

Union College Union | Digital Works

Honors Theses

Student Work


6-2017

Rating College Debt: A Case Study of Union College

Laura Mueller

Union College - Schenectady, NY

Follow this and additional works at: <https://digitalworks.union.edu/theses>

 Part of the [Finance Commons](#), and the [Higher Education Commons](#)

Recommended Citation

Mueller, Laura, "Rating College Debt: A Case Study of Union College" (2017). *Honors Theses*. 63.
<https://digitalworks.union.edu/theses/63>

This Open Access is brought to you for free and open access by the Student Work at Union | Digital Works. It has been accepted for inclusion in Honors Theses by an authorized administrator of Union | Digital Works. For more information, please contact digitalworks@union.edu.

Rating College Debt: A Case Study of Union College

by

Laura K. Mueller

* * * * *

Submitted in partial fulfillment
of the requirements for
Honors in the Department of Economics

UNION COLLEGE
June, 2017

ABSTRACT

Rating College Debt: A Case Study of Union College
Department of Economics, June 2017.

Advised by: Professor Tomas Dvorak

On Friday, March 3rd President Stephen Ainlay made an announcement of “the largest, most expensive, most complex project in Union’s history.” President Ainlay is referencing the massive rebirth of one of Union’s most central academic buildings, Science and Engineering. The three-phase building project will take an estimated three years and cost a total of \$100 million. About \$50 million of this project will be financed through debt. This comes at a time when, Moody’s, a top rating agency changed the methodology for rating higher education debt. My thesis explores the impact of the new methodology on Union’s rating. While the elimination of some criteria like matriculation and selectivity may help Union’s rating, the addition of other criteria like total wealth negatively impact Union’s standing. I find that even after including \$50 million of new debt Union should retain its A1 rating. To strengthen Union’s case for an A1 rating I conduct a peer comparison to help Union navigate Moody’s new rating methodology. I also explore potential ways to structure the additional debt and discuss the pros and cons of each option.

Rating College Debt: A Case Study of Union College

Table of Contents

Executive Summary	i – iv
Chapter 1: Estimating a Credit Rating for Union College	3
1.1 Background on Bonds, Municipal Bonds, and Credit Ratings.....	3
1.2 Higher Education Borrowing	6
1.3 Tax-Exempt Debt Regulations	7
1.4 The Higher-Education Bond Market	8
1.5 Introduction to New Methodologies	8
1.6 Moody’s Global Higher Education Rating Methodology	9
1.7 S&P Rating Methodology: Not-for-profit public and private Colleges and Universities	11
1.8 Comparison of Moody’s and S&P’s Rating Methodologies	13
1.9 Introduction to Union College	14
1.10 Primary Questions	15
1.11 Data Used for Analysis	15
1.12 Methodology for Calculating Preliminary Ratings	18
1.13 Union College Findings	21
Chapter 2: Peer Analysis	24
2.1 Identifying a Peer Group	24
2.2 Union Compared to Peers with Moody’s Methodology	25
2.3 Potential Explanations for Inconsistencies	26
2.4 Union’s Strengths Relative to Peer Institutions	27
2.5 Union’s Areas of Growth Relative to Peers	29
2.6 Recommendations for Union’s Credit Story and Positioning Union’s Areas of Growth	30
Chapter 3: Union College Debt Structuring Considerations.....	37
3.1 Identifying a Framework for Debt Structuring.....	39
3.2 Union’s Current Debt Outstanding	41
3.3 Potential Debt Structures for Union’s \$50 Million of Additional Debt	46
3.4 Summary of the Project and How S&E fits in with Union’s Strategic Plan	50
Appendix A: Financial and Common Data Set Information for Union and Peers.....	52
Bibliography.....	64

Executive Summary

Why Union's Rating is Important

Union College, a small private liberal arts college located in Schenectady, NY, plans to issue \$50 million of new money debt to partially cover the costs of a \$100 million science and engineering building. (\$40 million of the project costs will be covered by pledges and funds on hand, and \$10 million will be an endowment for the building.)

The last time Union went to market was 2012. Union received a score of A1 from Moody's a rating consistent with prior ratings for twenty plus years. In December of 2015, however, Moody's published a new Global Higher Education rating methodology. This new methodology consists of four categories: Market Profile, Operating Performance, Leverage, and Wealth and Liquidity, given 30%, 25%, 20% and 25% weights respectively. The new methodology eliminated criteria like matriculation, net tuition per student, average gift per student, and average debt service coverage. It added new metrics like total wealth, reputation and pricing power, strategic positioning, leverage, and debt affordability. Understanding Moody's new methodology and how it affects Union will be critical in creating a cohesive and pointed rating presentation to help Union achieve the highest rating possible.

Union's Preliminary Debt Rating with and Additional \$50 million of Debt

Union's preliminary scorecard outcome with an additional \$50 million of debt added is 4.95, which places Union's preliminary rating in the A1 range. The A1 range spans from 4.5 to 5.5. The new debt will directly impact financial leverage and debt affordability measured by spendable cash and investment to total debt, and total debt to cash flow respectively. Please see the scorecard below for an overview of Union's preliminary scorecard according to FY16.

Moody's Global Higher Education Scorecard: Union College with 50 Million Additional Debt					
Criteria	Ratio	Outcome	Score	Weight	Weighted Score
Scope of operations (\$000)	157,521	A	6	15%	0.9
Reputation and Pricing Power (%)	15.8	Aaa	1	5%	0.05
Strategic Positioning	Very Good	A	6	10%	0.6
Operating Results (%)	26.8	Aaa	1	10%	0.1
Revenue diversity (%)	69.7	Baa	9	15%	1.35
Total wealth (\$000)	431,789	A	6	10%	0.6
Operating Reserve (x)	3.6	Aa	3	10%	0.3
Liquidity (days)	594	Aa	3	5%	0.15
Financial Leverage (x)	1.8	A	6	10%	0.6
Debt affordability (x)	5.0	Aa	3	10%	0.3
					Preliminary Score 4.95
					Preliminary Rating A1

The new debt also has the potential to impact a criteria under the Market Profile category, strategic positioning. Strategic positioning is the only qualitative factor in Moody's new methodology. Therefore, since strategic positioning is a measurement of things like board effectiveness and successful planning, the additional debt could be perceived as risky to Union's overall financial position and plan. Union should prepare to discuss their overall strategic vision, and the role the new S&E project plays in that vision. Additionally, Union should discuss its weakest metric, revenue diversity with an alphanumeric score of Baa during its rating presentation. I believe Union has a strong case to show Moody's that Union has improved in this area and also that Union's revenues are diverse in this area because of programmatic and geographic diversity.

Peer Analysis

Bates, Franklin & Marshall (F&M), Colby, Hamilton, and Bucknell, are considered close peers with Union because the size of their student bodies, location in the northeast, ranking near Union in U.S. News and World Report rankings, and status as private not-for-profit four-year colleges. Bates and F&M were also most recently rated A1 by Moody's, and Hamilton, Colby, and Bucknell are currently rated two-notches above Union at Aa2. The chart below overviews Union compared to these five peers according to FY16 based on Moody's published scorecard.

Criteria	Union: Currently (A1)		Hamilton: Currently (Aa2)		F&M: Currently (A1)		Bucknell: Currently (Aa2)		Colby: Currently (Aa2)		Bates: Currently (A1)	
Scope of operations	A	157,521	A	133,834	A	139,412	A	222,481	A	139,950	A	110,628
Reputation and Pricing	Aaa	15.8	Baa	3.1	Baa	2.1	A	4.3	Aaa	8.8	Ba	0.6
Strategic Positioning	A	Very Good	Aaa	Exceptional	Aa	Excellent	Aa	Excellent	Aaa	Exceptional	A	Very Good
Operating Results	Aaa	26.8	A	12.3	Aa	15.7	A	12.3	Aa	15.1	Aa	15.8
Revenue diversity	Baa	69.7	Baa	70.8	Ba	84.2	Ba	79.4	Ba	83.3	Ca	99.2
Total wealth	A	431,789	Aa	883,213	A	368,783	Aa	816,878	Aa	925,404	A	307,347
Operating Reserve	Aa	3.6	Aaa	6.4	Aa	3.0	Aa	3.7	Aaa	6.9	Aa	3.0
Liquidity	Aa	594	Aaa	755	Aaa	737	Aaa	706	Aaa	1035	Aa	462
Financial Leverage	A	1.8	Aa	2.6	Aa	2.8	Aa	3.5	Aa	2.7	A	1.3
Debt affordability	Aa	5.0	Baa	14.5	Aa	4.5	Aa	5.6	A	9.6	Aa	5.7
Weighted Score	5.0		5.0		5.3		5.1		4.5		7.3	
Preliminary Rating	A1		A1		A1		A1		Aa3		A3	

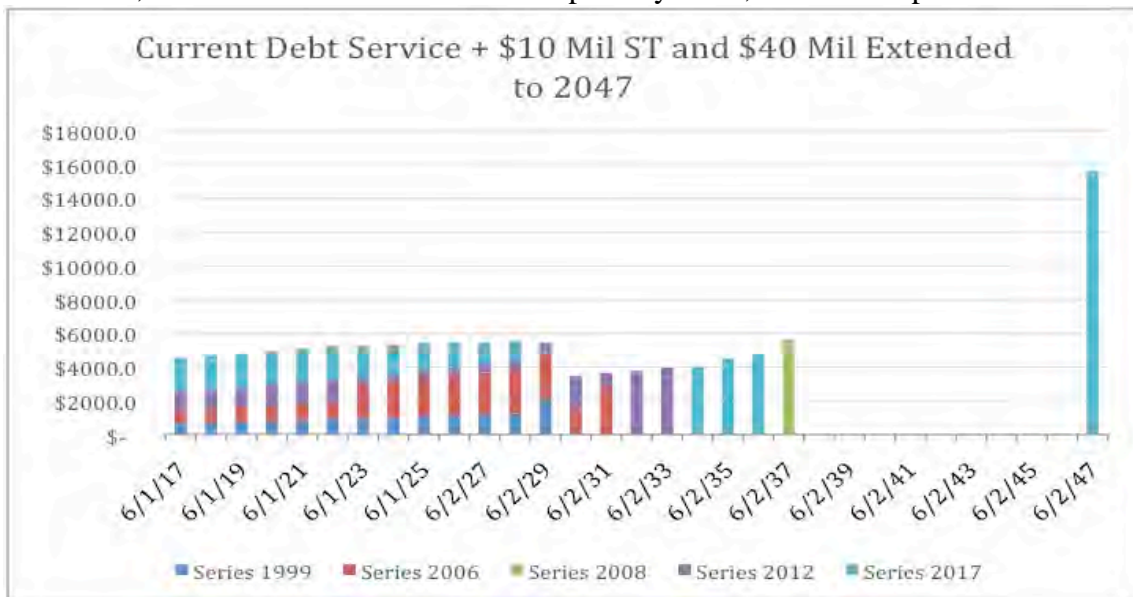
Union's strength relative to peers is driven by two key aspects of its financial statements: consistent increases in operating income and relatively low debt outstanding compared to peers. These two financial aspects drive Union to be on par with, or outperform more highly rated peer institutions in five factors: scope of operations, reputation and pricing power, operating results, operating reserve, and debt affordability. Union's increasing operating revenue is largely attributed to increases in private gifts and grants, which increased 236% from FY2011 to FY2016. Union can explain that this was a deliberate act of strategic planning to improve its revenue diversity, increase funds on hand, and increase alumni giving percentages. Union's lower debt outstanding and strong scores in criteria related to debt help support Union's case that taking on additional debt is fiscally responsible, as well as a wise strategic move.

Peer colleges rated more highly outperform relative to Union in three factors: liquidity, financial leverage, and total wealth. Union’s liquidity is strong at 594 days, putting it in the Aa alphanumerical range for this factor. Peers, however, have even better liquidity than Union, but this is not a major concern. Financial leverage, measured by spendable cash and investments to total debt, and total wealth, measured by total cash and investments, are clearly tied to one another. Both measurements use cash and investments. This is where Union’s smaller endowment is reflected in the scorecard. Union’s endowment, valued at \$432 million in FY16 is about half the size of Hamilton, Bucknell, and Colby’s endowments at \$883 million, \$817 million, and \$925 million respectively. The magnitude of Union’s endowment in relation to peer colleges is Union’s biggest concern financially. This concern is exacerbated because Union’s endowment return of about -9.0% was cited by Bloomberg as the worst endowment return among the “little Ivies.”

Discussing Union’s plans to generate positive endowment returns in the future and the positive trends on larger scale should help mitigate the endowment concerns. Integrating positive aspects of Union strategic planning like its more than 16% increase in applications since 2011-2012, strong retention rates around 93%, and differentiating factor as a liberal arts school with a robust engineering program. Additionally, comparing criteria where Union outperforms compared to peers, such as those related to operating revenue and debt affordability, will position Union well to maintain its prior rating of A1.

Debt Structuring Recommendation

Although there are infinite ways to structure Union’s additional debt, I think the structure outlined below, or a structure that uses the same primary ideas, is the best option.



This structure issues \$10 million of short-term debt, the maximum advised by Union's underwriter. According to Union's scheduled pledges designated for the S&E project, the entirety of the short-term debt principal will be offset by the pledge payments. The debt follows the pre-existing staircase structure (increasing principal as the maturities become longer) up to 2029, followed by another staircase leading to the 2037 Series 2008 term bond payment. Lowering the debt after 2029 will leave more flexibility for future debt issues because Union could easily handle additional debt layered on top of the existing debt in the years 2030 and beyond. The remaining debt, about \$15.6 million, could be issued as a long-term term bond with mandatory sinking fund payments. Based on recently priced higher education deals, market conditions for issuing term bonds are good. Haverford College, rated AA- by S&P and Fitch issued three large long-term term bonds with 5.0% interest rates during their debt issue on February 28th of this year. This further supports that Union could help keep upcoming payments lower by issuing a large term bond for potentially little additional cost in terms of the interest rate on the bond. Therefore, this option takes Union's current finances and pledges into consideration, maintains flexibility by issuing less debt in the mid years, and lowers upfront costs by issuing a large long-term term bond.

Following this executive summary is the analysis that led me to make these recommendations and conclusions about Union's potential debt rating and debt structure. In the first chapter I review the basics of public finance, the importance of debt ratings, and the new rating methodologies. I use Moody's scorecard outlined in their Global Higher Education rating methodology to arrive at a preliminary score of A1. In the following chapter I compare Union to its group of five peer institutions. After calculating their preliminary rating outcomes using the same process, I examine Union's strengths and areas of concern relative to its peer group. I also give recommendations on how to navigate these areas of concern, including Moody's new qualitative criteria, strategic positioning. Finally, I review three options for structuring Union's additional debt based on a framework to achieve a balance of short-term to long-term debt, the best sustainability from a financial perspective, an absence of concentration of the debt, and also taking current market conditions into account. After reviewing some recent higher education deals I make a final recommendation for the debt structure of the new deal. My analysis supports that the S&E capital project is reasonable from a financial standpoint and should not damage Union's credit even with the new rating methodology. The reinvigoration of S&E has the potential to better Union's competitive edge as a liberal arts school with strong STEM programs without deteriorating Union's financial position.

Chapter 1: Estimating a Credit Rating for Union College

1.1 Background on Bonds, Municipal Bonds, and Credit Ratings

A bond is, by its most basic definition, a loan. The seller of the bond, or the “issuer,” pays the buyer of the bond, or the “investor,” the loan plus some stream of interest at a set date in the future (Law 2016). The date when the initial amount of the bond, or the principal, is paid back to the investor is considered the maturity of the bond. The interest rate the issuer pays on the bond is called the coupon. The price is determined as the present value of both the income stream from the interest and the amount paid back at maturity. Therefore, one method of determining price is adding the present value of the cash flows. Exhibit 1 describes this equation.

Exhibit 1: Bond Pricing Equation

$$P = \frac{C}{1+i} + \frac{C}{1+i^2} + \dots + \frac{C}{1+i^n} + \frac{M}{1+i^n}$$

In Exhibit 1, “P” is the price of the bond, “C” is the coupon payment, “i” is the interest rating, “M” is the principal, and “n” is the “nth” time period.

When a state, local government, or other certified issuer issues bonds it is considered a “municipal bond.” The primary difference between corporate bonds, i.e., bonds issued by cooperate entities, and municipal bonds is that the income stream from municipal bonds is normally federally tax-exempt (and frequently state and locally tax-exempt), whereas the income stream from cooperate bonds is taxable. Therefore, investors are willing to accept lower interest payments since the income stream is tax exempt, and issuers benefit because they pay lower interest payments on their debt. Consider, for example, two bonds: A, which is taxable, and B, which is tax-exempt. Let’s assume a 30% tax-bracket and that both bonds have the same probability of default. If bond A paid \$100 a month, the real income steam is actually \$70 (because 30% of \$100 is \$30, leaving the investor with \$70). Thus, if that same investor is

deciding whether to invest in a tax-exempt bond instead, any payment greater than \$70 would be a better investment.

