

**Methods of Borrowing for Capital Construction Projects
and
Potential Efficiency Improvements**

October 20, 2017

By

**Charles Cook
Associate Treasurer,
Director of Liability Management**



University of Colorado

Boulder | Colorado Springs | Denver | Anschutz Medical Campus

Summary. Using construction funding methods that more closely align borrowing and actual construction expenditures, the University can reduce the overall cost of approved capital projects. Improving new construction borrowing techniques should lower the cost of capitalized interest during construction, reduce the effect of low investment rates on borrowed monies awaiting construction expenditure and reduce the amount of construction contingencies that are routinely built into approved construction budgets. Using commercial paper or a bank line of credit to pay for construction should lower the overall cost of projects by 3%-7%, depending on the length of construction period.

Background. Financing construction projects in an efficient manner has drawn increasing attention in public higher education over the last several years, due to a historical low interest rate environment, the continued need to improve facilities, and the rise in construction costs. In general, smaller institutions have project needs that are much smaller in scale and therefore, they issue fixed rate bonds on an infrequent basis and mostly at a specific point in time (“as needed” basis) resulting in less funding efficiencies. Conversely, large research institutions have a sizable pipeline of projects that are in various stages of planning, construction, completion and renovation. As such, large research institutions are more frequent issuers in the capital markets and can take advantage of a myriad of capital financing vehicles to achieve efficiencies, including the use of commercial paper, internal loans, fixed rate bonds, and variable rate bonds to fund their projects.

Existing University Practice. Since 2006, CU has funded capital projects by issuing traditional fixed rate bonds with a final maturity of up to 30 years. Bonds are usually issued prior to construction and the proceeds are used to fund the budgeted project cost as well as a “capitalized interest” fund that is used to pay interest on the bonds through the construction phase which is typically 2-3 years. This borrowing practice is standard in the municipal market, including municipalities and school districts that also use fixed rate bonds to fund capital projects.

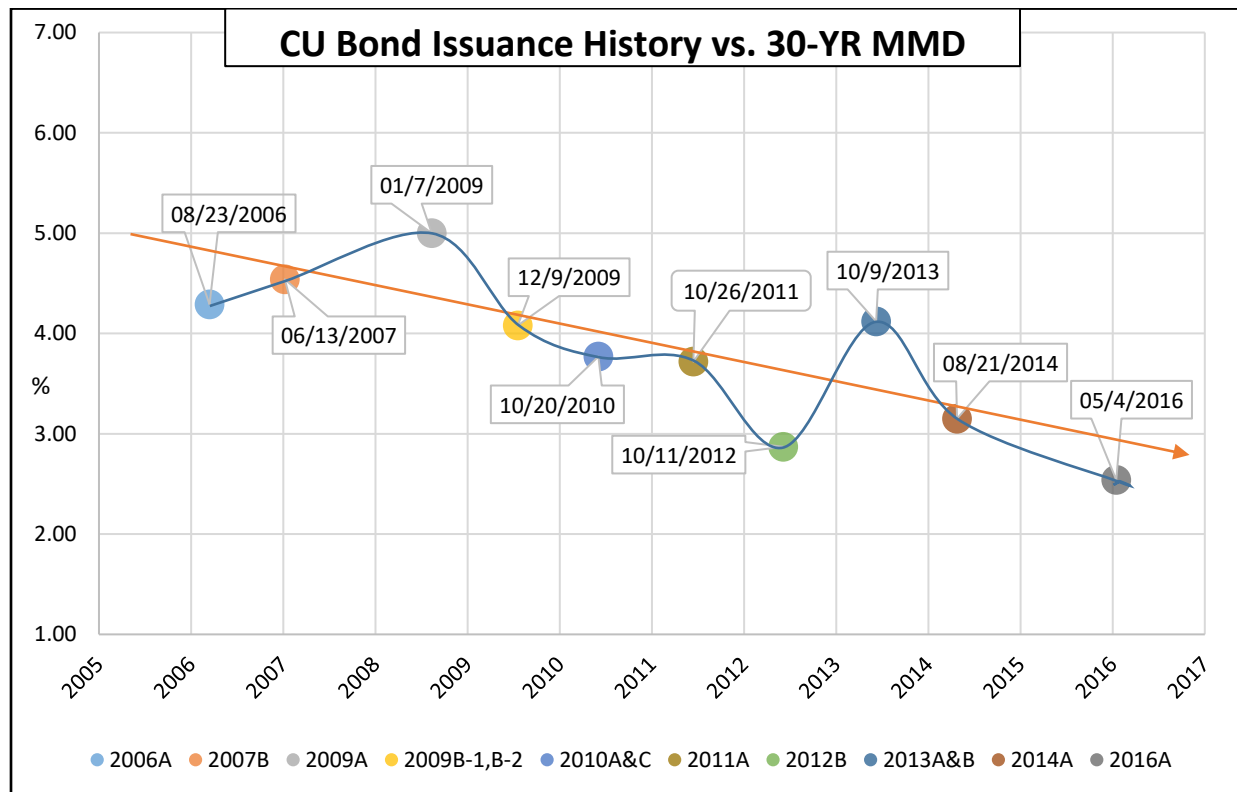
During the 2006-16 period, the University issued new money bonds with proceeds of \$1.374 billion, for projects that totaled \$1.282 billion. After paying costs of issuance with proceeds, approximately \$82 million or 7% of the total borrowings were used to pay capitalized interest during the construction period. Capitalizing interest is necessary in a majority of cases because the construction projects are revenue producing facilities like student housing, parking, research and academic facilities that directly or indirectly produce the revenues that pay for the construction borrowings after construction is complete. The table below provides a brief summary of each bond issue since 2006 that funded capital improvement projects for the University and the ratio of proceeds issued to the actual cost of each project:

