

# 2017

The Yale Endowment



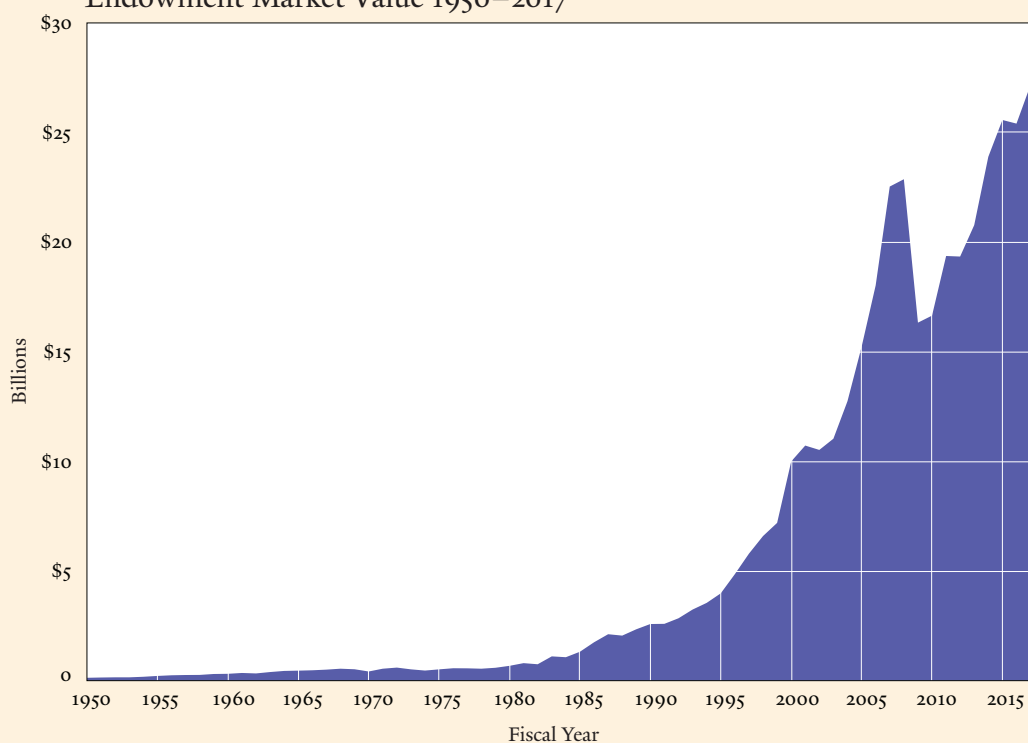
# Endowment Highlights

	Fiscal Year				
	2017	2016	2015	2014	2013
Market Value (in millions)	\$27,176.1	\$25,408.6	\$25,572.1	\$23,894.8	\$20,780.0
Return	11.3%	3.4%	11.5%	20.2%	12.5%
Spending (in millions)	\$ 1,225.8	\$ 1,152.8	\$ 1,082.5	\$ 1,041.5	\$ 1,024.0
Operating Budget Revenues (in millions)	\$ 3,692.2	\$ 3,472.4	\$ 3,297.7	\$ 3,116.1	\$ 2,968.6
Endowment Percentage	33.2%	33.2%	32.8%	33.4%	34.5%

## Asset Allocation (as of June 30)

Absolute Return	25.1%	22.1%	20.5%	17.4%	17.8%
Domestic Equity	3.9	4.0	3.9	3.9	5.9
Fixed Income	4.6	4.9	4.9	4.9	4.9
Foreign Equity	15.2	14.9	14.7	11.5	9.8
Leveraged Buyouts	14.2	14.7	16.2	19.3	21.9
Natural Resources	7.8	7.9	6.7	8.2	7.9
Real Estate	10.9	13.0	14.0	17.6	20.2
Venture Capital	17.1	16.2	16.3	13.7	10.0
Cash	1.2	2.3	2.8	3.5	1.6

Endowment Market Value 1950–2017



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*Front cover:*

Stairway in the Yale University Art Gallery's older wing, designed by Egerton Swartwout, B.A. 1891, and dating to 1926.

*Right:* A new Yale landmark: Bass Tower, in Pauli Murray College, at a height of 190 feet, adds a distinctive note to the northern area of campus. Pauli Murray and Benjamin Franklin colleges, opened in 2017, allow Yale College to increase enrollment by 15% to 6,200. Major supporters of the new residential colleges were Charles B. Johnson, B.A. 1954, and Edward P. Bass, B.S. 1968.



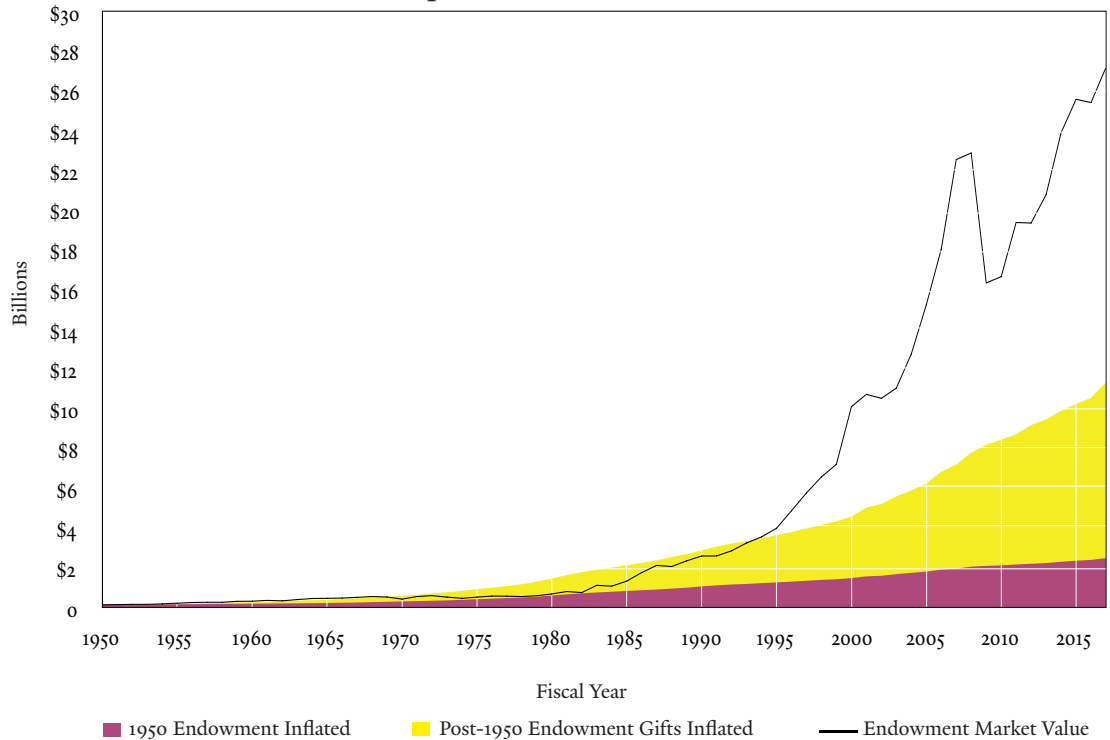
# Introduction

# 1

Yale's Endowment generated an 11.3% return, net of fees, in fiscal 2017. Over the past ten years, the Endowment grew from \$22.5 billion to \$27.2 billion. With annual returns of 6.6% during the ten-year period, the Endowment's performance exceeded its benchmark and outpaced institutional fund indices. For seven of the past ten years, Yale's ten-year record ranked first in the Cambridge Associates universe.

Spending from the Endowment grew during the last decade from \$684 million to \$1.2 billion, an annual growth rate of 6.0%. Next year, spending will amount to \$1.3 billion, or 34% of projected revenues. Yale's spending and investment policies provide substantial levels of cash flow to the operating budget for current scholars, while preserving Endowment purchasing power for future generations.

### Endowment Growth Outpaces Inflation 1950–2017



# Endowed Funding for Residential Colleges

During Yale's tercentennial celebration, then-President Richard C. Levin remarked: "The residential college system is a major reason why students choose to come to Yale and a major reason why Yale College students report greater satisfaction with their education than students at most peer institutions. Our residential system offers its students both the intimacy of a small college environment and the vast resources of a major research university." President Levin echoed the sentiments of generations of Yale alumni when he described the residential college system as "one of the glories of Yale."

In the years following World War I, increasing undergraduate enrollment led to crowded living conditions in the University's dormitories, forcing large numbers of students to live off campus. Concerned that the dispersion of the student body would weaken bonds within the Yale community, the University sought a plan that would promote cohesion among the undergraduate classes. With the encouragement of longtime Yale benefactor Edward S. Harkness, B.A. 1897, Yale officials formulated a plan for ten residential colleges that drew its inspiration from the college systems of Oxford and Cambridge.



Edward S. Harkness

the undergraduate classes. With the encouragement of longtime Yale benefactor Edward S. Harkness, B.A. 1897, Yale officials formulated a plan for ten residential colleges that drew its inspiration from the college systems of Oxford and Cambridge.

The plan called for each residential college to occupy a plot roughly the size of a city block, with interconnected buildings enclosing a courtyard. Each college would appoint a master (now called head) to supervise and guide student activities. To create tightly knit communities, each college was to house only a few hundred students who lived in close proximity to faculty and enjoyed access to their own library, dining hall, common room, and other activity spaces.

