The Foote School Endowment

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Foote School, a private secondary school in New Haven's East Rock neighborhood serves children from kindergarten through ninth grade. It is one of a number of fine private schools in the city of New Haven – indeed its two closest competitors, Hamden Hall Country Day School and Saint-Thomas School are within a short walking distance from Foote. Throughout most of its eighty-five year history, Foote has operated without an endowment, relying on tuition fees for operating expenses and occasional gifts and fundraising drives to build or modernize its buildings. In terms of physical facilities, Foote lags slightly behind Hamden Hall, which boasts a full theater and gymnasium, and slightly ahead of Saint Thomas which lacks a large library. New Haven itself is a modest-sized New England city that lost much of its industrial base with the shrinking of the regional economy through the 1990's. A college town, it has come to rely heavily on the fortunes of its largest employer, Yale University as an economic driver. The public school system in New Haven, while relatively high quality for an urban school system, never-theless lags far behind New Haven's private institutions. Although Foote's tuition is prohibitively expensive for most neighborhood families, the school has made a clear commitment to provide financial aid to help needy families and promote a diverse student body.

Background

The construction of the Foote School library in the early 1980's led indirectly to the creation of the Foote Endowment. Burton Malkiel, finance professor, and famous author of <u>A Random Walk Down Wall</u> <u>Street</u> and Dean of the Yale School of Organization and Management also served on Foote's board when they began a fund drive for library construction. The drive netted more money than was needed for construction, and, due to a substantial private gift to cover much of the library's cost the board was able to follow Malkiel's recommendation to invest the residual in zero coupon U.S. Government bonds that were yielding 16% per year at the time. The bonds lay untouched, accruing interest until they began to mature in the past few years. The remaining zeros will mature in 2003 and 2004.

Another building campaign, this time for the construction of a theater, arts facility, gymnasium upgrade was initiated in 2000. At that time, the Foote finance committee took the opportunity to review the policies for the use and investment of the endowment, choosing an investment mix of stocks and bonds, keeping a considerable amount of the endowment in cash-related instruments for construction payment. They used a few different managers for their investment accounts, among them, the Commonfund, a not-for-profit fund-of-funds manager specializing in educational endowments.

In 2000, Dean Takahashi, a Foote parent and Senior Director of Investments at the Yale Investments Office, joined the board and was asked to chair the Foote Investment Committee. A 1983 graduate of the Yale School of Management, Dean has been a key part of the success of the Yale University Endowment over the past fifteen years. Together, David Swensen (Yale's Chief Investment Officer) and Dean have taken Yale in a pioneering direction – away from traditional asset classes such as publicly traded stocks and bonds towards a more diversified range of investments in less efficient markets. Yale's allocation to U.S. stocks and bonds gradually decreased from approximately 80% of the University's endowment to roughly 25%. The remainder of the portfolio was invested in private equities such as venture capital and leveraged buyouts; absolute return strategies such as merger arbitrage, distressed security investing and long/short stock picking; foreign equities; real estate and natural resources. The Yale endowment performed extremely well over the years with returns ranked in the top percentile of large institutional

funds. Much of the strong performance was due to the University's approach of hiring small entrepreneurial firms to actively manage assets. Over the past five, ten and fifteen years, each asset class in the endowment portfolio outperformed its benchmark. The Yale Investments Office prided itself on picking top managers who could articulate their value proposition, motivating them with savvy contracting and staying in close touch to determine whether they continued to deliver what they promised.

Dean hoped to lay the foundation for a sound investment program for the Foote School endowment management process. Despite the fact that at Yale he helps to manage a fund more than two thousand times larger than the \$4.5 million Foote Endowment, he thought many of the same principles and disciplines should apply. Foote needed explicit goals for the endowment, a clear spending rule, a reasonable asset allocation, comprehensible risk assessment and a strategy for putting the goals into practice. His first goals included reviewing the role of the endowment at Foote School, penning a mission statement, reviewing the spending policy, defining a rebalancing rule, establishing an asset allocation and selecting the investment managers the school uses. The School's endowment totaled about \$4.5 million at year end 2000. About \$1 million of those funds might be needed for the building project. Although more than 85% of the construction costs were received or pledged in a recent capital campaign, some of the donations will likely not be received in time to cover all the costs.

