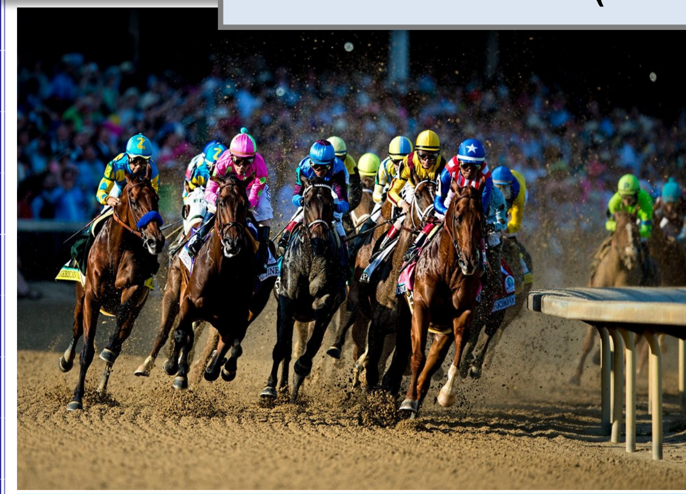
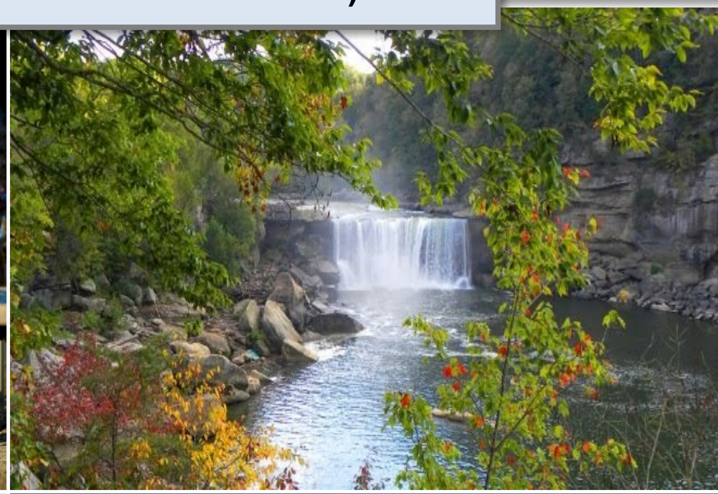
*COMMONWEALTH OF KENTUCKY*

# KENTUCKY ASSET/LIABILITY COMMISSION
# SEMI-ANNUAL REPORT

*For the period ending June 30, 2018*

**43rd Edition (revised as of 10/10/2018)**

**Matthew G. Bevin, Governor, Commonwealth of Kentucky**

William M. Landrum III, Secretary, Finance and Administration Cabinet

Ryan Barrow, Executive Director, Office of Financial Management

Kentucky UNBRIDLED SPIRIT™

An electronic copy of this report

may be viewed at:

http://finance.ky.gov/services/ofm/Pages/semi-annualreports.aspx

The Commonwealth's Comprehensive Annual Financial Report (CAFR)

may be viewed at:

http://finance.ky.gov/services/statewideacct/Pages/ReportsandPublications.aspx

The Municipal Securities Rulemaking Board (MSRB)

Electronic Municipal Market Access (EMMA)

website is located at:

http://emma.msrb.org/

# Table of Contents

# INTRODUCTION

The Kentucky Asset/Liability Commission (ALCo or the Commission) presents its 43rd semi-annual report to the Capital Projects and Bond Oversight Committee and the Interim Joint Committee on Appropriations and Revenue pursuant to KRS 56.863 (11) for the period beginning January 1, 2018 through June 30, 2018.

Provided in the report is the current structure of the Commonwealth's investment and debt portfolios and the strategy used to reduce both the impact of variable revenue receipts on the budget of the Commonwealth and fluctuating interest rates on the interest-sensitive assets and interest-sensitive liabilities of the Commonwealth. Additionally, an analysis of the Commonwealth's outstanding debt is provided as well as a description of all financial agreements entered into during the reporting period. And finally, the report makes available a summary of gains and losses associated with outstanding financial agreements.

Several factors on both the state and national level had an impact on activity during the reporting period. The most significant factors were:

**On the national level**

- The Federal Reserve Board of Governors voted unanimously to raise the target range for the federal funds rate by 0.25% in March and again in June to a range of 1.75% - 2.00%.

- The unemployment rate continued its downward trend, ending June 2018 at 3.9% from 4.1% in December 2017 and 4.3% in June 2017.

- The annual rate of economic growth as measured by GDP grew during the first half of 2018. The seasonally adjusted rate for the first and second quarters was 2.0% and 4.1%, respectively.

- Inflation, trending higher during the first half of 2018, saw the core rate (ex-energy and food) move from 1.8% at the end of 2017 to 2.3% ending June 2018.

**On the state level**

- General Fund receipts totaled $10.838 billion for Fiscal Year (FY) 2018, representing a 3.4% increase over the same period in 2017. General Fund receipts for FY 2018 were $119.8 million, or 1.1%, more than the official revised revenue estimate which projected 2.3% growth.

- Road Fund receipts for FY 2018 totaled $1.511 billion increasing 0.2% for FY 2018 over the same period in FY 2017. Road Fund receipts for FY 2018 were $7.0 million, or 0.5%, more than the official revenue estimate.

- Kentucky's seasonally adjusted unemployment rate stood at 4.2% at the end of June 2018, down from 5.1% one year ago.

- Large unfunded pension liabilities continue to put stress on the Commonwealth's budget and credit ratings.

- Implementation of bond authorizations from prior-year sessions of the General Assembly continued. Bond issues for the period are discussed later in the report.

# INVESTMENT MANAGEMENT

## *MARKET OVERVIEW*

The U.S. economy entered the ninth straight year of expansion, the second longest expansion on record. While tensions over trade threaten to impact future growth, the overall economic picture remains strong. The Bureau of Economic Analysis reported first-quarter 2018 gross domestic product (GDP) growth of 2.2% and second-quarter GDP growth at an impressive 4.1%. Job growth accelerated compared to the last half of 2017, with an average of approximately 224,000 jobs added each month for the first half of 2018. The unemployment rate continued its slow but steady trend downward as the economy approaches full employment, ending June at 3.9% compared to 4.3% in June 2017. The Federal Open Market Committee (FOMC) raised the federal funds rate target by 25 basis points in March and again in June to a range of 1.75% - 2.00%. Economists expect at least one and maybe two more rate hikes in 2018 as inflation passes the 2% target. The FOMC continues to gradually unwind its massive balance sheet by letting securities roll off once they reach maturity, a process that began in October of 2017.

### Gross Domestic Product (GDP)

The Bureau of Economic Analysis (BEA) released the first quarter 2018 real GDP growth rate, a seasonally adjusted annualized rate of 2.2%, down slightly from the fourth quarter 2017 rate of 2.3%. The second quarter GDP growth rate was very strong coming in at 4.1%. Economists believe this is partly due to the effect of the recent tax cuts, but opinions vary on whether this increased momentum can be sustained. Growth rates for the third and fourth quarter will be heavily scrutinized. Private consumption, the largest portion of the economy, was anemic in the first quarter but bounced back in the following second quarter to post the largest annual increase since 2014. A narrowing trade deficit and continued high levels of fixed investment overcame a drawdown in inventories. Inflation continued its slow rise, with the Consumer Price Index (CPI) coming in at 2.4% for first quarter and 2.9% for the second quarter. However, if the volatile food and energy component is removed, CPI was slightly lower for both the first and second quarter, 2.1% and 2.3% respectively. Since reaching the FOMC's target inflation of 2%, the further planned rate hikes are expected to dampen inflation going forward.

### Employment

The employment situation continues strong during the first half of the year. Employers, on average, added 224,000 jobs during the six months ending in June. The closely-watched and less volatile three-month moving average rose to 230,000 from 221,000 during the last half of 2017. The unemployment rate as of June was 3.9%, down slightly from the 4.1% reported in March and 4.3% reported for June 2017.

### Federal Reserve Policy

The Federal Open Market Committee (FOMC) confirmed the consensus expectations of economists by raising the federal funds target rate 0.25% at both the March and June meetings, bringing the range to 1.75% - 2.00%. Although inflation in the Federal Reserve's (Fed) core gauge has finally reached the target 2%, Fed chairman Jay Powell states that he is "slightly more worried about lower inflation still," reflecting a continuing concern after years of inflation undershooting the target. Traders have almost fully priced in a third rate hike in the second half of the year, while the probability of a fourth hike in December is around 65%.

The slow Fed balance sheet roll-off continued in the first half of the year, as over $110 billion matured since the process began in October of 2017. The roll-off process is expected to hit $50

# INVESTMENT MANAGEMENT

billion a month as the Fed attempts to drawdown a balance sheet that still tops $4.2 trillion.

**Interest Rates**

The dominant narrative concerning interest rates is the FOMC continuing the plan of gradually raising the federal funds rates as the economy gains steam and inflation arrives at the 2% target after years of underperformance. As the effects of last year's tax reform of corporate and individual rates continue to filter throughout the economy, economists continue to predict a boost to short-term growth. This could spur the Fed to increase the rate of tightening in order to avoid an overheated economy. Wage pressure remains muted, defying professional prognosticators that adhere to the Phillips curve model that anticipates increased wages, and thus inflation, once an economy reaches full employment. It is within this context that yields generally rose during the last half of the year.

Within this environment of short-term rising rates, long-term rates have not quite kept up and the yield curve continues to flatten. An inverted yield curve is thought to be a sign of a recession and the spread between 2-year U.S. Treasury Notes and 10-year Treasury Notes stood at 33 basis points on June 30th. The 10-year note finished the first half of the year at 2.86%.

While the overall trend in yields was higher, volatility was kept to a minimum with the 10-year trading within a 40 basis point range. As mentioned above, yields on the shorter end of the yield curve rose more rapidly, with the 3-month Treasury Bill settling at 1.91%, an increase of 52 basis points from the start of 2018. This trend continued with the 2-year Treasury Note beginning the year at 1.91% and increasing 63 basis points to 2.54%. The five-year Treasury Note increased from 2.25% to 2.73%, a gain of 48 basis points. Meanwhile on the longer end, the 30-year Treasury Bond increased a modest 18 basis points, and finished June around 3%.

**Equities**

After posting an 11.4% return for the previous six months, the S&P 500 stumbled early in 2018 and never quite found its way in the first half of the year, increasing only 2.65%. This was due primarily to geopolitical tensions centering around trade policy. Trade concerns will continue to be a focus in the second half of 2018 as investors try to determine how trade policy will effect the economy.

