University of Kentucky, KY

Update to credit analysis

Summary
The University of Kentucky (Aa2 stable) will continue to benefit from its large scope of operations as the flagship university for the Commonwealth of Kentucky (Aa3 stable issuer rating), with healthy enrollment and net tuition revenue growth, combined with improved student geographic diversification and rising reserves. Favorably, the rating also incorporates solid operating cash flow, from both the university and its highly integrated academic medical center. Leverage is modest relative to peers, with no exposure to defined benefit pension plans. The current rating is tempered by the exposure to more volatile healthcare revenue and the potential for further cuts in operating appropriation support as the state addresses budgetary balance and a large unfunded pension obligation.

Exhibit 1
Manageable financial and operating leverage supports Aa2 rating

Pro forma 2017 debt includes the planned Series 2018A and 2018B new money issue.
Source: Moody’s Investors Service

Credit strengths
» Good student demand for Kentucky’s flagship, research-intensive university, with fall 2017 enrollment of 29,168 full-time equivalent (FTE) students
» Robust increase in spendable cash and investments to $1.8 billion as of fiscal 2017, up 64% over fiscal 2013
» Consistently good operating cash flow (fiscal 2017, 11% margin), driven by growing net tuition revenue and profitable, highly integrated healthcare system
Strong liquidity, with $1.3 billion of monthly liquidity, and limited expected calls on liquidity

Manageable leverage position, with pro forma debt to cash flow of 3.7 times and no direct exposure to defined benefit pension plans

Credit challenges

Flat to decreasing support from Kentucky (9% of fiscal 2017 revenues) due to state budgetary challenges and large unfunded pension obligations

High 54% exposure to more volatile health care revenue

Ability to address capital funding needs is constrained by legislative approval process

Rating outlook

The stable outlook reflects the university’s capacity to adjust to possible state funding cuts given its favorable operating cash flow, good student demand and some pricing flexibility.

Factors that could lead to an upgrade

Substantial improvement in financial reserves relative to debt and operations

Significant strengthening of UK’s brand and geographic reach

Factors that could lead to a downgrade

Sustained deterioration of operating performance either at the university or UK HealthCare, particularly if resulting in liquidity reductions

Key indicators

Exhibit 2

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total FTE Enrollment</td>
<td>28,112</td>
<td>28,815</td>
<td>29,350</td>
<td>29,242</td>
<td>29,168</td>
<td>29,168</td>
<td>28,405</td>
</tr>
<tr>
<td>Operating Revenue ($000)</td>
<td>2,439,620</td>
<td>2,564,849</td>
<td>2,898,178</td>
<td>3,071,463</td>
<td>3,179,345</td>
<td>3,179,345</td>
<td>1,104,854</td>
</tr>
<tr>
<td>Annual Change in Operating Revenue (%)</td>
<td>1.3</td>
<td>5.1</td>
<td>13.0</td>
<td>6.0</td>
<td>3.5</td>
<td>3.5</td>
<td>4.4</td>
</tr>
<tr>
<td>Total Cash &amp; Investments ($000)</td>
<td>1,665,656</td>
<td>1,939,731</td>
<td>2,218,385</td>
<td>2,426,973</td>
<td>2,413,329</td>
<td>2,413,329</td>
<td>1,201,140</td>
</tr>
<tr>
<td>Total Debt ($000)</td>
<td>647,790</td>
<td>830,579</td>
<td>930,444</td>
<td>1,043,655</td>
<td>1,012,748</td>
<td>1,233,433</td>
<td>597,459</td>
</tr>
<tr>
<td>Spendable Cash &amp; Investments to Total Debt (x)</td>
<td>1.7</td>
<td>1.6</td>
<td>1.8</td>
<td>1.7</td>
<td>1.8</td>
<td>1.5</td>
<td>1.3</td>
</tr>
<tr>
<td>Spendable Cash &amp; Investments to Operating Expenses (x)</td>
<td>0.5</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.7</td>
</tr>
<tr>
<td>Monthly Days Cash on Hand (x)</td>
<td>134</td>
<td>149</td>
<td>177</td>
<td>175</td>
<td>168</td>
<td>168</td>
<td>162</td>
</tr>
<tr>
<td>Operating Cash Flow Margin (%)</td>
<td>11.1</td>
<td>11.6</td>
<td>15.7</td>
<td>12.0</td>
<td>10.5</td>
<td>10.5</td>
<td>12.0</td>
</tr>
<tr>
<td>Total Debt to Cash Flow (x)</td>
<td>2.4</td>
<td>2.8</td>
<td>2.0</td>
<td>2.8</td>
<td>3.0</td>
<td>3.7</td>
<td>4.4</td>
</tr>
<tr>
<td>Annual Debt Service Coverage (x)</td>
<td>3.2</td>
<td>3.7</td>
<td>5.9</td>
<td>4.7</td>
<td>3.9</td>
<td>3.6</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Pro forma 2017 reflects fiscal 2017 data and includes planned issuance of the Series 2018A and 2018B bonds.