The relationship between taxable and tax-exempt bonds explains the relationship between the U.S. Treasury yield curve and the Municipal Market Data curve (MMD, the relevant yield curve in municipal issues). MMD theoretically lies below the Treasury yield curve at a rate equal to one's tax rate, because investors are willing to accept lower interest payments.

Other certified municipal issuers that are not governments are those entities that can claim a tax-exempt status. For example, primary education systems, higher-education systems, hospitals, sports arenas, and other not-for-profits can issue tax-exempt debt. The U.S. tax code under section 501.c3 allows for not-for-profits to issue tax-exempt debt (SIFMA 2011).

Municipal bonds are issued for two primary reasons: to finance a new project or to refinance existing debt. When the bonds are issued to finance a project, i.e., a state government building a new highway, the bond issue is considered to be, "new money." In the case of bonds refinancing old bonds, the issue is aptly called a, "refinancing" (Hoffland 1972). When the bonds are initially sold that is considered the "primary bond market," whereas when the investor resells a bond, or trades it, this is considered the "secondary bond market" (SIFMA 2011).

There are two ways to sell bonds: through a competitive sale or a negotiated sale. In a competitive sale investors submit sealed bids to the issuer whereas in a negotiated sale, a "senior banker" or "lead banker" is chosen from a selection process to buy the entirety of the bond issue from the Issuer at such a price that the bank can then sell the bonds on the market. A negotiated sale offers the issuer more debt structuring flexibility and access to banking professionals who can introduce new ideas to financing the given project (SIFMA 2011).

Competitive sales are less common than negotiated (Bond Buyer, 2016). The process, however, is arguably simpler. The issuer simply announces the sale, normally on Bond Buyer, then there is a period when investors place bids on the debt issue. The issuers then take whichever bids result in the lowest cost of capital (SIFMA 2011).

When any Issuer, whether it be municipal or corporate, decides to come to market, or issue debt, they have the option of paying for a credit rating(s) from a rating agency. These ratings serve as an endorsement for the debt when the rating is good, and warn investors of potential concern when the rating is below investment grade. Therefore, the rating agencies help close the problem of asymmetrical information between the sellers and the buyers (Langohor 2016). The primary agencies are Moody's, Standard and Poor's, and Fitch. Each agency assigns ratings on somewhat different scales given in Exhibit 2.

Exhibit 2: Credit Rating Scales from Moody's, S&P, and Fitch

TABLE 1.4 Credit Ratings

Credit Risk	Moody's	Standard & Poor's	Fitch Ratings
Investment Grade	Aaa	AAA	AAA
Strongest	Aa	AA	AA
	A	A	A
	Baa	BBB	BBB
Noninvestment Grade	Ba	BB	BB
	B, Caa, Ca, C	B, CCC, CC, C	B, CCC, CC, C
Weakest	C	D	D

Source: Securities Industry and Financial Markets Association.

Therefore, the top rating, AAA or Aaa, is considered to be the most secure, or the least likely to default, whereas the bottom category, D or C indicates default. Since ratings are considered an indicator of risk, they also help determine return, or interest rate. Investors demand

a higher coupon on bonds that are perceived as more-risky, as compensation for the additional risk they are taking on. Hite and Warga (1997) found this relationship to be true in the case of rating downgrades (that is an issuer moving down on the rating scale). They studied issuers in the 12 months prior to a downgrade and in the 12 months after a downgrade, and found that issuers were forced to compensate investors with significantly higher interest rates after the downgrade as opposed to the 12 months prior. Hand, Holthausen, and Leftwich (1992) found similar findings from their study of the announcements of downgrades from Moody's and S&P. Therefore, ratings are an important aspect to consider both from an investor perspective, to measure risk and return, and from an issuer's perspective to try to keep the cost of capital as low as possible. From this investor perspective, it is advantageous to obtain the highest rating possible in order to obtain the lowest cost of capital.

1.2 Higher-Education Borrowing

According to U.S. News and World report the average size of a College or University endowment in America in fiscal year 2015 was \$355 million (Kowarski 2016). With access to funds of that magnitude, many may wonder why College and Universities issue debt via negotiated or competitive debt sales to finance new building projects. The basic answer is that an endowment is normally made up of hundreds or even thousands of smaller funds, which are normally designated for specific purposes (Smith 2015). Some funds are solely for financial aid, a specific scholarship fund, or a specific department. These specialized funds restrict a college or university board from accessing enough funds to undertake large building or renovation projects on a college campus. Therefore, when colleges and universities cannot raise enough unrestricted funds, i.e., annual funds, or money specific to the project from large donors, they must issue debt in order to complete the project. There are also industry wide expectations to

maintain a sizable endowment as a cushion for times of financial stress and as an indicator of a long legacy and prestige.

1.3 Tax-Exempt Debt Regulations

Since Colleges and Universities are in the higher-education category they are given a tax-exempt status under the IRS code section 501 (c) (3) (SIFMA 2011). This allows colleges and universities the option to issue tax-exempt debt, thus obtaining a lower cost of capital. Despite this benefit, issuing tax-exempt debt comes with regulations and restrictions.

The MSRB, or Municipal Securities Rulemaking Board establishes rules for issuing tax-exempt debt. The MSRB rules are too numerous and complicated to discuss fully here. The rules are in fact so detailed that all negotiated deals must have an independent lawyer, called Bond Counsel to review the issuer to make sure it is legal (EMMA 2011).

Here are some of the most important regulations. Firstly, the project, or the thing the new debt is financing, cannot include a taxable income generating entity. For example, issuers cannot build a new tax-exempt study facility with rental space for a taxable coffee store in it. Secondly, issuers must follow the laws and regulations, as to not commit arbitrage: the issuer cannot invest the proceeds of the bond deal at an interest rate higher than the arbitrage yield. Thirdly, there are different regulations for calling tax-exempt bonds out of the market. Tax-exempt bonds can only be called prior to the call date period once. This is called an Advanced Refunding (MSRB 2016).

The MSRB states under the Refunding section:

In an advance refunding, the issuer sells new bonds and places the proceeds into an escrow account. Thus, the advance refunded bonds are not paid off immediately, but instead are paid off either as originally scheduled at maturity or on an earlier redemption date in the future according to the bonds' redemption, or "call," provisions. The Federal tax code generally provides that a bond issue may be advance refunded only once (although bonds issued prior to 1986 may be advance refunded twice)

The provision for only allowing one Advanced Refunding is because the bonds are essentially no longer a liability of the issuer since the escrow pays for the payments due on the bonds.

These regulations only serve as a few of the most principal examples of the complex regulations that must be understood and met by issuers of tax-exempt debt. These restrictions are an additional cost or hindrance to consider when deciding whether to issue tax-exempt or taxable debt.

1.4 The Higher-Education Bond Market

The market for college and university debt is a significant portion of municipal debt. According to Bond Buyer, in 2015 the volume of long-term debt issues related to education (which includes all levels of education through college) was nearly \$125 billion, while the entire dollar amount of tax-exempt issues in 2015 was \$398 billion (Bond Buyer 2016). Therefore, education comprised 31.4% of the municipal market in 2015.

The market for municipal debt in the education sector increased considerably. Since 1986, for example, the annual issue of long-term education related debt increased nearly 80.4% (Bond Buyer 2016). The number of annual education related deals increased 144% since 1986 (Bond Buyer 2016).

Thus, it can be argued that education related debt is increasing in terms of market share of municipal debt since the number of issues and the magnitude of issues increased substantially.

1.5 Introduction to New Methodologies

After the financial crisis of 2008 unraveled it became apparent that rating agencies were partially to blame for the financial disaster (The Financial Crisis Inquiry Commission 2011). The rating agencies, like the banks had issues of moral hazard and transparency. As a result of the rating agencies role in the financial crisis, rating agencies are subjected to harsher regulations by the Securities and Exchange Commission via the Dodd-Frank Wall Street Reform and Consumer Protection Act (effective 2010 (EMMA 2016)). Dodd-Frank requires that rating agencies publish

rating methodologies so that investors, bankers, and issuers can discern how ratings are determined. The following describes Moody's and S&P's new rating methodologies for higher education debt (published in November 2015 and January 2016 respectively).

1.6 Moody's Global Higher Education Rating Methodology

November 23, 2015 Moody's published a new *Global Higher Education* rating methodology. The new methodology explains Moody's approach and criteria for rating higher-education debt in and outside of the United States. This methodology states, "This report includes a scorecard that can be used to approximate credit profiles within the higher education sector" (Kedem 2015 p 3). It should be noted that although the scorecard provides a relatively good approximation for the credit risk associated with a particular issuer, and thus its credit rating, Moody's reserves the right to weight other factors not listed in the methodology. Despite that Moody's may consider other factors, there are four main segments Moody's analyzes: Market Profile, Operating Performance, Wealth and Liquidity, and Leverage. Exhibit 3 describes the subcategories in each segment and the weight typically assigned to each category and the factors used to evaluate each category.

Exhibit 3: Moody’s Global Higher Education Scorecard Factors

Broad Category & Weight	Sub Categories & Weights	Factor Criteria
Market Profile (30%)	Scope of Operations (15%)	Operating revenue
	Reputation and Pricing Power (5%)	Annual change in operating revenue
	Strategic Positioning (10%)	Broad criteria, including capital and financials plans
Operating Performance (25%)	Operating Results and Budgetary Flexibility (10%)	Operating cash flow margin
	Revenue Diversity (15%)	Percentage of revenues from its largest revenue stream
Wealth and Liquidity (25%)	Total wealth (20%)	Total cash and investments and Spendable Cash & Investments to Operating expenses
	Liquidity (5%)	Monthly days cash on hand
Leverage (20%)	Financial Leverage (10%)	Spendable cash and investments to total debt
	Debt affordability (10%)	Total debt to cash flow

After computing each factor criteria for the most recent fiscal year, Moody’s compares each factor to predetermined brackets. If, for example, annual change in operating revenue is greater than or equal to 4%, but less than 6%, the issuer receives a rating of A for this factor which then corresponds to a score of 6 for this category. Thus, each factor is given an overall score, and the weighted average corresponds to an overall rating. The lower the overall weighted score, the higher the rating.

All factors but one from Exhibit 3 are calculated from an issuer’s annual financial statements. Thus, Moody’s rating methodology is focused primarily on balance sheet and income statement analysis. Moody’s prior higher education rating methodology took other factors about the school into account. For example, Moody’s old higher education methodology took other factors like matriculation and selectivity into account. Therefore, credit ratings under the old

methodology would be more related to say, U.S. News and World Report Rankings, which puts primary emphasis on things like selectivity, retention rates, median incoming SAT and ACT scores, and other factors related to the quality of education. Moody's new methodology treats higher education issuers more like businesses. Even the one non-financial factor, strategic positioning, is related to the issuer's plans to better the issuer's financial position in the future and the effectiveness of its strategies.

1.7 S&P Rating Methodology: Not-For-Profit Public and Private Colleges and Universities

S&P also established new methodologies for higher education issuers, however, S&P publishes distinct methodologies for each type of higher education issuer. This particular methodology was effective January 6, 2016. S&P's rating methodology operates under the same basic idea as Moody's. As opposed to four sections, however, there are two: Enterprise Profile and Financial Profile, which are given equal weight. Exhibit 4 describes the Not-For-Profit Public and Private College and University rating methodology.

Exhibit 4: Not-For-Profit Public and Private College and University rating methodology

Broad Category & Weight	Sub Categories & Weights	Factor Criteria
Enterprise Profile (50%)	Industry Risk (10%)	Global higher education rated 2 by S&P
	Economic Fundamentals (10%)	GDP per capita
	Market Position and Demand (70%)	Selectivity, retention rates, other demand factors, matriculations, FTE (full time enrollment)
	Management and Governance (10%)	Strategic positioning, risk and financial management, organizational effectiveness, and governance
Financial Profile (50%)	Financial Management Policies (10%)	Transparency, reserve and liquidity, investment management, long-term planning, and debt management policies
	Financial Performance (20%)	Operating margin, debt service, depreciation, and plant renewal
	Financial Resources (35%)	Overall leverage and available resources
	Debt and Contingent Liability Profile (35%)	MADS and available resources to total debt
	Debt affordability (10%)	Total debt to cash flow

Unlike Moody’s Global Higher Education methodology, S&P’s methodology described above takes many non-financial factors into account. Factors like matriculation and selectivity that Moody’s completely eliminated are still measured by S&P. Additionally, the overarching risk of the industry, in this case higher education, is evaluated and the area in which the issuer is located is assessed using GDP per capita.

Like Moody’s methodology each factor corresponds to a score, which is then weighted and results in an indicative score. However, S&P then takes into account “overriding factors and caps” into consideration. Financial trends over the last three years are taken into account. If, for example, operating revenue is continually growing at a steady rate the issuer may receive a “bump” up on its financial profile. S&P also explicitly takes peer analysis into account. Other

adjustments are made for things like strong student to faculty ratios, and a high percentage of faculty with PhDs (S&P Global Methodology 2016 p 8)

1.8 Comparison of Moody's and S&P's Rating Methodologies

It is reasonable to conclude from a comparison of Exhibit 3 and 4 that S&P takes a more holistic approach to its methodology than Moody's. Moody's indicative score is based 90% on financials, whereas S&P's indicative score is only 50% financials, and ratings are routinely adjusted for many additional factors and trends. This is not to say S&P's approach is superior to Moody's, just simply that the different structures of the rating methodologies will affect issuers credit ratings based on where the issuer's strengths and weaknesses lie.

Since the S&P and Moody's rating methodologies differ considerably it is important for issuers to be aware of the differences and weigh which methodology will likely result in a higher rating. Moody's and S&P project that only 5% and 8%, of issuers respectively will be affected by the rating methodology changes (Kedem 2015 p 3) (S&P Global Methodology 2016 p2). It is still important, however, for issuers who have only been evaluated by one or the other to consider switching agencies, or adding a rating to reap the benefits of the different rating approach.

However, due to the proximity of the deal being a few months away, and the preexisting relationship and familiarity with Moody's, Union College decided to continue obtaining rating only from Moody's for its next deal. The remainder of the discussion will be in regards to Moody's Global Higher Education rating Methodology.

1.9 Introduction to Union College

Union College, (Union, or the college) located in Schenectady, NY is the oldest private liberal arts college in the U.S. (officially chartered in 1795). The College enrolls roughly 2,200 students, and is governed by Union's President, along with its Board of Trustees (Union.edu 2017). Union College plans to issue new debt for a new money project during the 2016 - 2017 academic-year. The new money project will finance the building of a new Science and Engineering building (herein S&E). The new S&E building aligns with Union's strategic goals to maintain its position as a leading liberal arts school with a strong engineering program. The overall cost of the building project will be \$100 million. \$10 million of the project will be paid with funds on hand, and another \$40 will be paid for through pledges, and \$10 million will serve as an endowment for the building. This leaves \$50 million of the project cost unpaid. This portion of the cost will be paid for by the new debt. Therefore, the college should be aware of Moody's new rating methodology and how it will impact their rating, and thus cost of borrowing.

Union is currently rated A1, an investment grade rating, as of 2012 (EMMA 2016). Moody's recognizes some of Union's strengths including, 50% and 30% increases of financial resources and cash and investments in FY2014 and FY2015 respectively, Union's low risk debt structure, and Union's strong engineering program, a differentiating factor from peer institutions in the Northeast. Moody's cites, however, Union's dependence on student charges for 73% of its revenues as its largest challenge (Sharma, Gephardt 2012). Considering Union has not been rated since 2012, and the magnitude of this debt issue is substantially larger than any recent deal in the past decade, obtaining the best rating possible is a crucial aspect of obtaining the lowest cost of capital possible.

1.10 Primary Questions

The following questions will guide my thesis with the ultimate goal of making two primary recommendations to Union: how Union should position its credit story to rating agencies, and structures Union should consider when structuring its new debt.

1. What is Union's projected rating using Moody's new rating methodology?
2. How does Union's projected rating compare to peer institutions?
3. How should Union position its strengths and areas of concern to rating agencies?
4. What considerations should Union make when structuring the debt?

The above four questions will ultimately lead to recommendations to Union on how to approach its credit rating and the structuring of its \$50 million of new debt.

1.11 Data Used for Analysis

According to regulatory requirements established by the Electronic Municipal Market Access (EMMA), which is under the jurisdiction of the Municipal Securities Rulemaking Board (MSRB), all issuers must enter a Continuing Disclosure Agreement (EMMA 2016). The Continuing Disclosure Agreement is found in the official offering statements for any issuer post 2012 when the regulation was implemented. This agreement requires issuers to post all available financial data on EMMA, minimally for the past five fiscal years to the present. Thus, any college or university that issues debt must post their annual financial statements publically to EMMA's website.

