



DASNY

ANDREW M. CUOMO
Governor

ALFONSO L. CARNEY, JR.
Chair

REUBEN R. MCDANIEL, III
Acting President & CEO

Memorandum

TO: Robert S. Derico, R.A., Director, Office of Environmental Affairs

FROM: Sara E. Stein, AICP, Senior Environmental Manager 

DATE: February 24, 2020

RE: *State Environmental Quality Review (SEQR) Type II Determination* for Columbia University's *Refunding of Outstanding Debt*, Borough of Manhattan, New York County — Independent Colleges and Universities Program

Columbia University ("Columbia" or the "University") has requested financing from the Dormitory Authority of the State of New York ("DASNY") for its *Refunding of Outstanding Debt* (the "Proposed Project"), pursuant to DASNY's Independent Colleges and Universities Program. Accordingly, the Proposed Project is subject to environmental review pursuant to the *State Environmental Quality Review Act* ("SEQRA").

Based on a review of the attached *Single Approval Transaction Summary* dated February 24, 2020, and supporting documentation prepared by a representative of the University, it has been determined that for purposes of SEQRA, the Proposed Action would consist of DASNY's authorization of one or more series of fixed- and/or variable-rate, tax-exempt and/or taxable Series 2021A bonds, in an amount not to exceed \$230,000,000, in to be sold at one or more times through a negotiated offering and/or private placement on behalf of the University. More specifically, the proceeds of DASNY's bond issuance would be used to refund all or a portion of the DASNY Columbia University Revenue Bonds, Series 2011A (\$229.7 million).

About the Institution. Columbia is a privately-endowed, non-sectarian, non-profit institution of higher education. Known originally as King's College, the University was founded under a charter granted in 1754 by King George II. Today, the University is one of the largest private institutions of higher education in the United States, with a full-time faculty of nearly 4,000 and a student body of 9,063 undergraduate students and 23,366 graduate students. Instruction and research are carried out in 16 component schools located at two primary sites in New York City and several additional sites outside the City. The University is formally affiliated with several neighboring institutions, including Barnard College, Teachers College and Union Theological Seminary.

The University offers degree and certificate programs through 16 faculties and schools, consisting of Columbia College, its original school, the School of General Studies (a liberal arts college for non-traditional students), and the 14 professional or specialized divisions whose programs supplement the liberal arts

curricula. The University offers bachelor's degrees in 93 subject areas, master's degrees in 224 subject areas, doctoral degrees in 88 academic fields, and 72 certificate programs. The University's professional and specialized divisions include the schools of Columbia University Medical Center ("CUMC"), the School of Law founded in 1858, the Fu Foundation School of Engineering and Applied Science founded in 1864, the Graduate School of Arts and Sciences founded in 1820 and the Graduate School of Business founded in 1916. CUMC comprises the University's College of Physicians and Surgeons founded in 1767 (the second oldest medical school in the country and the first to grant an M.D. degree), the School of Nursing founded in 1892, Mailman School of Public Health founded in 1922 and the College of Dental Medicine founded in 1916.

The University is a member of numerous professional associations, including the Association of American Universities, and is accredited by the Middle States Commission on Higher Education. In addition, ten of its professional schools hold separate accreditation from their respective professional associations.

SEQR Determination. DASNY completed this environmental review in accordance with SEQRA, codified at Article 8 of the New York *Environmental Conservation Law* ("ECL"), and its implementing regulations, promulgated at Part 617 of Title 6 of the *New York Codes, Rules and Regulations* ("N.Y.C.R.R."), which collectively contain the requirements for the *State Environmental Quality Review* ("SEQR") process.

It has been determined that the Proposed Project would involve "...refinancing existing debt", which is a Type II action as specifically designated by 6 N.Y.C.R.R. § 617.5(c)(29). Type II "actions have been determined not to have significant impact on the environment or are otherwise precluded from environmental review under Environmental Conservation Law, article 8."¹ Therefore, no further SEQR determination or procedure is required for any component of the Proposed Project identified as Type II.

The Proposed Project was also reviewed in conformance with the *New York State Historic Preservation Act of 1980* ("SHPA"), especially the implementing regulations of Section 14.09 of the *Parks, Recreation and Historic Preservation Law* ("PRHPL"), as well as with the requirements of the Memorandum of Understanding ("MOU"), dated March 18, 1998, between DASNY and the New York State Office of Parks, Recreation and Historic Preservation ("OPRHP"). In compliance with Article III, Section 3.0 of the MOU, OPRHP will be notified of the Proposed Project being funded with bond proceeds. It is the opinion of DASNY that the Proposed Project would have no impact on historical or cultural resources in or eligible for inclusion in the National and/or State Registers of Historic Places ("S/NR").

Attachments

cc: Dena T. Amodio, Esq.
David P. Ostrander
SEQR File
OPRHP File

¹ 6 N.Y.C.R.R. § 617.5(a).