Current Investment Commitee members include three management school professors: Stanley Garstka, Will Goetzmann, Roger Ibbotson; and two members of the Yale Investments Office, David Swensen and Dean Takahashi. Also participating in Investment Committee meetings are two members of the Foote Board and Finance Committee, businesswomen Mary Jane Burt and Roxanne Coady, both of whom have considerable experience with management of for-profit enterprises; Foote Head of School, Jean Lamont and Jay Cox, a senior member of the school's staff who is responsible for the execution of any new strategy.

Current Endowment Allocation

As of December 2000, the endowment was approximately 48% in U.S. publicly traded equities, 10% in foreign equities, 26% in bonds (including 6% in zero coupon bonds), and 16% in money market funds. One of these, the Commonfund Short Term Fund was yielding about 7% per annum, considerably above prevailing money market rates. The exhibits show the current allocation.

February 14, 2001 Meeting

After a series of meetings through the Fall of 2000, in which the general goals of the committee were established, the committee meeting on Valentines Day, 2001 seemed ambitious, despite Dean's preparation. The materials for the meeting, including the agenda are attached as exhibits. The discussion at the meeting focused on three key points: the logic of the asset allocation, the proposal for the spending rule, and the suggestion for choice of external money managers to implement the chosen strategy.

Asset Allocation

To analyze the asset allocation, Dean took each of the current and proposed asset classes used by Foote and plotted them in risk and return space, generating a forward-looking efficient frontier which relies upon the geometric means, standard deviations and correlations used by the Yale Endowment for its own risk-return analysis. Dean diagrammed the risk return profile of the current asset allocation, as well as the profile of the allocation he was recommending. This was a choice that included 20% in Absolute Return investments and 15% in real assets – two classes with which Yale had good experience. In addition, the equity allocation was split between domestic and foreign stocks to reflect the benefits of

global diversification. Dean explicitly proposed avoiding private equity given Foote's size and the current over-heated market environment. The diagram includes the location of the current Foote school investment allocation, the location of Yale (which has access to a broader set of asset classes), and a portfolio invested in the TIFF multi-asset fund, which will be described below, and finally the current Foote School policy allocation. Finally he added two potential allocations on the efficient frontier for two risk levels 9.5% and 11.5%.

Spending Policy

The recommended spending policy is a 30/70 mix between 4.5% of the endowment value at the start of the previous year and the preceding year's spending. This insures that the income from the endowment is smooth and largely predictable for operation purposes, and yet also reflects recent investment performance. In order to examine the effect of various spending rules on the endowment, Dean used a simulation program developed for considering the long-term effects of different "what if" scenarios. As inputs, Dean used the same expected returns, standard deviations and correlations he applied in the efficient frontier framework. Although Yale's experience with various asset classes has been unusually good, Dean used relatively conservative estimates for the expected return for absolute return (7%) and private equity (13%).

Execution

Given the small size of the Foote endowment and the school's limited resources, if the committee decided to choose an allocation that included absolute return and private equity, an outside management company would become necessary. While allocation to domestic and international stocks, bonds, cash and real estate could be accomplished with relatively low fees via mutual funds, Foote would need to look to a company like TIFF or Commonfund to access extended asset classes. While Foote has an historical association with Commonfund – the most widely used "fund-of-funds" employed by academic endowments – Dean and Dave both felt strongly that TIFF, a new fund-of-funds that serves foundations, is better at the selection and oversight of private equity and hedge fund managers. The issue of this oversight is particularly important due to the potential for operational risk. There are other trade-offs between the two. Commonfund offers index fund products with low fees, while TIFF's equity products are all actively managed with fees commensurate with other actively managed products. TIFF is a smaller organization with less effort devoted to client contact and marketing of their services. Both are non-profits themselves. Their websites contain considerable information about the organizations: www.tiff.org and www.commonfund.org, which allow comparison of products, services, philosophies, size, historical performance and fees.

Issues to Consider

There seem to be advantages to moving to a broader asset allocation following Yale's successful lead. Is this possible with the small size of the Foote Endowment? How would you vote on the resolutions brought before the committee? What questions would you have about the materials presented? How would you decide on the "right" spending rule? How would you go about picking a manager?

Quantitative Analysis

Using the Ibbotson Analyzer and Optimizer through SOM's Citrix system, develop two asset allocations for Foote School, one using easily managed, indexable asset classes and the other using all the asset classes proposed by Dean Takahashi. You may replicate his efficient frontier if you wish, however a transformation to arithmetic expected returns is required. This can be done approximately by taking

 $\exp(\text{geo.mean} + .5 \text{std}^2)$ -1. An even closer approximation may be obtained as $(1+\text{ExpectedReturn}) \times e^{[-{StdDev}^2]/{2x(1+\text{Exp.Ret.})^2]} - 1$ Make long-term forecasts of your proposed recommendations. Using this analysis, write a clear, reasoned recommendation for Foote School's investment committee.

