University of Colorado

Boulder | Colorado Springs | Denver | Anschutz Medical Campus

Current and Forecasted Debt Payment Ratios (FY17- FY23)

Annual Report – June 2017

Purpose of this Annual Report

The purpose of this report on Current and Forecasted Debt Payment Ratios is to assist the Board of Regents in its evaluation of the University of Colorado's long-term borrowing obligations and its ability to consider campus proposals for additional capital projects. Excessive debt service as a percentage of operating expenses can serve to constrain future programming opportunities. However, debt issued for projects also grows strategic programs, increases the University's revenue and operating expense base, and provides additional prudent borrowing capacity in future years.

The University obtains credit ratings from Moody's Investor Services and Fitch on all new, publicly-offered debt. In May of this year, Moody's raised the university's rating from Aa2 to Aa1. Fitch continues to rate the University AA+. Rating agency reports provide excellent financial overviews of the University from the perspective of lenders to the University. Copies of the most recent reports are included in Appendix A.

Under C.R.S. §23-20-129.5(2)(d) the University is required to maintain a debt service payment ratio of less than 10% of the University's annual unrestricted expenditures plus mandatory transfers. Historically, Regent policy has been more conservative than the statutory provision, limiting the annual debt service payment ratio to 7%. In applying this debt monitoring measure, it is important to recognize that annual debt service includes both interest payments and retirement of bond principal in the numerator of the ratio. In FY17 the University paid approximately $60.5 million of bond principal within the $131.1 million of annual principal and interest payments, and it will average nearly $70 million of annual principal repayments during each of the next 10 years.

An analysis of the debt service payment ratios for University as a whole, and for each campus, is summarized below. The analysis contemplates all currently outstanding long-term obligations of the University as of May 1, 2017 (Table 1). The analysis includes all projects to be financed through the issuance of external obligations for the period from FY18 through FY20 (Table 2).

Methodology

Each fiscal year's debt service payment ratio is calculated by dividing the future maximum annual debt service (MADS) payment, by the sum of that fiscal year's forecasted combined unrestricted current fund expenditures plus mandatory transfers (UCFE&MT).

$$\boxed{\text{Maximum Annual Principal and Interest}} \div \boxed{\text{Unrestricted Current Fund Expenditures \& Mandatory Transfers}} = \boxed{\text{Debt Service Payment Ratio}}$$

As with any forecasting, there are assumptions used to derive the results. In comparing projections from previous reports to actual experience, it appears that the projected debt service payment ratios have been systematically overestimated, hence we have revised the assumptions regarding future growth of unrestricted general fund expenditures (the denominator of the ratio) to more accurately reflect experience in the last five years.

Debt service payment ratios are not static indicators. The University has experienced compound annual growth rates of unrestricted current fund expenditures of over 8% annually over the last five fiscal years, the denominator of this ratio, permitting significant new borrowing for needed projects without significantly affecting the calculated ratios.

Assumptions

Forecasting the debt service payment ratios takes into account several variables over a five-year period. These variables include an assumed future interest rate for these calculations, provided by the Treasurer's office, projected growth rates of current fund expenditures on each of the campuses as provided by the Office for Budget and Finance, and capital project costs and amounts financed, provided by the individual campuses. Items 2 and 3, below, most heavily impact future debt service payment ratios.

1. **Projected Interest Rates.** The University's average cost of borrowing is 3.15%. We recently completed a 2017A-1 bond refinancing with a 2.6% cost of borrowing. For bonds expected to be issued in FY 18-20 we are using an assumed borrowing rate of 4%, higher than our historical and current experience. In terms of sensitivity of the projected debt service ratio based on future interest rates, an increase to 5% cost of borrowing would impact annual principal and interest by $1 million per year per $100 million borrowed, a very small impact compared to year-to-year changes in annual unrestricted current fund expenditures at the University.
2. **Future Years' Expenditure Base.** The base year, upon which unrestricted current fund expenditures plus mandatory transfers are calculated, is FY18. Historically, for FY12-FY17 the calculated annual increase in UCFE&MT's was 8.72%, in part because CU Medicine expenditures at the Anschutz campus grew by a compound rate of 12.25% during that period. The projection of UCFE&MT in this report is based on the actual average increases in the last 5 fiscal years, except CU Medicine expenditures are limited to 7% annual increases, reduced from the historical increases of over 12% as previously discussed. These projections are provided by the Office of Budget and Finance.

3. **Future Borrowing.** Amounts financed for each project are as listed (Table 2), and are provided by the campuses.

Projected Debt Service Payment Ratios

University of Colorado System (Table 3):

As of May 1st, 2017, the university had approximately $1.53 billion in outstanding debt from directly issued revenue bonds and approximately $63 million in other long-term obligations from contingent liabilities outstanding (Table 1). With no change to currently outstanding debt structure, total debt service payments for the University in FY18 (including contingent liabilities) will be $136.2 million decreasing to $131.9 million by FY23. The University's current debt payment ratio for "existing-only" debt is 4.4% as of FY18. If the University were to issue no new debt, the system-wide ratio would decrease to 2.9% by FY23.

If the University finances only the additional projects on Table 2, the total debt payment ratio is forecasted to be 3.3% in FY23 and would still be able to accommodate an additional $134.2 million in annual debt service payments while remaining below 7% debt service payment capacity. Thus, total University debt could increase by approximately $1.8 Billion in FY23, assuming 4% borrowing cost and a 25-year term and remain within the Board of Regents' 7% debt service payment ratio cap, assuming no additional growth in UCFE&MT after FY23.

University of Colorado Boulder (Table 4):

In FY18, payments for CU-Boulder's outstanding long-term obligations will be approximately $75 million and reflect a FY18 debt payment ratio of 6.3%. With no change to currently outstanding debt structure, total debt service payments for the campus will decrease to $73 million by FY23, and the debt payment ratio would decline to 4.7% by FY23 if no additional debt is issued.

If the campus finances only the additional projects on Table 2, its debt payment ratio would increase to 6.7% In FY19 before declining to 5.3% by FY23. That would leave the campus with an additional $26.4 million in capacity under the 7% debt payment ratio in FY23, approximately $400 million of borrowing capacity, assuming 4% interest cost on a 25 year, level debt service borrowing.

University of Colorado Colorado Springs (Table 5):

In FY18, maximum payments for UCCS's long-term obligations will be approximately $15.8 million. Colorado Springs' current debt service payment ratio in FY18 is 7.8%. If no additional debt is issued, the campus debt payment ratio would decline to 4.8% by FY23.

If the campus finances only the additional projects on Table 2, its debt capacity ratio is expected to increase to a high of 9.4% in FY19, before declining to 6.4% in FY23 as existing obligations mature and current fund expenditures plus mandatory transfers increase.

The largest future project for UCCS, the Hybl Sports Medicine Project, is being developed in partnership with Centura Health, a prominent non-profit healthcare provider. Centura Health is expected to pay approximately 44% of the debt service on this project as a project partner, although the debt payment ratio in Table 5 assumes 100% of the debt service cost is borne by the campus. Hence, the projected ratios overstate the likely campus impact of the debt service payment costs of the project.

University of Colorado Denver Campus (Table 6):

UC Denver

For the CU Denver campus, the current debt ratio for FY18 is 4.6%. If the campus issues no additional debt, that ratio would decline to 3.7% by FY23. There are no current borrowing plans for on the current five-year plan. The campus is currently evaluating refinancing options for the CVA Project, which is currently included in the ratio analysis, assuming some leveling of the payments on existing bonds (for MADS purposes). The campus could increase debt service payments in FY23 by approximately $10 million and stay within the 7% limitation, an approximate $155 million borrowing, at 4% on a 25-year level payment basis.

University of Colorado Anschutz Medical Campus (Table 7)

CU Anschutz Medical Campus

For the CU Anschutz Medical Campus, the current debt service payment ratio for FY18 is 2.4%. If the campus issues no additional debt, that ratio would decline to approximately 1.3% by FY23. If the campus issues debt for the projects listed on Table 2, the FY23 ratio would rise to approximately 1.6%. Assuming the completion of the Colorado Center for Personalized Medicine and Behavioral Health Project with less than $120 million of debt, the campus has approximately $96 million of additional capacity under the 7% annual debt service limit in FY23. Currently, the Anschutz Medical Campus is not substantially limited by the 7% debt service payment ratio; it is limited by a relative scarcity of "bondable" revenue streams, other than Indirect Cost Recovery to support academic and research projects. Additionally, the campus has ample capacity to pursue self-sustaining auxiliary projects, as needed, to support other campus initiatives.

