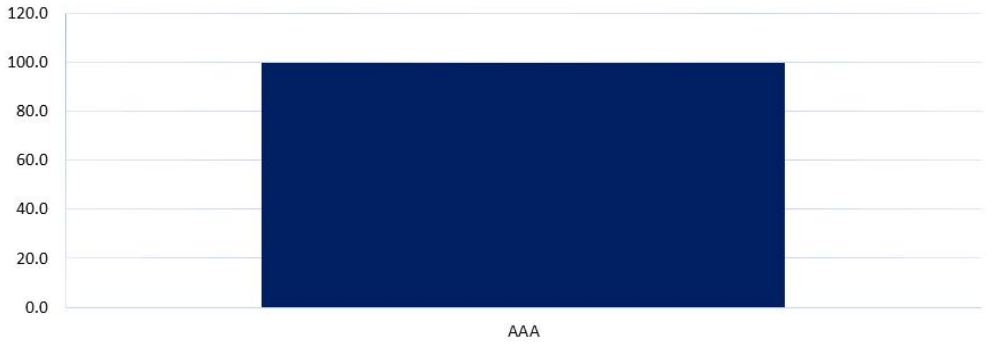
Portfolio Level Characteristics

	POOL 2 ST AGCY FF&C
Effective Maturity	1.15
Coupon	1.11
Effective Duration	0.97
Quality Rating (Moody's)	AAA

Coupon Distribution



Rating Distribution



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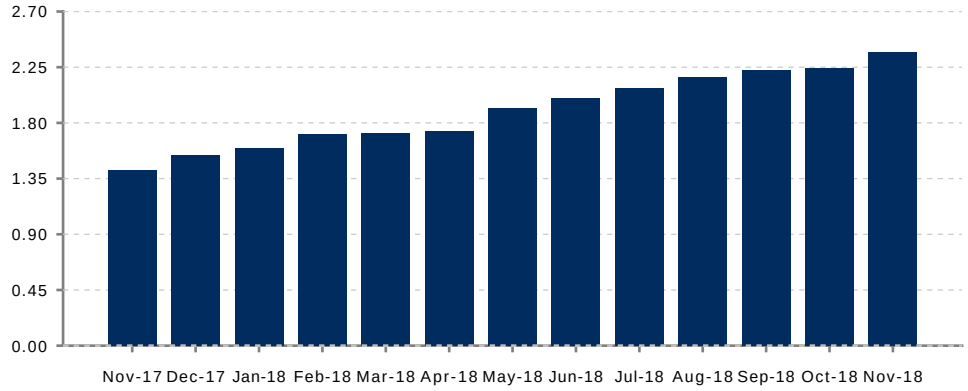
POOL 3 ST AGCY INT.

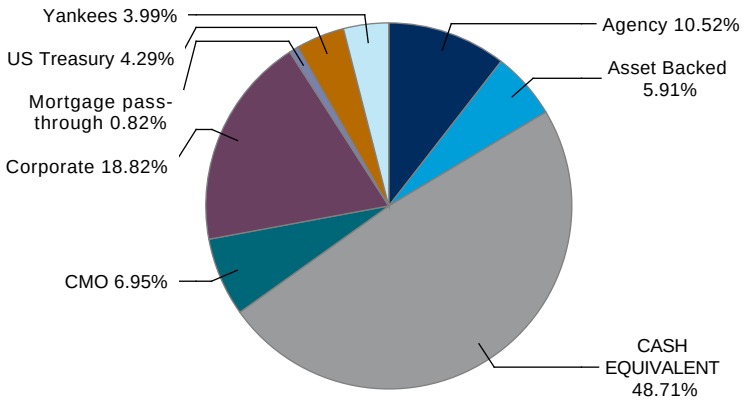
Net Yield



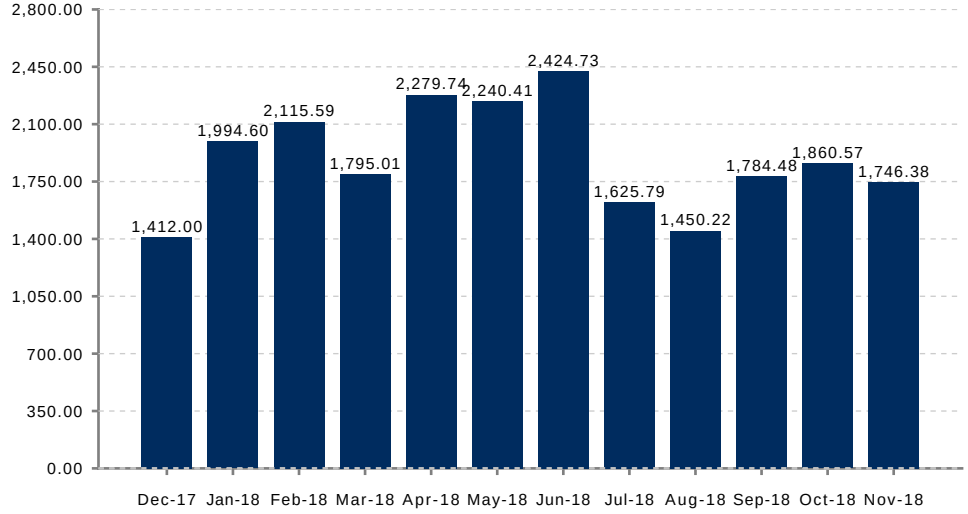
	Current Mth	Prior Mth	1 Year Ago
POOL 3 ST AGCY INT.	2.37	2.24	1.42

Asset Allocation

	Ending Market Value
POOL 3 ST AGCY INT.	1,746,380,500



Net Asset Values over Time ($MM)



Top 10 Holdings

Security Name	Ending Market Value	% of Portfolio
POOL 3 ST AGCY INT.		
SOUTH STREET REPO	300,019,583	17.18
AMHERST PIERPONT	244,455,840	14.00
TREASURY BILL	78,909,900	4.52
AMHERST PIERPONT	48,028,911	2.75
US TREASURY N/B	40,134,238	2.30
IBM CORP	30,134,074	1.73
NESTLE FIN FRANCE S.	24,995,458	1.43
IBM CREDIT LLC	24,982,889	1.43
EXXON MOBIL CORP	24,959,014	1.43
COCA-COLA COMPANY	24,947,979	1.43

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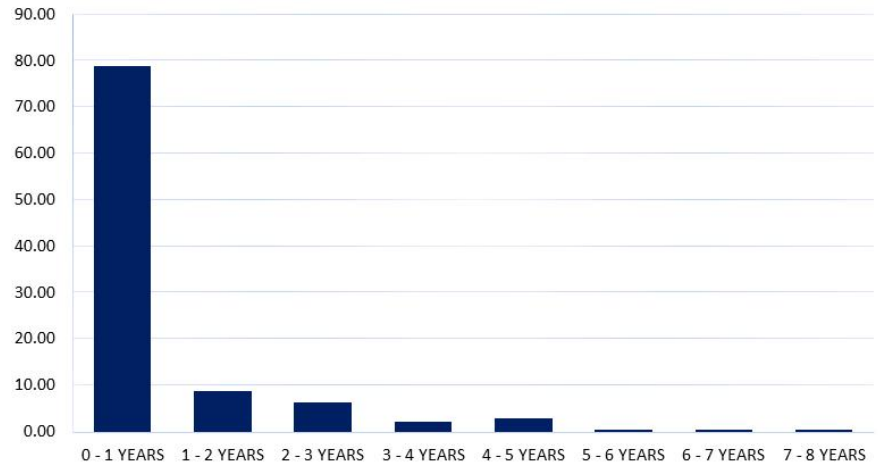
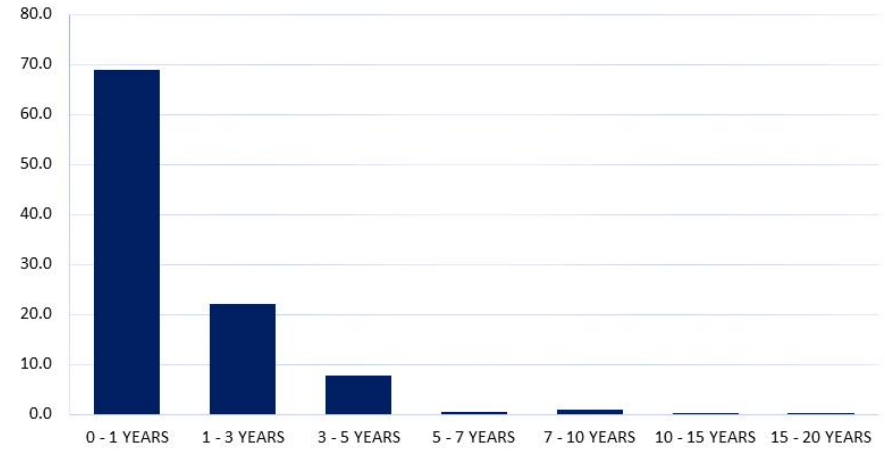
POOL 3 ST AGCY INT

Duration Distribution



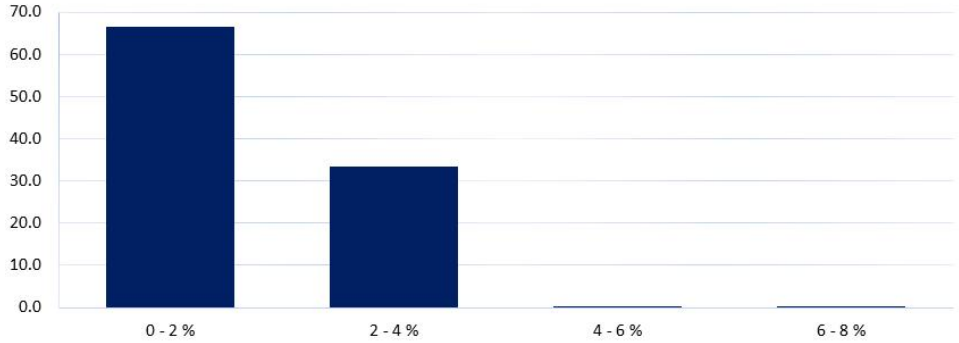
Expected Maturity Distribution



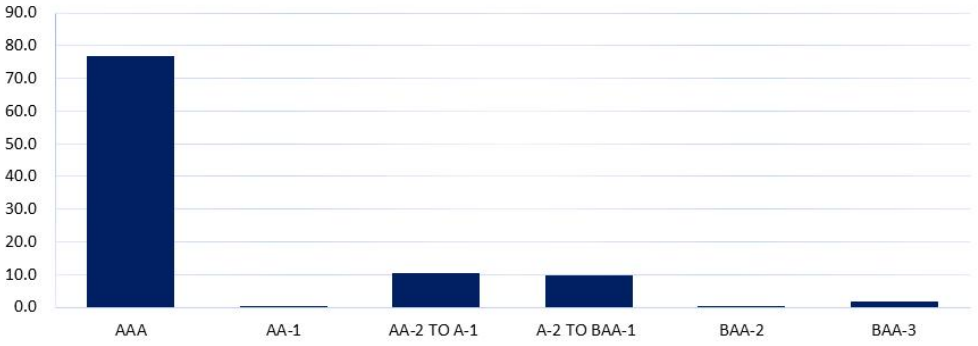
Portfolio Level Characteristics

	POOL 3 ST AGCY INT.
Effective Maturity	0.98
Coupon	1.23
Effective Duration	0.67
Quality Rating (Moody's)	AA-1

Coupon Distribution



Rating Distribution



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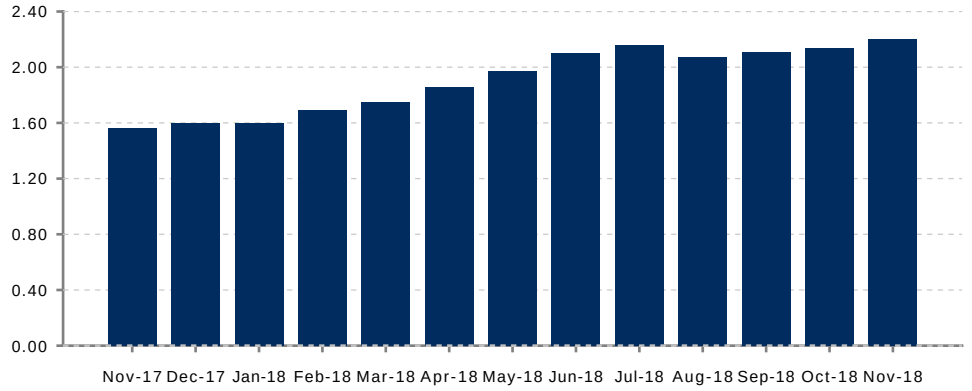
POOL 3 ST AGCY EXT.

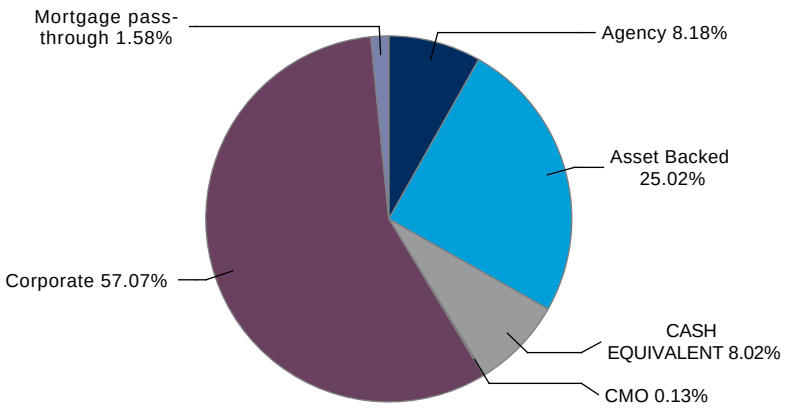
Net Yield



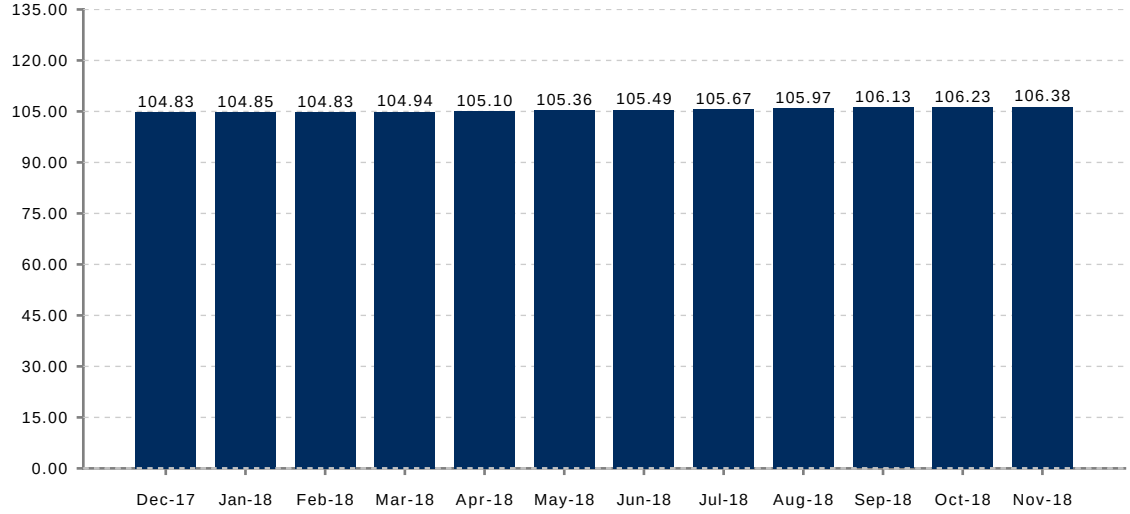
	Current Mth	Prior Mth	1 Year Ago
POOL 3 ST AGCY EXT.	2.20	2.14	1.57

Asset Allocation

	Ending Market Value
POOL 3 ST AGCY EXT.	106,375,341



Net Asset Values over Time ($MM)



Top 10 Holdings

Security Name	Ending Market Value	% of Portfolio
POOL 3 ST AGCY EXT.		
FANNIE MAE	2,979,237	2.80
FREDDIE MAC	2,761,704	2.60
DISCOVER CARD EXECUTION NOTE T	2,093,655	1.97
AUSTR & NEW ZEALND B	2,008,859	1.89
CISCO SYSTEMS INC	2,001,935	1.88
FANNIE MAE	1,986,095	1.87
BANK OF AMERICA CREDIT CARD TR	1,908,989	1.79
BRANCH BANKING + TRUST	1,857,841	1.75
MANUF + TRADERS TRUST CO	1,810,918	1.70
CITIBANK NA	1,749,946	1.65

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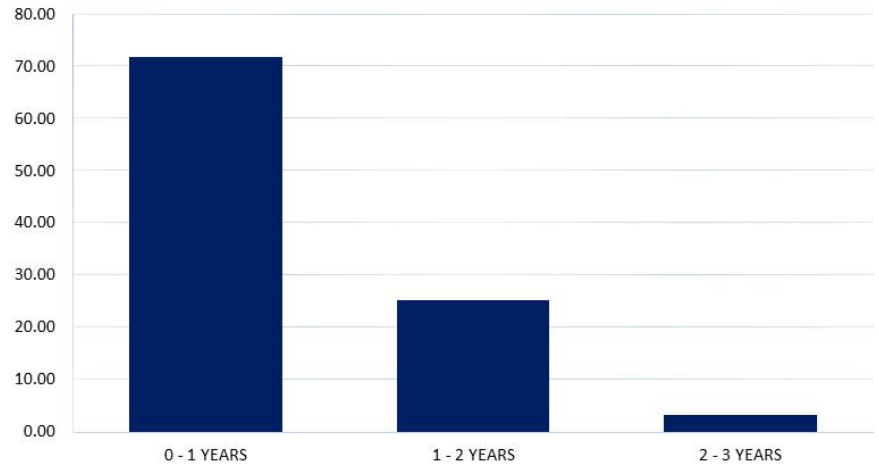
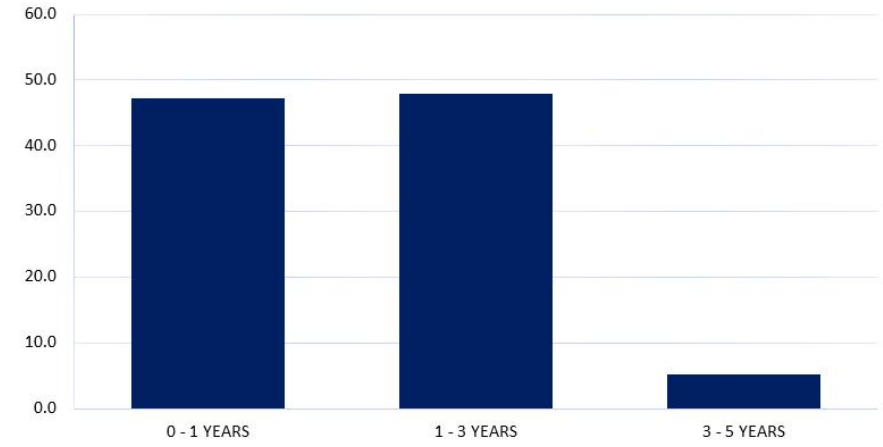
POOL 3 ST AGCY EXT

Duration Distribution



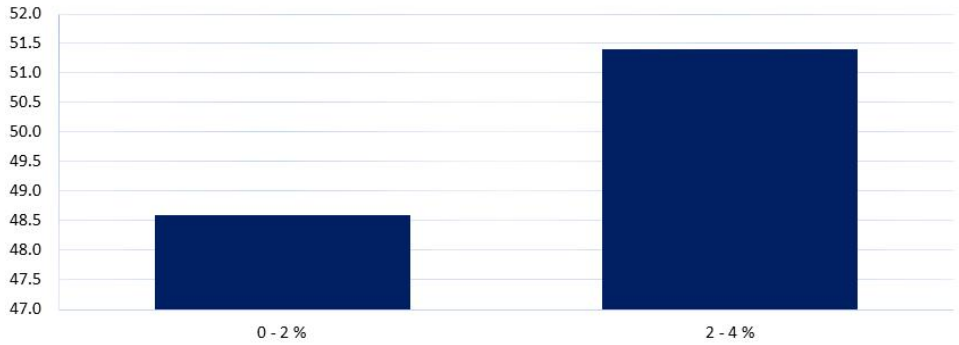
Expected Maturity Distribution



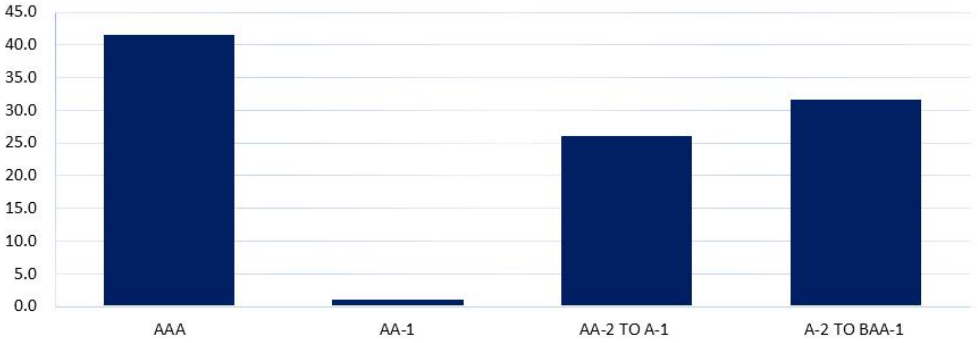
Portfolio Level Characteristics

	POOL 3 ST AGCY EXT.
Effective Maturity	1.31
Coupon	2.09
Effective Duration	0.72
Quality Rating (Moody's)	AA-3

Coupon Distribution



Rating Distribution



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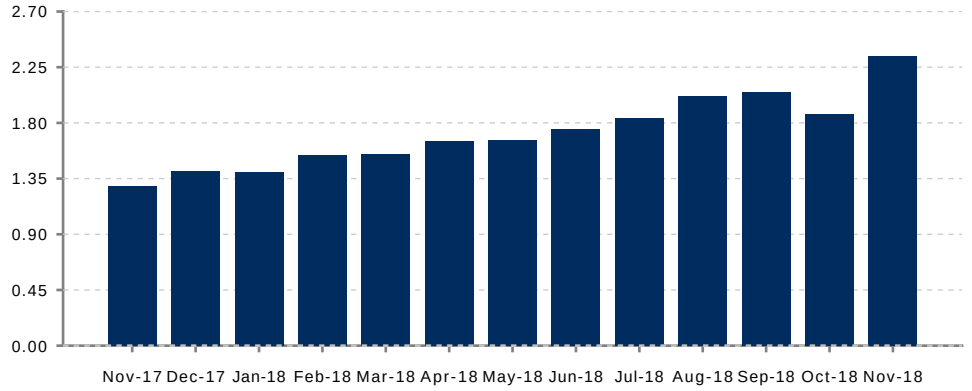
POOL 4 ST AGCY GOV.