**Outlook**

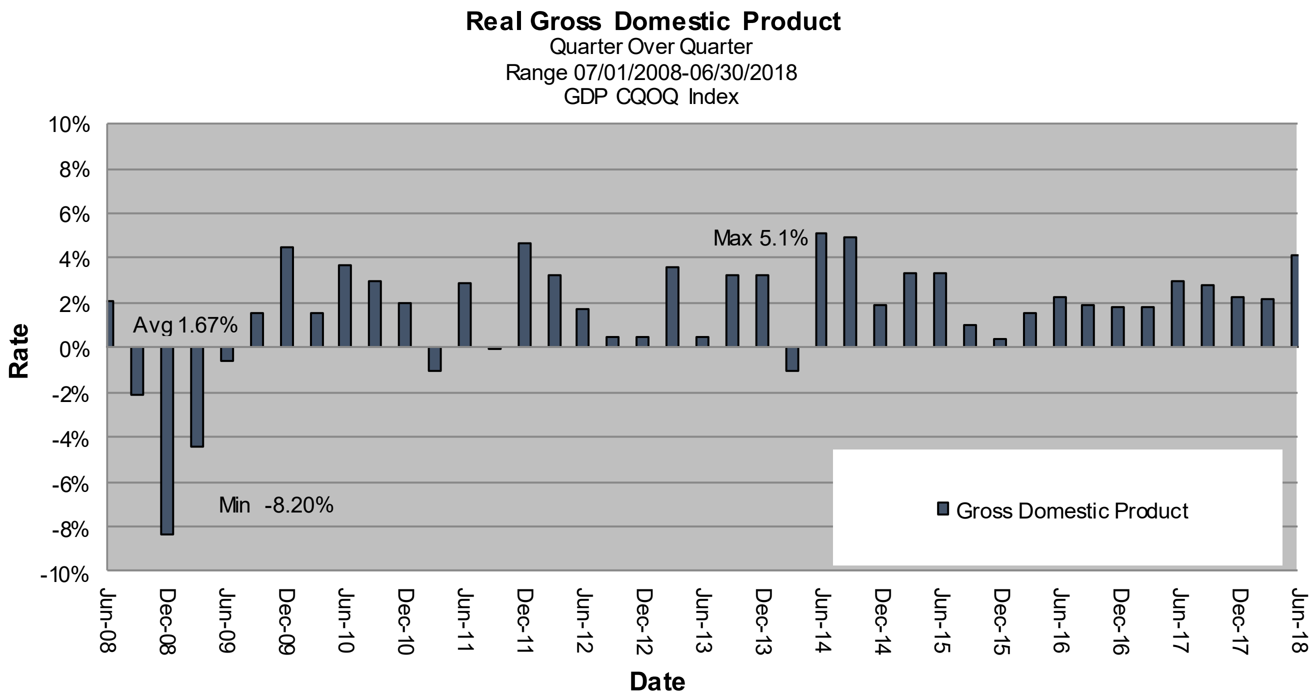
The pace of labor income alongside accumulating savings from the recent tax changes should keep consumer spending in the second half of the year close to a 3% pace.

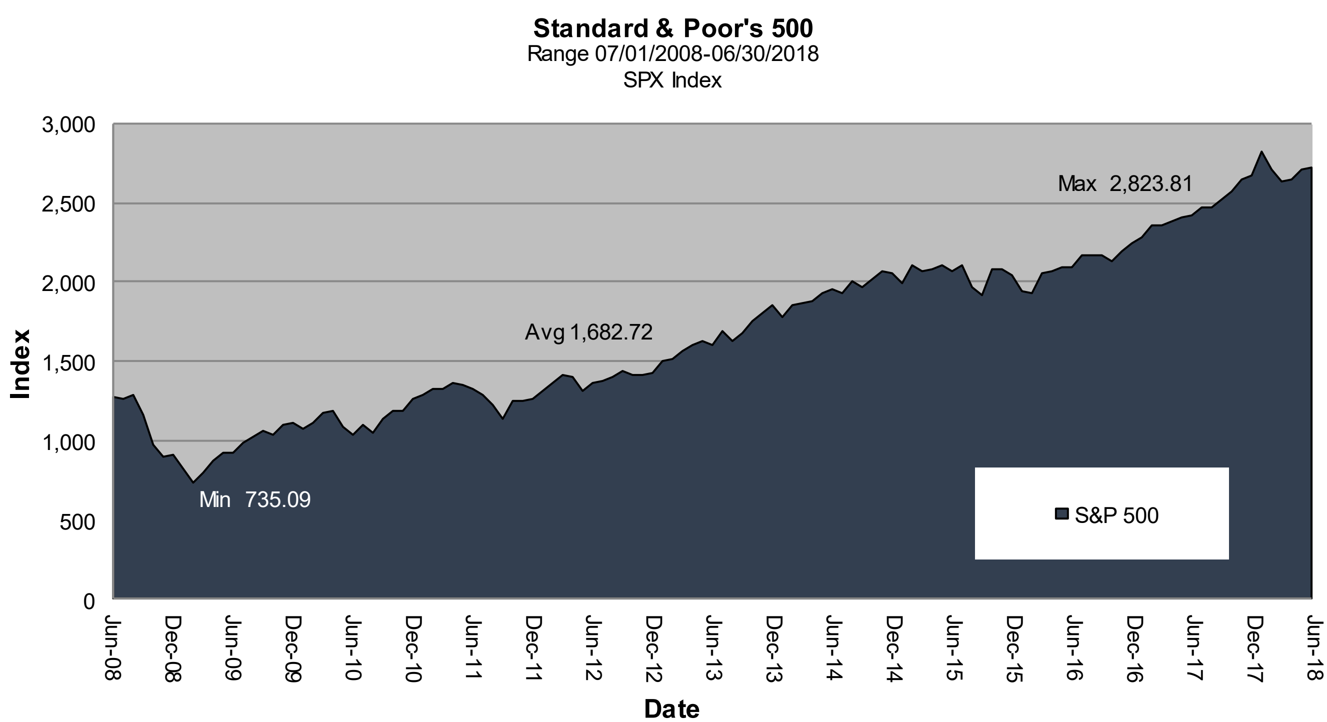
Escalating trade tensions, however, bring risks to the outlook. Capital spending is holding up and remains supportive of growth. Yet uncertainty surrounding U.S. and retaliatory tariffs has made pricing and sourcing more challenging, risking future investment and disruptions to already-tight supply chains.

Amid robust domestic demand, no signs of job growth slowing and core inflation back to 2%, the FOMC is expected to raise rates before year end. A flatter yield curve, however, and a Fed Funds rate close to "neutral" should lead to a slower pace of tightening heading into 2019.

# INVESTMENT MANAGEMENT

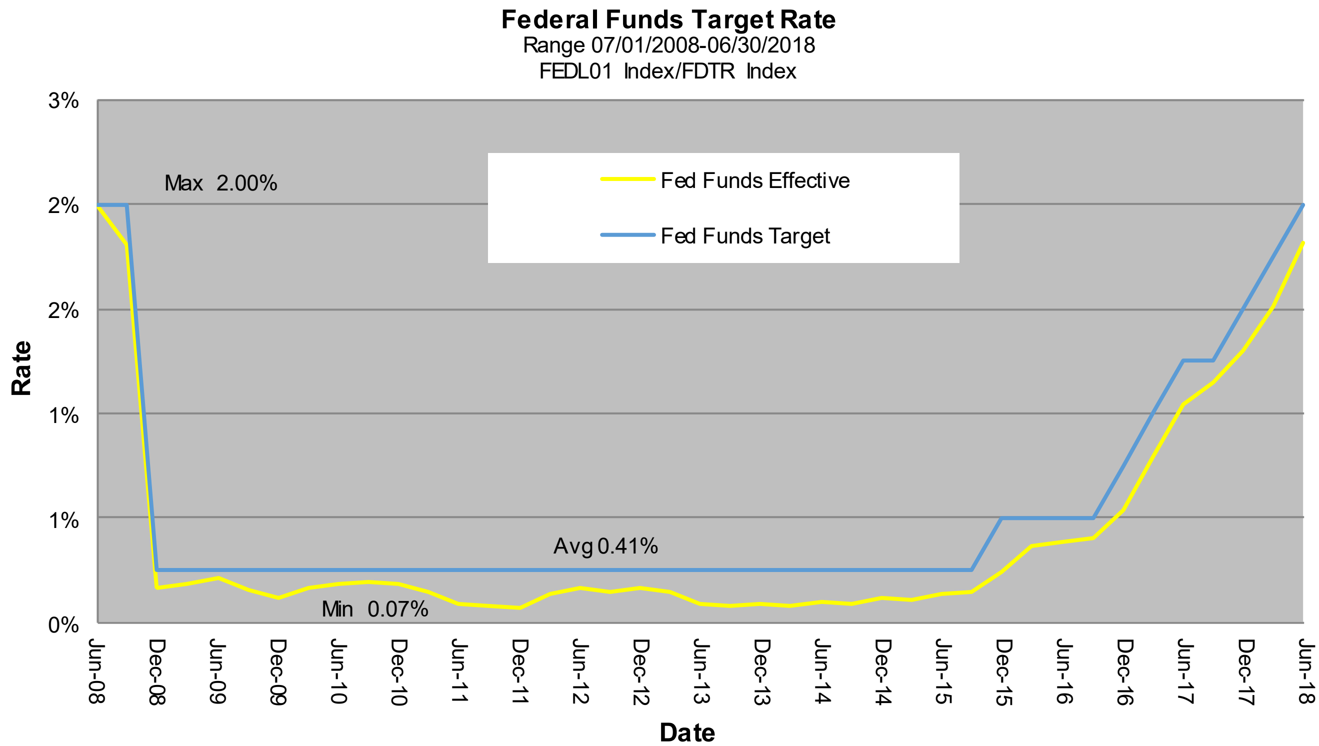
## Real Gross Domestic Product & Standard & Poor's 500