Single Approval Transaction Summary

Columbia University
New York, New York

February 24, 2020

Program: Independent Colleges & Universities

Purpose: Refunding

New Issue Details

One or more Series of fixed and/or variable rate, tax-exempt and/or taxable bonds in an amount not to exceed \$230,000,000 with maturities not to exceed 30 years are to be sold at one or more times through a negotiated offering and/or a private placement.

- Senior Manager – Goldman Sachs & Co.
- Co-Bond Counsel – Nixon Peabody LLP and Drohan Lee LLP
- Underwriter's Counsel – Katten Muchin Rosenman LLP

Purpose:

- Refunding of all or a portion of the DASNY Columbia University Revenue Bonds, Series 2011A (\$229.7 million).

Security:

- General obligation of the University.

Current Ratings: Moody's: Aaa (Stable)
S&P: AAA (Stable)
Fitch: NR

Overview

Columbia University is a privately endowed, nonsectarian, nonprofit institution of higher education. Known originally as King's College, the University was founded under a charter granted in 1754 by King George II. Today, the University is one of the largest private institutions of higher education in the United States, with a full-time faculty of nearly 4,000 and a student body of 9,063 undergraduate students and 23,366 graduate students. Instruction and research are carried out in 16 component schools located at two primary sites in New York City and several additional sites outside the City. The University is formally affiliated with several neighboring institutions, including Barnard College, Teachers College and Union Theological Seminary.

The University offers degree and certificate programs through 16 faculties and schools, consisting of Columbia College, its original school, the School of General Studies (a liberal arts college for non-traditional students), and the 14 professional or specialized divisions whose programs supplement the liberal arts curricula. The University offers bachelor's degrees in 93 subject areas, master's degrees in 224 subject areas, doctoral degrees in 88 academic fields, and 72 certificate programs.

The University's professional and specialized divisions include the schools of Columbia University Medical Center (CUMC), the School of Law founded in 1858, the Fu Foundation School of Engineering and Applied Science founded in 1864, the Graduate School of Arts and Sciences founded in 1820 and the Graduate School of Business founded in 1916. CUMC comprises the University's

College of Physicians and Surgeons founded in 1767 (the second oldest medical school in the country and the first to grant an M.D. degree), the School of Nursing founded in 1892, Mailman School of Public Health founded in 1922 and the College of Dental Medicine founded in 1916.

The University is a member of numerous professional associations, including the Association of American Universities, and is accredited by the Middle States Commission on Higher Education. In addition, ten of its professional schools hold separate accreditation from their respective professional associations.

Description of the Bonds

- The Bonds are a special obligation of DASNY.
- The Loan Agreement is a general obligation of the University.
- The Bonds are payable from payments made under the Loan Agreement and all funds and accounts established under the Resolution.

Additional Information

- Demand & Enrollment - Columbia University attracts highly qualified students and is among the most selective universities in the country. Of the 40,203 applicants for fall 2018, just 2,260 were accepted, indicating an acceptance rate of 5.6%.
- Operating Margins - Columbia has consistently reported positive operating margins, averaging 5.1% annually over the last five years.
- Revenue Diversification - The University's overall revenue mix is diverse, making it less vulnerable to fluctuations from a single revenue source. For fiscal year 2019, 24% of the University's total operating revenues came from net tuition and fees.
- Financial Resources - Total Net Assets have increased by 17.2% over five years, reaching \$16.0 billion at fiscal year end 2019. This growth has occurred even during a period of high capital spending due to fundraising and investment returns.
- Fundraising - Fundraising has allowed the University to make substantial capital investment without significantly impacting leverage.

Approvals

- SEQR Filing – March 2, 2020*
- PACB Approval – March 18, 2020*

*Anticipated date.



Single Approval Transaction Summary

Columbia University
New York, New York

February 24, 2020

Program: Independent Colleges & Universities

Purpose: Refunding

Recommendation

Staff recommends that the Board adopt the necessary documents for one or more series of bonds in an amount not to exceed \$230,000,000.

This report was prepared solely to assist DASNY in its review and approval of the proposed financing described therein and must not be relied upon by any person for any other purpose. DASNY does not warrant the accuracy of the statements contained in any offering document or any other materials relating to or provided by the Institution in connection with the sale or offering of the Bonds, nor does it directly or indirectly guarantee, endorse or warrant (1) the creditworthiness or credit standing of the Institution, (2) the sufficiency of the security for the Bonds or (3) the value or investment quality of the Bonds.

The Bonds are special limited obligations of DASNY that are secured only by the amounts required to be paid by the Institution pursuant to the Loan Agreement, certain funds established under the Resolution and other property, if any, pledged by the Institution as security for the Bonds.

Columbia University

INSTITUTION: Columbia University is a privately endowed, nonsectarian, nonprofit institution of higher education. Known originally as King's College, the University was founded under a charter granted in 1754 by King George II. Today, the University is one of the largest private institutions of higher education in the United States. Instruction and research are carried out in 16 component schools located at two primary sites in New York City and several additional sites outside the City. The University is formally affiliated with several neighboring institutions, including Barnard College, Teachers College and Union Theological Seminary.