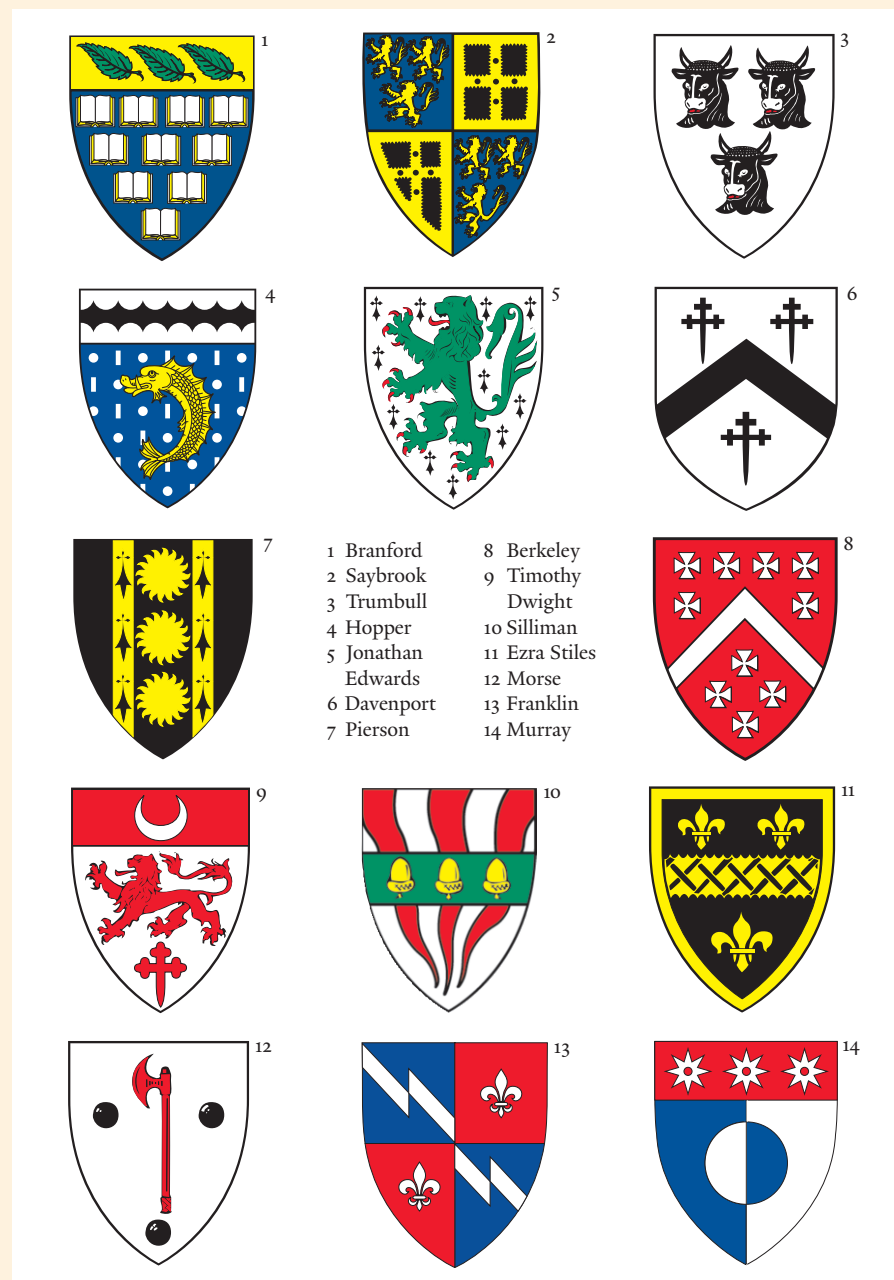
In 1928, Harkness made a contribution of \$12 million (the equivalent of approximately \$170 million today)

for the purpose of implementing the residential college system. Harkness's contribution allowed the university to construct Yale's first six residential colleges and adapt existing buildings to create another four. In time, students came to identify themselves not just as Elis, but as Berkeleyytes, Saybrugians, or Sillimanders.

Since the inauguration of the first seven colleges in 1933, donor gifts of endowed funds supported and enhanced residential college life. Impressed by the success of the residential college program, Harkness followed his

initial gift with an additional contribution of roughly \$5 million to create an endowment to be "added to the University's General Funds, the income of which is to be used over a reasonable period of time for Head Masters' salaries and the Student Aid Fund."

The residential college system—which grew to ten colleges by 1940, 12 by 1963, and 14 by 2017—came to define the undergraduate Yale experience. In addition to providing a close community that undergirds social life at Yale College, residential colleges



- |                    |                  |
|--------------------|------------------|
| 1 Branford         | 8 Berkeley       |
| 2 Saybrook         | 9 Timothy Dwight |
| 3 Trumbull         | 10 Silliman      |
| 4 Hopper           | 11 Ezra Stiles   |
| 5 Jonathan Edwards | 12 Morse         |
| 6 Davenport        | 13 Franklin      |
| 7 Pierson          | 14 Murray        |

provide forums for learning. In 1936 a generous contribution from Hendon Chubb, PH.B. 1895, created the Hendon Chubb Fund, which brought distinguished professionals in public



Hendon Chubb

life, science, and the arts to speak at the residential colleges. Thanks to funds from Chubb and other sources, in informal sessions known as College Teas, students interact with extraordinary speakers, including over the years Harry Truman, Ellen Johnson Sirleaf, Gerald Ford, Sandra Day O'Connor, Jimmy Carter, Maya Angelou, Kurt Vonnegut, Margaret Marshall, Ronald Reagan, John Kenneth Galbraith, Meryl Streep, Henry Louis Gates, Jr., Robert Redford, and Yevgeny Yevtushenko.

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A vital aspect of the development of Yale's residential college system came through the generosity of one of the university's most enthusiastic supporters, Paul Mellon, B.A. 1929. In 1952, Mellon



Paul Mellon

responded to concerns expressed by some faculty members that the residential colleges were overly focused on social life at the expense of educational pursuits. An endowment established through Mellon's Old Dominion Foundation provided funding for small seminar courses to be offered in each college. Today, the residential college seminar program, which offers two courses per term in each residential college, allows students to explore topics outside of Yale College's core curriculum. Class topics are evaluated by a committee of students and graduate affiliates within each residential college, after which the seminar proposals undergo three levels of faculty review. The current academic listings include college seminars such as Exiles and Migrants in Literature and Film, The Mystery of Sleep, Espionage and International Law, Prison Law and Policy, and The Literature of Capitalism.

Paul Mellon's support increased in subsequent years, with gifts in 1958 that allowed the construction of two new colleges, Ezra Stiles College and Morse College. At the same time, Mellon financed the appointment of residential college deans in all of the colleges. Deans reside in each college and have day-to-day responsibility for

the social and academic development of students. Mellon's funding further supports the Scholars of the House program, which allows one student in each college to receive individual instruction in creative endeavors or advanced scholarship.

Long after they leave Yale, alumni identify strongly with their college and the residential college system. One sign of this bond is the tradition of philanthropy by alumni on behalf of the residential colleges. Donors have given generously to establish additional College Tea and guest lecturer programs, visiting writer programs, book collections, arts activities, social functions, debates, contests, and prizes. The college intramural sports program inspired a number of Endowment gifts, including the William and Martha Ford Fund, established in 1981 to support residential college intramurals, and the Paul Haviland Memorial Fund, established in 1935 to support intramural golf. On the academic side, Jonathan Edwards is the host college for the Alan S. Tetelman '58 Fellowship and Fund to Support Science and Quantitative Reasoning in Yale College, which supports a visiting fellowship for engineers and applied scientists to meet with students and faculty. It was

## Guest Speakers at the Residential Colleges



Harry Truman



Ellen Johnson Sirleaf



Gerald Ford



Sandra Day O'Connor



Jimmy Carter



Maya Angelou



Kurt Vonnegut



Margaret Marshall



Ronald Reagan



John Kenneth Galbraith



Meryl Streep



Henry Louis Gates, Jr.



Robert Redford



Yevgeny Yevtushenko



A student in Adam Van Doren’s residential college seminar Mastering the Art of Watercolor.

established by Damon Wells, B.A. 1958, in memory of Tetelman, “an outstanding young scientist who loved Yale, and whose life was tragically cut short in an airplane accident in 1978.”

Today, with the creation of two new colleges, Yale celebrates the first expansion of the residential college system in a half-century. Benjamin Franklin College and Pauli Murray College, which welcomed their first students in 2017, carry on the tradition of integrated social and academic life that defines the Yale undergraduate experience. New allegiances will be forged and traditions created, contributing to the unparalleled richness of Yale’s undergraduate student life.

Undergraduate Intramurals 2017–2018

- |                      |                       |
|----------------------|-----------------------|
| <b>Fall</b>          | Swimming              |
| Touch Football       | Inner-tube Water Polo |
| Men’s Touch Football | Bowling               |
| Soccer               | Broomball             |
| Tennis               | Indoor Soccer         |
| Cross Country        |                       |
| Volleyball           | <b>Spring</b>         |
| Golf                 | Golf                  |
| Doubles Pickleball   | Ultimate              |
|                      | Soccer                |
| <b>Winter</b>        | Softball              |
| Men’s Basketball     | Spikeball             |
| Women’s Basketball   | Badminton             |
| Squash               | Dodgeball             |



Tom Herman and students in his residential college seminar on The Press, Business, and the Economy, photographed during a class visit to the New York Stock Exchange.



Trumbull College intramural softball team.



Morse College intramural cross country team.

# 2

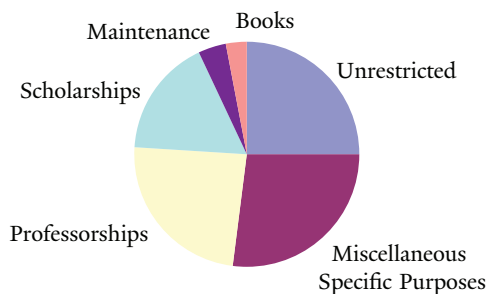
Totaling \$27.2 billion on June 30, 2017, the Yale Endowment contains thousands of funds with various purposes and restrictions. Approximately 84% of funds constitute true endowment, gifts restricted by donors to provide long-term funding for designated purposes. The remaining funds represent quasi-endowment, monies that the Yale Corporation chooses to invest and treat as Endowment.

