FINANCIAL REPORT
FISCAL YEAR 2019

HARVARD UNIVERSITY

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Message from the President

I am pleased to submit Harvard University's financial results for fiscal year 2019.

In my first full year as president of Harvard, I have been privileged to witness a period of remarkable breakthroughs, discovery, and educational attainment. We celebrated the first-ever visible image of a black hole captured by researchers from the Event Horizon Telescope, a collaboration between Harvard researchers and colleagues from around the world. In Boston and Cambridge we have continued to contribute to housing, workforce development, and economic growth in the communities where we live and work. The coming year will see further progress in Allston with the opening of the new Science and Engineering Complex, further evolution of the Enterprise Research Campus, and boundary-breaking arts programming and research taking shape at the ArtLab on North Harvard Street in Barry's Corner.

By growing our financial aid budget, making the case for an immigration policy that encourages the free flow of talent and ideas, and winning a favorable judgement in the case challenging Harvard College's admissions policy, we sought to ensure that the academic experience of Harvard is accessible to a diverse array of students and scholars, committed to improving the world, from across the country and around the globe.

While our financial resources remain strong, we, along with all of our colleagues in higher education, must be conscious of the challenges in our current climate. The prospect of a long-running period of economic expansion coming to an end is very real. Uncertainty in federal research funding and the damaging tax on college and university endowments in the Tax Cuts and Jobs Act also have the potential to hinder Harvard's ability to grow investments in financial aid, teaching, and research across campus. Our challenge is to acknowledge these realities, advocate for policies and laws that will support our mission and continue to manage our finances prudently and thoughtfully so that we can make the investments in students, faculty, teaching and research that make a positive and lasting impact in the world.

I'm grateful to Harvard's friends and donors around the world, who share my confidence in the mission and values of our University, and who continue to invest in the critical work we do. This support and the careful stewardship of our resources are an essential partnership—together they enable opportunity for future generations of students and scholars who will think critically, expand the boundaries of our knowledge, and help us become the society we aspire to be.

All the best,

Lawrence S. Bacow
PRESIDENT

October 24, 2019

Financial Overview

From the Vice President for Finance and the Treasurer

Harvard University's teaching and research mission was advanced by healthy financial results during this past year, which enabled increased scholarships and financial aid, University-funded research, investments in faculty and staff, as well as renewed classroom, lab, housing and common spaces.

Please take a moment to read the Financial Overview on pages 5 through 11, to see a more detailed review of how the University's stewardship of financial resources is aimed at advancing teaching, learning, and research priorities to make a positive impact on the world.

The overall strength and financial health of the University depends upon the local management of individual schools and units. The aggregate surplus of $298 million was made possible by careful stewardship from the leaders of Harvard's schools and units in matching expenditures with revenues. Individual surpluses are earned and retained locally and are being used across the University to further advance mission-related priorities, reduce debt, and build reserve funds for future investments or inevitable "rainy days" to come.

Distributions from the endowment provided $1.9 billion or 35% of total revenue for the year, and another 9% of revenue came from current gifts of philanthropy. We are enormously grateful to Harvard's past and present donors for their generosity in providing the resources that enable the University's mission and its aspirational pursuit of excellence. We are also very supportive of the constant, painstaking progress in restructuring the endowment portfolio by Narv Narvekar and his colleagues at Harvard Management Company. We encourage you to read Narv's letter on page 12 of this report.

Throughout its history, Harvard has managed through countless different economic circumstances, each presenting unique challenges and opportunities for the University. Our ability to weather these challenges, and emerge stronger thereafter, demonstrates the University's resilience, cultivated through leadership and careful planning. This diligence in planning strengthens our capacities to manage through challenging times, sustain critical programs today and tomorrow, and maintain momentum for the future. As we monitor the current and unfolding macro environment, there are reasons to be cautious:

- Revenues in higher education are under pressure as the number of students nationally has plateaued, tuition costs have reached limits of affordability, the outlook for Federal research funding is uncertain, and expectations for return assumptions in the investment markets are muted.

- The recently passed Tax Cuts and Jobs Act has imposed new taxes upon, among other things, our endowment and is estimated to cost the University approximately $50 million this past year. This new burden is approximately equal to 1% of revenues, or viewed in the context of maintaining affordability, less money is now available for University to maintain financial aid, which totaled $193 million for undergraduates this past year.

- Although large in absolute dollars, Harvard's endowment is fully utilized in supporting current operations (see further discussion on pages 10 through 11). The use of the endowment is restricted to thousands of activities across the University and is managed to last forever. Lastly, contrary to popular perception about wealth, Harvard's endowment size trails other higher educational institutions on a per-student basis due to the size, breadth and diversity of Harvard's schools and students.

- The recent inversion of the interest rate curve and investment market volatility remind us that the current economic expansion, already the longest in United States history, cannot go on forever. Rainy day reserves will be needed.

The University has taken several steps in recent years to prepare for the end of the current economic expansion, including reducing debt levels, increasing cash holdings, and strengthening reserves. Schools and units annually prepare rolling-five year financial plans, and are including "downside" scenarios as part of this year's exercise. The University has learned from history and is preparing for the future with a collective "Recession Playbook" designed to spark planning and imagine innovative change. We are also focused on educating our community—faculty, staff, students and alumni—on Harvard's financial model and the risks and opportunities in higher education today.

The wisest thing Harvard can do with its financial resources is to allocate them to maximize excellence in its teaching, research, and scholarship. This is ideally an act of everyday stewardship as times and priorities continuously evolve, and developing the habit of reallocating resources is a successful evolutionary strategy in all economic conditions. In preparing for the next recession, our schools and units will need to focus on academic and research priorities where continuing and increased investment is essential, but also focus on activities where there may be opportunities to limit or reduce scale or scope.

In closing, we want to thank each and every donor to the University—past and present—for understanding that Harvard's excellence in teaching and research is made possible through your philanthropy. We also want to thank Harvard's faculty and staff for their vital contributions, on a daily basis, in making Harvard one of the world's preeminent institutions.

Thomas J. Hollister
VICE PRESIDENT FOR FINANCE

Paul J. Finnegan
TREASURER

October 24, 2019

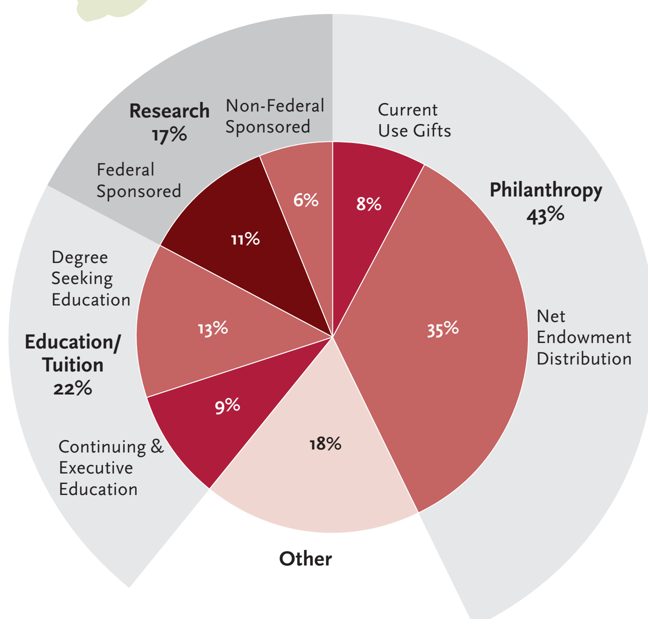
Harvard University's stewardship of its financial resources is aimed at advancing teaching, learning, and research priorities to make a positive impact in the world. This includes expanding access to education across the globe, supporting students with our strong financial aid program, fulfilling our ongoing commitment to public service, and greatly impacting how problems are understood and addressed through research. The key financial highlights for fiscal year 2019 included in this report demonstrate the University's continued commitment to advancing these priorities.

FINANCIAL OVERVIEW

The University ended fiscal year 2019 with an operating surplus of $298 million compared to $196 million in fiscal year 2018. The University's net assets increased by $2.3 billion to $49.3 billion at June 30, 2019, due to investment returns on the endowment, generous contributions, and a disciplined focus on financial management.

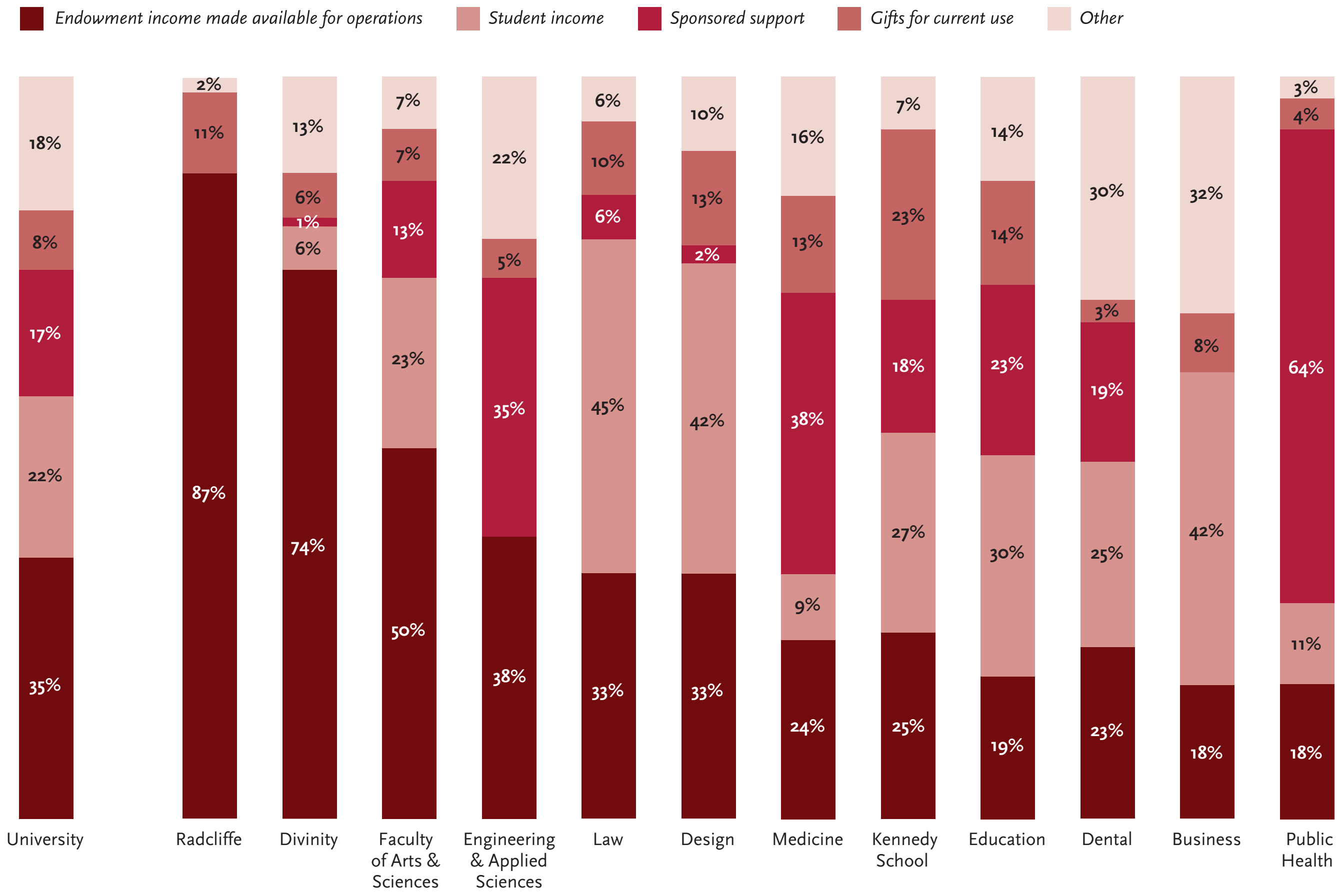
In fiscal year 2019, total operating revenue increased 6% rising to $5.5 billion. Harvard's diversified revenue portfolio relies on three main sources of revenue: education or tuition, sponsored research, and philanthropy. Total education revenue reflects tuition, board and lodging payments from both traditional degree seeking students including graduate, professional, and undergraduate, as well as executive and continuing education programs. In support of the research enterprise, our talented faculty apply for external grants to further global, research-critical priorities including curing cancer, understanding diverse cultures, and developing clean energy. This sponsored funding makes up 17% of revenue. Revenue generated each year from tuition and sponsored research is not sufficient to fund our operations and as such, the University relies on philanthropy to fill in the gap. In fiscal year 2019, our donors supported 43% of revenue through their generosity and belief in the broad impact of education and research at Harvard.

FISCAL YEAR 2019 UNIVERSITY REVENUE SOURCES



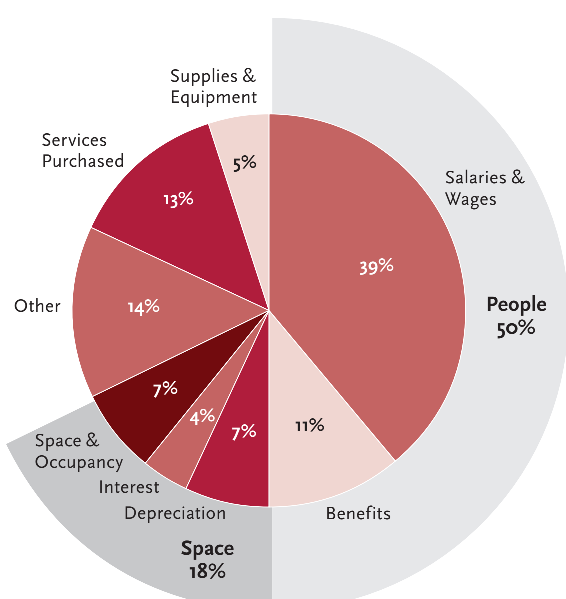
For Harvard's many schools and units, revenue profiles vary widely, with each drawing a different proportion of its budget from its endowment and other sources.

FISCAL YEAR 2019 SOURCES OF OPERATING REVENUE



The University's operating expenses increased by 4% to $5.2 billion driven by the investment in people and space, which make up nearly 70% of the University's operating expenses. People are Harvard's most valuable asset. Across our campuses, the unique backgrounds and interests of our students, faculty, and staff come together to create a community where learning and research thrive. As the fifth largest employer in Massachusetts, Harvard invests heavily in human capital; compensation expense (i.e. salaries, wages and benefits) increased 4% from the prior fiscal year and continues to represent half the University's total operating expense.

FISCAL YEAR 2019 OPERATING EXPENSES



Investment in space is the second largest portion of the University's operations. Maintaining Harvard's historic campus is an ongoing expensive investment and requires preserving architecturally significant buildings in accordance with state and local regulations while also renewing and operating spaces to facilitate the highest modes of teaching and research. The University's most recent investments in space are detailed on the next page.

BALANCE SHEET

Investments

In fiscal year 2019, the return on the endowment was 6.5% and its value (after the net impact of distributions from the endowment for operations, federal taxes, and the addition of new gifts to the endowment during the year) increased from $39.2 billion at the end of fiscal year 2018 to $40.9 billion at the end of fiscal year 2019. More information can be found in the Message from the CEO of Harvard Management Company, found on page 12 of this report.

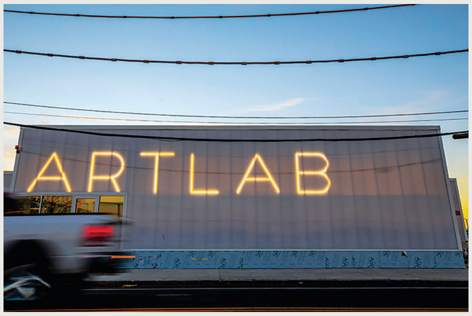
Debt

Bonds and notes payable decreased modestly from $5.3 billion at June 30, 2018 to $5.2 billion at June 30, 2019, resulting from scheduled maturity payments. In addition, related interest expense also decreased 3% to $182 million. The University continues to closely manage its debt and has reduced its debt balance from $6.3 billion in fiscal year 2011 to $5.2 billion as of June 30, 2019.

Fixed assets

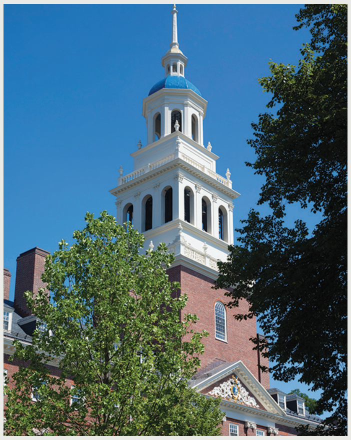
The University invested $903 million in capital projects and acquisitions during fiscal year 2019, compared to $908 million in fiscal year 2018.

Significant progress on several noteworthy projects includes:



Construction of the **Harvard ArtLab**, an interdisciplinary center for creativity and innovation on the University's campus in Allston. It houses **experimental performance space** as well as art and recording studios, a workshop, and offices, and is open to students and faculty members from across the University. The ArtLab joins an "innovation" cluster that includes the iLab, the Pagliuca Life Lab, and the Launch Lab, a workspace for startups launched by University alumni.

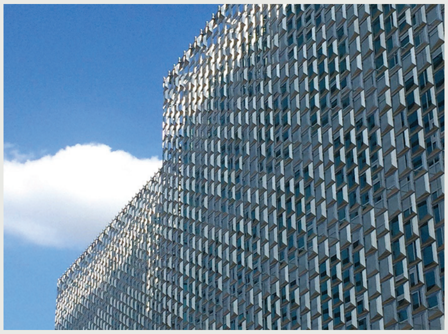
Construction of a new building at the Law School, which will foster and expand the experiential and clinical learning and support research programs.