Table 1
Outstanding Long-Term Obligations of the University of Colorado
As of May 1, 2017

Long-Term Obligations	Final Maturity	Interest Rate	Original Amount Issued	Outstanding
Revenue Bonds				
University Enterprise Revenue Refunding Bonds, Series 2007A	2033	3.625 to 5.0	184,180,000	77,305,000
University Enterprise Revenue Bonds, Series 2007B	2027	4.25 to 5.0	63,875,000	2,070,000
University Enterprise Revenue Bonds, Series 2009A	2038	2.75 to 5.375	165,635,000	14,595,000
Tax-Exempt University Enterprise Revenue Bonds, Subseries 2009B-1	2018	2.0 to 5.0	76,725,000	13,510,000
Taxable University Enterprise Revenue Bonds, Series 2009B-2 (BAB)	2036	4.579 to 6.264	138,130,000	138,130,000
Tax-Exempt University Enterprise Refunding Revenue Bonds, Series 2009C	2026	2.0 to 5.0	24,510,000	11,445,000
Taxable University Enterprise Revenue Bonds, Series 2010A (BAB)	2035	0.755 to 5.601	35,510,000	29,070,000
Tax-Exempt University Enterprise Refunding Revenue Bonds, Series 2010B	2023	2.0 to 5.0	56,905,000	31,680,000
Taxable University Enterprise Revenue Bonds, Series 2010C (QECB)	2020	1.155 to 3.773	4,375,000	3,255,000
University Enterprise Revenue Bonds, Series 2011A	2041	2.0 to 5.0	203,425,000	44,955,000
University Enterprise Revenue Refunding Bonds, Series 2011B	2024	2.0 to 5.0	52,600,000	48,480,000
University Enterprise Revenue Refunding Bonds, Series 2012A-1	2029	1.5 to 5.0	121,850,000	119,275,000
University Enterprise Revenue Refunding Bonds, Series 2012A-2	2035	2.0 to 5.0	53,000,000	51,480,000
University Enterprise Revenue Refunding Bonds, Series 2012A-3	2030	2.0 to 5.0	47,165,000	38,425,000
University Enterprise Revenue Bonds, Series 2012B	2042	2.0 to 5.0	95,705,000	91,380,000
Tax-Exempt University Enterprise Revenue Bonds, Series 2013A	2043	2.0 to 5.0	142,460,000	138,430,000
Taxable University Enterprise Revenue Bonds, Series 2013B	2043	1.088 to 5.177	11,245,000	11,015,000
Tax-Exempt University Enterprise Revenue Bonds, Series 2014A	2046	0.550 to 3.440	203,485,000	203,485,000
Tax-Exempt University Enterprise Refunding Revenue Bonds, Series 2014B	2034	0.180 to 3.490	100,440,000	98,420,000
Tax-Exempt University Enterprise Refunding Revenue Bonds, Series 2015A	2038	0.17 to 3.29	102,450,000	100,995,000
Tax-Exempt University Enterprise Refunding Revenue Bonds, Series 2015B	2033	0.22 to 3.09	3,925,000	3,130,000
Taxable University Enterprise Refunding Revenue Bonds, Series 2015C	2027	0.299 to 3.039	71,325,000	69,020,000
Tax-Exempt University Enterprise Revenue Bonds, Series 2016A	2047	1.5 to 5.0	31,430,000	31,430,000
Tax-Exempt University Enterprise Revenue Refunding Bonds, Series 2016B-1	2039	2.0 to 5.0	156,810,000	156,810,000
Total Revenue Bonds			**$2,147,160,000**	**$1,527,790,000**
Other Long-Term Obligations				
Fitzsimons Redevelopment Authority, Series 2014[1]	2025	2.3	11,695,000	9,049,000
Colorado Educational & Cultural Facilities Authority Student Housing Revenue Refunding Bonds, Series 2008[2]	2037	4.0 to 5.5	54,055,000	53,735,000
Total Other Long-Term Obligations			**$65,750,000**	**$62,784,000**
Total Revenue Bonds & Other Obligations			**$2,212,910,000**	**$1,590,574,000**

[1] Issued to refund bonds, the proceeds of which financed the University Physicians Inc. (UPI) building.

[2] These bonds were issued on behalf of an affiliate of the University of Colorado Real Estate Foundation to refinance a new student housing facility. The University has no payment obligations with regard to these bonds.

Table 2 - FY 2016-22 Debt Model - May 2017

npusD3:T4	New Projects	FY 2016		FY 2017		FY 2018		FY2019		FY 2020		FY 2021		FY 2022		Total
		Amount	Repayment Source	Amount	Repayment Source	Amount	Repayment Source	Amount	Repayment Source	Amount	Repayment Source	Amount	Repayment Source	Amount	Repayment Source	
Boulder	Addition to Euclid Avenue Autopark - Amendment					$ -										
	Systems Biotechnology Building - Amendment					$ -										
	Aerospace Engineering Sciences Building					$ 57,545,712	Indirect Cost Recoveries									
	23rd Street Bridge Capital Renewal					$ -										
	Williams Village East Residence Hall					$ 87,030,000	Auxiliary Revenues									
	Hellems Capital Renewal and Renovation					$ 30,000,000	General Cash Sources									
	Campus Total	**$0**		**$0**		**$174,575,712**		**$0**		**$0**		**$0**		**$0**		**$174,575,712**
Denver	No Planned Debt															
Anschutz	CCPM & BH									$ 117,000,000	Indirect Cost Recovery					
CU Denver	**Campus Total**	**$0**		**$0**		**$0**		**$0**		**$117,000,000**		**$0**		**$0**		**$117,000,000**
UCCS	Ent Center for the Arts (VaPA)	$4,000,000	Aux-Parking													
				$3,000,000	Aux-Univ Ctr Stu Fee											
	N. Nevada Infrastr. Phase Two (1)					$3,168,000	General Fund/ Auxiliary-Parking									
	Hybl Sports Medicine (was Health II)					$61,425,000	Contract/ State/ General Fund									
	Athletic Fields					$5,700,000	Aux-Stu Fee									
	Family Development Ctr							$3,000,000	Aux-Student Fee							
	Coffee Shop							$3,000,000	Aux-Dining Services							
	Campus Total	**$4,000,000**		**$3,000,000**		**$70,293,000**		**$6,000,000**		**$0**		**$0**		**$0**		**$83,293,000**
Total System Debt Assumptions		**$4,000,000**		**$3,000,000**		**$244,868,712**		**$6,000,000**		**$117,000,000**		**$0**		**$0**		**$374,868,712**

