

Howard Hughes Medical Institute

Consolidated Financial Statements
for the years ended August 31, 2017 and 2016
and Report of Independent Auditors Thereon



Report of Independent Auditors

To the Trustees of the
Howard Hughes Medical Institute:

We have audited the accompanying consolidated financial statements of the Howard Hughes Medical Institute and its subsidiaries (the "Institute"), which comprise the consolidated statements of financial position as of August 31, 2017 and August 31, 2016, and the related consolidated statements of operations and changes in net assets 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 the Howard Hughes Medical Institute and its subsidiaries as of August 31, 2017 and August 31, 2016, 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 17, 2017

HOWARD HUGHES MEDICAL INSTITUTE

Consolidated Statements of Financial Position
August 31, 2017 and 2016

(In thousands)

<u>Assets</u>	<u>2017</u>	<u>2016</u>
Cash and cash equivalents	\$ 522,856	\$ 464,456
Investment receivables	208,018	242,597
Investments	21,070,786	19,564,390
Land, buildings, laboratory space, and equipment, net	711,921	738,818
Other assets	75,347	72,508
Total assets	<u>\$ 22,588,928</u>	<u>\$ 21,082,769</u>
 <u>Liabilities</u>		
Accounts payable and accrued liabilities	\$ 124,599	\$ 125,139
Investment payables	70,148	44,635
Investment and derivative liabilities	534,942	554,875
Grant commitments	173,350	161,168
Post-retirement/employment obligations	412,572	461,949
Capital financing		
Note payable	40,376	40,376
Capital lease obligation	12,535	8,639
Bonds payable	1,911,208	1,910,428
Total liabilities	3,279,730	3,307,209
Net assets	<u>19,309,198</u>	<u>17,775,560</u>
Total liabilities and net assets	<u>\$ 22,588,928</u>	<u>\$ 21,082,769</u>

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

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Consolidated Statements of Operations and Changes in Net Assets
For the Years Ended August 31, 2017 and 2016

(In thousands)

<u>Revenue</u>	<u>2017</u>	<u>2016</u>
Investment earnings		
Interest, dividends, and other income from investments	\$ 192,721	\$ 215,471
Realized gains on investment and derivative contracts, net	1,332,884	706,253
Change in unrealized gains/(losses) of investments and derivative contracts	934,016	(462,519)
Expenses incurred in the production of income		
Investment management expenses	(88,993)	(92,862)
Interest, dividends, and other expenses from investments	(14,311)	(13,729)
Net investment earnings	<u>2,356,317</u>	<u>352,614</u>
Intellectual property and other income	<u>26,460</u>	<u>280,021</u>
Total revenue	<u>2,382,777</u>	<u>632,635</u>
<u>Expenses</u>		
Program activities		
Medical research	659,764	712,733
Science education and other scientific programs	119,379	168,219
General and administrative	91,643	83,372
Interest expense	<u>65,728</u>	<u>63,986</u>
Total expenses	<u>936,514</u>	<u>1,028,310</u>
Increase/(decrease) in net assets from operating activities	1,446,263	(395,675)
<u>Other changes</u>		
Postretirement changes other than net periodic costs	<u>87,375</u>	<u>-</u>
Total increase/(decrease) in net assets	1,533,638	(395,675)
Net assets, beginning of year	<u>17,775,560</u>	<u>18,171,235</u>
Net assets, end of year	<u>\$ 19,309,198</u>	<u>\$ 17,775,560</u>