Completion of **Lowell House** and commencement of **Adams House** renovations for the undergraduate long-term house renewal initiative.

Completion of the **Smith Campus Center**, which offers a new front door to Harvard and will greatly enhance the public realm, enliven the area, create a useable year-round amenity, and result in a more cohesive and collaborative community.

Construction of the **Schwartz Pavilion**, a covered, open-air performance and gathering space on the Business School's campus for exchange and socializing, recreation, and reflection. It is designed to be a dynamic hub of activity that supports seasonal and programmatic flexibility.



Ongoing construction activities for the **Allston Science and Engineering Complex**, District Energy Facility, and related infrastructure work, which will anchor an innovation area that will lead to the development of an enterprise research campus, combining science and engineering innovation with business expertise.

EDUCATION

In fiscal year 2019, across its 12 schools, Harvard enrolled 23,336 students from around the globe, with 6,722 or 29% of those students enrolled at the College.

Total student income

Total student revenue increased approximately 7% to $1.2 billion in fiscal year 2019, including $504 million related to net undergraduate and graduate programs and $500 million in net executive and continuing education. Net undergraduate and graduate tuition income increased 4% in fiscal year 2019. Due to the University's steadfast commitment to undergraduate financial aid, net undergraduate tuition contributed only 3% growth. In addition to these traditional education programs, Harvard continues to experience a rising demand for expanded continuing and executive program offerings across the University, which contributed to a 12% increase in net income from continuing and executive education.

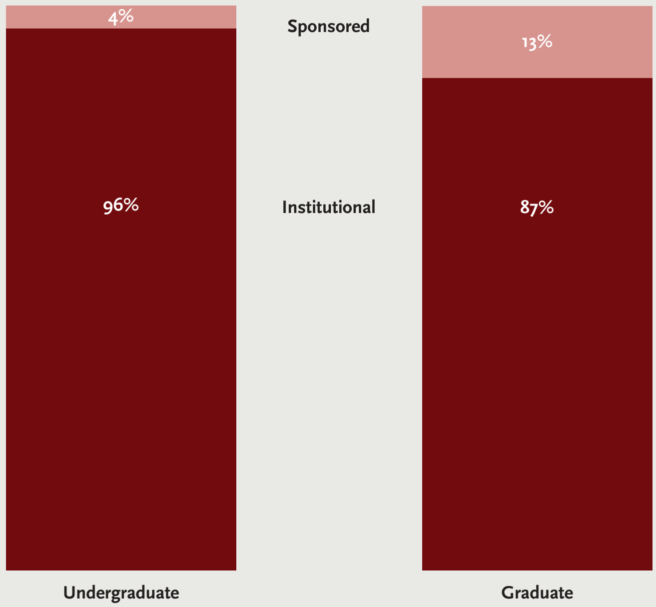
Undergraduate and graduate programs and financial aid

Harvard is committed to cultivating a diverse community of bright and talented students regardless of their ability to pay. Thanks to our groundbreaking financial aid program, approximately 54% of Harvard College students receive need-based scholarships and pay an average of $12,000. Additionally, 20% of these Harvard College students pay nothing to attend. Since launching the Harvard financial aid initiative in 2004, the College has awarded over $2 billion in grant aid, and the undergraduate financial aid budget has increased by over 140% from $80 million in 2005 to $193 million in 2019. The average cost of attendance for all Harvard College students is $38,200.

> **Since launching the Harvard financial aid initiative in 2004, the College has awarded over $2 billion in grant aid.**

During fiscal year 2019, scholarships and other student awards spending rose by $21 million or 4% from $592 million to $613 million. The following chart shows the sources of student financial aid and scholarships awarded during fiscal 2019 and reflects the institutional commitment to financial aid:

SOURCES OF STUDENT FINANCIAL AID



Executive and continuing education

Over the past decade, the University has continuously worked to extend a Harvard education to audiences beyond the traditional on-campus undergraduate and graduate student. Nine of our twelve schools have executive education programs for both individuals and organizations. These programs reach thousands of professionals around the world, helping them achieve their professional potential and make a difference in their organizations. At the Division of Continuing Education, several free courses and nearly 800 for-credit courses encourage students to explore opportunities for personal and professional growth.

Reaching an even more global audience, HarvardX offers online courses to people around the world. Content on HarvardX presents an academically diverse, high quality, innovative collection of free online learning activities empowering faculty to improve teaching and learning on-campus, online, and beyond. To date, HarvardX has offered over 90 unique courses to approximately two million unique users, including over one million international registrants.

RESEARCH

Harvard scholars conduct research in almost every field, seeking to expand human knowledge through analysis, innovation, and insight. In 2019, research was supported by $937 million of sponsored research funds. In addition, a year ago, the University funded $361 million in institutional funds, as reported in the 2018 National Science Foundation Higher Education and Research Development (HERD) Survey (2019 results are not yet available). Research is carried out both in the departments of the schools and at more than 100 research centers, on campus and around the world. Researchers include faculty members, visiting scholars, post-doctoral fellows, and graduate and undergraduate students, and they collaborate with colleagues across the University, at affiliated institutions, and at other research institutions.

> **While there is no replacing the role of the federal government as the leading source of basic research funding, Harvard is increasingly diversifying its sponsored research funding through strong partnerships with non-federal sources. The diversification is increasingly important not just as a funding source, but also as a way to collaborate with foundations and industry partners to translate discoveries into new technologies, treatments, and therapies.**

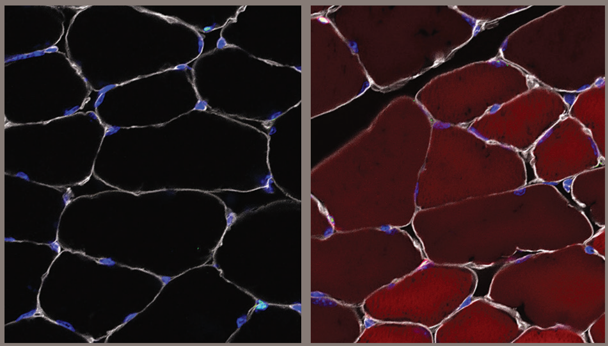
During fiscal year 2019, the University saw continued growth in research funding. In aggregate, revenue from federal and non-federal sponsored sources increased by 3% to $937 million. Federal funding, which accounted for approximately 67% of total sponsored revenue in fiscal year 2019, increased 1% to $631 million. The University's relationships with corporations, foundations and other non-federal sponsors expanded in fiscal year 2019, resulting in a 6% increase in non-federal sponsored revenues, which totaled $307 million. Nonfederal funding has been an area of growth in the past few years, as researchers look beyond the federal government for research funding support. In addition, Harvard devotes significant institutional resources to leverage these federal and non-federal investments. This funding is crucial to support the initial development or early-stage research which enables the researchers to develop an idea to a state in which it can be presented to sponsors for additional funding.

SEEING THE UNSEEABLE

After over a decade's worth of work, a global team of astronomers, led by Harvard scientists, has for the first time captured an image of a black hole. This image capture opens the door for astronomers and physicists to test Einstein's theories of gravity and general relativity under the most extreme conditions in the Universe.

TEXAS A&M AND HARVARD NASA-FUNDED ATMOSPHERIC RESEARCH PROJECT

Texas A&M and Harvard researchers are teaming up on a $30 million NASA-funded atmospheric research project. The $30 million funding came from NASA's Earth Venture program and will fund a project that will investigate how strong summertime convective storms over North America can change the chemistry of the stratosphere.



EDITING GENES AT THE SOURCE

Breakthrough research shows that stem cell genes can be edited in living systems rather than in a dish. The findings have major implications for biotechnology research and the development of therapeutics for genetic diseases as it changes the way we study stem cells in the body and it is a crucial step towards developing effective gene therapies.

PHILANTHROPY

Combining gifts for current use and Harvard's endowment distribution, philanthropy accounts for 43% of fiscal year 2019 revenue. Every gift is essential in facilitating excellence in our academic programs, recruiting and retaining our world-class faculty and staff, enhancing student life, and providing opportunities through financial aid.

Gifts for current use

In fiscal year 2019, Harvard received current use gifts from alumni, foundations, and others totaling $472 million, representing approximately 8% of operating revenues. Support for the University comes from donations of all sizes; 80% of gifts in fiscal year 2019 averaged $150 per donor. We are grateful to all donors whose generosity enables Harvard to create a vibrant culture of academic discovery.

The Harvard endowment

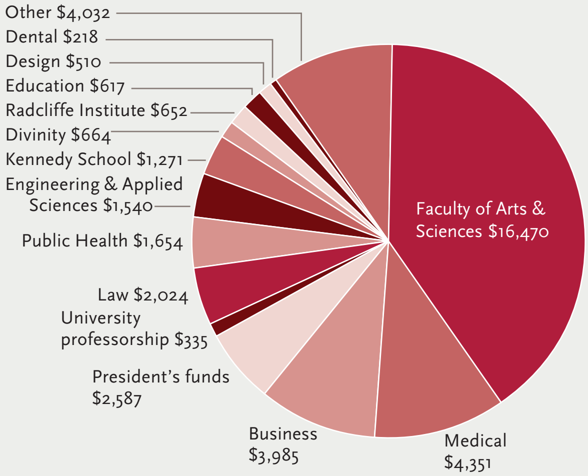
Harvard's endowment is a dedicated and permanent source of support for the University and its mission of teaching and research, in the present and forever. The aggregate endowment is made up of more than 13,000 individual endowments created over the last 350 years, which support faculty and students, including professorships and financial aid for undergraduates, graduate fellowships, and student life and activities.

Donor contributions to the endowment have enabled leading financial aid programs, groundbreaking discoveries in scientific research, and hundreds of professorships across a wide range of academic fields. Each year, a portion of the endowment is paid out as an annual distribution to support the University's annual operations. Any appreciation in excess of this annual distribution is retained in the endowment so it can grow and support future generations. As a result, the endowment can provide the financial foundation for the University for generations to come.

Cash gifts for endowment were $613 million in fiscal year 2019 compared to $646 million in fiscal year 2018.

MARKET VALUE OF THE ENDOWMENT AS OF JUNE 30, 2019

In millions of dollars



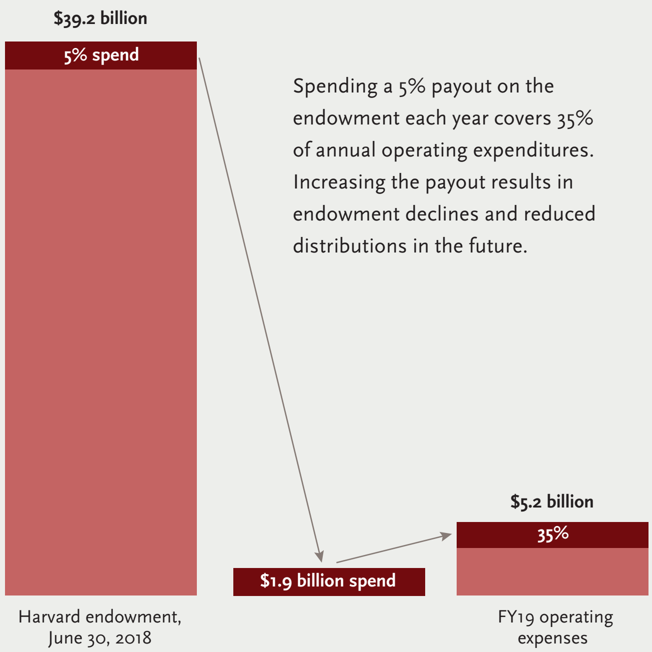
> "Whether our colleges and universities are public or private, we all rely upon the generosity of the American people, who contribute both to research and financial aid. We are excellent because of them, and must endeavor to deserve their support. So it's up to us to remember, always our collective obligation to the public good." — PRESIDENT LAWRENCE S. BACOW

Endowment returns made available for operations

The University's endowment spending practice has to balance two competing goals: the need to fund the operating budget with a stable and predictable distribution, and the obligation to maintain the long-term value of the endowment. There is a common misconception that endowments, including Harvard's, can be accessed like bank accounts, used for anything at any time as long as funds are available. In reality, Harvard's flexibility in spending from the endowment is limited by the fact that it is designed to last forever, which is crucial for an institution intended to serve generations of students and pursue research on big questions—questions that cannot be answered in one lifetime.

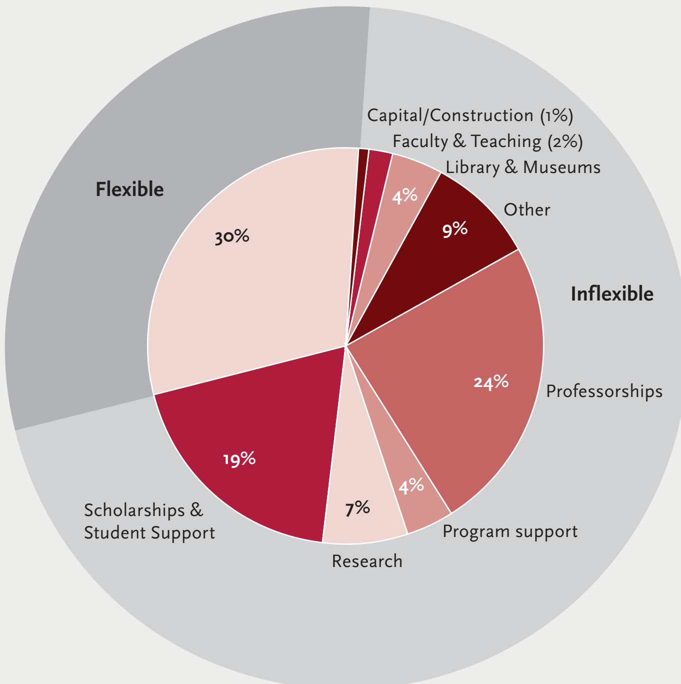
Harvard is obligated to preserve the purchasing power of the endowment by spending only a small fraction of its value each year. Spending significantly more than that over time, for whatever reason, would privilege the present over the future in a manner inconsistent with an endowment's fundamental purpose of maintaining intergenerational equity. As a general rule, Harvard targets an annual endowment payout rate of 5.0 to 5.5% of market value. In 2019, the payout rate was 5.1% compared to the 5.2% payout rate in 2018. This critical source of funding distributed $1.9 billion in the fiscal year ending June 30, 2019—representing 35% of Harvard's total operating revenue—and is the single largest source of revenue supporting the University.

ENDOWMENT PAYOUT



While the endowment is a critical source of funding, 70% of the annual distribution is restricted to specific programs, departments, or purposes and must be spent in accordance with the terms set forth by the donor. Funds without donor restriction are more flexible in nature and are critical in supporting structural operating expenses and transformative, strategic initiatives. In total, endowment funds support nearly every aspect of University operations.

ENDOWMENT SPENDING FLEXIBILITY



Tax reform

The Tax Cuts and Jobs Act of 2017 added a new series of tax burdens to the University, resulting in an estimated $49.8 million in additional taxes for fiscal year 2019. While this expense continues to be an estimate as final guidance has not been issued, generally accepted accounting principles require that an estimate be recorded during the period the expense is incurred. The final amount of tax paid will reflect the tax policies issued by the United States Treasury. Of the total tax expense, $37.7 million reflects the estimated net investment income tax for fiscal year 2019, relating to the University's investments. When these taxes are paid it will reduce the endowment funds available for the teaching and research mission. The remaining $12.1 million reflects estimated taxes for net investment income tax on operational revenues, changes to unrelated business taxable income including qualified transportation fringe taxes on commuter benefits and parking, and excise taxes on executive compensation.

Dear Members of the Harvard Community,

For the most recent fiscal year ended June 30, 2019, the return on the Harvard endowment was 6.5% and the value stood at $40.9 billion. The endowment also distributed more than $1.9 billion toward the University's operating budget, in support of financial aid, research funds, faculty support, and more.

Performance

ASSET CLASS	ALLOCATION	RETURN
Public Equity	26%	5.9%
Private Equity	20%	16%
Hedge Funds	33%	5.5%
Real Estate	8%	9.3%
Natural Resources	4%	-12.4%
Bonds/TIPS	6%	5.7%
Other Real Assets	2%	-8.3%
Cash & Other	2%	--
Endowment	**100%***	**6.5%**

**Due to rounding, the approximate allocation adds up to more than 100.*

As was the case in FY18, the past fiscal year was another in which asset allocation—or risk level—was a major factor in returns, albeit in a more nuanced manner. More specifically, all else being equal, greater exposure to venture capital (a high-risk/high-reward asset class) would have resulted in a significantly higher return. Harvard's exposure to venture capital is notably small in the context of leading endowments. Our ongoing assessment of Harvard's risk tolerance is discussed in further detail later in this letter.

While we are not pleased with this performance, we are mindful that HMC is an organization in the midst of significant restructuring and has a portfolio with certain illiquid legacy assets that weigh significantly on performance. There is also a solid base of strong legacy assets upon which we are building. Meaningfully higher or lower one-year returns would not impact the restructuring we continue to pursue. While some changes will take years to have an impact—and we are keenly aware that we are in a marathon and not a sprint—we can already detect positive indicators of progress.

HMC Progress and Challenges

At roughly the halfway point in the five-year restructuring, and with two full fiscal years complete, it is worth discussing our progress in HMC's turnaround and the challenges we still face.

Our early efforts have involved rebuilding the organizational structure and culture, constructing a generalist investment team, and establishing new investment processes. We have also recruited additional team members for both the generalist and support teams, and put in place incentives that reward collaboration, long-term investment thinking, and calculated risk-taking.

