COMMONWEALTH OF KENTUCKY

KENTUCKY ASSET/LIABILITY COMMISSION

SEMI-ANNUAL REPORT

For the period ending December 31, 2020

48th Edition

Andy Beshear, Governor of the Commonwealth of Kentucky

Holly M. Johnson, Secretary of the Finance and Administration Cabinet

Ryan Barrow, Executive Director, Office of Financial Management

KENTUCKY ALCo ASSET/LIABILITY COMMISSION

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)

may be viewed at:

http://emma.msrb.org/

TEAM KENTUCKY™

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INTRODUCTION

The Kentucky Asset/Liability Commission ("ALCo" or the "Commission") presents its 48th 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 July 1, 2020 through December 31, 2020.

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 maintained the federal funds rate at 0.00% - 0.25% during the second half of 2020.
- The unemployment rate dropped to 6.7% ending December 2020 from 11.1% in June 2020.
- The annual rate of economic growth as measured by GDP rose over the last two quarters of 2020. The seasonally adjusted rate for the third quarter was 33.4% and fourth quarter was 4.0%.
- Inflation finished 2020 with an increasing trend with the core rate (ex-energy and food) ending at 1.5% as of December 2020.

On the state level

- The state continued to manage the effects of the Covid-19 Pandemic as vaccines became available and distribution began. The unprecedented federal fiscal stimulus stabilized the state economy as the production of vaccines started to scale-up.
- General Fund receipts totaled $6.068 billion for the first six months of Fiscal Year (FY) 2021, representing a 5.6% increase over the same period in 2020. The revised official General Fund revenue estimate for FY21 calls for revenue to grow 1.4% compared to FY20 actual receipts. Based on the first half results, General Fund revenue receipts could decline 2.7% for the remainder of the fiscal year and still meet the official estimate of $11.729 billion.
- The current, interim, unofficial, estimate for FY21 would generate a projected General Fund revenue surplus of $126.5 million.
- Road Fund receipts totaled $790.0 million for the first six months of FY21, representing a 1.3% increase over the same period in 2020. The official Road Fund revenue estimate for FY21 calls for revenue to increase 11.7% compared to FY20 actual receipts. Based on the first half results, Road Fund revenues must increase 10.7% for the remainder of the FY to meet the official estimate of $1.578 billion.
- Large unfunded pension liabilities continue to put stress on the Commonwealth.
- Implementation of bond authorizations from prior-year sessions of the General Assembly continued. Bond issues for the period are discussed later in the report.

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Market Overview

The COVID-19 pandemic continues to weigh heavily on economic activity and labor markets in the United States and around the world, even as the ongoing vaccination campaigns offer hope for a return to more normal conditions in 2021. While unprecedented fiscal and monetary stimulus and a relaxation of rigorous social distancing restrictions supported a rapid rebound in the U.S. labor market last summer, the pace of gains has slowed and employment remains well below pre-pandemic levels. In addition, weak aggregate demand and low oil prices have held down consumer price inflation. In this challenging environment, the Federal Open Market Committee (FOMC) has held its policy rate near zero and has continued to purchase Treasury securities and agency mortgage-backed securities to support the economic recovery. These measures, along with the Committee's strong guidance on interest rates and the balance sheet, will ensure that monetary policy will continue to deliver powerful support to the economy until the recovery is complete.

Employment

The labor market has partially recovered from the pandemic induced collapse, but the pace of improvement slowed substantially toward the end of 2020. The public health crisis spurred by the spread of COVID-19 weighed on economic activity throughout 2020, and patterns in the labor market reflected the ebb and flow of the virus and the actions taken by households, businesses, and governments to combat its spread. During the initial stage of the pandemic in the first half of 2020, payroll employment plunged, while the measured unemployment rate jumped to its highest level since the Great Depression. As cases subsided and early lockdowns were relaxed, payroll employment rebounded rapidly, particularly outside of the service sectors, and the unemployment rate fell back. During the fourth quarter, however, the pace of improvement in the labor market slowed markedly amid another large wave of COVID-19 cases. The unemployment rate declined only 0.2% from October through December, while payroll gains averaged just 29,000 per month, weighed down by a contraction in the leisure and hospitality sector, which is particularly affected by social distancing and government mandated restrictions.

Inflation

After declining sharply as the pandemic struck, consumer price inflation rebounded along with economic activity, but inflation remains below pre-COVID levels and the FOMC's long run objective of 2.0%. The 12-month measure of PCE (personal consumption expenditures) inflation was 1.3% in December, while the measure that excludes food and energy items, so called core inflation, which is typically less volatile than total inflation, was 1.5%. Both total and core inflation were held down in part by prices for services adversely affected by the pandemic, and indicators of long run inflation expectations are now at similar levels to those seen in recent years.

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Economic Growth

After contracting with unprecedented speed and severity in the first half of 2020, gross domestic product (GDP) rose rapidly in the third quarter and continued to pick up, albeit at a much slower pace, in the fourth quarter. The rebound in activity reflected a relaxation of voluntary and mandatory social distancing, as well as unprecedented fiscal and monetary support. Nevertheless, the recovery remains incomplete: At the end of 2020, GDP was 2.5 % below its level four quarters earlier. This incomplete recovery reflected weakness in services consumption and overall exports that resulted largely from ongoing social distancing measures to contain the virus, both at home and abroad. The concentration of the recession in services is unprecedented in the United States. Indeed, the sectors that are typically responsible for the cyclical dynamics of GDP have shown remarkable resilience: Activity in the housing market and consumer spending on goods were both above their pre-pandemic levels in the fourth quarter, and business fixed investment and manufacturing output also recovered rapidly from their initial plunges.

Interest Rates

Yields on nominal Treasury securities at longer maturities increased markedly since mid-2020 after falling sharply in late February and early March as investors' concerns regarding the implications of the COVID-19 outbreak for the economic outlook led to both falling policy rate expectations and flight-to-safety flows. The increase in yields on longer-term Treasury securities followed news of the imminent arrival of multiple highly effective COVID-19 vaccines in the fall of 2020 and expectations of further fiscal support, as well as an increase in the issuance of longer-term Treasury securities. Despite the rise in Treasury yields, yields on 30-year agency mortgage-backed securities (MBS) an important determinant of mortgage interest rate decreased somewhat, on comparatively, amid the Federal Reserve's ongoing purchases of MBS and have remained near their historical lows. Thus, the spread between yields on 30-year agency MBS and comparable maturity Treasury yields has narrowed.

Approval of the effective vaccines late in the year, optimism about further fiscal support, and notable improvement in the outlook for corporate earnings boosted investors' optimism, and improvement in the credit quality of firms drove declines in yields on investment- and speculative grade corporate bonds. As with mortgage securities, spreads on corporate bond yields over comparable maturity nominal Treasury yields have narrowed considerably since the end of June as corporate bond yields declined and yields on nominal Treasury securities increased and have returned to levels observed before the pandemic. Yields on municipal debt continued to decline in the second half of 2020, and spreads on municipal bonds over comparable maturity nominal Treasury yields have narrowed substantially since the end of June, as nominal Treasury yields increased and investors grew more optimistic about further fiscal stimulus and aid to state and local governments. The year-end expiration of

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lending facilities that were authorized under section 13(3) of the Federal Reserve Act and that use CARES Act funding did not lead to upward pressure on corporate or municipal bond spreads.

Equities

After starting to rebound last spring from their COVID related declines, broad stock prices have risen notably further since mid 2020, as the arrival of effective vaccines, optimism about further fiscal support, and notable improvement in the outlook for corporate earnings outweighed investor concerns regarding the rise in COVID-19 cases. The prospect of an economic recovery aided by effective vaccines and fiscal support led to outsized price gains in some cyclical sectors, such as the consumer discretionary, materials, and information technology sectors. Similarly, stock prices of smaller corporations considerably outperformed large-cap stock price indexes. After experiencing depressed levels through early fall, bank stock price indexes increased considerably in late 2020, boosted by positive vaccine news, a generally improved investor outlook for loan losses and bank profitability, and the release of favorable stress test results in late 2020.

