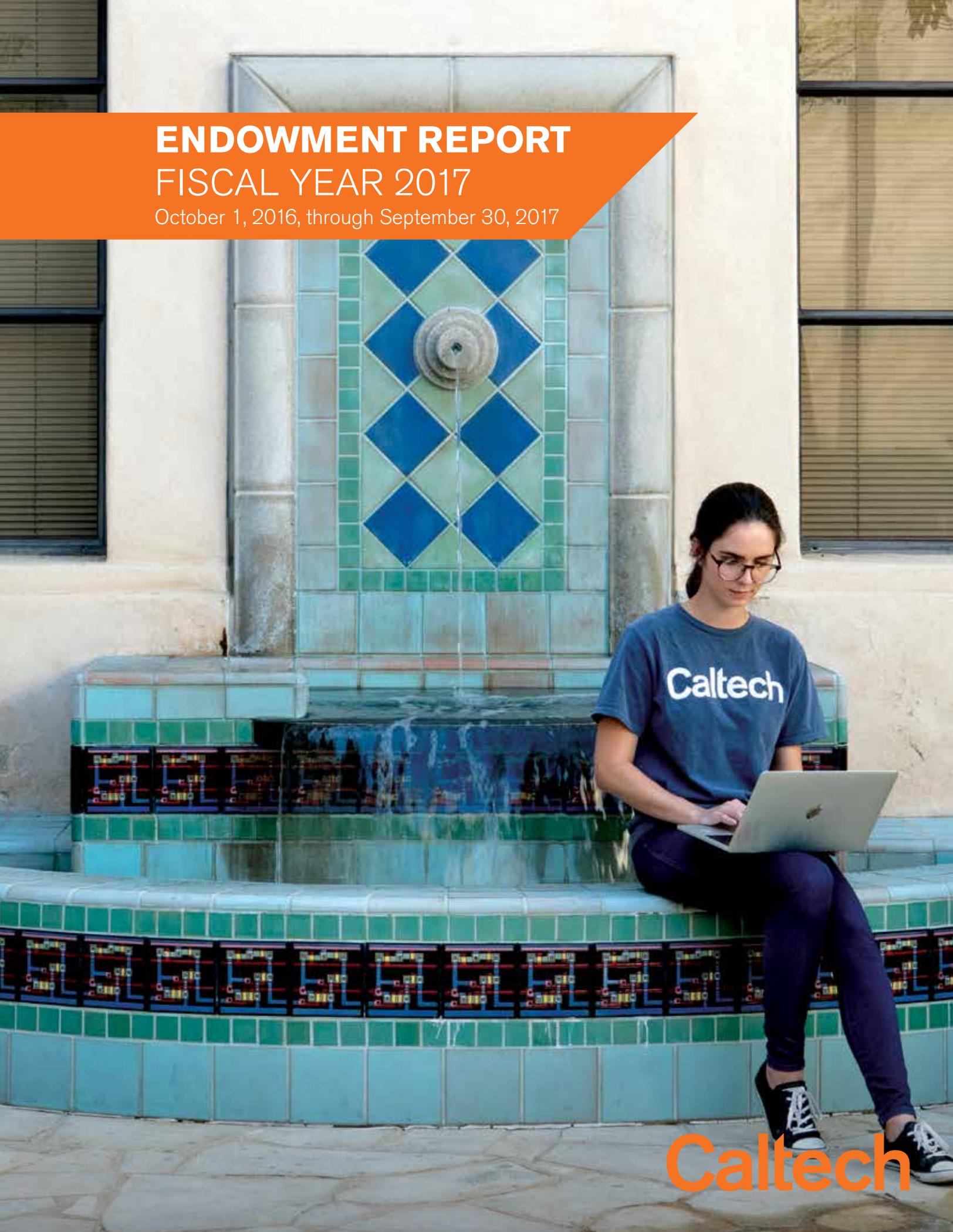


# ENDOWMENT REPORT

## FISCAL YEAR 2017

October 1, 2016, through September 30, 2017



Caltech

## NIMBLE, INFORMED, AND FUTURE-FOCUSED



I am very pleased to report that during fiscal year 2017, Caltech's endowment investment pool grew by nearly \$400 million to \$2.61 billion. Contributing to the growth were exceptional fundraising, with cash receipts of \$188 million; strong investment returns that generated \$344 million; and reinvestment of payout that added \$12 million. These contributions were partially offset by net payout to fund Institute programs and related withdrawals of \$151 million.