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, 2017 and 2016

(In thousands)	2017	2016
Change in net assets	\$ 1,533,638	\$ (395,675)
<u>Adjustments to reconcile change in net assets to net cash used for operating activities</u>		
Depreciation and amortization	80,437	84,253
Postretirement changes other than net periodic costs	(101,644)	-
Loss on disposal of assets	9,509	17,891
Income earned from stock dividends	(2,717)	(5,481)
Change in receivables	31,803	(33,938)
Change in securities pledged as collateral	-	269,307
Change in operating payables and accrued liabilities	24,538	(57,739)
Change in grant commitments	12,182	42,789
Change in post-retirement/employment obligations	52,267	55,897
Realized gains on investments and derivative contracts, net	(1,332,884)	(706,253)
Change in unrealized (gains)/losses of investments and derivative contracts	(934,016)	462,519
Net cash used for operating activities	<u>(626,887)</u>	<u>(266,430)</u>
<u>Cash flows from investing activities</u>		
Receipt of escrowed bond proceeds	-	1,556
Building and equipment purchases	(61,896)	(79,443)
Sale of equipment	8,244	7,503
Proceeds from sales, maturities of investments, securities sold short and derivative contracts	10,760,477	13,667,781
Purchases of investments, derivative contracts and purchases to cover securities sold short	(10,017,242)	(13,176,532)
Net cash provided by investing activities	<u>689,583</u>	<u>420,865</u>
<u>Cash flows from financing activities</u>		
Repayment on capital lease obligations	(4,296)	(3,863)
Proceeds from repurchase obligations	-	(269,583)
Net cash used for financing activities	<u>(4,296)</u>	<u>(273,446)</u>
Net increase/(decrease) in cash	58,400	(119,011)
Cash and cash equivalents, beginning of year	<u>464,456</u>	<u>583,467</u>
Cash and cash equivalents, end of year	<u>\$ 522,856</u>	<u>\$ 464,456</u>

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

HOWARD HUGHES MEDICAL INSTITUTE

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS FOR THE YEARS ENDED AUGUST 31, 2017 AND 2016

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 ("U.S. 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

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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 Operations and Changes in Net Assets.

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 Operations and Changes in Net Assets. The Institute does not isolate that portion of the results of operations resulting from changes in foreign exchange 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 the net realized gains/(losses) on investments and derivative contracts. 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 Operations and Changes in Net Assets 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

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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 Operations and Changes in Net Assets. 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
Equipment and furniture	5
Leasehold improvements	5-10
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 Operations and Changes in Net Assets.

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, 2017. For multi-year

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awards, grant commitments are recorded as expenses in the Consolidated Statements of Operations and Changes in Net Assets 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.

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.

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.

Recent Accounting Pronouncements

Standards adopted in the current year:

In August 2014, the Financial Accounting Standards Board (“FASB”) issued ASU 2014-15, *Presentation of Financial Statements – Going Concern (Subtopic 205-40)*. This new standard requires that management, in connection with preparing financial statements for each annual and interim reporting period, evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the entity’s ability to continue as a going concern within one year after the date that the financial statements are issued. The standard is effective for fiscal years beginning after December 16, 2016. The adoption of this standard in the current year did not have a material impact on the financial statements.

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 January 2017, the FASB issued 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

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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. This ASU is effective for fiscal years beginning after December 15, 2016. 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. 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 FASB issued the *Revenue from Contracts with Customers* standard effective for annual reporting periods beginning after December 15, 2018. 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

Investments held by the Institute are measured and recorded at fair value. The investment categories, valuation methodology, fair value hierarchy, and related commitments for fiscal years August 31, 2017 and 2016 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 over the counter ("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

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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, 2017 and 2016, 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 monthly 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, 2017 and 2016. 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.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
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The following tables present the financial instruments carried at fair value as of August 31, 2017 and 2016 according to the valuation hierarchy defined above.

August 31, 2017

(In thousands)

	Quoted Market Prices (Level 1)	Other Observable Inputs (Level 2)	Unobservable Inputs (Level 3)	Total Fair Value
<u>Assets</u>				
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
<u>Liabilities</u>				
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

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August 31, 2016

(In thousands)

	Quoted Market Prices (Level 1)	Other Observable Inputs (Level 2)	Unobservable Inputs (Level 3)	Total Fair Value
Assets				
Deferred compensation plan assets	\$ 34,510	\$ -	\$ 4,491	\$ 39,001
Investments:				
Equity	3,696,750	390	91,474	3,788,614
Fixed income securities	-	2,513,519	69,484	2,583,003
Preferred securities	4,759	57,654	29,448	91,861
Convertible securities	-	6	-	6
Alternative investments	-	-	242,388	242,388
Derivatives	4,929	12,945	-	17,874
Total	3,706,438	2,584,514	432,794	6,723,746
Alternative investments measured under the NAV-practical expedient				12,840,644
Total investments	3,706,438	2,584,514	432,794	19,564,390
Total assets at fair value	\$ 3,740,948	\$ 2,584,514	\$ 437,285	\$ 19,603,391
Liabilities				
Investments and derivatives:				
Equity short positions	\$ 320,938	\$ -	\$ -	\$ 320,938
Preferred short positions	1,610	-	-	1,610
Real assets short positions	7,192	-	-	7,192
Derivatives	-	225,135	-	225,135
Total investments and derivatives	\$ 329,740	\$ 225,135	\$ -	\$ 554,875

