Howard Hughes Medical Institute

Consolidated Financial Statements
for the years ended August 31, 2018 and 2017
and Report of Independent Auditors Thereon

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Report of Independent Auditors

To the Trustees of the Howard Hughes Medical Institute

We have audited the accompanying consolidated financial statements of Howard Hughes Medical Institute and its subsidiaries (the "Institute"), which comprise the consolidated statements of financial position as of August 31, 2018 and 2017, and the related consolidated statements of activities and of cash flows for the years then ended.

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 Howard Hughes Medical Institute and its subsidiaries as of August 31, 2018 and 2017 and the changes in their net assets and their cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

PricewaterhouseCoopers LLP

November 16, 2018

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HOWARD HUGHES MEDICAL INSTITUTE

Consolidated Statements of Financial Position
August 31, 2018 and 2017

(In thousands)

Assets	2018	2017
Cash and cash equivalents	$ 685,827	$ 486,762
Due from brokers	49,292	36,094
Securities lending collateral	170,354	-
Investment receivables	55,320	208,018
Investments and derivative assets	22,100,203	21,070,786
Land, buildings, laboratory space, and equipment, net	684,465	711,921
Other assets	70,798	75,347
Total assets	$ 23,816,259	$ 22,588,928
Liabilities		
Accounts payable and accrued liabilities	$ 151,760	$ 124,599
Investment payables	50,644	70,148
Investment and derivative liabilities	576,239	534,942
Obligation to return securities lending collateral	170,354	-
Grant commitments	157,321	173,350
Post-retirement/employment obligations	370,315	412,572
Capital financing		
Note payable	40,376	40,376
Capital lease obligation	17,904	12,535
Bonds payable	1,911,987	1,911,208
Total liabilities	3,446,900	3,279,730
Net assets	20,369,359	19,309,198
Total liabilities and net assets	$ 23,816,259	$ 22,588,928

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

HOWARD HUGHES MEDICAL INSTITUTE

Consolidated Statements of Activities
For the Years Ended August 31, 2018 and 2017

(In thousands)

Revenue	2018	2017
Investment earnings		
Interest, dividends, and other income from investments	$ 216,114	$ 192,721
Realized gains on investments and derivative contracts, net	1,290,547	1,332,884
Change in unrealized gains of investments and derivative contracts	452,323	934,016
Expenses incurred in the production of income		
Investment management expenses	(92,603)	(88,993)
Interest, dividends, and other expenses from investments	(16,791)	(14,311)
Net investment earnings	1,849,590	2,356,317
Intellectual property and other income	22,179	26,460
Total revenue	1,871,769	2,382,777
Expenses		
Program activities		
Medical research	562,094	659,764
Science education and other scientific programs	85,408	119,379
General and administrative	83,618	91,643
Interest expense	64,922	65,728
Total expenses	796,042	936,514
Increase in net assets from operating activities	1,075,727	1,446,263
Other changes		
Postretirement changes other than net periodic costs	(15,566)	87,375
Total increase in net assets	1,060,161	1,533,638
Net assets, beginning of year	19,309,198	17,775,560
Net assets, end of year	$ 20,369,359	$ 19,309,198

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

HOWARD HUGHES MEDICAL INSTITUTE

Consolidated Statements of Cash Flows
For the Years Ended August 31, 2018 and 2017

(In thousands)	2018	2017
Change in net assets	$ 1,060,161	$ 1,533,638
Adjustments to reconcile change in net assets to net cash used for operating activities		
Depreciation and amortization	77,482	80,437
Postretirement changes other than net periodic costs	15,566	(101,644)
Loss on disposal of assets	11,999	9,509
Income earned from stock dividends	(2,606)	(2,717)
Realized gains on investments and derivative contracts, net	(1,290,547)	(1,332,884)
Change in unrealized (gains)/losses of investments and derivative contracts	(452,323)	(934,016)
Change in receivables	156,935	31,803
Change in due from brokers	(13,198)	(15,672)
Change in operating payables and accrued liabilities	4,113	24,538
Change in grant commitments	(16,029)	12,182
Change in post-retirement/employment obligations	(57,823)	52,267
Net cash used for operating activities	(506,270)	(642,559)
Cash flows from investing activities		
Building and equipment purchases	(57,431)	(61,896)
Sale of equipment	11,660	8,244
Proceeds from sales, maturities of investments, securities sold short and derivative contracts	12,267,279	10,760,477
Purchases of investments, derivative contracts and purchases to cover securities sold short	(11,509,592)	(10,017,242)
Addition (redemption) of securities lending collateral investments	(170,354)	-
Net cash provided by investing activities	541,562	689,583
Cash flows from financing activities		
Repayment on capital lease obligations	(6,581)	(4,296)
Proceeds from security lending program	170,354	-
Net cash provided by / (used for) financing activities	163,773	(4,296)
Net increase in cash	199,065	42,728
Cash and cash equivalents, beginning of year	486,762	444,034
Cash and cash equivalents, end of year	$ 685,827	$ 486,762
Supplemental disclosure of non-cash investing activities		
Accruals for equipment and construction costs included in *Accounts payable and accrued liabilities*	$ 3,814	$ 373

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

1. ORGANIZATION

Howard Hughes Medical Institute ("HHMI" or the "Institute") was established for the purpose of promoting knowledge within the basic sciences, principally medical research and education, and the effective application of this knowledge for the benefit of humanity. The Institute conducts basic biomedical research at its Janelia Research Campus ("Campus") located in Loudoun County, Virginia, and at universities, hospitals, and other not-for-profit research institutions ("host institutions") throughout the U.S. under the terms of collaboration agreements.

In addition to its basic research activities, the Institute funds grants to both institutions and individuals in support of a wide range of science and research-related initiatives, including precollege and undergraduate science education, pre- and post-doctoral research fellowships, and international research activities. Most of the Institute's grant awards to individuals are fellowships administered by the awardee's institution for the benefit of the awardee.

For many years, the Institute has created science education resources for use by classroom teachers and has distributed these broadly without charge. The Institute also supports a science film initiative which develops, produces, and disseminates science programming through broadcast television and other media channels. Film footage produced through this initiative may also be used to expand and enhance the science education resources designed for classroom use.

The Institute's investments are its principal source of financial support. The Institute's long-range investment goal is to manage the fund in a prudent manner that will support the Institute's programs in perpetuity. A majority of the Institute's spending is on programs that involve long-term commitments: the Institute's medical research program at host institutions and Janelia Research Campus, in which it makes multi-year employment, budget, and other spending commitments to its investigators and group leaders, and a grants program in which the Institute makes multi-year grant commitments for science education and to support research by early-career scientists. These attributes of the Institute's mode of operation present the need to balance longer-term investment fund growth, stabilize investment returns, and maintain liquidity.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The consolidated financial statements include the accounts of the Institute's wholly-owned subsidiaries which are used primarily in connection with investment activities. All intra-company transactions and accounts have been eliminated.

Basis of Presentation

The consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States of America ("GAAP"). These principles require management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the consolidated financial statements and the reported revenues and expenses during the reporting period. Actual results could differ from those estimates.

Cash and Cash Equivalents

Cash and cash equivalents are recorded at amortized cost which approximates fair value and include both U.S. and non-U.S. currency and short-term interest-bearing marketable instruments with original maturities of 90 days or less from the initial purchase date. The purchases and sales of cash equivalents are not presented on the Consolidated Statements of Cash Flows. These balances are held at the Institute's custodians, prime brokers, clearing agents, and banking institutions for investment and working capital purposes.

The total cash and cash equivalents maintained at various institutions exceeds the amount guaranteed by federal agencies and, therefore, bears some risk. The Institute has not experienced any loss due to this risk. Interest earned on cash and cash equivalents is recognized in *Interest, dividends, and other income from investments* within the Consolidated Statements of Activities.

Foreign Currency Translation

Securities and cash denominated in foreign currencies are translated into U.S. dollar equivalents using year-end spot foreign currency exchange rates. Investment payables and receivables are valued using either spot or interpolated forward rates as applicable based on the expected settlement date. Purchases and sales of financial instruments, and their related income and expenses, are translated at the rate of exchange on the respective date of such transactions. The Institute includes realized gains/(losses) and unrealized appreciation/(depreciation) on investments and derivative financial instruments resulting from foreign currency changes in the Consolidated Statements of Activities. The Institute does not isolate that portion of the results of operations resulting from changes in foreign exchanges rates on securities and derivative contracts from the fluctuations arising from changes in market price of securities and derivative contracts held. Such fluctuations are included in *Realized gains on investments and derivative contracts, net*. The Institute may be exposed to risks that the exchange rate of the U.S. dollar relative to other currencies may change in a manner that has an adverse effect on the reported value of that portion of the Institute's assets or liabilities that is denominated in currencies other than the U.S. dollar.