Over the last five years, growth in the endowment investment pool has allowed Caltech to increase its annual payout by nearly 25 percent, from \$105 million in fiscal year 2013 to approximately \$130 million in fiscal year 2017. Cumulatively over those five years, payout of nearly \$600 million has provided close to \$150 million in undergraduate and graduate financial aid—directly reducing the cost of attendance for over 90 percent of our students, who are in training to be among the world's leaders in science, technology, and engineering. The value of this investment in the future cannot be overstated. Additional payout has been used for research, endowed faculty chairs, instruction and academic programs, and general support, including facilities.

Recognizing the impact that perpetually endowed funds can have on Caltech's future, our donors have strongly embraced *Break Through: The Caltech Campaign's* emphasis on continuing to build our endowment: Over 60 percent of gifts pledged to the campaign so far have been directed to endowment. This compares to an average of approximately 30 percent of gifts directed to endowment during other private universities' fundraising efforts. All of us in the Investment Office thank you for entrusting us with your contributions. We take our responsibility seriously and work each day to earn and deserve your trust.

Investment performance for fiscal year 2017 was very good—assisted by generally strong global markets and above-market aggregate performance by our investment managers. On a consolidated basis, the endowment

investment pool generated annual returns of 15.4 percent, 7.0 percent, and 8.6 percent, respectively, for the one-, three-, and five-year periods ended September 30, 2017. These figures exceeded our internal investment policy benchmark returns by 2.8 percent, 1.4 percent, and 1.7 percent, respectively. I remain particularly pleased that our annualized 8.6 percent five-year investment performance has exceeded our payout plus inflation—allowing us to grow Caltech's existing endowment funds on a real (not just nominal) basis.

While we hesitate to focus on just one year's performance, fiscal year 2017 was especially rewarding, as virtually every asset class contributed to our success. With the exception of our private energy portfolio (from which we expect better returns next year), every asset class beat its respective benchmark. Particularly gratifying was the turnaround in our public equities portfolio, which in the previous year trailed its benchmark by a considerable amount. In fiscal year 2017, our public equities' return of 21.0 percent beat its composite benchmark by 1.5 percent—a feat made more challenging by the fact that we have chosen to go against the grain and utilize highly talented, active managers who generally charge more than passive, index-oriented managers. This return is even more impressive in light of the fact that our mostly value-oriented managers have not embraced "go-go" (and seemingly expensive) technology and internet commerce stocks such as Facebook, Tencent, and Alibaba. Other major asset classes generated similar benchmark-beating returns, which are detailed later in this report.

Performance compared to our college and university endowment peers was also quite good: According to Cambridge Associates, among the approximately 150 higher education institutions they track, Caltech's investment pool performance placed it in the top 2 percent, 15 percent, and 30 percent for the one-, three-, and five-year periods, respectively.

Though our managers performed well, we continue to recognize that just waiting for the next great manager

to arrive at our doorstep is not sufficient to generate exceptional returns. For example, after many months of due diligence and analysis during fiscal year 2017, we added a newly launched, small, capacity constrained fund (now closed to new investments) that is focused on unfollowed non-U.S. microcap equities. The results so far are encouraging. We also directly participated in an innovative forward equity purchase agreement that rewarded us handsomely for our substantial pre-IPO commitment. In addition, we continue to evaluate other direct- and co-investment opportunities that, although not currently a sizable percentage of Caltech's investment pool (less than 3 percent), continue to provide outsized returns due to low or no fees and effective investment selection and/or structuring by the Investment Office.