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The following tables present the activity for instruments classified within Level 3 of the fair value hierarchy as defined above for the years ended August 31, 2017 and 2016:

For the year ended as of August 31, 2017

(In thousands)

Fair value measurements using significant unobservable inputs (Level 3)	Beginning balance as of September 1, 2016		Sales and maturities	Net realized and unrealized gains (losses)		Transfers in	Transfers out	As of August 31, 2017
	Purchases							
Deferred compensation funds	\$ 4,491	\$ 1,009	\$ -	\$ 145	\$ -	\$ -	\$ -	\$ 5,645
Investments:								
Equity	91,474	9,585	(7,749)	24,970	-	-	-	118,280
Fixed income securities	69,484	18,504	(15,498)	(6,115)	-	-	-	66,375
Preferred securities	29,448	-	(34,790)	9,325	-	-	-	3,983
Alternative investments	242,388	23,143	(49,522)	38,292	-	(28,495)	-	225,806
Total investments	432,794	51,232	(107,559)	66,472	-	(28,495)	-	414,444
Totals	\$ 437,285	\$ 52,241	\$ (107,559)	\$ 66,617	\$ -	\$ (28,495)	\$ -	\$ 420,089

For the year ended as of August 31, 2016

(In thousands)

Fair value measurements using significant unobservable inputs (Level 3)	Beginning balance as of September 1, 2015		Sales and maturities	Net realized and unrealized gains (losses)		Transfers in	Transfers out	As of August 31, 2016
	Purchases							
Deferred compensation funds	\$ 4,073	\$ 298	\$ -	\$ 120	\$ -	\$ -	\$ -	\$ 4,491
Investments:								
Equity	83,259	13,447	(428)	(4,617)	-	(187)	-	91,474
Fixed income securities	104,128	19,913	(57,079)	1,560	962	-	-	69,484
Preferred securities	29,673	-	-	(225)	-	-	-	29,448
Alternative investments	64,807	20,871	(544)	(6,691)	163,945	-	-	242,388
Total investments	281,867	54,231	(58,051)	(9,973)	164,907	(187)	(187)	432,794
Totals	\$ 285,940	\$ 54,529	\$ (58,051)	\$ (9,853)	\$ 164,907	\$ (187)	\$ (187)	\$ 437,285

The tables above exclude 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)*. In the tables above, net change in unrealized gains/(losses) relating to assets still held as of August 31, 2017 and 2016 totaled approximately \$24.2 million and \$(21.6) million, respectively. These gains/(losses) are included in *Change in unrealized gains/(losses) of investments and derivative contracts*.

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, 2017.

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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, 2017 and 2016, 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, 2017

(In thousands)

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

August 31, 2016

(In thousands)

Asset Class	Valuation Techniques	Fair Value 2016	Unobservable Inputs	Range of Inputs
Deferred compensation funds Equity	Discounted cash flows	\$ 4,491	Risk-adjusted discount rate	3.25% - 5.10%
	Market/Income approach	58,424	EBITDA multiple	7.7x - 16.2x
		10,642	Growth rate	3% - 5%
		8,730	Price per share	\$0.61 - \$9
	Discounted cash flows	13,678	Discount rate	11% - 12%
Fixed income securities	Cost plus accrued interest	69,484	Interest rate	0% - 11%
Preferred securities	Market/Income approach	26,590	EBITDA multiple	5.0x - 17.0x
	Discounted cash flows	2,858	Discount rate	11% - 12%
Alternative Investments	Market/Income approach	93,042	EBITDA multiple	1.0x - 17.0x
	Contract annuity value	104,959	Surrender value	n/a
	Amortized cost	32,053	n/a	n/a
	Discounted cash flows	12,334	Discount rate	10% - 20%
Total		<u>\$ 437,285</u>		

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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, 2017 and 2016, respectively:

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	<u>\$ 13,957,454</u>	<u>\$ 3,461,436</u>		

¹The 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.