Restricted Funds

The Institute generally does not accept donations or other contributions, but has made several exceptions, including accepting a very limited number of grants from other not-for-profit organizations to support specific research activities at the Janelia Research Campus, and accepting funding from a few other not-for-profit organizations that are collaborating with the Institute on grant programs. These grants entail restrictions on how the funds may be used. As a result, there are restrictions on net assets, which the Institute considers immaterial to its financial statements.

Intellectual Property

The Institute receives licensing fees and royalty income in connection with the commercialization of intellectual property created by its scientists. Licensing fees and royalty income are recorded as revenue in the Consolidated Statements of Activities at the time of receipt or when earned.

In addition, the Institute may indirectly have equity interests in startup companies formed to commercialize inventions created by its investigators. Such equity interests are held in the host institution's name for the benefit of HHMI until such time as the host institution disposes of that interest. As a result, recognition of value related to such equity interests is recorded only upon notification to HHMI by the host institution that its equity interest has been sold, and the Institute's share of the proceeds has been determined. No value for such equity interests is carried on the balance sheet.

The Institute may in the future directly hold equity or other interests in some startup companies formed to commercialize inventions created by its group leaders or other researchers at the Janelia Research

Campus. In this event, the equity or other interests would be managed by the Institute's Investment Department and appropriately recorded in the consolidated financial statements.

Investments

Investments are presented at fair value in accordance with U.S. GAAP. When available, investments are valued based on quoted market prices. In cases where market quotations are not available, management relies on appraisals, assumptions and other methods to estimate fair value. For certain alternative investments, management uses Net Asset Value ("NAV") as the practical expedient to determine fair value. The Institute's investment valuation policies are discussed in detail in Note 3.

Net realized and change in unrealized gains and losses are calculated using the average cost of investments and are recognized in the Consolidated Statements of Activities. Investment income, including interest, is accrued as earned. Dividend income is recorded on the ex-dividend date.

Derivatives, such as futures, options, swap contracts, and foreign currency forward contracts are recorded at fair value with the resulting gain or loss recognized in the *Realized gains on investment and derivative contracts, net* or *Change in unrealized gains/(losses) of investments and derivative contracts* financial statement line items.

Land, Buildings, Laboratory Space, and Equipment

Costs of constructing and renovating laboratory space occupied by investigators or other HHMI laboratory heads, and improvements in excess of the Institute's capitalization threshold, are currently capitalized and amortized over the lesser of 5 years or the remaining appointment term of the investigator or other HHMI laboratory head for whom renovations are being made. Buildings, building improvements, and equipment having a useful life of more than one year and a unit cost that exceeds the Institute's capitalization threshold are capitalized. Interest paid on construction debt is capitalized as a component of the building cost. There is no interest cost associated with any renovations. Repair and maintenance costs are expensed as incurred.

Depreciation is computed using the straight-line method over the estimated useful lives as follows:

Classification	Estimated Useful Life (years)
Equipment and furniture	5
Leasehold improvements	5-10
Land improvements	20
Buildings	35

Upon the sale or retirement of land, buildings, laboratory space, or equipment, the related cost and accumulated depreciation are removed from the Consolidated Statements of Financial Position and the resulting gains or losses are reflected in the Consolidated Statements of Activities.

Leases

Lease agreements, which for financial statement purposes include the space arrangements reflected in collaboration agreements with host institutions, are evaluated to determine whether they are capital or operating leases in accordance with Accounting Standards Codification ("ASC") 840, *Leases* ("ASC 840"). If substantially all of the risks and benefits of property ownership have been transferred to the

Institute, as determined by the criteria in ASC 840, the lease then qualifies as a capital lease. Capital leases are capitalized at the lower of the net present value of the total amount of rent payable under the leasing agreement or the fair market value of the leased asset. Capital lease assets are depreciated on a straight-line basis over a period consistent with the Institute's depreciation policy for equipment. Interest charges are expensed over the period of the lease in relation to the carrying value of the capital lease obligation.

Grant Commitments

The Institute awards domestic and international grants for periods generally ranging from one to five years. Awards may be deferred by the Institute in its discretion, if the awardee requests deferral. Deferred awards continue to be unconditional commitments for which there are no additional contingencies, and are included in the grant commitment liability at August 31, 2018. For multi-year awards, grant commitments are recorded as expenses in the Consolidated Statements of Activities in the year the grant commitment is made, and the present value of the grant commitment liability is reflected in the Consolidated Statements of Financial Position. The discount rate used to arrive at the present value of future payments is based on the rates for U.S. Treasury Notes with maturities in the years in which the payments will be made.

Insurance

The Institute generally self-insures for property and casualty risks. Third party insurance is purchased from time to time in response to specific needs.

Reclassifications

Certain prior year amounts have been reclassified in order to conform with the current year's presentation. This reclassification had no impact on the reported changes in net assets.

- The Institute reclassified $36.1 million of cash collateral posted for derivatives from *Cash and cash equivalents* to *Due from brokers* on the Consolidated Statements of Financial Position. This change also impacted the Consolidated Statements of Cash Flows.

Recent Accounting Pronouncements

Standards adopted in the current year:

In January 2017, the FASB issued Accounting Standards Update ("ASU") 2017-02, *Not-for-Profit ("NFP") Entities – Consolidation: Clarifying When a Not-for-Profit Entity That Is a General Partner or a Limited Partner Should Consolidate a For-Profit Limited Partnership or Similar Entity*. This standard clarifies when a NFP entity that is a general partner or a limited partner should consolidate a for-profit limited partnership or similar legal entity once the amendments in ASU 2015-02, *Consolidation (Topic 810): Amendments to the Consolidation Analysis*, become effective. The guidance outlines that consolidation does not apply to a general partner or a limited partner if an NFP makes an election, in accordance with paragraph 825-10-25-1, to choose, at specified election dates, to measure eligible items at fair value (the fair value option). The Institute has previously elected the fair value option for its portfolio and therefore reports all investments at fair value. The Institute adopted ASU 2017-02 effective September 1, 2017 and its adoption did not have a material impact on the financial position, results of operations, changes in net assets, or cash flows.

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement*. The updated guidance improves the disclosure requirements on fair value measurements by removing, modifying, or adding certain disclosures. The guidance is effective for all entities beginning after December 15, 2019. Early adoption is permitted upon issuance of the guidance. The Institute adopted ASU 2018-13 in fiscal year 2018. The removed and modified disclosures were adopted on a retrospective basis.

Standards effective in future years:
In March 2017, the FASB issued ASU 2017-07, *Compensation – Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*. The amendment requires an employer to disaggregate the service cost component from other components of net benefit cost. The service cost component will be presented in the same line or items as other compensation costs arising from services rendered by the pertinent employees during the period. The other components (interest cost, amortization of prior service cost, and amortization of net gain/loss) will be reported separately outside of operations and will not be eligible for capitalization. This ASU is effective for fiscal years beginning after December 15, 2018. The Institute is evaluating the impact of the new guidance to its consolidated financial statements and disclosures.

In August 2016, the FASB issued ASU No. 2016-15, *Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments*. This update provides clarifications on the cash flow classification of eight specific cash flow issues. The standard is effective for fiscal years beginning after December 15, 2018. The Institute is evaluating the impact of the new guidance to its consolidated financial statements and disclosures.

In August 2016, the FASB issued ASU 2016-14, *Not-for-Profit Entities (Topic 958): Presentation of Financial Statements of Not-for-Profit Entities*. This new standard on presentation of financial statements for not-for-profit entities makes targeted improvements to the current financial reporting model for not-for-profit entities. The standard imposes several new requirements related to reporting net asset classes, expenses, including providing information about expenses by their natural classification, and cash flows. The standard is effective for fiscal years beginning after December 15, 2017. The Institute is evaluating the impact of the new guidance to its consolidated financial statements and disclosures.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*. This new standard establishes a right-of-use ("ROU") model that requires a lessee to record a ROU asset and a lease liability on the balance sheet for all leases with terms longer than 12 months. Leases will be classified as either finance or operating, with classification affecting the pattern of expense recognition in the statement of operations and changes in net assets. The new standard is effective for fiscal years beginning after December 15, 2018 for an NFP that has issued, or is a conduit bond obligor for, securities that are traded, listed, or quoted on an exchange or an OTC market. The institute has public debt traded on an OTC market. A modified retrospective transition approach is required for lessees for capital and operating leases existing at, or entered into after, the beginning of the earliest comparative period presented in the financial statements, with certain practical expedients available. The Institute is evaluating the impact of the new guidance to its consolidated financial statements and disclosures.