As I write this letter, fiscal year 2018 is already well under way, and it appears that the long-awaited return of market volatility has finally arrived. Nonetheless, global economies are continuing their recovery, although that recovery is likely to be tempered by increasing interest rates. We remain cautiously optimistic and welcome the market's gyrations, which may provide a better investment opportunity set for those select risk-takers who are nimble and have a long-term investment horizon.

Looking ahead, the recently introduced federal tax on endowment income will affect Caltech along with a number of other top-tier colleges and universities. While the exact impact cannot be known until the final enacting regulations are published, rest assured we are closely monitoring the situation and factoring that into our investment decisions where appropriate.

Scott H. Richland  
Chief Investment Officer  
March 2018

Engineers at Caltech's Center for Autonomous Systems and Technologies (known as CAST) use this bipedal robot, "Cassie," to model different types of walking.



## CALTECH'S ENDOWMENT: INSPIRING PEOPLE AND IDEAS

Caltech's endowment is a powerful financial tool, providing a stable source of funding to advance the Institute's educational and scientific mission over the long term. Far-seeing donors have created endowments to support people, programs, and facilities across campus—from financial aid funds that enable the most talented and ambitious students

to fulfill their academic dreams at Caltech to funds that open doors to breakthroughs in computation, sustainability science, and many other fields.

More than 1,300 privately donated funds constitute the bulk of Caltech's endowment investment pool. Caltech deposits the monies from each new

endowment gift into the pool and invests strategically, striving to preserve the inflation-adjusted purchasing power of the original gift amount while generating returns that support the annual payout to advance Caltech's mission. With an eye to long-term results, as well as nimbleness in responding to time-sensitive investment opportunities, Caltech can honor each donor's wishes for generations to come.

### Building Endowment through *Break Through: The Caltech Campaign*

*Break Through: The Caltech Campaign* is a \$2 billion fundraising initiative launched in 2016 to spur innovative research, prepare students to become leaders in science and society, and help secure Caltech's place as an engine of discovery for generations to come. As of the end of fiscal year 2017, the campaign had generated \$1.5 billion in donations and commitments, with nearly \$942 million of that committed to endowment. The impact of these gifts is being realized across campus.

A particular focus for the campaign is flexible endowment. Generating income that can be used at the discretion of Institute leaders, flexible endowments are inspiring innovation across campus by making sure Caltech has resources at the ready to seize time-sensitive opportunities and to support faculty and students in pursuing their very best ideas.

Campaign donors also have established endowments for specific purposes. Endowed funds for financial aid, for example, are helping to sustain the Institute's need-blind and full-need undergraduate admissions policy and are giving Caltech a competitive edge in attracting the most talented graduate students. Donors also have created endowed funds to advance high-impact research focused on areas ranging from understanding the brain and how it works to developing autonomous technologies for use in medicine, disaster response, and myriad other applications.



During his Summer Undergraduate Research Fellowship (or SURF), Wesley Swank (BS '13) worked with JPL scientists and engineers in the "Mars Yard," a simulated Martian landscape.

Xie Chen, associate professor of theoretical physics, meets with graduate student Zitao Wang during office hours.

