

2009

The Yale Endowment



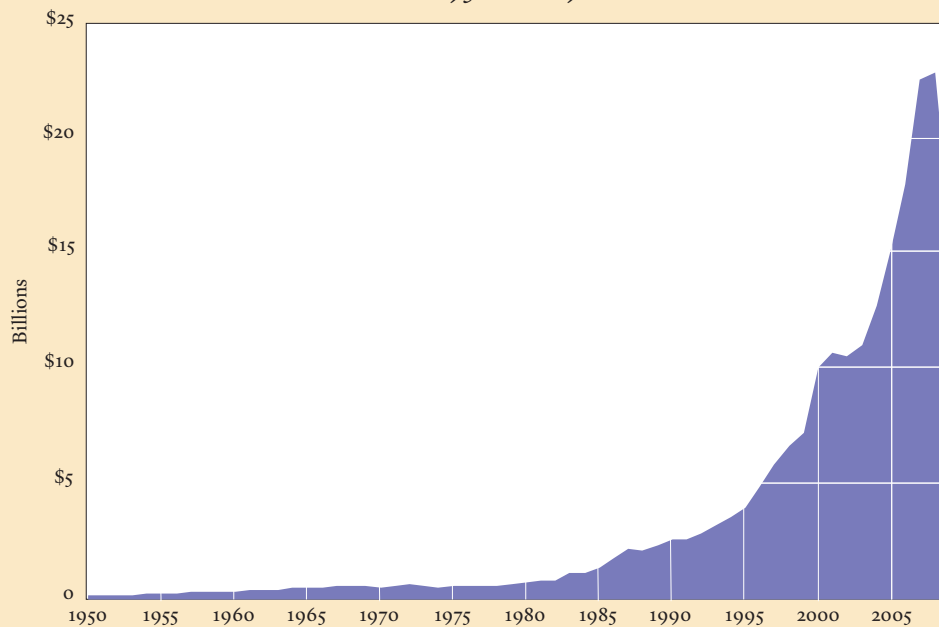
Endowment Highlights

	Fiscal Year				
	2009	2008	2007	2006	2005
Market Value (in millions)	\$16,326.6	\$22,869.7	\$22,530.2	\$18,030.6	\$15,224.9
Return	-24.6%	4.5%	28.0%	22.9%	22.3%
Spending (in millions)	\$ 1,175.2	\$ 849.9	\$ 684.0	\$ 616.0	\$ 567.0
Operating Budget Revenues (in millions)	2,559.8	2,280.2	2,075.0	1,932.0	1,768.0
Endowment Percentage	45.9%	37.3%	33.0%	31.9%	32.2%

Asset Allocation (as of June 30)

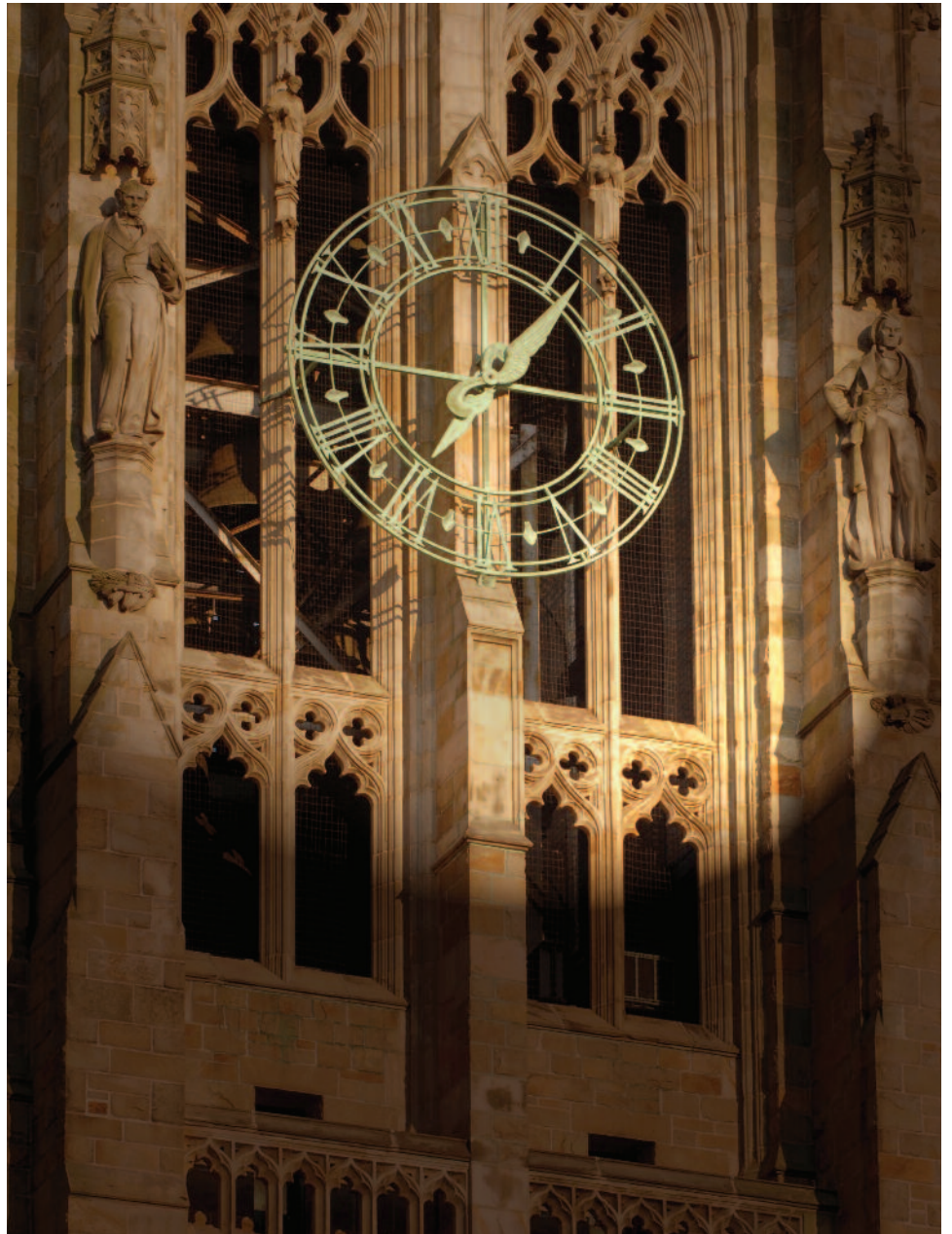
Absolute Return	24.3%	25.1%	23.3%	23.3%	25.7%
Domestic Equity	7.5	10.1	11.0	11.6	14.1
Fixed Income	4.0	4.0	4.0	3.8	4.9
Foreign Equity	9.8	15.2	14.1	14.6	13.7
Private Equity	24.3	20.2	18.7	16.4	14.8
Real Assets	32.0	29.3	27.1	27.8	25.0
Cash	-1.9	-3.9	1.9	2.5	1.9

Endowment Market Value 1950–2009



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Front cover:
Wall carving from west façade, Sterling
Memorial Library.

Right: The Harkness Tower clock at night.

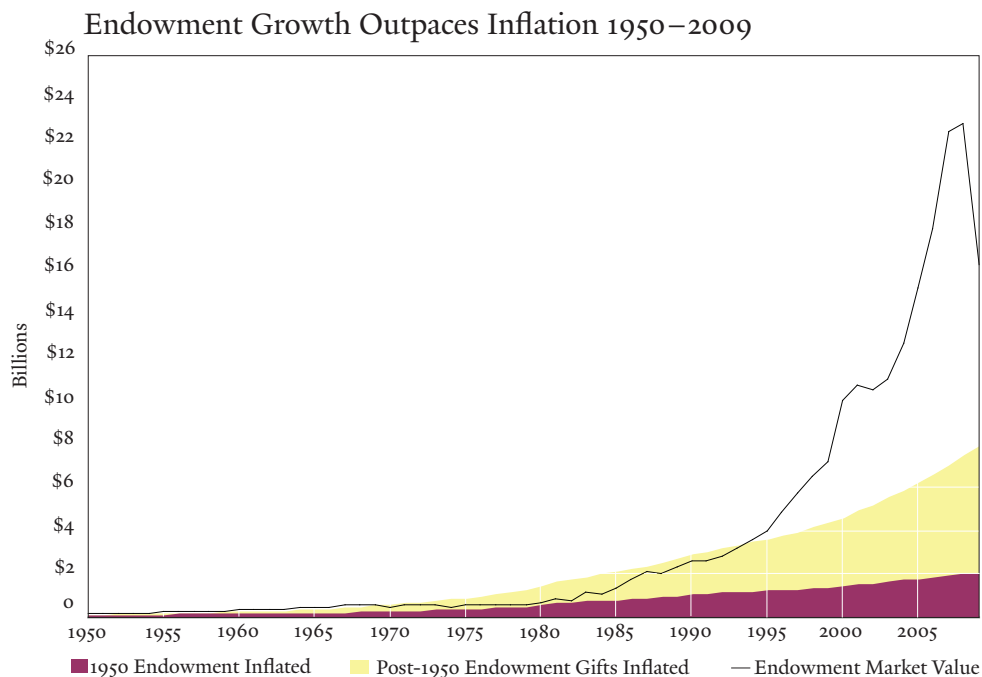
Introduction

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Yale's Endowment generated losses in fiscal year 2009, as returns of -24.6 percent produced an investment decline of \$5.6 billion.

Over the past ten years, the Endowment grew from \$7.2 billion to \$16.3 billion. With annual net investment returns of 11.8 percent, the Endowment's performance exceeded its benchmark and outpaced institutional fund indices. The Yale Endowment's twenty-year record of 13.4 percent per annum produced a 2009 Endowment value of nearly seven times that of 1989. Yale's long-term record results from disciplined and diversified asset allocation policies and superior active management.

Spending from the Endowment grew during the last decade from \$253 million to \$1,175 million, an annual growth rate of approximately 17 percent. On a relative basis, Endowment contributions expanded from 20 percent of total revenues in fiscal 1999 to 46 percent in fiscal 2009. Next year, spending will amount to \$1,119 million, or 42 percent of projected revenues. Yale's spending and investment policies have provided substantial levels of cash flow to the operating budget for current scholars while preserving Endowment purchasing power for future generations.



Fiscal 2009 Performance

Yale's Endowment produced a negative 24.6 percent return in the fiscal year ending June 30, 2009, a period marked by a financial crisis during which global equity markets declined by nearly 30 percent.

During this period, equity exposure hurt results, diversification failed to protect asset values, and illiquidity further detracted from performance. With more than 95 percent of assets invested to generate equity-like returns, the portfolio's performance suffered in an environment characterized by widespread declines in marketable and non-marketable equity values.

Among Yale's asset classes, marketable assets performed relatively well, with absolute return, domestic equity, foreign equity, and fixed income in aggregate declining by 13.1 percent. As in previous years, active management added substantial value to the University's portfolio. Absolute return posted a credible -9.1 percent return. Even though the University's absolute return managers failed to achieve the goal of producing a positive return in fiscal 2009, the hedged portfolio produced results far superior to returns generated by equity markets. The University's domestic equities fell by 18.6 percent, surpassing their Wilshire 5000 benchmark by 7.5 percent. Foreign developed equities shrank by 14.4 percent, posting a 17.0 percent advantage over the MSCI EAFE Index. Emerging market equities decreased by 19.2 percent, outperforming the MSCI Emerging Markets Index by 8.8 percent.

Yale's private equity holdings in leveraged buyouts and venture capital posted a 24.3 percent loss. Real assets, Yale's largest asset class, produced the worst performance with a decline of 33.9 percent, thereby accounting for the largest portion of the Endowment's losses. Notably, in a year when oil prices dropped from \$140 on July 1, 2008 to \$72 on June 30, 2009, Yale's energy investments dropped a commensurate 47.4 percent.