In January 2016, the FASB issued ASU No. 2016-01, *Financial Instruments-Overall: Recognition and Measurement of Financial Assets and Financial Liabilities*. ASU 2016-01 requires equity investments to be measured at fair value, with changes in fair value recognized in net income. Equity investments for which fair value is not readily determinable may be measured at cost, minus impairment, and plus or minus adjustments for observable price changes. ASU 2016-01 also requires financial liabilities that an entity has elected to measure at fair value, to be presented separately, in other comprehensive income, the portion of the change in fair value that results from a change in instrument-specific credit risk. Under the ASU, non-public business entities will no longer be required to disclose the fair value of financial instruments measured at amortized cost. ASU 2016-01 will be effective for entities (other than public business entities) for fiscal years beginning after December 15, 2018. The Institute elected to adopt certain provisions of ASU 2016-01 early by not disclosing fair value on instruments measured at amortized cost. Adoption of the other provisions is not permitted earlier than fiscal years beginning after December 15, 2017. The Institute is evaluating the impact of the remainder of the new guidance to its consolidated financial statements and disclosures.

In May 2014, the FASB issued the *Revenue from Contracts with Customers* standard effective for annual reporting periods beginning after December 15, 2017. Under *Revenue from Contracts with Customers*, recognition of revenue from customer contracts is a principles-based framework. The Institute is evaluating the impact of the new guidance to its consolidated financial statements and disclosures.

3. INVESTMENTS

The Institute elected to apply the fair value option of ASC 825, "Financial Instruments," to our portfolio of investments. As such, Investments, as shown on the Statements of Financial Position, are presented at fair value in accordance with U.S. GAAP. The investment categories, valuation methodology, fair value hierarchy, and related commitments for fiscal years August 31, 2018 and 2017 are discussed below.

Investment Categories and Valuation Policy

Investments are categorized by asset class and valued as described below:

Equity investments primarily consist of direct ownership of public and private companies in the form of common stock. Investments in listed securities on exchanges are typically valued based on last quoted market prices on the last trading date of the principal market on or before August 31. Investments in private companies are valued by management based on the best available information in the circumstance and may require significant management judgment. The majority of the Institute's equity investments are publicly traded.

Fixed income securities primarily consist of actively traded fixed income securities, including U.S. Treasury Notes/Bonds, and private placement debt. Fixed income securities are valued by independent pricing sources, broker dealers or pricing models that factor in, where applicable, recently executed transactions, interest rates, bond or credit default spreads and volatility. Certain private placement debt that is directly linked with equity ownership in alternative investments is primarily valued by external investment managers. These values are adjusted, if applicable, by management as described under *Valuation Methodology*. The majority of the Institute's fixed income investments are issued by the U.S. Treasury.

Preferred securities primarily consist of direct ownership of public and private companies in the form of preferred stock. Investments in publicly traded companies are valued by independent pricing sources, broker dealers or pricing models that factor in, where applicable, recently executed transactions, interest rates, bond or credit default spreads and volatility. Investments in private companies with an available OTC market are valued using quotes from broker dealers or pricing models that factor in, where applicable, recently executed transactions, interest rates, bond or credit default spreads and volatility. Investments in private companies with no OTC market are valued based on the best available information in the circumstance and may require significant management judgment.

Convertible securities primarily consist of direct ownership of public and private companies in the form of preferred stock or bonds that contain a conversion covenant, usually into common stock. Investments in publicly traded companies are valued by independent pricing sources, broker dealers or pricing models that factor in, where applicable, recently executed transactions, interest rates, bond or credit default spreads and volatility. Investments in private companies with an available OTC market are valued using quotes from broker dealers or pricing models that factor in, where applicable, recently executed transactions, interest rates, bond or credit default spreads and volatility. Investments in private companies with no OTC market are valued based on the best available information in the circumstance and may require significant management judgment.

Alternative investments represent interests in funds, limited partnerships, and other pooled vehicles. The Institute classifies these investments in the following sub-categories:

- *Private equity investments* include venture capital, buyout strategies, and energy-related investments usually structured as limited partnerships or other similar pass-through vehicles. In general, these investments are held to the term of the investment and have limited liquidity. Distributions from these investments are primarily received through liquidation of the underlying assets.
- *Hedged equity investments* include long/short equity strategies which are managed with moderate net exposure and event-driven strategies with the objective of achieving long term equity-like returns with lower volatility. In most cases, these funds are redeemable at periodic intervals.
- *Distressed and credit sensitive investments* include long credit, long/short credit, and distressed credit strategies. In general, these investments are held to the term of the investment and have limited liquidity. Distributions from these investments are primarily received through liquidation of the underlying assets.
- *Equity commingled investments* include long only equity funds that invest primarily in public securities traded on major stock exchanges. In most cases, these funds are redeemable at periodic intervals.
- *Real asset investments* include private market investments secured by hard assets such as real estate, power plants, commodity reserves and other assets. These investments are usually structured as limited partnerships or other similar pass-through vehicles. In general, these investments are held to the term of the investment and have limited liquidity. Distributions from these investments are primarily received through liquidation of the underlying assets.
- *Market neutral investments* include long/short equity strategies which are managed with a close to zero net exposure and multi-strategy relative value investment approach with the objective to generate positive returns above the risk-free rate that have little or no correlation with public equities. In most cases, these funds are redeemable at periodic intervals.

The Institute has an active co-investment program. Investments held through this program are classified in one of the above alternative categories if they are structured as limited partnerships or other similar pass-through vehicles. If the co-investment is owned by the Institute directly, the investment is categorized as a private company investment in equity, fixed income, preferred securities or convertible securities, as applicable.

The fair value of alternative investments is primarily based on the NAV reported or calculated by the respective external investment managers and is adjusted, if applicable, as described under *Valuation Methodology*. Private company co-investments and funds that do not report NAV are valued by management based on the best available information in the circumstance and may require significant management judgment.

Derivatives are used by the Institute to manage its exposure to certain risks relating to ongoing business and investment operations. Derivatives include futures contracts, foreign currency forward contracts, options, contracts for difference, participatory contracts, and various swap contracts. The fair value of derivative investments is determined based on the type of derivative. Listed futures and options, and foreign currency forward contracts are valued by independent pricing sources. Contracts for difference and participatory notes are equity market access products and are typically valued based on changes in price of the underlying equity, adjusted for any financing costs. Swaps and other OTC derivatives are valued by the calculation agent of the contract, which is usually the counterparty to the contract, or by independent pricing sources where available, based on the terms of the contract and other observable inputs.

Valuation Methodology

Valuation techniques applied to the Institute's investments can include a combination of both observable and unobservable inputs. The Institute's investments in equities, fixed income securities, preferred securities and convertible securities are valued based on quoted market prices in active markets on a trade-date basis or by independent pricing sources, whenever available. Where such inputs do not exist, fair value measurements are based on the best available information such as broker quotes, models or other valuation methodologies that require varying degrees of management judgment.

NAV is used as a practical expedient in determining fair value for investments which (a) do not have a readily determinable fair value and (b) are an investment company as defined under ASC 946, *Financial Services – Investment Companies*, or have attributes of an investment company and issue financial statements consistent with the principles in ASC 946.

The NAV is reported by the Institute's external investment managers, administrators and general partners in accordance with their policies as described in their respective financial statements and offering memoranda. For certain investments, the most recent NAV reported is adjusted for cash flows and significant known valuation changes, if any, of its related portfolio through August 31, 2018 and 2017, respectively. Management reviews the valuation policies and financial reporting of managers and performs due diligence, as applicable, to obtain an understanding of the valuation processes used by the third party for suitability and appropriateness for use in the Institute's financial statements. Management believes the Institute's allocated share of the carrying amount of these alternative investments is a reasonable estimate of fair value. The majority of the Institute's alternative investments qualify for use of NAV as a practical expedient in accordance with ASC 820 – *Fair Values Measurements and Disclosures*.

For the remaining alternative investments, the Institute considers various factors to estimate fair value including the timing of the transaction, market factors, comparable transactions, company performance and company projections. The selection of an appropriate valuation technique may be affected by the availability and general reliability of relevant inputs. These fair value estimates are subject to the review and approval of the Institute's Valuation Committee.