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August 31, 2016
(In thousands)

	Fair Value as of August 31, 2016	Unfunded Commitment	Remaining Life ¹	Redemption Terms & Restrictions
Private equity	\$ 3,485,694	\$ 1,741,627	0 to 12 years	Not redeemable and held for the life of the investment.
Hedged equity	2,317,213	-	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	2,259,038	929,510	0 to 11 years	Not redeemable and held for the life of the investment.
Equity commingled	2,216,049	-	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 30-90 days. Investments with revolving lockup provisions are redeemable with advance notice of 30-90 days of the next lockup expiration date.
Real assets	1,278,667	505,733	0 to 14 years	Not redeemable and held for the life of the investment.
Market neutral	1,283,983	15,000	n/a	Investments with expired one-time lockup or no lockup provisions are redeemable on a periodic basis with advance notice of 30-100 days.
Total alternative investments	<u>\$ 12,840,644</u>	<u>\$ 3,191,870</u>		

¹The 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 \$3.6 billion and \$3.3 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, 2017 and 2016, 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 13 years.

Obligations under Security Lending Agreements

The Institute lent securities to third parties with a market value of approximately \$2.6 million and \$15.3 million as of August 31, 2017 and 2016, respectively, and are included in the Consolidated Statements of Financial Position in *Investments*. In connection with the securities lending program, collateral must

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be maintained at 102% and 105% of the market value of domestic and foreign loaned securities, respectively. During the period securities are on loan, all dividends and interest accrue and are paid to the third party, but amounts due to the Institute are forwarded by the lending agent to the Institute shortly after receipt. Collateral designated for the Institute's benefit by third parties is held at the Institute's custodian bank and is not included in the Consolidated Statements of Financial Position in accordance with ASC 860 *Transfers and Servicing*. Loaned securities and collateral, which may consist of cash or U.S. Treasuries, are marked to market daily. The value of collateral posted was \$4.1 million and \$17.2 million at August 31, 2017 and 2016, respectively. Income from securities lending activities totaled approximately \$0.6 million and \$1.2 million for August 31, 2017 and 2016, 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 Operations and Changes in Net Assets. 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, 2017, 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, 2017 and 2016 of approximately \$36.1 million and \$20.4 million, respectively, in the normal course of business. The Institute received no collateral as of August 31, 2017 and 2016.

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The following tables present the derivatives held as of August 31, 2017 and 2016, respectively, by their primary underlying risk exposure. These derivatives are not designated as hedging instruments under ASC 815 *Derivatives and Hedging*.

(In thousands)

Primary Risk Exposure	As of August 31, 2017		For the year ended August 31, 2017	
	Gross derivative assets	Gross derivative liabilities	Net realized gains/(losses)	Net unrealized gains/(losses)
<u>Equity Instruments</u>				
Equity futures	\$ -	\$ -	\$ -	\$ -
Equity swaps	-	-	(2,157)	(1,983)
Contracts for difference	3,515	5,764	11,250	(2,390)
Participatory notes	-	-	-	-
Total equity instruments	3,515	5,764	9,093	(4,373)
<u>Fixed income instruments</u>				
Fixed income futures	-	-	(850)	-
Interest rate swaps	-	148,892	-	70,681
Total fixed income instruments	-	148,892	(850)	70,681
<u>Currency instruments</u>				
Currency futures	-	-	-	-
Currency exchange contracts	2,775	1,797	(1,422)	(946)
Total currency instruments	2,775	1,797	(1,422)	(946)
<u>Commodity instruments</u>				
Commodity futures	-	-	-	-
Total commodity futures	-	-	-	-
<u>Credit instruments</u>				
Credit default swaps	-	-	-	-
Total credit instruments	-	-	-	-
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 Operations and Changes in Net Assets.

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(In thousands)

Primary Risk Exposure	As of August 31, 2016		For the year ended August 31, 2016	
	Gross derivative assets	Gross derivative liabilities	Net realized gains/(losses)	Net unrealized gains/(losses)
<u>Equity Instruments</u>				
Equity futures	\$ -	\$ -	\$ (7,161)	\$ 1,125
Equity swaps	1,983	-	13,196	230
Contracts for difference	1,947	1,807	(604)	(2,584)
Participatory notes	8,265	-	1,654	263
Total equity instruments	12,195	1,807	7,085	(966)
<u>Fixed income instruments</u>				
Fixed income futures	-	-	(1,216)	1,040
Interest rate swaps	-	219,573	-	(77,120)
Total fixed income instruments	-	219,573	(1,216)	(76,080)
<u>Currency instruments</u>				
Currency futures	-	-	1,200	(1,992)
Currency exchange contracts	5,679	3,755	(24,740)	9,680
Total currency instruments	5,679	3,755	(23,540)	7,688
<u>Commodity instruments</u>				
Commodity futures	-	-	(706)	(296)
Total commodity futures	-	-	(706)	(296)
<u>Credit instruments</u>				
Credit default swaps	-	-	(1)	-
Total credit instruments	-	-	(1)	-
Total	\$ 17,874	\$ 225,135	\$ (18,378)	\$ (69,654)

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 Operations and Changes in Net Assets.