Donors frequently specify a particular purpose for gifts, creating endowments to fund professorships, teaching, and lectureships (24%); scholarships, fellowships, and prizes (17%); maintenance (4%); books (3%); and miscellaneous specific purposes (27%). Twenty-five percent of funds are unrestricted. Eighteen percent of the Endowment benefits the overall university, with remaining funds focused on specific units, including the Faculty of Arts and Sciences (35%), the professional and arts schools (25%), the library (7%), and other entities (14%).

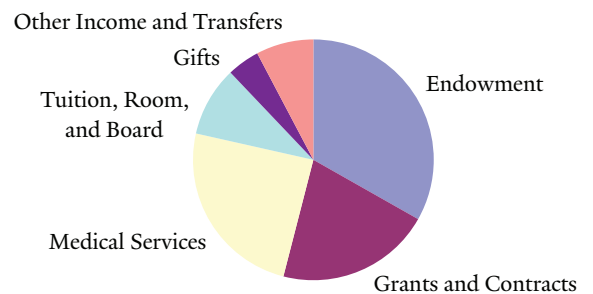
Although distinct in purpose or restriction, Endowment funds are commingled in an investment pool and tracked with unit accounting much like a large mutual fund. Endowment gifts of cash, securities, or property are valued and exchanged for units that represent a claim on a portion of the total investment portfolio.

In fiscal 2017 the Endowment provided \$1.2 billion, or 33%, of the university's \$3.7 billion operating income. Other major sources of revenues were medical services of \$905 million (25%); grants and contracts of \$768 million (21%); net tuition, room, and board of \$347 million (9%); gifts of \$161 million (4%); and other income and transfers of \$285 million (8%).

Endowment Fund Allocation  
Fiscal Year 2017



Operating Budget Revenue  
Fiscal Year 2017





# 3

Yale’s portfolio is structured using a combination of academic theory and informed market judgment. The theoretical framework relies on mean-variance analysis, an approach developed by Nobel laureates James Tobin and Harry Markowitz, both of whom conducted work on this important portfolio management tool at Yale’s Cowles Foundation. Using statistical techniques to combine expected returns, variances, and covariances of investment assets, Yale employs mean-variance analysis to estimate expected risk and return profiles of various asset allocation alternatives and to test sensitivity of results to changes in input assumptions.

Because investment management involves as much art as science, qualitative considerations play an extremely important role in portfolio decisions. The definition of an asset class is subjective, requiring precise distinctions where none exist. Returns and correlations are difficult to forecast. Historical data provide a guide, but must be modified to recognize structural changes and compensate for anomalous periods. Quantitative measures have difficulty incorporating factors such as market liquidity or the influence of significant, low-probability events. In spite of the operational challenges, the rigor required in conducting mean-variance analysis brings an important perspective to the asset allocation process.

The combination of quantitative analysis and market judgment employed by Yale produces the following portfolio:

Asset Class	June 2017 Actual	June 2017 Target
Absolute Return	25.1%	25.0%
Domestic Equity	3.9	4.0
Fixed Income	4.6	5.0
Foreign Equity	15.2	15.5
Leveraged Buyouts	14.2	14.0
Natural Resources	7.8	7.0
Real Estate	10.9	10.0
Venture Capital	17.1	17.0
Cash	1.2	2.5



Head of College House at Benjamin Franklin College.

The target mix of assets produces an expected real (after inflation) long-term growth rate of 6.9% with risk (standard deviation of returns) of 13.7%. Because actual holdings differ slightly from target levels, the actual allocation produces a portfolio with slightly higher expected growth rate and risk level. The university's measure of inflation is based on a basket of goods and services specific to higher education that tends to exceed the Consumer Price Index by approximately one percentage point.

At its June 2017 meeting, Yale's Investment Committee adopted changes to the university's policy portfolio allocations. The committee approved increases in the absolute return target from 22.5% to 25%, in the venture capital target from 16% to 17%, and in the foreign equity target from 15% to 15.5%. The committee approved decreases in the real estate target from 12.5% to 10%, in the leveraged buyouts target from 15% to 14%, and in the natural resources target from 7.5% to 7%.

Over the longer term, Yale seeks to allocate approximately one-half of the portfolio to the illiquid asset classes of leveraged buyouts, venture capital, real estate, and natural resources. The Endowment has made significant progress in reducing illiquidity in the years since the financial crisis.

Providing resources for current operations and preserving purchasing power of assets dictate investing for high returns, causing the Endowment to be biased toward equity. The university's vulnerability to inflation further directs the Endowment away from fixed income and toward equity instruments. Hence, more than 90% of the Endowment is targeted for investment in assets expected to produce equity-like returns, through holdings of domestic and international equities, absolute return strategies, real estate, natural resources, leveraged buyouts, and venture capital.

Over the past three decades, Yale dramatically reduced the Endowment's dependence on domestic marketable securities by reallocating assets to nontraditional asset classes. In 1987, nearly 80% of the Endowment was committed to U.S. stocks and bonds. Today, target allocations call for 11.5% in domestic marketable securities and cash, while the diversifying assets of foreign equity, absolute return, real estate, natural resources, leveraged buyouts, and venture capital dominate the Endowment, representing 88.5% of the target portfolio.

The heavy allocation to nontraditional asset classes stems from their return potential and diversifying power. Today's actual and target portfolios have significantly higher expected returns than the 1987 portfolio with lower volatility. Alternative assets, by their very nature, tend to be less efficiently priced than traditional marketable securities, providing an opportunity to exploit market inefficiencies through active management. The Endowment's long time horizon is well suited to exploit illiquid, less efficient markets such as real estate, natural resources, leveraged buyouts, and venture capital.

## Yale's New Residential Colleges

On June 6, 2008, the Yale Corporation made the decision to expand Yale College, unanimously approving two new residential colleges for construction. Benjamin Franklin College and Pauli Murray College officially opened their doors in August 2017, enabling Yale to expand its total undergraduate enrollment by approximately 15% to 6,200 and bringing 800 additional qualified undergraduates to study at Yale every year. The larger undergraduate population allows the university to provide a greater service to society by educating a greater number of promising individuals. The expansion of Yale College was fully funded by donors, including transformative gifts from Charles B. Johnson, B.A. 1954, and Edward P. Bass, B.S. 1968.

Designed by former School of Architecture Dean Robert A.M. Stern, M.ARCH. 1965, the new residential colleges occupy a triangle of land just south of Ingalls Rink. The facilities create a new sense of Yale's geography by enlarging the footprint of Yale College and connecting



Robert A.M. Stern

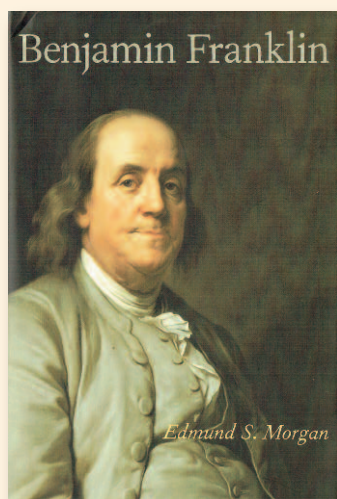
Science Hill with the historic center of campus. The colleges' gothic architecture echoes the character of Yale's central campus.

The dramatic growth in Yale's Endowment over the past three decades played a critical role in supporting the decision to increase enrollment in Yale College. Expansion requires more resources to teach, feed, house, and entertain the undergraduate population. In 2008, when Yale made the decision to build the new colleges, the University's Endowment per Student (E/S) was \$2,011,142. At the end of fiscal 2017, Yale's E/S reached \$2,138,164, and with the expansion of Yale College, the increase in enrollment brings Yale's E/S to \$2,105,040, above the 2008 level in nominal terms and only slightly below after adjusting for inflation.

### Benjamin Franklin College

The southern of the two new colleges, Benjamin Franklin College recognizes the recipient of a Yale honorary degree (Hon. M.A. 1753) whose immense accomplishments span the arts, the sciences, government, and service to society. The forty-one published volumes of Franklin's papers contain the record of his life correspondence and stand among the Yale Library's most important collections. The Franklin Papers, which represent the work of many scholars and editors, shed light on Franklin's relationship with Yale, as he carried on a decades-long correspondence with President Ezra Stiles on subjects from scientific research to the growing collections of Yale's library.

Franklin was a member of the Committee of Five that drafted the Declaration of Independence; a signatory of that document, of the Treaty of Paris, and of the U.S. Constitution; minister to Sweden and France; and



the first U.S. Postmaster General. Franklin was a polymath, an innovator and self-taught scientist, as well as a founding father. He invented the lightning rod, glass harmonica, Franklin stove, bifocal glasses, and he made key scientific discoveries related to electricity, the wave theory of light, meteorology, and oceanography. He was the founder of two great academic institutions. In 1755, Franklin and his associates opened the College of Philadelphia, which in 1791 became the University of Pennsylvania. In 1787

he founded Franklin College, which in 1853 merged with Marshall College to become Franklin and Marshall College.

History records Franklin's past as both a slaveholder and an abolitionist. He owned slaves throughout much of his life, yet toward the end of his life became a leader in the emerging abolitionist movement. In 1787 he was elected president of the Pennsylvania Abolition Society, an organization that dedicated itself to political activism against slavery, as well as the provision of legal aid and education to slaves and other African Americans. One of Franklin's last acts before his death in 1790 was to petition Congress to "devise means for removing this Inconsistency [slavery] from the Character of the American People." Urging "mercy and Justice," he insisted that "equal liberty was originally the Portion" and "is still the Birthright of all men."