Diversification and Equity Orientation

Based on the substantial decline in Yale's Endowment during the financial crisis, some observers questioned the University's investment philosophy, which rests on the principles of diversification and equity orientation. While the diversification provided by the absolute return asset class mitigated the damage caused by declines in marketable equities, the most profound portfolio protection comes from holdings of U.S. Treasury securities. Unfortunately,

the high opportunity costs of holding government bonds in normal markets force sensible long-term investors to limit holdings of the low-expected-return assets, thereby limiting their portfolio impact.

If diversification fails to protect a portfolio in the face of a financial panic, why bother to diversify? The answer lies in the diversified portfolio's lower risks and higher returns. Consider the case of Japan in 1989. An undiversified portfolio invested 100 percent in Japanese stocks would have experienced a decline from a peak level of 38,816 in December of 1989 to 10,546 in December of 2009, corresponding to a loss of 72.9 percent and an investment result of -6.3 percent per annum. Diversification matters.

As to equity orientation, history teaches us that over reasonably long holding periods, higher-risk equities outperform lower-risk bonds. In fact, for the capitalist system to function properly, expected returns for equities must exceed expected returns for bonds. Both practice and theory point long-term investors toward portfolios with significant holdings of equity positions. Equity orientation makes sense.

Liquidity

Investors frequently encounter opportunities to generate excess returns from accepting illiquidity. Of course, the correct conclusion is not to pursue every premium return associated with illiquid assets and thereby create a completely illiquid portfolio. Prudent investors maintain sufficient liquidity to meet the full range of portfolio commitments, which, in the case of an endowment fund, include annual spending distributions and contractual commitments to external money managers.

In many cases, portfolios characterized by high percentages of long-term assets contain more liquidity than might be immediately apparent. Consider a fund that holds marketable bonds and equities, absolute return positions, real assets (real estate, oil and gas, and timber), and private equity (leveraged buyouts and venture capital).

Even with a zero allocation to cash in the portfolio, investment holdings generate a fair amount of natural liquidity. For instance, bonds pay interest, stocks pay dividends, real estate produces rents, energy reserves provide returns on capital as well as returns of capital (through depletion), and private equity partnerships distribute proceeds from realizations.

Holdings of marketable securities provide a source of non-disruptive liquidity, namely, liquidity generated in a manner that does not change the Endowment's asset class exposure. For example, fixed income positions and equity positions can be used as collateral for short-term loans. (Technically, bond transactions are structured as sales and repurchases, known as "repos," while equity transactions are structured as loans, known as "security lending.") The owner of the securities retains the economic exposure associated with the securities and receives the proceeds produced by the loan, thereby generating liquidity.

External borrowing represents another source of non-disruptive liquidity. For example, for nearly two decades, Yale has tapped the commercial paper market to provide funds for operations, capital projects, and investments. During the recent financial crisis, the University had access to nearly \$2 billion of fully supported commercial paper funding. The program produced exceptionally attractive financing; from July 1, 2008 to June 30, 2009 Yale's commercial paper costs averaged 1.76 percent, substantially below the three-month LIBOR rate of 2.21 percent. Other sources of non-disruptive liquidity for endowments include internal transfers and gifts.

Marketable securities also provide a source of disruptive liquidity, namely, liquidity generated in a manner that changes the Endowment's asset class exposure. Outright sales of bonds or stocks generate liquidity, but alter portfolio characteristics. Withdrawals from absolute return managers constitute another source of disruptive liquidity. Private equity and real assets represent a third source of disruptive liquidity. However, even under the best of circumstances, sales of illiquid partnerships take place at meaningful discounts to fair value. In the heart of a financial crisis, sales of illiquid holdings should be pursued only as a last resort, since transactions generally take place at dramatic discounts to fair value.

Liquidity matters, even to portfolios with modest spending requirements and long-term horizons. By putting in place mechanisms to tap a variety of internal and external sources of liquidity, endowment managers provide the means for educational institutions to satisfy the full range of portfolio commitments.

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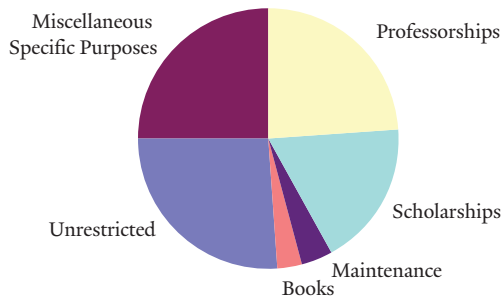
Totalling \$16.3 billion on June 30, 2009, the Yale Endowment contains thousands of funds with a variety of designated purposes and restrictions. Approximately three-quarters of funds constitute true endowment, gifts restricted by donors to provide long-term funding for designated purposes. The remaining one-quarter 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 percent), scholarships, fellowships, and prizes (18 percent), maintenance (4 percent), books (3 percent), and miscellaneous specific purposes (26 percent). Twenty-five percent of funds are unrestricted. Twenty-four percent of the Endowment benefits the overall University, with remaining funds focused on specific units, including the Faculty of Arts and Sciences (37 percent), the professional schools (25 percent), the library (7 percent), and other entities (7 percent).

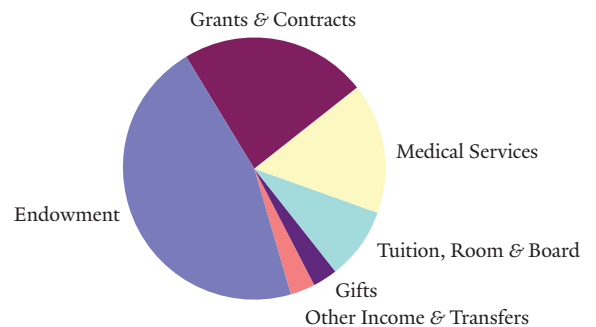
Although distinct in purpose or restriction, Endowment funds are commingled in an investment pool and tracked with unit accounting much like a large mutual fund. Endowment gifts of cash, securities, or property are valued and exchanged for units that represent a claim on a portion of the whole investment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

In fiscal 2009, the Endowment provided \$1,175 million, or 46 percent, of the University's \$2,560 million operating income. Other major sources of revenues were grants and contracts of \$589 million (23 percent), medical services of \$417 million (16 percent), net tuition, room, and board of \$230 million (9 percent), gifts of \$87 million (3 percent), and other income and transfers of \$67 million (3 percent).

Endowment Fund Allocation
Fiscal Year 2009



Operating Budget Revenue in Millions
Fiscal Year 2009



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 quite 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 2009 Actual	June 2009 Target
Absolute Return	24.3%	15.0%
Domestic Equity	7.5	7.5
Fixed Income	4.0	4.0
Foreign Equity	9.8	10.0
Private Equity	24.3	26.0
Real Assets	32.0	37.0
Cash	-1.9	0.5

Sustainability at Yale

Under the direction of President Richard C. Levin, Yale has committed to being a national and international model for sustainability. From an operating perspective, the University's effort encompasses the development and implementation of cutting-edge systems that reduce Yale's impact on ecosystems and human health locally and globally. From an educational and research perspective, Yale contributes leading scholarship to the field of sustainable development and exposes students to the interdisciplinary nature of sustainability issues through a variety of course offerings. The University is also committed to using the campus as a living laboratory: encouraging faculty and researchers to test and model innovative concepts related to energy and sustainability locally so that students can participate in hands-on learning.

In 2005, President Levin established the Yale Office of Sustainability, which positioned Yale to become an international leader in institutional sustainability through research, operations, education, outreach, and partnership. Created in the spirit of balancing ecosystem health with human well-being and economic vitality, the Yale Office of Sustainability has the mission of advancing sustainability principles by fostering innovation, streamlining operations, and preparing



Two of Yale's sustainability efforts are illustrated in this view of Becton Center near the heart of the campus. Small wind turbines on the roof capture energy from wind currents traveling up the side of the building. Each turbine is 6.5 feet tall, weighs 60 pounds, and produces up to 1 kW of clean energy. The Yale Transit Shuttle seen in front of the building uses 20 percent biodiesel and 80 percent ultra low sulfur diesel. The Yale Shuttle provided almost 1 million rides to the Yale community in 2009.

tomorrow's sustainability leaders. To this end, the sustainability team works with students, staff, faculty, and research centers at Yale, as well as members of the surrounding community and networks of other external institutions.

Yale is committed to reducing its greenhouse gas emissions by 43 percent below 2005 levels by 2020. President Levin made this commitment in 2005 based on the recognition that global emissions reductions would be needed to curb global warming. The University is well on its way toward its greenhouse gas goal, having realized a 7 percent reduction in emissions despite a 5.5 percent increase in the main campus size. Activities to date include upgrading heating and cooling systems; the installation of thermally efficient windows and automated heating and lighting controls; the launch of on-site renewable energy projects; and campaigns to encourage energy-saving practices among faculty, students, and staff.

The higher-education sector is an important participant in the drive toward institutionalizing sustainability. Today's university graduates face unprecedented circumstances in the world. They are being challenged to stabilize world population, reduce the emission of greenhouse gases, protect biological diversity, stop the destruction of forests, conserve energy, and mitigate soil erosion. College graduates will have a better chance of success in meeting these global challenges if universities are prepared to lead the way to a sustainable future through demonstrated action. Yale University is committed to being such a leader.



Green buildings are becoming part of the Yale landscape. The new three-story, 51,000 sq. ft. Sculpture Building houses undergraduate and graduate sculpture programs of the School of Art. The building's design features and construction process earned it a LEED Platinum rating from the U.S. Green Building Council. Kroon Hall (illustrated on page 9 in this report) has also received a LEED Platinum rating.

The target mix of assets produces an expected real (after inflation) long-term growth rate of 6.4 percent with a risk (standard deviation of returns) of 13.2 percent. Because actual holdings differ from target levels, the actual allocation produces a portfolio expected to grow at 6.5 percent with a risk of 12.8 percent. 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 2009 meeting, Yale's Investment Committee adopted a number of changes in the University's policy portfolio allocations. The Committee approved an increase in the private equity target from 21 percent to 26 percent to accommodate anticipated growth in private equity exposure. For similar reasons, the University increased the real assets allocation from 29 percent to 37 percent. The increases in the illiquid asset classes were funded by a 6 percentage point decrease in the absolute return target allocation to 15 percent, a 5 percentage point decrease in the foreign equity target allocation to 10 percent, and a 2.5 percentage point decrease in the domestic equity target allocation to 7.5 percent.

The need to provide resources for current operations as well as preserve purchasing power of assets dictates investing for high returns, causing the Endowment to be biased toward equity. In addition, the University's vulnerability to inflation further directs the Endowment away from fixed income and toward equity instruments. Hence, 96 percent of the Endowment is targeted for investment in assets expected to produce equity-like returns, through holdings of domestic and international securities, real assets, and private equity.

Over the past two decades, Yale reduced dramatically the Endowment's dependence on domestic marketable securities by reallocating assets to nontraditional asset classes. In 1989, 70 percent of the Endowment was committed to U.S. stocks, bonds, and cash. Today, target allocations call for 11.5 percent in domestic marketable securities, while the diversifying assets of foreign equity, private equity, absolute return strategies, and real assets dominate the Endowment, representing 88.5 percent 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 and lower volatility than the 1989 portfolio. 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 exploiting illiquid, less efficient markets such as venture capital, leveraged buyouts, oil and gas, timber, and real estate.