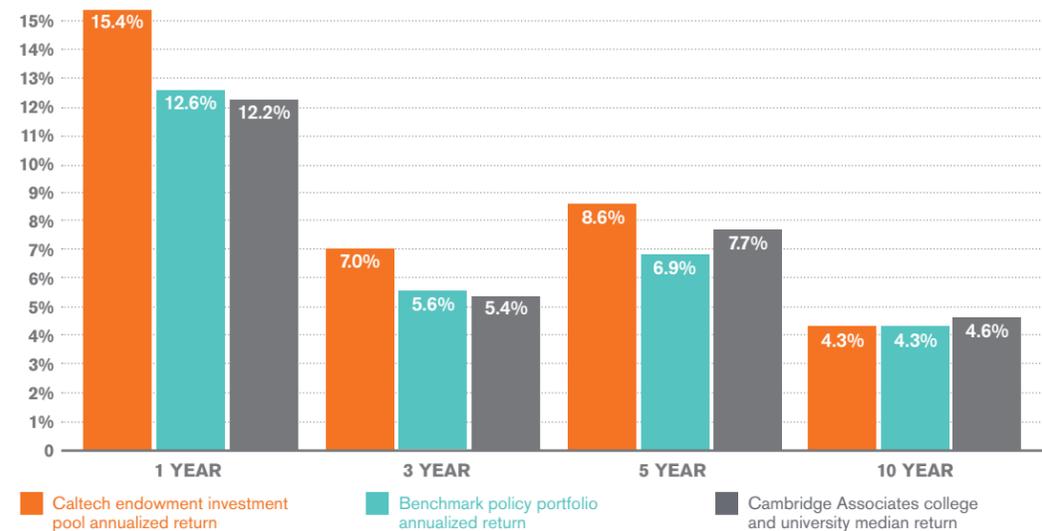


## ENDOWMENT PERFORMANCE, FISCAL YEAR 2017

### Endowment Investment Pool Return

As illustrated in the figure below, Caltech's endowment investment pool generated a 15.4 percent return for fiscal year 2017, exceeding its benchmark policy portfolio by 2.8 percentage points. For the three- and five-year periods ended September 30, 2017, investment pool returns

beat their benchmarks by 1.4 and 1.7 percentage points, respectively. Over the last five years, the value generated by this performance in excess of the benchmarks was more than \$300 million.

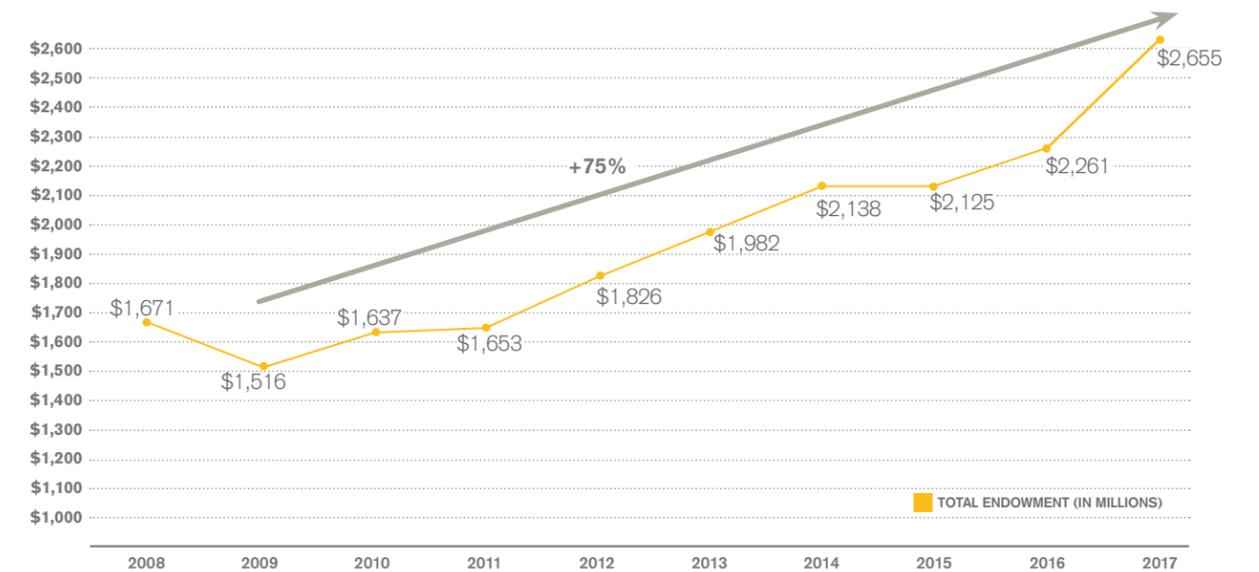


**FY17:**  
**\$10M**  
increase in payout from endowment

## Growth of the Total Endowment

The market value of Caltech's total endowment increased to \$2.655 billion by the close of fiscal year 2017, led by generous giving to endowed funds and strong performance from our public equities, private equities, and alternative securities. This increase also includes new gifts, transfers in, and investment gains, and is reduced by endowment payout, transfers out, and endowment investment management expenses. Since the end of fiscal year 2009, the beginning of the recovery from the 2008 financial crisis, Caltech's total endowment value has grown at a compound annual rate of nearly 8 percent and has supported Caltech's research programs and people with almost \$1 billion in payout.