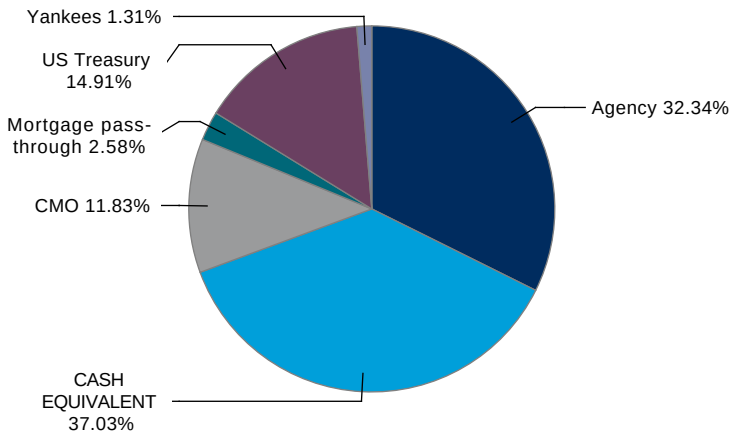
Net Yield



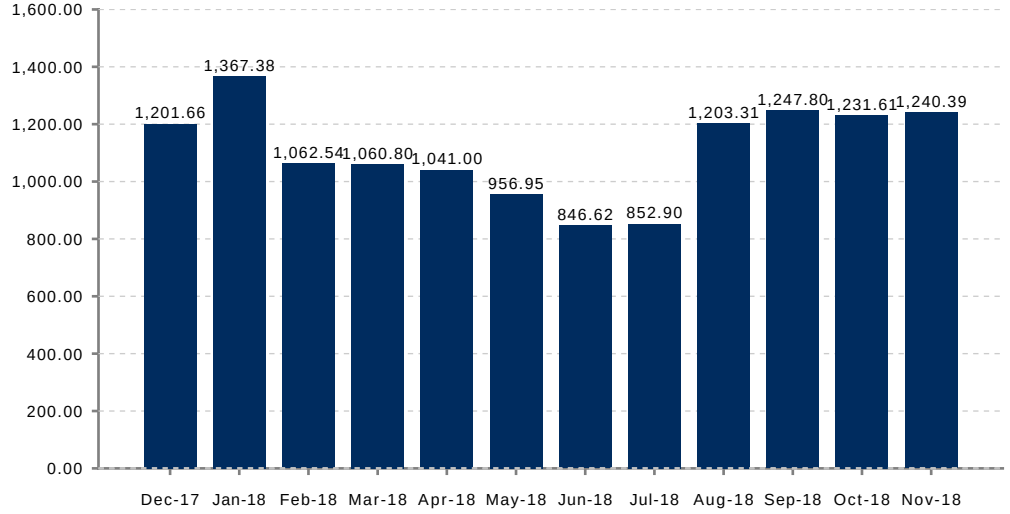
	Current Mth	Prior Mth	1 Year Ago
POOL 4 ST AGCY GOV.	2.34	1.87	1.29

Asset Allocation

	Ending Market Value
POOL 4 ST AGCY GOV.	1,240,387,903



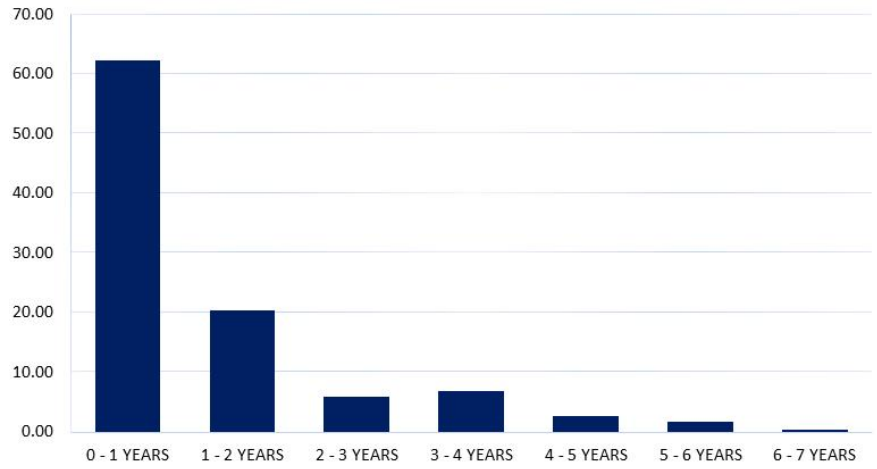
Net Asset Values over Time ($MM)



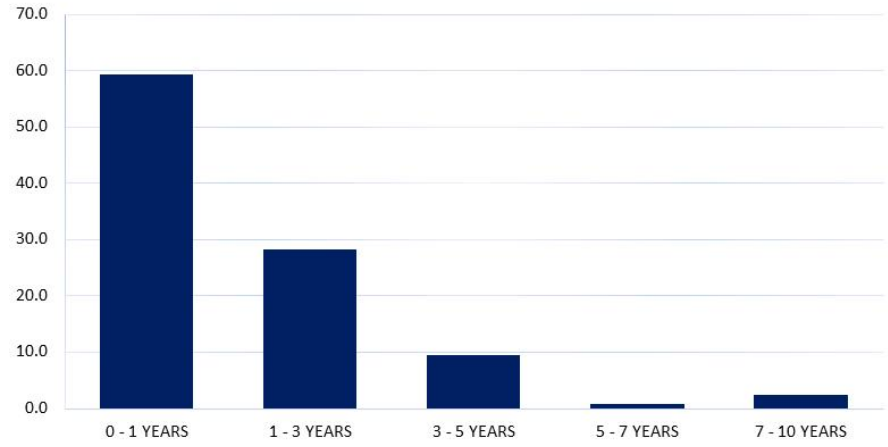
Top 10 Holdings

Security Name	Ending Market Value	% of Portfolio
POOL 4 ST AGCY GOV.		
AMHERST PIERPONT	205,573,910	16.57
SOUTH STREET REPO	100,006,528	8.06
TREASURY BILL	98,637,375	7.95
TREASURY BILL	78,729,378	6.35
US TREASURY N/B	65,215,273	5.26
AMHERST PIERPONT	59,570,315	4.80
WELLS FARGO REPO	55,013,322	4.44
FANNIE MAE	48,184,026	3.88
US TREASURY N/B	45,151,018	3.64
US TREASURY N/B	25,140,455	2.03

Duration Distribution



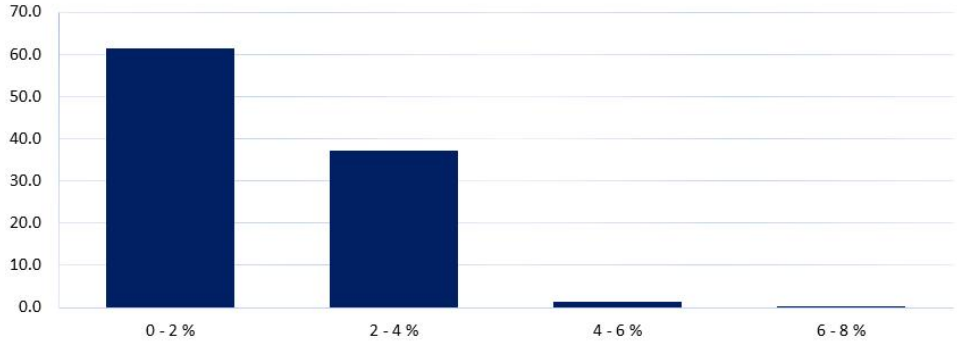
Expected Maturity Distribution



Portfolio Level Characteristics

	POOL 4 ST AGCY GOV.
Effective Maturity	1.21
Coupon	1.25
Effective Duration	1.07
Quality Rating (Moody's)	AAA

Coupon Distribution



Rating Distribution

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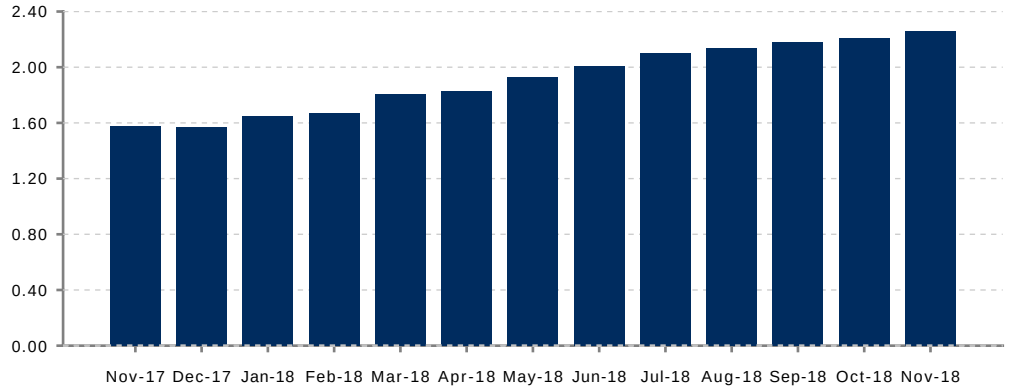
POOL 10 ST OPERATING INT

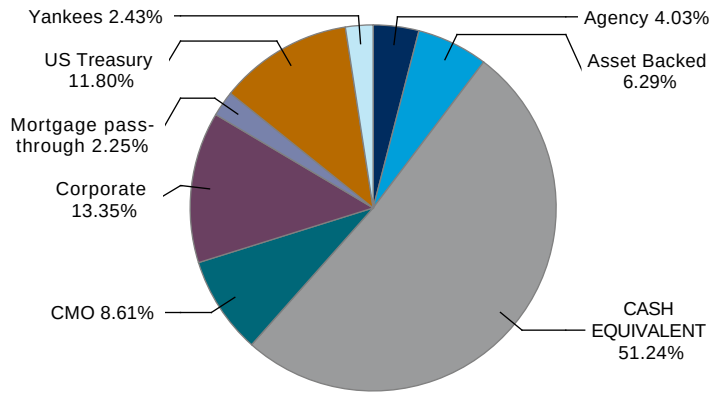
Net Yield



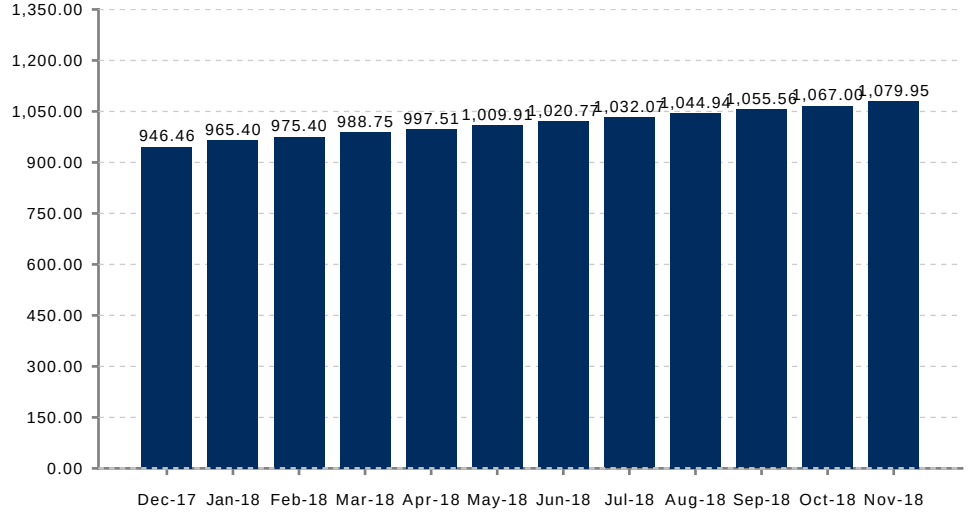
	Current Mth	Prior Mth	1 Year Ago
POOL 10 ST OPER INT	2.26	2.21	1.58

Asset Allocation

	Ending Market Value
POOL 10 ST OPER INT	1,079,952,050



Net Asset Values over Time ($MM)



Top 10 Holdings

Security Name	Ending Market Value	% of Portfolio
POOL 10 ST OPER INT		
AMHERST PIERPONT	34,497,021	3.19
US TREASURY N/B	29,890,692	2.77
COCA-COLA COMPANY	24,934,458	2.31
CRC FUNDING LLC	24,788,021	2.30
GOTHAM FDG CORP	19,987,389	1.85
LIBERTY FUNDING LLC	19,984,533	1.85
MANHATTAN ASSET FDG.	19,977,100	1.85
CROWN POINT CAP CO.	19,958,000	1.85
INSTITUTIONAL SECURED	19,925,756	1.85
BEDFORD ROW FDG CORP	19,913,922	1.84

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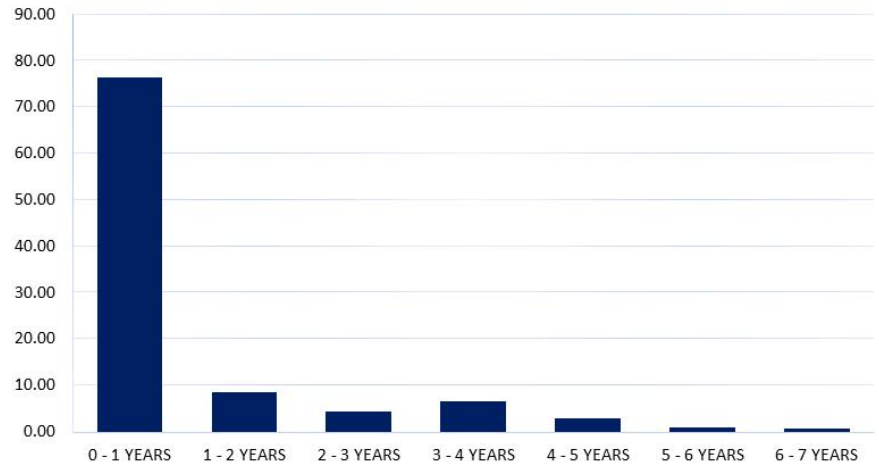
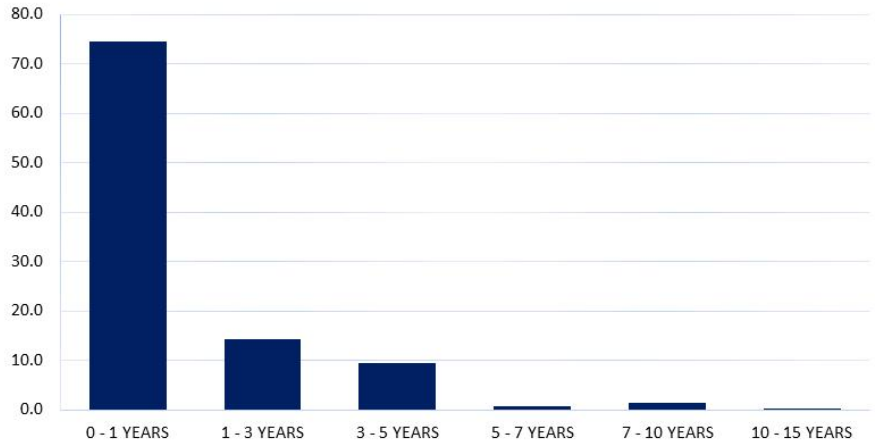
POOL 10 ST OPERATING INT

Duration Distribution



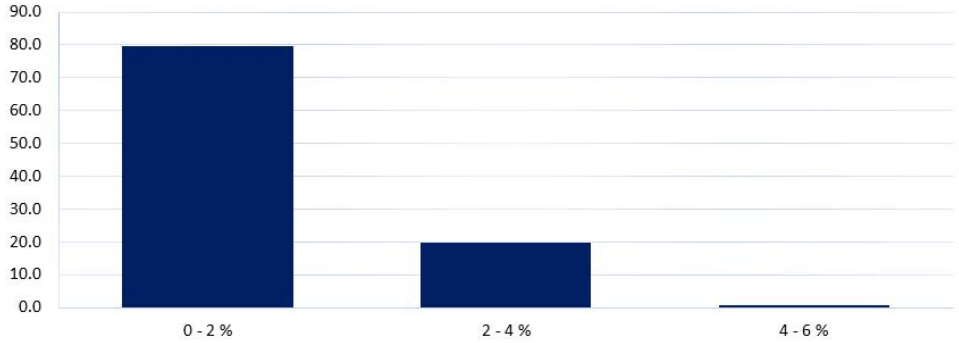
Expected Maturity Distribution



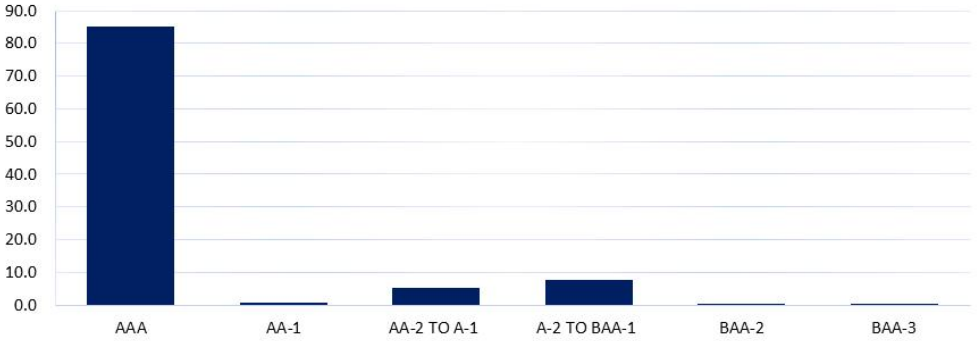
Portfolio Level Characteristics

	POOL 10 ST OPERATING INT
Effective Maturity	1.00
Coupon	0.96
Effective Duration	0.90
Quality Rating (Moody's)	AA-1

Coupon Distribution



Rating Distribution



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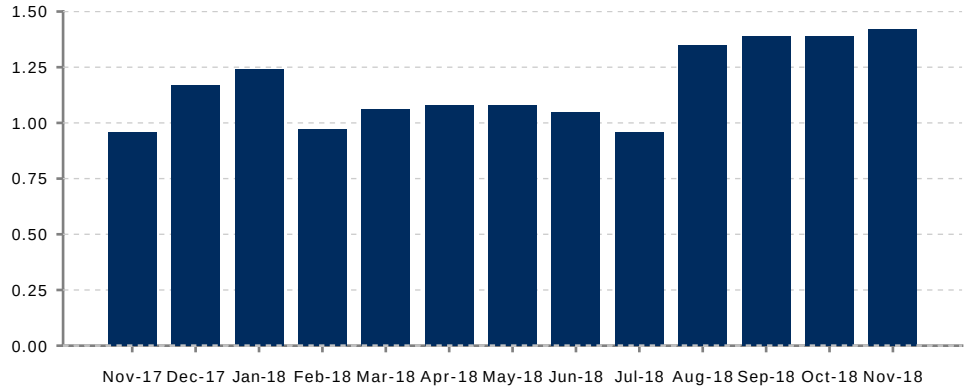
POOL 10 ST OPERATING Ext

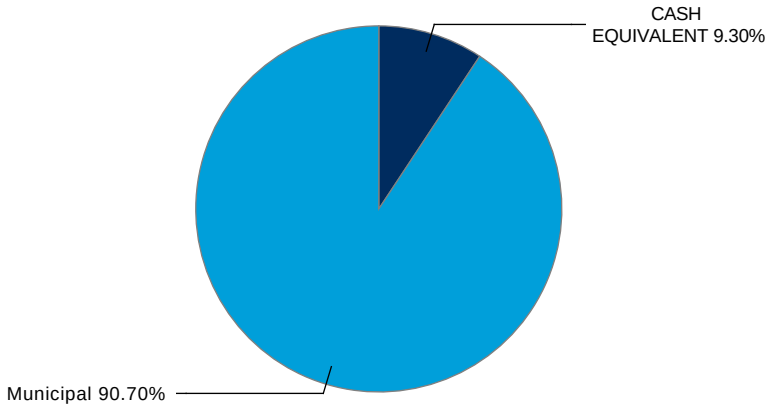
Net Yield



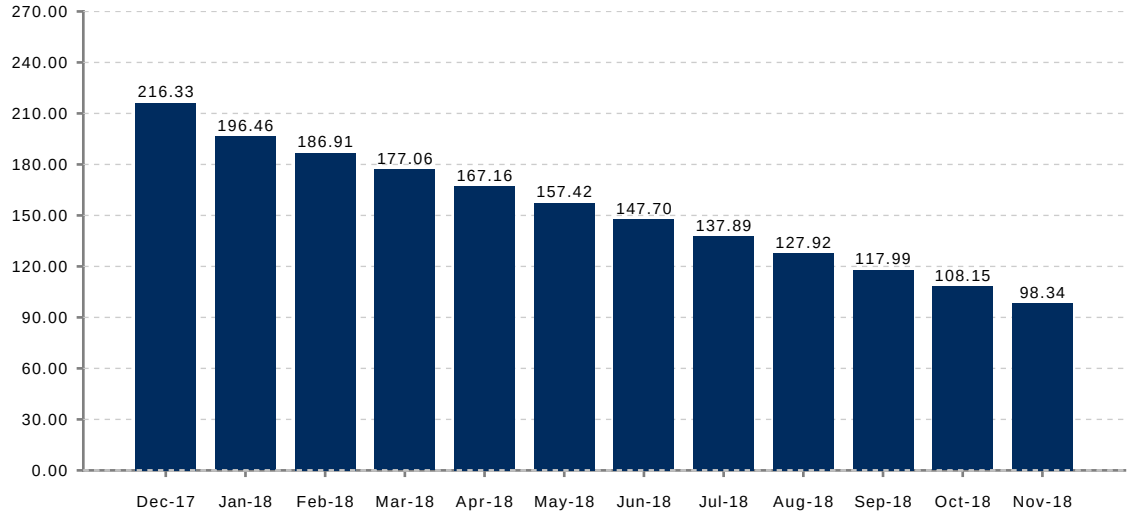
	Current Mth	Prior Mth	1 Year Ago
POOL 10 ST OPERATING	1.42	1.39	0.96

Asset Allocation

	Ending Market Value
POOL 10 ST OPERATING	98,343,934



Net Asset Values over Time ($MM)



Top 10 Holdings

Security Name	Ending Market Value	% of Portfolio
POOL 10 ST OPERATING		
ALPINE UT SCH DIST	10,247,235	10.42
PRINCE GEORGES CNTY	10,225,540	10.40
DREYFUS TAX EXEMPT CA	10,091,700	10.26
SHELBY CNTY TN	9,656,983	9.82
WISCONSIN ST PETROLEU	8,806,018	8.95
GEORGIA ST ROAD TOLL	8,009,269	8.14
ROUND ROCK TX INDEP S	5,406,240	5.50
MARYLAND ST	5,134,170	5.22
CONNECTICUT ST HLTH	3,704,079	3.77
PLANO TX INDEP SCH DIS	3,676,082	3.74

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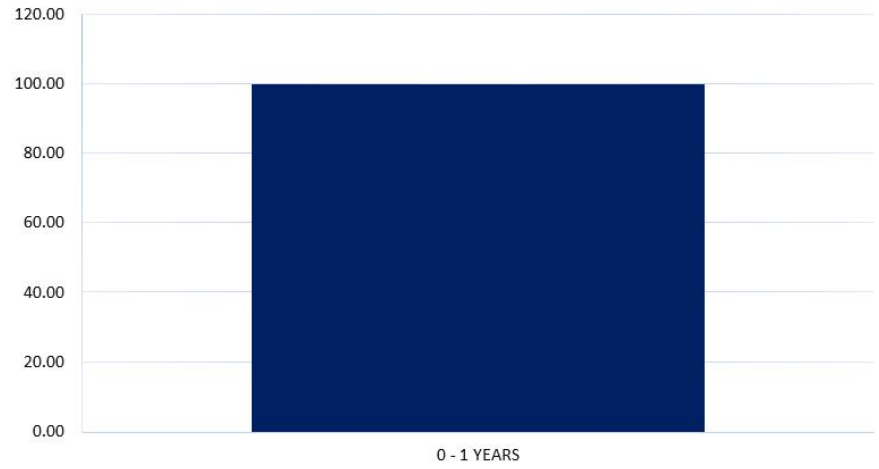
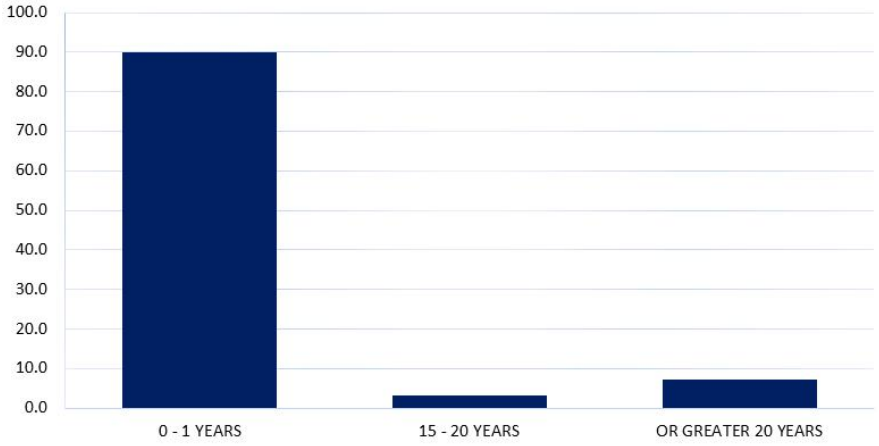
POOL 10 ST OPERATING Ext

