NEW ISSUE – BOOK-ENTRY ONLY

$300,000,000
Massachusetts Institute of Technology
Taxable Bonds, Series F

2.989% Bonds, due July 1, 2050 Issue Price: 100% CUSIP[+] 575718 AG6

Interest payable: January 1 and July 1 **Dated: Date of Delivery**

The Massachusetts Institute of Technology Taxable Bonds, Series F (the "Bonds"), will be issued pursuant to the terms of an Indenture of Trust, dated as of December 1, 2019 (the "Indenture"), between the Massachusetts Institute of Technology (the "Institute") and U.S. Bank National Association, as trustee (the "Trustee"). The proceeds of the Bonds will be used by the Institute for general corporate purposes and to pay costs of issuance.

The Bonds will be issued in fully registered form in denominations of $1,000 and any integral multiple thereof and, when issued, will be registered under a book-entry only system in the name of Cede & Co., as nominee of The Depository Trust Company, New York, New York ("DTC"). DTC will act as securities depository for the Bonds. Individual purchases will be made in book-entry form only, in principal amounts of $1,000 and any integral multiple thereof. Purchasers of the Bonds will not receive physical certificates (except under certain circumstances described in the Indenture) representing their ownership interests in the Bonds purchased.

Interest on the Bonds will be payable on January 1 and July 1 of each year, commencing on July 1, 2020. So long as the Bonds are held by DTC, the principal, Make-Whole Redemption Price or other redemption proceeds of and interest on the Bonds will be payable by wire transfer to DTC, which in turn is required to remit such principal, interest, Make-Whole Redemption Price or other redemption proceeds to the DTC Participants for subsequent disbursement to the Beneficial Owners of the Bonds, as more fully described in "BOOK-ENTRY ONLY SYSTEM AND GLOBAL CLEARANCE PROCEDURES" herein.

The Bonds are subject to optional redemption prior to their stated maturity as described herein. See "THE BONDS – Redemption" herein.

Interest, redemption price and profit, if any, on the sale of the Bonds, are not excludable from gross income for federal or state income tax purposes. See "TAX MATTERS" herein.

The Bonds constitute unsecured general obligations of the Institute. The Institute has other unsecured general obligations outstanding. See APPENDIX B – "REPORT OF THE TREASURER FOR THE YEAR ENDED JUNE 30, 2019" attached hereto. Moreover, the Institute is not restricted by the Indenture or otherwise from incurring additional indebtedness. Such additional indebtedness, if issued, may be either secured or unsecured and may be entitled to payment prior to payment on the Bonds. See "SECURITY FOR THE BONDS" herein.

This cover page contains certain information for quick reference only. It is not intended to be a summary of this issue. Investors must read the entire Offering Memorandum to obtain information essential to the making of an informed investment decision.

The Bonds are offered by the Underwriters, when, as and if issued by the Institute and accepted by the Underwriters, subject to the approval of legality by Ropes & Gray LLP, Boston, Massachusetts, counsel to the Institute and the Office of the General Counsel of the Institute. In addition, certain other legal matters will be passed upon for the Underwriters by their counsel, Orrick, Herrington & Sutcliffe LLP, New York, New York. It is expected that the Bonds will be available for delivery through the facilities of DTC in New York, New York on or about December 20, 2019.

Barclays **J.P. Morgan**

December 17, 2019

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GENERAL INFORMATION

This Offering Memorandum does not constitute an offer to sell the Bonds in any jurisdiction in which or to any person to whom it is unlawful to make such an offer. No dealer, salesperson or other person has been authorized by Barclays Capital Inc. and J.P. Morgan Securities LLC (collectively, the "Underwriters") or the Institute to give any information or to make any representations, other than those contained herein, in connection with the offering of the Bonds and, if given or made, such information or representations must not be relied upon.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of the Bonds, or determined that this Offering Memorandum is accurate or complete. Any representation to the contrary is a criminal offense. The Bonds have not been and will not be registered under the Securities Act of 1933, as amended (the "Securities Act"), and are being issued in reliance on an exemption or on exemptions contained therein. The Bonds are not exempt in every jurisdiction in the United States; some jurisdictions' securities laws (the "blue sky laws") may require a filing and a fee to secure the Bonds' exemption from registration.

The distribution of this Offering Memorandum and the offer or sale of Bonds may be restricted by law in certain jurisdictions. Neither the Institute nor the Underwriters represent that this Offering Memorandum may be lawfully distributed, or that any Bonds may be lawfully offered, in compliance with any applicable registration or other requirements in any such jurisdiction, or pursuant to an exemption available thereunder, or assume any responsibility for facilitating any such distribution or offering. In particular, no action has been taken by the Institute or the Underwriters which would permit a public offering of any of the Bonds or distribution of this Offering Memorandum in any jurisdiction where action for that purpose is required. To be clear, action may be required to secure exemptions from the blue sky registration requirements either for the primary distributions or any secondary sales that may occur. Accordingly, none of the Bonds may be offered or sold, directly or indirectly, and neither this Offering Memorandum nor any advertisement or other offering material may be distributed or published in any jurisdiction, except under circumstances that will result in compliance with any applicable laws and regulations.

All information set forth herein has been obtained from the Institute and other sources. Estimates and opinions are included and should not be interpreted as statements of fact. Summaries of documents do not purport to be complete statements of their provisions. The information and expressions of opinion herein are subject to change without notice, and neither the delivery of this Offering Memorandum nor any sale made hereunder will, under any circumstances, create any implication that there has been no change in the affairs of the Institute since the date hereof.

Certain statements included or incorporated by reference in this Offering Memorandum constitute "forward-looking statements" within the meaning of the United States Private Securities Litigation Reform Act of 1995, Section 21E of the United States Securities Exchange Act of 1934, as amended, and Section 27A of the Securities Act. Such statements are generally identifiable by the terminology used such as "plan," "expect," "estimate," "budget," "intend," "projection" or other similar words. Such forward-looking statements include, but are not limited to, certain statements contained in the information in APPENDIX A – "CERTAIN INFORMATION REGARDING THE INSTITUTE" and APPENDIX B – "REPORT OF THE TREASURER FOR THE YEAR ENDED JUNE 30, 2019." A number of important factors, including factors affecting the Institute's financial condition and factors which are otherwise unrelated thereto, could cause actual results to differ materially from those stated in such forward-looking statements. THE INSTITUTE DOES NOT PLAN TO ISSUE ANY UPDATES OR REVISIONS TO THOSE FORWARD-LOOKING STATEMENTS IF OR WHEN ITS EXPECTATIONS, OR EVENTS, CONDITIONS OR CIRCUMSTANCES ON WHICH SUCH STATEMENTS ARE BASED OCCUR.

The Underwriters have provided the following sentence for inclusion in this Offering Memorandum. The Underwriters have reviewed the information in this Offering Memorandum in accordance with, and as part of, their responsibility to investors under the federal securities laws as applied to the facts and circumstances of this transaction, but the Underwriters do not guarantee the accuracy or completeness of such information.

IN CONNECTION WITH THIS OFFERING, THE UNDERWRITERS MAY OVERALLOT OR EFFECT TRANSACTIONS THAT STABILIZE OR MAINTAIN THE MARKET PRICE OF THE BONDS AT LEVELS ABOVE THOSE WHICH MIGHT OTHERWISE PREVAIL IN THE OPEN MARKET. SUCH STABILIZING, IF COMMENCED, MAY BE DISCONTINUED AT ANY TIME.

References to website addresses presented herein are for informational purposes only and may be in the form of a hyperlink solely for the reader's convenience. Unless specified otherwise, such websites and the information or links contained therein are not incorporated into, and are not part of, this Offering Memorandum.

INFORMATION CONCERNING OFFERING RESTRICTIONS IN CERTAIN JURISDICTIONS OUTSIDE THE UNITED STATES

REFERENCES IN THIS SECTION TO THE "ISSUER" MEAN THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY AND REFERENCES TO "BONDS" OR "SECURITIES" MEAN THE INSTITUTE'S TAXABLE BONDS, SERIES F OFFERED HEREBY.

MINIMUM UNIT SALES

THE BONDS WILL TRADE AND SETTLE ON A UNIT BASIS (ONE UNIT EQUALING ONE BOND OF $1,000 PRINCIPAL AMOUNT). FOR ANY SALES MADE OUTSIDE THE UNITED STATES, THE MINIMUM PURCHASE AND TRADING AMOUNT IS 150 UNITS (BEING 150 BONDS IN AN AGGREGATE PRINCIPAL AMOUNT OF $150,000).

NOTICE TO PROSPECTIVE INVESTORS IN THE EUROPEAN ECONOMIC AREA

IN RELATION TO EACH MEMBER STATE OF THE EUROPEAN ECONOMIC AREA (THE "EEA") (EACH A "MEMBER STATE"), THE BONDS WHICH ARE THE SUBJECT OF THE OFFERING OR REMARKETING CONTEMPLATED BY THIS OFFERING MEMORANDUM MAY NOT BE OFFERED, REMARKETED, SOLD OR OTHERWISE MADE AVAILABLE AND WILL NOT BE OFFERED, REMARKETED, SOLD OR OTHERWISE MADE AVAILABLE TO ANY RETAIL INVESTOR IN THE EEA. FOR THE PURPOSES OF THIS PROVISION:

A) THE EXPRESSION "RETAIL INVESTOR" MEANS A PERSON WHO IS ONE (OR MORE) OF THE FOLLOWING:

   I) A RETAIL CLIENT AS DEFINED IN POINT (11) OF ARTICLE 4(1) OF DIRECTIVE 2014/65/EU (AS AMENDED, "MiFID II"); OR

   II) A CUSTOMER WITHIN THE MEANING OF DIRECTIVE (EU) 2016/97 (THE "INSURANCE DISTRIBUTION DIRECTIVE"), WHERE THAT CUSTOMER WOULD NOT QUALIFY AS A PROFESSIONAL CLIENT AS DEFINED IN POINT (10) OF ARTICLE 4(1) OF MiFID II; OR

   III) NOT A QUALIFIED INVESTOR AS DEFINED IN REGULATION (EU) 2017/1129 (THE "PROSPECTUS REGULATION"); AND

B) THE EXPRESSION AN "OFFER" INCLUDES THE COMMUNICATION IN ANY FORM AND BY ANY MEANS OF SUFFICIENT INFORMATION ON THE TERMS OF THE OFFER AND THE BONDS TO BE OFFERED SO AS TO ENABLE AN INVESTOR TO DECIDE TO PURCHASE OR SUBSCRIBE FOR THE BONDS.

CONSEQUENTLY, NO KEY INFORMATION DOCUMENT REQUIRED BY REGULATION (EU) NO. 1286/2014 (AS AMENDED, THE "PRIIPS REGULATION") FOR OFFERING OR SELLING PACKAGED RETAIL AND INSURANCE-BASED INVESTMENT PRODUCTS OR OTHERWISE MAKING THEM AVAILABLE TO RETAIL INVESTORS IN THE EEA HAS BEEN PREPARED AND THEREFORE OFFERING OR SELLING THE BONDS OR OTHERWISE MAKING THEM AVAILABLE TO ANY RETAIL INVESTOR IN THE EEA MAY BE UNLAWFUL UNDER THE PRIIPS REGULATION.

THIS OFFERING MEMORANDUM IS NOT A PROSPECTUS FOR THE PURPOSES OF THE PROSPECTUS REGULATION IN MEMBER STATES. THIS OFFERING MEMORANDUM HAS BEEN PREPARED ON THE BASIS THAT ANY OFFER OR REMARKETING OF THE BONDS IN ANY MEMBER STATE WILL BE MADE PURSUANT TO AN EXEMPTION UNDER ARTICLE 1 (4) OF THE PROSPECTUS REGULATION FROM THE REQUIREMENT TO PUBLISH A PROSPECTUS FOR OFFERS OF THE BONDS. ACCORDINGLY, ANY PERSON MAKING OR INTENDING TO MAKE AN OFFER OR SALE IN A MEMBER STATE OF THE BONDS WHICH ARE THE SUBJECT OF THE OFFERING CONTEMPLATED IN THIS OFFERING MEMORANDUM MAY ONLY DO SO IN CIRCUMSTANCES IN WHICH NO OBLIGATION ARISES FOR THE ISSUER OR THE UNDERWRITERS TO PUBLISH A PROSPECTUS PURSUANT TO ARTICLE 3 OF THE PROSPECTUS REGULATION, IN EACH CASE, IN RELATION TO SUCH OFFER OR SALE. NONE OF THE ISSUER, THE UNDERWRITERS OR THE REMARKETING AGENTS HAVE AUTHORIZED, NOR DO ANY AUTHORIZE, THE MAKING OF ANY OFFER OR SALE OF THE BONDS IN CIRCUMSTANCES IN WHICH AN OBLIGATION ARISES TO PUBLISH A PROSPECTUS FOR SUCH OFFER OR SALE.

IN THE CASE OF ANY BONDS BEING OFFERED OR SOLD TO A FINANCIAL INTERMEDIARY AS THAT TERM IS USED IN ARTICLE 5(1) OF THE PROSPECTUS REGULATION, SUCH FINANCIAL INTERMEDIARY WILL BE DEEMED TO HAVE REPRESENTED, ACKNOWLEDGED AND AGREED THAT THE BONDS ACQUIRED BY IT IN THE OFFERING OR REMARKETING HAVE NOT BEEN ACQUIRED ON A NON-DISCRETIONARY BASIS ON BEHALF OF, NOR HAVE THEY BEEN ACQUIRED WITH A VIEW TO THEIR OFFER OR RESALE TO, PERSONS IN CIRCUMSTANCES WHICH MAY GIVE RISE TO AN OBLIGATION FOR THE ISSUER, THE UNDERWRITERS OR THE REMARKETING AGENTS TO PUBLISH A PROSPECTUS PURSUANT TO ARTICLE 3 OF THE PROSPECTUS REGULATION. THE ISSUER, THE UNDERWRITERS, THE REMARKETING AGENTS AND THEIR RESPECTIVE AFFILIATES AND OTHERS WILL RELY UPON THE TRUTH AND ACCURACY OF THE FOREGOING REPRESENTATION, ACKNOWLEDGMENT AND AGREEMENT.

THE OFFER OF ANY BONDS WHICH IS THE SUBJECT OF THE OFFERING CONTEMPLATED BY THIS OFFERING MEMORANDUM IS NOT BEING MADE AND WILL NOT BE MADE TO THE PUBLIC IN ANY MEMBER STATE, OTHER THAN: (A) TO ANY LEGAL ENTITY WHICH IS A "QUALIFIED INVESTOR" AS SUCH TERM IS DEFINED IN THE PROSPECTUS REGULATION; (B) TO FEWER THAN 150 NATURAL OR LEGAL PERSONS (OTHER THAN "QUALIFIED INVESTORS" AS SUCH TERM IS DEFINED IN THE PROSPECTUS REGULATION), SUBJECT TO OBTAINING THE PRIOR CONSENT OF THE RELEVANT UNDERWRITER OR THE ISSUER FOR ANY SUCH OFFER OR (C) IN ANY OTHER CIRCUMSTANCES FALLING WITHIN ARTICLE 1(4) OF THE PROSPECTUS REGULATION; PROVIDED THAT NO SUCH OFFER OF THE BONDS SHALL REQUIRE THE ISSUER OR ANY UNDERWRITER TO PUBLISH A PROSPECTUS PURSUANT TO ARTICLE 3 OF THE PROSPECTUS REGULATION OR A SUPPLEMENT TO A PROSPECTUS PURSUANT TO ARTICLE 23 OF THE PROSPECTUS REGULATION.

FOR THE PURPOSES OF THIS PROVISION, THE EXPRESSION AN "OFFER OF SECURITIES TO THE PUBLIC" IN RELATION TO THE BONDS IN ANY MEMBER STATE IMEANS THE COMMUNICATION IN ANY FORM AND BY ANY MEANS OF SUFFICIENT INFORMATION ON THE TERMS OF THE OFFER AND BONDS TO BE OFFERED SO AS TO ENABLE AN INVESTOR TO DECIDE TO PURCHASE OR SUBSCRIBE FOR THE BONDS.

EACH SUBSCRIBER FOR OR PURCHASER OF THE BONDS IN THE OFFERING LOCATED WITHIN A MEMBER STATE WILL BE DEEMED TO HAVE REPRESENTED, ACKNOWLEDGED AND AGREED THAT IT IS A "QUALIFIED INVESTOR" AS DEFINED IN THE PROSPECTUS REGULATION. THE ISSUER AND EACH UNDERWRITER AND OTHERS WILL RELY ON THE TRUTH AND ACCURACY OF THE FOREGOING REPRESENTATION, ACKNOWLEDGEMENT AND AGREEMENT.

NOTICE TO PROSPECTIVE INVESTORS IN THE UNITED KINGDOM

AN INVITATION OR INDUCEMENT TO ENGAGE IN INVESTMENT ACTIVITY (WITHIN THE MEANING OF SECTION 21 OF THE FINANCIAL SERVICES AND MARKETS ACT 2000 (THE "FSMA")) IN

CONNECTION WITH THE ISSUE OR SALE OF ANY BONDS MAY ONLY BE COMMUNICATED OR CAUSED TO BE COMMUNICATED AND WILL ONLY BE COMMUNICATED OR CAUSED TO BE COMMUNICATED IN CIRCUMSTANCES IN WHICH SECTION 21(1) OF THE FSMA DOES NOT APPLY TO THE ISSUER; AND SUCH ISSUE OR SALE HAS COMPLIED AND WILL COMPLY WITH ALL APPLICABLE PROVISIONS OF THE FSMA WITH RESPECT TO ANY ACTIONS IN RELATION TO THE BONDS IN, FROM OR OTHERWISE INVOLVING OR BEING CAPABLE OF HAVING EFFECT IN THE UNITED KINGDOM.

IN ADDITION, IN THE UNITED KINGDOM, THIS OFFERING MEMORANDUM IS ONLY BEING DISTRIBUTED TO, AND IS ONLY DIRECTED AT PERSONS (I) WHO HAVE PROFESSIONAL EXPERIENCE IN MATTERS RELATING TO INVESTMENTS AND FALL WITHIN ARTICLE 19(5) OF THE FINANCIAL SERVICES AND MARKETS ACT 2000 (FINANCIAL PROMOTION) ORDER 2005, AS AMENDED (THE “ORDER”) OR (II) WHO FALL WITHIN ARTICLE 49(2)(A) TO (D) (“HIGH NET WORTH COMPANIES, UNINCORPORATED ASSOCIATIONS, ETC.”) OF THE ORDER OR (III) TO WHOM THIS OFFERING MEMORANDUM CAN BE LAWFULLY COMMUNICATED OR CAUSED TO BE COMMUNICATED (ALL SUCH PERSONS TOGETHER BEING REFERRED TO AS “RELEVANT PERSONS”). THIS OFFERING MEMORANDUM MUST NOT BE ACTED ON OR RELIED ON IN THE UNITED KINGDOM BY PERSONS WHO ARE NOT RELEVANT PERSONS AND THE BONDS ARE ONLY AVAILABLE TO AND ANY INVESTMENT OR INVESTMENT ACTIVITY TO WHICH THIS OFFERING MEMORANDUM RELATES IS AVAILABLE ONLY TO RELEVANT PERSONS AND WILL BE ENGAGED IN ONLY WITH SUCH PERSONS.

NOTICE TO PROSPECTIVE INVESTORS IN SWITZERLAND

THE BONDS MAY NOT BE PUBLICLY OFFERED OR REMARKETED IN SWITZERLAND AND WILL NOT BE LISTED ON THE SIX SWISS EXCHANGE (“SIX”) OR ON ANY OTHER STOCK EXCHANGE OR REGULATED TRADING FACILITY IN SWITZERLAND. THIS OFFICIAL STATEMENT DOES NOT CONSTITUTE A PROSPECTUS AS SUCH TERM IS UNDERSTOOD UNDER ART. 652A OR ART. 1156 OF THE SWISS CODE OF OBLIGATIONS NOR A LISTING PROSPECTUS AS SUCH TERM IS UNDERSTOOD UNDER ART. 27 OF THE SIX LISTING RULES OR THE LISTING RULES OF ANY OTHER STOCK EXCHANGE OR REGULATED TRADING FACILITY IN SWITZERLAND. NEITHER THIS OFFICIAL STATEMENT NOR ANY OTHER OFFERING OR MARKETING MATERIAL RELATING TO THE BONDS OR THE OFFERING OR REMARKETING OF THE BONDS MAY BE PUBLICLY DISTRIBUTED OR OTHERWISE MADE PUBLICLY AVAILABLE IN SWITZERLAND.

NONE OF THIS OFFICIAL STATEMENT OR ANY OTHER OFFERING OR MARKETING MATERIAL RELATING TO THE OFFERING OR REMARKETING OF THE BONDS, THE ISSUER OR THE BONDS HAVE BEEN OR WILL BE FILED WITH OR APPROVED BY ANY SWISS REGULATORY AUTHORITY. IN PARTICULAR, THIS OFFICIAL STATEMENT WILL NOT BE FILED WITH, AND THE OFFER OR REMARKETING OF THE BONDS WILL NOT BE SUPERVISED BY, THE SWISS FINANCIAL MARKET SUPERVISORY AUTHORITY (“FINMA”), AND THE OFFER OR REMARKETING OF BONDS HAS NOT BEEN AND WILL NOT BE AUTHORIZED UNDER THE SWISS FEDERAL ACT ON COLLECTIVE INVESTMENT SCHEMES (“CISA”). ACCORDINGLY, INVESTORS DO NOT HAVE THE BENEFIT OF THE SPECIFIC INVESTOR PROTECTION PROVIDED UNDER THE CISA.

NOTICE TO PROSPECTIVE INVESTORS IN CANADA

THE BONDS MAY BE SOLD IN CANADA ONLY TO PURCHASERS PURCHASING, OR DEEMED TO BE PURCHASING, AS PRINCIPAL THAT ARE ACCREDITED INVESTORS, AS DEFINED IN NATIONAL INSTRUMENT 45-106 *PROSPECTUS EXEMPTIONS* OR SUBSECTION 73.3(1) OF THE *SECURITIES ACT* (ONTARIO), AND ARE PERMITTED CLIENTS, AS DEFINED IN NATIONAL INSTRUMENT 31-103 *REGISTRATION REQUIREMENTS, EXEMPTIONS AND ONGOING REGISTRANT OBLIGATIONS*. ANY RESALE OF THE BONDS MUST BE MADE IN ACCORDANCE WITH AN EXEMPTION FROM, OR IN A TRANSACTION NOT SUBJECT TO, THE PROSPECTUS REQUIREMENTS OF APPLICABLE SECURITIES LAWS.

SECURITIES LEGISLATION IN CERTAIN PROVINCES OR TERRITORIES OF CANADA MAY PROVIDE A PURCHASER WITH REMEDIES FOR RESCISSION OR DAMAGES IF THIS OFFICIAL STATEMENT (INCLUDING ANY AMENDMENT THERETO) CONTAINS A MISREPRESENTATION, PROVIDED THAT THE REMEDIES FOR RESCISSION OR DAMAGES ARE EXERCISED BY THE PURCHASER WITHIN THE TIME LIMIT PRESCRIBED BY THE SECURITIES LEGISLATION OF THE PURCHASER'S PROVINCE OR TERRITORY. THE PURCHASER SHOULD REFER TO ANY APPLICABLE PROVISIONS OF THE SECURITIES LEGISLATION OF THE PURCHASER'S PROVINCE OR TERRITORY FOR PARTICULARS OF THESE RIGHTS OR CONSULT WITH A LEGAL ADVISOR.

PURSUANT TO SECTION 3A.3 OF NATIONAL INSTRUMENT 33-105 *UNDERWRITING CONFLICTS* ("NI 33-105"), THE UNDERWRITERS ARE NOT REQUIRED TO COMPLY WITH THE DISCLOSURE REQUIREMENTS OF NI 33-105 REGARDING UNDERWRITER CONFLICTS OF INTEREST IN CONNECTION WITH THIS OFFERING.

NOTICE TO PROSPECTIVE INVESTORS IN HONG KONG

THE CONTENTS OF THIS OFFICIAL STATEMENT HAVE NOT BEEN REVIEWED OR APPROVED BY ANY REGULATORY AUTHORITY IN HONG KONG. THIS OFFICIAL STATEMENT DOES NOT CONSTITUTE AN OFFER OR INVITATION TO THE PUBLIC IN HONG KONG TO ACQUIRE THE BONDS. ACCORDINGLY, EXCEPT AS PERMITTED BY THE SECURITIES LAWS OF HONG KONG, NO PERSON MAY ISSUE OR HAVE IN ITS POSSESSION FOR THE PURPOSES OF ISSUING THIS OFFICIAL STATEMENT OR ANY ADVERTISEMENT, INVITATION OR DOCUMENT RELATING TO THE BONDS, WHETHER IN HONG KONG OR ELSEWHERE, WHICH IS DIRECTED AT, OR THE CONTENTS OF WHICH ARE LIKELY TO BE ACCESSED OR READ BY, THE PUBLIC IN HONG KONG OTHER THAN IN RELATION TO BONDS WHICH ARE INTENDED TO BE DISPOSED OF ONLY TO PERSONS OUTSIDE HONG KONG OR ONLY TO "PROFESSIONAL INVESTORS" (AS SUCH TERM IS DEFINED IN THE SECURITIES AND FUTURES ORDINANCE OF HONG KONG (CAP. 571) (THE "SFO") AND THE SUBSIDIARY LEGISLATION MADE THEREUNDER) OR IN CIRCUMSTANCES WHICH DO NOT CONSTITUTE AN OFFER OR AN INVITATION TO THE PUBLIC FOR THE PURPOSES OF THE SFO. THE OFFER OR REMARKETING OF THE BONDS IS PERSONAL TO THE PERSON OR COMPANY TO WHOM THIS OFFICIAL STATEMENT HAS BEEN DELIVERED BY OR ON BEHALF OF THE ISSUER, AND A PURCHASE OF THE BONDS WILL ONLY BE ACCEPTED FROM SUCH PERSON OR COMPANY. NO PERSON OR COMPANY TO WHOM A COPY OF THIS OFFICIAL STATEMENT IS ISSUED MAY ISSUE, CIRCULATE OR DISTRIBUTE THIS OFFICIAL STATEMENT IN HONG KONG OR MAKE OR GIVE A COPY OF THIS OFFICIAL STATEMENT TO ANY OTHER PERSON. EACH HONG KONG RESIDENT IS ADVISED TO EXERCISE CAUTION IN RELATION TO THE OFFER OR REMARKETING OF THE BONDS AND TO OBTAIN INDEPENDENT PROFESSIONAL ADVICE REGARDING SUCH OFFERING OR REMARKETING.

NOTICE TO PROSPECTIVE INVESTORS IN JAPAN

THE BONDS HAVE NOT BEEN AND WILL NOT BE REGISTERED UNDER THE FINANCIAL INSTRUMENTS AND EXCHANGE ACT OF JAPAN (ACT NO. 25 OF 1948, AS AMENDED, THE "FIEA"). NEITHER THE BONDS NOR ANY INTEREST THEREIN MAY BE OFFERED OR SOLD, DIRECTLY OR INDIRECTLY, IN JAPAN OR TO, OR FOR THE BENEFIT OF, ANY RESIDENT OF JAPAN (AS DEFINED UNDER ITEM 5, PARAGRAPH 1, ARTICLE 6 OF THE FOREIGN EXCHANGE AND FOREIGN TRADE ACT (ACT NO. 228 OF 1949, AS AMENDED)), OR TO OTHERS FOR RE-OFFERING OR RESALE, DIRECTLY OR INDIRECTLY, IN JAPAN OR TO, OR FOR THE BENEFIT OF, ANY RESIDENT OF JAPAN, EXCEPT PURSUANT TO AN EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF, AND OTHERWISE IN COMPLIANCE WITH, THE FIEA AND ANY OTHER APPLICABLE LAWS, REGULATIONS AND MINISTERIAL GUIDELINES OF JAPAN.

THE PRIMARY OFFERING OF THE BONDS AND THE SOLICITATION OF AN OFFER FOR ACQUISITION THEREOF HAVE NOT BEEN AND WILL NOT BE REGISTERED UNDER PARAGRAPH 1, ARTICLE 4 OF THE FIEA. AS IT IS A PRIMARY OFFERING, IN JAPAN, THE BONDS MAY ONLY BE OFFERED, SOLD, RESOLD OR OTHERWISE TRANSFERRED, DIRECTLY OR INDIRECTLY TO, OR FOR THE BENEFIT OF CERTAIN QUALIFIED INSTITUTIONAL INVESTORS AS DEFINED IN THE FIEA ("QIIS")

IN RELIANCE ON THE QIIS-ONLY PRIVATE PLACEMENT EXEMPTION AS SET FORTH IN ITEM 2(I), PARAGRAPH 3, ARTICLE 2 OF THE FIEA. A QII WHO PURCHASED OR OTHERWISE OBTAINED THE BONDS CANNOT RESELL OR OTHERWISE TRANSFER THE BONDS IN JAPAN TO ANY PERSON EXCEPT ANOTHER QII.

NOTICE TO PROSPECTIVE INVESTORS IN SOUTH KOREA

THIS OFFICIAL STATEMENT IS NOT, AND UNDER NO CIRCUMSTANCES IS TO BE CONSIDERED AS, A PUBLIC OFFERING OF SECURITIES IN SOUTH KOREA FOR THE PURPOSES OF THE FINANCIAL INVESTMENT SERVICES AND CAPITAL MARKET ACT OF KOREA. THE BONDS HAVE NOT BEEN AND WILL NOT BE REGISTERED WITH THE FINANCIAL SERVICES COMMISSION OF SOUTH KOREA FOR PUBLIC OFFERING IN SOUTH KOREA UNDER THE FINANCIAL INVESTMENT SERVICES AND CAPITAL MARKETS ACT AND ITS SUBORDINATE DECREES AND REGULATIONS (COLLECTIVELY, THE "FSCMA"). THE BONDS MAY NOT BE OFFERED, REMARKETED, SOLD OR DELIVERED, DIRECTLY OR INDIRECTLY, OR OFFERED, REMARKETED OR SOLD TO ANY PERSON FOR RE-OFFERING OR RESALE, DIRECTLY OR INDIRECTLY, IN SOUTH KOREA OR TO ANY RESIDENT OF SOUTH KOREA EXCEPT AS OTHERWISE PERMITTED UNDER THE APPLICABLE LAWS AND REGULATIONS OF SOUTH KOREA, INCLUDING THE FSCMA AND THE FOREIGN EXCHANGE TRANSACTION LAW AND ITS SUBORDINATE DECREES AND REGULATIONS (COLLECTIVELY, THE "FETL"). WITHOUT PREJUDICE TO THE FOREGOING, THE NUMBER OF INVESTORS OFFERED IN SOUTH KOREA OR THE NUMBER OF INVESTORS WHO ARE RESIDENTS IN SOUTH KOREA SHALL BE LESS THAN FIFTY AND FOR A PERIOD OF ONE YEAR FROM THE ISSUE DATE OF THE BONDS, NONE OF THE BONDS MAY BE DIVIDED RESULTING IN AN INCREASED NUMBER OF THE BONDS. FURTHERMORE, THE BONDS MAY NOT BE RESOLD TO SOUTH KOREAN RESIDENTS UNLESS THE PURCHASER OF THE BONDS COMPLIES WITH ALL APPLICABLE REGULATORY REQUIREMENTS (INCLUDING BUT NOT LIMITED TO GOVERNMENT REPORTING REQUIREMENTS UNDER THE FETL) IN CONNECTION WITH THE PURCHASE OF THE BONDS.

NOTICE TO PROSPECTIVE INVESTORS IN TAIWAN

THE OFFER OF THE BONDS HAS NOT BEEN AND WILL NOT BE REGISTERED OR FILED WITH, OR APPROVED BY, THE FINANCIAL SUPERVISORY COMMISSION OF TAIWAN AND/OR OTHER REGULATORY AUTHORITY OF TAIWAN PURSUANT TO RELEVANT SECURITIES LAWS AND REGULATIONS, AND THE BONDS MAY NOT BE OFFERED, ISSUED OR SOLD IN TAIWAN THROUGH A PUBLIC OFFERING OR IN CIRCUMSTANCES WHICH CONSTITUTE AN OFFER WITHIN THE MEANING OF THE SECURITIES AND EXCHANGE ACT OF TAIWAN THAT REQUIRES THE REGISTRATION OR FILING WITH OR APPROVAL OF THE FINANCIAL SUPERVISORY COMMISSION OF TAIWAN. THE BONDS MAY BE MADE AVAILABLE OUTSIDE TAIWAN FOR PURCHASE BY INVESTORS RESIDING IN TAIWAN (EITHER DIRECTLY OR THROUGH PROPERLY LICENSED TAIWAN INTERMEDIARIES), BUT MAY NOT BE OFFERED OR SOLD IN TAIWAN EXCEPT TO QUALIFIED INVESTORS VIA A TAIWAN LICENSED INTERMEDIARY. ANY SUBSCRIPTIONS OF BONDS SHALL ONLY BECOME EFFECTIVE UPON ACCEPTANCE BY THE ISSUER OR THE RELEVANT DEALER OUTSIDE TAIWAN AND SHALL BE DEEMED A CONTRACT ENTERED INTO IN THE JURISDICTION OF INCORPORATION OF THE ISSUER OR RELEVANT DEALER, AS THE CASE MAY BE, UNLESS OTHERWISE SPECIFIED IN THE SUBSCRIPTION DOCUMENTS RELATING TO THE BONDS SIGNED BY THE INVESTORS.

SUMMARY OF THE OFFERING

Issuer	Massachusetts Institute of Technology
Securities Offered	$300,000,000 2.989% Taxable Bonds, Series F due July 1, 2050; price 100%
Interest Accrual Dates	Interest will accrue from the Date of Issuance
Interest Payment Dates	January 1 and July 1 of each year, commencing July 1, 2020
Redemption	The Bonds are subject to optional redemption at either (i) the Make-Whole Redemption Price prior to the Par Call Date, or (ii) on or after the Par Call Date at a redemption price discussed more fully herein. See "THE BONDS – Redemption."
Date of Issuance	December 20, 2019
Authorized Denominations	$1,000 and any integral multiple thereof
Form and Depository	The Bonds will be delivered solely in registered form under a book-entry system only through the facilities of DTC.
Use of Proceeds	The Institute will use the net proceeds of the Bonds for general corporate purposes and to pay costs of issuance. See "PLAN OF FINANCE" herein.
Ratings	Moody's: Aaa S&P: AAA

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OFFERING MEMORANDUM

Relating to

$300,000,000

MASSACHUSETTS INSTITUTE OF TECHNOLOGY TAXABLE BONDS, SERIES F

INTRODUCTION

Purpose of this Offering Memorandum

The purpose of this Offering Memorandum, which includes the cover page, the table of contents and appendices, is to provide certain information concerning the sale and delivery by the Massachusetts Institute of Technology (the "Institute") of $300,000,000 aggregate principal amount of its Massachusetts Institute of Technology Taxable Bonds, Series F (the "Bonds"). This Introduction contains only a brief summary of certain of the terms of the Bonds being offered and a brief description of the Offering Memorandum. All statements contained in this Introduction are qualified in their entirety by reference to the entire Offering Memorandum.

Plan of Finance

The issuance of the Bonds is a component of the Institute's financing plan (the "Plan of Finance"). The proceeds from the sale of the Bonds are expected to be used by the Institute for general corporate purposes and to pay costs of issuance. A description of the use of proceeds of the Bonds, including approximate amounts and purposes, is included herein under "PLAN OF FINANCE."

The Plan of Finance contemplates that, in addition to the issuance of the Bonds, the Massachusetts Development Finance Agency will issue a separate series of tax-exempt bonds bearing interest at fixed rates (the "Tax-Exempt Bonds") for the benefit of the Institute. The Tax-Exempt Bonds are expected to be issued in an aggregate principal amount of $136,055,000 on or about January 9, 2020.

The issuance of the Bonds and the Tax-Exempt Bonds is not conditioned on the issuance of the other series. The primary components of the Plan of Finance are described under the caption "PLAN OF FINANCE" herein. However, the Plan of Finance may be revised by the Institute from time to time in response to market developments and other factors subsequent to the date of this Offering Memorandum or the issuance of the Bonds or the Tax-Exempt Bonds.

The Institute

The Institute is an educational corporation existing under the laws of The Commonwealth of Massachusetts. Important information on the financial condition of the Institute is set forth in APPENDIX A – "CERTAIN INFORMATION REGARDING THE INSTITUTE" and APPENDIX B – "REPORT OF THE TREASURER FOR THE YEAR ENDED JUNE 30, 2019" attached hereto, both of which should be read in their entirety.

The Bonds

The Bonds are being issued pursuant to an Indenture of Trust, dated as of December 1, 2019 (the "Indenture"), between the Institute and U.S. Bank National Association, as trustee (the "Trustee"). Pursuant to the Indenture, on each Payment Date, until the principal of and interest on the Bonds shall have been paid or provision for such payment shall have been made as provided in the Indenture, the Institute will pay the Trustee a sum equal to the amount payable on such Payment Date as principal of or interest on the Bonds. See "THE BONDS" herein.

Security for the Bonds

The Bonds constitute unsecured general obligations of the Institute. The Institute has other unsecured general obligations outstanding. See "Outstanding Indebtedness" below. Moreover, the Institute is not restricted by the Indenture or otherwise from incurring additional indebtedness. Such additional indebtedness, if issued, may be either secured or unsecured and may be entitled to payment prior to payment on the Bonds. See "SECURITY FOR THE BONDS" herein.

Additional Bonds

The Institute may, from time to time, without the consent of the holders of the Bonds, issue additional bonds under the Indenture in addition to the Bonds (the "Additional Bonds"). If issued, the Additional Bonds will become part of the same series as the Bonds being offered by this Offering Memorandum and will have the same interest rate, redemption provisions, maturity date as the Bonds. However, in order for any Additional Bonds to have the same and CUSIP number as the Bonds, such Additional Bonds must be fungible with the Bonds for U.S. federal income tax purposes.

Outstanding Indebtedness

As of June 30, 2019, the outstanding indebtedness of the Institute totaled approximately $3.2 billion. For additional information regarding the outstanding indebtedness of the Institute, see APPENDIX B – "REPORT OF THE TREASURER FOR THE YEAR ENDED JUNE 30, 2019" attached hereto.

Redemption

The Bonds are subject to optional redemption by the Institute prior to maturity at the redemption price as described herein. See "THE BONDS – Redemption" herein.

Certain Information Related to this Offering Memorandum

The descriptions herein of the Indenture and other documents relating to the Bonds do not purport to be complete and are qualified in their entirety by reference to such documents, and the description herein of the Bonds is qualified in its entirety by the form thereof and the information with respect thereto included in such documents. See APPENDIX C – "SUMMARY OF CERTAIN PROVISIONS OF THE INDENTURE" attached hereto for a brief summary of the Indenture, including descriptions of certain duties of the Trustee, rights and remedies of the Trustee and the Bondholders upon an Event of Default, and provisions relating to amendments of the Indenture and procedures for defeasance of the Bonds.

All capitalized terms used in this Offering Memorandum and not otherwise defined herein have the same meanings as in the Indenture. See APPENDIX C – "SUMMARY OF CERTAIN PROVISIONS OF THE INDENTURE" attached hereto for definitions of certain words and terms used but not otherwise defined herein.