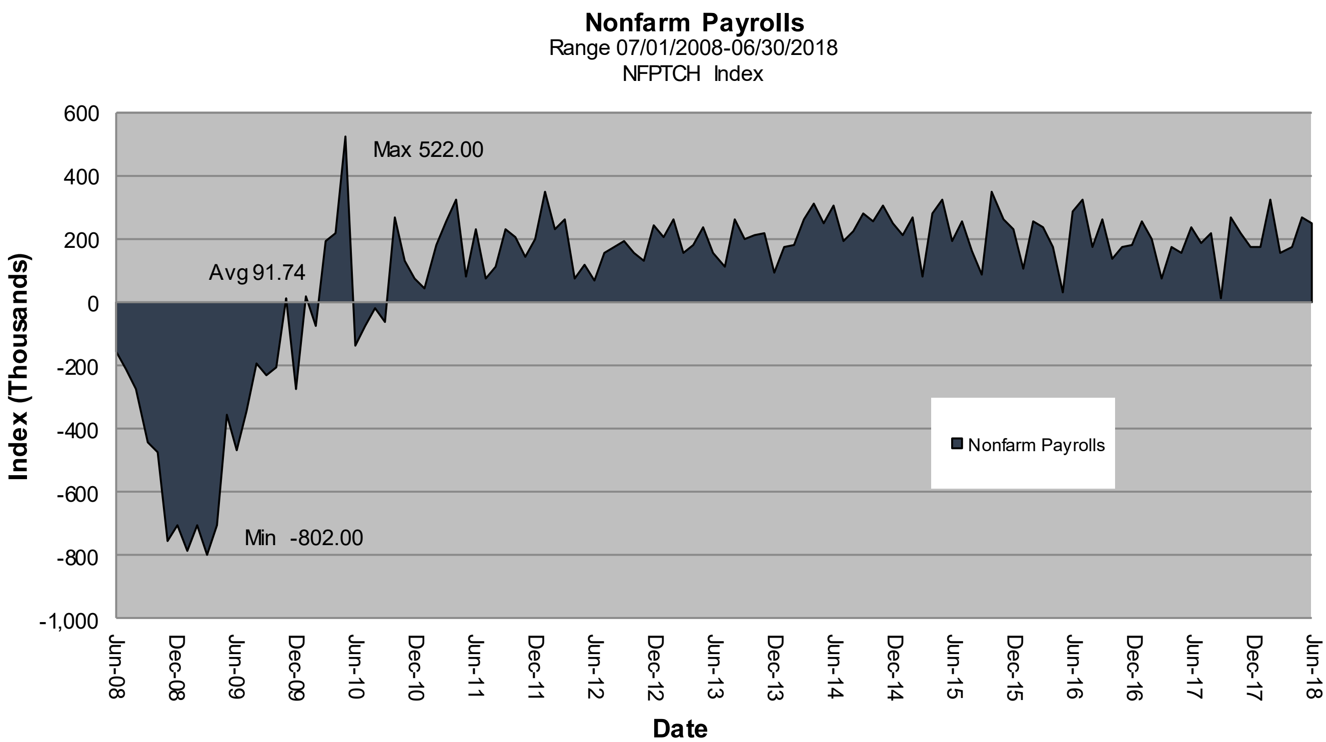


# INVESTMENT MANAGEMENT

## Federal Funds Target Rate & NonFarm Payrolls



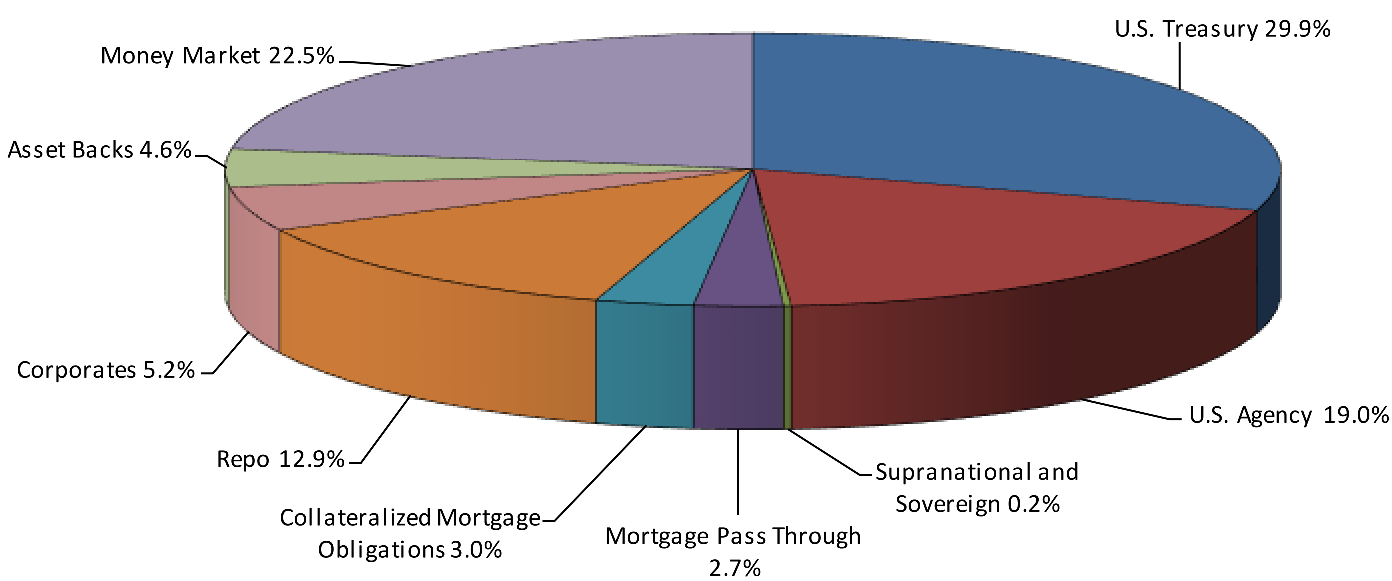
# INVESTMENT MANAGEMENT

## *PORTFOLIO MANAGEMENT*

For six months ended June 30, 2018, the Commonwealth's investment portfolio was approximately $4.2 billion. The portfolio was invested in U. S. Treasury Securities (29.9%), U. S. Agency Securities (19.0%), Supranational and Sovereign (0.2%), Mortgage Pass-Through Securities (2.7%), Collateralized Mortgage Obligations (3.0%), Repurchase Agreements (12.9%), Corporate Securities (5.2%), Asset-Backed Securities (4.6%), and Money Market Securities (22.5%). The portfolio had a market yield of 1.99% and an effective duration of 0.44 years.

The total portfolio is broken down into three investment pools. The pool balances as of June 30, 2018 were $242.3 million (Short Term Pool), $1.6 billion (Limited Term Pool) and $2.4 billion (Intermediate Term Pool).

## Distribution of Investments as of June 30, 2018

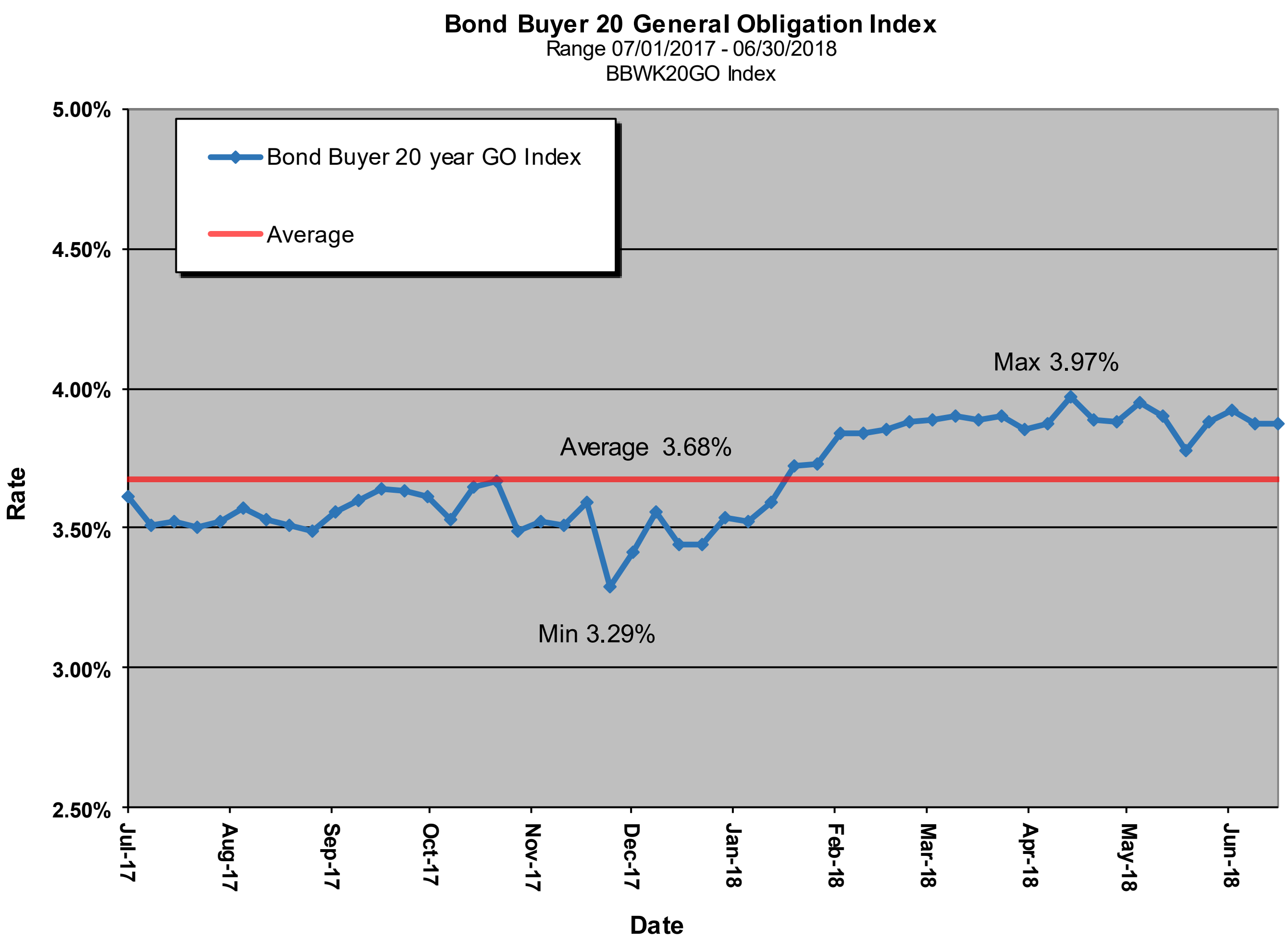


# INVESTMENT MANAGEMENT

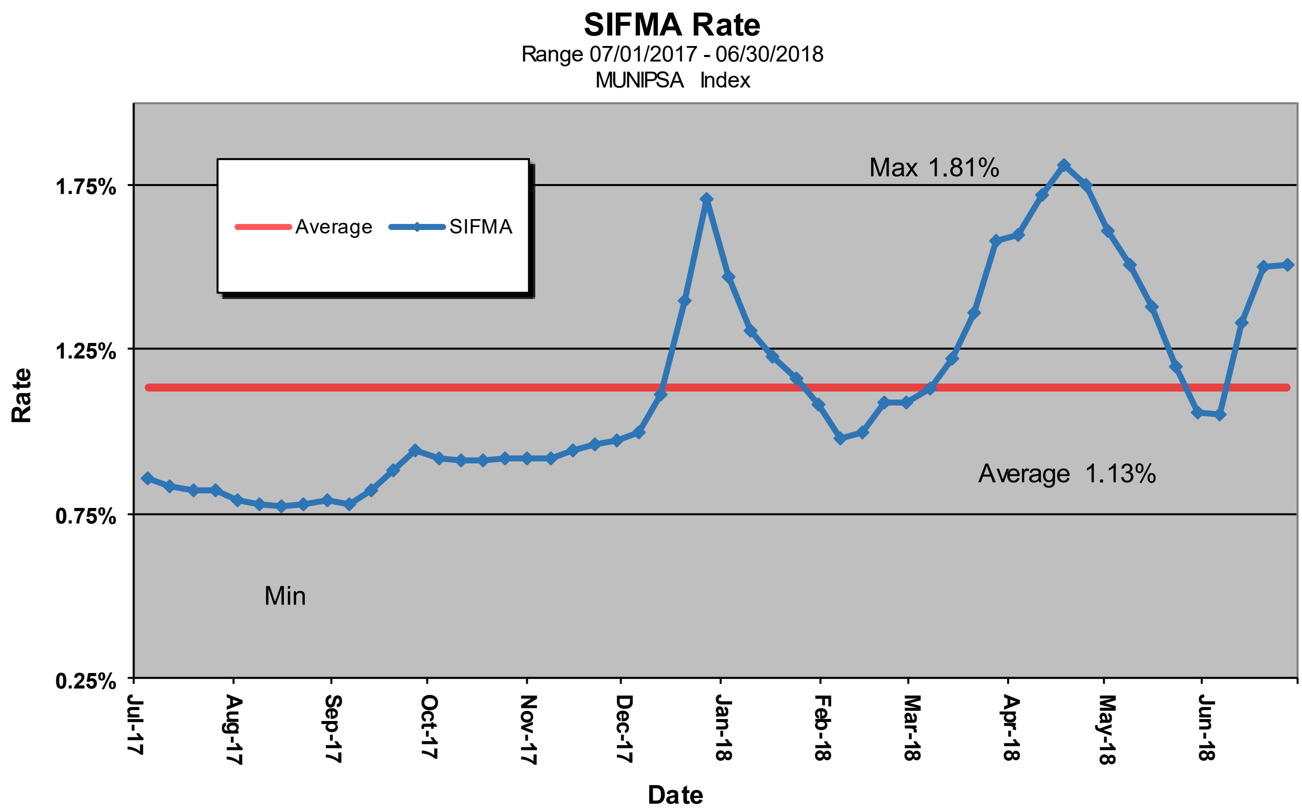
### Tax-Exempt Interest Rates and Relationships