Unfortunately, the financial information is not loaded in a spreadsheet that can easily be uploaded for analysis, but rather the financial statements are simply the PDFs of the final statements. This makes analyzing multiple schools for peer analysis at one time difficult because

each PDF must be meticulously transcribed into excel before the relevant factors from Exhibits 3 and 4 can be calculated for the scorecards.

The Integrated Postsecondary Education Data System (IPEDS) offers a public online database with the financial and relevant nonfinancial data for colleges and universities in the United States. Initially, I planned to download all the financial data for every not-for-profit four-year institution in the Northeast and calculate the relevant financial ratios using “R”, a statistical computing program. This would have allowed me to create medians for key indicators. For example, if the median change in operating revenue was 5% between FY2014 and FY2015, Union’s change in operating revenue, which is above 5%, could be identified as a credit strength to the rating agencies.

The IPEDS dataset, however, cannot be used for this analysis. Differences in accounting from school to school make it impossible. For example, Union College and Bucknell University use the same independent auditor, KPMG, to review their annual financials. Even with the same company auditing the financials, however, there are considerable differences. For example, the second line of Union’s income statement is “Pledges receivable, net.” This is an important line item because when calculating ratios pertaining to leverage, like spendable cash and investments to total debt, “Pledges receivable, net” must be added back into the numerator according to the methodologies of Moody’s and S&P. Bucknell, however, does not report this line item as directly as Union. Bucknell lumps “Pledges receivable, net” into a line item called, “Inventories, prepaid expenses, and other assets Accounts and other receivables, net.” The necessary line item for the calculation is found in an appendix to the financials. The differences in accounting between colleges and universities occur frequently. Some schools, like Hamilton College, lump

amortization and depreciation together, while most other schools list them separately. Other key line items that are reported differently include:

- Total Debt, which is sometimes listed separately and sometimes lumped together with other liabilities
- Funds Held in Trust, which is sometimes listed in the balance sheet and other times listed in an appendix
- Investments, which are sometimes listed as many separate line items that must be added together or sometimes as a single item.

The numerous differences in accounting make it impossible to align a single IPEDS variable to the line items for various higher education issuers. To identify which IPEDS variable corresponds to issuers' financials, each issuer's financials must be separately evaluated and manipulated. The problem was further enhanced because IPEDS does not report some key variables necessary to calculate the financial ratios for the scorecards. For example, IPEDS does not have a variable that measures "Amortization" or "Cash and Cash Equivalents", two key components to many financial ratio calculations. Thus, the IPEDS data was deemed unusable for the purpose of conducting peer analysis and creating financial medians.

The most viable option for financial data was downloading each issuer's financial statements from EMMA and transcribing the information by hand. I created a comprehensive spreadsheet for each institution with its financial data for fiscal years 2014-2016 and the past five fiscal years for Union. This information can be found in Appendix A.

For other key non-financial metrics I used *Common Data Set Initiative* reports for Union and its peers. All schools that partake in the initiative report information on admissions, graduation rates and degrees, retention, and programs. I used this data to analyze strategic

positioning trends. The key variables I used from this source were: graduation rate, total applications, total admitted, total enrolled, and percentage of students in each program area. This raw information is also located in Appendix A.

1.12 Methodology for Calculating Preliminary Ratings

My methodology goal was simple: recreate the scorecards for Moody’s based on its rating methodology as closely as possible to simulate the actual preliminary rating scores. The rating methodology provides the necessary information to recreate scorecard.

As mentioned in section 1.2, Moody’s scorecard measures 10 factors, 9 of which are based on the financial statements. Moody’s outlines ranges for scoring that corresponds to each factor. Exhibit 5 gives an example of Moody’s ranges.

Exhibit 5: Ranges for Operating Revenue (\$000) According to Moody’s Methodology

Factor	Weight	Aaa	Aa	A	Baa	Ba	B	Caa	Ca
Operating Revenue (\$000)	15%	≥ 2,700,000	< 2,700,000 ≥ 400,000	< 400,000 ≥ 75,000	< 75,000 ≥ 40,000	< 40,000 ≥ 30,000	< 30,000 ≥ 20,000	< 20,000 ≥ 8,000	< 8,000

For example, if an issuer had operating revenue (\$000) equal to \$85,000, then the issuer would score A for this factor. Therefore, once the financial ratios are calculated it is relatively easy to apply the methodology to evaluate how the issuer would score for that given factor.

This process was simplified by creating an automated scorecard that pulls the calculated ratios and evaluates them according to the relevant ranges. For example, Exhibit 6 shows the calculation used to evaluate operating revenue.

Exhibit 6: Sample Calculation Used to Evaluate Operating Revenue

=IF(C24 >= 2700000, "Aaa", IF(C24 >= 400000, "Aa", IF(C24 >= 75000, "A", IF(C24 >= 40000, "Baa", IF(C24 >= 30000, "Ba", IF(C24 >= 20000, "B", IF(C24 >= 8000, "Caa", IF(C24 < 8000, "Ca"))))))))

The reference to “C24” is the cell, which pulls the operating revenue ratio. Each alphanumerical score corresponds to a numerical value.

Exhibit 7: Numerical values to Alphanumerical Scores

Aaa	Aa	A	Baa	Ba	B	Caa	Ca
1	3	6	9	12	15	18	20

Following the example from above, if an issuer scored an alphanumerical value of “A” for operating revenue, which is the measure for the “Scope of operations category”, the score for this factor would be 6. The score in each category is weighted according to the rating methodology. For example, In Exhibit 4 operating revenue is given 15% weight.

Moody’s measures one nonfinancial factor called strategic positioning. Strategic positioning is a qualitative factor that measures reputation and effectiveness of the issuer’s governance. Please see Appendix A for the rubric Moody’s uses to assign an alphanumerical rating for this factor. This factor involves a judgment call. It is hard to distinguish the difference between “strong diversification” and “highly diversified” for example. For this reason, I typically looked through rating reports to see how Moody’s referenced a college’s strategic plan or the strength of its governance for guidance on this factor. I also used metrics from common data set reporting to guide my judgement on assigning scores for the strategic planning criteria. It will become apparent later that this factor is a key component to maintain Union’s current A1 rating

and will be discussed in depth in the section discussing Union’s positioning to credit rating agencies.

Exhibit 8: Moody’s Scorecard Outcome

Scorecard Outcome	Aggregate Weighted Factor Score
Aaa	$x \leq 1.5$
Aa1	$1.5 < x \leq 2.5$
Aa2	$2.5 < x \leq 3.5$
Aa3	$3.5 < x \leq 4.5$
A1	$4.5 < x \leq 5.5$
A2	$5.5 < x \leq 6.5$
A3	$6.5 < x \leq 7.5$
Baa1	$7.5 < x \leq 8.5$
Baa2	$8.5 < x \leq 9.5$
Baa3	$9.5 < x \leq 10.5$
Ba1	$10.5 < x \leq 11.5$
Ba2	$11.5 < x \leq 12.5$
Ba3	$12.5 < x \leq 13.5$
B1	$13.5 < x \leq 14.5$
B2	$14.5 < x \leq 15.5$
B3	$15.5 < x \leq 16.5$
Caa1	$16.5 < x \leq 17.5$
Caa2	$17.5 < x \leq 18.5$
Caa3	$18.5 < x \leq 19.5$
Ca	$x > 19.5$

All of the weighted factor scores are added to produce an aggregate weighted factor score. The lower the aggregate weighted factor score, the higher the rating. Exhibit 8 displays Moody’s final scorecard outcome as they relate to the aggregated weight factor scores. Therefore, if a final aggregate weight score for an issuer is 4.8, the issuer should receive a rating of A1. As mentioned in Section 1.2, the rating agencies reserve the right to adjust ratings for additional credit strengths or weakness that are not listed in the methodology. Differences between aggregated weighted factor score and actual rating will be discussed further in the discussion of findings.

1.13 Union College Findings

Based on Union’s FY2016 financial statements and nonfinancial data retrieved from Union’s Common Data Set reports, Union’s preliminary score, with the addition of \$50 million of debt is 4.95.

An aggregate score of 4.95, corresponds to a rating of A1, and in fact fall in the middle of the A1 range of 4.5 to 5.5. This signifies a maintenance of Union’s most recent and historical rating. Exhibit 9 shows Union’s scorecard outcome according to its FY2016 financial statements.

Exhibit 9: Union’s Moody’s Scorecard According to FY2016 Financial Statements

Moody's Global Higher Education Scorecard: Union College with 50 Million Additional Debt					
Criteria	Ratio	Outcome	Score	Weight	Weighted Score
Scope of operations (\$000)	157,521	A	6	15%	0.9
Reputation and Pricing Power (%)	15.8	Aaa	1	5%	0.05
Strategic Positioning	Very Good	A	6	10%	0.6
Operating Results (%)	26.8	Aaa	1	10%	0.1
Revenue diversity (%)	69.7	Baa	9	15%	1.35
Total wealth (\$000)	431,789	A	6	10%	0.6
Operating Reserve (x)	3.6	Aa	3	10%	0.3
Liquidity (days)	594	Aa	3	5%	0.15
Financial Leverage (x)	1.8	A	6	10%	0.6
Debt affordability (x)	5.0	Aa	3	10%	0.3
					Preliminary Score 4.95
					Preliminary Rating A1

The effect of \$50 million of additional debt directly impacts two factors. First, financial leverage, measured by spendable cash and investments to total debt, decreases from 2.6 times to 1.8 times since debt is in the denominator thus reducing the ratio. Second, debt affordability, measured by total debt to cash flow, increases from 3.5 times to 5.0 times because in this ratio debt is in the

numerator. The new debt, however, could also indirectly impact strategic positioning. Adding an additional \$50 million of debt to Union's existing \$116 million outstanding currently may be seen as a poor strategic move. Thus, aiming to achieve a, "Very Good" outcome or better in the strategic positioning criteria could be crucial to obtaining an A1 credit rating because a lower score has the potential to push Union's aggregate score higher towards an A2 rating.

As indicated in Exhibit 9, Union scores A or better in every alphanumerical factor aside from revenue diversity. Revenue diversity, however, is a significant outlier with an alphanumerical score of Baa. The relevant financial ratio for revenue diversity is measured by maximum single contribution, that is the percentage of revenues accounted for by the largest stream of revenues. Union relies heavily on student tuition and fees for revenue. Roughly 70% of revenues come from student tuition and fees. To a rating agency this poses a problem because if there is some sort of event that deters students from attending the college, the majority of revenues used to repay investors is gone.

Union's strongest categories are: reputation and pricing power, operating results, operating reserve, and liquidity. Union's Aaa factor score for reputation and pricing power is because of Union's high annual change in operating revenue. Union's operating revenues steadily rose in the past five fiscal years. Operating revenues grew around almost 8% between FY2013 and FY2014, almost 11% between FY2014 and FY2015, nearly 16% between FY2015 and FY2016. The positive change in revenue was driven by rises in three main revenue streams: tuition and fees, room and board, and private gifts and grants. The most significant growth was in the private gifts and grants category with 236% growth since FY2011. The drastic growth in private gifts and grants can be largely attributed to a giving campaign led by the current president, President Stephen Ainlay. The operating results category was also strong. Operating

results is measured by operating cash flow margin, commonly used to measure effectiveness of financial management. An operating cash flow margin of nearly 27% suggests that Union's management policies and financial plans align with revenue and expenditure growth goals.

Union's operating reserve and liquidity metrics are also strong. Operating reserve, as measured by spendable cash to operating expenses is 3.6 times. This shows Union can operate without additional wealth. Liquidity, as measured by days cash on hand, is strong at 594 days. Union's liquidity is consistently strong and cited as a strength by Moody's (Sharma, Gephardt 2012).

Although Union's preliminary weighted scorecard outcome returns a score of 4.95 and a preliminary rating of A1, this is not to say Union will undoubtedly maintain its prior rating. Moody's states that almost all final ratings are within one or two notches of the preliminary scorecard ratings (Kedem 2015 pg. 15). If a debt issue is a negotiated deal, as this deal is, it is not uncommon for the lead banking team on the deal to put together a rating agency presentation for the relevant rating agencies. One tactic used by underwriters is to compare the college to peer institutions to highlight the relevant issuer's strengths and discuss how weaknesses are being addressed in order to obtain a higher rating. Therefore, Union's presentation of its credit story to Moody's is of critical importance to maintain an A1 rating. Thus, it seems appropriate to compare Union to peer institutions to enhance its credit story.

Chapter 2: Peer Analysis

2.1 Identifying a Peer Group

The first step in conducting peer analysis is choosing a peer group. In choosing a peer group I considered the following factors:

- Location: in the Northeast
- Type of School: Not-For-Profit Private 4-year Institution, Co-Ed
- Size: Enrolls fewer than 5,000 students
- Reputation: Ranking above 40 on U.S. News and World Report

Location is important because the economic landscape changes considerably across the country. The Northeast is generally wealthier than the southern regions or middle regions of the country and therefore would not provide a good comparison. The type of school is important because Moody's identifies specific methodologies for each different type of higher education institutions (i.e. Universities vs. Colleges). Therefore, to compare Union's estimated Moody's score to other schools, they must be not-for-profit private 4-year institutions. Size is important for similar reasons. Size is also highly linked to revenue and other financial indicators, considering most schools rely heavily on tuition and fees for revenue. Finally, reputation is important because if schools are of a similar reputation they will be considered closer substitutes in the college market. This means they will have a similar demand base, which affects selectivity, retention, matriculation, and other demand related factors.

Given the above criteria I identified, Bates College, Hamilton College, Colby College, Franklin and Marshall College (F&M), and Bucknell University as peer institutions for Union College. Exhibit 10 gives a brief comparison of Union to the five peer institutions.

Exhibit 10: Selection of Peers

School	Enrollment	Location	U.S. New & World Report Ranking	Private not-for-profit 4-yr institution
Union	2,269	Schenectady, NY	38	yes
Bates	1,792	Lewiston, ME	27	yes
Hamilton	1,872	Clinton, NY	13	yes
Colby	1,857	Waterville, ME	12	yes
F&M	2,249	Lancaster, PA	47	yes
Bucknell	3,569	Lewisburg, PA	32	yes

Based on these nonfinancial criteria, Bates and F&M are arguably Union’s closest peers.

2.2 Union Compared to Peers with Moody’s Methodology

Exhibit 11 summarizes the findings for peer institutions compared to Union. Using FY2016 financial statements, the most recent available, and applying the same scorecard methodology as before, Exhibit 11 shows the preliminary outcomes for Union’s peer group.

Exhibit 11: Peer School Analysis According to Moody’s Scorecard

Criteria	Union: Currently (A1)		Hamilton: Currently (Aa2)		F&M: Currently (A1)		Bucknell: Currently (Aa2)		Colby: Currently (Aa2)		Bates: Currently (A1)	
Scope of operations	A	157,521	A	133,834	A	139,412	A	222,481	A	139,950	A	110,628
Reputation and Pricing	Aaa	15.8	Baa	3.1	Baa	2.1	A	4.3	Aaa	8.8	Ba	0.6
Strategic Positioning	A	Very Good	Aaa	Exceptional	Aa	Excellent	Aa	Excellent	Aaa	Exceptional	A	Very Good
Operating Results	Aaa	26.8	A	12.3	Aa	15.7	A	12.3	Aa	15.1	Aa	15.8
Revenue diversity	Baa	69.7	Baa	70.8	Ba	84.2	Ba	79.4	Ba	83.3	Ca	99.2
Total wealth	A	431,789	Aa	883,213	A	368,783	Aa	816,878	Aa	925,404	A	307,347
Operating Reserve	Aa	3.6	Aaa	6.4	Aa	3.0	Aa	3.7	Aaa	6.9	Aa	3.0
Liquidity	Aa	594	Aaa	755	Aaa	737	Aaa	706	Aaa	1035	Aa	462
Financial Leverage	A	1.8	Aa	2.6	Aa	2.8	Aa	3.5	Aa	2.7	A	1.3
Debt affordability	Aa	5.0	Baa	14.5	Aa	4.5	Aa	5.6	A	9.6	Aa	5.7
Weighted Score	5.0		5.0		5.3		5.1		4.5		7.3	
Preliminary Rating	A1		A1		A1		A1		Aa3		A3	

Interestingly, both Hamilton and Bucknell, currently rated Aa2 come out with preliminary overall scores in the A1 category, with scores of 5.0 and 5.1 respectively. This is two-notches below their current ratings. Colby, also rated Aa2 currently, scored an aggregate of 4.5 putting it in the Aa3 category, one-notch below its current rating. Bates' overall score of 7.3 was the worst in the group, putting it one-notch below its current A1 rating with a preliminary rating of A3. F&M also came out with a preliminary rating of A1, consistent with its current rating.