The University offers degree and certificate programs through 16 faculties and schools, consisting of Columbia College, its original school, the School of General Studies (a liberal arts college for non-traditional students), and the 14 professional or specialized divisions whose programs supplement the liberal arts curricula. The University offers bachelor's degrees in 93 subject areas, master's degrees in 34 subject areas, doctoral degrees in 91 academic fields, and 74 certificate programs.

The University's professional and specialized divisions include the schools of Columbia University Medical Center (CUMC), the School of Law founded in 1858, the Fu Foundation School of Engineering and Applied Science founded in 1864, the Graduate School of Arts and Sciences founded in 1820 and the Graduate School of Business founded in 1916. CUMC comprises the University's College of Physicians and Surgeons founded in 1767 (the second oldest medical school in the country and the first to grant an M.D. degree), the School of Nursing founded in 1892, Mailman School of Public Health founded in 1922 and the College of Dental Medicine founded in 1916.

The University is a member of numerous professional associations, including the Association of American Universities, and is accredited by the Middle States Commission on Higher Education. In addition, ten of its professional schools hold separate accreditation from their respective professional associations.

DASNY FINANCING HISTORY: The University has been a client of DASNY since 1963. Over the last 57 years, DASNY has issued 39 separate obligations on behalf of the University totaling over \$3.8 billion.

As of January 31, 2020, approximately \$1.5 billion in DASNY debt issued on behalf of Columbia University remained outstanding as shown in Table 1 below:

Table 1 -- Outstanding DASNY Debt

<u>Series</u>	<u>Defeasance or Maturity</u>	<u>Amount Issued (000's)</u>	<u>Amount Outstanding (000's)</u>
1963 through 1994	-	\$ 846,809	-
1997 CP	2015	55,780	-
1998	2006	79,225	-
2000A	2011	121,700	-
2002A	2012	34,245	-
2002B	2012	96,700	-
2002C	2027	23,300	23,300
2003A	2012	87,775	-
2003B	2028	30,000	30,000
2004A1	2007	22,765	-
2004A2	2014	51,935	-
2004B	2014	100,000	-
2004C	2017	50,000	-
2006A	2016	225,000	-
2006B	2016	156,890	-
2008A	2018	282,715	-
2009A	2039	117,000	117,000
2011A	2041	300,000	255,000
2012A	2022	137,935	112,930
2015A	2045	92,535	92,535
2015B	2024	47,780	27,275
2016A-1	2026	50,000	50,000
2016A-2	2046	130,000	130,000
2016B	2031	209,705	146,930
2017A	2047	150,000	150,000
2017B	2029	40,475	40,475
2018A	2048	150,000	150,000
2018B	2038	175,185	175,185
		<u>\$3,865,454</u>	<u>\$ 1,500,630</u>

In addition, Columbia anticipates issuing approximately \$150 million of new money bonds through DASNY during March 2020. This issuance was approved by the Members at the February 5th Board meeting.

The University has always met its obligations to DASNY on time and in full.

THE REFUNDING PLAN: Proceeds from the proposed issuance are expected to refund all or a portion of the University's Series 2011A Bonds issued by DASNY.

The Series 2011A Bonds have a current par amount outstanding of \$255,000,000 and are callable on or after April 1, 2021. The University may choose to utilize a forward delivery, whereby the bonds would price as early as March and close on or after January 2, 2021 when the issuance would qualify as a current refunding. There are principal amounts due in 2020 and 2021 totaling \$30.0 million that will not be included in the refunding.

Assuming current market conditions, a total net present value savings in the range of \$80.9 million, or 36.0% of the refunded bonds, is expected from the refunding as shown in Attachment I.

FINANCING DETAILS: Bond proceeds of approximately \$229.7 million are expected to be deposited to the refunding escrow accounts. Issuance costs are approximated in the range of \$840,000. Completing the plan of finance will require a bond issue of approximately \$168.1 million. A table of the estimated sources and uses of funds is provided in Attachment II.

Ratings: Moody's Investors Service has assigned a rating of "Aaa" to the outstanding obligations of the University with a "Stable Outlook". Standard & Poor's has rated the University's obligations "AAA" with a "Stable Outlook".

Security Provisions: It is anticipated that the Loan Agreement will be a general unsecured obligation of the University and no security interest in any revenues or assets of the University will be granted by the University to DASNY under the Loan Agreement.

