X00A00
Public Debt

Operating Budget Data

($ in Thousands)

	FY 16 Actual	FY 17 Working	FY 18 Allowance	FY 17-18 Change	% Change Prior Year
General Fund	$252,400	$283,000	$263,000	-$20,000	-7.1%
Adjusted General Fund	**$252,400**	**$283,000**	**$263,000**	**-$20,000**	**-7.1%**
Special Fund	857,084	892,640	975,867	83,228	9.3%
Adjustments	0	3,967	0	-3,967	
Adjusted Special Fund	**$857,084**	**$896,607**	**$975,867**	**$79,261**	**8.8%**
Federal Fund	11,511	11,539	11,539	0	
Adjusted Federal Fund	**$11,511**	**$11,539**	**$11,539**	**$0**	**0.0%**
Adjusted Grand Total	**$1,120,995**	**$1,191,146**	**$1,250,406**	**$59,261**	**5.0%**

Note: Includes targeted reversions, deficiencies, and contingent reductions.

- Fiscal 2017 debt service costs are $4 million more than budgeted. This is attributable to canceling the July 2016 general obligation (GO) bond sale and increasing the June 2016 bond sale by $518 million. A $4 million deficiency appropriation is proposed.

- General fund debt service costs decline by $20 million in fiscal 2018.

- The decline is attributable to unexpectedly large bond sale premiums in fiscal 2016, which increased the Annuity Bond Fund's (ABF) balance to $208 million at the end of fiscal 2016.

Analysis in Brief

Major Trends

Debt Service Costs Increase at a Higher Rate Than the Revenues Supporting Them: GO bond debt service is supported by the ABF. The primary source of revenues is State property taxes, which provide

Note: Numbers may not sum to total due to rounding.

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funds sufficient to support 64.0% of GO debt service costs in fiscal 2018. The remaining costs are supported by general funds, bond sale premiums, and other minor revenues. From fiscal 2017 to 2022, average annual debt service costs are projected to increase by 3.3%, while average annual State property tax revenues are projected to increase by 2.2%.

Issues

Capacity Is Sufficient for Modest Increases in Authorizations: The Capital Debt Affordability Committee (CDAC) recommendation is to continue to limit GO bond authorizations to $995 million. In 2016, the Spending Affordability Committee (SAC) recommended that GO bond authorizations be increased by $70 million to $1,065 million in fiscal 2018, and that subsequent increases be limited to 1%. The SAC level of authorization is affordable. It expands debt at a level that is less than the revenues that support the debt. **The State Treasurer should be prepared to brief the committees on State debt policies.**

Assessing Affordability: The State Should Consider Policies that Align Increased Authorizations to Debt Service Costs and Link Authorizations to Revenues: In recent years, the State has reduced planned GO bond authorizations to avoid breaching debt limits. The State has also increased planned authorizations. Revenues supporting debt service costs are insufficient, requiring more general funds to support debt service. Debt service costs are also increasing at a greater rate than revenues. In spite of this, recently proposed increases to GO bond authorizations have been deemed affordable. Two specific concerns about the affordability process are that the cost of authorizing additional debt is undervalued and that the State's current fiscal condition is not considered. **The Department of Legislative Services (DLS) recommends committee narrative requiring CDAC to review its affordability process.**

State Continues to Realize Bond Sale Premiums: State bonds are still selling at a premium because investors demand them and interest rates are low. The nature of premiums in this uncertain environment is that they fluctuate substantially from one sale to the next, which makes them difficult to forecast. Forecasts suggest that interest rates will rise, and the State will no longer be realizing premiums in the out-years. **The State Treasurer should be prepared to brief the committees on the use of bond sale premiums for GO bond debt service costs.**

Capital Leases: Changes to Lease Accounting Rules: The Governmental Accounting Standards Board has initiated a project to reexamine issues associated with lease accounting. A concern is that the current approach to operating leases undervalues liabilities. Rules have been issued and it appears that changes in leasing will be effective beginning in fiscal 2020. **The State Treasurer should be prepared to brief the committees on capital leases, proposed changes, and affordability implications.**

Recommended Actions

1. Adopt narrative requiring a review of the debt affordability process.

X00A00
Public Debt

Operating Budget Analysis

Program Description

The Public Debt program appropriates funds for general obligation (GO) bonds' debt service payments. This includes principal and interest payments. GO bonds support the State's general construction program, such as prisons, office buildings, higher education facilities, school construction, and mental health facilities. GO bonds do not pledge specific revenues but rather pledge the State's full faith and credit. Issuances include:

- tax-exempt bonds sold to institutional investors;
- tax-exempt bonds sold to retail investors;
- taxable bonds sold to institutional investors;
- Build America Bonds (BAB) that were taxable bonds for which the State receives a direct subsidy from the federal government;
- Qualified Zone Academy Bonds (QZAB) that support specific education projects. Depending on the date of issuance, these bonds have received federal tax credits or direct federal subsidies;
- Qualified School Construction Bonds (QSCB) that supported specific education projects. Depending on the date of issuance, these bonds have received federal tax credits or direct federal subsidies; and
- Qualified Energy Conservation Bonds (QECB) that are direct federal subsidy bonds that support energy efficiency capital expenditures in public buildings, renewable energy production, and other related projects.

GO bond debt service payments are supported by the Annuity Bond Fund (ABF). The ABF revenues include State property tax revenues; federal subsidies; bond sale premiums; and repayments from certain State agencies, subdivisions, and private organizations. General funds may subsidize debt service if these funds are insufficient.

The State usually issues tax-exempt GO bonds to institutional investors twice a year. Other bonds are issued as they become authorized (BABs, QZABs, QSCBs, and QECBs), as needed (taxable), or as they are in demand (retail bonds). The goal is to minimize the bonds' debt service costs.

Fiscal 2017 Actions

Proposed Deficiency

The budget introduced by the Administration anticipated two bond sales that affect fiscal 2017 spending. These issuance's debt service costs are:

- $25.9 million for the $518.0 million winter 2016 bond sale; and

- $12.5 million for the $500 million summer 2016 sale.

Instead, the State Treasurer's Office bundled both sales into a $1,036 million sale in June 2016. This doubled the amount sold in the last half of fiscal 2016. This sale has two debt service payments in fiscal 2017. Under the Administration's arrangement, there would have only been one debt service payment for the summer 2016 bond sale. Consequently, a deficiency totaling $3,966,876 is proposed by the Administration. **The Department of Legislative Services (DLS) recommends approving the deficiency appropriation.**

Debt Service Costs Exceed Projected State Property Tax Revenues

Most of the revenues supporting GO bond debt service are derived from State property taxes. **Exhibit 1** shows that for fiscal 2018, State property taxes provide $799.9 million, which represents 64.0% of the appropriation. The Department of Budget and Management (DBM) projects that the March 2017 bond sale will realize a $68.0 million premium. The implications of budgeting bond sale premiums are discussed in the Issues section of this analysis. Even with bond premiums, the current State property tax rate (at $0.112 per $100 of assessable base) and the ABF balance are insufficient to fully fund debt service costs. To support debt service without raising State property taxes, the allowance includes $263.0 million in general fund appropriations.

Exhibit 1
Department of Budget and Management's Annuity Bond Fund Forecast
Fiscal 2016-2018
($ in Thousands)

	2016 Expenditures	2017 Appropriation	2018 Allowance
ABF Activity			
Beginning Balance	$135,197	$208,307	$168,814
Property Tax Receipts	749,683	779,624	799,890
Interest and Penalties on Property Taxes	2,239	2,240	2,240
Other Repayments and Receipts	636	681	181
Bond Premium	171,212	68,000	0
Transfer to Reserve	-208,307	-168,814	-1,981
ABF Special Fund Appropriations	**$850,661**	**$890,038**	**$969,144**
General Fund Appropriations	$252,400	$283,000	$263,000
Transfer Tax Special Fund Appropriations	6,422	6,575	6,735
Federal Fund Appropriations	11,511	11,532	11,527
Legislative Appropriation	**$1,120,995**	**$1,187,179**	**$1,250,406**
Changes to the Fiscal 2017 Legislative Appropriation			
Deficiency Appropriation for June 2016 Bond Sale	$0	$3,967	$0
Projected Total Debt Service Expenditures	**$1,120,995**	**$1,191,146**	**$1,250,406**

ABF: Annuity Bond Fund

Note: Federal funds vary from the amounts listed in the budget book by approximately $7,000 in fiscal 2017 and $12,000 in fiscal 2018 due to updates made after the book went to print.

Source: Department of Budget and Management

Exhibit 2 provides a breakdown of debt service costs projected in the fiscal 2018 allowance. The allowance includes $1,208.3 million in debt service from bonds that have already been issued and $28.4 million in debt service from issuances projected in March 2017. Bonds sold in summer 2017 are estimated to require $13.8 million in debt service payments in fiscal 2018. Since the first debt service payment is due approximately six months after they are issued, bonds sold in fiscal 2018 after January 1 do not have any effect on fiscal 2018 debt service costs.

Exhibit 2
Fiscal 2018 Debt Service Costs
($ in Millions)

Type of Debt	Principal	Interest	Sinking Fund	Total
GO Bonds Sold to Institutional Investors	$742.9	$327.4	$0.0	$1,070.2
Retail Bonds	60.6	6.9	0.0	67.5
Taxable Bonds	31.2	0.9	0.0	32.2
Build America Bonds	0.0	25.3	0.0	25.3
Qualified Zone Academy Bonds	1.8	1.4	1.3	4.4
Qualified School Construction Bonds	0.0	2.0	6.4	8.3
Qualified Energy Conservation Bonds	0.0	0.3	0.0	0.3
Subtotal	**$836.4**	**$364.2**	**$7.7**	**$1,208.3**
Debt Issued after Allowance Submitted				
March 2017 Bond Sale	$0.0	$28.4	$0.0	$28.4
Summer 2017 Bond Sale	0.0	13.8	0.0	13.8
Subtotal	**$0.0**	**$42.1**	**$0.0**	**$42.1**
Total	**$836.4**	**$406.3**	**$7.7**	**$1,250.4**

GO: general obligation

Note: Numbers may not sum to total due to rounding.

Source: Comptroller's Office; Department of Budget and Management; Department of Legislative Services.

Prior to fiscal 2001, State debt service was comprised of traditional GO bonds (tax-exempt debt issued to institutional investors). The exhibit identifies debt service payments attributable to the new kinds of debt and methods of issuance that have been added since 2001.