Culture, organizational structure, and incentives were central to the deep issues that HMC faced and are crucial to our solutions. Most importantly, we operate as one team, not as siloed specialists. We will succeed thanks to the dedication and skill of all team members. While we still have much work to do, we are well on our way and generally comfortable with the progress made to affect HMC's turnaround. To be sure, our efforts to improve and evolve do not end at the five-year mark; we will always strive to be better.

The past two years' reports have focused on these organizational changes, and while that work continues, I would like to focus this year's report on the progress and challenges within HMC's investment portfolio.

Portfolio Progress and Issues

The liquid and illiquid portions of HMC's portfolio are starkly different in terms of the time needed to see the effects of our changes. With regards to the more liquid parts of the portfolio, we have already had an impact and are generally pleased with the results. However, by definition, we cannot quickly impact the performance of the illiquid parts of the portfolio beyond asset sales. We continue to work diligently to build on the strengths of our illiquid assets and solve remaining problems. Not surprisingly, the five-year timeframe of our restructuring is needed primarily to address the issues in the illiquid parts of the portfolio.

Liquid Portfolio: Public Equities and Hedge Funds

Public equities and the majority of our hedge fund positions are the most liquid (although roughly 20% of our hedge fund allocations are illiquid, the remainder of this asset class is relatively liquid) and, therefore, are the areas in which the generalist investment team has had the most immediate impact over my time at HMC.

Here is some good news. Over two fiscal years, we have outperformed benchmarks for both asset classes. More importantly, on a combined basis, they outperformed the blended benchmark by more than 2.25% annualized over the same period. I regard this performance to be very good, albeit not excellent. While we do not fixate on benchmarks, I allude to them here simply to provide an illustration of our progress. If we think about benchmarks at all, it is in this context, as these two parts of the portfolio represent about 60% of the aggregate endowment.

We are particularly pleased with our hedge fund performance, as it was not driven by positive equity markets. By design, our current hedge fund portfolio has less exposure to equity markets than any such portfolio I have overseen during my twenty-one years in endowment management. Furthermore, as noted, about 20% of the hedge fund portfolio is illiquid. Since much of this legacy illiquid group has had unremarkable returns and has been a drag on performance, we are all the more pleased with our impact on the more liquid portion of the portfolio.

While we have been able to impact this portion of the portfolio and see the positive results, two full fiscal years is far too short a period to make a meaningful assessment of the true impact. As long-term investors, we think in terms of at least ten-year performance. As we build toward that timeframe in the liquid parts of the portfolio, there will be good and bad years. We understand the need to improve even further and I am highly confident that we are on a path to doing so. What is clear is that the early results provide a positive affirmation of our approach and represent a significant step forward for HMC.

Illiquid Portfolios: Private Equity, Real Estate, and Natural Resources

As many already know, the main challenges in the endowment's performance pertain to the illiquid assets. Prudently increasing the size of certain portfolios takes years to complete, as does reducing the size of others. In direct contrast to the more liquid parts of the portfolio, we can only have limited impact on performance in a short period of time. From the day of my arrival, we have been moving with a sense of urgency to implement the turnaround and reposition the illiquid investments.

Illiquid investments are an important component of long-term investment portfolios. HMC expects, to varying degrees, significant excess return from its illiquid assets above those available in public markets for three broad reasons. First, investors must be compensated for the greater risk of these investments. Second, investors must also be compensated for significant illiquidity—typically requiring multiple years to exit these assets. Third, certain strategies provide unique opportunities for significant alpha as well.

PRIVATE EQUITY (BUYOUTS, GROWTH, AND VENTURE CAPITAL)

Let us start with the good news. The private equity portfolio at HMC has historically been strong, a credit to both current and former HMC team members. Furthermore, we are excited about the portfolio additions and adjustments we have made over the last two years, but know that it will be years before we see the effects of those investments.

Today, our central concern is that HMC's allocation to buyouts, growth, and venture capital continues to be low relative to what likely makes sense for Harvard (see Risk Tolerance section). In this context, I expressed the goal of increasing such exposure when I joined. The goal of increasing private equity exposure was not made because private equity was performing well at the time (and has continued to perform particularly well since then). In fact, recent performance, and specifically the valuation environment, serve as a restraint. We certainly understand that private equity is a higher-risk/higher-return investment that will have difficult periods. Rather, we are stating our belief that some types of private equity—certainly not all—are generally a more attractive secular source of alpha and risk for HMC than some of the other higher-risk illiquid assets currently in the portfolio. We are early in the process of making this allocation transition.

A SOBERING THOUGHT

As many know, private equity funds draw down their capital over a period of years and then invest it for several more years before exiting. For now, and for the next few years, we will suffer the impact of the private equity "J-curve"—the natural progression of a fund's value in this space, where short-term losses precede long-term gains. Many peers dealt with these growing pains years, if not decades, ago. Early in my time, we modeled it to take 7–9 years to attain a meaningfully higher allocation to private equity in a prudent manner (i.e., subject to maintaining high manager quality, appropriate vintage year diversification, and being mindful of an aggressive valuation environment).

While we are making deliberate progress, we are obviously still early in the multiyear timeframe needed. Of note, some of the big IPOs of this past spring were backed by venture funds with vintage years from 2008–2013. Harvard did not participate in those funds in that era and therefore did not benefit significantly from those rewards in fiscal year 2019. Indeed, this is a long-term game.

REAL ESTATE

One goal from the outset was to reduce the size of our real estate exposure. We are pleased that HMC's real estate exposure is roughly half of the size it was in early 2017. We are also very fortunate that the dominant portion of that exposure continues to be managed by our former HMC colleagues, now with Bain Capital. Spinning-out the team to Bain Capital was a critical milestone for us as it secured stability in the expert management of this part of the portfolio.

The reduction in exposure was the result of significant asset sales early in my time and successful exits from assets by the Bain Capital team, as well as other external managers. We have also very selectively added commitments to other external managers. Like our recent private equity investments, it will take years to see the effects of our efforts.

NATURAL RESOURCES

Another portfolio goal was to reduce our exposure to natural resources. We are obviously disappointed with persistent negative returns in this legacy part of our portfolio; however, we are pleased to have cut our exposure by more than half — from 9% to roughly 4% of the overall endowment — since my arrival. Furthermore, we are pleased to have completely rebuilt an impressive team to manage this portfolio.

OUR PORTFOLIO CONSISTS OF THREE TYPES OF ASSETS:

1. **Deeply troubled assets.** We were forced to write-down or write-off approximately $1 billion of these investments early in my time at HMC, in FY17. Since then, our natural resources team has worked hard to salvage or dispose of these remaining investments.
2. **Good, but misaligned assets.** These are assets that we believe have a risk/return/liquidity profile that is not particularly appropriate for an endowment. We have sold over $1.1 billion of these assets to more appropriate investors. We expect to close on the sale of close to another $200 million over the remainder of the current fiscal year.
3. **Aligned assets.** These are quality assets that are well suited for an endowment in terms of risk/return/liquidity and are now well positioned, having undergone significant management changes since the arrival of our new natural resources team. In addition, we have deployed over $100 million in new, promising investments in this category.

After our initial large write-down in FY17, the performance of group 1 continued to be poor and still weighs on the overall performance of the natural resources portfolio. We should note that FY19's return includes an additional write-down in group 1 assets of about $100 million. Even without this write-down, FY19 returns for natural resources would have still been -7%, largely caused by the troubled assets in group 1, described above.

Harvard Risk Tolerance

Another significant milestone of the first half of our five-year transition was to put in place a new risk framework at HMC. This is a critical tool in our portfolio management and a central input to our discussions with the University regarding Harvard's risk tolerance.

These discussions commenced this past spring and are the deepest such conversations that HMC has had in recent years with the University, involving HMC Board members and University leadership.

We are focused upon and aware that HMC generally takes lower risk and, therefore, will likely generate lower returns than many peers over a market cycle. During these discussions we will determine if this approach is appropriate or not. The tradeoff is of course higher returns versus a less volatile revenue stream. Perhaps stating the obvious, higher returns lead to a larger endowment in the long run, while lower volatility can be helpful in budgeting for an institution with significant fixed costs. I believe that we will conclude these discussions over the next eighteen months or so, which will help inform allocation decisions in future years.

Closing Thoughts

At this midway point in our transition I am encouraged by the path that we are on and our progress to date. The first half of this turnaround essentially operated on multiple tracks: HMC's organizational restructuring, process development, and the repositioning of the endowment's investment portfolio.

Thanks to the hard work of a talented and dedicated team, we have made good progress. From developing the investment processes and risk framework that allow us to make informed decisions, to the formation of a generalist team and spinning-out four internal investment platforms, these changes have been significant. However, the speed at which they have been adopted by the organization is impressive. While we implemented these changes expediently, we are constantly looking for opportunities to improve or adapt in ways that support long-term performance.

The evolution of our public equity and hedge fund portfolios is exhibiting a significant positive impact and the early returns are encouraging. That being said, we need to maintain this momentum and improve even further in the years ahead.

On the illiquid side, we are using the five-year restructuring period to work our way to the marathon's starting line. Significant parts of this portfolio are very strong — a credit to former and current team members. We must build on that strength and also prudently grow certain parts of the illiquid portfolio. Once again, we must be deliberate and strategic to maintain high-quality standards and avoid excessive vintage year concentration.

Equally important, there are still many illiquid anchors weighing down the portfolio and our performance. Put another way, parts of the legacy portfolio do not have a prospect of generating a return commensurate with the risk and the illiquidity entailed, and may not provide a return at all. Through a combination of write-downs and asset sales, this problem is much smaller than it was two years ago, but still remains a significant challenge and a major priority for HMC. As we have said, it will take some years to execute a full course correction.

The endowment is a vital resource that allows Harvard University to maintain its leadership in teaching and research. Current and future generations of Harvard students, faculty, and scholars rely on us to maintain this critical source of support. Our team is well aware that meeting those needs requires continuous improvement and overcoming the challenges referred to above. I remain highly confident in our ability to do both.

Best regards,

N.P. "Narv" Narvekar
Chief Executive Officer

pwc

Report of Independent Auditors

To the Joint Committee on Inspection of the Governing Boards of Harvard University:

We have audited the accompanying consolidated financial statements of Harvard University and its subsidiaries (the "University"), which comprise the consolidated balance sheet as of June 30, 2019, and the related consolidated statements of changes in net assets with general operating account detail, changes in net assets of the endowment and of cash flows for the year 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 audit 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 University'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 University'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 Harvard University and its subsidiaries as of June 30, 2019 and the changes in their net assets and their cash flows for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Emphasis of Matter

As discussed in Note 2 to the consolidated financial statements, the University changed the manner in which it presents net assets and reports certain aspects of its consolidated financial statements as a not-for-profit entity in 2019. Our opinion is not modified with respect to this matter.

Other Matter

We previously audited the consolidated balance sheet as of June 30, 2018, and the related consolidated statements of changes in net assets with general operating account detail, changes in net assets of the endowment and of cash flows for the year then ended (not presented herein), and in our report dated October 25, 2018, we expressed an unmodified opinion on those consolidated financial statements. In our opinion, the information set forth in the accompanying summarized financial information as of June 30, 2018 and for the year then ended is consistent, in all material respects, with the audited consolidated financial statements from which it has been derived.

PricewaterhouseCoopers LLP

October 24, 2019

PricewaterhouseCoopers LLP, 101 Seaport Boulevard, Suite 500, Boston, MA 02210
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BALANCE SHEETS

with summarized financial information as of June 30, 2018

In thousands of dollars	June 30 2019	2018
ASSETS:		
Cash	**$ 158,640**	$ 144,982
Receivables, net *(Note 4)*	**296,321**	301,258
Prepayments and deferred charges	**266,719**	130,925
Notes receivable, net *(Note 5)*	**373,623**	381,795
Pledges receivable, net *(Note 6)*	**2,765,827**	1,837,792
Fixed assets, net *(Note 7)*	**8,271,711**	7,732,172
Interests in trusts held by others *(Note 3)*	**420,371**	408,968
Securities pledged to counterparties, at fair value *(Note 3)*	**49,971**	162,790
Investment portfolio, at fair value *(Note 3)*	**46,723,970**	45,647,599
TOTAL ASSETS	**$ 59,327,153**	**$ 56,748,281**
LIABILITIES:		
Accounts payable	**$ 398,134**	$ 359,847
Deferred revenue and other liabilities	**1,517,022**	1,327,454
Other liabilities associated with the investment portfolio *(Notes 3 and 10)*	**875,141**	884,501
Liabilities due under split interest agreements *(Note 9)*	**859,744**	862,413
Bonds and notes payable *(Note 10)*	**5,213,349**	5,300,921
Accrued retirement obligations *(Note 11)*	**1,120,544**	983,552
Government loan advances *(Note 5)*	**66,733**	65,409
TOTAL LIABILITIES	**10,050,667**	**9,784,097**
NET ASSETS	**49,276,486**	**46,964,184**
TOTAL LIABILITIES AND NET ASSETS	**$ 59,327,153**	**$ 56,748,281**

	Without donor restrictions	With donor restrictions	June 30 2019	2018
NET ASSETS:				
General Operating Account (GOA) *(Note 8)*	$ 4,890,118	$ 2,883,299	$ 7,773,417	$ 7,171,297
Endowment *(Note 8)*	7,091,584	33,838,116	40,929,700	39,233,736
Split interest agreements *(Note 9)*		573,369	573,369	559,151
TOTAL NET ASSETS	**$ 11,981,702**	**$ 37,294,784**	**$ 49,276,486**	**$ 46,964,184**

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

STATEMENTS OF CHANGES IN NET ASSETS WITH GENERAL OPERATING ACCOUNT DETAIL

with summarized financial information for the year ended June 30, 2018

In thousands of dollars	Without Donor Restrictions	With Donor Restrictions	For the year ended June 30 2019	2018
OPERATING REVENUE:				
Student income *(Notes 2 and 12)*	$ 1,200,838		**$ 1,200,838**	$ 1,122,065
Sponsored support *(Note 13)*				
Federal government – direct costs	448,832		**448,832**	453,084
Federal government – indirect costs	181,948		**181,948**	172,223
Non-federal sponsors – direct costs	88,620	$ 178,637	**267,257**	251,997
Non-federal sponsors – indirect costs	21,532	17,821	**39,353**	36,932
Total sponsored support	740,932	196,458	**937,390**	**914,236**
Gifts for current use *(Note 14)*	190,610	281,503	**472,113**	**466,546**
Investment income:				
Endowment returns made available for operations *(Note 8)*	339,007	1,569,416	**1,908,423**	1,821,645
GOA returns made available for operations	180,634		**180,634**	176,230
Other investment income	34,289	4,845	**39,134**	25,873
Total investment income	553,930	1,574,261	**2,128,191**	**2,023,748**
Other revenue *(Note 15)*	772,038		**772,038**	688,724
Net assets released from restriction	1,987,573	(1,987,573)	**0**	0
TOTAL OPERATING REVENUE	**5,445,921**	**64,649**	**5,510,570**	**5,215,319**
OPERATING EXPENSES:				
Salaries and wages	2,038,478		**2,038,478**	1,943,836
Employee benefits *(Note 11)*	565,505		**565,505**	569,223
Services purchased	680,691		**680,691**	617,210
Space and occupancy	379,290		**379,290**	410,441
Depreciation *(Note 7)*	382,775		**382,775**	357,965
Supplies and equipment	270,623		**270,623**	268,200
Interest *(Note 10)*	181,633		**181,633**	187,883
Scholarships and other student awards *(Note 12)*	155,874		**155,874**	152,421
Other expenses *(Note 16)*	557,801		**557,801**	511,778
TOTAL OPERATING EXPENSES	**5,212,670**	**0**	**5,212,670**	**5,018,957**
NET OPERATING SURPLUS	**233,251**	**64,649**	**297,900**	**196,362**
NON-OPERATING ACTIVITIES:				
Income from GOA Investments	5,112		**5,112**	8,751
GOA realized and change in unrealized appreciation, net *(Note 3)*	261,944		**261,944**	475,207
GOA returns made available for operations	(180,634)		**(180,634)**	(176,230)
Change in pledge balances *(Note 6)*		352,553	**352,553**	28,562
Change in interests in trusts held by others		1,656	**1,656**	(740)
Gifts for facilities and loan funds *(Note 14)*		86,372	**86,372**	109,227
Change in retirement obligations *(Note 11)*	(126,744)		**(126,744)**	143,110
Other changes	(17,505)		**(17,505)**	1,871
Transfers between GOA and endowment *(Note 8)*	(103,802)	11,382	**(92,420)**	(83,207)
Transfers between GOA and split interest agreements *(Note 9)*		13,886	**13,886**	12,661
Non-operating net assets released from restrictions	226,112	(226,112)	**0**	0
TOTAL NON-OPERATING ACTIVITIES	**64,483**	**239,737**	**304,220**	**519,212**
GENERAL OPERATING ACCOUNT NET CHANGE DURING THE YEAR	**297,734**	**304,386**	**602,120**	**715,574**
Endowment net change during the year	331,683	1,364,281	**1,695,964**	2,137,262
Split interest agreements net change during the year *(Note 9)*		14,218	**14,218**	25,269
NET CHANGE DURING THE YEAR	**629,417**	**1,682,885**	**2,312,302**	**2,878,105**
Net assets, beginning of year	11,352,285	35,611,899	**46,964,184**	**44,086,079**
NET ASSETS, END OF YEAR	**$ 11,981,702**	**$ 37,294,784**	**$ 49,276,486**	**$ 46,964,184**