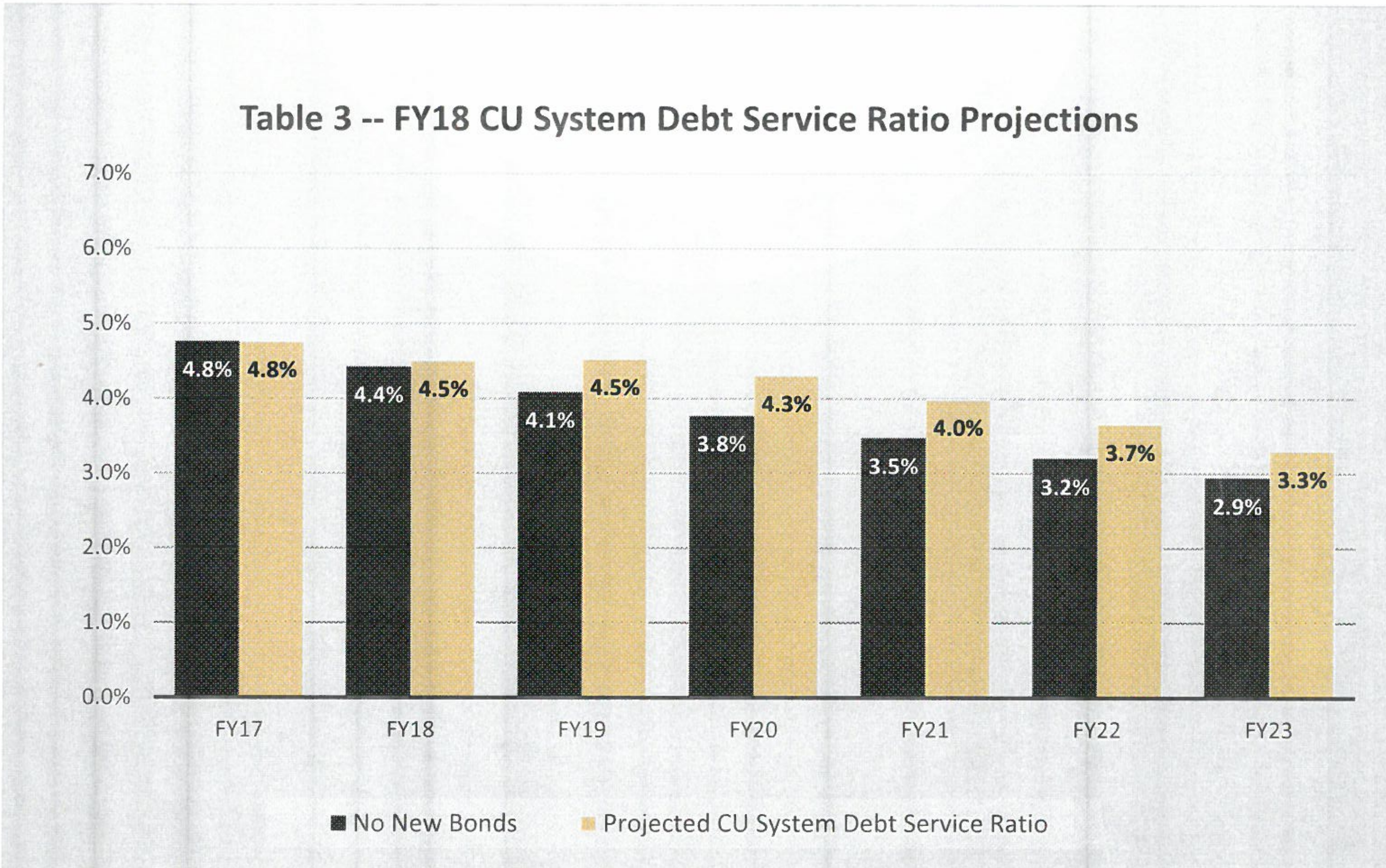
Table 3 -- FY18 CU System Debt Service Ratio Projections
7.0%
6.0%
5.0%
4.0%
3.0%
2.0%
1.0%
0.0%
4.8% 4.8%
4.4% 4.5%
4.1% 4.5%
3.8% 4.3%
3.5% 4.0%
3.2% 3.7%
2.9% 3.3%
FY17
FY18
FY19
FY20
FY21
FY22
FY23
No New Bonds
Projected CU System Debt Service Ratio

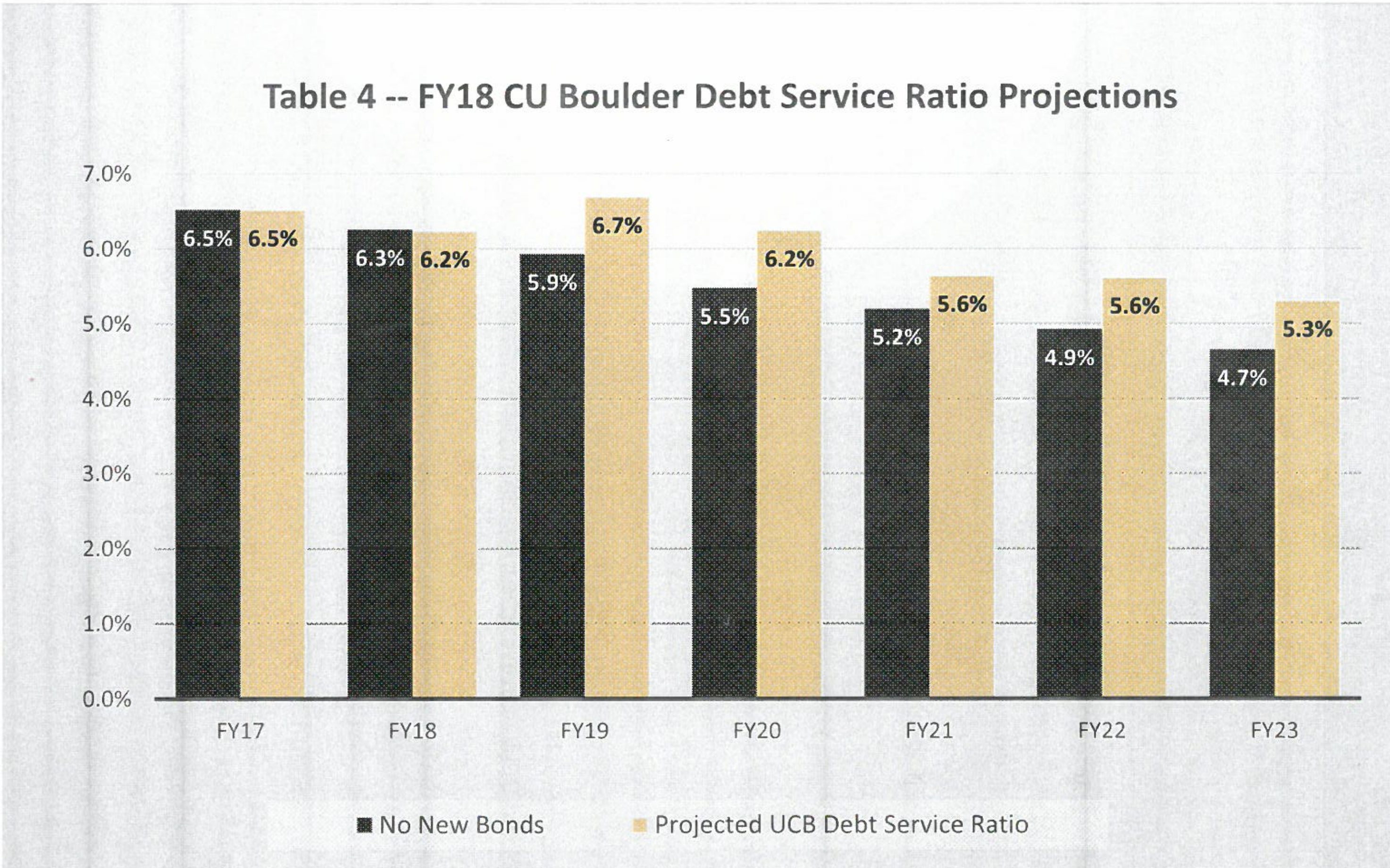
Table 4 -- FY18 CU Boulder Debt Service Ratio Projections
7.0%
6.0%
5.0%
4.0%
3.0%
2.0%
1.0%
0.0%
6.5%
6.5%
6.3%
6.2%
5.9%
6.7%
5.5%
6.2%
5.2%
5.6%
4.9%
5.6%
4.7%
5.3%
FY17
FY18
FY19
FY20
FY21
FY22
FY23
No New Bonds
Projected UCB Debt Service Ratio