Effect of Federal Sequestration

The Budget Control Act (BCA) of 2011 included automatic across-the-board spending reductions if the U.S. Congress and the President failed to enact a Joint Select Committee bill by January 15, 2012. The bill was required to reduce the federal budget deficit by at least $1.2 trillion over 10 years. The U.S. Congress was unable to enact the bill, and the BCA required that automatic spending reductions, referred to as sequestration, take effect. A number of federal programs, such as Social Security and Medicaid, were exempt from these reductions. The Murray-Ryan Bipartisan Budget Act raised sequestration budget caps in federal fiscal 2014 and 2015 but also extended

sequestration for two more years from federal fiscal 2022 to 2023. Similarly, the Bipartisan Budget Act of 2015 raised caps in federal fiscal 2016 and 2017. The Act also extended sequestration to federal fiscal 2025.

Federal subsidies on State and local bonds are not deemed to be exempt from sequestration. Reductions to federal grants are also influenced by the timing of the transfer of the subsidy. **Exhibit 3** shows that sequestration reduces federal funds by approximately $800,000 to $900,000, or 7%, annually.

Exhibit 3
Issuances Receiving Federal Fund Appropriations and Reductions Attributable to Federal Sequestration
Fiscal 2016-2018
($ in Thousands)

	2016	2017	2018	Total
July 2009 Build America Bonds	$796	$796	$796	$2,389
October 2009 Build America Bonds	942	942	942	2,825
February 2010 Build America Bonds	6,036	6,036	6,036	18,108
July 2010 Build America Bonds	1,094	1,094	1,094	3,281
July 2010 Qualified School Construction Bonds	1,965	1,965	1,965	5,895
December 2010 Qualified Zone Academy Bonds	228	228	228	684
August 2011 Qualified Zone Academy Bonds	660	660	660	1,980
August 2011 Qualified Energy Conservation Bonds	234	234	234	703
August 2012 Qualified Zone Academy Bonds	426	426	426	1,279
Less Sequestration	***-870***	***-849***	***-854***	***-2,573***
Total	**$11,511**	**$11,532**	**$11,527**	**$34,570**

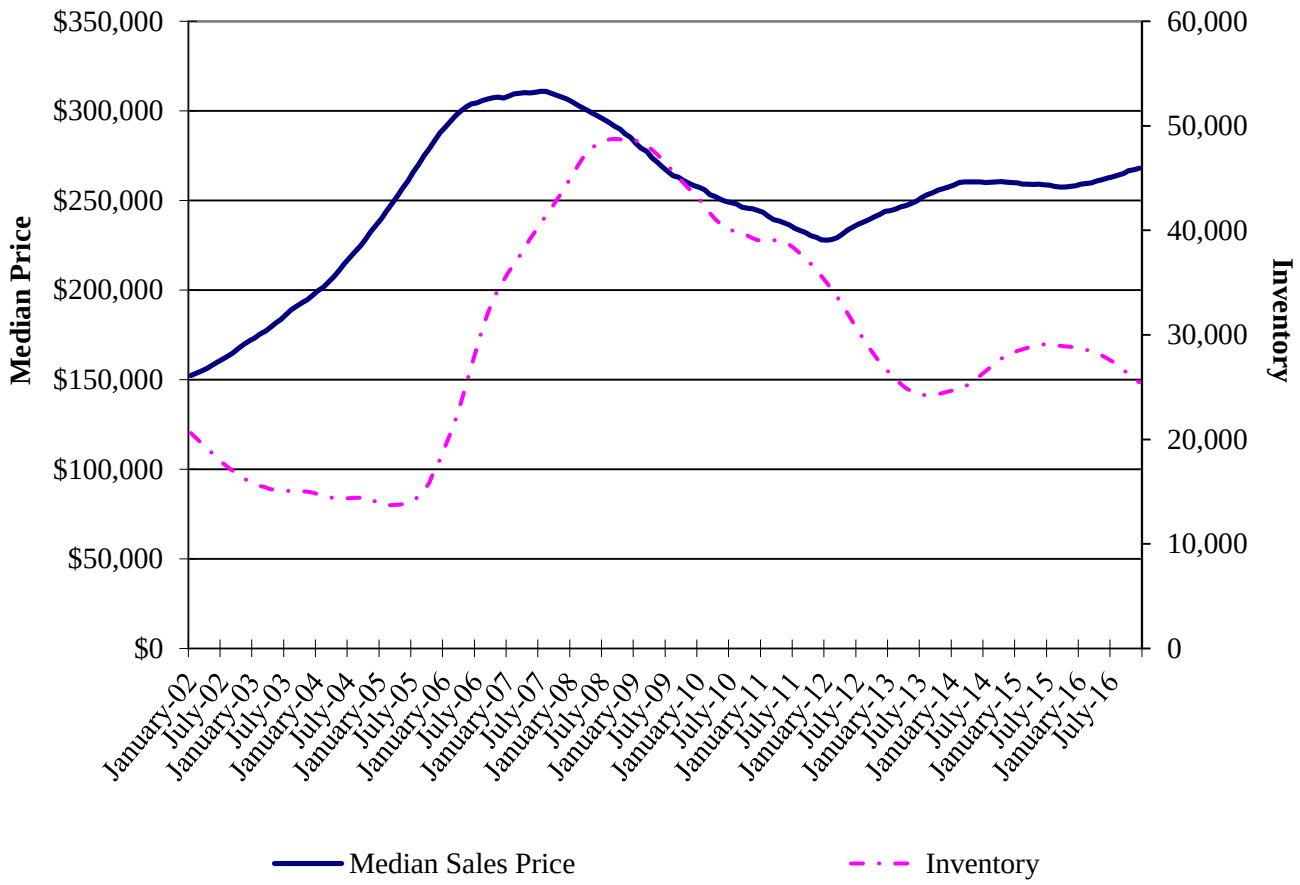
Source: Comptroller's Office; State Treasurer's Office; Department of Budget and Management, Department of Legislative Services

Annuity Bond Fund Six-year Forecast

GO bond debt service costs are supported by the ABF. The fund's largest revenue source is the State property tax. In April 2006, the State property tax rate was set at $0.112 per $100 of assessable base and has remained at that level since fiscal 2007. Other revenue sources include proceeds from bond sale premiums, interest and penalties on property taxes, and repayments for local bonds. When the ABF has not generated sufficient revenues to fully support debt service, general funds have subsidized debt service payments.

State property tax collections are influenced by trends in the housing market. **Exhibit 4** shows that there was a substantial increase in real estate values, which peaked in summer 2007, followed by a decline in values. The year-over-year decline began in July 2007 and continued until February 2012. That is 55 straight months of year-over-year declines in median home values. From February 2012 to March 2014, year-over-year prices increased. Since April 2014, results have been mixed with some months seeing increases in values and others realizing decreases. Inventories went through a similar increase and decline. However, they lagged behind the pattern seen in home prices. Recently there has been a dip in inventories.

Exhibit 4
Maryland Housing – Median Prices and Inventory
12-month Moving Average
January 2002 to December 2016

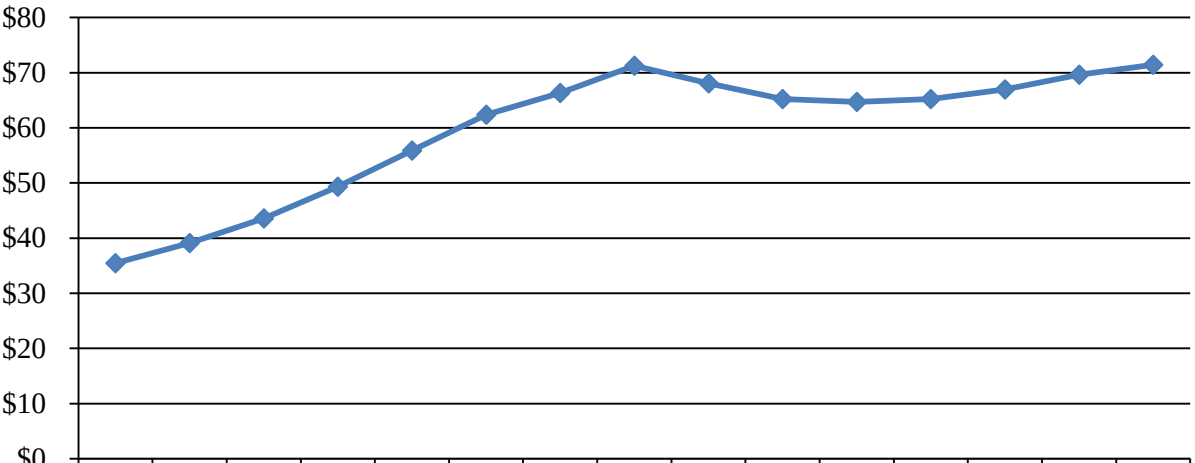


Note: Inventory represents housing units for sale according to Metropolitan Regional Information Systems, Inc. and Coastal Association of Realtors

Source: Maryland Association of Realtors; Department of Legislative Services

As expected, the rising property values from fiscal 2002 to 2007 increased State property tax receipts. **Exhibit 5** shows how much revenue one cent on the State property tax has generated since fiscal 2003. In fiscal 2003, there was a modest increase, and from fiscal 2004 to 2011, the increases were quite steep. Revenues declined from fiscal 2011 to 2014 and increased in fiscal 2015. Recent estimates expected revenues to increase about 1% in the out-years. The State Department of Assessments and Taxation revised its estimates in November 2016. Revenues are now expected to increase at a rate of 2% annually between fiscal 2016 and 2022.

