CENTRAL BANK & DEBT/CREDIT UPDATE
UNIVERSITY OF MISSOURI SYSTEM
CENTRAL BANK

UNIVERSITY OF MISSOURI SYSTEM
Central Bank Overview

- Established circa 2010
- The Central Bank coordinates the external borrowing and internal lending practices of the University.
- Utilizes a centralized management methodology that offers flexibility and stability to the campuses and health system in terms of capital project financing.
- Capitalized by external bonds and the University's Commercial Paper Program.
- Presently financing over 130 internal loans for the four campuses and health care system.
Central Bank Framework

**Objectives**
- Create a sustainable financing mechanism for the University.
- Achieve the most favorable cost of capital within acceptable risk parameters while providing internal borrowers with access to funds at stable and predictable interest rates.

**Mechanics**
- External debt funds internal loans, but managed on a portfolio basis rather than project-by-project.
- The structure of internal loans (amortizing) and external debt (deferred) are separated.
- The interest rate charged on internal loans is higher than the University’s cost of capital.
- As a result, capacity builds over time that can be used to stabilize borrowing costs or fund future capital projects.

**Key Principles**
- The interest rate charged to internal borrowers reflects the University’s weighted average cost of capital plus operating costs plus a spread.
- The interest rate is managed to provide borrowers a stable and predictable cost of capital.
- The spread generated on internal loans is recycled into additional lending capacity (over time).
Central Bank Financing Team

Financial Advisor

Bond Counsel

Disclosure Counsel

Investment Banks

Janney

THOMPSON COBURN LLP

GILMORE BELL

Morgan Stanley

J.P. Morgan

Goldman Sachs
DEBT PORTFOLIO UPDATE
Executive Summary

FY21 Debt & Credit Update

- There were no significant changes made to the debt portfolio and the System’s ratings during FY21.
  - **Total Debt Outstanding:** $1.72 billion$^{(1)}$
  - **Weighted Average Cost of Capital (WACC):** 3.44% (as of 6/30/2021)
  - **Portfolio Debt Mix:** 95% fixed rate debt / 5% variable rate debt (excluding interest rate swaps)
  - **Credit Ratings:** Aa1 by Moody’s and AA+ by S&P; amongst the highest of rated public institutions

Outlook for Future Portfolio Management

- Future activity will be driven by projected capital plans and available funding sources including the Central Bank.
- Based on the current outlook, there are no significant changes expected in FY22.
  - **New Capital:** Ample capacity under commercial paper program can provide short-term funding as needed.
  - **Refinancing/Restructuring:** Continue to monitor the portfolio for opportunities.
- It is possible that several elements of the portfolio could converge in FY24 for a potential bond issue.

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$^{(1)}$ Includes System Facilities Revenue Bonds, notes payable, and capital lease obligations as of June 30, 2021.
Overview

- The charts below reflect the University’s debt portfolio as it is viewed by the rating agencies.

- This includes System Facilities Revenue Bonds, commercial paper, notes payable, and capital lease obligations.

- Note that as of June 30, 2021, there is no commercial paper outstanding.
Summary of Types of Debt

System Facilities Revenue Bonds (Aa1/AA+ ratings by Moody’s and S&P)
- Provides long-term financing for the acquisition, construction, renovation or expansion of various facilities.
- The bonds are secured by $1.6 billion (FY20) of pledged revenues.

Commercial Paper Program (P-1/A-1+ ratings by Moody’s and S&P)
- Total authorization up to $375 million provides a flexible tool for interim financing of capital projects and working capital.
- CP is secured by certain general revenue sources and supported by self-liquidity provided by the University’s General Pool.

Notes Payable
- Unsecured loans from the State Department of Natural Resources (“DNR”) Energy Efficiency Leveraged Loan Program.