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

STATEMENTS OF CHANGES IN NET ASSETS OF THE ENDOWMENT

with summarized financial information for the year ended June 30, 2018

In thousands of dollars	Without Donor Restrictions	With Donor Restrictions	For the year ended June 30 2019	2018
Investment return *(Note 3):*				
Income from general investments	$ 6,672	$ 30,517	**$ 37,189**	$ 47,775
Realized and change in unrealized appreciation/(depreciation), net	413,975	1,875,524	**2,289,499**	3,284,706
Total investment return	420,647	1,906,041	**2,326,688**	**3,332,481**
Endowment returns made available for operations	(339,007)	(1,569,416)	**(1,908,423)**	(1,821,645)
Net investment return	81,640	336,625	**418,265**	**1,510,836**
Gifts for endowment *(Note 14)*	109,612	503,675	**613,287**	646,299
Transfers between endowment and the GOA *(Note 8)*	103,802	(11,382)	**92,420**	83,207
Capitalization of split interest agreements *(Note 9)*		15,213	**15,213**	25,707
Change in pledge balances *(Note 6)*		575,155	**575,155**	(139,309)
Change in interests in trusts held by others *(Note 8)*		9,747	**9,747**	12,547
Other changes	(3,947)	(24,176)	**(28,123)**	(2,025)
Net assets released from restrictions	40,576	(40,576)	**0**	0
NET CHANGE DURING THE YEAR	**331,683**	**1,364,281**	**1,695,964**	**2,137,262**
Net assets of the endowment, beginning of year	6,759,901	32,473,835	**39,233,736**	37,096,474
NET ASSETS OF THE ENDOWMENT, END OF YEAR	**$ 7,091,584**	**$ 33,838,116**	**$ 40,929,700**	**$ 39,233,736**

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

STATEMENTS OF CASH FLOWS

with summarized financial information for the year ended June 30, 2018

In thousands of dollars	For the year ended June 30 2019	2018
CASH FLOWS FROM OPERATING ACTIVITIES:		
Change in net assets	**$ 2,312,302**	$ 2,878,105
Adjustments to reconcile change in net assets to net cash (used in) operating activities:		
Depreciation	**382,775**	357,965
Amortization of premium and discount related to bonds and notes payable	**(27,272)**	(27,265)
Realized and change in unrealized (appreciation), net	**(2,611,556)**	(3,829,446)
Change in fair value of interest rate exchange agreements	**11,928**	(6,463)
Change in interests in trusts held by others	**(11,403)**	(11,807)
Change in liabilities due under split interest agreements	**30,786**	46,753
Gifts of donated securities	**(92,158)**	(179,131)
Proceeds from the sale of donated securities restricted for long term purposes	**14,198**	14,422
Gifts for restricted purposes	**(518,827)**	(528,138)
Loss on disposal of assets	**41,239**	8,281
Loss on sale of property		1,644
Change in accrued retirement obligations	**136,992**	(108,723)
Changes in operating assets and liabilities:		
Receivables,net	**4,937**	(39,417)
Prepayments and deferred charges	**(135,794)**	(224)
Pledges receivable, net	**(928,035)**	110,234
Accounts payable	**77,182**	(30,544)
Deferred revenue and other liabilities	**189,568**	397,015
NET CASH (USED IN) OPERATING ACTIVITIES	**(1,123,138)**	**(946,739)**
CASH FLOWS FROM INVESTING ACTIVITIES:		
Loans made to students, faculty, and staff	**(41,938)**	(48,451)
Payments received on student, faculty, and staff loans	**49,720**	47,521
Change in other notes receivable	**390**	2,198
Proceeds from the sales and maturities of investments	**15,001,898**	15,309,908
Purchase of investments	**(13,750,298)**	(14,671,506)
Change associated with repurchase agreements	**374,719**	700,881
Additions to fixed assets	**(994,830)**	(937,744)
Proceeds from sale of property		1,293
NET CASH PROVIDED BY INVESTING ACTIVITIES	**639,661**	**404,100**
CASH FLOWS FROM FINANCING ACTIVITIES:		
Change in overdrafts included in accounts payable	**(7,618)**	6,356
Change in split interest liability from new contributions, income and payments to annuitants	**(33,455)**	(25,076)
Proceeds from issuance of debt	**480,900**	453,767
Debt repayments	**(541,200)**	(556,671)
Proceeds from the sales of gifts of restricted securities	**77,960**	164,709
Contributions restricted for long term investment	**518,827**	528,138
Affiliated entity contributions and distributions, net	**397**	(16,343)
Change in government loan advances	**1,324**	(7,155)
NET CASH PROVIDED BY FINANCING ACTIVITIES	**497,135**	**547,725**
NET CHANGE IN CASH	**13,658**	**5,086**
Cash, beginning of year	**144,982**	**139,896**
CASH, END OF YEAR	**$ 158,640**	**$ 144,982**

Supplemental disclosure of cash flow information:		
Accounts payable related to fixed asset additions	$ 77,904	$ 109,181
Cash paid for interest	$ 209,923	$ 215,166

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

1. UNIVERSITY ORGANIZATION

Harvard University (the "University") is a private, not-for-profit institution of higher education with approximately 6,700 undergraduate and 13,400 graduate students. Established in 1636, the University includes the Faculty of Arts and Sciences, the John A. Paulson School of Engineering and Applied Sciences, the Division of Continuing Education, ten graduate and professional Schools, the Radcliffe Institute for Advanced Study, a variety of research museums and institutes, and an extensive library system to support the teaching and research activities of the Harvard community. The President and Fellows of Harvard College (the "Corporation"), a governing board of the University, has oversight responsibility for all of the University's financial affairs. The Corporation delegates substantial authority to the Schools and departments for the management of their resources and operations.

The University includes Harvard Management Company (HMC), a wholly owned subsidiary founded in 1974 to manage the University's investment assets. HMC is governed by a Board of Directors that is appointed by the Corporation.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of presentation

The accompanying consolidated financial statements have been prepared on the accrual basis of accounting and include the accounts of the University and affiliated organizations controlled by the University. Significant inter-affiliate accounts and transactions have been eliminated.

Funds transferred to the University on behalf of specific beneficiaries (agency funds) are recorded as assets and liabilities in the *Balance Sheets* and are not included in the *Statement of Changes in Net Assets with General Operating Account Detail*.

The financial statements include certain prior year summarized comparative information in total, not by net asset classification. This information is not presented in sufficient detail to conform to generally accepted accounting principles (GAAP). Accordingly, such information should be read in conjunction with the University's financial statements for the year ended June 30, 2018, from which the summarized information is derived. Certain prior year amounts have been reclassified to conform to current year presentation.

Net asset classifications

For the purposes of financial reporting, the University classifies resources into two net asset categories pursuant to any donor-imposed restrictions and applicable law. Accordingly, the net assets of the University are classified in the accompanying financial statements in the categories that follow:

WITHOUT DONOR RESTRICTIONS—Net assets not subject to donor-imposed restrictions. Funds invested in fixed assets and unrestricted endowment funds comprise 94% of the University's net assets without donor-imposed restrictions as of June 30, 2019. In addition, this category includes gifts and endowment income balances where the donor restriction has been met, University-designated loan funds, and other current funds.

WITH DONOR RESTRICTIONS—Net assets subject to legal or donor-imposed restrictions that will be satisfied either by actions of the University, the passage of time, or both. These net assets include net assets subject to donor-imposed restrictions that are invested to provide a perpetual source of income to the University. Generally, donors of these assets require the University to maintain and invest the original contribution in perpetuity, but permit the use of some or all investment returns for general or specific purposes. The appreciation on these perpetual contributions must be reported as net assets with donor restrictions until appropriated for spending in accordance with Massachusetts law. Also included in this category are gifts donated for a particular purpose and amounts subject to time restrictions such as funds pledged for future payment.

Revenues from sources other than contributions are generally reported as increases in net assets without donor restrictions. Expenses are reported as decreases in net assets without donor restrictions. Gains and losses on investments are reported as increases or decreases in net assets without donor restrictions, unless their use is restricted by donor stipulations or by law. Investment returns earned by restricted donor funds are initially classified as net assets with donor restrictions and then reclassified to net assets without donor restrictions when expenses are appropriated or incurred for their intended purpose. Expirations of donor restrictions on net assets are reported as reclassifications from net assets with donor restrictions to net assets without donor restrictions and appear as "Net assets released from restrictions" and "Non-operating net assets released from restrictions" in the *Statements of Changes in Net Assets*.

Liquidity and availability

As part of the University's liquidity management, it has a policy to structure its financial assets to be available as its general expenditures, liabilities and other obligations come due. A significant portion of the University's annual expenditures are funded by operating revenues in the current year including student income, sponsored support, endowment returns made available for operations, gifts for current use and other revenues.

The University's financial assets available within one year of the balance sheet date for general expenditure, such as operating expenses, scheduled principal payments on debt, and capital construction costs not financed with debt, are as follows (in thousands):

	June 30, 2019
FINANCIAL ASSETS	
Cash	$ 158,640
Receivables, net	296,321
Pledges receivables due in one year	221,587
Cash and short-term investments held separately by General Operating Account (GOA)[1,2]	1,013,861
Investment returns made available for operations in the following year[3]	2,175,806
TOTAL FINANCIAL ASSETS AVAILABLE WITHIN ONE YEAR	**$ 3,866,215**
LIQUIDITY RESOURCES	
Credit facility, undrawn balance	1,500,000
Taxable commercial paper, undrawn balance	2,000,000
TOTAL FINANCIAL ASSETS AND RESOURCES AVAILABLE WITHIN ONE YEAR	**$ 7,366,215**

1 *The University has a policy of maintaining a cash reserve floor outside of the General Investment Account (GIA) of $800 million.*
2 *This is net of collateral on US government securities of $22,166.*
3 *Within its investment pools as of June 30, 2019, the University holds $2.1 billion in cash and cash equivalents and $2.2 billion of unencumbered US government securities that could be liquidated in one day that could be used to fund this amount.*

Endowment and GOA returns liquidated from investments and made available for operations over the course of the fiscal year are distributed to University department and program budgets to spend, subject to donor restrictions where applicable.

While the University has no intention of doing so, there are additional investments held by the University and the endowment that could be liquidated in the event of an unexpected disruption. While a portion of the endowment is subject to donor restrictions, there is $7.1 billion in endowment funds without donor restrictions and $3.7 billion of General Operating Account investments (GOA) that could be accessed with the approval of the Corporation and subject to the redemption provisions described in *Note 3*.

Revenue recognition

Revenue is recognized when control of promised goods or services is transferred to customers, in an amount that reflects the consideration the University expects to be entitled to in exchange for those goods or services.

Student income is derived from degree programs as well as executive and continuing education programs and includes tuition, fees, and board and lodging. Student income is recognized ratably over the academic period of the course or program offered based on time elapsed and scholarships awarded to students reduce the amount of revenue recognized. The University's individual schools have various billing and academic cycles and the majority of our programs are completed within the fiscal year. Student income received in advance of services to be rendered are recorded as deferred revenue which totaled $213.7 million and $209.5 million, respectively, for the periods ended June 30, 2019 and 2018, which are primarily recognized in the subsequent fiscal year.

Total student income of $1.2 billion and $1.1 billion was recorded during the years ended June 30, 2019 and 2018, respectively. Student tuition, fees, board and lodging at published rates is summarized as follows for the years ended June 30, 2019 and 2018 (in thousands of dollars):

	2019	2018
Undergraduate program	**$ 339,475**	$ 327,171
Graduate and professional degree programs	**605,833**	585,797
Continuing education and executive programs	**516,077**	458,047
Board and lodging	**196,822**	190,495

Scholarships applied to student charges were $457,369 and $439,445 for the years ended June 30, 2019 and 2018, respectively.

Unconditional contributions including pledges are recognized immediately and classified as either net assets with donor restrictions or net assets without donor restrictions. Conditional contributions for which cash is received are accounted for as a liability within deferred revenue.

Sponsored support of $937 million includes support from governmental and private sources. Certain sponsored arrangements are considered exchange arrangements, and revenue under these agreements is recognized based on the University's fulfillment of the contract, which is typically based on costs incurred or the achievement of milestones. Other sponsored support is considered contribution revenue, which is recognized when any donor-imposed conditions have been met, if applicable. Sponsored conditional contributions received, where the barrier to entitlement is not yet overcome are recorded as deferred revenues of $51.2 million and $52.2 million as of June 30, 2019 and 2018, respectively. As of June 30, 2019, the University also had $1.3 billion awarded but not yet expended contributions related to sponsored programs where the condition had not yet been met. This is subject to federal appropriations. Funding received in advance of recognition is recorded as deferred revenue.

Other revenue of $772.0 million includes several revenue streams considered exchange contracts with customers totalling $648.7 million for fiscal year 2019. These revenues are recognized at the point in time goods or services are provided. Deferred revenues related to other income of $109.0 million and $111.6 million were recorded as of June 30, 2019 and 2018, which are primarily recognized in the subsequent fiscal year.

Measure of operations

Revenues earned, expenses incurred, and returns made available for operations for the purpose of teaching, conducting research, and the other programs and services of the University are the components of "Net operating surplus" in the *Statement of Changes in Net Assets with General Operating Account Detail*. The University's non-operating activity within the *Statement of Changes in Net Assets with General Operating Account Detail* includes contributions to the University's building construction and renovation funds, investment returns (net of amounts made available for operations), change in pledge balances, long-term benefit plan obligation funding changes, and other infrequent transactions.

Collections

The University's vast array of museums and libraries contains priceless works of art, historical treasures, literary works, and artifacts. These collections are protected and preserved for public exhibition, education, research, and the furtherance of public service. They are neither disposed of for financial gain nor encumbered in any manner. Accordingly, such collections are not recorded for financial statement purposes.

Insurance programs

The University, together with the Harvard-affiliated teaching hospitals, has formed a captive insurance company, Controlled Risk Insurance Company (CRICO), to provide limited professional liability, general liability, and medical malpractice insurance for its shareholders. The University self-insures a portion of its professional liability and general liability programs and maintains a reserve for incurred claims, including those related to Harvard Medical School activities not occurring in the affiliated teaching hospitals. CRICO provided malpractice coverage applies with no deductible for medical professionals practicing within Harvard's University Health Services department, the School of Dental Medicine, and the T.H. Chan School of Public Health. The University also maintains reserves for the self-insured portion of claims related to automobile liability, property damage, and workers' compensation; these programs are supplemented with commercial excess insurance above the University's self-insured limit. In addition, the University is self-insured for unemployment, the primary retiree health plan, and all health and dental plans for active employees. The University's claims liabilities are recognized as incurred, including claims that have been incurred but not reported, and are included in operating expenses.

Tax

The University is a tax-exempt organization under Section 501(c)(3) of the Internal Revenue Code.

On December 22, 2017, the Tax Cuts and Jobs Act (the "Act") was enacted. The Act impacts the University in several ways, including the addition of excise taxes on executive compensation and net investment income, as well as new rules for calculating unrelated business taxable income. The University recorded an estimated $49.8 million of related tax expense based on reasonable estimates under the currently available regulatory guidance of the Act. Of the total tax expense, $37.7 million reflects the estimated net investment income tax related to investments and $12.1 million relates to estimated net investment income tax on operational revenues, changes to unrelated business taxable income and excise taxes on executive compensation. The University continues to evaluate the impact of the Act on current and future tax positions.

Use of estimates

The preparation of financial statements in accordance with U.S. GAAP requires management to make estimates and assumptions that affect reported amounts and disclosures. Actual results could differ from those estimates.

New accounting pronouncements

In 2019, the University adopted ASU 2016-14, *Presentation of Financial Statements for Not-for-Profit Entities*. This guidance is intended to improve the net asset classification requirements and the information presented in the financial statements and notes. The standard requires the University to reclassify its net assets (i.e., unrestricted, temporarily restricted, and permanently restricted) into two categories: net assets without donor restrictions and net assets with donor restrictions. In addition, underwater endowment funds are to be recognized as a reduction in net assets with donor restrictions and enhanced disclosures are required for board-designated amounts *(Note 8),* liquidity and availability of financial assets *(Note 2),* and expenses by both their natural and functional classification *(Note 17)*.

As a result of adopting this standard, certain amounts as of June 30, 2018 were reclassified to conform to the presentation requirements as follows:

	ASU 2016-14 Classifications		
	Without donor restrictions	With donor restrictions	Total Net Assets
NET ASSETS CLASSIFICATIONS			
As previously presented:			
Unrestricted	$11,349,637		$11,349,637
Temporarily Restricted		$26,660,015	26,660,015
Permanently Restricted		8,954,532	8,954,532
Net assets	$ 11,349,637	$35,614,547	$46,964,184
Reclassifications to implement ASU 2016-14:			
Underwater endowments	2,648	(2,648)	0
Net assets, as restated	$11,352,285	$35,611,899	$46,964,184

In May 2014, the Financial Accounting Standards Board (FASB) issued ASU 2014-09, *Revenue from Contracts with Customers (ASC 606)* which outlines a single comprehensive revenue model for entities to use in accounting for revenue arising from contracts with customers. The guidance supersedes most current revenue recognition guidance, including industry-specific guidance, and ensures that entities appropriately reflect the consideration to which they expect to be entitled in exchange for goods and services, by allocating transaction price to identified performance obligations, and recognizing that revenue as performance obligations are satisfied. The University adopted ASC 606 as of July 1, 2018 using the modified retrospective transition method—i.e., by recognizing the cumulative effect of initially applying ASC 606 as an adjustment to the opening balance of net assets at July 1, 2018. The University elected to apply the standard only to contracts that are not completed as of that date therefore, the comparative information has not been adjusted and continues to be reported under the prior guidance. The guidance did not have a significant impact on the University's consolidated financial statements.