Exhibit 5
Revenues Generated by One Cent of State Property Taxes
Fiscal 2004-2018
($ in Millions)



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Revenues	$35	$39	$44	$49	$56	$62	$66	$71	$68	$65	$65	$65	$67	$70	$71

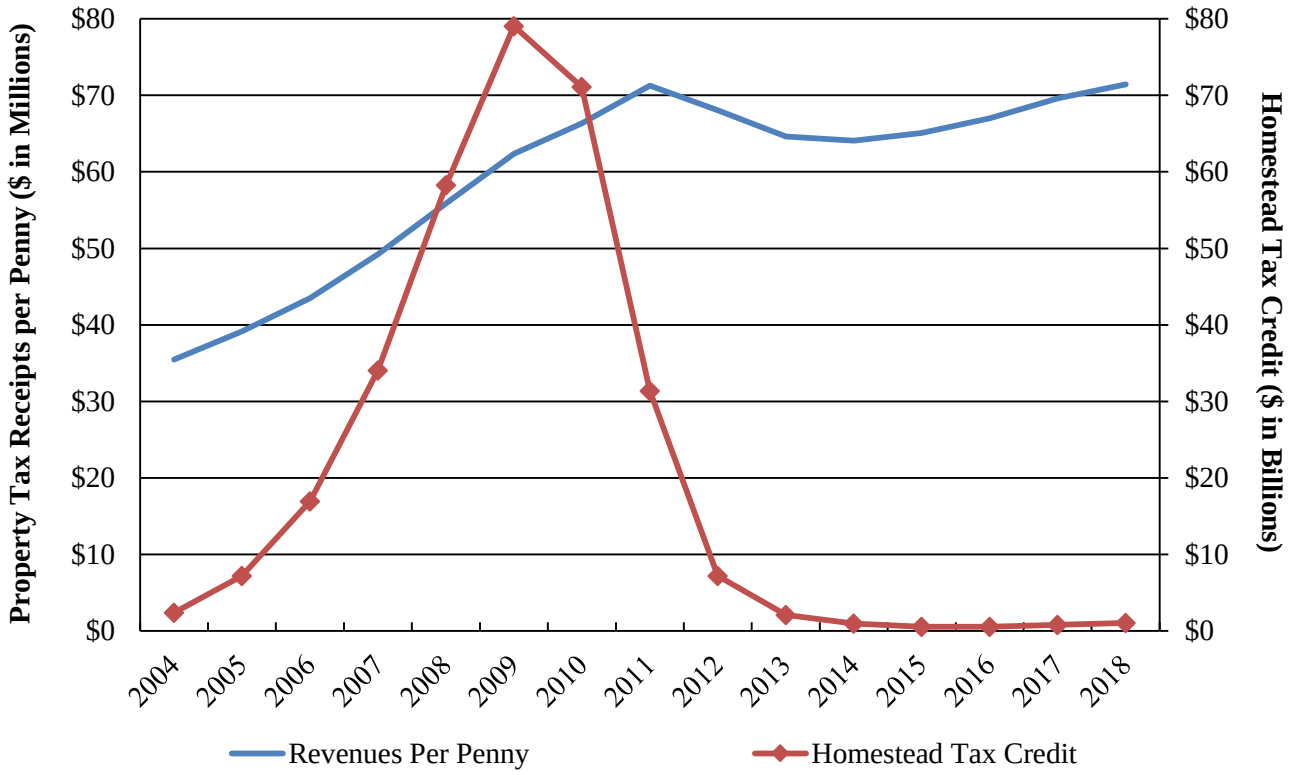
Source: State Department of Assessments and Taxation; Department of Budget and Management; Department of Legislative Services

Assessment policies and the Homestead Tax Credit account for the lag between changes in the real estate market and tax receipts. Property values are assessed every three years, and increases are phased in over three years. For example, if a property's value increases by 9%, the increase would be 3% in the first year, 6% in the second year, and 9% in the third year.

The Homestead Tax Credit limits the annual increase in State property assessments subject to the property tax to 10%. If reassessing a resident's assessed property value results in an increase that exceeds 10%, the homeowner receives a credit for any amount above 10%. This limits revenue growth when property values rise quickly. Taken together, the three-year assessment process and the Homestead Tax Credit slowed the revenue increases and delayed the peak until after the decline in property values.

The homestead credit also provides the State with a hedge against declining property values. As home values declined, the homestead credit declined, and revenues continued to slowly increase. The result smoothed State revenues; State property tax revenue growth was slower as home values increased, and there was a small decline in revenues when home values decreased. **Exhibit 6** shows that State credits increased to $79 billion in fiscal 2009 in response to increases in assessments. Since fiscal 2014, the aggregate homestead credits are projected to be under $1 billion each year. The exhibit also shows that property tax revenues continued to increase after the housing market rebounded.

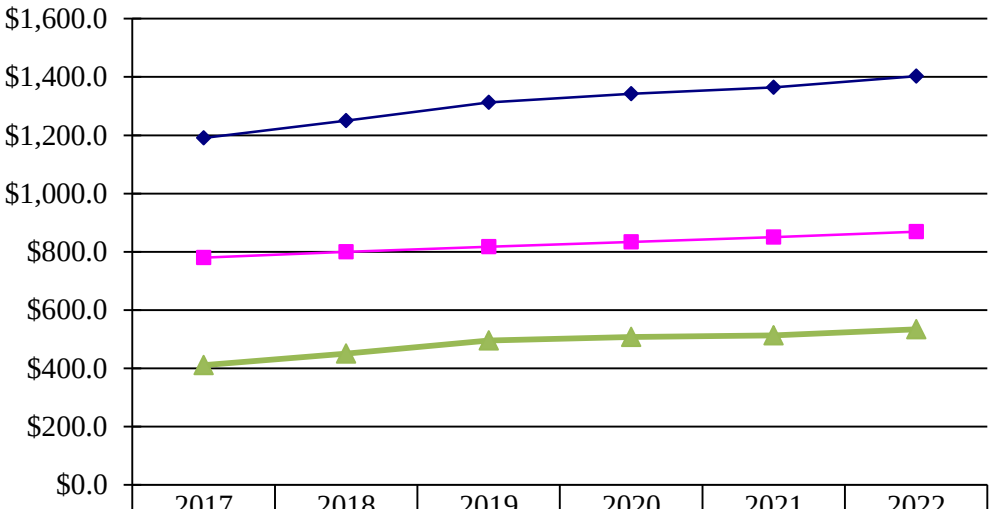
Exhibit 6
State Property Tax Homestead Tax Credits and Property Tax Receipts
Fiscal 2004-2018



Source: State Department of Assessments and Taxation

Over the next few years, State property tax revenues are estimated to remain fairly flat, increasing at a rate of 2.2% annually from fiscal 2017 to 2022. This contrasts with debt service costs, which are expected to increase at a rate of 3.3% annually over the same period. **Exhibit 7** shows how State property tax revenues, which are $412 million less than debt service costs in fiscal 2017, are expected to be $534 million less than debt service costs in fiscal 2022.

Exhibit 7
GO Bond Debt Service Costs and State Property Tax Revenue Collections
Fiscal 2017-2022
($ in Millions)



	2017	2018	2019	2020	2021	2022
State Property Tax Receipts	$779.6	$799.9	$817.4	$834.0	$850.7	$868.8
GO Bond Debt Service Costs	1,191.1	1,250.4	1,312.6	1,342.0	1,363.9	1,402.8
Difference	411.5	450.5	495.3	508.0	513.2	534.1

GO: general obligation

Source: Department of Legislative Services, January 2018

Before fiscal 2014, the shortfall in State property tax receipts was not a problem because the ABF had a large fund balance. This fund balance was largely attributable to the low interest rates offered for AAA-rated State and municipal bonds. These low interest rates have reduced GO bonds' true interest cost (TIC), resulting in higher bond sale premiums. These premiums have been deposited into the ABF to support debt service costs.

Exhibit 8 shows DLS's estimate of fiscal 2018 to 2022 ABF activity. The most significant difference is that this forecast projects a smaller premium in fiscal 2017 and moderate premiums in fiscal 2018. The implications of budgeting premiums is discussed in the Issues section of the analysis. General fund appropriations are required for fiscal 2018 despite the availability of $149 million in fund balance at the end of fiscal 2017 and an estimated $43 million in bond sale premiums in fiscal 2018. Fiscal 2018 begins with a large enough fund balance that general fund appropriations decline $20 million in fiscal 2018. However, as interest rates increase, premiums are expected to decline, which requires larger general fund appropriations. General fund appropriations increase from $283 million in fiscal 2017 to $515 million in fiscal 2022.

Exhibit 8
Revenues Supporting Debt Service
Fiscal 2017-2022

	2017	2018	2019	2020	2021	2022
Special Fund Revenues						
State Property Tax Receipts	$780	$800	$817	$834	$851	$869
Bond Sale Premiums[1]	48	43	3	0	0	0
Other Revenues	3	2	2	2	2	2
Prior Year Balance	208	149	25	2	2	2
Subtotal Special Fund Revenues	***$1,039***	***$994***	***$848***	***$838***	***$855***	***$873***
General Funds	283	263	448	488	494	515
Transfer Tax Special Funds[2]	7	7	7	7	7	7
Federal Funds[3]	12	12	11	11	10	9
Total Revenues	**$1,340**	**$1,275**	**$1,314**	**$1,344**	**$1,366**	**$1,404**
Debt Service Expenditures	**$1,191**	**$1,250**	**$1,313**	**$1,342**	**$1,364**	**$1,403**
ABF End-of-year Fund Balance	**$149**	**$25**	**$2**	**$2**	**$2**	**$2**

ABF: Annuity Bond Fund

[1] The Department of Legislative Services estimates of bond sale premiums are $48.2 million in March 2017, $27.7 million in summer 2017, and $15.0 million in winter 2018.
[2] This supports $70 million of general obligation bonds issued in 2010 for Program Open Space.
[3]This includes federal interest subsidies for Build America Bonds, Qualified Zone Academy Bonds, Qualified School Construction Bonds, and Qualified Energy Conservation Bonds.

Source: Department of Legislative Services, January 2018

Issues

1. Capacity Is Sufficient for Modest Increases in Authorizations

The Capital Debt Affordability Committee (CDAC) recommendation is to continue to limit GO bond authorizations to $995 million. CDAC uses two criteria to measure affordability: State debt service cannot exceed 8.0% of State revenues; and State debt outstanding cannot exceed 4.0% of personal income. Under these criteria, this level of authorization is affordable. Under this limit, debt service peaks at 7.78% of revenues, and debt outstanding peaks at 3.54% of personal income.

In December 2016, the Spending Affordability Committee (SAC) recommended that GO bond authorizations be limited to $1,065 million in fiscal 2018 and that subsequent increases be limited to 1%. This approach links increases in authorizations to projected increases in the major revenue source that supports debt service, which is the State property tax. State property tax revenues are projected to increase at a rate of 1% to 2%. Costs are contained at a rate of growth that does not exceed projected increases in the revenues that support them.

Exhibit 9 shows that this level of authorization is still affordable, even after the recent revenue write-down. Debt service to revenues peaks at 7.88% in fiscal 2019. Debt service costs increase slightly at first. As the program ramps up, costs increase at a higher rate.