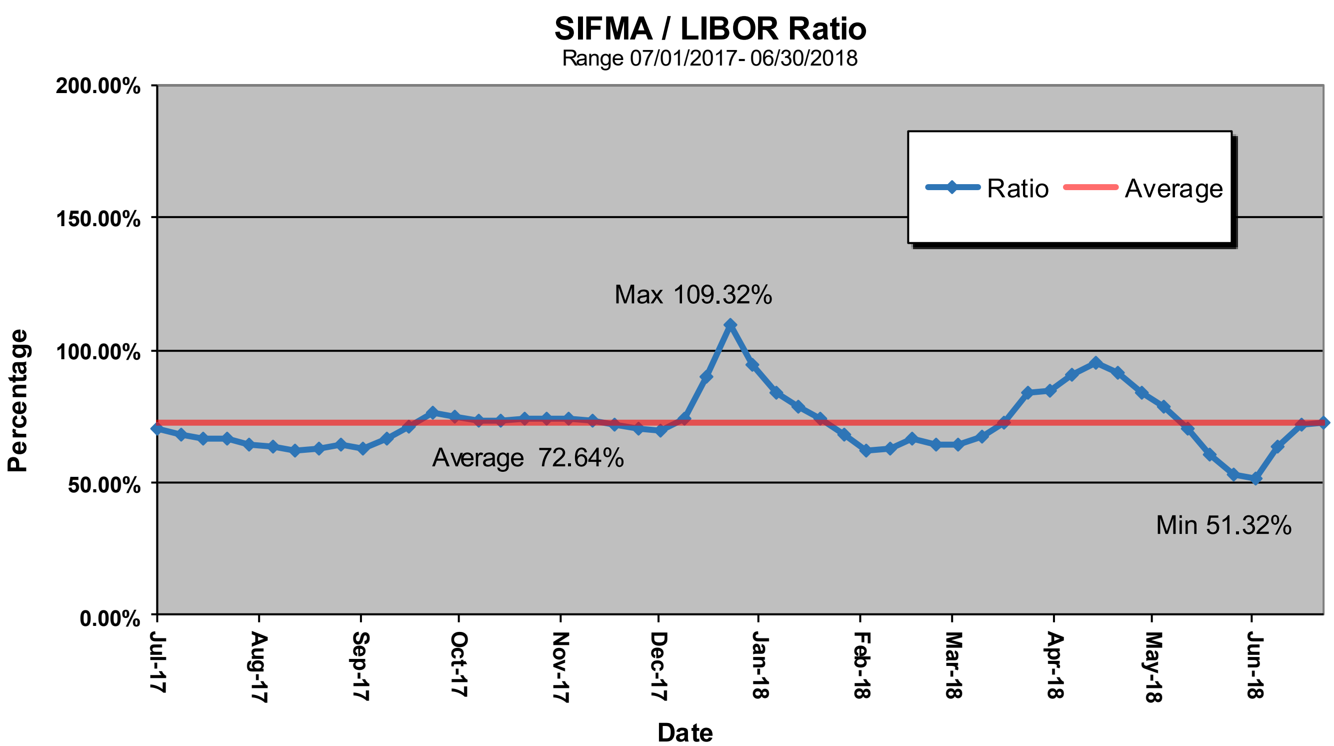
The Bond Buyer 20 General Obligation Index averaged 3.68% for Fiscal Year 2018. The high was 3.97% in April 2018 and the low was 3.29% in December 2017.

The Securities Industry and Financial Markets Association (SIFMA) Municipal Swap Index averaged 1.13% for Fiscal Year 2018. The high was 1.81% in April 2018 and the low was 0.77% in August 2017. The 30-day USD London Interbank Offered Rate (LIBOR) averaged 1.56% for Fiscal Year 2018. The high was 2.10% in June 2018 and the low was 1.23% in July 2018. During the year, SIFMA traded at a high of 109.32% of the 30-day LIBOR in late December 2017, at a low of 51.32% in early June 2018, and at an average of 72.64% for the Fiscal Year.



# SIFMA & SIFMA/LIBOR Ratio



# CREDIT MANAGEMENT

## *MID-YEAR REFLECTION*

The two-year period of tightening corporate credit spreads in the US bond market finally came to an end in early 2018 as the Investment Grade (IG) corporates Option Adjusted Spread (OAS) index ended at June 31 basis points (bps) wider than it started the beginning of the year. This reverses a trend that saw tightening of 40 bps and 29 bps in the previous two years. With rising bond yields came falling prices, resulting in total returns of negative 1.32% and underperforming Treasuries by 1.01%.

The first half of 2018 produced soaring company profits as the effects of the corporate tax cut began to take effect. Having extra cash, companies have turned to buying their own stock, with S&P 500 companies poised to break an all-time record for share buybacks this year. Despite steadily rising rates, companies continue to binge on the debt market and increase their leverage. The accelerating economy has business owners and executives feeling positive about their future prospects, giving them the confidence to borrow and expand.

After a typically weak first quarter of 2.2% annualized GDP growth, the U.S. economy posted a scintillating 4.1% growth rate in the second quarter. GDP forecasts for the entire year continue to rise, with many economists predicting 3% annual growth year over year for the first time since 2005, an astonishing achievement for what is currently the second-longest economic expansion on record. As the economy accelerates and inflation creeps upward, the Federal Reserve is expected to continue to raise rates to keep the economy from overheating. This could have a dramatic effect on corporate debt issuance as companies face significantly higher borrowing costs.

## *CREDIT PROCESS*

Our credit strategy is to invest in creditworthy corporate issuers having a long-term rating of A3/A-/A- or better as rated by Moody's, S&P, or Fitch. The strategy focuses on adding value through a disciplined approach in the credit selection process. With independent research and prudent diversification with respect to industries and issuers, our goal is to deliver consistent longer term investment performance over U.S. Treasuries.

Default Monitoring

The Bloomberg credit risk model is our main tool for default monitoring. The default likelihood model is based on the Merton distance-to-default (DD) measure, along with additional economically and statistically relevant factors. Firms are assigned a default risk measure as a high-level summary of their credit health using an explicit mapping from default likelihood to default risk.

A daily report is generated using our approved list and their peers enabling us to track market activity in selected names including Credit Default Swaps (CDS).

Industry/Company Analysis

We use a combination top-down and bottom-up approach for investing. The top-down approach refers to understanding the current (and future) business cycle or the big picture of the economy and financial world in order to identify attractive industries. Once industries are identified, a bottom-up approach is implemented where we focus on specific company fundamentals, picking the strongest companies within a sector.

Fundamental analysis is then performed looking at competitive position, market share, operating history/trends, management

# CREDIT MANAGEMENT

strategy/execution, and financial statement ratio analysis.

Approved List

Once analysis has been completed, the State Investment Commission approves the list of eligible corporate credits on a quarterly basis. For the first half of 2018, there were no changes to the approved list. The Corporate Credits Approved list as of June 2018 is found in Appendix A.

# DEBT MANAGEMENT

**2010 Extraordinary (Special) Session**

The 2010 Extraordinary (Special) Session of the General Assembly delivered House Bill 1 (Executive Branch Budget other than Transportation Cabinet) and House Bill 3 (Kentucky Transportation Cabinet Budget) to the Governor on May 29, 2010, establishing an Executive Branch Budget for the biennium ending June 30, 2012. The Governor took final action on the bills on June 4, 2010. Together, the bills authorized bond financing for projects totaling $1,980.2 million to support various capital initiatives of the Commonwealth. Of the total authorization, $507.4 million is General Fund supported, $515.3 million is Agency Restricted Fund supported, $522.5 million is supported by Road Fund appropriations and $435 million is Federal Highway Trust Fund supported through Grant Anticipation Revenue Vehicle Bonds designated for the US-68/KY-80 Lake Barkley and Kentucky Lake Bridges Project and the Louisville-Southern Indiana Ohio River Bridges Project. A portion of the General Fund, Agency Restricted Fund, and Road Fund, and all of the Federal Highway Trust Fund authorizations have been permanently financed.

**2012 Regular Session**

The 2012 Regular Session of the General Assembly delivered House Bill 265 (Executive Branch Budget other than Transportation Cabinet) to the Governor on March 30, 2012 and House Bill 2 (Kentucky Transportation Cabinet Budget) to the Governor on April 20, 2012, establishing an Executive Branch Budget for the biennium ending June 30, 2014. The Governor took final action on House Bill 265 on April 13, 2012 and took final action on House Bill 2 on May 2, 2012. Together, the bills authorized bond financing for projects totaling $238.86 million to support various capital initiatives of the Commonwealth. Of the total authorization, $182.86 million is General Fund supported, $12.5 million is supported by Road Fund appropriations, and $43.5 million is Agency Restricted Fund supported. A portion of the General Fund authorization and the total Agency Restricted Fund authorizations listed above have been permanently financed.

**2014 Regular Session**

The 2014 Regular Session of the General Assembly delivered House Bill 235 (Executive Branch Budget other than Transportation Cabinet) to the Governor on March 31, 2014 and House Bill 236 (Kentucky Transportation Cabinet Budget) to the Governor on April 15, 2014, establishing an Executive Branch Budget for the biennium ending June 30, 2016. The Governor took final action on House Bill 235 on April 11, 2014 and took final action on House Bill 236 on April 25, 2014. Together, the bills authorize bond financing for projects totaling a net amount of $1,364.05 million to support various capital initiatives of the Commonwealth due to $105 million in previously authorized debt that was de-authorized in House Bill 235. Of the total authorization, $742.77 million is General Fund supported, $721.28 million is supported by Agency Restricted Fund appropriations, and $5.0 million is Road Fund supported. A portion of the General Fund and Agency Restricted Fund, and all of the Road Fund authorizations listed above have been permanently financed.

**2016 Regular Session**

The 2016 Regular Session of the General Assembly delivered House Bill 303 (Executive

# DEBT MANAGEMENT

Branch Budget other than the Transportation Cabinet) and House Bill 304 (Kentucky Transportation Cabinet Budget) to the Governor on April 15, 2016, establishing an Executive Branch Budget for the biennium ending June 30, 2018. The Governor took final action on House Bill 303 and House Bill 304 on April 27, 2016. Together, the bills authorize bond financing for projects totaling a net amount of $1,251.24 million to support various capital initiatives of the Commonwealth with $9.0 million of previously authorized debt de-authorized in House Bill 303. Of the total authorization, $582.99 million is General Fund supported and $677.25 million is supported by Agency Restricted Fund appropriations. No additional Road Fund supported authorizations were appropriated. A portion of the General Fund and Agency Restricted Fund authorizations listed have been permanently financed.

**2017 Regular Session**

The 2017 Regular Session of the General Assembly delivered House Bill 13 and House Bill 482 to the Governor on March 30, 2017. House Bill 13 authorized a general fund bond supported project for the Kentucky Department of Veterans' Affairs for the financing of the Bowling Green Veterans Center totaling $10.5 million. House Bill 482 authorized a general fund bond supported project for the Kentucky Economic Development Finance Authority Loan Pool to support programs administered by the Kentucky Economic Development Finance Authority for the sole purpose of facilitating a private sector investment of not less than $1 billion in one or more locations in the Commonwealth. The Governor took final action on House Bill 13 and House Bill 482 on April 11, 2017. The total authorization under House Bill 482 has been permanently financed.

**2018 Regular Session**

The 2018 Regular Session of the General Assembly delivered House Bill 200 (Executive Branch Budget other than Transportation Cabinet) to the Governor on April 2, 2018 and House Bill 201 (Kentucky Transportation Cabinet Budget) to the Governor on April 14, 2018, establishing an Executive Branch Budget for the biennium ending June 30, 2020. The Governor vetoed House Bill 200 on April 9, 2018 and on April 13, 2018 the General Assembly enacted House Bill 200 over the Governor's veto. On April 14, 2018, the General Assembly delivered House Bill 265 (amending the 2018-2020 Executive Branch Budget Bill) to the Governor. The Governor took final action on House Bill 201 on April 26, 2018. House Bill 265 became law without the Governor’s signature on April 27, 2018. Together, the bills authorize bond financing for projects totaling a net amount of $972.7 million to support various capital initiatives of the Commonwealth whereas $26.62 million in previously authorized debt was de-authorized in House Bill 200 and House Bill 201. Of the total authorization, $396.44 million is General Fund supported and $602.89 million is supported by Agency Fund appropriations.