Source: Moody’s Investors Service

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moodys.com for the most updated credit rating action information and rating history.
Profile
The University of Kentucky is the flagship and land-grant public higher education institution for the Commonwealth of Kentucky, and includes UK HealthCare and the associated academic medical center and clinics. The university and the UK HealthCare hospitals are located in Lexington. In fiscal 2017, the university recorded operating revenue (Moody’s adjusted) of $3.2 billion and enrolled a fall 2017 FTE of 29,168 students.

Detailed credit considerations

Market profile: excellent strategic positioning as Kentucky’s flagship public research university with large health care operation
The university’s position as the Commonwealth of Kentucky’s flagship and land-grant university, with an academic medical center, support long-term steady student demand. Improved out of state enrollment (36% of fall 2017 freshman compared to 30% in fall 2013) highlight the university’s growing brand recognition, and favorably mitigate weak regional demographics and commonwealth limitations on in-state undergraduate tuition increases. Total fall 2017 FTE enrollment of 29,168 was up 4% over fall 2013.

Healthcare education, including a college of medicine and clinical research, are key components of UK’s academic profile and are enhanced by UK HealthCare (UKH). UKH operates two hospitals in Lexington (Chandler, including the Kentucky Children’s Hospital, and Good Samaritan) which have a combined 945 licensed beds and a network of outpatient sites and clinics. UKH’s leading market share partially mitigates UK’s high healthcare exposure.

UK HealthCare continues to demonstrate strong growth. Total admissions and observations in fiscal 2017 of 48,284 were up 19% over fiscal 2013. Outpatient visits across the health system have also grown materially; outpatient visits of 538,256 are up 46% over fiscal 2013. Hospital occupancy came in at a strong 81.8% in fiscal 2017. A rising case mix index (2.0 in fiscal 2017, up from 1.8 in fiscal 2013 for Chandler Hospital) demonstrates UKH’s progress in its goal to become an essential tertiary and quaternary provider in the region.

UK has a moderate research enterprise for a university of its size, particularly with such a large healthcare component. In fiscal 2017, research expenses totaled $276 million or 9% of operating expenses. Research funding is relatively diverse compared to peers, due to its established schools for medicine, engineering, and agriculture. Research funding will continue to remain pressured as the university competes for a nearly stagnant pool of federal funding. Favorably, construction is underway for a new $265 million research building for which the state has funded $132.5 million of the Phase I cost of $165 million. The balance will be funded with institutional sources (federal, private and agency funds). The additional space is important to establish new research activity.

Operating performance: stable margins for both university and UKH operations; vulnerabilities to healthcare and state cuts
The university will continue to produce surplus operations with ample cash flow and debt service coverage aided by revenue diversity, conservative budgeting and careful oversight. Operating cash flow margins averaging 11-12% annually provide strong debt service coverage of over 3 times. Revenue increases are driven by robust growth in net tuition revenue, 25% over fiscal year 2013-17 period, and patient care revenue, 48% over the same time frame.