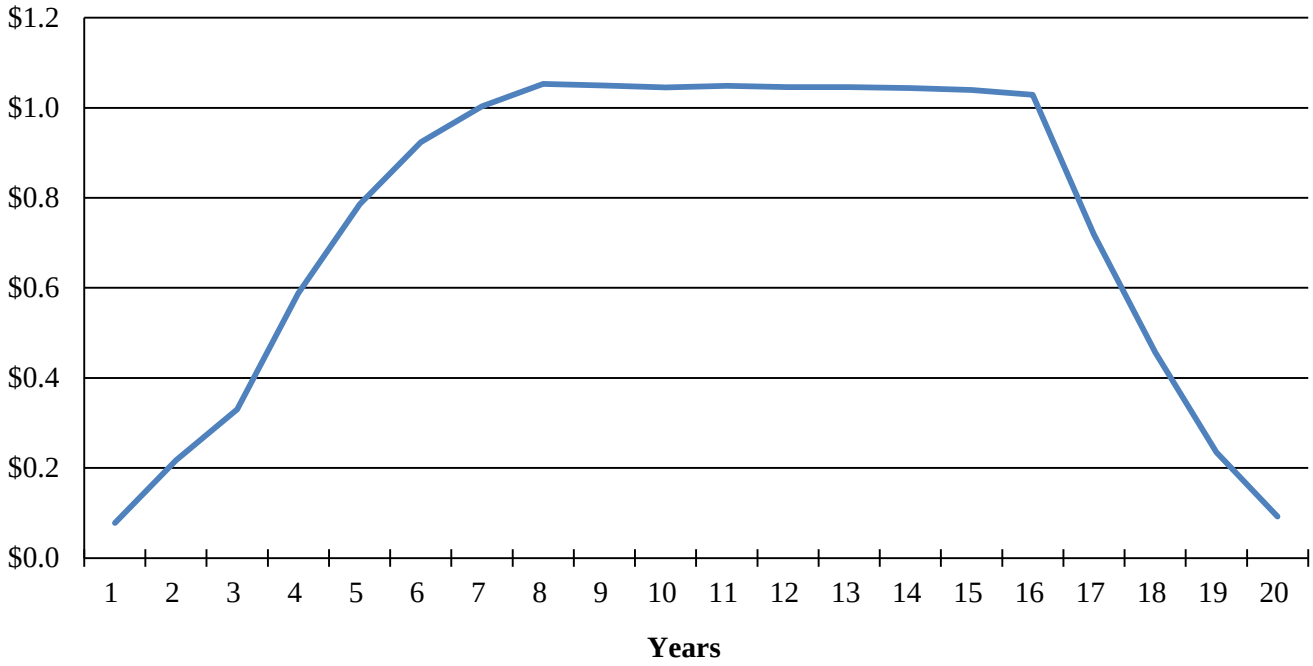
Exhibit 9
Impact of 2015 Spending Affordability Committee Recommendations on Debt Service and Affordability Ratios
Fiscal 2017-2022
($ in Millions)

Year	Authorization	Additional Debt Service	Debt Service to Revenues	Debt Outstanding to Personal Income
2017	$1,055	$0	7.55%	3.50%
2018	1,065	1	7.76%	3.54%
2019	1,075	2	7.88%	3.46%
2020	1,085	4	7.69%	3.51%
2021	1,095	9	7.74%	3.43%
2022	1,105	16	7.85%	3.34%

Source: Department of Legislative Services, February 2017

Increasing authorizations by 1% results in a $10.0 million annual increase in authorizations. **Exhibit 10** shows that once all $10.0 million bonds are issued, annual debt service costs peak at $1.05 million for a period of about 10 years.

Exhibit 10
Total Cost of Authorizing $10 Million in Bonds
($ in Millions)



Source: Department of Legislative Services, November 2016

State debt is not limited to GO bonds. **Exhibit 11** shows that fiscal 2018 State debt service payments are projected to total almost $1.8 billion. Current State debt policies vary depending on the kind of debt. GO bonds are strictly limited to $995 million. The policy for the transportation program is exactly the opposite. The transportation debt program is fully leveraged so that its net revenues are 2.5 times debt service, which is management's coverage limit.[1] Section 7 in the Budget Reconciliation and Financing Act of 2017 (HB 152) expands the kinds of nutrient removal projects that can be supported by Bay Restoration Bonds. This allows the transfer of $60 million in GO bond projects to this fund. With respect to the Maryland Stadium Authority, it is State policy to issue bonds supported by lottery revenues instead of general funds. Since lottery revenues are not a tax, bonds issued from lottery revenues do not need to be classified as State debt. This does not reduce any liability, it merely shifts it to non-State revenues.

[1] The covenant is that coverage will not fall below 2.0. It is longstanding Maryland Department of Transportation policy to keep it at 2.5 to avoid a breach of covenant if revenues underperform or spending exceeds projections.

Exhibit 11
Types of State Debt
($ in Millions)

Type of Debt	Fiscal 2018 Debt Service	Share of Debt Service	Current State Policy
GO Bonds	$1,250	71.2%	Limit debt to $995 million indefinitely
Transportation Bonds	329	18.7%	Maximum leverage so that coverage ratios are at their limit
GARVEEs	87	5.0%	Legislation authorized only this issuance
Bay Restoration Bonds	36	2.1%	Expand the type of nutrient removal programs that qualify, allowing projects previously funded with GO bonds to be funded with Bay Bonds
Capital Leases	29	1.6%	Issue when needed
Stadium Authority Bonds	25	1.4%	Issue less State debt and instead issue debt from lottery proceeds
Total	**$1,757**	**100.0%**	

GARVEEs: Grant Anticipation Revenue Vehicles
GO: general obligation

Source: Department of Budget and Management, February 2017; Department of Legislative Services; Budget Reconciliation and Financing Act of 2017

State debt policies vary depending on the kind of debt that is being issued. Some forms of debt are maximized, some are expending and still have capacity, and others are being strictly limited. Debt management policies consider the availability of revenues as well as the needs of the State. SAC has recommended modest increases in debt. These increases should be, and are, less than the increase in the revenues that support the debt. **The State Treasurer should be prepared to brief the committees on State debt policies.**

2. Assessing Affordability: The State Should Consider Policies that Align Increased Authorizations to Debt Service Costs and Link Authorizations to Revenues

In Maryland, State debt affordability is measured with two broad criteria: State debt service as a percent of State revenues; and State debt outstanding as a percent of personal income. Beyond that, there are no guidelines that consider the State of the economy or the revenues that support State debt. In the past, lack of guidelines has made it easy to expand debt service without regard to revenues. The affordability process has undeniably placed limits on State debt issuances. But there is a concern that revenues are not adequately weighted in the affordability process. This issue examines the process and offers recommendations for additional guidelines or criteria.

Background

To develop State debt policies and advise the Governor and General Assembly, CDAC was established by Chapter 43 of 1978. CDAC meets in public, has adopted affordability guidelines, and recommends GO bond levels each fall. Although the recommendation is neither binding for the Governor nor the General Assembly, each typically observes the level recommended by the committee.

In 1979, the committee adopted three criteria to evaluate affordability: State debt outstanding cannot exceed 3.2% of State personal income; State debt service cannot exceed 8.0% of State revenues; and new authorizations should be kept in the range of redemptions of existing debt. When the criteria were adopted, the State did not meet either the debt outstanding or debt service criterion.

In 1987, CDAC determined that the criterion limiting new authorizations to redemptions was no longer an applicable guideline. The goal of reducing debt had been met, and the committee's objective was no longer to reduce debt but rather to maintain a stable capital program. At the time, the high ratings of the State's debt indicated that the existing level of debt and the planned increases were acceptable to the rating agencies. The criterion also tied annual authorizations to the amount of debt issued as much as 15 years before, thereby, producing highly variable bond authorizations that are inconsistent with a stable capital program. For these reasons, the committee dropped the criterion.

In the November 2008 report, the committee again recommended changing the affordability criteria. As it reviewed the criteria, the committee consulted with rating agencies, investment bankers, and its financial advisor. CDAC met in public a half dozen times in 2007 and 2008 to discuss debt policy and the criteria. The committee determined that targets of the two criteria were no longer appropriate and recommended increasing the debt outstanding to State personal income criterion from 3.2% to 4.0% of personal income. No change was made to the limit on debt service. The policy increased the amount of total debt that the State was able to issue. This total debt had been increasing in recent years as the State expanded GO bond authorizations and issued new kinds of debt that were not supported by the State's General Fund, such as bay restoration bonds and Grant Anticipation Revenue Vehicles.

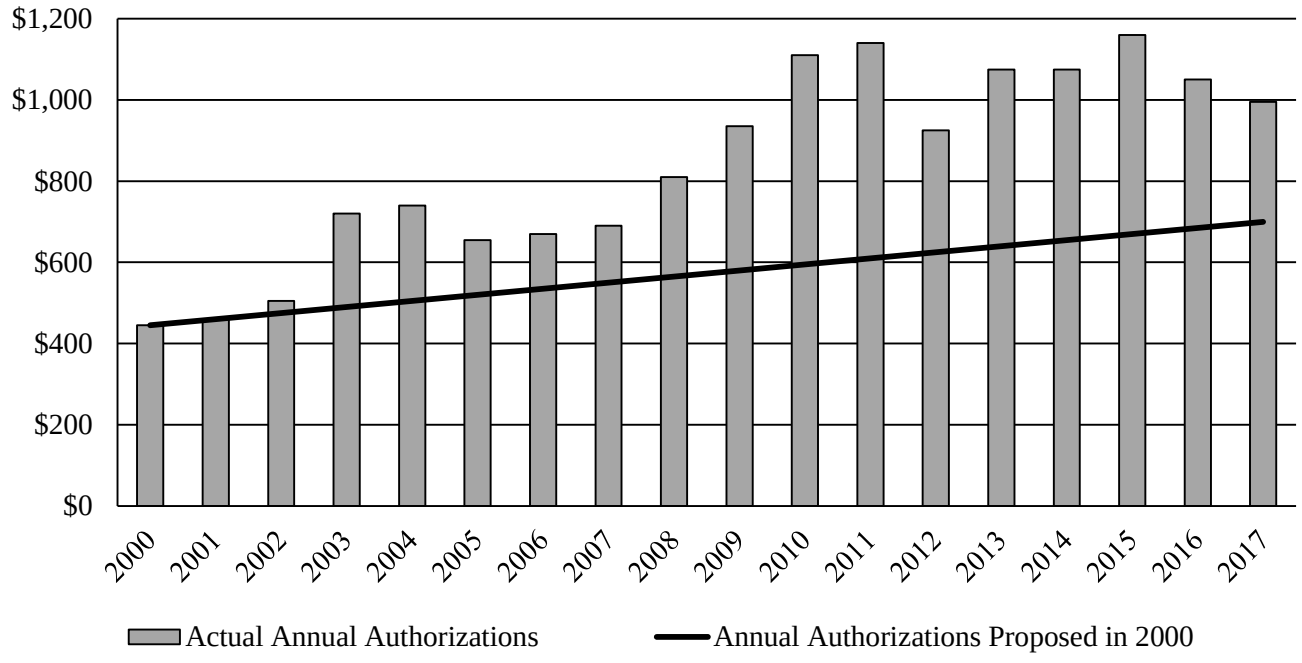
Criteria Have Constrained Debt Authorizations and Issuances

CDAC has been successful at constraining State debt. When CDAC first introduced the criteria in fiscal 1979, State debt outstanding was 5.4% of personal income, and debt service was 11.3% of revenues. These ratios were steadily reduced by fiscal 1987, when debt outstanding was 3.2% of income, and debt service was less than 8.0% of revenues. The State has also reduced authorizations after revenues declined. During the Great Recession, State general fund revenue declined as much as 5.0% in fiscal 2009. Realizing that revenues were insufficient to meet the debt service to revenue criterion, CDAC reduced the fiscal 2011 to 2015 capital program by $400 million.