Duration Distribution



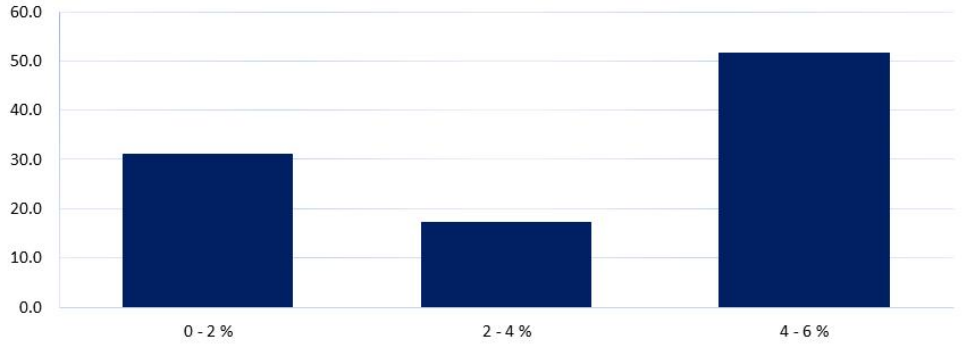
Expected Maturity Distribution



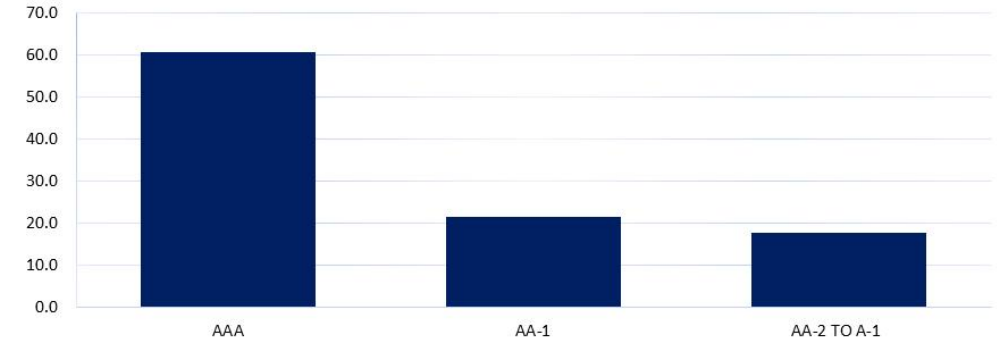
Portfolio Level Characteristics

	POOL 10 ST OPERATING
Effective Maturity	2.77
Coupon	3.69
Effective Duration	0.28
Quality Rating (Moody's)	AA-1

Coupon Distribution



Rating Distribution



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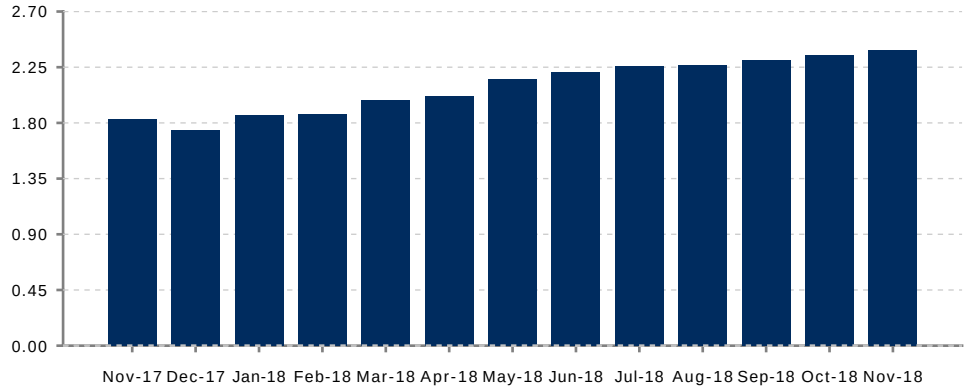
POOL 12 CAWCD MED TRM

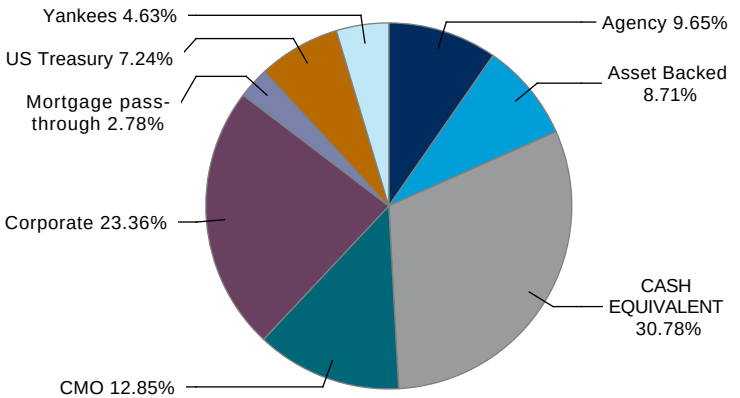
Net Yield



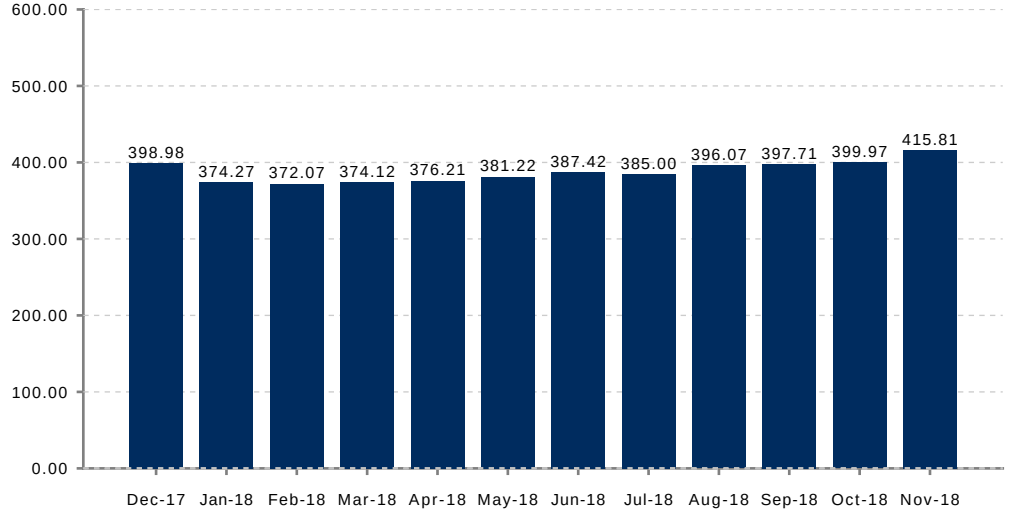
	Current Mth	Prior Mth	1 Year Ago
POOL 12 CAWCD MED TRM	2.39	2.35	1.83

Asset Allocation

	Ending Market Value
POOL 12 CAWCD MED TRM	415,813,865



Net Asset Values over Time ($MM)



Top 10 Holdings

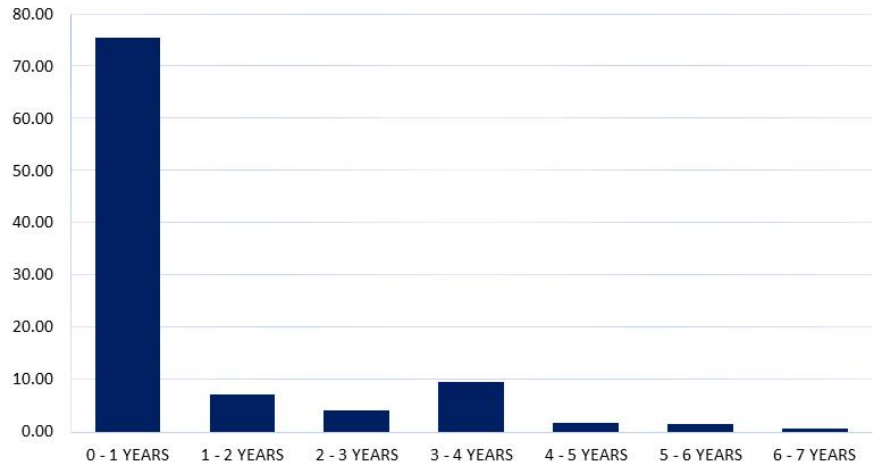
Security Name	Ending Market Value	% of Portfolio
POOL 12 CAWCD MED TRM		
AMHERST PIERPONT	72,764,357	17.50
GOTHAM FDG CORP	9,993,694	2.40
TREASURY BILL	9,903,213	2.38
TREASURY BILL	9,841,172	2.37
FANNIE MAE	5,383,299	1.29
FANNIE MAE	5,370,795	1.29
FREDDIE MAC	5,241,277	1.26
FREDDIE MAC	5,118,506	1.23
FREDDIE MAC	5,042,945	1.21
CHEVRON CORP	5,036,583	1.21

OFFICE OF THE ARIZONA STATE TREASURER

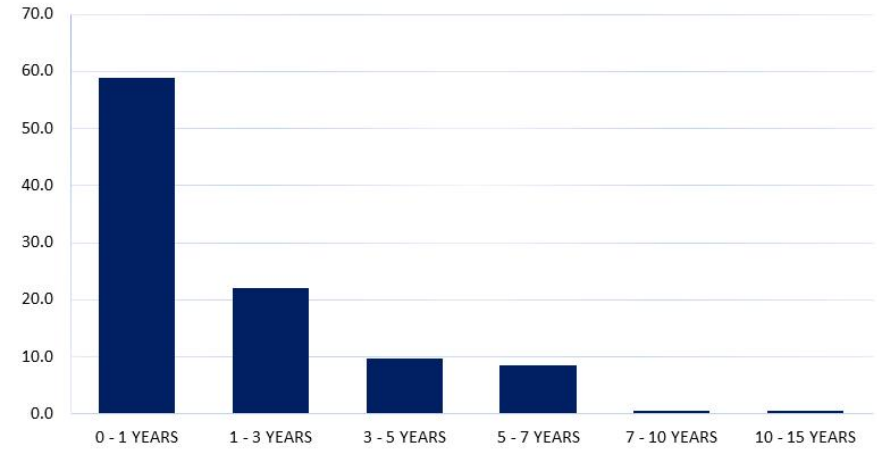
November 30, 2018

POOL 12 CAWCD MED TRM

Duration Distribution



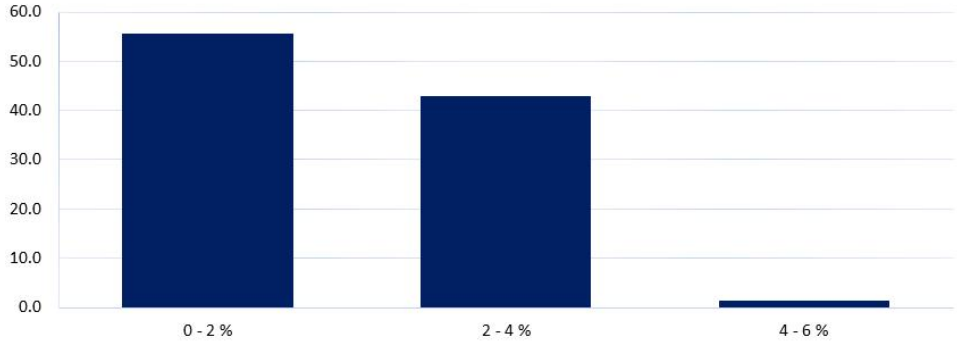
Expected Maturity Distribution



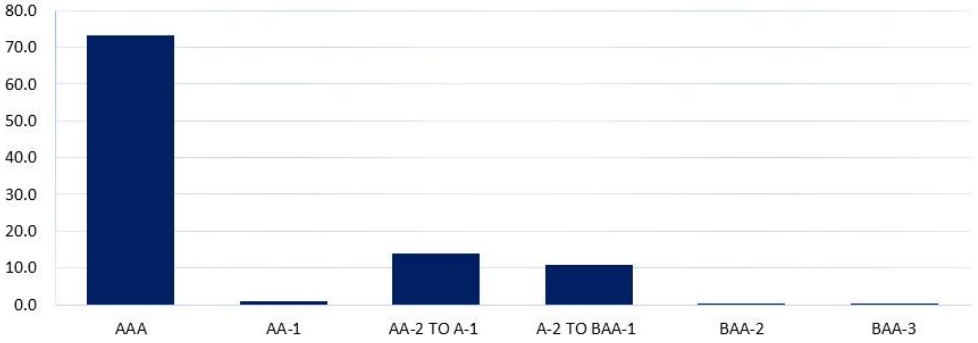
Portfolio Level Characteristics

	POOL 12 CAWCD MED TRM
Effective Maturity	1.47
Coupon	1.68
Effective Duration	0.84
Quality Rating (Moody's)	AA-1

Coupon Distribution



Rating Distribution



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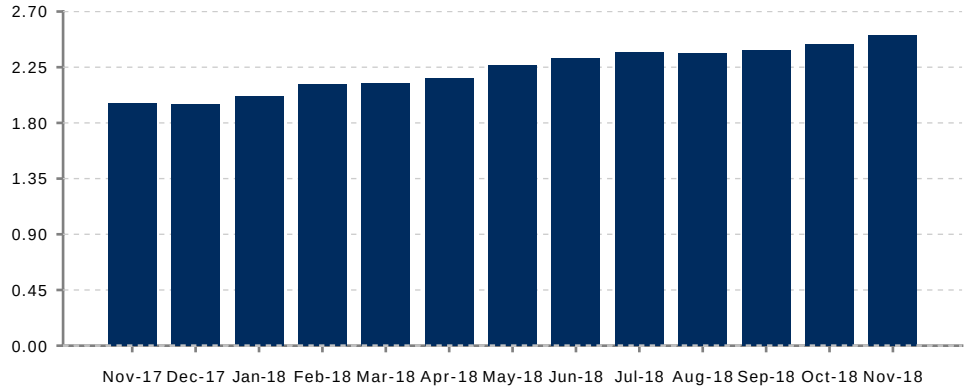
POOL 16 ECDHB

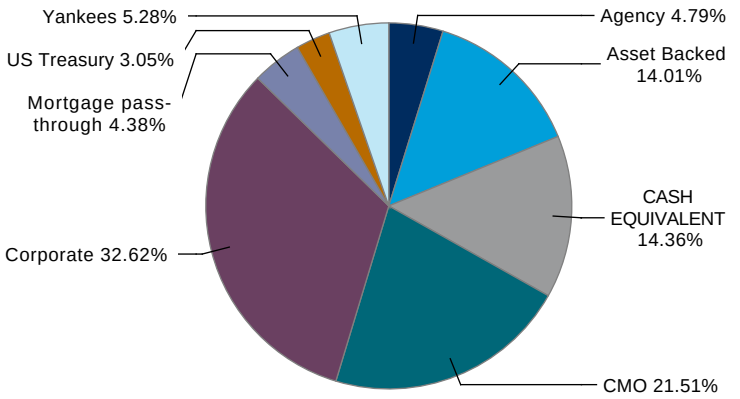
Net Yield



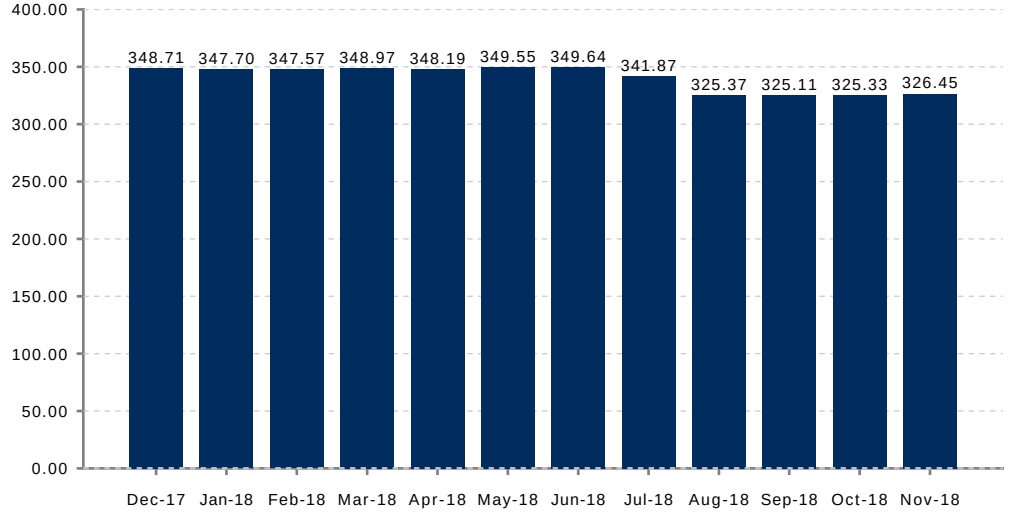
	Current Mth	Prior Mth	1 Year Ago
POOL 16 ECDHB	2.51	2.44	1.96

Asset Allocation

	Ending Market Value
POOL 16 ECDHB	326,454,001



Net Asset Values over Time ($MM)



Top 10 Holdings

Security Name	Ending Market Value	% of Portfolio
POOL 16 ECDHB		
GUGGENHEIM SECURITIES REPO	11,847,743	3.63
CAN AST & CAN LTD JT	9,996,847	3.06
BMW VEHICLE LEASE TRUST	7,494,972	2.30
FANNIE MAE	6,123,992	1.88
AMERICAN EXPRESS CREDIT	5,044,994	1.55
CHEVRON CORP	5,036,583	1.54
CISCO SYSTEMS INC	5,034,400	1.54
CAPITAL ONE MULTI ASSET EXECUT	5,022,027	1.54
US TREASURY N/B	5,021,722	1.54
BRANCH BANKING + TRUST	5,021,191	1.54

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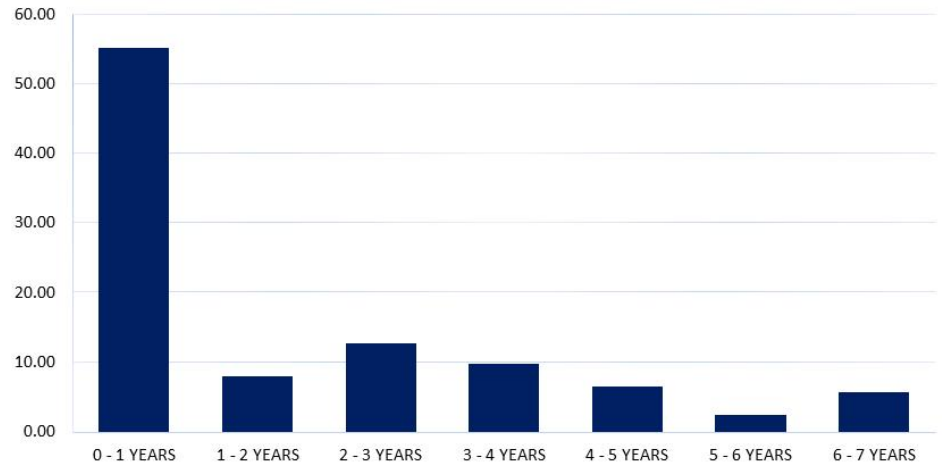
POOL 16 ECDHB

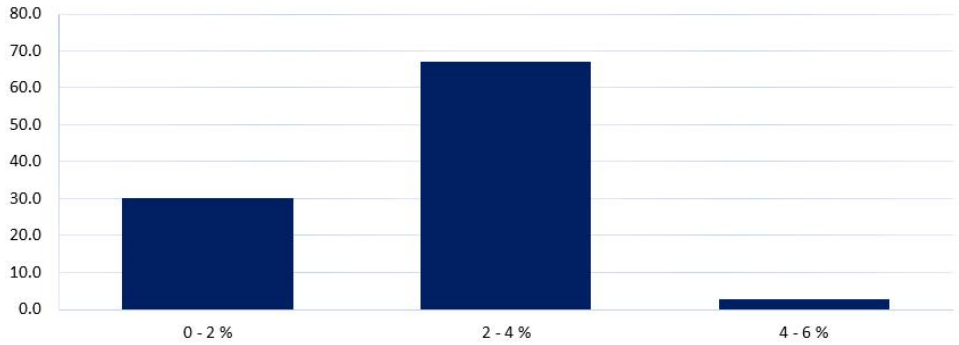
Duration Distribution



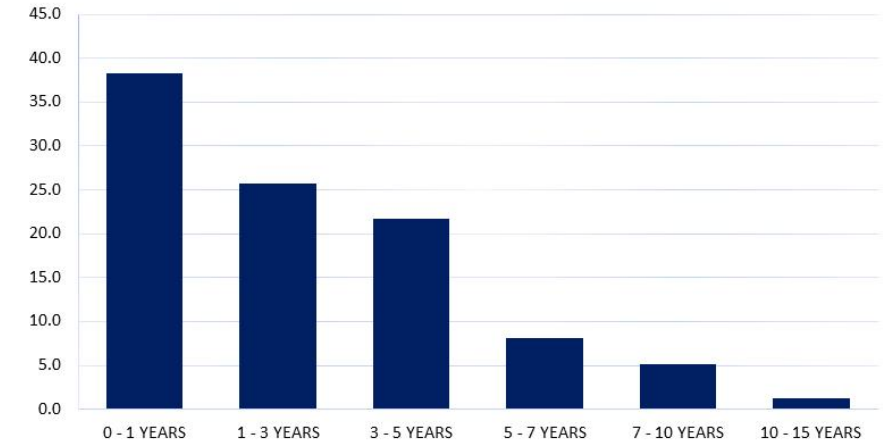
Portfolio Level Characteristics

	POOL 16 ECDHB
Effective Maturity	2.41
Coupon	2.39
Effective Duration	1.62
Quality Rating (Moody's)	AA-2

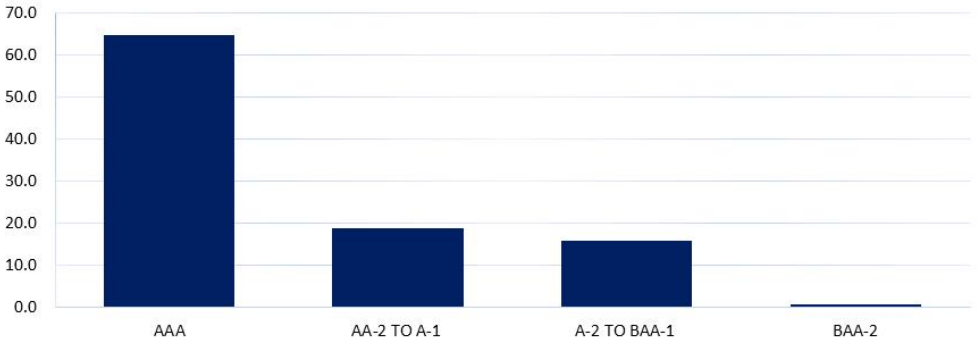
Coupon Distribution



Expected Maturity Distribution



Rating Distribution



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LGIP & LGIP- GOV
PORTFOLIO YIELD ANALYSIS
NOVEMBER 2018

NET EARNINGS

FUND	DESCRIPTION	Current Month 11/30/18	Prior Month 10/31/18	Prior Year 11/30/17	Net Asset Value Per Share
5	LGIP	2,993,976	2,687,221	**1,327,151**	1.0000
7	LGIP - GOV *	2,236,248	1,935,682	**1,222,473**	1.0000
	TOTAL LGIP & LGIP-GOV	**5,230,224**	**4,622,903**	**2,549,624**	

YIELDS

	MONTHLY	Current Month 11/30/18	Prior Month 10/31/18	Prior Year 11/30/17
5	LGIP (NET)	2.26%	2.20%	**1.10%**
	S&P LGIP Index	2.16%	2.07%	**1.07%**
7	LGIP - GOV * (NET)	2.17%	2.10%	**1.07%**
	Trailing 3-mo T-bill	2.26%	2.16%	**1.11%**
	FISCAL YEAR TO DATE			
5	LGIP (NET)	2.14%	2.11%	**1.07%**
	S&P LGIP Index	2.02%	1.98%	**1.01%**
7	LGIP - GOV * (NET)	1.98%	1.93%	**0.96%**
	Trailing 3-mo T-bill	2.07%	2.03%	**1.04%**

NOTE - the Pool 7 benchmark measurement was revised in October 2018; prior period benchmarks were also changed to reflect the revised measure.

* The LGIP-GOV Pool consists of only securities explicitly backed by the full faith & credit of the US Government.