**Authorized but Unissued**

The balance of prior bond authorizations of the General Assembly dating from 2006 through 2018 totals $1,285.64 million. Of these prior authorizations, $560.41 million is General Fund supported, $662.73 million is Agency Restricted Fund supported, and $62.50 million is supported by Road Fund appropriations. HB 201 from the 2018 Regular Session de-authorized the remaining $59.50 million which was authorized for the Federal Highway Trust Fund.

# DEBT MANAGEMENT

The following table summarizes, in aggregate, the information in connection with authorized but unissued debt of the Commonwealth as described in this section including $300 million of pooled bond proceeds from SPBC No. 119 issued on June 19, 2018.

**Summary of Authorized but Unissued Debt by Fund Type**
**As of June 30, 2018**

| Legislative Session (Year) | General Fund (millions) | Agency Fund (millions) | Road Fund (millions) | TOTAL (millions) |
|---|---|---|---|---|
| 2010 and prior | 40.88 | 17.50 | 50.00 | 108.38 |
| 2012 | 13.35 | - | 12.50 | 25.85 |
| 2014 | 163.54 | 9.01 | - | 172.55 |
| 2016 | 262.32 | 93.34 | - | 355.66 |
| 2017 | 10.50 | - | - | 10.50 |
| 2018 | 369.82 | 542.89 | - | 912.70 |
| Bond Pool Proceeds | (300.00) | - | - | (300.00) |
| TOTAL | 560.41 | 662.73 | 62.50 | 1,285.64 |

## *RATINGS UPDATE*

The rating agencies continually monitor the Commonwealth's budgetary policies and actual performance in areas such as revenue, the economy, pensions, and debt management. Pension unfunded liabilities have continued to put downward pressure on the Commonwealth's credit ratings.

During the reporting period, the ratings from S&P were downgraded as follows: General Obligation Issuer Implied Rating from A+ to A, General Fund Appropriation Rating from A to A-.

The remaining ratings below were either affirmed or remained unchanged from the previous reporting period.

Ratings on June 30, 2018 were:

| | Moody's | S & P | Fitch |
|---|---|---|---|
| General Obligation Issuer Rating (GO Implied) | Aa3 | A | AA- |
| General Fund Appropriation Rating (GF) | A1 | A- | A+ |
| Road Fund Appropriation Rating (RF) | Aa3 | AA- | A+ |
| Federal Highway Trust Fund Appropriation Rating | A2 | AA | A+ |

# DEBT MANAGEMENT

## *CASH MANAGEMENT STRATEGIES*

All cash management strategies are market and interest rate dependent. Strategies are listed below:

**Tax and Revenue Anticipation Notes (TRAN)**

There were no General Fund TRANs issued for Fiscal Year 2018. As in the previous eight fiscal years, current reinvestment yields on TRAN proceeds would not be significantly higher than the cost of funds for a TRAN.

**Inter-Fund Borrowing**

Under current interest rate structures, borrowing internally from the state investment pools continues to be the most efficient and cost-effective way to provide short-term liquidity to the General Fund.

As of June 30, 2018 the total available liquid resources available to the General Fund was $4.103 billion.

**Bond Anticipation Notes (BAN)**

No BANs were issued during the reporting period.

The Commonwealth took advantage of low fixed rates mitigating long term interest rate risks. Because of the flattened yield curve, no significant savings relative to risk could be achieved by issuing BANs.

**Commercial Paper**

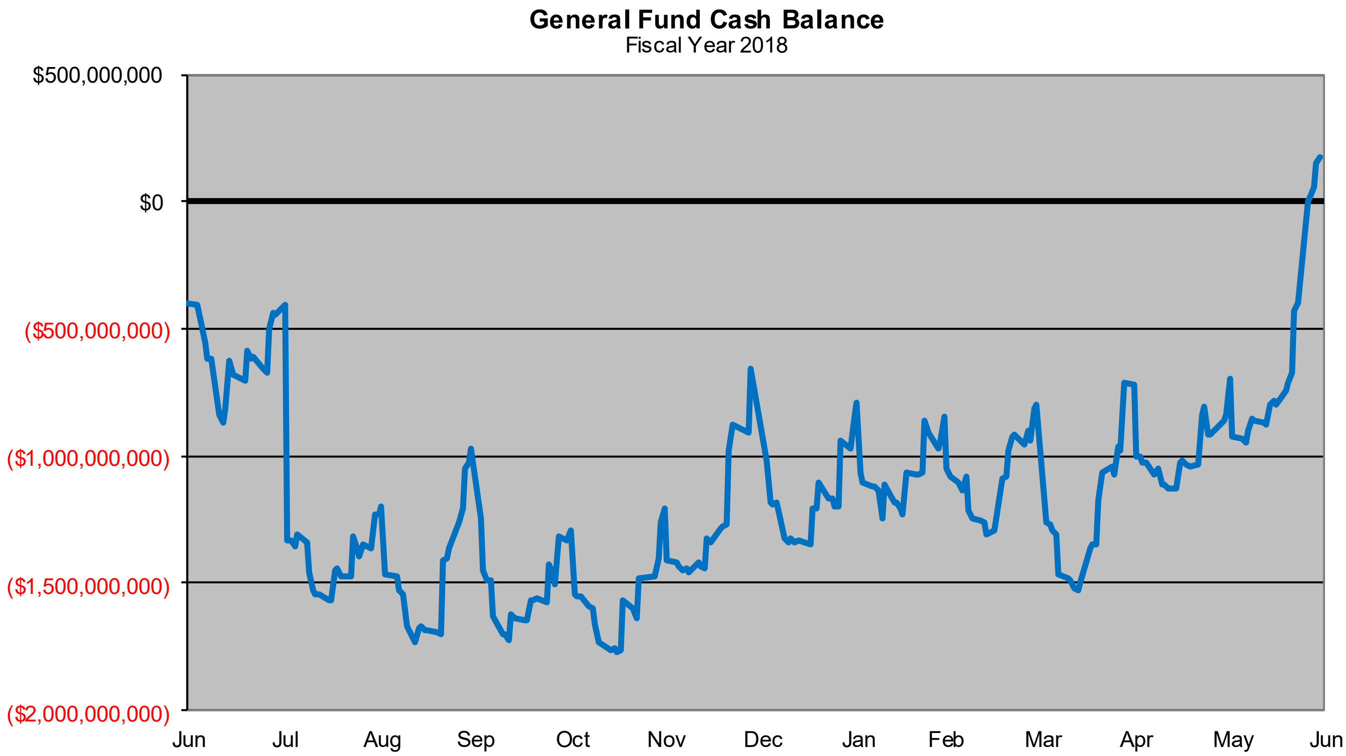
While utilized historically, commercial paper was not issued during the reporting period.

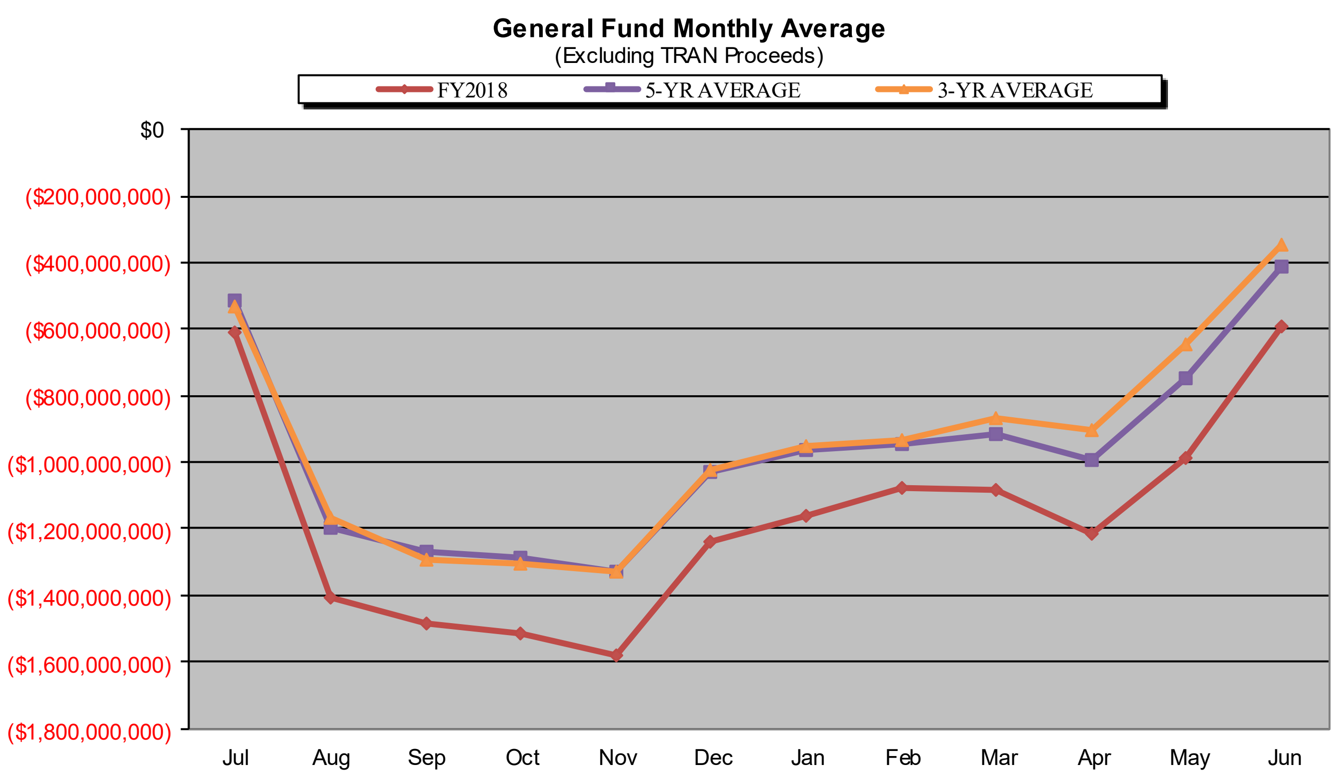
The Commonwealth took advantage of low fixed rates mitigating long term interest rate risks. Because of the flattened yield curve, no significant savings could be achieved by issuing commercial paper.

**Project Notes**

On June 20, 2018 ALCo closed the $27,775,000 Asset/Liability Commission Agency Fund Direct Loan 2018 Project Note. This note provided funds to permanently finance the third and final phase of a capital project, commonly and collective referred to as the BuildSmart Project. The financing provided a flexible repayment structure to coordinate with a variable revenue stream. The terms of the loan included an interest only, 5 year variable rate note indexed to 3-month LIBOR which allowed for annual principal prepayments.

# DEBT MANAGEMENT



# DEBT MANAGEMENT

## *FINANCIAL AGREEMENTS*

As of June 30, 2018, ALCo had three financial agreements outstanding, with a net notional exposure amount of $166,965,000. These financial agreements are described in the section below and the terms of these transactions are detailed in Appendix B. No additional financial agreements were executed during the reporting period.

**General Fund – Floating Rate Note Hedges**

In May, 2007, ALCo issued $243.08 million of Floating Rate Notes (FRNs) to permanently finance $100 million of General Fund bond supported projects and to advance refund certain outstanding State Property and Buildings Commission (SPBC) bonds for present value savings. The transaction entailed ALCo issuing four FRNs, each paying a rate of interest indexed to 3-Month LIBOR plus a fixed spread. Integrated into the transaction were four separate interest rate swaps which perfectly hedge the floating rates on the FRNs and lock in a fixed rate payable by ALCo on the transaction. The terms of the four interest rate swaps exactly match the notional amount, interest rate, and amortization schedule of the four FRNs and allowed ALCo to elect "super-integrated" tax status on the transaction, whereby it receives similar tax treatment as a fixed rate bond issue under IRS rules.