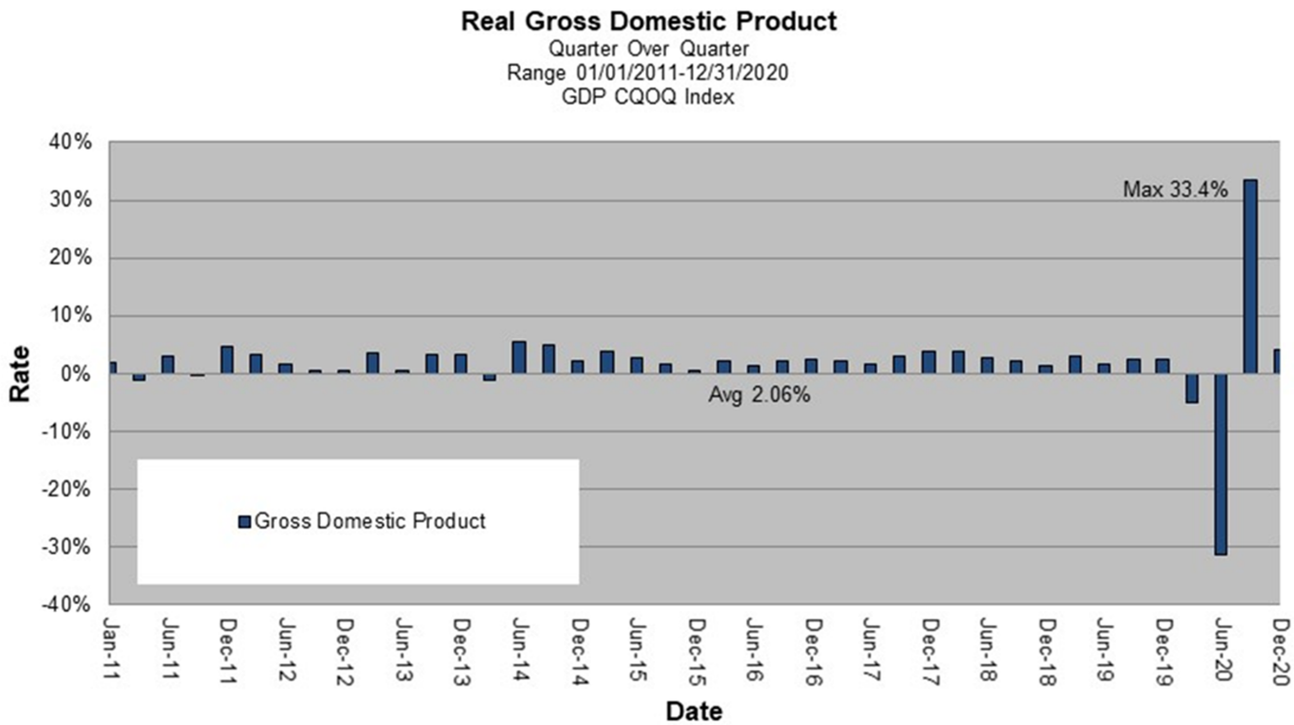
Outlook

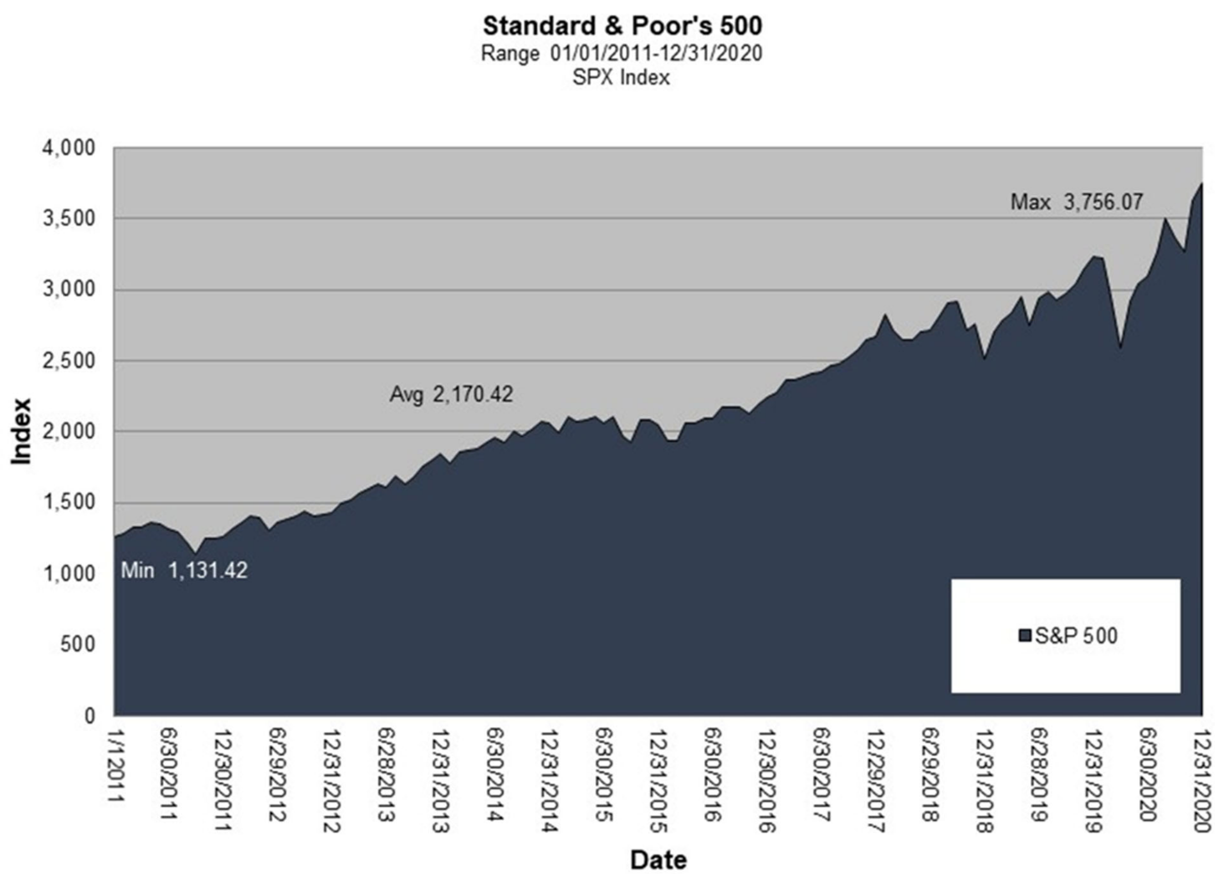
The economic outlook depends on the course of the COVID-19 pandemic. The vaccination campaign now under way offers the prospect of a return to more normal conditions by the end of 2021. But the pace of vaccinations, the rate of decline in the spread of the virus, and the speed with which people return to normal activities all remain highly uncertain, particularly given the emergence of new, apparently more contagious strains. In the long run economic effects of the pandemic are also difficult to predict. Many small businesses have shut down and may not reopen. Some pandemic driven shifts in economic activity, such as from in person to online shopping and from office based to remote work, may prove to be permanent. These shifts could increase productivity by substituting remote interactions for costly travel and commuting, but they could also put persistent upward pressure on unemployment, as affected workers may need to seek new jobs and perhaps new occupations. The pandemic has also disrupted schooling at all levels, which could have persistent negative effects on educational attainment and economic outcomes for affected students.

The expected level of the federal funds rate over the next few years has remained near zero. Economic forecasters and financial market participants expect the federal funds rate over the next several years to remain at the effective lower bound. Market based measures of federal funds rate expectations over the next few years have increased moderately since June and remain below 0.25% until the second quarter of 2023. According to the results of the Survey of Primary Dealers and the Survey of Market Participants, both conducted by the Federal Reserve Bank of New York, the median respondent views the most likely path of the federal funds rate as remaining in its current range of 0 to 0.25% until the first half of 2024.

INVESTMENT MANAGEMENT

Real Gross Domestic Product & Standard & Poor's 500





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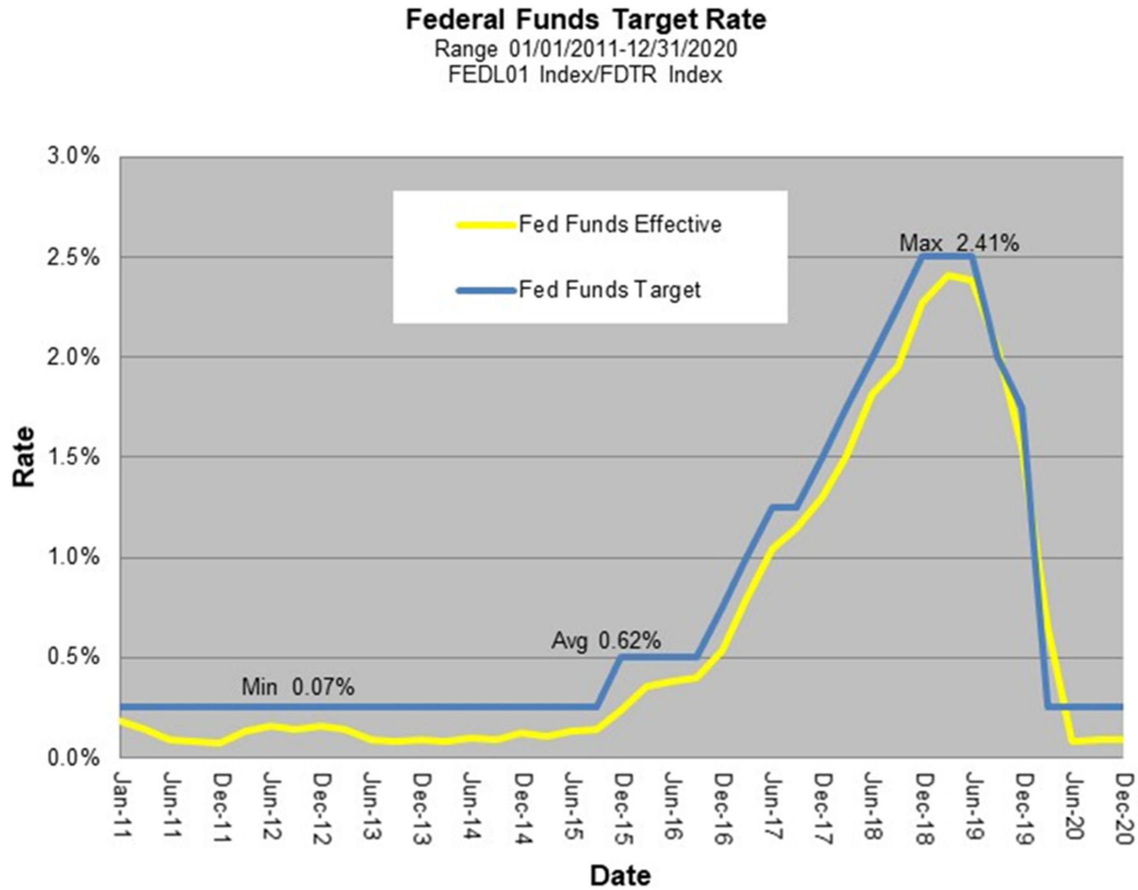
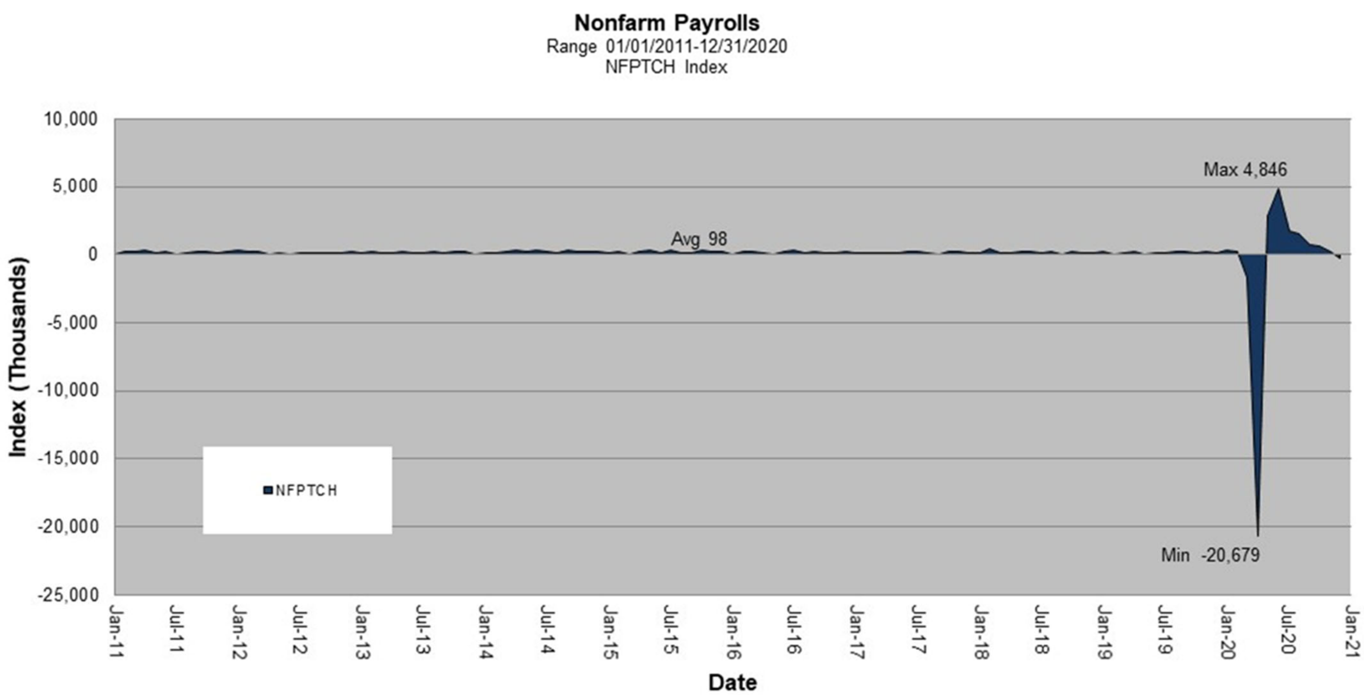
Federal Funds Target Rate & NonFarm Payrolls





