

ETH Zurich

Internal Management of the ETH Foundation endowment

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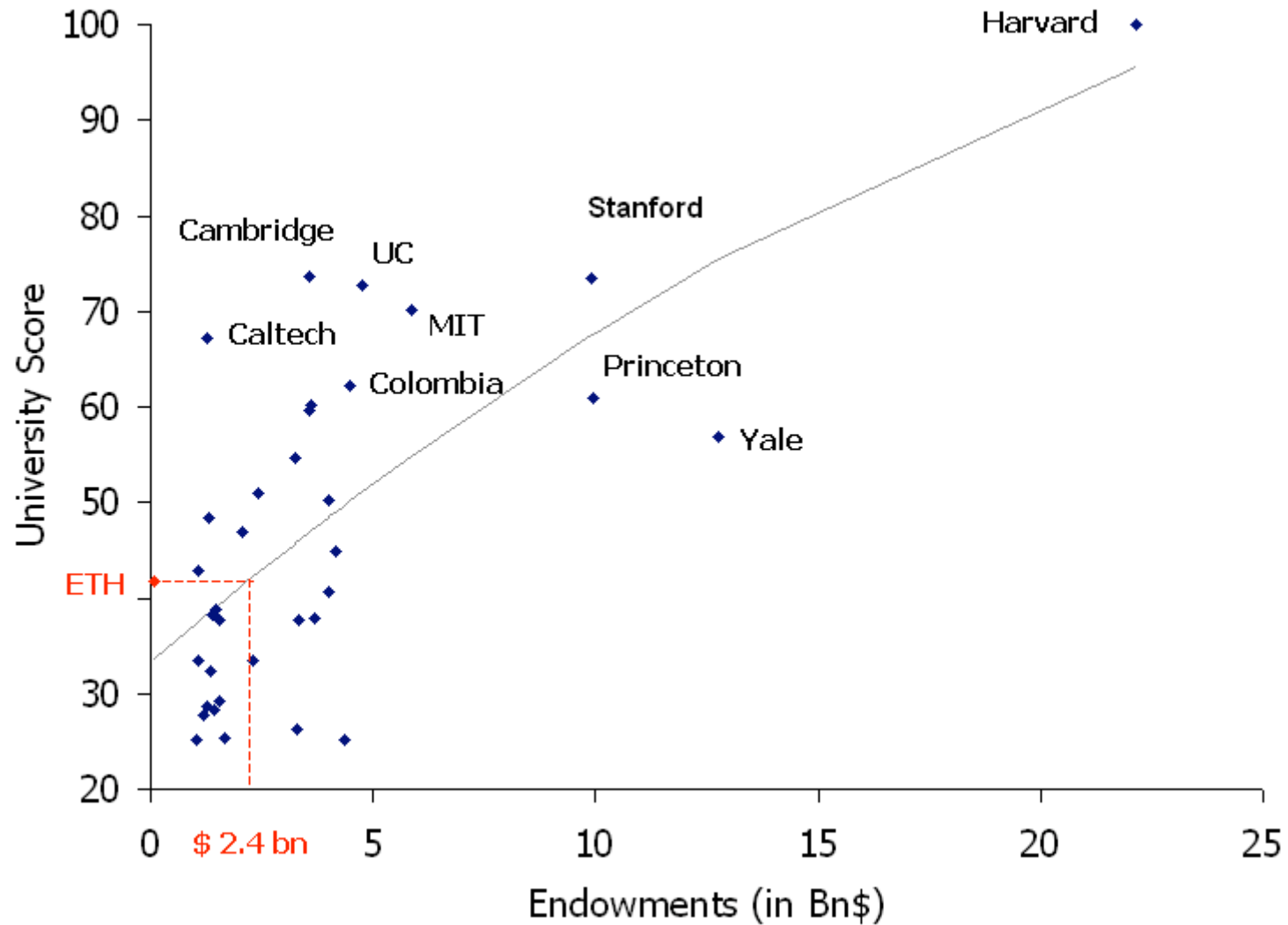
- A Strategic Issue
- The Benefits of an Internal Management Company
- Operational Issues

A Strategic Issue

Over the last 20 years in the US and the last 3 years in the UK, endowments have become a **strategic issue** for major universities.

Substantial fund raising programs and internal asset management capacities have been developed to **reduce universities' sensitivity to public funding** and to significantly **increase operating budgets**.