Benjamin Franklin's accomplishments as a scientist, statesman, philosopher, and writer shaped our nation.



### Head of Benjamin Franklin College, Charles Bailyn

Head Charles Bailyn has been a member of the Yale community since his undergraduate years, earning his B.S. in astronomy and physics from Yale College in 1981 and returning to campus in 1990 to join the faculty ranks. In 2010 he was named the A. Bartlett Giamatti Professor of Astronomy and

Physics. From 2011 to 2016 he served as the inaugural dean of the faculty of Yale-NUS College in Singapore. Bailyn studies black holes and related sources of celestial X-rays, as well as dense star clusters and the effects of collisions between stars. His work on measuring the masses of black holes was awarded the 2009 Bruno Rossi Prize from the American Astronomical Society. He has carried out research with a wide variety of ground- and space-based telescopes, including NASA's Hubble Space Telescope.

Bailyn was awarded the Dylan Hixon Prize, Yale's highest honor for teaching excellence in the natural sciences, in 2004. One of his courses, *Frontiers and Controversies in Astrophysics*, was among the first to be put online as a part of the Yale Open Courses initiative. In 2014 he published *What Does a Black Hole Look Like?* with Princeton University Press, to introduce the empirical study of black holes at the undergraduate level. At Yale-NUS, he led a seminar on black holes and was part of the team that developed and delivered the Scientific Inquiry course taken by all students in their first semester.

As a Yale undergraduate, Bailyn was awarded the George Beckwith Prize in astronomy and was an avid participant in the a cappella singing scene. After completing his Yale College degree, he pursued graduate work at the University of Cambridge and at Harvard University, receiving his PH.D. from Harvard in 1987 and spending three years as a member of Harvard's Society of Fellows before returning to Yale as an assistant professor of astronomy. He has served both as chair and as director of undergraduate studies in the Department of Astronomy and was a member of the 2001–2003 Committee on Yale College Education, which reviewed Yale's undergraduate curriculum. He twice chaired the Teaching, Learning, and Advising Committee in Yale College. In his five years at Yale-NUS, he led the recruitment of more than 100 faculty members and supervised the development of the college's common curriculum.

### Pauli Murray College

The northernmost college, sited closest to Science Hill, Pauli Murray College honors a Yale alumna (J.S.D. 1965, Hon. D.Div. 1979) noted for her achievements in law and religion, and for her leadership in civil rights and the advancement of women. Pauli Murray enrolled at Hunter College in the 1920s, graduating in 1933 after deferring her studies during the Great Depression. Later, she began an unsuccessful campaign to enter the all-white University of North Carolina. Murray's case received national publicity and she became widely recognized as a civil rights activist.

A graduate of Howard Law School, Murray had an extraordinary legal career as a champion of racial and gender equity. United States Supreme Court Justice Thurgood Marshall cited her book *States' Laws on Race and Color* for its influence on the lawyers fighting segregation laws. President John F. Kennedy appointed her to the Committee on Civil and Political Rights of the President's Commission on the Status of Women.

Awarded a fellowship by the Ford Foundation, Murray pursued a doctorate in law at Yale in order to further her scholarly work on gender and racial justice. She co-authored *Jane Crow and the Law: Sex Discrimination and Title VII*, in which she drew parallels between gender-based discrimination and Jim Crow laws. In 1965 she received her J.S.D. from Yale Law School, the first African American to do so. Her dissertation was titled "Roots of the Racial Crisis: Prologue to Policy." Immediately thereafter, she served as counsel in *White v. Crook*, which successfully challenged discrimination on the basis of sex and race in jury selection. She was a cofounder, with thirty-one others, of the National Organization for Women.

Murray was a vice president of Benedict College in Columbia, South Carolina; she left to become a professor at Brandeis University, where she earned tenure and taught until 1973. She was the first person to teach African American studies and women's studies at Brandeis.

The final stage of Murray's career continued a life marked by confronting challenges and breaking down barriers. At age sixty-three, inspired by her connections with other women in the Episcopal Church, she left Brandeis and enrolled at the General Theological Seminary. She became the first African American woman ordained as an Episcopal priest.

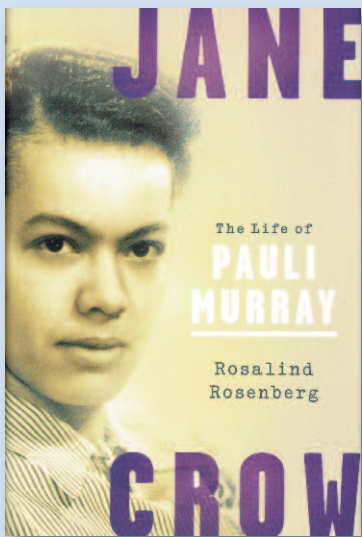
Pauli Murray represents the best of Yale: a preeminent intellectual inspired to lead and to serve her community and her country.



**Head of Pauli Murray College,  
Tina Lu**

Tina Lu, the inaugural head of Pauli Murray College, joined Yale's Department of East Asian Languages and Literatures (EALL) in 2008, with a secondary appointment in the Department of Comparative Literature. She served as EALL's director of graduate studies (2009–2010), director of undergraduate studies (2012–2013), and chair (since 2013). In 2009 she was a visiting professor with the Yale-PKU program in Beijing; since 2013, she has been a consulting faculty member to Yale-NUS College, where she taught as a visiting professor in spring 2015.

Specializing in Chinese literature from 1550 to 1750, Lu has written three books—*Persons, Roles, and Minds: Identity in Peony Pavilion and Peach Blossom Fan; Accidental Incest, Filial Cannibalism, and Other Peculiar Encounters in Late Imperial Chinese Literature*; and the most recent (still



Pauli Murray's photo on the cover of the civil rights activist's 2017 biography, *Jane Crow*, by Rosalind Rosenberg.

being completed) about materiality. Her current work examines time travel and its pre-modern antecedents. With colleagues at other universities in art history and social history, she is

at work on a collaborative book about Xu Wei, the sixteenth-century polymath, playwright, and painter.

One of her major ongoing projects is "The Ten Thousand Rooms," a web-based platform she is developing with grant support from the Mellon Foundation (and in collaboration with her colleague Mick Hunter) that will allow scholars around the world to work together on the transcription, translation, and discussion of pre-modern Chinese sources. She has been an invited speaker and panelist at dozens of universities and other forums in the United States and internationally. In 2009 she was awarded the Gustav Ranis Prize for Best Book on an International Subject by a Yale Faculty Member. From 2005 to 2011, she was a Mellon Foundation New Directions Fellow. She has served on numerous Yale advisory groups, from the Humanities Program Executive Committee to the Digital Humanities Executive Committee to the Yale-NUS

Advisory and Curriculum Review committees. Her undergraduate courses include The Chinese Tradition, an overview of Chinese culture and history from antiquity to the twentieth century.

Lu earned her A.B. in East Asian languages and civilizations and PH.D. in comparative literature from Harvard University. Prior to coming to Yale, she was a member of the faculty at the University of Pennsylvania from 1998 to 2008, earning tenure in 2004.

A gateway carving in Benjamin Franklin College depicts the Angel of History, the *Angelus Novus* cited in an essay by the critic and philosopher Walter Benjamin, being blown violently backwards into the future.



## Asset Class Characteristics

Yale's eight asset classes are defined by differences in their expected response to economic conditions, such as economic growth, price inflation, or changes in interest rates, and are weighted in the Endowment portfolio by considering their risk-adjusted returns and correlations. The university combines the asset classes in such a way as to provide the highest expected return for a given level of risk, subject to fundamental diversification and liquidity constraints.

### *Absolute Return*

In July 1990, Yale became the first institutional investor to define absolute return strategies as a distinct asset class, beginning with a target allocation of 15.0%. Designed to provide significant diversification to the Endowment, absolute return investments are expected to generate high long-term real returns by exploiting market inefficiencies. The portfolio is invested in two broad categories: event-driven strategies and value-driven strategies. Event-driven strategies rely on a very specific corporate event, such as a merger, spin-off, or bankruptcy restructuring, to achieve a target price. Value-driven strategies involve hedged positions in assets or securities with prices that diverge from their underlying economic value. Today, the absolute return portfolio is targeted to be 25.0% of the Endowment, above the average educational institution's allocation of 21.8% to such strategies. Absolute return strategies are expected to generate a real return of 4.8% with risk of 8.6%. The Barclays 9 to 12 Month Treasury Index serves as the portfolio benchmark.

Unlike traditional marketable securities, absolute return investments have historically provided returns largely independent of overall market moves. Over the past twenty years, the portfolio exceeded expectations, returning 8.9% per year with low correlation to domestic stock and bond markets.

### *Domestic Equity*

Equity owners reasonably expect to receive returns superior to those produced by less risky assets such as bonds and cash. The predominant asset class in most U.S. institutional portfolios, domestic equity represents a large, liquid, and heavily researched market. While the average educational institution invests 20.7% of assets in domestic equities, Yale's target allocation to this asset class is only 4.0%. The domestic equity portfolio has an expected real return of 6.0% with a standard deviation of 18.0%. The Wilshire 5000 Index serves as the portfolio benchmark.

Despite recognizing that the U.S. equity market is highly efficient, Yale elects to pursue active management strategies, aspiring to outperform the market index by a few percentage points, net of fees, annually. Because superior stock selection provides the most consistent and reliable opportunity for generating attractive returns, the university favors managers with exceptional bottom-up, fundamental research capabilities. Managers searching for out-of-favor securities often find stocks that are cheap in relation to fundamental measures such as asset value, future earnings, or cash flow. Yale's domestic equity portfolio has posted returns of 12.2% per year over the past twenty years.