Table 2 – Selected Enrollment Statistics

	<u>2014-15</u>	<u>2015-16</u>	<u>2016-17</u>	<u>2017-18</u>	<u>2018-19</u>
First-time Freshman Applications Received	32,967	36,250	36,292	37,389	40,203
First-time Freshman Applications Accepted	2,291	2,222	2,279	2,263	2,260
Undergraduate Acceptance Ratio	6.9%	6.1%	6.3%	6.1%	5.6%
First-time Freshman Applicants Enrolled	1,424	1,402	1,424	1,405	1,423
Undergraduate Matriculation Ratio	62.2%	63.1%	62.5%	62.1%	63.0%
Mean SAT Scores (Entering Freshmen)	1,490	1,490	1,490	1,500	1,490
Headcount Enrollment					
Full-Time	24,453	24,728	25,517	26,444	27,094
Part-Time	<u>5,417</u>	<u>5,576</u>	<u>5,800</u>	<u>5,985</u>	<u>5,939</u>
Total	29,870	30,304	31,317	32,429	33,033
Full-time Equivalent Enrollment					
Undergraduate	7,718	7,796	8,058	8,356	8,462
Graduate	<u>18,540</u>	<u>18,790</u>	<u>19,392</u>	<u>20,083</u>	<u>20,612</u>
Total	26,258	26,586	27,450	28,439	29,074

FEASIBILITY - ENROLLMENT ANALYSIS: Columbia University attracts highly qualified students and is among the most selective universities in the country. Applications received have averaged 36,620 over the last five years. Of the 40,203 applicants for fall 2018, just 2,260 were accepted, indicating an acceptance rate of 5.6%. Of those applicants accepted, 1,423 chose to attend, resulting in a matriculation rate of 63.0%. Columbia has the financial resources to maintain a policy of accepting the most qualified students regardless of financial need. Institutionally funded financial aid has increased by approximately 34% over the last five years, from \$344.7 million in fiscal year 2015 to \$461.6 million in fiscal year 2019. Yet, the University's tuition discount rate remains at 27.7%, below the DASNY median of 33.2%. Mean SAT scores for incoming freshman have averaged right around 1,492.

The University reported total headcount enrollment of 33,033 for fall 2018, an increase of 3,163 students from the fall of 2014. Similarly, FTE enrollment hit a five-year high of 29,074. Undergraduate students currently represent approximately 29% of total FTE enrollment. Management expects to maintain the current size of the undergraduate program with future growth coming from graduate and professional students.

Columbia draws international students from more than 150 countries, totaling approximately 11,800 students. As Columbia's applicant pool has grown over the past five years, the enrolled population has become more geographically and demographically diverse.

The chart that follows illustrates the University's FTE enrollment for the past five years.

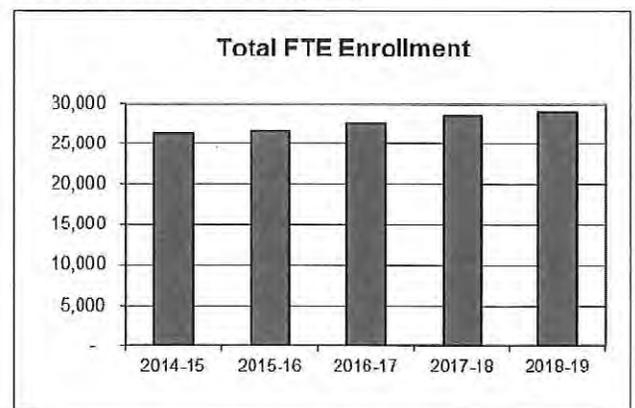


Table 3 – Selected Operating Statistics

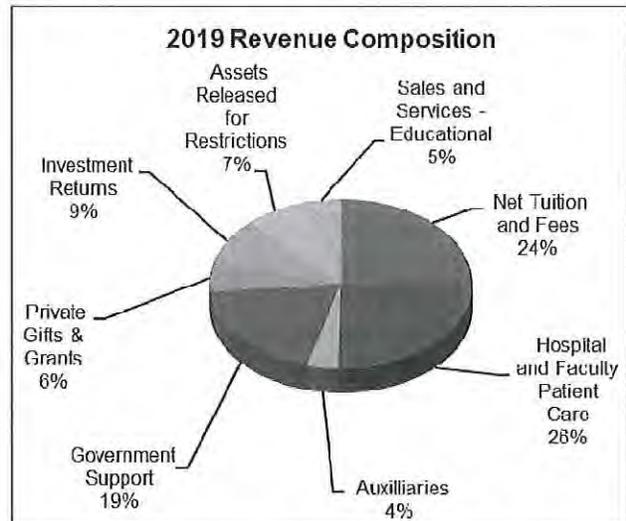
(dollars in thousands)	2015	2016	2017	2018	2019
Total operating revenue	\$4,085,362	\$4,315,202	\$5,037,576	\$4,822,541	\$4,970,867
Total operating expense	3,800,891	4,044,402	4,384,914	4,596,899	4,817,559
Change in net assets from operations	284,471	270,800	652,662	225,642	153,308
Total non-operating activities	12,839	(331,558)	292,012	58,608	160,293
Change in unrestricted net assets	297,310	(60,758)	944,674	284,250	313,601
Plus: Total depreciation/amortization	199,652	207,114	271,379	278,897	289,998
Plus: Total interest paid (expense)	70,208	76,627	78,987	82,481	87,686
Adjusted change in net assets	\$567,170	\$222,983	\$1,295,040	\$645,628	\$691,285
Cash provided by operating activities	\$692,864	\$637,231	\$717,183	\$815,085	\$449,912
Total annual debt service	\$166,492	\$154,073	\$153,706	\$140,026	\$148,515
Adjusted Operating Margin (DASNY 2018 Median: 1.6%)	6.2%	5.5%	11.7%	0.3%	1.5%
Adjusted Net Income Margin (DASNY 2018 Median: 5.4%)	6.5%	-2.2%	17.6%	1.6%	0.6%
Debt Service to Operating Expenses (DASNY 2018 Median: 4.5%)	4.4%	3.8%	3.5%	3.0%	3.4%
Annual Debt Service Coverage (DASNY 2018 Median: 2.2:1)	3.1	3.4	6.1	2.7	3.0