**FY17:**  
**\$394M**  
increase in total endowment



Total endowment includes the endowment portion of the investment pool and separately invested endowments.

## Asset Class Allocation and Performance

Caltech's alternative securities portfolio performed particularly well during fiscal year 2017, delivering an 11.0 percent return and beating its benchmark by 3.0 percentage points. Also doing well was our private equity funds portfolio, up 21.1 percent and beating its benchmark by

6.2 percentage points. Likewise, our global developed markets equities portfolio—up 21.0 percent and beating its benchmark by 2.8 percentage points—had an outstanding year, recovering quite well after a difficult fiscal year 2016.

	FY 2017 Asset Class Returns	FY 2017 Benchmark Returns	Allocation (as of September 30, 2017)	Target Allocation
Global developed markets equities	21.0%	18.2%	28%	24%
Emerging markets equities	21.1%	22.5%	9%	10%
Alternative securities	11.0%	8.0%	28%	27%
Private equity and venture capital	21.1%	14.9%	14%	11%
Real assets*	9.9%	12.8%	14%	18%
Global fixed income	11.3%	-0.7%	1%	7%
Cash and other	0.7%	0.7%	6%	3%

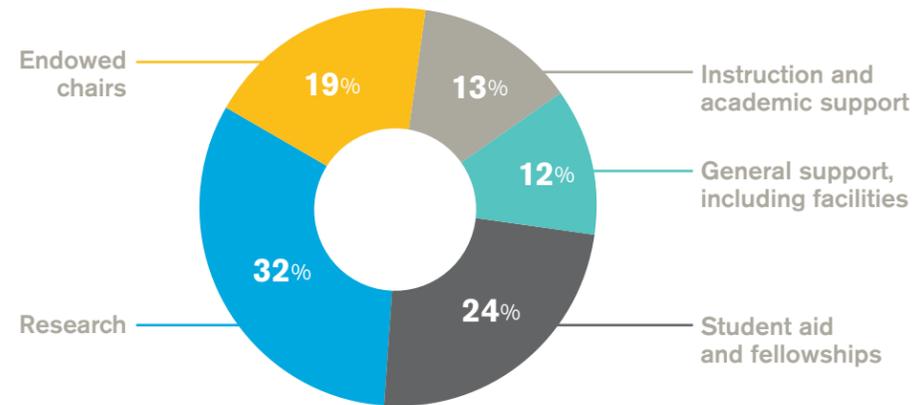
\* Primarily real estate, energy, and commodities

## ENDOWMENT PAYOUT, FISCAL YEAR 2017

Approximately \$130 million in endowment payout contributed nearly 21 percent of Caltech's operating budget in fiscal year 2017—supporting research and education in many valuable ways. Endowed fellowships, for example, afforded graduate students the freedom to pursue their passions without being unduly constrained

by a lack of funding. In addition, during fiscal year 2017 alone, 27 current faculty members had new appointments to endowed professorships and leadership chairs, and the availability of endowed chairs played a key role in bringing four outstanding new faculty to Caltech.

### ALLOCATION OF \$130 MILLION PAYOUT



### Endowed Scholarships Open Doors of Opportunity

Caltech is one of a select group of private U.S. universities that admit applicants based solely on their accomplishments, skills, and potential to excel. Every year, we enroll aspiring scientists and engineers who have the ability and drive to succeed here and beyond, and we are committed to making a Caltech education affordable to all of them. Currently, more than half of Caltech undergraduates receive financial aid.

One such student is Yeorgia Kafkoulis, Gantvoort Scholarship recipient and member of the class of 2019. During the first term of her freshman year, Kafkoulis heard a lecture by mathematics professor Matilde Marcolli that ignited her imagination and confirmed her love for the universal language of math. Marcolli questions long-held ideas about the cosmos: Rather than being fairly evenly distributed in the universe, what if matter occurred in denser stretches interspersed with pockets of emptiness—like swiss cheese? Ever since hearing that lecture, Kafkoulis has spent her summers conducting research with Marcolli, trying to recalculate the fundamental laws of nature.