But Criteria Did Not Keep the State from Continuously Expanding State Debt Authorizations

While the CDAC process has constrained debt, it did not keep the State from continuously increasing authorizations. In fiscal 2000, the policy was to increase authorizations by $15 million annually. **Exhibit 12** shows that levels have grown above this limit since fiscal 2002.

Exhibit 12
Actual Bond Authorizations Compared to Level Projected in Fiscal 2000
Fiscal 2000-2017
($ in Millions)



Source: Department of Legislative Services, November 2016

In the 17 legislative sessions since 2000, net GO bond authorizations were increased in all but 5 legislative sessions. **Appendix 4** provides a list of debt legislation since 2000. As the State's economy and population grows, the need for capital projects also grows. To meet this need, CDAC has developed policies to allow for limited increases in bond authorizations. However, the committee revised these policies every few years. This resulted in some substantial increases that became a new floor, off of which future increases were based. The problem is not that authorizations increased, rather, the problem is that CDAC consistently approved large increases that expanded capital spending. The most substantial increases happened in:

- the 2004 legislative session, when the GO program was increased by $100 million a year from fiscal 2005 to 2009;

- the 2006 legislative session, when the State modified the annual increase from a fixed $15 million to 3%. Another $100 million was permanently added annually to the program beginning in fiscal 2010 to avert a reduction in the program created by the proposed level of authorizations made in calendar 2004;

- the 2008 legislative session, when authorizations were permanently increased by $100 million annually; and

- the 2013 legislative session, when authorizations were increased by $150 million annually from fiscal 2014 to 2018.

Exhibit 13 shows how increasing authorizations affect debt service and debt outstanding. GO bond debt outstanding and debt service costs more than doubled between fiscal 2000 and 2017. Debt service increased at an annual rate of 5.77%. Even relative statistics increased; debt service has increased from 5.79% of revenues in fiscal 2000 to 7.57% of revenues in fiscal 2017.

Exhibit 13
Change in Debt Service and Debt Outstanding
Fiscal 2000 and 2017
($ in Millions)

Fiscal Year	GO Bond Debt Service	Total Debt Service	Debt Service as Percent of Revenue	GO Bond Debt Outstanding	Total Debt Outstanding	Debt Outstanding as a Percent of Personal Income
2000	$459	$640	5.79%	$3,348	$4,468	2.51%
2017	1,192	1,662	7.57%	9,252	12,875	3.54%

GO: general obligation

Source: *Report of the Capital Debt Affordability on Recommended Debt Authorizations;* Department of Legislative Services, November 2016

Changes in Debt Service Costs Lag Changes in Authorizations

One key attribute of State debt policy is that there is a lag between the bond authorizations and debt service payments. Two factors are responsible for this lag:

- ***Bonds Do Not Pay Principal Until the Third Year:*** The State issues 15-year bonds that pay interest only for the first 2 years and pay interest and principal for the final 13 years. For example, selling $100 million in bonds with a 5% interest rate would result in $5 million annually in interest in the first 2 years and $11 million in total debt service annually in the following 13 years.

- ***Capital Projects and Programs Do Not Need the Complete Authorization in the First Year:*** State bonds support various programs and projects, many of which have payments that stretch over a number of years. To manage the cash flow efficiently, bonds are sold when payments are due. On average only 31% of authorized bonds are issued in the first year. The remaining 69% is spread over 4 years.

Taken together, a typical authorization's first payment is an interest only payment of less than one-third of the bonds authorized. In other words, a minute amount of the debt service for an authorized bond is paid in the first year. This lag also affects debt service when reducing costs. By reducing authorizations, the initial benefit is minimal. DBM's fiscal 2017 to 2021 *Capital Improvement Program* is a good example of how difficult this challenge is. DBM is proposing $995 million in GO bonds from fiscal 2018 to 2022. This is $400 million less than the level proposed by SAC in 2015. Initial annual savings are $1 million in fiscal 2018 and $2 million in fiscal 2019. Annual savings total $9 million in fiscal 2022.

Debt Affordability Process Recommendations

The State's debt affordability process has been effective at limiting GO bond authorizations. The State has limited debt outstanding and debt service so that they remain within the affordability guidelines. But the process is a blunt tool that has been less effective at evaluating incremental increases in GO bond authorizations, specifically:

- ***The Affordability Process Undervalues the Cost of Issuing Debt:*** The affordability process does not recognize debt service costs until the bonds are issued, and even then, the process recognizes only a fraction of the costs that are imminent. Once a bond is authorized, the bonds will be issued and then typically, the State will be paying the authorization's debt service cost for 20 years.[2] It usually take 8 years until the full annual debt service cost is appropriated, which is over $10 million for a $100 million authorization. Over the life of the debt, the authorization's debt service costs will total $148 million but less than $1 million is booked in the first year.

[2] It takes each authorization an average of 5 years to issue bonds. Each bond sold is 15 years, so it takes about 20 years to retire the full amount of debt that is authorized.

- ***The Affordability Process Does Not Consider the State's Current or Projected Fiscal Condition:*** From a budgetary perspective, evaluating new initiatives is considered in the context of expected revenues and expenditures. It is not prudent to expand programs if projected revenues do not provide sufficient funding for those programs. During the 2014 session, the budget proposed by the Administration included $195 million in general fund support for debt service because the ABF did not have sufficient revenues to support debt service without this subsidy. The general fund appropriation was expected to increase to $524 million by the end of the forecast period (fiscal 2019). During this same session, the capital budget included $75 million in additional GO bond authorizations. Based on CDAC criteria, the additional authorization was affordable. Though the criteria limit debt service to 8.0% of revenues, they do not evaluate current conditions, which are that general fund subsidies that are needed to support GO bond debt service. The criteria also do not relate to the specific revenues supporting debt service, which is the State property tax. Current estimates expect State property tax receipts to increase by 2.2% annually, while GO bond debt service costs increase by 3.3% annually. This will continue to strain the General Fund and crowd out other programs while debt service becomes an ever-increasing share of general fund expenditures.

These concerns can be addressed by changes in the CDAC processes. Specifically, the process could be revised to:

- ***Evaluate Maximum Annual Debt Service Costs When Expanded GO Bond Authorizations Are Proposed:*** The current process undervalues the cost of expanding debt because the debt service costs are initially quite small and are not fully realized until about a decade after bonds are authorized. Based on current market conditions, authorizing $100.0 million in additional bonds increases debt service payments in the first fiscal year by approximately $0.5 million. Debt service costs increase to over $10.5 million by the eighth year. When evaluating the cost of increasing authorizations, CDAC could consider the maximum debt service costs, instead of the projected cash flow. In the example above, the full $10.5 million in debt service costs would be evaluated. This provides a hedge against revenue underattainment.

- ***Consider Linking Annual Increases in Debt Authorizations to State Property Tax Revenues Instead of Project Inflation:*** In its 2005 report, CDAC recommended annually increasing GO bond authorizations by 3.0%, instead of just $15.0 million annually. The committee attempted to link the increases with capital project inflation. Current estimates are that State property tax receipts, which support GO bond debt service costs, will be increasing to 2.0% annually. The inflationary 3.0% increase is an aspirational target that focuses spending increases on maintaining the program not on maintaining a program that is supported by dedicated revenues. Reducing the annual increase to 2.0% would align the capital program with the revenues supporting debt service instead of demands on the program.

- ***Adopt a Target Debt Service to Revenue Ratio to Provide a Hedge Against Reduced Revenues:*** State policy is to limit State debt service to 8.0% of revenues. As we have seen in the last year, revenue underattainment can increase debt ratios even if the State has not increased

any debt authorizations. To protect against underattainment, the State could adopt a target ratio. For example, a target ratio of 7.7% would provide some additional capacity in case of revised revenue estimates. This is done in some states. Florida, for example, has a 7.0% limit and a 6.0% target.

Taken together, these changes align the CDAC process more closely with the State's fiscal condition. Since increasing authorizations has almost no impact on short-term expenditures, the cost of increasing authorizations is understated. Accounting for the maximum amount of debt service would immediately recognize the fiscal impact of increasing authorizations. Also, the current process provides for annual increases that relate to maintaining program purchasing power instead of relating to the revenues available to support the program. Reducing the annual increase aligns growth with revenues instead of demand, thus making future GO bond authorizations more affordable. **DLS recommends that CDAC consider debt policies that realize the cost of debt more quickly and that limit growth in authorizations to the revenues supporting the debt.**

3. State Continues to Realize Bond Sale Premiums

The budget assumes that the bond sale will generate $68.0 million in premiums to support debt service payments. DBM advises that this estimate was prepared by the State's financial advisor. DBM projects that the ABF will end fiscal 2018 with a $2.0 million fund balance. This is a small hedge for a revenue source as volatile as bond sale premiums.

This issue examines why bonds generate premiums, why the State must be careful, and what the State can do with premiums. The issue also examines if it is likely that the funds appropriated will not be sufficient to support debt service payments.