LGIP & LGIP- GOV MEDIUM TERM POOLS
PORTFOLIO YIELD ANALYSIS
NOVEMBER 2018

NET EARNINGS

FUND	DESCRIPTION	Current Month 11/30/18	Prior Month 10/31/18	Prior Year 11/30/17	Net Asset Value Per Share
500	LGIP - MED TERM POOL	681,487	689,077	**467,137**	1.0194
700	LGIP - FF&C MED TERM POOL	246,808	236,089	**162,876**	0.9909
	TOTAL LGIP MEDIUM TERM POOLS	**928,295**	**925,167**	**630,013**	

YIELDS

	MONTHLY	Current Month 11/30/18	Prior Month 10/31/18	Prior Year 11/30/17
500	LGIP - MED TERM (NET)	2.38%	2.34%	**1.73%**
	20% S&P LGIP Index /	2.88%	2.83%	**1.70%**
	80% Bloomberg Barclays 1-3 year US Agg			
700	LGIP - FF&C MED TERM (NET)	2.21%	2.05%	**1.40%**
	20% Trailing 3-mo T-bill /	2.74%	2.72%	**1.58%**
	80% Barclay 1-3 year UST			
	FISCAL YEAR TO DATE			
500	LGIP - MED TERM (NET)	2.31%	2.30%	**1.69%**
	20% S&P LGIP Index /	2.73%	2.70%	**1.52%**
	80% Bloomberg Barclays 1-3 year US Agg			
700	LGIP - FF&C MED TERM (NET)	1.97%	1.91%	**1.46%**
	20% Trailing 3-mo T-bill /	2.61%	2.57%	**1.39%**
	80% Bloomberg Barclays 1-3 year UST			

NOTE - all benchmark measurements were revised in October 2018; prior period benchmarks were also changed

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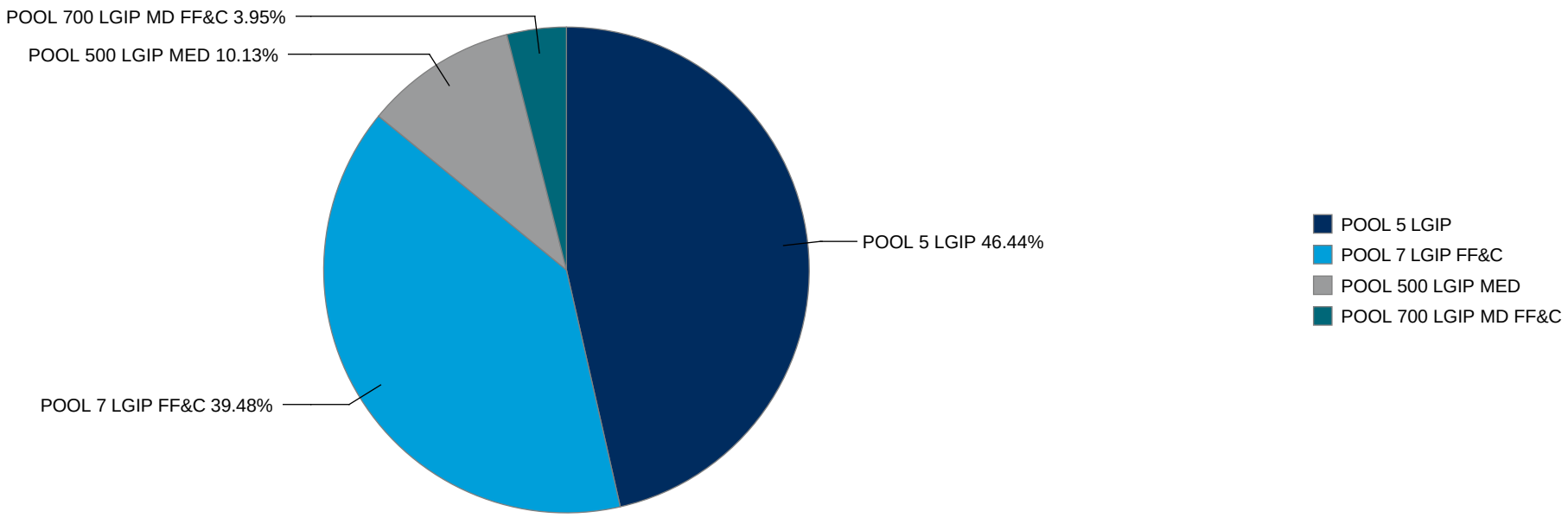
November 30, 2018

LGIP

Manager Allocation



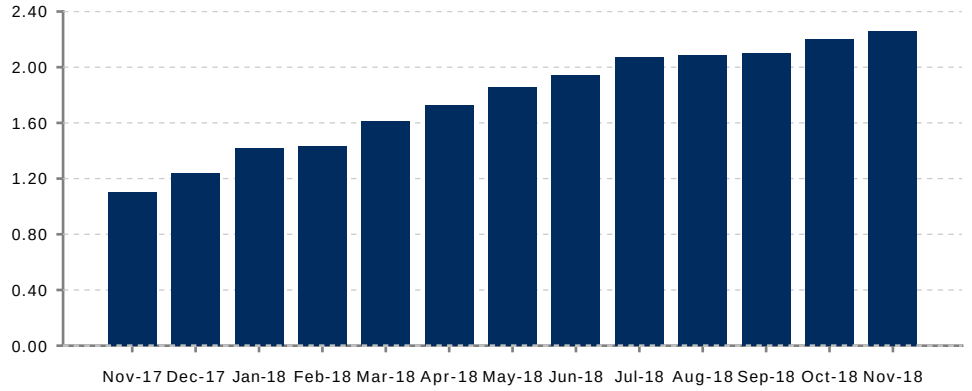
	Market Value	% of Portfolio
POOL 5 LGIP	1,598,197,810	46.4
POOL 7 LGIP FF&C	1,358,703,854	39.5
POOL 500 LGIP MED	348,739,130	10.1
POOL 700 LGIP MD FF&C	135,987,425	4.0
TOTAL LGIP	3,441,628,219	100.0

OFFICE OF THE ARIZONA STATE TREASURER

November 30, 2018

POOL 5 LGIP

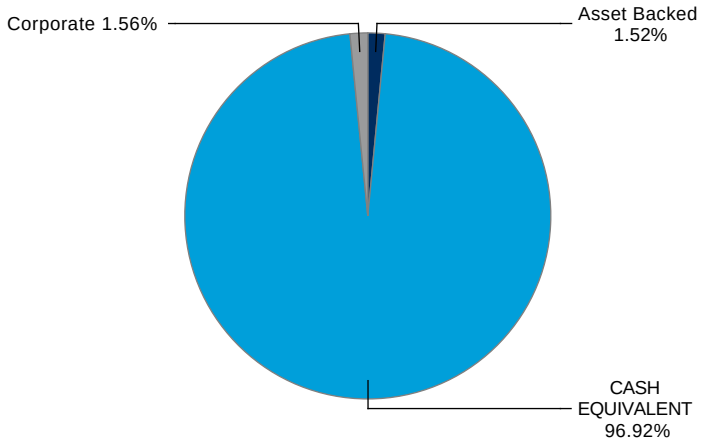
Net Yield



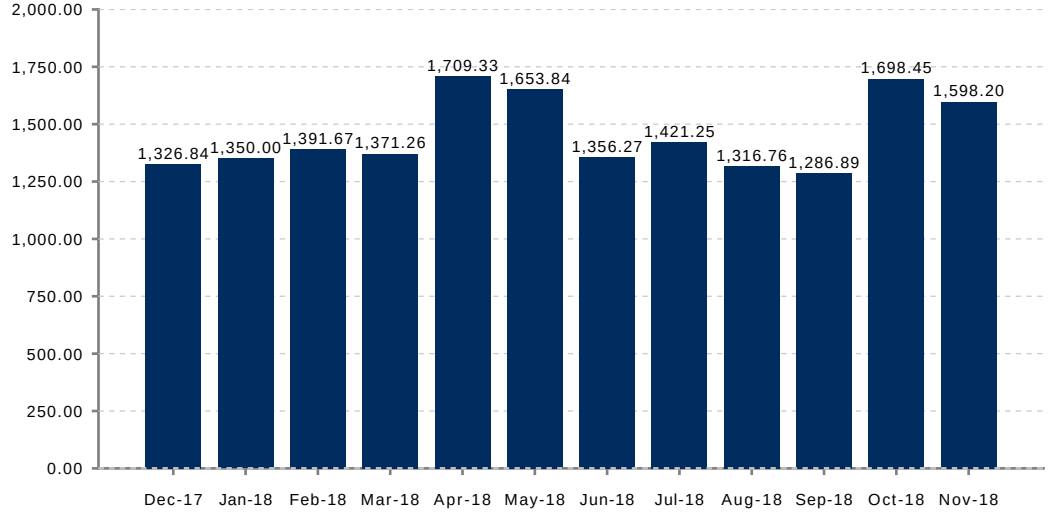
	Current Mth	Prior Mth	1 Year Ago
POOL 5 LGIP	2.26	2.20	1.10

Asset Allocation

	Ending Market Value
POOL 5 LGIP	1,598,197,810



Net Asset Values over Time ($MM)



Top 10 Holdings

Security Name	Ending Market Value	% of Portfolio
POOL 5 LGIP		
RBC CAPITAL MARKETS REPO	100,006,250	6.26
BANK OF AMERICA REPO	100,005,694	6.26
HALKIN FINANCE LLC USC	39,948,000	2.50
TREASURY BILL	39,941,068	2.50
CME GROUP INC	33,278,426	2.08
MIZUHO	33,100,671	2.07
USAA CAPITAL CORP	29,911,833	1.87
NORTHWESTERN UNIVERS	29,879,542	1.87
INTL BK RECON + DEVELOP	25,031,625	1.57
CONCORD MIN CPTL CO	24,996,875	1.56

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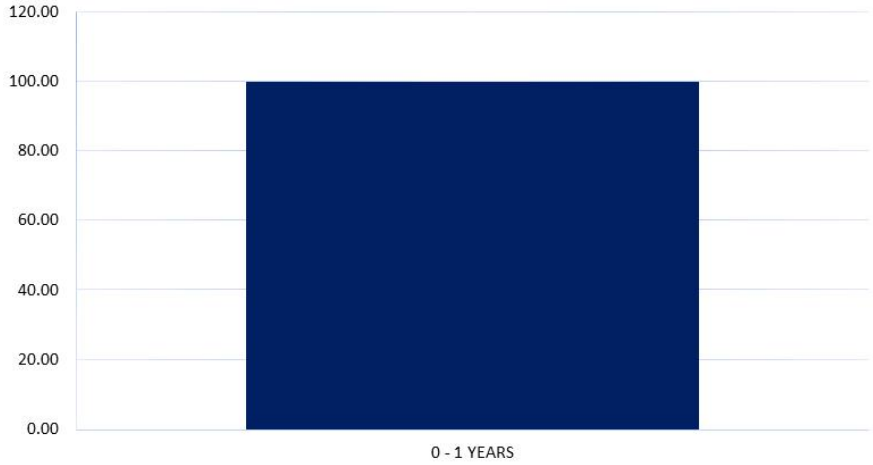
November 30, 2018

POOL 5 LGIP

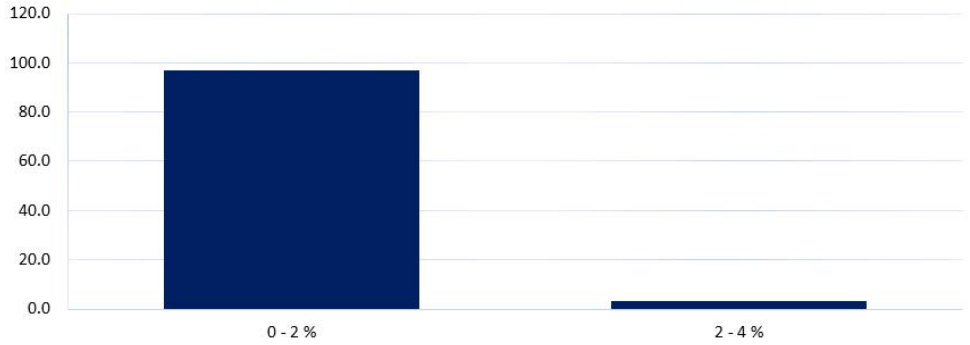
Duration Distribution



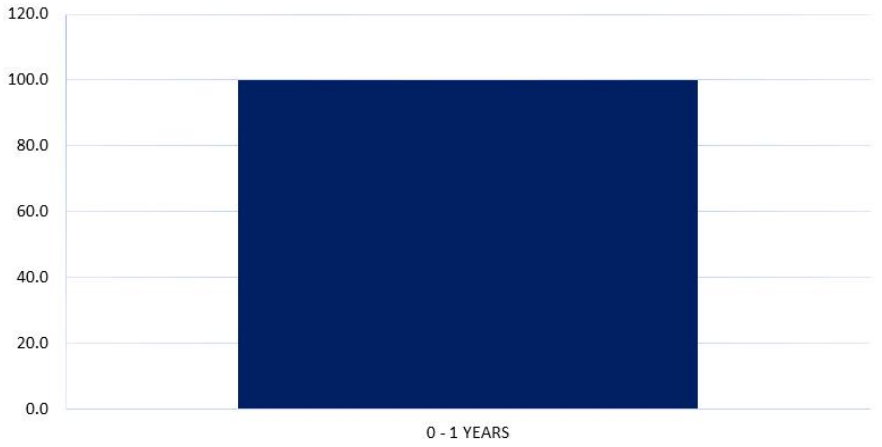
Portfolio Level Characteristics

	POOL 5 LGIP
Effective Maturity	0.08
Coupon	0.08
Effective Duration	0.07
Quality Rating (Moody's)	AAA

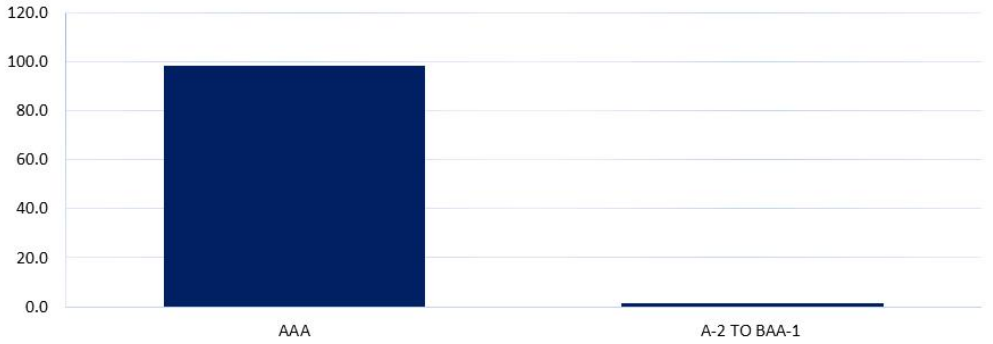
Coupon Distribution



Expected Maturity Distribution



Rating Distribution



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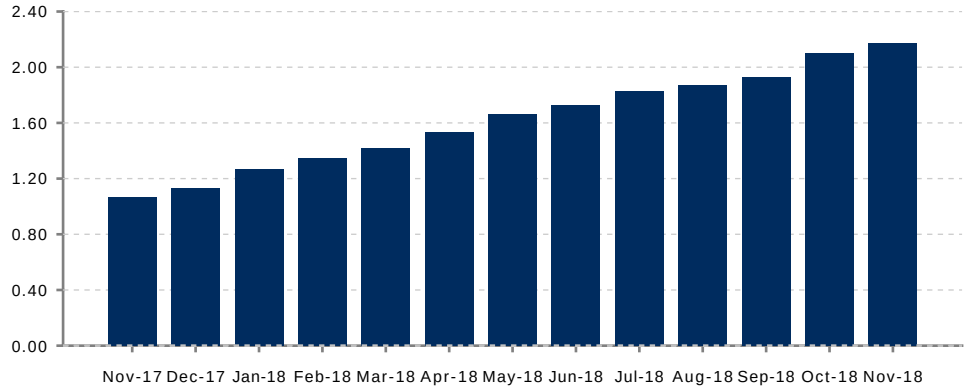
POOL 7 LGIP FF&C

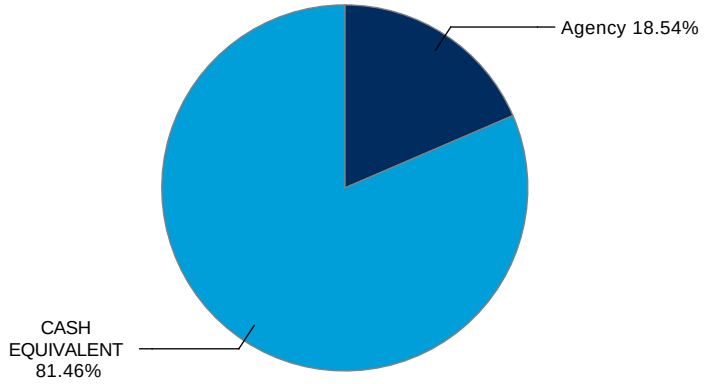
Net Yield



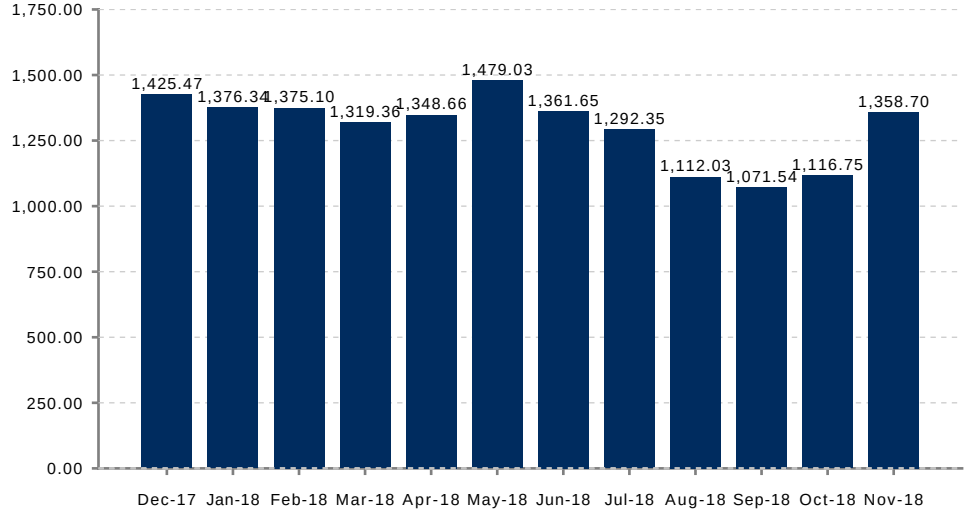
	Current Mth	Prior Mth	1 Year Ago
POOL 7 LGIP FF&C	2.17	2.10	1.07

Asset Allocation

	Ending Market Value
POOL 7 LGIP FF&C	1,358,703,854



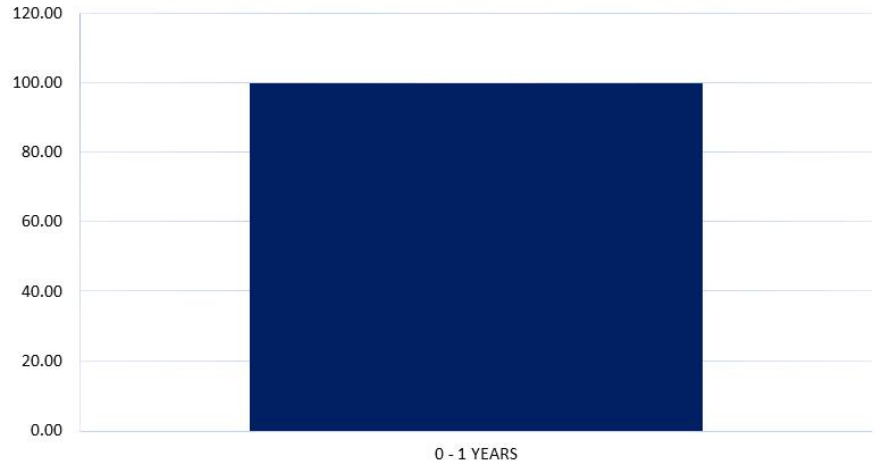
Net Asset Values over Time ($MM)



Top 10 Holdings

Security Name	Ending Market Value	% of Portfolio
POOL 7 LGIP FF&C		
GUGGENHEIM SECURITIES REPO	229,167,453	16.87
UNITED STATES TREASURY BILL 12/18 0.00000	111,826,308	8.23
WELLS FARGO REPO	110,026,644	8.10
TREASURY BILL	107,840,884	7.94
AMHERST PIERPONT	85,159,375	6.27
CREDIT AGRICOLE REPO	79,607,401	5.86
TREASURY BILL	59,966,306	4.41
TREASURY BILL	59,856,258	4.41
UNITED STATES TREAS BILLS	59,806,270	4.40
TREASURY BILL	57,939,758	4.26

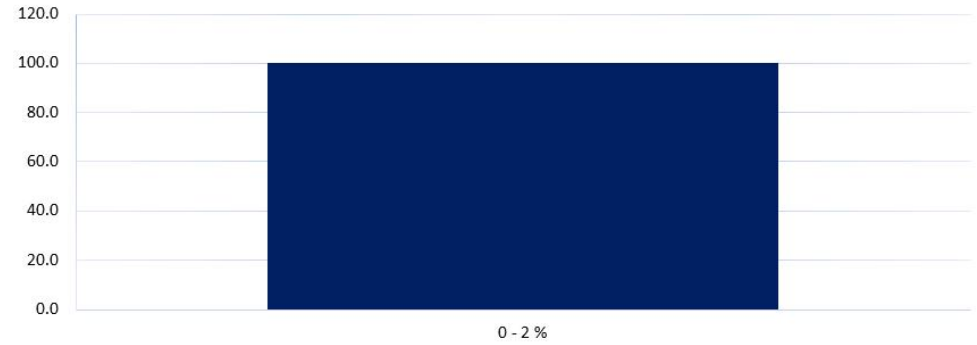
Duration Distribution



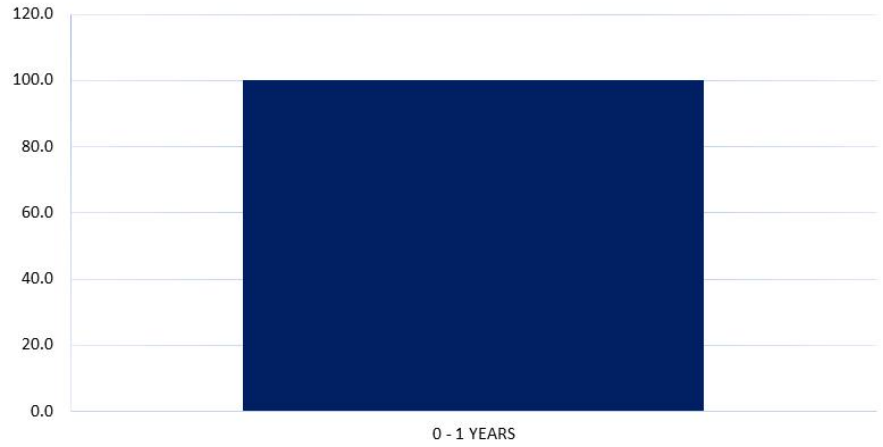
Portfolio Level Characteristics

	POOL 7 LGIP FF&C
Effective Maturity	0.07
Coupon	0.00
Effective Duration	0.07
Quality Rating (Moody's)	AAA