The information and expressions of opinion herein speak only as of their date and are subject to change without notice. Neither delivery of this Offering Memorandum nor any sale made hereunder nor any future use of this Offering Memorandum will, under any circumstances, create any implication that there has been no change in the affairs of the Institute.

PLAN OF FINANCE

The proceeds of the Bonds are expected to be used by the Institute for general corporate purposes and to pay costs of issuance.

It is expected that the Tax-Exempt Bonds will be issued on or about January 9, 2020. The Tax-Exempt Bonds will be offered pursuant to a separate offering memorandum. The proceeds of the Tax-Exempt Bonds are expected to be used to finance: (i) the construction, equipping and furnishing of a new Vassar Street residence hall, including approximately 450 student beds and 16 apartments, a dining hall, and common space; (ii) the renovation and reconstruction of the existing Burton Connor residence hall located at 410 Memorial Drive, Cambridge, Massachusetts, including for infrastructure renewal; (iii) routine renovations and equipment purchases for existing campus facilities; and (iv) certain costs of issuing the Tax-Exempt Bonds.

The issuance of the Bonds and the Tax-Exempt Bonds is not conditioned on the issuance of the other series. The primary components of the Plan of Finance are described in this section. However, the Plan of Finance may be revised by the Institute from time to time in response to market developments and other factors subsequent to the date of this Offering Memorandum or the issuance of the Bonds or the Tax-Exempt Bonds.

THE BONDS

Description of the Bonds

The Bonds will be dated as of the date of their original issuance and will bear interest and mature (subject to prior redemption) as shown on the front cover page hereof.

Interest on the Bonds will be payable on January 1 and July 1 of each year (each, an "Interest Payment Date"), commencing on July 1, 2020, and will be calculated on the basis of a three hundred sixty (360) day year consisting of twelve (12) thirty (30) day months.

The principal and redemption price of the Bonds will be payable by check or by wire transfer of immediately available funds in lawful money of the United States of America at the Designated Office of the Trustee.

Interest on the Bonds will be payable from the later of (i) the dated date of the Bonds and (ii) the most recent Interest Payment Date to which interest has been paid or duly provided for. Payment of the interest on each Interest Payment Date will be made to the Person whose name appears on the bond registration books of the Trustee as the Holder thereof as of the close of business on the Record Date for each Interest Payment Date, such interest to be paid by check mailed by first class mail to such Holder at its address as it appears on such registration books, or, upon the written request of any Holder of at least $1,000,000 in aggregate principal amount of Bonds, submitted to the Trustee at least one (1) Business Day prior to the Record Date, by wire transfer in immediately available funds to an account within the United States designated by such Holder. The Record Date is the fifteenth day of the month (whether or not a Business Day) immediately preceding each Interest Payment Date. Notwithstanding the foregoing, as long as the Securities Depository is the Holder of all or part of the Bonds in Book-Entry Form, said payments of principal, interest, Make-Whole Redemption Price (as defined herein), or other redemption proceeds will be made to the Securities Depository by wire transfer in immediately available funds.

Book-Entry Only System and Global Clearance Procedures

The Bonds will be issued in fully registered form and, when issued, will be held by the Securities Depository through Cede & Co., as its nominee, as securities depository with respect to the Bonds. Individual purchases of interests in the Bonds will be made in book-entry form only, in the principal amount of $1,000 or any multiple integral thereof for sales made within the United States. For sales made outside the United States, the minimum purchase and trading amount for the Bonds is 150 units (i.e., 150 Bonds in an aggregate principal amount of $150,000) as described herein. Individual purchasers will not receive physical delivery of bond certificates. So long as Cede & Co. is the registered owner of the Bonds as nominee of the Securities Depository, references herein to the holders or registered owners of the Bonds will mean Cede & Co. and will not mean the beneficial owners of the Bonds. Beneficial interests in the Bonds may be held through the Securities Depository, Clearstream Banking, S.A. ("Clearstream Banking") or Euroclear Bank S.A./N.V. ("Euroclear") as operator of the Euroclear System, directly as a participant or indirectly through organizations that are participants in such system. See APPENDIX E - "DTC BOOK-ENTRY ONLY SYSTEM AND GLOBAL CLEARANCE PROCEDURES."

As long as the Bonds are held by the Securities Depository or its nominee, interest will be paid to Cede & Co., as nominee of the Securities Depository, in same-day funds on each Interest Payment Date. In the event the Institute determines that it is in the best interests of the Beneficial Owners (defined herein) that they be able to obtain Bond certificates, the Institute may so notify the Securities Depository and the Trustee, whereupon the Securities Depository will notify the Participants of the availability through the Securities Depository of Bond certificates. In such event, the

Trustee shall issue, transfer and exchange Bond certificates as requested by the Securities Depository in appropriate amounts and in authorized denominations.

With respect to Bonds registered in the registry books kept by the Trustee in the name of Cede & Co., as nominee of the Securities Depository, the Institute and the Trustee shall have no responsibility or obligation to any Participant (which means securities brokers and dealers, banks, trust companies, clearing corporations and various other entities, some of whom or their representatives own the Securities Depository) or to any Beneficial Owner (which means, when used with reference to the Book-Entry System, the Person who is considered the beneficial owner of the Bonds pursuant to the arrangements for book entry determination of ownership applicable to the Securities Depository) with respect to the following: (1) the accuracy of the records of the Securities Depository, Cede & Co. or any Participant with respect to any ownership interest in the Bonds, (2) the delivery to any Participant, any Beneficial Owner or any other Person, other than the Securities Depository, of any notice with respect to the Bonds, including any notice of redemption, or (3) the payment to any Participant, any Beneficial Owner or any other Person, other than the Securities Depository, of any amount with respect to the principal, Make-Whole Redemption Price or other redemption proceeds of and interest on the Bonds only to or upon the order of the Securities Depository, and all such payments shall be valid and effective fully to satisfy and discharge the Institute's obligations with respect to the principal, Make-Whole Redemption Price or other redemption proceeds of and interest on the Bonds to the extent of the sum or sums so paid. For more information on the Securities Depository, the book-entry only system, Clearstream Banking and Euroclear see APPENDIX E - "DTC BOOK-ENTRY ONLY SYSTEM AND GLOBAL CLEARANCE PROCEDURES."

Neither the Institute nor the Underwriters have provided information in this Offering Memorandum with respect to the Securities Depository, Clearstream Banking and Euroclear and neither the Institute nor the Underwriters certify as to the accuracy or sufficiency of the disclosure policies of or content provided by the Securities Depository, Clearstream Banking and Euroclear and are not responsible for the information provided by the Securities Depository, Clearstream Banking and Euroclear.

Redemption

Optional Redemption at Par

The Bonds will be subject to optional redemption prior to maturity on or after January 1, 2050 (i.e., six months prior to the maturity date of the Bonds) (the "Par Call Date"), at the direction of the Institute, in whole or in part, subject to the provisions described below under "Selection of Bonds for Redemption", on any Business Day, at a redemption price equal to the principal amount of such Bonds to be redeemed, plus accrued and unpaid interest on the Bonds to be redeemed to, but excluding, the redemption date.

Optional Redemption at Make-Whole Redemption Price

Prior to the Par Call Date, the Bonds will be subject to optional redemption prior to maturity, in whole or in part, at the written direction of the Institute to the Trustee, on any Business Day, at the Make-Whole Redemption Price. Such redemption must be made in accordance with the terms of the Bonds. The Institute will retain an independent accounting firm or an independent financial advisor to determine the Make-Whole Redemption Price and perform all actions and make all calculations required to determine such Make-Whole Redemption Price. The Trustee and the Institute may conclusively rely on such accounting firm's or financial advisor's calculations in connection with, and its determination of, the Make-Whole Redemption Price, and neither the Trustee nor the Institute shall have any liability for such reliance. The determination of the Make-Whole Redemption Price by such accounting firm or financial advisor shall be conclusive and binding on the Trustee, the Institute and the Holders of the Bonds.

"Make-Whole Redemption Price" means an amount equal to the greater of:

(1) 100% of the principal amount of the Bonds to be redeemed; or

(2) the sum of the present values of the remaining scheduled payments of principal and interest to the maturity date of the Bonds to be redeemed (not including any portion of those payments of interest accrued and unpaid as of the date on which such Bonds are to be redeemed) discounted to the date on which the Bonds are to be redeemed on a semi-annual basis assuming a 360-day year consisting of twelve 30-day months at the adjusted Treasury Rate plus fifteen (15) basis points;

plus, in each case, accrued and unpaid interest on the Bonds to be redeemed to, but excluding, the redemption date.

"Business Day" means any day other than (A) a Saturday or Sunday or legal holiday or a day on which banking institutions in the city or cities in which the Designated Office of the Trustee is located are authorized by law or executive order to close or (B) a day on which the New York Stock Exchange is closed.

"Comparable Treasury Issue" means the United States Treasury security or securities selected by a Designated Investment Banker as having an actual or interpolated maturity comparable to the remaining term of the Bonds to be redeemed that would be used, at the time of selection and in accordance with customary financial practice, in pricing new issues of corporate debt securities of a comparable maturity to the remaining term of such Bonds.

"Comparable Treasury Price" means, with respect to any redemption date, the average of the Primary Treasury Dealer Quotations for such redemption date or, if the Designated Investment Banker obtains only one Primary Treasury Dealer Quotation, such Primary Treasury Dealer Quotation.

"Designated Investment Banker" means one of the Primary Treasury Dealers appointed by the Institute.

"Primary Treasury Dealer" means one or more entities appointed by the Institute, which, in each case, is a primary U.S. Government securities dealer in The City of New York, New York, and their respective successors.

"Primary Treasury Dealer Quotations" means, with respect to each Primary Treasury Dealer and any redemption date, the average, as determined by the Designated Investment Banker, of the bid and asked prices for the Comparable Treasury Issue (expressed in each case as a percentage of its principal amount) quoted in writing to the Designated Investment Banker by such Primary Treasury Dealer at 3:30 p.m. New York time on the third Business Day preceding such redemption date.

"Treasury Rate" means, with respect to any redemption date, the rate per annum equal to (i) the semiannual equivalent yield to maturity or (ii) if no such semiannual equivalent yield to maturity is available, the interpolated yield to maturity (on a day count basis) of the Comparable Treasury Issue, assuming a price for the Comparable Treasury Issue (expressed as a percentage of its principal amount) equal to the Comparable Treasury Price for such redemption date.

Partial Redemption of Bonds

Upon surrender of any Bond redeemed in part only, the Institute will execute (but need not prepare) and the Trustee will prepare or cause to be prepared, authenticate and deliver to the Holder thereof, at the expense of the Institute, a new Bond or Bonds of Authorized Denominations, equal in aggregate principal amount to the unredeemed portion of the Bond surrendered.

Notice of Redemption

Notice of redemption will be mailed by the Trustee by first class mail, or Electronic Means, not less than twenty (20) days (or, if longer, the minimum number of days necessary to comply with the operational requirements of the Securities Depository then in effect), nor more than sixty (60) days prior to the redemption date, to the respective Holders of any Bonds designated for redemption at their addresses appearing on the bond registration books of the Trustee. If the Bonds are no longer held by the Securities Depository or its successor or substitute, the Trustee will also give notice of redemption by overnight mail to such securities depositories and/or securities information services as will be designated in a certificate of the Institute. Each notice of redemption will state the date of such notice, the date of issue of the Bonds, the redemption date, the redemption price (or the method for determining the Make-Whole Redemption Price), the place or places of redemption (including the name and appropriate address or addresses of the Trustee), the maturity, the CUSIP number (if any), the conditions, if any, to redemption and, in the case of Bonds to be redeemed in part only, the portion of the principal amount thereof to be redeemed. Each such notice will also state that on such date there will become due and payable on each of such Bond, the redemption price thereof, or such specified portion of the principal amount thereof in the case of a Bond to be redeemed in part only, together with interest accrued thereon to the redemption date, and that from and after such redemption date interest thereon will cease to accrue, and will require that such Bonds be then surrendered.

Failure by the Trustee to give notice as described above to any one or more of the securities information services or depositories designated by the Institute, or the insufficiency of any such notice will not affect the sufficiency of the proceedings for redemption. Failure by the Trustee to send notice of redemption to any one or more of the respective Holders of any Bonds designated for redemption will not affect the sufficiency of the proceedings for redemption with respect to the Holders to whom such notice was mailed.

With respect to the optional redemption of some or all of the Bonds, the Institute may instruct the Trustee to provide conditional notice of redemption, which may be conditioned upon the receipt of moneys or any other event. Additionally, any such optional redemption notice may be rescinded by written notice given to the Trustee by the Institute no later than five (5) Business Days prior to the Redemption Date. The Trustee will give notice of such rescission, as soon thereafter as practicable, in the same manner, to the same Persons, as notice of such redemption was given.

Effect of Redemption

Notice of redemption having been duly given as provided in the Indenture and as described above, and moneys for payment of the redemption price of, together with interest accrued to the date fixed for redemption on, the Bonds (or portion thereof) so called for redemption being held by the Trustee, on the date fixed for redemption designated in such notice, the Bonds (or portion thereof) so called for redemption will become due and payable at the redemption price described in such notice and interest accrued thereon to the date fixed for redemption, interest on the Bonds so called for redemption will cease to accrue, said Bonds (or portion thereof) will cease to be entitled to any benefit or security under the Indenture, and the Holders of said Bonds will have no rights in respect thereof except to receive payment of said redemption price and accrued interest to the date fixed for redemption from funds held by the Trustee for such payment.

Selection of Bonds for Redemption

If the Bonds are registered in Book-Entry Form and so long as the Securities Depository or a successor securities depository is the sole registered owner of the Bonds, if less than all of the Bonds are called for prior redemption, the particular Bonds or portions thereof to be redeemed will be selected by the Trustee on a pro rata pass-through distribution of principal basis in accordance with the Securities Depository procedures, provided that, so long as the Bonds are held in Book Entry Form, the selection for redemption of such Bonds will be made in accordance with the operational arrangements of the Securities Depository then in effect.

It is the Institute's intent that redemption allocations made by the Securities Depository be made on a pro rata pass through distribution of principal basis as described above. However, neither the Institute nor the Underwriters can provide any assurance that the Securities Depository, the Security Depository's direct and indirect participants or any other intermediary will allocate the redemption of Bonds on such basis.

If the Securities Depository operational arrangements do not allow for the redemption of the Bonds on a pro rata pass-through distribution of principal basis as discussed above, then the Bonds will be selected for redemption, in accordance with the Securities Depository procedures, by lot.

If the Securities Depository, its nominee or its successor is no longer the sole registered owner of the Bonds, if less than all of the Bonds are called for redemption, the Trustee will select the Bonds to be redeemed on a pro rata basis.

SECURITY FOR THE BONDS

General

The Indenture provides that, on or before each Payment Date, the Institute will pay the Trustee a sum equal to the amount payable on such Payment Date as principal of and interest on the Bonds. In addition, the Indenture provides that each such payment made will at all times be sufficient to pay the total amount of interest and principal (whether at maturity or upon acceleration) becoming due and payable on the Bonds on such Payment Date. If on any Payment Date, the amounts held by the Trustee in the accounts within the Bond Fund (as described below) are insufficient to make any required payments of principal of (whether at maturity or upon acceleration) and interest on the Bonds as such payments become due, the Institute is required to pay such deficiency to the Trustee. Upon the receipt thereof, the Trustee will deposit all payments received from the Institute into certain funds and accounts established pursuant to the Indenture. See "Certain Funds and Accounts Established by the Indenture" below.

The Bonds constitute unsecured general obligations of the Institute. The Bonds are not secured by a reserve fund, mortgage lien or security interest on or in any funds or other assets of the Institute, except for funds held from time to time by the Trustee for the benefit of the Holders of the Bonds under the Indenture. Pursuant to the Indenture, and, as described above, the Institute is not required to deposit with the Trustee amounts necessary to pay the principal of and interest on the Bonds until the Payment Date on which such amounts become due and payable; therefore, the funds held from time to time by the Trustee for the benefit of the Holders of the Bonds under the Indenture are expected to be minimal.

The Indenture does not contain any financial covenants limiting the ability of the Institute to incur indebtedness, encumber or dispose of its property or merge with any other entity, or any covenants. Further, the Institute is not required by the Indenture to produce revenues at any specified level or to obtain any insurance with respect to its property or operations.

The Institute has other unsecured general obligations outstanding. See APPENDIX B – "REPORT OF THE TREASURER FOR THE YEAR ENDED JUNE 30, 2019" attached hereto. Moreover, the Institute is not restricted by the Indenture or otherwise from incurring additional indebtedness. Such additional indebtedness, if issued, may be either secured or unsecured and may be entitled to payment prior to payment on the Bonds.

Certain Funds and Accounts Established by the Indenture

Indenture Fund. Under the Indenture, the Trustee has established for the sole benefit of the Bondholders, a master fund referred to as the "Indenture Fund," containing the Bond Fund and the Redemption Fund and each of the funds and accounts contained therein. The Institute has pledged, assigned and transferred the Indenture Fund and all amounts held therein to the Trustee for the benefit of the Bondholders to secure the full payment of the principal, Make Whole Redemption Price or other redemption proceeds of and interest on the Bonds in accordance with their terms and the provisions of the Indenture. The Indenture Fund and all amounts on deposit therein constitute collateral security to secure the full payment of the principal, Make Whole Redemption Price or other redemption proceeds of and interest on the Bonds in accordance with their terms and provisions of the Indenture. Due to the timing of payments by the Institute to the Trustee, in general there is not expected to be any money in the Indenture Funds except for a brief period of time on the Interest Payment Dates.

For information on other funds and accounts established by the Indenture, see APPENDIX C – "SUMMARY OF CERTAIN PROVISIONS OF THE INDENTURE" attached hereto.

TAX MATTERS

General

INTEREST, REDEMPTION PRICE AND PROFIT, IF ANY, ON THE BONDS IS NOT EXCLUDED FROM GROSS INCOME FOR U.S. FEDERAL, STATE OR LOCAL INCOME TAX PURPOSES.

The following discussion summarizes certain U.S. federal tax considerations generally applicable to holders of the Bonds that acquire their Bonds in the initial offering. The discussion below is based upon laws, regulations, rulings, and decisions in effect and available on the date hereof, all of which are subject to change, possibly with retroactive effect. Prospective investors should note that no rulings have been or are expected to be sought from the U.S. Internal Revenue Service (the "IRS") with respect to any of the U.S. federal tax consequences discussed below, and no assurance can be given that the IRS will not take contrary positions. Further, the following discussion does not deal with U.S. tax consequences applicable to any given investor, nor does it address the U.S. tax considerations applicable to all categories of investors, some of which may be subject to special taxing rules (regardless of whether or not such investors constitute U.S. Holders), such as certain U.S. expatriates, banks, REITs, RICs, individual retirement accounts or other tax-deferred accounts, insurance companies, tax-exempt organizations, dealers or traders in securities or currencies, partnerships, S corporations, certain taxpayers that are required to prepare certified financial statements or file financial statements with certain regulatory or governmental agencies, estates and trusts, investors that hold their Bonds as part of a hedge, straddle or an integrated or conversion transaction, or investors whose "functional currency" is not the U.S. dollar. Furthermore, it does not address (i) alternative minimum tax consequences, (ii) the net investment income tax imposed under Section 1411 of the Code, or (iii) the indirect effects on persons who hold equity interests in a holder. This summary also does not consider the taxation of the Bonds under state, local or non-U.S. tax laws or estate or gift tax consequences. In addition, this summary generally is limited to U.S. federal income tax considerations applicable to investors that acquire their Bonds pursuant to this offering for the issue price that is applicable to such Bonds (i.e., the price at which a substantial amount of the Bonds are sold to the public) and who will hold their Bonds as "capital assets" within the meaning of Section 1221 of the Code.

As used herein, "U.S. Holder" means a beneficial owner of a Bond that for U.S. federal income tax purposes is an citizen or individual resident of the United States, a corporation or other entity taxable as a corporation created or organized in or under the laws of the United States or any state thereof (including the District of Columbia), an estate the income of which is subject to U.S. federal income taxation regardless of its source or a trust where a court within the United States is able to exercise primary supervision over the administration of the trust and one or more United States persons (as defined in the Code) have the authority to control all substantial decisions of the trust (or a trust that has made a valid election under U.S. Treasury Regulations to be treated as a domestic trust). As used herein, "Non-U.S. Holder" generally means a beneficial owner of a Bond (other than a partnership) that is not a U.S. Holder. If a partnership (including for this purpose, an entity treated as a partnership for U.S. federal income tax purposes) holds Bonds, the tax treatment of such partnership or a partner (or other owner) in such partnership generally will depend upon the status of the partner (or other owner) and upon the activities of the partnership. Partnerships holding Bonds, and partners (or other owners) in such partnerships, should consult their own tax advisors regarding the tax consequences of an investment in the Bonds (including their status as U.S. Holders or Non-U.S. Holders).

In certain circumstances, the Institute may be obligated to pay amounts in excess of the stated principal on the Bonds and/or may prepay or redeem all or a portion of the Bonds. The obligation to make such payments may implicate the provisions of U.S. Treasury regulations relating to "contingent payment debt instruments," in which case the timing and amount of income inclusions and the character of income recognized may be different from the consequences discussed herein. According to the applicable U.S. Treasury regulations, certain contingencies will not cause a debt instrument to be treated as a contingent payment debt instrument if such contingencies in the aggregate, as of the date of issuance, are either "remote" or "incidental" or if certain other rules apply. Although the matter is not free from doubt, the Institute believes and intends to take the position if required that either such contingencies should be treated as remote and/or incidental or that the rules on "contingent payment debt instruments" otherwise would not be applicable. The position that the Bonds are not contingent payment debt instruments is binding on a holder unless such holder discloses its contrary position in the manner required by applicable U.S. Treasury regulations. The Institute's position is not, however, binding on the IRS, and if the IRS were to successfully challenge this position, it could affect the amount, timing and character of U.S. Holder's income with respect to the Bond. The remainder of this disclosure assumes that the Institute's determinations described above are correct. Holders should consult an independent tax advisor as to the tax considerations relating to the contingent payments and prepayment and redemption rights described above. Prospective investors should consult their own tax advisors in determining the U.S. federal, state, local or non-U.S. tax consequences to them from the purchase, ownership and disposition of the Bonds in light of their particular circumstances.

U.S. Holders

Interest. Interest on the Bonds generally will be taxable to a U.S. Holder as ordinary interest income at the time such amounts are accrued or received, in accordance with the U.S. Holder's method of accounting for U.S. federal income tax purposes.

If a Bond is issued at a discount from its stated redemption price at maturity, and the discount is at least the product of one-quarter of one percent (0.25%) of the stated redemption price at maturity of the Bond multiplied by the number of full years to maturity, the Bond will be an "OID Bond." In general, the excess of the stated redemption price at maturity of an OID Bond over its issue price will constitute original issue discount ("OID") for U.S. federal income tax purposes. The stated redemption price at maturity of a Bond is the sum of all scheduled amounts payable on the Bond (other than qualified stated interest). The term "qualified stated interest" generally means stated interest that is unconditionally payable in cash or property (other than debt instruments of the Institute), or that is treated as constructively received, at least annually at a single fixed rate. U.S. Holders of OID Bonds will be required to include OID in income for U.S. federal income tax purposes as it accrues, in accordance with a constant yield method based on a compounding of interest (which may be before the receipt of cash payments attributable to such income). Under this method, U.S. Holders generally will be required to include in income increasingly greater amounts of OID in successive accrual periods.

If a Bond is issued at a price greater than the principal amount payable at maturity, a U.S. Holder generally will be considered to have purchased the Bond at a premium, and generally may elect to amortize the premium as an offset to interest income otherwise required to be included in respect of the Bond during a taxable year, using a constant-yield method, over the remaining term of the Bond. If a U.S. Holder makes the election to amortize the premium, it generally will apply to all debt instruments held by such U.S. Holder at the time of the election, as well as any debt instruments that are subsequently acquired by such U.S. Holder. In addition, a U.S. Holder may not revoke the election to amortize the premium without the consent of the IRS. If such U.S. Holder elects to amortize the premium, such U.S. Holder will be required to reduce its tax basis in the Bond by the amount of the premium amortized during the holding period of the U.S. Holder. If such U.S. Holder does not elect to amortize premium, the amount of premium will be included in its tax basis in the Bond. Therefore, if a U.S. Holder does not elect to amortize premium and holds the Bond to maturity, the premium will decrease the amount of gain or increase the amount of loss otherwise recognized on the disposition of such Bond. Special rules for determining the amount of amortizable bond premium attributable to a debt instrument may be applicable if the debt instrument may be optionally redeemed. These rules are complex and prospective purchasers of the Bonds are urged to consult their own tax advisors regarding the application of the amortizable bond premium rules to their particular situation.

Sale or Other Taxable Disposition of the Bonds. Unless a nonrecognition provision of the Code applies, the sale, exchange, redemption, retirement or other disposition of a Bond will be a taxable event for U.S. federal income tax purposes. In such event, in general, a U.S. Holder of a Bond will recognize gain or loss equal to the difference between (i) the amount of cash plus the fair market value of property received (except to the extent attributable to accrued but unpaid interest on the Bond, which will be taxed in the manner described above) and (ii) the U.S. Holder's adjusted U.S. federal income tax basis in the Bond (generally, the purchase price paid by the U.S. Holder for the Bond increased by any OID included in income and decreased by the amount of payments, other than qualified stated interest payments, and amortizable bond premium taken with respect to the Bond). Any such gain or loss generally will be capital gain or loss. In the case of a non-corporate U.S. Holder of the Bonds, the maximum marginal U.S. federal income tax rate applicable to any such gain will be lower than the maximum marginal U.S. federal income tax rate applicable to ordinary income if such U.S. holder's holding period for the Bonds exceeds one year. The deductibility of capital losses is subject to limitations.

Defeasance of the Bonds. If the Institute defeases any Bond, the Bond may be deemed to be retired for U.S. federal income tax purposes as a result of the defeasance. In that event, in general, a holder will recognize taxable gain or loss equal to the difference between (i) the amount realized from the deemed sale, exchange or retirement (less any accrued qualified stated interest which will be taxable as such) and (ii) the holder's adjusted U.S. federal income tax basis in the Bond.

Information Reporting and Backup Withholding. Payments on the Bonds (including OID, if any) generally will be subject to U.S. information reporting and possibly to "backup withholding." Under Section 3406 of the Code and applicable U.S. Treasury Regulations issued thereunder, a non-corporate U.S. Holder of the Bonds may be subject to backup withholding at the then current rate with respect to "reportable payments," which include interest paid on the Bonds and the gross proceeds of a sale, exchange, redemption, retirement or other disposition of the Bonds. The payor will be required to deduct and withhold the prescribed amounts if (i) the payee fails to furnish a U.S. taxpayer identification number ("TIN") to the payor in the manner required, (ii) the IRS notifies the payor that the TIN furnished by the payee is incorrect, (iii) there has been a "notified payee underreporting" described in Section 3406(c) of the Code or (iv) the payee fails to certify under penalty of perjury that the payee is not subject to withholding under Section

3406(a)(1)(C) of the Code. Amounts withheld under the backup withholding rules may be refunded or credited against the U.S. Holder's federal income tax liability, if any, provided that the required information is timely furnished to the IRS. Certain U.S. Holders (including among others, corporations and certain tax-exempt organizations) are not subject to backup withholding. A holder's failure to comply with the backup withholding rules may result in the imposition of penalties by the IRS.

Non-U.S. Holders

Interest. If, under the Code, interest on the Bonds is "effectively connected with the conduct of a trade or business within the United States" by a Non-U.S. Holder (and, if an applicable treaty so requires, is attributable to the conduct of a trade or business through a permanent establishment or fixed base in the United States), such interest will be subject to U.S. federal income tax in a similar manner as if the Bonds were held by a U.S. Holder, as described above, and in the case of Non-U.S. Holders that are corporations may be subject to U.S. branch profits tax at a rate of up to 30%, unless an applicable tax treaty provides otherwise. Such Non-U.S. Holder will not be subject to withholding taxes, however, if it provides a properly executed Form W-8ECI to the Institute or its paying agent, if any.

Interest on the Bonds held by other Non-U.S. Holders may be subject to withholding taxes of up to 30% of each payment made to the Non-U.S. Holders unless the "portfolio interest" exemption applies. In general, interest paid on the Bonds to a Non-U.S. Holder will qualify for the portfolio interest exemption, and thus will not be subject to U.S. federal withholding tax, if (i) such Non-U.S. Holder is not a "controlled foreign corporation" (within the meaning of section 957 of the Code) related, directly or indirectly, to the Institute; (ii)the Non-U.S. Holder is not actually or constructively a "10-percent shareholder" under Section 871(h) of the Code; (iii) the Non-U.S. Holder is not a bank receiving interest described in Section 881(c)(3)(A) of the Code; (iv)the interest is not effectively connected with the conduct by the Non-U.S. Holder of a trade or business in the United States under Section 871(b) or Section 882 of the Code; and (v) either (a) the Institute or its paying agent, if any, receives from the Non-U.S. Holder who is the beneficial owner of the obligation a statement signed by such person under penalties of perjury, on IRS Form W-8BEN or W-8BEN-E (or successor form), certifying that such owner is not a U.S. Holder and providing such owner's name and address or (b) a securities clearing organization, bank or other financial institution that holds the Bonds on behalf of such Non-U.S. Holder in the ordinary course of its trade or business certifies to the Institute or its paying agent, if any, under penalties of perjury, that such an IRS Form W-8BEN or W-8BEN-E (or a successor form) has been received from the beneficial owner by it and furnishes the Institute or its paying agent, if any, with a copy thereof. A certificate is effective only with respect to payments of interest made to the certifying Non-U.S. Holder after issuance of the certificate in the calendar year of its issuance and the two immediately succeeding calendar years. Alternative methods may be applicable for satisfying the certification requirement described above. Foreign trusts and their beneficiaries are subject to special rules, and such persons should consult their own tax advisors regarding the certification requirements.

If a Non-U.S. Holder does not claim, or does not quality for, the benefit of the portfolio interest exemption, the Non-U.S. Holder may be subject to a 30% withholding tax on interest payments on the Bonds. However, the Non-U.S. Holder may be able to claim the benefit of a reduced withholding tax rate under an applicable income tax treaty between the Non-U.S. Holder's country of residence and the U.S. Non-U.S. Holders are urged to consult their own tax advisors regarding their eligibility for treaty benefits. The required information for claiming treaty benefits is generally submitted on Form W-8BEN or W-8BEN-E. In addition, a Non-U.S. Holder may under certain circumstances be required to obtain a U.S. taxpayer identification number.

Disposition of the Bonds. Subject to the discussions below under the headings "Information Reporting and Backup Withholding"," any gain realized by a Non-U.S. Holder upon the sale, exchange, redemption, retirement or other disposition of a Bond generally will not be subject to U.S. federal income tax, unless (i) such gain is effectively connected with the conduct by such Non-U.S. Holder of a trade or business within the United States (in which case the U.S. branch profits tax may also apply), unless an applicable tax treaty provides otherwise; or (ii) in the case of any gain realized by an individual Non-U.S. Holder, such holder is present in the United States for 183 days or more in the taxable year of such sale, exchange, redemption, retirement (including pursuant to an offer by the Issuer) or other disposition and certain other conditions are met.

Information Reporting and Backup Withholding. The Institute or its paying agent, if any, must report annually to the IRS and to each Non-U.S. Holder any interest (including OID, if any) that is subject to U.S. withholding taxes or that is exempt from U.S. withholding taxes pursuant to an income tax treaty or certain provisions of the Code. Copies of these information returns may also be made available under the provisions of a specific tax treaty or agreement with the tax authorities of the country in which the Non-U.S. Holder resides.

Subject to the discussion below under the heading "FATCA," under current U.S. Treasury Regulations, payments of principal and interest on any Bonds to a holder that is not a United States person will not be subject to any backup withholding tax requirements if the beneficial owner of the Bond or a financial institution holding the Bond on behalf of the beneficial owner in the ordinary course of its trade or business provides an appropriate certification to the payor and the payor does not have actual knowledge that the certification is false. If a beneficial owner provides the certification, the certification must give the name and address of such owner, state that such owner is not a United States person, or, in the case of an individual, that such owner is neither a citizen nor a resident of the United States, and the owner must sign the certificate under penalties of perjury. A Non-U.S. Holder may be subject to information reporting and/or backup withholding on a sale of the Bonds through the U.S. office of a broker and may be subject to information reporting (but generally not backup withholding) on a sale of the Bonds through a foreign office of a broker that has certain connections to the United States, unless the Non-U.S. Holder provides the certification described above or otherwise establishes an exemption. Non-U.S. Holders should consult their own tax advisors regarding their qualification for exemption from backup withholding and the procedure for obtaining such an exemption.

Foreign Account Tax Compliance Act ("FATCA")—U.S. Holders and Non-U.S. Holders

Sections 1471 through 1474 of the Code impose a 30% withholding tax on certain types of payments made to foreign financial institutions, unless the foreign financial institution enters into an agreement with the U.S. Treasury to, among other things, undertake to identify accounts held by certain U.S. persons or U.S.-owned entities, annually report certain information about such accounts, and withhold 30% on payments to account holders whose actions prevent it from complying with these and other reporting requirements, or unless the foreign financial institution is otherwise exempt from those requirements. In addition, FATCA imposes a 30% withholding tax on the same types of payments to a non-financial foreign entity unless the entity certifies that it does not have any substantial U.S. owners or the entity furnishes identifying information regarding each substantial U.S. owner. Under current guidance, failure to comply with the additional certification, information reporting and other specified requirements imposed under FATCA could result in the 30% withholding tax being imposed on payments of interest on the Bonds. In general, withholding under FATCA currently applies to payments of U.S. source interest (including OID, if any). While withholding under FATCA would also have applied to payments of gross proceeds from the sale or other disposition of the Bonds on or after January 1, 2019, proposed U.S. Treasury Regulations eliminate FATCA withholding on payments of gross proceeds entirely. Although these U.S. Treasury Regulations are not final, they can be relied upon until final U.S. Treasury Regulations are issued. Prospective investors should consult their own tax advisors regarding FATCA and its effect on them.

The foregoing summary is included herein for general information only and does not discuss all aspects of U.S. federal taxation that may be relevant to a particular holder of Bonds in light of the holder's particular circumstances and income tax situation. Prospective investors are urged to consult their own tax advisors as to any tax consequences to them from the purchase, ownership and disposition of Bonds, including the application and effect of state, local, non-U.S., and other tax laws.

IN ALL EVENTS, ALL INVESTORS SHOULD CONSULT THEIR OWN TAX ADVISORS IN DETERMINING THE FEDERAL, STATE, LOCAL, FOREIGN, ESTATE, GIFT AND OTHER TAX CONSEQUENCES TO THEM OF THE PURCHASE, OWNERSHIP AND DISPOSITION OF THE BONDS.

CONSIDERATIONS FOR ERISA AND OTHER U.S. BENEFIT PLAN INVESTORS

The Employee Retirement Income Security Act of 1974, as amended ("ERISA"), imposes certain fiduciary obligations and prohibited transaction restrictions on employee pension and welfare benefit plans subject to Title I of ERISA ("ERISA Plans"). Section 4975 of the Code imposes essentially the same prohibited transaction restrictions on tax-qualified retirement plans described in Section 401(a) and 403(a) of the Code, which are exempt from tax under Section 501(a) of the Code, other than governmental and church plans as defined herein ("Qualified Retirement Plans"), and on Individual Retirement Accounts ("IRAs") described in Section 408(b) of the Code (collectively, "Tax-Favored Plans"). Certain employee benefit plans such as governmental plans (as defined in Section 3(32) of ERISA), and, if no election has been made under Section 410(d) of the Code, church plans (as defined in Section 3(33) of ERISA), are not subject to ERISA requirements. Additionally, such governmental and non-electing church plans are not subject to the requirements of Section 4975 of the Code. Accordingly, assets of such plans may be invested in the Bonds without regard to the ERISA and Code considerations described below; however, such plans may be subject to similar provisions under applicable federal and state law. Furthermore, non-United States plans may be subject to requirements under non-U.S. law that are similar to such provisions of ERISA and the Code.

In addition to the imposition of general fiduciary obligations, including those of investment prudence and diversification and the requirement that a plan's investment be made in accordance with the documents governing the plan, Section 406 of ERISA and Section 4975 of the Code prohibit a broad range of direct and indirect transactions involving assets of ERISA Plans and Tax-Favored Plans and entities whose underlying assets include plan assets by reason of ERISA Plans or Tax-Favored Plans investing in such entities (collectively, "Benefit Plan Investors") and persons who have certain specified relationships to the Benefit Plan Investors ("Parties In Interest" or "Disqualified Persons"), unless a statutory or administrative exemption is available. The definitions of "Party in Interest" and "Disqualified Person" are expansive. While other entities may be encompassed by these definitions, they include, most notably: (1) fiduciary with respect to a plan; (2) a person providing services to a plan; and (3) an employer or employee organization any of whose employees or members are covered by the plan. Certain Parties in Interest (or Disqualified Persons) that participate in a prohibited transaction may be subject to a penalty (or an excise tax) imposed pursuant to Section 502(i) of ERISA (or Section 4975 of the Code) unless a statutory or administrative exemption is available. Compliance with the prohibited transaction rules of ERISA and the Code may also require a Benefit Plan Investor to undo or rescind the transaction, in the absence of an exemption. In addition, a prohibited transaction involving an IRA may cause the IRA to lose its tax-exempt status.

Certain transactions involving the purchase, holding or transfer of the Bonds might be deemed to constitute prohibited transactions under ERISA and Section 4975 of the Code if assets of the Institute were deemed to be assets of an ERISA Plan or Tax-Favored Plan. Under final regulations issued by the United States Department of Labor (the "Plan Assets Regulation"), the assets of the Institute would be treated as plan assets of an ERISA Plan or Tax-Favored Plan for the purposes of ERISA and Section 4975 of the Code only if the Benefit Plan Investor acquires an "equity interest" in the Institute and none of the exceptions contained in the Plan Assets Regulation is applicable. An equity interest is defined under the Plan Assets Regulation as an interest in an entity other than an instrument which is treated as indebtedness under applicable local law and which has no substantial equity features. Although there can be no assurances in this regard, it appears that the Bonds should be treated as debt without substantial equity features for purposes of the Plan Assets Regulation. This determination is based upon the traditional debt features of the Bonds, including the reasonable expectation of purchasers of Bonds that the Bonds will be repaid when due, traditional default remedies, as well as the absence of conversion rights, warrants and other typical equity features. The debt treatment of the Bonds for ERISA purposes could change subsequent to issuance of the Bonds. In the event of a withdrawal or downgrade to below investment grade of the rating of the Bonds or a characterization of the Bonds as other than indebtedness under applicable local law, the subsequent purchase of the Bonds or any interest therein by a Benefit Plan Investor (including an ERISA Plan or Tax-Favored Plan) is prohibited.

However without regard to whether the Bonds are treated as an equity interest for such purposes, the acquisition or holding of Bonds by or on behalf of a Benefit Plan Investor could be considered to give rise to a prohibited transaction if the Institute or the Issuing and Paying Agent, or any of their respective affiliates, is or becomes a Party in Interest or a Disqualified Person with respect to such Benefit Plan Investor.