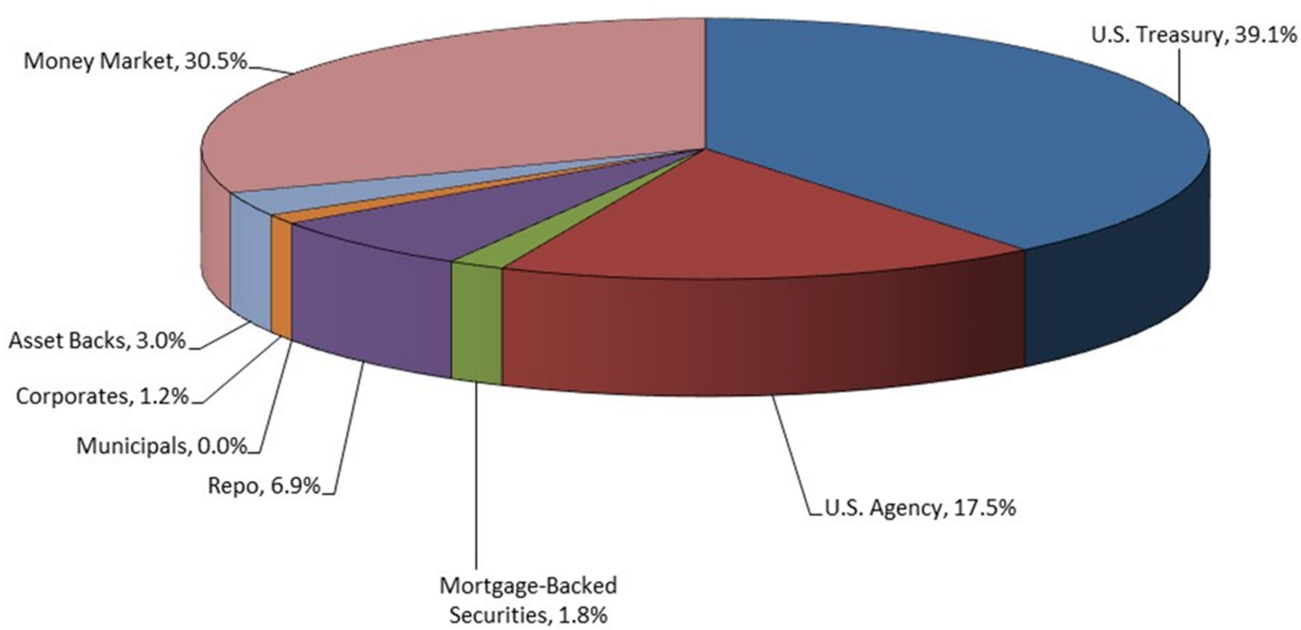
INVESTMENT MANAGEMENT

Portfolio Management

For six months ended December 31, 2020, the Commonwealth's investment portfolio was approximately $5.8 billion. The portfolio was invested in U. S. Treasury Securities (39.1%), U.S. Agency Securities (17.5%), Mortgage-Backed Securities (1.8%), Repurchase Agreements (6.9%), Corporate Securities (1.2%), Asset-Backed Securities (3.0%), and Money Market Securities (30.5%). The portfolio had a market yield of 0.11% and an effective duration of 0.66 of a year.

The total portfolio is broken down into three investment pools. The pool balances as of December 31, 2020 was $1.3 billion (Short Term Pool), $1.7 billion (Limited Term Pool), $2.8 billion (Intermediate Term Pool).