2.3 Potential Explanations for Inconsistencies

After looking at the Moody's scorecard analysis for Union and its peer group the following question emerged. Are Union, Bates, and F&M rated lower than they should be? Or are Hamilton, Colby, and Bucknell rated more highly than they should be? The current ratings were calculated using Moody's old higher education rated methodology. As mentioned before, Moody's prior rating methodology relied more heavily on aspects related to student demand, things like retention and matriculation (which have since been eliminated). These are also things that U.S. News and World Report use for their rankings. I looked up the top ten liberal arts schools according to U.S. News and World Report and found their Moody's ratings. All of these schools were in the highest investment grade category, Aaa. My suspicion is that Moody's adjusted Colby and Bates, ranked 12 and 13 respectively, for their strong reputation and strong demand. This would explain why for example, their poor revenue diversity it overlooked, because when the school is in high demand it does not matter as much that revenues are not diverse.

The most surprising outcome in the peer group were that Hamilton and Bucknell arrived at preliminary scores equivalent to two-notches below their current ratings. Both colleges scored poorly in the reputation and pricing power and revenue diversity factors. Since reputation and

pricing power is measured by annual change in operating revenue this could simply reflect that Bucknell and Hamilton experienced little growth in operating revenue, however, if their operating revenues were already substantial enough to cover operating expenses easily this is not a major concern. This is one instance where Moody's would likely look at annual trends and make adjustments as they see fit to more accurately represent Hamilton and Bucknell's financial position.

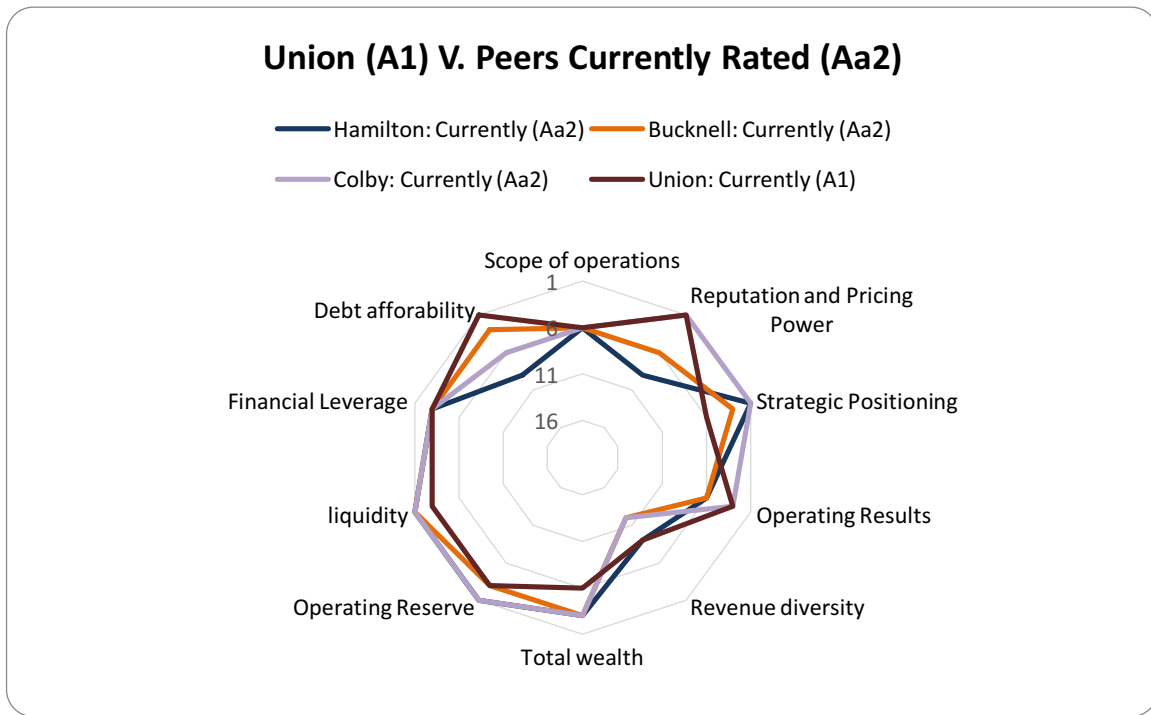
Other factors may be adjusted or weighted more that Hamilton and Bucknell score well in. As Moody's states in their methodology they, "in some circumstances, the importance of one factor may exceed its prescribed weight in this methodology" (Kedem pg. 5). Potential factors that could be weighted more heavily include strategic positioning, liquidity, and financial leverage.

Additionally, it should be kept in mind that Moody's states almost all preliminary outcomes are within two-notches of the final rating. Thus, since all of these preliminary scores are within two-notches it is reasonable to conclude that these preliminary outcomes could be very similar to what Moody's analysts calculate.

2.4 Union's Strengths Relative to Peer Institutions

Before delving into Union's strengths compared to peer colleges, it is useful to visualize how close Union is its peer currently rated Aa2: Bucknell, Colby, and Hamilton. Exhibit 12 shows the ten factors from Moody's scorecard on each of the axes. The more robust a circle, the better the college scored overall. As explained previously, a score of 1 in any factor is the best possible score and a score of 20 is the worst.

Exhibit 12: Union (A1) V. Peers Currently Rated (Aa2)



In Exhibit 12 we see that the maroon line representing Union’s score overlaps with the other lines a considerable amount, and at some points Union’s line lies on the outside of the other schools showing that Union outperforms in some categories. Although this graph does not take the weights of each factor into account, it still shows the closeness of the preliminary scores.

Union is on par with or outperforms more highly rated peer institutions in five factors: scope of operations, reputation and pricing power, operating results, operating reserve, and debt affordability. Scope of operations, measured by operating revenue is scored as the same alphanumerical outcome for all the colleges, A. The A score for this factor ranges from operating revenues between \$75,000,000 and \$400,000,000. Since the range is so large all the colleges are securely in this category because of their similar tuition base and student body size. Reputation

and pricing power, measured by annual change in operating revenue is one of Union's strongest categories as discussed previously. The high change in operating revenue due to increases in private gifts makes Union stand out compared to peers that experienced little growth in revenues.

Operating results, measured by operating cash flow margin, demonstrates Union's ability to meet budgetary needs. Union's score of 26.8% far exceeds the next highest ratio of 15.8%. Union's ratio is so strong because of Union's strong operating income. Peer colleges have low, or even negative operating income, which means endowment spending or other funds must be used to cover the imbalance. Union, however, covers its annual expenses more easily in comparison to peers. Additionally, Union's operating reserve factor, measured by spendable cash and investments to operating income is also strong. This factors helps show whether an institution can handle times of financial stress. Finally, Union's debt affordability, even with the addition of \$50 million of additional debt is still good at 5.0 times. This is largely driven by the fact that peer institutions like Hamilton and Colby have taken on far more debt than Union; Union currently has \$116 million outstanding, while Hamilton and Colby have more than \$220 million. This comparison supports that Union is considered a more cautious borrower than other colleges. Thus, Union's strengths relative to its peers is driven by their strong and increasing operating revenue and relatively low debt outstanding.

2.5 Union's Areas of Weakness Relative to Peers

Peer colleges rated more highly outperform relative to Union in four factors: liquidity, financial leverage, total wealth, and potentially strategic positioning. As mentioned previously, Union's liquidity is strong at 594 days, putting it in the Aa alphanumerical range for this factor. Peers, however, have even better liquidity than Union, but this is not a concern.

Financial leverage, measured by spendable cash and investments to total debt, and total wealth, measured by total cash and investments, are clearly tied to one another, both take into account cash and investments. This is where Union's smaller endowment is reflected in the scorecard. Union's endowment, which was valued at \$432 million in FY16 is about half the size of Hamilton, Bucknell, and Colby's endowments at \$883 million, \$817 million, and \$925 million respectively. The magnitude of Union's endowment in relation to peer colleges is Union's biggest concern financially. There is an industry expectation that colleges will only draw on the endowment incrementally year over year. Thus, if there was a problem with Union's finances and they had to use the endowment to cover its debt service, much of the endowment would be depleted. This raises concerns for rating agencies. This concern is exacerbated because Union's endowment return was about -9.0% and cited by Bloomberg as the worst endowment return among the "little Ivies" (McDonald, Smith 2016).

2.6 Recommendations for Union's Credit Story and Positioning Union's Weaknesses

Union faces two main issues in terms of its credit rating: explaining its weakest factor, revenue diversity and justifying a score of "very good" for strategic positioning. Union can draw on peer comparison to strengthen its credit story and point to Moody's methodology for support.

For example, Moody's states, "Within a broad revenue category, there may be significant diversity that helps mitigate risks. Examples include programmatic and geographic diversity of the student body for tuition charges" (Kedem 2015 p 9). Although Union's preliminary alphanumerical score for revenue diversity is Baa because roughly 70% of revenues are secured through one revenue stream, student tuition and fees, this revenue stream is diverse in itself. Using this logic from Moody's own methodology, Union can argue the "broad revenue category" of student tuition and fees should be reevaluated because of Union's strong programmatic and

geographic diversity. This is also a good opportunity to discuss Union's strong engineering program, which sets Union apart from peer institutions and will be significantly strengthened by the S&E project.

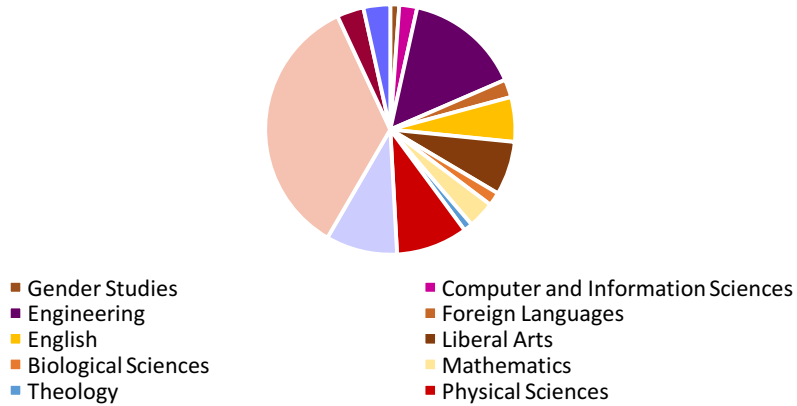
Programmatic and geographic diversity at Union is strong. According to Union's most recent common data set reporting 68% of students come are out-of-state and 11% of students are international. This helps protect Union's revenues if there was decreased demand say in the northeast or even the U.S., Union could draw on its interest across the country and abroad to maintain its revenues.

Coupled with Union's strong geographic diversity is robust programmatic diversity. Union offers more than 40 majors to students with the option to combine majors in an interdepartmental major (union.edu 2017). According to the most current common data set report, 13% of students graduated with degrees in engineering. Union offers four different engineering majors, one of the primary distinctions between Union and peer colleges. Of the five peers identified, only Bucknell had an engineering program. This shows not only that Union sets itself apart programmatically compared to peers, but also explains the need to invest in the building of the new S&E project.

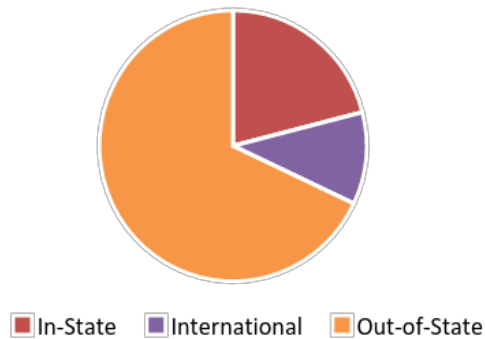
Union's largest program of study is social sciences with 30% of the total degrees conferred. However, it should be noted that the weight of this category is overstated because social sciences encompass multiple majors and areas of study. Therefore, Union is able to attract students interested in a variety of programs, which further protects its student tuition and fees revenue stream. Union should aim to highlight the unique combination it offers as a liberal arts school with a strong engineering program. This is the essence of Union's mission to encourage a breadth of education. Exhibit 13 summarizes Union's programmatic and geographic diversity.

Exhibit 13: Union's Programmatic and Geographic Diversity

Union's Programmatic Diversity by Area of Study



Union's Student Population Breakdown

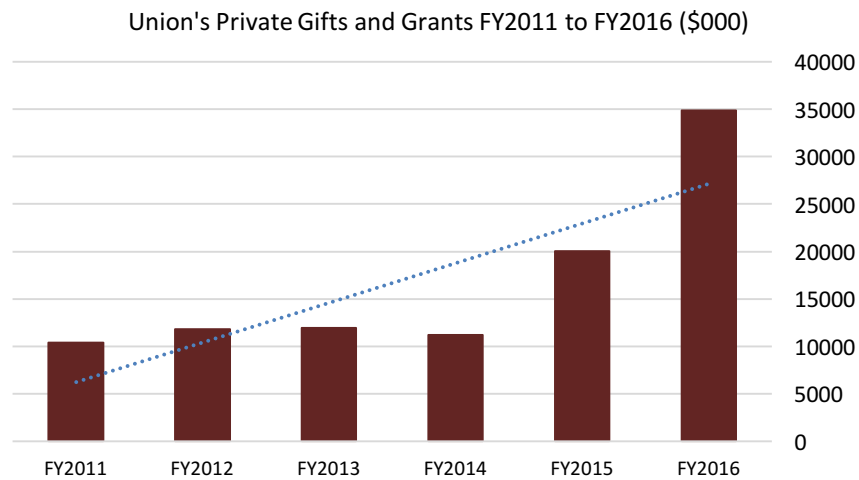


Additionally, despite a score of Baa in this factor category, it is still the best among its peers (see Exhibit 9). Thus, this is a category that typically every college struggles with considering the other means of generating revenue are so incremental.

Through successful strategic planning, however, Union improved in this category over the years. Union decreased student tuition and fees as a percentage of total revenue from roughly

82% in FY13 to 70% in FY16. This decrease is largely attributed to increasing private gifts and grants since FY11. Exhibit 11 shows the growth of private gifts and grants from FY11 to FY16 in thousands of dollars.

Exhibit 11: Union’s Private Gifts and Grants FY11 to FY16 (\$000)



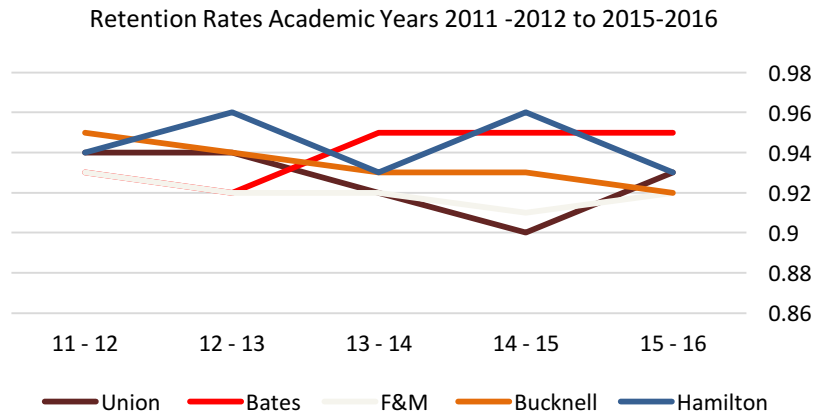
Union’s private gifts and grants increased 236% since FY11, and private gifts and grants as a percentage of total revenue increased from 9% to 22% over the same period. This is a direct result of Union’s ability to identify revenue diversification as an area of concern and target the problem systematically by increasing growth in a different revenue stream. President Ainlay led a strategic plan to increase gifts through grass root campaigns like, “A day 4 U”, social media challenges, and new approaches to “generation U” giving (alumni of the past decade) (union.edu 2017). The success of these campaigns affirm that the growth will be sustained in the future and do not show just a one-time increase in private gifts and grants. Moody’s specifically states, “Integral to determining strategic priorities is a university’s ability to identify strengths and weakness relative to key competitors and to track progress against established goals (Kedem 2015 p 7). Thus, explaining Union’s plan to target its revenue diversity weakness, and its

success in doing so could also contribute to its goal of achieving an outcome of, “very good” for strategic planning.

Union should also be prepared to discuss its strategic plan more broadly. Specifically, Union should be prepared to discuss its negative endowment return and the plans to generate positive returns in the future. For example, although the year over year endowment return is negative, looking at different time horizons may show less drastic negative returns (Blake 2017). Union can also explain how aiming to increase private gifts and grants is helping to slowly increase Union’s endowment base, thus growing its potential. After discussing with Union’s Vice President of Finance, Diane Blake, she expressed that the board did indeed have plans to change the way they choose to invest the endowment. Currently, members of the board make endowment decisions, but that may no longer be the case in the future. Union should overview these plans with the Moody’s to assure the rating agency that Union is capable of handling the situation.