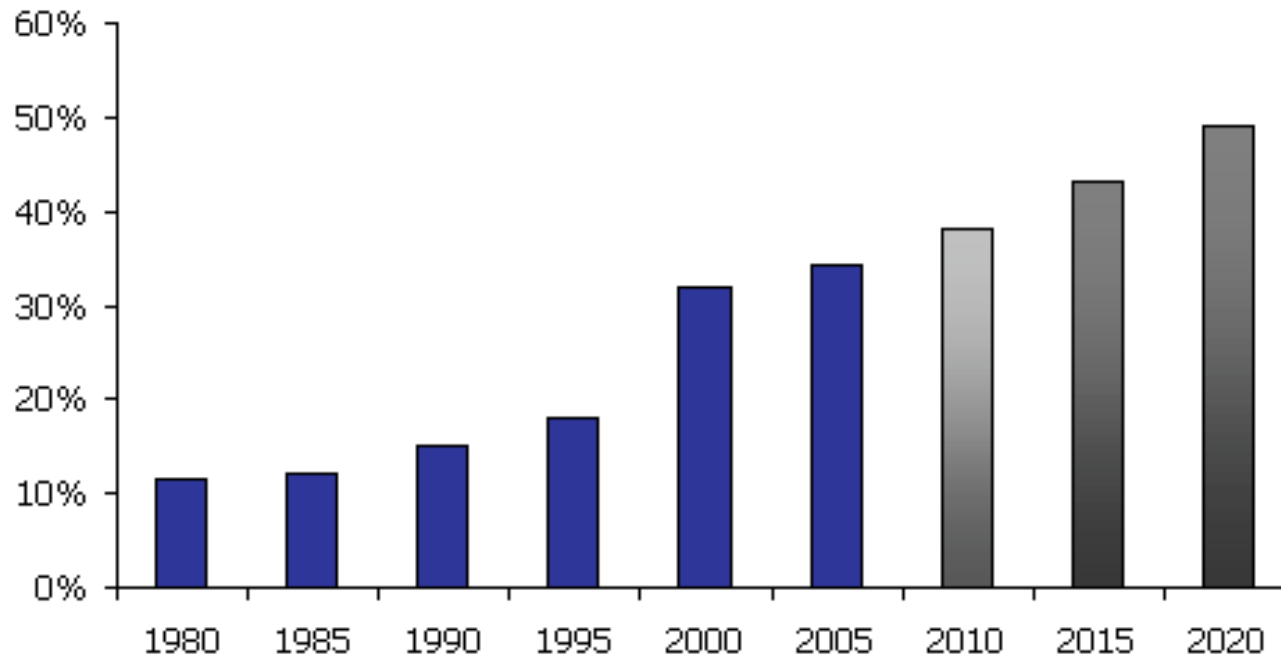
University Score Correlated to Endowment



Source: - university score from the Institute of Higher Education, Shanghai Jiao Tong University
- endowments from Wikipedia: Colleges and Universities with endowments greater than \$1 billion in 2004

The Example of Yale

% of Yale's Operating Budget Funded by Endowments' Return
Real and Projected



Source: Insight Research / www.yale.edu/

Yale's operating budget increases by 50% every 5 years since 1950
(equivalent to 4% real annual growth rate)

The Example of Harvard

Real Endowment growth

Thirty-year trend analysis (in %)

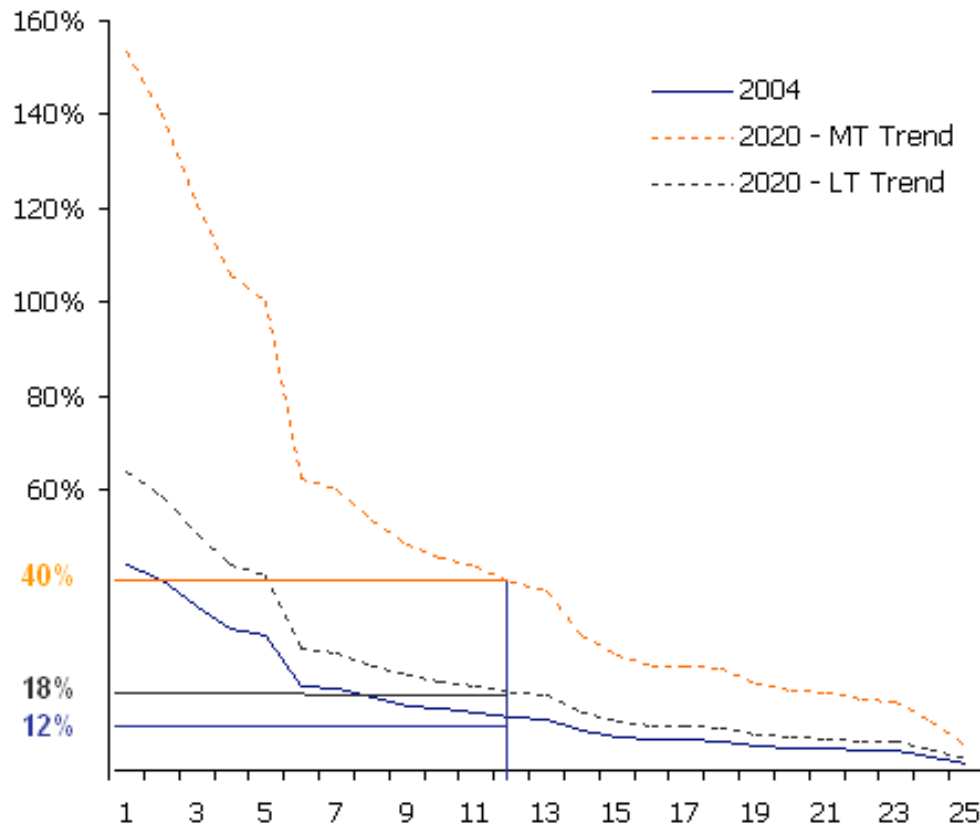
	1974-84	1985-95	1996-05	1974-05
Total general investment return	10,4%	12,7%	14,8%	13,4%
Spending	(5,1%)	(4,1%)	(4,2%)	(4,5%)
Total return reinvested	5,3%	8,6%	10,6%	8,9%
Capital additions	3,3%	1,5%	2,0%	2,2%
Total growth in endowment	8,6%	10,1%	12,6%	11,1%
Inflation rate	(7,8%)	(3,5%)	(2,4%)	(4,5%)
Real Endowment Growth	0,8%	6,6%	10,2%	6,6%

Source: Harvard Management Company. 2005 Annual Report

- **80%** of real endowment growth rate comes from **asset management**
- **20%** comes from **new donation campaigns**

The 25 US Peer Group

Percentage of the operating budget funded by endowments



MT Trend: top 25 US Universities 1994-2004 trend

LT Trend: 30 year Harvard Trend with 4% real expected operating budget increase per annum