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Derivative notional amounts and values as of August 31, 2017 and 2016 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 \$342.9 million and \$219.4 million, respectively, at August 31, 2017, and \$472.9 million and \$344.8 million, respectively, at August 31, 2016.

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. The Institute did not have exposure to futures contracts as of August 31, 2017 and 2016.

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, 2017 and 2016, the Institute had entered into various contracts for difference with notional exposures at fair values as follows:

(In thousands)

	2017		2016	
	Buy	Sell	Buy	Sell
Equity indexes	\$ 78,790	\$ (116,912)	\$ 40,680	\$ (51,088)

Participatory Notes

Participatory notes are equity derivative products that allows foreign investors to participate in the restricted local markets of foreign countries. These instruments are issued by foreign institutional investors to overseas investors who want to invest in markets without registering with the market regulators. The Institute did not have exposure to participatory notes as of August 31, 2017. The notional amount of participatory notes was \$8.3 million as of August 31, 2016.

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 \$0.0 million and \$65.7 million as of August 31, 2017 and 2016, respectively.

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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, 2017 and 2016, and unrealized losses for the years then ended.

August 31, 2017
(In thousands)

Debt-related interest-rate swaps:	Termination Date	As of August 31, 2017		For the year ended August 31, 2017	
		Notional Amount	Gross Derivative Liabilities ¹	Unrealized Gains (Losses) ²	Fixed Rate ⁴
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, 2017	40,376	-	-	1.14%
Janelia Commercial Property ³	May 21, 2022	40,376	(865)	1,051	1.14%
Total			\$ 148,892	\$ 70,681	

¹Gross derivative liabilities are included in *Investment and derivative liabilities* on the Consolidated Statements of Financial

²Unrealized gains/(losses) on derivatives are included in *Change in unrealized gains/(losses) of investments and derivative contracts* on the Consolidated Statements of Operations and Changes in Net Assets.

³HHMI entered into an interest rate swap with an effective date of May 21, 2017, and a termination date of May 21, 2022 to replace the one formerly in-place for the Janelia Commercial Property. No interest payments for the new swap were made until the effective date.

⁴The variable interest rate is reset on a weekly basis except for the note payable which is reset monthly.

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August 31, 2016
(In thousands)

Debt-related interest-rate swaps:	Termination Date	As of August 31, 2016		For the year ended August 31, 2016	
		Notional Amount	Gross Derivative Liabilities ¹	Unrealized Gains (Losses) ²	Fixed Rate ⁴
Janelia Research Campus Apartment B	June 1, 2043	\$ 33,130	\$ 7,731	\$ (5,088)	2.10%
Janelia Research Campus Apartment A	October 1, 2039	23,000	7,689	(3,121)	2.75%
Headquarters and conference center	November 1, 2036	76,500	31,402	(8,371)	3.48%
Headquarters and conference center expansion	March 1, 2038	83,500	34,829	(10,700)	3.30%
Janelia Research Campus	February 15, 2038	75,000	29,656	(9,550)	3.19%
	March 1, 2033	150,000	15,336	(14,273)	1.68%
	March 1, 2033	125,000	42,346	(10,729)	3.38%
	March 1, 2033	100,000	33,682	(8,633)	3.36%
	October 1, 2039	50,000	16,716	(6,787)	2.75%
Janelia Commercial Property	May 21, 2017	40,376	132	186	1.14%
Janelia Commercial Property ³	May 21, 2022	40,376	54	(54)	1.14%
Total			\$ 219,573	\$ (77,120)	

¹Gross derivative liabilities are included in *Investment and derivative liabilities* on the Consolidated Statements of Financial

²Unrealized gains/(losses) on derivatives are included in *Change in unrealized gains/(losses) of investments and derivative contracts* on the Consolidated Statements of Operations and Changes in Net Assets.

³HHMI entered into an interest rate swap with an effective date of May 21, 2017, and a termination date of May 21, 2022 to replace the one formerly in-place for the Janelia Commercial Property. No interest payments for the new swap were made until the effective date.