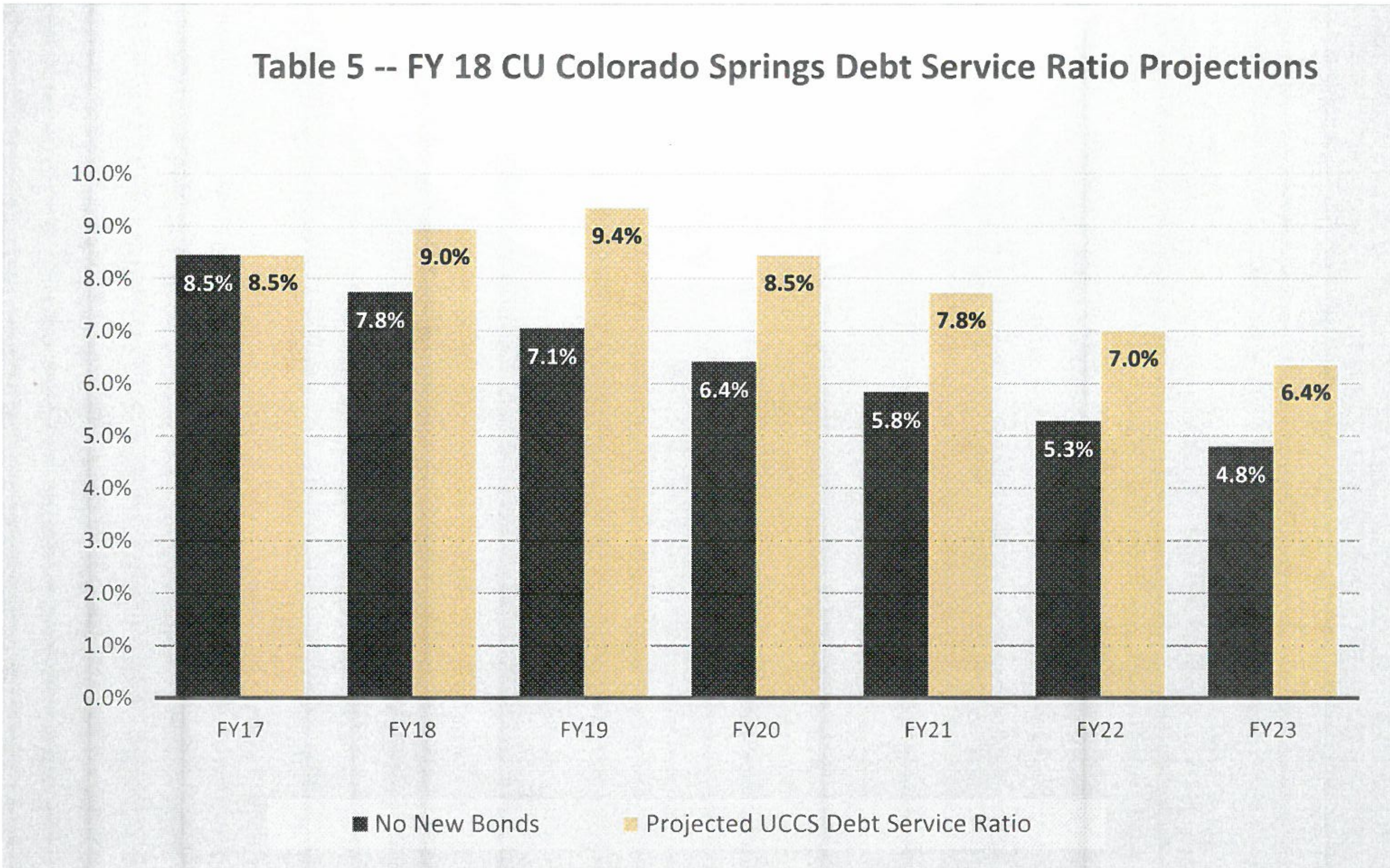
Table 5 -- FY 18 CU Colorado Springs Debt Service Ratio Projections
10.0%
9.0%
8.0%
7.0%
6.0%
5.0%
4.0%
3.0%
2.0%
1.0%
0.0%
8.5%
8.5%
7.8%
9.0%
7.1%
9.4%
6.4%
8.5%
5.8%
7.8%
5.3%
7.0%
4.8%
6.4%
FY17
FY18
FY19
FY20
FY21
FY22
FY23
No New Bonds
Projected UCCS Debt Service Ratio

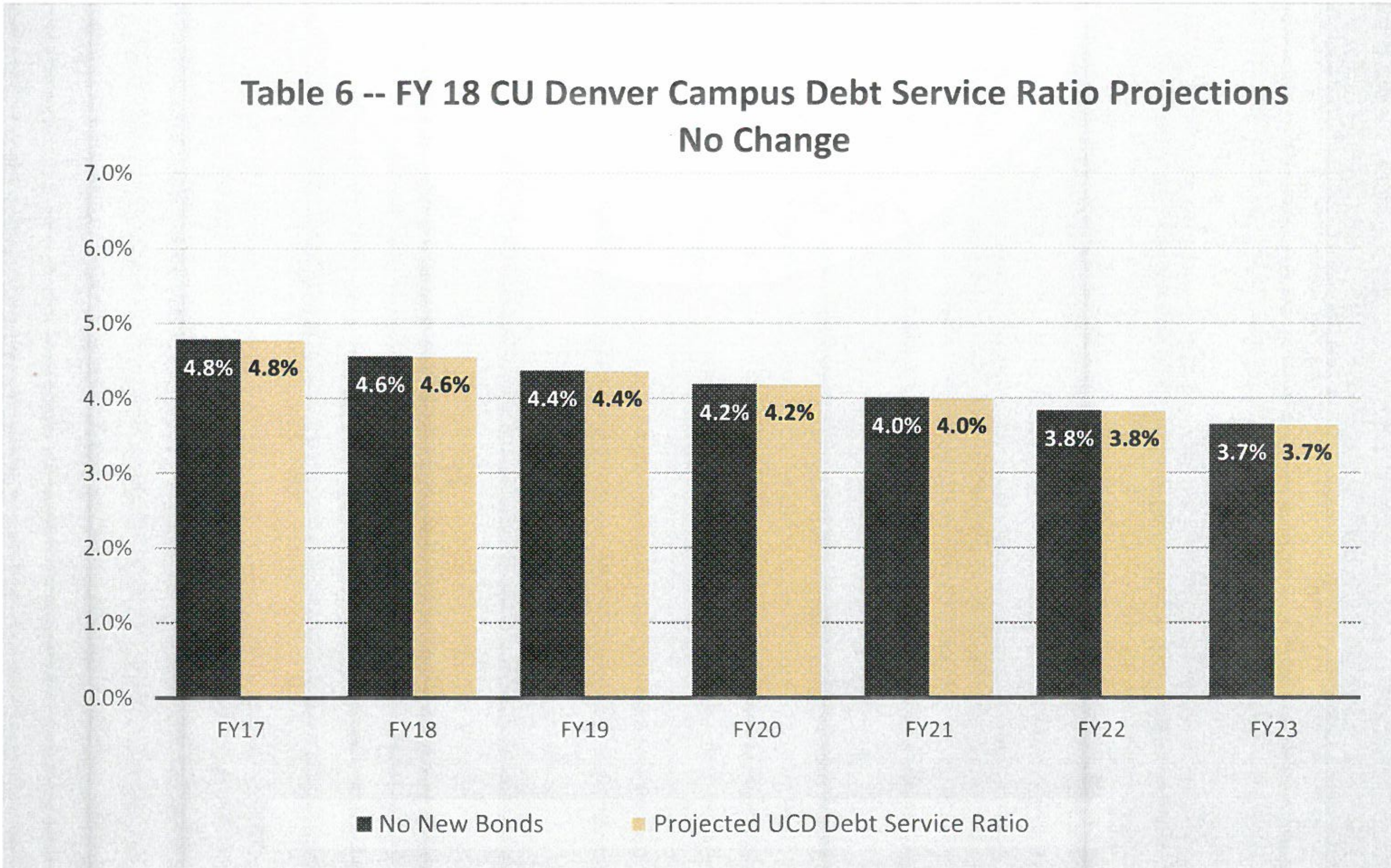

Table 6 -- FY 18 CU Denver Campus Debt Service Ratio Projections
No Change
7.0%
6.0%
5.0%
4.0%
3.0%
2.0%
1.0%
0.0%
4.8% 4.8%
4.6% 4.6%
4.4% 4.4%
4.2% 4.2%
4.0% 4.0%
3.8% 3.8%
3.7% 3.7%
FY17
FY18
FY19
FY20
FY21
FY22
FY23
No New Bonds
Projected UCD Debt Service Ratio

