The Ohio State University

New Issue - Moody's assigns Aa1 to Ohio State University's General Receipts Bonds, Series 2016A & B

Summary Rating Rationale

Moody's Investors Service has assigned a Aa1 rating to approximately $600 million of The Ohio State University's proposed General Receipts Bonds (Multiyear Issuance Program) Series 2016 A (Federally Taxable) and $30 million Series 2016 B (Tax-Exempt). The size of this transaction may change based on market conditions. The Multiyear Issuance Program is authorized for up to $1 billion. At the same time, we have affirmed the outstanding ratings. The outlook is stable for all securities. The Aa1 rating reflects the university's market profile as the State of Ohio's flagship, land grant university, and member of the Big Ten Conference, large scale operations, and healthy cash and investments. The Aa1 rating also acknowledges the university's sizeable health care exposure, its growing financial leverage, and ongoing capital expenditure needs. The ratings are subject to the transaction as proposed and receipt of final documentation.

The short-term ratings are based on the strength of the underlying credit as well as healthy daily liquidity to address any potential failed remarketing.
Credit Strengths

» Strong strategic position as the State of Ohio’s flagship and land grant university and member of the Big Ten Conference with enrollment of almost 60,000 full-time equivalent (FTE) students

» Large scope of operations with $5.5 billion of operating revenue and a substantial $962 million of research expenditures in FY 2015

» Nearly 50% growth of cash and investments over the last five years to $5.3 billion in FY 2015, mostly unrestricted

» Pragmatic management that has leveraged the private sector to support core academic programs, health sciences, research, and athletics

Credit Challenges

» Increasing financial leverage with spendable cash and investments to total debt of 1.2 times after issuance of the proposed Series 2016 bonds

» Competition from formidable health care providers including OhioHealth, now collaborating with MD Anderson Cancer Network, and Mount Carmel Health System

» Sizeable capital needs may result in use of some unrestricted cash and investments

» Declining state operating support and state-imposed tuition freezes challenge the university to find alternate sources of revenue growth and to find expense efficiencies
Rating Outlook
The outlook is stable reflecting our expectation that the university will continue to closely manage operations while providing a vital role in the State of Ohio’s higher education system. We expect that the sizeable health care operations will benefit from Medicaid expansion. Also, incorporated in the stable outlook is tolerance for use of some cash and investments on capital projects.

Factors that Could Lead to an Upgrade
» Reduction of financial leverage through a combination of debt amortization and material growth in spendable cash and investments
» Sustained further strengthening in cash flow and operating margins

Factors that Could Lead to a Downgrade
» Significant rise in financial leverage
» Deterioration of health care or student market leading to weakening of operating margins and depressing debt service coverage
» Material use of financial reserves and erosion of unrestricted liquidity

Key Indicators

Exhibit 2
The Ohio State University

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
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<tbody>
<tr>
<td>Total FTE Enrollment</td>
<td>58,812</td>
<td>57,547</td>
<td>58,420</td>
<td>59,153</td>
<td>59,490</td>
</tr>
<tr>
<td>Operating Revenue ($000)</td>
<td>4,628,120</td>
<td>4,755,091</td>
<td>4,939,847</td>
<td>5,138,321</td>
<td>5,537,069</td>
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<tr>
<td>Annual Change in Operating Revenue (%)</td>
<td>5.7</td>
<td>2.7</td>
<td>3.9</td>
<td>4.0</td>
<td>7.8</td>
</tr>
<tr>
<td>Total Debt &amp; Investments ($000)</td>
<td>3,590,237</td>
<td>3,662,375</td>
<td>4,593,092</td>
<td>4,835,591</td>
<td>5,291,820</td>
</tr>
<tr>
<td>Spendable Cash &amp; Investments to Total Debt (%)</td>
<td>1.2</td>
<td>1.0</td>
<td>1.3</td>
<td>1.3</td>
<td>1.4</td>
</tr>
<tr>
<td>Spendable Cash &amp; Investments to Operating Expenses (%)</td>
<td>0.5</td>
<td>0.5</td>
<td>0.7</td>
<td>0.7</td>
<td>0.8</td>
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<tr>
<td>Monthly Days Cash on Hand (x)</td>
<td>209</td>
<td>173</td>
<td>236</td>
<td>192</td>
<td>206</td>
</tr>
<tr>
<td>Operating Cash Flow Margin (%)</td>
<td>10.7</td>
<td>11.2</td>
<td>9.6</td>
<td>9.7</td>
<td>13.4</td>
</tr>
<tr>
<td>Total Debt to Cash Flow (%)</td>
<td>4.0</td>
<td>4.5</td>
<td>5.5</td>
<td>5.4</td>
<td>3.7</td>
</tr>
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</table>

Source: Moody’s Investors Service

Recent Developments
Incorporated into Detailed Rating Considerations

Detailed Rating Considerations

Market Profile: Strong Demand Stems from Broad Array of Programs and Student Activities
The university is strategically well-positioned as a public flagship, land grant university, and member of the Big Ten Conference that offers a broad array of programs and student activities leading to strong student demand and solid retention. The new two-year residential experience created by the North Residential District Transformation and planned improvement in graduate housing should further enhance the university’s student appeal.