FEASIBILITY - OPERATIONS ANALYSIS: Columbia has reported positive operating margins in each of the past five years, ranging from a low of \$153.3 million in fiscal year 2019 to a high of \$652.7 million in fiscal year 2017. Fiscal year 2017 operating results can be attributed to increases in investment returns utilized for operations, fundraising, and net assets released from restrictions. The University's Adjusted Operating Margin averaged 5.1% over five years. The University has demonstrated growth in Net Tuition Per FTE Student, increasing from \$35,847 in fiscal year 2015 to \$41,340 in fiscal year 2019, an increase of over 15%.

The University reported positive net income results in four of the last five years. Year-to-year fluctuations are largely due to realized and unrealized investment returns from Columbia's investment portfolio. In fiscal year 2016, investment losses totaling \$280.0 million, an increase in pension obligations of \$37.5 million, and a \$14.5 million reclassification resulted in a negative change in Unrestricted Net Assets of \$60.8 million. For fiscal year 2017, investment gains of \$248.0 million contributed to a positive change in unrestricted net assets of \$944.7 million. Cash from operations has averaged \$662.5 million over the last five years, resulting in a Cash Income Ratio averaging 14.9% annually.

As illustrated in the chart that follows, the University's overall revenue mix is diverse, making it less vulnerable to fluctuations from a single revenue source. For fiscal year 2019, 24% of the University's total operating revenues came from net tuition and fees. At 26%, patient care revenue represented the largest revenue category. Patient care activities relate to three distinct areas: medical faculty practice plans, affiliation agreements, and medical and professional service agreements. In fiscal year 2019, medical faculty practice revenues of \$822.4 million were

the largest component of patient care revenues, followed by revenue from affiliation agreements at \$380.7 million. The University maintains several clinical and educational affiliations, the most significant of which are with New York-Presbyterian Hospital, Lawrence Hospital, and Harlem Hospital. Government grants and contracts for research activities comprised 19%, investment returns 9%, receipts from other educational and research activities (largely royalty and license income from patents) made up 5%, and private gifts, grants, and contracts 6% of revenues.



Since 2015, the University has demonstrated an average annual debt coverage ratio of 3.7:1.

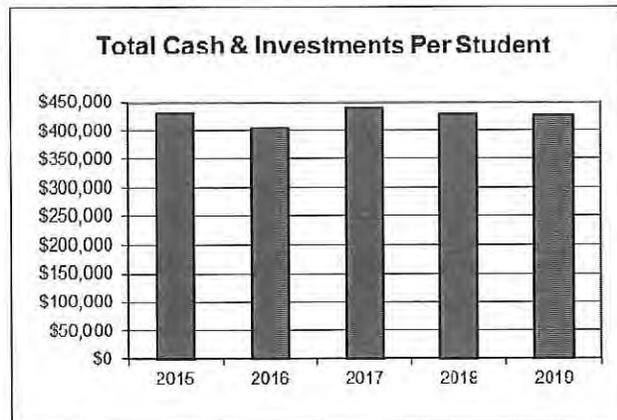
Table 4 – Selected Financial Position Statistics

(dollars in thousands)	2015	2016	2017	2018	2019
Total Assets	\$16,871,019	\$16,737,032	\$18,585,178	\$19,714,935	\$19,975,879
Total Liabilities	3,195,910	3,455,822	3,826,636	3,919,691	3,948,652
Net Assets					
Unrestricted	6,024,449	5,983,691	6,908,365	7,192,615	7,307,924
Temporarily Restricted	4,770,391	4,304,969	4,436,575	4,815,877	4,726,496
Permanently Restricted	<u>2,990,269</u>	<u>3,012,110</u>	<u>3,299,802</u>	<u>3,798,852</u>	<u>3,992,807</u>
Total Net Assets	\$13,675,109	\$13,280,780	\$14,738,542	\$15,795,344	\$16,027,227
Long-Term Debt	\$1,541,755	\$1,796,904	\$1,955,923	\$2,084,285	\$2,000,200
Expendable Resources to LT Debt (DASNY 2018 Median: 1.3:1)	5.1	4.1	4.2	4.4	4.4
Total Cash & Investments to Operating Expenses (DASNY 2018 Median: 1.5:1)	3.0	2.7	2.8	2.7	2.8
Total Cash & Investments to Total Debt (DASNY 2018 Median: 2.4:1)	6.9	5.8	5.8	5.5	5.8
Total Cash & Investments per Student	\$430,725	\$404,365	\$440,012	\$429,039	\$425,694

FEASIBILITY - BALANCE SHEET ANALYSIS: The University's liquidity ratios compare favorably with the 2018 DASNY medians. For fiscal year 2019, Columbia reported Total Cash & Investments to Operating Expenses of 2.8:1 (1.5:1 DASNY Median) and Total Cash & Investments to Total Debt of 5.8:1 (2.4:1 DASNY Median).