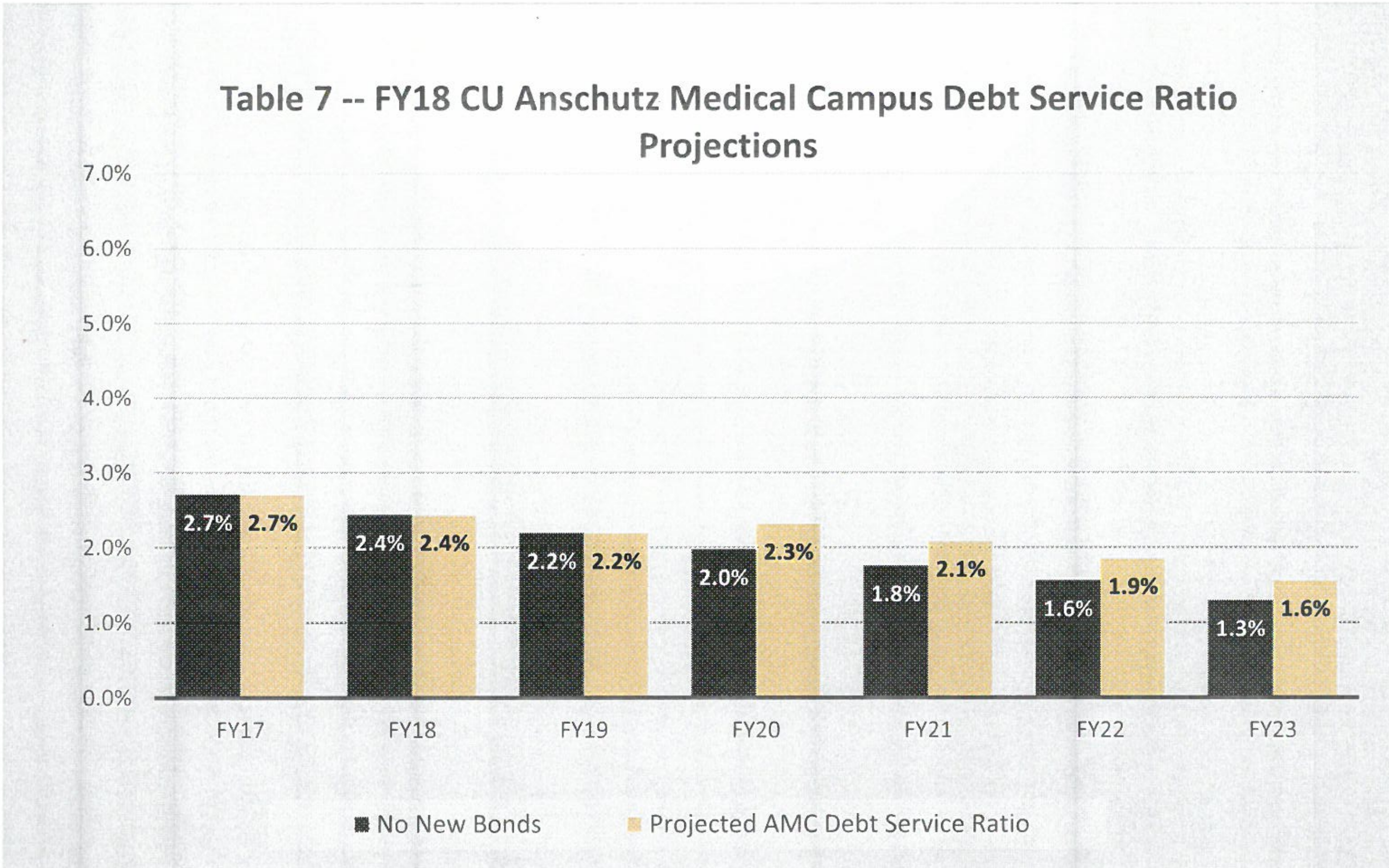
Table 7 -- FY18 CU Anschutz Medical Campus Debt Service Ratio Projections
7.0%
6.0%
5.0%
4.0%
3.0%
2.0%
1.0%
0.0%
2.7% 2.7%
2.4% 2.4%
2.2% 2.2%
2.0% 2.3%
1.8% 2.1%
1.6% 1.9%
1.3% 1.6%
FY17
FY18
FY19
FY20
FY21
FY22
FY23
No New Bonds
Projected AMC Debt Service Ratio

Appendix A – Rating Reports

MOODY'S
INVESTORS SERVICE

CREDIT OPINION
12 May 2017

New Issue

Rate this Research

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University of Colorado, CO

New Issue - Moody's Upgrades University of Colorado to Aa1 and Assigns Aa1 to Series 2017A-1; Outlook Stable

Summary Rating Rationale

Moody's Investors Service has assigned a Aa1 rating to the University of Colorado's (CU) planned $50 million of University Enterprise Refunding Revenue Bonds, Series 2017A-1 (maturing 2033) to be issued by The Regents of the University of Colorado. Concurrently, we have upgraded to Aa1 the ratings on $1.7 billion of outstanding parity debt. The outlook is stable at the Aa1 rating.

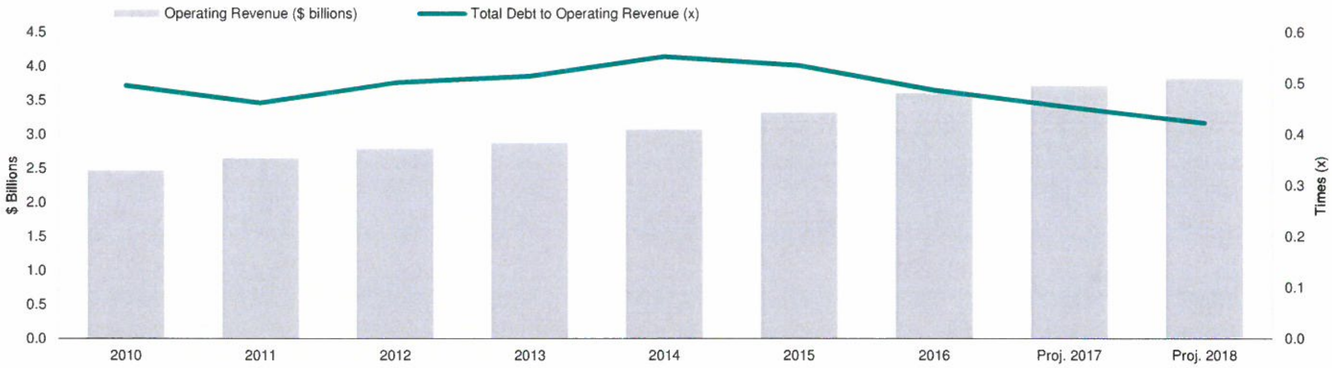
The upgrade to Aa1 acknowledges CU's demonstrated success and ongoing momentum of strategic revenue and financial reserve growth, in addition to improving leverage as its pace of debt financed capital investments tapers down. Heightened gift support and growing net tuition revenue reflect the university's continued strengthening of brand recognition, further complemented by a strong research profile of multi-disciplinary activity in both health and earth sciences.

The Aa1 rating reflects CU's role as the State of Colorado's (Aa1 stable, issuer rating) flagship institution, with excellent strategic positioning, a significant research enterprise and important role in the provision of medical education for Colorado. The rating is underscored by CU's substantial $3.6 billion scope of operations, consistent favorable operating performance, and robust gift support. Prudent financial stewardship will ensure continued strong growth in cash and investments and manageable leverage. The 2016 legislatively authorized broadening of pledged revenues enhanced bondholder security.

Offsetting challenges include very limited state support for operations and capital, ongoing need for capital investment, and exposure to potentially volatile healthcare operations. A large unfunded pension liability adds further uncertainty for future expense pressures.

Exhibit 1

Improving Leverage with Growing Revenue and Tapering Capital Financing



Projections for fiscal years 2017 and 2018 based on conservative 3% revenue growth and principal amortization.
Source: Moody's Investors Service

Credit Strengths

» Large scope of operations ($3.6 billion) as Colorado's flagship, research-intensive, multi-campus university, and academic medical center, with 51,749 full-time equivalent students in fall 2016

» Significant total cash and investments of nearly $3.6 billion, with 216 monthly days cash on hand, enhance financial flexibility

» Robust growth in net tuition revenue demonstrates strong brand recognition (fiscal 2012-16 increase of 24%)

» Sizeable $600 million in multi-disciplinary research activity for fiscal 2016

» Manageable leverage; spendable cash and investments cover debt by 1.8 times

Credit Challenges

» Weak state funding for both operations and capital (4% of operating revenues in fiscal 2016) and no anticipation for near term improvement

» Volatile healthcare exposure through a component unit physician practice plan that contributes 22% of operating revenues

» Sizeable pension liability (Moody's three-year average net pension liability of $2.3 billion)

Rating Outlook

The stable outlook reflects our expectations that CU will continue to record steady student demand and growth in student charges, strong research activity and flexibility to adjust to federal funding challenges, and substantial gift support. CU's rating, which is on par with the state's issuer rating, reflects the university's favorable revenue growth and diversity to offset state funding limitations.