In June 2018, the FASB issued ASU 2018-08, *Clarifying the Scope and the Accounting Guidance for Contributions Received and Contributions Made*. The new guidance clarifies the definition of an exchange transaction and the criteria for evaluating whether contributions are unconditional or conditional. Effective July 1, 2018, the University adopted ASU 2018-08 simultaneously with adoption of the new revenue standard, using the modified prospective transition method. The guidance did not have a significant impact on the University's consolidated financial statements.

In August 2018, the FASB issued ASU 2018-13, *ASC 820 Fair Value Measurement*. The new guidance simplifies fair value measurement disclosures through the removal and modification of a number of investment related disclosure requirements. Certain disclosures are no longer required including amount of and reasons for transfers between Levels 1 and 2; policy for timing of transfers between levels and valuation processes for Level 3 investments. The ASU is effective for fiscal year 2021 for the University. The University early adopted the standard in fiscal year 2019.

In January 2016, the FASB issued ASU 2016-01, *Recognition and Measurement of Financial Assets and Financial Liabilities,* which address certain aspects of recognition, measurement, presentation and disclosure of financial instruments. This guidance allows an entity to choose, investment-by-investment, to report an equity investment that neither has a readily determinable fair value, nor qualifies for the practical expedient for fair value estimation using net asset value (NAV), at its cost minus impairment (if any), plus or minus changes resulting from observable price changes in orderly transactions for the identical or similar investment of the same issue. Impairment of such investments must be assessed qualitatively at each reporting period. Entities must disclose their financial assets and liabilities by measurement category and form of asset either on the face of the statement of financial position or in the accompanying notes. The ASU is effective for fiscal year 2020 for the University. The provision to eliminate the requirement to disclose the fair value of financial instruments measured at cost (such as the fair value of debt) was early adopted by the University in fiscal year 2016. The University is currently evaluating the impact of the remaining new guidance on the consolidated financial statements.

In February 2016, the FASB issued ASU 2016-02, *Leases,* which requires a lessee to recognize a right-of-use asset and a lease liability, initially measured at the present value of the lease payments, in its balance sheet. The guidance also expands the required quantitative and qualitative disclosures surrounding leases. The ASU is effective for fiscal year 2020 for the University. The University is evaluating the impact of the new guidance on the consolidated financial statements.

In November 2016, the FASB issued clarifying guidance on ASU 2016-18, *Restricted Cash (Topic 230): Statement of Cash Flows*. The amendments in the update require that a statement of cash flows explain the change during the period in the total of cash, cash equivalents, and amounts generally described as restricted cash or restricted cash equivalents. Therefore, amounts generally described as restricted cash and restricted cash equivalents should be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. The amendments in the update do not provide a definition of restricted cash or restricted cash equivalents. The ASU is effective for fiscal year 2020 for the University. The University is evaluating the impact of the new guidance on the consolidated financial statements.

In March 2017, the FASB issued final guidance on ASU 2017-07, *Compensation—Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost.* Presently, net benefit cost is reported as an employee cost within operating income (or capitalized into assets where appropriate). The amendment requires the bifurcation of net benefit cost. The service cost component will be presented with other employee costs in operating income (or capitalized in assets). The other components will be reported separately outside of operations, and will not be eligible for capitalization. The ASU is effective for fiscal year 2020 for the University. The University is evaluating the impact of the new guidance on the consolidated financial statements.

3. INVESTMENTS

Investments are presented at fair value in accordance with GAAP and under the guidelines prescribed by the HMC investment valuation policy, which is reviewed and approved by the HMC Board of Directors on an annual basis.

The majority of the University's investments are managed by HMC in the GIA, a pooled investment account that consists primarily of endowment assets. Certain other investments such as cash, short-term investments, split interest agreements, and other assets, are managed separately from the GIA.

The University's investment holdings as reported on the *Balance Sheets* are summarized in the following table (in thousands of dollars):

	2019	2018
Investment portfolio assets		
Pooled general investment account assets	**$ 44,875,461**	$ 44,113,615
Other investments	**1,848,509**	1,533,984
Investment portfolio, at fair value	**46,723,970**	**45,647,599**
Securities pledged to counterparties, at fair value	**49,971**	162,790
TOTAL INVESTMENT ASSETS	**46,773,941**	**45,810,389**
Pooled general investment account liabilities	**847,732**	869,020
Interest rate exchange agreement	**27,409**	15,481
TOTAL OTHER LIABILITIES ASSOCIATED WITH THE INVESTMENT PORTFOLIO	**875,141**	**884,501**
TOTAL INVESTMENTS, NET	**$ 45,898,800**	**$ 44,925,888**

As of June 30, 2019 and 2018, University's net investments were comprised of the following components (in thousands of dollars):

	2019	2018
POOLED GENERAL INVESTMENT ACCOUNT		
Endowment[1]	**$ 38,843,726**	$ 37,731,389
General operating account	**3,716,277**	4,154,494
Split interest agreements	**780,737**	820,725
Other internally designated funds	**736,960**	700,777
TOTAL POOLED GENERAL INVESTMENT ACCOUNT NET ASSETS	**$ 44,077,700**	**$ 43,407,385**
OTHER INVESTMENTS OUTSIDE THE GENERAL INVESTMENT ACCOUNT		
General operating and other investments[2]	**1,168,724**	917,664
Split interest agreements	**652,376**	600,839
TOTAL OTHER INVESTMENTS OUTSIDE THE GENERAL INVESTMENT ACCOUNT	**$ 1,821,100**	**$ 1,518,503**
TOTAL INVESTMENTS, NET	**$ 45,898,800**	**$ 44,925,888**

[1] *Includes only the portion of the endowment invested in the GIA and excludes pledges, interests in trusts held by others, other non-GIA investments, and GIA interest and dividends net of all internal and external management fees and expenses.*
[2] *Consists primarily of repurchase agreements, US government securities, and money markets of $1,036,080 and $754,940 as of June 30, 2019 and 2018, respectively.*

Investment return

A summary of the University's total return on investments for fiscal years 2019 and 2018 is presented below (in thousands of dollars):

	2019	2018
Return on pooled general investment account:		
Realized and change in unrealized appreciation, net	**$ 2,612,986**	$ 3,833,460
Interest, dividends, fees, and expenses, net	**42,631**	55,199
Total return on pooled general investment account[1]	**2,655,617**	**3,888,659**
Return on other investments:		
Realized and change in unrealized (depreciation), net	**(1,430)**	(4,014)
Interest, dividends, fees, and expenses, net	**52,619**	38,585
Total return on other investments	**$ 51,189**	**$ 34,571**
Realized and change in unrealized (depreciation)/appreciation on interest rate exchange agreement, net	**(13,880)**	4,010
TOTAL RETURN ON INVESTMENTS[2]	**$ 2,692,926**	**$ 3,927,240**

[1] *Net of all internal and external management fees and expenses.*
[2] *Total return on investments is comprised of returns on the endowment, GOA, Split Interest Agreements and other.*

Fair value hierarchy

The University's investments have been categorized based upon the fair value hierarchy in accordance with ASC 820, which prioritizes the inputs to valuation techniques used to measure fair value of investment assets and liabilities into three levels:

LEVEL 1 Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities;

LEVEL 2 Quoted prices in markets that are not considered to be active or financial instruments for which all significant inputs are observable, either directly or indirectly;

LEVEL 3 Prices or valuations that require inputs that are significant to the fair value measurement, unobservable, and/or require the University to develop its own assumptions.

Investments in externally managed funds where the University utilizes net asset values (as reported by external managers) as a practical expedient for fair value measurements are excluded from the fair value hierarchy.

The level of an asset or liability within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. The University endeavors to utilize all relevant and available information in measuring fair value.

The following is a summary of the levels within the fair value hierarchy for those investment assets and liabilities subject to fair value measurement as of June 30, 2019 and 2018 (in thousands of dollars):

	2019					2018
	Level 1	Level 2	Level 3	NAV as Practical Expedient	Total	Total
ASSETS:[1]						
Cash and short-term investments	$ 1,335,905				**$ 1,335,905**	**$ 1,407,841**
Repurchase agreements		$ 774,644			**774,644**	**1,149,363**
Domestic equity	526,046			$ 3,067,435	**3,593,481**	**4,990,487**
Foreign equity	939,428			1,353,879	**2,293,307**	**2,401,770**
Global equity				1,660,465	**1,660,465**	**2,008,253**
Domestic fixed income	1,505,039				**1,505,039**	**1,505,967**
Foreign fixed income	25,597				**25,597**	**25,141**
Emerging market equity and debt	634,107			2,593,954	**3,228,061**	**2,562,035**
High yield	2,898		$ 234,110		**237,008**	**145,132**
Hedge funds				14,592,876	**14,592,876**	**12,814,216**
Private equity			227,244	10,028,510	**10,255,754**	**8,527,921**
Natural resources	12,878		1,878,205	22,972	**1,914,055**	**2,254,809**
Real estate			48,644	3,561,775	**3,610,419**	**4,005,056**
Inflation-indexed bonds	871,832				**871,832**	**847,163**
Due from brokers	91	44,350	4,638		**49,079**	**5,824**
Other investments	6,558	3,626	7,609		**17,793**	**12,022**
INVESTMENT ASSETS SUBJECT TO FAIR VALUE LEVELING	**$ 5,860,379**	**$ 822,620**	**$ 2,400,450**	**$ 36,881,866**	**$ 45,965,315**	**$ 44,663,000**
Other investment assets not subject to fair value[2]					**808,626**	**1,147,389**
TOTAL INVESTMENT ASSETS[6]					**$ 46,773,941**	**$ 45,810,389**
Interests in trusts held by others[3]			420,371		**420,371**	**408,968**
NON-INVESTMENT ASSETS SUBJECT TO FAIR VALUE LEVELING			**$ 420,371**		**$ 420,371**	**$ 408,968**
TOTAL ASSETS					**$ 47,194,312**	**$ 46,219,357**
LIABILITIES:[1]						
Due to brokers[4]		$ 33,912			**$ 33,912**	**$ 115,386**
Other liabilities subject to fair value			$ 288,372		**288,372**	**223,601**
INVESTMENT LIABILITIES SUBJECT TO FAIR VALUE LEVELING		**$ 33,912**	**$ 288,372**		**$ 322,284**	**$ 338,987**
Other investment liabilities not subject to fair value[5]					**552,857**	**545,514**
TOTAL INVESTMENT LIABILITIES[6]					**$ 875,141**	**$ 884,501**
Liabilities due under split interest agreements[3]		$ 859,744			**859,744**	**862,413**
NON-INVESTMENT LIABILITIES SUBJECT TO FAIR VALUE LEVELING		**$ 859,744**			**$ 859,744**	**$ 862,413**
TOTAL LIABILITIES					**$ 1,734,885**	**$ 1,746,914**

1 *Certain prior year amounts have been reclassified to conform to current year presentation.*

2 *As of June 30, 2019, other assets not subject to fair value consists primarily of receivables for transactions that settled subsequent to the balance sheet date of $599,651, before eliminating inter-company balances, and consolidated assets of $159,745. As of June 30, 2018, other assets not subject to fair value consist primarily of receivables for transactions that settled subsequent to the balance sheet date of $922,438, before eliminating inter-company balances, and consolidated assets of $162,922.*

3 *Amounts excluded from investments and included separately on the University's* Balance Sheets.

4 *Includes fair value of an interest rate exchange agreement on the University's debt portfolio of $27,409 and $15,481 as of June 30, 2019 and 2018, respectively.*

5 *As of June 30, 2019 and 2018, other liabilities not subject to fair value include consolidated liabilities of $199,693 and $200,631, respectively.*

6 *As of June 30, 2019 and 2018, total investment assets, net equal $45,898,800 and $44,925,888, respectively.*

The following is a rollforward of Level 3 investments for the year ended June 30, 2019 and the condensed June 30, 2018 rollforward of Level 3 investments (in thousands of dollars):

	Beginning balance as of July 1, 2018	Net realized gains/(losses)	Net change in unrealized appreciation (depreciation)[1]	Purchases/ contributions	Sales/ distributions	Transfers out of Level 3	Ending balance as of June 30, 2019
INVESTMENT ASSETS:							
High yield	$ 133,027	$ 1,368	$ (642)	$ 165,240	$ (64,883)		**$ 234,110**
Private equity	158,070	2,562	(3,187)	69,799			**227,244**
Natural resources	2,183,270	(78,604)	(141,475)	83,190	(168,176)		**1,878,205**
Real estate	230,214	2,848	(989)	86	(11,481)	$ (172,034)	**48,644**
Due from brokers	4,640		(2)				**4,638**
Other investments	1,662		(53)	7,125	(1,125)		**7,609**
INVESTMENT ASSETS SUBJECT TO FAIR VALUE LEVELING	**$ 2,710,883**	**$ (71,826)**	**$ (146,348)**	**$ 325,440**	**$ (245,665)**	**$ (172,034)**	**$ 2,400,450**
Interests in trusts held by others	408,968		11,403				**420,371**
NON-INVESTMENT ASSETS SUBJECT TO FAIR VALUE LEVELING	**$ 408,968**		**$ 11,403**				**$ 420,371**
TOTAL ASSETS SUBJECT TO FAIR VALUE LEVELING	**$ 3,119,851**	**$ (71,826)**	**$ (134,945)**	**$ 325,440**	**$ (245,665)**	**$ (172,034)**	**$ 2,820,821**
INVESTMENT LIABILITIES:							
Other liabilities subject to fair value	$ 223,601		$ (11,190)	$ 82,854	$ (6,893)		**$ 288,372**
TOTAL LIABILITIES SUBJECT TO FAIR VALUE LEVELING	**$ 223,601**	**$ 0**	**$ (11,190)**	**$ 82,854**	**$ (6,893)**	**$ 0**	**$ 288,372**
NET ASSETS SUBJECT TO FAIR VALUE LEVELING	**$ 2,896,250**	**$ (71,826)**	**$ (123,755)**	**$ 242,586**	**$ (238,772)**	**$ (172,034)**	**$ 2,532,449**

[1] *Total change in unrealized appreciation/(depreciation) relating to Level 3 investment assets and investment liabilities still held by the University at June 30, 2019 is $(221,663) and is reflected in "Realized and change in unrealized appreciation/(depreciation), net" in the* Statements of Changes in Net Assets.

	Beginning balance as of July 1, 2017	Net realized gains/(losses)	Net change in unrealized appreciation (depreciation)[1]	Purchases/ contributions	Sales/ distributions	Transfers into Level 3	Transfers out of Level 3	Ending balance as of June 30, 2018
PRIOR YEAR NET ASSETS SUBJECT TO FAIR VALUE LEVELING	**$ 8,267,471**	**$ (945,127)**	**$ 789,301**	**$ 513,420**	**$ (2,519,985)**	**$ 0**	**$ (3,208,830)**	**$ 2,896,250**

[1] *Total change in unrealized appreciation/(depreciation) relating to Level 3 investment assets and investment liabilities still held by the University at June 30, 2018 is $(183,672) and is reflected in "Realized and change in unrealized appreciation/(depreciation), net" in the* Statements of Changes in Net Assets.

During fiscal year 2018, the University unwound its direct real estate investing platform and engaged an external investment manager to manage these assets in an investment vehicle, resulting in a transfer out of Level 3 of $3.2 billion of investment assets.

Investment strategy and risk

The University utilizes a number of wholly-owned subsidiary entities to support its investment activities. The consolidated financial statements include all assets, liabilities, income, and expenses associated with these entities and intercompany accounts and transactions have been eliminated during consolidation.

The University's investment strategy incorporates a diversified asset allocation approach and maintains, within defined limits, exposure to the movements of the global public and private equity, fixed income, real estate, and commodities markets. Exposure to these markets is achieved through direct investments in individual securities, investments in special purpose vehicles and/or through investments in vehicles advised by external managers.

Investments in global markets involve a multitude of risks such as price, interest rate, market, sovereign, currency, liquidity, and credit risks, amongst many others. Additionally, the University's direct investments in natural resources expose it to a unique set of risks, namely environmental, social, and geopolitical risks in some of the jurisdictions where these direct investments reside. The University manages exposure to these risks through established policies and procedures related to its ongoing investment diligence and operational due diligence programs. The University also considers manager concentration risk. As of June 30, 2019, 22% of the GIA NAV was invested across 5 diversified fund managers. The University anticipates that the value and composition of its investments may, from time to time, fluctuate substantially in response to any or all of the risks described herein.

Liquidity

Cash and short-term investments are recorded at cost, which approximates fair value, and includes cash in bank accounts, institutional money market funds, and other temporary investments held for working capital purposes with original maturities of three months or less. Cash and short-term investments do not include cash balances held as collateral by the University. Cash and short-term investment balances designated for investment purposes are included in the "Investment portfolio, at fair value" in the *Balance Sheets*.

The University has various sources of liquidity at its disposal within its investment pools, including approximately $2.1 billion in cash and cash equivalents (including money markets of $1.3 billion and repurchase agreements of $0.8 billion) at June 30, 2019. In addition, the University estimates that as of the balance sheet date, it could have liquidated additional unencumbered US government securities of $2.2 billion within one business day (assuming typical settlement terms) to meet any immediate short-term needs of the University (unaudited).

Repurchase agreements

The University *Balance Sheets* display the assets generated by repurchase transactions. The University enters into these transactions under agreements containing master netting arrangements. The University requires the fair value of the collateral exchanged under these agreements to be equal to or in excess of the total amount of the agreement, including interest where applicable. At June 30, 2019 and 2018, the University had gross asset repurchase agreements of $0.8 billion and $1.1 billion, respectively, which were fully collateralized. The University does not offset repurchase agreements that are subject to master netting arrangements or similar arrangements on the University's *Balance Sheets*.