Outside the USA

- **Canadian** universities' endowments expending
 - University of Toronto: \$ 1.4 bn in 2005
 - top 5 above \$ 0.5 bn in 2005

- **UK universities** lead the way in Europe ...
 - Cambridge's endowments increased from \$ 0.5 bn to \$ 5.8 bn in 3 years
 - Oxford's endowments increased from \$ 0.5 bn to \$ 5 bn in 3 years
 - total UK Colleges and Universities' endowments : \$ 25 bn in 2003

... despite

 - Charitable giving representing 0.6% of GDP in the UK compared with 2% in the US
 - Alumni giving rates at 13% in 2005 compared with 45% in top US Universities

- **An open debate** within continental Europe universities
 - Largest endowment fund: \$ 0.5 bn - Central European University in Budapest

A Strategic Issue: **Conclusion**

Within less than 20 years, the average self-financing capacity of the top 30 world-leading universities will most likely reach ETH Zurich's current operating budget in real terms.

ETH Zurich's competitive advantage in terms of Research and Education's funding capacity **could be challenged**.

The Benefits of an **Internal Asset Management Company**

Strategic projects require internal control and proprietary decision making processes.

An internal asset management company falls within ETH Zurich's strategic framework to promote « **funding diversification, self-learning, value transfer,** and **communication** ».

Investment Strategy: risk control + value

- **Investment Philosophy (Ford Foundation)**

“A general institutional endowment grant is designed to be held in perpetuity in such a way that the purchasing power of the funds is preserved or expanded over time.”

- **Equity Value Investing**

- exploits the zero-redemption risk for long-term value investing
- business understanding
- low price-to-book ratios
- attractive long term yield and not short term capital appreciation
- avoid speculative manias and panics

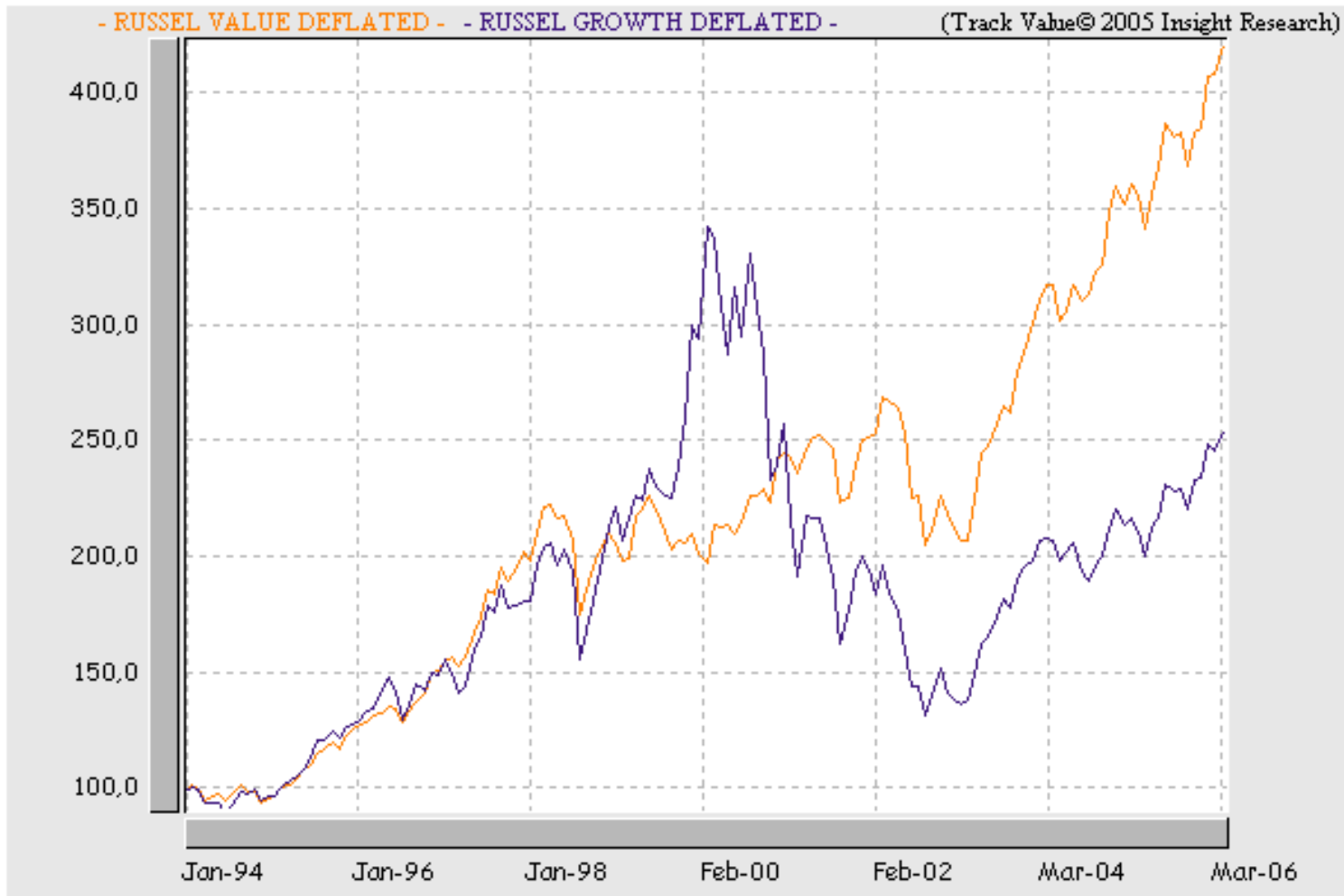
- **Large diversification** across all asset classes

- Total Return Strategies
- Bonds
- Real Assets

- **Proprietary risk management**

Equity Value Investing

Value vs. Growth



Source: Insight Research / Russel Indexes - Portfolio composition: 1/3 Large Cap 1/3 Mid-Cap 1/3 Small Cap

Long Term Prospective: Annual Returns

Owner or lender ?