The Institute's Valuation Committee is comprised of the Chief Investment Officer, the Head of Investment Operations, the Director, Business Due Diligence & Compliance, and the Director, Investment Fund Services. The Institute's overall valuation methodology and its application is subject to review and oversight by the Valuation Committee, who meet quarterly to review and assess the valuation techniques applied and to consider new methodologies or recommend changes as appropriate. Once selected for an investment, valuation techniques are consistently applied. The Valuation Committee has sole authority to make overrides to the current valuation methodology or technique for a specific investment. A change in a valuation technique or its application will be made only if the change results in a measurement that management believes is more representative of fair value in the circumstances. There have been no changes in the valuation methodology for the fiscal years ending August 31, 2018 and 2017. Although the Valuation Committee believes its valuation methods are appropriate and consistent, these methods may produce a fair value estimate that may not be indicative of the ultimate net realizable value, or reflective of future fair values.

Fair Value Hierarchy

The fair value hierarchy, as required by ASC 820, prioritizes the use of market-based information over entity-specific information and establishes a three-level hierarchy for fair value measurement based on the transparency of information, such as the pricing source used in the valuation of an asset or liability as of the measurement date. It consists of observable and unobservable inputs at three levels. Observable inputs are based on market data obtained from sources independent of the reporting entity; unobservable inputs are based on the best information available in the circumstances.

- Level 1 inputs consist of quoted prices in active markets for identical assets or liabilities.

- Level 2 inputs are from sources other than quoted prices that are observable for an asset or liability, either directly or indirectly. Level 2 inputs include quoted prices for similar assets or liabilities in active markets, interest rates and yield curves observable at commonly quoted intervals, volatilities, prepayment speeds, loss severities, credit risks, default rates, and market corroborated inputs that are derived principally from or corroborated by observable market data by correlation or other means.

- Level 3 inputs are unobservable inputs for the asset or liability. They are used to measure fair value when observable inputs are not available, including situations in which there is little, if any, market activity for the asset or liability at the measurement date.

The asset or liability's fair value measurement level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement.

The following tables present the financial instruments carried at fair value as of August 31, 2018 and 2017 according to the valuation hierarchy defined above.

August 31, 2018
(In thousands)

	Quoted Market Prices (Level 1)	Other Observable Inputs (Level 2)	Unobservable Inputs (Level 3)	Total Fair Value
Assets				
Deferred compensation plan assets	$ 43,970	$ -	$ 5,966	$ 49,936
Investments:				
Equity	4,100,455	-	79,057	4,179,512
Fixed income securities	-	2,231,208	28,787	2,259,995
Preferred securities	17,361	14,796	12,106	44,263
Convertible securities	-	-	-	-
Alternative investments	-	-	239,560	239,560
Derivatives	53	14,978	-	15,031
Total	4,117,869	2,260,982	359,510	6,738,361
Alternative investments measured under the NAV-practical expedient				15,361,842
Total investments	4,117,869	2,260,982	359,510	22,100,203
Total assets at fair value	$ 4,161,839	$ 2,260,982	$ 365,476	$ 22,150,139
Liabilities				
Investments and derivatives:				
Equity short positions	$ 466,004	$ -	$ -	$ 466,004
Preferred short positions	5,110	-	-	5,110
Real assets short positions	524	-	-	524
Derivatives	89	104,512	-	104,601
Total investments and derivatives	$ 471,727	$ 104,512	$ -	$ 576,239

August 31, 2017
(In thousands)

	Quoted Market Prices (Level 1)	Other Observable Inputs (Level 2)	Unobservable Inputs (Level 3)	Total Fair Value
Assets				
Deferred compensation plan assets	$ 39,307	$ -	$ 5,645	$ 44,952
Investments:				
Equity	4,144,855	390	118,280	4,263,525
Fixed income securities	-	2,481,879	66,375	2,548,254
Preferred securities	11,768	52,286	3,983	68,037
Convertible securities	-	1,420	-	1,420
Alternative investments	-	-	225,806	225,806
Derivatives	-	6,290	-	6,290
Total	4,156,623	2,542,265	414,444	7,113,332
Alternative investments measured under the NAV-practical expedient				13,957,454
Total investments	4,156,623	2,542,265	414,444	21,070,786
Total assets at fair value	$ 4,195,930	$ 2,542,265	$ 420,089	$ 21,115,738
Liabilities				
Investments and derivatives:				
Equity short positions	$ 378,489	$ -	$ -	$ 378,489
Preferred short positions	-	-	-	-
Real assets short positions	-	-	-	-
Derivatives	-	156,453	-	156,453
Total investments and derivatives	$ 378,489	$ 156,453	$ -	$ 534,942

The following table presents the purchases and transfers for instruments classified within Level 3 of the fair value hierarchy as defined above for the years ended August 31, 2018 and 2017:

(In thousands)

Fair value measurements using significant unobservable inputs (Level 3)	For the year ended August 31, 2018			For the year ended August 31, 2017		
	Purchases	Transfers in	Transfers out	Purchases	Transfers in	Transfers out
Deferred compensation funds	$ 159	$ -	$ -	$ 1,009	$ -	$ -
Investments:						
Equity	14,858	-	-	9,585	-	-
Fixed income securities	2,024	-	(2,317)	18,504	-	-
Preferred securities	11,949	-	-	-	-	-
Alternative investments	19,200	17,000	(8,745)	23,143	-	(28,495)
Total investments	48,031	17,000	(11,062)	51,232	-	(28,495)
Totals	$ 48,190	$ 17,000	$ (11,062)	$ 52,241	$ -	$ (28,495)

The table above excludes those investments valued using NAV as the practical expedient as outlined in ASU 2015-07, *Fair Value Measurement (Topic 820): Disclosures for Investments in Certain Entities that Calculate NAV per Share (or its Equivalent)*.

Management continuously reviews and evaluates financial reporting investment levels and modifies them as necessary. Any transfers between categories are measured at the beginning of the period. The transfers in and out of the Level 3 classifications resulted from a change in valuation inputs received from the external investment manager, thus changing the classification of the investment to being reported using NAV during the fiscal year ended August 31, 2018.

Level 3 Valuation Techniques and Unobservable Inputs

The following table summarizes the unobservable inputs and assumptions used for items categorized in Level 3 of the fair value hierarchy as of August 31, 2018 and 2017, respectively. For each investment category and respective valuation technique, the range of the inputs is dependent on the nature and characteristics of the investment. The range of inputs listed below represent values as of the measurement date; however, these inputs may change over time which may have a material effect on the valuation of these types of investments in the future.

August 31, 2018
(In thousands)

Asset Class	Fair Value 2018	Valuation Techniques	Unobservable Inputs	Range of Inputs
Deferred compensation funds	$ 5,966	Discounted cash flows	Risk-adusted discount rate	3.25% - 4.50%
Equity	46,297	Market/Income approach	EBITDA multiple	7.0x - 16.0x
	7,456		Multiples & Third party offer	n/a
	25,304	Discounted cash flows	Discount rate	0% - 12%
Fixed income	28,787	Cost plus accrued interest	Interest rate	0% - 10%
Preferred securities	6,477	Market/Income approach	EBITDA multiple	6.0x - 17.5x
	4,683	Discounted cash flows	Discount rate	10% - 12%
	655	Appraised value	Appraisal values	n/a
	291	Recent transaction price	n/a	n/a
Alternatives	76,236	Market/Income approach	EBITDA multiple	4.5x - 17.5x
	3,572		Comparables	n/a
	133,130	Appraised value	Appraisal values	n/a
	18,075	Amortized cost	n/a	n/a
	8,547	Discounted cash flows	Discount rate	10% - 15%
Total	$ 365,476			

August 31, 2017
(In thousands)

Asset Class	Fair Value 2017	Valuation Techniques	Unobservable Inputs	Range of Inputs
Deferred compensation funds	$ 5,645	Discounted cash flows	Risk-adusted discount rate	3.50% - 5.00%
Equity	82,538	Market/Income approach	EBITDA multiple	7.0x - 14.0x
	14,949		Growth rate	3% - 5%
	5,267		Discount to multiples	16%
	15,526	Discounted cash flows	Discount rate	11% - 12%
Fixed income securities	66,375	Cost plus accrued interest	Interest rate	0% - 11%
Preferred securities	2,991	Discounted cash flows	Discount rate	11% - 12%
	655	Market/Income approach	Appraisal values	n/a
	337		EBITDA multiple	2.0x - 20.0x
Alternative Investments	123,313	Appraised value	Appraisal values	n/a
	69,049	Market/Income approach	EBITDA multiple	2.0x - 20.0x
	24,462	Amortized cost	n/a	n/a
	8,982	Discounted cash flows	Discount rate	10% - 15%
Total	$ 420,089			