## *Fixed Income*

Fixed income assets generate stable flows of income, providing more certain nominal cash flow than any other Endowment asset class. The bond portfolio exhibits a low covariance with other asset classes and serves as a hedge against financial accidents or periods of unanticipated deflation. While the typical educational institution's allocation to fixed income and cash instruments is 12.5%, Yale's target allocation to fixed income and cash is 7.5%. Bonds have an expected real return of 0.5% with risk of 3.0%. The Barclays Capital 1 to 3 Year Treasury Index serves as the portfolio benchmark.

Yale is not particularly attracted to fixed income assets, as they have the lowest expected returns of the eight asset classes that make up the Endowment. In addition, the government bond market is arguably the most efficiently priced asset class, offering few opportunities to add significant value through active management. Based on skepticism of active fixed income strategies and belief in the efficacy of a highly structured approach to bond portfolio management, the Investments Office chooses to manage Endowment bonds internally. Over the past twenty years, the fixed income portfolio has generated returns of 4.5% per annum.

## *Foreign Equity*

Foreign equity investments give the Endowment exposure to the global economy, providing diversification and the opportunity to earn outsized returns through active management. Yale allocates 7.0% of its portfolio to foreign developed markets and 8.5% to emerging markets. Yale's foreign equity target allocation of 15.5% stands below the average endowment's allocation of 23.6%. Expected real returns for emerging equities are 7.5% with a risk level of 23.0%, while developed equities are expected to return 6.0% with risk of 18.0%. The portfolio is benchmarked against a composite of developed markets, measured by the MSCI Europe, Australasia, and Far East (EAFE) Investable Market Index, and emerging markets, measured by a blend of the MSCI Emerging Markets Investable Market Index and the MSCI China A-Share Investable Market Index.

Yale's investment approach to foreign equities emphasizes active management designed to uncover attractive opportunities and exploit market inefficiencies. As in the domestic equity portfolio, Yale favors managers with strong fundamental research capabilities. Capital



Lunchtime in the Benjamin Franklin College dining hall.

allocation to individual managers takes into consideration the country allocation of the foreign equity portfolio, the degree of confidence that Yale possesses in a manager, and the appropriate size for a particular strategy. In addition, Yale attempts to exploit mispricings in countries, sectors, and styles by allocating capital to the most compelling opportunities. Twenty-year returns for Yale's foreign equity portfolio stand at 14.1% per year.

### *Leveraged Buyouts*

Leveraged buyouts offer extremely attractive long-term risk-adjusted returns, stemming from the University's strong stable of managers that exploit market inefficiencies. The University's target allocation to leveraged buyouts of 14.0% far exceeds the 5.6% actual allocation of the average educational institution. The leveraged buyout portfolio is expected to generate real returns of 10.0% with risk of 23.6%.

Yale's leveraged buyout strategy emphasizes partnerships with firms that pursue a value-added approach to investing. Such firms work closely with portfolio companies to create fundamentally more valuable entities, relying only secondarily on financial engineering to generate returns. Investments are made with an eye toward long-term relationships—generally, a commitment is expected to be the first of several—and toward the close alignment of the interests of general and limited partners. Over the past twenty years, the leveraged buyout program has earned 12.6% per annum.

### *Natural Resources*

Equity investments in natural resources—oil and gas, timberland, and agriculture—share common risk and return characteristics: protection against unanticipated inflation, high and visible current cash flow, and opportunities to exploit inefficiencies. At the portfolio level, natural resource investments provide attractive return prospects and significant diversification. Yale has a 7.0% policy allocation to natural resources with expected real returns of 6.5% and risk of 24.5%. Yale's policy allocation is slightly below the 7.8% natural resources allocation of the average endowment.

Superior operators have demonstrated the ability to generate excess returns through a market cycle. Over the past twenty years, Yale's natural resources portfolio has generated an impressive 15.2% per annum.

### *Real Estate*

Investments in real estate provide meaningful diversification to the Endowment. A steady flow of income with equity upside creates a natural hedge against unanticipated inflation without sacrificing expected return. Yale's 10.0% policy allocation significantly exceeds the average endowment's commitment of 3.2%. Expected real returns are 5.5% with risk of 15.0%.

While real estate markets sometimes produce dramatically cyclical returns, pricing inefficiencies in the asset class and opportunities to add value allow superior managers to generate excess returns over long time horizons. Twenty-year returns for the portfolio stand at 10.3% per annum.



## Venture Capital

Venture capital investments provide compelling option-like returns as the university's premier venture managers gain exposure to innovative start-up companies from an early stage. Yale's target venture capital allocation of 17.0% exceeds the 4.8% actual allocation of the average educational institution. The venture capital portfolio is expected to generate real returns of 16.0% with risk of 37.8%.

Yale's venture capital program, one of the first of its kind, is regarded as among the best in the institutional investment community and the university is frequently cited as a role model by other investors. Yale's venture capital managers field strong, cohesive, and hungry teams with proven ability to identify opportunities and support talented entrepreneurs. The university's venture capital portfolio contains an unparalleled set of manager relationships, significant market knowledge, and an extensive network. Over the past twenty years, the venture capital program has earned an outstanding 106.3% per annum.<sup>1</sup>

## Asset Allocations as of June 30, 2017

	Yale University	Educational Institution Mean
Absolute Return	25.1%	21.8%
Domestic Equity	3.9	20.7
Fixed Income	4.6	8.7
Foreign Equity	15.2	23.6
Leveraged Buyouts	14.2	5.6
Natural Resources	7.8	7.8
Real Estate	10.9	3.2
Venture Capital	17.1	4.8
Cash	1.2	3.8

<sup>1</sup>Yale employs time-weighted returns to assess manager performance in marketable equities and absolute return, because the cash flows to and from the asset classes are determined by the university. Returns reported for leveraged buyouts, venture capital, real estate, and natural resources are dollar-weighted internal rates of return, because the managers of illiquid asset classes determine when to buy and sell assets.

Yale's 106.3% venture capital return over the past twenty years is heavily influenced by large distribu-

tions during the Internet boom. Since such a calculation assumes reinvestment of proceeds from the portfolio during the period at the same rate of return for the rest of the period, it is inappropriate to compound the 106.3% return over the twenty-year time horizon. For reference, the twenty-year time-weighted return of Yale's venture capital portfolio is 25.5%. Returns for other illiquid asset classes are not subject to large distortions.



Philanthropist Ellen Battell Stoeckel, in one of the stone portraits from Yale's new colleges (by Paul Russo, of The John Stevens Shop).

## Financial Aid

The expansion of Yale through Benjamin Franklin and Pauli Murray colleges allows admission of greater numbers of qualified undergraduate students. Yale's deep commitment to need-blind admissions and financial aid ensures that Yale College remains open to all students, not just those who can afford the full cost of attendance.

In 1964, Yale was the first private research university in America to adopt a need-blind admissions policy for undergraduates, backed by a promise to meet their full demonstrated need for financial aid. In 2001, Yale expanded this policy to international students; today, it is one of just five American universities offering global need-blind admissions. By admitting students based on ability—not ability to pay—and by meeting the full financial need of all admitted students (with no loans required), the university ensures that a Yale College education is accessible to the most talented people from around the world, regardless of family income.

The Endowment is a critical contributor to Yale's generous financial aid policies, ensuring that the university remains accessible to students from all backgrounds. In fiscal 2017 the university provided \$381 million in financial aid—including \$128 million for Yale College students—with 49% coming from Endowment funds restricted or designated for financial aid, 14% from other restricted funds such as grants and spendable gifts, and the balance from unrestricted university funds, including unrestricted Endowment funds.

The magnitude and impact of student aid at Yale is impressive. For more than fifty years, the university has been committed to ensuring that cost and ability to pay are not barriers for any student who wishes to attend Yale College. As a result, Yale's financial aid policies are among the most robust of all U.S. colleges and universities. In meeting 100% of students' demonstrated financial need, Yale is joined by just 5% of colleges and universities, according to *U.S. News*.

In fact, Yale's commitment to meeting the full demonstrated financial need of every undergraduate student for all four years of attendance makes it one of the most affordable colleges in the country. No parent with an income under \$65,000 (which is above the U.S. median family income), with typical assets, is asked to make a contribution toward their child's Yale College education. Beginning in 2017, students at this income level receive additional aid in the form of a Start-Up



Yale's first scholarship program was created in 1732 with income from Bishop George Berkeley's gift of a farm near Newport, Rhode Island. The endowed fund supported graduate studies: Berkeley Scholars over the centuries have included Eleazar Wheelock, first president of Dartmouth College; Eugene

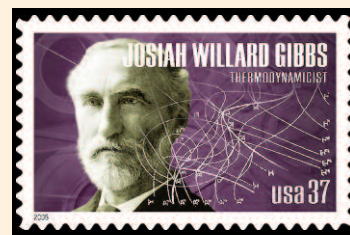
Schuyler, the first American PH.D.; and renowned scientist Josiah Willard Gibbs. Yale later named one of the residential colleges for Berkeley. Portrait of Bishop Berkeley by John Smibert, National Portrait Gallery.



Eleazar Wheelock



Eugene Schuyler



Josiah Willard Gibbs



The first endowed scholarship for undergraduate education was established in 1823 through a gift of \$5,000 from David DeForest (1774–1825).

Portrait of DeForest by Samuel F.B. Morse, Yale University Art Gallery.