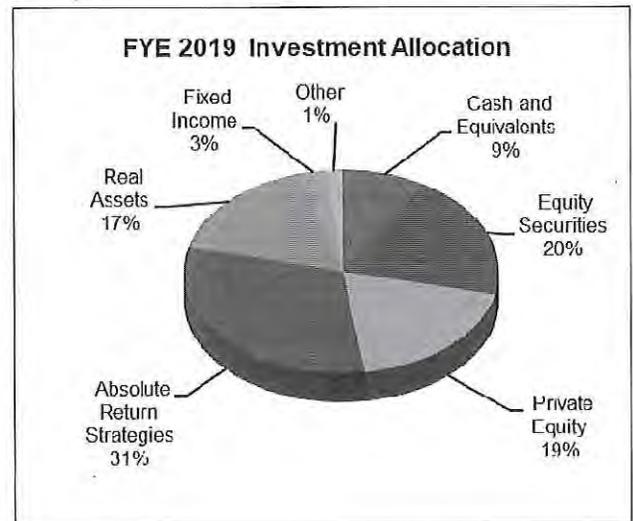
The University had total net assets of \$16.0 billion at fiscal year end 2019, of which \$7.3 billion were unrestricted. Total Net Assets have increased by \$2.35 billion, or 17.2%, since fiscal year 2015. Reflecting the growth in assets, return on net assets averaged 4.0% over the five years. This growth has occurred even during a period of high capital spending due to fundraising and investment returns.

The following graph illustrates the University's Total Cash and Investments per Student, which has averaged over \$425,000 for the past five years.



FUNDRAISING: In May 2017, the University launched a new capital campaign, "The Columbia Commitment", which aims to raise \$5 billion in five years. The campaign includes commitments to arts and ideas, climate response, data and society, the future of neuroscience, global solutions, just societies, and precision medicine. The University has had successful fundraising efforts in the past, including the "Columbia Campaign" which concluded in December 2013 with Columbia setting an Ivy League record by raising more than \$6.1 billion over eight years. Fundraising has allowed the University to make substantial capital investment without significantly impacting leverage.

INVESTMENTS: The University's endowment consists of nearly 5,800 separate funds established over many years for a wide variety of purposes. At fiscal year end 2019, the University reported investments with a total market value of just under \$11.76 billion. The chart that follows presents the composition of the University's investment portfolio with market valuations as of June 30, 2019.



The University's current endowment spending rule is based on two factors: (1) the market value multiplied by a target spending rate ranging from 4.5% to 5%, which receives a 40% weighting (providing a response to

investment market conditions); and (2) the prior year's spending with an inflation factor, which receives a 60% weighting (tying spending increases to operating needs and cushioning spending against market volatility). This allows the University to maintain the purchasing power of the endowment assets held in perpetuity or for a specified term as well as to provide additional real growth through new gifts and investment return.

The University's endowment includes a significant residential real estate portfolio consisting of properties proximate to the Morningside Heights and Washington Heights campuses providing housing to faculty, staff, and graduate students. Income from the rental properties in the portfolio is used to support operating costs. As of FYE 2018, the book value of the real estate was \$623.8 million.

SUMMARY: Staff recommends that the Board adopt the necessary documents for one or more series of bonds with terms not to exceed 30 years in an amount not to exceed \$230,000,000 on behalf of Columbia University.

This report was prepared solely to assist DASNY in its review and approval of the proposed financing described therein and must not be relied upon by any person for any other purpose. DASNY does not warrant the accuracy of the statements contained in any offering document or any other materials relating to or provided by the Institution in connection with the sale or offering of the Bonds, nor does it directly or indirectly guarantee, endorse or warrant (1) the creditworthiness or credit standing of the Institution, (2) the sufficiency of the security for the Bonds or (3) the value or investment quality of the Bonds.

The Bonds are special limited obligations of DASNY that are secured only by the amounts required to be paid by the Institution pursuant to the Loan Agreement, certain funds established under the Resolution and other property, if any, pledged by the Institution as security for the Bonds.