Capital Lease Obligations
- The University leases various facilities and equipment through capital leases.
- Facilities and equipment under capitalized leases are recorded at the present value of future minimum lease payments.
# Debt & Derivatives Portfolio Summary (as of 06/30/21)

## SUMMARY OF DEBT PORTFOLIO

<table>
<thead>
<tr>
<th>Series</th>
<th>Type of Debt</th>
<th>Tax Status</th>
<th>Coupon</th>
<th>Next Call Date</th>
<th>Final Maturity</th>
<th>Outstanding Par</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series 2007B</td>
<td>System Facilities</td>
<td>Tax-Exempt</td>
<td>Variable</td>
<td>Any Date</td>
<td>11/01/2031</td>
<td>78,755,000</td>
</tr>
<tr>
<td>Series 2009A</td>
<td>System Facilities</td>
<td>Taxable (BABs)</td>
<td>Fixed</td>
<td>Make-Whole</td>
<td>11/01/2039</td>
<td>256,300,000</td>
</tr>
<tr>
<td>Series 2010A</td>
<td>System Facilities</td>
<td>Taxable (BABs)</td>
<td>Fixed</td>
<td>Make-Whole</td>
<td>11/01/2041</td>
<td>252,285,000</td>
</tr>
<tr>
<td>Series 2013A</td>
<td>System Facilities</td>
<td>Tax-Exempt</td>
<td>Fixed</td>
<td>Non-Callable</td>
<td>11/01/2023</td>
<td>4,550,000</td>
</tr>
<tr>
<td>Series 2013B</td>
<td>System Facilities</td>
<td>Taxable</td>
<td>Fixed</td>
<td>Make-Whole</td>
<td>11/01/2043</td>
<td>150,000,000</td>
</tr>
<tr>
<td>Series 2014A</td>
<td>System Facilities</td>
<td>Tax-Exempt</td>
<td>Fixed</td>
<td>11/01/2024</td>
<td>11/01/2035</td>
<td>180,350,000</td>
</tr>
<tr>
<td>Series 2014B</td>
<td>System Facilities</td>
<td>Taxable</td>
<td>Fixed</td>
<td>Make-Whole</td>
<td>11/01/2054</td>
<td>150,000,000</td>
</tr>
<tr>
<td>Series 2020A</td>
<td>System Facilities</td>
<td>Taxable</td>
<td>Fixed</td>
<td>Make-Whole</td>
<td>11/01/2050</td>
<td>400,000,000</td>
</tr>
<tr>
<td>Series 2020B</td>
<td>System Facilities</td>
<td>Tax-Exempt</td>
<td>Fixed</td>
<td>Non-Callable</td>
<td>11/01/2030</td>
<td>190,200,000</td>
</tr>
<tr>
<td>Commercial Paper</td>
<td>System Facilities</td>
<td>Tax-Exempt/Taxable</td>
<td>Variable</td>
<td>N/A</td>
<td>N/A</td>
<td>0</td>
</tr>
<tr>
<td>DNR (Rolla) Note Payable</td>
<td>Taxable</td>
<td>Fixed</td>
<td>N/A</td>
<td>07/01/2025</td>
<td>256,453</td>
<td></td>
</tr>
<tr>
<td>DNR (KC) Note Payable</td>
<td>Taxable</td>
<td>Fixed</td>
<td>N/A</td>
<td>02/01/2030</td>
<td>2,223,628</td>
<td></td>
</tr>
<tr>
<td>Siemens Medical Capital Lease</td>
<td>Taxable</td>
<td>Fixed</td>
<td>N/A</td>
<td>06/30/2029</td>
<td>52,797,079</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>1,717,717,161</strong></td>
</tr>
</tbody>
</table>

## SUMMARY OF DERIVATIVES PORTFOLIO

<table>
<thead>
<tr>
<th>Associated Debt</th>
<th>Counterparty</th>
<th>Effective Date</th>
<th>Termination Date</th>
<th>University Pays</th>
<th>University Receives</th>
<th>Outstanding Notional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series 2007B</td>
<td>JPMorgan</td>
<td>07/26/2007</td>
<td>11/01/2031</td>
<td>3.798%</td>
<td>68% 1M LIBOR</td>
<td>78,755,000</td>
</tr>
<tr>
<td>N/A</td>
<td>JPMorgan</td>
<td>07/18/2002</td>
<td>11/01/2032</td>
<td>3.950%</td>
<td>SIFMA</td>
<td>40,000,000</td>
</tr>
<tr>
<td>N/A</td>
<td>Bank of America</td>
<td>12/14/2006</td>
<td>08/01/2026</td>
<td>3.902%</td>
<td>SIFMA</td>
<td>44,115,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>162,870,000</strong></td>
</tr>
</tbody>
</table>

February 3, 2022
The Series 2020 transaction modified the University’s debt service profile.