Dividend and interest income

Dividend income is recognized net of applicable withholding taxes on the ex-dividend date. Non-cash dividends are recorded at the fair value of the securities received. Interest income and expense is recorded net of applicable withholding taxes, on an accrual basis. The University amortizes bond premiums and accretes bond discounts using the effective yield method and when cash collection is expected.

Traded securities

Instruments listed or traded on a securities exchange are valued at the last quoted price on the primary exchange where the security is traded. Where there is no readily available closing price on the valuation date, long positions are valued at the bid price and short positions are valued at the ask price. Restrictions that are attached to a security are factored into the valuation of that security, reflective of the estimated impact of those restrictions. Investments in non-exchange traded debt and equity instruments are primarily valued using inputs provided by independent pricing services or by broker/dealers who actively make markets in these securities.

Derivatives

The University uses a variety of financial instruments with off-balance sheet risk involving contractual or optional commitments for future settlement, which are exchange traded or executed over the counter (OTC). These instruments are used to (1) manage exposure to certain asset classes and/or various market risks, (2) arbitrage mispricings of related securities and (3) to manage the interest, cost and risk associated with its outstanding and/or future debt. These instruments are classified as due to/from brokers and may include option, swap, credit default, interest rate, and forward contracts. These types of instruments are primarily valued using industry standard models with independent market inputs, or by broker quotes. Inputs such as prices, spreads, curves, and/or broker quotes are evaluated for source reliability and consistency with industry standards. Counterparty marks obtained and utilized to determine daily collateral requirements are also used to corroborate input reasonability. The University considers current market conditions including interest rate and credit risks in its evaluation of inputs, pricing methodologies, and models utilized to determine fair values.

In connection with its derivative activities, the University generally maintains master netting agreements and collateral agreements with its counterparties. These agreements provide the University the right, in the event of default by the counterparty (such as bankruptcy or a failure to pay or perform), to net a counterparty's rights and obligations under the agreement and to liquidate and offset collateral against any net amount owed by the counterparty. Collateral, generally in the form of debt obligations issued by the US Treasury, is exchanged on a daily basis as required by fluctuations in the market.

Specific credit limits are established for counterparties based on their individual credit ratings. Credit limits are monitored daily by the University and are adjusted according to policy, as necessary. Some of the financial instruments entered into by the University contain credit-risk-related contingency features that allow the parties to the agreement to demand immediate payment for outstanding contracts and/or collateral.

The following table presents information about the University's derivatives by primary risk exposure for the years ended June 30, 2019 and 2018 (in thousands of dollars):

	As of June 30, 2019			For the year ended June 30, 2019	As of June 30, 2018			For the year ended June 30, 2018
Primary risk exposure	Average Quarterly Notional	Gross derivative assets	Gross derivative liabilities	Net profit/ (loss)[4]	Average Quarterly Notional	Gross derivative assets	Gross derivative liabilities	Net profit/ (loss)[4]
Equity instruments	$ 1,686,686	$ 63,618	$ 25,824	$ 10,413	$ 3,623,341	$ 37,826	$ 123,157	$ 351,485
Fixed income instruments[1]	117,000		27,409	(13,880)	117,000		15,481	4,010
Currency instruments	1,151,191	527	468	(1,408)	2,450,565	87,538	101,058	(91,194)
Credit instruments	4,726	4,723		12	4,792	4,770		(9)
SUBTOTAL		**$ 68,868**	**$ 53,701**	**$ (4,863)**		**$ 130,134**	**$ 239,696**	**$ 264,292**
TOTAL COUNTERPARTY NETTING		**(19,789)**	**(19,789)**			**(124,310)**	**(124,310)**	
NET AMOUNTS INCLUDED IN THE BALANCE SHEETS[3]		**49,079**	**33,912**			**5,824**	**115,386**	
Collateral								
Cash collateral received/posted						871		
Securities collateral received/ posted[5]		52,579	26,690			4,032	135,934	
TOTAL COLLATERAL		**52,579**	**26,690**			**4,903**	**135,934**	
NET AMOUNT		**(3,500)**	**7,222**			**921**	**(20,548)**	
NET AMOUNT IN ACCORDANCE WITH ASC 210[6]		**$ 0**	**$ 7,222**			**$ 921**	**$ 0**	

1 *For the year ended June 30, 2019, balances include a gross derivative liability of $27,409 and a net realized and change in unrealized loss of $(13,880), related to an interest rate exchange agreement on the University's debt portfolio. For the year ended June 30, 2018, balances include a gross derivative liability of $15,481 and a net realized and change in unrealized gain of $4,010 related to an interest rate exchange agreement on the University's debt portfolio. These positions are further discussed in* Note 10.

2 *GAAP permits the netting of derivative assets and liabilities and the related cash collateral received and paid when a legally enforceable master netting agreement exists between the University and a derivative counterparty.*

3 *Included within the "Investment portfolio, at fair value" and "Other liabilities associated with the investment portfolio" line items of the* Balance Sheets.

4 *Included within "Realized and change in unrealized appreciation/(depreciation), net" within the* Statements of Changes in Net Assets.

5 *Includes securities posted to meet initial margin requirements on exchange traded futures.*

6 *Excludes any over-collateralized amounts in accordance with ASC 210.*

External advisors

Investments managed by external advisors include investments in private equity, real estate, natural resources, hedge funds, and other externally managed funds. The majority of these investments are not readily marketable and are reported at NAV utilizing the most current information provided by the external advisor, subject to assessments that the information is representative of fair value and in consideration of any additional factors deemed pertinent to the fair value measurement. The University evaluates these external advisors through ongoing due diligence and operational oversight, which includes an analysis of an advisor's use of and adherence to fair value principles.

The University generally utilizes its capital account balance as a practical expedient to fair value measurements for funds managed by external advisors. To evaluate the adequacy of these fair value measurements, the University has assessed factors including, but not limited to, the external advisor's adherence to fair value principles in calculating the capital account balance, the existence of transactions at NAV at the measurement date and the existence or absence of certain restrictions at the measurement date.

The University, as an investor, has commitments to make periodic contributions in future periods to the investments managed by external advisors. The amounts of these expected disbursements as of June 30, 2019 and 2018 are disclosed below (in thousands of dollars):

	As of June 30, 2019			As of June 30, 2018		
	Fair value[1]	Remaining unfunded commitments	Estimated remaining life[2]	Fair value[1]	Remaining unfunded commitments	Estimated remaining life[2]
Private equity funds	$ 8,351,163	$ 6,885,617	4 – 10	$ 6,848,285	$ 6,475,884	4 – 10
Real estate funds	3,556,511	1,702,201	4 – 10	3,900,327	1,542,336	4 – 10
Other externally managed funds[3]	3,253,362	2,112,165	2 – 8	2,421,899	2,868,214	2 – 8
TOTAL	**$ 15,161,036**	**$ 10,699,983**		**$ 13,170,511**	**$ 10,886,434**	

[1] *Represents the fair value of the funded portion of investments with remaining unfunded commitments.*
[2] *The estimated remaining lives of these funds, expressed in years, are forward-looking projections based on the University's estimates and could vary significantly depending on the investment decisions of external managers, changes in the University's investment portfolio, and other circumstances.*
[3] *Investments in externally managed funds primarily include exposures to hedge funds and natural resources.*

Investments in externally managed funds generally have limited redemption options for investors and, subsequent to final closing, may or may not permit subscriptions by new or existing investors. These entities may also have the ability to impose gates, lockups, and other restrictions on an investor's ability to readily redeem out of their investment interest in the fund.

Direct investments

Direct investments in natural resources and private equity are primarily valued using a combination of independent appraisals and/or one or more industry standard valuation techniques (e.g., income approach, market approach, or cost approach). The income approach is primarily based on the investment's anticipated future income using one of two principal methods: the discounted cash flow method or the capitalization method. Inputs and estimates developed and utilized with these techniques may be subjective, unobservable, and require judgment regarding significant matters such as estimating the amount and timing of future cash flows, forward pricing assumptions, and the selection of discount and capitalization rates that appropriately reflect market and credit risks. The market approach derives investment value through comparison to recent and relevant market transactions with similar investment characteristics. The cost approach is utilized when the cost of the investment is determined to be the best representation of fair value. This method is typically used for newly purchased or undeveloped assets. When applicable, the University examines market data and collaborates closely with independent appraisers to arrive at the best estimation of fair value for each respective asset. The HMC Board of Directors discusses the valuation process and results with HMC management, and makes determinations on significant matters impacting valuation that may arise from time to time.

The following table presents the ranges of significant unobservable inputs used to value the University's Level 3 assets. While the inputs described below represent the range of inputs utilized as of the measurement date, these inputs may change over time, which may have a material effect on the valuation of these types of investments in the future.

	As of June 30, 2019			As of June 30, 2018	
Significant unobservable input by asset class[1,3,4]	Level 3 investments subject to fair value (in thousands of dollars)[2]	Range of inputs utilized in valuation model[3]	Weighted average of inputs utilized in valuation model	Level 3 investments subject to fair value (in thousands of dollars)[2]	Range of inputs utilized in valuation model[3]
Natural resources:	$ 1,878,205			$ 2,183,270	
Income approach discount rate		6.0% – 16.0%	10.2%		5.0% – 16.0%
Price per planted hectare		$1,073 – $164,937	$43,431		$1,386 – $158,900
Price per gross hectare		$168 – $57,422	$15,231		$118 – $51,559
Discount for lack of marketability		2.0% – 20.0%	9.0%		
High yield:	233,681			106,481	
Income approach discount rate					8.6%
Shadow rating discount rate		6.8% – 8.9%	8.0%		8.4% – 9.9%
Collateral coverage market risk factor		100%	100%		100%
EBITDA multiple		11.3x – 13.5x	11.9x		
Weighted average cost of capital					7.1% – 10.9%
Real estate:	32,661			40,669	
Income approach discount rate		11.5% – 13.5%	12.5%		13.0% – 13.5%
Income approach growth rate		3.0%	3.0%		3.0%
Discount for lack of marketability		15.0%	15.0%		15.0%
Private equity:	69,430			87,236	
Income approach discount rate		6.0% – 8.0%	7.0%		6.0% – 8.0%
Book value multiplier		0.6x	0.6x		0.8x
Net income multiple					5.0x
Other liabilities subject to fair value	(288,372)			(158,008)	
Loan to value		8.7% – 43.5%	22.4%		8.5% – 44.0%
Market interest rate		2.5% – 10.5%	5.1%		2.5% – 15.0%
NET AMOUNT	**$ 1,925,605**			**$ 2,259,648**	

1 *The fair value of investments may be determined using multiple valuation techniques.*
2 *Included within Level 3 investments is $606,844 and $636,602 as of June 30, 2019 and 2018, respectively, which were valued using other inputs including, but not limited to, single source broker quotations, third party pricing, and transactions.*
3 *The range of inputs encompasses a variety of investment types within each asset class.*
4 *Certain prior year amounts have been reclassified to conform to current year presentation.*

4. RECEIVABLES

The major components of receivables, net of reserves for doubtful accounts of $12.2 million and $12.9 million as of June 30, 2019 and 2018, respectively, were as follows (in thousands of dollars):

	2019	2018
Federal sponsored support	**$ 71,425**	$ 72,148
Publications	**62,872**	60,424
Executive education	**62,842**	66,837
Tuition and fees	**19,146**	20,479
Non-federal sponsored support	**10,821**	14,030
Gift receipts	**4,430**	22,510
Other	**64,785**	44,830
TOTAL RECEIVABLES, NET	**$ 296,321**	**$ 301,258**

5. NOTES RECEIVABLE

Notes receivable are recorded initially at face value plus accrued interest, which approximates fair value. Notes receivable, and related allowance for doubtful accounts, were as follows (in thousands of dollars):

	2019			2018		
	Receivable	Allowance	Net	Receivable	Allowance	Net
Student Loans:						
Government revolving	$ 49,213	$ 1,266	**$ 47,947**	$ 59,941	$ 1,433	**$ 58,508**
Institutional	86,467	2,481	**83,986**	87,206	2,372	**84,834**
Federally insured	344	159	**185**	371		**371**
Total student loans	136,024	3,906	**132,118**	147,518	3,805	**143,713**
Faculty and staff loans	234,148	179	**233,969**	230,335	179	**230,156**
Other loans	29,475	21,939	**7,536**	30,989	23,063	**7,926**
TOTAL	**$ 399,647**	**$ 26,024**	**$ 373,623**	**$ 408,842**	**$ 27,047**	**$ 381,795**

Government revolving loans are funded principally with federal advances to the University under the Perkins Loan Program and certain other programs. These advances totaled $66.7 million and $65.4 million as of June 30, 2019 and 2018, respectively, and are classified as liabilities in the *Balance Sheets*. During fiscal year 2018, the Perkins Loan Program ended and as a result the University made the first of its annual required repayments to the government. In fiscal year 2019 an annual repayment was not due while the Department of Education calculates the reimbursement owed to the University for public service cancellations since fiscal year 2010, as required by law. Interest earned on the revolving and institutional loan programs is reinvested to support additional loans. The repayment and interest rate terms of the institutional loans vary considerably.

Faculty and staff notes receivable primarily consists of mortgage and educational loans. Mortgages include shared appreciation loans, loans that bear interest at the applicable federal rate and interest-free loans. In addition, certain mortgages that bear interest at the current market rate or applicable federal rate may be subsidized for an initial period. The educational loans are primarily zero-interest loans.

The University assesses the adequacy of the allowance for doubtful accounts by evaluating the loan portfolio, including such factors as the differing economic risks associated with each loan category, the financial condition of specific borrowers, the economic environment in which the borrowers operate, the level of delinquent loans, the value of any collateral, and, where applicable, the existence of any guarantees or indemnifications. In addition to these factors, the University reviews the aging of the loans receivable and the default rate in comparison to prior years. The allowance is adjusted based on these reviews. The University considers the allowance at June 30, 2019 and 2018 to be reasonable and adequate to absorb potential credit losses inherent in the loan portfolio.

6. PLEDGES RECEIVABLE

Unconditional promises to donate to the University in the future are initially recorded at fair value (pledge net of discount) and subsequently amortized over the expected payment period, net of an allowance for uncollectible pledges. The University's indicative 1- to 5-year taxable unsecured borrowing rate is used to discount pledges receivable at the end of the fiscal year they are received. Discounts of $149.6 million and $91.8 million for the years ended June 30, 2019 and 2018, respectively, were calculated using rates ranging from 1.3% to 3.1%.

Pledges receivable included in the financial statements as of June 30, 2019 and 2018 are expected to be realized as follows (in thousands of dollars):

	2019	2018
Within one year	**$ 408,858**	$ 276,074
Between one and five years	**1,635,428**	1,104,294
More than five years	**992,743**	632,340
Less: discount and allowance for uncollectible pledges	**(271,202)**	(174,916)
TOTAL PLEDGES RECEIVABLE, NET	**$ 2,765,827**	**$ 1,837,792**

Pledges receivable as of June 30, 2019 and 2018 have been designated for the following purposes (in thousands of dollars):

	2019	2018
General Operating Account balances:		
Gifts for current use	**$ 744,871**	$ 552,268
Non-federal sponsored awards	**215,972**	127,140
Construction and life income	**294,180**	222,735
Total General Operating Account balances	**1,255,023**	**902,143**
Endowment	**1,510,804**	935,649
TOTAL PLEDGES RECEIVABLE, NET	**$ 2,765,827**	**$ 1,837,792**

Because of uncertainties with regard to realizability and valuation, conditional promises are only recognized if and when the specified conditions are met. Conditional pledges totaled $49.8 million and $59.5 million as of June 30, 2019 and 2018, respectively.

7. FIXED ASSETS

Fixed assets are reported at cost or, if a gift, at fair value as of the date of the gift, net of accumulated depreciation. Depreciation is computed using the straight-line method over the estimated useful lives of the assets.

The major categories of fixed assets as of June 30, 2019 and 2018 are summarized as follows (in thousands of dollars):

	2019	2018	Estimated useful life (in years)
Research facilities	**$ 2,432,190**	$ 2,376,412	*
Classroom and office facilities	**2,291,410**	2,046,484	35
Housing facilities	**2,241,939**	2,010,649	35
Other facilities	**448,844**	427,397	35
Service facilities	**778,149**	751,236	35
Libraries	**479,741**	487,598	35
Museums and assembly facilities	**959,455**	788,587	35
Athletic facilities	**235,910**	223,072	35
Land	**1,023,726**	968,922	N/A
Construction in progress	**1,297,194**	1,337,279	N/A
Equipment	**1,281,259**	1,289,975	**
SUBTOTAL AT COST	**13,469,817**	**12,707,611**	
Less: accumulated depreciation	**(5,198,106)**	(4,975,439)	
FIXED ASSETS, NET	**$ 8,271,711**	**$ 7,732,172**	

* *Estimated useful lives of components range from 10 to 45 years.*
** *Estimated useful lives of equipment range from 3 to 8 years.*

Certain University facilities are subject to restrictions as to use, structural modifications, and ownership transfer. Included in the fixed asset balances are restricted facilities with a net book value of $303.0 million and $292.8 million as of June 30, 2019 and 2018, respectively.

The costs of research facilities are separated into the shell, roof, finishes, fixed equipment, and services. These components are separately depreciated.

Equipment includes general and scientific equipment, computers, software, furniture, and vehicles.

The University has asset retirement obligations of $176.8 million and $174.4 million, which are included in "Deferred revenue and other liabilities" in the *Balance Sheets* as of June 30, 2019 and 2018, respectively.