Most notably, ERISA and the Code generally prohibit the lending of money or other extension of credit between a Benefit Plan Investor and a Party in Interest or a Disqualified Person, and the acquisition of any of the Bonds by a Benefit Plan Investor would involve the lending of money or extension of credit by the Benefit Plan Investor. In such a case, however, certain exemptions from the prohibited transaction rules could be applicable depending on the type and circumstances of the plan fiduciary making the decision to acquire a Bond. Included among these exemptions are: Prohibited Transaction Class Exemption ("PTCE") 96-23, regarding transactions effected by certain "in-house asset managers"; PTCE 90-1, regarding investments by insurance company pooled separate accounts; PTCE 95-60, regarding transactions effected by "insurance company general accounts"; PTCE 91-38, regarding investments by bank collective investment funds; and PTCE 84-14, regarding transactions effected by "qualified professional asset managers." Further, the statutory exemption in Section 408(b)(17) of ERISA and Section 4975(d)(20) of the Code provides for an exemption for certain transactions involving "adequate consideration" with persons who are Parties in Interest or Disqualified Persons solely by reason of their (or their affiliate's) status as a service provider to the Benefit Plan Investor involved and none of whom is a fiduciary with respect to the Benefit Plan Investor assets involved (or an affiliate of such a fiduciary). There can be no assurance that any class or other exemption will be available with respect to any particular transaction involving the Bonds, or that, if available, the exemption would cover all possible prohibited transactions.

By acquiring a Bond (or interest therein), each purchaser and transferee (and if the purchaser or transferee is a Benefit Plan Investor, its fiduciary) is deemed to represent and warrant that either (i) it is not acquiring the Bond (or interest therein) with the assets of a Benefit Plan Investor, governmental plan, church plan or plan subject to the requirements of non-U.S. law; or (ii) the acquisition and holding of the Bond (or interest therein) will not give rise to a nonexempt prohibited transaction under Section 406 of ERISA or Section 4975 of the Code or similar law. Benefit Plan Investors may not purchase the Bonds at any time that the ratings on the Bonds are below investment grade or the Bonds have been characterized as other than indebtedness for applicable local law purposes. A purchaser or transferee who acquires Bonds with assets of a Benefit Plan Investor, governmental plan, church plan or plan subject to the requirements of non-U.S. law represents that such purchaser or transferee has considered the fiduciary responsibility and prohibited transaction requirements of ERISA and the Code or other similar laws and has consulted with counsel with regard to the purchase or transfer.

Any fiduciary of a Benefit Plan Investor considering whether to purchase the Bonds on behalf of a Benefit Plan Investor should consult with its counsel regarding the applicability of the fiduciary responsibility and prohibited transaction provisions of ERISA and Section 4975 of the Code to such an investment and the availability of any of the exemptions referred to above. Persons responsible for investing the assets of a benefit plan that is not a Benefit Plan Investor (including a governmental plan, a non-electing church plan or a plan that is a foreign plan under ERISA) should seek similar counsel with respect to the fiduciary responsibility and prohibited transaction provisions of laws applicable to such benefit plan that are similar to the fiduciary responsibility and prohibited transaction provisions of ERISA and the Code.

UNDERWRITING

The Institute has entered into a purchase contract with the Underwriters listed on the cover hereof for whom Barclays Capital Inc., is acting as representative, and the Underwriters have agreed to purchase the Bonds from the Institute at a price of $298,107,504.50 (reflecting the principal amount of $300,000,000.00, minus an underwriter's discount of $1,892,495.50).

The purchase contract pursuant to which the Bonds are being sold provides that the Underwriters will purchase not less than all of the Bonds. The Underwriters' obligation to make such purchase is subject to certain terms and conditions set forth in the purchase contract, the approval of certain legal matters by counsel and certain other conditions.

The Underwriters may offer and sell the Bonds to certain dealers and others at a price lower than the initial offering price. The offering price of Bonds may be changed from time to time by the Underwriters.

J.P. Morgan Securities LLC ("JPMS"), one of the Underwriters of the Bonds, has entered into negotiated dealer agreements (each, a "Dealer Agreement") with each of Charles Schwab & Co., Inc. ("CS&Co.") and LPL Financial LLC ("LPL") for the retail distribution of certain securities offerings at the original issue prices. Pursuant to each Dealer Agreement, if applicable to this transaction, each of CS&Co. and LPL will purchase Bonds from JPMS at the original issue price less a negotiated portion of the selling concession applicable to any Bonds that such firm sells.

The Underwriters and their respective affiliates are full service financial Institutes engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, principal investment, hedging, financing and brokerage activities. Certain of the Underwriters and their respective affiliates have, from time to time, performed, and may in the future perform, various investment banking services for the Institute, for which they received or will receive customary fees and expenses.

In the ordinary course of their various business activities, the Underwriters and their respective affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (which may include bank loans and/or credit default swaps) for their own account and for the accounts of their customers and may at any time hold long and short positions in such securities and instruments. Such investment and securities activities may involve securities and instruments of the Institute.

CONTINUING DISCLOSURE

The Institute has entered into continuing disclosure undertakings (the “Continuing Disclosure Undertakings”) in connection with tax-exempt revenue bonds issued for the benefit of the Institute. See APPENDIX B – “REPORT OF THE TREASURER FOR THE YEAR ENDED JUNE 30, 2019.” Holders and prospective purchasers of the Bonds may obtain copies of the information provided by the Institute under those Continuing Disclosure Undertakings on the Municipal Securities Rulemaking Board’s Electronic Municipal Market Access system (“EMMA”). Each Continuing Disclosure Undertaking terminates when the related tax-exempt bonds are paid or deemed paid in full.

The Institute covenants in the Indenture that, unless otherwise available on EMMA or any successor thereto or to functions thereof, copies of the audited financial statements will either be posted on the Institute’s website or filed with the Trustee.

APPROVAL OF LEGALITY

Legal matters incident to validity of the Bonds and certain other matters are subject to the approving opinion of Ropes & Gray LLP, Boston, Massachusetts, counsel to the Institute and the Office of the General Counsel of the Institute. The proposed form of opinion of counsel to the Institute relating to the validity of the issuance of the Bonds and certain other matters is attached hereto as Appendix D. In addition, certain other legal matters will be passed upon for the Underwriters by their counsel, Orrick, Herrington & Sutcliffe LLP.

FINANCIAL STATEMENTS

The financial statements of the Institute presented in Appendix B present the financial position, changes in net assets and cash flows for the year ended June 30, 2019, with summarized comparative financial information as of and for the year ended June 30, 2018. These financial statements should be read in their entirety.

INDEPENDENT ACCOUNTANTS

The consolidated statements of financial position as of June 30, 2019 and 2018, the related consolidated statement of activities for the year ended June 30, 2019, and the related consolidated statements of cash flows for the years ended June 30, 2019 and 2018, included in Appendix B to this Offering Memorandum, have been audited by PricewaterhouseCoopers LLP, independent accountants, as stated in their report appearing in Appendix B hereto.

RATINGS

Moody’s assigned a rating of “Aaa” and S&P Global Ratings (S&P) assigned a rating of “AAA” on the Bonds. Any explanation of the significance of such ratings may only be obtained from Moody’s and S&P’s. Generally, rating agencies base their ratings on information and materials furnished and on investigation, studies, and assumptions by the rating agencies. There is no assurance that the rating mentioned above will remain in effect for any given period of time or that a rating might not be lowered or withdrawn entirely, if in the judgment of the rating agency originally establishing the rating, circumstances so warrant. Any such downward change in or withdrawal of a rating might have an adverse effect on the market price or marketability of the Bonds. A securities rating is not a recommendation to buy, sell or hold securities.

MISCELLANEOUS

All quotations from and summaries and explanations of the Indenture and of other statutes and documents contained herein do not purport to be complete, and reference is made to said documents and statutes for full and complete statements of their provisions. Copies in reasonable quantity of the Indenture may be obtained upon request directed to the Underwriters or the Institute.

Any statements in this Offering Memorandum involving matters of opinion are intended as such and not as representations of fact. This Offering Memorandum is not to be construed as a contract or agreement between the Institute and Holders of any of the Bonds.

The execution and delivery of this Offering Memorandum has been duly authorized by the Institute.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

By: /s/ Israel Ruiz
Executive Vice President and Treasurer

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APPENDIX A

CERTAIN INFORMATION REGARDING THE INSTITUTE

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THE INSTITUTE

Introduction

The Massachusetts Institute of Technology ("MIT" or the "Institute") is a private, nonprofit, coeducational, nonsectarian institution of higher education chartered under the laws of the Commonwealth of Massachusetts. Enrollment for the 2019-2020 academic year was 11,520 students, of whom 6,990 were graduate students. As of October 2019, the Institute had 1,067 faculty members and approximately 4,500 other academic staff. The Institute is located on a 166-acre residential campus fronting the Charles River in Cambridge, Massachusetts, opposite Boston. In addition, MIT owns property in several suburban communities.

The Institute is organized into five schools - Architecture and Planning; Engineering; Humanities, Arts and Social Sciences; Management; and Science - which in aggregate contain 33 academic departments or programs. Additionally, the MIT Stephen A. Schwarzman College of Computing, described in more detail below, began operations in September 2019. MIT's academic programs are organized primarily along the lines of traditional disciplines, and each department offers one or more degree programs. Increasing numbers of students choose fields of concentration that cross regular departmental lines, such as planetary and space science, comparative media studies, health sciences and technology, visual arts, transportation, engineering systems, and media arts and sciences.

MIT is committed to a broad program of research to support its educational program and its broader purpose of advancing knowledge. Research provides both theoretical and laboratory experience for students and faculty by enriching classroom teaching as faculty bring their latest research findings to their students.

Shaping the Future of Education

On October 15, 2018, MIT announced the establishment of the MIT Stephen A. Schwarzman College of Computing (the "College of Computing"), which was made possible with a $350 million foundational gift from Mr. Schwarzman. MIT has committed up to $1.0 billion for the new College of Computing, which represents the most significant structural change to MIT since the early 1950s. The College of Computing is expected to propel research and teaching in computer science and computing and bring the latest computational capabilities to disciplines across the Institute. One of the College of Computing's signature programs will address the policy and ethics of artificial intelligence in order to promote positive societal impact from advances in computing. Daniel Huttenlocher SM '84, PhD '88 joined MIT as the inaugural Dean of the College of Computing during the summer of 2019, and planning for the College of Computing building to be constructed at 51 Vassar Street is now underway.

MIT has begun the transformation of Kendall Square into an east campus gateway to the Institute. Several facilities are scheduled to open in the fall of 2020: a new graduate residence and the Innovation and Entrepreneurship Hub (the "I&E Hub"), both on the corner of Main Street and Hayward Street, and a commercial tower and home to the new MIT Museum at 314 Main Street. The I&E Hub will bring together many of the programs and resources supporting innovators and entrepreneurs from across campus into multi-use spaces. The new home for the MIT Innovation Initiative is expected to include space for many programs, including the Deshpande Center for Technological Innovation, Legatum Center for Development and Entrepreneurship, Project Manus, the Sandbox Innovation Fund Program, and the Venture Mentoring Service. The MIT Welcome Center will be located adjacent to a redesigned subway station and is designed to help make the experience of arriving at MIT's campus more welcoming.

In addition to the establishment of the College of Computing and extensive work in Kendall Square, MIT is focused on supporting the entrepreneurial activities of the technology industry in Cambridge. In 2016, MIT established The Engine Accelerator, Inc. ("The Engine"), a wholly owned Delaware subsidiary, to provide mentoring, infrastructure, and investment support for entrepreneurs in "tough tech" (transformative technologies that seek to solve the world's important challenges through the convergence of breakthrough science, engineering, and leadership). At the end of fiscal year 2019, The Engine's first investment fund had invested in 17 companies. These companies are focused on advanced manufacturing, food and agriculture, robotics, and quantum computing. The Engine's headquarters in Central Square is already filled to capacity, and in keeping with original expansion plans, MIT is seeking to make 200,000 square feet of additional space available to support The Engine's vision of creating a magnet for technology entrepreneurship in Cambridge. MIT recently signed a lease that will provide space for a second facility for The Engine at 750 Main Street that is expected to open early in 2022.

Institute Facilities for Teaching and Research

MIT has 190 academic buildings with a total building area of approximately 13 million gross square feet. These buildings also house more than 60 major laboratories and centers that support interdisciplinary research crossing classical departmental disciplines. The Institute's major interdisciplinary organizations and facilities include the MIT Energy Initiative, the Koch Institute for Integrative Cancer Research, the Computer Science and Artificial Intelligence Laboratory, the Kavli Institute for Astrophysics and Space Research, the Laboratory for Nuclear Science, the Media Laboratory, the Research Laboratory of Electronics, the Plasma Science and Fusion Center, the Francis Bitter Magnet Laboratory, the Institute for Soldier Nanotechnologies, the McGovern Institute, the Picower Center for Learning and Memory, and the MIT.nano facility that opened in October 2018.

In addition, the Institute has three major off-campus research facilities in Massachusetts: Lincoln Laboratory in Lexington, Haystack Observatory in Tyngsborough, and the Bates Research and Engineering Center in Middleton. Lincoln Laboratory is operated by MIT as a Federally Funded Research and Development Center ("FFRDC") to perform research and development in advanced electronics. Haystack Observatory is a research center engaged in radio astronomy, geodesy, atmospheric science, and radar applications. The Bates Research and Engineering Center is a multi-purpose laboratory and a part of the MIT Laboratory for Nuclear Science. Additionally, MIT has a Singapore subsidiary, the Singapore-MIT Alliance for Research and Technology ("SMART").

Accreditations and Memberships

MIT is accredited by the New England Commission of Higher Education, which is the regional accreditation agency for colleges and universities in the six New England states. MIT most recently completed the process of reaccreditation in 2009 and is currently undergoing a comprehensive evaluation for reaccreditation. The Institute is a member of the American Council on Education, the Association of American Universities, the National Association of Independent Colleges and Universities, the Association of Independent Colleges and Universities in Massachusetts, the Consortium on Financing Higher Education, the New England Commission of Higher Education, the Association of Public and Land-Grant Universities, the American Academy of Arts and Sciences, the American Association of University Women, and the Council on Government Relations.

Governance

The governing body of the Institute is a board of trustees known as the Corporation. It is comprised of 78 active members who are drawn from the fields of science, engineering, industry, education, and public service and includes as officers the Chair, the President, the Executive Vice President and Treasurer, and the Vice President and Secretary of the Corporation of MIT. Also serving as ex-officio members are the President of the Association of Alumni and Alumnae of MIT and the following representatives of the Commonwealth of Massachusetts: the Governor, the Chief Justice of the Supreme Judicial Court, and the Secretary of Education. An additional 35 life members emeriti/ae participate in Corporation activities, but without a vote. The Corporation meets four times a year with additional meetings called by the Chair as necessary.

The Executive Committee of the Corporation consists of four ex-officio members (Chair, President, Executive Vice President and Treasurer, and Chair of the MIT Investment Management Company Board) and no fewer than seven nor more than ten members elected by the Corporation. Currently, there are eight members of the Executive Committee in addition to the ex-officio members. The Executive Committee has responsibility for the general administration of all matters relating to the Institute. The Executive Committee authorizes borrowings on behalf of the Institute in such amounts as the Committee may determine.

The current members of the Executive Committee and their principal business or other affiliation are as follows:

Executive Committee Members	**Principal Affiliation**
Robert B. Millard, Ex-Officio *(Chair)*	Chair of the Corporation Massachusetts Institute of Technology Cambridge, MA
L. Rafael Reif, Ex-Officio	President Massachusetts Institute of Technology Cambridge, MA
Denis A. Bovin, Ex-Officio	Chair, MIT Investment Management Company Senior Advisor Evercore New York, NY
Israel Ruiz, Ex-Officio	Executive Vice President and Treasurer Massachusetts Institute of Technology Cambridge, MA
Nancy C. Andrews	Nanaline H. Duke Professor of Pediatrics Professor of Pharmacology and Cancer Biology Former Dean of the School of Medicine Former Vice Chancellor for Academic Affairs Duke University Durham, NC
Ursula M. Burns	Chairman and CEO Veon Ltd. Amsterdam, The Netherlands
Mark P. Gorenberg	Managing Director Zetta Venture Partners San Francisco, CA
David M. Siegel	Co-Chairman Two Sigma New York, NY
Alan G. Spoon	Chairman Fortive Corporation (FTV) Everett, WA

Administration

The principal administrative officers of the Institute are:

L. Rafael Reif, President

Israel Ruiz, Executive Vice President and Treasurer

Martin A. Schmidt, Provost

Cynthia Barnhart, Chancellor

W. Eric Grimson, Chancellor for Academic Advancement

Suzanne L. Glassburn, Vice President and Secretary of the Corporation

Mark DiVincenzo, Vice President and General Counsel

Maria T. Zuber, Vice President for Research

Julie Lucas, Vice President for Resource Development

Sanjay Sarma, Vice President for Open Learning

Whitney T. Espich, Chief Executive Officer, MIT Alumni Association

The MIT bylaws provide for the election and succession of the Institute's Chair of the Corporation, President, Executive Vice President and Treasurer, and Secretary, who are elected by the Corporation upon the nomination of the Executive Committee, and MIT's other senior administrative officers, who are elected by the Executive Committee.

Budget Process

The Executive Committee of the Corporation approves and monitors the current-year budget in the context of a multi-year strategic financial plan. The current-year portion of the plan is based on detailed budgets submitted by each of the Institute's departments. The responsibility for controlling expenditures within an account rests with the supervisor of the account, usually a faculty member or department head. Monthly account statements that show both budgeted and actual charges are provided to the department heads. These accounts are monitored not only by the supervisor, but also by a department head who has overall responsibility for the accounts within the department. Certain expenses are controlled centrally to assure conformance with the Institute's fiscal policy, contractual obligations to program sponsors, or donor restrictions.

The Budget and Finance Steering Group meets regularly to review the status of the operating budget and other fiscal matters. In addition, the Risk and Audit Committee reviews the Institute's financial performance regularly throughout the year.

Faculty and Staff

In October 2019, the Institute had a headcount of approximately 12,850 employees on campus and at Haystack Laboratory and the Bates Research and Engineering Center. This included 1,067 faculty; approximately 4,500 other academic staff (instructors, technical instructors, lecturers, postdoctoral associates and fellows, and senior research scientists and associates); approximately 6,450 research, medical, administrative and support staff personnel; and approximately 840 service staff employees. Approximately 77% of the faculty were tenured. There were also approximately 3,800 additional research, support and service staff employees working at MIT's Lincoln Laboratory in Lexington, Massachusetts.

Labor Relations

MIT has collectively bargained with service staff employees for more than 70 years. Approximately 1,250 service staff members, including those at the Lincoln Laboratory, are subject to collective bargaining agreements with one international and three independent unions representing employees through five separate collective bargaining agreements. The occupational groups covered include trade and maintenance personnel, security guards, campus police, and research technicians. Four of the five bargaining units currently have contracts in place, three of which expire on June 30, 2020 and one that expires on June 30, 2022. MIT's contract with the MIT Campus Police Association expired on June 30, 2019; MIT and the union have reached an agreement and are finalizing the replacement contract. The faculty, research (other than research technicians), administrative and support staffs of the Institute are not represented by any union.

Student Enrollments

MIT attracts students from around the world, with representation in the 2019-2020 academic year from 50 states, the District of Columbia, three territories and 118 foreign countries. The following table shows enrollment for the last five academic years based on fall term registrations:

	Undergraduate		Graduate		Total
Academic Year	Full-Time Students	Part-Time Students	Full-Time Students	Part-Time Students	All Students
2015-16	4,492	35	6,689	115	11,331
2016-17	4,476	48	6,707	145	11,376
2017-18	4,510	37	6,671	248	11,466
2018-19	4,557	45	6,845	127	11,574
2019-20	4,502	28	6,862	128	11,520

Note: Historically, there has been a decline in the undergraduate enrollment of approximately 3% in the course of an academic year due primarily to graduations at midyear.

APPENDIX A

Undergraduate Applications

The following tables show information concerning undergraduate applications and admissions for the indicated academic years:

Academic Year	Applicants	Accepted	Acceptance Rate	Enrolled	Yield
2015-16	18,306	1,519	8%	1,106	73%
2016-17	19,020	1,511	8%	1,110	73%
2017-18	20,247	1,452	7%	1,097	76%
2018-19	21,706	1,464	7%	1,114	76%
2019-20	21,312	1,427	7%	1,107	78%

Academic Year	Freshmen Ranking in the Top Ten Percent of their High School Class	Average SAT Scores (math and verbal)
2015-16	98%	1,493
2016-17	97%	1,505
2017-18	98%	1,528
2018-19	97%	1,528
2019-20	95%	1,550

Graduate Applications

The following table shows information concerning graduate applications and admissions over the last five academic years:

Academic Year	Applicants	Accepted	Acceptance Rate	Enrolled	Yield
2015-16	23,750	3,307	14%	2,165	65%
2016-17	26,463	3,480	13%	2,277	65%
2017-18	27,634	3,383	12%	2,208	65%
2018-19	28,826	3,516	12%	2,321	66%
2019-20	29,114	3,670	13%	2,312	63%

Tuition and Fees

Tuition and fees for full-time undergraduate and graduate students for the 2019-2020 academic year were $53,790, except for students in the Sloan School of Management Master's of Business Administration Program for whom the tuition and fees were $79,708. For the 2019 summer session, the tuition for full-time graduate and undergraduate students was $17,800. Tuition is subsidized for most degree-seeking graduate students, including research assistants, teaching assistants, and fellows, with the primary exception of Sloan School of Management master's students.

The following table shows the Institute's published undergraduate tuition and fees (which include a compulsory MIT Health Service fee), and average undergraduate room and board expenses for the indicated academic years:

Academic Year	Undergraduate Tuition and Fees	Average Undergraduate Room & Board	Total
2015-16	$46,704	$13,730	$60,434
2016-17	$48,452	$14,210	$62,662
2017-18	$49,892	$14,720	$64,612
2018-19	$51,832	$15,510	$67,342
2019-20	$53,790	$16,390	$70,180

The Executive Committee of the Corporation has the power to alter or revise the fees and charges.

In addition to tuition revenue for graduate and undergraduate programs, MIT receives tuition revenue for non-degree programs, including Executive Education at the Sloan School of Management, MIT Professional Education Programs, and MIT Open Learning. In fiscal year 2019, tuition revenue from non-degree programs totaled $80.1 million, an increase of $17.5 million from 2018.

<u>Student Financial Aid</u>

MIT has a policy of admitting undergraduate students without regard to their financial resources, together with a commitment to meet the full financial need of those admitted. In 2018-2019, 90% of undergraduates received $160.3 million in financial aid from all sources, with MIT being the largest source. For students with a family income under $90,000, the Institute ensures that scholarship funding from all sources will allow them to attend MIT tuition-free (32% of undergraduate students in academic year 2018-2019). The average need-based MIT scholarship awarded to undergraduate students in the 2018-2019 academic year was $47,593.

The Institute awards tuition support to undergraduate students based on need. Graduate students are provided with tuition support in connection with research assistant, teaching assistant and fellowship appointments. Tuition support (graduate and undergraduate) from Institute sources and external sponsors for each of the last five audited fiscal years is shown in the table below.

Student Financial Aid by Source
(in thousands)

	Fiscal Year Ended June 30				
	2015	2016	2017	2018	2019
Institute Sources					
Tuition Support	$280,282	$295,419	$318,610	$347,039	$365,954
Stipends	21,469	22,718	23,344	26,199	28,509
Student Salaries	35,417	38,876	44,301	46,329	48,978
Total	337,168	357,013	386,255	419,567	443,441
External Sponsors					
Tuition Support	74,227	75,927	78,611	79,331	82,393
Stipends	17,290	16,013	16,174	16,110	16,470
Student Salaries	69,844	71,516	74,227	79,555	83,322
Total	161,361	163,456	169,012	174,996	182,185
Total	$498,529	$520,469	$555,267	$594,563	$625,626

Federal and other programs in which the Institute regularly seeks participation provide a substantial portion of financial aid funding.

Sponsored Research

Sponsored research represents a substantial portion of the revenues and expenditures of MIT. Research revenues received from sponsors pay for both the direct costs of research, as well as that portion of Institute expenses jointly applicable to instruction and research that are attributable to research activities, also known as facility and administrative ("F&A") costs. The following table presents the level of total sponsored research revenues at MIT, covering both direct and F&A costs, for fiscal years 2015 through 2019.

Massachusetts Institute of Technology
Sponsored Research Revenues[1,2]
(in thousands)

	Fiscal Year Ended June 30				
	2015	2016	2017	2018	2019
RESEARCH AT THE MIT CAMBRIDGE CAMPUS[3]					
Federal Government Sponsored:					
Health and Human Services	$116,469	$113,522	$111,835	$130,668	$134,773
Department of Energy	81,528	84,419	82,157	72,828	66,975
Department of Defense	125,854	131,624	130,372	123,513	136,743
National Science Foundation	78,953	82,161	80,410	81,563	79,617
National Aeronautics & Space	41,740	49,664	39,809	33,024	32,430
Other Federal	15,435	15,738	17,043	12,902	14,180
Total Federal	459,979	477,128	461,626	454,498	464,718
Non-Federally Sponsored:					
State/Local/Foreign Governments	27,951	28,495	25,686	24,471	21,052
Non-profits	78,667	84,015	86,753	94,322	104,471
Industry	119,238	128,309	132,915	144,126	169,606
Total Non-Federal	225,856	240,819	245,354	262,919	295,129
F&A and other adjustments	(30,092)	(21,083)	(18,434)	(45,255)	(31,694)
CAMPUS TOTAL	655,743	696,864	688,546	672,162	728,153
RESEARCH AT THE MIT LINCOLN LABORATORY					
Federal Government Sponsored	886,637	920,271	965,830	966,179	1,048,801
Non-Federally Sponsored	3,609	6,355	5,436	7,240	17,467
F&A and other adjustments	(10,919)	29,368	(2,009)	7,873	(6,884)
LINCOLN LABORATORY TOTAL	879,327	955,994	969,257	981,292	1,059,384
RESEARCH AT SMART[4]					
Non-Federally Sponsored	31,737	32,817	33,284	42,183	45,300
SMART TOTAL	31,737	32,817	33,284	42,183	45,300
TOTAL RESEARCH	$1,566,807	$1,685,675	$1,691,087	$1,695,637	$1,832,837

[1] *Certain amounts previously reported have been reclassified to conform to the June 30, 2019 presentation.*
[2] *The differences between direct costs and research revenues are indirect revenue and internally funded research.*
[3] *Campus includes research activities performed and administered by MIT, excluding the Lincoln Laboratory and SMART.*
[4] *The amounts represent research that has taken place in Singapore.*

Administration Discussion of Operations and Net Assets

MIT measures its financial operation based on net results as presented in the Statement of Activities. This includes operating activity and all components of MIT's annual retirement benefit costs that serve as a basis for cost recovery. In fiscal year 2019, MIT generated net results of $221.1 million and closed the year with net assets of $22.8 billion.

APPENDIX A

In fiscal year 2019, MIT adopted new accounting guidance for not-for-profit entities, which changed the presentation of net asset classifications in MIT's financial statements. As a result, certain amounts reported for prior years in the chart set forth below have been reclassified to conform to the fiscal year 2019 presentation. Net assets, revenues, expenses, and gains and losses are now classified into two categories based on the existence or absence of donor-imposed restrictions. Net assets with donor restrictions include gifts, pledges, trusts and remainder interests, and income and gains that are either required by donors to be permanently retained or for which restrictions have not yet been met. Net assets without donor restrictions are all the remaining net assets of MIT. In fiscal year 2019, net assets without donor restrictions increased $323.0 million, or 3.6%, to $9.2 billion.

Additionally, in fiscal year 2019, MIT adopted new accounting guidance which requires the service cost component of net periodic benefit costs for pension and other postretirement benefits to be presented as a component part of employee benefit expense. The other components of net periodic benefit cost, such as interest, expected return on plan assets, and amortization of net actuarial gains and losses, are required to be presented outside of operating activities. This change is reflected in the Institute's Statement of Activities, and the presentation of prior years has been reclassified for consistency with the fiscal year 2019 presentation. For a further discussion of the effect of the accounting changes, see Appendix B at Note A.

The Institute's operating revenues include tuition, research, contributions (expendable gifts and pledge payments), fees and services, other programs, support from investments, and auxiliary revenue. MIT's operating expenses include salaries and wages, employee benefits, supplies and services, sub-recipient agreements, utilities, rent and repairs, depreciation, and interest. In fiscal year 2019, operating revenues increased $291.0 million, or 8.0%, to $3.9 billion. Operating expenses together with all other components of net periodic benefit costs increased $174.4 million, or 4.9%, to $3.7 billion.

The following table summarizes the Results of Operations, Net Results, and Increase in Net Assets for fiscal years 2015 through 2019, as presented in greater detail in the Statement of Activities included as Appendix B:

Results of Operations, Net Results, and Other Changes in Net Assets
(in thousands)[1]

	Fiscal Year Ended June 30				
	2015	2016	2017	2018	2019
Total Operating Revenues	$3,301,503	$3,438,526	$3,565,683	$3,640,915	$3,931,922
Total Operating Expenses	3,142,766	3,393,254	3,518,001	3,647,791	3,844,339
Results of Operations	158,737	45,272	47,682	(6,876)	87,583
Net Periodic Benefit (Cost) Income Other Than Service Cost	59,201	74,617	88,274	111,391	133,542
Net Results	217,938	119,889	135,956	104,515	221,125
Postretirement Plan Changes Other Than Net Periodic Benefit Cost	13,314	(503,732)	256,184	383,745	(409,896)
Other Non-Operating Activities	1,247,321	(193,649)	1,803,837	1,903,463	1,440,995
Increase in Net Assets	$1,478,573	($577,492)	$2,195,977	$2,391,723	$1,252,224

[1] *Certain June 30, 2018, balances and amounts previously reported have been reclassified to conform to the June 30, 2019 presentation. While implementing the new accounting guidance, the Institute took the opportunity to reorganize and reclassify certain Statement of Activities and Statements of Financial Position line items in order to improve reporting. Where applicable, changes to financial reporting and presentation have been applied to the prior period comparatives shown throughout MIT's financial statements*

For further information on the financial operations and financial condition of the Institute through June 30, 2019, see Appendix B.

Investments

The following table shows total investments at market for the past five fiscal years ended June 30:

Fiscal Year Ended June 30	Investments at Market (in thousands)
2015	$17,566,427
2016	$17,037,298
2017	$19,077,677
2018	$20,766,548
2019	$22,083,156

The year-to-year change in investments at market reflects the sum of investment return and gifts less amounts distributed for expenses and in support of operations.

MIT's pooled investments (Pool A) produced a return of 8.8% in fiscal year 2019. Investment income and a portion of gains are distributed for spending in a manner that seeks to preserve the long-term purchasing power of the endowment. Endowment funds invested in Pool A, MIT's primary investment pool, receive distributions based on relative ownership, which is valued monthly. In fiscal year 2019, the effective spending rate on pooled investment funds was 4.3%, or 4.8% on a three-year average basis. See Appendix B for further information.

Fundraising

For fiscal years 2015 through 2019, the Institute has received an annual average of gifts and pledges of approximately $532 million in contributions from alumni and other supporters. The following table shows total contributions (gifts and pledges) for the past five fiscal years ended June 30:

Fiscal Year Ended June 30	Contributions (in thousands)
2015	$505,671
2016	$474,959
2017	$594,471
2018	$481,817
2019	$602,096

In May 2016, MIT announced the official launch of the MIT Campaign for a Better World, a $5 billion fundraising initiative to support the Institute's strength in education, research, and innovation and MIT's work on some of the world's biggest challenges. MIT has since raised the total goal for the Campaign to $6 billion, in order to build on the momentum created by the announcement of the College of Computing.

The Campaign is guided by six priority areas that span the full breadth of MIT programs:

- **Discovery Science**: Transforming our world through fundamental scientific research

- **Health of the Planet**: Addressing critical environmental and sustainability challenges facing humankind through science, technology, design, management, and policy
- **Human Health**: Defining the future of health through advances in basic science and engineering—informed by expertise in disciplines such as management, economics, and political science
- **Innovation and Entrepreneurship**: Accelerating the path from idea to impact
- **Teaching, Learning, and Living**: Reimagining education for the 21st-century learner
- **The MIT Core**: Attracting extraordinary students and faculty and providing them with the resources they need to thrive

As of the end of the fiscal year 2019, MIT had raised over $5.2 billion in cash and pledges, or 87% of the $6 billion expanded goal.

Liquidity

The table below sets forth the financial assets and resources available to meet cash needs for general expenditures within one year of June 30, 2019.

Liquidity and Availability of Resources
(in thousands)

	Fiscal Year Ended June 30, 2019
Financial Assets:	
Cash and Liquid Operating Investments	$ 1,369,292
Accounts and Notes Receivable	256,773
Contributions Receivable	196,310
Investments Appropriated for Spending in Following Year	804,041
Total Liquidity Resources Available Within One Year	$2,626,416

As part of MIT's liquidity management strategy, financial assets are structured to be available as general expenditures, liabilities, and other obligations come due. MIT invests its operating liquidity, which is comprised of cash and capital project funds in excess of daily requirements, in various investment vehicles. To help manage unanticipated liquidity needs, MIT also maintains a bank line of credit for $500.0 million, of which $387.0 million was undrawn as of June 30, 2019.

Current and Future Building Plans and Commitments

MIT currently has a total of 131 significant capital projects under construction with a cumulative budgeted cost of approximately $560.0 million, which the Institute plans to fund through a combination of gifts, internal funding sources, and external borrowings. The Institute's ongoing capital program includes construction at several sites in Kendall Square, a new undergraduate residence hall on Vassar Street, and the refurbished Central Utilities Plant. For a discussion of future commitments relating to the development of Kendall Square (including a new transport center on the Volpe Transportation Center site and enhancement of MIT's east campus gateway), see Appendix B at note G.

MIT includes deferred maintenance needs as an integral part of MIT's overall capital program. From fiscal years 2016 through 2019, the anticipated level of deferred maintenance declined due in part to a combination of extensive renovations and system renewal projects benefiting more than 90 campus buildings. At the end of fiscal year 2019, the total backlog of deferred maintenance was $1.479 billion, which was equal to $118 per square foot, down from a peak of $150 per square foot in fiscal year 2014 and fiscal year 2015.

Insurance

The Institution carries 'broad form special risks' property insurance. Such insurance provides $2 billion for any one occurrence, subject to various deductibles and sub-limits, including a $250 million limit for flood insurance. Coverage is provided on a replacement cost basis.

Litigation

The Institute is not aware of any pending or threatened litigation that would materially affect the ability of the Institute to enter into the Indenture of Trust or carry out its obligations thereunder.

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APPENDIX B

REPORT OF THE TREASURER FOR THE YEAR ENDED JUNE 30, 2019

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Report of the Treasurer

for the year ended
June 30, 2019

Massachusetts
Institute of
Technology

Report of the Treasurer

for the year ended June 30, 2019

Massachusetts
Institute of
Technology

The Corporation
2018–2019

as of June 30, 2019

Chairman: Robert B. Millard*
President: L. Rafael Reif*
Executive Vice President and Treasurer: Israel Ruiz*
Senior Vice President and Secretary of the Corporation: Suzanne L. Glassburn

Life Members

Shirley A. Jackson; Denis A. Bovin*; Judy C. Lewent; Edie N. Goldenberg; Susan E. Whitehead*; Brian G. R. Hughes; Gururaj Deshpande; Barrie R. Zesiger*; John A. Thain*; Susan Hockfield; Lawrence K. Fish; Diane B. Greene; Charlene C. Kabcenell; Barry Lam; Mohammed Jameel (on leave); Megan J. Smith; Mark P. Gorenberg*; Diana C. Walsh*; Ursula M. Burns*; Abigail P. Johnson; Alan G. Spoon*.

Members

John W. Jarve; Martin Y. Tang; Kenneth Wang; Victor J. Menezes; Rafael del Pino; Phillip T. Ragon; Philip C. T. Ng; Arunas A. Chesonis; Fariborz Maseeh; Paul R. Marcus; Carmen M. Thain; David L. desJardins; Alan M. Leventhal; Ilene S. Gordon; Eran Broshy; Ronald A. Williams; Alan M. Dachs; Samantha O'Keefe; Donald E. Shobrys; Roger C. Altman; Leslie C. Dewan; Jeffrey S. Halis; Jean Hammond; Ray A. Rothrock; Jeffrey L. Silverman; Noubar B. Afeyan; John D. Chisholm; Vrajesh Y. Modi; Songyee Yoon; Nancy C. Andrews; Nicolas E. Chammas; José Antonio V. Fernández; Perry Ha; David M. Siegel; Anita Wu; Ash B. Carter; Temitope O. Lawani; Kiran Mazumdar-Shaw; Leslye Miller Fraser; Lubna S. Olayan; Charles Ong; Hyun-A C. Park; Colin O. Webb II.

President of the Association of Alumni and Alumnae

C.J. Whelan III

Representatives of the Commonwealth

Governor: Charles D. Baker, Jr.
Chief Justice of the Supreme Judicial Court: Ralph D. Gants
Secretary of Education: James A. Peyser

Life Members Emeriti and Emeritae

Irénée duPont Jr.; Colby H. Chandler; Carl M. Mueller; Louis W. Cabot; Paul M. Cook; William S. Edgerly; Frank Press; Emily V. Wade; Mary Frances Wagley; Michael M. Koerner; Morris Tanenbaum; W. Gerald Austen; Richard P. Simmons; Morris Chang; Alexander W. Dreyfoos Jr.; Ronald A. Kurtz; DuWayne J. Peterson Jr.; Raymond S. Stata; Brit J. d'Arbeloff; Gordon M. Binder; Arthur Gelb; Norman E. Gaut; Robert A. Muh; James H. Simons; John S. Reed; David H. Koch; Robert M. Metcalfe; John K. Castle; Arthur J. Samberg; Kenan E. Sahin; L. Robert Johnson; A. Neil Pappalardo; James A. Champy; Mark R. Epstein; Theresa M. Stone.

** Member of the Executive Committee*

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Report of the Treasurer

To the Members of the Corporation

During fiscal 2019, the Institute preserved its sound financial position with both solid investment performance and positive operating results. MIT closed the year with net assets of $22,769.0 million and net results of $221.1 million. Pooled investments produced a return of 8.8 percent. As a result of the immense generosity of our donors and friends, continued growth of MIT's invested assets, and careful management of operations, the Institute sustains the financial strength to successfully steward MIT's core mission while enabling strategic priorities.

On October 15, 2018, MIT announced the establishment of the MIT Stephen A. Schwarzman College of Computing, made possible with a $350.0 million foundational gift from Mr. Schwarzman. With MIT making an overall commitment of $1.0 billion, the creation of the College represents the most significant structural change to MIT since the early 1950s. The College will propel research and teaching in computer science and computing and bring the latest computational capabilities to disciplines across the Institute. A signature program on the policy and ethics of artificial intelligence will be integral in promoting positive societal impact from advances in computing. Daniel Huttenlocher SM '84, PhD '88 joined MIT as the inaugural Dean of the College this summer, and planning for the College of Computing Building to be constructed at 51 Vassar Street is now underway.