⁴The 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 \$89.0 million and \$92.9 million for the fiscal years ended August 31, 2017 and 2016, respectively.

Investment Receivables and Payables

The Institute's investment receivables and payables as of August 31, 2017 and 2016 consist of the following:

(In thousands)

	2017		2016	
	Receivable	Payable	Receivable	Payable
Securities pending settlement	\$ 188,549	\$ 62,444	\$ 226,843	\$ 39,830
Interest and dividend	19,469	-	15,588	-
Management fees	-	7,063	-	4,425
Other	-	641	166	380
Total	\$ 208,018	\$ 70,148	\$ 242,597	\$ 44,635

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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, 2017 and 2016 are as follows:

(In thousands)

	2017	2016
Land	86,693	\$ 86,693
Buildings	765,080	762,014
Laboratory space and leasehold improvements	362,328	367,555
Equipment, furniture and fixtures	555,544	552,465
	<u>1,769,645</u>	<u>1,768,727</u>
Less: accumulated depreciation and amortization	(1,069,964)	(1,048,523)
	699,681	720,204
Construction in progress	12,240	18,614
Total	<u>\$ 711,921</u>	<u>\$ 738,818</u>

7. BONDS AND NOTE PAYABLES

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.

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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, 2017.

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, 2017 and 2016 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 1-year 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 May 2017, the Institute renewed the current note, which has a balance of \$40.4 million and carries monthly interest payments based on the one-month LIBOR rate plus 0.10%.

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.

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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	
	Year of Maturity	Outstanding Principal	Average Interest Rate ¹	Bond Interest Expense
<u>Tax-exempt bonds payable:</u>				
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
<u>Taxable bond payable:</u>				
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
<u>Note payable:</u>				
Janelia commercial property	2018	40,376	0.98%	398
Total note payable		40,376		398
Total		\$ 1,951,584		\$ 48,374

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

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Bonds and note payables for the Institute as of August 31, 2016 are as follows:

August 31, 2016 (In thousands)	As of August 31, 2016		For the year ended August 31, 2016	
	Year of Maturity	Outstanding Principal	Average Interest Rate ¹	Bond Interest Expense
<u>Tax-exempt bonds payable:</u>				
Janelia Research Campus Apartment B	2043	\$ 33,130	0.18%	\$ 59
Janelia Research Campus Apartment A	2039	23,000	0.19%	44
Headquarters and conference center	2043	76,500	0.19%	145
Headquarters and conference center expansion	2043	83,500	0.19%	157
Janelia Research Campus	2038	500,000	0.19%	945
<u>Taxable bond payable:</u>				
Program Spending Reserve	2023	1,200,000	3.50%	42,000
Total bonds payable		1,916,130		43,350
Amortization of bond discount/issuance costs				780
Unamortized bond discount/issuance costs		(5,702)		
Net bonds payable		1,910,428		44,130
<u>Note payable:</u>				
Janelia commercial property	2017	40,376	0.46%	184
Total note payable		40,376		184
Total		\$ 1,950,804		\$ 44,314

¹The 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, 2017 and 2016, was \$64.9 million and \$63.4 million, respectively, of which bond and note interest expense was \$48.4 million and \$44.3 million, respectively, and of which net swap interest expense was \$16.6 million and \$19.1 million, respectively.

The interest paid in cash for the bonds and note payable was approximately \$64.3 million and \$62.6 million for the years ended August 31, 2017 and 2016, respectively.

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

(In thousands)	
Fiscal Year	Principal payments
2018	\$ 40,376
2019	-
2020	-
2021	-
2022	-
Thereafter	1,916,130
Total	\$ 1,956,506

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8. COMMITMENTS AND CONTINGENCIES

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 \$54.6 million and \$57.7 million for the years ended August 31, 2017 and 2016, respectively.

Estimated minimum annual occupancy fees and other payments due under these agreements as of August 31, 2017, are summarized below:

(In thousands)	
<u>Fiscal Year</u>	<u>Occupancy Fees</u>
2018	\$ 52,129
2019	52,129
2020	52,129
2021	52,129
2022	52,129
Total	<u>\$ 260,645</u>

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Grant commitments

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

(In thousands)	
<u>Fiscal Year</u>	<u>Grant Payments</u>
2018	\$ 63,193
2019	49,972
2020	28,072
2021	26,750
2022	9,550
2023	1,000
Discount	(5,187)
Net Liability	<u>\$ 173,350</u>

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 \$22.8 million and \$23.1 million for the years ended August 31, 2017 and 2016, 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, 2017 and 2016 was approximately \$45.0 million and \$39.0 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 \$412.6 million and \$461.9 million at August 31, 2017 and 2016, 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 \$14.3 million for the year ended August 31, 2017.