Alternative Investments at NAV

The following tables summarize investments for which the Institute uses NAV as the practical expedient and the respective unfunded commitments and redemption terms as of August 31, 2018 and 2017, respectively:

August 31, 2018
(In thousands)

	Fair Value as of August 31, 2018	Unfunded Commitment	Remaining Life[1]	Redemption Terms & Restrictions
Private equity	$ 4,037,181	$ 2,335,645	0 to 14 years	Not redeemable and held for the life of the investment.
Hedged equity	2,199,769	-	n/a	Lockup provisions may include one-time or revolving terms ranging from 1-3 years. Investments with expired one-time lockup or no lockup provisions are redeemable on a periodic basis with advance notice of 30-180 days. Investments with revolving lockup provisions are redeemable with advance notice of 60-90 days prior to the next lockup expiration date. Special investments (side pockets) are redeemable upon liquidation of the designated investment.
	98,220	130,902	0 to 7 years	Not redeemable and held for the life of the investment.
Distressed & credit sensitive	1,267,797	1,283,671	0 to 29 years	Not redeemable and held for the life of the investment.
	930,505	64,750	n/a	Lockup provisions may include a one-time term of up to 1 year. Investments with expired one-time lockup or no lockup provisions are redeemable on a periodic basis with advance notice of 30-90 days.
Equity commingled	3,168,389	-	n/a	Lockup provisions may include one-time or revolving terms ranging from 1-3 years. Investments with expired one-time lockup or no lockup provisions are redeemable on a periodic basis with advance notice of 30-180 days. Investments with revolving lockup provisions are redeemable with advance notice of 30-90 days prior to the next lockup expiration date.
Real assets	885,938	623,931	0 to 12 years	Not redeemable and held for the life of the investment.
	198,553	-	n/a	Investments with expired one-time lockup or no lockup provisions are redeemable on a periodic basis with advance notice of 30 days.
Market neutral	2,568,357	-	n/a	Investments with expired one-time lockup or no lockup provisions are redeemable on a periodic basis with advance notice of 5-100 days.
	7,133	4,400	3 years	Not redeemable and held for the life of the investment.
Total alternative investments	$ 15,361,842	$ 4,443,299		

[1]The estimated remaining lives of these funds are forward-looking projections based on the Institute's estimates and could vary significantly depending on the investment decisions of external managers, changes in the Institute's investment portfolio and other circumstances.

August 31, 2017
(In thousands)

	Fair Value as of August 31, 2017	Unfunded Commitment	Remaining Life[1]	Redemption Terms & Restrictions
Private equity	$ 3,743,613	$1,877,435	0 to 13 years	Not redeemable and held for the life of the investment.
Hedged equity	2,271,750	-	n/a	Lockup provisions may include one-time or revolving terms ranging from 1-3 years. Investments with expired one-time lockup or no lockup provisions are redeemable on a periodic basis with advance notice of 30-180 days. Investments with revolving lockup provisions are redeemable with advance notice of 30-180 days of the next lockup expiration date. Special investments (side pockets) are redeemable upon liquidation of the designated investment.
Distressed & credit sensitive	1,852,939	1,065,294	0 to 11 years	Not redeemable and held for the life of the investment.
	489,633	-	n/a	Lockup provisions may include a one-time term of up to 1 year. Investments with expired one-time lockup or no lockup provisions are redeemable on a periodic basis with advance notice of 30-90 days.
Equity commingled	2,633,593	-	n/a	Lockup provisions may include one-time or revolving terms ranging from 1-3 years. Investments with expired one-time lockup or no lockup provisions are redeemable on a periodic basis with advance notice of 30-180 days. Investments with revolving lockup provisions are redeemable with advance notice of 30 days of the next lockup expiration date.
Real assets	1,002,519	514,307	0 to 13 years	Not redeemable and held for the life of the investment.
	146,837	-	n/a	Investments with expired one-time lockup or no lockup provisions are redeemable on a periodic basis with advance notice of 30-60 days.
Market neutral	1,804,360	-	n/a	Investments with expired one-time lockup or no lockup provisions are redeemable on a periodic basis with advance notice of 5-100 days.
	12,210	4,400	3 years	Not redeemable and held for the life of the investment.
Total alternative investments	$ 13,957,454	$3,461,436		

[1]The estimated remaining lives of these funds are forward-looking projections based on the Institute's estimates and could vary significantly depending on the investment decisions of external managers, changes in the Institute's investment portfolio and other circumstances.

As noted above, the Institute has made contractual commitments to fund various investments. The Institute has unfunded commitments totaling approximately $4.5 billion and $3.6 billion (of which $0.1 billion and $0.1 billion relate to commitments to fund investments valued using a method other than NAV) to fund investments in non-public entities as of August 31, 2018 and 2017, respectively. The

Institute expects these commitments to be called over the next 1 to 7 years. Investment returns are expected to be received over the next 1 to 29 years.

Obligations under Security Lending Agreements
The Institute may lend its securities to approved borrowers to earn additional income. Its securities lending activities are administered by a lending agent in accordance with a securities lending agreement. Security loans generally do not have stated maturity dates, and the fund may recall a security at any time. The Institute receives collateral in the form of cash, government debt securities, corporate debt securities, equity securities, and other types of securities as agreed to in the securities lending agreement. Collateral for loans of domestic securities and foreign securities that are denominated and payable in dollars are collateralized at a minimum of 102% and other foreign securities are collateralized at a minimum of 105% of the value of the securities on loan. Collateral is maintained over the life of the loan in an amount not less than the value of loaned securities; any additional collateral required due to changes in security values is delivered to the Institute the next business day. Cash collateral is invested in accordance with investment guidelines defined by the securities lending agreement. Additionally, the lending agent indemnifies the Institute against losses resulting from borrower default and against losses resulting from the investment of cash collateral in repurchase transactions resulting from counterparty default. Although risk is mitigated by the collateral and indemnification, the Institute could experience a delay in recovering its securities and a possible loss of income or value if the borrower fails to return the securities, collateral investments decline in value, and the lending agent fails to perform. Securities lending revenue consists of earnings on invested collateral and borrowing fees, net of any rebates to the borrower, compensation to the lending agent, and other administrative costs. In accordance with GAAP, investments made with cash collateral are reflected in the accompanying financial statements, but collateral received in the form of securities is not. The market value of loaned securities was $387.7 million and $2.6 million as of August 31, 2018 and 2017, respectively, and are included in the Consolidated Statements of Financial Position in *Investments*. The market value of cash and non-cash collateral was $409.5 million and $4.1 million at August 31, 2018 and 2017, respectively. Income from securities lending activities totaled approximately $0.1 million and $0.6 million for August 31, 2018 and 2017, respectively, and is included in *Interest, dividends, and other income from investments*.

4. DERIVATIVES

The Institute invests in derivative financial instruments to control market risks, manage its portfolio exposure, reduce investment implementation costs, and enhance returns. Derivatives are recorded at fair value with the resulting gain or loss recognized in the Consolidated Statements of Activities. Most derivative trades are transacted with counterparties that are operating under master netting agreements. These agreements allow the Institute to offset amounts owed by the counterparty with amounts payable to the same counterparty. This agreement permits net settlement of multiple transactions with that counterparty. As a result of investing in derivative financial instruments, the Institute is exposed to potential credit-related losses in the event of nonperformance by counterparties. The Institute limits its exposure by evaluating the creditworthiness of potential counterparties before investing.

Swap, OTC option, forward contracts and other OTC derivative contracts expose the Institute to credit risk arising from the potential inability of counterparties to perform under the terms of the contracts. The notional amounts of these contracts do not represent the Institute's risk of loss due to counterparty nonperformance. The Institute's exposure to credit risk associated with counterparty nonperformance for these contracts is limited to the fair value of such contracts and any related collateral placed with the counterparty, after enforcing master netting agreements with counterparties that allow the Institute to offset amounts owed by the counterparty with amounts payable to the same counterparty. As of August 31, 2018, the aggregate fair value of all derivative contracts by counterparty after applying netting arrangements and before including the effects of collateral that are in a net asset position is insignificant, thus the Institute's credit exposure to each counterparty is considered immaterial.

Derivatives contracts are subject to various risks similar to non-derivative instruments. For non-exchange traded derivatives under standard derivatives agreements, the Institute may be required to post collateral for initial margin and also variation margin in the event of a net liability position exceeding certain amounts with the counterparty. Additionally, the counterparty may, upon providing notice and allowing for any applicable cure period, terminate derivatives contracts if the Institute fails to maintain sufficient asset coverage for its contracts or its net assets decline by stated percentages. The Institute has posted collateral as of August 31, 2018 and 2017 of approximately $49.3 million and $36.1 million, respectively, in the normal course of business and these amounts are included in *Due from Brokers* on the Consolidated Statements of Financial Position. The Institute received no collateral as of August 31, 2018 and 2017.