Endowed scholarships are essential in preserving Caltech's need-blind admissions policy. They help ensure that bright, ambitious students—like Kafkoulis—can pursue their dreams here, whatever their families' financial means.



### Investing in the Future of Health Care

In September 2017, the Caltech community dedicated the Andrew and Peggy Cherng Department of Medical Engineering. Founded in 2013 as the first medical engineering department in the country, this is also the first Caltech department to be named for and endowed by a donor.

Trustee Peggy Cherng and her husband, Andrew, gave \$30 million to advance research and innovation toward the department's goal of developing micro- and nanoscale technologies and devices for more affordable, precise, and accessible health care. Part of the couple's gift establishes a leadership chair, generating discretionary funds the department head can apply flexibly and quickly wherever they will have the greatest impact. A high priority for *Break Through: The Caltech Campaign*, this type of endowed fund in particular spurs scholars' creativity and courage—hallmarks of Caltech.

As co-chairs and co-CEOs of Panda Restaurant Group, Inc., the Cherngs operate more than 2,000 Panda Express restaurants across the country and around the world. But their first family restaurant, Panda Inn, opened its doors in Pasadena. Thus, they chose to direct their first major philanthropic investment to an institution they consider "a shining star of Pasadena."



On the morning the 2017 Nobel Prize in Physics was announced, Caltech took time out to celebrate new laureates Barry C. Barish, the Ronald and Maxine Linde Professor of Physics, Emeritus, and Kip S. Thorne (BS '62), the Richard P. Feynman Professor of Theoretical Physics, Emeritus.



Using the W. M. Keck Observatory's twin telescopes, Caltech astronomers and others are expanding our knowledge of the solar system, extrasolar planets, galaxy evolution, dark matter, and the origins of the universe. (Credit: W. M. Keck Observatory/Ethan Tweedie)

## INVESTMENT PRINCIPLES

### Asset Allocation Strategy

The asset allocation policy for Caltech's endowment investment pool emphasizes diversification across asset classes, investment styles, and geographical locations, striving to achieve strong long-term investment performance while avoiding highly concentrated risks. Strategic asset allocation ranges are established by Caltech's Investment Committee, subject to periodic review. In addition, tactical adjustments are made in response to current or anticipated shorter-term market conditions.

At the end of fiscal year 2017, the endowment investment portfolio was underweight in traditional fixed income and real assets and overweight in global developed markets equities and private equity relative to our strategic allocation guidelines. The underweight position in fixed income continues in anticipation of the Federal Reserve Bank's interest rate increases in the 2018 calendar year, and the real assets' underweight position reflects low commodities prices and a large amount of real estate fund distributions in fiscal year 2017.

### Endowment Liquidity

Caltech's endowment investment pool is closely managed and monitored for liquidity. We define liquidity as the ability to realize and access cash from an investment in a timely manner. Liquidity is desirable for four main reasons:

1. The portfolio has obligations that must be satisfied, sometimes on relatively short notice, such as quarterly payout and investment-fund capital calls.
2. Implementing changes in tactical and/or policy allocations requires liquidity.
3. From time to time, unusual investment opportunities arise—driven by market or other forces—that cannot be seized without liquidity.
4. In periods of economic downturn, the endowment investment portfolio must be prepared for a potential reduction in cash inflows while maintaining the outflows that are essential to achieving Caltech's mission.

In an emergency, unrestricted endowment investment pool funds can be tapped to assist in maintaining operating continuity.

The Caltech endowment investment pool is quite liquid, with more than 22 percent of the assets currently convertible to cash within one to two weeks and nearly 31 percent convertible to cash within a calendar quarter under normal circumstances. The Institute's additional sources of liquidity include substantial funds that have been raised from issuing bonds over the last five years as well as committed lines of credit provided by commercial banks.