Bond Sale Premiums: Why the State Gets Them, Why the State Must Be Careful, and What the State Can Do with Them

When bonds are sold, they have a par value (principal) and a coupon rate (interest rate paid to the bondholder based on par value). When the bonds are bid, the Treasurer's Office determines how many bonds are sold (par value of the bonds) and when the bonds mature.[3] The underwriter determines the coupon rate (interest rate the issuer pays) and the sale price of the bonds, which is awarded to the underwriter with the lowest interest cost.[4] If the coupon rate is greater than the market rate, the bonds sell at a premium and the State's bonds proceeds exceed par value of the bonds.

For example, at the bond sale in July 2015, the State issued $450 million in tax-exempt GO bonds (par value). The average coupon rate was 3.92%, and the TIC (market interest rate) was 2.83%. Since the coupon rate exceeded the market interest rate, the bonds sold at a premium, and total bond proceeds totaled $494 million (after deducting the underwriters discount and cost of issuance expenses). This additional $44 million is the bond premium.

[3] Section 34 of Article III of the Constitution of Maryland limits State debt to 15 years.

[4] **Appendix 3** includes a discussion of factors that influence the true interest cost of Maryland's GO bonds.

Why Do Bonds Sell at a Premium?

Economic theory tells us that in a world without uncertainty, there will be no difference in value between bonds selling at a high coupon rate or bonds selling at a low coupon rate. If bonds sell at a high coupon rate, the seller receives a large premium that offsets the high interest cost.

However, we do live in an uncertain world. Investors may see advantages in purchasing bonds at a premium. For investors of Maryland bonds, the primary risk is that the bonds will lose value if interest rates rise. Since Maryland bonds offer a fixed interest rate, the value of Maryland bonds decline if interest rates rise.

How investors value bonds is relative and depends on what interest rates the market offers. If low-risk rates such as U.S. government bonds are low, the State will be able to issue bonds at a lower rate than if these interest rates are high. In other words, a 2% interest rate can be a good deal if everyone else is offering less than 2%, but it is not such a good deal if everyone else is offering 3% or more.

In the current environment, interest rates are more likely to increase than decrease. Current interest rates are historically low. According to data from the Federal Reserve Board, the yield on 10-year treasury notes on Friday, June 10, 2016 (the time of the most recent bond sale), was among the lowest since 1962. In fact, only 21 out of 2,840 weeks had lower interest costs; over 99% of the time, interest rates were higher than at the time of the last bond sale. In this environment, it certainly makes sense for investors to protect themselves against rising interest rates, and this is done by purchasing bonds at a premium.

Exhibit 14 examines a tranche of $36,125,000 in bonds sold with an eight-year maturity in the July 2015 bond sale. The top half of the exhibit compares the return if an investor buys bonds at par and at a premium. It shows that paying $6,080 and getting a 5.0% interest rate yields the same return as paying $5,000 and getting a 2.06% interest rate, since the TIC for both is 2.06%. The bottom half shows what happens if market interest rates increase. In both examples, the bonds are worth less. The difference is that bonds sold at a premium lost 17.8% of their value, while bonds selling at par lost 19.2% of their value. For investors that are intent on preserving wealth or cash, this matters.

In conclusion, why do bonds sell at a premium? Because buying bonds at a premium is a hedge against increasing interest rates, and it looks like interest rates are going to increase.

Exhibit 14
Effect of Higher Interest Rates on the Value of Bonds

Data from Bond Sale from July 2015 Bond Sale

	Premium Bonds	Sold at Par	Explanation
Par Value of Bonds	$5,000	$5,000	This is the principal you get back
Coupon Rate	5.00%	2.06%	This is the interest rate on the bond's par value
Premium	$1,080	$0	This is what you pay extra for the higher rate
Value at Sale	$6,080	$5,000	This is what you pay
Yield or TIC	2.06%	2.06%	This is what matters, rate of return
If the Market Interest Rate Increases to 5%			
Value at Sale	$6,080	$5,000	This is what you paid for the bonds
Value after Interest Rates Increase	$5,000	$4,038	This is what your bonds are now worth
Total Loss	-$1,080	-$962	This is how much you lose due to rate change
Percent Loss	-17.8%	-19.2%	This is what matters, value lost

TIC: true interest cost

Source: Public Financial Management, July 2015; Department of Legislative Services, November 2015

Why Should the State Budget Premiums Carefully?

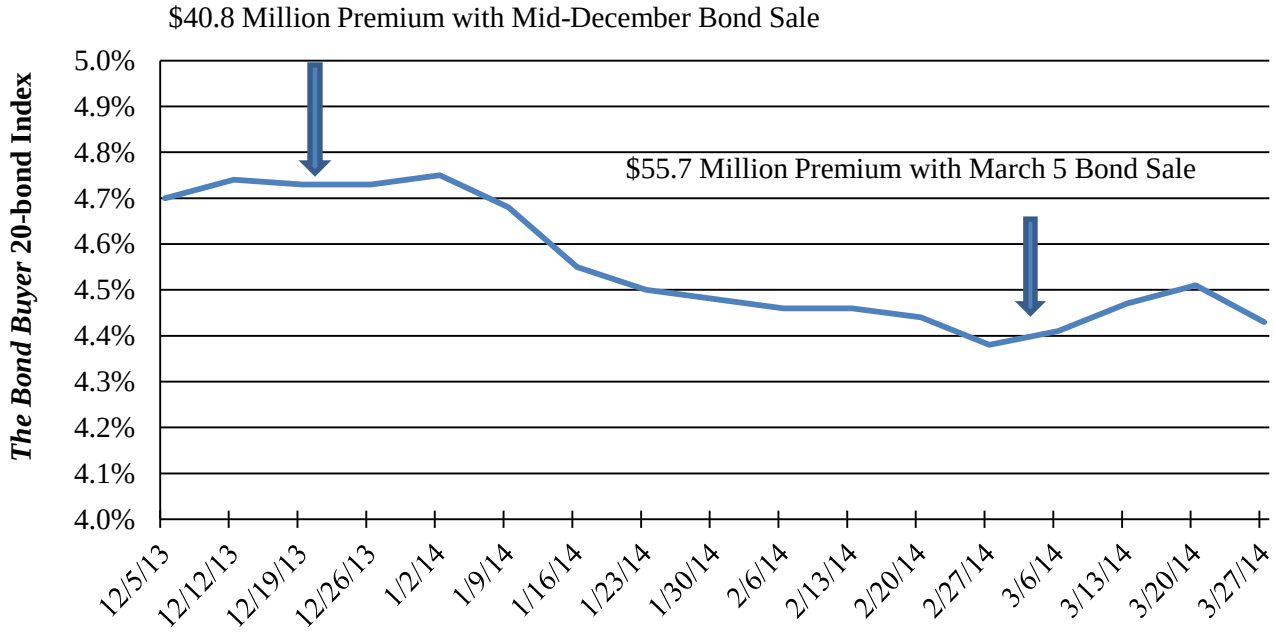
In recent years, bond premiums have been substantial. From fiscal 2012 to 2015, bond sale premiums have generated over $100 million annually. Although premiums are expected to diminish, DLS anticipates that bond sales will continue to generate premiums in fiscal 2017.

A concern with budgeting premiums in advance is that small changes in interest rates can generate substantial changes in the amount of premiums realized. Interest rates have been highly volatile, and rates have climbed or plummeted in a matter of weeks. For example, from April 9 to May 7, 2015, *The Bond Buyer* 20-bond Index increased by 25 basis points, from 3.49% to 3.74%. Such an increase substantially decreases a bond sale premium.

Most of this volatility cannot be foreseen. This means that the key variables used to estimate premiums are impossible to predict with any precision. An example of this is the March 6, 2014 bond sale. The State projected a $40.8 million premium. This forecast was prepared in December 2013 and used in the Governor's fiscal 2015 budget. Using interest rates from December 2013, DLS forecasted a $43.2 million premium. DLS concluded that the premium in the budget was entirely reasonable, based on the data that was available when the budget was prepared.

However, the actual bond sale premium for the March sale was $55.7 million. This is $14.9 million more than DBM projected. The reason for this difference is a sudden decline in interest rates. **Exhibit 15** shows that *The Bond Buyer* 20-bond Index declined from over 4.70% in December 2013 to approximately 4.40% in early March 2014. The State benefited from the change by receiving a larger premium.

Exhibit 15
Timing of Bond Sale Influences Interest Rates and Premiums
December 2013-March 2014



Note: The mid-December bond sale premium is estimated based on the interest rate generated using the statistical equation in Appendix 3. The amount of bonds sold and the coupon rate are assumed to be the same as the March sale.

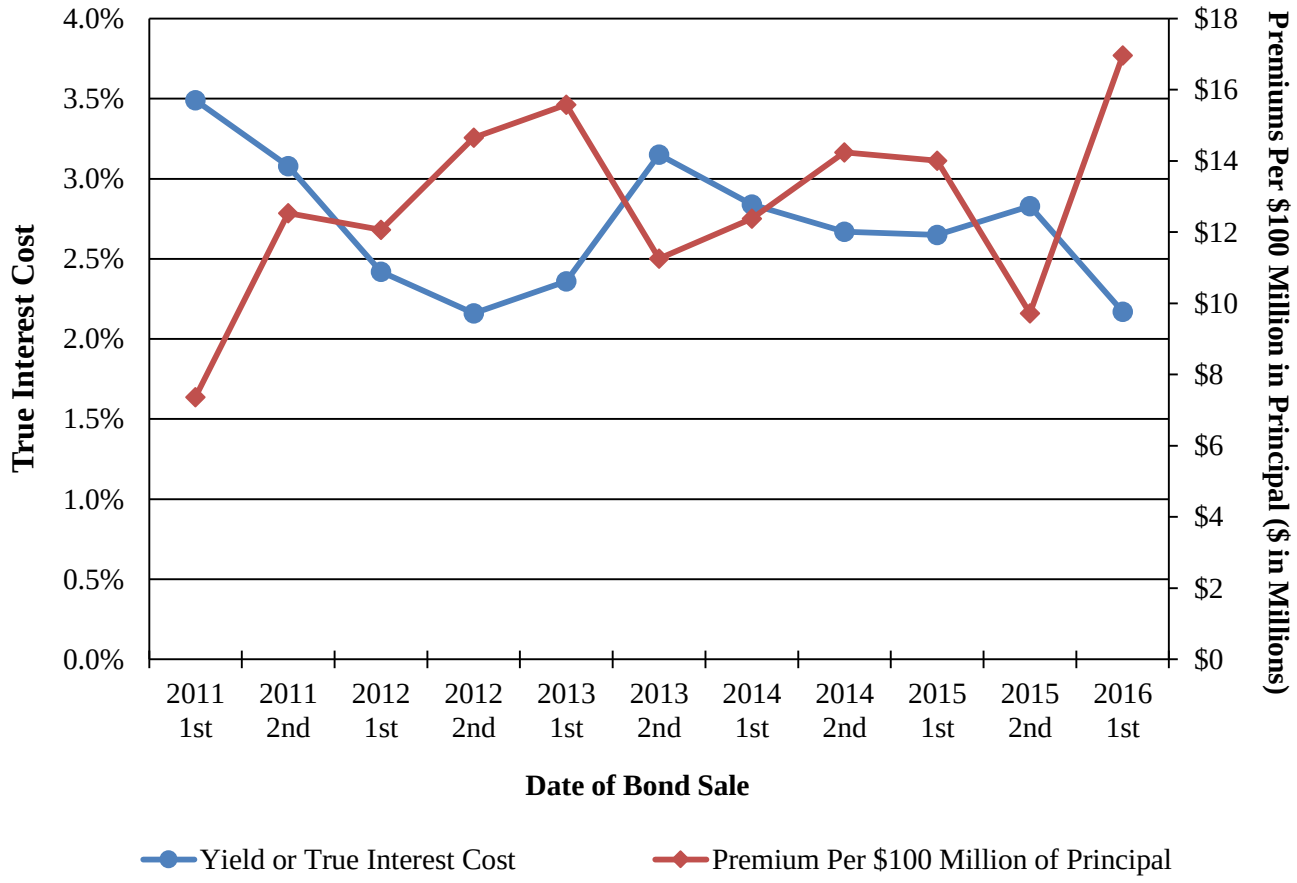
Source: Department of Legislative Services, November 2014