The following tables present the derivatives held as of August 31, 2018 and 2017, respectively, by their primary underlying risk exposure. These derivatives are not designated as hedging instruments under ASC 815, *Derivatives and Hedging*.

(In thousands)

	As of August 31, 2018		For the year ended August 31, 2018	
Primary Risk Exposure	Gross derivative assets	Gross derivative liabilities	Net realized gains/(losses)	Net unrealized gains/(losses)
Equity Instruments				
Equity swaps	$ -	$ 432	$ (1,667)	$ (432)
Contracts for difference	7,633	4,520	3,542	5,362
Total equity instruments	7,633	4,952	1,875	4,930
Fixed income instruments				
Fixed income futures	53	89	(558)	(36)
Interest rate swaps	5,993	96,587	-	58,299
Total fixed income instruments	6,046	96,676	(558)	58,263
Currency instruments				
Currency exchange contracts	1,352	2,973	992	(2,599)
Total currency instruments	1,352	2,973	992	(2,599)
Total	$ 15,031	$ 104,601	$ 2,309	$ 60,594

The above derivative assets and liabilities are included in *Investments* and *Investment and derivative liabilities*, respectively, on the Consolidated Statements of Financial Position. Net realized gains/(losses) and Net unrealized gains/(losses) are included in *Realized gains on investment and derivative contracts, net* and *Change in unrealized gains/(losses) of investments and derivative contracts*, respectively, on the Consolidated Statements of Activities.

(In thousands)

	As of August 31, 2017		For the year ended August 31, 2017	
Primary Risk Exposure	Gross derivative assets	Gross derivative liabilities	Net realized gains/(losses)	Net unrealized gains/(losses)
Equity Instruments				
Equity swaps	$ -	$ -	$ (2,157)	$ (1,983)
Contracts for difference	3,515	5,764	11,250	(2,390)
Total equity instruments	3,515	5,764	9,093	(4,373)
Fixed income instruments				
Fixed income futures	-	-	(850)	-
Interest rate swaps	-	148,892	-	70,681
Total fixed income instruments	-	148,892	(850)	70,681
Currency instruments				
Currency exchange contracts	2,775	1,797	(1,422)	(946)
Total currency instruments	2,775	1,797	(1,422)	(946)
Total	$ 6,290	$ 156,453	$ 6,821	$ 65,362

The above derivative assets and liabilities are included in *Investments* and *Investment and derivative liabilities*, respectively, on the Consolidated Statements of Financial Position. Net realized gains/(losses) and Net unrealized gains/(losses) are included in *Realized gains on investment and derivative contracts, net* and *Change in unrealized gains/(losses) of investments and derivative contracts*, respectively, on the Consolidated Statements of Activities.

Derivative notional amounts and values as of August 31, 2018 and 2017 are indicative of the Institute's exposure to derivatives for the years then ended.

Foreign Exchange Forward Contracts
Certain currency contracts described below are entered into by single-member limited liability companies of the Institute. The Institute has issued a guarantee and commitment for a limited liability company with a face value of $25 million for the net settlement of trades by them. The guarantee was terminated on October 13, 2016.

Foreign exchange forward contracts are over-the-counter contractual agreements primarily used to sell or buy certain amounts of foreign currencies as a means to hedge foreign currency risk or for the purpose of speculating for investment returns in the foreign currency market. The notional value of open forward contract purchases and sales totaled approximately $318.9 million and $132.8 million, respectively, at August 31, 2018, and $342.9 million and $219.4 million, respectively, at August 31, 2017.

Futures
Futures contracts are commitments to purchase or sell a financial instrument at a stated time and price in the future. They are generally used to increase or decrease exposure to a specific market or investment product. These contracts are settled daily to reflect the changes in their market values.

As of August 31, 2018 and 2017, the Institute had entered into various futures contracts with notional exposures as follows:

(In thousands)

	2018		2017	
	Buy	Sell	Buy	Sell
Fixed income	$ 49,518	$ (178,651)	$ -	$ -

Contracts for Difference

Contracts for difference are agreements between a buyer and a seller to exchange the difference between the opening value of a share, currency, commodity, index or other tradable financial instrument and its closing value at the end of the contract. Contracts for difference are used by the Institute for the purpose of gaining financial exposure to an underlying security or index without the need to own the underlying shares. As of August 31, 2018 and 2017, the Institute had entered into various contracts for difference with notional exposures at fair values as follows:

(In thousands)

	2018		2017	
	Buy	Sell	Buy	Sell
Equity indexes	$ 125,327	$ (154,623)	$ 78,790	$ (116,912)

Equity Swaps

Equity swaps are exchanges of cash flows in which at least one of the sides is an equity instrument. An equity index is a measure of the performance of an individual stock or a basket of stocks. The notional amount of the equity swaps was $0.2 million and $0.0 million as of August 31, 2018 and 2017, respectively.

Debt-related Interest Rate Swaps

An interest rate swap is a derivative in which one party exchanges a stream of interest payments with another party's stream of cash flows. The Institute uses interest rate swap agreements to manage fixed or floating assets and liabilities. Under the terms of the current agreements, the Institute pays a fixed interest rate, determined at inception, and receives a variable rate on the underlying notional principal amount. Refer to Note 7 for information related to interest rates and interest expense on the bonds payable, note payable, and interest rate swaps.

The following tables present the debt-related interest rate swaps including the notional amounts and fair values as of August 31, 2018 and 2017, and unrealized gains for the years then ended.

August 31, 2018
(In thousands)

		As of August 31, 2018		For the year ended August 31, 2018	
Debt-related interest-rate swaps:	Termination Date	Notional Amount	Gross Derivative (Assets)/Liabilities[1]	Unrealized Gains[2]	Fixed Rate[3]
Janelia Research Campus Apartment B	June 1, 2043	$ 33,130	$ 1,216	$ 2,605	2.10%
Janelia Research Campus Apartment A	October 1, 2039	23,000	3,045	1,979	2.75%
Headquarters and conference center	November 1, 2036	76,500	16,377	6,819	3.48%
Headquarters and conference center expansion	March 1, 2038	83,500	17,184	7,735	3.30%
Janelia Research Campus	February 15, 2038	75,000	14,135	6,795	3.19%
	March 1, 2033	150,000	(3,752)	8,633	1.68%
	March 1, 2033	125,000	21,205	10,052	3.38%
	March 1, 2033	100,000	16,806	8,002	3.36%
	October 1, 2039	50,000	6,619	4,302	2.75%
Janelia Commercial Property	May 21, 2022	40,376	(2,242)	1,377	1.14%
Total			$ 90,593	$ 58,299	

[1]Gross derivative liabilities are included in *Investment and derivative liabilities* on the Consolidated Statements of Financial Position. Gross derivative assets are included in *Investments* on the Consolidated Statement of Financial Position.

[2]Unrealized gains on derivatives are included in *Change in unrealized gains/(losses) of investments and derivative contracts* on the Consolidated Statements of Activities.

[3]The variable interest rate is reset on a weekly basis except for the note payable which is reset monthly.

August 31, 2017
(In thousands)

		As of August 31, 2017		For the year ended August 31, 2017	
Debt-related interest-rate swaps:	Termination Date	Notional Amount	Gross Derivative (Assets)/Liabilities[1]	Unrealized Gains[2]	Fixed Rate[3]
Janelia Research Campus Apartment B	June 1, 2043	$ 33,130	$ 3,820	$ 3,910	2.10%
Janelia Research Campus Apartment A	October 1, 2039	23,000	5,024	2,665	2.75%
Headquarters and conference center	November 1, 2036	76,500	23,197	8,206	3.48%
Headquarters and conference center expansion	March 1, 2038	83,500	24,919	9,910	3.30%
Janelia Research Campus	February 15, 2038	75,000	20,930	8,726	3.19%
	March 1, 2033	150,000	4,882	10,455	1.68%
	March 1, 2033	125,000	31,257	11,088	3.38%
	March 1, 2033	100,000	24,807	8,875	3.36%
	October 1, 2039	50,000	10,921	5,795	2.75%
Janelia Commercial Property	May 21, 2022	40,376	(865)	1,051	1.14%
Total			$ 148,892	$ 70,681	

[1]Gross derivative liabilities are included in *Investment and derivative liabilities* on the Consolidated Statement of Financial Position.