- Restructured near-term principal (FY21-23)
- Created near-term bullets (FY24, 26, 28) to provide flexibility in managing the portfolio.
Portfolio Milestones

- The table below outlines future portfolio milestones, some of which may require advance planning.
  - Excludes initial funding plan for the Women’s and Children’s Hospital
  - The Series 2014A bonds could be refunded in advance of the call date depending on market conditions.

<table>
<thead>
<tr>
<th>FY</th>
<th>Date</th>
<th>Portfolio Milestone</th>
<th>Amount Remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>2022</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2023</td>
<td>June 30, 2023</td>
<td>Expected sunset for 1-Month LIBOR (2007B swap)</td>
<td>$71 million</td>
</tr>
<tr>
<td>2024</td>
<td>November 1, 2023</td>
<td>Series 2020A bullet maturity</td>
<td>$100 million</td>
</tr>
<tr>
<td>2025</td>
<td>November 1, 2024</td>
<td>Call date on Series 2014A</td>
<td>$180 million</td>
</tr>
<tr>
<td>2026</td>
<td>November 1, 2025</td>
<td>Series 2020A bullet maturity</td>
<td>$100 million</td>
</tr>
<tr>
<td>2027</td>
<td>August 1, 2026</td>
<td>Expiration of Bank of America swap</td>
<td>$36 million</td>
</tr>
<tr>
<td>2028</td>
<td>November 1, 2027</td>
<td>Series 2020A bullet maturity</td>
<td>$100 million</td>
</tr>
<tr>
<td>2029</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2030</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2031</td>
<td>November 1, 2030</td>
<td>Series 2020B bullet maturity</td>
<td>$190 million</td>
</tr>
</tbody>
</table>
Planning for Next Debt Issue

- It is possible that several elements of the portfolio could converge in FY24 for a potential bond issue.
  - Permanent financing of Women’s & Children’s Hospital (the project is likely to be initially funded with central bank balances and commercial paper).
  - Advance refunding of Series 2014A bonds which have a call date of November 1, 2024 (the bonds could potentially be refunded in advance of the call date depending on market conditions).
  - Refinancing of $100 million Series 2020A bullet maturity due on November 1, 2023.
- However, it will be important to analyze each element separately and determine the appropriate timing.
Credit Profile
(Moody’s: Aa1/Stable; S&P: AA+/Negative)

Credit Strengths

- Large revenue base continues to grow despite recent enrollment decline
- Growth in total wealth along with healthy liquidity, provides flexibility to respond to near term challenges
- Sound health system operating performance that is accretive to system operation
- Highly effective management and governance, reflected in record of executing various strategic initiatives

Credit Challenges

- Student demand challenges driven by weaker regional demographics, competitive conditions and the lingering impact of high-profile negative events at the flagship campus
- Research profile remains below peer levels, with sizable investment underway driving growth
- Substantial three-year average adjusted net pension liability
- Relatively high reliance on state funding and patient care revenue

S&P revised the outlook from stable to negative in April 2020 citing the potential impact of the pandemic on both academic and healthcare operations.
Strategic Use of Debt

- The System maintains strong credit ratings (see chart below) based on its essential role as a key provider of public higher education and healthcare in the Aaa-rated State of Missouri.

- Debt capacity is a limited resource and the System seeks to make capital investments that align with the mission of the institution.

- The consolidated credit of the System provides low-cost capital for all campuses and constituents.
Approach to Debt Capacity & Affordability Assessment

Overview

- The assessment focuses on the impact of additional borrowing on an institution’s credit rating.
  - **Debt Capacity**: The amount of debt an institution can manage given the size of its balance sheet.
  - **Debt Affordability**: The ability of an institution to pay the ongoing cost of additional debt from operations.
- Similar to a rating agency’s approach, the analysis will incorporate quantitative and qualitative factors.