Under the FRN transaction, the Notes and interest rate swaps were each insured under separate policies by FGIC, which maintained an Aaa/AAA credit rating at the time from Moody's and S&P. Under the terms of the original interest rate swaps, the counterparty (Citibank) could optionally terminate the agreements if the insurer's claims paying rating fell below an A3/A- level. Subsequent to the transaction, FGIC was downgraded multiple times by the credit rating agencies and currently are no longer rated. In December 2008, MBIA (rated A2 by Moody's at the time) reinsured FGIC's municipal insurance portfolio providing additional coverage on the transaction. However, MBIA Insurance Corporation's credit rating was also subsequently downgraded on multiple occasions and s currently rated Caa1 by Moody's and is no longer rated by S&P. In February of 2009, MBIA established a new U.S. public finance financial guaranty insurance company known as National Guaranty Public Finance Corporation (National). National, at no additional charge, provided reinsurance on the FRNs and related swaps. However, on December 22, 2010, S&P downgraded National from A to BBB leaving both of National's claims paying ratings below the required A3/A- level.

In early 2011, ALCo spent considerable time working with Citibank and other parties analyzing a variety of remedies that would prevent the potential early termination of the interest rate swaps. After much consideration, ALCo determined the preferred remedy was one offered by Citibank whereby the remaining notional amount of each interest rate swap would be assigned to a new counterparty under the existing financial terms and at no cost to ALCo or the Commonwealth. On February 14, 2011, ALCo, Citibank and the new counterparty, Deutsche Bank AG, executed the assignment of the remaining notional balances of each swap to Deutsche Bank. The terms of the new interest rate swaps with Deutsche Bank were identical to the original swaps, with two exceptions; 1) the new swaps were not insured and there were no insurer provisions contained in the new agreements, and 2) the credit rating triggers under the automatic termination provisions were now symmetrical for both counterparties (ALCo and Deutsche Bank) at A3/A-. Under the original swaps, ALCo's credit rating triggers were Baa2/BBB, but rating recalibrations by the rating agencies caused municipal issuers to be rated on the same scale as corporations and other debt issuing entities, which facilitated the need for equal credit rating

# DEBT MANAGEMENT

triggers for both parties. On July 10, 2014, the credit rating triggers were lowered to Baa3/ BBB- for both counterparties. On January 25 2016, Moody's downgraded Deutsche Bank from A3 to Baa1 reflecting changes in Germany's insolvency legislation which took effect in January 2017. The changes resulted in protection from the subordination of certain senior unsecured debt obligations relative to other senior liabilities, including deposits. Moody's downgraded Deutsche Bank once again on May 23, 2016 from Baa1 to Baa2 reflecting "the increased execution challenges Deutsche Bank faces in achieving its strategic plan." Even with two downgrades, Deutsche Bank continues to be in compliance with the swap agreement credit rating threshold of not falling below Baa3. ALCo continues to monitor the credit of our counterparty for compliance with terms of the agreement.

Details related to the interest rate swaps as of June 30, 2018 are presented in Appendix B.

## *ASSET/LIABILITY MODEL*

### General Fund

The total SPBC debt portfolio as of June 30, 2018 had $3.857 billion of bonds outstanding with a weighted average coupon of 5.00% and a weighted average life of 6.82 years. The average coupon reflects an amount of taxable bonds issued under the Build America Bond Program during 2009 and 2010 as well as continued investor preference for tax-exempt callable premium bonds in the current market at a yield lower than par or discount coupon bonds. The $1.203 billion callable portion had a weighted average coupon of 4.75%.

The SPBC debt structure has 44% of principal maturing in 5 years and 69% of principal maturing in 10 years, primarily influenced by debt restructuring and the minimal amount of long-term new money permanent financings within the last several years.

The General Fund had a maximum balance of $271.931 million for Fiscal Year 2018 and a low of negative $1.768 billion on November 15, 2017.

The average and median balances were a negative $1.155 billion and a negative $1.202 billion, respectively. Since the General Fund continued to have a negative available cash balance for the fiscal year, there is little, if anything, that can be done from an asset management point of view beyond current actions.

From a liability management perspective, total General Fund debt service, net of credits was $677.973 million for Fiscal Year 2018. In addition, General Fund debt service of $11.261 million was provided for the Eastern State Hospital financing that was issued through the Lexington-Fayette Urban County Government in 2011. Net interest margin will continue to be negative due to low cash balances versus outstanding fixed rate debt, low level of interest rates, and the callability of the debt portfolio.

<u>SPBC 119</u>

On June 19, 2018, SPBC closed $271,170,000 of Revenue Bonds, Project No. 119 which provided permanent financing for General Fund supported capital projects authorized by the Commonwealth of Kentucky General Assembly via various House Bills and Sessions. The transaction achieved an All-In True Interest Cost of 3.747% with an average life of 11.892 years. The transaction was sold on a tax-

# DEBT MANAGEMENT

exempt basis via negotiated sale with Citigroup serving as senior managing underwriter and Dinsmore and Shohl LLP as bond counsel. The bonds received ratings of A1/A-/A+ from Moody's, S&P and Fitch, respectively.

**Agency Fund**

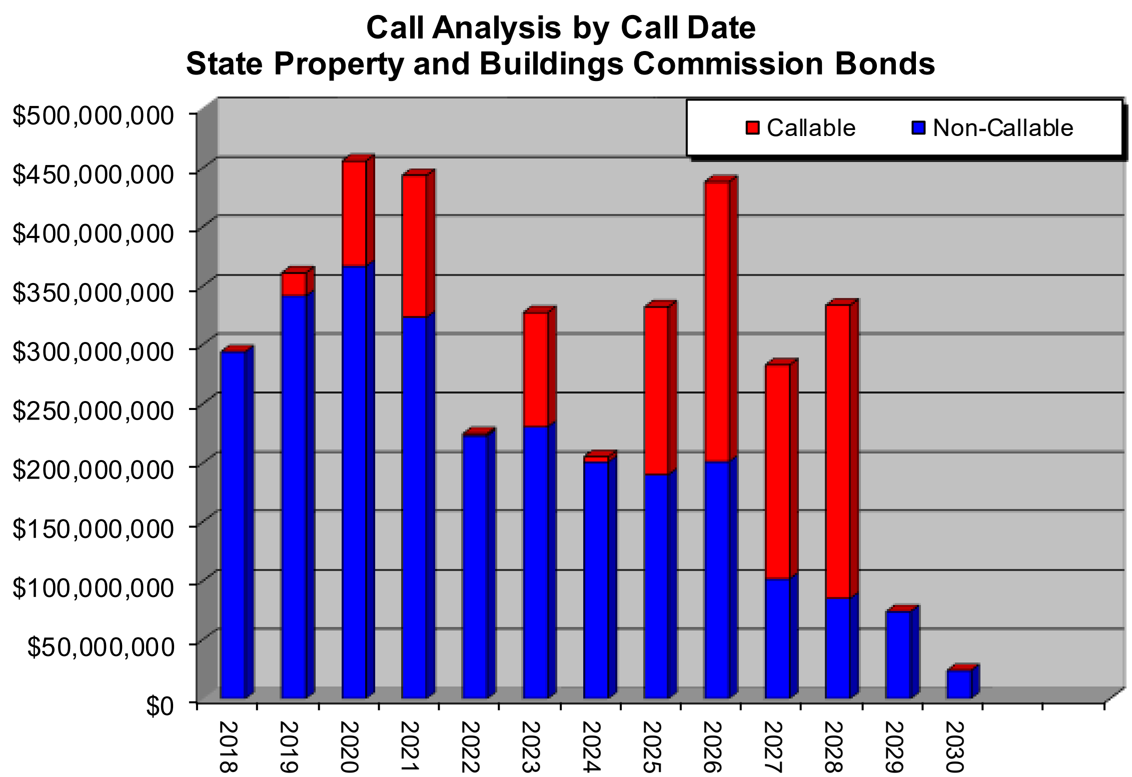
SPBC 118

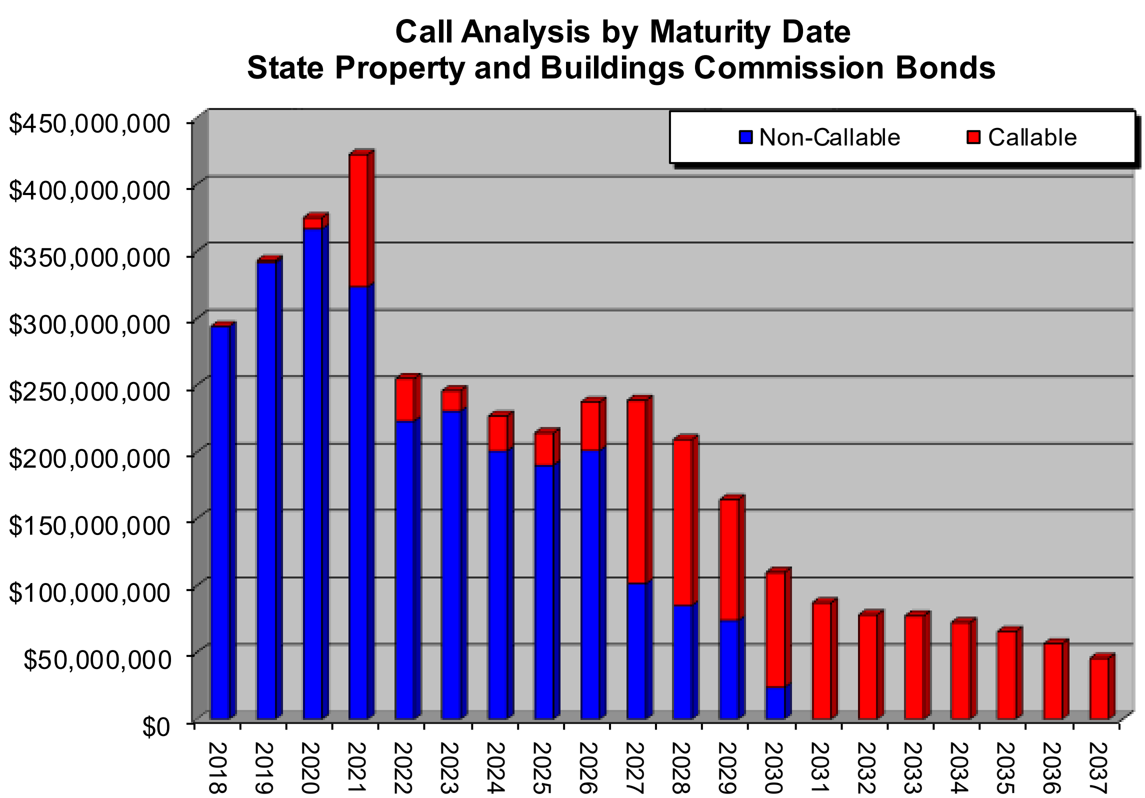
On May 24, 2018, SPBC closed $28,945,000 of Agency Fund Revenue Bonds, Project No. 118 which provided permanent financing for the construction of Dam 10 on the Kentucky River. The transaction achieved an All-In True Interest Cost of 3.465% with an average life of 13.477 years. The transaction was sold to UBS Financial Services, Inc. as underwriter on a tax-exempt basis via competitive sale with Compass Municipal Advisors, LLC serving as financial advisor, and Dinsmore and Shohl LLP as bond counsel. The bonds received a rating of A2 from Moody's.

SPBC 120

On June 19, 2018, SPBC closed $9,580,000 of Agency Fund Revenue Refunding Bonds, Project No. 120. The Project No. 120 bond proceeds refunded certain outstanding taxable SPBC Bonds and taxable ALCo Project Notes on behalf of the Department of Military Affairs for present value savings. The transaction achieved an All-In True Interest Cost of 2.814% and a net present value savings of $1,509,517.65 (or 14.23% savings from the refunded bonds). Because the SPBC No. 120 transaction sold in conjunction with the SPBC No. 119 transaction, both bond transactions were issued on a tax-exempt basis and achieved a greater NPV savings for the agency. The project 120 bonds were issued via negotiated sale with Citigroup serving as senior managing underwriter and Dinsmore and Shohl LLP as bond counsel. The bonds received ratings of A1/A-/A+ from Moody's, S&P and Fitch, respectively.