Fund, for expenses such as a computer, a winter coat, or the ability to visit family during breaks in the academic year. For families earning between \$65,000 and \$200,000 (and sometimes beyond), with typical assets, contributions are determined as a percentage of annual income, on a sliding scale that begins at 1% and moves toward 25%. During the 2017–2018 academic year, over 50% of Yale College undergraduates will receive financial aid, with an average grant of \$49,575. For students on financial aid, the median annual

net cost of tuition, room and board, books, and personal expenses is approximately \$12,500. Robust financial aid places Yale students at an advantage relative to their peers: 84% of Yale undergraduates graduated debt-free in 2017 and the average debt of those who did borrow totaled just \$13,050. In contrast, only 32% of students from all public and private non-profit colleges graduated debt-free in 2015 (the most recent data available) and the average debt of those who borrowed totaled \$30,100.

The university's generous financial aid allows students to succeed. Yale's four-year graduation rate of 90% and its six-year graduation rate of 98% are in the 99th and 100th percentiles, respectively, among 1,180 four-year, private, non-profit colleges and universities surveyed by *The Chronicle of Higher Education*. In an era of growing inequality, higher education is one of the most reliable paths to the American Dream. Yale has strong programs to support first-generation and low-income students and continues to work to increase access to the college. Data indicate that ten years after graduation, Yale alumni achieve similar levels of degree attainment, income, and life satisfaction, regardless of their socio-economic status when they enroll.

In an effort to reach low-income students who may not have considered applying to Yale due to a misperception regarding affordability, the university launched educational and outreach campaigns to inform low-income families about the net cost of a Yale College education. Applications from targeted students have increased significantly over the past four years. A record high of 16% of students in the class of 2021 are expected to be the first in their families to graduate from a four-year college or university, up from 12% in the class of 2017. In another measure of breadth of access, 253 of the U.S. citizens and permanent residents in the freshman class are eligible for federal Pell grants for low-income students, up from 157 in the class of 2017.

Yale is committed to an admission policy that does not consider a student's ability to pay and a financial aid policy that meets the full need of all students, with no loans required. These two principles—need-blind admissions and need-based financial aid—ensure that a Yale education is affordable for everyone, regardless of family background.

# 4

The spending rule is at the heart of fiscal discipline for an endowed institution. Spending policies define an institution's compromise between the conflicting goals of providing support for current operations and preserving purchasing power of Endowment assets. The spending rule must be clearly defined and consistently applied for the concept of budget balance to have meaning.

The Endowment spending policy, which allocates Endowment earnings to operations, balances the competing objectives of providing a stable flow of income to the operating budget and protecting the real value of the Endowment over time. The spending policy manages the trade-off between these two objectives by combining a long-term spending rate target with a smoothing rule, which adjusts spending in any given year gradually in response to changes in Endowment market value.

The target spending rate approved by the Yale Corporation currently stands at 5.25%. According to the smoothing rule, Endowment spending in a given year sums to 80% of the previous year's spending and 20% of the targeted long-term spending rate applied to the fiscal year-end market value two years prior. The spending amount determined by the formula is adjusted for inflation and constrained so that the calculated rate is at least 4.0%, and not more than 6.5%, of the Endowment's inflation-adjusted market value two years prior. The smoothing rule and



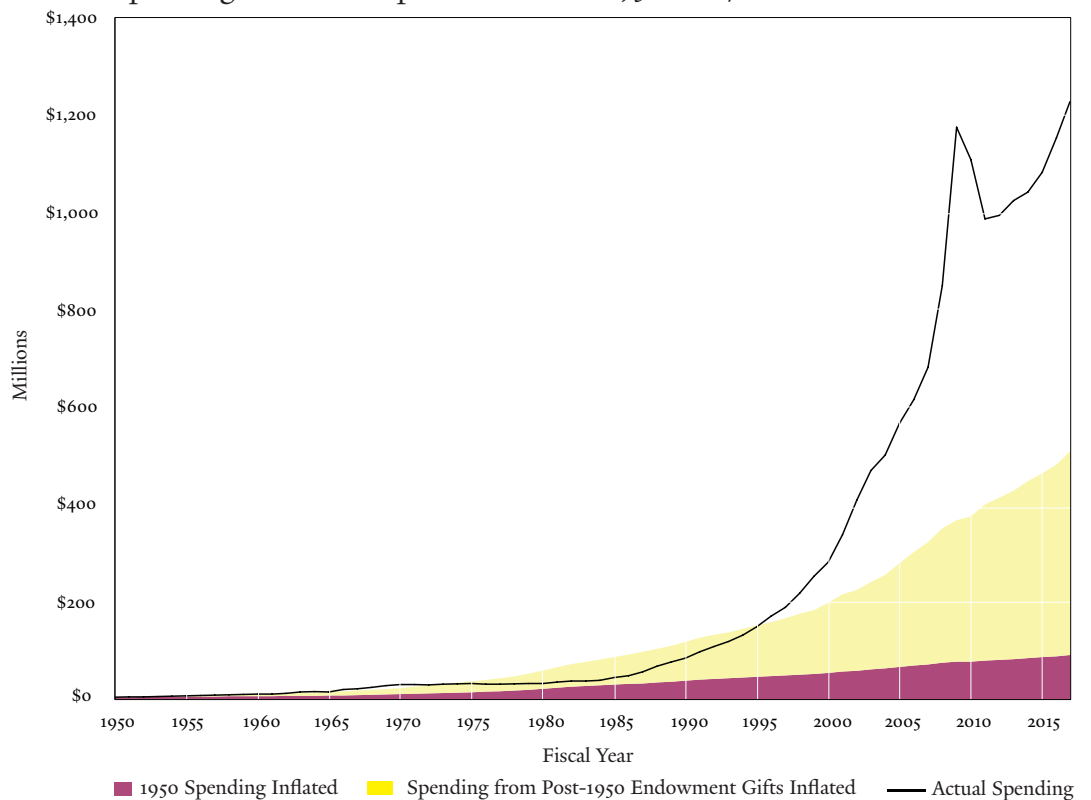
Ribbon-cutting ceremony at the new colleges, 2017, in the presence of the heads of college, Yale officers and trustees. *Left to Right:* Tina Lu, Marvin Chun, Charles Bailyn *behind Salovey*, Peter Salovey, Marta Moret, Josh Bekenstein, G. Leonard Baker, Jr., Anita Bekenstein, Charles Johnson, Edward P. Bass, Jane Levin, Richard C. Levin, Robert A.M. Stern, Mayor Toni Harp.

the diversified nature of the Endowment are designed to mitigate the impact of short-term market volatility on the flow of funds to support Yale’s operations.

The spending rule has two implications. First, by incorporating the prior year’s spending, the rule eliminates large fluctuations, enabling the university to plan for its operating budget needs. Over the last twenty years, the standard deviation of annual changes in actual spending has been approximately 70% of the standard deviation of Endowment returns. Second, by adjusting spending toward the long-term target spending level, the rule ensures that spending will be sensitive to fluctuating Endowment market values, providing stability in long-term purchasing power.

Distributions to the operating budget rose from \$684 million in fiscal 2007 to \$1.2 billion in fiscal 2017. The university projects spending of \$1.3 billion from the Endowment in fiscal 2018, representing approximately 34% of revenues.

Spending Growth Surpasses Inflation 1950–2017



# Active Management of Endowment Assets

In his 2016 investor letter, Warren Buffett decries university endowments' pursuit of market-beating returns through active management, suggesting that they would be better served by adopting a passive indexing strategy. According to Buffett, human behavior causes endowments to feel that "they deserve something 'extra' in investment advice," precluding them from "meekly" investing in index funds, which are available to the general public.

Yet, Buffett acknowledges that identification of high-quality managers likely to outperform in the long run is "not impossible." In fact, in his article "The Superinvestors of Graham-and-Doddsville," Buffett writes of nine investors he pre-identified as winners based on "their framework for investment decision-making" and "some personal knowledge of their intellect, character and temperament."

While Buffett appropriately recognizes the challenges investors face in manager selection—perhaps most notably that the vast majority of managers who attempt to outperform fail after taking into account fees and expenses—his conclusion goes too far. The superior results of Yale and a number of peers strongly suggest that active management can be a powerful tool for institutions that commit the resources to achieve superior, risk-adjusted investment results.

Like Buffett's identification of the Superinvestors, astute observers of the investment world could have identified more than two decades ago a number of thoughtfully managed endowments that adopted common principles: portfolio diversification; equity orientation; and active management of inefficiently priced assets. Critical to the investment programs' success is that these principles were implemented by high-quality investment professionals overseen by impressive committees of fiduciaries.

The results have been extraordinary, as demonstrated by Yale's record. For the twenty-year period ending June 30, 2017, Yale produced a 12.1% return, outpacing the 7.5% return of

## Yale and Peers Produce Strong Long-Term Results Top Ten 20-Year Performers Returns Ending June 30, 2017

 Yale	12.1%
 Princeton	11.5%
 Duke	11.4%
 MIT	11.4%
 University of Virginia	11.0%
 Amherst	10.7%
 Notre Dame	10.7%
 Stanford	10.4%
 Dartmouth	10.3%
 Williams	10.2%
Wilshire 5000 Stock Index	7.5%
60/40 Portfolio <sup>1</sup>	6.9%
Barclays U.S. Aggregate Bond Index	5.2%

<sup>1</sup>In the 60/40 portfolio, which is rebalanced monthly, the equity component is based on the Wilshire 5000 and the bond component is based on the Barclays U.S. Aggregate Bond Index.

the Wilshire 5000 Stock Index, the 6.9% return of a classic 60% U.S. equity and 40% U.S. bond portfolio,<sup>1</sup> and the 5.2% return of the Barclays U.S. Aggregate Bond Index. In terms of impact on the university, Yale's 5.2% incremental return over the classic 60/40 portfolio added \$27.5 billion in the form of higher levels of support for the operating budget and increased Endowment values.