UKH’s strong operations are an important credit factor for the university as it represents a growing portion of the university’s consolidated operations (54% in fiscal 2017 from 48% in fiscal 2013). Given favorable operating performance of the healthcare enterprise, this is currently credit additive, although the university is highly vulnerable to any negative changes in the healthcare environment. UKH continues to strategically partner with rural Kentucky hospitals, adding specialty physicians to bolster its position as a leading healthcare provider in the state. Reflecting rising demand and strong fiscal oversight, UKH’s operating revenue has grown over 50% within the last five years, with a good fiscal 10% operating cash flow margin in fiscal 2017, with similar expectations for fiscal 2018.

Consistently good operating performance will enable UK to absorb additional potential state cuts over the next two years. Operating appropriations from the commonwealth comprised a modest, but important, 10% of UK’s $3.2 billion of operating revenue. UK has experienced ongoing cuts to its biennial appropriations since 2009, including the 1% mid-fiscal year 2018 cut. There is no expectation for a rebound over the next several years as the commonwealth attempts to balance its budget and grapple with a large unfunded pension liability. UK’s appropriations in fiscal 2018 of $264 million (reflecting mid-year 2018 cut) are down 5.4% from fiscal 2016 and down a total 11.1% since fiscal 2012.
**Wealth and liquidity:** retained operating cash flow and strong fund-raising bolster reserves

UK’s total cash and investments will continue to rise due to retained operating cash flow and ongoing philanthropic success. Total cash and investments of $2.4 billion at fiscal 2017 are up 45% over fiscal 2013 and provide flexibility for investment in strategic priorities going forward. Spendable cash and investments of $1.8 billion for fiscal 2017 were 0.6 times expenses, nearly on par with the Aa2 median of 0.7 times.

Over time, we expect UK’s reserves to grow as the system prepares for a comprehensive campaign. For fiscal 2017, UK reported gift revenue of $176 million, up from $131 million in fiscal 2013.

The university’s $1.4 billion endowment pool at June 30, 2017 recorded a 10.3% fiscal year return. The UK Board of Trustees Investment Committee, treasurer, and a chief investment officer oversee the endowment, with an external investment consultant.

**Liquidity**

Given limited calls on liquidity from its all fixed rate debt structure, relatively low investment leverage, and healthy operations, UK has a strong liquidity position. Monthly liquidity of $1.3 billion at fiscal year-end 2017 translates to 168 monthly days cash on hand.

**Leverage: moderate leverage due rising reserves and use of capital funding partnerships; no exposure to defined benefit pensions**

The university’s leverage will remain manageable as future debt plans moderate following multiple years of sizeable capital investments. Though debt has increased 56% over the last four years, from $648 million in 2013 to $1 billion in 2017, concurrent gains in cash and investments have offset this rising debt burden. Debt to operating revenue of 0.3 times and spendable cash and investments to debt of 1.8 times remain stronger than the Aa2 medians of 0.6 times and 1.1 times, respectively.

The university has funded capital investments using a combination of direct state support, debt financing, philanthropy, internal reserves and public private partnerships. UK is currently in progress to finance up to $231 million in proceeds for healthcare, law, and campus modernization projects. State authorization is required for debt financings and the fiscal 2018 financing was approved in the 2016-18 biennium for up to $240 million. Near term capital plans include a request for $150 million in bonding for UKH facilities and a second phase of core campus facilities of $250 million, with costs shared 50-50 by the state and university.