# DEBT MANAGEMENT



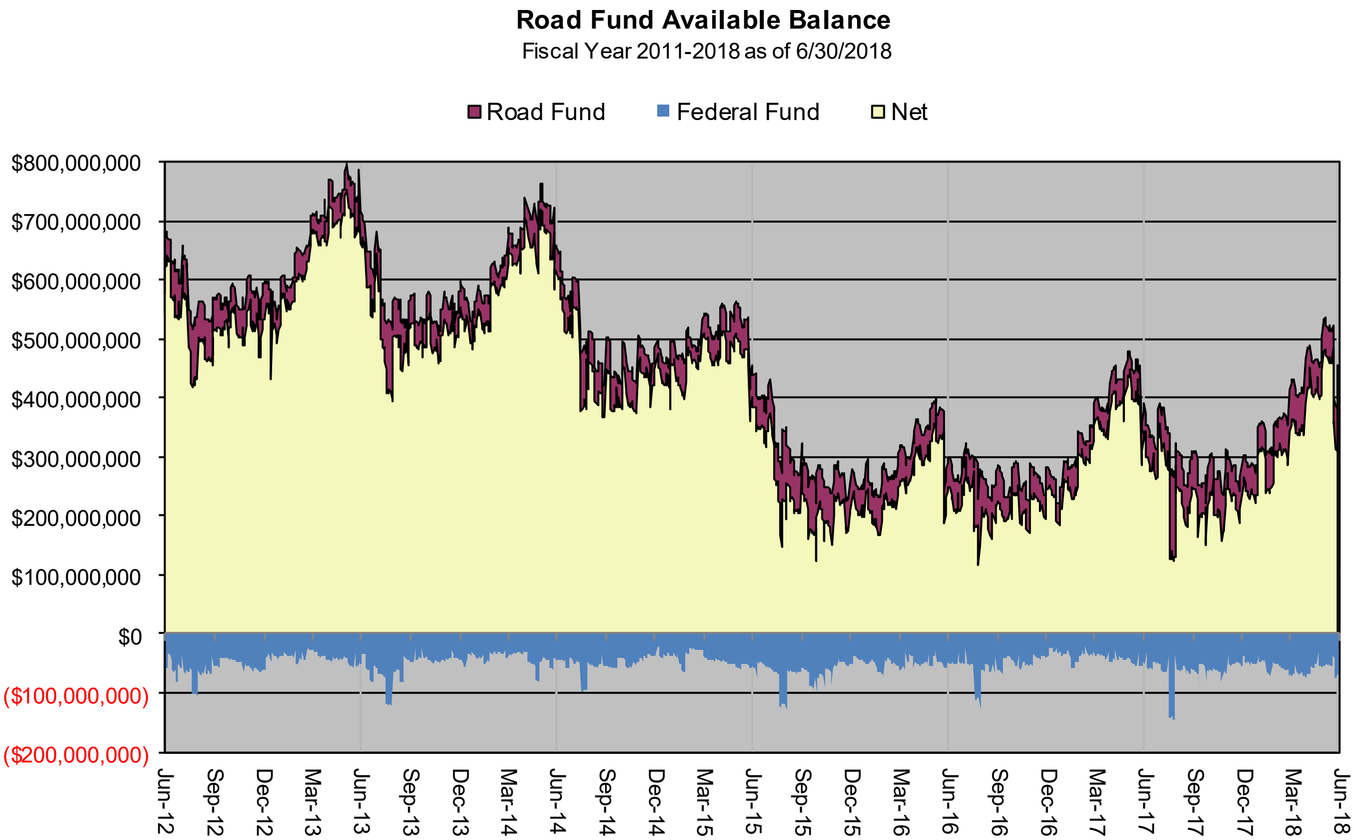
# DEBT MANAGEMENT

## Road Fund

The Road Fund average daily cash balance for Fiscal Year 2018 was $288 million compared to $236 million for Fiscal Year 2017. The Road Fund cash was invested in the Intermediate Term Investment Pool which had a duration of 0.74 years as of June 30, 2018. The Road Fund earned a positive $1.2 million on a cash basis for Fiscal Year 2018 versus a positive $1.0 million for Fiscal Year 2017. The continued relatively low level of investable balances at certain times during the fiscal year limits the investment opportunities.

As of June 30, 2018, the Turnpike Authority of Kentucky (TAK) had $1.204 billion of bonds outstanding with a weighted average coupon of 4.85 % and an average life of 7.14 years.

Road Fund debt service paid in Fiscal Year 2018 was $166.9 million, resulting in a net interest margin (investment income earned year-to-date less debt service paid) of negative $165.7 million. The negative amount stems from the level of investable balances and a general low level of interest rates on the investment side in addition to the limited callability of fixed rate obligations on the liability side.



# SUMMARY

ALCo's approach to managing the Commonwealth's interest-sensitive assets and interest-sensitive liabilities has provided tremendous flexibility and savings in financing the Commonwealth's capital construction program.

Over the past nine years, the high cost of acquiring credit/liquidity support for short-term borrowing programs when compared to the low cost of long-term financing generally favored long-term financing structures. However in situations where flexibility is required, such as KCTCS BuildSmart, variable rate ALCo Project Notes are preferred (page 17). ALCo does and will continue to analyze the cost effectiveness of potential interim financing options during near term.

Since its inception, ALCo has been instrumental in adding incremental returns on investment income to the Commonwealth's investment portfolio. In addition, ALCo's management approach to project funding has allowed the Commonwealth to take advantage of the yield curve and achieve millions of dollars in budgetary savings through debt service lapses.

As always, ALCo continues to analyze potential opportunities for savings and to evaluate new financing structures which offer the Commonwealth the ability to diversify risk within its portfolio while taking advantage of market demand for various new or unique products.

# APPENDIX

# APPENDIX A

**Corporate Credits Approved For Purchase**
**As Of June 30, 2018**

| Company Name | Repurchase Agreements | Debt | Notes | Company Name | Repurchase Agreements | Debt | Notes |
|---|---|---|---|---|---|---|---|
| Apple Inc | | Yes | Yes | Merck & Co. Inc. | | Yes | Yes |
| Bank of  Montreal | Yes | Yes | Yes | Microsoft Corp | | Yes | Yes |
| Bank of Nova Scotia | Yes | Yes | Yes | MFUG Securities | Yes | No | No |
| MUFG Bank LTD/NY * | | Yes | Yes | Natixis SA/New York | | Yes | Yes |
| Berkshire Hathaway Inc | | Yes | Yes | Nestle Finance International | | Yes | Yes |
| BNP Paribas Securities Corp | Yes | Yes | Yes | Oracle Corp | | Yes | Yes |
| BNY Mellon NA | | Yes | Yes | PepsiCo Inc | | Yes | Yes |
| Boeing Co/The | | Yes | Yes | Pfizer Inc | | Yes | Yes |
| Canadian Imperial Bank of Comm | | Yes | Yes | PNC Bank NA | | Yes | Yes |
| Chevron Corp | | Yes | Yes | Praxair Inc | | Yes | Yes |
| Cisco Systems Inc | | Yes | Yes | Procter & Gamble Co/The | | Yes | Yes |
| Cooperatieve Rabobank | | Yes | Yes | Royal Bank of Canada | Yes | Yes | Yes |
| Cornell University | | Yes | No | Royal Dutch Shell PLC | | Yes | Yes |
| Costco Wholesale Corp | | Yes | Yes | Salvation Army | | Yes | No |
| Deere & Co | | Yes | Yes | State Street Corp | | Yes | Yes |
| Exxon Mobil Corp | | Yes | Yes | Sumitomo Mitsui Trust Bank | | Yes | Yes |
| General Electric Co | | Yes | Yes | Swedbank AB | | Yes | Yes |
| Guggenheim Securities, LLC | Yes | No | No | Texas Instruments Inc. | | Yes | Yes |
| Honda Motor Co Ltd | | Yes | Yes | Toronto-Dominion Bank/The | | Yes | Yes |
| Home Depot Inc | | Yes | Yes | Total SA | | Yes | Yes |
| HSBC Bank USA NA | | Yes | Yes | Toyota Motor Corp | | Yes | Yes |
| IBRD - World Bank | | Yes | Yes | UBS AG (U.S.) | | Yes | Yes |
| Intel Corp | | Yes | Yes | US Bank NA | | Yes | Yes |
| Intl Business Machines Corp | | Yes | Yes | Wal-Mart Stores Inc | | Yes | Yes |
| Johnson & Johnson | | Yes | Yes | Walt Disney Co/The | | Yes | Yes |
| Lloyds Bank PLC | | Yes | Yes | Wells Fargo & Co | | Yes | Yes |

*Name Change:
Bank of Tokyo-Mitsubishi UFJ to MUFG Bank LTD/NY

# APPENDIX A

**Securities Lending Agent Approved Counterparties**

**As of June 30, 2018**

| Company Name | Securities Lending | REPO |
|---|---|---|
| Alaska USA Federal Credit Union | Yes | Yes |
| Alaska USA Trust Company | Yes | Yes |
| BMO Capital Markets Corp | Yes | No |
| Bank of Nova Scotia | Yes | No |
| Barclays Capital, Inc | Yes | Yes |
| BNP Paribas Prime Brokerage, Inc. | Yes | No |
| BNP Paribas Securities Corp. | Yes | No |
| Cantor Fitzgerald & Co. | Yes | Yes |
| Citigroup Global Markets Inc | Yes | Yes |
| Credit Suisse Securities (USA) LLC | Yes | Yes |
| CYS Investments, Inc. | Yes | Yes |
| Daiwa Capital Markets America Inc | Yes | Yes |
| Deutsche Bank Securities Inc. | Yes | Yes |
| Dynex Capital Inc. | Yes | Yes |
| Goldman Sachs and Company | Yes | Yes |
| Hatteras Financial Corp | Yes | Yes |
| HSBC Securities (USA) Inc | Yes | Yes |
| ING Financial Markets LLC | Yes | Yes |
| Jefferies LLC | Yes | Yes |
| JP Morgan Securities LLC | Yes | No |
| Merrill Lynch Pierce Fenner & Smith Inc | Yes | Yes |
| Mizuho Securities USA, Inc | Yes | Yes |
| Morgan Stanley & Co. LLC | Yes | Yes |
| NatWest Markets Securities Inc.* | Yes | Yes |
| Nomura Securities International Inc | Yes | Yes |
| Pershing LLC | Yes | Yes |
| Redwood Trust | Yes | Yes |
| RBC Capital Markets LLC | Yes | No |
| SG Americas Securities LLC | Yes | Yes |
| Societe Generale | Yes | Yes |
| TD Securities (USA), Inc | Yes | Yes |
| Two Harbors Investment Corp | Yes | Yes |
| UBS Securities LLC | Yes | Yes |
| Wells Fargo Securities LLC | Yes | Yes |

* RBS Securities Inc. name change to NatWest Markets Securities Inc.