Distribution of Investments as of December 31, 2020

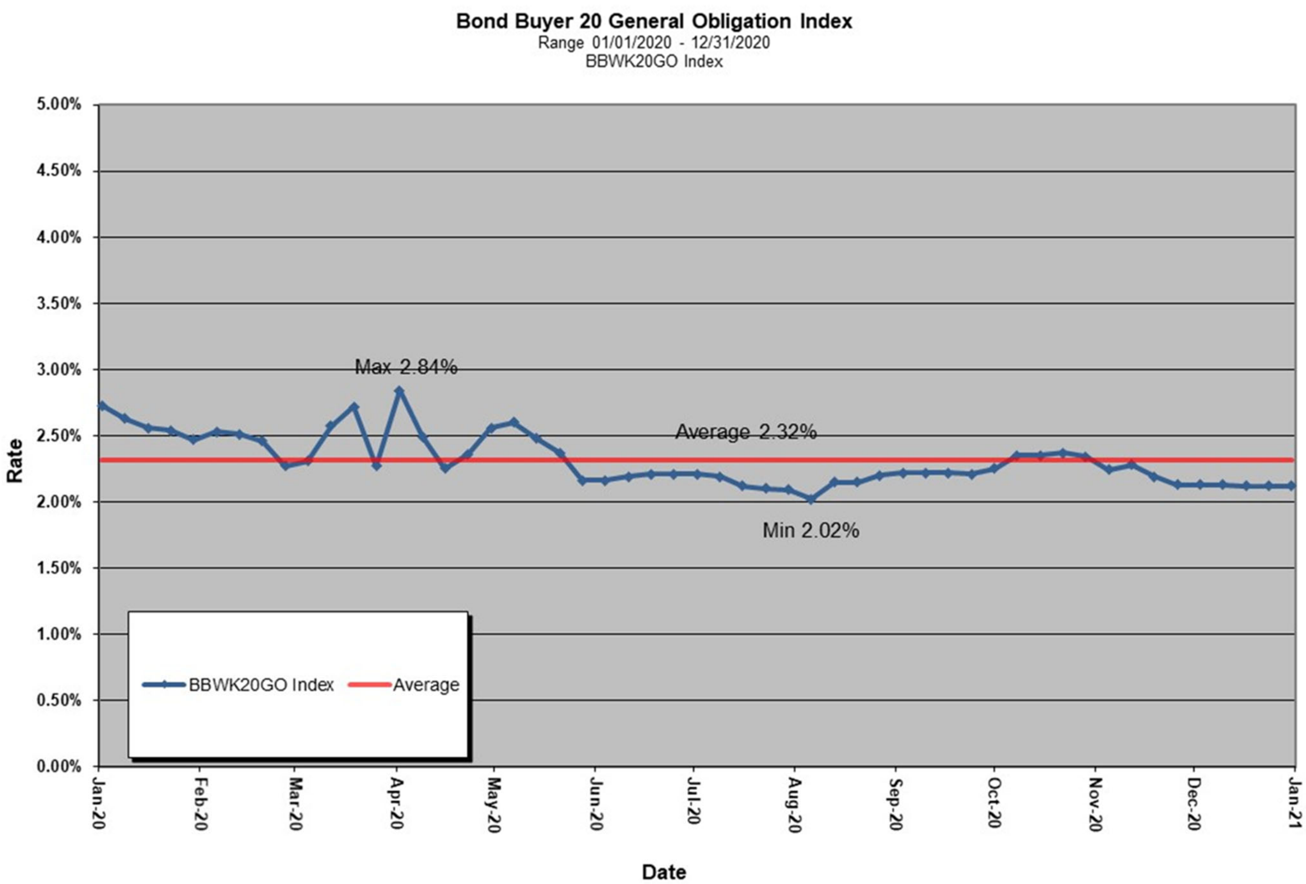


INVESTMENT MANAGEMENT

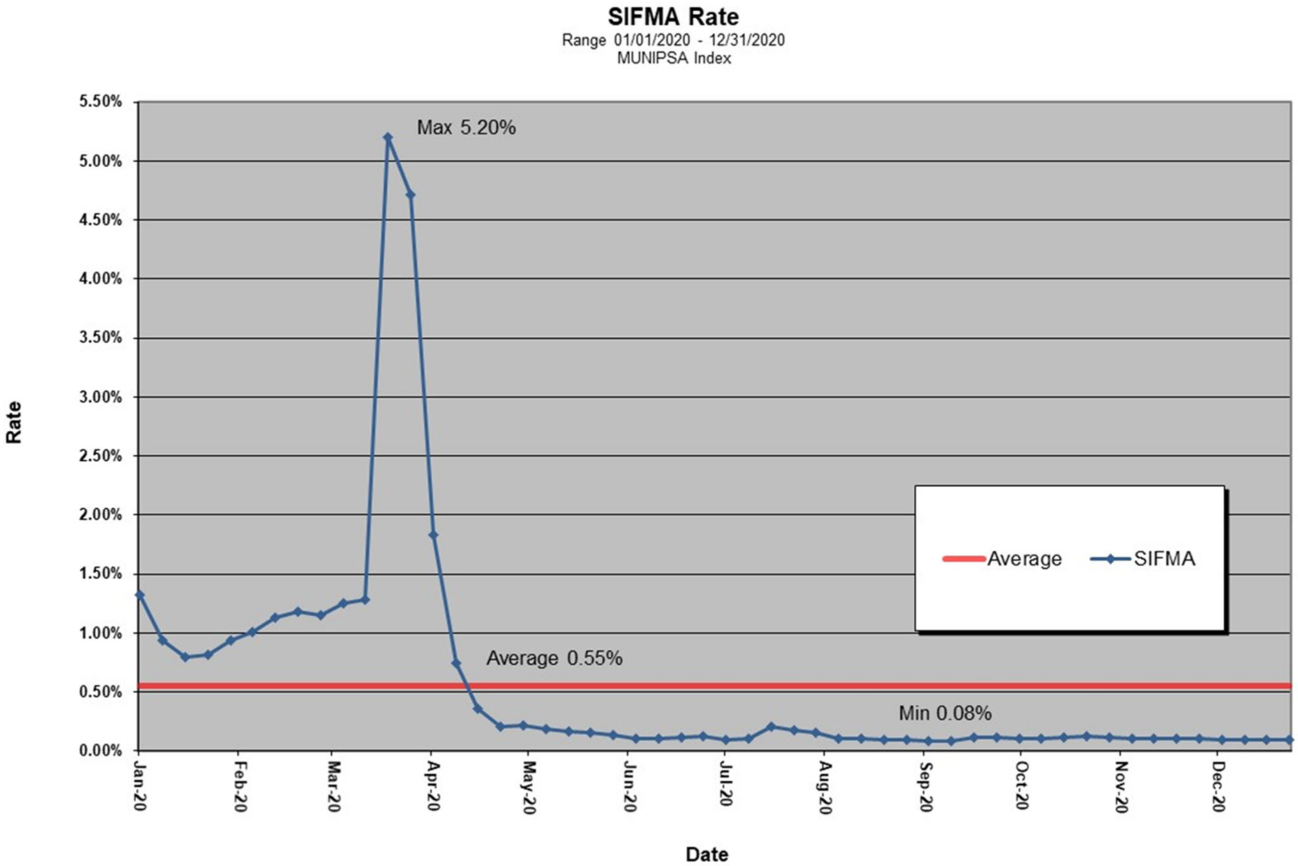
Tax-Exempt Interest Rates and Relationships

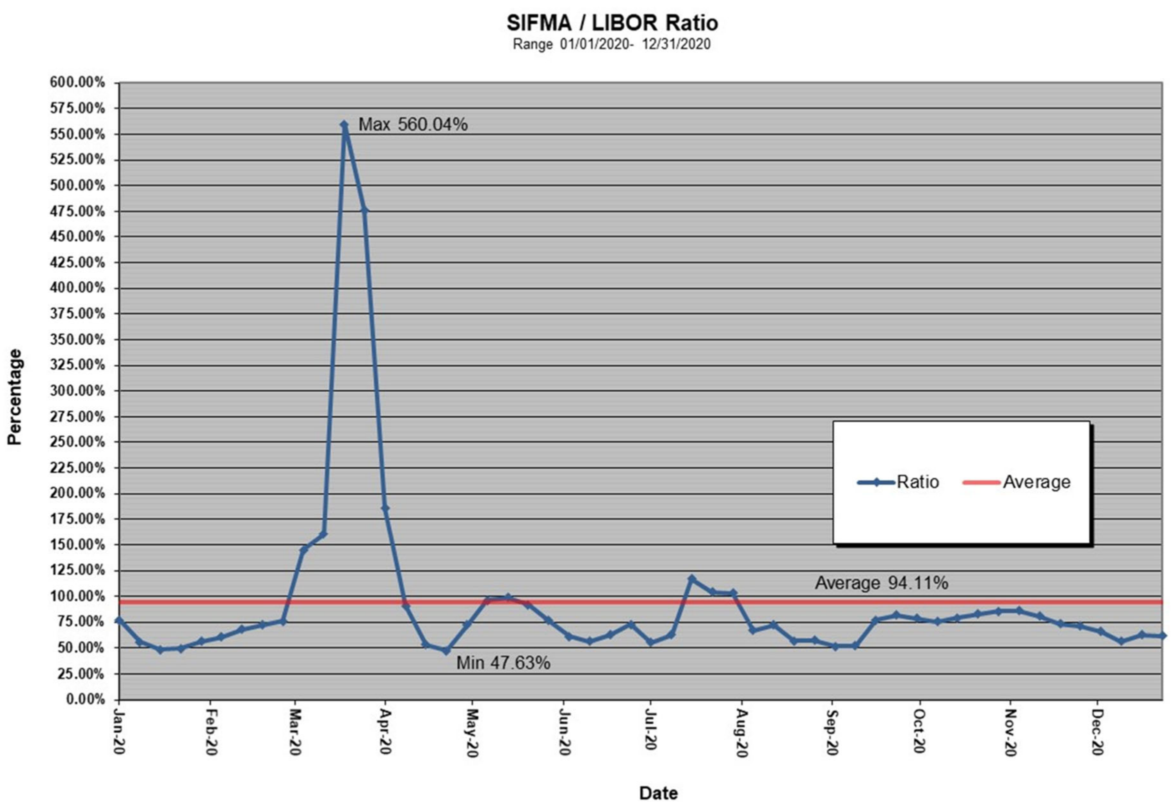
The Bond Buyer 20 General Obligation Index averaged 2.32% for Calendar Year 2020. The high was 2.84% in April 2020 and the low was 2.02% in August 2020.

The Securities Industry and Financial Markets Association (SIFMA) Municipal Swap Index averaged 0.55% for Calendar Year 2020. The high was 5.20% in March 2020 and the low was 0.08% in September 2020. The 30-day USD London Interbank Offered Rate (LIBOR) averaged 0.52% for Calendar Year 2020. The high was 1.71% in January 2020 and the low was 0.13% in November 2020. During the year, SIFMA traded at a high of 560.04% of the 30-day LIBOR in March 2020, at a low of 47.63% in early May 2020, and at an average of 94.11% for the Calendar Year.



SIFMA & SIFMA/LIBOR Ratio





CREDIT MANAGEMENT

Mid-Year Reflection

Credit

The COVID-19 pandemic continued to dominate the news and financial markets in the second half of 2020 as the world attempted with varying degrees of success to emerge from lockdowns and restart national economies. After plummeting in the first half, consumer spending bounced back strong but remains below 2019 levels. It is possible consumer spending doesn't return to pre-pandemic highs until 2022. Personal income initially spiked in the first half of the year when government stimulus kicked in but growth has fallen off since then as stimulus dried up and the unemployment rate remained elevated. Household debt rose to an all-time high and is approaching $15 trillion. This was primarily fueled by increased mortgage issuance as consumers took advantage of historically low rates. Credit card balances dropped to the lowest level since 2017 and auto loan delinquencies remained low despite forbearance programs expiring. Consumers have been helped greatly by extremely low interest rates on all types of credit, something expected to continue through 2021 as the Federal Reserve keeps the benchmark rate at zero.

The upward trajectory of corporate debt continued unabated in the second half of 2020 as companies binged on low interest rates. While both investment grade and speculative grade debt increased significantly, the growth in the latter was greater as a wave of credit downgrades during 2020 dropped many companies below investment grade. Predictions of leverage loan defaults reaching 6% proved incorrect as levels remained below 4%, although that number is slowly creeping upward and the current default cycle is expected to last for at least the next year. After the Fed accelerated its bond purchasing program and halted the widening of spreads on corporate debt in the first half of the year, spreads continued to drop to pre-pandemic levels. Respondents to the Senior Loan Officer Opinion Survey on Bank Lending Practices, or SLOOS, reported that lending standards for commercial and industrial loans continued to tighten as banks sought to reduce risk in that category. Standards eased for all categories of consumer loans. These trends are expected to continue during 2021. Demand for all types of consumer credit remained relatively flat, with the exception of mortgage loans as buyers took advantage of extremely low rates.