## MANAGEMENT OF THE ENDOWMENT INVESTMENT PORTFOLIO

The Caltech Investment Office reports jointly to the Board of Trustees' Investment Committee and the Institute's president, with the Investment Committee having primary responsibility for setting investment policy, overseeing policy implementation, and approving major investments. The committee meets at least quarterly to discuss and review asset allocation, investment policies, new investments, and portfolio performance, and interacts frequently between meetings to discuss specific investments. The members bring significant expertise in both specific asset classes and the investment industry in general.

### The Investment Office

The Investment Office develops recommendations on investment policies, strategies, and asset allocation for review and approval by the Investment Committee. With the general guidelines in place, the Investment Office then identifies investments as well as what it considers to be best-in-class asset managers around the world who can effectively implement the adopted investment strategies. The office focuses on medium- to long-term performance—

identifying global trends and investment opportunities that may develop over many years. While quarter-to-quarter performance is closely monitored, and appropriate portfolio adjustments are made from time to time, the primary goal is to earn long-term rates of return that support the annual endowment payout and maintain its inflation-adjusted purchasing power, allowing it to support Caltech's activities for generations to come.

### INVESTMENT COMMITTEE MEMBERS

**Joshua S. Friedman, Chair**  
Co-Founder, Co-Chairman, and Co-Chief Executive Officer,  
Canyon Partners, LLC

**Dr. Ronald K. Linde (MS '62, PhD '64), Vice Chair**  
Vice Chair, Caltech Board of Trustees  
Independent Investor  
Chair, The Ronald and Maxine Linde Foundation  
Founder and Former Chief Executive Officer,  
Envirodyne Industries, Inc.

**B. Kipling Hagopian, Member**  
Managing Partner, Apple Oaks Partners, LLC

**Dr. David L. Lee (PhD '74), Member**  
Chair, Caltech Board of Trustees  
Managing General Partner, Clarity Partners, L.P.

**A. Michael Lipper, Member**  
President and Chief Executive Officer,  
Lipper Advisory Services

**Nelson C. Rising, Member**  
Chairman and CEO, Rising Realty Partners

**Dr. Thomas F. Rosenbaum, Member**  
President, Sonja and William Davidow Presidential Chair,  
and Professor of Physics, Caltech

**Timothy J. Sloan, Member**  
President and Chief Executive Officer,  
Wells Fargo & Company

**Li Lu, Advisory Participant**  
Founder and Chairman, Himalaya Capital

**Susan Schnabel, Advisory Participant**  
Co-Founder and Co-Managing Partner,  
aPriori Capital Partners

**Lance N. West (MS '83), Advisory Participant**  
Former Chairman and Chief Executive Officer,  
Centerbridge Partners Europe, L.L.P.

### INVESTMENT OFFICE STAFF

**Scott H. Richland**  
Chief Investment Officer  
scott.richland@caltech.edu

**Pasy Wang**  
Senior Director, Investments  
pasy.wang@caltech.edu

**Darren Artura**  
Director, Real Assets  
darren.artura@caltech.edu

**Douglas MacBean**  
Director, Public Markets  
doug.macbean@caltech.edu

**Brian Chen**  
Associate Director  
brian.chen@caltech.edu

**Alistair Thistlethwaite**  
Associate Director  
alistair.thistlethwaite@caltech.edu

**Kirk Kawasawa**  
Senior Director, Investment Operations  
kirk.kawasawa@caltech.edu

**Gabriela Magana**  
Manager, Investment Operations  
gabriela.magana@caltech.edu

**Brett Kiesel**  
Management Analyst, Operations  
brett.kiesel@caltech.edu

**Lynda Lander**  
Senior Administrative Assistant  
lynda.lander@caltech.edu

**Aileen Liu**  
Investment Operations Specialist  
aileen.liu@caltech.edu

# Caltech

## **INVESTMENT OFFICE**

California Institute of Technology

1200 East California Boulevard

MC 2-42

Pasadena, CA 91125

(626) 395-4853

Cover: Caltech graduate student Alexandra Barth pauses to review notes at a computer chip–decorated fountain outside the Gordon and Betty Moore Laboratory of Engineering.