**Columbia University
Savings Analysis**

Date	Existing D/S	New D/S	Gross Savings
2021	5,605,105	-	5,605,105
2022	11,210,210	8,382,650	2,827,560
2023	20,960,210	15,664,875	5,295,335
2024	12,160,610	9,091,625	3,068,985
2025	10,651,010	7,979,500	2,671,510
2026	10,651,010	7,979,500	2,671,510
2027	10,651,010	7,979,500	2,671,510
2028	10,651,010	7,979,500	2,671,510
2029	10,651,010	7,979,500	2,671,510
2030	10,651,010	7,979,500	2,671,510
2031	10,651,010	7,979,500	2,671,510
2032	10,651,010	7,979,500	2,671,510
2033	10,651,010	7,979,500	2,671,510
2034	10,651,010	7,979,500	2,671,510
2035	10,651,010	7,979,500	2,671,510
2036	10,651,010	7,979,500	2,671,510
2037	10,651,010	7,979,500	2,671,510
2038	10,651,010	7,979,500	2,671,510
2039	10,651,010	7,979,500	2,671,510
2040	10,651,010	7,979,500	2,671,510
2041	10,651,010	7,979,500	2,671,510
2042	218,845,505	163,579,750	55,265,755
Total	449,848,810	332,370,400	117,478,410

PRESENT VALUE ANALYSIS SUMMARY

Total PV Debt Service Savings.....	80,934,096
Less: Prior Funds on Hand.....	-
Plus: Refunding Funds on Hand.....	<u>2,190</u>
NET PRESENT VALUE BENEFIT.....	80,936,286
NPV BENEFIT OF BONDS BEING REFUNDED.....	35.97%
NPV BENEFIT OF REFUNDING PRINCIPAL.....	48.14%



**Columbia University
Sources and Uses of Funds**

Sources of Funds:

Bond Proceeds		
Par Proceeds	\$	168,120,000
Original Issue Premium		62,455,303
<i>Total Sources</i>	\$	230,575,303

Uses of Funds:

% of Par

Refunding Escrow Deposits	\$	229,736,826	
Costs of Issuance and Underwriter's Discount		838,477	0.50%
<i>Total Uses</i>	\$	230,575,303	

All Figures in 000's	Balance Sheets				
	2015	2016	2017	2018	2019
Assets					
Cash and Cash Equivalents	\$ 804,916	901,494	1,145,566	1,006,998	814,040
Accounts Receivable	421,906	486,130	447,913	563,214	569,328
Contributions Receivable	636,092	627,259	848,687	727,213	664,840
Grants, Loans and Other Receivables	232,788	235,730	243,522	0	0
Short-Term Investments	0	0	0	0	0
Investments	10,505,050	9,848,956	10,932,771	11,194,432	11,562,591
Property, Plant and Equipment, Net	3,727,688	4,058,667	4,345,547	4,475,642	4,714,266
Deposits Held Under Debt Agreements	294,621	322,359	294,309	0	0
Prepaid Expenses and Other Assets	247,958	256,437	306,863	1,747,436	1,650,814
Right to Use Leased Property	0	0	0	0	0
Total Assets	\$ 16,871,019	16,737,032	18,565,178	19,714,935	19,975,879
Liabilities					
Accounts Payable and Accrued Expenses	\$ 310,946	293,969	353,994	329,030	373,647
Deposits and Deferred Revenues	215,231	146,873	157,117	274,599	289,643
Federal Grants and Student Loans	171,877	184,791	186,138	78,720	79,862
Pension and Postretirement Benefits	178,892	210,126	325,743	342,731	379,651
Short-term Debt Obligations	0	0	0	0	0
Long-Term Debt	1,541,755	1,796,904	1,955,923	2,084,285	2,000,200
Lease Obligations	122,680	122,497	122,904	121,283	126,127
Due to Related Organizations	0	0	0	0	0
Asset Retirement Obligation	117,750	121,420	116,272	119,249	118,930
Other Liabilities	536,779	579,242	608,545	569,694	580,592
Total Liabilities	\$ 3,195,910	3,455,822	3,826,636	3,919,591	3,948,652
Net Assets					
Unrestricted	\$ 6,024,449	5,963,691	6,908,365	7,192,615	7,307,924
Temporarily Restricted	4,770,391	4,304,959	4,436,575	4,815,877	4,726,496
Permanently Restricted	2,880,269	3,012,110	3,393,602	3,786,852	3,992,807
Total Net Assets	\$ 13,675,109	13,280,760	14,738,542	15,795,344	16,027,227
Total Liabilities and Net Assets	\$ 16,993,699	16,859,529	18,688,082	19,836,218	19,975,879