[2]Unrealized gains on derivatives are included in *Change in unrealized gains/(losses) of investments and derivative contracts* on the Consolidated Statements of Activities.

[3]The variable interest rate is reset on a weekly basis except for the note payable which is reset monthly.

5. INVESTMENT OPERATIONS

Investment Expenses

The Institute incurred expenses in the production of investment income, which include routine internal operating expenditures, external management fees, incentive fees, and custodial fees. These direct expenses totaled $92.6 million and $89.0 million for the fiscal years ended August 31, 2018 and 2017, respectively.

Investment Receivables and Payables

The Institute's investment receivables and payables as of August 31, 2018 and 2017 consist of the following:

(In thousands)

	2018		2017	
	Receivable	Payable	Receivable	Payable
Securities pending settlement	$ 37,003	$ 36,992	$ 188,549	$ 62,444
Interest and dividend	18,317	-	19,469	-
Management fees	-	12,895	-	7,063
Other	-	757	-	641
Total	$ 55,320	$ 50,644	$ 208,018	$ 70,148

6. LAND, BUILDINGS, LABORATORY SPACE, AND EQUIPMENT

The cost and accumulated amortization and depreciation of the Institute's investment in land, buildings, laboratory space, and equipment as of August 31, 2018 and 2017 are as follows:

(In thousands)

	2018	2017
Land	$ 91,349	$ 86,693
Buildings	757,976	765,080
Laboratory space and leasehold improvements	358,579	362,328
Equipment, furniture and fixtures	552,290	555,544
	1,760,194	1,769,645
Less: Accumulated depreciation and amortization	(1,093,879)	(1,069,964)
	666,315	699,681
Construction in progress	18,150	12,240
Total	$ 684,465	$ 711,921

Depreciation expense was approximately $76.7 million and $79.7 million for the fiscal years ended August 31, 2018 and 2017, respectively.

7. BONDS AND NOTE PAYABLE

Tax-exempt bonds payable

On May 15, 2013, the Institute issued $33.1 million of tax-exempt bonds through the Industrial Development Authority of Loudoun County, Virginia ("IDA") to finance the construction of an 86-unit apartment building at the Janelia Research Campus, to be used by scientists and others engaged in research and administration at the Campus. The bonds carry a variable interest rate determined on a weekly basis and mature on June 1, 2043.

On October 2, 2009, the Institute issued $23.0 million of tax-exempt bonds through the IDA to finance the construction of a 60-unit apartment building at the Janelia Research Campus, to be used by scientists and others engaged in research and administration at the Campus. The bonds carry a variable interest rate determined on a weekly basis and mature on October 1, 2039.

On May 15, 2008, the Institute issued $76.5 million of bonds through the Maryland Economic Development Corporation ("MEDCO") to refund $76.5 million of outstanding bonds issued on November 8, 1990, to finance the construction of the Institute's headquarters and conference center complex. The bonds carry a variable interest rate determined on a weekly basis, and mature on May 15, 2043.

On February 21, 2008, the Institute issued $83.5 million in tax-exempt bonds through MEDCO to finance the expansion of the Institute's existing headquarters and conference facilities. The bonds carry a variable interest rate determined on a weekly basis and mature on February 15, 2043.

On February 27, 2003, the Institute issued $500.0 million in tax-exempt bonds through the IDA to finance construction of the Janelia Research Campus. The bonds carry a variable interest rate determined on a weekly basis and mature on February 15, 2038.

Prior to the maturity of each of these tax-exempt bond issues, the Institute is obligated upon seven-day notice from a holder to redeem any or all bonds unless the remarketing agent is able to place the bonds with another party or hold them in their own portfolio. To date, no remarketing agents have failed to fulfill their obligations under their respective remarketing agreements. The Institute maintains sufficient cash and marketable securities to pay any bondholder redemption of part or all of the $716.1 million outstanding as of August 31, 2018.

Taxable bond payable

On July 22, 2013, the Institute issued $1.2 billion of taxable fixed rate bonds to establish a program spending reserve. The bonds carry a fixed interest rate of 3.5%, a yield to maturity of 3.52%, and a maturity date of September 1, 2023. Interest is payable semi-annually in March and September. Accrued interest at August 31, 2018 and 2017 was $21 million and $21 million, respectively, and is included in Accounts payable and accrued liabilities.

Note payable

In June 2003, the Institute entered into a renewable promissory note to finance the commercially-used land and buildings at the Janelia Research Campus that could not be financed with tax-exempt debt. Each year, the Institute has renewed the note. In June 2018, the Institute renewed the current note, which has a principal balance of $40.4 million, carries monthly interest payments based on the one-month LIBOR rate plus twenty-five (25) basis points, and matures May 21, 2019.

Interest Rate Swaps

All variable rate debt has been synthetically fixed using variable-to-fixed interest rate swaps. Refer to Note 4 for information related to the debt-related interest rate swaps.

Bonds and note payables for the Institute as of August 31, 2018 are as follows:

August 31, 2018 (In thousands)	As of August 31, 2018		For the year ended August 31, 2018	
	Calendar Year of Maturity	Outstanding Principal	Average Interest Rate[1]	Bond Interest Expense
Tax-exempt bonds payable:				
Janelia Research Campus Apartment B	2043	$ 33,130	1.17%	$ 367
Janelia Research Campus Apartment A	2039	23,000	1.19%	261
Headquarters and conference center	2043	76,500	1.19%	866
Headquarters and conference center expansion	2043	83,500	1.20%	1,102
Janelia Research Campus	2038	500,000	1.20%	6,040
Taxable bond payable:				
Program Spending Reserve	2023	1,200,000	3.50%	42,000
Total bonds payable		1,916,130		50,636
Amortization of bond discount/issuance costs				780
Unamortized bond discount/issuance costs		(4,143)		
Net bonds payable		1,911,987		51,416
Note payable:				
Janelia commercial property	2019	40,376	1.83%	717
Total note payable		40,376		717
Total		$ 1,952,363		$ 52,133

[1] The variable interest rate is reset on a weekly basis except for the note payable which is reset monthly.

Bonds and note payables for the Institute as of August 31, 2017 are as follows:

August 31, 2017 (In thousands)	As of August 31, 2017		For the year ended August 31, 2017	
	Calendar Year of Maturity	Outstanding Principal	Average Interest Rate[1]	Bond Interest Expense
Tax-exempt bonds payable:				
Janelia Research Campus Apartment B	2043	$ 33,130	0.71%	$ 234
Janelia Research Campus Apartment A	2039	23,000	0.73%	166
Headquarters and conference center	2043	76,500	0.73%	554
Headquarters and conference center expansion	2043	83,500	0.73%	609
Janelia Research Campus	2038	500,000	0.73%	3,633
Taxable bond payable:				
Program Spending Reserve	2023	1,200,000	3.50%	42,000
Total bonds payable		1,916,130		47,196
Amortization of bond discount/issuance costs				780
Unamortized bond discount/issuance costs		(4,922)		
Net bonds payable		1,911,208		47,976
Note payable:				
Janelia commercial property	2018	40,376	0.98%	398
Total note payable		40,376		398
Total		$ 1,951,584		$ 48,374

[1]The variable interest rate is reset on a weekly basis except for the note payable which is reset monthly.

The interest expense in total for the years ended August 31, 2018 and 2017, was $64.9 million and $64.9 million, respectively, of which bond and note interest expense was $52.1 million and $48.4 million, respectively, and of which net swap interest expense was $12.5 million and $16.6 million, respectively.

The future annual principal payments required for the bonds and note payable are as follows:

(In thousands) Fiscal Year	Principal payments
2019	$ 40,376
2020	-
2021	-
2022	-
2023	-
Thereafter	1,916,130
Total	$ 1,956,506

The total interest paid in cash for the bonds and note payable, interest rate swaps, and capital equipment leases was approximately $65.8 million and $64.3 million for the years ended August 31, 2018 and 2017, respectively.

8. COMMITMENTS AND CONTINGENCIES

Occupancy Lease Obligations

The Institute occupies space that it uses for medical research at each of its host institutions under collaboration agreements that may be considered leases for financial statement purposes. Under these arrangements, the Institute appoints biomedical researchers, referred to as investigators, at host institutions; employs these investigators and members of their laboratory teams; and provides investigators with laboratory budgets to cover research costs. The collaboration agreements generally require the Institute to pay occupancy charges for a reasonable amount of laboratory and office space occupied by Institute investigators, and to reimburse certain other research-related costs. The host institution provides laboratory and office space together with related maintenance and repairs, and is responsible for a range of functions including animal care, laboratory safety, hazardous materials purchasing, management and disposal, and management of intellectual property created by Institute scientists. The Institute typically has contractual rights to occupy host institution facilities for as long as Institute investigators are at that host institution. The Institute's obligation to pay a host institution occupancy charges is not fixed, and will vary depending on the number of investigators at a host institution and the space occupied by each of them, up to per-investigator limits set by the Institute.