I recommend also discussing positive aspects and trends in terms of applications, retention rates, and graduation rates to show that Union is attracting many future students and when students come to Union they generally have a good experience. Since academic year 2011-2012 Union largely maintained its selectivity and matriculation percentages. Currently Union’s selectivity according to the most recent common data reporting is at 38%, while matriculation is at 25%. Union’s graduation rates are also high over the same time period ranging from 86% to 93%. Union’s retention rates are on par with its peers. Exhibit 14 shows retention rates for Union, Bates, F&M, Bucknell, and Hamilton from academic years 2011-2012 to 2015-2016.

Exhibit 14: Retention Rates Academic Years 2011-2012 to 2015-2016



Although Union’s retention rates fell about four percentage points from 2012-2013 to 2014-2015, retention rates as of 2015-2016 converged with peers at around 93%. This is one indication that Union students are largely satisfied with their decision to attend the college. Additionally, Union’s overall increase in applications since academic year 2011-2012 was 16.4%. Over the same period Bates and Hamilton saw 8.8% and -0.66 percent growth respectively. F&M and Bucknell’s applications increased more than Union’s over the same period, with 39.9% and 26.5% increases respectively. However, Union’s increase of 16.4% is still impressive, demonstrating an increased demand to attend Union.

In addition to mitigating Union’s two weakest points, Union should use its strengths relative to its peer group to strengthen its credit. Strengths, discussed in section 2.4, should be highlighted to Moody’s and tied into its overall credit story. The peer comparison helps put Union’s increasing revenues, Union’s cautious borrowing, and ability to combat times of

financial stress into perspective. These strengths help reinforce Union's main points that it is a fiscally responsible institution and that the S&E building project is a well thought out endeavor.

After this portion of the presentation, I recommend tying the discussion together, talking about how S&E building project fits in with this overall plan. I recommend discussing how the building project positively affects Union's competitive advantage in engineering with liberal arts, how the S&E building could inadvertently contribute to increased applications and better matriculation, and how updating this building will draw more support from alumni who have expressed that the building needs to be updated will better Union's credit. This explanation of Union's strategic position and its overall vision for the S&E building will hopefully help Union secure a score of "very good" or better for strategic positioning, and an overall rating of A1.

Chapter 3: Union College Debt Structure Considerations

3.1 Identifying a Framework for Debt Structuring

There are many things to consider and many decisions to make when issuing debt. First, issuers must take preexisting debt into account. For example, let's imagine a college, let's call it Blue College, that has the following debt to be paid over the upcoming years. Exhibit 15 shows how much debt must be repaid over the next ten years for the fictional Blue College.

Exhibit 15: Blue College's Current Debt Service

Year 1	\$10 Million
Year 2	\$10 Million
Year 3	\$10 Million
Year 4	\$10 Million
Year 5	\$5 Million
Year 6	\$5 Million
Year 7	\$5 Million
Year 8	\$5 Million
Year 9	\$5 Million
Year 10	\$5 Million

In total, Blue College currently has \$70 million of debt outstanding. If they decided to build a new dorm and need to issue an additional \$30 million of new money debt they have a few options. Blue College could level its debt service payments and issue \$5 million of debt in years 5 to 10. Let's call this option 1. Alternatively, Blue College could issue a mixture of short-term (debt in years 1-5) and some long-term debt. We will call this option 2. Or, Blue College could

push the debt out further, extending the time horizon of the debt structure, issuing \$5 million in years 11-16. We will call this option 3. There are pros and costs to each option.

Option 1, or leveling the debt so that \$10 million must be paid each year, is the most sustainable from a financial perspective, meaning the debt service is roughly the same year after year. Sustainability of debt service is an advantage because it is predictable and arguably easier to budget for (Denison, Fowles, Moody 2014). This structure, however, concentrates the debt to be repaid unnecessarily over only a ten-year period. The concentration of debt is the main drawback to option 1.

Option 2, or mixing short-term and long-term debt, is the most balanced. Since different types of investors (separately managed accounts, insurance agencies, individuals, hedge funds etc.) look to diversify their portfolios and are attracted to different aspects of a bond, it is important to spread debt across the curve to ensure there will be investor demand to buy the debt (Guibaud, Nosbush, Vayanos 2013).

Option 3, or extending the debt, will help maintain the current debt structure, and simply push the debt service out further into the future. This is a positive on the one hand because Blue College likely already budgeted for the current debt structure, and thus this budgeting will not be disturbed. On the other hand, extending all the debt to long-term debt means higher interest rate cost and more interest rate payments increases risk because the longer-term debt is perceived as more-risky. Furthermore, this is also taking a bet that long-term interest rates will not go any lower than they are at the time of the bond sale (Kancuzk, Alfaro 2009). Market conditions must be evaluated to predict trends on interest rates.

Although these three scenarios are fictitious, they demonstrate an important conceptual framework that applies to Union's actual debt issue. From the three scenarios, we learn that there

are a few things to keep in mind when structuring the new debt: sustainability of the debt service given financial constraints, an absence of concentration of the debt in any year or group of years, balance between short-term and long-term debt, and market conditions. In addition to these four main considerations, there are other aspects of the type of bonds to issue: variable rate or fixed rate, callable or non-callable, and series or term bond¹. Since rating agencies typically view variable rate debt as more-risky, and Union's finance team has expressed that they wish to only offer fixed rate debt (Blake 2017). Thus, the structures will all assume fixed rate.

3.2 Union's Current Debt Service

Union currently has debt from four series of bonds outstanding: Series 1999, Series 2006, Series 2008, and Series 2012. Exhibit 16 shows how much principal will be due in each year out to 2037, the last year Union currently has principal due. Each color represents a different series of bonds. We can see that there are considerable spikes in the years 2029, 2031, 2032, and 2037. These spikes are term bonds. All of the term bonds Union issued except for the 2037 term bond from series 2009, however, are subject to mandatory sinking fund redemption. Mandatory sinking fund redemption requires the issuer to regularly redeem a fixed portion of some or all of the bonds according to a fixed schedule. Therefore, although these spikes caused by the term bonds appear to be a looming issue they are not in reality. For example, according to page 10 of Union's Series 2006 official statement the 2031 term bond is subject to its first mandatory sinking fund payment of \$2.5 million on July 1st, 2027 (EMMA 2017). There are three more mandatory sinking fund payments in 2028, 2029, and 2030 of similar slightly varying sizes. Exhibit 16 shows Union's debt service as issued without the mandatory sinking fund schedule.

¹ A series bond is a classic bond that pays interest payments (usually semiannually) until the principal is due. A term bond is structured so that all of the interest and principal comes due at maturity.

Exhibit 17 shows Union’s debt service taking the mandatory sinking fund schedules of the bonds into account.

Exhibit 16: Union’s Current Debt Service in \$000

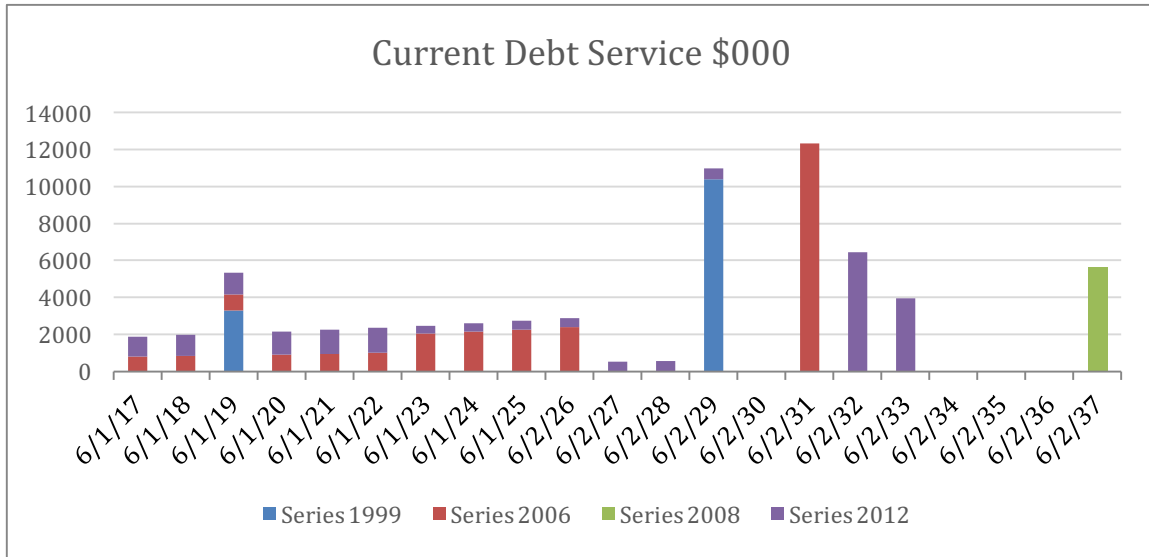
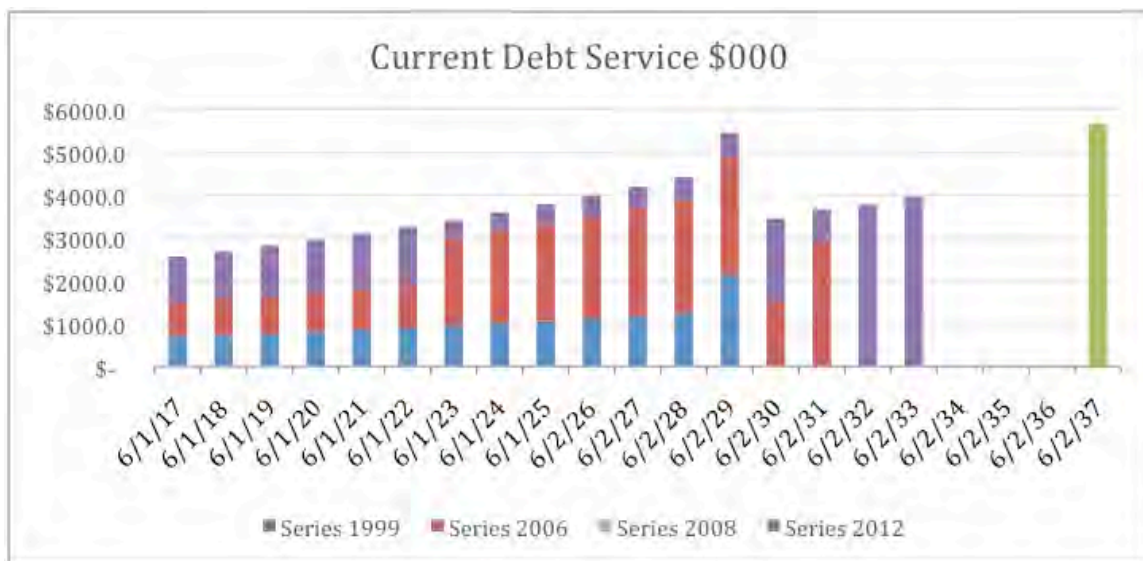


Exhibit 17: Union’s Current Debt Service in \$000 taking the Mandatory Sinking Fund Schedule into Account



Since the sinking fund payments are mandatory, the relevant debt service structure is not the structure that was issued displayed in Exhibit 1, but rather the structure shown in Exhibit 17. The goal now is to find a logical way to add an additional \$50 million of debt on top of and around the existing maturities shown in Exhibit 17. As in the example with Blue College, there will be pros and cons to each debt structure scenario. Union should consider the balance between long-term and short-term debt, debt affordability in terms of sustainability of debt, and a lack of concentration of the debt and current market conditions.

After discussing with Union's finance department, they expressed that \$10 million of short term-debt is the maximum amount they could issue. Additionally, Union's underwriter advised that there would not be demand for short-term debt in excess of \$10 million (Kabalian 2017). Thus, the decision to place ten million of short-term debt in potential structures was not entirely arbitrary, but rather a reflection of prior analysis. Issuing \$10 million of short-term debt also aligns with Union's pledge payment schedule. Union could effectively offset all of the short-term principal payments with pledges. Union's finance department also made it clear that all the debt would be tax-exempt and all the debt would be fixed rate (Blake, Kabalian 2017). Thus, it should be assumed that any potential debt structures are assumed fixed rate debt issued in denominations of at least \$5,000 (the bare minimum for a maturity).

3.3 Potential Debt Structures for Union's \$50 Million of Additional Debt

I propose three distinct debt structures for Union's additional \$50 million of new money debt. In order to maximize the long-term to short-term debt balance the maximum \$10 million of short-term debt is structured into all three scenarios (Kabalian 2017). The first option is the level

debt structure option, the second option is the “staircase” structure option, and the third option is the term bond option. Exhibits 18, 19, and 20 below display these three options in that order.

Exhibit 18: Option 1, Level Debt Service

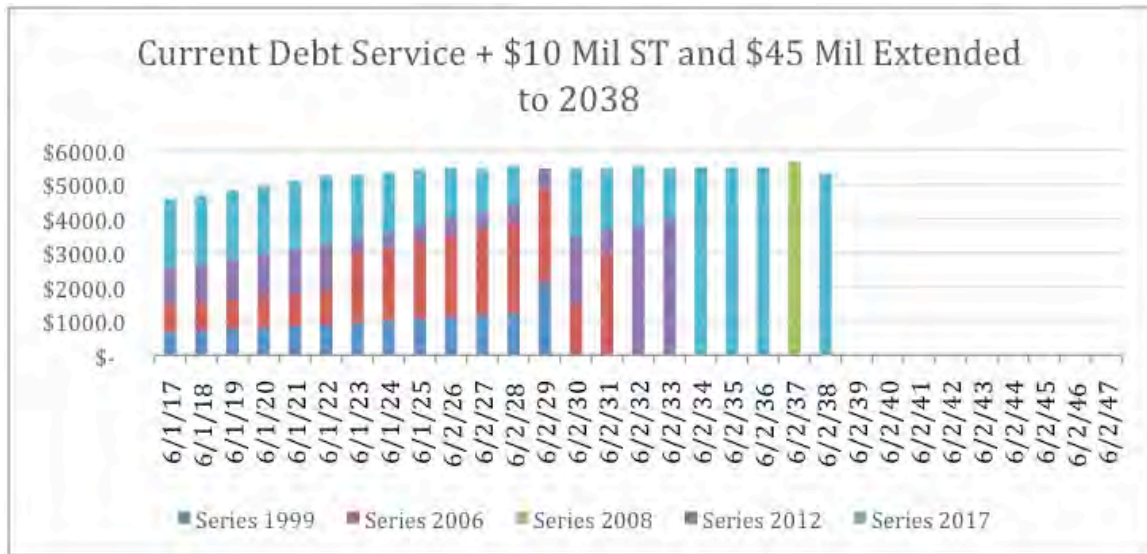


Exhibit 19: Option 2, “Staircase” Debt Service

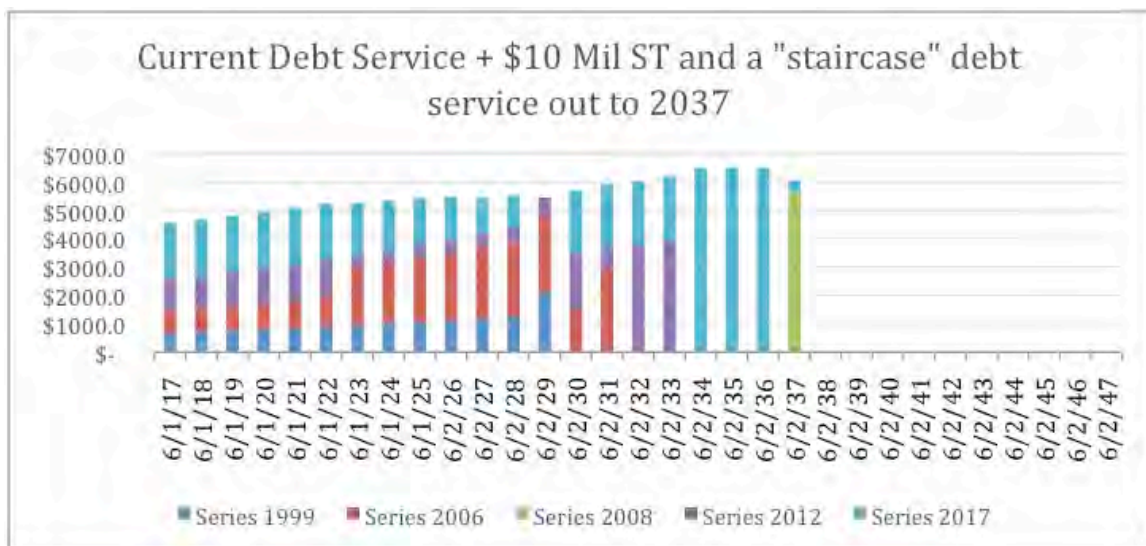
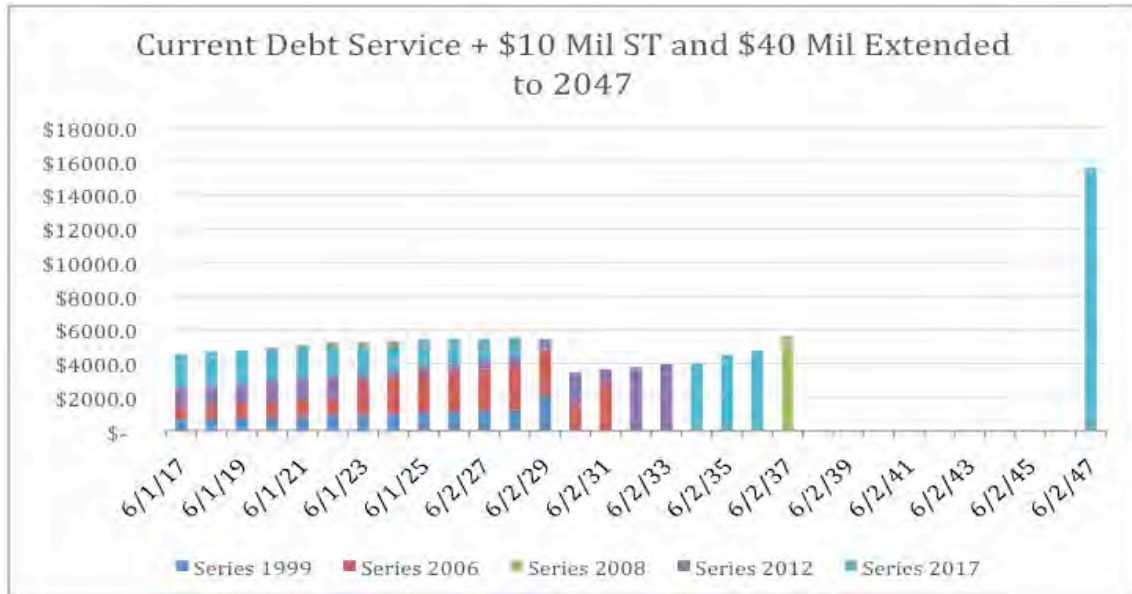


Exhibit 20: Option 3, Term Bond



Options one, two, and three are exactly the same from maturities 2017 through 2029. Therefore, they all issue the maximum \$10 million of short-term debt. The differences in the debt structuring options come after the year 2029. In the first option, the level option, all the principal maturities are structured to be about the same as height as the principal due in 2029. In the second option, the “staircase” option, the debt increases gradually after 2029 with \$28.8 million of new debt issue between 2029 and 2037. Finally, in the term bond option, there is only \$13.1 million of new debt issued between 2029 and 2037 and a term bond issued thirty years out to 2047. Each option has distinct pros and cons.