- **Real US large Cap equity returns since 1802: 7%**
- Real US long Bond returns since 1802: 3.4%

Value or Growth ?

Real US Equity return over the last 75 years:

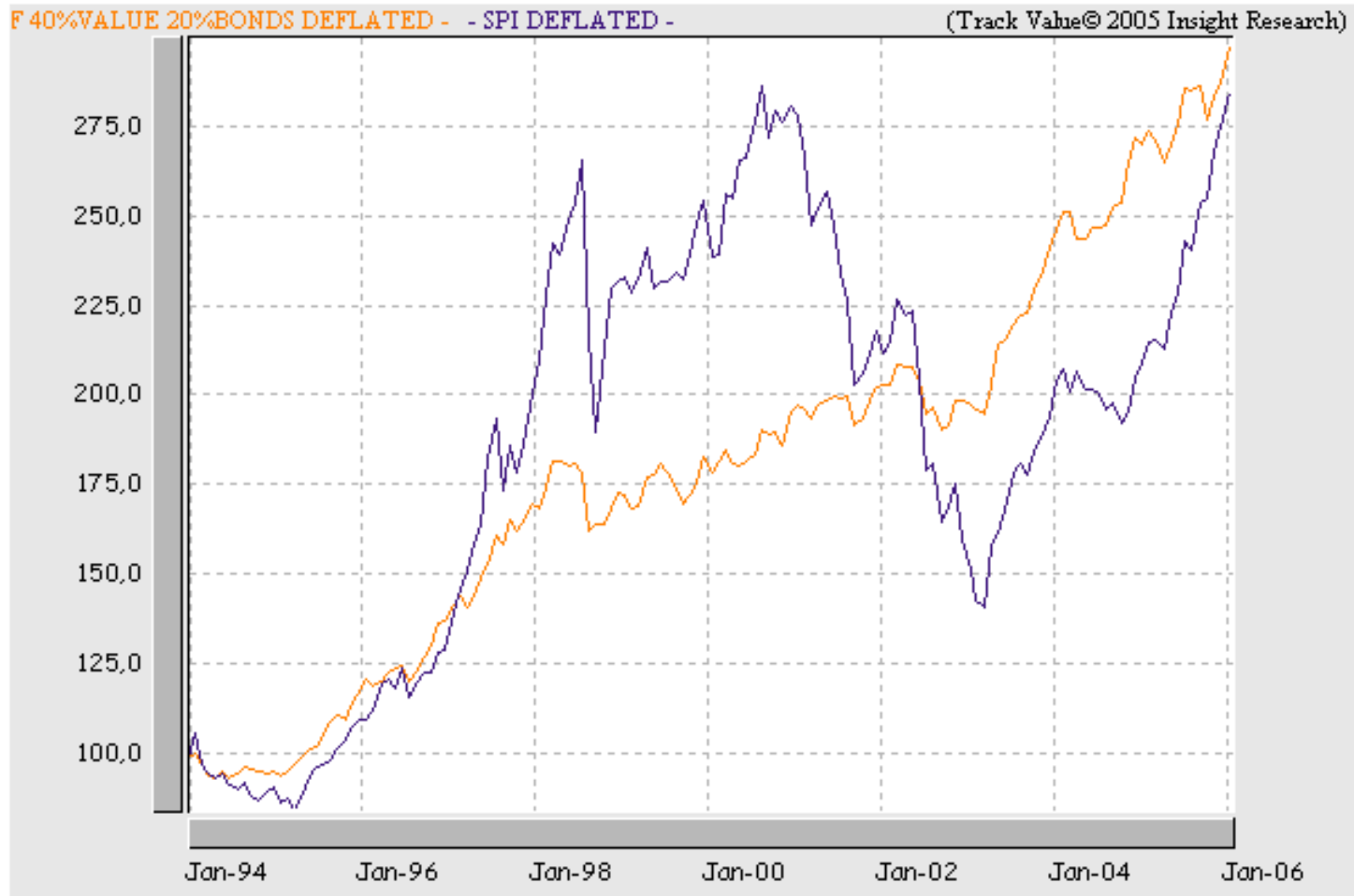
- Large cap growth 6,3%
- Small cap growth 6,7%
- **Large cap value 8,9%**
- **Small cap value 11,9%**