Factors that Could Lead to an Upgrade

» Material growth in financial cushion to debt and operations, with sustained elevated improvement in cash flow margins

» Substantial increase in research profile

» Significant enhancement in philanthropic support

Factors that Could Lead to a Downgrade

» Sustained weakening of financial reserves, liquidity and leverage

» Material deterioration in enrollment or research leading to weaker operations

Key Indicators

Exhibit 2

UNIVERSITY OF COLORADO, CO	2012	2013	2014	2015	2016
Total FTE Enrollment	49,109	48,928	49,398	50,766	51,749
Operating Revenue ($000)	2,789,677	2,877,108	3,073,749	3,323,266	3,604,968
Annual Change in Operating Revenue (%)	5.2	3.1	6.8	8.1	8.5
Total Cash & Investments ($000)	2,502,177	3,080,470	3,498,459	3,722,135	3,611,844
Total Debt ($000)	1,397,841	1,477,746	1,696,722	1,778,164	1,754,977
Spendable Cash & Investments to Total Debt (x)	1.5	1.8	1.8	1.8	1.8
Spendable Cash & Investments to Operating Expenses (x)	0.8	1.0	1.0	1.0	0.9
Monthly Days Cash on Hand (x)	176	206	222	221	216
Operating Cash Flow Margin (%)	13.6	12.4	11.4	11.2	10.7
Total Debt to Cash Flow (x)	3.7	4.1	4.8	4.8	4.6
Annual Debt Service Coverage (x)	4.3	3.1	3.7	3.9	3.2

Source: Moody's Investors Service

Recent Developments

The recent resolution of a lawsuit regarding the University of Colorado Real Estate Foundation (CUREF) had minimal financial impact for CU, and the dissolution of CUREF, and reallocation of properties to a new entity favorably provides closer oversight and monitoring by the university.

In October 2016, CUREF, a not-for-profit support foundation to the university, settled outstanding litigation involving a property investment for which CUREF was sole member. Campus Village Apartments, LLC (CVA) was involved in litigation that challenged that the university was directing certain CU Denver students to live at the CVA facility. Following multiple legal proceedings, effective September 16, 2016, CVA and the plaintiff settled the claim. Total payment from CUREF financial resources was $6.15 million.

In fiscal 2017, all assets of CUREF were either transferred to the University of Colorado Foundation (CUF) or to a newly established 501(c)(3) entity, the University of Colorado Property Corporation, Inc. (CUPCO). CUPCO is a blended component unit within the university. On December 31, 2016, CUREF's rights and obligations under the CVA operating agreement (dated May 12, 2008 and amended June 30, 2013) were assigned to CUPCO. The CVA project was funded by 2005 bonds, which were refunded with the Student Housing Revenue Refunding Bonds Series 2008, and are currently outstanding in the amount of $53.7 million.

Detailed Rating Considerations

Market Profile: Solid Brand Recognition Bolstered by Multiple Campuses, with Comprehensive Academic Programming and Broad Research Activity

Student demand will remain sound across CU's four campuses due to the diversity of missions, academic programs and strong research activity. Enrollment across the institution totaled nearly 51,749 full-time equivalent (FTE) for fall 2016, up 5% over fall 2012, inclusive of 19% graduate and post-graduate students. Enrollment at the flagship Boulder campus comprises 51% of the university's 63,202 fall 2016 headcount. CU at Colorado Springs (UCCS) is the university's fastest growing campus, with 19% of headcount. The remaining 30% is enrolled at the Anschutz Medical Center campus in Aurora (7%) or the UC Denver campus (23%) at the Auraria Higher Education Center.

CU's net tuition per student will remain high relative to peers, though guaranteed tuition pricing programs at the Boulder campus are likely to moderate growth in the near term. Pricing varies across campuses, but the aggregate net tuition per student of $19,152 is well above the Aa1-median ($13,210). Higher net tuition per student stems from material non-resident enrollment (48% of the Boulder flagship campus fall 2016 first time students were from out of state), very limited state support, and a large mix of higher tuition graduate programs. CU Boulder implemented a guaranteed tuition pricing program for resident undergraduates beginning in fiscal 2017, augmenting its existing non-resident guaranteed tuition program. To date, roughly 59% of the overall system's students participate in this program.

Medical research and education are an important aspect of CU's role as the leading public Academic Medical Center in the state. The university maintains a strong working relationship with the Anschutz Medical Campus in Aurora, that is co-located with the University of Colorado Hospital Authority (UCHA, a legally separate organization with separately secured debt, Aa3 stable). UCHA is the primary teaching hospital for the CU School of Medicine, with the University of Colorado Hospital and Children's Hospital Colorado at the Anschutz campus. The university benefits in multiple ways from its relationship with UCHA, primarily through CU Medicine (formerly University Physicians, Inc. or UPI) practice plan and clinical research activity. CU Medicine includes roughly 2,600 physicians and recorded $781 million in FY 2016 operating revenue.

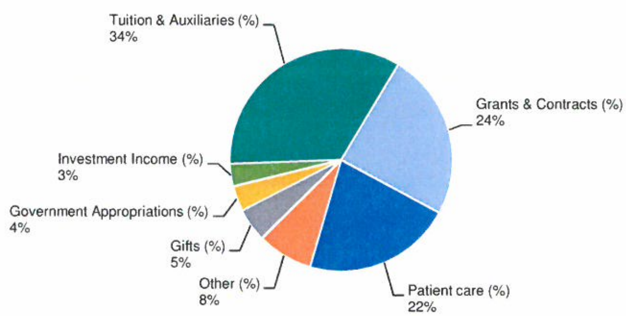
Robust research funding is an essential component of CU's credit quality, with nearly equal focus on both health and natural sciences related activity. The scope of the university's research is considerable, with $601 million of direct research expenditures and a reported $924 million in sponsored research awards in FY 2016. Roughly 65% of FY 2016 awards came from federal sponsors, of which funding remains relatively flat. Mitigating this limitation is the university's success in receiving private awards for research of roughly $100 million in FY 2016. FY 2017 research activity is expected to be on par with FY 2016.

Operating Performance: Solid, Stable Cash Flows Bolster Operating Performance and Reserve Growth

CU's good fiscal discipline, combined with solid student demand, improved research funding, and favorable operations of its physician practice plan unit will support the university's continued positive operating performance. Cash flow has stabilized at a favorable 12% average over the last five years. Some narrowing of this margin, from 14% in 2012 to 11% in 2016, reflects management's more moderate policy for reserve growth. Leadership is in preliminary discussions for system-wide reserve policy enhancements. Despite some variations in cash flow performance over the FY 2012-16 period, debt service coverage remains healthy at averaging over 3 times annually.

Exhibit 3

Revenue Diversity Mitigates Low State Operating Support
Fiscal 2016 Operating Revenue Distribution



Source: Moody's Investors Service

The university's multiple major revenue streams are performing well, and expected to remain sound in the near term. CU's revenue diversity provides stability for variations in any one income stream, as well as mitigating the very low state operating support. Net tuition revenue has grown a robust 24% over the FY 2012-16 period. Grant and contract activity (24% of operating revenue) has resumed growth and indirect cost recovery funds, and revenues derived from the physicians practice plan (CU Medicine) have risen

63% over the FY 2012-16 period. Improvements in CU Medicine metrics are due largely to rising clinical volumes, strong oversight of reimbursement rates, and rate increases.

State support for operations is uncommonly low (4% in FY 2016). The state did increase overall funding to CU by 26% from FY 2012-17 and provided capital funding for the first time in over a decade. FY 2018 funding is currently budgeted to be up a favorable 4%. Colorado's unique funding of the student College Opportunity Fund (COF) and fee-for-service payments in lieu of direct state appropriations, reflects funding limitations imposed by the state's TABOR restrictions.