Yale is not alone in producing extraordinary, market-beating results. Consider the endowment world's top ten 20-year performers. Each institution surpassed by a comfortable margin the returns of stocks, a stock/bond mix, and bonds. The high-return portfolios share a common commitment to diversification, equity orientation, and active management, employing a heavy dose of alternative assets. The alternatives of absolute return, private equity, venture capital, natural resources, and real estate provide not only diversification benefits, but also abundant opportunities for astute managers to add value in the investment process. Buffett notes that alternative assets often carry high fees, but net returns matter, not gross fees. The top performers clearly overcame the fee burden to post extraordinary results.

High-returning endowments began with much larger allocations to alternatives than other endowments, but the margin declined over the years as other endowments followed the high returners. On June 30, 1997, the top ten performers committed an average of 48% of endowment funds to non-traditional assets (relative to 9% for all other endowments). Twenty years later, as of June 30, 2017, the top performing institutions had an average of 63% of endowment assets invested in alternatives (relative to 42% for all other endowments).

Simply articulating appropriate targets for alternatives is far from sufficient to achieve investment success. Far more important is to dedicate adequate resources to investment management. Top performers possess strong, dedicated, and skilled investment staffs that fashion sensible asset

allocations and identify world-class investment funds. Investment professionals develop networks from which they learn of compelling investment opportunities and conduct due diligence on prospective managers. They structure fund investments with aligned incentives to drive superior net-of-fee results.

Even though a staff-driven process is required to navigate today's complex investment landscape, effective oversight by a strong investment committee plays an important role in investment success. In normal markets, strong governance improves outcomes by demanding that investment professionals bring their best efforts. In times of market disruption, support from investment committees allows maintenance of sensible policies, even while other investors react perversely.

Yale and other top endowments operate with a long time horizon. In his

letter, Buffett writes that institutions may be lured by the "siren song of a high-fee manager" and that "this year the magic potion may be hedge funds, next year something else." While Buffett's claims may be true of some poorly managed institutions, Yale's prospective managers are thoroughly researched and carefully considered; manager hiring decisions are made with the hope of establishing enduring relationships. In fact, Yale's manager turnover averaged 7.7% over the past decade, implying a thirteen-year holding period. Similarly, asset allocation decisions are not driven by the flavor-of-the-month, but by underlying asset class characteristics and opportunities. That decisions are influenced by the allure of a "magic potion" could not be further from the truth.

In advocating the adoption of a passive indexing strategy, Buffett provides sound investment advice for the vast

majority of individuals and institutions that are unable (or unwilling) to commit the resources (human and financial) necessary for active management success. Yet, Buffett's advice is not appropriate for the cohort of endowments that possess the capabilities to pursue successful active management programs.

The results of the top ten performers amaze. Their well-diversified portfolios crush the returns produced by U.S. stocks, adding untold billions of dollars to support the educational missions of their institutions. The fabulous returns generated by the top performers result from long-standing commitments to sound investment principles implemented by top-notch investment teams under the oversight of world-class governance bodies. Not only has the model worked for the past two decades, it will work for decades to come.



The Tiffany window in Woodbridge Hall, the administrative building that contains offices for the president and secretary as well as the Yale Corporation Room.

## Investment Performance

# 5

### *Performance by Asset Class*

Yale has produced excellent long-term investment returns. Over the ten-year period ending June 30, 2017, the Endowment earned an annualized 6.6% return, net of fees, placing Yale among the top 4% of colleges and universities. Over the same period, domestic stocks returned 7.3% and domestic bonds returned 4.5%. Endowment performance stems from sound asset allocation policy and superior active management.

Yale's long-term superior performance relative to its peers and benchmarks creates substantial wealth for the university. Over the ten years ending June 30, 2017, Yale added \$5.3 billion relative to the average return of a broad universe of college and university endowments and \$3.5 billion relative to its passive benchmark.

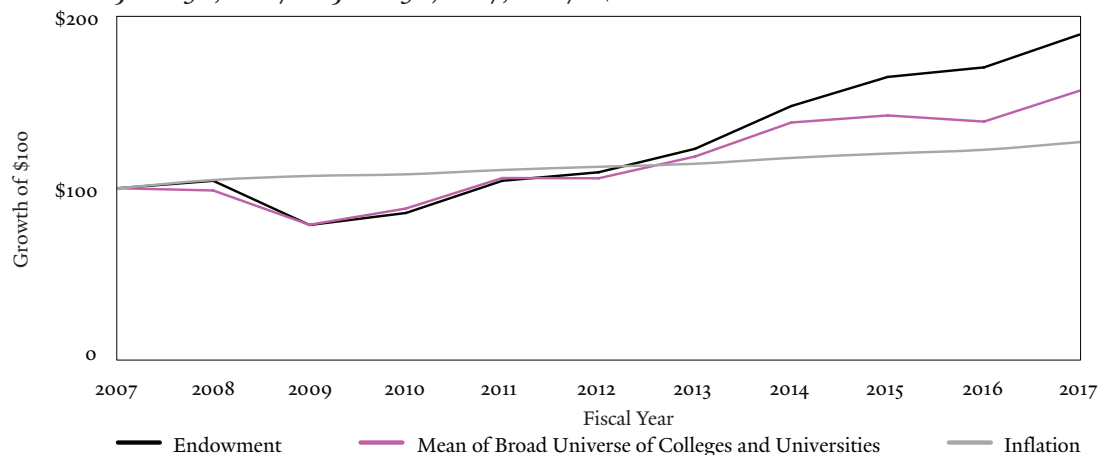
Yale's long-term asset class performance continues to be outstanding. In the past ten years, nearly every asset class posted superior returns, outperforming benchmark levels.

Over the past decade, the absolute return portfolio produced an annualized 4.8% return, exceeding the passive Barclays 9 to 12 Month Treasury Index by 3.6% per year and besting its active benchmark of hedge fund manager returns by 3.4% per year. For the ten-year period, absolute return results exhibited little correlation to traditional marketable securities.

The domestic equity portfolio returned an annualized 10.9% for the ten years ending June 30, 2017, outperforming the Wilshire 5000 by 3.6% per year and the BNY Median Manager return, net of estimated fees, by 4.1% per year. Yale's active managers have added value to benchmark returns primarily through stock selection.

Yale's internally managed fixed income portfolio earned an annualized 2.6% over the past decade, underperforming the passive index and exceeding the BNY Median Manager return, net of estimated fees, by 0.2% per year. Because the fixed income portfolio serves as the University's primary source of liquidity, the Endowment generally forgoes opportunities to generate excess returns in less liquid securities.

Yale's Performance Exceeds Peer Results  
June 30, 2007 to June 30, 2017, 2007=\$100





The foreign equity portfolio generated an annual return of 11.4% over the ten-year period, outperforming its composite passive benchmark by 8.7% per year and the BNY Median Manager return, net of estimated fees, by 9.5% per year. The portfolio's excess return is due to astute country allocation and effective security selection by active managers.

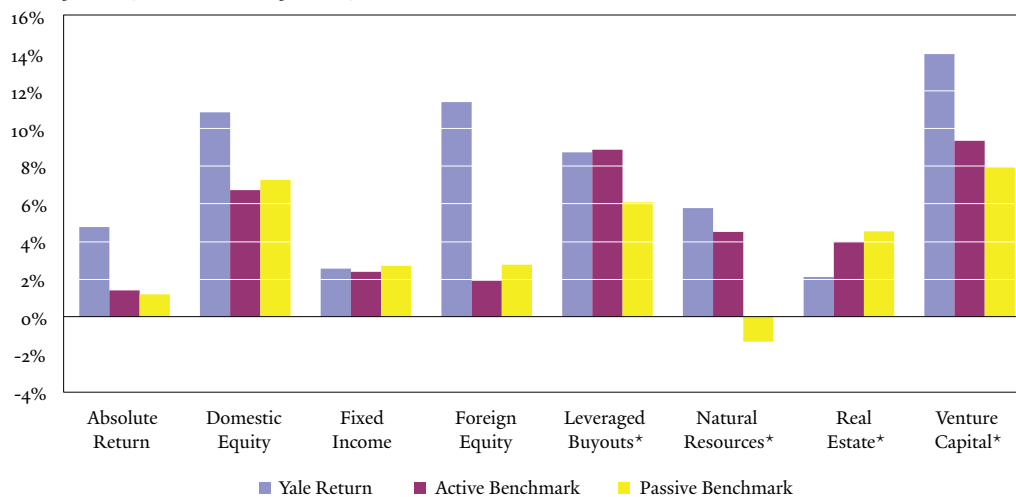
Leveraged buyouts generated an annualized 8.8% return over the decade, outperforming the composite passive benchmark by 2.7% per year and performing in line with the pool of buyout and growth equity managers compiled by Cambridge Associates.

Yale's natural resources portfolio produced an annualized return of 5.8% over the past decade, surpassing its composite passive benchmark by 7.1% per year and the Cambridge Associates natural resources manager pool by 1.2% per year. Yale's strong performance results from partnership with superior operators.

Real estate generated a 2.1% annualized return over the ten-year period, underperforming the MSCI U.S. REIT Index by 2.4% per year and the pool of Cambridge Associates real estate managers by 1.9% per year.

The venture capital portfolio earned an annualized return of 14.0% for the ten years ending June 30, 2017, exceeding its composite passive benchmark by 6.0% per year and the Cambridge Associates venture capital manager pool by 4.6% per year. Yale's venture capital program focuses on premier firms that are likely to generate superior returns by emphasizing a value-added approach to company building.

### Yale Asset Class Results Beat Most Benchmarks June 30, 2007 to June 30, 2017



\* Yale Returns and Active Benchmarks are dollar-weighted.