Over the past year, we began to witness the complete transformation of Kendall Square into an east campus gateway to MIT. The graduate residence and the Innovation and Entrepreneurship (I&E) Hub, both at site four (on the corner of Main Street and Hayward Street), and the commercial tower and home to the new MIT Museum at site five, 314 Main Street, are on target to open in the fall of 2020. I recognize that these developments have caused disruption to our campus and am grateful to all members of our community for their patience as we have pursued our aspirations to reinvent Kendall Square. With a focus on strengthening community interaction, open spaces in Kendall will soon be activated with year-round programming, and preparations for the MIT Welcome Center are now taking shape. Adjacent to a redesigned MBTA Kendall Station, the Center will help make the experience of coming to our campus even more vibrant and inspiring.

The area is quickly becoming an urban, mixed-use district at the heart of the surrounding innovation ecosystem. The I&E Hub will bring together many of the programs and resources supporting innovators and entrepreneurs from across campus into multi-use spaces. The new home for the MIT Innovation Initiative is expected to include space for the Deshpande Center for Technological Innovation, Legatum Center for Development and Entrepreneurship, Project Manus, the Sandbox Innovation Fund Program, and the Venture Mentoring Service. With this convergence, the power of proximity promises to enhance collaboration networks across campus and beyond and to promote even greater impact in the years to come.

Since its launch in 2016, The Engine Accelerator, Inc. has continued to gain momentum. At the end of fiscal 2019, The Engine's first investment fund had invested in 17 companies. Spanning advanced manufacturing, food and agriculture, robotics, and quantum computing, these companies are poised to make advances in solving some of the world's most important challenges. The Engine's headquarters in Central Square is already filled to capacity, and in keeping with original expansion plans, MIT seeks to make 200,000 square feet of additional space available to support The Engine's vision of creating a magnet for "tough tech" in Cambridge. MIT recently signed a lease that will provide space for a second facility for The Engine at 750 Main Street, which is expected to be operational early in 2022.

Summary of Key Financial Highlights (10-year trend)

(in millions of dollars)	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Revenue	2,672	2,765	3,002	3,196	3,135	3,302	3,439	3,566	3,641	3,932
Expenses*	2,357	2,553	2,723	2,884	2,897	3,084	3,319	3,430	3,536	3,711
Net Results	315	212	279	312	237	218	120	136	105	221
Net Assets	10,324	12,106	12,495	13,858	16,028	17,507	16,929	19,125	21,517	22,769
Endowment	8,317	9,713	10,150	10,858	12,425	13,475	13,182	14,832	16,400	17,444
Net Borrowings	1,723	2,456	2,449	2,417	2,904	2,905	2,892	3,288	3,259	3,168

** Expenses include all components of net periodic benefit costs.*

While there is tremendous excitement about the positive impact that these advances promise to deliver, these innovations take place amid uncertain geopolitical and financial environments.

MIT is unwavering in its commitment to protect the Institute's financial strength for future generations. With sound planning, we have continued to build on the strong financial results realized in recent years, as depicted in the Summary of Key Financial Highlights table. We have sufficient levels of reserves to strengthen our resilience should a financial downturn diminish investment returns and are moderating campus infrastructure investment gated by fundraising capacity over the next decade. We are beginning to calibrate our budget for the impact of new federal tax laws, including the anticipated reduction in investment revenue supporting the operating budget due to the impact of the 1.4 percent excise tax on net investment income. The Institute's ability to successfully steward MIT's future is further bolstered by the Campaign for a Better World, with $5.2 billion raised at the end of fiscal 2019, or 87.0 percent of the $6.0 billion expanded goal.

The following sections provide additional details regarding MIT's fiscal 2019 financial statements: Consolidated Statements of Financial Position, Statement of Activities, and Statements of Cash Flows.

In fiscal 2019 the Institute adopted new accounting guidance for not-for-profit entities, which changed the presentation of net asset classifications in MIT's financial statements. Instead of the previous three categories—unrestricted, temporarily restricted, and permanently restricted net assets—the financial statements now show the following two categories: "net assets without donor restrictions" (what was previously shown as "unrestricted") and "net assets with donor restrictions" (a combination of what was previously shown as "temporarily restricted" and "permanently restricted"). In addition to the change in net asset classifications, the new guidance also requires enhanced disclosures in the footnotes to the financial statements. The most notable for MIT's financials are new disclosures regarding liquidity and expanded disclosure on the composition of expenses by both natural and functional classifications. While implementing the new accounting guidance, the Institute also took the opportunity to reorganize and reclassify certain Statement of Activities and Statement of Financial Position line items in order to improve reporting. Where applicable, changes to financial reporting and presentation have been applied to the prior period comparatives shown throughout MIT's financial statements.

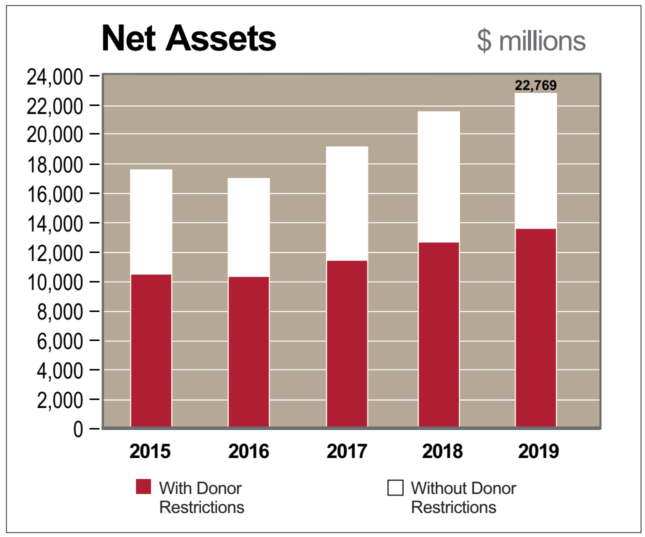
Net results, as presented in MIT's Statement of Activities, is the measure to which the Institute manages its annual budget and is used in financial reports presented to MIT's leadership, including the Executive Committee and the Corporation. It is a comprehensive measure of MIT's annual financial performance, including operating activity and all components of our annual retirement benefit costs that serve as a basis for cost recovery.

The Statement of Activities also shows results of operations, a measure of ongoing activities, which excludes the impacts of the components of net periodic retirement benefit costs other than service costs, and results of operations before depreciation and interest, which is a valuable measure for the Institute as it eliminates the impacts of financing and capital development activities.

Consolidated Statements of Financial Position

The discussion in this section highlights key elements of MIT's financial position—net assets; investments including endowment; land, buildings, and equipment; postretirement benefit plan assets and liabilities; and borrowings.

Net Assets



Total net assets increased to $22,769.0 million, an increase of 5.8 percent from fiscal 2018. Net assets are presented in two distinct categories to recognize the significant ways in which universities are different from profit-making organizations. The two categories reflect the nature of the restrictions placed on gifts by donors.

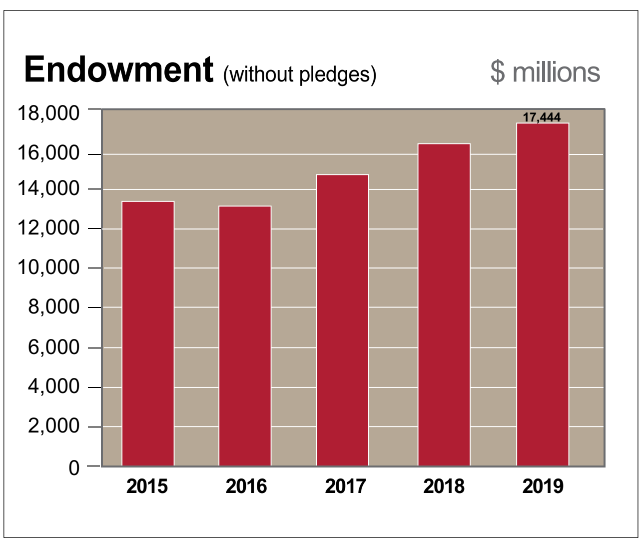
In fiscal 2019, net assets with donor restrictions increased $929.2 million, or 7.3 percent, to $13,593.1 million. The increase was primarily due to net return on donor-endowed investments, partially offset by endowment gains distributed for spending, new donor-endowed gifts and pledges, and net asset reclassifications and transfers. Net assets without donor restrictions increased $323.0 million, or 3.6 percent, to $9,175.9 million. The increase was primarily due to net return on quasi-endowed investments, partially offset by endowment gains distributed for spending and postretirement plan changes other than net periodic benefit costs.

Investments

Investments at fair value were $22,083.2 million as of fiscal year-end 2019, an increase of $1,316.6 million, or 6.3 percent. The consolidated financial statements include both realized and unrealized gains and losses on investments, as well as dividends and interest income, all net of investment expenses. These amounts yielded a net return on investment of $1,970.9 million in fiscal 2019, and $2,503.4 million in fiscal 2018. The increase in the value of investments as of fiscal year-end 2019 was substantially driven by realized and unrealized gains on pooled investments.

MIT's investment policy is based on the primary goal of generating high real rates of return without exceptional volatility. To reduce volatility, the portfolio is broadly diversified. To generate high real rates of return, MIT's investment policy favors equity investments over fixed income instruments and is heavily weighted toward less efficient markets such as private equity, real estate, and real assets. MIT primarily invests through external fund managers, thereby allowing the Institute to access the best investment talent globally. By identifying a wide variety of top-tier investment managers with specific competencies, MIT is able to construct a broadly diversified portfolio while accessing deep sector expertise. Decision authority for the selection of managers, direct investments, and asset allocation resides with MIT's Investment Management Company (MITIMCo). The Board of Directors of MITIMCo holds four regularly scheduled meetings during the fiscal year in which investment policy, performance, and asset allocation are reviewed.

Endowment



Endowment assets, the largest component of total investments, are managed to maximize total investment return relative to appropriate risk. The market value of investments in endowment funds, excluding pledges for endowed purposes, totaled $17,443.8 million as of fiscal year-end 2019, an increase of 6.4 percent compared to a total of $16,400.0 million last year.

This year, MIT's pooled investments (Pool A) produced a return of 8.8 percent. Investment income and a portion of gains are distributed for spending in a manner that preserves the long-term purchasing power of the endowment. Endowment funds invested in Pool A, MIT's primary investment pool, receive distributions based on relative ownership, which is valued monthly.

Land, Buildings, and Equipment

Land, buildings, and equipment had a net book value of $3,993.3 million as of fiscal year-end 2019, an increase of $308.9 million, or 8.4 percent. The Institute currently has a total of 131 capital projects under construction with a cumulative cost of $562.7 million. Though we have adopted a more paced level of investment in our campus gated by fundraising for the coming decade, MIT's strong financial position has enabled significant improvements in campus infrastructure and the surrounding innovation ecosystem.

Following a number of years of planning, design, and construction, MIT.nano opened in the fall of 2018. The 200,000-square-foot facility more than doubled MIT's shared fabrication and imaging capabilities. Occupying the footprint of Building 12 just steps from the Infinite Corridor at the heart of campus, the MIT.nano facility is designed to support the activities of more than 2,000 MIT faculty and researchers as they design and manipulate materials, organisms, and devices at the nanoscale.

On June 14, 2018, the Institute announced the Metropolitan Warehouse building as a potential new home for the School of Architecture and Planning (SA+P). As proposed, the renovation of the Met Warehouse would enlarge MIT's classroom and design studio space, significantly increase its exhibition capacity for arts and design programming, and feature a new maker space.

Kendall Square is evolving at a rapid pace, as construction progresses at several sites. Site one, located at 165 Main Street, will include housing, retail and office space, and the long-awaited Brothers Marketplace grocery store, expected to open in the fall of 2019. Reflecting both the history of Kendall Square and its role in the future of innovation, site three incorporates the existing structure at 238 Main Street with a 12-story addition for commercial space. At 314 Main Street (site five), the new 17-floor building will soon be the home for the MIT Museum, the MIT Press Bookstore, commercial laboratory space, and a café. As noted above, the new graduate housing tower at site four is nearing completion. Also at site four, the Innovation and Entrepreneurship (I&E) Hub will bring together I&E programs from across MIT in one place.

And while Kendall Square receives recognition as an innovation district, all that is happening along Vassar Street is just as exciting. Stretching from the Charles River to Technology Square, Vassar Street is quickly becoming the backbone of MIT, with the new Vassar Street undergraduate residence opening in the fall of 2020, the Met Warehouse and future home for the School of Architecture and Planning beginning to take shape, the refurbished Central Utilities Plant coming to fruition, and the future MIT Schwarzman College of Computing to be constructed at the current site of Building 44.

Enabling work will soon begin for the MIT Stephen A. Schwarzman College of Computing Building, which will stand in close proximity to Electrical Engineering and Computer Sciences in Building 38, the Computer Science and Artificial Intelligence Laboratory in the Ray and Maria Stata Center in Building 32, and Brain and Cognitive Sciences in Building 44 to enable enhanced collaborations. Architect selection for design of the building is now underway, and demolition of the existing structure is scheduled to begin this fall. Following the design process, full construction is targeted to commence in the spring of 2021, and completion is targeted for early 2023.

MIT continues to demonstrate its commitment to improving housing for both graduate and undergraduate students. As previously noted, MIT is now constructing a new undergraduate residence hall (W45, a 450-bed dormitory that will open in the fall of 2020 on Vassar Street) on the previous site of the West Garage parking facility. This past fall, approximately 290 students moved into the newly renovated New House. The 14-month renovation resulted in a residence with improved connectivity between houses, new amenities, enhanced accessibility, and revitalized courtyards. The new graduate student residence in Kendall Square opening in the fall of 2020 will include 454 beds for graduate student housing and an MIT childcare facility. In addition, MIT has committed to building an additional new graduate residence with at least 500 beds on west campus, and will apply for its building permit prior to the end of 2020.

Supporting MIT's overall effort to enhance student life, the design phase has begun for a state-of-the-art building for MIT's popular conservatory-level music program. The program will be relocated to MIT's west campus area with most of its activities consolidated under a single roof. The new music building will be constructed in proximity to Kresge Auditorium across from the Johnson Athletic Center and is expected to include spaces for performance, rehearsal, professional-level recording and instruction.

Work continues to refurbish the Central Utilities Plant, with completion targeted for 2020. By upgrading its cogeneration plant, MIT is creating a flexible power system that positions the Institute to explore emerging sustainability and efficiency measures. Able to adapt and evolve in response to advances in the energy field, the new plant is central to MIT's commitment to reduce greenhouse gas emissions by at least 32 percent by 2030.

Addressing deferred maintenance continues to be prioritized as an integral part of the overall capital program. Fiscal 2016 was the first year in recent decades with a reduction in deferred maintenance, and progress continued in fiscal years 2017, 2018, and 2019. For the fourth consecutive year, MIT's campus-wide facility condition index (FCI), which is the ratio of deferred maintenance to replacement value, decreased (from 0.24 in fiscal 2016 to 0.22 in fiscal 2017, 0.21 in fiscal 2018 and 0.20 in 2019). A combination of extensive renovations and system renewal projects benefiting more than 90 campus buildings contributed to this continued reduction. At the end of fiscal 2019, the total backlog of deferred maintenance was $1,479.0 million, which was equal to $118 per square foot, down from a peak of $150 per square foot in fiscal 2014 and fiscal 2015.

This continued improvement in the condition of the campus is illustrated by measuring the total amount of space in buildings that are in "good" or better condition (buildings with an FCI of 0.15 or less). Over half (6.9 million gross square feet) of the overall portfolio of Institute-owned space is within buildings considered to be in "good" or better condition, and planning is underway for significant renewals in additional buildings.

Postretirement Benefit Assets and Liabilities

The defined benefit pension plan provides a basic retirement benefit to eligible MIT employees upon their retirement as monthly income for the rest of their lives. This plan had assets of $4,058.2 million as of fiscal year-end 2019, an increase of $155.1 million from fiscal year-end 2018. The plan's projected liabilities were $4,468.3 million as of fiscal year-end 2019, up $537.1 million from a year earlier. This resulted in a $382.0 million increase in net pension liabilities, totaling $410.0 million as of fiscal year-end 2019.

MIT also maintains a retiree welfare benefit plan that covers retiree expenses associated with medical and life insurance benefits. This plan had assets of $711.2 million as of fiscal year-end 2019, an increase of $19.9 million from fiscal year-end 2018. The plan's projected liabilities were $613.4 million as of fiscal year-end 2019, up $46.8 million from a year earlier. This resulted in a net asset position of $97.7 million at fiscal year-end 2019, a decrease of $27.0 million.

The changes in asset values of both plans in 2019 were primarily a function of payments made to beneficiaries, investment performance, and contributions. The change in pension liabilities was driven by higher pension obligations due to one more year of benefits being earned by MIT's employees and decreases in the discount rates used to discount expected future cash payments to MIT retirees. The discount rates for each plan were derived by identifying a theoretical settlement portfolio of high-quality corporate bonds sufficient to provide for the plan's projected benefit obligations. The year-over-year discount rates decreased 61 and 59 basis points as of June 30 for the defined benefit pension plan and retiree welfare benefit plan, respectively, due to the prevailing interest rate environment at fiscal year-end 2019.

On an accounting basis at fiscal year-end 2019, the defined benefit pension plan had a funding level of 90.8 percent, down from 99.3 percent one year earlier. The retiree welfare benefit plan had a funding level of 115.9 percent at fiscal year-end 2019, a decrease from 122.0 percent one year earlier. There were no designated contributions to the defined benefit pension plan, and there was a $0.7 million contribution to the retiree welfare benefit plan during fiscal 2019. The investments of both plans' assets are managed by MITIMCo.

MIT also offers a 401(k) plan to its employees, which is not reflected in the Consolidated Statements of Financial Position. Assets in this plan are invested at the direction of participants in an array of investment funds. The plan's investment market value was $5,092.4 million as of fiscal year-end.

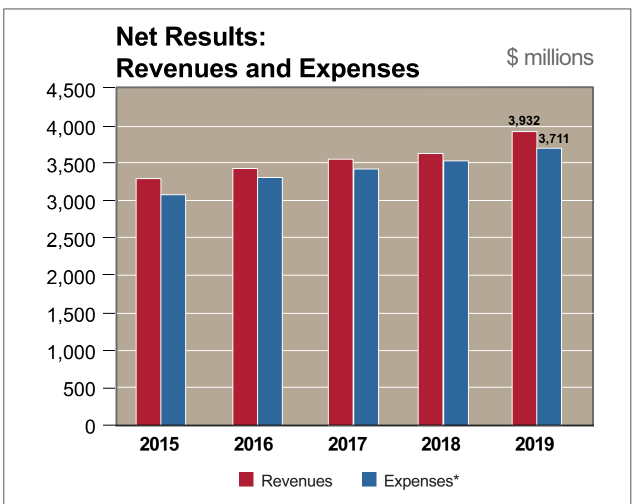
Borrowings

In fiscal year 2019, borrowings decreased $91.0 million, or 2.8 percent, to $3,168.4 million, primarily due to a bank note principal payment of $63.4 million and a Series L principal payment of $26.0 million, both made in July 2018.

MIT's financial strength is reviewed periodically by both Moody's Investors Service and S&P Global Ratings. In fiscal year 2019, we maintained our "Aaa" and "AAA" ratings, respectively.

Consolidated Statement of Activities

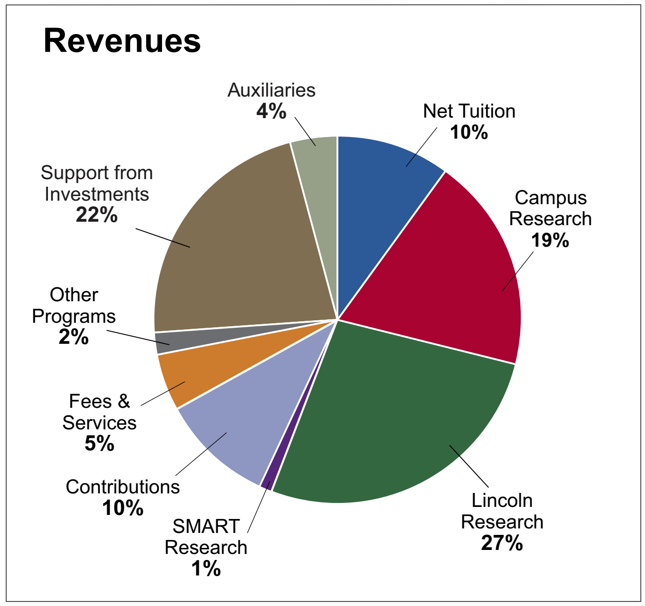
Revenues and Expenses



* Expenses include all components of net periodic benefit costs.

MIT ended fiscal 2019 with net results of $221.1 million. This is $116.6 million, or 111.6 percent, higher than the fiscal 2018 result. Operating revenues increased $291.0 million, or 8.0 percent, to $3,931.9 million, while operating expenses together with all other components of net periodic benefit costs increased $174.4 million, or 4.9 percent, to $3,710.8 million. Year-over-year comparisons of revenues and expenses are presented on the graph above.

Revenues



MIT's operating revenues include tuition, research, contributions (expendable gifts and pledge payments), fees and services, other programs, support from investments, and auxiliary revenue.

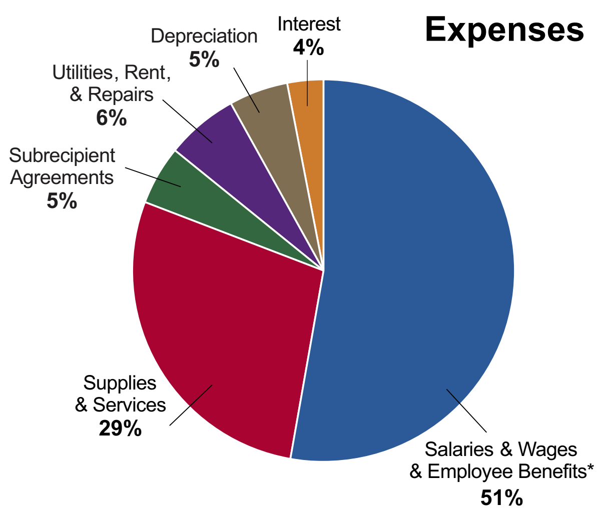
Tuition revenue for graduate and undergraduate programs, combined with tuition revenue for non-degree programs, increased by $30.0 million, or 8.5 percent, to $383.7 million. This change was driven by an increase of $17.5 million, or 27.9 percent, in non-degree program revenue, seen mostly in Executive Education at the Sloan School of Management, MIT Professional Education Programs, and MIT Open Learning. Undergraduate and graduate tuition increased $12.5 million, or 4.3 percent. Undergraduate tuition increased $4.6 million, or 4.5 percent, as tuition at published rates grew by $12.6 million, or 5.7 percent, while financial aid grew by $8.0 million, or 6.7 percent. Graduate tuition increased by $7.9 million, or 4.2 percent, as tuition at published rates grew by $18.8 million, or 4.5 percent, while financial aid grew by $10.9 million, or 4.8 percent. The increase in tuition at published rates for both undergraduates and graduates was driven by a 3.9 percent tuition rate increase and slight increases in enrollment.

Research revenues increased $137.2 million, or 8.1 percent, to $1,832.8 million in 2019, driven by increases in direct and indirect research revenue of $101.1 million and $36.1 million, respectively. Campus direct research revenue increased $28.1 million, or 5.5 percent. The principal driver of the increase in campus direct research revenue was 14.2 percent growth in non-federal direct research activity, including a 13.7 percent increase in activity supported by nonprofits and a 20.0 percent increase in industry-supported activity. Federal direct research activity also increased by 3.4 percent.

Direct research revenues for Lincoln Laboratory increased $70.0 million, or 7.4 percent, to $1,017.3 million, and direct research revenues for the Singapore-MIT Alliance for Research and Technology (SMART) increased $3.0 million, or 7.1 percent, to $45.0 million.

Support from investments increased $49.3 million, or 6.0 percent, primarily due to an increase in distribution from pooled investments in support of operations. The effective spending rate on pooled investments funds was 4.3 percent, or 4.8 percent on a three-year-average basis, in fiscal 2019. Operating contributions, which include gifts and bequests for current use and expendable pledge payments, increased $61.5 million, or 17.9 percent.

Expenses



** Employee Benefits expenses include all components of net periodic benefit costs.*

MIT's operating expenses, combined with all other components of net periodic retirement benefit costs, increased $174.4 million, or 4.9 percent. These expenses include salaries and wages, employee benefits, supplies and services, subrecipient agreements, utilities, rent and repairs, depreciation, and interest.

Overall Institute salary expenses rose 5.3 percent. Average annualized salaries and wages for campus grew by 3.0 percent, while the number of full-time-equivalent employees increased 2.3 percent. Employee benefits expenses in operating expenses, together with all other components of net periodic retirement benefit costs, decreased by 1.2 percent, driven by decreases in annual costs associated with the defined benefit pension and retiree welfare benefit plans.

During fiscal 2019, expenses related to supplies and services increased $36.3 million, or 3.5 percent, to $1,069.2 million. Utilities, rent, and repair expenses increased $12.3 million, or 5.6 percent, primarily driven by increases in rental expenses of 13.9 percent. Depreciation expense increased $19.6 million, or 11.0 percent, driven by the first year of depreciation for MIT.nano. Interest expense increased $4.7 million, or 3.9 percent.

Other Revenues, Gains and Losses Summary

Other revenues, gains and losses contributed $1,031.1 million towards MIT's fiscal 2019 increase in net assets of $1,252.2 million, or 5.8 percent. Other revenues, gains and losses include net return on investments, contributions revenue, and other changes, offset by changes in retirement plan obligations and investment spending distribution. In fiscal 2019, net return on investments less spending distribution increased net assets by $1,095.5 million. Contributions in other revenue, gains and losses, made up of pledge revenue and non-current gifts and bequests less pledge payments received and transferred to operations, increased net assets by $196.6 million, while changes in retirement plan obligations decreased net assets by $409.9 million.

Contributions

Contributions to MIT support scholarships, fellowships, professorships, research, educational programming, and student life activities, as well as construction and renovation of buildings. Gifts and pledges (contributions) for fiscal 2019 totaled $602.1 million, an increase of 25.0 percent from the fiscal 2018 total of $481.8 million. Contributions from individuals represented 35.4 percent of new gifts and pledges in fiscal 2019, down from 53.8 percent in fiscal 2018. Contributions from foundations represented 51.6 percent of new gifts and pledges in fiscal 2019, up from 31.0 percent in fiscal 2018. Contributions from corporations and other sources represented 13.1 percent of new gifts and pledges in fiscal 2019, down from 15.2 percent in fiscal 2018. New gifts and pledges for research and education were the largest categories of contributions for fiscal 2019.

Consolidated Statements of Cash Flows

The consolidated statements of cash flows divide cash inflows and outflows into three categories: operating, investing, and financing. Although this division is a requirement of generally accepted accounting principles (GAAP), when reviewing the cash flow of a nonprofit organization such as MIT, it is important to note the investing activities as presented in the cash flow are an integral part of operations, since a large portion of operating activity is funded through distributions from pooled investments. In fiscal 2019, support from investments comprised 30.5 percent of overall campus operating revenue.

Net operating activities, which result from a total increase in net assets adjusted for non-cash items (depreciation, net gain on investments, change in retirement plans' net assets, etc.), changes in certain non-cash assets and liabilities, and other reclassifications, consumed $131.7 million of cash in fiscal 2019. Net investing activities consumed $17.2 million in cash, primarily due to sales of investments to cover the Institute's endowment spending policy, partially offset by spending on capital projects. Cash from financing activities was $126.5 million in fiscal 2019, driven primarily by endowed contributions, partially offset by repayments on borrowings.

MIT's full consolidated financial statements and notes further describing our financial position, activities, and cash flows through June 30, 2019, are included on the following pages.

Closing Remarks

We begin fiscal 2020 with the financial strength to successfully steward MIT's core mission but mindful of the volatility in the global financial environment. Grounded in our core values, MIT continues to promote the importance of our global community amid an unsettled political atmosphere. Against this backdrop, we are building the financial resilience to withstand uncertainties, our foundation strengthened by the success of the Campaign for a Better World.

MIT's strong financial position has enabled the Institute to invest in key strategic priorities and to address the needs of today while securing MIT's future. With the creation of the MIT Schwarzman College of Computing, the momentum of a connected innovation and entrepreneurship community, expansion of The Engine, and transformation of Kendall Square, MIT continues to demonstrate its commitment to investing in the surrounding innovation ecosystem. Knowing that these developments have amplified pressures on housing and transportation, we are actively working to alleviate these stresses and address housing needs for our students.

Together, we are shaping an environment where our faculty, students, and scientists can realize transformational innovations and the next generation of world-changing technologies. I am grateful for the sustained generosity and enduring commitment of our faculty, students, staff, alumni, friends, and members of the Corporation, which enable MIT to continue to address the world's great challenges and aspire to making a better world.

Respectfully submitted,

Israel Ruiz
Executive Vice President and Treasurer
September 13, 2019

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Report of Independent Auditors

To the Members of the Corporation of the
Massachusetts Institute of Technology:

We have audited the accompanying consolidated financial statements of the Massachusetts Institute of Technology and its subsidiaries (the "Institute"), which comprise the consolidated statements of financial position as of June 30, 2019 and 2018, and the related consolidated statement of activities for the year ended June 30, 2019 and statements of cash flows for the years ended June 30, 2019 and 2018.

Management's Responsibility for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on the consolidated financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the Institute's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Institute's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Massachusetts Institute of Technology and its subsidiaries as of June 30, 2019 and 2018, and the changes in their net assets for the year ended June 30, 2019 and their cash flows for the years ended June 30, 2019 and 2018 in accordance with accounting principles generally accepted in the United States of America.

Emphasis of Matter

As discussed in Note A to the consolidated financial statements, the Institute changed the manner in which it presents net assets and reports certain aspects of its consolidated financial statements as a not-for-profit entity in 2019. Our opinion is not modified with respect to this matter.

Other Matter

We previously audited the consolidated statement of financial position as of June 30, 2018, and the related consolidated statements of activities and of cash flows for the year then ended (the statement of activities is not presented herein), and in our report dated September 14, 2018, we expressed an unmodified opinion on those consolidated financial statements. In our opinion, the information set forth in the accompanying summarized financial information as of June 30, 2018 and for the year then ended is consistent, in all material respects, with the audited consolidated financial statements from which it has been derived.

PricewaterhouseCoopers LLP

September 13, 2019

PricewaterhouseCoopers LLP, 101 Seaport Boulevard, Suite 500, Boston, Massachusetts 02210 T: (617) 530 5000, F: (617) 530 5001, www.pwc.com/us

Massachusetts Institute of Technology

Consolidated Statements of Financial Position

as of June 30, 2019 and 2018

(in thousands of dollars)	2019	2018
Assets		
Cash	$ 405,678	$ 428,030
Accounts receivable, net	283,196	263,549
Pledges receivable, net, at fair value	583,383	560,142
Contracts in progress, principally US government	103,307	98,921
Deferred charges and other assets	201,131	184,767
Investments, at fair value	22,083,156	20,766,548
Net asset position - retiree welfare plan	97,716	124,686
Land, buildings, and equipment (at cost of $5,878,485 for June 2019; $5,409,653 for June 2018), net of accumulated depreciation	3,993,253	3,684,377
Total assets	**$ 27,750,820**	**$ 26,111,020**
Liabilities and Net Assets		
Liabilities:		
Accounts payable, accruals, and other liabilities	$ 596,255	$ 547,549
Deferred revenue and other credits	157,372	122,564
Advance payments	440,110	449,230
Liabilities due under life income fund agreements, at fair value	209,611	187,449
Borrowings, net of unamortized issuance costs	3,168,422	3,259,389
Net liability position - defined benefit pension plan	410,045	28,058
Total liabilities	**4,981,815**	**4,594,239**
Net Assets:		
Without donor restrictions	9,175,946	8,852,960
With donor restrictions	13,593,059	12,663,821
Total net assets	**22,769,005**	**21,516,781**
Total liabilities and net assets	**$ 27,750,820**	**$ 26,111,020**

The accompanying notes are an integral part of the consolidated financial statements.

Massachusetts Institute of Technology
Consolidated Statement of Activities
for the year ended June 30, 2019
(with summarized financial information for the year ended June 30, 2018)

(in thousands of dollars)	2019 Without Donor Restrictions	2019 With Donor Restrictions	Total 2019	Total 2018
Operating Revenues				
Tuition and similar revenues, exclusive of financial aid of $365,954 in 2019 and $347,039 in 2018	$ 383,736	$ -	$ 383,736	$ 353,721
Research revenues:				
Campus	728,153	-	728,153	672,162
Lincoln	1,059,384	-	1,059,384	981,292
SMART	45,300	-	45,300	42,183
Total research revenues	1,832,837	-	1,832,837	1,695,637
Contributions	386,433	19,105	405,538	344,008
Fees and services	216,619	-	216,619	212,666
Other programs	79,632	-	79,632	76,926
Support from investments:				
Endowment	699,333	-	699,333	663,203
Other investments	176,095	-	176,095	162,914
Total support from investments	875,428	-	875,428	826,117
Auxiliary enterprises	138,132	-	138,132	131,840
Total revenues	$ 3,912,817	$ 19,105	$ 3,931,922	$ 3,640,915
Operating Expenses				
Salaries and wages	$ 1,527,709	$ -	$ 1,527,709	$ 1,450,804
Employee benefits	516,790	-	516,790	499,216
Supplies and services	1,069,183	-	1,069,183	1,032,889
Subrecipient agreements	177,168	-	177,168	148,006
Utilities, rent, and repairs	229,755	-	229,755	217,497
Total expenses before depreciation and interest	3,520,605	-	3,520,605	3,348,412
Results of operations before depreciation and interest	392,212	19,105	411,317	292,503
Depreciation	198,242	-	198,242	178,630
Interest expense	125,492	-	125,492	120,749
Results of operations	68,478	19,105	87,583	(6,876)
Net periodic benefit (cost) income other than service cost	133,542	-	133,542	111,391
Net results	$ 202,020	$ 19,105	$ 221,125	$ 104,515
Other Revenues, Gains and Losses				
Contributions	$ -	$ 196,558	$ 196,558	$ 137,809
Net return on investments	1,058,134	912,758	1,970,892	2,503,435
Distribution of accumulated investment gains	(355,309)	(520,119)	(875,428)	(826,117)
Other changes	138,290	10,683	148,973	88,336
Postretirement plan changes other than net periodic benefit cost	(409,896)	-	(409,896)	383,745
Net asset reclassifications and transfers	(310,253)	310,253	-	-
Total other revenue, gains and losses	120,966	910,133	1,031,099	2,287,208
Increase in net assets	322,986	929,238	1,252,224	2,391,723
Net assets at the beginning of the year	8,852,960	12,663,821	21,516,781	19,125,058
Net assets at the end of the year	**$ 9,175,946**	**$ 13,593,059**	**$ 22,769,005**	**$ 21,516,781**

The accompanying notes are an integral part of the consolidated financial statements.

Massachusetts Institute of Technology
Consolidated Statements of Cash Flows
for the years ended June 30, 2019 and 2018

(in thousands of dollars)	2019	2018
Cash Flow from Operating Activities		
Increase in net assets	$ 1,252,224	$ 2,391,723
Adjustments to reconcile change in net assets to net cash used in operating activities:		
Net gain on investments	(1,776,949)	(2,376,474)
Change in retirement plan asset, net of accrued benefit liability	408,956	(365,159)
Depreciation	198,242	178,630
Net gain on life income funds	(14,960)	(23,386)
Amortization of bond premiums and discounts and other adjustments	(17,508)	3,176
Change in operating assets and liabilities:		
Pledges receivable	(23,241)	(26,915)
Accounts receivable	(23,705)	(7,420)
Contracts in progress	(4,386)	(16,587)
Deferred charges and other assets	(13,635)	(14,241)
Accounts payable, accruals, and other liabilities, excluding building and equipment accruals	51,385	17,386
Liabilities due under life income fund agreements	40,090	49,138
Deferred revenue and other credits	34,470	13,796
Advance payments	(9,120)	22,668
Reclassify donated securities	(43,286)	(10,147)
Reclassify investment income	(4,404)	(3,835)
Reclassify contributions restricted for long-term investment	(185,885)	(195,538)
Net cash used in operating activities	(131,712)	(363,185)
Cash Flow from Investing Activities		
Purchase of land, buildings, and equipment	(495,164)	(486,413)
Purchases of investments	(8,220,554)	(32,952,998)
Proceeds from sale of investments	8,693,127	33,663,989
Student notes issued	(5,038)	(5,439)
Collections from student notes	10,478	11,694
Net cash (used in) provided by investing activities	(17,151)	230,833
Cash Flow from Financing Activities		
Contributions restricted for long-term investment	185,885	195,538
Payments to beneficiaries of life income funds	(17,928)	(16,159)
Proceeds from sale of donated securities restricted for endowment	43,286	10,147
Increase in investment income for restricted purposes	4,404	3,835
Repayment of borrowings	(89,474)	(26,500)
Increase (decrease) in government advances for student loans	338	(6,304)
Net cash provided by financing activities	126,511	160,557
Net (decrease) increase in cash	(22,352)	28,205
Cash at the beginning of the year	428,030	399,825
Cash at the end of the year	**$ 405,678**	**$ 428,030**

The accompanying notes are an integral part of the consolidated financial statements.

Notes to Consolidated Financial Statements

A. Accounting Policies

Basis of Presentation

The accompanying financial statements have been prepared in accordance with generally accepted accounting principles (GAAP) in the United States of America. The consolidated financial statements (financial statements) include MIT and its wholly owned subsidiaries.

Net assets, revenues, expenses, and gains and losses are classified into two categories based on the existence or absence of donor-imposed restrictions. The categories are net assets with donor restrictions and net assets without donor restrictions.

Net assets with donor restrictions include gifts, pledges, trusts and remainder interests, and income and gains that are either required by donors to be permanently retained or for which restrictions have not yet been met. Such restrictions include purpose restrictions where donors have specified the purpose for which the net assets are to be spent, or time restrictions imposed by donors or implied by the nature of the gift (e.g., capital projects, pledges to be paid in the future, life income funds), or by interpretations of law (net gains on donor-endowed gifts, where the gains have not yet been appropriated for spending). Net assets without donor restrictions are all the remaining net assets of MIT.

Donor-restricted gifts and grants (including gifts of long-lived assets) and distributed restricted endowment income, for which the restrictions are met within the same year of gift, grant, or distribution, are reported as revenue without donor restrictions. Amounts for which the restrictions are not met within the same year of gift, grant, or distribution are reclassified to net assets with donor restrictions through the net asset reclassifications and transfers line in the Statement of Activities. These amounts are released back to net assets without donor restrictions, through the net asset reclassification and transfers line, during the years in which the restrictions are met. Gifts specified for the acquisition or construction of long-lived assets are reported as net assets with donor restrictions until the monies are expended and the long-lived assets (i.e., buildings) are put into use, at which point they are reclassified to net assets without donor restrictions, also through the net asset reclassifications and transfers line.

MIT administers its various funds, including endowments, funds functioning as endowments, school or departmental funds, and related accumulated gains, in accordance with the principles of fund accounting. Gifts are recorded in fund accounts, and investment income is distributed to funds annually. Income distributed to funds may be a combination of capital appreciation and yield pursuant to MIT's total return investment and spending policies. Each year, the Executive Committee of the Corporation approves the rates of distribution of investment return to funds from MIT's investment pools. See Note J for further information on income distributed to funds.