The second half of 2020 saw only one company removed from the Corporate Credit Approved list. Wells Fargo was dropped when its credit rating fell below the minimum standard. In addition, the trend of downgrades continued as PNC, US Bank, Cooperative Rabobank, Pfizer, Exxon, Chevron, Total SA, and Royal Dutch Shell all experienced credit rating downgrades. They all remain on the approved list for now as their credit rating remains above the minimum.

CREDIT MANAGEMENT

Credit Process

Our credit strategy invests 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 utilized 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 strategy/execution, and financial statement ratio analysis.

Approved List

Once analysis has been completed, the State Investment Commission approves the list on a quarterly basis. During the second half of 2020, Wells Fargo was removed from the Corporate Credits Approved list. The Corporate Credits Approved list as of December 2020 is found in Appendix A.

State Investment Commission

The State Investment Commission (SIC) is responsible for investment oversight with members of the Commission being Governor (Chair), State Treasurer (Vice Chair), Finance and Administration Cabinet Secretary and two Gubernatorial Appointees. The investment objectives are three-fold: preservation of principal, maintain liquidity to meet cash needs and maximization of returns. The Office of Financial Management is staff to the SIC and follows KRS 42.500, 200 KAR 14.011, 14.081, and 14.091 when making investment decisions.

Securities Lending Program

The Securities Lending Program ended in November 2020 because of low utilization rates on loanable assets. The low rates of return coupled with the exposure to investment risk rendered the program no longer beneficial to the Commonwealth.

DEBT MANAGEMENT

Authorized But Unissued Debt

As of December 31, 2020, the Commonwealth's 2020-2021 budget includes authorized debt service for over $1.22 billion of projects supported by the General Fund, Agency Funds, and the Road Fund, which were approved during prior sessions of the General Assembly. This pipeline of projects is anticipated to be financed over a number of future biennia bond transactions. The speed at which this financing takes place is dependent upon factors managed by and between the project sponsors, the Office of the State Budget Director and the Office of Financial 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, Road Fund and 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.

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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 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.

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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, $377.69 million is General Fund supported, $602.89 million is supported by Agency Fund appropriations, and $18.75 million is Road Fund supported.

2019 Regular Session

The 2019 Regular Session of the General Assembly delivered House Bill 268 to the Governor on March 14, 2019. House Bill 268 authorized general fund bond supported projects totaling $75 million to support various capital initiatives of the Commonwealth. The Governor took final veto action on House Bill 268 on March 26, 2019. The Legislature partially overrode the Governor's vetoes on March 28, 2019. The total authorization under House Bill 268 is General Fund supported

2020 Regular Session

The 2020 Regular Session of the General Assembly delivered House Bill 99 to the Governor on March 18, 2020 and delivered House Bill 352 (Executive Branch Budget other than the Transportation Cabinet) and House Bill 353 (Kentucky Transportation Cabinet Budget) to the Governor on April 1, 2020, establishing an Executive Branch Budget for the first year only of the biennium ending June 30, 2022. The Governor signed House Bill 99 on March 25, 2020 and vetoed certain line items in House Bill 352 and House Bill 353 on April 13, 2020. The General Assembly overrode all gubernatorial vetoed line items on April 15, 2020. Together, the bills authorized bond financing for projects totaling a net amount of $351.67 million to support various capital initiatives of the Commonwealth. The total authorization is General Fund supported. Agency Fund projects totaling $429.80 million were listed without debt service appropriation. No additional Road Fund supported authorizations were appropriated.

DEBT MANAGEMENT

Authorized but Unissued Debt Summary

The balance of prior bond authorizations of the General Assembly dating from 2010 through 2020 totals $1,228.60 million. Of these prior authorizations, $351.77 million is General Fund supported, $814.32 million is Agency Restricted Fund supported, $62.50 million is supported by Road Fund appropriations.

The following table summarizes, in aggregate, the information in connection with authorized but unissued debt of the Commission as described in this section.

Summary of Authorized but Unissued Debt by Fund Type As of December 31, 2020:

Legislative Session (Year)	General Fund (millions)	Agency Fund (millions)	Road Fund (millions)	TOTAL (millions)
2010	22.35	17.50	50.00	89.85
2012	2.17	-	12.50	14.67
2014	13.24	-	-	13.24
2016	42.00	20.58	-	62.59
2017	-	-	-	0.00
2018	203.55	354.10	-	557.65
2019	57.43	.		57.43
2020	122.34	422.14		544.48
Bond Pool Proceeds	(111.31)	-	-	(111.31)
TOTAL	351.77	814.32	62.50	1,228.60

The balance of prior bond authorizations of the General Assembly dating from FY 2010 through FY 2020 totals $1,228.60 million. Of these prior authorizations, $351.77 million is General Fund supported, $814.32 million is Agency Restricted Fund supported, and $62.5 million is supported by Road Fund appropriations.

Looking Forward

The Commission continues to monitor the municipal bond interest rate market and uses this information together with other relevant market data to evaluate whether or not the interim financing program would provide and economic advantage in conjunction with the fixed rate bonds.

DEBT MANAGEMENT

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.

With the issuance of State Property and Buildings Commission project No. 122 in October of 2019 (discussed in greater detail later) the determination was made to add Kroll Bond Rating Agency's evaluation of that issuance. The Kroll ratings were General Obligation Issuer Implied Rating of AA-, and General Fund Appropriation Rating of A+.

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

The Ratings Picture at December 31, 2020:

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

[i]All outstanding bonds do not necessarily receive a rating from every rating agency

DEBT MANAGEMENT

Cash Management Strategies

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

Tax and Revenue Anticipation Notes (TRAN)

TRANs leverage the difference between taxable and tax-exempt interest rate markets to create economies that provide a financial benefit to the Commonwealth. Market conditions did not provide a beneficial interest rate environment, so no TRANs were issued during the reporting period.

Inter-Fund Borrowing

Cash in one fund is loaned to another fund which is experiencing a short-term cash flow shortfall. Historically, funds are loaned to the short-term fund (General Fund).

As of December 31, 2020 the total available liquid resources available to the General Fund was $5.814 billion.

Bond Anticipation Notes (BAN)

A short-term interest-bearing security issued in advance of a larger, future bond issue. Bond anticipation notes are smaller short-term bonds that are issued to generate funds for upcoming projects.

No BANs were issued during the reporting period

Notes (Direct Loans)

"Funding notes" means notes issued under the provisions of KRS 56.860 to 56.869 by the commission for the purpose of funding:

(a) Judgments, with a final maturity of not more than ten (10) years; and

(b) The finance or refinance of obligations owed under KRS 161.550(2) or 161.553(2)

"Project notes" means notes issued under the provisions of KRS 56.860 to 56.869 by the commission with a final maturity of not more than twenty (20) years for the purpose of funding authorized projects, which may include bond anticipation notes.