#### Active Benchmarks

*Absolute Return:* Credit Suisse and HFRI Hedge Fund Composite

*Domestic Equity:* BNY Median Manager, U.S. Equity, with fee adjustment of 78 basis points per annum

*Fixed Income:* BNY Median Manager, Fixed Income, with fee adjustment of 33 basis points per annum

*Foreign Equity:* BNY Median Manager Composite, Foreign Equity, with fee adjustment of 80 basis points per annum for developed equity and 98 basis points per annum for emerging equity

*Leveraged Buyouts:* Cambridge Associates Leveraged Buyouts Composite

*Natural Resources:* Cambridge Associates Natural Resources

*Real Estate:* Cambridge Associates Real Estate

*Venture Capital:* Cambridge Associates Global Venture Capital

#### Passive Benchmarks

*Absolute Return:* Barclays 9-12 Month Treasury

*Domestic Equity:* Wilshire 5000

*Fixed Income:* Barclays 1-3 Year Treasury (Barclays 1-5 Year Treasury from July 2008 to September 2013, LB Treasury Index from July 2007 to June 2008)

*Foreign Equity:* Blend of MSCI EAFE Investable Market Index, MSCI Emerging Markets Investable Market Index, MSCI China A-Share Investable Market Index

*Leveraged Buyouts:* Blend of Russell 2000, MSCI ACWI ex-U.S. Small-Cap Index

*Natural Resources:* Blend of Custom Timber REIT Basket, S&P O&G Exploration & Production Index, Euromoney Global Mining Index

*Real Estate:* MSCI U.S. REIT Index

*Venture Capital:* Blend of Russell 2000 Technology, MSCI China Small-Cap Index, MSCI India Small-Cap Index

## Manager Sourcing

Long-term investment success begins with the identification of top-tier managers. Yale searches rigorously to find exceptional managers who demonstrate a sound investment philosophy, a passion for investing, and a competitive edge. Common among the portfolio's diverse partnerships is a strict adherence to first principles: intellectual honesty, analytical rigor, high integrity, and a passion for markets. The combination of these qualities forms the foundation to achieve market-beating returns over a long-term horizon.

Effective manager sourcing requires deep knowledge of market participants across the investment landscape. The university regularly considers opportunities and strategies ignored by other investors. With an emphasis on the merits of an idea and the people pursuing it, Yale established early partnerships with groups that are now considered premier managers in mar-

ketable securities, leveraged buyouts, venture capital, real estate, absolute return, and natural resources.

Start-up and early-stage firms play a central role in the Endowment's sourcing process. While many institutions seek established managers with long-standing audited track records, Yale keeps an open mind to nontraditional firms and looks beyond standard metrics to assess the integrity and skills of investment professionals. Yale pays particularly close attention to start-up and early-stage firms run by seasoned principals, believing that investment talent and entrepreneurial drive outweigh the risks of backing an unproven firm. Yale works diligently with new firms to build close relationships and offers introductions to other high-quality endowments and foundations.

This approach does not preclude Yale from pursuing established firms with strong track records. Yale's repu-

tation often places the university in a prime position for allocations with the most sought-after managers, even if they are reluctant to open to outside capital. Office staff maintain conversations, sometimes for years, before a window to invest with a manager opens.

Over several decades, the Investments Office has established a robust and sophisticated sourcing process, enhancing the university's natural advantages and employing a number of innovative approaches.

Yale's network provides unrivaled access to high-caliber deal flow. Nearly half of the new managers hired by the Investments Office over the last decade were discovered through existing managers, alumni, and industry professionals. The Endowment's portfolio frequently generates high-quality leads, creating a virtuous circle that underscores the importance of elite manager identification. In addition,



Architectural detail at Pauli Murray College.

the university's accomplished alumni provide an important pipeline for new opportunities. Former Investments Office employees and interns extend Yale's reach across the investment management industry, providing important introductions.

Yale attracts hundreds of inbound inquiries from prospective managers every year. The university's track record as a leading long-term partner makes it a sought-after target for firms raising capital. While the yield is low, the Investments Office reviews and tracks every inbound solicitation. In addition, Yale collaborates with placement agents, particularly in real estate, leveraged buyouts, and natural resources, to increase inbound deal flow and receive early looks at new funds. We fully encourage investors of all types – large or small, traditional or nontraditional – to contact the Investments Office and recognize that talented prospects may manage sub-

scale pools of capital or operate as one-person shops. Several unconventional managers rank among Yale's longest-lasting and most fruitful partnerships.

The Investments Office closely tracks the investment landscape and directly contacts intriguing prospective managers. Public information about investment firms has grown and become more searchable, allowing Yale to pursue desktop research as a sourcing strategy. Online databases, industry publications, and social media provide useful channels to aid the discovery of top fund managers. Filings required for SEC registration, such as Form ADV, contain information about the principals and investment strategies at registered firms. In addition, Yale's investment process requires staff members to spend time on the road overseeing managers and understanding the global opportunity set. On-the-ground efforts, including atten-

dance at industry conferences, generate direct outreach that would not arise from the university's existing network, inbound solicitations, or desktop research.

While the sourcing process inevitably produces many dead ends, a deep internal staff, close mentorship, and intra-office collaboration encourage the sharing of useful insights regarding new initiatives. As the industry evolves, the Investments Office will employ its expertise, network, and resources to enhance the university's competitive advantages, to promote innovative thinking and, ultimately, to identify more market-beating managers.

Please e-mail [prospective.managers@invest.yale.edu](mailto:prospective.managers@invest.yale.edu) to begin a conversation. All inquiries are welcome!



The Lighten Theater, located in Pauli Murray College, serves both of the new colleges.

## Management and Oversight

# 6

Since 1975, the Yale Corporation Investment Committee has been responsible for oversight of the Endowment, incorporating senior-level investment experience into portfolio policy formulation. The Investment Committee consists of at least three Fellows of the Corporation and other persons who have particular investment expertise. The committee meets quarterly, at which time members review asset allocation policies, Endowment performance, and strategies proposed by Investments Office staff. The committee approves guidelines for investment of the Endowment portfolio, specifying investment objectives, spending policy, and approaches for the investment of each asset category.

### *Investment Committee*

Douglas A. Warner, III '68  
Chairman  
*Former Chairman*  
*J.P. Morgan Chase & Co.*

Francis Biondi '87  
*Managing Member*  
*King Street Capital Management*

Michael J. Cavanagh '88  
*Senior Executive Vice President and CFO*  
*Comcast Corporation*

Charles W. Goodyear IV '80  
*President*  
*Goodyear Investment Company*

Ben Inker '92  
*Partner*  
*GMO*

Paul Joskow '72 PH.D.  
*President Emeritus*  
*Alfred P. Sloan Foundation*

Ann Miura-Ko '98  
*Co-Founder*  
*Floodgate*

Kevin Ryan '85  
*Chairman and Founder*  
*MongoDB, Zola, Workframe,*  
*and Nomad Health*

John Shrewsberry '92 MPPM  
*Senior Executive Vice President and CFO*  
*Wells Fargo & Company*

Peter Salovey '86 PH.D.  
*President*  
*Yale University*

Carter Simonds '99  
*Former Managing Director*  
*Blue Ridge Capital*

Dinakar Singh '90  
*CEO and Founding Partner*  
*TPG-Axon Capital*



A window facing one of the internal courtyards of Pauli Murray College.

The Investments Office manages the Endowment and other University financial assets, and defines and implements the University's borrowing strategies. Headed by the Chief Investment Officer, the office currently consists of 31 professionals.

## *Investments Office*

David F. Swensen '80 PH.D. '14 L.H.D.  
*Chief Investment Officer*

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*Associate Director*

Dean J. Takahashi '80, '83 MPPM  
*Senior Director*

Patrick K. Sherwood '13 M.B.A.  
*Associate Director*

Carrie A. Abildgaard  
*Director*

Celeste P. Benson  
*Senior Portfolio Manager*

Alexander C. Banker  
*Director*

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*Senior Business Associate*

Alan S. Forman  
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*Senior Performance Associate*

R. Alexander Hetherington '06  
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Amy M. Chivetta  
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Daniel J. Otto '12  
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E. Benjamin VanGelder '13  
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Timothy R. Sullivan '86  
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Laura W. Bass '15  
*Senior Investment Analyst*

Xinchen Wang '09  
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Sophia B. Jia '14  
*Senior Investment Analyst*

Kenneth R. Miller '71  
*Senior Associate General Counsel*

Robert J. Pecoraro '15  
*Senior Investment Analyst*

Deborah S. Chung  
*Senior Associate General Counsel*

John T. Ryan '14  
*Senior Investment Analyst*

Stephanie S. Chan '97  
*Associate General Counsel*

Jonathan W. Lam '16  
*Investment Analyst*

Sohail S. Ramirez '10 JD  
*Associate General Counsel*

Ahmed L. Sarhan '16  
*Investment Analyst*

Peter N. Steinwachs  
*Associate General Counsel*





#### Sources

##### Financial and Investment Information

Educational institution asset allocations and returns from Cambridge Associates.

Much of the material in this publication is drawn from memoranda produced by the Investments Office for the Yale Corporation Investment Committee. Other material comes from Yale's financial records, Reports of the Treasurer, and Reports of the President.

##### Yale's New Residential Colleges

Information comes from the following pages on the university Web site ([www.yale.edu](http://www.yale.edu)):

Yale College, Benjamin Franklin College

Yale College, Pauli Murray College

Yale University Office of the President

Yale University: The New Residential Colleges

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Yale University Financial Aid

Yale University Office of Admissions

Yale University Office of Financial Planning and Analysis

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Yale Residential College Seminar Program

#### Design

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*Captions:* Page 28: Yale ROTC cadets in the main gateway to Benjamin Franklin College, with its ornate wrought-iron and brickwork construction.

This page: View of Pauli Murray College facing west from Prospect Street, with Bass Tower in the distance.

Back cover: Aerial view of Yale's new colleges, with Bass Tower at left.