MIT's operating revenues include tuition, research, contributions (expendable gifts and pledge payments), fees and services, other programs, support from investments, and auxiliary revenue.

Net results, as presented in MIT's Statement of Activities, is the measure to which the Institute manages its annual budget and is used in financial reports presented to MIT's leadership, including the Executive Committee and the Corporation. It is a comprehensive measure of MIT's annual financial performance, including operating activity and all components of our annual retirement benefit costs that serve as a basis for cost recovery.

The Statement of Activities also shows results of operations, a measure of ongoing activities, which excludes the impacts of the components of net periodic retirement benefit costs other than service costs, and results of operations before depreciation and interest, which is a valuable measure for the Institute as it eliminates the impacts of financing and capital development activities.

A. Accounting Policies (continued)

Tax Status

MIT is a nonprofit organization that is tax-exempt under Section 501(c)(3) of the Internal Revenue Code, originally recognized in October 1926, with the most recent affirmation letter dated September 2017.

On December 22, 2017, the Tax Cuts and Jobs Act (the "Act") was enacted. The Act impacts the Institute in several ways, including by imposing excise taxes on certain executive compensation and net investment income, and establishing new rules for calculating unrelated business taxable income. MIT has reflected the tax assets, liabilities, and payables in the financial statements based on reasonable estimates under the currently available regulatory guidance on the Act. The Institute continues to evaluate the impact of the Act on current and future tax positions.

US GAAP requires MIT to evaluate tax positions taken by the Institute to recognize a tax liability (or asset) if the Institute has taken an uncertain tax position that, more likely than not, would not be sustained upon examination by the IRS. MIT has analyzed the tax positions taken and has concluded that as of June 30, 2019, there are no significant uncertain positions taken or expected to be taken, apart from those impacted by the Act.

Cash

Certain cash balances, totaling $70.4 million and $97.8 million as of June 30, 2019 and 2018, respectively, are restricted for use under certain sponsored research agreements or are held on behalf of a related party.

The Institute had approximately $393.5 million and $418.5 million as of June 30, 2019 and 2018, respectively, of its cash accounts with a single institution. The Institute has not experienced any losses associated with deposits at this institution.

Land, Buildings, and Equipment

Land, buildings, and equipment are shown at cost when purchased, or at fair value as of the date of a gift when received as a gift, net of accumulated depreciation. When expended, costs associated with the construction of new facilities are shown as construction in progress until such projects are completed and put into use. Depreciation is computed on a straight-line basis over the estimated useful lives of 25 to 50 years for buildings, 3 to 25 years for equipment, and 4 to 6 years for software.

Fully depreciated assets were removed from the financial statements in the amount of $49.1 million and $46.2 million during 2019 and 2018, respectively. Land, buildings, and equipment as of June 30, 2019 and 2018 are shown in Table 1 below.

Table 1. Land, Buildings, and Equipment

(in thousands of dollars)	2019	2018
Land	$ 107,557	$ 107,557
Land improvements	84,374	73,815
Educational buildings	4,682,090	4,127,736
Equipment	377,377	306,364
Software	60,408	68,328
Total	5,311,806	4,683,800
Less: accumulated depreciation	(1,885,232)	(1,725,276)
Construction in progress	562,740	723,249
Software projects in progress	3,939	2,604
Net land, buildings, and equipment	**$ 3,993,253**	**$ 3,684,377**

Depreciation expense was $198.2 million in 2019 and $178.6 million in 2018. Net interest expense of $17.9 million and $22.1 million was capitalized during 2019 and 2018, respectively, in connection with MIT's construction projects.

A. Accounting Policies (continued)

Tuition and Student Support

Tuition and similar revenues, shown in Table 2 below, include tuition and fees for degree programs as well as tuition and fees for executive and continuing education programs at MIT. Tuition revenue is recognized over the period during which the courses are taken.

Table 2. Tuition and Similar Revenues

(in thousands of dollars)	2019	2018
Undergraduate and graduate programs*	$ 303,593	$ 291,044
Executive and continuing education programs	80,143	62,677
Tuition and similar revenues	**$ 383,736**	**$ 353,721**

** Undergraduate and graduate programs at published rates totaled $669,547 and $638,083 in 2019 and 2018, respectively, and financial aid applied to undergraduate and graduate programs was $365,954 and $347,039 in 2019 and 2018, respectively.*

Tuition support shown in Table 3 below is awarded to undergraduate students by MIT based on need. Graduate students are provided with tuition support in connection with research assistance, teaching assistance, and fellowship appointments. Tuition support from MIT sources is shown as tuition financial aid.

Table 3. Student Support

	2019			2018		
(in thousands of dollars)	Institute Sources	External Sponsors	Total Student Support	Institute Sources	External Sponsors	Total Student Support
Undergraduate tuition support	$ 128,365	$ 18,956	$ 147,321	$ 120,352	$ 17,584	$ 137,936
Graduate tuition support	237,589	63,437	301,026	226,687	61,747	288,434
Fellowship stipends	28,509	16,470	44,979	26,199	16,110	42,309
Student employment	48,978	83,322	132,300	46,329	79,555	125,884
Total	**$ 443,441**	**$ 182,185**	**$ 625,626**	**$ 419,567**	**$ 174,996**	**$ 594,563**

A. Accounting Policies (continued)

Research Revenues and Advance Payments

Direct and indirect categories of research revenues are shown in Table 4 below.

Table 4. Research Revenues

(in thousands of dollars)	2019	2018
Direct:		
Campus	$ 538,350	$ 510,254
Lincoln	1,017,344	947,295
SMART	44,980	41,988
Total direct	1,600,674	1,499,537
Total indirect	232,163	196,100
Total research revenues	**$ 1,832,837**	**$ 1,695,637**

Almost all of Lincoln and SMART research revenue, and a portion of campus research revenue, come from exchange contracts. Research revenue related to exchange contracts is recognized as MIT fulfills the terms of the agreements, which generally span less than five years. Almost all of campus research revenue, and a portion of Lincoln and SMART research revenue, come from non-exchange contracts. Research revenue associated with non-exchange contracts is recognized as the qualified expenditures are incurred. Research activities at Lincoln, for which the contractual performance obligations have not yet been met, totaled $757.4 million as of June 30, 2019. Research activities on campus, which are contractually authorized by the sponsor, but for which costs have not yet been incurred, totaled $249.6 million as of June 30, 2019.

Advance payments are amounts received by MIT from the US government, corporations, industrial sources, foundations, and other non-MIT sponsors under the terms of agreements that generally require the exchange of assets, rights, or privileges between MIT and the sponsor. Advance payments are made for activity that will occur in the near future, generally within the next fiscal year. The majority of these payments relate to activity at Lincoln.

The capital costs of buildings and equipment are depreciated over their estimated life cycle, and the sponsored research recovery allowance for depreciation is treated as indirect research revenue. MIT has recorded reimbursement of indirect costs relating to sponsored research at negotiated fixed billing rates.

The revenue generated by the negotiated rates is adjusted each fiscal year to reflect any variance between the negotiated fixed rates and rates based on actual cost. The actual cost rate is audited by the Defense Contract Audit Agency (DCAA), and a final fixed-rate agreement is signed by the US government and MIT. The variance between the negotiated fixed rate and the final audited rate results in a carryforward (over- or under-recovery). The carryforward is included in the calculation of negotiated fixed billing rates in future years. Any adjustment in the rate is charged or credited to net assets without donor restrictions.

Gifts and Pledges (Contributions)

Gifts and pledges (contributions) are recognized when received. Gifts of securities are recorded at their fair value at the date of contribution. Donated securities received totaled $116.9 million and $66.8 million in 2019 and 2018, respectively. Gifts of equipment received from manufacturers and other donors are put into use and recorded by MIT at fair value. Gifts of equipment totaled $0.7 million in 2019 and $2.2 million in 2018. Pledges consist of unconditional promises to contribute to MIT in the future. Pledges are reported at their estimated fair values. Pledges receivable are classified as Level 3 under the valuation hierarchy described in Note B.

Pledges, trusts, and remainder interests are reported at their estimated fair values. MIT records items of collections as gifts at nominal value. They are received for educational purposes, and most are displayed throughout MIT. In general, collections are not disposed of for financial gain or otherwise encumbered in any manner.

Fees and Services, Auxiliary Enterprises, and Other Programs

For the majority of the revenue streams included in fees and services and auxiliary enterprises, revenue is recognized over the period during which the services are provided. Other program revenue primarily consists of non-research sponsored activities. Other program revenue related to exchange contracts is recognized as MIT fulfills the terms of the agreements, which generally span less than five years, and other program revenue related to non-exchange contracts is recognized as the related costs are incurred. Non-research sponsored activities, for which the contractual performance obligations have not yet been met, totaled $81.8 million as of June 30, 2019.

A. Accounting Policies (continued)

Life Income Funds

MIT's life income fund agreements with donors consist primarily of irrevocable charitable gift annuities, pooled income funds, and charitable remainder trusts for which MIT serves as trustee. Assets are invested and payments are made to donors and other beneficiaries in accordance with the respective agreements. MIT records the assets that are associated with each life income fund at fair value and records as liabilities the present value of the estimated future payments at current interest rates to be made to the donors and beneficiaries under these agreements. Life income fund assets are included within investments on the Consolidated Statements of Financial Position. A rollforward of liabilities due under life income fund agreements is presented in Table 5 below.

Table 5. Liabilities Due Under Life Income Funds

(in thousands of dollars)	2019	2018
Balance at the beginning of the year	$ 187,449	$ 154,470
Addition for new gifts	19,785	28,768
Termination and payments to beneficiaries.	(22,682)	(17,782)
Net investment and actuarial gain. .	25,059	21,993
Balance at end of the year	**$ 209,611**	**$ 187,449**

Recently Adopted Accounting Standards

On July 1, 2018, the Institute adopted ASU No. 2018-08 - *Not-for-Profit Entities* (Topic 958): *Clarifying the Scope and Accounting Guidance for Contributions Received and Contributions Made,* which amends the accounting guidance related to (1) evaluating whether transactions should be accounted for as contributions or exchange transactions, and (2) determining whether a contribution is conditional. The Institute has evaluated and applied the guidance on a modified prospective basis to the financial statements and added the required additional revenue disclosures. The adoption of this standard did not have a significant impact on the Institute's financial statements.

On July 1, 2018, the Institute adopted ASU No. 2014-09 - *Revenue from Contracts with Customers* (Topic 606), which outlines a single comprehensive standard for revenue recognition across all industries and supersedes most existing revenue recognition guidance. In addition, ASU 2014-09 requires new and enhanced disclosures. These changes do not have a material impact on MIT's financial statements and have been applied to the Institute's financial statements and footnotes on a modified retrospective basis.

On July 1, 2018, the Institute adopted ASU No. 2017-07 - *Compensation - Retirement Benefits* (Topic 715): *Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost.* This guidance requires the service cost component of net periodic benefit costs for pension and other postretirement benefits be presented as a component part of employee benefit expense. The other components of net periodic benefit costs, such as interest, expected return on plan assets, and amortization of net actuarial gains and losses, are required to be presented outside of operating activities. This change is reflected in the Institute's Statement of Activities and has been applied retrospectively.

On July 1, 2018, the Institute adopted ASU No. 2016-14 - *Not-for-Profit-Entities* (Topic 958): *Presentation of Financial Statements of Not-for-Profit-Entities.* This guidance is intended to improve the net asset classification requirements and the information presented in the financial statements and notes about a not-for-profit entity's liquidity, financial performance, and cash flows. Main provisions of this guidance include presentation of two classes of net assets versus the previously required three, and recognition of underwater endowment funds as a reduction in net assets with donor restrictions. The guidance also enhances disclosures for board-designated amounts, composition of net assets without donor restrictions, liquidity, and expenses by both their natural and functional classifications. These changes are reflected in the Institute's financial statement and footnotes and have been applied retrospectively, where applicable.

On July 1, 2018, the Institute adopted ASU 2018-13 - *Fair Value Measurement* (Topic 820): *Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurement.* Following this new guidance, the Institute is no longer required to disclose the amount of and reasons for transfers between Level 1 and Level 2 of the fair value hierarchy. Additionally, the Institute has added to the disclosures in the Level 3 Valuation Techniques table to include the weighted average of the unobservable inputs presented therein. Lastly, for investments in certain entities that calculate net asset value, the requirement to disclose the estimated period of time over which the underlying assets might be liquidated is modified to only require disclosure if the investee has communicated the timing to the Institute or announced the timing publicly.

A. Accounting Policies (continued)

Non-Cash Items

Non-cash transactions excluded from the Consolidated Statements of Cash Flows include $34.9 million and $39.5 million of accrued liabilities related to plant and equipment purchases as of June 30, 2019 and 2018, respectively.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Reclassifications

Certain June 30, 2018, balances and amounts previously reported have been reclassified to conform to the June 30, 2019 presentation. While implementing the new accounting guidance, the Institute took the opportunity to reorganize and reclassify certain Statement of Activities and Statements of Financial Position line items in order to improve reporting. Where applicable, changes to financial reporting and presentation have been applied to the prior period comparatives shown throughout MIT's financial statements.

Subsequent Events

MIT has evaluated subsequent events through September 13, 2019, the date on which the financial statements were issued. There were no subsequent events that occurred after the balance sheet date that have a material impact on MIT's financial statements.

Summarized Information

The Consolidated Statement of Activities include certain prior year summarized comparative information in total, but not by net asset class. Such information does not include sufficient detail to constitute a presentation in conformity with accounting principles generally accepted in the United States of America. Accordingly, such information should be read in conjunction with MIT's financial statements for the year ended June 30, 2018, from which the summarized information was derived.

B. Investments

Investments are presented at fair value in accordance with GAAP. MIT performs ongoing due diligence to determine that the fair value of investments is reasonable. In particular, to ensure that the valuation techniques for investments that are categorized within the fair value hierarchy are fair, consistent, and verifiable, MIT has established a Valuation Committee ("the Committee") that oversees the valuation processes and procedures and ensures that the policies are fair and consistently applied. The Committee is responsible for conducting annual reviews of the valuation policies, evaluating the overall fairness and consistent application of the valuation policies, and performing specific reviews of certain reported valuations. The Committee performs due diligence over the external managers and, based on this review, substantiates the use of net asset value (NAV) as a practical expedient for estimates of fair value of its investments in externally managed funds. The Committee is comprised of senior personnel with members who are independent of investment functions. The Committee meets biannually, or more frequently as needed. Members of the Committee report annually to MIT's Risk and Audit Committee. The methods described in this note may produce a fair value that may not be indicative of net realizable value or reflective of future fair values. While MIT believes its valuation methods are appropriate and consistent with those of other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different estimate of fair value at the reporting date.

Exchange and over-the-counter investment transactions are accounted for on the trade date. External fund investment transactions are accounted for on the settle date. Dividend income is recorded on the ex-dividend date. Interest and real estate income are recorded on the accrual basis of accounting. Realized gains and losses are recorded by MIT using the average cost method. For external funds, the realized gains and losses are recognized subsequent to the return of all capital invested.

MIT may enter into short sales whereby it sells securities that may or may not be owned by MIT in anticipation of a decline in the price of such securities or in order to hedge portfolio positions. Cash collateral and certain securities owned by MIT may be held at counterparty brokers to collateralize these positions and are included in investments on the Consolidated Statements of Financial Position.

MIT values its investments at fair value on the Consolidated Statements of Financial Position in accordance with the principles of accounting standards that establish a hierarchy of valuation inputs based on the extent to which the inputs are observable in the marketplace. Observable inputs reflect market data obtained from sources independent of the reporting entity. Unobservable inputs reflect the entity's own assumptions about how market participants would value an asset or liability based on the best information available. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. MIT follows a fair value hierarchy based on three levels of inputs, of which the first two are considered observable and the last is unobservable.

The following describes the hierarchy of inputs used to measure fair value and the primary valuation methodologies used by MIT for financial instruments measured at fair value on a recurring basis. The three levels of inputs are as follows:

• Level 1 – Valuations based upon observable inputs that reflect quoted prices in active markets for identical assets and liabilities.

• Level 2 – Valuations based upon: (i) quoted market prices for similar assets or liabilities in active markets; (ii) quoted prices for identical or similar assets or liabilities in markets that are not active; or (iii) other significant market-based inputs, which are observable, either directly or indirectly.

• Level 3 – Valuations based upon unobservable inputs that are significant to the overall fair value measurements.

Investments managed by external managers in fund structures are not readily marketable and are reported at fair value utilizing the most current information provided by the external manager, subject to assessments that the information is representative of fair value and in consideration of any factors deemed pertinent to the fair value measurement. These investments are shown in the NAV column of Table 6.

A financial instrument's categorization within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement. Market information is considered when determining the proper categorization of the investment's fair value measurement within the fair valuation hierarchy.

Cash and cash equivalents include cash, money market funds, repurchase agreements, and negotiable certificates of deposit, and are valued at cost, which approximates fair value. Instruments listed or traded on a securities exchange are valued at the last quoted price on the primary exchange where the securities are traded.

B. Investments (continued)

Investments in non-exchange-traded debt are primarily valued using independent pricing sources that use broker quotes or models using observable market inputs. Investments managed by external managers include investments in (i) absolute return; (ii) domestic, foreign, and private equity; (iii) real estate; and (iv) real asset commingled funds. The fair value of securities held in external investment funds that do not have readily determinable fair values are determined by the external managers based upon industry-standard valuation approaches that require varying degrees of judgment, taking into consideration, among other things, the cost of the securities, valuations, and transactions of comparable public companies, the securities' estimated future cash flow streams, and the prices of recent significant placements of securities of the same issuer. Using these valuations, most of these external managers calculate MIT's capital account or NAV in accordance with, or in a manner consistent with, GAAP's fair value principles.

As a practical expedient, MIT is permitted under GAAP to estimate the fair value of its investments with external managers using the external managers' reported NAV without further adjustment, unless MIT expects to sell the investment at a value other than NAV or the NAV is not calculated in accordance with GAAP.

Level 3 investments are valued by MIT based upon valuation information received from the relevant entity, which may include last trade information, third-party appraisals of real estate, or valuations prepared in connection with the administration of an employee stock ownership plan. MIT may also utilize industry standard valuation techniques, including discounted cash flow models. The significant unobservable inputs used in the fair value measurements of MIT's direct investments may include their cost of capital and equity and industry risk premiums. Significant increases or decreases in these inputs in isolation may result in a significantly lower or higher fair value measurement, respectively. Split-interest agreements are generally valued at the present value of the future distributions expected to be received over the term of the agreement.

Over-the-counter positions, such as interest rate and total return swaps, credit default swaps, options, exchange agreements, and interest rate cap and floor agreements, are valued using broker quotes or models using market-observable inputs. Because the swaps and other over-the-counter derivative instruments have inputs that can usually be corroborated by observable market data, they are generally classified within Level 2. Derivatives usually include exchange traded derivatives, such as futures and options, and are generally classified within Level 1.

MIT, through some of its direct and indirect subsidiaries, leverages certain real estate investments to optimize the use of invested capital in support of the Institute's mission. The liabilities associated with these financings are presented, on a net basis, with the investment balances on the associated real estate asset found in Table 6. The liabilities associated with real estate investments were $606.3 million and $768.6 million in fiscal years 2019 and 2018, respectively. MIT's subsidiaries are separate legal entities, whose assets and credit are not available to satisfy the liabilities of MIT as a stand-alone entity. Also, the liabilities of MIT's subsidiaries do not constitute obligations of MIT as a stand-alone entity.

All net realized and unrealized gains and losses relating to financial instruments held by MIT shown in Table 6 are reflected in the Consolidated Statement of Activities. Cumulative unrealized gains related to Level 3 investments totaled $1,766.6 million and $1,812.1 million as of June 30, 2019 and 2018, respectively.

Certain investments in real estate, equities, and private investments may be subject to restrictions that: (i) limit MIT's ability to withdraw capital after such investment; and (ii) may limit the amount that may be withdrawn as of a given redemption date. Most absolute return, domestic equity, and foreign equity commingled funds limit withdrawals to monthly, quarterly, or other periods, and may require notice periods. In addition, certain of these funds are able to designate a portion of the investments as illiquid in "side-pockets," and these funds may not be available for withdrawal until liquidated by the investing fund. Generally, MIT has no discretion as to withdrawal with respect to its investments in private equity and real estate funds. Distributions are made when sales of assets are made within these funds and the investment cycle for these funds can be as long as 15 to 20 years. These restrictions may limit MIT's ability to respond quickly to changes in market conditions. MIT does have various sources of liquidity at its disposal. Refer to footnote E for further details.

B. Investments (continued)

Table 6 presents MIT's investments at fair value as of June 30, 2019 and 2018, respectively, grouped by the valuation hierarchy as defined earlier in this note.

Table 6. Investments

(in thousands of dollars)	Level 1	Level 2	Level 3	NAV	Total Fair Value
Fiscal Year 2019					
Cash and cash equivalents	$ 1,346,557	$ -	$ -	$ -	$ 1,346,557
US Treasury	1,303,772	-	-	-	1,303,772
US government agency	635	119,688	-	-	120,323
Domestic bonds	17,923	363,871	108,735	-	490,529
Foreign bonds	6,016	89,831	-	-	95,847
Common equity:					
Domestic	24,055	-	234,516	-	258,571
Foreign	361,095	-	-	-	361,095
Equity:**					
Absolute return	-	-	-	2,777,992	2,777,992
Domestic	-	-	-	2,184,287	2,184,287
Foreign	-	-	-	4,423,446	4,423,446
Private	-	-	-	4,973,152	4,973,152
Real estate*	39,903	-	2,377,201	850,402	3,267,506
Real assets**	-	-	384	315,515	315,899
Split-interest agreements	-	-	159,098	-	159,098
Other	26	-	2,923	-	2,949
Derivatives	(274)	2,407	-	-	2,133
Investments, at fair value	**$ 3,099,708**	**$ 575,797**	**$ 2,882,857**	**$ 15,524,794**	**$ 22,083,156**
Fiscal Year 2018					
Cash and cash equivalents	$ 1,354,618	$ -	$ -	$ -	$ 1,354,618
US Treasury	1,159,001	-	-	-	1,159,001
US government agency	554	68,332	-	-	68,886
Domestic bonds	19,612	795,566	104,896	-	920,074
Foreign bonds	2,106	95,154	-	-	97,260
Common equity:					
Domestic	53,262	-	202,840	-	256,102
Foreign	170,023	215	-	-	170,238
Equity:**	-	-	-	-	-
Absolute return	-	-	-	1,948,154	1,948,154
Domestic	-	-	-	2,335,421	2,335,421
Foreign	-	-	-	4,426,017	4,426,017
Private	-	-	-	4,020,787	4,020,787
Real estate*	49,308	-	2,385,683	729,463	3,164,454
Real assets**	-	-	184	687,581	687,765
Split-interest agreements	-	-	156,494	-	156,494
Other	-	200	4,216	-	4,416
Derivatives	(193)	(2,946)	-	-	(3,139)
Investments, at fair value	**$ 2,808,291**	**$ 956,521**	**$ 2,854,313**	**$ 14,147,423**	**$ 20,766,548**

* *Includes direct investments and investments held through commingled vehicles.*

** *Include commingled vehicles that invest in these types of investments.*

B. Investments (continued)

Table 7 below is a rollforward of the investments classified by MIT within Level 3 of the fair value hierarchy defined earlier in this note as of June 30, 2019 and 2018.

Table 7. Rollforward of Level 3 Investments

(in thousands of dollars)	Fair Value Beginning	Realized Gains (Losses)	Unrealized Gains (Losses)	Purchases	Sales	Other Changes and Transfers	Fair Value Ending
Fiscal Year 2019							
Domestic bonds	$ 104,896	$ -	$ -	$ 12,929	$ (9,090)	$ -	$ 108,735
Common equity:							
Domestic	202,840	2,366	3,273	27,131	(2,371)	1,277	234,516
Real estate	2,385,683	697,689	(23,269)	759,841	(1,442,262)	(481)	2,377,201
Real assets	184	-	-	200	-	-	384
Split-interest agreements	156,494	(160)	2,407	11	(107)	453	159,098
Other	4,216	(71)	72	-	(1)	(1,293)	2,923
Investments, at fair value	**$ 2,854,313**	**$ 699,824**	**$ (17,517)**	**$ 800,112**	**$ (1,453,831)**	**$ (44)**	**$ 2,882,857**
Fiscal Year 2018							
Domestic bonds	$ 97,554	$ -	$ -	$ 15,123	$ (7,781)	$ -	$ 104,896
Common equity:							
Domestic	199,643	7,525	3,008	6,127	(13,463)	-	202,840
Real estate	2,094,523	179,169	122,784	182,674	(193,467)	-	2,385,683
Real assets	205	-	(21)	-	-	-	184
Split-interest agreements	142,499	169	14,391	163	(728)	-	156,494
Other	3,881	-	(76)	772	(361)	-	4,216
Investments, at fair value	**$ 2,538,305**	**$ 186,863**	**$ 140,086**	**$ 204,859**	**$ (215,800)**	**$ -**	**$ 2,854,313**

Table 8 below sets forth a summary of valuation techniques and quantitative information utilized in determining the fair value of MIT's Level 3 investments as of June 30, 2019 and 2018.

Table 8. Level 3 Valuation Techniques

(in thousands of dollars)	Fair Value as of June 30, 2019	Fair Value as of June 30, 2018	Valuation Technique	Unobservable Input	2019 Rates	2019 Weighted Average	2018 Rates
Real estate	$ 2,377,201	$ 2,385,683	Discounted cash flow	Discount rate	4.75-8.5%	6.75%	5.0-8.0%
			Capitalization rate	Capitalization rate	4.25-7.0%	5.31%	4.5-7.3%
Equity securities	191,766	183,169	Discounted cash flow	Discount rate	12.5%	12.5%	12.5%
Split-interest agreements	159,098	119,260	Net present value	Discount rate	3.1%	3.1%	3.7%
Real assets	384	184	Discounted cash flow	Discount rate	25.0%	25.0%	25.0%
Other illiquid assets.	2,923	650	Varies	Varies	Varies	Varies	Varies
Total assets	**$ 2,731,372**	**$ 2,688,946**					

Certain Level 3 assets totaling $151,485 and $165,367 as of June 30, 2019 and June 30, 2018, respectively, have been valued using unadjusted third party quotations or recent transactions and thus have been excluded from this table.

B. Investments (continued)

Details on the restrictions by asset class and by type of investments, unfunded commitments, and current redemption terms are provided in Table 9 below.

Table 9. Unfunded Commitments

	2019		2018			
(in thousands of dollars)	Unfunded Commitments	Fair Value	Unfunded Commitments	Fair Value	Redemption Terms	Redemption Restrictions
Equity:						
Absolute return[1]	$ 100,834	$ 2,777,992	$ 209,572	$ 1,948,154	Ranges from 45 days to 27 months[4]	30 to 365 days
Domestic[2]	23,152	2,184,287	6,173	2,335,421	Ranges from 1 month to 25 months[4]	15 to 120 days
Foreign[3]	51,675	4,423,446	20,000	4,426,017	Ranges from daily to 38 months[4]	10 to 180 days
Private	2,060,191	4,973,152	1,658,030	4,020,787	Closed-end funds not available for redemption	Not Applicable
Real estate	570,559	850,402	605,483	729,463	Closed-end funds not available for redemption	Not Applicable
Real assets	94,787	315,515	133,174	687,581	Ranges from 1 month to 8 months[4]	7 to 45 days
Total	**$ 2,901,198**	**$ 15,524,794**	**$ 2,632,432**	**$ 14,147,423**		

[1]*Absolute return funds include funds that have lock-up provisions up to 24 months and ones that are not available for redemption.*
[2]*Domestic funds include funds that have lock-up provisions up to 5 years and two funds that are not available for redemption.*
[3]*Foreign funds include funds that have lock-up provisions up to 5 years.*
[4]*Includes funds that are not available for redemption.*

C. Derivative Financial Instruments and Collateral

For its investment management, MIT uses a variety of financial instruments with off-balance sheet risk involving contractual or optional commitments for future settlement. MIT uses these instruments primarily to manage its exposure to extreme market events and fluctuations in asset classes or currencies. Instruments utilized include futures, total return and credit default swaps, and interest rate cap and swaption agreements. The futures are exchange-traded, and the swap, swaptions, and cap agreements are executed over the counter.

Total return swaps involve commitments to pay interest in exchange for a market-linked return based on notional amounts. To the extent the total return of the security or index underlying the transaction exceeds or falls short of the offsetting interest rate obligation, MIT will respectively receive a payment from or make a payment to the counterparty.

MIT's portfolio of interest rate caps and swaptions is designed for protection from significant increases in interest rates. An interest rate swaption is an option to enter into an interest rate swap agreement on pre-set terms at a future date. The purchaser and seller of the swaption agree on the expiration date, option type, exercise style, the terms of the underlying swap, and the type of settlement. As the expiration date approaches, the swaption holder can either notify the seller of its intention to exercise or let the option expire. An interest rate cap places a ceiling on a floating rate of interest on a specified notional principal amount for a specific term. The buyer of the cap uses the cap contract to limit its maximum interest rate exposure. If the buyer's floating rate rises above the cap strike, the cap contract provides for payments from the seller to the buyer of the cap for the difference between the floating rate and the cap strike. If the floating rate remains below the cap strike, no payments are required. The cap buyer is required to pay an upfront fee or premium for the cap. The cap premium charged by the seller depends upon the market's assessment of the probability that rates will move through the cap strike over the time horizon of the deal. The payoff is expected to occur in extreme market conditions that would negatively impact MIT's other assets.

Derivatives held by limited partnerships and commingled investment vehicles pose no off-balance sheet risk to MIT due to the limited liability structure of these investments. To manage the counterparty credit exposure of MIT's direct off-balance sheet financial instruments, MIT requires collateral to the maximum extent possible under normal trading practices. Collateral is moved on a daily basis as required by fluctuations in the market. The collateral is generally in the form of debt obligations issued by the US Treasury or cash. In the event of counterparty default, MIT has the right to use the collateral to offset the loss associated with the replacement of the agreements. MIT enters into arrangements only with counterparties believed to be creditworthy. On June 30, 2019, cash collateral and certain securities owned by MIT were held at counterparty brokers to collateralize these positions and are included in investments in the Consolidated Statements of Financial Position.

C. Derivative Financial Instruments and Collateral (continued)

Table 10 summarizes the notional exposure and net ending fair value relative to the financial instruments with off-balance sheet risk as of June 30, 2019 and 2018 related to MIT's investment management.

Table 10. Derivative Financial Instruments

(in thousands of dollars)	Notional Exposure Long	Notional Exposure Short	Net Ending Fair Value *	Net Gain (Loss)**
Fiscal Year 2019				
Fixed income instruments:				
Fixed income futures	$ 19,400	$ (10,400)	$ (274)	$ (1,021)
Options on interest rate exchange agreements	839,000	-	26	(1,061)
Equity options	-	-	-	-
Total fixed income instruments	858,400	(10,400)	(248)	(2,082)
Currency and index instruments:				
Equity index swaps	-	-	-	10,366
Index options	299	-	3,010	(343)
Total currency and index instruments	299	-	3,010	10,023
Credit instruments	-	(31,130)	(629)	(276)
2019 Total	**$ 858,699**	**$ (41,530)**	**$ 2,133**	**$ 7,665**
Fiscal Year 2018				
Fixed income instruments:				
Fixed income futures	$ 4,000	$ (29,200)	$ (193)	$ -
Options on interest rate exchange agreements	949,000	-	1,086	(730)
Equity options	134	-	-	(11)
Total fixed income instruments	953,134	(29,200)	893	(741)
Currency and index instruments:				
Equity index swaps	-	(194,583)	(7,293)	14,642
Index options	95,000	-	3,353	(210)
Total currency and index instruments	95,000	(194,583)	(3,940)	14,432
Credit instruments	-	(12,750)	(92)	(332)
2018 Total	**$ 1,048,134**	**$ (236,533)**	**$ (3,139)**	**$ 13,359**

** The fair value of all derivative financial instruments is reflected in investments at fair value in the Consolidated Statements of Financial Position.*

*** Net gain (loss) from the derivative financial instruments is located in the other revenue, gain and losses section as net return on investments in the Consolidated Statement of Activities.*

C. Derivative Financial Instruments and Collateral (continued)

Table 11 below provides further details related to MIT's credit instruments and summarizes the notional amounts and fair value of the purchased credit derivatives, classified by the expiration terms and the external credit ratings of the reference obligations as of June 30, 2019 and 2018.

The act of entering into a credit default swap contract is often referred to as "buying protection" or "selling protection" on an underlying reference obligation. The buyer is obligated to make premium payments to the seller over the term of the contract in return for a contingent payment upon the occurrence of a credit event with respect to the underlying obligation. The seller bears the obligation to "protect" the buyer in the event of default of the underlying issuer. Upon this event, the cash payment that the buyer receives is equal to the clearing price established by an auction of credit default swap claims, which is designed to approximate the recovery value of an unsecured claim on the issuer in default. The swap will last for a predetermined amount of time, typically five years. Upon termination of the swap, the buyer is no longer obligated to make any premium payments, and there is no other exchange of capital.

Table 11. Credit Derivative Instruments

	Purchased Protection		
(in thousands of dollars)	Purchased Notional Amounts	Purchased Fair Value*	< 5 Years to Maturity
Fiscal Year 2019			
Credit rating on underlying or index:			
A- to AAA	$ 8,018	$ (226)	$ 8,018
BBB- to BBB+	23,112	(403)	23,112
Non-rated	-	-	-
2019 Total	**$ 31,130**	**$ (629)**	**$ 31,130**
Fiscal Year 2018			
Credit rating on underlying or index:			
A- to AAA	$ 2,250	$ (49)	$ 2,250
BBB- to BBB+	5,500	(2)	5,500
Non-rated	5,000	(41)	5,000
2018 Total	**$ 12,750**	**$ (92)**	**$ 12,750**

** The fair value of all credit derivative instruments is reflected in investments, at fair value, in the Consolidated Statements of Financial Position.*

C. Derivative Financial Instruments and Collateral (continued)

Counterparty risk may be partially or completely mitigated through master netting agreements included within an International Swaps and Derivatives Association, Inc. ("ISDA") Master Agreement between MIT and each of its counterparties. The ISDA Master Agreement allows MIT to offset with the counterparty certain derivative instruments' payables and/or receivables with collateral held with/from each counterparty. To the extent amounts due from the counterparties are not fully collateralized, contractually or otherwise, there is the risk of loss from counterparty non-performance.

Maximum risk of loss from counterparty credit risk on over-the-counter derivatives is generally the aggregate unrealized appreciation in excess of any collateral pledged by the counterparty. ISDA Master Agreements allow MIT or the counterparties to an over-the-counter derivative to terminate the contract prior to maturity in the event either party fails to meet the terms in the ISDA Master Agreements. This would cause an accelerated payment of net liability, if owed to the counterparty.

Tables 12 and 13 below summarize the effect that the offsetting of recognized assets and liabilities could have in the Consolidated Statements of Financial Position.

Table 12. Offsetting of Financial and Derivative Assets and Liabilities

	2019			2018		
(in thousands of dollars)	Gross Amount	Cash/Treasury Collateral Posted/ (Received)	Net Amount	Gross Amount	Cash/Treasury Collateral Posted/ (Received)	Net Amount
Assets						
Derivatives	$ 3,089	$ (3,344)	$ (255)	$ 3,744	$ (2,716)	$ 1,028
Repurchase Agreements	201,176	(206,468)	(5,292)	135,369	(139,165)	(3,796)
Total assets	204,265	(209,812)	(5,547)	139,113	(141,881)	(2,768)
Liabilities						
Derivatives	(682)	420	(262)	(6,690)	956	(5,734)
Total liabilities	(682)	420	(262)	(6,690)	956	(5,734)
Total assets and liabilities, net	**$ 203,583**	**$ (209,392)**	**$ (5,809)**	**$ 132,423**	**$ (140,925)**	**$ (8,502)**

Table 13 below reconciles the net recognized assets and liabilities, as shown in Table 12, to derivative financial instruments as shown in Table 6.

Table 13. Reconciliation of Financial and Derivative Assets and Liabilities

(in thousands of dollars)	2019	2018
Derivatives from Table 6	$ 2,133	$ (3,139)
Repurchase agreements	201,176	135,369
Fixed income futures	274	193
Total	**$ 203,583**	**$ 132,423**

D. Pledges Receivable

Table 14 below shows the time periods in which pledges receivable as of June 30, 2019 and 2018 are expected to be realized.

Table 14. Pledges Receivable

(in thousands of dollars)	2019	2018
In one year or less	$ 304,760	$ 276,883
Between one year and five years	259,400	264,333
More than five years	83,790	80,931
Less: allowance for unfulfilled pledges	(64,567)	(62,005)
Pledges receivable, net	**$ 583,383**	**$ 560,142**

A review of pledges is periodically made with regard to collectability. As a result, the allowance for unfulfilled pledges is adjusted, and some pledges have been cancelled and are no longer recorded in the financial statements.

Pledges are discounted in the amount of $60.3 million and $80.7 million in 2019 and 2018, respectively. The pledge discount rate ranges from fiscal year 2020 at 2.1 percent to fiscal year 2045 at 3.2 percent. MIT has gross conditional pledges, not recorded, for the promotion of education and research of $390.8 million and $86.2 million in 2019 and 2018, respectively. Conditional pledges are categorized as follows: fundraising challenge, building construction progress, foundation grants, and other. As of June 30, 2019, conditional pledge amounts are broken out as follows: fundraising challenge of $207.0 million, building construction progress of $141.1 million, foundation grants of $32.5 million, and other of $10.2 million. As of June 30, 2018, conditional pledge amounts are broken out as follows: fundraising challenge of $7.3 million, building construction progress of $41.5 million, foundation grants of $37.2 million, and other of $0.2 million.

Table 15 below is a rollforward of the pledges receivable as of June 30, 2019 and 2018.

Table 15. Rollforward of Pledges Receivable

(in thousands of dollars)	2019	2018
Balance at beginning of the year	$ 560,142	$ 533,227
New pledges	192,342	206,146
Pledge payments received	(186,960)	(160,213)
Change in pledge discount	20,420	(16,023)
Change in reserve for unfulfilled pledges	(2,561)	(2,995)
Balance at the end of the year	**$ 583,383**	**$ 560,142**

E. Liquidity

Table 16 below details the Institute's financial assets and resources available to meet cash needs for general expenditures within one year of the date of the Consolidated Statements of Financial Position.

Table 16. Liquidity and Availability of Resources

(in thousands of dollars)	2019
Financial assets:	
Cash and liquid operating investments	$ 1,369,292
Accounts and notes receivable	256,773
Contributions receivable	196,310
Investments appropriated for spending in following year	804,041
Total liquidity resources available within one year	**$ 2,626,416**

As part of MIT's liquidity management strategy, financial assets are structured to be available as its general expenditures, liabilities, and other obligations come due. MIT invests its operating liquidity, which is comprised of cash and capital project funds in excess of daily requirements, in various investment vehicles. To help manage unanticipated liquidity needs, MIT also maintains a bank line of credit for $500.0 million, of which $387.0 million was undrawn as of June 30, 2019.