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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, 2017 and 2016:

(In thousands)	2017	2016
Accrued Benefit Liability:		
Accumulated postretirement benefit obligation, beginning of year	\$ 458,979	\$ 402,237
Service cost	15,660	18,426
Interest cost	13,512	17,950
Employee contributions	692	148
Plan amendments	(101,644)	-
Direct benefit payments	(6,635)	(7,479)
Net actuarial (gain) loss	(17,180)	27,521
Medicare subsidies received	-	176
Elimination of RDS subsidy	45,951	-
Accumulated benefit obligation, end of year	<u>\$ 409,335</u>	<u>\$ 458,979</u>
Change in fair value of plan assets:		
Fair value of plan assets, beginning of year	\$ -	\$ -
Medicare subsidies received	-	176
Employer direct benefit payments	5,943	7,155
Employee contributions	692	148
Direct benefit payments	(6,635)	(7,479)
Fair value of plan assets, end of year	<u>\$ -</u>	<u>\$ -</u>
Reconciliation of funded status:		
Funded status	<u>\$ (409,335)</u>	<u>\$ (458,979)</u>
Accumulated postretirement benefit liability included in the Consolidated Statements of Financial Position	<u>\$ (409,335)</u>	<u>\$ (458,979)</u>
Changes in plan assets and benefit obligations recognized in net assets:		
New prior service cost	\$ (101,644)	\$ -
Net loss arising during the year	28,771	27,521
Amortization recognition of prior service credit	14,269	-
Amortization recognition of net loss	(28,771)	(27,521)
Total recognized in net assets	<u>\$ (87,375)</u>	<u>\$ -</u>
Estimated amount that will be amortized from accumulated net assets over the next fiscal year:		
Prior service credit	<u>\$ 15,566</u>	<u>\$ -</u>
Total estimated amount to be amortized from other plan changes over the next fiscal year	<u>\$ 15,566</u>	<u>\$ -</u>
Components of net periodic benefit cost:		
Service cost	\$ 15,660	\$ 18,426
Interest cost	13,512	17,950
Amortization of prior service cost	(14,269)	-
Immediate recognition of net actuarial loss	28,771	27,521
Net periodic benefit cost	<u>\$ 43,674</u>	<u>\$ 63,897</u>
Amounts recorded in net assets not yet amortized as components of net periodic benefit cost:		
Prior service cost	<u>\$ (87,375)</u>	<u>\$ -</u>
Amount recognized as an increase in net assets	<u>\$ (87,375)</u>	<u>\$ -</u>

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The discount rate assumed in determining the actuarial present value of accumulated postretirement benefit obligations was 3.85% and 3.65% as of August 31, 2017 and 2016, respectively. The average health care cost trend rate assumption used to determine the accumulated postretirement benefit obligation at August 31, 2017, was 6.5% for fiscal year 2017 and decreases each successive year until it reaches 4.5% 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, 2017, by approximately \$83.5 million. A 1% decrease in the trend rate would decrease the accumulated postretirement benefit obligation at August 31, 2017, by approximately \$65.5 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 \$1.3 million and \$0.6 million for the years ended August 31, 2017 and 2016, 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. The Institute applied for and received this subsidy in fiscal year 2016, based on retiree benefits provided by the Institute in calendar year 2014. However, because of new compliance obligations associated with receipt of the Medicare subsidy, HHMI did not apply for this subsidy in fiscal year 2017, 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
2018	\$ 7,370
2019	7,671
2020	8,695
2021	9,871
2022	11,154
2023 - 2027	77,606

11. TAXES

Net tax refunds due or received on income totaled approximately \$0.6 million and \$0.4 million for the years ended August 31, 2017 and 2016, respectively. Taxes paid on income totaled approximately \$1.4 million and \$0.6 million for the years ended August 31, 2017 and 2016, 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.

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13. SUBSEQUENT EVENTS

Management has performed an evaluation of subsequent events through November 17, 2017, which is the date that the financial statements were issued, noting no events which materially affect the financial statements as of August 31, 2017.