CU New Money Financings					
(2006-2016)					
Series	Par Amount	Issue Date	Proceeds	Project Cost	Ratio: Proceeds/ Project
2006A	101,575	8/23/2006	104,935	100,000	1.049
2007B	63,875	6/27/2007	66,000	65,500	1.008
2009A	165,635	1/7/2009	169,912	162,844	1.043
2009B-1,B-2	214,855	12/9/2009	221,523	209,701	1.056
2010A&C	39,885	10/20/2010	39,885	38,308	1.041
2011A	203,425	11/3/2011	222,215	199,339	1.115
2012B	95,705	10/11/2012	110,633	102,708	1.077
2013 A&B	153,705	10/9/2013	163,914	147,700	1.110
2014A	203,485	8/21/2014	237,199	218,323	1.086
2016A	31,430	5/4/2016	37,694	37,500	1.005
Total	1,273,575		1,373,910	1,281,923	1.072

There are several inherent financial inefficiencies that result from the practice of borrowing at the initiation of the construction process:

- During the construction period, the University is paying interest on the full project borrowing at approximately 3.50%, (the long-term fixed rate average) while investing proceeds for on average 1.5 years, at approximately .75%, which results in “negative carry” of approximately 2.75% per year on unspent proceeds. Looking at the last six FY audits of the University, the amount of “Unspent” bond proceeds has averaged \$165 million per year. The additional cost of borrowing ahead with fixed rate bonds in the last 6 years was approximately \$27.2 million (\$165mm x 2.75% x 6 years).
- Because the University does not know the exact timing of construction draws from pre-funded construction funds, the investment of the proceeds by necessity tends to emphasize high liquidity not pursuit of maximum yields on unspent balances.
- CU’s borrowing costs are largely an average of the rates available at the time funds are needed, and then if market rates move significantly lower the new money borrowings are refinanced at lower rates.

Below are two charts that show the pattern of CU new money borrowing during the 2006-16 period.