No Notes were issued during the reporting period

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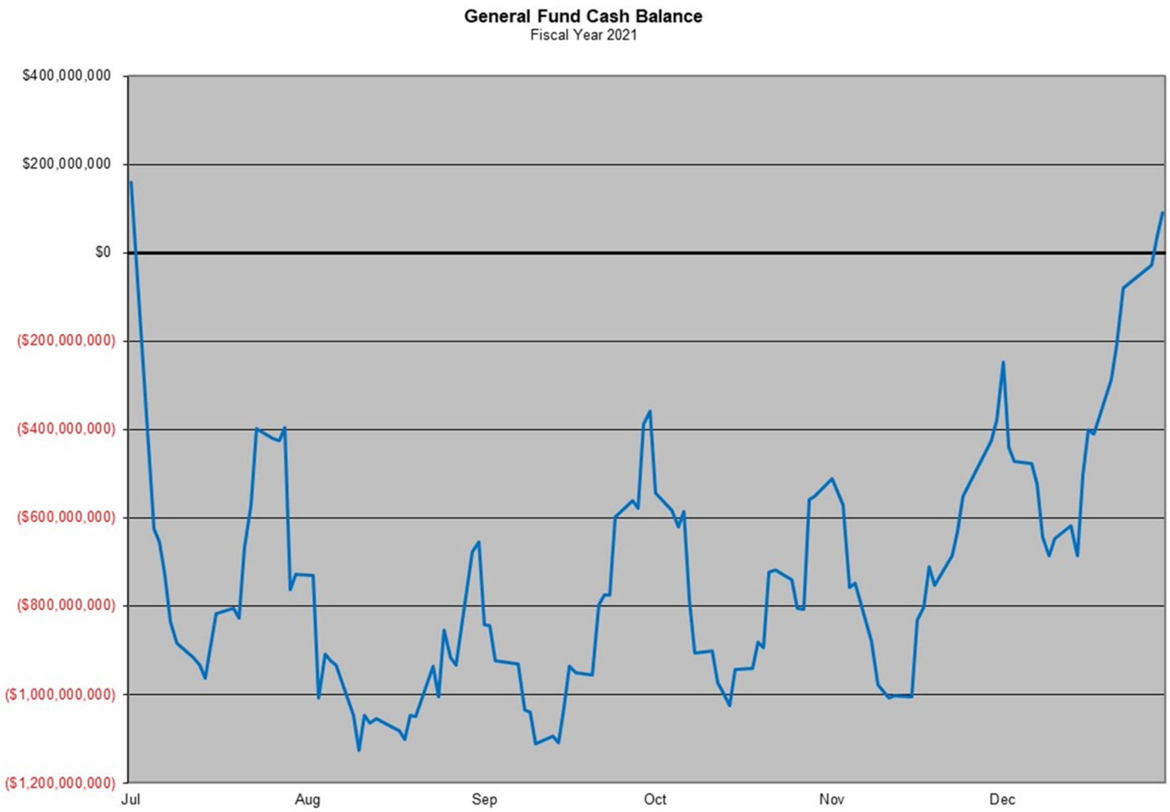
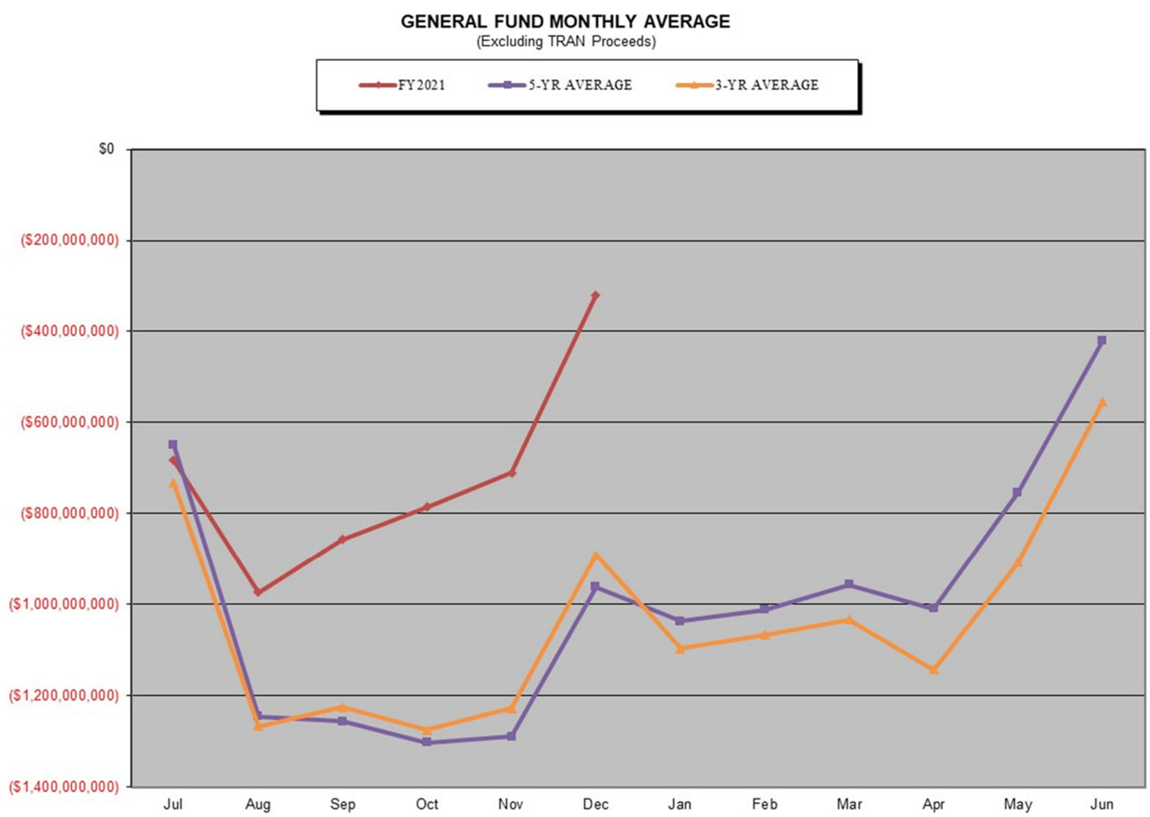




DEBT MANAGEMENT

ALCo Financial Agreements

As of December 31, 2020, ALCo had three financial agreements outstanding, with a net notional exposure amount of $117,495,000. 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 is 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

DEBT MANAGEMENT

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 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. Fitch downgraded Deutsche Bank on June 7, 2019 from BBB+ to BBB, but the ratings termination triggers are only related to Moody's and S&P.

Details related to the interest rate swaps as of June 30, 2020 are presented in Appendix B.

Asset/Liability Model

General Fund

The total SPBC debt portfolio as of December 31, 2020 had $3.140 billion of bonds outstanding with a weighted average coupon of 4.93% and a weighted average life of 6.47 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 $542.853 million callable portion had a weighted average coupon of 4.65%.

The SPBC debt structure has 45% of principal maturing in 5 years and 71% of principal maturing in 10 years. The ratios are above the rating agencies' proposed target of 27-30% due in 5 years and 55-60% maturing within 10 years,

DEBT MANAGEMENT

primarily influenced by debt restructuring and the minimal amount of long-term new money permanent financings within the last several years.

For the Fiscal Year 2020 the General Fund had a maximum balance of $175.985 million on July 1, 2019, and a low of negative $1.681 billion on September 9, 2019.

The average and median balances were a negative $1.064 billion and a negative $1.004 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 Commonwealth General Fund debt service, net of credits was $1.101 billion for Fiscal Year 2020. This number is significantly higher than the prior year because of the TRAN debt service repayment that was paid in Fiscal Year 2020. In addition to the Commonwealth General Fund debt service, General Fund debt service of $11.256 million was provided for the Eastern State Hospital financing that was issued through the Lexington-Fayette Urban County Government in 2011. Also, General Fund debt service of $3.938 million was provided for the 2015 and 2018 Certificates of Participation (related to the two Commonwealth State office Building projects). These projects are separately identified because they are not obligations of the Commonwealth, but they are General Fund supported. 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 124</u>

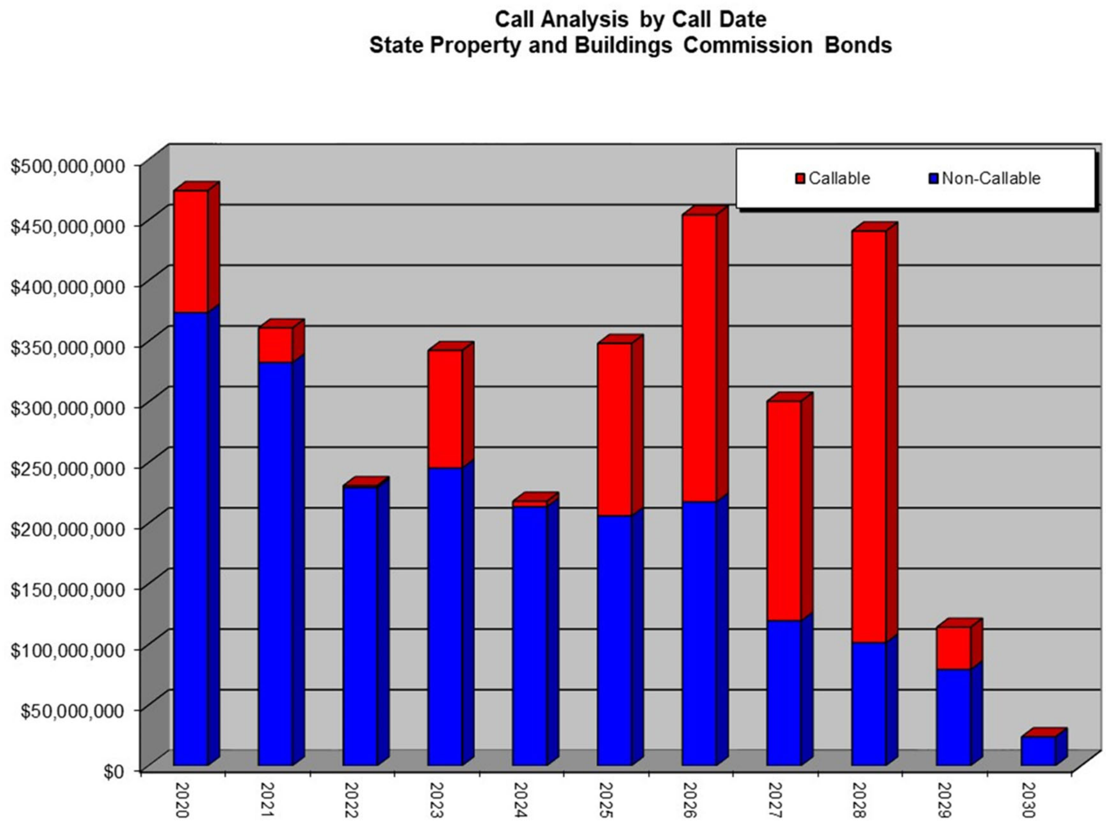
On July 22, 2020, SPBC closed $121,450,000 par of General Fund Revenue Bonds, Project No. 124, in a single series. The transaction provided permanent financing for approximately $150 million of General Fund supported capital projects authorized over multiple sessions of the General Assembly.