Coupon Distribution



Expected Maturity Distribution



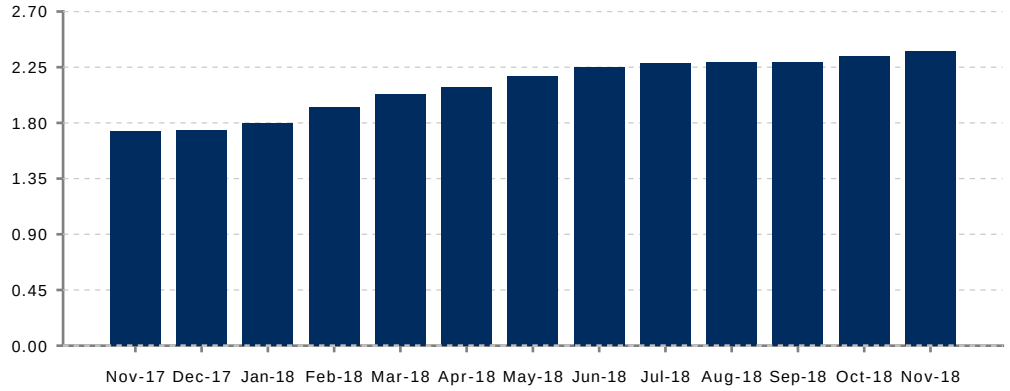
Rating Distribution

OFFICE OF THE ARIZONA STATE TREASURER

November 30, 2018

POOL 500 LGIP MED

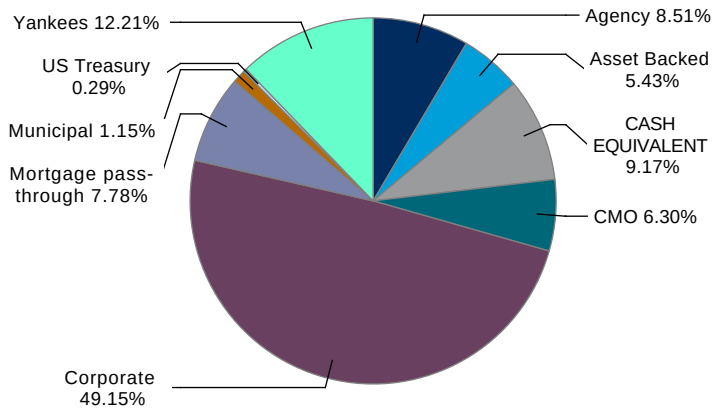
Net Yield



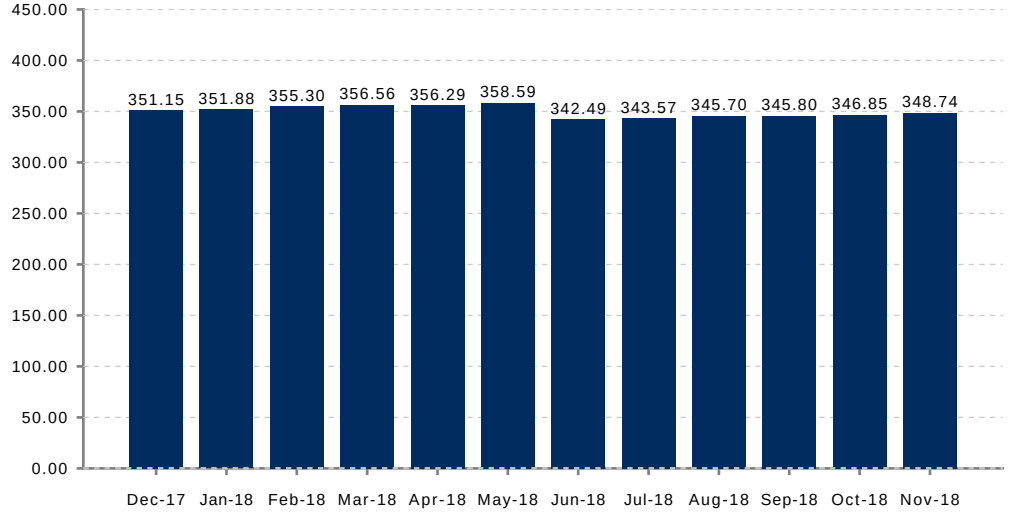
	Current Mth	Prior Mth	1 Year Ago
POOL 500 LGIP MED	2.38	2.34	1.73

Asset Allocation

	Ending Market Value
POOL 500 LGIP MED	348,739,130



Net Asset Values over Time ($MM)



Top 10 Holdings

Security Name	Ending Market Value	% of Portfolio
POOL 500 LGIP MED		
MICROSOFT CORP	7,949,321	2.28
GOLDMAN SACHS GROUP INC	7,933,880	2.28
APPLE INC	7,046,669	2.02
MANUF + TRADERS TRUST CO	7,010,523	2.01
BANK OF AMERICA CORP	5,737,592	1.65
MERCK + CO INC	5,525,641	1.58
ROYAL BANK OF CANADA	5,053,726	1.45
CVS HEALTH CORP	5,037,412	1.44
BANK OF MONTREAL	5,035,847	1.44
FEDERAL HOME LOAN BANK	5,032,957	1.44

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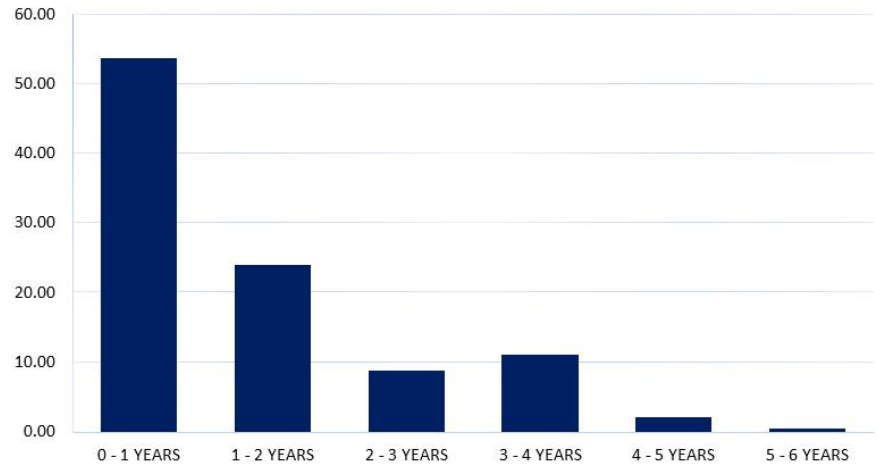
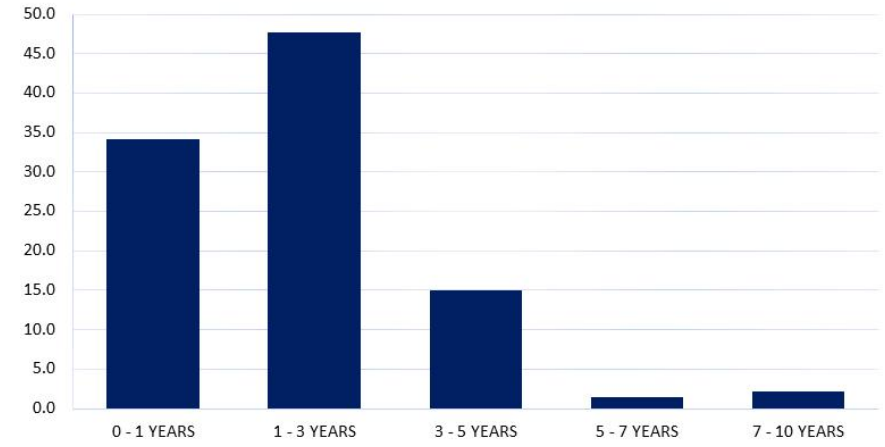
POOL 500 LGIP MED

Duration Distribution



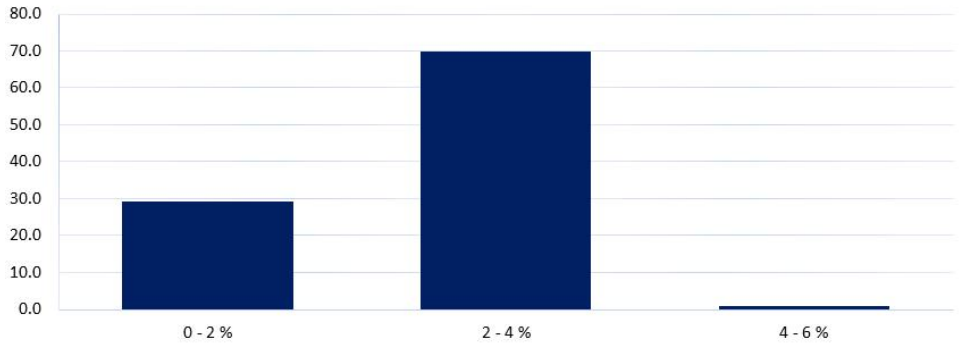
Expected Maturity Distribution



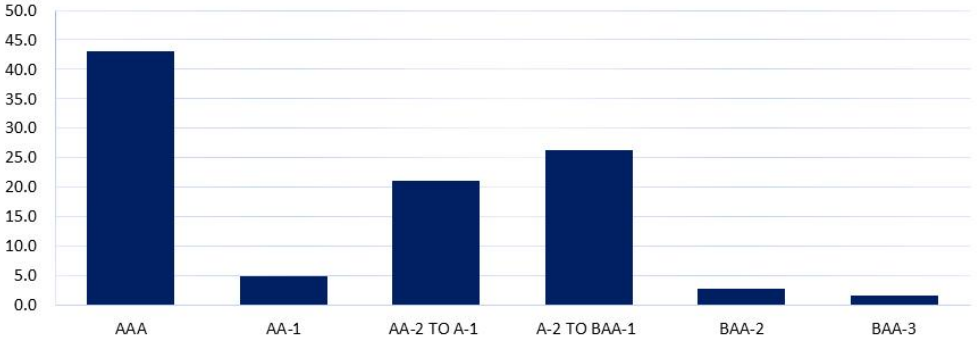
Portfolio Level Characteristics

	POOL 500 LGIP MED
Effective Maturity	1.70
Coupon	2.28
Effective Duration	1.19
Quality Rating (Moody's)	AA-3

Coupon Distribution



Rating Distribution



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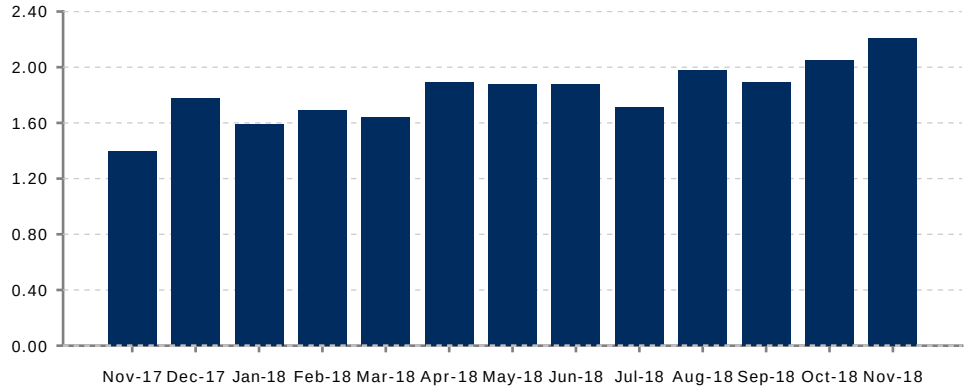
November 30, 2018

POOL 700 LGIP MD FF&C

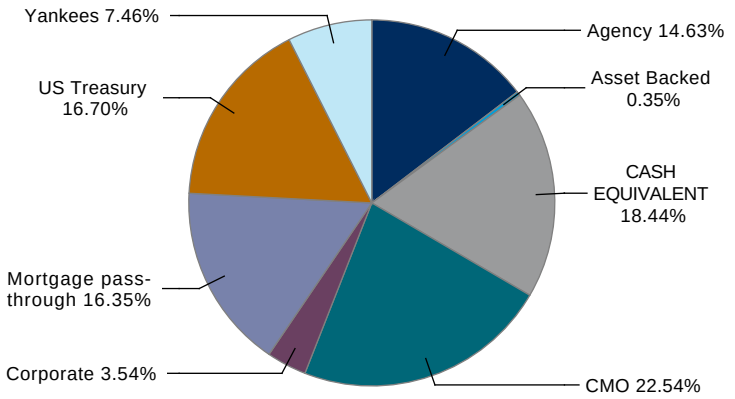
Net Yield



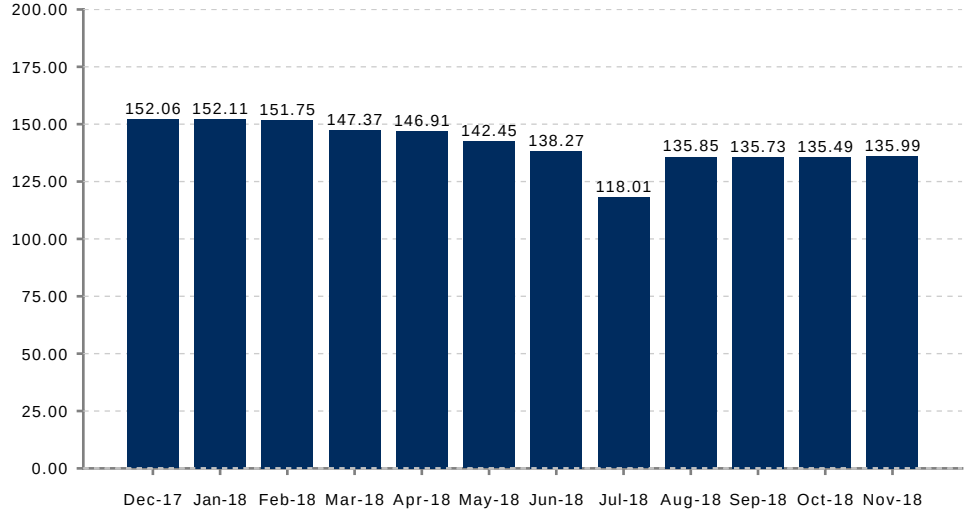
	Current Mth	Prior Mth	1 Year Ago
POOL 700 LGIP MD FF&C	2.21	2.05	1.40

Asset Allocation

	Ending Market Value
POOL 700 LGIP MD FF&C	135,987,425



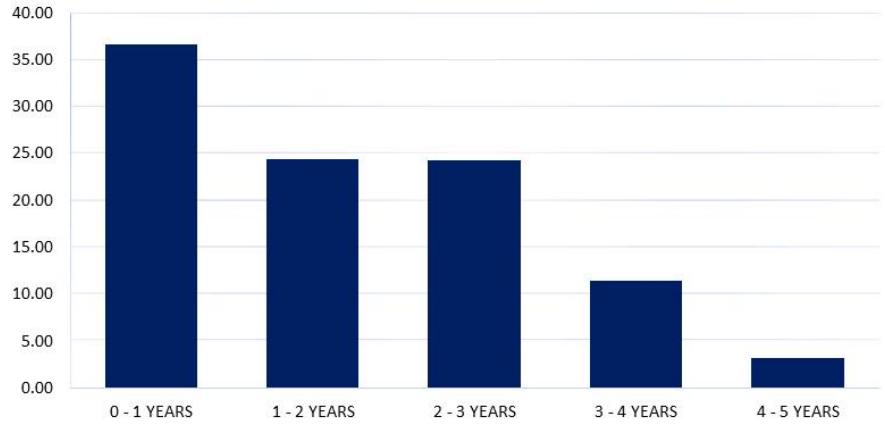
Net Asset Values over Time ($MM)



Top 10 Holdings

Security Name	Ending Market Value	% of Portfolio
POOL 700 LGIP MD FF&C		
AMHERST PIERPONT	15,028,125	11.05
GOVERNMENT NATIONAL MORTGAGE A	6,784,632	4.99
AID JORDAN	6,240,678	4.59
OVERSEAS PRIVATE INV COR	5,043,661	3.71
US TREASURY N/B	4,961,628	3.65
US TREASURY N/B	4,951,149	3.64
US TREASURY N/B	4,902,500	3.61
US TREASURY N/B	4,894,621	3.60
GUGGENHEIM SECURITIES REPO	4,000,252	2.94
GNMA II POOL MA0213	3,612,507	2.66

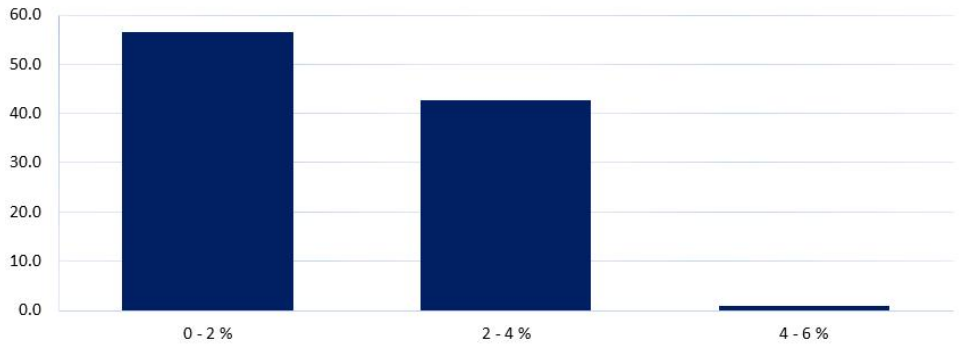
Duration Distribution



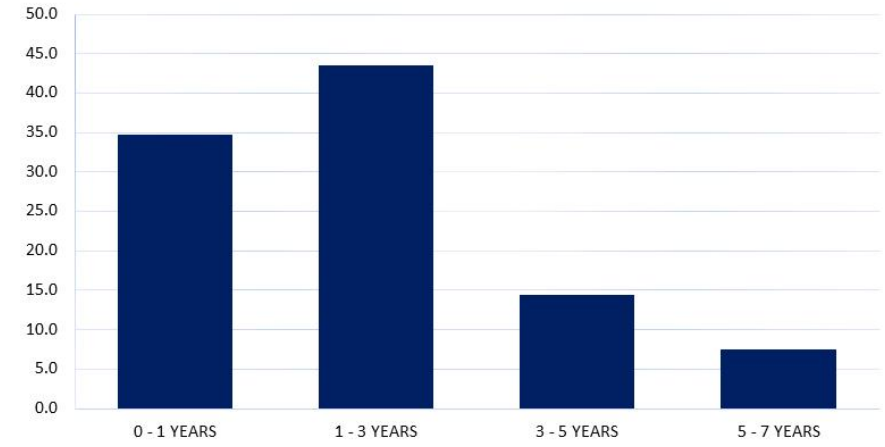
Portfolio Level Characteristics

	POOL 700 LGIP MD FF&C
Effective Maturity	1.85
Coupon	1.61
Effective Duration	1.59
Quality Rating (Moody's)	AAA

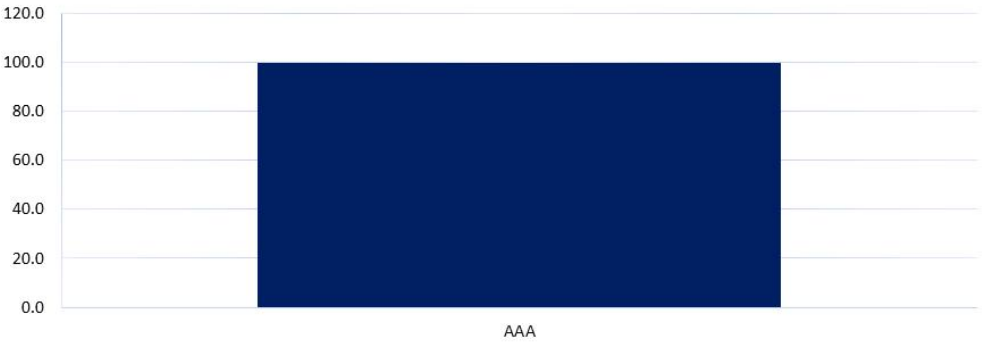
Coupon Distribution



Expected Maturity Distribution



Rating Distribution



EARNINGS DISTRIBUTED
ENDOWMENT FUNDS
NOVEMBER 2018

Recipient		Distributed in Current Month NOVEMBER 2018	Fiscal YTD 18/19	Fiscal YTD 17/18	Fiscal YTD Change
101	A & M Colleges	$70,405	$352,026	$332,438	$19,588
102	State Hospital	47,085	235,424	214,960	20,464
103	Leg., Exec., & Jud.	58,321	291,603	274,485	17,118
104	Military Institute	3,868	19,338	18,210	1,129
105	Miners Hospital	158,118	790,591	718,204	72,387
107	Normal School ASU/NAU	28,855	144,276	130,574	13,702
108	Penitentiaries	106,084	530,418	476,758	53,660
109	Permanent Common School	26,770,470	133,852,348	123,302,182	10,550,166
110	School for Deaf & Blind	38,606	193,031	177,975	15,056
111	School of Mines	79,866	399,329	376,367	22,962
112	State Charitable-Pioneers Home	394,116	1,970,579	1,850,724	119,856
112	State Charitable-Corrections	197,058	985,290	925,362	59,928
112	State Charitable-Youth Treatment	197,058	985,290	925,362	59,928
113	University Fund	143,386	716,932	664,981	51,950
114	U of A Land - 1881	492,037	2,460,183	2,165,918	294,265
	Total	**$28,785,331**	**$143,926,657**	**$132,554,499**	**$11,372,158**

Land Sales Monthly Proceeds
Endowment Funds

Month	2013	2014	2015	2016	2017	2018	2019
January	85,209,777	29,493,046	7,126,212	5,108,687	2,960,815	809,822	
February	24,412,865	33,969,801	2,535,244	1,083,178	1,103,303	744,295	
March	13,469,847	1,323,549	1,096,232	1,106,860	3,045,043	8,296,029	
April	4,599,024	2,252,527	1,968,281	28,981,969	78,134,289	22,707,772	
May	12,685,871	1,100,261	19,123,417	20,147,116	27,642,672	16,234,823	
June	6,493,351	4,564,719	33,179,898	31,844,678	2,451,110	6,799,100	
July	5,694,705	4,196,738	6,092,396	2,469,997	13,838,188	27,835,379	
August	2,304,138	24,838,430	1,038,971	13,094,287	5,746,802	6,932,754	
September	10,399,639	1,960,673	1,967,125	(12,580,728)	19,937,751	8,293,343	
October	1,240,497	3,150,170	2,366,519	10,614,885	480,710	24,823,636	
November	8,995,327	34,193,583	1,358,711	28,490,238	9,500,048	42,245,892	
December	3,574,631	1,136,538	4,264,354	6,127,407	3,869,818		
Calendar Year	179,079,672	142,180,034	82,117,360	136,488,573	168,710,549	165,722,845	-
Fiscal Year (July 1st to June 30th)	234,004,734	104,912,840	134,505,415	105,360,563	163,553,318	108,965,158	110,131,004

NET REALIZED CAPITAL GAINS / LOSSES - ENDOWMENT FUNDS

Endowment Fund	November 2018 NET GAIN(LOSS)	November 2017 NET GAIN(LOSS)
Fixed Income Pool	($296,236)	**($371,853)**
500 Large-Cap Fund	6,961,461	**$5,934,892**
400 Mid-Cap Fund	8,553,563	**$946,302**
600 Small-Cap Fund	3,201,554	**$2,082,622**
Totals	$18,420,342	**$8,591,964**

Endowment Fund	2018/2019 FISCAL YEAR TO DATE GAINS(LOSSES)	2017/2018 FISCAL YEAR TO DATE GAINS(LOSSES)
Fixed Income Pool	($1,809,435)	**($1,916,984)**
500 Large-Cap Fund	20,489,008	**17,017,007**
400 Mid-Cap Fund	25,398,217	**23,741,098**
600 Small-Cap Fund	15,473,316	**13,067,273**
Totals	$59,551,106	**$51,908,394**

ENDOWMENT FUNDS FIXED-INCOME POOLS
PURCHASES & SALES
NOVEMBER 2018

I. Endowment Funds Purchases

POOL	SECURITY DESCRIPTION	RATE	MATURITY	*WAL YEARS	PAR VALUE	PURCHASE COST	YIELD	MOODY'S RATING
205	FREDDIE MAC	4.50	11/15/2029	5.97	$4,746,220	$5,000,588		Aaa
123	ATLANTIC	0.00	12/21/2018	NA	5,000,000	4,985,944	2.31%	P-1
123	CEDAR SPRING	0.00	02/19/2019	NA	5,000,000	4,967,800	2.78%	P-1
123	CONCORD	0.00	02/19/2019	NA	5,000,000	4,967,800	2.78%	P-1
123	HALKIN	0.00	01/23/2019	NA	5,000,000	4,978,038	2.52%	P-1
123	HALKIN	0.00	12/21/2018	NA	5,000,000	4,990,900	2.34%	P-1
123	INSTITUTIONAL SECURED	0.00	01/23/2019	NA	5,000,000	4,975,563	2.56%	P-1
123	MOUNTCLIFF	0.00	01/23/2019	NA	5,000,000	4,979,575	2.59%	P-1
123	MOUNTCLIFF	0.00	02/22/2019	NA	5,000,000	4,967,033	2.78%	P-1
123	MOUNTCLIFF	0.00	12/21/2018	NA	5,000,000	4,989,624	2.42%	P-1
123	NESTLE	0.00	12/21/2018	NA	5,000,000	4,985,944	2.31%	P-1
123	SUMITOMO MITSUBISHI	0.00	03/22/2019	NA	5,000,000	4,947,867	2.79%	P-1
123	VICTORY	0.00	02/20/2019	NA	5,000,000	4,967,771	2.75%	P-1
123	VICTORY	0.00	01/23/2019	NA	5,000,000	4,978,819	2.51%	P-1
	TOTAL ENDOWMENT FUNDS PURCHASES				**$69,746,220**	**$69,683,266**		

II. Endowment Funds Sales

POOL	SECURITY DESCRIPTION	RATE	MATURITY	PAR VALUE	AMORTIZED COST/PROCEEDS	SALES GAINS/(LOSSES)	MOODY'S RATING
	TOTAL ENDOWMENT FUNDS SALES			**$0**	**$0**	**$0**	

* WAL is the weighted average life of the security based on the Bloomberg calculation at the time the trade is executed. The calculation is used only with mortgage-backed pass-through/CMO securities.