8. ENDOWMENT AND GENERAL OPERATING ACCOUNT NET ASSETS

The University's net assets consisted of the following as of June 30, 2019 and 2018 (in thousands of dollars):

	2019			2018		
	Without donor restrictions	With donor restrictions	Total	Without donor restrictions	With donor restrictions	Total
NATURE OF SPECIFIC NET ASSETS						
Perpetual endowment funds		$ 7,848,495	**$ 7,848,495**		$ 7,378,054	**$ 7,378,054**
Endowment funds and appreciation, subject to distribution policy and appropriation		24,092,097	**24,092,097**		23,783,159	**23,783,159**
Endowment funds without restriction, board designated and subject to distribution policy	$ 7,091,584		**7,091,584**	$ 6,759,901		**6,759,901**
Pledge balances		1,510,804	**1,510,804**		935,649	**935,649**
Interests in trusts held by others		386,720	**386,720**		376,973	**376,973**
TOTAL ENDOWMENT	**7,091,584**	**33,838,116**	**40,929,700**	**6,759,901**	**32,473,835**	**39,233,736**
Operating	4,890,118		**4,890,118**	4,592,384		4,592,384
Unexpended contributions and endowment distributions		2,784,170	**2,784,170**		2,480,144	2,480,144
Student loan funds		99,129	**99,129**		98,769	98,769
TOTAL GENERAL OPERATING ACCOUNT	**4,890,118**	**2,883,299**	**7,773,417**	**4,592,384**	**2,578,913**	**7,171,297**
Split interest agreements *(Note 9)*		**573,369**	**573,369**		559,151	**559,151**
TOTAL NET ASSETS	**$ 11,981,702**	**$ 37,294,784**	**$ 49,276,486**	**$ 11,352,285**	**$ 35,611,899**	**$ 46,964,184**

Endowment

The University's endowment consists of 13,891 separate funds established over many years for a wide variety of purposes. Endowment fund balances are classified and reported in accordance with donor specifications and state law. The endowment includes both donor-restricted endowment funds and funds functioning as endowment which are not subject to donor-imposed restrictions, however decisions to spend their principal require the approval of the Corporation and therefore are classified as Board-designated endowment funds. The majority of the endowment is invested in the GIA *(Note 3)*.

The University is also the beneficiary of certain irrevocable trusts held and administered by others. The estimated fair values of trust assets, which include the present values of expected future cash flows from outside trusts and the fair value of the underlying assets of perpetual trusts, are recognized as assets and increases in net assets when the required trust documentation is provided to the University.

The fair values of these trusts are provided by the external trustees and are adjusted annually by the University. These are included as Level 3 investments in the fair value hierarchy table in *Note 3*.

The University's endowment distribution policies are designed to preserve the value of the endowment in real terms (after inflation) and generate a predictable stream of available income. Each fall, the Corporation approves the endowment distribution for the following fiscal year. Distribution from an underwater endowment fund (a fund below its historic dollar value) could continue in limited and defined circumstances under the University's endowment distribution policy. To the extent that the fair value of a donor restricted endowment fund falls below its historic dollar value it would be reported as a reduction of net assets with donor restrictions.

At June 30, 2019 and 2018, funds in a deficit position were reported in net assets with donor restrictions and are comprised as follows (in thousands):

	2019	2018
Fair value of underwater endowment funds	**$ 27,240**	$ 30,703
Historic dollar value	**32,672**	33,351
TOTAL DEFICIT OF UNDERWATER ENDOWMENT FUNDS	**$ (5,432)**	**$ (2,648)**

The endowment distribution is based in part on presumptive guidance from a formula that is intended to provide budgetary stability by smoothing the impact of annual investment gains and losses. The formula's inputs reflect expectations about long-term returns and inflation rates. For fiscal year 2019, the endowment distribution approved by the Corporation (prior to decapitalizations) was equal to 5.1% of the fair value of the endowment invested in the GIA as of the beginning of the fiscal year. The total endowment distribution made available for operations was $1.9 billion and $1.8 billion in fiscal year 2019 and 2018, respectively.

Each year the Corporation also approves certain decapitalizations from the endowment to support strategic, mission-critical activities or objectives that are typically one-time or time-limited and therefore, are excluded from net operating surplus. These decapitalizations totaled $32.2 million and $46.0 million in fiscal year 2019 and 2018, respectively. These additional decapitalizations, in combination with the endowment distribution, resulted in an aggregate payout rate of 5.1% and 5.3% in fiscal year 2019 and 2018, respectively. The aggregate payout rate does not include the impact of new tax charges related to the endowment, if included, the total payout rate would be 5.2% for fiscal year 2019.

General operating account

The GOA consists of the general or current funds of the University as well as the assets and liabilities related to student and faculty loans and facilities. The GOA accepts, manages, and pays interest on deposits made by University departments; invests surplus working capital; makes loans; and arranges external financing for major capital projects. It is used to manage, control, and execute all University financial transactions, except for those related to investment activities conducted by HMC.

9. SPLIT INTEREST AGREEMENTS

Under split interest agreements, donors enter into trust or other arrangements with the University in which the University receives benefits that are shared with other beneficiaries and institutions. Split interest agreement (SIA) investment assets are invested primarily in the GIA and publicly-traded securities, a small segment is managed by an external advisor, and all are recorded in the "Investment portfolio, at fair value" in the University's *Balance Sheets*. Additional disclosures are included in *Note 3*. Associated liabilities are recorded at the present value of estimated future payments due to beneficiaries and other institutions.

These liabilities are calculated using the University's current taxable unsecured borrowing rate of 2.1% and 3.1% as of June 30, 2019 and 2018, respectively. All split interest agreement net assets and the respective activity are reported within net assets with donor restrictions. Upon termination of a split interest agreement, the net assets are transferred to the GOA or endowment accordingly.

The changes in split interest agreement net assets for fiscal years 2019 and 2018 were as follows (in thousands of dollars):

	2019	2018
Investment return:		
Investment income	**$ 13,807**	$ 11,365
Realized and change in unrealized appreciation, net	**45,694**	72,780
Total investment return	**59,501**	84,145
Gifts *(Note 14)**	**8,437**	12,166
Payments to annuitants	**(65,770)**	(65,728)
Transfers to endowment	**(15,213)**	(25,707)
Transfers between SIA and the GOA	**(13,886)**	(12,661)
Change in liabilities and other adjustments	**41,149**	33,054
NET CHANGE DURING THE YEAR	**14,218**	**25,269**
Total split interest agreement net assets, beginning of year	**559,151**	533,882
TOTAL SPLIT INTEREST AGREEMENT NET ASSETS, END OF YEAR	**$ 573,369**	**$ 559,151**

* *Shown at net present value. The undiscounted value of these gifts was $18,508 and $29,287 for the years ended June 30, 2019 and 2018, respectively.*

Split interest agreement net assets as of June 30, 2019 and 2018 consisted of the following (in thousands of dollars):

	2019	2018
Split interest agreement investments *(Note 3)*		
Charitable remainder trusts	**$ 930,742**	$ 924,576
Charitable lead trusts	**125,040**	125,341
Charitable gift annuities	**249,917**	250,473
Pooled income funds	**127,414**	121,174
Total split interest agreement investments[1]	**1,433,113**	**1,421,564**
Liabilities due under split interest agreements:		
Amounts due to beneficiaries	**(792,558)**	(801,355)
Amounts due to other institutions	**(67,186)**	(61,058)
Total liabilities due under split interest agreements	**(859,744)**	**(862,413)**
TOTAL SPLIT INTEREST AGREEMENT NET ASSETS, END OF YEAR	**$ 573,369**	**$ 559,151**

[1] *For the year ended June 30, 2019, $780,737 of SIA investments are held in the pooled general investment account and $652,376 of SIA investments are held in the other investments outside the general investment account. For the year ended June 30, 2018, $820,725 of SIA investments are held in the pooled general investment account and $600,839 of SIA investments are held in the other investments outside the general investment account. Refer to* Note 3.

10. BONDS AND NOTES PAYABLE

Bonds and notes payable as of June 30, 2019 and 2018 were as follows (in thousands of dollars):

	Fiscal year of issue	Years to final maturity[1]	One-year yield[2]	Outstanding principal 2019[3]	2018[3]
TAX-EXEMPT BONDS AND NOTES PAYABLE:					
Variable-rate demand bonds and commercial paper:					
Series R – daily	2000-2006	13	1.3%	$ 131,200	$ 131,200
Series Y – weekly	2000	16	1.5%	117,905	117,905
Commercial paper	2019	< 1	1.8%	350,000	0
Total variable-rate bonds and notes payable			1.6%	599,105	249,105
Fixed-rate bonds:					
Series N (par value, $80,000)	1992	1	6.3%	79,916	79,815
Series 2009A (par value, $0)	2009	0	4.8%	0	22,692
Series 2010A (par value, $49,590)	2010	2	4.7%	51,407	52,134
Series 2010B (par value, $110,235)	2011	5	4.8%	113,844	115,891
Series 2016A (par value, $1,539,720)	2017	21	3.9%	1,860,731	1,886,801
Total fixed-rate bonds			4.1%	2,105,898	2,157,333
TOTAL TAX-EXEMPT BONDS AND NOTES PAYABLE			**3.6%**	**2,705,003**	**2,406,438**
TAXABLE BONDS AND NOTES PAYABLE:					
Variable-rate bonds and notes payable:					
Commercial paper	2012	0	2.4%	0	262,798
Total variable-rate bonds and notes payable			2.4%	0	262,798
Fixed-rate bonds:					
Series 2008A (par value, $243,000)	2008	19	5.6%	242,881	242,875
Series 2008C (par value, $0)	2008	0	5.3%	0	125,205
Series 2008D (par value, $500,000)	2009	20	6.5%	498,812	498,751
Series 2010C (par value, $300,000)	2011	21	4.9%	298,573	298,506
Series 2013A (par value, $402,000)	2013	18	3.4%	402,000	402,000
Series 2016B (par value, $1,000,000)	2017	37	3.3%	995,765	995,643
Total fixed-rate bonds			4.4%	2,438,031	2,562,980
TOTAL TAXABLE BONDS AND NOTES PAYABLE			**4.3%**	**2,438,031**	**2,825,778**
Other notes payable	Various	Various	Various	87,405	87,057
Unamortized bond issuance costs				(17,090)	(18,352)
TOTAL BONDS AND NOTES PAYABLE			**4.0%**	**$ 5,213,349**	**$ 5,300,921**

[1] *The weighted average maturity of the portfolio on June 30, 2019 was 17.5 years.*
[2] *Exclusive of interest rate exchange agreement. Inclusive of this agreement, the overall portfolio rate was 0.05% higher (4.06% vs. 4.01%).*
[3] *Balances include original issuance premiums/discounts.*

Interest expense related to bonds and notes payable was $183.7 million and $187.5 million for fiscal 2019 and 2018, respectively. The interest expense in the *Statement of Changes in Net Assets with General Operating Account Detail* includes additional components related to capital leases. Excluding maturity of commercial paper and unamortized discounts and premiums, unamortized underwriter's discount and unamortized cost of issuance, scheduled principal payments are (in thousands of dollars):

Fiscal year	Principal payments
2020	$ 467,999
2021	88,186
2022	109,619
2023	54,891
2024	101,853
Thereafter	4,088,507
TOTAL PRINCIPAL PAYMENTS	**$ 4,911,055**

The University is rated Aaa by Moody's Investors Service and AAA by Standard & Poor's Global Ratings. The Standard & Poor's rating was re-affirmed in December 2018 and the Moody's Investors Service rating was re-affirmed in January 2019.

The University has one unsecured, revolving credit facility totaling $1.5 billion, which expires in March 2022. There was no outstanding drawn balance on the credit facility at June 30, 2019.

The University has taxable commercial paper line available totalling $2 billion. There was no outstanding drawn balance on the taxable commercial paper line at June 30, 2019.

As of June 30, 2019, the University had $249.1 million of variable-rate demand bonds outstanding (excluding commercial paper) with either a daily or weekly interest rate reset, as noted in the bonds and notes payable table. In the event that the University receives notice of any optional tender on its variable-rate demand bonds, or if the bonds become subject to mandatory tender, the purchase price of the bonds will be paid from the remarketing of such bonds. However, if the remarketing proceeds are insufficient, the University will have a general obligation to purchase the bonds tendered with cash on hand.

Interest rate exchange agreements

In fiscal 2019, the University had in place one interest rate exchange agreement, used to manage the interest cost and risk associated with a portion of its outstanding debt.

The fair value of the interest rate exchange agreement was $(27.4) million and $(15.5) million as of June 30, 2019 and 2018, respectively and is recorded in "Other liabilities associated with the investment portfolio" on the University's *Balance Sheets*.

11. EMPLOYEE BENEFITS

The University offers current employees a choice of health plans, a dental plan, short-term and long-term disability plans, life insurance, tuition assistance, and a variety of other benefits such as subsidized passes for public transportation and for Harvard athletic facilities. In addition, the University has retirement plans covering substantially all employees.

The University uses a measurement date of June 30 for its pension and postretirement health plans.

457(b) deferred compensation plan

The University offers a non-qualified deferred compensation plan under Internal Revenue Code 457(b) to a select group of employees. There is no University contribution related to the plan. The University has recorded both an asset and a liability related to the plan of $151.2 million as of June 30, 2019; the assets are included in "Prepayments and deferred charges" and the liabilities are included in "Deferred revenue and other liabilities" on the University's *Balance Sheets*.

Pension benefits

All eligible faculty members and staff are covered by retirement programs that include a defined benefit component, a defined contribution component, or a combination of the two.

In accordance with the Employee Retirement Income Security Act (ERISA) requirements, the University has established a trust to hold plan assets for its defined benefit pension plans. The fair value of the trust's assets was $863.5 million and $828.1 million as of June 30, 2019 and 2018, respectively. During fiscal years 2019 and 2018, the University made cash contributions to the defined benefit pension plan of $14.9 million and $15.5 million, respectively. The University recorded expenses for its defined contribution plans of $148.5 million and $141.5 million for fiscal year 2019 and 2018, respectively.

Postretirement health benefits

The University provides postretirement health coverage and life insurance to substantially all of its employees. As of June 30, 2019, the University had internally designated and invested $727.9 million in the GIA to fund the postretirement health benefit accrued liability of $854.6 million. As of June 30, 2018, the University had internally designated and invested $692.2 million to fund the postretirement health benefit accrued liability of $806.7 million.

The following table sets forth the pension and postretirement plans' funded status that is reported in the *Balance Sheets* as of June 30, 2019 and 2018 (in thousands of dollars):

	Pension benefits		Postretirement health benefits	
	2019	2018	2019	2018
Change in projected benefit obligation:				
Projected benefit obligation, beginning of year	**$ 1,004,962**	$ 1,075,728	**$ 806,714**	$ 853,003
Service cost	**9,675**	11,233	**30,474**	34,645
Interest cost	**42,455**	42,418	**34,719**	35,522
Plan participants contributions			**3,761**	3,377
Plan change			**71**	(193)
Gross benefits paid	**(51,817)**	(44,157)	**(28,509)**	(23,555)
Actuarial (gain)/loss	**124,122**	(80,260)	**7,409**	(96,085)
PROJECTED BENEFIT OBLIGATION, END OF YEAR[1]	**1,129,397**	**1,004,962**	**854,639**	**806,714**
Change in plan assets:				
Fair value of plan assets, beginning of year	**828,124**	836,456		
Actual return on plan assets	**72,320**	20,302		
Employer contributions	**14,865**	15,523		
Gross benefits paid	**(51,817)**	(44,157)		
FAIR VALUE OF PLAN ASSETS, END OF YEAR	**863,492**	**828,124**	**0**	**0**
ACCRUED RETIREMENT OBLIGATIONS/UNFUNDED STATUS[2]	**$ (265,905)**	**$ (176,838)**	**$ (854,639)**	**$ (806,714)**

[1] *Measurement of the University's pension benefit obligation including assumed salary increases (required by GAAP).*
[2] *These amounts totaling $1,120,544 as of June 30, 2019 and $983,552 as of June 30, 2018 are included in the "Accrued Retirement Obligations" line in the* Balance Sheets.

The accumulated pension benefit obligation (ABO) is a measurement of the University's pension benefit obligation, based on past and present compensation levels and does not include assumed salary increases. The ABO was $968.9 million and $860.8 million at June 30, 2019 and 2018, respectively. The funded status disclosed above has been prepared in accordance with pension accounting rules. When measured on an IRS funding basis, which informs the University's required cash contribution amount, the plan was overfunded at January 1, 2019.