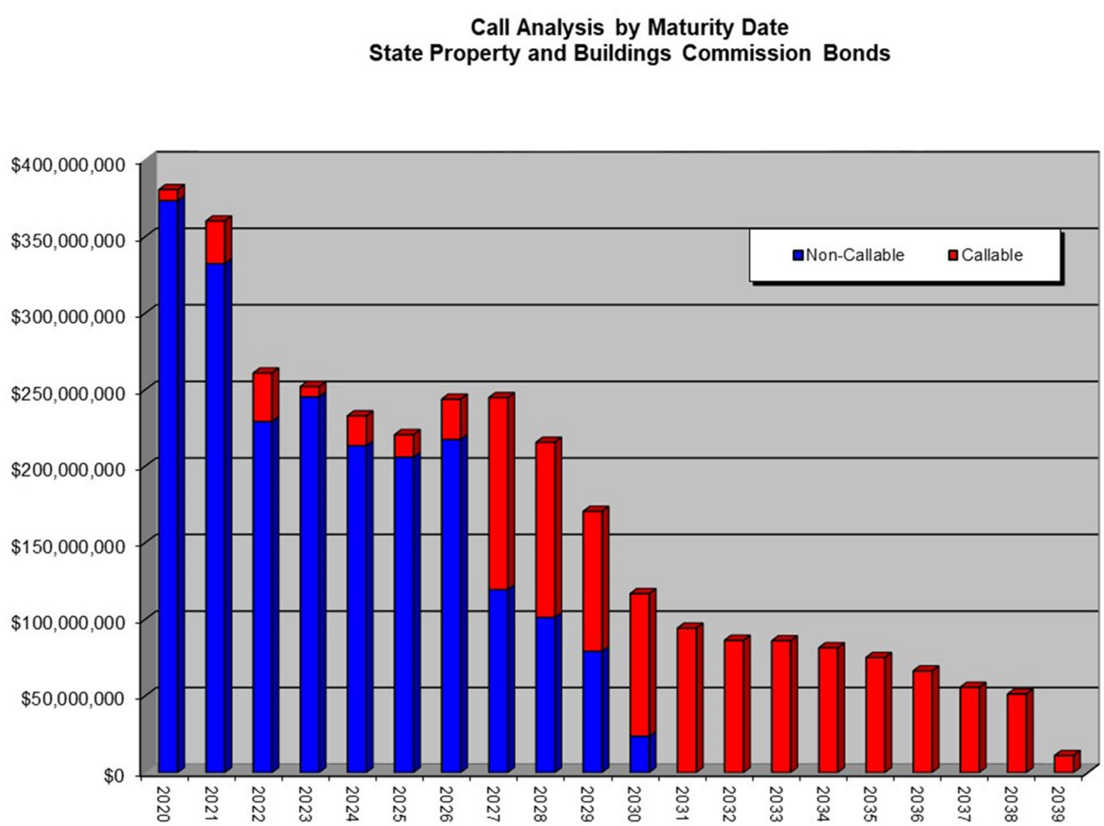
The SPBC Project No. 124 transaction achieved an All-In True Interest Cost of 2.3915%. The bonds were sold on a tax-exempt basis via negotiated sale with Citigroup serving as underwriter and Kutak Rock LLP as bond counsel. The bonds received ratings of A1/A+ from Moody's Investors Service, Inc. and Fitch Ratings, respectively.

Looking Forward

In light of the January 1, 2018 federal tax law change that tightened the parameters by which tax-exempt municipal bonds could be advanced refunded, the Commonwealth has added to the methods of evaluation for examining potential refunding candidates. Since tax advantaged bonds are no longer eligible to be advance refunded on a tax-exempt basis, the Commonwealth now gives consideration to advance refunding its municipal bonds on a taxable basis or through a forward delivery of tax-exempt bonds. Additional diligence and financial modeling is necessary to ensure economic savings in these transactions.

DEBT MANAGEMENT





DEBT MANAGEMENT

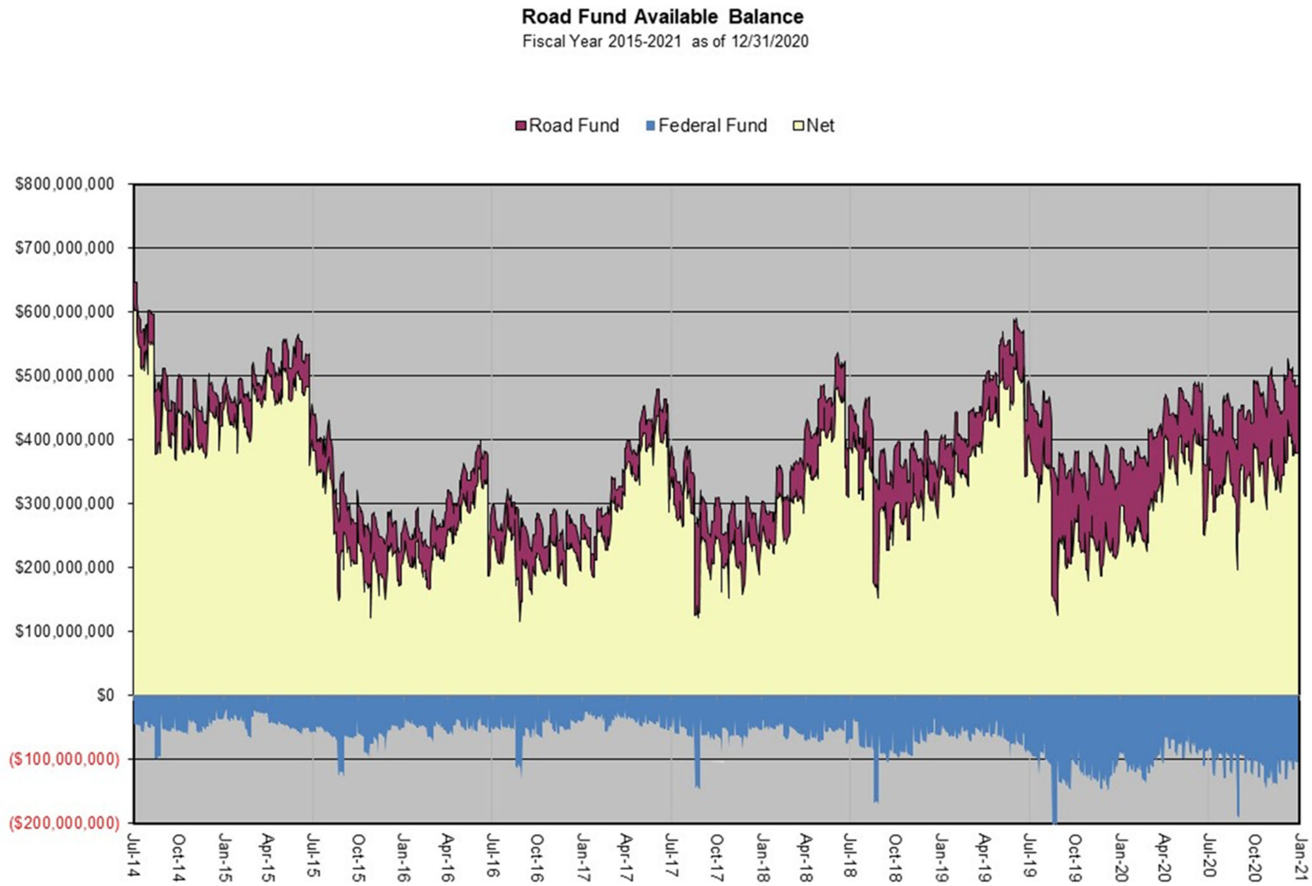
Road Fund

The Road Fund average daily cash balance for the first half of Fiscal Year 2021 was $458 million compared to $259 million for the first half of Fiscal Year 2020. The Road Fund cash was invested in the Intermediate Term Investment Pool which had a duration of 1.27 years as of December 31, 2020. The Road Fund earned a positive $280 thousand on a cash basis for the first half of Fiscal Year 2021 versus a positive $2.568 million for the first half of Fiscal Year 2020. The Road Fund investment earnings declined year over year because of lower short term rates and a low road fund balance, the continued relatively low level of investable balances at certain times during the fiscal year limits the investment opportunities.

As of December 31, 2020, the Turnpike Authority of Kentucky (TAK) had $1.012 billion of bonds outstanding with a weighted average coupon of 4.89% and an average life of 5.70 years. Road Fund debt service expected to be paid in Fiscal Year 2021 is $151.456 million, resulting in a net interest margin (investment income earned year-to-date less debt service paid) of negative $151.176 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.

ALCo 2020 GARVEEs

On November 18, 2020 ALCo priced a $59,405,000 bond transaction which currently refunded $61,215,000 of outstanding Kentucky ALCo, Project Notes 2010 Federal Highway Trust Fund First Series A. The transaction achieved an All-In True Interest Cost of 0.678% and a net present value savings of $2,906,027.50 (or 4.747% savings from the refunded bonds). The bonds were issued tax-exempt via a negotiated sale with Citigroup serving as Senior Manager, Kutak Rock serving as Bond Counsel and Dinsmore serving as Underwriter's Counsel. The bonds achieved ratings of A2 from Moody's and AA from S&P, and the transaction closed on December 16, 2020.



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.

Since its inception, ALCo has been instrumental in adding incremental returns on investment income to the Commonwealth's investment portfolio. ALCo has continued to manage General Fund intra-year cashflow deficits through its TRAN program when cost effective. Until Fiscal Year 2010, ALCo had issued a General Fund TRAN each fiscal year since 1998 (with the exception of FY 2004), providing millions of dollars of incremental gains for the General Fund over this time. In fiscal 2019 market conditions again created an opportunity to utilize the TRAN program. ALCo's management approach to project funding has also allowed the Commonwealth to take advantage of short-term yields 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 December 31, 2020

Company Name	Repurchase Agreements	Money Market Securities	Notes
Apple Inc		Yes	Yes
Bank of Montreal	Yes	Yes	Yes
Bank of Nova Scotia	Yes	Yes	Yes
Berkshire Hathaway Inc		Yes	Yes
BNP Paribas Securities Corp	Yes	Yes	Yes
BNY Mellon NA		Yes	Yes
Canadian Imperial Bank of Comm		Yes	Yes
Chevron Corp		Yes	Yes
Cisco Systems Inc		Yes	Yes
Cooperatieve Rabobank		Yes	Yes
Cornell University		Yes	No
Costco Wholesale Corp		Yes	Yes
Deere & Co		Yes	Yes
Exxon Mobil Corp		Yes	Yes
Home Depot Inc		Yes	Yes
IBRD - World Bank		Yes	Yes
Intel Corp		Yes	Yes
Intl Business Machines Corp		Yes	Yes
Johnson & Johnson		Yes	Yes
Merck & Co. Inc.		Yes	Yes
Microsoft Corp		Yes	Yes
MUFG Bank LTD/NY		Yes	Yes
MUFG Securities Americas Inc	Yes	No	No
Natixis SA/New York		Yes	Yes
Nestle Finance International		Yes	Yes
PepsiCo Inc		Yes	Yes
Pfizer Inc		Yes	Yes
Linde PLC*		Yes	Yes
Procter & Gamble Co/The		Yes	Yes
Royal Bank of Canada	Yes	Yes	Yes
Royal Dutch Shell PLC		Yes	Yes
Salvation Army		Yes	No
State Street Corp		Yes	Yes
Sumitomo Mitsui Trust Bank		Yes	Yes
Swedbank AB		Yes	Yes
Texas Instruments Inc.		Yes	Yes
Toronto-Dominion Bank/The		Yes	Yes
Total SA		Yes	Yes
Toyota Motor Corp		Yes	Yes
US Bank NA		Yes	Yes
Wal-Mart Stores Inc		Yes	Yes