Foote Investment Committee

Agenda for February 14, 2001 Foote Library, 8:20 a.m. to 9:30 a.m.

- 1. Notes from December 11, 2000 meeting
- 2. Asset values and allocations as of January 31, 2001
- 3. Investment goals and objectives for long-term funds
 - a. Endowment funds
 - b. Designated Endowment funds
 - c. Expendable long-term funds
- 4. Investment approach for Endowment and Designated Endowment
 - a. Size and liquidity limitations
 - b. Management considerations
- 5. Multiple funds versus single diversified multi-asset fund
 - a. The Investment Fund for Foundations
 - b. The Commonfund
- 6. Administrative and investment costs
- 7. Recommendation for revised asset allocation and investment policy
 - a. Current policy
 - b. New asset classes
 - Absolute return
 - Real assets
 - No private equity
 - c. Possible policy allocations
 - d. Quantitative assessment of allocations
- 8. Recommendation for revised spending policy
 - a. Current policy
 - b. Policy objectives
 - c. Discipline
 - d. Sustainability
 - e. Stability
 - f. Timeliness
 - g. Spending rate
 - h. Smoothing or averaging rule
 - i. Timing
- 9. Administrative logistics
 - a. Other issues, next meeting

Foote Investment Committee December 11, 2000 Meeting Report

In attendance: Stan Gartska, Will Goetzmann, Roger Ibbotson, David Swensen, Dean Takahashi

Mary Jane Burt, Roxanne Coady, Jay Cox, Jean Lamont.

Time: 8:20 to 9:30 a.m.

The Committee reviewed the Endowment fund balances as of December 9, 2000. Assets totaled \$4,511,078. The Committee recommended that the cash balances in the Vanguard Prime Money Market Fund be invested at the end of the quarter according to the long-term asset allocation targets, rebalancing the portfolio to reduce underweight positions in the bond portfolio and to a lesser extent in U.S. equities.

The Committee reviewed the consolidation and reorganization of money market accounts of current funds.

The Committee followed up questions regarding the CommonFund Short Term Fund with particular focus on understanding risks in creditworthiness and interest rate exposure which might accompany the apparent high yield. In addition the Committee examined potential pricing problems. One suspect credit listed as one of the fund's larger investments was in fact creditenhanced and a better credit risk than the troubled parent company. Although the fund holds some investments with longer term interest rate risk, its reserve policy and current reserve levels offer reasonable protection against interest rate and credit risks. Lastly, while the fund does have potential pricing problems that might be gamed by participants, the large stable capital balance indicates that participants are not gaming the pricing system. The Committee recommends keeping short-term funds with the CommonFund for now, pending future review in conjunction with other investment assets. Prior to the discussion, Will Goetzmann informed the Committee that he is currently on the board of the CommonFund.

Cash from campaign gifts in hand and those expected to be received this year will not be sufficient to cover the cost payments that will be due at the conclusion of the construction this summer. After assessing the excess balances in current funds and funds functioning as endowment, the Committee recommends drawing funds first from excess reserves in current funds and then from funds functioning as endowment to cover the cash shortfall. In order to maintain financial discipline, borrowing from current and endowment funds should be repaid by the operating budget with interest over time.

Tax-exempt financing is impractical for Foote since less than \$1 million of construction costs qualify for tax-exempt debt. Most of the gifts received from the capital campaign were designated specifically for construction and must be spent before tax-exempt debt can be assigned toward construction costs. The substantial upfront placement and other fixed costs of tax-exempt debt, more than offset the low, tax-advantaged interest costs for offerings of less than several million dollars. Taxable debt is relatively expensive compared to the opportunity costs of expendable reserves in Foote's current and endowment funds. Taxable debt should utilized

only as a last resort. The Finance Committee will develop more precise cash flow projections to help determine cash needs and available reserves from current and endowment funds.

The Committee discussed the fact that the endowment investment pool included a small portion of true endowment and a majority of expendable, board-designated quasi-endowment. Only the principal of the true endowment is legally not expendable. The Committee recommends that the Board eventually develop a clear distinction between board designated funds which will be treated as long-term endowment and other long-term funds which might be expended on appropriate long projects or as emergency reserves. The Committee will develop recommendations for investment policies and guidelines for the Endowment pool and the other long-term reserve fund.