F. Net Borrowings

MIT's outstanding borrowings as of June 30, 2019 and 2018, are shown in Table 17 below.

Table 17. Net Borrowings

(in thousands of dollars / due dates are calendar based / par values as of 2019)	2019	2018
Educational plant		
Massachusetts Development Finance Agency (MassDevelopment)		
Series I, 5.20%, due 2028, par value $30,000	$ 30,490	$ 30,548
Series J-1, variable rate, due 2031, par value $125,000	125,000	125,000
Series J-2 variable rate, due 2031, par value $125,000	125,000	125,000
Series K, 5.5%, due 2022-2032, par value $177,000	183,905	184,512
Series L, 5.0%-5.25%, due 2023-2033, par value $115,670	121,686	148,200
Series M, 5.25%, due 2019-2030, par value $102,325	107,181	108,041
Total MassDevelopment	693,262	721,301
Medium Term Notes Series A, 7.125% due 2026, par value $17,415	17,386	17,382
Medium Term Notes Series A, 7.25%, due 2096, par value $45,604	45,468	45,463
Taxable Bonds, Series B, 5.60%, due 2111, par value $750,000*	747,145	747,113
Taxable Bonds, Series C, 4.678%, due 2114, par value $550,000*	550,000	550,000
Taxable Bonds, Series D, 2.051-3.959%, due 2019-2038, par value $522,410	522,410	522,410
Taxable Bonds, Series E, 3.885%, due 2116, par value $500,000*	500,000	500,000
Notes payable to bank, variable rate, due 2020	113,034	113,034
Total Taxable	2,495,443	2,495,402
Total educational plant	3,188,705	3,216,703
Other		
Notes payable to bank, variable rate, due 2020	-	63,476
Total borrowings	3,188,705	3,280,179
Unamortized bond issuance costs	(20,283)	(20,790)
Total borrowings net of unamortized debt issuance cost	**$ 3,168,422**	**$ 3,259,389**

** The proceeds of Taxable Bonds, Series B, C, and E were in the process of being invested in physical assets in 2018 and 2019 with unused balances held as investments.*

F. Net Borrowings (continued)

The aggregate amounts of debt payments and sinking fund requirements for each of the next five fiscal years are shown in Table 18 below.

Table 18. Debt Principal Obligations

(in thousands of dollars)	
2020	$ 77,030
2021	11,180
2022	11,765
2023	55,500
2024	51,455

MIT maintains a line of credit with a major financial institution for an aggregate commitment of $500.0 million. As of June 30, 2019, $387.0 million was available under this line of credit (see "Notes payable" on Table 17). The line of credit expires on March 31, 2020.

Cash paid for interest on long-term debt in 2019 and 2018 was $147.8 million and $146.8 million, respectively.

Variable interest rates as of June 30, 2019, are shown in Table 19 below.

Table 19. Variable Interest Rates

(in thousands of dollars)	Amount	Rate
MassDevelopment Series J-1	$ 125,000	1.85%
MassDevelopment Series J-2	125,000	1.70%
Notes payable to bank	113,034	2.90%

In the event that MIT receives notice of any optional tender on its Series J-1 and Series J-2 variable-rate bonds, or if these bonds become subject to mandatory tender, the purchase price of the bonds will be paid from the remarketing of such bonds. However, if the remarketing proceeds are insufficient, MIT will be obligated to purchase the bonds tendered at 100.0 percent of par on the tender date.

MIT maintains an interest rate swap agreement to manage the interest cost and risk associated with a portion of the variable rate debt included in Table 19 above. Under the agreement, MIT pays a fixed rate of 4.91 percent and receives a payment indexed to the Securities Industry and Financial Market Association (SIFMA) index on a notional amount of $125.0 million. As of June 30, 2019, the swap agreement had a fair value of ($48.8) million and as of June 30, 2018, had a fair value of ($38.0) million. This swap had a total net loss for 2019 of $10.8 million and a total net gain of $9.1 million for 2018. The notional amount of this derivative is not recorded on MIT's Consolidated Statements of Financial Position.

G. Commitments and Contingencies

Federal Government Funding

MIT receives funding or reimbursement from federal agencies for sponsored research under government grants and contracts. These grants and contracts provide for reimbursement of indirect costs based on rates negotiated with the Office of Naval Research (ONR), MIT's cognizant federal agency. MIT's indirect cost reimbursements are based on fixed rates with carryforward of under- or over-recoveries. As of June 30, 2019 and 2018, MIT recorded a net over-recovery of $41.2 million for both years.

The DCAA is responsible for auditing indirect charges to grants and contracts in support of ONR's negotiating responsibility. The Institute has had its rates audited by DCAA through 2015, but we have not negotiated final rates for any years after 2012. MIT's 2019 research revenues of $1,832.8 million include reimbursement of indirect costs of $232.2 million. In 2018, research revenues were $1,695.6 million, which included reimbursement of indirect costs of $196.1 million. Both years include adjustments for the variance between the indirect cost income determined by the fixed rates and actual costs.

Leases

As of June 30, 2019, there were no capital lease obligations. MIT has commitments under certain operating (rental) leases. Rent expense incurred under operating lease obligations was $43.9 million and $47.5 million in 2019 and 2018, respectively. Future minimum payments under operating leases are shown in Table 20 below.

Table 20. Lease Obligations

(in thousands of dollars)

2020	$ 42,155
2021	42,507
2022	39,414
2023	40,090
2024	37,251

Investments

As of June 30, 2019, $12.0 million of investments were pledged as collateral to various suppliers and government agencies.

Future Construction

As of June 30, 2019, MIT had contractual obligations of approximately $368.5 million in connection with educational plant construction projects. It is expected that the resources to satisfy these commitments will be provided from unexpended plant funds, anticipated gifts, bond proceeds, and funds without donor restrictions.

MIT has also made commitments related to the development of its commercial real estate holdings in Kendall Square and to the enhancement of its east campus gateway. As of June 30, 2019, these commitments included approximately $301.6 million of contractual obligations related to the Kendall Square Initiative. In addition, MIT and the federal government have entered into an agreement whereby MIT will construct a new transportation center on four of the 14 acres of federally owned land located at the John Volpe National Transportation Systems Center site in Kendall Square in exchange for the fee interest to and the right to redevelop the adjacent ten acres of land. The exchange will be executed upon completion of the construction of the new facility. MIT is committed to investing $750.0 million in the exchange phase of the project.

Related Entities

MIT has entered into agreements, including collaborations with third-party not-for-profit and for-profit entities, for education, research, and technology transfers. Some of these agreements involve funding from foreign governments. These agreements subject MIT to greater financial risk than do its normal operations. In the opinion of management, the likelihood of realization of increased financial risks by MIT under these agreements is remote.

General

MIT is subject to certain other legal proceedings and claims that arise in the normal course of operations. In the opinion of management, the ultimate outcome of these actions will not have a material effect on MIT's financial position.

H. Functional Expense Classification

MIT's expenditures on a functional basis are shown in Table 21 below.

Table 21. Expenditures by Functional Classification

(in thousands of dollars)	General and administrative	Instruction and unsponsored research	Sponsored research	Total
Fiscal Year 2019				
Compensation	$ 472,471	$ 569,190	$ 869,296	$ 1,910,957
Other operating	137,741	447,433	661,177	1,246,351
Space related	158,830	191,753	202,906	553,489
Total expenses	**$ 769,042**	**$ 1,208,376**	**$ 1,733,379**	**$ 3,710,797**
Fiscal Year 2018				
Total expenses	**$ 983,807**	**$ 1,029,050**	**$ 1,523,543**	**$ 3,536,400**

Expenses are presented by functional classification in alignment with the overall mission of the Institute. Each functional classification displays all expenses related to the underlying operation by natural classification. Natural expenses attributable to more than one functional expense category are allocated using reasonable cost allocation techniques. Depreciation and utilities, rent, and repair expenses are allocated directly and/or based on square footage. Interest expense on indebtedness is allocated to the functional categories that have benefited from the proceeds of the associated debt.

I. Retirement Benefits

MIT offers a defined benefit pension plan and a defined contribution plan to its employees. The plans cover substantially all MIT employees.

MIT also offers a retiree welfare benefit plan (certain healthcare and life insurance benefits) for retired employees. Substantially all MIT employees may become eligible for those benefits if they reach a qualifying retirement age while working for MIT. The healthcare component of the welfare plan is paid for in part by retirees, their covered dependents, and beneficiaries. Benefits are provided through various insurance companies whose charges are based either on the claims and administrative expenses paid during the year or annual insured premiums. The life insurance component of the welfare plan includes basic life insurance and supplemental life insurance. The basic life insurance plan is non-contributory and covers the retiree only. The supplemental life insurance plan is paid for by the retiree. MIT maintains a trust to pay for the retiree welfare benefit plan.

MIT contributes to the defined benefit pension plan amounts that are actuarially determined to provide the retirement plan with sufficient assets to meet future benefit requirements. There were no designated contributions to the defined benefit pension plan for 2019 and 2018. MIT designated contributions of $0.7 million and $6.5 million to the retiree welfare benefit plan in 2019 and 2018, respectively.

For the defined contribution plan, the amount contributed and expenses recognized during 2019 and 2018 were $64.0 million and $60.7 million, respectively.

For purposes of calculating net periodic benefit cost, plan amendments for the defined benefit pension plan are amortized on a straight-line basis over the average future service of active participants at the date of the amendment. Plan amendments to the retiree welfare benefit plan are amortized on a straight-line basis over the average future service to full eligibility of active participants at the date of amendment.

Cumulative gains and losses (including changes in assumptions) in excess of 10 percent of the greater of the projected benefit obligation or the market-related value of assets for both the defined benefit pension plan and the retiree welfare benefit plan are amortized over the average future service of active participants. The annual amortization shall not be less than the total amount of unrecognized gains and losses up to $1.0 million.

Components of Net Periodic Benefit Cost

Table 22 below summarizes the components of net periodic benefit cost recognized in net results and other amounts recognized in other revenues, gains and losses in net assets without donor restrictions for the years ended June 30, 2019 and 2018.

Table 22. Components of Net Periodic Benefit Cost

	Defined Benefit Pension Plan		Retiree Welfare Benefit Plan	
(in thousands of dollars)	2019	2018	2019	2018
Components of net periodic benefit cost recognized in net results:				
Service cost	$ 106,779	$ 109,366	$ 26,491	$ 27,153
Interest cost	173,331	162,917	25,761	24,205
Expected return on plan assets	(285,552)	(277,597)	(47,783)	(41,010)
Amortization of net actuarial loss (gain)	4,237	23,610	(1,000)	(1,000)
Amortization of prior service cost (credit)	265	285	(2,801)	(2,801)
Net periodic benefit cost recognized in net results	(940)	18,581	668	6,547
Other amounts recognized in other revenues, gains and losses:				
Current year actuarial loss (gain)	387,429	(288,146)	23,168	(75,505)
Amortization of actuarial (loss) gain	(4,237)	(23,610)	1,000	1,000
Amortization of prior service (cost) credit	(265)	(285)	2,801	2,801
Total other amounts recognized in other revenues, gains and losses	382,927	(312,041)	26,969	(71,704)
Total recognized	**$ 381,987**	**$ (293,460)**	**$ 27,637**	**$ (65,157)**

I. Retirement Benefits (continued)

The estimated net actuarial loss and prior service cost for the defined benefit pension plan that will be amortized from net assets without donor restrictions into net periodic benefit cost during the next fiscal year are $30.3 million and $0.3 million, respectively. The estimated net actuarial gain and prior service credit for the retiree welfare benefit plan that will be amortized from net assets without donor restrictions into net periodic benefit cost during the next fiscal year are $1.0 million and $2.2 million, respectively.

Cumulative amounts recognized in net assets without donor restrictions are summarized in Table 23 below for the years ended June 30, 2019 and 2018.

Table 23. Cumulative Amounts Recognized in Net Assets Without Donor Restriction

	Defined Benefit Pension Plan		Retiree Welfare Benefit Plan	
(in thousands of dollars)	2019	2018	2019	2018
Amounts recognized in net assets without donor restrictions consist of:				
Net actuarial loss (gain)	$ 682,445	$ 299,253	$ (95,102)	$ (119,271)
Prior service cost (credit)	2,583	2,848	(2,212)	(5,012)
Total cumulative amounts recognized in net assets without donor restrictions	**$ 685,028**	**$ 302,101**	**$ (97,314)**	**$ (124,283)**

I. Retirement Benefits (continued)

Benefit Obligations and Fair Value of Assets

Table 24 below summarizes the benefit obligations, plan assets, and amounts recognized in the Consolidated Statements of Financial Position for MIT's retirement benefit plans. MIT uses a June 30 measurement date for its defined benefit pension plan and retiree welfare benefit plan.

The projected benefit obligation for the defined benefit pension plan, as shown in Table 24, was $4,468.3 million as of 2019, up $537.1 million from a year earlier. Another measure of the plan's liabilities is the accumulated benefit obligation. While the projected benefit obligation factors in future salary increases, the accumulated benefit obligation does not. The accumulated benefit obligation of MIT's defined benefit pension plan was $4,268.3 million and $3,766.6 million as of June 30, 2019 and 2018, respectively.

MIT provides retiree drug coverage through an Employer Group Waiver Plan (EGWP). Under EGWP, the cost of drug coverage is offset through direct federal subsidies, brand-name drug discounts, and reinsurance reimbursements.

Table 24. Projected Benefit Obligations and Fair Value of Assets

	Defined Benefit Pension Plan		Retiree Welfare Benefit Plan	
(in thousands of dollars)	2019	2018	2019	2018
Change in projected benefit obligations:				
Projected benefit obligations at beginning of year	$ 3,931,212	$ 3,921,738	$ 566,642	$ 570,512
Service cost	106,779	109,366	26,491	27,153
Interest cost	173,332	162,917	25,762	24,205
Retiree contributions	-	-	7,443	6,858
Net benefit payments, transfers, and other expenses	(153,584)	(150,456)	(36,127)	(31,223)
Employer Group Waiver Plan (EGWP) reimbursement	-	-	5,057	6,094
Assumption changes and actuarial net loss (gain)	410,524	(112,353)	18,173	(36,957)
Projected benefit obligations at end of the year	4,468,263	3,931,212	613,441	566,642
Change in plan assets:				
Fair value of plan assets at beginning of the year	3,903,154	3,600,221	691,328	623,498
Actual return on plan assets	308,648	453,389	42,788	79,558
Employer contributions	-	-	668	6,543
Employer Group Waiver Plan (EGWP) reimbursement	-	-	5,057	6,094
Retiree contributions	-	-	7,443	6,858
Net benefit payments, transfers, and other expenses	(153,584)	(150,456)	(36,127)	(31,223)
Fair value of plan assets at end of the year	4,058,218	3,903,154	711,157	691,328
(Unfunded) funded status at end of the year	**(410,045)**	**(28,058)**	**97,716**	**124,686**
Amounts recognized in the Consolidated Statements of Financial Position consist of:				
Net (liabilities) assets	**$ (410,045)**	**$ (28,058)**	**$ 97,716**	**$ 124,686**

I. Retirement Benefits (continued)

Assumptions for Financial Parameters and Healthcare Trend Rates

Table 25 below summarizes assumptions and healthcare trend rates. The expected long-term rate of return assumption represents the expected average rate of earnings on the funds invested or to be invested to provide for the benefits included in the benefit obligation. The long-term rate of return assumption is determined based on a number of factors, including historical market index returns, the anticipated long-term asset allocation of the plans, historical plan return data, plan expenses, and the potential to outperform market index returns.

Table 25. Assumptions

	Defined Benefit Pension Plan		Retiree Welfare Benefit Plan	
(in thousands of dollars)	2019	2018	2019	2018
Assumptions used to determine benefit obligation as of June 30:				
Discount rate	3.77%	4.38%	3.85%	4.44%
Rate of compensation increase*	4.00%	4.00%		
Assumptions used to determine net periodic benefit cost for the year ended June 30:				
Discount rate	4.38%	4.12%	4.44%	4.14%
Expected long-term return on plan assets	7.75%	8.00%	7.50%	7.00%
Rate of compensation increase*	4.00%	4.00%		
Assumed health care cost trend rates:				
Healthcare cost trend rate assumed for next year			5.00%	5.00%
Rate to which the cost trend rate is assumed to decline (the ultimate trend rate)			4.75%	4.75%
Year the rate reaches the ultimate trend rate			2021	2021

* *The average rate of salary increase is assumed to be 4.00% for 2020, and thereafter.*

As an indicator of sensitivity, a one percentage point change in the assumed healthcare cost trend rate would affect 2019's retiree welfare plan as shown in Table 26 below.

Table 26. Healthcare Cost Trend Rate Sensitivity

(in thousands of dollars)	1% Point Increase	1% Point Decrease
Effect on 2019 postretirement service and interest cost	$ 9,547	$ (7,563)
Effect on postretirement benefit obligation as of June 30, 2019	92,561	(75,682)

Plan Investments

The investment objectives for the assets of the plans are to minimize expected funding contributions and to meet or exceed the rate of return assumed for plan funding purposes over the long term. The nature and duration of benefit obligations, along with assumptions concerning asset class returns and return correlations, are considered when determining an appropriate asset allocation to achieve the investment objectives.

Investment policies and strategies governing the assets of the plans are designed to achieve investment objectives within prudent risk parameters. Risk management practices include the use of external investment managers, the maintenance of a portfolio diversified by asset class, investment approach, security holdings, and the maintenance of sufficient liquidity to meet benefit obligations as they come due.

I. Retirement Benefits (continued)

Tables 27A and 27B present investments at fair value of MIT's defined benefit pension plan and retiree welfare benefit plan, which are included in plan net assets/(liabilities) as of June 30, 2019 and 2018, grouped by the valuation hierarchy detailed in Note B. The investment values in these tables exclude certain items included in the assets and liabilities shown in Table 24.

Table 27A. Defined Benefit Pension Plan Investments

(in thousands of dollars)	Level 1	Level 2	Level 3	NAV	Total Fair Value
Fiscal Year 2019					
Cash and cash equivalents	$ 93,000	$ -	$ -	$ -	$ 93,000
US Treasury	329,996	-	-	-	329,996
US government agency	-	40,136	-	-	40,136
Domestic bonds	-	-	-	-	-
Common equity:					
Domestic	11,188	-	74	-	11,262
Foreign	62,546	-	-	-	62,546
Equity:*					
Absolute return	-	-	-	582,438	582,438
Domestic	-	-	-	447,243	447,243
Foreign	-	-	-	1,087,958	1,087,958
Private	-	-	-	1,093,149	1,093,149
Real estate*	12,957	-	-	220,185	233,142
Real assets*	-	-	-	70,126	70,126
Other	-	-	419	-	419
Derivatives	(101)	955	-	-	854
Total plan investments	**$ 509,586**	**$ 41,091**	**$ 493**	**$ 3,501,099**	**$ 4,052,269**
Fiscal Year 2018					
Cash and cash equivalents	$ 164,469	$ -	$ -	$ -	$ 164,469
US Treasury	356,637	-	-	-	356,637
US government agency	-	4,777	-	-	4,777
Domestic bonds	-	45,059	-	-	45,059
Common equity:					
Domestic	842	-	74	-	916
Foreign	18,374	-	-	-	18,374
Equity:*					
Absolute return	-	-	-	417,100	417,100
Domestic	-	-	-	562,843	562,843
Foreign	-	-	-	1,113,636	1,113,636
Private	-	-	-	885,679	885,679
Real estate*	16,016	-	-	213,012	229,028
Real assets*	-	-	-	95,182	95,182
Other	-	-	433	-	433
Derivatives	(90)	817	-	-	727
Total plan investments	**$ 556,248**	**$ 50,653**	**$ 507**	**$ 3,287,452**	**$ 3,894,860**

** Equity, real estate, and real assets categories include commingled vehicles that invest in these types of investments.*

I. Retirement Benefits (continued)

Table 27B. Retiree Welfare Benefit Plan Investments

(in thousands of dollars)	Level 1	Level 2	Level 3	NAV	Total Fair Value
Fiscal Year 2019					
Cash and cash equivalents	$ 22,770	$ -	$ -	$ -	$ 22,770
US Treasury	75,768	-	-	-	75,768
US government agency	-	9,753	-	-	9,753
Domestic bonds	-	-	-	-	-
Common equity:					
Domestic	1,882	-	-	-	1,882
Foreign	10,507	-	-	-	10,507
Equity:*					
Absolute return	-	-	-	98,857	98,857
Domestic	-	-	-	89,602	89,602
Foreign	-	-	-	225,405	225,405
Private	-	-	-	139,971	139,971
Real estate*	1,306	-	-	26,881	28,187
Real assets*	-	-	-	7,778	7,778
Derivatives	(25)	161	-	-	136
Total plan investments	**$ 112,208**	**$ 9,914**	**$ -**	**$ 588,494**	**$ 710,616**
Fiscal Year 2018					
Cash and cash equivalents	$ 47,225	$ -	$ -	$ -	$ 47,225
Domestic bonds	-	76,615	-	-	76,615
Common equity:					
Domestic	142	-	-	-	142
Foreign	3,017	-	-	-	3,017
Equity:*					
Absolute return	-	-	-	61,430	61,430
Domestic	-	-	-	103,724	103,724
Foreign	-	-	-	255,605	255,605
Private	-	-	-	104,799	104,799
Real estate*	1,615	-	-	23,377	24,992
Real assets*	-	-	-	9,635	9,635
Derivatives	-	206	-	-	206
Total plan investments	**$ 51,999**	**$ 76,821**	**$ -**	**$ 558,570**	**$ 687,390**

** Equity, real estate, and real assets categories include commingled vehicles that invest in these types of investments.*

I. Retirement Benefits (continued)

The plans have made investments in various long-lived partnerships, and in other cases have entered into contractual arrangements that may limit their ability to initiate redemptions due to notice periods, lock-ups, and gates. Details on estimated remaining term and current redemption terms and restrictions by asset class and type of investment for both the defined benefit pension plan and retiree welfare benefit plan are provided in Table 28 below as of June 30, 2019 and 2018.

Table 28. Unfunded Commitments

	2019		2018			
(in thousands of dollars)	Unfunded Commitments	Fair Value	Unfunded Commitments	Fair Value	Redemption Terms	Redemption Restrictions
Defined Benefit Pension Plan						
Equity:						
Absolute return[1] . . .	$ 29,770	$ 582,438	$ 47,844	$ 417,100	Ranges from 4 months to 27 months[4]	45 to 365 days
Domestic[2]	398	447,243	403	562,843	Ranges from 4 months to 26 months[4]	30 to 90 days
Foreign[3]	37,612	1,087,958	41,705	1,113,636	Ranges from 2 months to 5 years	10 to 91 days
Private	382,755	1,093,149	323,032	885,679	Closed-end funds not available for redemption	Not Applicable
Real estate	142,042	220,185	158,085	213,012	Closed-end funds not available for redemption	Not Applicable
Real assets	22,196	70,126	31,118	95,182	8 months[4]	45 days
Total	**$ 614,773**	**$ 3,501,099**	**$ 602,187**	**$ 3,287,452**		
Retiree Welfare Benefit Plan						
Equity:						
Absolute return[1] . . .	$ 3,962	$ 98,857	$ 6,052	$ 61,430	Ranges from 4 months to 27 months[4]	45 to 365 days
Domestic[2]	44	89,602	45	103,724	Ranges from 4 months to 26 months[4]	30 to 90 days
Foreign[3]	5,688	225,405	6,295	255,605	Ranges from 2 months to 5 years	10 to 91 days
Private	63,518	139,971	50,681	104,799	Closed-end funds not available for redemption	Not Applicable
Real estate	20,345	26,881	22,747	23,377	Closed-end funds not available for redemption	Not Applicable
Real assets	3,667	7,778	5,131	9,635	Closed-end funds not available for redemption	Not Applicable
Total	**$ 97,224**	**$ 588,494**	**$ 90,951**	**$ 558,570**		

[1]Absolute return funds include funds that have lock-up provisions up to 24 months and ones that are not available for redemption.
[2]Domestic funds include funds that have lock-up provisions up to five years and two funds that are not available for redemption.
[3]Foreign funds include funds that have lock-up provisions up to 38 months.
[4]Includes funds that are not available for redemption.

I. Retirement Benefits (continued)

Target allocations and weighted-average asset allocations of the investment portfolios for MIT's defined benefit pension plan and retiree welfare benefit plan as of June 30, 2019 and 2018 are shown in Table 29 below.

Table 29. Plan Investment Allocation

	Defined Benefit Pension Plan			Retiree Welfare Benefit Plan		
	2019 Target Allocation	2019	2018	2019 Target Allocation	2019	2018
Cash and cash equivalents	0-15%	2%	4%	0-15%	3%	7%
Fixed income	3-13%	9%	11%	10-20%	12%	11%
Equities	36-86%	67%	66%	37-87%	66%	68%
Marketable alternatives	7.5-17.5%	14%	11%	9.5-19.5%	14%	9%
Real assets	1-11%	2%	2%	0-5.5%	1%	1%
Real estate	2.5-12.5%	6%	6%	0-8%	4%	4%
Total		**100%**	**100%**		**100%**	**100%**

Expected Future Benefit Payments

In fiscal 2020, MIT expects to contribute $24.7 million to its defined benefit pension plan and $1.5 million to the retiree welfare benefit plan. These contributions assume a 7.75 percent and 7.50 percent expected return on assets for the defined benefit pension plan and retiree welfare benefit plan, respectively. MIT has elected to adopt mortality tables recently issued by the Society of Actuaries (SOA). Specifically, MIT has selected the employee and retiree Pri-2012 mortality tables outlined in the SOA's May 2019 Exposure Draft report. Mortality rates are projected generationally from the base year of 2012 using Scale MP-2018.

Table 30 below reflects the total expected benefit payments for the defined benefit pension plan and retiree welfare benefit plan over the next 10 years. These payments have been estimated based on the same assumptions used to measure MIT's benefit obligations as of June 30, 2019.

Table 30. Expected Future Benefit Payments

(in thousands of dollars)	Pension Benefits	Other Benefits*
2020	$ 165,809	$ 25,541
2021	178,334	28,605
2022	184,600	30,361
2023	190,991	31,836
2024	197,827	33,260
2025-2029	1,095,507	188,669

** Other Benefits reflects the total net benefits expected to be paid from the plans (e.g., gross benefit reimbursement offset by retiree contributions).*

J. Components of Net Assets and Endowment

Tables 31A and 31B present the composition of net assets as of June 30, 2019 and June 30, 2018, respectively. The amounts listed in the without donor restriction category under endowment funds are those gifts and other funds received over the years that MIT designated as funds functioning as endowment and invested with the endowment funds. A large component of net assets with donor restriction in other invested funds is pledges, the majority of which will be reclassified to net assets without donor restrictions when cash is received.

Table 31A. 2019 Total Net Asset Composition

(in thousands of dollars)	Without Donor Restriction	With Donor Restriction	Total
Endowment Funds			
General purpose	$ 1,080,333	$ 1,659,769	$ 2,740,102
Departments and research	887,685	2,399,708	3,287,393
Library	14,348	59,746	74,094
Salaries and wages	677,594	4,170,306	4,847,900
Graduate general	106,312	286,439	392,751
Graduate departments	204,562	875,364	1,079,926
Undergraduate	283,109	1,861,021	2,144,130
Prizes	10,388	64,775	75,163
Miscellaneous	1,330,006	1,024,265	2,354,271
Investment income held for distribution	448,020	-	448,020
Endowment funds before pledges	5,042,357	12,401,393	17,443,750
Pledges	-	125,578	125,578
Total endowment funds	5,042,357	12,526,971	17,569,328
Other Invested Funds			
Student loan funds	19,018	18,650	37,668
Building funds	201,860	80,530	282,390
Designated purposes:			
Departments and research	423,830	-	423,830
Other purposes	217,280	18,064	235,344
Life income funds and donor advised funds	22,764	185,135	207,899
Pledges	-	457,805	457,805
Other funds available for current expenses	2,539,706	305,904	2,845,610
Funds expended for educational plant	709,131	-	709,131
Total other invested funds	4,133,589	1,066,088	5,199,677
Total net assets	**$ 9,175,946**	**$ 13,593,059**	**$ 22,769,005**

J. Components of Net Assets and Endowment (continued)

Table 31B. 2018 Total Net Asset Composition

(in thousands of dollars)	Without Donor Restriction	With Donor Restriction	Total
Endowment Funds			
General purpose	$ 1,060,947	$ 1,587,512	$ 2,648,459
Departments and research	733,963	2,245,993	2,979,956
Library	13,767	56,759	70,526
Salaries and wages	638,694	3,968,477	4,607,171
Graduate general	102,010	273,574	375,584
Graduate departments	181,410	808,932	990,342
Undergraduate	262,909	1,766,067	2,028,976
Prizes	9,963	61,043	71,006
Miscellaneous	1,372,794	825,321	2,198,115
Investment income held for distribution	429,892	-	429,892
Endowment funds before pledges	4,806,349	11,593,678	16,400,027
Pledges	-	129,405	129,405
Total endowment funds	4,806,349	11,723,083	16,529,432
Other Invested Funds			
Student loan funds	19,403	18,940	38,343
Building funds	80,564	58,934	139,498
Designated purposes:			
Departments and research	401,794	-	401,794
Other purposes	353,171	13,953	367,124
Life income funds and donor advised funds	9,919	172,893	182,812
Pledges	-	430,737	430,737
Other funds available for current expenses	2,427,578	245,281	2,672,859
Funds expended for educational plant	754,182	-	754,182
Total other invested funds	4,046,611	940,738	4,987,349
Total net assets	**$ 8,852,960**	**$ 12,663,821**	**$ 21,516,781**

MIT's endowment consists of approximately 4,200 individual funds established for a variety of purposes and includes both donor-restricted endowment funds and funds that function as endowments. As required by GAAP, net assets associated with endowment funds, including funds designated to function as endowments, are classified and reported based on the existence or absence of donor-imposed restrictions.

The Executive Committee has interpreted the Massachusetts-enacted version of the Uniform Prudent Management of Institutional Funds Act (UPMIFA) as allowing MIT to appropriate for expenditure or accumulate so much of an endowment fund as MIT determines is prudent for the uses, benefits, purposes, and duration for which the endowment fund is established, subject to the intent of the donor as expressed in the gift instrument. Unless stated otherwise in the gift instrument, the assets in an endowment fund shall be donor-restricted assets until appropriated for expenditure by the Executive Committee. In accordance with UPMIFA, the Executive Committee considers the following factors in making a determination to appropriate or accumulate endowment funds:

i. the duration and preservation of the fund
ii. the purposes of MIT and the endowment fund
iii. general economic conditions
iv. the possible effects of inflation and deflation
v. the expected total return from income and the appreciation of investments
vi. other resources of MIT
vii. the investment policies of MIT

J. Components of Net Assets and Endowment (continued)

Table 32 below reflects changes in net assets without and with donor restrictions as of June 30, 2019 and 2018, respectively.

Table 32. Changes in Endowment Net Assets

(in thousands of dollars)	Without Donor Restriction	With Donor Restriction	Total
Fiscal Year 2019			
Endowment net assets, July 1, 2018	$ 4,806,349	$ 11,723,083	$ 16,529,432
Investment return:			
Investment income	47,543	117,736	165,279
Net appreciation (realized and unrealized)	376,590	876,100	1,252,690
Total investment return	424,133	993,836	1,417,969
Contributions	-	177,015	177,015
Appropriation of endowment assets for expenditure	(208,439)	(490,894)	(699,333)
Other changes:			
Net asset reclassifications and transfers to create board-designated endowment funds	20,314	123,931	144,245
Endowment net assets, June 30, 2019	**$ 5,042,357**	**$ 12,526,971**	**$ 17,569,328**
Fiscal Year 2018			
Endowment net assets, July 1, 2017	$ 4,355,449	$ 10,612,534	$ 14,967,983
Investment return:			
Investment income	18,829	53,815	72,644
Net appreciation (realized and unrealized)	599,861	1,414,589	2,014,450
Total investment return	618,690	1,468,404	2,087,094
Contributions	-	120,410	120,410
Appropriation of endowment assets for expenditure	(196,908)	(466,295)	(663,203)
Other changes:			
Net asset reclassifications and transfers to create board-designated endowment funds	29,118	(11,970)	17,148
Endowment net assets, June 30, 2018	**$ 4,806,349**	**$ 11,723,083**	**$ 16,529,432**

Underwater Endowment Funds

From time to time, the fair value of assets associated with individual donor-restricted endowment funds may fall below the value of the initial and subsequent donor gift amounts (underwater). When underwater endowment funds exist, they are classified as a reduction of net assets with donor restrictions. There were no underwater endowment funds reported in with donor restriction net assets as of June 30, 2019, and June 30, 2018.

J. Components of Net Assets and Endowment (continued)

Endowment Investment and Spending Policies

MIT's investment policy is based on the primary goal of maximizing return relative to appropriate risk such that performance exceeds appropriate benchmark returns at the total pool, asset class, and individual manager levels. To achieve its long-term rate-of-return objectives, MIT relies on a total return strategy in which investment returns are realized through both capital appreciation (realized and unrealized gains) and current yield (interest and dividends). MIT targets a diversified asset allocation that places greater emphasis on equity-based investments to achieve its long-term objectives within prudent risk constraints.

The Institute's primary investment pool, Pool A, is principally for endowment and funds functioning as endowment. The effective spending rate on pooled endowed funds was 4.3 percent, or 4.8 percent on a three-year-average basis, and 4.5 percent, or 4.9 percent on a three-year-average basis, for 2019 and 2018, respectively. Pool A operates as a mutual fund with units purchased and redeemed based on the previous month's unit market value. Certain endowed assets are also maintained in separately invested funds.

MIT has adopted spending policies designed to provide a predictable stream of funding to programs supported by its investments while maintaining the purchasing power of assets. For pooled investments, the Executive Committee of the Corporation votes to distribute funds for operational support from general investments. In accordance with MIT's spending policy, these distributions are funded from both investment income and market appreciation. The distribution rates were $77.90 and $74.88 per Pool A unit as of June 30, 2019 and 2018, respectively. For separately invested endowment funds, only the annual investment income generated is distributed for spending. For any underwater endowment funds, the distribution of funds for operational support is at the discretion of the Executive Committee.

Massachusetts Institute of Technology

Five-Year Trend Analysis (Unaudited) – Financial Highlights

(in thousands of dollars)	2019	2018	2017	2016	2015
Financial Position					
Investments, at fair value	$ 22,083,156	$ 20,766,548	$ 19,077,677	$ 17,037,298	$ 17,566,427
Land, buildings, and equipment, at cost less accumulated depreciation	3,993,253	3,684,377	3,397,070	3,092,429	2,822,312
Borrowings, net of unamortized issuance costs	3,168,422	3,259,389	3,287,545	2,892,093	2,904,559
Total assets	27,750,820	26,111,020	23,976,315	21,662,308	21,700,849
Total liabilities	4,981,815	4,594,239	4,851,257	4,733,227	4,194,276
Net assets without donor restrictions	9,175,946	8,852,960	7,701,195	6,653,607	7,079,082
Net assets with donor restrictions	13,593,059	12,663,821	11,423,863	10,275,474	10,427,491
Total net assets	22,769,005	21,516,781	19,125,058	16,929,081	17,506,573
Total endowment funds before pledges	17,443,750	16,400,027	14,832,483	13,181,515	13,474,743
Principal Sources of Revenues					
Tuition and similar revenues, exclusive of financial aid	$ 383,736	$ 353,721	$ 361,476	$ 340,005	$ 331,819
Research revenues:					
Campus direct	538,350	510,254	496,877	516,283	476,030
Campus indirect	189,803	161,908	191,669	180,581	179,713
Lincoln Laboratory direct	1,017,344	947,295	929,348	921,377	848,443
Lincoln Laboratory indirect	42,040	33,997	39,909	34,617	30,884
SMART direct	44,980	41,988	32,981	32,415	31,620
SMART indirect	320	195	303	402	117
Contributions	602,096	481,817	594,471	474,959	505,671
Net return on investments	1,970,892	2,503,435	2,285,260	392,917	1,831,430
Distribution of investment returns	875,428	826,117	782,857	729,614	670,225
Principal Purposes of Expenditures					
Expenses*	$ 3,710,797	$ 3,536,400	$ 3,429,751	$ 3,318,536	$ 3,083,684
Compensation	1,910,957	1,838,629	1,729,760	1,628,286	1,546,711
Other operating	1,246,351	1,180,895	1,192,437	1,217,862	1,090,642
Space related	553,489	516,876	507,554	472,388	446,331

** Expenses include total operating expenses and other components of net periodic benefit costs.*

Massachusetts Institute of Technology

Five-Year Trend Analysis (Unaudited) – Financial Highlights (continued)

(in thousands of dollars)	2019	2018	2017	2016	2015
Research Revenues					
Campus					
Federal government sponsored:					
Health and Human Services	$ 134,773	$ 130,668	$ 111,835	$ 113,522	$ 116,469
Department of Defense	136,743	123,513	130,372	131,624	125,854
Department of Energy	66,975	72,828	82,157	84,419	81,528
National Science Foundation	79,617	81,563	80,410	82,161	78,953
National Aeronautics and Space Administration	32,430	33,024	39,809	49,664	41,740
Other federal	14,180	12,902	17,043	15,738	15,435
Total federal	464,718	454,498	461,626	477,128	459,979
Non-federally sponsored:					
State/local/foreign governments	21,052	24,471	25,686	28,495	27,951
Nonprofits	104,471	94,322	86,753	84,015	78,667
Industry	169,606	144,126	132,915	128,309	119,238
Total non-federal	295,129	262,919	245,354	240,819	225,856
Total federal and non-federal	759,847	717,417	706,980	717,947	685,835
F&A and other adjustments	(31,694)	(45,255)	(18,434)	(21,083)	(30,092)
Total campus	728,153	672,162	688,546	696,864	655,743
Lincoln Laboratory					
Federal government sponsored	1,048,801	966,179	965,830	920,271	886,637
Non-federally sponsored	17,467	7,240	5,436	6,355	3,609
F&A and other adjustments	(6,884)	7,873	(2,009)	29,368	(10,919)
Total Lincoln Laboratory	1,059,384	981,292	969,257	955,994	879,327
SMART [(A)]					
Non-federally sponsored	45,300	42,183	33,284	32,817	31,737
Total SMART	45,300	42,183	33,284	32,817	31,737
Total research revenues	**$ 1,832,837**	**$ 1,695,637**	**$ 1,691,087**	**$ 1,685,675**	**$ 1,566,807**

[(A)] *The amounts represent research that has predominantly taken place in Singapore.*

Massachusetts Institute of Technology

Five-Year Trend Analysis (Unaudited) – Financial Highlights (continued)

	2019	2018	2017	2016	2015
Students					
Undergraduate:					
Full-time	4,557	4,510	4,476	4,492	4,476
Part-time	45	37	48	35	36
Undergraduate applications:					
Applicants	21,706	20,247	19,020	18,306	18,356
Accepted	1,464	1,452	1,511	1,519	1,447
Acceptance rate	7%	7%	8%	8%	8%
Enrolled	1,114	1,097	1,110	1,106	1,043
Yield	76%	76%	73%	73%	72%
Freshmen ranking in the top 10% of their class	97%	98%	97%	98%	97%
Average SAT Scores (math and verbal)	1,528	1,528	1,505	1,493	1,500
Graduate:					
Full-time	6,845	6,671	6,707	6,689	6,630
Part-time	127	248	145	115	177
Graduate applications:					
Applicants	28,826	27,634	26,463	23,750	24,468
Accepted	3,516	3,383	3,480	3,307	3,718
Acceptance rate	12%	12%	13%	14%	15%
Enrolled	2,321	2,208	2,277	2,165	2,441
Yield	66%	65%	65%	65%	66%
Tuition *(in dollars)*					
Tuition and fees	$ 51,832	$ 49,892	$ 48,452	$ 46,704	$ 45,016
Average room and board	15,510	14,720	14,210	13,730	13,224
Student Support *(in thousands of dollars)*					
Undergraduate tuition support	$ 147,321	$ 137,936	$ 126,932	$ 112,902	$ 107,148
Graduate tuition support	301,026	288,434	270,289	258,444	247,361
Fellowship stipends	44,979	42,309	39,518	38,731	38,759
Student employment	132,300	125,884	118,528	110,392	105,261
Total student support	**$ 625,626**	**$ 594,563**	**$ 555,267**	**$ 520,469**	**$ 498,529**
Faculty and Staff *(including unpaid appointments)*					
Faculty	1,056	1,047	1,040	1,036	1,021
Staff and fellows	15,366	15,212	15,077	14,732	14,307

Report of the Treasurer

for the year ended
June 30, 2019

Massachusetts
Institute of
Technology

APPENDIX C

SUMMARY OF CERTAIN PROVISIONS OF THE INDENTURE

The following is a summary of certain provisions of the Indenture that are not described elsewhere in this Offering Memorandum. The Bonds are issued and secured pursuant to the Indenture. References to the Indenture or a fund or account refer to the related document, fund or account with respect to the Bonds, as described in the Offering Memorandum. Unless otherwise specified to the contrary in this Appendix C, all definitions and provisions summarized refer to the Indenture. This summary does not purport to be comprehensive and reference should be made to the Indenture for a full and complete statement of its provisions.