At a glance, option one, the level option, may seem like the best option in terms of avoiding debt concentration. All of the debt is paid off by 2038, and roughly the same amount of principal is due each year. If we look back to the original debt structure, however, we can see in Exhibit 17 that the current debt service has a staircase like pattern. This is because although the

debt service looks like its increasing, when interest payments are taken into account the debt service is actually more level. In the foremost years Union must pay interest on all the outstanding bonds as well as the principal amount due in any given year. Thus, as the years go on the principal should increase, because the number of interest payments are decreasing. Option one would only be level in the extreme and impossible case of zero percent interest rates on all the maturities of the new debt. This is why the second option, the “staircase” option is better than the first in terms of avoiding a concentration of debt. Although the principle due is increasing in option two, the debt service (principle due *and* interest) will actually be more level. How level the debt service actually is depends on the achieved interest rate and yields during pricing. The higher the interest rates, the higher the interest rate payments will be, and the more dramatic the staircase structure must be to accommodate the payments to make the debt service more level. More level debt payments are easier to plan for from a budgetary perspective, and are therefore more fiscally sustainable because roughly the same amount will be set aside year after year.

However, Union should assess whether debt structure option two achieves the best sustainability because of how high the average principal payments are. Structure two adds a heavy debt burden for the next twenty years with \$28.8 million in principal due between 2029 and 2037. The average amount of principal due over the next twenty years would be \$5.8 million annually. Option two, however, could be relatively expensive since over \$20 million of the debt is longer term. Classically, longer maturities result in higher interest rate costs and higher yields. In the next section, section 3.4, two recent college debt issues will be discussed as well as current interest rate considerations help get a sense for how expensive longer term debt will be.

Option three combines the “staircase” idea from option two and removes the heavy debt burden from 2029 to 2037 by issuing a long-term term bond due in 2047. As opposed to issuing

\$28.8 million between years 2029 and 2037 as option two does, option three only issues \$13.3 million over this same period. In Exhibit 20 we can see that option three makes use of a staircase structure leading up to 2029, and then there is an additional lower staircase from 2029 to 2037. Lowering the debt service in these mid-years and still maintaining the staircase structure up to 2029 offers the distinct advantage of increasing flexibility for future issues. For example, if Union chooses to issue more debt say five or ten years from now, Union still has the ability to add additional principal to years 2030 on without disrupting Union's budgetary confinements. Lowering the principal between these years also lowers average principal payments from \$5.8 million a year over the next twenty years in option two, to a more manageable \$3.8 million a year over thirty years. By extending the farthest maturity to the maximum maturity of thirty years, the debt service from a principal standpoint becomes more manageable. Additionally, by issuing a term bond in 2047 Union does not have to account for interest payments on \$15.6 million of long-term debt until the term bond or sinking fund payments come due. Conversely, since term bonds are an additional risk for investors, the interest rate on the bond could be higher.

I recommend making the 2047 term bond subject to mandatory sinking fund payments. Union used this tactic in the past to mitigate the spike in principal due in any year, thus avoiding a concentration of debt. Sinking fund payments reassure Union the term bond is not a budgetary issue in the future, but the college can still reap the benefits of not paying the interest on the term bond now.

There are infinite ways to structure Union's additional debt. While these three options only represent three structuring scenarios, I think option three, or a structure that uses the same principal ideas, is the best option given Union's current debt structure for the following reasons:

1. Although there could be a higher interest rate on the 2047 term bond, it will lessen the average debt service over the next 30 years by roughly \$2 million in principal annually and have additional benefits in terms of lessened interest payments upfront.
2. Breaking the term bond into mandatory sinking fund payments will mitigate the concern of the 2047 principal spike.
3. Option three still issues the maximum amount of short-term debt, which assures that Union will take advantage of the lower interest rates on the short end of the yield curve and can offset these principal payments with pledges.
4. Option three lowers the debt service between the years 2029 and 2037 by roughly \$15.5 million giving Union increased flexibility for future issues.

Therefore, option three achieves the best balance possible between short-term and long-term debt, lowers the concentration of debt by issuing less principal in the mid-term years, makes the debt service more sustainable by lowering the average amount of principal due over the next thirty years, and lowers upcoming interest payments by issuing a large long-term term bond.

3.4 Recent College Debt Issues and Interest Rate Considerations

According to EMMA there were two recent debt issues for higher education issuers. The most recent deal was for Iowa State University of Science and Technology. The deal was complicated. It was issued in three separate parts with individual official statements; two separate refundings, and a new money issue, all of which priced on March 1st. In total the deal was a similar size to what Union will issue with a total between the three issues of \$55.4 million. However, each part of the deal had different debt ratings by different agencies and somewhat bizarre interest rate schemes. The first deal matured between 2018 and 2042 but all the interest rates were between 3.0% and 3.5%. The second deal matured from 2018 to 2028 and all the

interest rates were 4.0% even. The final portion matured between 2017 and 2034 and all the interest rates were 5.0%. A deal this complex seems atypical and the interest rates are abnormal. Aside from the size of the deal, the Iowa University issue has little in common with Union's future issue.

Haverford College, however, also issued new debt recently. Haverford College is a top rated private liberal arts college just outside of Philadelphia. On February 28th Haverford issued \$98.3 million of debt rated AA- by Fitch and S&P. These ratings are considered the equivalent of Aa3 rating by Moody's standards, one notch above where Union will tentatively will be rated. Although Haverford's deal was large, about \$40 million of the deal was new money while the rest was a refunding of prior debt. Thus, although this deal in sum is about twice the size of Union's, the new money portion of the deal is roughly similar to Union's. Additionally, since Haverford is also a small liberal arts college in the Northeast and the credit is rated similarly to Union, the deal could offer useful insight. Exhibit 21 below shows the maturities, coupons, and yields for Haverford's Series 2017A issue.

Exhibit 21: Haverford's Series 2017A Deal

\$98,315,000
DELAWARE COUNTY AUTHORITY
(COMMONWEALTH OF PENNSYLVANIA)
HVERFORD COLLEGE REVENUE BONDS
SERIES 2017A

<u>Due October 1</u>	<u>Principal Amount</u>	<u>Interest Rate</u>	<u>Yield</u>	<u>CUSIP[†]</u>
2017	\$300,000	3.000%	0.940%	246003ML8
2018	905,000	4.000	1.090	246003MM6
2019	955,000	5.000	1.290	246003MN4
2021	1,140,000	5.000	1.620	246003MP9
2022	1,895,000	5.000	1.810	246003MQ7
2023	2,060,000	5.000	2.020	246003MR5
2024	2,240,000	5.000	2.190	246003MS3
2025	2,430,000	5.000	2.380	246003MT1
2026	2,030,000	5.000	2.540	246003MU8
2027	2,355,000	5.000	2.650*	246003MV6
2028	2,560,000	5.000	2.760*	246003NK9
2029	1,610,000	5.000	2.860*	246003MW4
2030	2,995,000	5.000	2.970*	246003MX2
2031	3,190,000	5.000	3.060*	246003MY0
2032	3,335,000	5.000	3.140*	246003MZ7
2033	3,490,000	5.000	3.220*	246003NA1
2034	3,650,000	5.000	3.280*	246003NB9
2035	3,815,000	5.000	3.320*	246003NC7
2036	3,965,000	4.000	3.650*	246003ND5
2037	2,110,000	5.000	3.400*	246003NH6
2037	2,000,000	3.750	3.820	246003NE3

\$24,420,000 5.000% Term Bond Due October 1, 2042, Priced to Yield 3.450%*, CUSIP[†] 246003NF0

\$14,790,000 5.000% Term Bond Due October 1, 2046, Priced to Yield 3.510%*, CUSIP[†] 246003NJ2

\$10,075,000 3.750% Term Bond Due October 1, 2046, Priced to Yield 3.878%, CUSIP[†] 246003NG8

Haverford issued serial maturities from 2017 to 2037 and three term bonds, one in 2042 and two in 2046. Haverford issued only \$5.2 million of short-term debt and three large long-term term bonds, which in total accounted for roughly half the debt issue. We can see that the amount issued increases as the maturities go further out into longer-term debt, showing the staircase idea implemented.

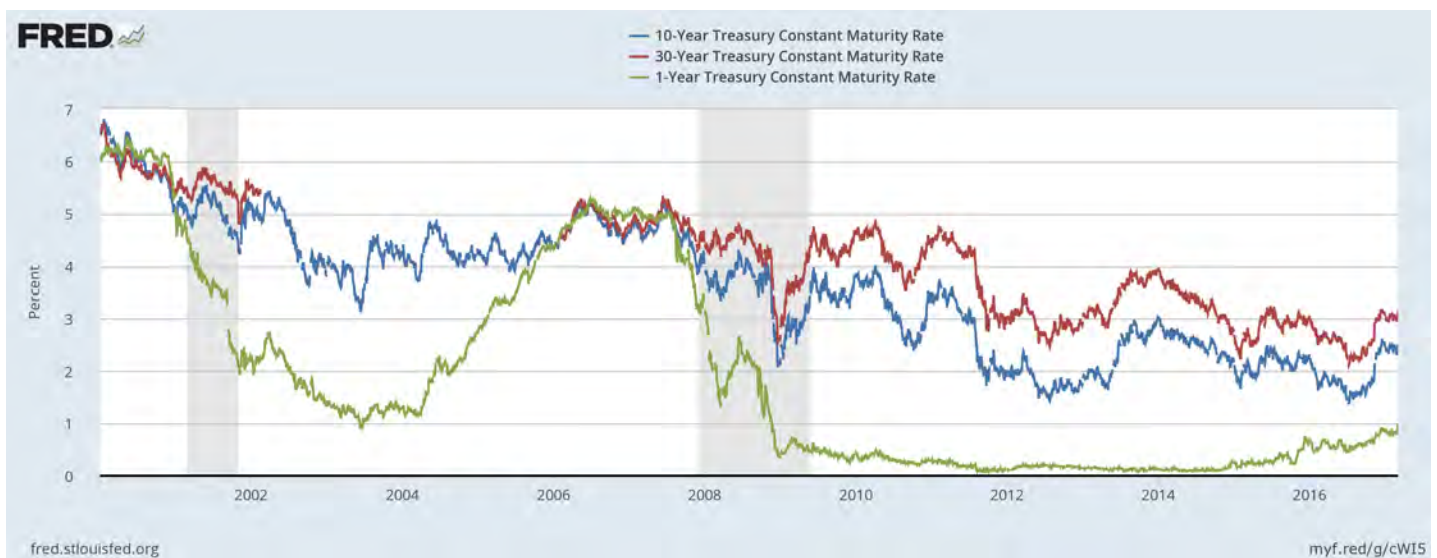
The asterisks next to the yields indicate that a bond is callable. Therefore the maturities from 2027 to 2037 are callable, as are the 2042 and one of the 2046 term bonds. However, there are two 2037 maturities and one is not callable. The term 2042 term bond and the 2037 serial

bond that are not callable have lower interest rates than the callable bonds because the investors do not need to be compensated for the possibility the bond could be called prior to maturity.

Overall, the interest rates are relatively straightforward. 2017 has an interest rate of 3.0%, 2018 with 4.0%, and almost all the other maturities have interest rates of 5.0%. (The 2036 maturity with a lower interest rate was likely created specifically to meet an investor's demand that wanted a higher yield as opposed to more interest.) While in theory we would expect to see the interest rates gradually increase as the bonds become longer-term, this theory does not always hold in practice. Although interest rates do not increase as we would expect, the yields do follow a classic pattern: as the maturities become longer the yields are generally higher.

Long-term interest rates have reached all-time historical lows in the past twelve months and the yield curve has become increasingly flattened. This is why in the Haverford deal, and generally, interest rates are relatively similar across the curve. Exhibit 22 shows U.S. Treasuries for 1-yr, 10-yr, and 30-yr maturities since 2000 (FRED 2017).

Exhibit 22: 1-Yr, 10-Yr, and 30-Yr U.S. Treasuries Since 2000



From Exhibit 22 it is apparent that interest rates have fallen considerably since 2000 when all of the rates were between 6% and 7%. Since the great recession in 2008, interest rates have converged and stayed low, primarily attributed to actions taken by the Federal Reserve. Currently, we can see that short-term interest rates have ticked up slightly and are no longer near zero, but are still below 1%, and long-term interest rates are still historically low. Exhibit 22 supports why Haverford structured about 50% of their debt as long-term term bonds and pushed a large majority of the debt into the mid and long-term years. We can see in Exhibit 21 that Haverford will pay the same interest rate on a 30-year term bond as they will on a three-year serial bond, thus it made sense for Haverford to issue a majority of the debt long-term since there was no additional cost from an interest rate standpoint. Issuing large term bonds will also help Haverford keep their debt payments in the forefront years lower.

I feel Haverford's Series 2017A deal further supports that Union should consider structuring their debt based on option 3. Haverford's deal shows how issuing large long-term term bonds accomplishes lower up-front costs and could potentially impact interest rate costs minimally because of current market conditions.

3.5 Summary of the Project and How S&E fits in with Union's Strategic Plan

Union states in its strategic plan that its primary goal is to, "Further Union's mission as a scholarly community that educates students to be engaged, innovative and ethical contributors to an increasingly diverse, global and technologically complex society" (Union.edu 2017) The building of the new Science and Engineering building is well aligned with this vision. President Ainlay called the project, "the largest, most expensive, most complex project in Union's history" (Ainlay 2017). However, this capital project is not just an expensive undertaking, but rather an expansion of Union's reach to future students and a manifestation of its mission. This year Union was named one of the top five schools for women in STEM by U.S.A Today College Guide

(Bouluc 2017). The building will be a combined renovation and rebuild resulting in the reinvigoration of the STEM areas. New science facilities will not only help Union maintain this position, but potentially help Union meet other strategic goals like attracting more women to the school who want to study STEM programs. The S&E building is a wise capital investment because it will continue Union's standing as a top Engineering liberal arts college and help attract a diverse student body interested in the latest advancements in science and technology.

Union is well positioned to secure an A1 rating for the debt under Moody's new Global Higher Education Rating methodology. After reviewing Union's most recent and past financials, Union has the ability to take on more debt while still maintaining good leverage and debt affordability ratios. By comparing the college to peer institutions Union will be able to enhance their strongest criteria, while defending their weakest metric, revenue diversity. A discussion of how this project will reinvigorate Union's STEM areas of study and help better its competitive edge in the field of engineering will speak to Union's strong strategic positioning.