Endowed Support for Environmental Studies

Yale's long-term efforts in the study of the environment began in 1900, when the University established the Yale Forest School, the first professional forestry program in the United States. The family of Gifford Pinchot (B.A. 1889), the first American to receive professional forestry training in Europe, made possible the launch of the School through generous financial contributions. Mr. Pinchot went on to become the first chief of the U.S. Forest Service, under President Theodore Roosevelt. In 1972 the School was renamed the Yale School of Forestry & Environmental Studies (F&ES) to reflect its expanding curriculum. Yale alumni, parents, and friends have been generous in supporting the School since its inception. Recent decades have seen a steady increase of support for environmental studies, enhancing Yale's ability to contribute to understanding the world's climates and ecosystems.



Gifford Pinchot (B.A. 1889), first chief of the U.S. Forest Service, was instrumental in founding Yale's Forest School in 1900 and launching studies in conservation and the environment at Yale. In 1972 the School became the School of Forestry & Environmental Studies.

The Franklin Muzzy Crosby University Professorship of the Human Environment (1976)

The Carolyn Foundation was established by the estate of Carolyn McKnight Christian, daughter of alumnus Franklin Crosby (B.A. 1897). To honor Mr. Crosby, the Carolyn Foundation created the Franklin Muzzy Crosby University Professorship of the Human Environment. Illustrious Yale faculty members who have held the Crosby Professorship include Michael Smith, Harold Conklin, and Alison Richard, who also served as Provost of the University from 1994 to 2002.

Leonard G. Carpenter Fund (1989)

With gifts from the Andrew W. Mellon Foundation and Leonard G. Carpenter (B.A. 1924), the Leonard G. Carpenter Fund was established to provide competitively awarded support for scholarly projects initiated by students. The fund aims to support graduate and undergraduate student research activities in various fields relating to environmental and natural-resource topics.

The Bass Family Gifts

Dedicated alumnus Edward P. Bass (1967, B.S. 1968), who serves as co-Chair of the Yale Tomorrow campaign, is from a family that has been among the most generous in Yale's history. University efforts supported by the family include the construction of the Nancy Lee and Perry R. Bass (B.S. 1937) Center for Molecular and Structural Biology, initiatives such as the Bass Writing Program, and renovations of Linsly-Chittenden Hall, William L. Harkness Hall, Rudolph Hall, Berkeley College, and the Anne T. and Robert M. Bass Library (formerly known as Cross Campus Library).

Edward Bass made a landmark commitment in 1990 to create the Yale Institute for Biospheric Studies (YIBS), a multidisciplinary center that promotes and integrates work among science departments such as Geology and Geophysics and Ecology and Evolutionary Biology, as well as the Peabody Museum and the School of Forestry & Environmental Studies.

Mr. Bass's wide-ranging support for YIBS includes endowed funds for two full professorships in biospheric studies, the permanent directorship of the Peabody Museum, and a program of visiting environmental scholars. His initiatives have spurred funding for environmental studies at Yale by many other donors. He contributed, in addition, toward the Environmental Science Center, Kroon Hall, and other buildings on Science Hill.

In continuing support for Yale's efforts to address climate change, Edward Bass made a gift of start-up funding in 2009 to create the Yale Climate and Energy Institute (YCEI). The Institute will serve as the University's focal point for developing and evaluating solutions to climate change by providing support for interdisciplinary research, postgraduate education, and outreach through conferences and workshops.



Edward P. Bass (1967, B.S. 1968) helped Yale to build on its strong foundations in environmental sciences when he established the Yale Institute for Biospheric Studies in 1990. The multidisciplinary center encourages interaction among Yale's science departments as well as the Peabody Museum of Natural History and F&ES.

The Benjamin Zucker Family Environmental Fund (1990)

To spark student interest in sustainability topics, Benjamin Zucker and Richard L. Zorn (both B.A. 1962) created the Benjamin Zucker Family Environmental Fund to support the Zucker Environmental Fellows program, which brings distinguished environmental studies scholars and leaders to Yale. The fund also supports exhibits at the Yale Peabody Museum of Natural History's Hall of Minerals, Earth, and Space.

The Gilman Ordway Family Scholarship Fund for Environmental Studies (1991)

Financial aid is an important focus of donor support in all aspects of Yale's curriculum. Gilman Ordway (B.A. 1947) established the Gilman Ordway Family Scholarship Fund for Environmental Studies to provide annual support for up to seven graduate students for studies in the environmental sciences. Mr. Ordway is known for his support for environmental causes around the globe, and has had a long association with Yale. He was one of the early donors to Kroon Hall, the new home of F&ES, which opened in May 2009, and the Ordway Learning Center at Kroon Hall is named for him.

The Gaylord Donnelley Environmental Fellows Fund (1994)

The Gaylord Donnelley Fund for Studies in the Environment (1994)

The Strachan and Vivian Donnelley Endowed Scholarship Fund (2002)

The Cameron and Gus Speth Scholarship Fund (2007)

Throughout the past twenty years, noted Chicago environmentalist Gaylord Donnelley (B.A. 1931) and his family have been exceptionally generous to the University. The Gaylord Donnelley Environmental Fellows Fund provides postdoctoral research fellowships in disciplines related to the Yale Institute for Biospheric Studies. Through the Gaylord Donnelley Fund for Studies in the Environment, the family underwrote colloquia, special courses, public addresses, and other programs to enrich undergraduate life. In 2002 Mr. Donnelley's son, Strachan Donnelley (B.A. 1964), created the Strachan and Vivian Donnelley Endowed Scholarship Fund for financial aid "to support Yale's efforts in building environmental leadership." In 2007 a commitment from Strachan Donnelley, now deceased, created the Cameron and Gus Speth Scholarship Fund, to which many others have also contributed, in honor of the retiring Dean, James Gustave Speth (B.A. 1964, LL.B. 1969). The donors announced their intention "to honor Dean Speth's commitment to the School of Forestry & Environmental Studies generally and to scholarship in particular." The Speth Scholarship Fund will provide financial aid for master's students, either U.S. or international, with demonstrated financial need, at F&ES. Gustave Speth was Dean of F&ES from 1999 to 2009, and was a classmate of Strachan Donnelley at Yale College.

Class of 1980 F&ES Internships Fund (1999)

Class of 1980 F&ES Scholarships (2007)

Members of the School of Forestry & Environmental Studies class of 1980, who graduated with the M.E.M., M.E.Sc., M.F., and M.F.S. degrees, continue to contribute to a fund established by their class at the School in 1999 to support research internships undertaken by current students. In honor of their twenty-fifth reunion, a second fund was established to provide scholarships for master's students at F&ES.

Edgar M. Cullman Family Fund for Undergraduate Environmental Studies (2002)

Over the last several decades the Cullman family has been a perennial Yale benefactor. The family has supported activities, course work, and renovations across Yale departments that range from athletics to arts. In 2002, Edgar M. Cullman (B.A. 1940) and his son Edgar M. Cullman, Jr. (B.A. 1968) turned their attention to the College's Environmental Studies program and created the Edgar M. Cullman Family Fund for Undergraduate Environmental Studies to promote the teaching of courses in the undergraduate major in Environmental Studies by F&ES faculty. The fund is intended to underwrite courses on broad subject matter, especially "the interdisciplinary relationship of the environment with business, technology, law, politics, governance, and other related areas."

The Kroon Environmental Studies Scholarship Fund (2002)

Kroon Hall (2009)

Richard E. Kroon (B.A. 1964) established the Kroon Environmental Studies Scholarship Fund in 2002 to provide financial aid for Yale College students who intend to pursue advanced degrees at the School of Forestry & Environmental Studies. In 2009 Yale finished construction of the highly



Richard E. Kroon (B.A. 1964) has endowed scholarships to F&ES for graduates of Yale College, in addition to his generous support for the construction of Yale's new "green" home for the School, Kroon Hall. This is Yale's second building to win a platinum LEED rating for ecological effectiveness. The student lounge on the top floor is shown in the photo below.

anticipated Kroon Hall, one of two buildings at Yale that have received a platinum LEED rating by the U.S. Green Building Council. Some of the environmentally friendly features of the Kroon building include rooftop photovoltaic panels, rain-water collection and filtration facilities,



locally sourced sandstone walls, and ground-source heat pumps. The building provides office space for approximately 75 faculty and staff, as well as classroom space and a 175-seat auditorium. Kroon Hall was named for Richard E. Kroon and his family in recognition of his leadership support for F&ES.

Sara Shallenberger Brown Professorship (2002)

The Sarah Shallenberger Brown Professorship at the School of Forestry & Environmental Studies was established by Mrs. Sara S. Brown and her son Owsley Brown II (B.A. 1964), with a preference for a person to be engaged in research in the field of climate change and energy. The inaugural holder is James Gustave Speth, the former Dean of the School.

The Emily and Carl Knobloch Environment Center (2005)

The Carl W. Knobloch, Jr. Deanship at the School of Forestry & Environmental Studies (2008)

The Carl W. Knobloch, Jr. Fellowship Fund (2009)

Carl W. Knobloch, Jr. (B.A. 1951), a businessman and philanthropist, donated funds to construct Kroon Hall's Emily and Carl Knobloch Environment Center, which houses a range of environmental activities. In 2008 Mr. Knobloch made a new gift to

create the Carl W. Knobloch, Jr. Deanship at the School of Forestry & Environmental Studies, which is now held by Sir Peter R. Crane. Through the Knobloch Family Foundation, Mr. Knobloch sponsored the Carl W. Knobloch, Jr. Fellowship Fund for joint-degree students enrolled at both the Yale School of Management and F&ES. Yale University's joint-degree program awards students the M.B.A. (Master of Business Administration) and the M.E.M. (Master of Environmental Management) in recognition of the important connection between business and the environment. In 1982, when this program was established, Yale became the first U.S. university to create a master's degree curriculum linking the two disciplines.

The Catalyst Fund for Critical Environmental Issues (2006)

Howell L. Ferguson (B.A. 1966) and his wife, Sharon Maxwell Ferguson (Yale parents), together with fellow members of the class of 1966 in honor of their fortieth reunion, established this fund "to advance public dialogue on the critical environmental issues of the day, to close the gap between scholarly research and public policy with an emphasis in the immediate future on climate change and related energy issues." The donors further stipulate that "the fund may be used to provide support for the School's outreach, communications, and related policy engagement."

Other donors, in addition to the class of 1966, have also contributed to the Catalyst Fund since its inception.

Williams Fund for Undergraduate Teaching

Williams Internships Fund (2007)

In honor of his fiftieth Yale College reunion and in support and recognition of the role played by the School of Forestry & Environmental Studies in its mission of training future leaders in natural resource and environmental management, Joseph H. Williams (B.A. 1956) established two funds. The first is for teaching in the undergraduate program in Environmental Studies in Yale College. The second is to support students in their research, with a preference for work with land conservation groups.

David T. Schiff Research Fund (2007)

David T. Schiff (B.E. 1958) has established a scientifically based research fund to support a results-oriented program at the Yale School of Forestry & Environmental Studies "to advance the understanding of worldwide issues pertaining to wildlife, habitat, and the environment, and with the aim of helping humans attain a greater appreciation for nature and the need to live in harmony with it."

Teresa and H. John Heinz III Professorship in Chemistry for the Environment (2008)

To commemorate and honor her late husband John Heinz III (B.A. 1960) and his public role as a member of the U.S. House of Representatives, to which he was first elected in 1971, and later as a member of the U.S. Senate, Teresa Heinz established the Teresa and H. John Heinz III Professorship in Chemistry for the Environment in the Yale School of Forestry & Environmental Studies. The professorship may be occupied by a scholar in environmental chemistry, including the field of green chemistry. The inaugural holder is Professor Paul T. Anastas.