Next meeting early in 2001. The Committee will discuss possible changes to the asset allocation and investment policy and attempt to develop formal recommendations to revise the endowment spending policy.

DRAFT (February 14, 2001)

Proposed Statement of Goals and Investment Policy for Endowment

The goal of the Foote Endowment (and funds board designated as endowment) is to provide significant, stable and sustainable funding to support the school's annual operating budget and specific donor designated programs. Endowment funds will be invested with the objective of earning high, long-term returns after inflation without undue risk of permanently impairing the long-term purchasing power of assets or incurring volatile short-term declines in asset values or annual spending flows.

The portfolio will be invested with a strong equity bias with significant diversification across investments with fundamentally different risk characteristics. In general, assets will be invested in commingled funds that provide liquidity and diversification of security specific risk at reasonable cost. The portfolio will be invested with a long-term horizon without attempting to time market movements. Allocations to asset classes will be maintained in accordance with the long-term policy targets and ranges as specified below.

Policy Asset Allocations

Asset Class	Target	Range
Domestic Equities	25%	+/- 10%
Fixed Income	15%	+/- 10%
Foreign Equities	25%	+/- 10%
Absolute Return	20%	+/- 10%
Real Assets	15%	+/- 10%
Cash	0%	+ 10%
Total	100%	

DRAFT (February 14, 2001)

Proposed Spending Policy for Endowment

The goal of the Foote spending policy is to provide a sustainable, stable annual source of income from the Endowment to the operating budget. The spending policy helps provide financial discipline to the school by providing a clear, unequivocal amount of annual funding from the Endowment consistent with sustainable and equitable long-term operations.

Spending from Endowment (and funds designated as endowment by the board) shall be determined by a spending rule that smoothes the volatility of spending from year to year using a weighted-average formula which takes into account spending from the prior year and the current market value of the Endowment. Spending for a fiscal year shall be calculated by adding 70% of the prior year's spending amount to 30% of the Endowment market value at the beginning of the prior fiscal year times the policy spending rate of 4.5%.

Spending for fiscal year[t] = 70% X (spending for fiscal year [t-1]) + 30% X (4.5% X Endowment Market Value at beginning of fiscal year [t-1])

Adjustments will be made to incorporate the effects of new gifts, additions or fund decapitalizations. Spending from new gifts or additions to the Endowment in their first year shall be at the same rate as other Endowment funds adjusted pro-rata to reflect the partial year of inclusion in the Endowment.

		Asset Allocation							
	Asset Classes	Foote	TIFF	Port A	Port B	CA<500	Yale		
1	U.S. Equity	50.0%	25.0%	15.1%	12.9%	42.5%	15.0%		
2	U.S. Bonds	40.0%	15.0%	0.0%	1.2%	21.5%	10.0%		
3	Dev. Mkts	10.0%	20.0%	4.8%	3.9%	10.0%	5.0%		
4	Emerg. Mkts	0.0%	5.0%	6.3%	2.6%	2.9%	5.0%		
5	Abs. Return	0.0%	20.0%	43.1%	27.3%	7.5%	17.5%		
6	Private Equity	0.0%	0.0%	0.0%	0.0%	8.2%	22.5%		
7	Real Assets	0.0%	5.0%	27.9%	18.9%	3.7%	25.0%		
8	Cash	0.0%	0.0%	0.0%	0.0%	3.7%	0.0%		
9	TIPS	0.0%	10.0%	2.8%	33.2%	0.0%	0.0%		
10	Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		
	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%		
	Exp. Return	4.4%	5.4%	6.3%	5.4%	5.6%	7.2%		
	Std. Dev	13.6%	11.6%	11.5%	9.5%	12.9%	11.4%		
	Growth Rate	3.5%	4.8%	5.7%	4.9%	4.8%	6.6%		
	Sharpe Ratio	32.4%	46.9%	55.2%	56.4%	43.2%	63.1%		



Asset Class	Expected Return	Standard Deviation	Minimum allocation	Maximum allocation
U.S. Equity	6%	20%	0%	100%
U.S. Bonds	2%	10%	0%	100%
Dev. Mkts	6%	20%	0%	100%
Emerg. Mkts	8%	30%	0%	100%
Abs. Return	7%	15%	0%	100%
Private Equity	13%	25%	0%	0%
Real Assets	6%	15%	0%	100%
Cash	0%	5%	0%	100%
TIPs	4%	9%	0%	100%
Other	0%	0%	0%	0%