# APPENDIX B

| ALCo Financial Agreements | ALCo FRN Series A Hedge | ALCo FRN Series A Hedge | ALCo FRN Series B Hedge | ALCo FRN Series B Hedge |
|---|---|---|---|---|
| Fund Source | General Fund | General Fund | General Fund | General Fund |
| Hedge | 2017 FRN | 2027 FRN | 2021 FRN | 2025 FRN |
| Counter-Party | Deutsche Bank AG | Deutsche Bank AG | Deutsche Bank AG | Deutsche Bank AG |
| Long-Term Senior Debt Ratings *( Moody's / S&P / Fitch)* | | A3/A-/A- | A3/A-/A- | A3/A-/A- |
| Termination Trigger *( Moody's / S&P )* | Baa3/BBB- | Baa3/BBB- | Baa3/BBB- | Baa3/BBB- |
| Swap Type | Fixed Pay | Fixed Pay | Fixed Pay | Fixed Pay |
| Benchmark | 67% 3M LIBOR + 40 | 67% 3M LIBOR + 53 | 67% 3M LIBOR + 52 | 67% 3M LIBOR + 55 |
| Reset | Quarterly | Quarterly | Quarterly | Quarterly |
| Notional Amount | Expired 11/1/17 | 47,860,000 | 52,170,000 | 70,935,000 |
| Amortize (yes/no) | yes | yes | yes | yes |
| Original Execution Date | 5/16/2007 | 5/16/2007 | 5/16/2007 | 5/16/2007 |
| Start Date | 5/31/2007 | 5/31/2007 | 5/31/2007 | 5/31/2007 |
| Assignment Date | 2/14/2011 | 2/14/2011 | 2/14/2011 | 2/14/2011 |
| Mandatory Early Termination | | | | |
| End Date | 11/1/2017 | 11/1/2027 | 11/1/2021 | 11/1/2025 |
| Fixed Rate pay-(rec) | 3.839% | 4.066% | 4.042% | 4.125% |
| Day Count | 30/360 | 30/360 | 30/360 | 30/360 |
| Payment Dates | February 1, May 1, August 1, November 1 | | | |
| Security Provisions | General Fund Debt Service Appropriations | | | |
| Current Market Valuation June 30, 2018 (negative indicates payment owed by ALCo if terminated) | Expired 11/1/17 | (3,503,828) | (1,769,379) | (6,489,271) |
| Interest Earnings (not applicable) | | | | |
| Total | not applicable | not applicable | not applicable | not applicable |

**Swap Summary**

**As of June 30, 2018:**

| **Total Notional Amount Executed** | | **Net Exposure Notional Amount** | |
|---|---|---|---|
| General Fund | Road Fund | General Fund | Road Fund |
| 243,080,000 | 0 | 166,995,000 | 0 |

**Total Notional Amount Executed by Counter Party**

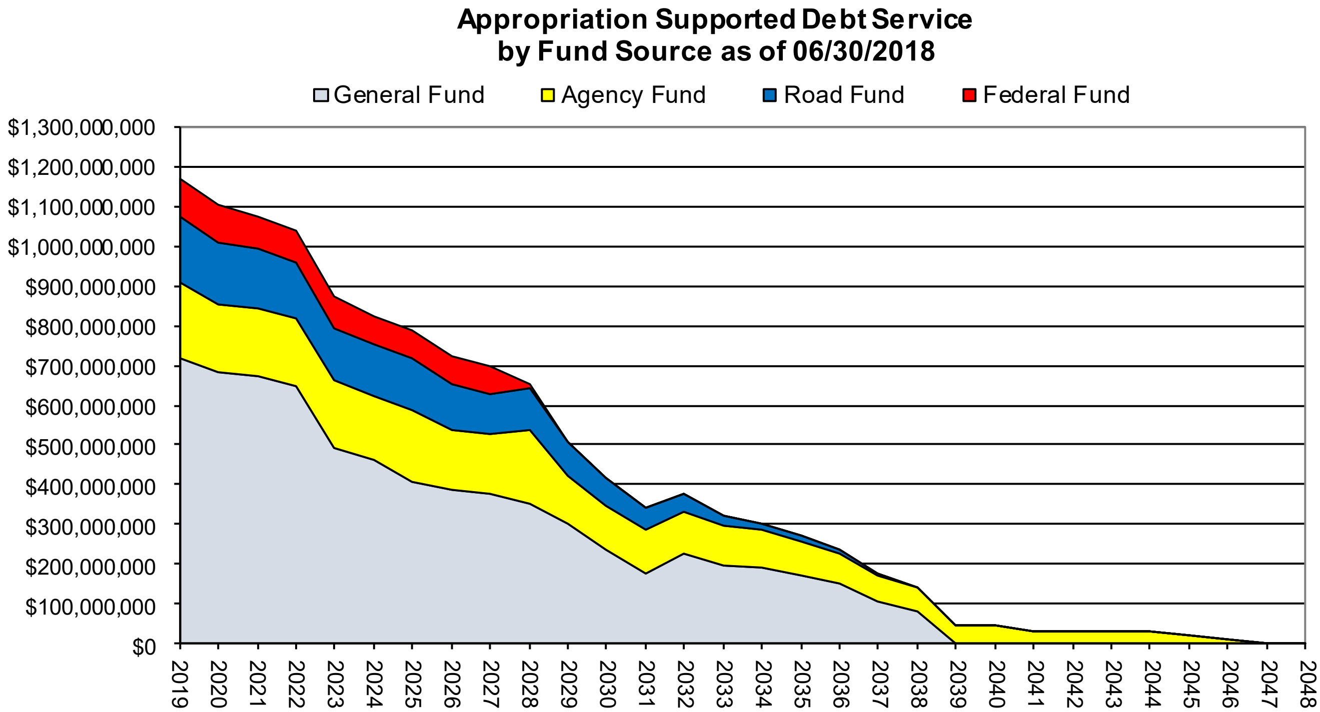
Deutsche Bank (assigned from Citibank on 2/14/2011)

243,080,000

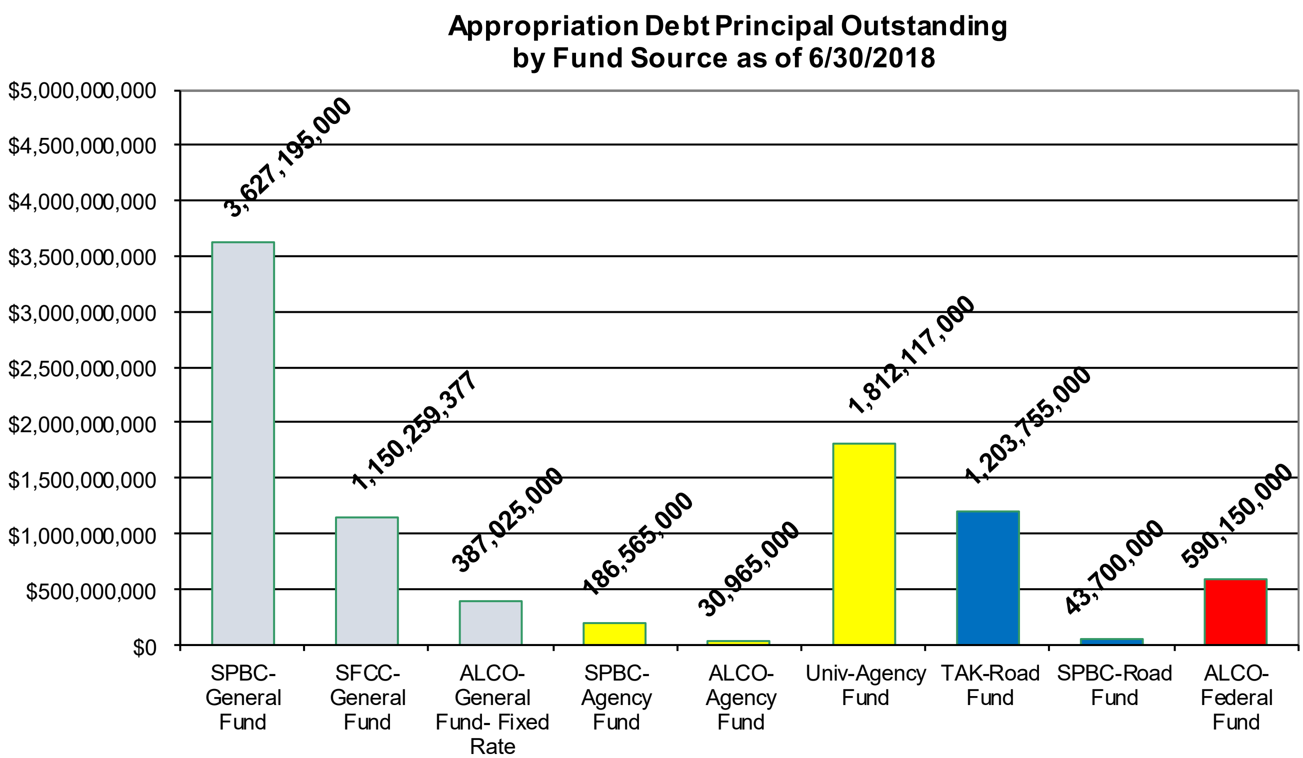
| | **Debt** | | **10 Percent Net Exposure** | |
|---|---|---|---|---|
| | General Fund | Road Fund | General Fund | Road Fund |
| Bonds Outstanding | 4,014,220,000 | 1,247,450,000 | 401,422,000 | 124,745,500 |
| Authorized but Unissued | 536,610,000 | 62,500,000 | 53,661,000 | 6,250,000 |
| Total | 4,550,830,000 | 1,309,955,000 | 455,083,000 | 130,995,500 |

| **Investment Pool Balance** | | **10 Percent Investment Portfolio** | |
|---|---|---|---|
| Other Funds | Net Road Fund | Other Funds | Net Road Fund |
| 4,215,270,635 | 387,906,656 | 421,527,064 | 38,790,666 |

# APPENDIX C




*Excludes ALCo Variable Rate Notes.




*This data does not include debt issued for judicial center projects and paid for by the Administrative Office of the Courts in the Court of Justice or debt issued by the Lexington -Fayette Urban County Government for the Eastern State Hospital.

# APPENDIX D

**COMMONWEALTH OF KENTUCKY**
**ASSET/LIABILITY COMMISSION**
**SCHEDULE OF NOTES OUTSTANDING**
**AS OF 06/30/2018**

| FUND TYPE<br>SERIES TITLE | | AMOUNT<br>ISSUED | DATE OF<br>ISSUE | MATURITY<br>DATE | PRINCIPAL<br>OUTSTANDING |
|---|---|---|---|---|---|
| **General Fund Project & Funding Notes** | | | | | |
| 2007 A, B Series | | $243,080,000 | 5/2007 | 11/2027 | $166,965,000 |
| 2010 1st Series-KTRS Funding Notes | | $467,555,000 | 8/2010 | 4/2020 | $34,350,000 |
| 2011 1st Series-KTRS Funding Notes | | $269,815,000 | 3/2011 | 4/2022 | $105,605,000 |
| 2013 1st Series-KTRS Funding Notes | | $153,290,000 | 2/2013 | 4/2023 | $80,105,000 |
| | **FUND TOTAL** | **$1,133,740,000** | | | **$387,025,000** |
| **Agency Fund Project Notes** | | | | | |
| 2007 Series B-UK Gen Recpts | | $80,245,000 | 11/2007 | 10/2018 | $3,190,000 |
| 2018 Agency Fund Project Note (KCTCS) | | $27,775,000 | 6/2018 | 10/2023 | $27,775,000 |
| | **FUND TOTAL** | **$108,020,000** | | | **$30,965,000** |
| **Federal Hwy Trust Fund Project Notes** | | | | | |
| 2007 1st Series | | $277,910,000 | 9/2007 | 9/2019 | $82,725,000 |
| 2010 1st Series | | $89,710,000 | 3/2010 | 9/2022 | $89,710,000 |
| 2013 1st Series | | $212,545,000 | 8/2013 | 9/2025 | $193,030,000 |
| 2014 1st Series | | $171,940,000 | 3/2014 | 9/2026 | $132,175,000 |
| 2015 1st Series | | $106,850,000 | 10/2015 | 9/2027 | $92,510,000 |
| | **FUND TOTAL** | **$858,955,000** | | | **$590,150,000** |
| **ALCo NOTES TOTAL** | | **$2,100,715,000** | | | **$1,008,140,000** |

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*Creating Financial Value for the Commonwealth*