Carl and Emily Knobloch

Asset Class Characteristics

Yale's six asset classes are defined by differences in their expected response to economic conditions, such as price inflation or changes in interest rates, and are weighted in the Endowment portfolio by considering 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.

Absolute Return

In July 1990, Yale became the first institutional investor to pursue absolute return strategies as a distinct asset class, beginning with a target allocation of 15 percent. Designed to provide significant diversification to the Endowment, absolute return investments seek to generate high long-term real returns by exploiting market inefficiencies. Approximately half of the portfolio is dedicated to event-driven strategies, which rely on a very specific corporate event, such as a merger, spin-off, or bankruptcy restructuring, to achieve a target price. The other half of the portfolio contains value-driven strategies, which involve hedged positions in assets or securities that diverge from underlying economic value. Today, the absolute return portfolio is targeted to be 15 percent of the Endowment, below the average educational institution's allocation of 22.5 percent to such strategies. Absolute return strategies are expected to generate real returns of 6.0 percent with risk levels of 10.0 percent for event-driven strategies and 15.0 percent for value-driven strategies.

Unlike traditional marketable securities, absolute return investments have historically provided returns largely independent of overall market moves. Over the past ten years, the portfolio exceeded expectations, returning 11.4 percent per year with low correlation to domestic stock and bond markets.

An important attribute of Yale's investment strategy concerns the alignment of interests between investors and investment managers. To that end, absolute return accounts are structured with performance-related incentive fees, hurdle rates, and clawback provisions. In addition, managers invest significant sums alongside Yale, enabling the University to avoid many of the pitfalls of the principal-agent relationship.

Domestic Equity

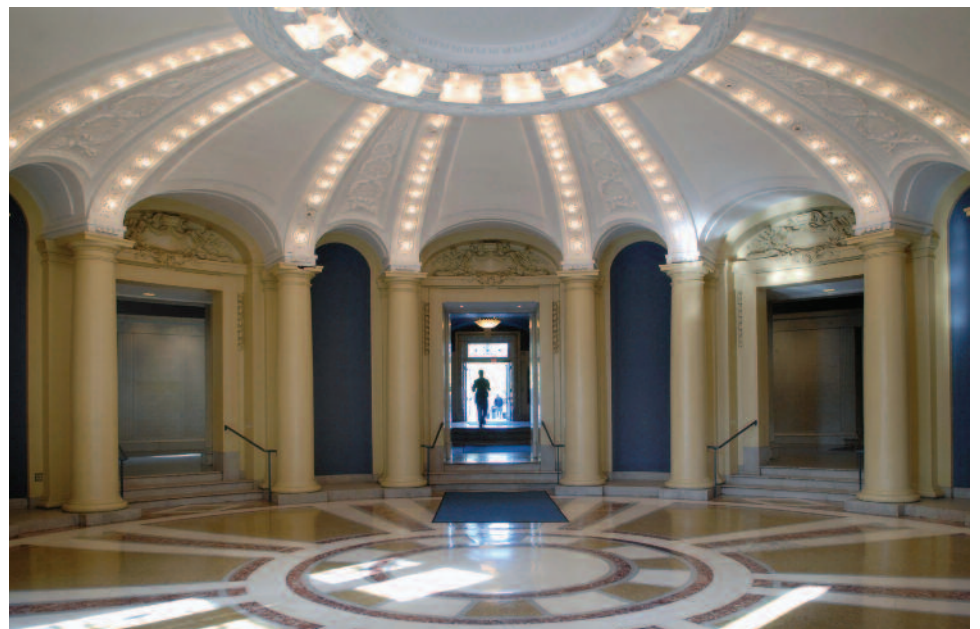
Financial theory predicts that equity holdings will generate returns superior to those of less risky assets such as bonds and cash. The predominant asset class in most U.S. institutional portfolios, domestic equity represents a large, liquid, and heavily researched market. While the average educational institution invests 19.3 percent of assets in domestic equities, Yale's target allocation to this asset class is only 7.5 percent. The domestic equity portfolio has an expected real return of 6.0 percent with a standard deviation of 20.0 percent. 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 annually. Because superior stock selection provides the most consistent and reliable opportunity for generating excess 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 current fundamental measures such as book value, earnings, or cash flow. Recognizing the difficulty of outperforming the market on a consistent basis, Yale searches for managers with high integrity, sound investment philosophies, strong track records, superior organizations, and sustainable competitive advantages.

Fixed Income

Fixed income assets generate stable flows of income, providing greater certainty of 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 educational institutions maintain a substantial allocation to fixed income instruments and cash, averaging 21.0 percent, Yale's target allocation to fixed income and cash constitutes only 4.5 percent of the Endowment. Bonds have an expected real return of 2.0 percent with risk of 10.0 percent. The Barclays Capital 1-5 Year U.S. Treasury Index serves as the portfolio benchmark.

Yale is not particularly attracted to fixed income assets, as they have the lowest historical and expected returns of the six 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. In spite of an aversion to market timing strategies, credit risk, and call options, Yale manages to add value consistently in its management of the bond portfolio.



Memorial Hall, which connects University Commons and Woolsey Hall, was erected in 1901 to commemorate the University's bicentennial.

Foreign Equity

Investments in overseas markets expose the Endowment to the global economy, providing substantial diversification along with opportunities to earn above-market returns through active management. Emerging markets, with their rapidly growing economies, are particularly intriguing, causing Yale to target 3.0 percent of its portfolio to such opportunities, just short of the 4.0 percent allocated to foreign developed equities. Yale dedicates 3.0 percent of the portfolio to opportunistic foreign positions, with the expectation that holdings will be concentrated in markets that offer the most compelling long-term opportunities, particularly China and India. Yale's foreign equity target allocation of 10.0 percent stands below the average endowment's allocation of 18.2 percent. Expected real returns for emerging equities are 8.0 percent with a risk level of 25.0 percent, while developed equities are expected to return 6.0 percent with risk of 20.0 percent. The portfolio is measured against a composite benchmark of: (a) developed markets, measured by the Morgan Stanley Capital International (MSCI) Europe, Australasia, and Far East Index; (b) emerging markets, measured by the MSCI Emerging Markets Index; and (c) opportunistic investments, measured by a custom blended 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 bottom-up fundamental research capabilities. Capital allocation to individual managers takes into consideration the country allocation of the foreign equity portfolio, the degree of confidence Yale possesses in a manager, and the appropriate asset size for a particular strategy. In addition, Yale attempts to exploit compelling undervaluations in countries, sectors, and styles by allocating additional capital and, perhaps, by hiring new managers to take advantage of the opportunities.



Exterior view of the Saybrook College dining hall, from Branford courtyard.

Private Equity

Private equity offers extremely attractive long-term risk-adjusted return characteristics, stemming from the University's strong stable of value-added managers that exploit market inefficiencies. Yale's private equity investments include participations in venture capital and leveraged buy-out partnerships. The University's target allocation to private equity of 26.0 percent far exceeds the 8.3 percent actual allocation of the average educational institution. In aggregate, the private equity portfolio is expected to generate real returns of 11.0 percent with risk of 27.7 percent.

Yale's private equity 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. Since inception, private equity investments have generated a 30.4 percent annualized return to the University. The success of Yale's program led to a 1995 Harvard Business School case study – "Yale University Investments Office" – by Professors Josh Lerner and Jay Light. The popular case study was updated in 1997, 2000, 2003, and again in 2006.

Yale's private equity assets concentrate on partnerships with firms that emphasize 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. Yale avoids funds sponsored by financial institutions because of the conflicts of interest and staff instability inherent in such situations.



The International Center for Finance at the Yale School of Management occupies this historic mansion on Hillhouse Avenue.

Real Assets

Real estate, oil and gas, and timberland share common characteristics: sensitivity to inflationary forces, high and visible current cash flow, and opportunity to exploit inefficiencies. Real asset investments provide attractive return prospects, excellent portfolio diversification, and a hedge against unanticipated inflation. Yale's 37.0 percent long-term policy allocation significantly exceeds the average endowment's commitment of 10.7 percent. Expected real returns are 6.0 percent with risk of 13.6 percent.

The real assets portfolio plays a meaningful role in the Endowment as a powerful diversifying tool and a generator of strong returns. Pricing inefficiencies in the asset class and opportunities to add value allow superior managers to generate excess returns over a market cycle. Since inception in 1978 the portfolio has returned 14.3 percent per annum.

The illiquid nature of real assets combined with the expensive and time-consuming process of completing transactions create a high hurdle for casual investors. Real assets provide talented investment groups with the opportunity to generate strong returns through savvy acquisitions and managerial expertise. A critical component of Yale's investment strategy is to create strong, long-term partnerships between the Investments Office and its investment managers. In the last decade, Yale played a critical role in the development and growth of more than a dozen organizations involved in the management of real assets.

Asset Allocations

	Yale University	Educational Institution Mean
Absolute Return	24.3%	22.5%
Domestic Equity	7.5	19.3
Fixed Income	4.0	16.2
Foreign Equity	9.8	18.2
Private Equity	24.3	8.3
Real Assets	32.0	10.7
Cash	-1.9	4.8

Data as of June 30, 2009

Green Ventures

Through Yale's venture capital program, the Endowment has invested in some of the most recognizable companies in the world, including Cisco Systems, Juniper Networks, Google, YouTube, and Facebook. As awareness of global climate change impels governments, businesses, and consumers to rethink the way they use energy, the venture portfolio's next crop of success stories may just spring from the cleantech space.

Cleantech companies aim to provide solutions to global resource challenges by improving energy efficiency, reducing energy consumption, and trimming waste production. Valued at over \$100 million on June 30, 2009 and representing over 6.4 percent of the Endowment's venture capital portfolio, Yale's exposure to cleantech is growing rapidly. In the past year alone, Yale's venture capital managers invested in over nine new cleantech companies. Yale has increased its exposure to the sector in the marketable, real assets, and leveraged buyout portfolios as well.

Although the risk characteristics of venture capital will inevitably produce a fair number of failures among the more than seventy early-stage cleantech companies that currently populate the Yale portfolio, we are confident that the University stands to benefit enormously from the Endowment's involvement in green ventures, both as an investor and as a stakeholder in the health of the environment. Below we profile two promising cleantech companies in Yale's portfolio.

Silver Spring

In 2002 a group of entrepreneurs began to toss around the idea of upgrading electrical grids throughout the United States. In most U.S. cities, homes and businesses are connected to grids designed using power distribution technologies that were available 120 years ago, when pioneering engineer Nikola Tesla invented the alternating current distribution system. As the product of an age when light bulbs accounted for the majority of electricity consumption, traditional electrical grids leave a lot to be desired.

When Silver Spring was founded in 2002, the available "smart" technology was limited to remote control devices that allowed linemen to turn meters on and off from parked street vans. Silver Spring sought broader solutions for network communication and automation. The company started developing technology for smart grids.



Silver Spring Networks, founded in 2002, is devoted to upgrading electrical power delivery throughout the U.S. by developing technology for smart grids. Silver Spring enables utilities to connect with their customers in real time via a two-way communications network using the smart meter and interface card shown here.

At their most basic, smart grids increase the connectivity and coordination between electric utilities and consumers. According to a study of energy efficiency by Deloitte, over 16 percent of all energy used is expected to be in the form of electricity in 2009. Traditional electricity grids operate at an average efficiency of 33 percent, meaning that of the 100 units of energy held within a fossil fuel, only 33 units ultimately reach consumers. Smart grids almost double this average to 60 percent.

One of the biggest issues utilities grapple with is electricity load management. In order to prevent outages, power providers generally keep a "spinning reserve," a backup store of electricity that is drawn during peak usage. If reserves run low, utilities resort to using "peaker plants," the oldest, least efficient, and most polluting power generation stations that are only used when normal plants are tapped out. Utilities connected to a traditional grid are forced to build total generation capacity that meets or exceeds the incidental peaking levels on the system. Consequently, for 99 percent of

the year, 20 percent of total capacity goes unused.