This volatility goes both ways. For example, the State issued bonds on July 24, 2013. There was a sharp increase in interest rates during July 2013. From July 3 to July 25, 2015, the index interest rates increased from 4.39% to 4.77%. This increase of 38 basis points could have substantially decreased a forecasted premium. At the time, premiums were not forecast beyond the spring sale, so it cannot be determined to what extent the higher rates resulted in a smaller premium or higher debt service costs. But the lesson is that large changes in interest rates can happen suddenly.

Another concern is that interest rates are not the only factor that influence bond sale premiums. **Exhibit 16** compares the interest rate for all bond sales since March 2011, with the premium per

$100 million of principal realized by those sales. It clearly shows that declining interest rates result in larger premiums. However, a careful look shows that interest rates are not the only factor. For example, even though the lowest interest rate is for the second 2012 bond sale, two bond sales with higher interest rates also had higher premiums (first sale of 2013 and first sale of 2016). Clearly, other factors influence the size of the premium, one of which is the coupon rate that the winning bidder sets, for which there is no reliable methodology to forecast.

Exhibit 16
Timing of Bond Sale Influences Interest Rates and Premiums
December 2013-March 2014



Source: Public Financial Management, Inc.; Department of Legislative Services

Last year, Moody's Analytics and IHS Global Insights provided DLS with 10-year federal treasury notes' interest estimates through the end of fiscal 2021 (the ABF forecast period). The estimates diverge sharply. Using these assumptions, DLS prepared a range of estimates for the

March 2017 bond sale. The estimates ranged from $3.6 million to $43.8 million. Two points stand out:

- ***The Range is Big:*** Estimating just a year out can result in a range of estimates in which the high estimate is more than 12 times greater than the low. In this case, the difference is $40.2 million; and

- ***The Estimates Have Been Revised Substantially:*** DBM is currently estimating that the March 2017 premium will be $68.0 million. The DLS estimate has been revised to $48.2 million. The reason for these changes is that interest rates have not climbed, as was expected. Also, DLS may have been using a lower coupon rate than is currently forecast, which would also depress the amount of premium realized.

Why should the State budget premiums carefully? Because interest rates in this environment are volatile, and even estimates prepared weeks before a bond sale are routinely off by millions of dollars. There are many factors influencing premiums that cannot be forecast accurately.

What Can the State Do with Bond Sale Premiums?

Bonds are sold at a premium because investors want to buy them at a premium. If the State were to dictate the coupon rate (instead of the underwriters), the State could eliminate the premium by offering low coupon rates. However, if the State were to set the coupon rate instead of the underwriter, the TIC would be expected to increase. Underwriters are purchasing bonds at a premium because of current market conditions. Eliminating the premium would make Maryland bonds less attractive, which increases borrowing costs and State spending. To keep costs down, the State has accepted that it will receive premiums. With respect to premiums, here are three options:

- ***Deposit Premiums in the ABF to Pay Debt Service Costs:*** This approach has been taken with most of the premiums realized. The State is paying higher interest costs for these premiums. Depositing the premium into the ABF reduces the short-term general fund requirements.

- ***Support Capital Programs:*** Premiums are bond sale proceeds. Bonds are sold so that the proceeds support capital projects. The State has authorized premiums for capital projects in the past. For example, premiums supported capital projects in fiscal 2007 and 2016. Sections 8-125 and 8-132 of the State Finance and Procurement Article require that premiums are deposited into the ABF, so any authorization for capital projects would require capital budget bill authorization.

- ***Resize the Bond Sale:*** If the objective is to generate a specific level of bond proceeds, the amount of bonds sold can be reduced, and bond sale premiums can be used to support capital projects. This is referred to as resizing the bond sale. This has been done by the Maryland Department of Transportation as recently as its December 2015 bond sale. For example, if the State determines that $500 million in bond proceeds are needed and a $45 million premium is anticipated, the State could reduce the par value of the bonds by

$40 million and use any premiums to support projects. This would need to be authorized in the State's capital budget. Bond documents, such as the Preliminary Official Statement, would need to clarify that bonds could be resized prior to opening the bids.

If the State's objectives are to keep long-term debt service costs at a minimum and to reduce the volatility in revenues and spending, resizing the bond sale is the best approach to managing premiums. Other approaches lead to higher out-year debt service costs and also lead to more swings in revenue requirements.

The State Treasurer should be prepared to brief the committees on the use of bond sale premiums for GO bond debt service costs.

4. Capital Leases: Changes to Lease Accounting Rules

As previously discussed, capital leases supported by State revenues are State debt. Under current guidelines, leases that meet at least one of the following criteria are considered to be capital leases:

- the lease transfers ownership of the property to the lessee by the end of the lease term;
- the lease allows the lessee to purchase the property at a bargain price at a fixed point in the term of the lease for a fixed amount;
- the term of the lease is 75% or more of the estimated economic useful life of the property; or
- the present value of the lease payments is 90% or more of the fair value of the property.

Many leases that the State enters into are not considered to be capital leases. Even if the leases represent long-term commitments to make payments, no liabilities are reported. Similarly, no assets are reported on many leases even if the State has long-term rights to receive operating lease payments.

The Governmental Accounting Standards Board (GASB) is an independent, nonpolitical organization dedicated to establishing rules that require state and local governments to report clear, consistent, and transparent financial information. In 2013, GASB initiated a project to reexamine issues associated with lease accounting. The objective of the project is to examine whether operating leases can meet the definitions of assets or liabilities, which could result in new standards for capital leases. A concern is that the current approach to operating leases undervalues liabilities. For example, there are a number of operating leases that include long-term commitments to make payments, but no liabilities are reported.

An exposure draft was issued by GASB in January 2016. This was followed by a comment period that ended in May 2016. A public hearing was held in June 2016. After the comment period, redeliberations began in August 2016. GASB discussed lessee models in October 2016, lessor models

in December 2016, and multiple leases in January 2017. The final statement is scheduled to be approved in May 2017. The requirements of the proposed statement would be effective for reporting periods beginning after December 15, 2018, with earlier application permitted. This affects fiscal 2020.

If GASB proposes changes to leasing standards, the new standards could substantially increase the amount of leases included in the debt affordability calculation. The proposed rule would require government lessees to recognize a lease liability and an intangible asset representing their right to use the leased asset, with limited exception. Lessees would amortize the leased asset over the term of the lease and recognize interest expense related to the lease liability. The exposure draft provides exceptions for short-term leases lasting 12 months or less, along with financed purchases.

The new rules would increase the amount of capital leases, but it is unclear to what extent. The *Comprehensive Annual Financial Report* for fiscal 2016 reports that rent expenditures totaled $92 million in fiscal 2016. By contrast, capital lease expenditures reported by CDAC totaled $27 million in fiscal 2016. **The State Treasurer should be prepared to brief the committees on capital leases, proposed changes, and affordability implications.**

Recommended Actions

1. Adopt the following narrative:

Review Capital Debt Affordability Process: To manage State debt, the State created the Capital Debt Affordability Committee (CDAC). The committee has adopted two criteria to determine if State debt is affordable: State debt outstanding cannot exceed 4% of State personal income; and State debt service cannot exceed 8% of State revenues. These criteria have succeeded in reducing State debt, which was unacceptably high in the late 1970s. However, the committees are concerned that the State has been increasing authorizations while State revenues have not been able to keep up with increasing debt service costs. Debt service costs are expected to increase at a rate of 3.3% per year, while State property tax revenues, which support debt service, are expected to increase at a rate of 2.2% per year. The State is also at the debt limit and any reductions in revenue estimates will be difficult for the capital budget program to absorb. Two specific concerns about the affordability process are that the cost of authorizing additional debt is undervalued and that the State's current fiscal condition is not considered. CDAC should review the affordability process to examine how the process can better evaluate the cost of increasing authorizations and better link the affordability criteria with the State's current fiscal condition. Procedures to address these concerns should be adopted. CDAC should report on its evaluation and new procedures in its 2017 report.

Information Request	**Author**	**Due Date**
Review of the debt affordability process	CDAC	December 1, 2017

Appendix 1
Current and Prior Year Budgets
Public Debt
($ in Thousands)

	General Fund	Special Fund	Federal Fund	Reimb. Fund	Total
Fiscal 2016					
Legislative Appropriation	$252,400	$845,378	$11,477	$0	$1,109,255
Deficiency Appropriation	0	0	0	0	0
Budget Amendments	0	21,600	34	0	21,634
Reversions and Cancellations	0	-9,894	0	0	-9,894
Actual Expenditures	**$252,400**	**$857,084**	**$11,511**	**$0**	**$1,120,995**
Fiscal 2017					
Legislative Appropriation	$283,000	$892,640	$11,539	$0	$1,187,179
Cost Containment	0	0	0	0	0
Budget Amendments	0	0	0	0	0
Working Appropriation	**$283,000**	**$892,640**	**$11,539**	**$0**	**$1,187,179**

Note: Does not include targeted reversions, deficiencies, and contingent reductions. Numbers may not sum to total due to rounding.