Analytical Framework

<table>
<thead>
<tr>
<th>Framework</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td><strong>Quantitative Analysis</strong></td>
</tr>
<tr>
<td></td>
<td>Debt capacity and affordability can be measured by comparing medians for key metrics for a given rating category</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td><strong>Rating Commentary</strong></td>
</tr>
<tr>
<td></td>
<td>The rating agencies typically provide commentary on factors that could lead to a downgrade which can be used to identify rating sensitivities.</td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td><strong>Qualitative Factors</strong></td>
</tr>
<tr>
<td></td>
<td>Consideration is given to the University’s capital investment strategy, state support, management and governance, and future repayment of principal</td>
</tr>
<tr>
<td><strong>Step 4</strong></td>
<td><strong>Determine Outcome</strong></td>
</tr>
<tr>
<td></td>
<td>We present the outcome as a range, reflecting the analytical and subjective nature of the analysis.</td>
</tr>
</tbody>
</table>
Step 1 - Quantitative Analysis

- Debt capacity and affordability can be measured by comparing key metrics medians for a given rating category.
- The rating agencies will evaluate a broad set of metrics; we focus on two key debt-related metrics that Moody’s utilizes in their analysis of higher education credits.
- We use the Moody’s methodology as it grounds the analysis in how a rating agency would evaluate the University.
- It is also important to recognize that this is a “point in time” analysis.

<table>
<thead>
<tr>
<th>Moody’s Metric</th>
<th>Measures</th>
<th>Definition</th>
</tr>
</thead>
</table>
| **Spendable Cash & Investments to Debt**<sup>(1)</sup>  
*Higher is Better* | Balance Sheet Capacity | Total Cash & Investments less Permanently Restricted Cash & Investments  
**Total Debt** |
| **Total Debt to Operating Cash Flow**  
*Lower is Better* | Debt Affordability | **Total Debt**  
**Operating Cash Flow**<sup>(2)</sup> |

Source: Moody’s Investors Service

(1) Moody’s recently introduced a revised rating methodology where they measure leverage by comparing total cash and investments to total adjusted debt (including adjusted net pension liability). For purposes of this analysis, we have excluded restricted assets and the pension liability as we do not necessarily believe they impact the University’s debt capacity based on Moody’s current views.

(2) Moody’s makes certain adjustments to total operating revenue including normalization of annual endowment distributions.
Spendable Cash & Investments to Debt (FY20) (Balance Sheet Capacity)

Observations on Balance Sheet Capacity

- UM's FY20 spendable cash and investments ($3.4 billion) are in line with the Aa1 median ($3.4 billion).
- UM's FY20 total debt ($1.8 billion) is weaker than the Aa1 median ($1.3 billion).
- This puts UM's FY20 ratio of spendable cash and investments to debt at the weaker end of the Aa1 range.
  - Note that for this metric, a lower score is weaker.
- When comparing UM's FY20 metric (1.91) with the assumed guideline of 25% below the median ratio, Janney estimates additional capacity of approximately $125 million\(^{(1)}\) based on this metric in isolation.

\(^{(1)}\) Represents the approximate amount of new debt that the University could issue before reaching the “guideline” for this metric (25% below the Aa1 median). Actual debt capacity and affordability will be a function of additional quantitative and qualitative factors.

\(^{(2)}\) Metrics shown are based on FY20 only.
Total Debt to Operating Cash Flow (FY16-20 Average) (Debt Affordability)

**Observations on Debt Affordability**

- UM’s five-year average total debt ($1.7 billion) is weaker than the Aa1 median ($1.2 billion).
- UM’s five-year average operating cash flow ($458 million) is slightly stronger than the Aa1 median ($402 million).
- This puts UM’s five-year average ratio of total debt to operating cash flow slightly weaker than the median for the Aa1 category.
  - Note that for this metric, a **higher score is weaker**
- When comparing UM’s five-year average metric (3.67) with the assumed guideline of 25% above the five-year average median ratio, Janney estimates additional capacity of approximately $180 million\(^{(1)}\) based on this metric in isolation.

\[^{(1)}\] Represents the approximate amount of new debt that the University could issue before reaching the “guideline” for this metric (25% above the Aa1 median). Actual debt capacity and affordability will be a function of additional quantitative and qualitative factors.

\[^{(2)}\] Metrics shown are based on five-year average for FY16-FY20.
In each rating report, Moody's and S&P will include factors that could lead to a downgrade. Over the last two reports, the themes have been consistent and focused on operating performance with little mention of balance sheet leverage.