*Addition:
Praxair merged with Linde PLC

Removed:
Guggenheim Securities, LLC (Triparty REPO)

APPENDIX B

As of December 31, 2021

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/BBB+/BBB	A3/BBB+/BBB	A3/BBB+/BBB
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	32,515,000	14,045,000	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 December 31, 2019 (negative indicates payment owed by ALCo if terminated)	Expired 11/1/17 .	(4,363,511)	(476,929)	(8,153,645)
Interest Earnings (not applicable)				
Total	not applicable	not applicable	not applicable	not applicable

Swap Summary
As of December 31, 2020:

Total Notional Amount Executed		Net Exposure Notional Amount	
General Fund	Road Fund	General Fund	Road Fund
243,080,000	0	117,495,000	0

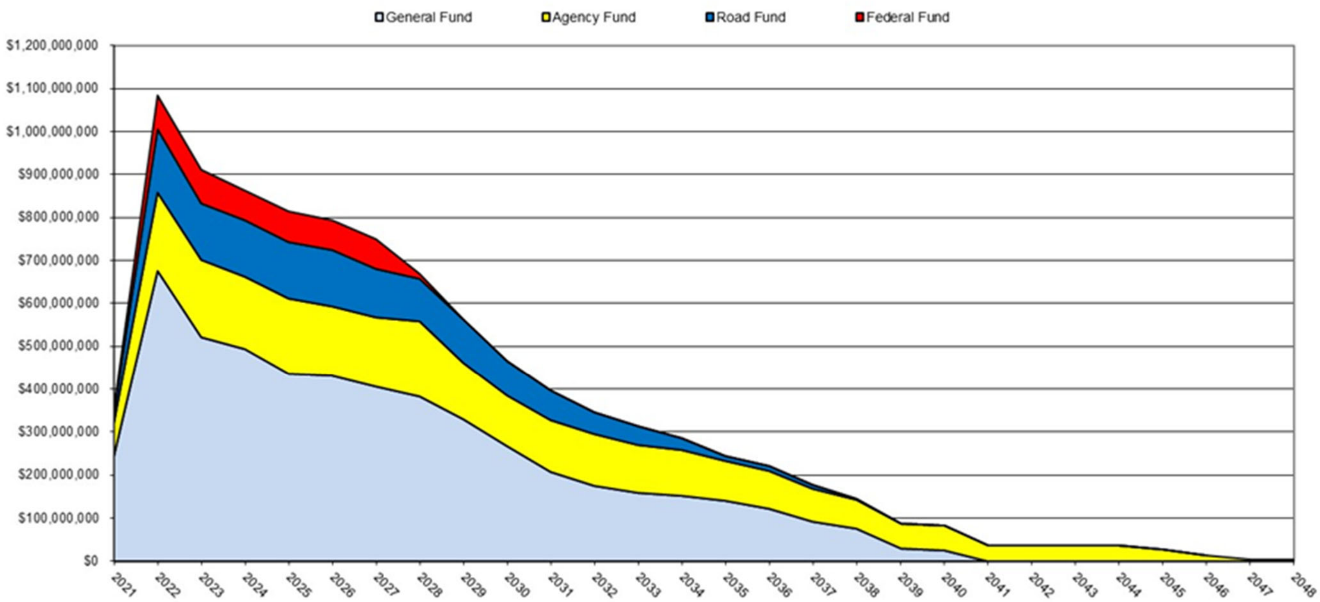
Total Notional Amount Executed by Counter Party
Deutsche Bank (assigned from Citibank on 2/14/2011)
243,080,000

	Debt		10 Percent Net Exposure	
	General Fund	Road Fund	General Fund	Road Fund
Bonds Outstanding	3,186,565,000	1,030,895,000	318,656,500	103,089,500
Authorized but Unissued	351,770,000	62,500,000	35,177,000	6,250,000
Total	3,538,335,000	1,093,395,000	353,833,500	109,339,500

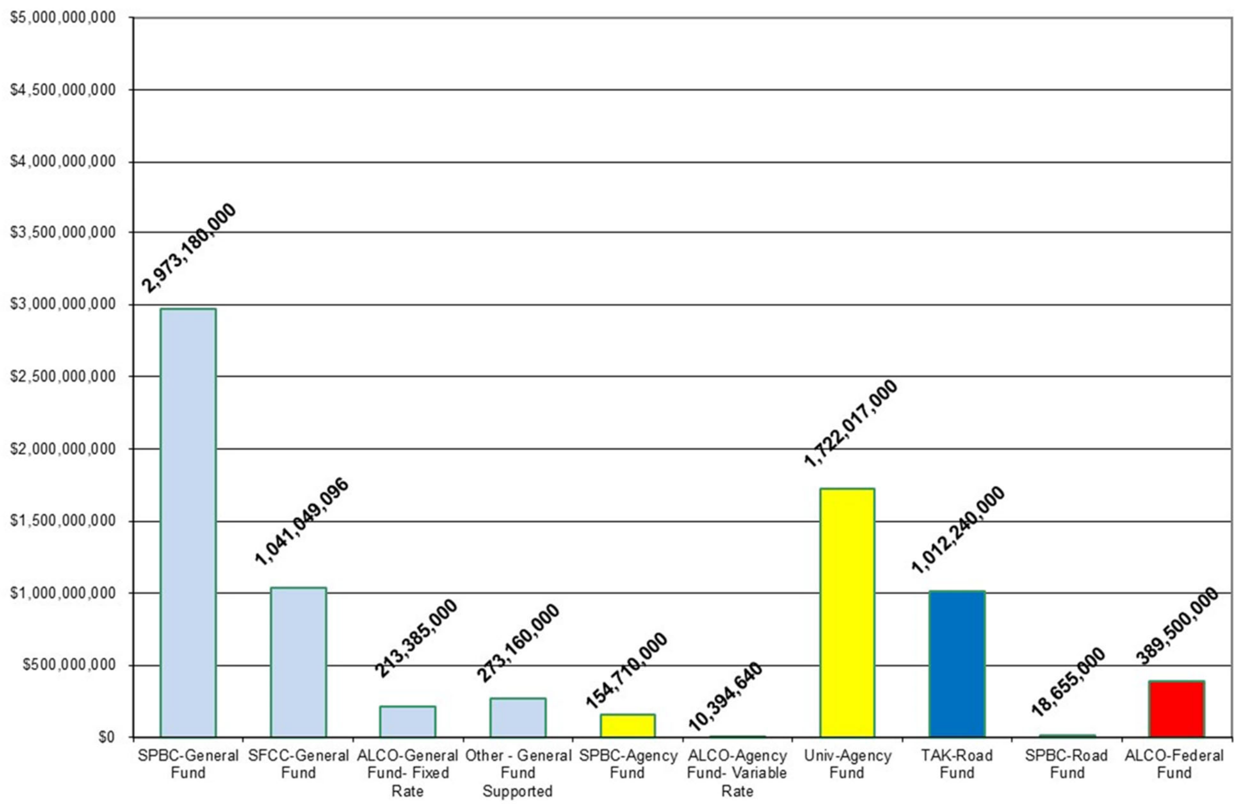
Investment Pool Balance		10 Percent Investment Portfolio	
Other Funds	Net Road Fund	Other Funds	Net Road Fund
5,814,292,668	432,605,225	581,429,267	43,260,523

APPENDIX C

Appropriation Supported Debt Service
by Fund Source as of 12/31/2020



Appropriation Debt Principal Outstanding
by Fund Source as of 12/31/2020



*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 12/31/2020

FUND TYPE SERIES TITLE		AMOUNT ISSUED	DATE OF ISSUE	MATURITY DATE	PRINCIPAL OUTSTANDING
General Fund Project & Funding Notes					
2007 A, B Series		$243,080,000	5/2007	11/2027	$117,495,000
2011 1st Series-KTRS Funding Notes		$269,815,000	3/2011	4/2022	$46,665,000
2013 1st Series-KTRS Funding Notes		$153,290,000	2/2013	4/2023	$49,225,000
	FUND TOTAL	**$666,185,000**			**$213,385,000**
Agency Fund Project Notes					
2018 Agency Fund Project Note (KCTCS)		$27,775,000	6/2018	10/2023	$10,394,640
	FUND TOTAL	**$27,775,000**			**$10,394,640**
Federal Hwy Trust Fund Project Notes					
2013 1st Series		$212,545,000	8/2013	9/2025	$128,980,000
2014 1st Series		$171,940,000	3/2014	9/2026	$132,175,000
2015 1st Series		$106,850,000	10/2015	9/2027	$68,940,000
2020 1st Series		$59,405,000	12/2020	9/2022	$59,405,000
	FUND TOTAL	**$550,740,000**			**$389,500,000**
ALCo NOTES TOTAL		**$1,244,700,000**			**$613,279,640**

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Creating Financial Value for the Commonwealth

TEAM
KENTUCKY