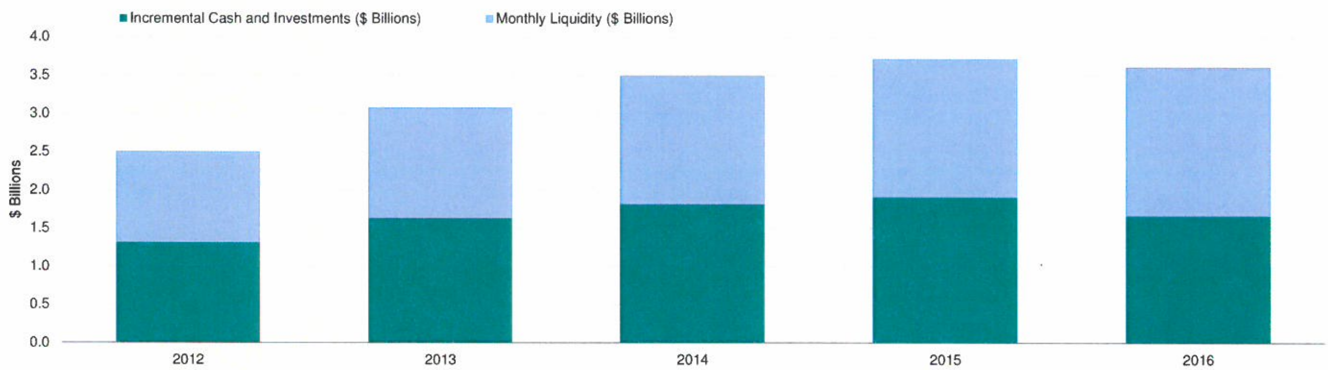
Wealth and Liquidity: Sound Fiscal Oversight; Philanthropic Success and Retained Earnings Bolster Reserves

CU's robust growth in total cash and investments to $3.6 billion in FY 2016, driven by fundraising success and strong financial stewardship, further underpins the university's Aa1 rating. Spendable cash and investments of $3.1 billion are up an exceptional 46% in the FY 2012-16 period, far outpacing growth of similarly rated peers.

Philanthropic support remains a very strong component of CU's credit profile. Private contributions, as reported by the university, totaled $385 million in fiscal 2016, up a significant 70% over FY 2012. Ten month results for fiscal year 2017 are on par with FY 2016. The university's last capital campaign ended in September 2013, raising a total of $1.5 billion.

Exhibit 4

Improvements in Total Cash and Investments and Monthly Liquidity Bolster CU's Wealth Profile



Incremental cash and investments represents the amount of total cash and investments not included in monthly liquidity.
Source: Moody's Investors Service

The university's overall cash and investments are separated into short term and long term pools to maximize liquidity and investment oversight strategies. The short term pool managed by the university totaled $2.4 billion at FY-end 2016, and comprised largely of more liquid securities. The long term investment pool (LTIP) for CU assets was $1.1 billion at FY-end 2016. Though the short term and long term funds recorded weaker returns in FY 2016, similar to peers, year to date 2017 returns are more favorable. Through March 31, 2017, the LTIP has recorded a 12.6% year to date return. The foundation and university portfolios are managed internally with oversight provided by respective investment advisory committees and external assistance from third party advisors as needed.

LIQUIDITY

CU's liquidity grew a substantial 64% over the FY 2012-16 period to $1.9 billion at fiscal end 2016. The monthly 216 days cash on hand provides very good liquidity given the sound operating cash flow, a conservative debt structure with all fixed rate and predictable debt service, and modest other calls on liquidity.

Leverage: Moderate Leverage Given Sizeable Cash and Investments and Limited Debt Plans; Recent Capital Investments Met With State Capital, Gifts and Internal Reserves

The university's sizeable financial reserves and revenues provide good support to debt, bolstering the rating upgrade to Aa1. Spendable cash and investments of $3.1 billion cushion outstanding debt of $1.7 billion by a solid 1.8 times. Relative to operations, debt to cash flow is closely aligned with rated peers at 4.6 times.

Future capital plans are manageable given regular debt amortization, favorable operating performance, growth in cash and investments, and philanthropic success. CU's master capital plans continue to be funded largely through cash reserves and gifts. The university has no specific plans to issue new money debt in the next two years. The FY 2012-16 capital spending ratio averaged a good 1.7 times, evidencing ongoing capital investment and demonstrated by the average age of plant at 10.2 years. Master capital plan projects for the fiscal 2017-22 period total $430 million, and are expected to be funded by university sources ($190 million) and state capital requests ($240 million).

DEBT STRUCTURE

The university's conservative debt structure of fixed rate, regularly amortizing debt provides predictability in annual debt service payments and preserves future debt capacity as principal is reduced each year.

A blended component unit, CU Medicine (formerly UPI) has $11 million of debt in a fixed rate direct bank placement with US Bank.

DEBT-RELATED DERIVATIVES

None.

PENSIONS AND OPEB

The university has substantial additional debt-like obligations that add long-term credit risk through its participation in state pension and retirement health plans. However, given the university's good cash flow and healthy reserves, the pension liability is manageable at the Aa1-rating level.

Moody's three-year average adjusted net pension liability (ANPL) is $2.3 billion. Added to direct debt of $1.7 billion, total adjusted debt is 1.1 times FY 2016 operating revenue, weaker than the Aa1-median of 0.8 times. Pension reforms confirmed by the Colorado Supreme Court in 2014 provide some relief in total liability exposure, but actual contributions lag actuarial recommendations. Given the ongoing funding needs of the multiple-employer pension plan in which the university participates along with growing OPEB requirements, CU will face inflationary cost pressures for these fringe benefits.

Certain of the university's employees (100% of classified and approximately 30% of faculty and non-classified) participate in Colorado's Public Employees' Retirement Association (PERA) defined benefit cost-sharing, multiple-employer plan administered by the state. PERA also administers a voluntary tax-deferred retirement plan. The university fully funded its required contributions to all plans in FY 2016.

OPEB expenses comprised a manageable 2.0% of operating expenses in FY 2016. CU participates in two OPEB plans: a university-sponsored single-employer plan and PERA's Health Care Trust Fund (HCTF). The university met the requirements for funding contributions to the PERA HCTF. However, contributions of $14.4 million in FY 2016 to the single employer plan were below the OPEB cost of $61.7 million. The fiscal end 2016 reported OPEB liability was $289 million.

Governance and Management: Focused Implementation of Strategic and Capital Master Plans by Capable Leadership Team

Excellent strategic positioning, underscored by steady leadership, has enabled the university system to achieve strategic targets, despite recent years of economic uncertainty and the constraints of operating under the state's TABOR limitations. Key achievements include growing financial reserves, continued economic development, and operational stability among the four campuses. The president has been in place since 2008. The university is governed by a nine-member Board of Regents, comprised of elected officials from each of Colorado's seven congressional districts, with two at-large members from around the state.

Legal Security

CU's University Enterprise Revenue Bonds are secured by a pledge of net revenues (gross revenue less maintenance and operation expenses) of certain auxiliary enterprise facilities, including income derived from housing, dining, parking, rent of research facilities, and particular student fees. The bonds are also secured by a pledge of 100% of tuition revenues, as well as mandatory facilities construction fees.

Fiscal year 2016 pledged net revenues totaled $1.1 billion, representing approximately 30% of the university's operating revenues (Moody's calculated) of $3.6 billion. Pro forma maximum annual debt service coverage by pledge revenues is estimated at 8.1 times inclusive of 100% of tuition revenue.

The Series 2017A-1 bonds are not expected to have a debt service reserve fund.

Use of Proceeds

Proceeds of the Series 2017A-1 bonds are expected to be used to refund all or portions of the outstanding Series 2007A and 2012B bonds and pay costs of issuance.

Obligor Profile

The University of Colorado is the flagship public higher education institution for the state of Colorado with multiple campuses. The main campus is located in Boulder, with additional campuses in Denver (Anschutz Medical campus and Downtown) and Colorado Springs. CU is a member of the Association of American Universities. In FY 2016, the university recorded operating revenues of $3.6 billion and for fall 2016 served 51,749 FTE students.