Legacy electricity networks do not have real-time data collection capabilities, a fact that has two consequences for load management. First, without pricing transparency, most consumers are unaware that electricity is much more expensive to generate and costs more during peak hours. Smart grid technology provides real-time data about costs. Some systems go further, providing minute-by-minute information about how much carbon dioxide is generated by running electronics and appliances. If customers are alerted to the dollar and carbon impact of their electricity habits, they might be more likely to shut off an unwatched television or turn off an unneeded light. In 2008 Silver Spring worked in conjunction with Oklahoma Gas & Electric to conduct a pilot program with twenty-five area customers, each of whom received a tabletop device that received detailed information about their electricity consumption. Customers saved an average of 10 percent to 15 percent on their power

bills. Only one customer failed to realize lower costs.

Second, without meter data that is attuned to time of usage, utilities are forced to estimate the amount of spinning reserves they must keep. In order to avoid service outages, utilities tend to over-reserve or use peaker plants, wasting generation resources and causing unnecessary pollution. Silver Spring provides power companies with the requisite data to design pricing mechanisms that better match electricity demand with its generation costs, allowing market forces to smooth load curves, and reduce the need for large spinning reserves. By allowing utilities to use existing power plants more efficiently, smart grids ease the demand for new plants.

In addition to moderating electricity demand, smart grids reduce pollution by rationalizing power generation operations. Smart meters allow utilities to read and control electricity meters remotely, eliminating the need for the large van fleets that currently perform such tasks. Just like computers, each smart meter has a unique IP address that can send information about electricity outages seconds after such events occur. Under most current grid systems, utilities are alerted to outages only when customers call, which can lead to unnecessary trips into the field by linemen.

Silver Spring's products are important catalysts for the expanded use of alternative energy. Although smart grids cannot eliminate reliance on fossil fuels, they are instrumental to bringing more renewable energy online by allowing utilities to improve tracking and routing of non-traditional power sources. Most U.S. grid systems are currently unable to integrate disparate sources of energy – rooftop solar panels or plug-in cars, for example – into the electric grid. With a smart grid in place, utilities can more efficiently tap into available alternative energy, and consumers will have greater transparency into electricity that is sold back into the grid.

Despite its short operating history, Silver Spring has been able to win contracts with some of the biggest utilities in the country, including Florida Power & Light, Washington D.C.'s Pepco Holdings, and California's PG&E, which expects to replace more than 5 million meters with Silver Spring's smart meters by 2012. Altogether, the company has partnered with utilities serving more than 20 percent of the U.S. population. Silver Spring technology is now deployed in over 1.5 million

homes and businesses, and each week over 50,000 new endpoints are networked. The company and its clients may be the beneficiaries of support from Federal and state governments, which have allocated significant funds for smart grid development. The 2009 Federal stimulus bill assigned \$11 billion to smart grid technology, including \$4.5 billion for smart technology matching grants. With revenues of under \$20 million in 2008, Silver Spring's shipments exceeded \$100 million during 2009 and it turned profitable during the fourth quarter of 2009. Demand from U.S. utilities has continued to be robust, providing Silver Spring with the prospect of doubling or tripling its revenues over each of the next several years.

Silver Spring's ambitions extend beyond the United States. The company's client roster includes four Australian utilities. According to CEO Scott Lang, "If we execute well, this is a global play that becomes a brand name known to every citizen in the world."

Mascoma

Biofuels, simply put, are any fuels derived from raw biological materials, and the term encompasses everything from the vegetable oil recovered from Chinese restaurants to engineered biodiesel, biogas, and high-tech second-generation fuels. Bio-ethanol has recently become both one of the most

prominent biofuel technologies and one of the most controversial, generating a heated debate about feasibility and sustainability.

Bio-ethanol is ethyl alcohol produced by breaking down and fermenting the complex sugars found in agricultural feedstock, most commonly corn, wheat, or soybeans. Traditional starch ethanol fuels like these have been shown to reduce carbon dioxide output by about 30 percent compared to fossil fuels. Environmentalists, economists, and politicians have raised concerns, however, about the fuel-or-food trade-off that using food products to power cars introduces. Further concerns have arisen over the relatively high energy input required to produce bio-ethanol. The amount of fossil fuel required to produce conventional ethanol has been so great that recent studies indicate typical starch ethanol may have a net climate *warming* effect over its lifespan from production to combustion.

Mascoma, a bio-ethanol research and development company centered in Lebanon, New Hampshire, is engineering novel forms of the fuel and more efficient ways to produce it. Founded in 2005 by Dartmouth environmental engineering professors Lee Lynd and Charles Wyman, along with green business buff Robert Johnsen, Mascoma puts its molecular biology, strain development, and bioprocess modeling expertise to work to develop a better biofuel: cellulosic ethanol.



This GM Chevy HHR was driven by Bruce Jamerson, CEO of Mascoma Corporation, on December 18, 2008 in Rome, New York. The car was fueled with E-85 cellulosic fuel ethanol produced for the first time that week in Mascoma's Rome Pilot Plant.

Cellulosic ethanol is the same end product as conventional ethanol, but it is created from wood, grass, and non-edible plant derivatives rather than edible foodstuffs. While cellulosic ethanol was first produced in the late nineteenth century, it has recently been revived and technologically enhanced because of its unique capacity to transform biomass detritus into usable energy. Because cellulosic ethanol is derived from waste products, it alleviates concerns about diverting foodstuffs to energy production. Mascoma, for example, uses wood, straw, corn stover, and switchgrass to produce its ethanol. In a particularly inspired innovation, Mascoma began converting paper pulp, which typically costs \$80 per ton to dispose of but can now be used as energy.

Cellulosic ethanol production also substitutes biomass, specifically lignan, where conventional ethanol production relies on fossil fuels to do the work. Taking fossil fuels out of the production equation cuts the carbon footprint of ethanol production by about 250 percent compared to conventional ethanol.

The only problem is that cellulosic biomass is extremely recalcitrant, so its breakdown is about twice as expensive as that of the feedstock used to generate conventional ethanol. Because of the energy potential and cost inefficiency of cellulosic ethanol, Mascoma's research and development has the potential to transform the biofuel landscape. Mascoma developed a consolidated bioprocessing system (CBP) to create cellulosic ethanol more efficiently than natural processes. The company is currently altering the DNA makeup of existing organisms to develop two types of bacteria and a new type of yeast that can use cellulose and ferment sugars.

These efforts have yielded impressive returns. In 2009, for example, Mascoma announced the development of new CBP biotechnologies that reduce both the carbon input and the cost associated with cellulosic ethanol production by 60 percent. Specifically, Mascoma's recombinant cellolytic yeasts showed an increased expression of the enzyme used to break down cellulose of more than 3,000 percent. Dr. Bruce Dale, a member of Mascoma's Scientific Advisory Board, explained the invention as "a true breakthrough that takes us much, much closer to billions of gallons of low-cost cellulosic biofuels... Mascoma has permanently changed the biofuels landscape from here on."

Environmentalists and scientists alike stand behind the development of cellulosic ethanol. In a recent study, the National Commission on Energy found that this biofuel, when developed in tandem with increasingly efficient automobiles and other smart growth initiatives, could cut U.S. oil dependency in the transportation sector to one-third of its current level within the next forty years. Furthermore, the transition to cellulosic ethanol could be relatively seamless because the fuel can be used in existing internal combustion engines with few or no adjustments.

The market for this "green gold" is projected to expand tremendously and rapidly, growing to an international market valued at \$10 billion by 2012, and Mascoma is poised to be a leader. The company has received equity financing and federal and state grant money totaling upward of \$170 million. With engineering offices in the metro-Boston area, research and development offices and labs in Lebanon, New Hampshire, a demonstration plant in Rome, New York, and a factory about to open in Kinross, Michigan, Mascoma is geared to shape the biofuel landscape for years to come.



Visitors tour the Mascoma ethanol plant in Rome, New York. Mascoma's renewable fuel could yield considerable reductions in U.S. oil dependency.

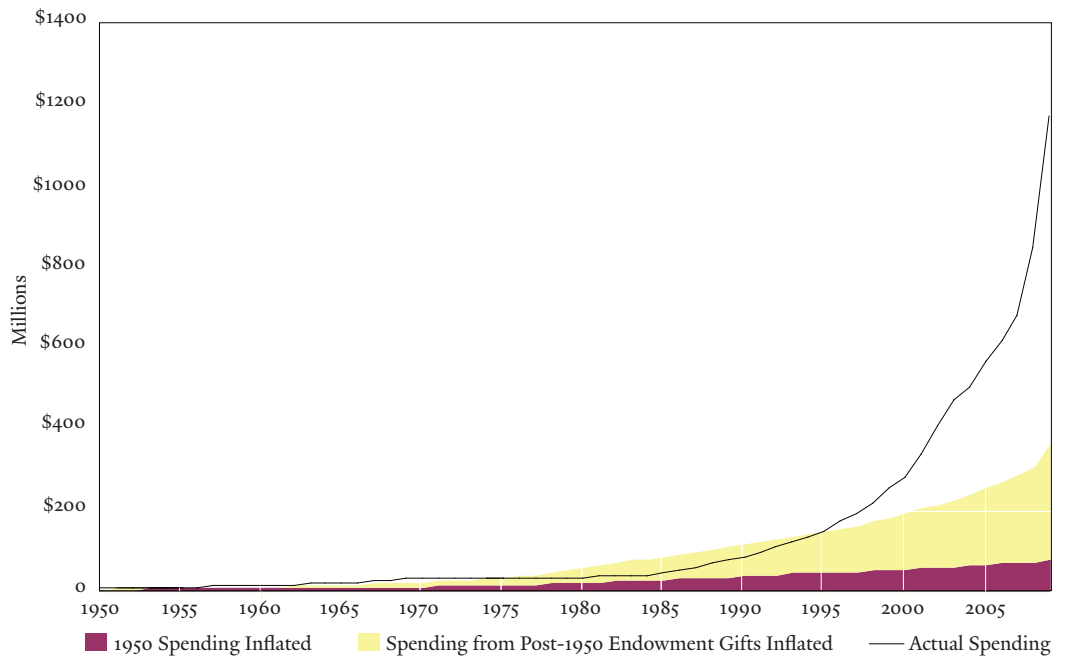
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The spending rule is at the heart of fiscal discipline for an endowed institution. Spending policies define an institution’s compromise between the conflicting goals of providing substantial support for current operations and preserving purchasing 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 using a long-term spending rate target combined with a smoothing rule, which adjusts spending in any given year gradually in response to changes in Endowment market value.