Net periodic benefit cost

Components of net periodic benefit cost recognized in operating activity and other amounts recognized in non-operating activity in net assets without donor restrictions in the *Statements of Changes in Net Assets with General Operating Account Detail* are summarized as follows for the years ended June 30, 2019 and 2018 (in thousands of dollars):

	Pension benefits		Postretirement health benefits	
	2019	2018	2019	2018
Components of net periodic benefit cost:				
Service cost	**$ 9,675**	$ 11,233	**$ 30,474**	$ 34,645
Interest cost	**42,455**	42,418	**34,719**	35,522
Expected return on plan assets	**(50,469)**	(50,426)		
Amortization of:				
Actuarial loss/(gain)	**3,320**	10,088	**(13,469)**	(6,564)
Prior service cost/(credit)	**288**	288	**(7,132)**	(7,116)
Total net periodic benefit cost recognized in operating activity	**5,269**	**13,601**	**44,592**	**56,487**
Other amounts recognized in non-operating activity in net assets without donor restrictions:				
Current year net actuarial loss/(gain)	**102,271**	(50,136)	**7,409**	(96,085)
Current year net prior service cost			**71**	(193)
Amortization of:				
Prior service (cost)/credit	**(288)**	(288)	**7,132**	7,116
Actuarial (loss)/gain	**(3,320)**	(10,088)	**13,469**	6,564
Total other amounts recognized in non-operating activity[1]	**98,663**	**(60,512)**	**28,081**	**(82,598)**
TOTAL RECOGNIZED IN *STATEMENTS OF CHANGES IN NET ASSETS WITH GENERAL OPERATING ACCOUNT DETAIL*	**$ 103,932**	**$ (46,911)**	**$ 72,673**	**$ (26,111)**

[1] *These amounts totaling $126,744 in fiscal year 2019 and $(143,110) in fiscal year 2018 include gains and losses and other changes in the actuarially determined benefit obligations arising in the current period but that have not yet been reflected within net periodic benefit cost/(income) and are included in the "Change in Retirement Obligations" line in the* Statements of Changes in Net Assets with General Operating Account Detail.

Cumulative amounts recognized as non-operating changes in net assets without donor restrictions are summarized as follows for the years ended June 30, 2019 and 2018 (in thousands of dollars):

	Pension benefits		Postretirement health benefits	
	2019	2018	2019	2018
Net actuarial loss/(gain)	**$ 196,647**	$ 97,697	**$ (245,254)**	$ (266,133)
Prior service cost/(credit)	**1,181**	1,469	**(46,386)**	(53,589)
CUMULATIVE AMOUNTS RECOGNIZED IN NET ASSETS WITHOUT DONOR RESTRICTIONS	**$ 197,828**	**$ 99,166**	**$ (291,640)**	**$ (319,722)**

The estimated net actuarial loss and prior service cost for the defined benefit plan that will be amortized from net assets without donor restrictions into net periodic benefit (income)/ cost in fiscal year 2020 are $15.7 million and $0.3 million, respectively. The estimated net actuarial gain and estimated prior service credit for the postretirement health benefit that will be amortized from net assets without donor restrictions into net periodic benefit (income)/cost in fiscal year 2020 are ($11.2) million and ($7.1) million, respectively.

Other assumptions and health care cost trend rates used in determining the year end obligation as well as the net periodic benefit (income)/cost of the pension and postretirement health plans are summarized as follows for fiscal years 2019 and 2018:

	Pension benefits		Postretirement health benefits	
	2019	2018	2019	2018
Weighted-average assumptions used to determine benefit obligation as of June 30:				
Discount rate	**3.65%**	4.30%	**3.60%**	4.20%
Compensation increase trend:				
Initial rate	**3.50%**	3.00%	**3.50%**	3.00%
Ultimate rate	N/A	4.00%	**4.00%**	4.00%
Year of ultimate	N/A	2021	**2021**	2021
Health care cost trend rate:				
Initial rate	N/A	N/A	**5.00%**	5.00%
Ultimate rate	N/A	N/A	**4.75%**	4.75%
Year of ultimate	N/A	N/A	**2023**	2023
Weighted-average assumptions used to determine net periodic benefit (income)/cost:				
Discount rate	**4.30%**	4.00%	**4.20%**	4.05%
Expected long-term rate of return on plan assets	**6.50%**	6.50%	N/A	N/A
Compensation increase trend:				
Initial rate	**3.00%**	3.00%	**3.00%**	3.00%
Ultimate rate	**4.00%**	4.00%	**4.00%**	4.00%
Year of ultimate	**2021**	2021	**2021**	2021
Health care cost trend rate:				
Initial rate	N/A	N/A	**5.00%**	5.50%
Ultimate rate	N/A	N/A	**4.75%**	4.75%
Year of ultimate	N/A	N/A	**2023**	2023

As an indicator of sensitivity, a one percentage point change in assumed health care cost trend rate would affect 2019 as shown in the following table (in thousands of dollars):

	1% point increase	1% point decrease
Effect on 2019 postretirement health benefits service and interest cost	$ 17,277	$ (11,152)
Effect on postretirement health benefits obligation as of June 30, 2019	189,576	(133,497)

The expected return on pension plan assets is determined by utilizing an independent advisor's capital markets model, which takes into account the expected real return, before inflation, for each of the pension portfolio's asset classes, as well as the correlation of any one asset class to every other asset class. This model calculates the real returns and correlations and derives an expected real return for the entire portfolio, given the percentage weighting allocated to each asset class. After calculating the expected real return, an assessment is made to accommodate the expected inflation rate for the forthcoming period. The final expected return on assets is the aggregate of the expected real return plus the expected inflation rate.

Plan assets

The actual asset allocation of the investment portfolio for the pension plan at June 30, 2019 and 2018, along with target allocations for June 30, 2020, is as follows:

	2020 Target	June 30, 2019	June 30, 2018
Asset allocation by category for pension plan:			
Equity securities	30-55%	38.7%	38.8%
Fixed income securities	30-50	47.1	48.9
Hedge funds	10-30	12.5	10.9
Cash	0-5	1.7	1.4
TOTAL OF ASSET ALLOCATION CATEGORIES		**100.0%**	**100.0%**

The University's investment strategy for the pension portfolio is to manage the assets across a broad and diversified range of investment categories, both domestic and international. The objective is to achieve a risk-adjusted return that is in line with the long-term obligations that the University has to the pension plan beneficiaries. During fiscal year 2018, the University maintained its allocation to fixed income securities to manage the interest rate volatility associated with its pension obligations. The University expects to continue this strategy in future years. The investment program is also managed to comply with all ERISA regulations.

The following is a summary of the levels within the fair value hierarchy for the pension plan assets subject to fair value measurement as of June 30, 2019 and 2018 (in thousands of dollars):

	2019					2018
	Level 1	Level 2	Level 3	NAV as practical expedient	Total	Total
PLAN ASSETS:						
Cash and short-term investments	$ 26,135				**$ 26,135**	$ 21,951
Domestic equity				$ 163,500	**163,500**	145,989
Foreign equity	73,246			34,311	**107,557**	107,101
Domestic fixed income	88,869	$ 279,469			**368,338**	358,626
Foreign fixed income		22,555			**22,555**	21,110
Emerging market equity and debt	32,388	2,561		26,836	**61,785**	70,190
Hedge funds				108,398	**108,398**	89,505
Due from brokers	4				**4**	330
Buy-sell backs		33,343			**33,343**	25,962
Private equity				4,234	**4,234**	8,994
Real estate				27	**27**	34
PLAN ASSETS SUBJECT TO FAIR VALUE LEVELING	**$ 220,642**	**$ 337,928**	**$ 0**	**$ 337,306**	**$ 895,876**	**$ 849,792**
Other assets not subject to fair value					**1,086**	3,007
TOTAL PLAN ASSETS					**$ 896,962**	**$ 852,799**
PLAN LIABILITIES:						
Due to brokers	$ 49				**$ 49**	$ 22
Forward sale commitment		$ 19,806			**19,806**	20,022
PLAN LIABILITIES SUBJECT TO FAIR VALUE LEVELING	**$ 49**	**$ 19,806**			**$ 19,855**	**$ 20,044**
Other liabilities not subject to fair value					**13,614**	4,631
TOTAL PLAN LIABILITIES					**$ 33,469**	**$ 24,675**

The following is a rollforward of Level 3 investments for the year ended June 30, 2018 (in thousands of dollars):

	Beginning balance as of July 1, 2017	Net realized gains/ (losses)	Net change in unrealized appreciation (depreciation)	Purchases/ contributions	Sales/ distributions	Transfers into Level 3	Transfers out of Level 3	Ending balance as of June 30, 2018
PRIOR YEAR NET ASSETS SUBJECT TO FAIR VALUE LEVELING	**$ 23,709**	**$ (27,161)**	**$ 21,137**	**$ 7**	**$(17,692)**	**$ 0**	**$ 0**	**$ 0**

Expected future benefit payments

Employer contributions of $52.0 million are expected for fiscal year 2020 to fund the pension benefit plan.

The following table summarizes expected benefit payments and subsidies for pension and other postretirement benefits for the University (in thousands of dollars):

	Expected benefit payments	
Fiscal year	Pension	Postretirement health
2020	$ 57,123	$ 21,622
2021	58,351	23,601
2022	60,714	25,334
2023	63,019	27,253
2024	65,111	29,264
Thereafter	350,724	178,749

12. STUDENT FINANCIAL AID

Financial aid granted to students in fiscal 2019 and 2018 is summarized as follows (in thousands of dollars):

	2019	2018
Scholarships and other student awards:		
Scholarships applied to student income[1]	**$ 457,369**	$ 439,445
Scholarships and other student awards paid directly to students	**155,874**	152,421
Total scholarships and other student awards	**613,243**	**591,866**
Student employment	**81,287**	76,133
Student loans	**14,639**	15,943
Agency financial aid[2]	**20,326**	19,564
TOTAL STUDENT FINANCIAL AID	**$ 729,495**	**$ 703,506**

[1] *Includes $192,712 of undergraduate scholarships applied to student income.*
[2] *Represents aid from sponsors for which the University acts as an agent for the recipient.*

13. SPONSORED SUPPORT

Total expenditures funded by US government sponsors or by institutions that subcontract federally-sponsored projects to the University were $630.8 million and $625.3 million in fiscal year 2019 and 2018, respectively. The University's principal source of federally-sponsored funds is the Department of Health and Human Services. The University also has many non-federal sources of sponsored awards and grants, including corporations, foundations, state and local governments, foreign governments, and research institutes.

Sponsored grants and contracts normally provide for the recovery of direct and indirect costs. Recovery of related indirect costs is generally recorded at fixed or predetermined rates negotiated with the federal government and other sponsors. Predetermined federal indirect cost rates have been established for the University Area and the Medical School (including the School of Dental Medicine) through fiscal year 2019 and for T.H. Chan School of Public Health through fiscal year 2023. Funds received for federally-sponsored activity are subject to audit.

14. GIFTS

Gifts are classified as net assets with or without restrictions in accordance with donor specifications.

Additionally gifts are categorized by purpose as "Current use", "Non-federal sponsored grants", "Endowment funds", "Split interest agreements", or "Loan funds and facilities".

Gifts received for the year ended June 30, 2019 are summarized as follows (in thousands of dollars):

	2019		
	Gifts received	Donor redesignations/ other changes	Total
Current use	$ 472,432	$ (319)	**$ 472,113**
Non-federal sponsored grants	197,236	(778)	**196,458**
Endowment funds[1]	614,561	(1,274)	**613,287**
Split interest agreements[2]	8,437		**8,437**
Loan funds and facilities[1]	85,744	628	**86,372**
TOTAL GIFTS	**$ 1,378,410**	**$ (1,743)**	**$ 1,376,667**

[1] *Gift receipts include non-cash gifts of $2.5 million for the year ended June 30, 2019.*
[2] *Shown at net present value. The undiscounted value of these gifts was $18,508 for the year ended June 30, 2019.*

Gifts received for the year ended June 30, 2018 are summarized as follows (in thousands of dollars):

	2018		
	Gifts received	Donor redesignations/ other changes	Total
Current use	$ 466,991	$ (445)	**$ 466,546**
Non-federal sponsored grants	183,331	(2,258)	**181,073**
Endowment funds[1]	646,340	(41)	**646,299**
Split interest agreements[2]	12,166		**12,166**
Loan funds and facilities	109,410	(183)	**109,227**
TOTAL GIFTS	**$ 1,418,238**	**$ (2,927)**	**$ 1,415,311**

[1] *Gift receipts include non-cash gifts of $10 million for the year ended June 30, 2018.*
[2] *Shown at net present value. The undiscounted value of these gifts was $29,287 for the year ended June 30, 2018.*

15. OTHER REVENUE

The major components of other revenue for the years ended June 30, 2019 and 2018 were as follows (in thousands of dollars):

	2019	2018
Publications and royalties from copyrights	**$ 238,385**	$ 226,757
Rental and parking[1]	**141,375**	135,529
Services income	**136,288**	120,309
Royalties from the commercialization of intellectual property[2]	**97,568**	54,573
Health and clinic fees	**64,780**	61,211
Sales income	**29,888**	29,665
Interest income	**10,961**	10,699
Other student income	**5,112**	5,421
Other	**47,681**	44,560
TOTAL OTHER REVENUE	**$ 772,038**	**$ 688,724**

[1] *The University is the lessor of space and facilities under operating leases, the income from which is included in rental and parking.*
[2] *Excludes distributions to external parties.*

16. OTHER EXPENSES

The major components of other expenses for the years ended June 30, 2019 and 2018 were as follows (in thousands of dollars):

	2019	2018
Subcontract expenses under sponsored projects	**$ 158,543**	$ 165,445
Travel	**103,697**	99,555
Publishing	**46,951**	46,223
Taxes and Fees	**43,199**	35,278
Advertising	**38,568**	36,113
Insurance	**18,617**	17,182
Postage	**17,398**	18,073
Telephone	**14,663**	14,398
Other	**116,165**	79,511
TOTAL OTHER EXPENSES	**$ 557,801**	**$ 511,778**

17. FUNCTIONAL AND NATURAL CLASSIFICATION OF OPERATING EXPENSES

Operating expenses are allocated functionally on a direct basis. Operations and maintenance expenses are allocated based on square footage.

Operating expenses by functional and natural classification for the years ended June 30, 2019 and 2018 were as follows (in thousands of dollars):

	2019				
	Instruction and academic support	Research[1]	Student services and scholarships	Institutional support and auxiliary services	Total
Salaries and wages	$ 1,043,852	$ 294,285	$ 141,588	$ 558,753	**$ 2,038,478**
Employee benefits	273,353	74,868	50,451	166,833	**565,505**
Services purchased	363,109	85,599	60,311	171,672	**680,691**
Space and occupancy	113,374	59,349	30,083	176,484	**379,290**
Depreciation	43,817	119,333	19,985	199,640	**382,775**
Supplies and equipment	84,587	57,428	43,222	85,386	**270,623**
Interest	15,201	33,081	11,890	121,461	**181,633**
Scholarships and other student awards			155,874		**155,874**
Other expenses	36,229	414,717	35,030	71,825	**557,801**
TOTAL EXPENSES	**$ 1,973,522**	**$ 1,138,660**	**$ 548,434**	**$ 1,552,054**	**$ 5,212,670**

[1] *The methodology used to allocate expenses for financial statement purposes is different than methodologies used for other purposes, such as governmental surveys.*

	2018				
	Instruction and academic support	Research[1]	Student services and scholarships	Institutional support and auxiliary services	Total
Salaries and wages	$ 994,293	$ 279,236	$ 136,716	$ 533,591	$ 1,943,836
Employee benefits	273,849	74,813	49,759	170,802	569,223
Services purchased	331,480	82,977	56,394	146,359	617,210
Space and occupancy	117,482	67,185	30,587	195,187	410,441
Depreciation	36,376	115,941	22,169	183,479	357,965
Supplies and equipment	91,447	55,027	42,160	79,566	268,200
Interest	15,417	36,838	11,634	123,994	187,883
Scholarships and other student awards			152,421		152,421
Other expenses	34,045	397,744	33,980	46,009	511,778
TOTAL EXPENSES	**$ 1,894,389**	**$ 1,109,761**	**$ 535,820**	**$ 1,478,987**	**$ 5,018,957**

[1] *The methodology used to allocate expenses for financial statement purposes is different than methodologies used for other purposes, such as governmental surveys.*

18. COMMITMENTS AND CONTINGENCIES

Lease commitments

The University is the lessee of equipment and space under operating (rental) and capital leases. Rent expense related to leases was $105.4 million and $86.0 million in fiscal year 2019 and 2018, respectively.

Future minimum lease payments under these operating and capital leases (in thousands of dollars):

	Operating	Capital
2020	$ 79,551	$ 11,664
2021	73,511	10,943
2022	68,031	11,215
2023	63,325	11,276
2024	52,038	11,406
Thereafter	289,570	151,240
TOTAL FUTURE MINIMUM PAYMENTS	**$ 626,026**	**$ 207,744**

Fixed asset-related commitments

The University has various commitments for capital projects involving construction and renovation of certain facilities, real estate acquisitions, and equipment purchases, for which the outstanding commitments as of June 30, 2019 totaled approximately $367.3 million.

Environmental remediation

The University is subject to laws and regulations concerning environmental remediation and has established reserves for potential obligations that management considers to be probable and for which reasonable estimates can be made. These estimates may change substantially depending on new information regarding the nature and extent of contamination, appropriate remediation technologies, and regulatory approvals. Costs of future environmental remediation have been discounted to their net present value. Management is not aware of any existing conditions that it believes are likely to have a material adverse effect on the University's financial position, changes in net assets, or cash flows.

Utilities purchase commitments

The University has entered into Power Purchase Agreements (PPAs) with a series of utilities providers to purchase natural gas and electricity for various quantities and time periods. As of June 30, 2019, future obligations under the PPAs are as follows (in thousands of dollars):

2020	$ 18,836
2021	12,439
2022	10,433
2023	9,552
2024	8,569
Thereafter	12,105
TOTAL UTILITY FUTURE PURCHASE OBLIGATIONS	**$ 71,934**

General

The University is a defendant in various legal actions arising from the normal course of its operations. While it is not possible to predict accurately or determine the eventual outcome of such actions, management believes that the outcome of these proceedings will not have a material adverse effect on the University's financial position, changes in net assets, or cash flows.

The University has evaluated subsequent events through October 24, 2019, the date the financial statements were issued. The University has concluded that no material events have occurred that are not accounted for in the accompanying financial statements or disclosed in the accompanying notes.