Laboratory and other space charges, excluding amortization of leasehold improvements, totaled $51.4 million and $54.6 million for the years ended August 31, 2018 and 2017, respectively.

Estimated minimum annual occupancy fees and other payments due under these agreements as of August 31, 2018, are summarized below:

(In thousands)

Fiscal Year	Occupancy Fees
2019	$ 48,799
2020	48,799
2021	48,799
2022	48,799
2023	48,799
Total	$ 243,995

Capital Equipment Lease Obligations

As of August 31, 2018 and 2017, the Institute had 26 and 20 capital leases totaling $25.0 million and $17.8 million, respectively, to cover scientific and information technology equipment. Total accumulated amortization related to the leased equipment is $7.1 million and $5.0 million, respectively. The Institute's unamortized capital lease obligation of $17.9 million and $12.5 million are included in *Laboratory Space, Equipment, Buildings and Other Property, net* at August 31, 2018 and 2017, respectively. Amortization of assets under capital leases is included in *Medical Research* or *General Administration* expenses, depending upon the use of the asset. Interest paid on these obligations for the years ended August 31, 2018 and 2017 was $0.3 million and $0.2 million, respectively.

The following table presents the net minimum future lease payments under capital leases as of August 31, 2018:

(In thousands) Fiscal Year	Capital Leases
2019	$ 7,790
2020	6,444
2021	4,425
2022	26
Less amount representing interest	(781)
Present value of minimum lease payments	$ 17,904

Grant Commitments

The timing of the Institute's grant payments and the associated discount is presented below:

(In thousands) Fiscal Year	Grant Payments
2019	$ 65,368
2020	40,474
2021	36,553
2022	18,850
2023	1,000
Discount	(4,924)
Net Liability	$ 157,321

9. EMPLOYEE BENEFITS

Defined Contribution Retirement Plan

The Institute has a defined contribution plan under section 403(b) of the Internal Revenue Code. The Institute's plan contributions on behalf of its employees were $20.9 million and $22.8 million for the years ended August 31, 2018 and 2017, respectively.

Deferred Compensation Plan

The Institute has an unfunded deferred compensation plan in accordance with Section 457(b) of the Internal Revenue Code. The fair value of the assets and related liability to employees as of August 31, 2018 and 2017 was approximately $49.9 million and $45.0 million, respectively, and is reflected in the Consolidated Statements of Financial Position within *Other assets* and *Accounts payable and accrued liabilities.*

10. POSTRETIREMENT AND POSTEMPLOYMENT BENEFITS

The Institute maintains unfunded defined postretirement and postemployment benefit plans that provide eligible retirees with medical, prescription drug, vision, dental, life insurance, and disability programs. The total obligation for these benefits reflected in the Consolidated Statements of Financial Position was $370.3 million and $412.6 million at August 31, 2018 and 2017, respectively.

Effective January 1, 2017, there were changes made to the postretirement benefit plan terms related to eligibility and retiree contribution requirements impacting both current and future retirees. The change in plan terms triggered a negative plan amendment and re-measurement as of September 30, 2016. The assumptions and methods used at the September 30, 2016, re-measurement date are the same as those used at August 31, 2017, except for the discount rate being updated to 3.80% for the Retiree Welfare Benefit Plan. The estimated prior service credit for the postretirement plan that will be amortized into expense over 6.5 years was approximately $102 million. The amortization period represents the remaining years of service to the full eligibility date and was approximately $15.6 million and $14.3 million for the years ended August 31, 2018 and 2017, respectively.

The following table summarizes the postretirement plan's unfunded status and the amount of the accumulated postretirement benefit plan costs for the years ended August 31, 2018 and 2017:

(In thousands)		
Accrued Benefit Liability:	2018	2017
Accumulated postretirement benefit obligation, beginning of year	$ 409,335	$ 458,979
Service cost	17,056	15,660
Interest cost	15,618	13,512
Employee contributions	1,388	692
Plan amendments	-	(101,644)
Direct benefit payments	(6,967)	(6,635)
Net actuarial (gain) loss	(68,775)	(17,180)
Elimination of RDS subsidy	-	45,951
Accumulated benefit obligation, end of year	$ 367,655	$ 409,335
Change in fair value of plan assets:		
Fair value of plan assets, beginning of year	$ -	$ -
Employer direct benefit payments	5,579	5,943
Employee contributions	1,388	692
Direct benefit payments	(6,967)	(6,635)
Fair value of plan assets, end of year	$ -	$ -
Reconciliation of funded status:		
Funded status	$ (367,655)	$ (409,335)
Accumulated postretirement benefit liability included in the Consolidated Statements of Financial Position	$ (367,655)	$ (409,335)
Changes in plan assets and benefit obligations recognized in net assets:		
New prior service cost	$ -	$ (101,644)
Net (gain) loss arising during the year	(68,775)	28,771
Amortization recognition of prior service credit	15,566	14,269
Amortization recognition of net gain (loss)	68,775	(28,771)
Total recognized in net assets	$ 15,566	$ (87,375)
Estimated amount that will be amortized from accumulated net assets over the next fiscal year:		
Prior service credit	$ 15,566	$ 15,566
Total estimated amount to be amortized from other plan changes over the next fiscal year	$ 15,566	$ 15,566
Components of net periodic benefit cost:		
Service cost	$ 17,056	$ 15,660
Interest cost	15,618	13,512
Amortization of prior service cost	(15,566)	(14,269)
Immediate recognition of net actuarial (gain) loss	(68,775)	28,771
Net periodic benefit cost	$ (51,667)	$ 43,674
Amounts recorded in net assets not yet amortized as components of net periodic benefit cost:		
Prior service cost	$ (71,809)	$ (87,375)
Amount recognized as an increase in net assets	$ (71,809)	$ (87,375)

The discount rate assumed in determining the actuarial present value of accumulated postretirement benefit obligations was 4.20% and 3.85% as of August 31, 2018 and 2017, respectively. The average health care cost trend rate assumption used to determine the accumulated postretirement benefit obligation at August 31, 2018, was 6.12% for fiscal year 2018 and decreases each successive year until it reaches 4.50% in fiscal year 2039. A 1% increase in each year of this annual trend rate would increase the accumulated postretirement benefit obligation at August 31, 2018, by approximately $123.6 million. A 1% decrease in the trend rate would decrease the accumulated postretirement benefit obligation at August 31, 2018, by approximately $67.3 million.

Health coverage is provided to employees who qualify for the Institute's long-term disability benefit until the age of 65. This postemployment benefit cost was $0.2 million and $1.3 million for the years ended August 31, 2018 and 2017, respectively.

Under the provisions of the Medicare Prescription Drug, Improvement, and Modernization Act, the Institute is eligible for a 28% subsidy from Medicare on its prescription drug benefits for Medicare-eligible retirees. However, because of new compliance obligations associated with receipt of the Medicare subsidy, effective fiscal year 2017, HHMI did not apply for this subsidy, nor does HHMI expect to apply for or receive this subsidy in future fiscal years.

The postretirement benefit contributions equate to the benefit claims paid out under the plan. The postretirement benefits that are expected to be paid in each of the next five fiscal years, which reflects expected future service, and in the aggregate for the five fiscal years thereafter, are as follows:

(In thousands)

Fiscal Year	Expected Benefit Payments
2019	$ 6,886
2020	7,815
2021	8,888
2022	9,980
2023	11,208
2024 - 2028	77,381

11. TAXES

Net tax refunds due or received on income totaled approximately $0.4 million and $0.6 million for the years ended August 31, 2018 and 2017, respectively. Taxes paid on income totaled approximately $0.3 million and $1.4 million for the years ended August 31, 2018 and 2017, respectively.

12. MEDICAL RESEARCH ORGANIZATION

The Institute is classified as a medical research organization for federal income tax purposes under Section 170(b)(1)(A)(iii) of the Internal Revenue Code of 1986, as amended (the "Code"). The Institute is not a private foundation under Chapter 42 of the Code.

13. SUBSEQUENT EVENTS

Management has performed an evaluation of subsequent events through November 16, 2018, which is the date that the financial statements were issued. During the second quarter of fiscal year 2019, management intends to extinguish the $1.2 billion of debt related to the Program Spending Reserve.