UK continues to expand its partnerships for housing and dining services with private entities, and is in the early phase of discussion for a potential parking P3. The university has had a partnership with a housing developer, Education Reality Trust (EdR), to replace and expand its campus student housing since 2012. Total housing stock provided in this partnership of 6,850 beds is 86.4% of overall housing. The university receives annual ground rent payments from the developer during the 75 year lease, assuming renewals at 50 and 65 years. There are no current plans for further EdR expansion at this time. If the EdR housing project cost (approximately $449 million) were included in the university’s leverage profile, debt to revenues would rise to 0.5 times, compared with the current 0.3 times and Aa2-median of 0.6 times.
The university’s partnership with Aramark for dining services and facility investments ($250 million total) is under a 15-year contract, with annual dining commissions paid to UK. Aramark built a comprehensive new dining facility, with additional classroom space and a state of the art emergency operations center, that opened in fiscal 2016.

While the university has limited its direct financial responsibility for the housing projects, the strategic importance of the housing/dining facilities and reputational risk create strong incentives for involvement should the projects not perform as expected. Currently, the housing projects are performing well, with 95.1% occupancy as of fall 2017 and are helping to enhance UK’s brand.

**DEBT STRUCTURE**
UK’s conservative debt structure of all amortizing debt provides predictability in annual debt service payments and creates debt capacity as principal is reduced each year.

**DEBT-RELATED DERIVATIVES**
None.

**Pensions AND OPEB**
The university has relatively modest contingent liabilities compared to peers as it does not participate in a defined benefit pension plan and has modest expenses associated with retirement healthcare benefits. For fiscal 2017, UK contributed $26.4 million for postemployment benefits, which was less than 1% of operating expenses.

**Governance and management: excellent strategic positioning reflects cohesive university and healthcare activity**
UK’s excellent strategic positioning reflects management’s demonstrated ability to implement a significant campus and healthcare transformation, bolstering brand, recognition and reputation, as well as incorporating fiscal discipline to manage through moderate state appropriation cuts in the near term. Management of both standalone university and healthcare operations work synchronously to position UK for ongoing growth in research partnerships and philanthropic support. Though healthcare issues in Kentucky and nationally will continue to remain a challenge, UKH’s strategy to provide tertiary and quaternary care in the state, with strong affiliations in its service area, underlies its competitive strengths.
MOODY'S INVESTORS SERVICE

MJKK and MSFJ also maintain policies and procedures to address Japanese regulatory requirements. The fees charged by MJKK or MSFJ (as applicable) for appraisal and rating services rendered by it range from $1,500 to approximately $2,500,000. MCO and MIS also maintain policies and procedures to address the independence of MIS's ratings and rating processes. Information regarding certain affiliations that may exist between directors of MCO and MIS and MIS's credit rating process is available at www.moodys.com.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the rating process or in preparing the Moody's publications.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY SUCH RATING OR OTHER INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER. Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any rating, agreed to pay to Moody's Investors Service, Inc. for appraisal and rating services rendered by it fees ranging from $1,500 to approximately $2,500,000. MCO and MIS also maintain policies and procedures to address the independence of MIS's ratings and rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold ratings from MIS and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at www.moodys.com under the heading "Investor Relations — Corporate Governance — Director and Shareholder Affiliation Policy."

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657 AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors. It would be reckless and inappropriate for retail investors to use MOODY'S credit ratings or publications when making an investment decision. If in doubt you should contact your financial or other professional adviser.

Additional terms for Japan only: Moody's Japan K.K. ("MJKK") is a wholly-owned credit rating agency subsidiary of Moody's Group Japan K.K., which is wholly-owned by Moody's Overseas Holdings Inc., a wholly-owned subsidiary of MCO. Moody's Japan K.K.'s credit ratings are not a National Recognized Statistical Rating Organization ("NRSRO"). Therefore, credit ratings assigned by MJKK are Non-NRSRO Credit Ratings. Non-NRSRO Credit Ratings are assigned by an independent third-party credit rating agency that is not a NRSRO and, consequently, the rated obligation will not qualify for certain types of treatment under U.S. laws. MJKK and MSFJ are credit rating agencies registered with the Japan Financial Services Agency and their registration numbers are FSA Commissioner ( Ratings) No. 2 and 3 respectively. MJKK and MSFJ also maintain policies and procedures to address Japanese regulatory requirements.

REPORT NUMBER 1107591