**CU New Money Financings
(2006-2016)**

Revenue Bond Market Ranges	Number of CU Issues	Issues
5% or more	1	2009A
Between 4% and 5%	4	2006A, 2007A, 2009B1&B2, 2013A&B
Between 3% and 4%	3	2010 A&B, 2011A, 2014A
Less than 3%	2	2012B, 2016A

Essentially, the University has borrowed for its new money financings throughout this period prior to when it needed the money to begin construction on projects. There is a “normal” bell-curve distribution of market conditions the University has sold bonds in during this period. Evidence does not support an assertion that new money borrowings have been “timed” to capture lowest possible borrowing rates. In fact, the two issues with the greatest amounts of capitalized interest (an indication of early pre-funding of projects), were the 2011A and 2013A series, either on or above historical trend-line. After initial construction financings, the University actively refinances its new money bond issues when rates fall enough to capture meaningful savings. All or a portion of the 2009A, 2006A, 2007A, 2009B-1 and 2011A series have been refinanced with lower rates and Treasury is currently monitoring the potential refunding of the 2009 B-2 bonds. Hence, virtually all of the bonds in the “higher” interest periods experienced from 2006-16 have been refinanced to lower the overall average cost of University debt. However, the effects of “negative-arbitrage” on the borrowed funds, *increases the principal amount* of the borrowings and is not able to be reduced by refinancing at lower interest rates.

Alternative New Money Borrowing Strategies. Alternative construction borrowing strategies for capital projects would allow the University to borrow closer to the actual time of cash disbursement for approved construction projects, potentially borrow those funds at lower, short-term borrowing rates for the interim financing and issue permanent long-term financing closer to the end of the construction projects. There are two primary borrowing products that the University could use to achieve these objectives, either A) a Revolving Line of Credit for Construction from a Commercial Bank, or B) Commercial Paper. A brief of description of each product is provided below – the primary determinates of which of the two products to use are tactical and cost-driven. At times the direct bank product is less expensive, although most of the time direct access to the market through commercial paper is the lower-cost alternative for borrowers with Aa1/AA+ ratings of CU. A financing model is attached on page seven to demonstrate how either a CP Program or Bank Line would operate for three major approved projects.

- 1. Commercial Bank Revolving Line of Credit for Construction (“Bank Line”).** A Bank Line is a lending agreement negotiated with a Bank that would allow the University to draw funds (e.g. up to \$200 million) to pay for construction of specified projects that have been approved by the Regents.

The interest rate on borrowed funds would be based on a formula that reflects short-term borrowing rates appropriate for a tax exempt borrower. For instance, it might be 75% of 1 Month LIBOR + a specified Spread. There might be fees related to “undrawn amounts”. There would probably be a series of provisions describing conditions under which the Bank does not have lend for additional borrowing requests – failure of CU to maintain “Aa” ratings, failure of CU to pay or an event of default under the University’s Enterprise Revenue Bond credit, an event or lawsuit that challenges the validity of University borrowing from the bank or other major creditors – a series of provisions

designed to make sure that the Bank does not have to continue to lend under the agreement if there is a major adverse change to the University's credit profile.

The primary promise CU makes to the bank is that it will issue future Revenue Bonds to pay off draws under the agreement when projects are completed and that it will repay the bank at the end of the 3-4 year agreement, regardless of whether the University has issued bonds or not. There are usually provisions that also stipulate that the University will not borrow for other projects (except as specified) or without the Bank's approval, until the borrowing under the Bank Line has been repaid.

- 2. Commercial Paper Program ("CP").** CP is a continuously offered public market instrument issued by highly rated public sector and corporate borrowers. CP issued by CU for construction projects would be tax-exempt CP for the same reasons that interest on CU bond issues is exempt from federal and Colorado state income taxes. In the tax-exempt CP market segment, borrowers are generally rated A1/A+ or higher – CU is rated Aa1/AA+, well above the minimum rating threshold. A commercial paper program is authorized with a maximum "outstanding" amount (e.g. up to \$200 million) and a maximum allowable interest rate.

The University would designate a CP Dealer, a money center commercial or investment bank that can be replaced by the University if there are performance issues. The CP Dealer promises to use its best efforts to market CP Notes at the lowest rates necessary to keep the CP Notes placed and to make a secondary market in notes should a purchaser choose to sell prior to a Note's maturity. Each commercial paper note has a maturity of 1-270 days and a rate that is set to attract buyers of the product in the public market. The CP notes are continuously remarketed as they mature and as new proceeds are needed to pay for construction. The amount of CP outstanding goes up as construction costs are incurred, falls when the University issues bonds to permanently finance approved projects, and rises when additional projects are authorized for the program.