Enrollment is expected to remain stable at about 60,000 full-time equivalents given capacity constraints at the main City of Columbus campus. Total FTE enrollment has grown slightly over the past five years (fall 2011 – fall 2015) primarily due to the increase in non-
resident undergraduate students. Non-resident undergraduate FTEs have grown 44% to almost 10,000 in fall 2015, more than offsetting the 5% decline in undergraduate students from Ohio and the 4% decline in graduate students.

Cancer treatment and research is the driving force behind the university’s Wexner Medical Center which now produces one-half of consolidated university revenue. Ohio State is one of only 41 National Cancer Institute-designated Comprehensive Cancer Centers and one of only four centers funded by the NCI to conduct both phase I and phase II clinical trials. With the opening of the new Arthur G. James Cancer Hospital in November 2014, together with a 4.4% increase in outpatient visits systemwide, medical center revenue rose 11% in FY 2015. Still, with the recent collaboration of OhioHealth with the MD Anderson Cancer Network, competition for cancer patients will intensify.

Research funding is more diversified at Ohio State than at peer institutions. Total research revenue in FY 2015 rose to a very large $691 million due to increases in private and governmental support. Federal funding now only represents 48% of total research revenue. Planned investment in new research facilities will help to attract researchers and additional funding.

**Operating Performance: Good Operating Performance With Fast-Growing Health Care Revenue**

Double-digit cash flow, averaging 11% over the past five years provides good debt service coverage and contributes to growing cash and investments. Net patient service revenue has grown three times faster than other university revenue over the past five years (FY 2011 - FY 2015) and contributed $420 million to the bottom line in FY 2015. Health care operations now represent 50% of total operations, up from 45% in FY 2011. As competition mounts in the health care sector, overall margins will narrow.

**Exhibit 3**

**Patient Care Revenue is Increasingly Important to Overall University Operations**

![Patient Care Revenue Chart]

*Source: Moody’s Investors Service*

On the academic side of the university, increases in select student charges have more than compensated for cuts in state aid and support from the endowment has grown over the past five years. Nevertheless, the academic enterprise operates at a small deficit. Continued expansion of nonresident enrollment and completion of the North Residential District housing will provide opportunities to increase revenue despite keeping in-state undergraduate tuition flat. In addition, through his five-year 2020 Vision for Ohio State, the president has set a target of generating $400 million in efficiencies and innovative funding.

FY 2016 operating results, excluding investment income, are trending up compared to FY 2015. The improvement is primarily due to an increase in inpatient admissions and a change in payer mix due to the Affordable Care Act; there are now more Medicaid patients and fewer self-pay patients, reducing the amount of bad debt.

**Wealth and Liquidity: Philanthropy, Positive Cash Flow and Investment Returns Bolster Reserves**

The Ohio State University’s balance sheet reserves are expected to continue to provide a strong financial cushion for operations. FY 2015 spendable cash and investments were a substantial $3.9 billion, roughly three-quarters of annual operating expenses. These reserves have increased 66% since FY 2011 in large part due to achieving the $2.5 billion goal for the But for Ohio State campaign, annual cash flow averaging $550 million over the past five years, and investment returns averaging 9.1% over the same time period.
LIQUIDITY
Monthly liquidity, at 206 days cash on hand, is excellent given positive operating performance and careful liquidity management. The university closely manages its operating funds with 3-year rolling cash flow projections and daily cash reports. Approximately $600 million is always in bank deposits. Another $4-600 million is in securities with less than 1-year maturities, and $600 million is invested in intermediate securities, those that mature in 1-3 years. Cash and short-term investments rarely fall below $1.6 billion.

The university’s minimal use of variable rate debt together with strong internal liquidity and treasury management support the highest short-term ratings of VMIG 1. Approximately $600 million of variable rate demand bonds, mostly in a weekly mode, are supported by $850 million of Moody’s-discounted daily liquidity. Even after reducing assets by those in the largest money market fund, coverage as of December 31, 2015 exceeded 1.3 times.

Leverage: Large $1 Billion Debt Authorization is Affordable Given Level of Spendable Cash and Investments
The planned $1 billion debt issuance over the next year and one-half, inclusive of this current issue, is manageable at the current rating level assuming current financial trends are sustained. Spendable cash and investments as of June 30, 2015 will just exceed direct debt based on issuance of the full $1 billion, still in line with a Aa rating. As cash and investments grow from gift receipts and investment returns, and existing debt is amortized, this leverage metric will strengthen. Approximately $60-65 million of principal is scheduled to be amortized in each of the next five years. No additional borrowing beyond this $1 billion is anticipated over the next five years.

DEBT STRUCTURE
Most of the university’s debt is fixed rate. The 22% variable rate debt is backed by the university’s own liquidity. Total projected debt service is uneven with several bullet maturities, the first of which is scheduled to mature in 2030. Until then, debt service ranges from $154 million to $188 million in 2017, an increase of 10% when compared to 2016. The pro-forma maximum annual debt service coverage with the additional $1 billion (with bullet maturities smoothed) is a sound 2.5 times.