Correlation Matrix

Asset Class	U.S. Equity	U.S. Bonds	Dev. Mkts	Emerg. Mkts	Abs. Return	Private Equity	Real Assets	Cash	TIPs	Other
U.S. Equity	1.00	0.45	0.60	0.30	0.30	0.40	-	0.50	0.15	-
U.S. Bonds	0.45	1.00	0.30	0.20	0.35	0.25	-	0.50	0.25	-
Dev. Mkts	0.60	0.30	1.00	0.50	0.30	0.25	0.10	-	0.25	-
Emerg. Mkts	0.30	0.20	0.50	1.00	0.30	0.10	0.15	-	0.25	-
Abs. Return	0.30	0.35	0.30	0.30	1.00	0.25	0.40	-	0.40	-
Private Equity	0.40	0.25	0.25	0.10	0.25	1.00	0.10	-	0.25	-
Real Assets	-	-	0.10	0.15	0.40	0.10	1.00	0.30	0.50	-
Cash	0.50	0.50	-	-	-	-	0.30	1.00	0.10	-
TIPs	0.15	0.25	0.25	0.25	0.40	0.25	0.50	0.10	1.00	-
Other	-	-	-	-	-	-	-	-	-	1.00

Simulation Results

4.5% spending; 100% weight on current year									
	50	yrs simul	In 5 years		In 1 year		In 3 years		50%
			25%	drop in	2%	drop in	5%	drop in	drop in
	Exp Return	Std. Dev.	Spending	Budget	Spending	Budget	Spending	Budget	PPI
Foote	4.4%	13.6%	23.0%	0.0%	44.0%	0.2%	45.7%	0.0%	47.6%
TIFF	5.4%	11.6%	13.7%	0.0%	39.6%	0.1%	38.1%	0.0%	19.4%
Port A	6.3%	11.5%	10.1%	0.0%	36.5%	0.3%	32.9%	0.1%	7.8%
Port B	5.4%	9.5%	8.5%	0.0%	37.6%	0.0%	34.6%	0.0%	11.8%
CA<500	5.6%	12.9%	16.0%	0.0%	40.0%	0.3%	38.8%	0.1%	21.4%
Yale	7.2%	11.4%	7.2%	0.0%	33.4%	0.6%	27.9%	0.1%	2.2%
4.5% sper	nding; 30%	weight on c	current year						
	50	yrs simul	In 5 years		In 1 year		In 3 years		50%
			25%	drop in	2%	drop in	5%	drop in	drop in
	Exp	Std. Dev.	Spending	Budget	Spending	Budget	Spending	Budget	PPI
E set s	Return	12 (0/	10.20/	0.00/	45 50/	0.00/	47 60/	0.00/	52 10/
Foote	4.4%	13.6%	19.2%	0.0%	45.5%	0.0%	47.6%	0.0%	52.1% 22.8%
Port A	5.4% 6.3%	11.0%	0.7% 5.3%	0.0%	26.8%	0.0%	26.5%	0.0%	23.8%
Port B	5.4%	9.5%	<u> </u>	0.0%	20.070	0.0%	20.5%	0.0%	14.6%
CA<500	5.6%	12.9%	10.9%	0.0%	35.3%	0.0%	36.0%	0.0%	26.0%
Yale	7.2%	11.4%	3.1%	0.0%	20.6%	0.0%	19.6%	0.0%	2.8%
5.0% spending; 30% weight on current year									
	50	yrs simul	In 5 years		In 1 year		In 3 years		50%
			25%	drop in	2%	drop in	5%	drop in	drop in
	Exp	Std. Dev.	Spending	Budget	Spending	Budget	Spending	Budget	PPI
<u> </u>	Return			0.0-1	10 5	0.01	#0	0.01	
Foote	4.4%	13.6%	22.6%	0.0%	48.5%	0.0%	50.6%	0.0%	61.7%
TIFF	5.4%	11.6%	10.9%	0.0%	36.8%	0.0%	38.0%	0.0%	36.4%
Port A	6.3% 5.40	11.5%	6.9%	0.0%	29.6%	0.0%	29.7%	0.0%	16.7%
PORT B	5.4%	9.5%	5.8%	0.0%	31.9%	0.0%	32.8%	0.0%	24.1%
CA<500	5.0%	12.9%	13.3%	0.0%	22.0%	0.0%	20.9%	0.0%	5.5%