EQUITY FUNDS
PURCHASES & SALES
NOVEMBER 2018

I. Equity Fund Purchases

	SHARES	PURCHASE COST	COMMISSIONS
400 Mid-Cap Fund	584,344	$26,225,071	$4,139
500 Large-Cap Fund	159,375	$17,941,949	$680
600 Small-Cap Fund	744,492	17,768,977	5,407
TOTAL EQUITY PURCHASES	**1,488,211**	**$61,935,997**	**$10,226**

II. Equity Funds Sales

	SHARES	SALES AMOUNT	COMMISSIONS
400 Mid-Cap Fund	357,804	$24,505,051	$2,379
500 Large-Cap Fund	90,253	4,517,254	677
600 Small-Cap Fund	171,919	5,461,830	1,075
TOTAL EQUITY SALES	**619,976**	**$34,484,135**	**$4,131**

ENDOWMENT FUNDS
INVESTMENTS OUTSTANDING
NOVEMBER 30, 2018
(In Thousands)

FUND	NAME OF FUND	SHARES OUTSTANDING	BOOK VALUE	MARKET VALUE	UNREALIZED GAINS (LOSSES)	**Mkt Value/ Book Value**
101	A & M Colleges					
	Shares in Equity Pools	383	$2,698	$7,949	$5,252	
	Shares in Fixed Income Pools	3,828	2,741	5,069	2,328	
	Total	4,212	5,438	13,018	7,580	**2.394**
102	State Hospital					
	Shares in Equity Pools	304	2,636	6,297	3,661	
	Shares in Fixed Income Pools	3,123	2,594	4,134	1,540	
	Total	3,426	5,230	10,431	5,201	**1.995**
103	Leg., Exec, & Jud					
	Shares in Equity Pools	314	2,369	6,502	4,133	
	Shares in Fixed Income Pools	3,355	2,404	4,442	2,038	
	Total	3,668	4,773	10,943	6,171	**2.293**
104	Military Institute					
	Shares in Equity Pools	21	165	438	272	
	Shares in Fixed Income Pools	231	163	306	143	
	Total	252	328	744	416	**2.267**
105	Miners Hospital					
	Shares in Equity Pools	934	8,289	19,356	11,067	
	Shares in Fixed Income Pools	9,378	8,173	12,416	4,243	
	Total	10,311	16,462	31,772	15,310	**1.930**
107	Normal School ASU/NAU					
	Shares in Equity Pools	180	1,559	3,737	2,178	
	Shares in Fixed Income Pools	1,860	1,490	2,462	972	
	Total	2,040	3,049	6,199	3,150	**2.033**
108	Penitentiaries					
	Shares in Equity Pools	619	5,246	12,833	7,586	
	Shares in Fixed Income Pools	6,327	5,211	8,377	3,166	
	Total	6,946	10,457	21,210	10,753	**2.028**

ENDOWMENT FUNDS
INVESTMENTS OUTSTANDING
NOVEMBER 30, 2018
(In Thousands)

	NAME OF FUND	SHARES OUTSTANDING	BOOK VALUE	MARKET VALUE	UNREALIZED GAINS (LOSSES)	**Mkt Value/ Book Value**
109	Permanent Common School					
	Shares in Equity Pools	160,227	1,308,886	3,321,480	2,012,594	
	Shares in Fixed Income Pools	1,612,503	1,321,804	2,134,906	813,103	
	Total	1,772,730	2,630,690	5,456,387	2,825,697	**2.074**
110	School for Deaf & Blind					
	Shares in Equity Pools	224	1,857	4,636	2,779	
	Shares in Fixed Income Pools	2,515	1,977	3,329	1,352	
	Total	2,738	3,834	7,965	4,131	**2.077**
111	School of Mines					
	Shares in Equity Pools	434	3,257	8,995	5,738	
	Shares in Fixed Income Pools	4,458	3,310	5,902	2,592	
	Total	4,891	6,567	14,896	8,330	**2.268**
112	State Charitable					
	Shares in Equity Pools	4,564	35,738	94,616	58,878	
	Shares in Fixed Income Pools	44,372	35,765	58,747	22,981	
	Total	48,936	71,504	153,363	81,859	**2.145**
113	University Fund					
	Shares in Equity Pools	793	6,284	16,435	10,151	
	Shares in Fixed Income Pools	8,172	6,230	10,820	4,589	
	Total	8,965	12,514	27,255	14,741	**2.178**
114	U Of A Land - 1881					
	Shares in Equity Pools	3,009	29,297	62,367	33,070	
	Shares in Fixed Income Pools	30,907	26,688	40,920	14,232	
	Total	33,916	55,985	103,287	47,302	**1.845**
	TOTALS - ALL FUNDS					
	Shares in Equity Pools	172,005	1,408,282	3,565,642	2,157,360	
	Shares in Fixed Income Pools	1,731,027	1,418,550	2,291,829	873,279	
	Grand Total	$1,903,033	$2,826,831	$5,857,470	$3,030,639	
	PRIOR YEAR: NOVEMBER 2017 BALANCES	**$1,955,926**	**$2,893,515**	**$5,879,554**	**$2,986,039**	

ENDOWMENT FUNDS
INVESTMENTS OUTSTANDING
NOVEMBER 30, 2018

ASSET ALLOCATION PERCENTAGE

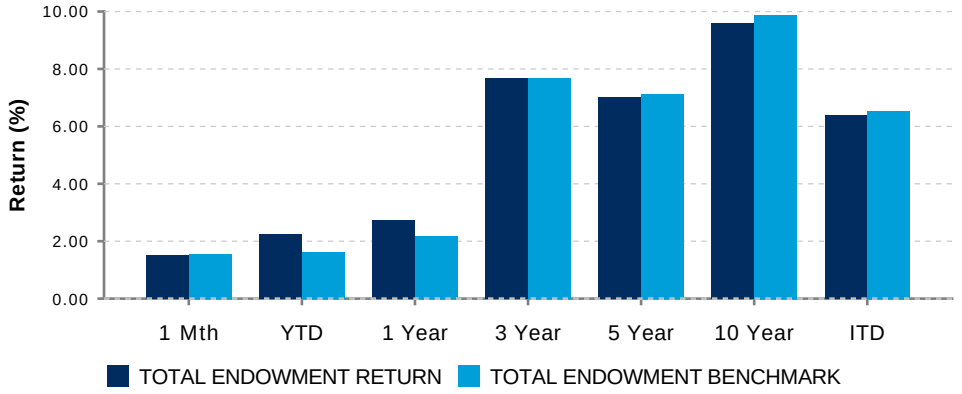
	SHARES OUTSTANDING	**BOOK VALUE**	MARKET VALUE	NOVEMBER 2017 MARKET VALUE
Shares in Equity Pools	9.04%	**49.82%**	62.16%	61.35%
Shares in Fixed Income Pools	90.96%	**50.18%**	37.84%	38.65%
Total	100.00%	**100.00%**	100.00%	100.00%

OFFICE OF THE ARIZONA STATE TREASURER

November 30, 2018

Total Endowment Summary

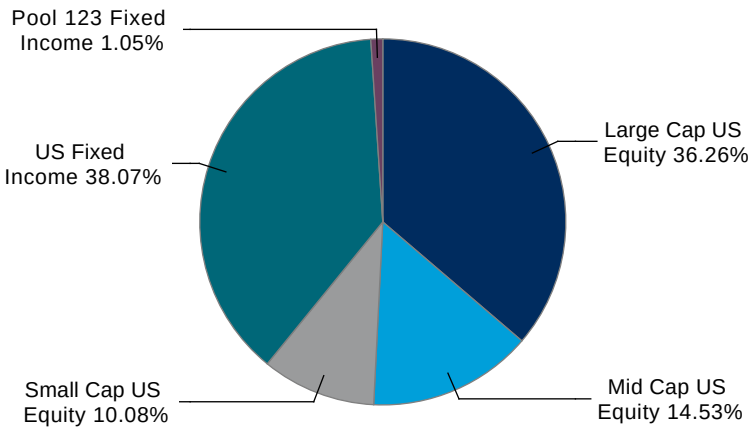
Performance



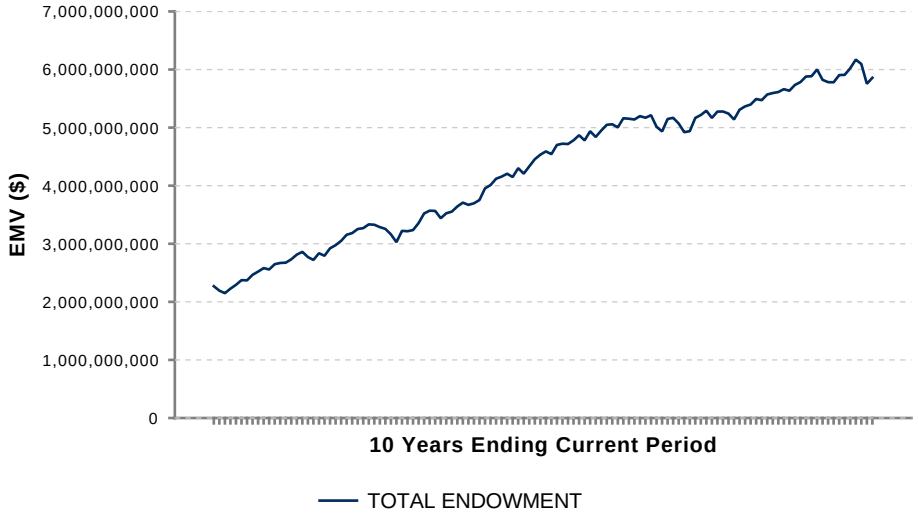
	1 Mth	YTD	1 Year	3 Year	5 Year	10 Year	ITD	Incept Date
TOTAL ENDOWMENT RETURN	1.53	2.25	2.73	7.69	7.01	9.59	6.38	07/99
TOTAL ENDOWMENT BENCHMARK	1.56	1.63	2.19	7.67	7.12	9.86	6.53	07/99
	-0.03	0.62	0.54	0.03	-0.11	-0.26	-0.15	

Asset Allocation

	Ending Market Value
TOTAL ENDOWMENT RETURN	5,857,470,397

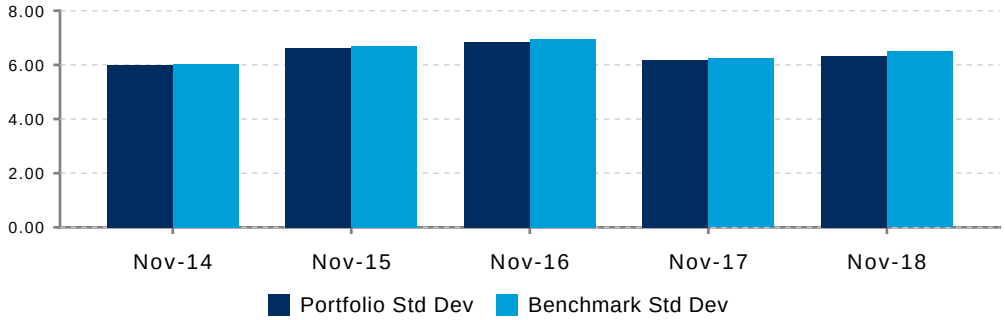


Ending Market Value



3 Year Risk Statistics

	Return	Portfolio Std Dev	Benchmark Std Dev	Sharpe Ratio	Beta	Tracking Error	Information Ratio
TOTAL ENDOWMENT RETURN	7.69	6.34	6.50	1.06	0.97	0.37	0.07

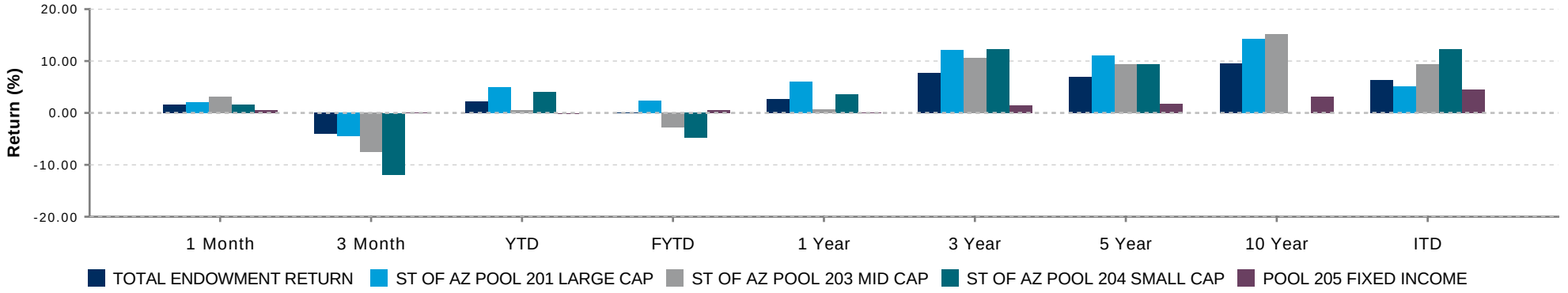


OFFICE OF THE ARIZONA STATE TREASURER

November 30, 2018

Total Returns Net Mgr

Return Comparison



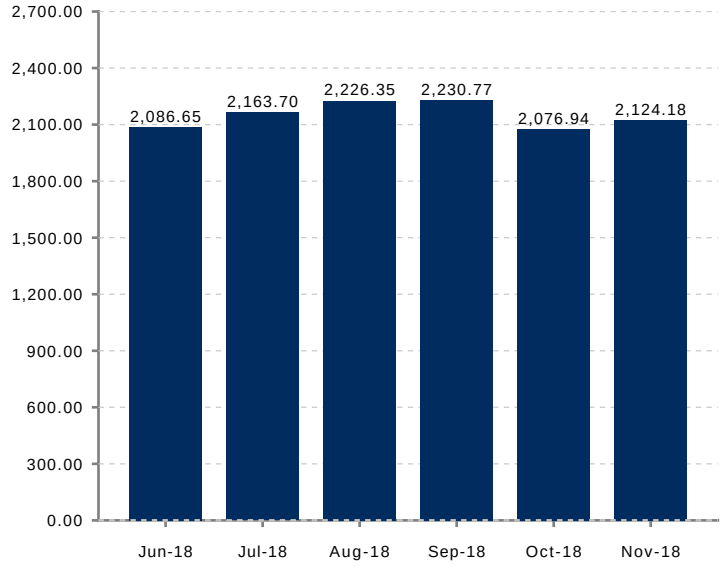
	Market Value	Actual Weight	1 Mth	3 Mth	YTD	FYTD	1 Year	3 Year	5 Year	10 Year	ITD	Inc Date
TOTAL ENDOWMENT RETURN	5,857,470,397	100.00	1.53	-4.08	2.25	0.09	2.73	7.69	7.01	9.59	6.38	Jul-01-99
TOTAL ENDOWMENT BENCHMARK			1.56	-4.38	1.63	-0.19	2.19	7.67	7.12	9.86	6.53	Jul-01-99
			-0.03	0.30	0.62	0.27	0.54	0.03	-0.11	-0.26	-0.15	
ST OF AZ POOL 201 LARGE CAP	2,124,182,525	36.26	2.04	-4.44	4.98	2.33	6.10	12.06	11.04	14.28	5.18	Jul-01-99
S&P 500 INDEX (DAILY)			2.04	-4.40	5.11	2.39	6.27	12.16	11.12	14.32	5.67	Jul-01-99
			0.00	-0.05	-0.12	-0.07	-0.17	-0.10	-0.08	-0.03	-0.49	
ST OF AZ POOL 203 MID CAP	850,826,555	14.53	3.06	-7.51	0.52	-2.82	0.72	10.67	9.38	15.11	9.35	Aug-01-01
S&P 400 MIDCAP INDEX (DAILY)			3.12	-7.74	0.26	-3.12	0.48	10.48	9.27	15.60	9.33	Aug-01-01
			-0.06	0.23	0.26	0.30	0.23	0.19	0.12	-0.49	0.02	
ST OF AZ POOL 204 SMALL CAP	590,632,817	10.08	1.53	-11.88	4.04	-4.75	3.57	12.33	9.44		12.29	Mar-01-11
S&P SM 600 TR			1.50	-12.02	4.08	-4.85	3.54	12.40	9.42		12.29	Mar-01-11
			0.03	0.13	-0.04	0.10	0.03	-0.08	0.02		0.01	
POOL 205 FIXED INCOME	2,230,192,050	38.07	0.53	-0.12	-0.15	0.51	0.10	1.49	1.83	3.17	4.50	Jul-01-99
FTSE BIG (DAILY)			0.57	-0.87	-1.83	-0.18	-1.38	1.34	2.03	3.53	4.72	Jul-01-99
			-0.05	0.76	1.68	0.69	1.47	0.16	-0.20	-0.35	-0.22	
POOL 123 FIXED INCOME	61,636,450	1.05	0.32	0.74	1.80	1.00	1.91				1.32	Jun-01-16
ASTO-POOL 5 BENCHMARK			0.19	0.55	1.74	0.90	1.84				1.17	Jun-01-16
			0.13	0.19	0.07	0.11	0.06				0.14	

OFFICE OF THE ARIZONA STATE TREASURER

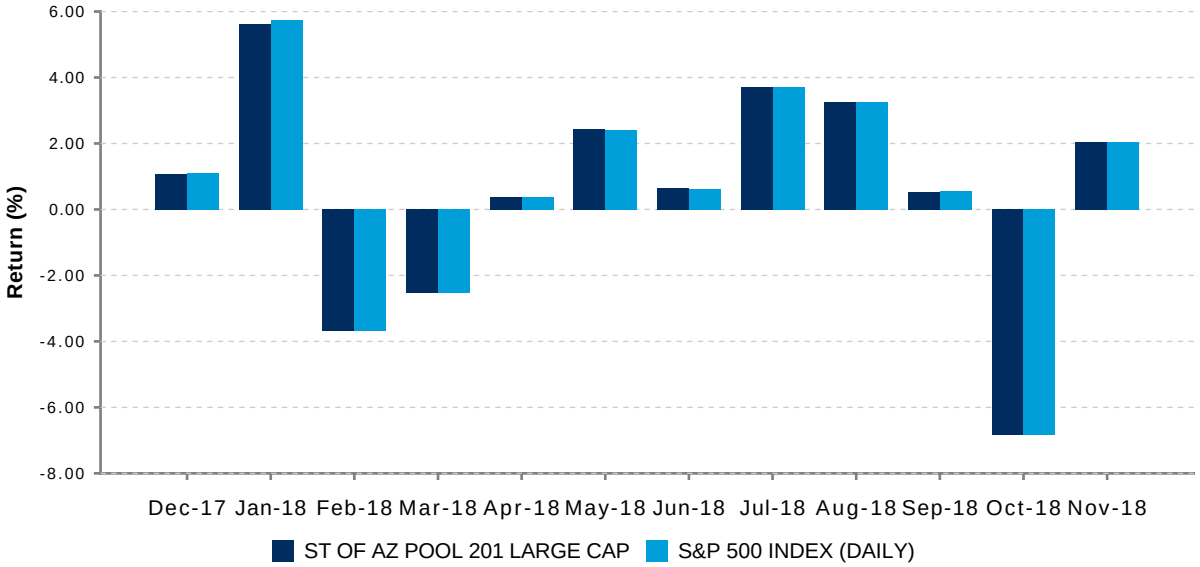
November 30, 2018

ST OF AZ POOL 201 LARGE CAP

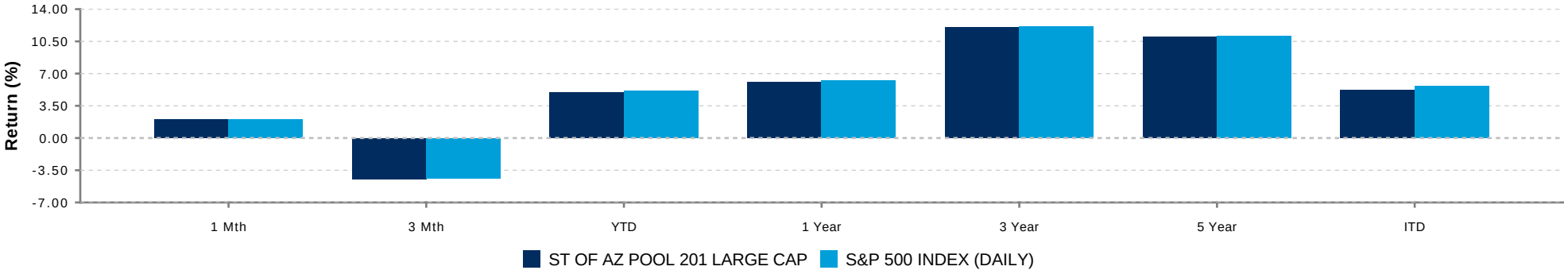
Net Asset Values over Time ($MM)



Monthly Returns



Rates of Return

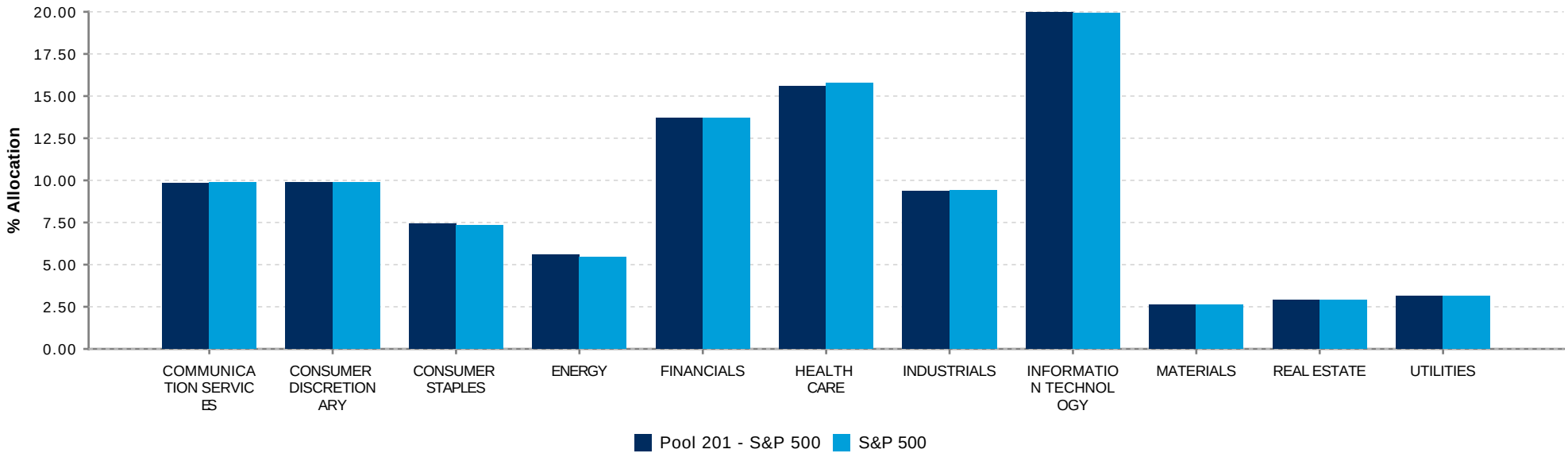


	1 Mth	3 Mth	YTD	1 Year	3 Year	5 Year	ITD	Nov 30 2016	Nov 30 2017	Nov 30 2018
ST OF AZ POOL 201 LARGE CAP	2.04	-4.44	4.98	6.10	12.06	11.04	5.18	7.91	22.91	6.10
S&P 500 INDEX (DAILY)	2.04	-4.40	5.11	6.27	12.16	11.12	5.67	8.06	22.87	6.27
	0.00	-0.05	-0.12	-0.17	-0.10	-0.08	-0.49	-0.15	0.04	-0.17