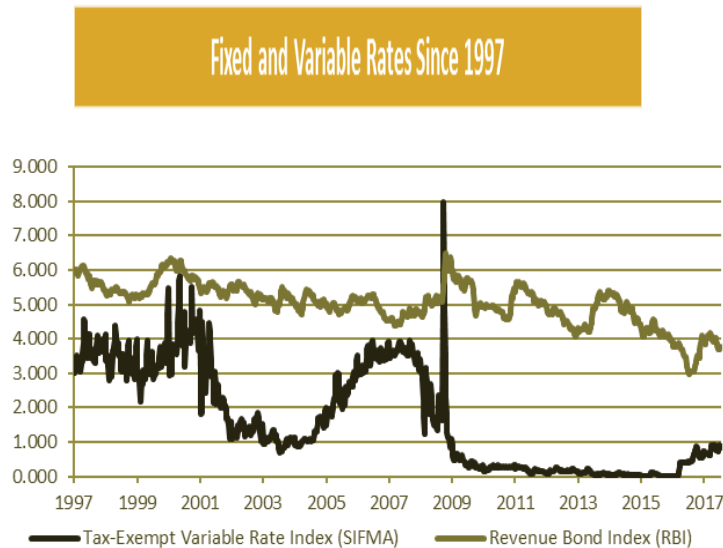
Major buyers of the product are tax-exempt money market funds sponsored by Fidelity, Charles Schwab, Vanguard, Blackrock, etc. Corporate treasurers are also buyers when the tax-exempt rates rise relative to taxable alternatives, based on a corporation's tax circumstances or diversification needs. This is a highly liquid segment of the public market and there are published market indices and publicly available information to track and manage performance of CP Dealers. The primary security for a CP Note is the University's promise to issue bonds to pay down CP when construction projects are complete or to retire from University sources, similar to the Bank Line.

Financial Analysis and Financial Risks

- 1.** Based on the projected construction expenditure schedules, using the "fund in advance with fixed rates" funding mechanism, the University would issue approximately \$146 million of bonds in January 2018 for Williams Village East and Aerospace Engineering, and \$116.5 million for Personalized Med. and Behavioral Health in July of 2019. Using a tax-exempt CP program, the outstanding CP would ramp up from \$12 million in March of 2018 to over \$140 million, with fixed-rate, permanent financing in July of 2019 and June of 2021. Total bond amounts to fund out CP are estimated to be approximately \$10 million lower than with the initial fixed-rate approach, based on current market estimates. \$10 million of extra borrowing equates to \$19 million of principal and interest repayments on CU bonds, during the life of the typical borrowing.
- 2.** Using a "fund in advance" strategy means that the amounts borrowed include estimated construction costs *plus the normal construction contingencies*, usually 4-5% of construction costs that are part of

projects' approved budgets. Some projects go very well, do not require contingency spending and end up with unneeded fund balances at the end of construction. While we cannot track all construction projects in the last ten years, during FY15 through FY 18(to date) nine projects closed out construction with unspent balances totaling approximately \$8.2 million, on total construction projects of \$688 million, or 1.2% of projects funded since 2011. Based on this data, approximately 25% of the total contingency funding attributable to construction projects may be avoided by altering the University's "fund in advance" strategy. Currently, the \$8.2 million of unspent construction proceeds for state law and tax law reasons are "spent" to pay interest on bonds for the project, essentially additional capitalized interest, furthering inefficiency.

3. For both Bank Revolving Lines of Credit and Commercial Paper Programs, short-term interest rates vary over time. While *average* short-term rates are significantly lower than long-term rates virtually all the time in recent history, there are times when short-term rates can spike or move upward to be very close to long-term interest rates. For the University to pursue a more efficient construction funding strategy over the longer term, it must be cognizant of the risks of rising rates or interest rate shocks during the construction period. See below.



4. For the University to implement either a Bank Revolving Line of Credit or a Commercial Paper Program for interim construction financing, the University needs to be comfortable that its basic credit position is stable and sound. To fully implement either approach, the University has to execute take out financing 2+ years in the future, so confidence in continued market access is essential, both for a continuously offered product in the market (CP) or a Bank Line refinancing at the end of a construction period. Treasury, after consultation with system budget and finance, recommends setting an upward limit of \$200 million on the amount of interim financing at this time.