Total Return Strategies

- **Real return since 1991*: 11,7%**

Large Diversification Across all Asset Classes

Balanced Portfolio vs. Total Return Swiss Equity Market



Balanced Portfolio: 40% value equities, 40% absolute return, 20% Swiss bonds

Portfolio Diversification: Examples

Top 25 US Colleges and Universities' endowment portfolio allocation in 2004

Univeristy	Endowments (in \$bn)	Operating Budget (in \$bn)	2004 Return (%)	Investments' Diversification							
				Cash	Stocks	Private Equity	Hedge Funds	Venture Cap.	Bonds	Real estate	Other
Brown U. (Providence, R.I.)	1,7	0,5	16,1	3,3%	39,8%	2,9%	31,0%	1,1%	13,6%	4,1%	4,2%
Columbia U. (New York)	4,5	2,2	16,9	3,0%	25,0%	13,0%	35,0%	6,0%	13,0%	3,0%	2,0%
Cornell U. (Ithaca, N.Y.)	3,2	2,0	16,1	0,1%	43,2%	2,9%	13,8%	2,9%	23,4%	8,5%	5,2%
Dartmouth College (Hanover, N.H.)	2,5	0,6	18,6	0,0%	40,7%	0,0%	20,6%	13,4%	15,4%	9,9%	0,0%
Duke U. (Durham, N.C.)	3,3	2,7	18,0	3,0%	85,0%	0,0%	0,0%	0,0%	15,0%	0,0%	0,0%
Emory U. (Atlanta)	4,5	0,6									
Harvard U. (Cambridge, Mass.)	22,6	2,6	21,1	2,3%	39,6%	7,7%	11,4%	-	21,6%	5,6%	11,8%
Massachusetts Institute of Technology (Cambridge)	5,9	1,8									
Northwestern U. (Evanston, Ill.)	3,7	1,1									
Princeton U. (N.J.)	9,9	0,9	16,8	3,1%	33,7%	6,7%	28,3%	4,0%	11,1%	8,5%	4,5%
Rice U. (Houston)	3,3	0,3	17,2	3,0%	53,0%	1,0%	19,0%	5,0%	10,0%	3,0%	6,0%
Stanford U. (Calif.)	10,0	2,6									
Texas A&M U. System and Foundations (College Station)	4,4	2,5									
The Johns Hopkins U. (Baltimore)	2,1	2,7	15,3	2,5%	54,0%	5,2%	5,7%	0,0%	14,6%	1,5%	16,5%
U. of California System (Oakland)	6,6	18,0	14,7	0,0%	52,0%	10,0%	5,0%	0,0%	28,0%	5,0%	0,0%
U. of Chicago	3,6	1,3	16,6	3,0%	43,0%	17,0%	17,0%	0,0%	13,0%	7,0%	0,0%
U. of Michigan (Ann Arbor)	4,2	4,0	20,7	0,5%	41,2%	6,4%	20,5%	3,4%	15,6%	7,0%	5,4%
U. of Notre Dame (South Bend, Ind.)	3,1	0,7									
U. of Pennsylvania (Philadelphia)	4,0	3,7	16,8	0,0%	53,4%	3,3%	17,4%	0,0%	22,3%	3,6%	0,0%
U. of Southern California (Los Angeles)	2,4	1,5	16,9	0,0%	50,2%	4,3%	14,5%	5,0%	17,3%	7,0%	1,7%
U. of Texas System (Austin)	10,3	7,8									
U. of Virginia (Charlottesville)	2,8	1,7	12,7	7,8%	15,3%	10,0%	56,4%	2,8%	5,0%	2,7%	0,0%
Vanderbilt U. (Nashville)	2,3	1,9	16,9	1,1%	48,1%	4,7%	19,0%	4,8%	12,1%	6,8%	3,4%
Washington U. in St. Louis	4,1	1,4	18,2	0,7%	63,3%	3,0%	13,2%	1,9%	17,1%	0,5%	0,3%
Yale U. (New Haven, Conn.)	12,7	1,7	19,4	3,5%	29,6%	14,8%	26,1%	0,0%	7,4%	0,0%	18,8%
Average			17,2	2,1%	45,0%	6,3%	19,7%	2,8%	15,3%	4,7%	4,4%

Fund raising Targets: Examples

- Top US universities
 - Raise \$ 1 bn to \$ 3 bn on large donation campaigns
 - Raise up to \$ 0.5 bn annually on a regular basis
- Oxford and Cambridge
 - Managed to raise more than \$ 1 bn every year since 2003
- INSEAD
 - Raised \$ 117 M last year
- ETH Zurich
 - Central scenario: **250 M CHF per year ?**

ETH Zurich Endowment: Central Scenario

Annual Fundraising: 250 M CHF
 Annual Real Return 9,1%

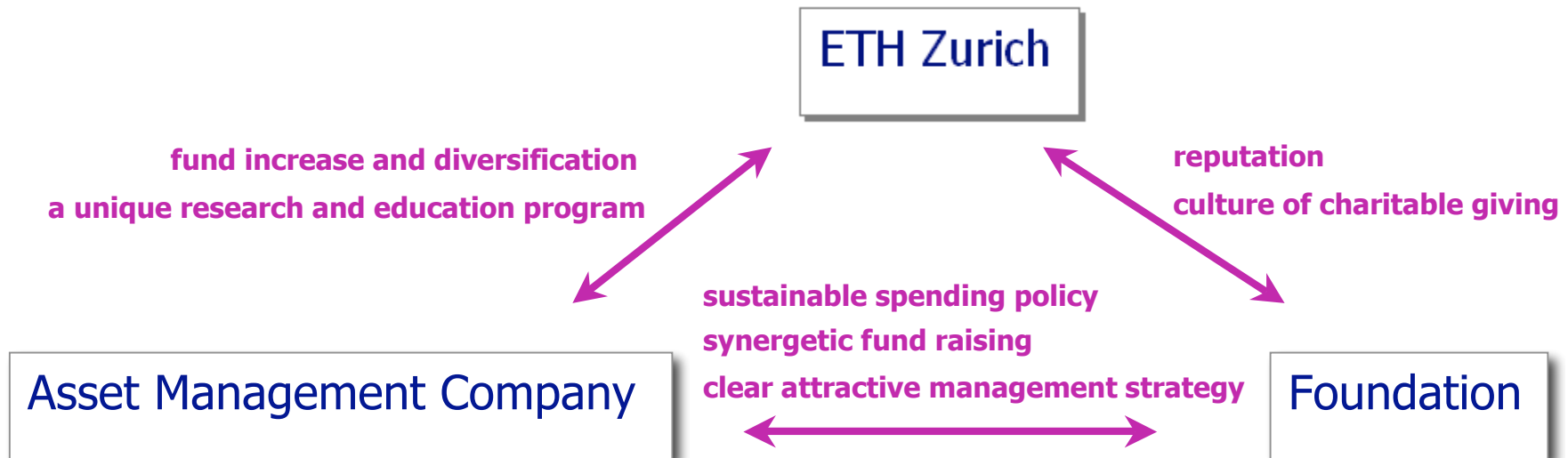
	2007	2010	2015	2020	2030	2040	2050
ETH Spending	1%	4%	4%	4%	4%	4%	4%
Foundation Headcount	10	17	20	20	20	20	20
EMC Headcount	14	19	20	20	20	20	20
Capital Raising Budget (M CHF)	1,7	2,9	3,4	3,4	3,4	3,4	3,4
Capital Management Budget (M CHF)	3,3	4,5	4,7	4,7	4,7	4,7	4,7
Operational Costs	1,4%	0,7%	0,3%	0,2%	0,1%	0,1%	0,1%
Performance Fees	0,7%	0,4%	0,5%	0,5%	0,5%	0,5%	0,5%
Net Real Return Reinvested	6,0%	4,0%	4,3%	4,4%	4,5%	4,5%	4,5%
Total Endowment (M CHF)	356	1 191	2 823	4 857	10 565	19 466	33 352
ETH Operating Budget (MCHF)	1 224	1 299	1 434	1 583	1 930	2 353	2 868
% Funded by Endowment	0,1%	2,8%	6,9%	11,1%	20,5%	31,3%	44,2%