DEBT-RELATED DERIVATIVES
The university has no interest rate swaps. The university has, however, entered into a short-term rate lock associated with the Series 2016A transaction.

PENSIONS AND OPEB
The university’s exposure to pension and other post-employment retirement benefits (OPEB) is elevated. Moody’s adjusted debt, including $3.4 billion of direct debt and $8.7 billion Moody’s three-year (2013-2015) average adjusted net pension liability, exceeds the preliminary median for rated public universities. Total adjusted debt is 2.2 times FY 2015 operating revenue and spendable cash and investments is only 0.3 times total adjusted debt.

The Ohio legislature exerts significant control over pensions, setting contribution rates for State Teachers’ Retirement System of Ohio (STRS) and Ohio Public Employees Retirement System (OPERS), the two multiple-employer defined benefit plans in which the university participates. Combined, these plans were 55% funded in FY 2015 on a Moody’s adjusted basis, up six percentage points from FY 2013 when the state implemented pension reforms. While the university’s contributions for STRS and OPERS are currently capped at 14% of covered payroll, increases to this contribution amount would add stress to the university’s budget.

Governance and Management: Pragmatic Management Leverages University Strengths to Expand Health Services and Maintain Affordable Education
Strategic positioning is excellent. The board and senior management of the university work together to identify opportunities to leverage the university’s strengths to improve health services and to maintain an affordable education for undergraduate and graduate study. Careful planning resulted in the North Residential District Transformation, a new expanded James Cancer Hospital, and the monetization of the university’s parking facilities to support core strategic investment. The university recently extended its current sponsorship contract with Nike by 15 years (worth $252 million) and management is currently investigating a comprehensive energy conservation project that could result in upgraded systems, lower operating expenses, and an upfront payment. The successful completion of the recent $2.5 billion comprehensive campaign and the current $1 billion debt authorization will also support improvements at the university ensuring that it continues to attract students and faculty and to provide health services especially meaningful to the region.
Legal Security
The new Multiyear Debt Issuance Program, in the form of a supplement to the amended and restated 1999 Trust Indenture, provides the university with maximum flexibility to structure its $1 billion bond authorization and to expedite access the market June 30, 2017 when the current Ohio Department of Higher Education authorization expires. Bonds can be issued as taxable, tax-exempt, fixed or variable rate (including commercial paper). And, they can be offered with a general receipts pledge or a special purpose general receipts pledge.

Outstanding bonded debt is mostly in the form of general receipts bonds, rated Aa1 stable. General receipts bonds are payable from and secured by a first pledge of and lien on the general receipts of the university and the debt service fund. General receipts consist of all moneys received by the university for student charges, all unrestricted grants, gifts, donations and pledges, as well as bond proceeds. Specifically excluded from general receipts are state appropriations unless authorized by law; and any restricted grants, gifts, donations and pledges, and receipts.

One series of bonds, the special purpose general receipts bonds, rated Aa2 stable, is subordinate to the general receipts revenue bonds. Special purpose general receipts bonds are secured by a pledge of all revenues, fees, rentals, rates, charges, insurance proceeds and other moneys derived by the university from the ownership or operation of student housing, dining and recreational sports systems.

The special purpose general receipts bonds have a rate covenant 1.1 times. Coverage for FY 2016 is expected to be close to 7 times.

Use of Proceeds
Proceeds from the Series 2016 A bonds will be used for a mix of strategic, academic, medical center, and athletics capital projects. Proceeds from the Series 2016 B bonds are expected to be used to current refund all or a portion of the remaining Series 2005 A bonds.

Obligor Profile
The Ohio State University is the State of Ohio's flagship and land grant university. It is a comprehensive research university that owns and operates the Ohio State University Wexner Medical Center, comprised of six hospitals and Ohio State's primary-care and ambulatory health networks. Its main campus is in Columbus, and it has educational programs at extended campuses in Lima, Mansfield, Marion, and Newark. There were almost 60,000 full-time equivalent students in fall 2015 and total annual operating revenue is $5.5 billion.

Methodology
The principal methodology used in this rating was Global Higher Education published in November 2015. An additional methodology, Rating Methodology for Municipal Bonds and Commercial Paper Supported by a Borrower’s Self-Liquidity, published in January 2012 was used for the short-term ratings. Please see the Ratings Methodologies page on www.moodys.com for a copy of these methodologies.

Ratings

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<th>Exhibit 4</th>
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<td>OHIO STATE UNIVERSITY, OH</td>
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<table>
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<th>Issue</th>
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<td>General Receipts Bonds (Multiyear Issuance Program) Series 2016 A (Federally Taxable)</td>
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<td>Sale Amount</td>
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<p>| General Receipts Bonds (Multiyear Issuance Program) Series 2016 B (Tax-Exempt) | Aa1 |
| Rating Type | Underlying LT |
| Sale Amount | $30,000,000 |</p>
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Source: Moody’s Investors Service
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