Upcoming Capital Project Debt-Financing Needs

Sources and Uses Plan

(\$000s)		Williams Village East - UCB			Aerospace Engineering Sciences - UCB			Anschutz Personalized Medicine UCD				CU System-Wide Borrowing Needs			
year	Qtr Ending	Campus			Construction Draws	Campus		Construction Draws	Campus Funds (cash)	State Support	Gifts	Borrowings	Est. Commercial Paper Issuance	Commercial Paper Balance	Take-Out Financing
		Construction Draws	Funds (cash)	Borrowing		Funds (cash)	Borrowing								
FY17	Dec-16	\$ 238	\$ 238	\$ -	\$ 1,384	\$ 1,384	\$ -								
FY17	Mar-17	\$ 612	\$ 612	\$ -	\$ 1,570	\$ 1,570	-								
FY17	Jun-17	\$ 963	\$ 963	\$ -	\$ 1,411	\$ 1,411	-								
FY18	Sep-17	\$ 7,855	\$ 7,855	\$ -	\$ 1,064	\$ 1,064	-	\$ 1,723	\$ 1,723						
FY18	Dec-17	\$ 7,106	\$ 4,836	\$ 2,269	\$ 4,949	\$ 4,949	-	\$ 4,711	\$ 4,711			\$ 2,269	\$ 2,269		
FY18	Mar-18	\$ 9,447		\$ 9,447	\$ 10,273	\$ 10,273	-	\$ 4,606	\$ 4,606			\$ 9,447	\$ 11,716		
FY18	Jun-18	\$ 10,582		\$ 10,582	\$ 13,710	\$ 6,351	\$ 7,360	\$ 6,385	\$ 6,385			\$ 17,941	\$ 29,657		
FY19	Sep-18	\$ 13,677		\$ 13,677	\$ 14,043		\$ 14,043	\$ 9,738	\$ 9,738			\$ 27,720	\$ 57,377		
FY19	Dec-18	\$ 17,901		\$ 17,901	\$ 11,553		\$ 11,553	\$ 12,553	\$ 3,837	\$ 8,716		\$ 29,454	\$ 86,831		
FY19	Mar-19	\$ 14,333		\$ 14,333	\$ 9,101		\$ 9,101	\$ 16,363		\$ 16,363		\$ 23,433	\$ 110,265		
FY19	Jun-19	\$ 10,688		\$ 10,688	\$ 7,334		\$ 7,334	\$ 32,464		\$ 181	\$ 20,000	\$ 12,283	\$ 30,306	\$ 140,570	
FY20	Sep-19	\$ 3,299		\$ 3,299	\$ 6,143		\$ 6,143	\$ 49,894		\$ 26,800	\$ 5,000	\$ 18,094	\$ 27,535	\$ 30,364	\$ (137,741)
FY20	Dec-19				\$ 12		\$ 12	\$ 32,464			\$ 5,000	\$ 27,464	\$ 27,476	\$ 57,841	
FY20	Mar-20							\$ 16,031			\$ 5,000	\$ 11,031	\$ 11,031	\$ 68,872	
FY20	Jun-20							\$ 10,870			\$ 5,000	\$ 5,870	\$ 5,870	\$ 74,742	
FY21	Sep-20							\$ 11,359				\$ 11,359	\$ 11,359	\$ 86,101	
FY21	Dec-20							\$ 10,256				\$ 10,256	\$ 10,256	\$ 96,357	
FY21	Mar-21							\$ 13,112				\$ 13,112	\$ 13,112	\$ 109,469	
FY21	Jun-21							\$ 5,385	\$ 5,385						\$ (109,469)
FY22	Sep-21							\$ 1,043	\$ 1,043						
FY22	Dec-21							\$ 1,043	\$ 1,043						
	Totals	\$ 96,700	\$ 14,505	\$ 82,195	\$ 82,546	27,000	\$ 55,546	\$ 240,000	\$ 38,471	\$ 52,060	\$ 40,000	\$ 109,469	247,210		