Assuming Union will achieve an investment grade rating from Moody's, there are many options in terms of structuring the additional debt. Based on the historically low interest rates and the pricing of the recent Haverford deal, Union should capitalize on the market conditions by issuing a large long-term term bond to lower upfront costs. By issuing \$10 million of short-term debt Union will be able to pay off a fifth of the principal within five years through pledged donations for the project.

President Ainlay ended his public announcement of the project stating, "Union will be the college of choice for physicists who want to dance, or chemists who want to double major in art" (Ainlay 2017). This capital project has the ability to further Union's legacy and help Union achieve its goal of being the college of choice for interdisciplinary studies for students around the globe and to be completed with relatively little disturbance financially.

Appendix A: Financial and Common Data Set Information for Union and Peers

This appendix shows the numbers and ratios used to calculate the alphanumerical scores for to arrive at calculated preliminary ratings for Union and its peers. The first sheets are Union's full financials from FY211 to FY16. The source is the Electronic Municipal Market Access website (EMMA), where all municipal issuers are required to post continuing disclosure information including annual financial statements. The next sheets are condensed financial information from FY14 to FY16 for Union's peers. Information was also gathered from EMMA. Following this, there is information from Union and peer colleges' common data set reports. Finally, is Moody's rubric for assigning strategic positioning scores from its 2015 Global Higher Education Rating Methodology.

Balance Sheet	2016	2015	2014	2013	2012	2011
Assets						
Cash and Cash equivalents	3.661	22.912	27.137	20.225	26.776	21.908
Pledges receivable, net	38.756	17.691	12.606	16.007	15.106	12.942
Notes and accounts receivable, net	10.044	10.689	8.920	9.381	9.686	9.741
Deposits with bond trustees	3.247	4.525	4.862	4.275	2.753	2.849
Other assets	3.891	4.165	4.839	5.465	5.724	11.429
Investments	428.128	480.775	455.111	362.123	319.523	340.224
Receivable for investments sold	79	3.000	1.184	2.505	12.678	
Beneficial interst in irrevocable trusts	5.153	5.419	5.519	5.062	6.433	
Land, builds, and equipment, net	185.777	163.089	146.640	146.988	145.727	143.817
Total Assets	678.738	712.266	666.818	572.031	544.406	542.912
Liabilities and net Assets						
Liabilities						
Accounts payable and accrued expenes	14.096	13.316	13.034	11.780	10.582	10.154
constructuion costs payable	1.730	5.325	700	461	676	828
deposits and advances	2.397	2.023	1.998	1.647	1.386	1.296
pooled life income and charitable gift annuities payable	4.429	4.545	4.632	4.781	5.251	69.603
asset retirement obligations	1.387	1.488	1.478	1.638	1.664	5.354
refundable federal student loan funds	2.357	2.372	2.401	2.461	2.474	1.664
accrued postretirement benefits	13.271	12.072	10.607	10.459	11.604	2.512
Long-term Debt	116.868	120.366	112.636	74.049	75.159	9.604
Total Liabilities	156.535	161.508	147.486	107.276	108.796	101.014
Net Assets						
Unrestricted	194.997	216.019	205.245	190.376	180.671	186.681
Temporately restricted	159.327	170.041	157.548	122.610	109.693	115.499
Permanently restricted	167.880	164.698	156.539	151.769	145.244	139.717
Total net assets	522.203	550.758	519.332	464.755	435.609	441.897
total liabilities and net assets	678.738	712.266	666.818	572.031	544.406	542.912
Income Statement						
Operating Activities						
Tuition and fees	109.850	105.943	102.573	97.821	93.802	89.700
Room and Board	24.501	23.321	22.195	21.815	21.137	19.277
Less student aid	(43.857)	(41.646)	(40.778)	(39.839)	(37.913)	(36.571)
Net tuition fees, room and board	90.494	87.618	83.990	79.796	77.026	72.406
Investment return	20.484	18.809	17.870	16.585	17.062	19.704
Government grants	3.047	2.092	2.860	2.920	2.935	3.323
Private gifts and grants	34.877	20.015	11.167	11.941	11.805	10.382
Intercollegiate athletics and other sources	4.996	3.580	2.288	2.586	3.573	4.112
Auxiliaries enterprises	3.624	3.865	4.517	4.384	4.452	5.057
net assets released from restrictions						
Total revenue and reclassifications	157.521	135.980	122.691	118.211	116.853	114.984
Expenses						

Instructinal and departmental research	47.434	46.819	44.550	43.083	41.426	40.489
sponsored research programs	1.628	980	1.246	1.746	914	1.035
academic support	11.952	11.120	10.332	9.670	8.249	9.174
student services	8.890	8.775	8.458	7.967	7.871	7.812
institutional support	25.205	23.515	22.631	21.411	22.635	19.835
Auxiliaries operations	23.393	23.299	22.861	22.600	21.765	21.950
Intercollegiate athletics and other sources	10.870	11.586	11.421	10.828	11.589	10.131
Total Expenses	129.373	126.092	121.500	117.304	114.449	110.425
Increase in net assets from operating activities	28.149	9.887	1.191	907	2.405	4.559
Endowment and other net Assets						
Investment return	(40.270)	32.285	63.236	34.327	3.947	48.421
Endowment gains used to meet spending policy	(18.570)	(17.537)	(14.781)	(14.800)	(15.325)	(17.242)
Private gifts and grants	3.626	8.347	5.175	6.926	5.817	3.688
Other	(579)	(1.556)	(243)	1.786	(1.229)	513
Net assets released from restrictions	(910)				(1.902)	
Increase in endowment and other net assets	(56.703)	21.538	53.386	28.239	(8.693)	35.379
Increase in net assets from operating activities	(28.554)	31.426	54.577	29.146	(6.289)	39.938
Net assets at beginning of year	550.758	519.332	464.755	435.609	441.897	401.960
Net Assets at end of year	522.203	550.758	519.332	464.755	435.609	441.897
Depreciation	9.637	9.409	10.481	10.864	10.742	9.966
Amortization	(2)	(96)	(17)	(39)	71	162
Interest	4.507	5.244	4.079	2.690	2.953	2.821
Total debt	116.868	120.366	112.636	74.049	75.159	69.603
Ratios						
Operating Revenue	157.521,23	135.979,89	122.690,85	113.827,18	112.401,72	114.983,74
Annual Change in Operating Revnue	15,84	10,83	7,79	1,27	(2,25)	#DIV/0!
Operating Income	28.148,72	9.887,48	1.190,68	(3.476,94)	(2.047,00)	4.558,81
Operating Cash Flow Margin	26,85	17,98	12,82	8,82	10,43	15,23
Revenue Diversity	69,74	77,91	83,60	85,94	83,45	78,01
Total Cash and Investments	431.789,41	503.687,85	482.248,34	382.347,66	346.299,57	362.132,11
Spendable Cash and Investments to Operating Expenses	3,64	4,13	4,07	3,40	3,16	3,40
Monthly Days Cash on Hand	594,43	675,73	674,79	652,83	635,88	678,27
Spendable Cash and Investments to Total Debt	2,59	2,96	3,00	3,33	2,88	3,38
Total debt to Cash Flow	3,51	4,92	7,16	7,38	6,41	3,98
total debt to cas flow with debt	5,01					
spendable cash and investments to total debt	1,81					

Hamilton	FY 2016	FY 2015	FY 2014
Net assets released from restrictions	-	-	
total revenue	133.834	129.781	127.779
total expenses	137.303	134.423	129.223
depreciation and amortization	16.987	15.842	14.573
interest	2.990	3.435	3.291
tuition and fees	94.784	93.261	90.346
cash and cash equivalents	21.464	25.316	28.126
investments	861.749	919.578	927.520
pledges receivable net	1.009	1.244	1.209
unrestricted net assets	249.027	256.100	230.615
permanently restricted net assets	260.132	238.509	237.835
total debt	239.552	244.133	248.021
endowment 2015	856.067		
endowment 2016	817.210		
change in endowment	-5%		
Ratios			
Operating Revenue	133.834	129.781	127.779
Annual Change in Operating Revenue	3,122953283	1,566767622	
Operating Income	(3.469)	(4.642)	(1.444)
Operating Cash Flow Margin	12,33468326	11,27668919	12,85031187
Revenue Diversity	70,82206315	71,86028772	70,70488891
Total Cash and Investments	883.213	944.894	955.646
Spendable Cash and Investments to Operating Expense	6,439932121	7,038512755	7,404680281
Monthly Days Cash on Hand	755,47	788,29	734,186437
Spendable Cash and Investments to Total Debt	2,605238111	2,898538911	2,899028711
Total debt to Cash Flow	14,51126726	16,68144858	15,10481121

Hamilton: Currently (Aa2)	Outcome	Outcome
Scope of operations	A	A
Reputation and Pricing Power	Baa	Ba
Strategic Positioning	Aaa	Aaa
Operating Results	A	A
Revenue diversity	Baa	Baa
Total wealth	Aa	Aa
Operating Reserve	Aaa	Aaa
liquidity	Aaa	Aaa
Financial Leverage	Aa	Aa
Debt affordability	Baa	Baa
	Score	Score
Scope of operations	6	6
Reputation and Pricing Power	9	12
Strategic Positioning	1	1
Operating Results	6	6
Revenue diversity	9	9

Total wealth	3	3
Operating Reserve	1	1
liquidity	1	1
Financial Leverage	3	3
Debt affordability	9	9
	Weight	Weight
Scope of operations	15%	15%
Reputation and Pricing Power	5%	5%
Strategic Positioning	10%	10%
Operating Results	10%	10%
Revenue diversity	15%	15%
Total wealth	10%	10%
Operating Reserve	10%	10%
liquidity	5%	5%
Financial Leverage	10%	10%
Debt affordability	10%	10%
	Weighted Score	Weighted Score
Scope of operations	0,9	0,9
Reputation and Pricing Power	0,45	0,6
Strategic Positioning	0,1	0,1
Operating Results	0,6	0,6
Revenue diversity	1,35	1,35
Total wealth	0,3	0,3
Operating Reserve	0,1	0,1
liquidity	0,05	0,05
Financial Leverage	0,3	0,3
Debt affordability	0,9	0,9
Total Score	5,05	5,2
Preliminary Outcome	A1	A1

Franklin and Marshall	FY 2016	FY 2015	FY 2014
Net assets released from restrictions	-	-	-
total revenue	139.412	136.606	126961
total expenses	136.203	126.449	122.920
depreciation	14.292	8.123	8.036
interest	4.384	4.023	4.130
tuition and fees	117.336	113.126	110.559
cash and cash equivalents	12.605	4.123	2.158
investments	356.178	393.571	408.117
pledges receivable net	33.387	8.363	6.565
unrestricted net assets	246.049	268.037	280.616
permanently restricted net assets	124.841	117.847	111.526
total debt	99.442	79.108	142.960
endowment 2015	302.587		
endowment 2016	275.807		
change in endowment	-9%		
Ratios			
Operating Revenue	139.412	136.606	126.961
Annual Change in Operating Revenue	2,054082544	7,596821071	#DIV/0!
Operating Income	3.209	10.157	4.041
Operating Cash Flow Margin	15,69807477	16,32651567	12,76533739
Revenue Diversity	84,16492124	82,81188235	87,08107214
Total Cash and Investments	368.783	397.694	410.275
Spendable Cash and Investments to Operating Expense	2,952724977	3,211231406	3,391148715
Monthly Days Cash on Hand	736,67	826,81	891,5500853
Spendable Cash and Investments to Total Debt	2,788851793	3,643247206	2,135660325
Total debt to Cash Flow	4,543842815	3,546966776	8,820879867

Franklin and Marshall: Currently (A1)	Outcome	Outcome
Scope of operations	A	A
Reputation and Pricing Power	Baa	Aa
Strategic Positioning	Aa	Aa
Operating Results	Aa	Aa
Revenue diversity	Ba	Ba
Total wealth	A	A
Operating Reserve	Aa	Aa
liquidity	Aaa	Aaa
Financial Leverage	Aa	Aa
Debt affordability	Aa	Aa
	Score	Score
Scope of operations	6	6
Reputation and Pricing Power	9	3
Strategic Positioning	3	3
Operating Results	3	3
Revenue diversity	12	12

Total wealth	6	6
Operating Reserve	3	3
liquidity	1	1
Financial Leverage	3	3
Debt affordability	3	3
	Weight	Weight
Scope of operations	15%	15%
Reputation and Pricing Power	5%	5%
Strategic Positioning	10%	10%
Operating Results	10%	10%
Revenue diversity	15%	15%
Total wealth	10%	10%
Operating Reserve	10%	10%
liquidity	5%	5%
Financial Leverage	10%	10%
Debt affordability	10%	10%
	Weighted Score	Weighted Score
Scope of operations	0,9	0,9
Reputation and Pricing Power	0,45	0,15
Strategic Positioning	0,3	0,3
Operating Results	0,3	0,3
Revenue diversity	1,8	1,8
Total wealth	0,6	0,6
Operating Reserve	0,3	0,3
liquidity	0,05	0,05
Financial Leverage	0,3	0,3
Debt affordability	0,3	0,3
Total Score	5,3	5
Preliminary Outcome	A1	A1

Bucknell University	FY 2016	FY 2015	FY 2014
Net assets released from restrictions			
total revenue	222.481	213.256	206.389
total expenses	219.237	205.637	200.780
depreciation	18.462	17.524	16.611
interest	5.625	2.274	2.349
tuition and fees	176.613	170.879	165.547
cash and cash equivalents	11.529	21.276	9.219
investments	805.349	819.817	824.852
pledges receivable net	4.022	4.086	4.042
unrestricted net assets	388.183	423.523	430.600
permanently restricted net assets	287.271	261.448	252.564
total debt	153.133	157.855	180.829
endowment 2015	789.354		
endowment 2016	722.425		
change in endowment	-8%		
Ratios			
Operating Revenue	222.481	213.256	206.389
Annual Change in Operating Revenue	4,325786848	3,327212206	#DIV/0!
Operating Income	3.244	7.619	5.609
Operating Cash Flow Margin	12,28464453	12,85637919	11,9042197
Revenue Diversity	79,38340802	80,12857786	80,21115466
Total Cash and Investments	816.878	841.093	834.071
Spendable Cash and Investments to Operating Expense	3,74	4,11	4,174285287
Monthly Days Cash on Hand	705,70	821,77	853,3955226
Spendable Cash and Investments to Total Debt	3,484742022	3,697893637	3,238136582
Total debt to Cash Flow	5,602905126	5,757559179	7,360047214

Bucknell: Currently (Aa2)	Outcome	Outcome
Scope of operations	A	A
Reputation and Pricing Power	A	Baa
Strategic Positioning	Aa	Aa
Operating Results	A	A
Revenue diversity	Ba	Ba
Total wealth	Aa	Aa
Operating Reserve	Aa	Aa
liquidity	Aaa	Aaa
Financial Leverage	Aa	Aa
Debt affordability	Aa	Aa
	Score	Score
Scope of operations	6	6
Reputation and Pricing Power	6	9
Strategic Positioning	3	3
Operating Results	6	6
Revenue diversity	12	12

Total wealth	3	3
Operating Reserve	3	3
liquidity	1	1
Financial Leverage	3	3
Debt affordability	3	3
	Weight	Weight
Scope of operations	15%	15%
Reputation and Pricing Power	5%	5%
Strategic Positioning	10%	10%
Operating Results	10%	10%
Revenue diversity	15%	15%
Total wealth	10%	10%
Operating Reserve	10%	10%
liquidity	5%	5%
Financial Leverage	10%	10%
Debt affordability	10%	10%
	Weighted Score	Weighted Score
Scope of operations	0,9	0,9
Reputation and Pricing Power	0,3	0,45
Strategic Positioning	0,3	0,3
Operating Results	0,6	0,6
Revenue diversity	1,8	1,8
Total wealth	0,3	0,3
Operating Reserve	0,3	0,3
liquidity	0,05	0,05
Financial Leverage	0,3	0,3
Debt affordability	0,3	0,3
Total Score	5,15	5,3
Preliminary Outcome	A1	A1

Colby College	FY 2016	FY 2015	FY 2014
Net assets released from restrictions			
total revenue	139.950	128.644	120664
total expenses	136.769	127.795	116.458
depreciation	10.490	9.442	8.118
interest	7.423	2.231	3.023
tuition and fees	116.542	111.549	106.576
cash and cash equivalents	31.817	7.060	19.331
investments	893.587	936.774	829.344
pledges receivable net	18.905	21.769	21.166
unrestricted net assets	358.054	366.541	363.925
permanently restricted net assets	394.822	384.445	375.333
total debt	202.854	205.997	106.477
endowment 2015	745.957		
endowment 2016	710.659		
change in endowment	-5%		
Ratios			
Operating Revenue	139.950	128.644	120.664
Annual Change in Operating Revenue	8,788594882	6,613405821	#DIV/0!
Operating Income	3.181	849	4.206
Operating Cash Flow Margin	15,0725259	9,733839122	12,71878937
Revenue Diversity	83,27402644	86,71138957	88,32460386
Total Cash and Investments	925.404	943.834	848.675
Spendable Cash and Investments to Operating Expense	6,904408163	7,555874643	7,469139089
Monthly Days Cash on Hand	1034,928294	1130,410425	1226,071857
Spendable Cash and Investments to Total Debt	2,708780699	2,821196425	4,644270594
Total debt to Cash Flow	9,616668247	16,45080658	6,937968333