All Figures in 000's	Statement of Activities				
	2015	2016	2017	2018	2019
Operating Revenue					
Tuition and Fees	\$ 1,285,957	1,365,439	1,480,468	1,582,550	1,663,558
Less Financial Aid	-344,693	-361,839	-395,016	-432,690	-461,636
Net Tuition and Fees	\$ 941,264	1,003,600	1,085,452	1,149,860	1,201,922
Sales and Service of Auxiliaries	\$ 157,257	166,160	175,747	183,651	191,086
Government Grants and Contracts	753,366	800,463	901,057	932,464	957,447
Private Gifts and Grants	228,479	262,890	273,739	309,493	265,217
Investment Return	362,944	388,623	426,872	437,489	451,160
Other Revenues	1,865	379	286	342	0
Sales and Services -Educational	263,773	248,460	230,608	228,462	239,926
Hospital and Faculty Patient Care	1,027,436	1,125,031	1,199,364	1,235,032	1,300,863
Assets Released from Restriction	348,978	319,596	744,451	345,748	363,246
Total Operating Revenue	\$ 4,085,362	4,315,202	5,037,576	4,822,541	4,970,867
Operating Expense					
Instruction and Research	\$ 2,262,297	2,387,413	2,582,240	2,728,426	3,004,625
Academic Support	103,635	110,241	121,838	118,025	0
Student Services	0	0	0	0	0
Institutional Support	285,674	310,669	345,297	335,312	363,613
Facilities Expense	0	0	0	0	0
Auxiliary Expense	183,268	198,735	241,200	253,906	270,481
Sponsored Programs	0	0	0	0	0
Other Operating Expense	22,607	19,813	20,660	34,384	0
Hospital and Faculty Patient Care	943,410	1,017,531	1,073,679	1,126,846	1,178,840
Total Operating Expense	\$ 3,800,891	4,044,402	4,384,914	4,596,899	4,817,559
Chg in Unrestricted Net Assets from Operating Activities	\$ 284,471	270,800	652,662	225,642	153,308
Non-Operating Activities					
Net Excess Investment Return/(Loss)	\$ 54,074	-280,034	248,018	102,570	132,718
Capital Gifts and Contributions	0	0	0	0	0
Assets Released from Restriction	0	0	0	0	0
Other Non-Operating Items, Net	-39,092	-14,058	-12,217	-65,814	12,108
Pension & Postretirement Obligations	-2,143	-37,466	56,211	21,852	15,467
Change in Value of Derivatives	0	0	0	0	0
Extraordinary Gain/(Loss)	0	0	0	0	0
Total Non-Operating Activities	\$ 12,839	-331,558	292,012	58,608	160,293
Change in Unrestricted Net Assets	\$ 297,310	-60,758	944,674	284,250	115,309

Financial and Operating Ratios

	Year					2018 DASNY Median
	2015	2016	2017	2018	2019	
<u>Liquidity Ratios</u>						
Total Cash & Investments to Operating Expenses (x)	3.0	2.7	2.8	2.7	2.8	1.5
Total Cash & Investments to Total Debt (x)	6.8	5.6	5.8	5.5	5.8	2.4
Expendable Resources to LT Debt (x)	5.1	4.1	4.2	4.4	4.4	1.3
Total Cash & Investments per Student (\$)	\$430,725	\$404,365	\$440,012	\$429,039	\$425,694	\$64,633
Cash Income (%)	17.1%	14.9%	14.4%	17.7%	10.2%	3.3%
Operating Cash Flow to Debt Service (x)	4.16	4.14	4.67	5.82	3.03	0.82
<u>Capital Ratios</u>						
Capital Spending (x)	2.9	2.6	1.7	1.6	1.6	0.8
Age of Facility (Yrs)	12.07	12.59	10.59	11.25	11.76	13.61
Debt Service to Operating Expenses (%)	4.4%	3.8%	3.5%	3.0%	3.4%	4.5%
Annual Debt Service Coverage (x)	3.1	3.4	6.1	2.7	3.0	2.2
Total Debt to Total Capitalization (x)	0.1	0.1	0.1	0.1	0.1	0.2
LT Debt per Student (\$)	\$63,388	\$72,196	\$75,731	\$77,554	\$73,135	\$29,510
<u>Productivity and Demand Ratios</u>						
Primary Matriculation (Yield) (%)	62.2%	63.1%	62.5%	62.1%	63.0%	23.9%
Primary Selectivity (Acceptance) (%)	6.9%	6.1%	6.3%	6.1%	5.6%	52.3%
Student/Faculty (x)	6.0	6.0	6.0	6.0	6.0	9.6
Tuition Discount (%)	26.8%	26.5%	26.7%	27.3%	27.7%	33.2%
Educational Core Services (%)	55.8%	55.8%	52.0%	59.1%	67.9%	39.7%
<u>Profitability and Operating Ratios</u>						
Operating Margin (%)	6.2%	5.5%	11.7%	0.3%	1.5%	1.6%
Net Income Margin (%)	6.5%	-2.2%	17.6%	1.6%	0.6%	5.4%
Net Tuition per Student (\$)	\$35,847	\$37,749	\$39,543	\$40,433	\$41,340	\$23,853
Return on Net Assets (%)	4.3%	-2.9%	10.4%	6.9%	1.5%	5.2%
Return on Average Investment Value (%)	7.4%	-1.8%	12.0%	1.5%	4.0%	7.4%
Net Tuition Dependency (%)	23.2%	23.4%	21.9%	24.9%	27.2%	56.4%
Tuition and Auxiliaries (%)	27.1%	27.3%	25.4%	28.9%	31.5%	77.0%
Federal Financial Ratio (x)	3.00	2.55	3.00	3.00	2.85	2.62

COLUMBIA UNIVERSITY

The Letter from Bond Counsel will be transmitted to the Members under separate cover.