Fiscal 2016

Fiscal 2016 actual Public Debt expenditures were $1,121.1 million, which is $11.7 million more than budgeted. The March 2014 bond sale premium exceeded estimates, so the General Assembly reduced general fund appropriations by $21.6 million and authorized a special fund budget amendment. This increase was partially offset by canceling $9.9 million in special funds, specifically:

- the March 2015 bond sale realized $3.4 million in unanticipated premiums;
- the March 2015 bond sale reduced interest by $3.5 million; and
- the July 2015 bond sale reduced interest costs by $3.0 million.

A $33,878 federal fund budget amendment was also processed. The funding was available because the sequestration reduction was not as large as initially anticipated.

Fiscal 2017

There have not been any budget amendments in fiscal 2017.

Appendix 2
Fiscal Summary
Public Debt

Program/Unit	FY 16 Actual	FY 17 Working Appropriation	FY 18 Allowance	Change	FY 17 - FY 18 % Change
01 Redemption and Interest on State Bonds	$ 1,120,994,997	$ 1,187,178,826	$ 1,250,406,353	$ 63,227,527	5.3%
Total Expenditures	**$ 1,120,994,997**	**$ 1,187,178,826**	**$ 1,250,406,353**	**$ 63,227,527**	**5.3%**
General Fund	$ 252,400,000	$ 283,000,000	$ 263,000,000	-$ 20,000,000	-7.1%
Special Fund	857,083,857	892,639,657	975,867,184	83,227,527	9.3%
Federal Fund	11,511,140	11,539,169	11,539,169	0	0%
Total Appropriations	**$ 1,120,994,997**	**$ 1,187,178,826**	**$ 1,250,406,353**	**$ 63,227,527**	**5.3%**

Note: Does not include targeted reversions, deficiencies, and contingent reductions.

Appendix 3
Analysis of General Obligation Bonds' True Interest Costs

The interest rate that Maryland pays for the bonds that it sells is referred to as the true interest cost (TIC). This rate is derived by calculating a bond sale's Internal Rate of Return. The TIC is calculated at each bond sale, and the bidder with the lowest TIC is awarded the bid.

The financial literature provides information about factors that influence the TIC of State and municipal bond sales. Since 2006, the Department of Legislative Services (DLS) has prepared a statistical analysis to evaluate these financial factors. The sum of least squares regression is used to evaluate what factors influence the TIC that Maryland receives on general obligation bond sales.

The sum of least squares regression analysis dependent variable is the TIC. All the other variables are independent variables that are included to control the factors that could influence the TIC. The question that the regression equation addresses is which of the independent variables influence the dependent variable (TIC). The regression equation examines the variables previously listed and identifies four statistically significant variables at the 95% confidence level that affect the TIC:

- ***Bond Buyer 20-bond Index:*** The key variable is the 20-bond index. This is an estimate of the market rate for 20-year AA-rated state and municipal bonds. DLS has collected the estimated yields since 1991.

- ***Years to Maturity:*** Under normal economic conditions, bonds with shorter maturities have lower interest costs than bonds with longer maturities. This is referred to as a positive yield curve. The analysis estimates that every year adds 0.26% (26 basis points) to the TIC.

- ***Post-financial Crisis:*** This is a variable that indicates if a bond was sold before or after Lehman Brothers collapsed in September 2008. The equation estimates that Maryland bond yields are 0.77% (77 basis points) less since September 2008. This is consistent with the "flight to quality" that some believe has resulted since the financial crisis of 2008. The average bond in the index is a lower quality bond than Maryland bonds. The negative coefficient projects that the yield on higher rated bonds has been reduced when compared to AA-rated bonds.

- ***Build America Bonds (BAB):*** In February 2009, the American Recovery and Reinvestment Act authorized the issuance of BABs. The bonds are taxable bonds that support the same types of projects that traditional tax-exempt bonds support. The difference is that the buyers do not receive any federal tax credits or deductions so that the interest earnings are subject to federal taxes. Instead, Maryland receives a subsidy equal to 35.0% of the interest costs from the federal government. In concept, the bonds expand the number of buyers of State and municipal debt since the bonds are also attractive to individuals and institutions that do not pay federal taxes. Because the tax-exempt bonds' benefit is greater for shorter maturities, the State issued tax-exempt bonds with shorter maturities and BABs with longer maturities.

The following table shows the data for the statistically significant variables.

TIC Regression Equation – Evaluating the Independent Variables

Ind. Variable	Coefficient	Std. Error	Beta	t-test	Sig.	Tol.	Comment
The Bond Buyer 20-bond Index	0.859	0.045	0.63	18.934	0.000	0.57	Highest t-test suggests with confidence that the index is significant.
Years to Maturity	0.259	0.028	0.34	9.267	0.000	0.47	Positive coefficient means that longer maturities tend to have higher TICs.
Post-financial Crisis	-0.774	0.086	-0.32	-8.963	0.000	0.49	Maryland bonds' yields are reduced since the crisis.
BABs	-1.116	0.188	-0.23	-5.944	0.000	0.43	Negative coefficient suggests BABs are less expensive.
Constant	-2.496						

BAB: Build America Bonds
Sig.: significance or confidence interval
Std.: standard
TIC: true interest cost
Tol.: tolerance, a test of multicollinearity

Source: Department of Legislative Services, October 2016

In addition to estimating and evaluating the specific variables, a proper statistical analysis must also incorporate an analysis of the equation as a whole, such as:

- how confident are we in the equation (confidence interval);
- what is the equation's margin of error;
- how close are the equation's estimates to the actual data; and
- is there a dependence between successive dependent variables (serial or autocorrelation).

The regression equation has a high level of explanatory power and suggests that the determinants of Maryland's TIC are well understood and account for almost all of the variations that are seen in the TIC. The following table shows the equation's statistics.

TIC Regression Equation – Evaluating the Entire Equation

What Is Measured	Statistic Used to Measure	Value of Statistic	Explanation
Confidence in the equation	F Statistic	384.0	We are over 99.9% confident that the independent variables influence the dependent variable.
Margin of error	Standard error of the estimate	0.239	We expect the actual TIC to be within 0.24% (24 basis points) of the estimate.
Estimate in relation to actual data	Adjusted R Square	0.961	The model's estimates explain 96.1% of the actual data.
Serial or autocorrelation	Durbin-Watson	1.516	The ideal value is 2.0. If the number deviates too far from 2.0, it suggests that there are patterns in the errors, such as missing a key independent variable.

TIC: true interest cost

Source: Department of Legislative Services, October 2016

Appendix 4
Actions to Increase Debt Authorizations Since 2001 Legislative Session

Initial Authorization	Type of Debt Authorized	Amount Authorized	Supporting Revenues	Effect on Capital Spending
Chapter 111 of 2001	GO Bonds	$30 million annually	State property taxes and General Fund	Increase the State capital program
Chapter 103 of 2001	GO Bonds	$5 million annually	State property taxes and General Fund	Fund Tobacco Transition Program
Chapter 440 of 2002	CTB	Increased debt limit from $1.2 billion to $1.5 billion	Transportation Trust Fund revenues	Increase State transportation capital program
Chapter 290 of 2002	GO Bonds	$200 million in fiscal 2003	State property taxes and General Fund	Move PAYGO capital projects into GO bond program
Chapter 204 of 2003	GO Bonds	$200 million in fiscal 2004	State property taxes and General Fund	Move PAYGO capital projects into GO bond program
Chapter 432 of 2004	GO Bonds	$100 million annually for five years	State property taxes and General Fund	Increase the State capital program
Chapter 430 of 2004	CTB	Increased debt limit from $1.5 billion to $2.0 billion	Transportation Trust Fund revenues	Increase revenues to increase State transportation capital program
Chapter 428 of 2004	BRF	Estimated $530 million in total issuances	Bay restoration fee	Fund wastewater treatment plant improvements
Chapter 472 of 2005	GARVEEs	Not to exceed $750 million	Federal transportation funds	Fund InterCounty Connector

Initial Authorization	Type of Debt Authorized	Amount Authorized	Supporting Revenues	Effect on Capital Spending
Chapter 46 of 2006	GO Bonds	Increase escalation from $15 million to 3%, $100 million annually beginning in fiscal 2010	State property taxes and General Fund	Increase the State capital program
Chapter 488 of 2007	GO Bonds	$100 million annually	State property taxes and General Fund	Increase the State capital program
Chapter 6 of the First Special Session of 2007	CTB	Increased debt limit from $2.0 billion to $2.6 billion	Transportation Trust Fund revenues	Increase State transportation capital program
Chapter 336 of 2008	GO Bonds	$100 million annually	State property taxes and General Fund	Increase the State capital program
Chapter 485 of 2009	GO Bonds	$150 million in fiscal 2010	State property taxes and General Fund	Increase the State capital program
Chapter 419 of 2009	POS Bonds	$70 million in fiscal 2010	State share of transfer tax revenues	Maintain POS spending in fiscal 2010
Chapter 719 of 2009	GO Bonds	$2 million	State property taxes and General Fund reimbursed by Community Development Administration	Contingent authorization for local government infrastructure bonds
Chapter 483 of 2010	GO Bonds	$150 million in fiscal 2011 and reduces fiscal 2012 to 2017 authorizations by $960 million	State property taxes and General Fund	Move PAYGO capital projects into GO bond program

Initial Authorization	Type of Debt Authorized	Amount Authorized	Supporting Revenues	Effect on Capital Spending
Chapter 444 of the 2012 Regular Session	GO Bonds	Increase fiscal 2013 by $150 million and decrease fiscal 2018 by $150 million	State property taxes and General Fund	Move forward capital projects
Chapter 429 of 2013	CTB	Increased debt limit from $2.6 billion to $4.5 billion	Transportation Trust Fund revenues	Increase revenues to increase State transportation capital program
Chapter 424 of 2013	GO Bonds	Increase fiscal 2014 to 2018 spending by $150 million annually	State property taxes and General Fund	Increase total spending by $750 million
Chapter 463 of 2014	GO Bonds	Increase fiscal 2015 to 2019 spending by $75 million annually	State property taxes and General Fund	Increase total spending by $75 million

BRF: Bay Restoration Fund
CTB: Consolidated Transportation Bond
GARVEE: Grant Anticipation Revenue Vehicle
GO: general obligation
PAYGO: pay-as-you-go
POS: Program Open Space