OFFICE OF THE ARIZONA STATE TREASURER

November 30, 2018

ST OF AZ POOL 201 LARGE CAP
Sector Allocation vs S&P 500



	Fund Weight	Benchmark Weight	Relative Weight
ST OF AZ POOL 201 LARGE CAP	100.00	100.00	0.00
COMMUNICATION SERVICES	10.15	10.10	0.05
CONSUMER DISCRETIONARY	9.83	9.79	0.04
CONSUMER STAPLES	7.37	7.35	0.01
ENERGY	5.71	5.69	0.02
FINANCIALS	13.61	13.57	0.03
HEALTH CARE	15.06	15.02	0.04
INDUSTRIALS	9.27	9.28	-0.01
INFORMATION TECHNOLOGY	20.74	20.74	-0.00
MATERIALS	2.36	2.56	-0.20
REAL ESTATE	2.80	2.80	0.01
UTILITIES	3.10	3.09	0.01

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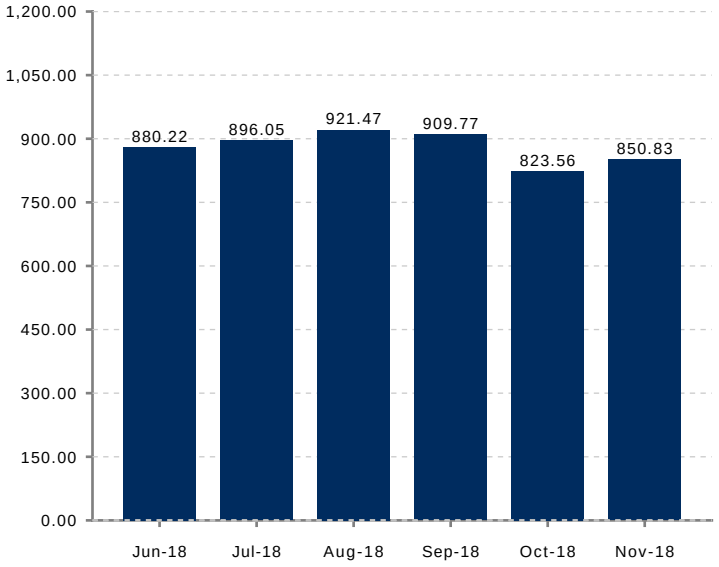
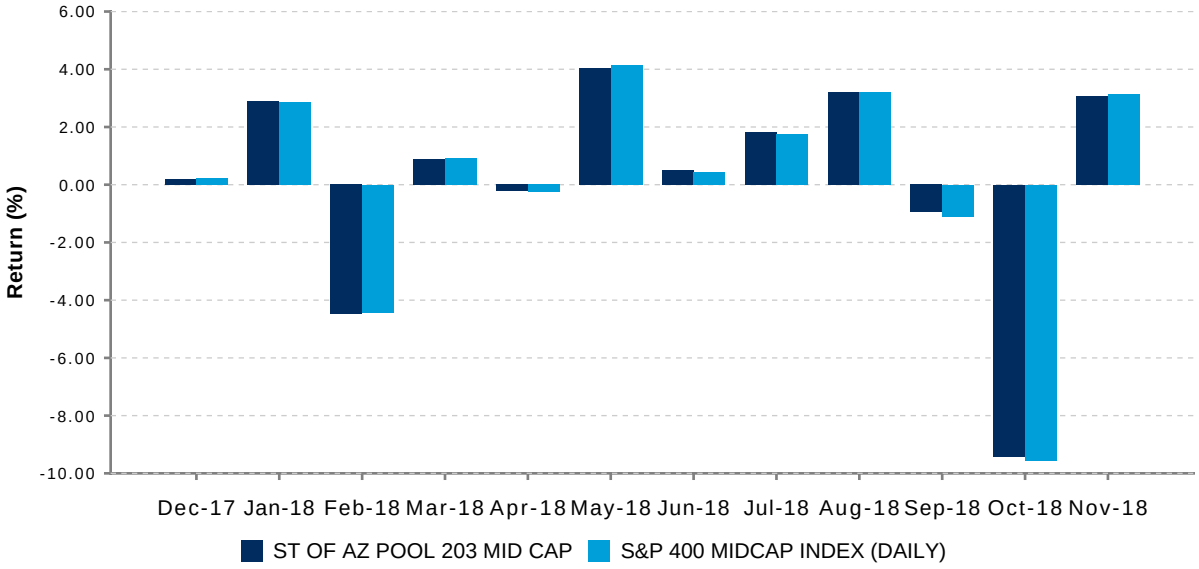
ST OF AZ POOL 203 MID CAP

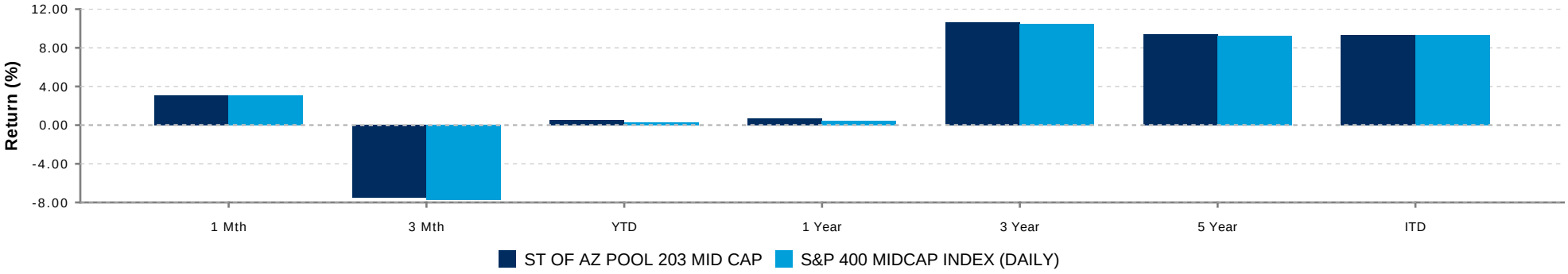
Net Asset Values over Time ($MM)



Monthly Returns



Rates of Return



	1 Mth	3 Mth	YTD	1 Year	3 Year	5 Year	ITD	Nov 30 2016	Nov 30 2017	Nov 30 2018
ST OF AZ POOL 203 MID CAP	3.06	-7.51	0.52	0.72	10.67	9.38	9.35	13.22	18.87	0.72
S&P 400 MIDCAP INDEX (DAILY)	3.12	-7.74	0.26	0.48	10.48	9.27	9.33	13.23	18.53	0.48
	-0.06	0.23	0.26	0.23	0.19	0.12	0.02	-0.00	0.34	0.23

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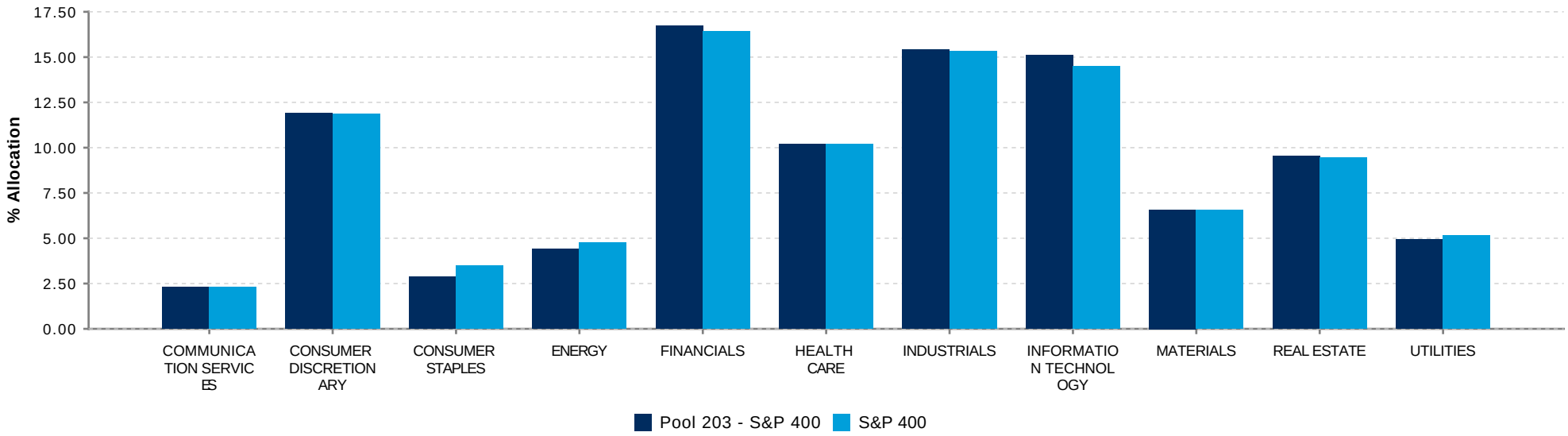
ST OF AZ POOL 203 MID CAP
Sector Allocation vs S&P MID CAP 400



	Weight Fund	Weight Benchmark	Weight Relative
ST OF AZ POOL 203 MID CAP	100.00	100.00	0.00
COMMUNICATION SERVICES	2.28	2.27	0.01
CONSUMER DISCRETIONARY	11.81	11.89	-0.08
CONSUMER STAPLES	3.71	3.70	0.02
ENERGY	4.92	4.91	0.01
FINANCIALS	16.59	16.24	0.35
HEALTH CARE	9.81	9.96	-0.15
INDUSTRIALS	14.14	14.40	-0.27
INFORMATION TECHNOLOGY	15.87	15.72	0.15
MATERIALS	6.68	6.64	0.04
REAL ESTATE	9.42	9.28	0.15
UTILITIES	4.76	4.99	-0.23

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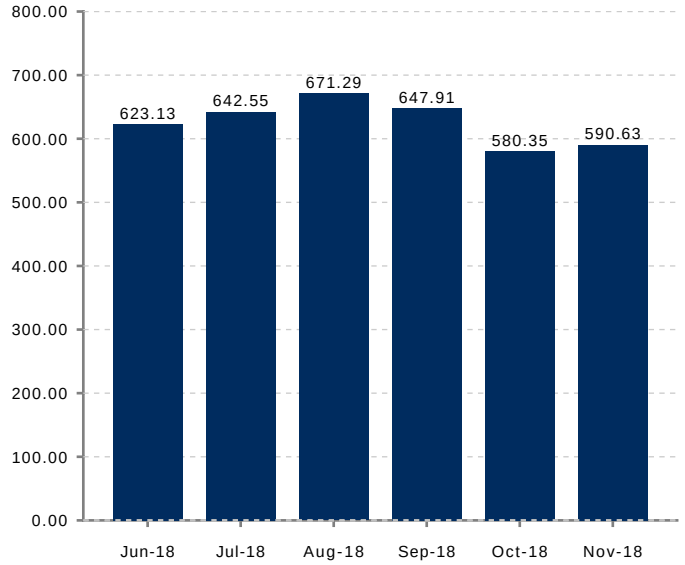
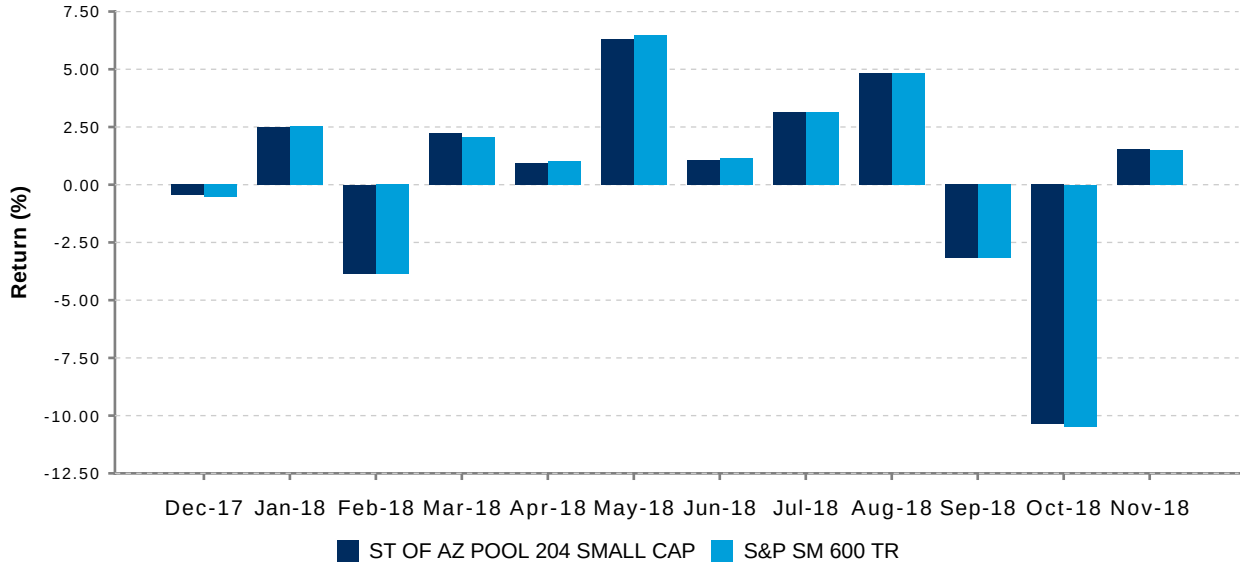
ST OF AZ POOL 204 SMALL CAP

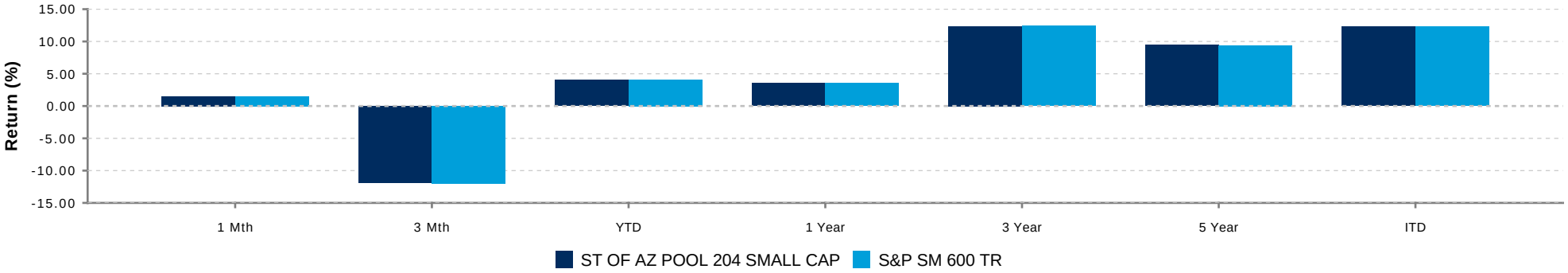
Net Asset Values over Time ($MM)



Monthly Returns



Rates of Return



	1 Mth	3 Mth	YTD	1 Year	3 Year	5 Year	ITD	Nov 30 2016	Nov 30 2017	Nov 30 2018
ST OF AZ POOL 204 SMALL CAP	1.53	-11.88	4.04	3.57	12.33	9.44	12.29	16.38	17.58	3.57
S&P SM 600 TR	1.50	-12.02	4.08	3.54	12.40	9.42	12.29	16.57	17.66	3.54
	0.03	0.13	-0.04	0.03	-0.08	0.02	0.01	-0.19	-0.08	0.03

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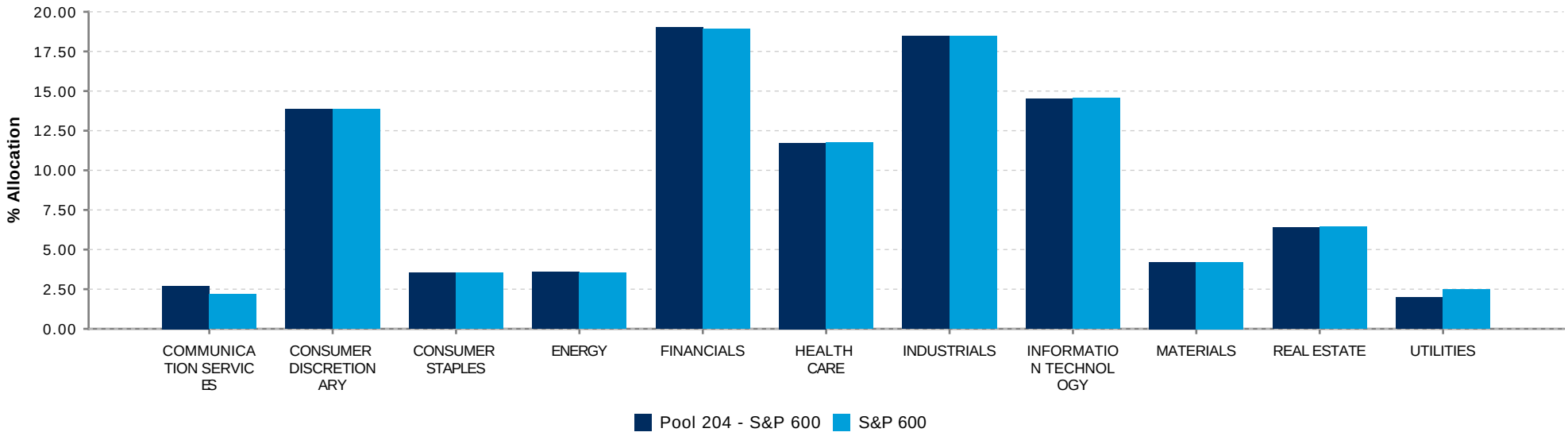
ST OF AZ POOL 204 SMALL CAP
Sector Allocation vs S&P SMALLCAP 600



	Weight Fund	Weight Benchmark	Weight Relative
ST OF AZ POOL 204 SMALL CAP	100.00	100.00	0.00
COMMUNICATION SERVICES	2.72	2.25	0.46
CONSUMER DISCRETIONARY	14.24	14.15	0.09
CONSUMER STAPLES	3.42	3.45	-0.03
ENERGY	3.94	3.93	0.01
FINANCIALS	17.95	18.00	-0.06
HEALTH CARE	11.91	11.73	0.17
INDUSTRIALS	19.03	18.91	0.12
INFORMATION TECHNOLOGY	14.26	14.41	-0.15
MATERIALS	4.63	4.67	-0.04
REAL ESTATE	6.01	6.08	-0.08
UTILITIES	1.89	2.40	-0.51

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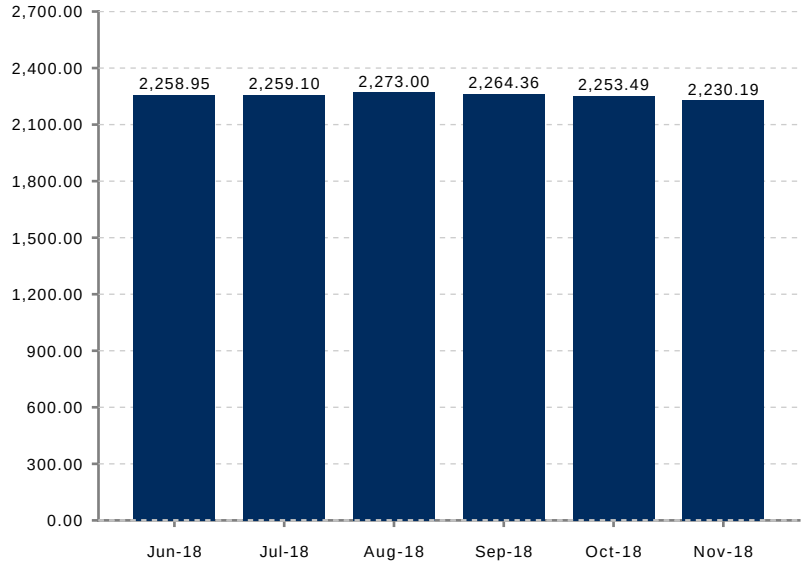
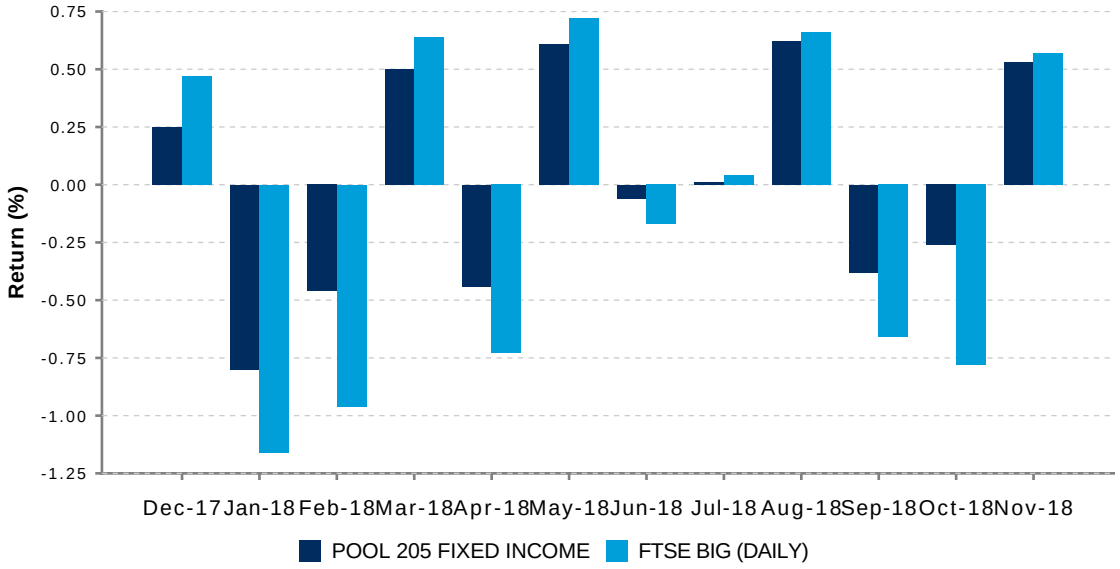
November 30, 2018

POOL 205 FIXED INCOME

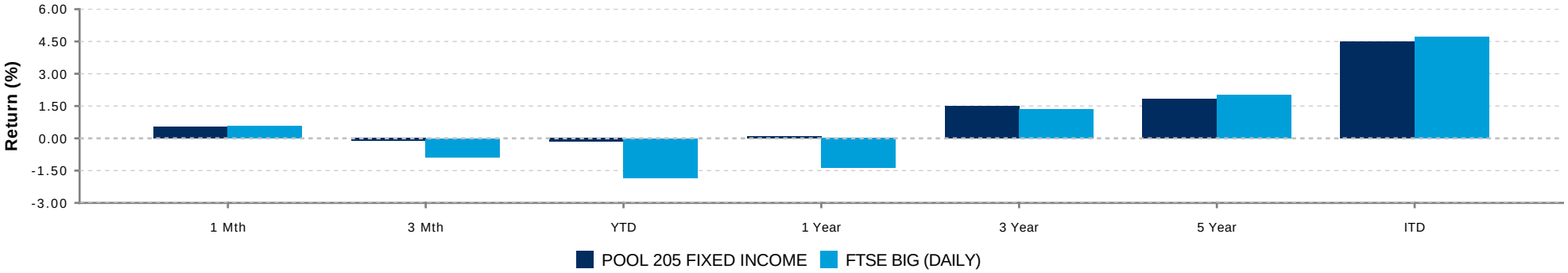
Net Asset Values over Time ($MM)



Monthly Returns



Rates of Return



	1 Mth	3 Mth	YTD	1 Year	3 Year	5 Year	ITD	Nov 30 2018	Nov 30 2017	Nov 30 2016
POOL 205 FIXED INCOME	0.53	-0.12	-0.15	0.10	1.49	1.83	4.50	0.10	2.36	2.04
FTSE BIG (DAILY)	0.57	-0.87	-1.83	-1.38	1.34	2.03	4.72	-1.38	3.24	2.20
	-0.05	0.76	1.68	1.47	0.16	-0.20	-0.22	1.47	-0.88	-0.16