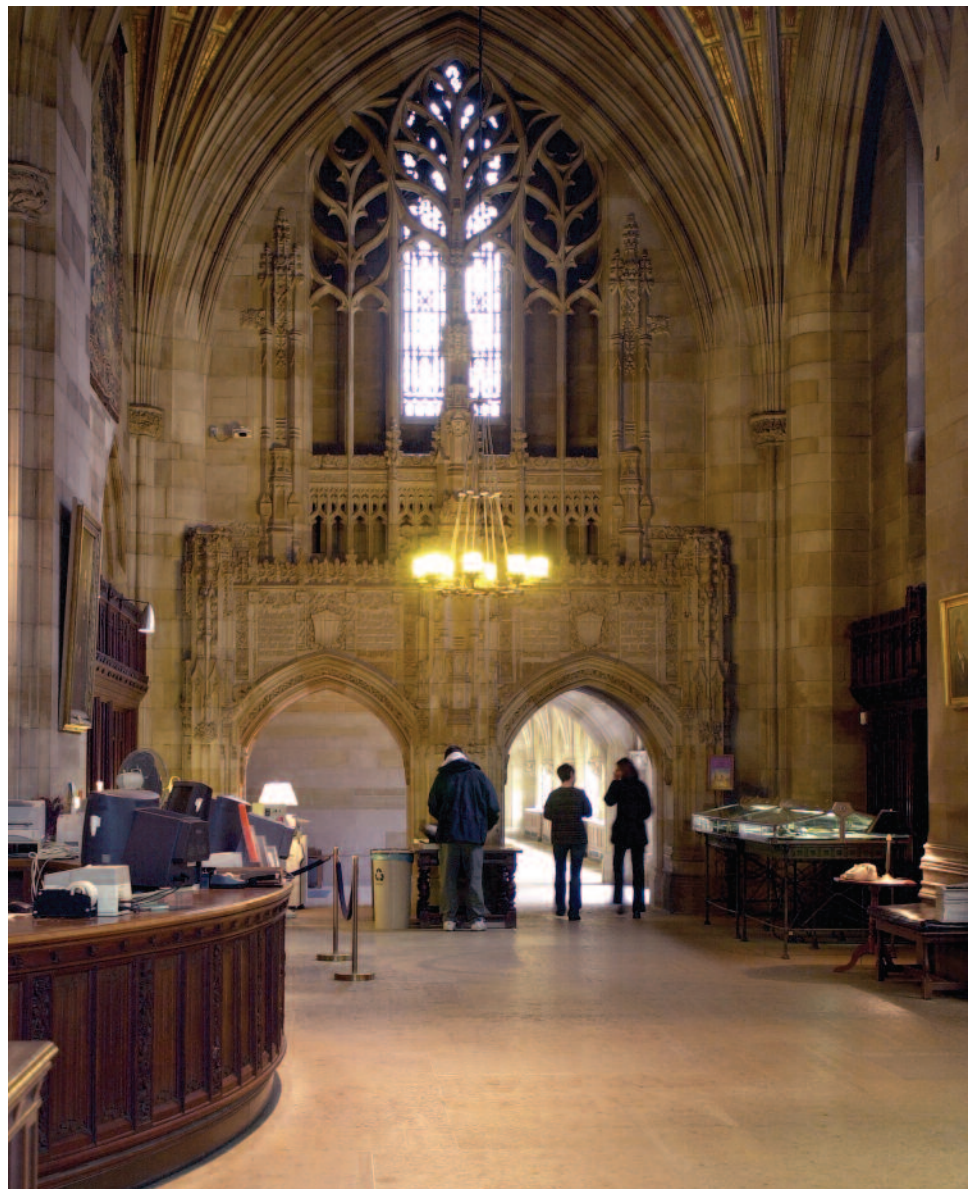
The target spending rate approved by the Yale Corporation currently stands at 5.25 percent. According to the smoothing rule, Endowment spending in a given year sums to 80 percent of the previous year’s spending and 20 percent of the targeted long-term spending rate applied to the market value two years prior. The spending amount determined by the formula is adjusted for inflation and constrained so that the calculated rate is at least 4.5 percent, and not more than 6.0 percent of the Endowment’s inflation-adjusted market value one year prior. The smoothing rule and 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.

Spending Growth Surpasses Inflation 1950–2009



The spending rule has two implications. First, by incorporating the previous year's spending, the rule eliminates large fluctuations, enabling the University to plan for its operating budget needs. Over the last twenty years, annual changes in spending have been one fourth as volatile as annual changes in Endowment value. 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.

Despite the conservative nature of Yale's spending policy, distributions to the operating budget rose from \$253 million in fiscal 1999 to \$1,175 million in fiscal 2009. The University projects spending of \$1,119 million from the Endowment in fiscal 2010, representing 42 percent of revenues.



The interior of Sterling Memorial Library.

Green Investments in Emerging Markets

Much of the news about emerging markets centers on two things: rapid economic development and equally rapid environmental degradation. Conventional wisdom connects the continuation of the former with the exacerbation of the latter. Judging by the rarity of blue skies in cities like Beijing and New Delhi, this observation has largely proved correct.

A new crop of emerging market entrepreneurs are working to undo the connection between economic growth and environmental decay while providing investors with handsome returns along the way. Over the past several years, the Endowment has invested in a number of public and private emerging market companies that provide solutions to reduce reliance on highly polluting fossil fuels. Below we profile two such companies.

HT Blade

The smog hanging over Linfen is sometimes so impenetrable that taxi drivers use headlights at noon just to see the car in front of them. Located in China's Shanxi province, Linfen recently earned the distinction of being the most polluted city in the world.

Like many cities in China's northern provinces, Linfen is surrounded by coal mines, coal processing plants, and coal-fired utilities. Coal is by far the most abundant source of energy in China; it has fueled much of China's growth. Coal is also a national health hazard; it fills the air with particulate matter; it produces crop-ruining acid rain; it doses water with large amounts of mercury; it causes upward of 400,000 premature deaths per year.

China's leaders are becoming increasingly aware of the need to rein in the country's environmental degradation and have turned toward alternative energies like wind power as a key element in reducing its dependence on coal. China built its first wind farm in 1986; it is currently the world's fifth largest wind power producer. The country aims to increase levels of wind power generation from its current 6 gigawatts to 100 gigawatts in the next decade.

A windmill consists of a set of turbine blades, each of which spans 65 to 130 feet, and a generator that converts the kinetic energy generated by the spinning blades into electricity. Zhong Hang Huiteng Wind Power Equipment Co., Ltd. (HT Blade), headquartered in Hebei province, began producing wind turbine blades in 2001. HT Blade is well positioned to grow into a

dominant player in China's windmill market through both price competitiveness and technological innovation. The company's turbine components are relatively less expensive than those of its international competitors because Chinese wind farms are able to spend less on transportation fees. Moreover, because the company's

blades travel a shorter distance, end-customers benefit from less transport-associated product damage.

In addition to cost efficiency, HT Blade focuses intently on research and development. HT Blade produces ten different types of blades, ranging in capacity from 600 kilowatts to 3 megawatts. Seeking



The development of Model HT40A/B blades (2.0 MW) was completed in 2007, and static and fatigue testing was concluded in May 2008. To date, 14 and 22 HT40A and HT40B turbine blades, respectively, have been manufactured and installed in wind farms in Inner Mongolia.



Production of Model HT31 turbine blades (1.25 MW) began after the completion of this model's development in September 2007. By November 2009, more than 280 turbine blades had been manufactured and installed in 11 wind farms, including ones located in Yingkou city in Liaoning province, Laizhou city in Shandong province, and Youyu county in Shanxi province.

greater blade efficiency, the company developed testing instruments to pinpoint locations on the blade that could benefit from structural improvements. HT Blade often works in conjunction with the central and local governments on projects to improve turbine technology.

HT Blade has grown exponentially over the past eight years. It is China's largest turbine blade manufacturer, single-handedly supplying 90 percent of domestic demand for 600 kilowatt and 750 kilowatt blades. With the help of its investors, HT Blade has enlarged its physical footprint from one factory in Hebei to four located across China. Despite this rapid expansion, the company currently produces at capacity, making more than 6,000 sets of blades per year. Spurred by the continuing growth of Chinese wind farms, HT Blade hopes to use future IPO proceeds to increase factory space.

In May 2009, a Dallas-based energy company ushered HT Blade onto the world stage when it signed a \$300 million deal with the company to equip wind farms in Texas. Between its domestic success and its entrée into international markets, HT Blade is poised to take a major role in the global effort to reduce pollution.

Suntech Power Holdings

Dr. Shi Zhengron founded Suntech Power Holdings, the largest solar cell manufacturer in the world. This success has led him to be called the "Solar King." Little in Shi's childhood suggested that he would one day inspire this moniker—he was given up for adoption by parents too poor to afford a child; he was born toward the tail end of China's widespread agricultural famine (but caught the Cultural Revolution in its entirety); the family farm was located in the middle of a river.

Shi left home when he was sixteen to go to college. After finishing a master's degree at the Shanghai Institute of Optics, Shi was selected for further graduate studies in the United States. He practiced his American accent. He was sent to Australia instead.

In 1989, Shi met the University of New South Wales professor Martin Green, a pioneer in the field of solar energy. After completing his Ph.D. in just under three years, Shi joined Green's joint venture company, where he became part of a team developing technologies to reduce the cost of producing solar cells. Shi lived a comfortable life—his researcher's salary allowed him to buy a home in one of Sydney's



Dr. Shi Zhengron, founder of Suntech Power Holdings in Wuxi, China, the largest solar cell manufacturer in the world.

suburbs—but a trip to China in 2001 made him reconsider the decision to stay in Australia.

One of the biggest barriers to widespread adoption of solar technology is cost. Before Shi entered the game, the industry standard was \$4.50 per watt. Shi thought that with China's cost advantages, which included labor, land, and materials, he could get the price down to \$3.00 per watt.

Shi's plans caught the attention of the government of Wuxi, a city in Jiangsu province, which offered an investment of \$6 million to finance Suntech's start-up costs and helped find an additional \$5 million in research grants.

In 2002, Suntech opened its first manufacturing facility in Wuxi. Shi designed a manufacturing process that substantially reduced silicon wafer breakage, a significant source of costs for traditional solar cell manufacturers. By 2003, Suntech's solar cells cost \$2.80 per watt. Shi's consistent focus on cost control and an upsurge in global demand pushed Suntech to profitability seven months after it opened its doors for business.

In 2005, Suntech became the first Chinese solar manufacturer to debut on the New York Stock Exchange. The IPO valued the company at \$2.3 billion and briefly made Shi the richest man in China. Suntech paved the way for a shift in the solar industry's center of gravity from the United States and Europe toward China, where six solar cell manufacturers have become big enough to achieve listings in the U.S. or the U.K. In Jiangsu province alone, there are around 160 companies involved in the solar industry.

With an annual production capacity of around 1,000 megawatts, Suntech is by far the largest player in China and ranks in the top five in the world. The bulk of Suntech's products are sold to European countries,



Workers in the Suntech Power factory in Wuxi, Jiangsu province, China, where solar panel production has been optimized, strongly reducing the price of solar energy.

predominantly Germany and Spain, where longstanding government policies have created a robust market. The Chinese solar market, although still in its infancy, has received a boost from directives promoting the use of solar, wind, and hydroelectric power. Already 80 percent of China's hot water is generated by solar technology. For the 2008 Olympics, Suntech installed a 130 kilowatt solar energy system at the Beijing National Stadium. In a boon to solar cell producers like Suntech, the Chinese government recently promulgated the nation's first renewable energy law, which encourages utilities to use renewable resources for at least 15 percent of their output by 2020.

Like China, the United States is poised to become a large market. Suntech has provided systems for a number of high-profile installations in the U.S.: an 8 megawatt project for the Alamosa Power Plant in Colorado; a 1.6 megawatt project for Arizona State University; and a 1.6 megawatt project for Google's California headquarters, which provides enough electricity to meet 30 percent of the "Googleplex's" peak electricity needs. Suntech is actively looking for factory space in the United States as part of its plan to penetrate this key market.

Despite strong prospects for future growth, the surge in the number of new solar cell manufacturers has taken its toll on the industry. According to industry research, solar panel output is expected to increase 62 percent from 2008 to 2009, while installed panels are only expected to increase 10.5 percent.