Colby: Currently (Aa2)	Outcome	Outcome
Scope of operations	A	A
Reputation and Pricing Power	Aaa	Aa
Strategic Positioning	Aaa	Aa
Operating Results	Aa	A
Revenue diversity	Ba	Ba
Total wealth	Aa	Aa
Operating Reserve	Aaa	Aaa
liquidity	Aaa	Aaa
Financial Leverage	Aa	Aa
Debt affordability	A	Baa
	Score	Score
Scope of operations	6	6
Reputation and Pricing Power	1	3
Strategic Positioning	1	3
Operating Results	3	6
Revenue diversity	12	12

Total wealth	3	3
Operating Reserve	1	1
liquidity	1	1
Financial Leverage	3	3
Debt affordability	6	9
	Weight	Weight
Scope of operations	15%	15%
Reputation and Pricing Power	5%	5%
Strategic Positioning	10%	10%
Operating Results	10%	10%
Revenue diversity	15%	15%
Total wealth	10%	10%
Operating Reserve	10%	10%
liquidity	5%	5%
Financial Leverage	10%	10%
Debt affordability	10%	10%
	Weighted Score	Weighted Score
Scope of operations	0,9	0,9
Reputation and Pricing Power	0,05	0,15
Strategic Positioning	0,1	0,3
Operating Results	0,3	0,6
Revenue diversity	1,8	1,8
Total wealth	0,3	0,3
Operating Reserve	0,1	0,1
liquidity	0,05	0,05
Financial Leverage	0,3	0,3
Debt affordability	0,6	0,9
Total Score	4,5	5,4
Preliminary Outcome	Aa3	A1

Bates College	FY 2016	FY 2015	FY 2014
Net assets released from restrictions			
total revenue	110.628	109.986	101349,408
total expenses	104.575	103.404	100.958
depreciation	6.608	6.550	6.527
interest	4.864	5.176	3.438
tuition and fees	109.765	106.426	72.520
cash and cash equivalents	17.870	12.460	10.417
investments	289.478	301.732	302.654
pledges receivable net	1.912	2.404	2.047
unrestricted net assets	124.088	122.922	121.418
permanently restricted net assets	181.129	158.439	153.675
total debt	99.765	101.470	109.373
endowment 2015	261.501		
endowment 2016	250.976		
change in endowment	-4%		
Ratios			
Operating Revenue	110.628	109.986	101.349
Annual Change in Operating Revenue	0,583597665	8,521815934	#DIV/0!
Operating Income	6.053	6.582	392
Operating Cash Flow Margin	15,84124539	16,64511275	10,2188737
Revenue Diversity	99,22019176	96,76286169	71,55416339
Total Cash and Investments	307.347	314.191	313.071
Spendable Cash and Investments to Operating Expense	2,957311604	3,061721007	3,121282132
Monthly Days Cash on Hand	462,3191785	463,2357176	469,3128827
Spendable Cash and Investments to Total Debt	1,284331768	1,558642242	1,476067883
Total debt to Cash Flow	5,692753349	5,542614953	10,56056851

Bates: Currently (A1)	Outcome	Outcome
Scope of operations	A	A
Reputation and Pricing Power	Ba	Aaa
Strategic Positioning	A	A
Operating Results	Aa	Aa
Revenue diversity	Ca	Caa
Total wealth	A	A
Operating Reserve	Aa	Aa
liquidity	Aa	Aa
Financial Leverage	A	A
Debt affordability	Aa	Aa
	Score	Score
Scope of operations	6	6
Reputation and Pricing Power	12	1
Strategic Positioning	6	6
Operating Results	3	3
Revenue diversity	20	18

Total wealth	6	6
Operating Reserve	3	3
liquidity	3	3
Financial Leverage	6	6
Debt affordability	3	3
	Weight	Weight
Scope of operations	15%	15%
Reputation and Pricing Power	5%	5%
Strategic Positioning	10%	10%
Operating Results	10%	10%
Revenue diversity	15%	15%
Total wealth	10%	10%
Operating Reserve	10%	10%
liquidity	5%	5%
Financial Leverage	10%	10%
Debt affordability	10%	10%
	Weighted Score	Weighted Score
Scope of operations	0,9	0,9
Reputation and Pricing Power	0,6	0,05
Strategic Positioning	0,6	0,6
Operating Results	0,3	0,3
Revenue diversity	3	2,7
Total wealth	0,6	0,6
Operating Reserve	0,3	0,3
liquidity	0,15	0,15
Financial Leverage	0,6	0,6
Debt affordability	0,3	0,3
Total Score	7,35	6,5
Preliminary Outcome	A3	A2

Applications	Union	Bates	F&M	Bucknell	Hamilton
15 - 16	5996	5651	7146	10487	5230
14 - 15	5406	5044	5472	10967	5434
13 - 14	5725	5243	5347	7864	5071
12 - 13	5565	4906	5174	7947	5107
11 - 12	5151	5196	5105	8291	5265
Number Accepted	Union	Bates	F&M	Bucknell	Hamilton
15 - 16	2297	1231	2305	3138	1364
14 - 15	2223	1282	2130	2718	1348
13 - 14	2134	1267	1936	2416	1336
12 - 13	2127	1304	2034	2345	1389
11 - 12	2197	1405	1965	2238	1441
Total enrolled	Union	Bates	F&M	Bucknell	Hamilton
15 - 16	568	517	592	950	472
14 - 15	570	491	591	938	473
13 - 14	559	500	605	939	469
12 - 13	591	503	600	933	469
11 - 12	572	502	597	918	481
Selectivity	Union	Bates	F&M	Bucknell	Hamilton
15 - 16	38,31%	21,78%	32,26%	29,92%	26,08%
14 - 15	41,12%	25,42%	38,93%	24,78%	24,81%
13 - 14	37,28%	24,17%	36,21%	30,72%	26,35%
12 - 13	38,22%	26,58%	39,31%	29,51%	27,20%
11 - 12	42,65%	27,04%	38,49%	26,99%	27,37%
Matriculation	Union	Bates	F&M	Bucknell	Hamilton
15 - 16	24,73%	42,00%	25,68%	30,27%	34,60%
14 - 15	25,64%	38,30%	27,75%	34,51%	35,09%
13 - 14	26,19%	39,46%	31,25%	38,87%	35,10%
12 - 13	27,79%	38,57%	29,50%	39,79%	33,77%
11 - 12	26,04%	35,73%	30,38%	41,02%	33,38%
% increase yr over yr	Union	Bates	F&M	Bucknell	Hamilton
15 - 16	10,91%	12,03%	30,59%	-4,38%	-3,75%
14 - 15	-5,57%	-3,80%	2,34%	39,46%	7,16%
13 - 14	2,88%	6,87%	3,34%	-1,04%	-0,70%
12 - 13	8,04%	-5,58%	1,35%	-4,15%	-3,00%
Overall % increase	16,40%	8,76%	39,98%	26,49%	-0,66%

Appendix V: Strategic Positioning Assessment Criteria

	Weight	Aaa Exceptional	Aa Excellent	A Very Good	Baa Good	Ba Fair	B Poor	Caa & below Very Poor
Strategic Positioning	10%	<ul style="list-style-type: none"> » Well integrated and sustainable strategic, capital, and financial plans supported by detailed financial forecasts » Proven ability to consistently execute and adjust plans through economic cycles » Highly diversified and consistent reinvestment funding sources » Annual capital investment ensures well-maintained and updated facilities » Systematized review and annual adjustments of academic programs » Annual self-assessment and benchmarking 	<ul style="list-style-type: none"> » Clearly articulated multi-year strategic, capital, and financial plans with associated cost forecasts » Stress-testing identifying ability to adjust plans with some demonstrated history of doing so » Strong diversification and consistency of reinvestment funding sources » Regular capital investment over a multi-year period with limited deferred maintenance » Regular review and adjustment of academic programs » Regular self-assessment and benchmarking 	<ul style="list-style-type: none"> » Periodic comprehensive multi-year strategic planning with associated cost forecasting » Good diversification of reinvestment funding sources over a multi-year period » Periodic capital investment with modest amounts of deferred maintenance » Periodic academic program adjustments » Demonstrated knowledge of competitive position 	<ul style="list-style-type: none"> » Strategic planning limited to medium-term time horizon » Less diversified but adequate reinvestment funding sources » Sporadic capital investments and moderate deferred maintenance » Sporadic review and adjustment of academic programs » Limited self-assessment and benchmarking 	<ul style="list-style-type: none"> » Limited and less comprehensive operating and capital planning and forecasting » Modest reinvestment funding sources with some reliance on external committed financings » Irregular capital investments with growing deferred maintenance » Few programmatic adjustments made to respond to market demand and conditions » Lack of self-assessment and benchmarking 	<ul style="list-style-type: none"> » Weak or ineffective operating and capital forecasting » High reliance on capital markets and external funding for non-discretionary capital and reinvestment expenditures » Growing deferred maintenance of facilities and infrastructure » Limited meaningful academic program review and adjustments » Accreditation warning or probation 	<ul style="list-style-type: none"> » Absence of detailed operational and financial planning and forecasting » No identifiable reinvestment funding sources » Significant deferred maintenance » No demonstrated academic program review » Substantive risk of loss of accreditation » No self-assessment, benchmarking, or competitive awareness

Bibliography

- Ainlay, Stephen. "Important Campus Announcement." 3 March 2017, Union College, Nott Memorial.
- Annual Bonds Sales. *Bond Buyer*. 3 November 2016.
http://www.bondbuyer.com/apps/custom/msa_search.php?product=decade_bondvolume
- Blake, Diane, Kabalian, Mary Beth. Personal Interview. 1 February 2017.
- Board of Governors of the Federal Reserve System (US), 10-Year Treasury Constant Maturity Rate [DGS10], retrieved from FRED, Federal Reserve Bank of St. Louis;
<https://fred.stlouisfed.org/series/DGS10>, March 6, 2017.
- "Board of Regents, State of Iowa Dormitory Revenue Bonds, Series S.U.I. 2017 (The State University of Iowa)." 23 March 2017. Retrieved from <
<http://emma.msrb.org/EP983180-EP762548-EP1164330.pdf>>
- "Board of Regents, State of Iowa Dormitory Revenue Refunding Bonds, Series I.S.U. 2017 (Iowa State University of Science and Technology)." 23 March 2017. Retrieved from <
<http://emma.msrb.org/EP983105-EP762484-EP1164270.pdf>>
- Bolduc, Kim. "Union STEM programs proves that science need not gender-discriminate." 12 January 2017. <<http://www.concordy.com/opinions/2017/01/union-stem-programs-prove-that-science-need-not-gender-discriminate/>>
- Bowman, Woods. 2002. The uniqueness of nonprofit finance and the decision to borrow. *Nonprofit Management and Leadership* 12 (3): 293-311.
- David L. Hoffland. "The Price-Rating Structure of the Municipal Bond Market." *Financial Analysts Journal* 28, no. 2 (1972): 65-70. <http://www.jstor.org/stable/4470906>
- "Delaware County Authority (Commonwealth of Pennsylvania) Haverford College Revenue Bonds Series 2017A." 28 Feb 2017. Retrieved from
<<http://emma.msrb.org/IssueView/IssueDetails.aspx?id=ES377932>>
- Denison, Dwight, Jacob Fowles, and Michael J. Moody. 2014. Borrowing for college: A comparison of Long-Term debt financing between public and private, nonprofit institutions of higher education. *Public Budgeting & Finance* 34 (2): 84-104.
- Electronic municipal market access. 2016 [cited 11/10 2016]. Available from
<http://www.emma.msrb.org/>.

- Ely, Todd, Martell, Christine, and Kioko, Shannon. "Determinants of the Credit Rating Fee in the Municipal Bond Market." *Public Finance publications*. 33: 25–48.
doi:10.1111/j.1540-5850.2013.12000.x.
- Gailen Hite, and Arthur Warga. "The Effect of Bond-Rating Changes on Bond Price Performance." *Financial Analysts Journal* 53, no. 3 (1997): 35-51.
<http://www.jstor.org/stable/4479995>
- Guibaud, Stéphane, Yves Nosbusch, and Dimitri Vayanos. 2013. Bond market clientele, the yield curve, and the optimal maturity structure of government debt. *Review of Financial Studies* 26 (8): 1914-61.
- Hand, John R. M., Robert W. Holthausen, and Richard W. Leftwich. 1992. The effect of bond rating agency announcements on bond and stock prices. *The Journal of Finance* 47 (2): 733.
- Kabalian, Mary Beth. Personal Interview. 6 February 2017.
- Kedem, Karen. 2015. Moody's global higher education rating methodology, eds. Susan Fitzgerald, Kendra Smith, Bart Oosterveld, Michael Take and David Rubinoff.
- Kliger, Doron, and Oded Sarig. "The Information Value of Bond Ratings." *The Journal of Finance* 55, no. 6 (2000): 2879-902. <http://www.jstor.org/stable/222405>.
- Kowarski, Ilana. 10 Universities with the Biggest Endowments. *U.S. News and World Report*. 4 October 2016.
- Kanczuk, Fabio, and Laura Alfaro. 2009. Debt maturity: Is long-term debt optimal? *Review of International Economics* 17 (5): 890-905.
- Law, J Damiyo.(Ed.), A Dictionary of Business and Management. : Oxford University Press. Retrieved 6 Oct. 2016.
<http://www.oxfordreference.com/view/10.1093/acref/9780199684984.001.0001/acref-9780199684984-e-1720>.
- Langohr, Herwig, and Langohr, Patricia. The Wiley Finance Series : The Rating Agencies and Their Credit Ratings : What They Are, How They Work, and Why They are Relevant (1). Hoboken, GB: Wiley, 2010. ProQuest ebrary. Web. 6 October 2016.
- McDonald, Michael, Smith, Kate. "Little Good News for the Little Ivies." Bloomberg Business Week. 22 December 2016. < <https://www.bloomberg.com/news/articles/2016-12-22/little-good-news-for-the-little-ivies>>
- Miao, Hong, Sanjay Ramchander, and Tianyang Wang. 2014. "The Response of Bond Prices to Insurer Ratings Changes." *Geneva Papers on Risk & Insurance* 39 (2): 389-413.

doi:<http://dx.doi.org/10.1057/gpp.2013.21>.
<http://search.proquest.com/docview/1516293781?accountid=14637>.

National liberal arts colleges rankings. in U.S. News and World Report [database online]. 2016 [cited 11/10 2016]. Available from <http://colleges.usnews.rankingsandreviews.com/best-colleges/rankings/national-liberal-arts-colleges>.

O'Hara, Neil, Judy Wesalo Temel, and Ebook Library. 2012. *The fundamentals of municipal bonds*. 6th ed. Hoboken, N.J: Wiley.

Sharma, Pranav, Gephardt, Dennis. "Moody's assigns A1 to Union College, NY's \$26M Ser. 2015A Bonds; outlook stable." 25 August 2012.

Shibata, Takashi, and Michi Nishihara. 2015. Investment timing, debt structure, and financing constraints. *European Journal of Operational Research* 241 (2): 513-26.

SIFMA; Sifma, (2011). *The Fundamentals of Municipal Bonds*. Retrieved from <http://www.ebib.com>

Sinder, Susannah. 2015. "10 Universities With the Largest Financial Endowments." *U.S. News and World Report*. <http://www.usnews.com/education/best-colleges/the-short-list-college/articles/2013/10/01/universities-with-the-largest-financial-endowments-colleges-with-the-largest-financial-endowments> .

S&P global ratings methodology not-for-profit public and private colleges and universities. in *S&P [database online]*. Online, 2016 [cited 11/10 2016]. Available from https://www.globalcreditportal.com/ratingsdirect/renderArticle.do?articleId=1558660&SctArtId=362948&from=CM&nsl_code=LIME&sourceObjectId=9389754&sourceRevId=1&fee_ind=N&exp_date=20260105-22:24:02.

Townsley, Michael K., and National Association of College and University Business Officers. 2008. *Managing debt and capital investments: A toolbox for private colleges and universities* National Association of College and University Business Officers.

Union College Website. Cited [2/9/2017]. Available from < <https://www.union.edu/>>

Yan, Wenli, Dwight V. Denison, and J. S. Butler. 2009; 2008. Revenue structure and nonprofit borrowing. *Public Finance Review* 37 (1): 47-67.