Methodology

The principal methodology used in this rating was Global Higher Education published in November 2015. Please see the Rating Methodologies page on www.moodys.com for a copy of this methodology.

Ratings

Exhibit 5

University of Colorado, CO

Issue	Rating
University Enterprise Refunding Revenue Bonds, Series 2017A-1	Aa1
Rating Type	Underlying LT
Sale Amount	$50,000,000
Expected Sale Date	05/23/2017
Rating Description	Revenue: Public University Broad Pledge

Source: Moody's Investors Service

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MOODY'S
INVESTORS SERVICE

FitchRatings

Fitch Rates University of Colorado's Series 2017A-1 Revenue Bonds 'AA+'; Outlook Stable

Fitch Ratings-Chicago-12 May 2017: Fitch Ratings has assigned a 'AA+' rating to $50.7 million of series 2017A-1 fixed rate university enterprise refunding revenue bonds expected to be issued by the Regents of the University of Colorado (CU).

Bond proceeds will be used to current-refund the callable portion of series 2007A bonds, advance-refund a portion of the series 2012B bonds, and pay the costs of issuance. The bonds are expected to sell via negotiation the week of May 22, 2017.

In addition, Fitch has affirmed the 'AA+' rating on CU's approximately $1.5 billion of outstanding university enterprise revenue bonds.

The Rating Outlook is Stable.

SECURITY

University of Colorado enterprise revenues, consisting primarily of auxiliary net revenues, indirect cost recovery revenues, student fees, 100% of tuition revenues, and other self-funded and research related services. Pledged revenues exclude state appropriations.

KEY RATING DRIVERS

GOOD BALANCE SHEET RATIOS: CU maintains good balance sheet resources relative to operations and debt, in excess of 'AA' rating category medians.

ADEQUATE OPERATING MARGINS LEADS TO SOUND DEBT COVERAGE: CU has a track record of breakeven to positive margins fueled by historical enrollment growth, a profitable medical practice plan, and fairly diverse revenue sources. CU's pro forma debt burden is low and maximum annual debt service (MADS) coverage is sound.

STRONG STUDENT DEMAND: CU's prominent position as the flagship institution for higher education and research in the State of Colorado has fueled steady and significant enrollment growth over the past several years.

MANAGEABLE CAPITAL, POSSIBLE DEBT PLANS: CU has manageable capital spending plans. While the university is contemplating new money debt in the coming years, the amounts being considered are palatable, particularly considering CU's front-loaded debt service amortization schedule ($60 million-$70 million repaid annually).

RATING SENSITIVITIES

BALANCED OPERATIONS: The University of Colorado's rating stability assumes maintenance of structurally balanced operations and strong balance sheet.

CREDIT PROFILE

CU is a comprehensive graduate research university and the largest and flagship institution of higher education in Colorado. CU offers a full array of undergraduate, graduate, and professional programs in four campuses: the flagship location in Boulder; Colorado Springs; Denver; and the Anschutz Medical Campus in Aurora. The Anschutz campus is also home to the University of Colorado Hospital (UCHealth). UCHealth is a separate legal entity (rated 'AA-', Positive Outlook), but maintains very tight alignment with CU's School of Medicine and is CU's primary teaching hospital.

CU has enjoyed steady student demand growth for a number of years, with total enrollment among its four campuses increasing to 63,202 as of fall 2016, up 3.6% over the prior year. CU's net tuition and fees measured over $940 million in fiscal 2016.

GOOD BALANCE SHEET RATIOS

CU maintains good balance sheet resources. At fiscal year-end 2016 (June 30 year end), available funds (AF, defined by Fitch as cash and investments less non-expendable restricted net assets) totaled $2.3 billion. AF covered fiscal 2016 operating expenses by a good 66% ('AA' category median is 49%) and pro forma debt by a favorable 137% ('AA' category median is 91%).

In addition, CU benefits from the support of various 501(c)(3) organizations, particularly the University of Colorado Foundation, which are not included in the university's available funds. The CU Foundation's long term investment pool was valued at nearly $1.5 billion as of March 31, 2017, and has grown steadily in recent years. CU and the CU Foundation have benefited from increasing fundraising in recent years. CU's endowment spend policy is 4%.

ADEQUATE OPERATING MARGINS

CU has a track record of breakeven to positive margins. In fiscal 2016 (June 30 year end), CU recorded an operating margin of 0.04%. The margin averaged 1.1% between fiscal 2012 and fiscal 2016.

CU has benefited from steady growth in net tuition and fees, which increased 5.8% per year between fiscal 2012 and fiscal 2016. CU operations also benefit from diverse and growing research, with a particular focus on expanding non-federal funding sources. To this end, CU has a history of fairly diverse revenues sources, which in fiscal 2016 included student tuition and fees (34%), grants and contracts (26%), and healthcare operations (22%). Despite favorable trends, management attributes the moderately softer system operating margins in fiscal 2016 to lower margins at the Denver campus, and, in part due to strategies and affordability initiatives at the Boulder campus.

Management projects positive operating results in fiscal 2017, and reports that year-to-date results through six-months fiscal 2017 are ahead of six-months fiscal 2015 and 2016 (including investment income and state appropriations). Fitch generally expects public universities to record at least break-even results.

STRONG STUDENT DEMAND

Net tuition growth has been fueled by strong enrollment trends, which is the result of CU's prominent position as the flagship institution for higher education and research in the state. Total headcount across the four campuses increased 3.6% in fiscal 2016 over 2015 (4.0% undergraduate and 2.2% graduate), continuing a trend that has been going on for years. Enrollment growth is expected to continue, as CU has capacity to accommodate growth, particularly the Colorado Springs campus. Undergraduate applications have increased significantly in recent years (up 70% between 2012 and 2016).

Student selectivity and matriculation are stable and student quality remains high. CU's acceptance rate is generally in the 80% range, though this measured 75.5% in 2016. Student quality as measured by standardized test scores is above average with CU's average ACT and SAT scores of 27 and 1,188, respectively, which notably exceed national averages.

SOUND DEBT COVERAGE

CU's pro forma debt burden is manageable and debt coverage ratios are sound. The university's pro forma total bonded debt measures $1.46 billion; inclusive of capital leases, operating leases, and bond premiums total pro forma debt is $1.71 billion. Pro forma MADS is $130.1 million, which translates to a MADS burden of a moderately low 3.7%. Pro forma MADS coverage is a sound 1.8x. CU's debt structure is conservative, as all bonded debt is fixed rate.

CU participates in the State of Colorado's Public Employees' Retirement Association (PERA) multi-employer defined benefit pension plan, which is underfunded, even using a discount rate of 7.5%. CU's employer contribution rate has held steady at 10.15% in recent years. Favorably, significantly less than 50% of CU employees participate in the PERA defined benefit pension plan, which affords the university more flexibility in structuring its employee benefits. Consequently, CU's proportionate share of PERA is slowly decreasing. All new employees are not in PERA. Over the long horizon this will help reduce the university's liability. In fiscal 2015, the university adopted GASB 68.

MANAGEABLE CAPITAL, POSSIBLE DEBT PLANS

While CU is currently updating its long-term capital spending plans, the university has manageable capital plans given its considerable scope of operations. Likely future projects include personalized medicine and mental health facilities at the Anschutz medical campus, an aerospace engineering building in Boulder, an updated engineering building at the Denver campus, housing, and student facility investments at the Boulder and Colorado Springs campuses.

To support capital plans, CU is considering issuing approximately $250 million-$400 million of new debt between fiscal 2018 and fiscal 2020. Fitch views this potential debt as palatable, particularly considering CU's front-loaded debt service amortization schedule (scheduled debt repayment of approximately $193 million over the three year period). Conservatively, taking the high end of the potential debt range, adding $400 million of debt would move CU's AF-to-pro forma debt from 137% to 111% (which does not consider any principal pay off in the interim period).

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Applicable Criteria
Revenue-Supported Rating Criteria (pub. 16 Jun 2014) (https://www.fitchratings.com/site/re/750012)
U.S. Public Finance College and University Rating Criteria (pub. 26 Apr 2017) (https://www.fitchratings.com/site/re/897285)

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