Shi acknowledges that it will be tough going in the short run but is abundantly optimistic about the company's market position in the long run. Suntech's culture of cost consciousness and innovation remains, as Shi relentlessly focuses on improving conversion efficiency, the amount of electricity derived from a unit of silicon. Solar analysts project that every 1 percent increase in conversion efficiency results in a 6 percent cost reduction. In March 2009, Suntech announced the successful development of a new breed of photovoltaic cells (dubbed "Pluto") with routine conversion efficiencies of 17 to 19 percent. Conventional technologies produce cells with efficiencies of 15 to 16.5 percent.



Production of PV modules at the Suntech plant in China.



Suntech Headquarters in China.

Although government policies are still an important driver of solar industry growth, Shi is confident that the continued adoption of solar energy will be determined by private sector cost considerations. His goal for Suntech is to achieve grid parity (the point at which solar energy

costs the same as energy from competing fossil fuels) by 2012, an ambitious objective by any stretch of the imagination. But why stop there? Shi predicts that in the near future, "solar will be cheaper than coal or gas."

5

Performance by Asset Class

Yale has produced excellent long-term investment returns. Over the ten-year period ending June 30, 2009, the Endowment earned an annualized 11.8 percent return, net of fees, surpassing annual results for domestic stocks of -1.2 percent and domestic bonds of 6.0 percent, and placing it in the top one percent of large institutional investors. Endowment outperformance stems from sound asset allocation policy and superior active management.

Yale’s long-term superior performance relative to its peers and benchmarks has created substantial wealth for the University. Over the ten years ending June 30, 2009, Yale added \$5.1 billion relative to its composite benchmark and \$10.1 billion relative to the average return of a broad universe of college and university endowments.

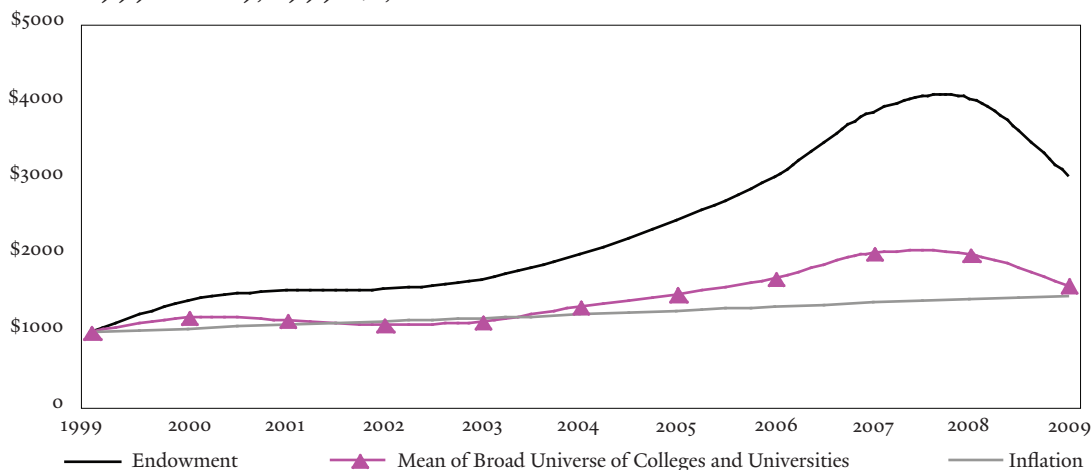
Yale’s long-term asset class performance continues to be outstanding. In the past ten years every asset class posted superior returns, significantly outperforming benchmark levels.

Over the past decade, the absolute return portfolio produced an annualized 11.4 percent, exceeding the passive benchmark of the One-Year Constant Maturity Treasury plus 6 percent by 1.1 percent per year and besting its active benchmark of hedge fund manager returns by 4.5 percent per year. For the ten-year period, absolute return results exhibited close to no correlation to traditional marketable securities.

For the ten years ending June 30, 2009, the domestic equity portfolio returned an annualized 7.4 percent, outperforming the Wilshire 5000 by 8.7 percent per year and the Russell Median Manager return by 7.9 percent 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 6.4 percent over the past decade, exceeding the Barclays Capital 1-5 Year U.S. Treasury Index by 0.4 percent per year and the Russell Median Manager return by 0.7 percent per year. By making astute security selection decisions and accepting a moderate degree of illiquidity, the Endowment benefited from excess returns without incurring material credit or option risk.

Yale’s Performance Exceeds Peer Results
1999 to 2009, 1999=\$1,000

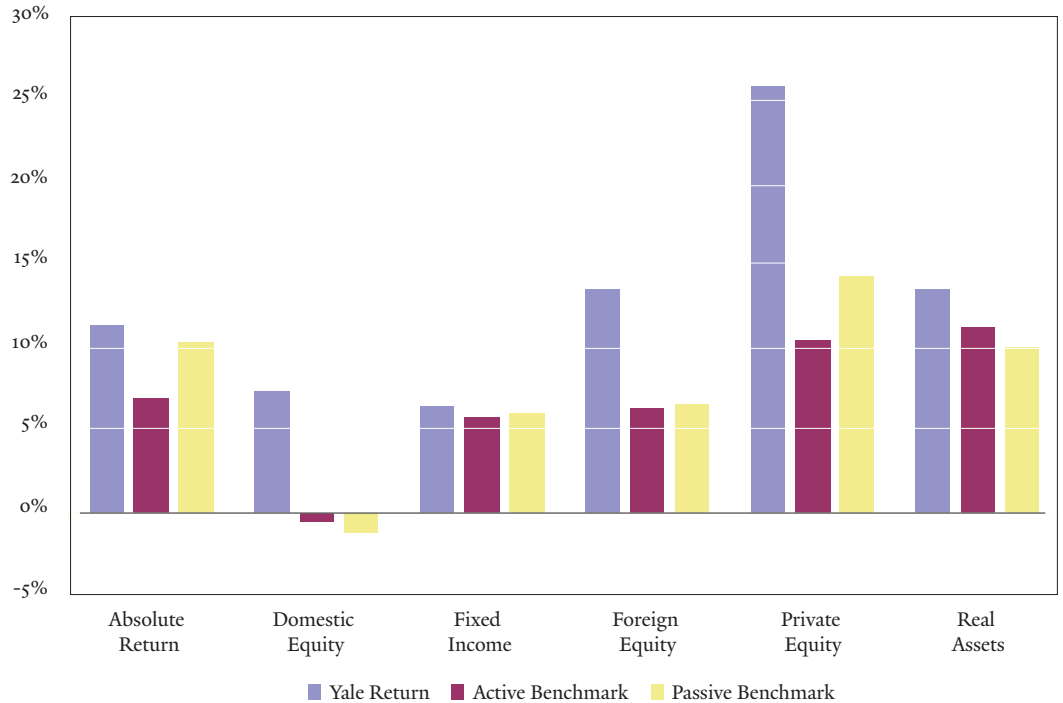


The foreign equity portfolio generated an annual return of 13.5 percent over the ten-year period, outperforming its composite benchmark by 6.9 percent per year and the Russell Median Manager return by 7.2 percent per year. The portfolio's excess return is due to astute country allocation and effective security selection by active managers.

Results from Yale's non-marketable assets demonstrate the value of superior active management. Private equity earned 25.8 percent annually over the last ten years, outperforming the passive benchmark of University inflation plus 10 percent by 11.5 percent per year and the return of a pool of private equity managers compiled by Cambridge Associates by 15.4 percent per year. Since inception in 1973, the private equity program has earned an astounding 30.4 percent per annum.

Real assets generated a 13.5 percent annualized return over the ten-year period, outperforming the passive benchmark of University inflation plus 6.0 percent by 3.4 percent per year and an active benchmark of real assets manager returns by 2.3 percent per year. Yale's outperformance is due to successful exploitation of market inefficiencies and timely pursuit of contrarian investment strategies.

Yale Asset Class Results Beat Benchmarks 1999–2009



Active Benchmarks

Absolute Return: CSFB/Tremont Composite
Domestic Equity: Frank Russell Median Manager, U.S. Equity
Fixed Income: Frank Russell Median Manager, Fixed Income
Foreign Equity: Frank Russell Median Manager Composite, Foreign Equity
Private Equity: Cambridge Associates Composite
Real Assets: NCREIF and Cambridge Associates Composite

Passive Benchmarks

Absolute Return: 1-year Constant Maturity Treasury + 6%
Domestic Equity: Wilshire 5000
Fixed Income: Barclays Capital 1-5 Year U.S. Treasury Index
Foreign Equity: Blend of MSCI EAFE Index, MSCI EMF Index, Custom Opportunistic Blended Index
Private Equity: University Inflation + 10%
Real Assets: University Inflation + 6%

Timber Investments

Timber is one of the world's most abundant and flexible renewable resources. When managed responsibly and harvested sustainably, timber is an environmentally friendly option for use as both a fuel and a building material.

Governments across Europe and Canada recognize timber as a source of renewable energy and support initiatives to promote the expansion of wood pellet heating. Wood combustion releases approximately the same amount of carbon as natural biodegradation and represents an emissions saving of 98 percent when compared to burning equivalent units of fossil fuels. Most wood pellets are made from timber scrap that would otherwise end up unused, making pellets an economically attractive heating option. There are approximately one million pellet stoves currently in operation in the United States; many environmental groups are eager to see these numbers rise.

Lumber also represents a carbon savings compared to materials such as steel when used during construction. Wood products are large reservoirs of sequestered carbon; after wood is harvested, it stores indefinitely the carbon dioxide accumulated during the growth process. In a 2004 life-cycle inventory comparison of the environmental impact of steel-frame residential homes and wood-frame residential homes, the Consortium for Research on Renewable Industrial Materials (CORRIM) found that wood-framed houses required around 17 percent less energy and emitted 26 percent



The larch (gen. *larix*) is a deciduous conifer common at higher altitudes. Its highly durable wood is widely used in residential construction and in earlier times served to make pipes.



The tree species illustrated on these pages are common in Yale's forest holdings. The poplar (gen. *populus*), above, of the Salicaceae family, is a deciduous tree native to most of the northern hemisphere. The yellow poplar, in particular, is one of the tallest hardwood trees in North America. Its wood is used in building furniture and musical instruments, among other objects.

to 31 percent less carbon dioxide during the construction process when compared to similar-sized steel-frame houses.

Kroon Hall is Yale's greenest building in both senses of the word: it is the newest and the most environmentally friendly. One feature that makes Kroon Hall a model in green design is its extensive use of wood. Locally sourced, sustainably harvested red oak is used throughout the building. Kroon Hall is one of the largest buildings in the U.S. to receive a platinum Leadership in Energy and Environmental Design (LEED) rating.

In the early 1990s, Yale identified timberland as a misunderstood and inefficiently priced asset with risk-return characteristics that complement the University's investment portfolio. Similar to other real assets, timber provides attractive diversifying characteristics, protection against unanticipated inflation, and potential to generate outsized returns through active management.

Yale's timber investments are focused in North America. At the end of fiscal 2009, the University's interests comprised over three million acres, roughly equivalent to the size of Connecticut. The University's timber interests are all managed in a sustainable fashion, with over 99 percent of acreage certified through either the Forest Stewardship Council or the Sustainable Forestry Initiative, the two most prominent forestry certification organizations in the United States.¹

In addition to focusing on sustainable operations, the University's investment managers actively work with environmental groups to establish conservation easements, setting aside large tracts of land that are removed from consideration for development. Groups that have partnered

¹Certification is a voluntary process by which forestry companies verify, with the oversight of an independent auditor, that forests are being managed to protect their capacity as a renewable resource, minimize harm to old-growth tree stands, and avoid disruptions to the surrounding ecosystem.



Beginning in 2007, Yale's managers, in conjunction with local wind power development firms, have identified several sites that can support attractive projects. The University's partners have initiated development for a handful of wind farm sites.

with Yale's managers in this program include the Nature Conservancy and the Trust for Public Lands. Over the last decade, the University's partners have created nearly 650,000 acres of conservation lands through easement programs.