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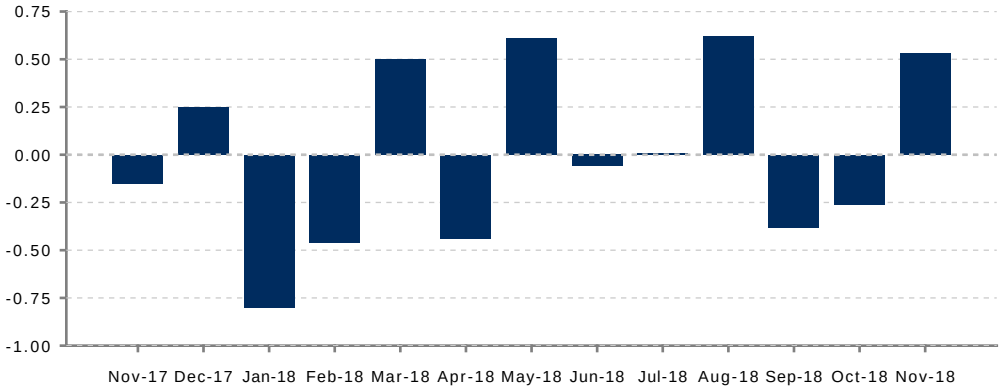
November 30, 2018

POOL 205 FIXED INCOME

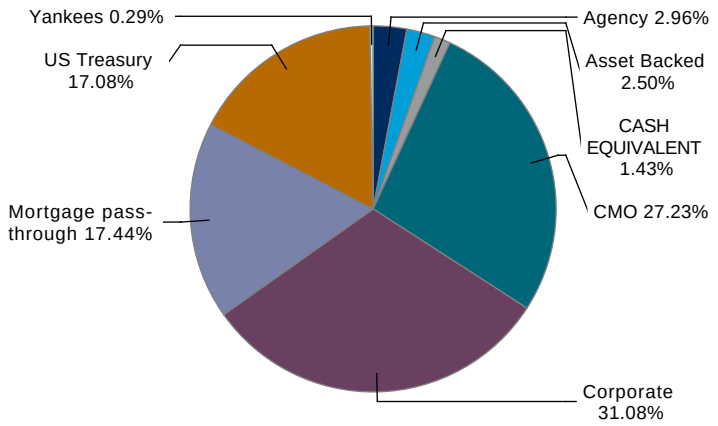
Net Mgr Return



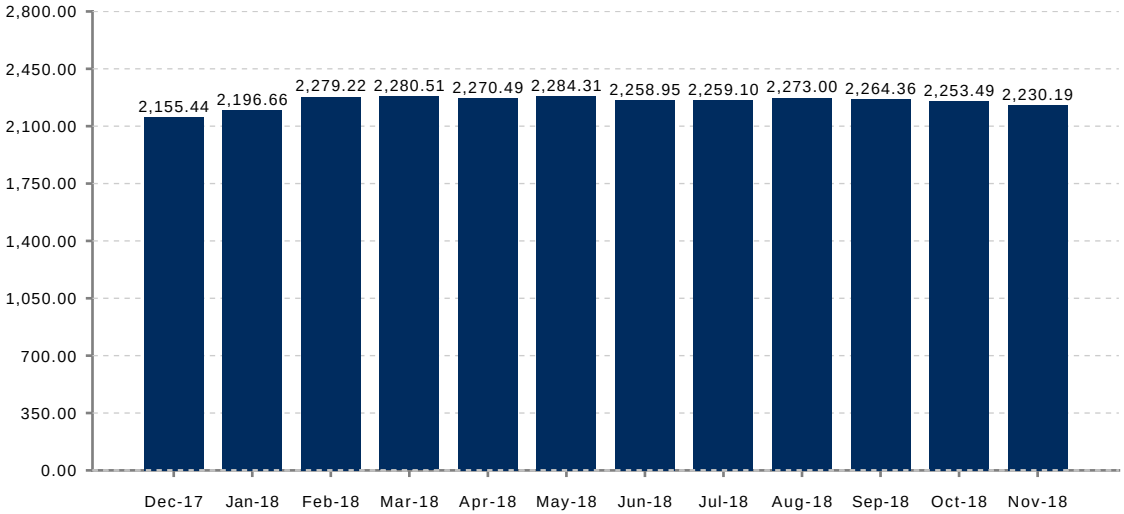
	Current Mth	Prior Mth	1 Year Ago
POOL 205 FIXED INCOME	0.53	-0.26	-0.15

Asset Allocation

	Ending Market Value
POOL 205 FIXED INCOME	2,230,192,050



Net Asset Values over Time ($MM)



Top 10 Holdings

Security Name	Ending Market Value	% of Portfolio
POOL 205 FIXED INCOME		
US TREASURY N/B	33,636,171	1.51
US TREASURY N/B	25,961,855	1.16
US TREASURY N/B	25,632,914	1.15
US TREASURY N/B	24,171,433	1.08
US TREASURY N/B	22,935,061	1.03
US TREASURY N/B	20,866,291	0.94
PEPSICO INC	20,143,028	0.90
PNC BANK NA	20,015,423	0.90
FORD MOTOR CREDIT CO	19,774,520	0.89
US TREASURY N/B	19,153,685	0.86

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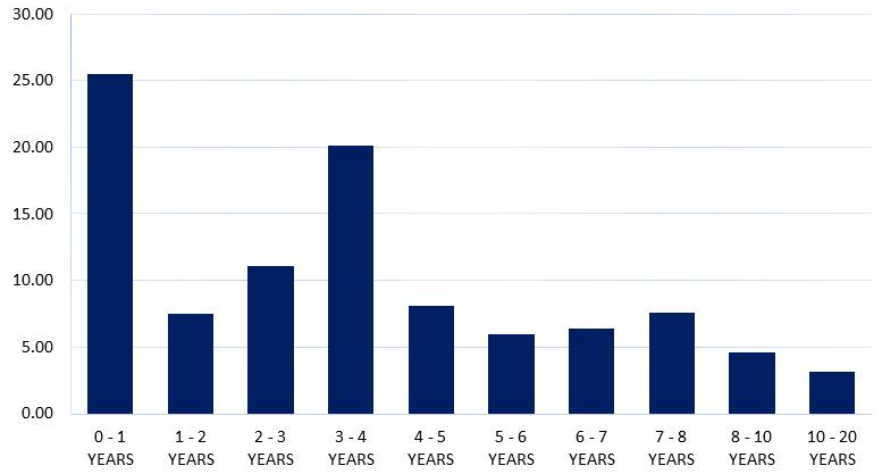
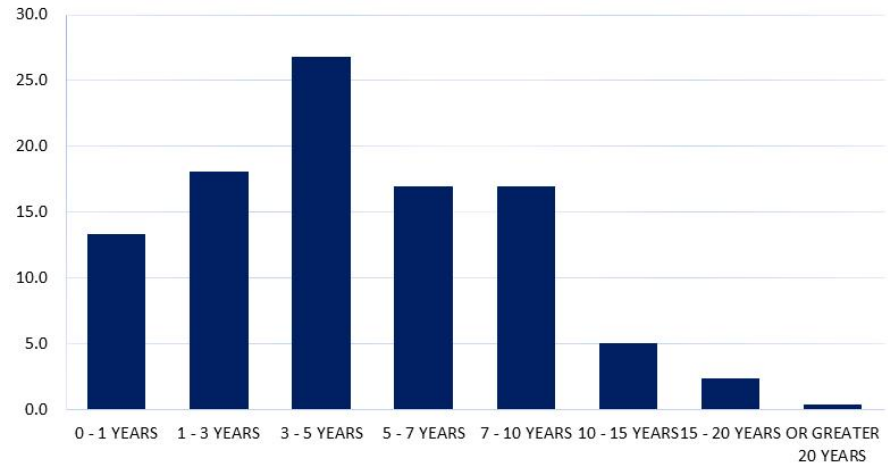
November 30, 2018

POOL 205 FIXED INCOME

Duration Distribution



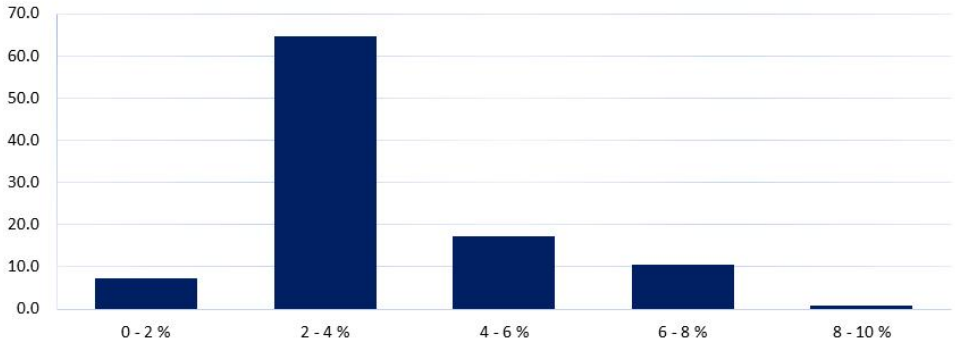
Expected Maturity Distribution



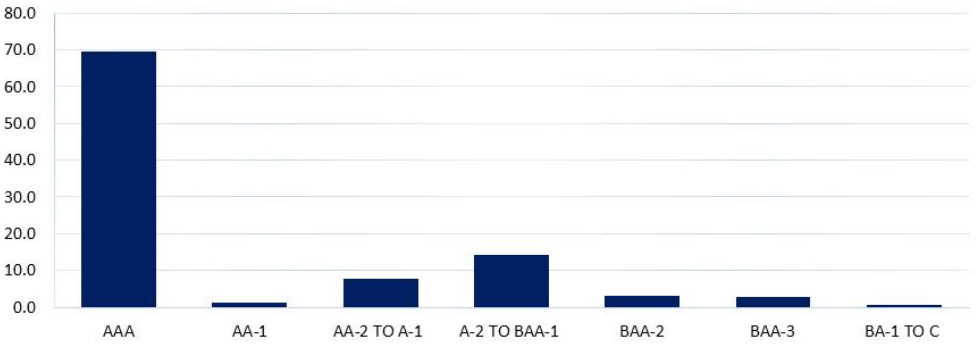
Portfolio Level Characteristics

	POOL 205 FIXED INCOME
Effective Maturity	5.08
Coupon	3.70
Effective Duration	3.60
Quality Rating (Moody's)	AA-2

Coupon Distribution



Rating Distribution



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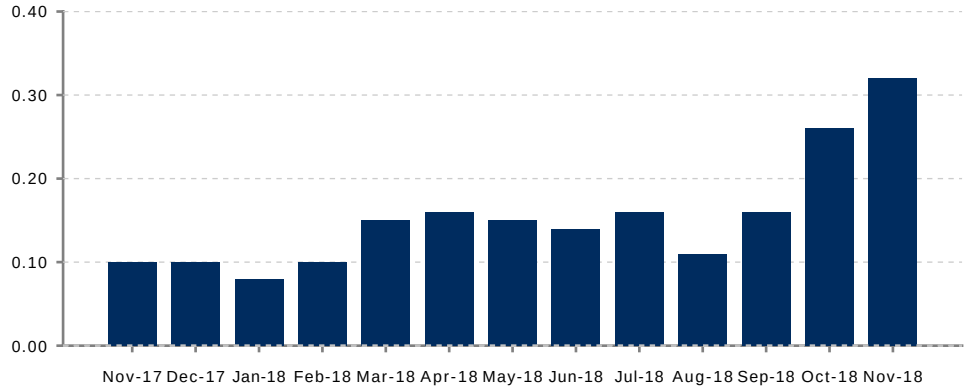
November 30, 2018

POOL 123 ST

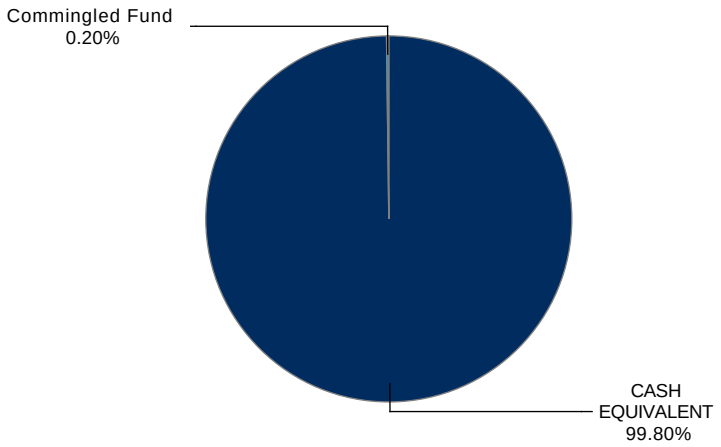
Net Yield



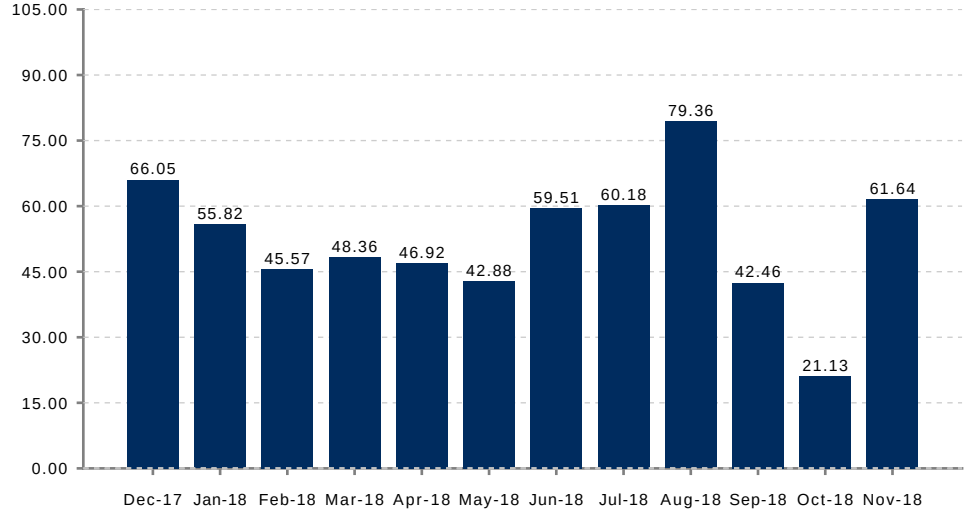
	Current Mth	Prior Mth	1 Year Ago
ST OF AZ POOL 123 ST FIXED INC	0.32	0.26	0.10

Asset Allocation

	Ending Market Value
ST OF AZ POOL 123 ST FIXED INC	61,636,450



Net Asset Values over Time ($MM)



Top 10 Holdings

Security Name	Ending Market Value	% of Portfolio
ST OF AZ POOL 123 ST FIXED INC		
CROWN POINT CAP CO.	5,015,169	8.14
GOTHAM FDG CORP	4,993,639	8.10
ATLANTIC ASSET SECUR	4,993,611	8.10
NESTLE FIN FRANCE S.	4,993,611	8.10
HALKIN FINANCE LLC USC	4,993,500	8.10
MOUNTCLIFF	4,993,306	8.10
VICTORY RECEIVABLES	4,981,597	8.08
HALKIN FINANCE LLC USC	4,981,524	8.08
INSTITUTIONAL SECURED	4,981,229	8.08
MOUNTCLIFF	4,981,008	8.08

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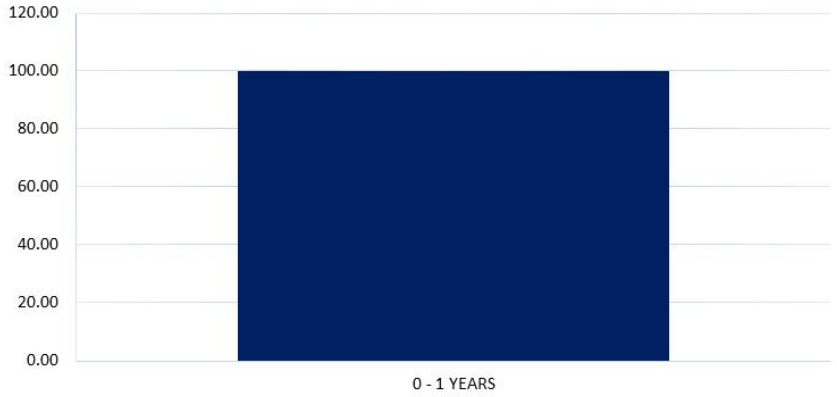
POOL 123 ST

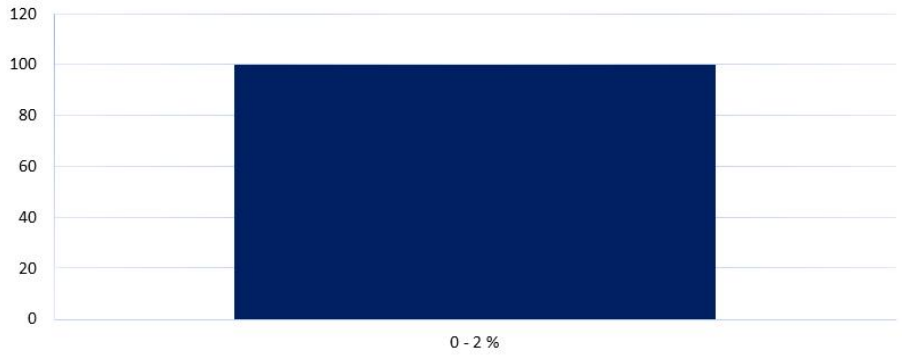
Duration Distribution



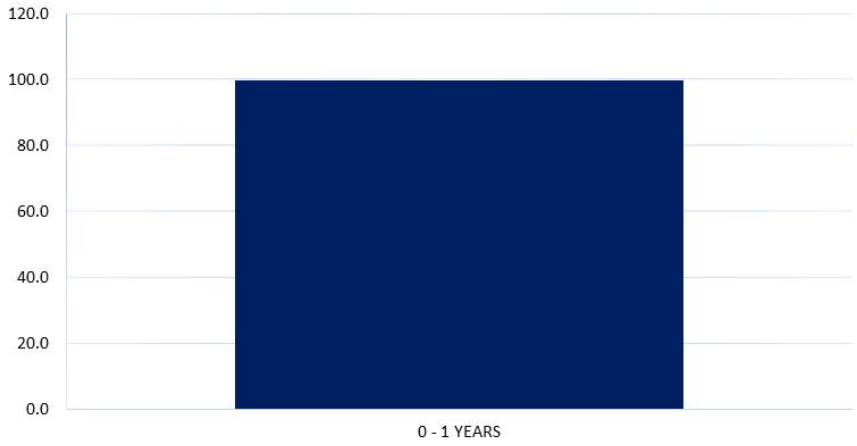
Portfolio Level Characteristics

	POOL 123 ST
Effective Maturity	0.14
Coupon	0.00
Effective Duration	0.14
Quality Rating (Moody's)	AAA

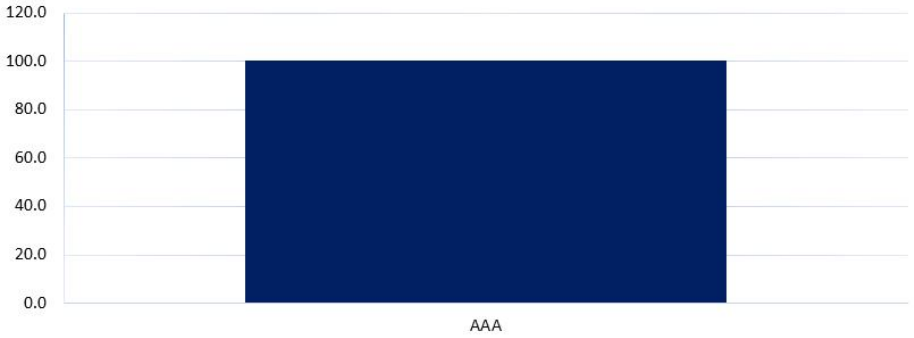
Coupon Distribution

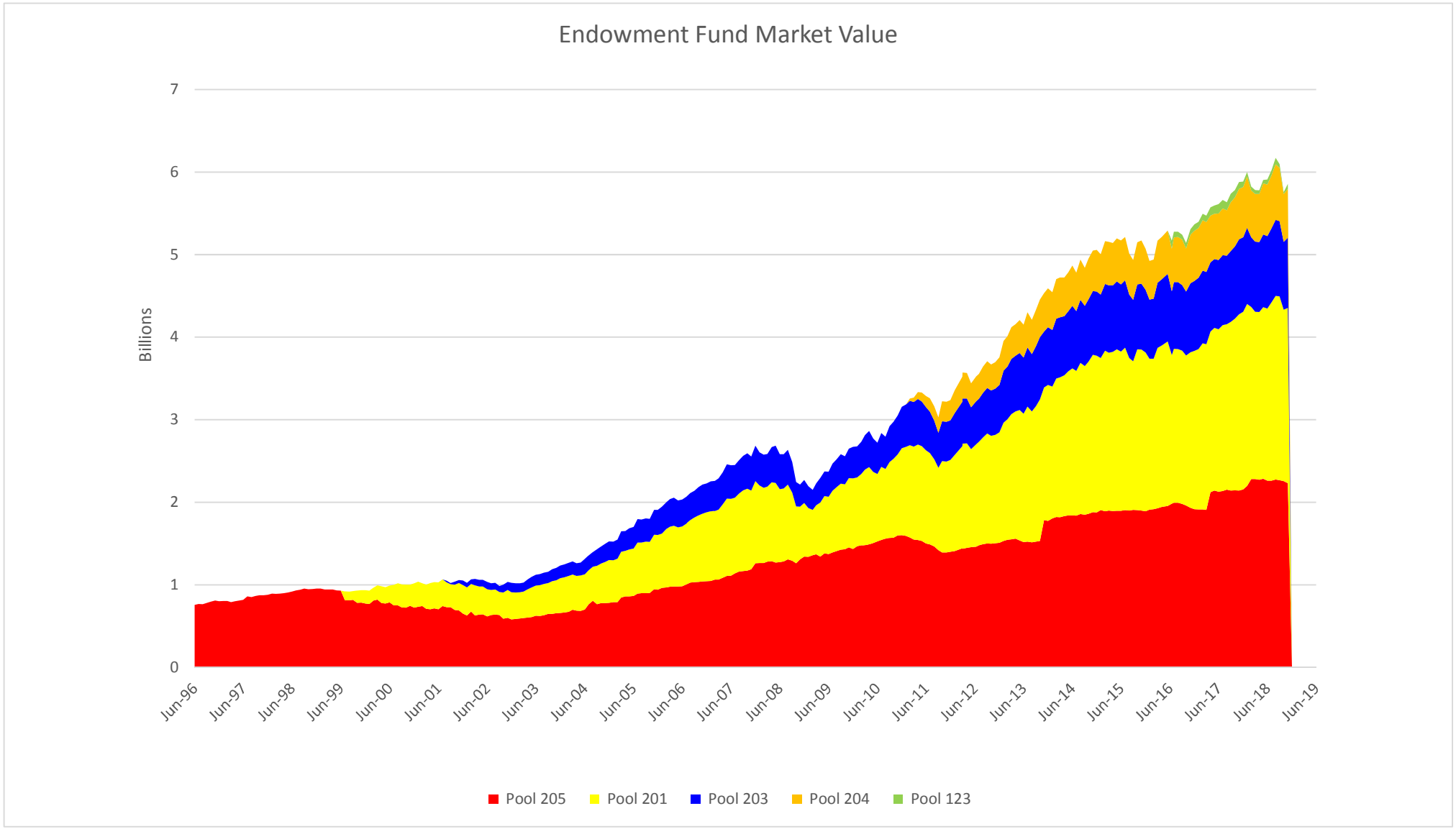


Expected Maturity Distribution



Rating Distribution




Endowment Fund Market Value
Billions
7
6
5
4
3
2
1
0
Jun-96
Jun-97
Jun-98
Jun-99
Jun-00
Jun-01
Jun-02
Jun-03
Jun-04
Jun-05
Jun-06
Jun-07
Jun-08
Jun-09
Jun-10
Jun-11
Jun-12
Jun-13
Jun-14
Jun-15
Jun-16
Jun-17
Jun-18
Jun-19
Pool 205
Pool 201
Pool 203
Pool 204
Pool 123