<table>
<thead>
<tr>
<th>Moody's</th>
<th>S&amp;P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2019 Report</strong></td>
<td><strong>2019 Report</strong></td>
</tr>
<tr>
<td>• Greater than anticipated enrollment declines, indicating deterioration of strategic position</td>
<td>• Further declines to the university's enrollment, sustained weakening of financial performance, declines in financial resource ratios, or significant additional debt that puts pressure on the financial profile</td>
</tr>
<tr>
<td>• Sustained weakening of operating performance within either the academic or health enterprises</td>
<td></td>
</tr>
<tr>
<td><strong>2020 Report</strong></td>
<td><strong>2020 Report</strong></td>
</tr>
<tr>
<td>• Realization of more material downside risks associated with the pandemic, driving both heightened revenue pressures and a weakened balance sheet position</td>
<td>• Further declines to the university's enrollment, sustained weakening of financial performance, declines in available resource ratios, or significant additional debt that puts pressure on the financial profile</td>
</tr>
<tr>
<td>• Sustained weakening of operating performance within either the academic or health enterprises</td>
<td></td>
</tr>
</tbody>
</table>
Step 3 – Qualitative Factors & Other Considerations

Rating Agency Commentary on UM Qualitative Factors

- Substantial operating revenue underscores its regional economic importance with growth primarily driven by an expanding healthcare enterprise
- Close alignment with the Aaa-rated State of Missouri
- The system has a track record of implementing budget reductions to sustain surplus operations
- Student demand challenges driven by weaker regional demographics and competitive conditions
- Relatively high reliance on state funding and patient care revenue

Other Considerations

- The University will pay down $125 million of debt over the next five years
- Depending on its strategy with upcoming bullet maturities, that could increase to $325 million

<table>
<thead>
<tr>
<th>Principal Type</th>
<th>FY22</th>
<th>FY23</th>
<th>FY24</th>
<th>FY25</th>
<th>FY26</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Paydown:</td>
<td>5,380,000</td>
<td>15,670,000</td>
<td>27,485,000</td>
<td>37,815,000</td>
<td>39,355,000</td>
<td>125,705,000</td>
</tr>
<tr>
<td>Bullet Maturities:</td>
<td>-</td>
<td>-</td>
<td>100,000,000</td>
<td>-</td>
<td>100,000,000</td>
<td>200,000,000</td>
</tr>
<tr>
<td>Total:</td>
<td>5,380,000</td>
<td>15,670,000</td>
<td>127,485,000</td>
<td>37,815,000</td>
<td>139,355,000</td>
<td>325,705,000</td>
</tr>
</tbody>
</table>
Step 4 – Determine Outcome

Framework Conclusions

<table>
<thead>
<tr>
<th>Framework</th>
<th>Conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1 Quantitative Analysis</td>
<td><strong>Debt Capacity Metric:</strong> Indicates $125 million of additional capacity</td>
</tr>
<tr>
<td></td>
<td><strong>Affordability Metric:</strong> Indicates $180 million of additional capacity</td>
</tr>
<tr>
<td>Step 2 Rating Commentary</td>
<td><strong>Neutral impact:</strong> over the last two reports, the themes have been consistent and focused on operating performance with little mention of balance sheet leverage</td>
</tr>
<tr>
<td>Step 3 Qualitative Factors</td>
<td><strong>Positive impact:</strong> strategic importance to the State of Missouri, and paydown of debt support future capacity; somewhat offset by negative outlook from S&amp;P due to operating environment</td>
</tr>
<tr>
<td>Step 4 Determine Outcome</td>
<td><strong>Our estimate of UM’s debt capacity at its current rating level is $125 to $250 million</strong></td>
</tr>
</tbody>
</table>

Additional Considerations

- **Strategic Use of Debt:** The rating impact of new debt will also depend on the strategic nature of projects being financed.
- **Future Performance:** This analysis is based on a point in time using five-year average (FY16-FY20) metrics as the benchmark; the ability to afford additional debt will also depend on UM’s future financial performance relative to credit peers.

(1) This analysis exclude pension liabilities.
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