In recent years, Yale's timberland managers have become increasingly involved in alternative energy projects that curtail carbon dioxide emissions. For example, biomass refinement technologies help timberland owners dispose of pre-merchantable timber and waste wood, turning scrap into a clean source of power. Continued improvements in gasification technology could help develop biomass facilities into significant suppliers of energy. Cellulosic ethanol, although still unproven, holds the potential to provide clean energy. Wind farm development on forestlands represents yet another opportunity in which the Endowment's managers see abundant potential.

Wind Developments

The wind industry has grown tremendously in the past few years. In the United States, installed wind generation capacity has grown from 2,579 megawatts (MW) in 2000 to 25,410 MW at the end of 2008, enough capacity to power over 5.5 million homes. One driver of this remarkable growth has been rapid technological improvement; since 1996, the average cost of wind power generation has fallen by half as turbine sizes and efficiency have increased.

The ultimate amount of energy produced by a windmill is a function of two factors: wind speed and consistency. Given an average wind speed for a site, the capacity factor measures the actual energy output from a wind turbine as a percentage of its rated capacity. For instance, a 100 MW project on a site with a capacity factor of 30 percent would generate an average output of 30 MW per hour over the course of the year, enough electricity to power over 25,000 homes. More consistent wind means a higher capacity factor and more power generation. Generally, capacity factors above 25 percent are sufficiently attractive to garner the interest of developers; capacity factors above 35 percent are very good.

Yale's timber interests span long stretches of contiguous ridgelines with the strong, consistent winds necessary for wind farms to be economically feasible. Beginning in 2007, Yale's managers, in conjunction with local wind power development firms, have identified several sites with attractive capacity factors. The University's partners have initiated development for a handful of sites.

Investments in wind on Yale lands could provide a meaningful economic return to the Endowment while helping the University achieve its sustainability goals. Yale's wind power projects could play a critical role in helping Yale reach its stated goal



The southern pine is noted for its tall, straight growth habits, which make it suitable for poles as well as for lumber, flooring, and pulpwood. Its density makes it one of the strongest soft woods. The longleaf (*Pinus palustris*, Mill.), official state tree of Alabama, has cones about seven inches long and can reach heights of about 150 feet, although its growth is very slow in its first years.

of reducing 2020 emissions to 10 percent below 1990 levels, furthering Yale in its quest to become the world's greenest university.



Douglas-fir, above, is an evergreen coniferous of the *Pseudotsuga* genus. The name honors nineteenth-century Scottish botanist David Douglas, who introduced many American plant species to the old world. One of the strongest coniferous trees, Douglas fir wood has many uses in construction.

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.

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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 twenty-four professionals.

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Harkness Tower, seen from Branford courtyard.

Yale's Recycling Programs

Like many Yale institutions, the University's recycling programs began with the efforts of dedicated and passionate students. In 1970, several undergraduates banded together to form Yale Recycling. They went door-to-door on a mission to collect recyclable paper from Yale departments and offices. The group relied on student volunteers and an old station wagon. A decade of operations transformed Yale Recycling into a small business of sorts—the University paid Yale Recycling for pick-up and hauling services, while the students arranged for transportation and storage logistics. The addition of a box truck, courtesy of an anonymous donor, greatly improved Yale Recycling's haulage. By 1988, Yale Recycling collected over 200 tons of paper per year. Still, the operation depended on informal student participation and was "really hippy dippy," according to Cyril May (M.E.M. 1989), the current head of Yale's recycling operations.

Beginning in 1991, the State of Connecticut imposed a series of mandatory recycling laws. At around the same time, Yale's waste disposal costs, which had been as low as \$15 per ton, rose rapidly to \$98 per ton. Although the efforts of Yale Recycling alleviated some of the University's mounting trash problems, the student group was operating at capacity at a time when Yale required a larger program. Administrators asked May, an active Yale Recycling member then in his final year at the School of Forestry & Environmental Studies, to study the University's waste stream and propose an expansion of recycling efforts. May's research became the basis of his master's thesis, in which he proposed the establishment of a Yale department with professional staff to coordinate recycling initiatives between students, academic and administrative



Students conducting a waste stream analysis of trash on Old Campus.



Using an electric truck, staffers load clothing and other items donated by departing Yale students as part of the University's annual Spring Salvage program, which collects more than 50 tons of donations per year.

officials, and custodial and maintenance workers. In 1990, he received a call from Yale inviting him to implement the proposals he made as a student.

Yale Recycling is now a University department that May runs from his offices in the basement of Welch Hall on Old Campus. Despite a ground-swell of support from students and administrators, Yale's recycling rate stalled at 22 percent in 2008, the latest year of record. May posits that the University could easily double this rate. In the past several years, the University has experimented with a number of programs to reduce the amount of waste that ends up in landfills.

All in Good Waste

An obvious place to start is one of Yale's largest offenders: the dining halls. Each year, Yale produces roughly 500 tons of food waste, which includes pantry waste (moldy English muffins), preparation food waste (discarded eggshells), serving waste (Elis' unclaimed breakfast sandwiches), and plate waste (uneaten bacon sent down the Commons conveyor belt). The first three categories of waste end up in the dumpster, while plate waste is processed and poured down the drain.

Food waste disposal used to be a relatively no-hassle, low-cost process. As late as 1990, local farmers used Yale dining hall leftovers as hog feed. The decline of the regional farming industry combined with fears about trichinosis led to the dissolution of this arrangement. Connecticut eventually enacted a law that prohibited feeding post-consumer food to livestock unless that food is re-cooked, a costly process. Currently, most food waste is hauled away by the University's contracted trash hauler and any processed plate waste sent down the drain goes to Connecticut's

Water Pollution Control Authority, where the liquid is treated before being piped out to Long Island Sound. For this service, the University currently pays upwards of \$100,000 beyond normal sewage fees, with costs projected to rise to \$200,000 in the future.

In 2005, Yale College senior Giovanni Zinn found a better place to stash dining hall grease: Yale shuttle buses. With a \$25,000 grant from the Yale Green Fund, a \$1 million fund established by the Office of the Provost in 2002 to support University-wide environmental initiatives, Zinn worked with Chemistry department staff member David Johnson to build a processor that turned fry oil into biodiesel. Zinn filled his truck's tank with his homemade biodiesel and was pleased to find that it ran perfectly well. Yale Recycling organized students to collect dining hall grease, allowing Zinn to produce enough biodiesel to power the furnaces at Yale's Bethany Observatory Station. The manager of Yale's shuttle service soon got word of Zinn's fuel and decided to start using a mixture of 20 percent biodiesel in the shuttle fleet. Yale's grease processor was shut down in 2006, but the University's shuttle buses continue to run on a biodiesel mix.

Beginning last summer, Yale Recycling expanded its recycling target to include all organic waste generated by the University's dining halls. May's team introduced a pilot program at Commons, Branford, Saybrook, and Berkeley that aimed to turn unused food into compost, which could then be sold to the local Lowe's and Home Depot. Yale Recycling convinced dining hall staffers to collect organic waste in specially designated, compostable bags and contracted with recycling services and New Milford Farms for pick-up and composting services. While the plan was received with enthusiasm by participants, unforeseen



Student workers during annual Earth Day celebration.

problems soon dampened spirits: bags couldn't mask the smell of rotting food, leaks left kitchen floors stained and sticky, and thrice-weekly scheduled pick-ups couldn't keep up with the mounting garbage. Commons alone generates roughly 4,500 pounds of biodegradable waste per week. Stockpiling several hundred pounds of rotting food on any given day was becoming untenable.

Lacking sufficient funding to install industrial composting facilities, which can cost several million dollars, Yale Recycling began a trial with the Somat Company, a manufacturer of pulpers and water extractors that turn food waste into a semi-dry pulp, reducing waste weight by 80 percent. Although nobody has figured out quite yet what to do with the pulp, Somat's machines prevent organic pollutants from going down the drain (and into the oceans) and reduce the University's refuse handling fees. Yale Dining Services and Facilities are currently evaluating the trial.

Spring Forward Salvage Back

Like Yale's dining hall recycling programs, Spring Salvage has evolved into its current form through a process of trial and error. In the weeks after graduation, Yale's dumpsters overflow with the discarded paraphernalia of dorm life—mini-fridges, hot plates, and the occasional Scooby Doo costume. Over a decade ago, May gathered a team of students to collect reusable items (mostly clothing) for donation to the local Salvation Army. Yale Recycling lacked the logistical resources to collect heavier items, such as furniture. By 2000, Yale Recycling was donating approximately eighteen tons of clothing a year.

In 2005, Sara Smiley Smith and H. Dean Hosgood won a \$9,000 grant from the Green Fund to expand and institutionalize Spring Salvage. Smith and Hosgood worked with Yale Facilities to locate storage space, a key missing component from prior years, and used Green Fund support to rent an additional truck. The storage space greatly improved the salvage workers' ability to sort and distribute the haul from Spring Salvage. In a move that was critical to the success of Spring Salvage, Smith and Hosgood began to place collection bins directly next to entryway doors, making it much easier for students to recycle than discard (dumpsters were located in the back of the colleges).

Most importantly, Smith and Hosgood introduced the concept of Zone Leaders,

students who coordinated the efforts of student recycling workers and custodial staff. The lack of logistical coordination hamstrung previous recycling efforts. Mismatched schedules created a significant amount of friction; custodial staff were frustrated by the students' absence in the early mornings, when the custodial workdays typically start, while students complained that custodians were impossible to reach after 3:30 pm. Moreover, the parties had conflicting goals: Recycling wanted to save as much as possible, while Maintenance and Facilities wanted trash out of the dorms, into the dumpsters, and off the grounds as soon as possible. Zone Leaders eased these tensions by providing a single point of contact for all parties involved.

With new resources and a more efficient communication system in place, Spring Salvage became one of Yale's most successful recycling events. In 2007, over 54 tons of student items were collected during Spring Salvage, a 40 percent increase from the haul in 2006 and a whopping 302 percent increase from 2005. In 2008, Yale's collection efforts resulted in 60 tons of material being recycled. The University donates over 80 percent of the collected items to local charities, with the rest going to international disaster relief organizations or recycling facilities.

Spring Salvage has collected a number of unusual items, including an Xbox, a laptop, an espresso machine, and an unused angora sweater. The recycling effort, which has a "take it or leave it" philosophy that

encourages student workers to keep things that they can use, has become a popular employer for students looking to outfit next year's dorms. Smith once found a Chinese armoire. She kept it for her apartment. She also kept Hosgood, who is now her husband.

Even with the success the Spring Salvage enjoys, more can be done. For example, with current resource constraints, salvage workers are unable to sort used books, a potentially significant source of funding for New Haven's local charities. Even more than additional resources, Smith hopes that Yale's recycling efforts might encourage students and businesses to think twice about the culture of disposability. Smith recalls one year in which Spring Salvage collected several hundred unused Commerce Bank plastic water bottles, the result of a campus promotion the bank ran during the school year. Although college students might never be convinced that buying (and keeping) a durable bookshelf is superior to using (and discarding) a cheap plywood alternative, Smith hopes to increase awareness that when it comes to "stuff," reduce and reuse go hand-in-hand.

In the meantime, Yale Recycling is on hand to help with the reuse portion of the equation. May's office has received a groundswell of support. He notes with pride that recycling has evolved from its "hippy dippy" past to become an integral feature of the Yale community, and today, he happily observes, recycling "is something that Yalies do."



Sneakers are recycled through Nike's Reuse-a-Shoe program.

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.

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A view of Kroon Hall from the south, near Sachem Street.