Definitions

Unless the context otherwise requires, the following terms have the meanings specified below.

"*Authorized Denomination*" means $1,000 or any multiple integral thereof.

"*Authorized Representative*" means the Institute's Executive Vice President and Treasurer, Vice President for Finance or any other Person designated as an Authorized Representative of the Institute by a Certificate of the Institute signed by the Institute's Executive Vice President and Treasurer or Vice President for Finance and filed with the Trustee.

"*Beneficial Owner*" means any Person that has or shares the power, directly or indirectly, to make investment decisions concerning ownership of any of the Bonds (including any Person holding Bonds through nominees, depositories or other intermediaries) established to the reasonable satisfaction of the Trustee or the Institute.

"*Bond Fund*" means the fund by that name established pursuant to the Indenture.

"*Bonds*" means Massachusetts Institute of Technology Taxable Bonds, Series F authorized by, and at any time Outstanding pursuant to, the Indenture.

"*Book-Entry Form*" or "*Book-Entry System*" means a form or system, as applicable, under which physical bond certificates in fully registered form are registered only in the name of a Securities Depository or its nominee, as Bondholder, with the physical bond certificates held by and "immobilized" in the custody of the Securities Depository, which form or system is maintained by and the responsibility of others than the Institute or the Trustee and is the record that identifies and records the transfer of the interests of the owners of book-entry interests in those Bonds.

"*Business Day*" means any day other than (A) a Saturday or Sunday or legal holiday or a day on which banking institutions in the city or cities in which the Designated Office of the Trustee is located are authorized by law or executive order to close or (B) a day on which the New York Stock Exchange is closed.

"'*Certificate*,' '*Statement*,' '*Request*' or '*Requisition*' *of the Institute*" mean, respectively, a written certificate, statement, request or requisition signed in the name of the Institute by an Authorized Representative. Any such instrument and supporting opinions or representations, if any, may, but need not, be combined in a single instrument with any other instrument, opinion or representation, and the two or more so combined shall be read and construed as a single instrument.

"*Code*" means the Internal Revenue Code of 1986, as amended, or any successor statute thereto and any regulations promulgated thereunder.

"*Commonwealth*" means The Commonwealth of Massachusetts.

"*Comparable Treasury Issue*" means the United States Treasury security or securities selected by a Designated Investment Banker as having an actual or interpolated maturity comparable to the remaining term of the

Bonds to be redeemed that would be used, at the time of selection and in accordance with customary financial practice, in pricing new issues of corporate debt securities of a comparable maturity to the remaining term of such Bonds.

"*Comparable Treasury Price*" means, with respect to any redemption date, the average of the Primary Treasury Dealer Quotations for such redemption date or, if the Designated Investment Banker obtains only one Primary Treasury Dealer Quotation, such Primary Treasury Dealer Quotation.

"*Default*" means any event that is or after notice or lapse of time or both would become an Event of Default.

"*Designated Investment Banker*" means one of the Primary Treasury Dealers appointed by the Institute.

"*Designated Office*" means the Designated Office of the Trustee, which as of the date of the Indenture is located at One Federal Street, 3rd Floor, Boston, Massachusetts 02110, Attention: Corporate Trust Department, and such other offices as the Trustee may designate from time to time by written notice to the Institute and the Holders.

"*Electronic Means*" means facsimile transmission, email transmission or other similar electronic means of communication providing evidence of transmission.

"*ERISA*" means the Employee Retirement Income Security Act of 1974, as amended.

"*ERISA Plans*" means employee benefit plans subject to ERISA, including U.S. private pension plans, certain insurance company accounts, and entities that are deemed to hold "plan assets" with respect to such plans.

"*Event of Default*" means any of the events specified as such under the heading "Events of Default and Remedies of Bondholders – Events of Default."

"*Holder*" or "*Bondholder*," whenever used in the Indenture with respect to a Bond, means the Person in whose name such Bond is registered.

"*Indenture*" means the Indenture of Trust, as originally executed or as it may from time to time be supplemented, modified or amended by any Supplemental Indenture.

"*Indenture Fund*" means the fund by that name established pursuant to the Indenture.

"*Institute*" means Massachusetts Institute of Technology, a nonprofit corporation existing under the laws of the Commonwealth, or said nonprofit corporation's successor or successors.

"*Interest Account*" means the account by that name in the Bond Fund established pursuant to the Indenture.

"*Interest Payment Date*" means January 1 and July 1 of each year, commencing July 1, 2020.

"*Investment Securities*" means either of the following: (a) direct nonprepayable, noncallable obligations of the United States of America (including obligations issued or held in book-entry form on the books of the Department of the Treasury of the United States of America) or direct nonprepayable, noncallable obligations, the timely payment of the principal of and interest on which are fully guaranteed by the United States of America, including instruments evidencing a direct ownership interest in securities described in this clause such as CATS, TIGRs, and Stripped Treasury Coupons rated or assessed in the highest two Rating Categories by each of S&P and Moody's and held by a custodian for safekeeping on behalf of holders of such securities, or (b) money market funds registered under the Investment Company Act of 1940, the shares in which are registered under the Securities Act of 1933 and that have a rating by S&P in its two highest rating categories, including such funds for which the Trustee or its affiliates provide investment advisory or other management services.

"*Make-Whole Redemption Price*" means the greater of (a) 100% of the principal amount of the Bonds to be redeemed or (b) the sum of the present values of the remaining scheduled payments of principal and interest to the maturity date of the Bonds to be redeemed (not including any portion of those payments of interest accrued and unpaid as of the date on which such Bonds are to be redeemed) discounted to the date on which the Bonds are to be redeemed on a semi-annual basis assuming a 360-day year consisting of twelve 30-day months at the adjusted Treasury Rate plus fifteen (15) basis points, plus, in each case, accrued and unpaid interest on the Bonds to be redeemed to, but excluding, the redemption date.

"*Moody's*" means Moody's Investors Service, a corporation organized and existing under the laws of the State of Delaware, and any successor to its securities rating agency business, or, if such corporation shall be dissolved or liquidated or shall no longer perform the functions of a securities rating agency, any other nationally recognized securities rating agency designated by the Institute upon notice to the Trustee.

"*Offering Memorandum*" means the final offering memorandum dated December 17, 2019, relating to the Bonds.

"*Opinion of Counsel*" means a written opinion of counsel (which may be subject to customary assumptions and exclusions) from legal counsel who is reasonably acceptable to the Trustee. Such counsel may be an employee of, or outside counsel to, the Institute.

"*Outstanding*" when used as of any particular time with reference to Bonds, means (subject to the provisions of the Indenture) all Bonds theretofore, or thereupon being, authenticated and delivered by the Trustee under the Indenture except (a) Bonds theretofore cancelled by the Trustee or surrendered to the Trustee for cancellation; (b) Bonds with respect to which all liability of the Institute shall have been discharged in accordance with the Indenture; and (c) Bonds for the transfer or exchange of or in lieu of or in substitution for which other Bonds shall have been authenticated and delivered by the Trustee pursuant to the Indenture.

"*Par Call Date*" means January 1, 2050.

"*Payment Date*" means an Interest Payment Date or a Principal Payment Date.

"*Person*" means an individual, corporation, firm, association, partnership, trust, limited liability company or other legal entity or group of entities, including a governmental entity or any agency or political subdivision thereof.

"*Primary Treasury Dealer*" means one or more entities appointed by the Institution, which, in each case, is a primary U.S. Government securities dealer in The City of New York, New York, and its successors.

"*Primary Treasury Dealer Quotations*" means, with respect to each Primary Treasury Dealer and any redemption date, the average, as determined by the Designated Investment Banker, of the bid and asked prices for the Comparable Treasury Issue (expressed in each case as a percentage of its principal amount) quoted in writing to the Designated Investment Banker by such Primary Treasury Dealer at 3:30 p.m. New York time on the third Business Day preceding such redemption date.

"*Principal Account*" means the account by that name in the Bond Fund established pursuant to the Indenture.

"*Principal Payment Date*" means July 1, 2050.

"*Rating Agency*" means Moody's or S&P.

"*Rating Category*" means a generic securities rating category, without regard to any refinement or gradation of such rating category by a numerical modifier or otherwise.

"*Record Date*" means the fifteenth (15th) day (whether or not a Business Day) of the month immediately preceding each Interest Payment Date.

"*Redemption Fund*" means the fund by that name established pursuant to the Indenture.

"*Responsible Officer*" means any officer of the Trustee assigned to administer its duties under the Indenture.

"*S&P*" means S&P Global, Inc., a corporation organized and existing under the laws of the State of New York, and any successor to its securities rating agency business, or, if such corporation shall be dissolved or liquidated or shall no longer perform the functions of a securities rating agency, any other nationally recognized securities rating agency designated by the Institute upon notice to the Trustee.

"*Securities Depository*" means The Depository Trust Company and its successors and assigns, or any other securities depository selected as set forth in the Indenture, which agrees to follow the procedures required to be followed by such securities depository in connection with the Bonds.

"*Special Record Date*" means the date established by the Trustee pursuant to the Indenture as the record date for the payment of defaulted interest on the Bonds.

"*Supplemental Indenture*" means any indenture hereafter duly authorized and entered into between the Institute and the Trustee, supplementing, modifying or amending the Indenture; but only if and to the extent that such Supplemental Indenture is specifically authorized under the Indenture.

"*Treasury Rate*" means, with respect to any redemption date, the rate per annum equal to (a) the semiannual equivalent yield to maturity or (b) if no such semiannual equivalent yield to maturity is available, the interpolated yield to maturity (on a day count basis) of the Comparable Treasury Issue, assuming a price for the Comparable Treasury Issue (expressed as a percentage of its principal amount) equal to the Comparable Treasury Price for such redemption date.

"*Trustee*" means U.S. Bank National Association, a national banking association duly organized and existing under and by virtue of the laws of the United States of America, or its successor or successors, as Trustee under the Indenture.

"*Underwriters*" means Barclays Capital, Inc. and J.P. Morgan Securities LLC.

"*Uniform Commercial Code*" means the Uniform Commercial Code as in effect in the Commonwealth from time to time.

Establishment and Pledge of Indenture Fund

Subject only to the provisions of the Indenture permitting or requiring the application thereof for the purposes and on the terms and conditions set forth therein, the Indenture Fund and all amounts held therein are pledged, assigned and transferred by the Institute to the Trustee for the benefit of the Bondholders to secure the full payment of the principal, Make-Whole Redemption Price or other redemption proceeds of and interest on the Bonds in accordance with their terms and the provisions of the Indenture. The Institute grants to the Trustee a security interest in and acknowledges and agrees that the Indenture Fund and all amounts on deposit therein shall constitute collateral security to secure the full payment of the principal, Make-Whole Redemption Price or other redemption proceeds of and interest on the Bonds in accordance with their terms and the provisions of the Indenture.

Nothing in the Indenture or in the Bonds, expressed or implied, shall be construed to constitute a security interest under the Uniform Commercial Code or otherwise in the assets of the Institute other than in any interest of the Institute in the Indenture Fund and/or the amounts on deposit therein. No recourse for the payment of the principal, Make-Whole Redemption Price or other redemption proceeds of or interest on any Bond, or for any claim based thereon or otherwise in respect thereof, and no recourse under or upon any obligation, covenant or agreement of the Institute in the Indenture or in any Supplemental Indenture or in any Bond, or because of the creation of any indebtedness represented thereby, shall be had against any past, present or future employee, agent, or officer of the Institute or of any successor entity, either directly or through any successor entity, whether by virtue of any constitution, statute or rule of law, or by the enforcement of any assessment or penalty or otherwise, it being expressly understood that all such liability is expressly waived and released as a condition of, and as a consideration for, the execution of the Indenture and the issue of the Bonds. No officer or agent of the Institute, nor any Person executing the Bonds, shall in any event be subject to any personal liability or accountability by reasons of issuance of the Bonds.

Funds and Accounts

The Indenture creates an Indenture Fund (and a Bond Fund and a Redemption Fund thereunder). The Indenture also creates an Interest Account and Principal Account under the Bond Fund. All of the funds and accounts are to be held by the Trustee.

Application of Proceeds of Bonds. The proceeds from the sale of the Bonds (net of underwriters' discount and original issue discount, if any) shall be transferred by the Underwriters to the Institute.

Indenture Fund. The Trustee establishes, for the sole benefit of the Bondholders, a master fund referred to in the Indenture as the "Indenture Fund" containing the Bond Fund and the Redemption Fund and each of the accounts contained therein. The Indenture Fund and each of the funds and accounts in the Indenture Fund shall be identified on the books of the Trustee with reference thereto and shall be maintained by the Trustee and held in trust apart from all other moneys and securities held under the Indenture or otherwise, and the Trustee shall have the exclusive and sole right of withdrawal therefrom in accordance with the terms of the Indenture. All amounts deposited with the Trustee pursuant to the Indenture shall be held, disbursed, allocated and applied by the Trustee only as provided in the Indenture.

Bond Fund. Upon the receipt thereof, the Trustee shall deposit all payments received from the Institute (other than amounts which are to be applied pursuant to the Indenture, amounts which are to be applied pursuant to the Indenture or income or profit from investments which are to be applied pursuant to the Indenture) in a special fund designated the "Bond Fund" which the Trustee shall establish and maintain and hold in trust and which shall be disbursed and applied only as authorized in the Indenture.

At the times specified below, the Trustee shall allocate within the Bond Fund in the following order of priority the following amounts to the following accounts or funds, each of which the Trustee shall establish and maintain and hold in trust and each of which shall be disbursed and applied only as thereinafter authorized: (a) on each Interest Payment Date, the Trustee shall deposit in the "Interest Account" the aggregate amount of interest becoming due and payable on such Interest Payment Date on all Bonds then Outstanding, until the balance in said account is equal to said aggregate amount of interest; and (b) on each Principal Payment Date, the Trustee shall deposit in the "Principal Account" the aggregate amount of principal becoming due and payable on such Principal Payment Date, until the balance in said account is equal to said aggregate amount of such principal.

Principal Account. All amounts in the Principal Account of the Bond Fund shall be used and withdrawn by the Trustee solely to pay at maturity the Bonds.

Redemption Fund. Upon the receipt thereof, the Trustee shall deposit the following amounts in a special fund designated the "Redemption Fund" that the Trustee shall establish and maintain and hold in trust: (a) all moneys deposited by the Institute with the Trustee directed to be deposited in the Redemption Fund; and (b) all interest, profits and other income received from the investment of moneys in the Redemption Fund.

All amounts deposited in the Redemption Fund shall be used and withdrawn by the Trustee solely for the purpose of redeeming Bonds, in the manner and upon the terms and conditions specified in the Indenture, at the next succeeding date of redemption for which notice has been given; provided that, at any time prior to the selection of Bonds for such redemption, the Trustee shall, upon direction of the Institute, apply such amounts to the purchase of Bonds at public or private sale, as and when and at such prices (including brokerage and other charges, but excluding accrued and unpaid interest, which is payable from the Interest Account) as the Institute may direct, except that the purchase price (exclusive of accrued interest) may not exceed the Make-Whole Redemption Price or other redemption proceeds (exclusive of accrued interest) then applicable to such Bonds; and provided further that in lieu of redemption at such next succeeding date of redemption, or in combination therewith, amounts in such account may be transferred to the Principal Account as set forth in a Request of the Institute.

Payments by the Institute; Allocation of Funds. On or before 11:00 AM on each Payment Date, until the principal of and interest on the Bonds shall have been fully paid or provision for such payment shall have been made as provided in the Indenture, the Institute shall pay to the Trustee a sum equal to the amount payable on such Payment Date as principal of and interest on the Bonds, less the amount, if any, in the Bond Fund and available therefor. Such payments shall be made in federal funds or other funds immediately available at the Designated Office of the Trustee and shall be promptly deposited by the Trustee upon receipt thereof in the Bond Fund. Each payment made pursuant to this paragraph, together with amounts, if any, in the Bond Fund, shall at all times be sufficient to pay the total amount of interest and principal (whether at maturity or upon acceleration) becoming due and payable on the Bonds on such Payment Date. If on any Payment Date the amounts held by the Trustee in the accounts within the Bond Fund are insufficient to make any required payments of principal of (whether at maturity or upon acceleration) and interest on the Bonds as such payments become due, the Institute shall forthwith pay such deficiency to the Trustee.

The obligations of the Institute to make the payments required by the immediately preceding paragraph and to perform and observe the other agreements on its part contained in the Indenture shall be a general obligation of the Institute, absolute and unconditional, irrespective of any defense or any rights of set-off, recoupment or counterclaim it might otherwise have against the Trustee, and during the term of the Indenture, the Institute shall pay all payments required to be made by the immediately preceding paragraph as prescribed therein and all other payments required under the Indenture, free of any deductions and without abatement, diminution or set-off. Until such time as the principal of and interest on the Bonds shall have been fully paid, or provision for the payment thereof shall have been made as required by the Indenture, the Institute (a) will not suspend or discontinue any payments provided for in the immediately preceding paragraph; (b) will perform and observe all of its other covenants contained in the Indenture; and (c) except as provided in the Indenture, will not terminate the Indenture for any cause, including, without limitation, the occurrence of any act or circumstances that may constitute failure of consideration, destruction of or damage to all or a portion of the projects financed with the proceeds of the Bonds, commercial frustration of purpose, any change in the tax or other laws of the United States of America or of the Commonwealth or any political subdivision of either of these, or any failure of the Trustee to perform and observe any covenant, whether express or implied, or any duty, liability or obligation arising out of or connected with the Indenture, except to the extent permitted by the Indenture.

Validity of Bonds

The recital contained in the Bonds that the same are issued pursuant to the Indenture shall be conclusive evidence of their validity and of compliance with the provisions of the Indenture in their issuance.

Additional Bonds

The Institute may, from time to time, without the consent of the Bondholders issue additional bonds under the Indenture in addition to the Bonds ("Additional Bonds"). If issued, the Additional Bonds will become part of the same series as the Bonds and will have the same interest rate, redemption provisions, maturity date and CUSIP number as the Bonds.

Redemption of Bonds

Terms of Redemption. The Bonds are redeemable prior to maturity at the written direction of the Institute to the Trustee in accordance with the terms of the Indenture. Such redemption shall be in accordance with the terms of the Bonds as directed by the Institute, (a) prior to the Par Call Date, at the Make-Whole Redemption Price, and (b) on and after the Par Call Date, at a redemption price equal to the principal amount of such Bonds to be redeemed, plus accrued and unpaid interest on the Bonds to be redeemed to, but excluding, the redemption date.

The Institute shall retain an independent accounting firm or an independent financial advisor to determine the Make-Whole Redemption Price of the Bonds to be redeemed and perform all actions and make all calculations required to determine such Make-Whole Redemption Price. The Trustee and the Institute may conclusively rely on such accounting firm's or financial advisor's calculations in connection with, and its determination of, the Make-Whole Redemption Price, and neither the Trustee nor the Institute shall have any liability for such reliance.

Selection of Bonds for Redemption. If the Bonds are registered in book-entry-only form and so long as the Securities Depository or its nominee is the sole registered owner of the Bonds, if less than all of the Bonds are called for redemption, the particular Bonds or portions thereof to be redeemed shall be selected by the Trustee on a pro rata pass-through distribution of principal basis in accordance with the customary procedures and the operational arrangements of the Securities Depository then in effect, but, if such operational arrangements do not allow for redemption on a pro rata pass-through distribution of principal basis, the Bonds shall be selected for redemption, in accordance with the customary procedures of the Securities Depository, by lot.

Notice of Redemption. Notice of redemption shall be sent by the Institute to the Trustee by first class mail or using Electronic Means not less than five (5) days, nor more than sixty (60) days prior to the date that notice of redemption is due to be given by the Trustee in accordance with the following sentence. Notice of redemption shall be sent by the Trustee by first class mail or using Electronic Means not less than twenty (20) days (or, if longer, the minimum number of days necessary to comply with the operational requirements of the Securities Depository then in effect), nor more than sixty (60) days prior to the redemption date, to the respective Holders of any Bonds designated for redemption at their addresses appearing on the registration books of the Trustee. If the Bonds are no longer held by the Securities Depository or its successor or substitute, the Trustee shall also give notice of redemption by overnight mail to such securities depositories and/or securities information services as shall be designated in a Certificate of the Institute. Each notice of redemption shall state the date of such notice, the date of issue of the Bonds, the redemption date, the Make-Whole Redemption Price (or the method for determining the Make-Whole Redemption Price) or other redemption proceeds, the place or places of redemption (including the name and appropriate address or addresses of the Trustee), the maturity, the CUSIP number (if any), the conditions, if any, to redemption and, in the case of Bonds to be redeemed in part only, the portion of the principal amount thereof to be redeemed. Each such notice shall also state that on such date there will become due and payable on each of such Bond the Make-Whole Redemption Price or other redemption proceeds (as applicable) thereof, or such specified portion of the principal amount thereof in the case of a Bond to be redeemed in part only, together with interest accrued thereon to the redemption date, and that from and after such redemption date interest thereon shall cease to accrue, and shall require that such Bonds be then surrendered.

Notice of redemption of the Bonds shall be given to the applicable Holders by the Trustee, at the expense of the Institute, for and on behalf of the Institute.

Failure by the Trustee to give notice pursuant to the Indenture to any one or more of the securities information services or depositories designated by the Institute, or the insufficiency of any such notice shall not affect the sufficiency of the proceedings for redemption. Failure by the Trustee to send notice of redemption pursuant to the Indenture to any one or more of the respective Holders of any Bonds designated for redemption shall not affect the sufficiency of the proceedings for redemption with respect to the Holders to whom such notice was mailed.

The Institute may instruct the Trustee to provide conditional notice of redemption, which may be conditioned upon the receipt of moneys or any other event. Additionally, any notice given pursuant to the Indenture may be rescinded by written notice given to the Trustee by the Institute no later than five (5) Business Days prior to the date specified for redemption. The Trustee shall give notice of such rescission, as soon thereafter as practicable, in the same manner, to the same Persons, as notice of such redemption was given pursuant to the Indenture.

Partial Redemption of Bonds. Upon surrender of any Bond redeemed in part only, the Institute shall execute (but need not prepare) and the Trustee shall prepare or cause to be prepared, authenticate and deliver to the Holder thereof, at the expense of the Institute, a new Bond or Bonds of Authorized Denominations, equal in aggregate principal amount to the unredeemed portion of the Bond surrendered.

Effect of Redemption. Notice of redemption having been duly given as aforesaid, and moneys for payment of the Make-Whole Redemption Price or other redemption proceeds of the Bonds (or portion thereof) so called for redemption being held by the Trustee, on the date fixed for redemption designated in such notice, the Bonds (or portion thereof) so called for redemption shall become due and payable at the Make-Whole Redemption Price or other redemption proceeds specified in such notice, interest on the Bonds so called for redemption shall cease to accrue, said Bonds (or portion thereof) shall cease to be entitled to any benefit or security under the Indenture, and the Holders of said Bonds shall have no rights in respect thereof except to receive payment of said Make-Whole Redemption Price or other redemption proceeds from funds held by the Trustee for such payment.

All Bonds redeemed pursuant to the provisions of the Indenture shall be cancelled by the Trustee upon surrender thereof and delivered to, or upon the order of, the Institute.

Use of Securities Depository

Notwithstanding any provision of the Indenture to the contrary:

The Bonds shall be initially issued as fully registered Bonds, registered in the name of "Cede & Co.," as nominee of the Securities Depository and shall be evidenced by one Bond in the principal amount of the Bonds. Registered ownership of the Bonds, or any portion thereof, may not thereafter be transferred except: (a) to any successor of the Securities Depository or its nominee, or to any substitute depository designated pursuant to clause (b) of this paragraph ("Substitute Depository"); provided that any successor of the Securities Depository or Substitute Depository shall be qualified under any applicable laws to provide the service proposed to be provided by it; (b) to any Substitute Depository designated by the Institute and not objected to by the Trustee, upon (i) the resignation of the Securities Depository or its successor (or any Substitute Depository or its successor) from its functions as depository or (ii) a determination by the Institute that the Securities Depository or its successor (or any Substitute Depository or its successor) is no longer able to carry out its functions as depository; provided that any such Substitute Depository shall be qualified under any applicable laws to provide the services proposed to be provided by it; or (c) to any Person as provided below, upon (i) the resignation of the Securities Depository or its successor (or Substitute Depository or its successor) from its functions as depository; provided that no Substitute Depository which is not objected to by the Trustee can be obtained or (ii) a determination by the Institute that it is in the best interests of the Institute to remove the Securities Depository or its successor (or any Substitute Depository or its successor) from its functions as depository.

In the case of any transfer pursuant to clause (a) or clause (b) of the immediately preceding paragraph, upon receipt of the Outstanding Bonds by the Trustee, together with a Certificate of the Institute to the Trustee, new Bonds shall be executed and delivered in the principal amount of the Bonds, registered in the name of such successor or such Substitute Depository, or their nominees, as the case may be, all as specified in such Certificate of the Institute. In the case of any transfer pursuant to clause (c) of the immediately preceding paragraph, upon receipt of the Outstanding Bonds by the Trustee together with a Certificate of the Institute to the Trustee, new Bonds shall be executed and delivered in such denominations and registered in the names of such persons as are requested in such a Certificate of the Institute, subject to the limitations of the Indenture, provided the Trustee shall not be required to deliver such new Bonds within a period less than sixty (60) days from the date of receipt of such a Certificate of the Institute.

In the case of partial redemption or an advance refunding of the Bonds evidencing all or a portion of the principal amount Outstanding, the Securities Depository shall make an appropriate notation on the Bonds indicating the date and amounts of such reduction in principal, in form acceptable to the Trustee.

The Institute and the Trustee shall be entitled to treat the Person in whose name any Bond is registered as the Bondholder thereof for all purposes of the Indenture and any applicable laws, notwithstanding any notice to the contrary received by the Institute or the Trustee. So long as the Outstanding Bonds are registered in the name of Cede & Co. or its registered assign, the Institute and the Trustee shall cooperate with Cede & Co., as sole registered Bondholder, and its registered assigns, in effecting payment of the principal, Make-Whole Redemption Price or other redemption proceeds of and interest on the Bonds by arranging for payment in such manner that funds for such payments are properly identified and are made immediately available on the date they are due, all in accordance with the letter of representations of the Institute to the Securities Depository or as otherwise agreed by the Trustee and the Securities Depository.

Particular Covenants

Punctual Payment. The Institute shall punctually pay the principal, Make-Whole Redemption Price or other redemption proceeds and interest that becomes due in respect of all the Bonds, in strict conformity with the terms of the Bonds and of the Indenture, according to the true intent and meaning thereof. When and as paid in full, all Bonds shall be delivered to the Trustee and shall forthwith be cancelled by the Trustee and delivered to, or upon the order of, the Institute.

Compliance with Indenture. The Institute covenants not to issue, or permit to be issued, any Bonds in any manner other than in accordance with the provisions of the Indenture, and shall not suffer or permit any Default (within its power to prevent) to occur under the Indenture, but shall faithfully observe and perform all the covenants, conditions and requirements of the Indenture.

Power to Issue Bonds and Make Pledge and Assignment. The Institute is duly authorized to issue the Bonds and to enter into the Indenture and to pledge and assign the funds and accounts purported to be pledged and assigned under the Indenture in the manner and to the extent provided in the Indenture. The Bonds are and will be legal, valid and binding obligations of the Institute in accordance with their terms, and the Institute and the Trustee shall at all times, to the extent permitted by law, defend, preserve and protect said pledge and assignment of funds and accounts and all the rights of the Bondholders under the Indenture against all claims and demands of all Persons whomsoever, subject to the limitations set forth in the Indenture relating to the Trustee.

Accounting Records and Financial Statements. With respect to each fund or account established and maintained by the Trustee pursuant to the Indenture, the Trustee shall at all times keep, or cause to be kept, proper books of record and account prepared in accordance with corporate trust accounting standards, in which complete and accurate entries shall be made of all transactions relating to the receipt, investment, disbursement, allocation and application of payments received from the Institute and the proceeds of the Bonds. Such books of record and account shall be available for inspection by the Institute and any Bondholder, or his or her agent or representative duly authorized in writing, at reasonable hours and under reasonable circumstances.

The Trustee shall file with the Institute, within thirty (30) days after the end of each month, a complete financial statement (which need not be audited and may be its regular account statements) covering receipts, disbursements, allocation and application of any moneys (including proceeds of Bonds) in any of the funds and accounts established pursuant to the Indenture for such month; provided that the Trustee shall not be obligated to deliver an accounting for any fund or account that has a balance of $0.00 and has not had any activity since the last reporting.

Deemed Representations of the Bondholders

By acquiring the Bonds, each Holder will be deemed to represent that either (a) it is not acquiring Bonds with assets of an ERISA Plan or other plan subject to the prohibited transaction restrictions of ERISA, the Code, or similar law, or (b) the acquisition and holding of the Bonds will not give rise to a nonexempt prohibited transaction.

Events of Default and Remedies of Bondholders

Events of Default. The following events shall be "Events of Default": (a) default in the due and punctual payment of the principal, Make-Whole Redemption Price or other redemption proceeds of any Bond when and as the same shall become due and payable, whether at maturity as therein expressed, by proceedings for redemption, by acceleration or otherwise; (b) default in the due and punctual payment of any interest on any Bond when and as such interest shall become due and payable; (c) default by the Institute in the performance or observance of any of the other covenants, agreements or conditions on its part contained in the Indenture or in the Bonds (other than a covenant, agreement or condition a default in performance or observance of which is elsewhere under this subheading "Events of Default" specifically dealt with), if such default shall have continued for a period of sixty (60) days after written notice thereof, specifying such default and requiring the same to be remedied and stating that such notice is a "Notice of Default" under the Indenture, shall have been given to the Institute by the Trustee, or to the Institute and the Trustee by the Holders of not less than a majority in aggregate principal amount of the Bonds at the time Outstanding; (d) the commencement by the Institute of a voluntary case under the federal bankruptcy laws, or if the Institute shall become insolvent or unable to pay its debts as they become due, or shall make an assignment for the benefit of creditors, or shall apply for, consent to or acquiesce in the appointment of, or taking possession by, a trustee, receiver, custodian or similar official or agent for itself or any substantial part of its property; (e) the appointment of a trustee, receiver, custodian or similar official or agent for the Institute or for any substantial part of its property and such trustee or receiver shall not be discharged within sixty (60) days; or (f) an order or decree for relief in an involuntary case under the federal bankruptcy laws shall be entered against the Institute, or a petition seeking reorganization, readjustment, arrangement, composition, or other similar relief as to it under the federal bankruptcy laws or any similar law for the relief of debtors shall be brought against it and shall be consented to by it or shall remain undismissed for sixty (60) days.

Acceleration of Maturity. If an Event of Default shall occur, then, and in each and every such case during the continuance of such Event of Default, the Trustee may, upon notice in writing to the Institute, declare the principal of all the Bonds then Outstanding, and the interest accrued thereon, to be due and payable immediately, and upon any such declaration by the Trustee the same shall become and shall be immediately due and payable, anything in the Indenture or in the Bonds contained to the contrary notwithstanding.

Any such declaration, however, is subject to the condition that if, at any time after such declaration and before any judgment or decree for the payment of the moneys due shall have been obtained or entered, there shall be deposited with the Trustee a sum sufficient to pay all the principal, Make-Whole Redemption Price or other redemption proceeds of, and overdue interest on the Bonds payment of which is overdue, with interest on such overdue principal at the rate borne by the Bonds, and the reasonable charges and expenses of the Trustee, and any and all other Defaults known to the Trustee (other than in the payment of principal of and interest on the Bonds due and payable solely by reason of such declaration) shall have been made good or cured to the satisfaction of the Trustee or provision deemed by the Trustee to be adequate shall have been made therefor, then, and in every such case, the Trustee shall, on behalf of the Holders of all of the Bonds, by written notice to the Institute, rescind and annul such declaration and its consequences and waive such Default; but no such rescission and annulment shall extend to or shall affect any subsequent Default, or shall impair or exhaust any right or power consequent thereon.

Rights as a Secured Party. The Trustee, as appropriate, may exercise all of the rights and remedies of a secured party under the Uniform Commercial Code with respect to securities in the Indenture Fund, including without limitation the Bond Fund and the Redemption Fund, including the right to sell or redeem such securities and the right to retain the securities in satisfaction of the obligation of the Institute under the Indenture. Notice sent by registered or certified mail, postage prepaid, or delivered during business hours, to the Institute at least seven (7) days before an event under Uniform Commercial Code Sections 9-610 and 9-611, or any successor provision of law shall constitute reasonable notification of such event.

Application of Moneys Collected by the Trustee. If an Event of Default shall occur and be continuing, all moneys then held or thereafter received by the Trustee under any of the provisions of the Indenture (subject to the Indenture) shall be applied by the Trustee as follows and in the following order:

(A) To the payment of any expenses necessary in the opinion of the Trustee to protect the interests of the Holders of the Bonds and payment of reasonable fees and expenses of the Trustee (including reasonable fees and disbursements of its counsel) incurred in and about the performance of its powers and duties under the Indenture; and

(B) To the payment of the principal, Make-Whole Redemption Price or other redemption proceeds of and interest on the Bonds (upon presentation of the Bonds to be paid, and stamping thereon of the payment if only partially paid, or surrender thereof if fully paid) subject to the provisions of the Indenture, as follows:

(1) Unless the principal of all of the Bonds shall have become or have been declared due and payable,

First: To the payment to the Persons entitled thereto of all installments of interest then due in the order of the maturity of such installments, and, if the amount available shall not be sufficient to pay in full any installment or installments due on the same date, then to the payment thereof ratably, according to the amounts due thereon, to the Persons entitled thereto, without any discrimination or preference; and

Second: To the payment to the Persons entitled thereto of the unpaid principal, Make-Whole Redemption Price or other redemption proceeds of any Bonds which shall have become due, whether at maturity or by call for redemption, in order of their due dates, with interest on the overdue principal at the rate borne by the Bonds, and, if the amount available shall not be sufficient to pay in full all the Bonds due on any date, together with such interest, then to the payment thereof ratably, according to the amounts of principal, Make-Whole Redemption Price or other redemption proceeds due on such date to the Persons entitled thereto, without any discrimination or preference.

(2) If the principal of all of the Bonds shall have become or have been declared due and payable, to the payment of the principal and interest then due and unpaid upon the Bonds, with interest on the overdue principal at the rate borne by the Bonds, and, if the amount available shall not be sufficient to pay in full the whole amount so due and unpaid, then to the payment thereof ratably, without preference or priority of principal over interest, or of interest over principal, or of any installment of interest over any other installment of interest, or of any Bond over any other Bond, according to the amounts due respectively for principal and interest, to the Persons entitled thereto without any discrimination or preference.

Trustee to Represent Bondholders. The Trustee is irrevocably appointed (and the successive respective Holders of the Bonds, by taking and holding the same, shall be conclusively deemed to have so appointed the Trustee) as trustee and true and lawful attorney-in-fact of the Holders of the Bonds for the purpose of exercising and prosecuting on their behalf such rights and remedies as may be available to such Holders under the provisions of the Bonds, the Indenture and applicable provisions of any law. Upon the occurrence and continuance of an Event of Default or other occasion giving rise to a right in the Trustee to represent the Bondholders, the Trustee in its discretion may, and upon the written request of the Holders of not less than a majority in aggregate principal amount of the Bonds then Outstanding, and upon being indemnified to its satisfaction therefor, shall, proceed to protect or enforce its rights or the rights of such Holders by such appropriate action, suit, mandamus or other proceedings as it shall deem most effectual to protect and enforce any such right, at law or in equity, either for the specific performance of any covenant or agreement contained in the Indenture, or in aid of the execution of any power granted in the Indenture, or for the enforcement of any other appropriate legal or equitable right or remedy vested in the Trustee, or in such Holders under the Bonds, the Indenture or any applicable law; and upon instituting such proceeding, the Trustee shall be entitled, as a matter of right, to the appointment of a receiver of the amounts pledged under the Indenture, pending such proceedings. If more than one such request is received by the Trustee from the Holders, the Trustee shall follow the written request executed by the Holders of the greatest percentage (which percentage shall be, in any case, not less than a majority in aggregate principal amount) of the Bonds then Outstanding. All rights of action under the Indenture or the Bonds or otherwise may be prosecuted and enforced by the Trustee without the possession of any of the Bonds or the production thereof in any proceeding relating thereto, and any such suit, action or proceeding instituted by the Trustee shall be brought in the name of the Trustee for the benefit and protection of all the Holders of such Bonds, subject to the provisions of the Indenture.

Bondholders' Direction of Proceedings. The Holders of a majority in aggregate principal amount of the Bonds then Outstanding shall have the right, by an instrument or concurrent instruments in writing executed and delivered to the Trustee, and upon indemnifying the Trustee to its satisfaction therefor, to direct the time, method and place of conducting all remedial proceedings taken by the Trustee under the Indenture, provided that such direction shall not be otherwise than in accordance with law and the provisions of the Indenture, and that the Trustee shall have the right to decline to follow any such direction which in the opinion of the Trustee would be unjustly prejudicial to Bondholders not parties to such direction.