ETH Zurich Endowment: Other Scenarios

Annual Fundraising (CHF in million)	250	250	250	500	500	500
Annual Real Return (%)	5%	9,1%	13%	5%	9,1%	13%
2020						
Total Endowment (CHF in million)	3 757	4 857	6 270	7 480	9 637	12 393
Operating Budget Funded by Endowment (%)	9%	11%	14%	17%	22%	28%
2050						
Total Endowment (CHF in million)	13 216	33 352	91 332	26 650	67 201	183 515
Operating Budget Funded by Endowment (%)	18%	44%	118%	36%	89%	236%

A Virtuous Circle

- 2020 international top universities' peer group
- funding diversification



- no conflict of interest and total transparency
- proprietary investment policy and risk management
- access to best international funds
- « value » investing
- large diversification across asset classes

- fund raising campaigns
- communication with alumni
- management of restricted donations

Research and Education Program

- A unique “in-house” research and education program combining **academic** and **industrial cultures**
 - A growing flow of positions opened to ETH PostDocs, PhD’s and Masters Degrees
 - Operating under professional constraints promoting accountability and value creation
 - Networking with internal and external managers, investment banks’ economists, central bankers, and industry specialists
- Focused on specific **applied research areas**
 - Added value strategies/expected returns
 - Risk Measure and Control
 - Bubbles, crashes and extreme risks of unsustainable regimes
- **Supported by ETH** multi-field research power
 - D-MTEC, D-Math, D-Phys, D-MAVT, D-Informatik

Internal Asset Management Company: **Conclusion**

The creation of an internal asset management company is a remarkable way:

- to ensure **diversification**
- to support **growth of funding**
- to serve as a catalyst for educational and research **innovation**

Operational Issues: **What Needs to be Done ?**

- Six months in-depth study of all operational aspects
- Recruitment of a dedicated team
- Validation with ETH Zurich board

Conclusion: a Natural Evolution

First stage: creation of the foundation

Second stage: ETH Zurich President defines strategic orientations promoting funding diversification and educational innovations

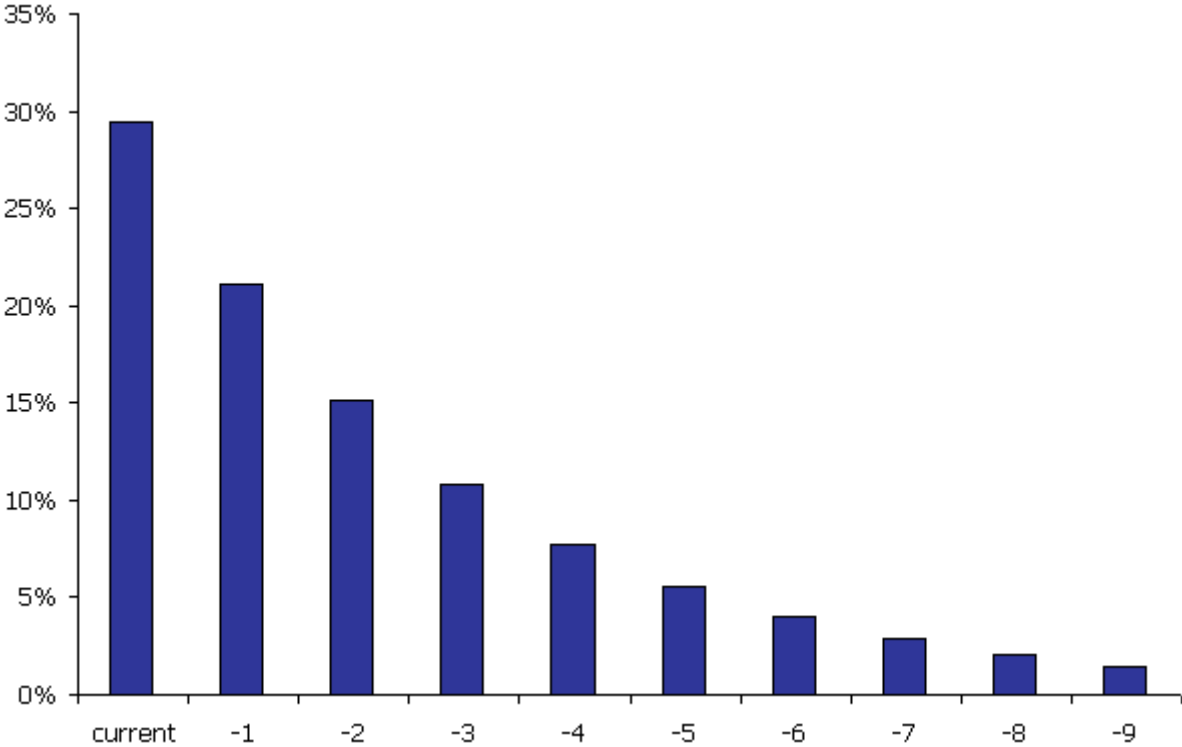
Third stage: Development of internal management of the foundation endowment

Appendix

- Spending Policy
- Research Focus
- David Swensen
- Recommendations from the Ford Foundation
- Yale's public funding
- US endowment distribution: the Zipf law

Spending Policy: Insulates Budget from Market Fluctuations

Influence of past Endowment Levels in Determining Current Spending



Research Focus

- **Macro and micro economic analyses**
 1. Information and analyses from top banking institutions
 2. Critical analysis of information vs “noise”
 3. Due diligence

- **Added-value strategies / expected returns**
 1. Value investment + mitigation of risks
 2. Reverse engineering of hedge-funds and derivative strategies
 3. Combining portfolio and investment strategies

- **Risk measure and control**
 1. Scenario and crises analyses
 2. Robust statistical methods to address model error

- **Bubbles, crashes and extreme risks of unsustainable regimes**
 1. Crash alarm index
 2. Robust multi-variate scanning of world assets
 3. NL models with positive and negative feedbacks

with D-MTEC, D-Math, D-Phys, D-MAVT, D-Informatik

David Swensen – Yale Endowment CIO from 1985 to 2005

“ By selecting investment managers with an **entrepreneurial orientation**, fiduciaries improve the chances for investment success.

Large, multi-product, process driven financial services entities face the daunting hurdle of overcoming bureaucratic obstacles to creative decision making.

Small independent firms with excellent people focused on a well-defined market segment provide the highest likelihood of identifying the intelligent contrarian path necessary to achieving excellent investment results”

Recommendations from The Ford Foundation

- **Investment Philosophy**

“A general institutional endowment grant is designed to be held in perpetuity in such a way that the purchasing power of the funds is preserved or expanded over time.”

- **Investment Policy**

“In all cases, a grantee's board is strongly advised to prepare written investment policies and guidelines.”

- **Spending Policy**

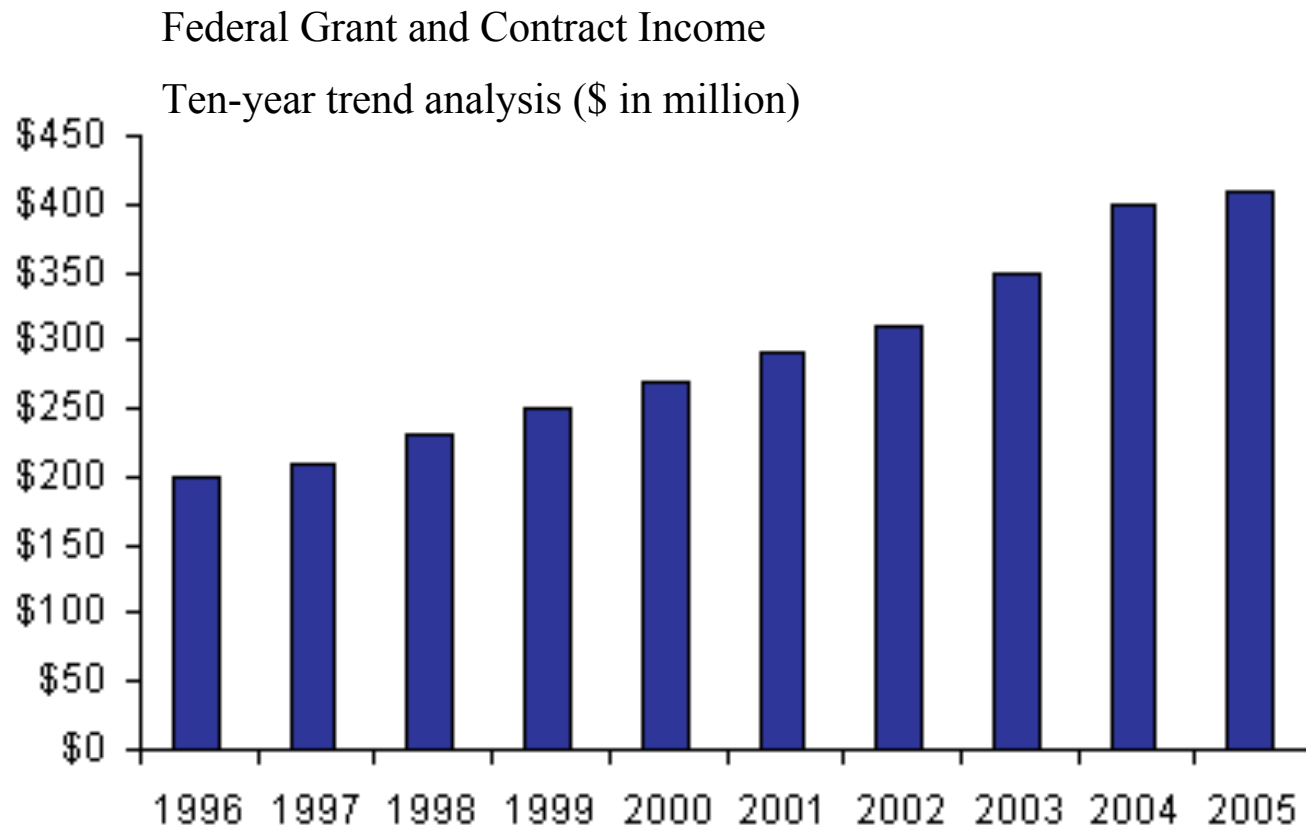
“As a general rule, endowment grants impose terms and conditions limiting the recipient's access to a portion of the income generated by principal.”