Limitation on Bondholders' Right to Sue. No Holder of any Bond shall have the right to institute any suit, action or proceeding at law or in equity, for the protection or enforcement of any right or remedy under the Indenture or any applicable law with respect to such Bond, unless (a) such Holder shall have given to the Trustee written notice of the occurrence of an Event of Default; (b) the Holders of not less than a majority in aggregate principal amount of the Bonds then Outstanding shall have made written request upon the Trustee to exercise the powers granted in the Indenture or to institute such suit, action or proceeding in its own name; (c) such Holder or said Holders shall have tendered to the Trustee indemnity satisfactory to it against the costs, expenses and liabilities to be incurred in compliance with such request; and (d) the Trustee shall have refused or omitted to comply with such request for a period of sixty (60) days after such written request shall have been received by, and said tender of indemnity shall have been made to, the Trustee.

Such notification, request, tender of indemnity and refusal or omission are declared by the Indenture, in every case, to be conditions precedent to the exercise by any Holder of Bonds of any remedy under the Indenture or under law; it being understood and intended that no one or more Holders of Bonds shall have any right in any manner whatever by his or their action to affect, disturb or prejudice the security of the Indenture or the rights of any other Holders of Bonds, or to enforce any right under the Indenture or applicable law with respect to the Bonds, except in the manner provided in the Indenture, and that all proceedings at law or in equity to enforce any such right shall be instituted, had and maintained in the manner provided in the Indenture and for the benefit and protection of all Holders of the Outstanding Bonds, subject to the provisions of the Indenture.

Absolute Obligation of Institute. Notwithstanding any other provision of the Indenture, or in the Bonds, nothing shall affect or impair the obligation of the Institute, which is absolute and unconditional, to pay the principal, Make-Whole Redemption Price or other redemption proceeds of or interest on the Bonds to the respective Holders of the Bonds at their date of maturity, or upon call for redemption, as provided in the Indenture, or, subject to provisions under the subheading “Limitations on Bondholders’ Right to Sue” above, affect or impair the right of such Holders to enforce such payment by virtue of the contract embodied in the Bonds.

Termination of Proceedings. In case any proceedings taken by the Trustee or any one or more Bondholders on account of any Event of Default shall have been discontinued or abandoned for any reason or shall have been determined adversely to the Trustee or the Bondholders, then in every such case the Institute, the Trustee and the Bondholders, subject to any determination in such proceedings, shall be restored to their former positions and rights under the Indenture, severally and respectively, and all rights, remedies, powers and duties of the Institute, the Trustee and the Bondholders shall continue as though no such proceedings had been taken.

Remedies Not Exclusive. No remedy conferred in the Indenture upon or reserved to the Trustee or to the Holders of the Bonds is intended to be exclusive of any other remedy or remedies, and each and every such remedy, to the extent permitted by law, shall be cumulative and in addition to any other remedy given under the Indenture or now or hereafter existing at law or in equity or otherwise.

Delay or Omission Not Waiver. No delay or omission of the Trustee or of any Holder of the Bonds to exercise any right or power arising upon the occurrence of any Default shall impair any such right or power or shall be construed to be a waiver of any such Default or an acquiescence therein; and every power and remedy given by the Indenture to the Trustee or to the Holders of the Bonds may be exercised from time to time and as often as may be deemed expedient.

Waiver of Past Defaults. The Trustee may, and upon request of the Holders of not less than a majority in aggregate principal amount of the Outstanding Bonds shall, on behalf of the Holders of all the Bonds waive any past Default under the Indenture and its consequences, except a Default: (a) In the payment of the principal, Make-Whole Redemption Price or other redemption proceeds of or interest on any Bond, or (b) in respect of a covenant or other provision of the Indenture which, pursuant to the Indenture, cannot be modified or amended without the consent of the Holder of each Outstanding Bond affected. Upon any such waiver, such Default shall cease to exist, and any Event of Default arising therefrom shall be deemed to have been cured, for every purpose of the Indenture, but no such waiver shall extend to any subsequent or other Default or impair any right consequent thereon.

Undertaking for Costs. Subject to the provisions relating to compensation and indemnification of the Trustee, the parties to the Indenture agree, and each Holder of any Bond by such Person’s acceptance thereof shall be deemed to have agreed, that any court may in its discretion require, in any suit for the enforcement of any right or remedy under the Indenture, or in any suit against the Trustee for any action taken or omitted by it as Trustee, the filing by any party litigant in such suit of an undertaking to pay the costs of such suit, and that such court may in its discretion assess reasonable costs, including reasonable attorneys fees, against any party litigant in such suit, having due regard to the merits and good faith of the claims or defenses made by such party litigant; but the provisions of this paragraph shall not apply to any suit instituted by the Trustee or to any suit instituted by any Bondholder or group of Bondholders holding in the aggregate more than a majority in aggregate principal amount of the Outstanding Bonds.

Notice of Default. Upon a Responsible Officer’s actual knowledge of the existence of any Default under the Indenture, the Trustee shall notify the Institute in writing as soon as practicable, but in any event within five (5) Business Days.

Upon a Responsible Officer's actual knowledge of the existence of any Default under the Indenture, the Trustee shall transmit by mail to all Bondholders, as their names and addresses appear in the bond register, notice of such Default under the Indenture within ninety (90) days, unless such Default shall have been cured or waived; provided, however, that, except in the case of a Default in the payment of the principal, Make-Whole Redemption Price or other redemption proceeds of or interest on any Bond, the Trustee shall be protected in withholding such notice if and so long as the board of directors, the executive committee or a trust committee of directors or Responsible Officers of the Trustee in good faith determine that the withholding of such notice is in the interest of the Bondholders; and provided, further, that in the case of any Default of the character specified in subparagraph (c) under "Events of Default" above, no such notice to Bondholders shall be given until at least thirty (30) days after the occurrence thereof.

Trustee May File Proofs of Claim. In case of the pendency of any receivership, insolvency, liquidation, bankruptcy, reorganization, arrangement, adjustment, composition or other judicial proceeding relative to the Institute or any other obligor upon the Bonds or the property of the Institute or of such other obligor or their creditors, the Trustee (irrespective of whether the principal of the Bonds shall then be due and payable as therein expressed or by declaration or otherwise and irrespective of whether the Trustee shall have made any demand on the Institute for the payment of overdue principal or interest) shall be entitled and empowered, by intervention in such proceeding or otherwise: (a) to file and prove a claim for the whole amount of principal (or Make-Whole Redemption Price or other redemption proceeds, as applicable) and interest owing and unpaid in respect of the Bonds and to file such other papers or documents as may be necessary or advisable in order to have the claims of the Trustee (including any claim for the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and counsel including expenses and fees of outside counsel and allocated costs of internal legal counsel) and of the Bondholders allowed in such judicial proceeding; and (b) to collect and receive any moneys or other property payable or deliverable on any such claims and to distribute the same; and any receiver, assignee, trustee, liquidator or sequestrator (or other similar official) in any such judicial proceeding is, by the Indenture, authorized by each Bondholder to make such payments to the Trustee and, in the event that the Trustee shall consent to the making of such payments directly to the Bondholders, to pay to the Trustee any amount due to it for the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and counsel including expenses and fees of outside counsel and allocated costs of internal legal counsel, and any other amounts due the Trustee under the Indenture.

Nothing contained in the Indenture shall be deemed to authorize the Trustee to authorize or consent to or accept or adopt on behalf of any Bondholder any plan of reorganization, arrangement, adjustment or composition affecting the Bonds or the rights of any Holder thereof, or to authorize the Trustee to vote in respect of the claim of any Bondholder in any such proceeding.

The Trustee

Duties, Immunities and Liabilities of Trustee. The Trustee shall, prior to an Event of Default, and after the curing or waiver of all Events of Default which may have occurred, perform such duties and only such duties as are specifically set forth in the Indenture, and, except to the extent required by law, no implied covenants or obligations shall be read into the Indenture against the Trustee. The Trustee shall, during the existence of any Event of Default (which has not been cured or waived), exercise such of the rights and powers vested in it by the Indenture, and use the same degree of care and skill in their exercise, as a prudent person would exercise or use under the circumstances in the conduct of such person's own affairs.

The Institute may remove the Trustee at any time and appoint a successor that is eligible in accordance with the Indenture unless an Event of Default shall have occurred and then be continuing, and shall remove the Trustee if at any time requested to do so by an instrument or concurrent instruments in writing signed by the Holders of not less than a majority in aggregate principal amount of the Bonds then Outstanding (or their attorneys duly authorized in writing) or if at any time the Trustee shall cease to be eligible in accordance with the Indenture, or shall become incapable of acting, or shall be adjudged as bankrupt or insolvent, or a receiver of the Trustee or its property shall be appointed, or any public officer shall take control or charge of the Trustee or of its property or affairs for the purpose of rehabilitation, conservation or liquidation, in each case by giving written notice of such removal to the Trustee, and thereupon shall appoint a successor Trustee by an instrument in writing.

The Trustee may at any time resign by giving written notice of such resignation to the Institute and by giving the Bondholders notice of such resignation by mail at the addresses shown on the registration books maintained by the Trustee. Upon receiving such notice of resignation, the Institute shall promptly appoint a successor Trustee by an instrument in writing. The Trustee shall not be relieved of its duties until such successor Trustee has accepted appointment.

Any removal or resignation of the Trustee and appointment of a successor Trustee shall become effective upon acceptance of appointment by the successor Trustee. If no successor Trustee shall have been appointed and have accepted appointment within thirty (30) days of giving notice of removal or notice of resignation as aforesaid, the resigning Trustee or any Bondholder (on behalf of itself and all other Bondholders) may petition any court of competent jurisdiction for the appointment of a successor Trustee, and such court may thereupon, after such notice (if any) as it may deem proper, appoint such successor Trustee. Any successor Trustee appointed under the Indenture shall signify its acceptance of such appointment by executing and delivering to the Institute and to its predecessor Trustee a written acceptance thereof, and thereupon such successor Trustee, without any further act, deed or conveyance, shall become vested with all the moneys, estates, properties, rights, powers, trusts, duties and obligations of such predecessor Trustee, with like effect as if originally named Trustee in the Indenture; but, nevertheless at the request of the successor Trustee, such predecessor Trustee shall execute and deliver any and all instruments of conveyance or further assurance and do such other things as may reasonably be required for more fully and certainly vesting in and confirming to such successor Trustee all the right, title and interest of such predecessor Trustee in and to any property held by it under the Indenture and shall pay over, transfer, assign and deliver to the successor Trustee any money or other property subject to the trusts and conditions set forth in the Indenture. Upon request of the successor Trustee, the Institute shall execute and deliver any and all instruments as may be reasonably required for more fully and certainly vesting in and confirming to such successor Trustee all such moneys, estates, properties, rights, powers, trusts, duties and obligations. Upon acceptance of appointment by a successor Trustee as provided in this paragraph, the Institute shall mail or cause to be mailed (at the expense of the Institute) a notice of the succession of such Trustee to the trusts under the Indenture to the Bondholders at the addresses shown on the registration books maintained by the Trustee. If the Institute fails to mail such notice within fifteen (15) days after acceptance of appointment by the successor Trustee, the successor Trustee shall cause such notice to be mailed at the expense of the Institute.

Any successor Trustee shall be a trust company or bank having trust powers in the Commonwealth, having a combined capital and surplus of (or if such trust company or bank is a member of a bank holding system, its bank holding company shall have a combined capital and surplus of) at least fifty million dollars ($50,000,000), and subject to supervision or examination by federal or Commonwealth authority. If such bank or trust company publishes a report of condition at least annually, pursuant to law or to the requirements of any supervising or examining authority above referred to, then for the purpose of this subsection the combined capital and surplus of such bank or trust company shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. In case at any time the Trustee shall cease to be eligible in accordance with the provisions of this paragraph, the Trustee shall resign immediately in the manner and with the effect specified in the Indenture.

Preservation and Inspection of Documents. All documents received by the Trustee under the provisions of the Indenture shall be retained in its possession and shall be subject upon reasonable prior written notice to the inspection of the Institute and any Bondholder, and their agents and representatives duly authorized in writing, at reasonable hours and under reasonable conditions.

Modification or Amendment of the Indenture

Amendments Permitted. The Indenture and the rights and obligations of the Institute and of the Holders of the Bonds and of the Trustee may be modified or amended from time to time and at any time by an indenture or indentures supplemental to the Indenture, which the Institute and the Trustee may enter into when the written consent of the Holders of a majority in aggregate principal amount of the Bonds then Outstanding shall have been filed with the Trustee. No such modification or amendment shall (a) extend the fixed maturity of any Bond, or reduce the amount of principal thereof, or reduce the rate of interest thereon, or extend the time of payment of interest thereon, or reduce any redemption price or premium payable upon the redemption thereof, without the consent of the Holder of each Bond so affected, or (b) reduce the aforesaid percentage of Bonds the consent of the

Holders of which is required to effect any such modification or amendment, or permit the creation of any lien on the Indenture Fund or the amounts pledged under the Indenture prior to or on a parity with the lien created by the Indenture, or deprive the Holders of the Bonds of the lien created by the Indenture on the Indenture Fund and such amounts (except as expressly provided in the Indenture), without the consent of the Holders of all Bonds then Outstanding. It shall not be necessary for the consent of the Bondholders to approve the particular form of any Supplemental Indenture, but it shall be sufficient if such consent shall approve the substance thereof. Promptly after the execution by the Institute and the Trustee of any Supplemental Indenture pursuant to this paragraph, the Trustee shall mail a notice, setting forth in general terms the substance of such Supplemental Indenture, to the Bondholders at the addresses shown on the registration books maintained by the Trustee. Any failure to give such notice, or any defect therein, shall not, however, in any way impair or affect the validity of any such Supplemental Indenture.

The Indenture and the rights and obligations of the Institute, of the Trustee and of the Holders of the Bonds may also be modified or amended from time to time and at any time by an indenture or indentures supplemental to the Indenture, which the Institute and the Trustee may enter into without the necessity of obtaining the consent of any Bondholders, but only to the extent permitted by law and only for any one or more of the following purposes: (a) to add to the covenants and agreements of the Institute contained in the Indenture other covenants and agreements thereafter to be observed, to pledge or assign additional security for the Bonds (or any portion thereof), or to surrender any right or power reserved in the Indenture to or conferred upon the Institute, provided that such covenant, agreement, pledge, assignment or surrender shall not materially adversely affect the interests of the Holders of the Bonds; (b) to make such provisions for the purpose of curing any ambiguity, inconsistency or omission, or of curing or correcting any defective provision, contained in the Indenture, or in regard to matters or questions arising under the Indenture, as the Institute or the Trustee may deem necessary or desirable and not inconsistent with the Indenture, and which shall not materially adversely affect the interests of the Holders of the Bonds; (c) to modify, amend or supplement the Indenture or any Supplemental Indenture in such manner as to permit the qualification thereof under the Trust Indenture Act of 1939, as amended, or any similar federal statute hereafter in effect, and to add such other terms, conditions and provisions as may be permitted by said act or similar federal statute, and which shall not materially adversely affect the interests of the Holders of the Bonds; (d) to provide for the procedures required to permit any Bondholder, at its option, to utilize an uncertificated system of registration of its Bond or to facilitate the registration of the Bonds in the name of a nominee of the Securities Depository in accordance with the Indenture; (e) to authorize different denominations of the Bonds and to make correlative amendments and modifications to the Indenture of a technical nature relating to such different denominations, such as specifying the applicable exchangeability or redemption provisions thereof; or (f) to make any changes required by a Rating Agency in order to obtain or maintain a rating for the Bonds.

The Trustee may in its discretion, but shall not be obligated to, enter into any such Supplemental Indenture authorized by either of the two preceding paragraphs which materially adversely affects the Trustee’s own rights, duties or immunities under the Indenture or otherwise.

Effect of Supplemental Indenture. Upon the execution of any Supplemental Indenture pursuant to the Indenture, the Indenture shall be deemed to be modified and amended in accordance therewith, and the respective rights, duties and obligations under the Indenture of the Institute, the Trustee and all Holders of Bonds Outstanding shall thereafter be determined, exercised and enforced under the Indenture subject in all respects to such modification and amendment, and all the terms and conditions of any such Supplemental Indenture shall be deemed to be part of the terms and conditions of the Indenture for any and all purposes.

Amendment of Particular Bonds. The provisions of the Indenture shall not prevent any Bondholder from accepting any amendment as to the particular Bonds held by such Bondholder, provided that due notation thereof is made on such Bonds.

Defeasance

Discharge of Indenture. The Bonds may be paid or discharged by the Institute or the Trustee on behalf of the Institute in any of the following ways: (a) by paying or causing to be paid the principal, Make-Whole Redemption Price or other redemption proceeds of and interest on all Bonds Outstanding, as and when the same become due and payable; (b) by depositing with the Trustee, in trust, at or before maturity, moneys or securities in the necessary amount (as provided in the Indenture) to pay when due or redeem all Bonds then Outstanding; or (c) by delivering to the Trustee, for cancellation by it, all Bonds then Outstanding.

If the Institute shall also pay or cause to be paid all other sums payable under the Indenture by the Institute, then and in that case at the election of the Institute (evidenced by a Certificate of the Institute filed with the Trustee signifying the intention of the Institute to discharge all such indebtedness and the Indenture and upon receipt by the Trustee of an Opinion of Counsel to the effect that the obligations under the Indenture and the Bonds have been discharged), and notwithstanding that any Bonds shall not have been surrendered for payment, the Indenture and the pledge of the Indenture Fund and all amounts held therein made under the Indenture and all covenants, agreements and other obligations of the Institute under the Indenture (except as otherwise provided in the Indenture) shall cease, terminate, become void and be completely discharged and satisfied and the Bonds shall be deemed paid. In such event, upon Request of the Institute, the Trustee shall cause an accounting for such period or periods as may be requested by the Institute to be prepared and filed with the Institute and shall execute and deliver to the Institute all such instruments as may be necessary to evidence such discharge and satisfaction, and the Trustee shall pay over, transfer, assign or deliver to the Institute all moneys or securities or other property held by it pursuant to the Indenture which are not required for the payment or redemption of Bonds not theretofore surrendered for such payment or redemption.

Discharge of Liability on Bonds. Upon the deposit with the Trustee, in trust, at or before maturity, of money or securities in the necessary amount (as provided in the Indenture) to pay or redeem any Outstanding Bond (whether upon or prior to its maturity or the redemption date of such Bond), provided that, if such Bond is to be redeemed prior to maturity, notice of such redemption shall have been given as provided in the Indenture or provision satisfactory to the Trustee shall have been made for the giving of such notice, then all liability of the Institute in respect of such Bond shall cease, terminate and be completely discharged, and the Bonds shall be deemed paid, except only that thereafter the Holder thereof shall be entitled to payment of the principal, Make-Whole Redemption Price or other redemption proceeds of and interest on such Bond by the Institute, and the Institute shall remain liable for such payments, but only out of such money or securities deposited with the Trustee as aforesaid for their payment, subject, however, to the provisions under the heading, "Payment of Bonds After Discharge of Indenture."

The Institute may at any time surrender to the Trustee for cancellation by it any Bonds previously issued and delivered, which the Institute may have acquired in any manner whatsoever, and such Bonds, upon such surrender and cancellation, shall be deemed to be paid and retired.

Payment of Bonds After Discharge of Indenture. Notwithstanding any provisions of the Indenture, any moneys held by the Trustee in trust for the payment of the principal, Make-Whole Redemption Price or other redemption proceeds of, or interest on, any Bonds and remaining unclaimed for three years (or, if shorter, one day before such moneys would escheat to the Commonwealth under then applicable Massachusetts law) after such principal, Make-Whole Redemption Price or other redemption proceeds or interest, as the case may be, has become due and payable (whether at maturity or upon call for redemption), shall be repaid to the Institute free from the trusts created by the Indenture upon receipt of an indemnification agreement acceptable to the Institute and the Trustee indemnifying the Institute and the Trustee with respect to claims of Holders of Bonds which have not yet been paid, and all liability of the Trustee and the Institute with respect to such moneys shall thereupon cease; provided, however, that before the repayment of such moneys to the Institute as aforesaid, the Trustee may (at the cost of the Institute) first mail to the Holders of Bonds which have not yet been paid, at the addresses shown on the registration books maintained by the Trustee, a notice, in such form as may be deemed appropriate by the Trustee with respect to the Bonds so payable and not presented and with respect to the provisions relating to the repayment to the Institute of the moneys held for the payment thereof.

Limitation of Rights to Parties and Bondholders

Nothing in the Indenture or in the Bonds expressed or implied is intended or shall be construed to give to any Person other than the Institute, the Trustee and the Holders of the Bonds any legal or equitable right, remedy or claim under or in respect of the Indenture or any covenant, condition or provision therein contained; and all such covenants, conditions and provisions are and shall be held to be for the sole and exclusive benefit of the Institute, the Trustee and the Holders of the Bonds.

Evidence of Rights of Bondholders

Any request, consent or other instrument required or permitted by the Indenture to be signed and executed by Bondholders may be in any number of concurrent instruments of substantially similar tenor and shall be signed or executed by such Bondholders in Person or by an agent or agents duly appointed in writing.

The fact and date of the execution by any Person of any such request, consent or other instrument or writing may be proved by the certificate of any notary public or other officer of any jurisdiction, authorized by the laws thereof to take acknowledgments of deeds, certifying that the Person signing such request, consent or other instrument acknowledged to him the execution thereof, or by an affidavit of a witness of such execution duly sworn to before such notary public or other officer.

The ownership of Bonds shall be proved by the registration books for the Bonds held by the Trustee.

Any request, consent, or other instrument or writing of the Holder of any Bond shall bind every future Holder of the same Bond and the Holder of every Bond issued in exchange therefor or in lieu thereof, in respect of anything done or suffered to be done by the Trustee or the Institute in accordance therewith or reliance thereon.

Waiver of Personal Liability

No member, officer, agent or employee of the Institute shall be individually or personally liable for the payment of the principal, Make-Whole Redemption Price or other redemption proceeds of or interest on the Bonds or be subject to any personal liability or accountability by reason of the issuance thereof or the performance of any duty under the Indenture; but nothing contained in the Indenture shall relieve any such member, officer, agent or employee from the performance of any official duty provided by law or by the Indenture.

Governing Law; Venue

The Indenture shall be construed in accordance with and governed by the Constitution and the laws of the Commonwealth applicable to contracts made and performed in the Commonwealth. The Indenture shall be enforceable in the Commonwealth, and any action arising under the Indenture shall (unless waived by the Institute) be filed and maintained in the Commonwealth.

CUSIP Numbers

Neither the Trustee nor the Institute shall be liable for any defect or inaccuracy in the CUSIP number that appears on any Bond or in any redemption notice. The Trustee may, in its discretion, include in any redemption notice a statement to the effect that the CUSIP numbers on the Bonds have been assigned by an independent service and are included in such notice solely for the convenience of the Holders and that neither the Trustee nor the Institute shall be liable for any inaccuracies in such numbers.

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APPENDIX D

PROPOSED FORM OF OPINION OF COUNSEL TO THE INSTITUTE

December 20, 2019

Massachusetts Institute of Technology
77 Massachusetts Avenue
Cambridge, Massachusetts 02139

Ladies and Gentlemen:

As counsel to Massachusetts Institute of Technology (the "Institution"), we have been requested to furnish you with an opinion in connection with the issuance by the Institution of $300,000,000 principal amount of Taxable Bonds, Series F (the "Bond").

We have examined executed copies of the Indenture of Trust dated as of December 1, 2019 (the "Indenture of Trust") between the Institution and U.S. Bank National Association, as trustee (the "Trustee"), a specimen bond as executed on behalf of the Institution and authenticated by the Trustee, a certified copy of proceedings of the Institution authorizing the execution of the Indenture of Trust, and certain other documents and the issuance of the Bond.

In addition, we have examined such other documents and have made such investigation and such examination of law as we have deemed necessary for the purposes of the following opinion.

For purposes of this opinion, we have assumed that the Trustee has all requisite power and authority and has taken all necessary corporate action, consistent with all applicable laws and regulations, to execute and deliver the Indenture of Trust and to effect the transactions contemplated thereby.

We express no opinion as to the laws of any jurisdiction other than those of The Commonwealth of Massachusetts and the federal laws of the United States of America.

Based upon the foregoing, we are of the opinion that:

1. The Indenture of Trust has been duly authorized, executed and delivered and constitutes a valid and legally binding obligation of the Institution and, subject to the qualifications stated in the unnumbered paragraphs at the end of this opinion, is enforceable against the Institution in accordance with its terms.

2. The Bond has been duly authorized, issued and delivered against payment of the agreed upon consideration and, subject to the qualifications contained in the unnumbered paragraphs

at the end of this opinion, is a valid, legally binding, general obligation of the Institution, enforceable against the Institution in accordance with its terms.

Our opinion that the Indenture of Trust and the Bond are enforceable, each in accordance with its terms, is qualified to the extent that enforcement of the rights and remedies created thereby is subject to (i) general principles of equity and (ii) bankruptcy, insolvency, moratorium and other similar laws affecting the rights and remedies of creditors and secured parties. We do not express any opinion herein as to the availability of the remedy of specific performance or injunctive relief or other relief in equity upon breach of any of the agreements, documents, or obligations referred to herein.

In addition, we express no opinion as to (i) the extent to which broadly worded waivers, conclusive presumptions or determinations or powers of attorney may be enforced, (ii) the enforceability of any provision of the Indenture of Trust which permits the exercise of a right of setoff against amounts not then due or which constitutes a penalty or forfeiture, or (iii) the enforceability of any provision that provides for non-effectiveness of oral modifications, waiver of or consent to service of process and venue, or waiver of offset or defenses.

Very truly yours,

APPENDIX E

DTC BOOK-ENTRY ONLY SYSTEM AND GLOBAL CLEARANCE PROCEDURES

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The information set out below is subject to any change in or reinterpretation of the rules, regulations and procedures of DTC, Euroclear Bank S.A./N.V. as operator of the Euroclear System ("Euroclear") or Clearstream Banking, S.A. ("Clearstream Banking") (DTC, Euroclear and Clearstream Banking together, the "Clearing Systems") currently in effect. The information in this section concerning the Clearing Systems has been obtained from sources that the Institute believes to be reliable, but none of the Institute, the Trustee or the Underwriters take any responsibility for the accuracy, completeness or adequacy of the information in this section. Investors wishing to use the facilities of any of the Clearing Systems are advised to confirm the continued applicability of the rules, regulations and procedures of the relevant Clearing System. The Institute will not have any responsibility or liability for any aspect of the records relating to, or payments made on account of, beneficial ownership interests in the Bonds held through the facilities of any Clearing System or for maintaining, supervising or reviewing any records relating to such beneficial ownership interests.

Clearing Systems

DTC Book-Entry Only System

The Depository Trust Company ("DTC") New York, NY, will act as securities depository for the Bonds. The Bonds will be issued as fully registered securities registered in the name of Cede & Co. (DTC's partnership nominee) or such other name as may be requested by an authorized representative of DTC. One fully registered Bond certificate will be issued for the aggregate principal amount of the Bonds, and deposited with DTC.

DTC is a limited purpose trust company organized under the New York Banking Law, a "banking organization" within the meaning of the New York Banking Law, a member of the Federal Reserve System, a "clearing corporation" within the meaning of the New York Uniform Commercial Code, and a "clearing agency" registered pursuant to the provisions of Section 17A of the Securities Exchange Act of 1934, as amended. DTC holds and provides asset servicing for over 3.5 million issues of U.S. and non-U.S. equity issues, corporate and municipal debt issues and money market instruments (from over 100 countries) that DTC's participants (*"Direct Participants"*) deposit with DTC. DTC also facilitates the post-trade settlement among Direct Participants of sales and other securities transactions in deposited securities through electronic computerized book-entry transfers and pledges between Direct Participants' accounts. This eliminates the need for physical movement of securities certificates. Direct Participants include both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, clearing corporations and certain other organizations. DTC is a wholly-owned subsidiary of The Depository Trust & Clearing Corporation (*"DTCC"*). DTCC is the holding company for DTC, National Securities Clearing Corporation and Fixed Income Clearing Corporation, all of which are registered clearing agencies. DTCC is owned by the users of its regulated subsidiaries. Access to the DTC system is also available to others such as both U.S. and non-U.S. securities brokers and dealers, banks, trust companies and clearing corporations that clear through or maintain a custodial relationship with a Direct Participant, either directly or indirectly (*"Indirect Participants"*). The DTC rules applicable to its Participants are on file with the Securities and Exchange Commission. More information about DTC can be found at www.dtcc.com.

Purchases of the Bonds under the DTC system must be made by or through Direct Participants, which will receive a credit for the Bonds on DTC's records. The ownership interest of each actual purchaser of each Bond (*"Beneficial Owner"*) is in turn to be recorded on the Direct and Indirect Participants' records. Beneficial Owners will not receive written confirmation from DTC of their purchase. Beneficial Owners are, however, expected to receive written confirmations providing details of the transaction, as well as periodic statements of their holdings, from the Direct or Indirect Participant through which the Beneficial Owner entered into the transaction. Transfers of ownership interests in the Bonds are to be accomplished by entries made on the books of Direct and Indirect Participants acting on behalf of Beneficial Owners. Beneficial Owners will not receive certificates representing their ownership interests in the Bonds, except in the event that use of the book-entry system for the Bonds is discontinued.

To facilitate subsequent transfers, all Bonds deposited by Direct Participants with DTC are registered in the name of DTC's partnership nominee, Cede & Co., or such other name as may be requested by an authorized representative of DTC. The deposit of the Bonds with DTC and their registration in the name of Cede & Co. or such other DTC nominee do not effect any change in beneficial ownership. DTC has no knowledge of the actual Beneficial Owners of the Bonds; DTC's records reflect only the identity of the Direct Participants to whose accounts such Bonds are credited, which may or may not be the Beneficial Owners. The Direct and Indirect Participants will remain responsible for keeping account of their holdings on behalf of their customers.

Conveyance of notices and other communications by DTC to Direct Participants, by Direct Participants to Indirect Participants, and by Direct Participants and Indirect Participants to Beneficial Owners will be governed by arrangements among them, subject to any statutory or regulatory requirements as may be in effect from time to time. Beneficial Owners of the Bonds may wish to take certain steps to augment the transmission to them of notices of significant events with respect to the Bonds, such as redemptions, defaults, and proposed amendments to the Indenture. For example, Beneficial Owners of the Bonds may wish to ascertain that the nominee holding the Bonds for their benefit has agreed to obtain and transmit notices to Beneficial Owners. In the alternative, Beneficial Owners may wish to provide their names and addresses to the Trustee and request that copies of notices be provided directly to them.

Redemption notices will be sent to DTC. If less than all of the Bonds are being redeemed, DTC's practice is to determine by lot the amount of the interest of each Direct Participant in the Bonds to be redeemed.

Neither DTC nor Cede & Co. (nor any other DTC nominee) will consent or vote with respect to the Bonds unless authorized by a Direct Participant in accordance with DTC's Money Market Instrument Procedures. Under its usual procedures, DTC mails an Omnibus Proxy to the Institute as soon as possible after the record date. The Omnibus Proxy assigns Cede & Co.'s consenting or voting rights to those Direct Participants to whose accounts the Bonds are credited on the record date (identified in a listing attached to the Omnibus Proxy).

Principal, redemption and interest payments on the Bonds will be made to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC. DTC's practice is to credit Direct Participants' accounts upon DTC's receipt of funds and corresponding detail information from the Institute or the Trustee, on a payment date in accordance with their respective holdings shown on DTC's records. Payments by Participants to Beneficial Owners will be governed by standing instructions and customary practices, as is the case with securities held for the accounts of customers in bearer form or registered in "street name," and will be the responsibility of such Participants and not of DTC, its nominee, the Trustee or the Institute, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment of principal, redemption proceeds and interest to Cede & Co. (or such other nominee as may be requested by an authorized representative of DTC) is the responsibility of the Institute, or the Trustee. Disbursement of such payments to Direct Participants will be the responsibility of DTC, and disbursement of such payments to the Beneficial Owners will be the responsibility of the Direct and Indirect Participants.

DTC may discontinue providing its services as depository with respect to the Bonds at any time by giving reasonable notice to the Institute or the Trustee. Under such circumstances, in the event that a successor depository is not obtained, Bond certificates are required to be printed and delivered.

The Institute may decide to discontinue use of the system of book-entry-only transfers through DTC (or a successor securities depository). In that event, Bond certificates for the applicable Bonds will be printed and delivered to DTC.

THE TRUSTEE, AS LONG AS A BOOK-ENTRY ONLY SYSTEM IS USED FOR THE BONDS, WILL SEND ANY NOTICE OF REDEMPTION OR OTHER NOTICES TO OWNERS OF SUCH BONDS ONLY TO DTC. ANY FAILURE OF DTC TO ADVISE ANY PARTICIPANT, OR OF ANY PARTICIPANT TO NOTIFY ANY BENEFICIAL OWNER, OF ANY SUCH NOTICE AND ITS CONTENT OR EFFECT WILL NOT AFFECT THE VALIDITY OR SUFFICIENCY OF THE PROCEEDINGS RELATING TO THE REDEMPTION OF THE BONDS CALLED FOR REDEMPTION OR OF ANY OTHER ACTION PREMISED ON SUCH NOTICE.

Since DTC may only act on behalf of Direct Participants, who in turn act on behalf of Indirect Participants, any Beneficial Owner desiring to pledge Bonds to persons or entities that do not participate in DTC, or otherwise take actions with respect to such Bonds, will be required to withdraw the Bonds from DTC.

The information in this section concerning DTC and DTC's book-entry system has been obtained from sources that the Institute believes to be reliable, but the Institute takes no responsibility for the accuracy thereof.

Euroclear and Clearstream Banking

Euroclear and Clearstream Banking have advised the Institute as follows:

Euroclear and Clearstream Banking each hold securities for their customers and facilitate the clearance and settlement of securities transactions by electronic book-entry transfer between their respective account holders. Euroclear and Clearstream Banking provide various services including safekeeping, administration, clearance and settlement of internationally traded securities and securities lending and borrowing. Euroclear and Clearstream Banking also deal with domestic securities markets in several countries through established depositary and custodial relationships. Euroclear and Clearstream Banking have established an electronic bridge between their two systems across which their respective participants may settle trades with each other.

Euroclear and Clearstream Banking customers are worldwide financial Institutes, including underwriters, securities brokers and dealers, banks, trust companies and clearing corporations. Indirect access to Euroclear and Clearstream Banking is available to other Institutes that clear through or maintain a custodial relationship with an account holder of either system, either directly or indirectly.

Clearing and Settlement Procedures

The Bonds sold in offshore transactions will be initially issued to investors through the book-entry facilities of DTC, or Clearstream Banking and Euroclear in Europe if the investors are participants in those systems, or indirectly through organizations that are participants in the systems. For any of such Bonds, the record holder will be DTC's nominee. Clearstream Banking and Euroclear will hold omnibus positions on behalf of their participants through customers' securities accounts in Clearstream Banking's and Euroclear's names on the books of their respective depositories.

The depositories, in turn, will hold positions in customers' securities accounts in the depositories' names on the books of DTC. Because of time zone differences, the securities account of a Clearstream Banking or Euroclear participant as a result of a transaction with a participant, other than a depository holding on behalf of Clearstream Banking or Euroclear, will be credited during the securities settlement processing day, which must be a business day for Clearstream Banking or Euroclear, as the case may be, immediately following the DTC settlement date. These credits or any transactions in the securities settled during the processing will be reported to the relevant Euroclear participant or Clearstream Banking participant on that business day. Cash received in Clearstream Banking or Euroclear as a result of sales of securities by or through a Clearstream Banking participant or Euroclear participant to a DTC Participant, other than the depository for Clearstream Banking or Euroclear, will be received with value on the DTC settlement date but will be available in the relevant Clearstream Banking or Euroclear cash account only as of the business day following settlement in DTC.

Transfers between participants will occur in accordance with DTC rules. Transfers between Clearstream Banking participants or Euroclear participants will occur in accordance with their respective rules and operating procedures. Cross-market transfers between persons holding directly or indirectly through DTC, on the one hand, and directly or indirectly through Clearstream Banking participants or Euroclear participants, on the other, will be effected in DTC in accordance with DTC rules on behalf of the relevant European international clearing system by the relevant depositories; however, cross-market transactions will require delivery of instructions to the relevant European international clearing system by the counterparty in the system in accordance with its rules and procedures and within its established deadlines in European time. The relevant European international clearing system will, if the transaction meets its settlement requirements, deliver instructions to its depository to take action to effect final settlement on its behalf by delivering or receiving securities in DTC, and making or receiving payment in accordance with normal procedures for same day funds settlement applicable to DTC. Clearstream Banking participants or Euroclear participants may not deliver instructions directly to the depositories.

The Institute will not impose any fees in respect of holding the Bonds; however, holders of book-entry interests in the Bonds may incur fees normally payable in respect of the maintenance and operation of accounts in the Clearing Systems.

Initial Settlement

Interests in the Bonds will be in uncertified book-entry form. Purchasers electing to hold book-entry interests in the Bonds through Euroclear and Clearstream Banking accounts will follow the settlement procedures applicable to conventional Eurobonds. Book-entry interests in the Bonds will be credited to Euroclear and Clearstream Banking participants' securities clearance accounts on the business day following the date of delivery of the Bonds against payment (value as on the date of delivery of the Bonds). DTC participants acting on behalf of purchasers electing to hold book-entry interests in the Bonds through DTC will follow the delivery practices applicable to securities eligible for DTC's Same Day Funds Settlement system. DTC participants' securities accounts will be credited with book-entry interests in the Bonds following confirmation of receipt of payment to the Institute on the date of delivery of the Bonds.

Secondary Market Trading

Secondary market trades in the Bonds will be settled by transfer of title to book-entry interests in the Clearing Systems. Title to such book-entry interests will pass by registration of the transfer within the records of Euroclear, Clearstream Banking or DTC, as the case may be, in accordance with their respective procedures. Book-entry interests in the Bonds may be transferred within Euroclear and within Clearstream Banking and between Euroclear and Clearstream Banking in accordance with procedures established for these purposes by Euroclear and Clearstream Banking. Book-entry interests in the Bonds may be transferred within DTC in accordance with procedures established for this purpose by DTC. Transfer of book-entry interests in the Bonds between Euroclear or Clearstream Banking and DTC may be effected in accordance with procedures established for this purpose by Euroclear, Clearstream Banking and DTC.

Special Timing Considerations.

You should be aware that investors will only be able to make and receive deliveries, payments and other communications involving the Bonds through Euroclear or Clearstream on days when those systems are open for business. In addition, because of time-zone differences, there may be complications with completing transactions involving Euroclear and/or Clearstream on the same business day as in the United States. U.S. investors who wish to transfer their interests in the Bonds, or to receive or make a payment or delivery of Bonds, on a particular day, may find that the transactions will not be performed until the next business day in Brussels if Euroclear is used, or Luxembourg if Clearstream is used.

Clearing Information.

We expect that the Bonds will be accepted for clearance through the facilities of Euroclear and Clearstream. The international securities identification numbers, common codes and CUSIP numbers for the Notes are set out on the cover page.

General

None of Euroclear, Clearstream Banking or DTC is under any obligation to perform or continue to perform the procedures referred to above, and such procedures may be discontinued at any time.

Neither the Institute nor any of their agents will have any responsibility for the performance by Euroclear, Clearstream Banking or DTC or their respective direct or indirect participants or account holders of their respective obligations under the rules and procedures governing their operations or the arrangements referred to above.

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