- **Implementation**

“Even a moderately-sized endowment may serve as a catalyst for organizational and financial change, programmatic innovation, and enhanced Board leadership.”

Barry D. Geberman, SVP Ford Foundation,
« *A Primer for Endowment Grantmakers* » 2001

Yale's Public Funding

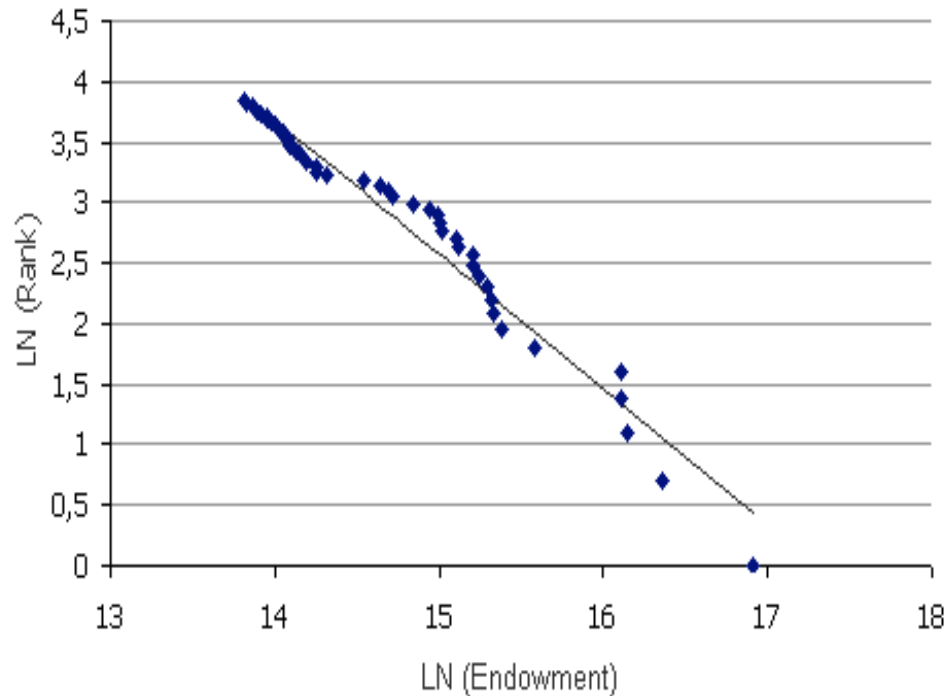


Source: www.yale.edu/

- **Federal financing** keeps increasing by **5% in real terms per annum**,
- despite substantial increase in private funding.

US Endowments' Distribution in 2004

Zipf Distribution of U.S. Endowments



$$\ln(\text{Rank}) = \alpha \ln(\text{Endowment}) + \beta$$

$\alpha \approx -1$

Source: Wikipedia, US Colleges and Universities with endowments greater than \$1 billion in 2004

Zipf Distribution of U.S. Firm Sizes

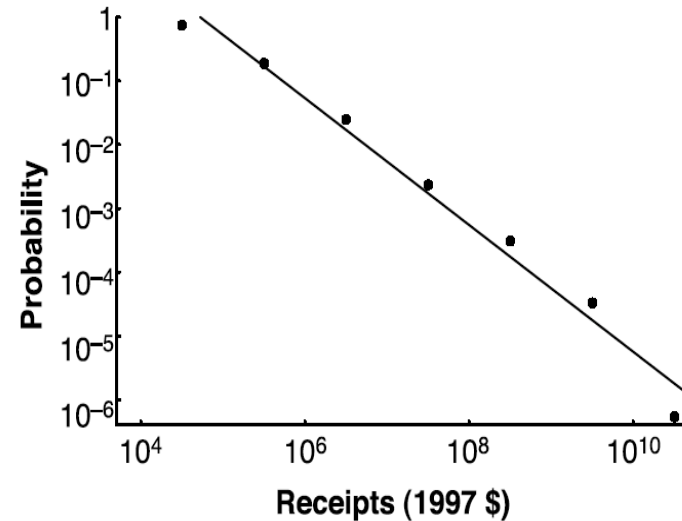


Fig. 2. Tail cumulative distribution function of U.S. firm sizes, by receipts in dollars. Data are for 1997 from the U.S. Census Bureau, tabulated in bins whose width increases in powers of 10. The solid line is the OLS regression line through the data and has slope of 0.994 (SE = 0.064; adjusted $R^2 = 0.976$).

Source: R.T. Axtell, Science 293, 1818 (2001)

On the author of this study

D. Sornette (Prof. of Entrepreneurial Risks, D-MTEC, ETH Zurich)

- academic experience in risk theory
- 24 years of experience in working with industry (EADS, banks, insurance, hedge-funds)
- co-founder of several spin-off companies in France and the USA
- passion for academic-industrial links

