Investing Like the Harvard and Yale Endowment Funds

A Research Article by Frontier Capital Management LLP
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At Frontier Capital Management ("Frontier") one significant input into the asset allocation of our multi-asset funds is the investment strategy and asset allocations of the large university endowment funds ("US Super Endowment Funds"). In response to questions we have received from some investors this short research article is intended to answer, "why"?

The university endowment funds of Harvard and Yale have been leaders in diversified multi-asset class investing for over two decades. Through this approach to investing and their exposure to alternative asset classes they have consistently achieved high double-digit annual returns with low risk and only moderate draw-downs.

The rationale for investment across multiple asset classes is supported by Modern Portfolio Theory. This theory, which was developed by Nobel Prize winner Professor Harry Markowitz, shows how risk adjusted returns of a portfolio can be improved by diversification across assets with varied correlations. Modern Portfolio Theory is at the heart of the investment philosophy of the Super Endowment Funds and is the foundation upon which their portfolios are constructed.

The Endowment Funds are very well resourced and have access to the best fund managers and private equity schemes, and this adds to their investment success. However, in this note we show that by adopting similar asset allocation principles to the Super Endowments it is possible for smaller investors to also obtain very high levels of risk adjusted return; superior to traditional equity/bond portfolios and most balanced investment funds.

Overview of US Endowment Funds

US endowment funds are non-taxable vehicles established to contribute towards the future funding requirements of colleges and universities. Their funding comes from a combination of legacies, gifts and investment returns. In the US there are over 700 endowments with an average of $400 million in funds; the largest fund has over $29 billion. The endowment funds of UK universities and colleges are smaller in comparison; for example, the principal Cambridge University endowment fund totals £1.2 billion ($2.3 billion), with a further £2.9 billion ($5.5 billion) spread across its 31 autonomous colleges.

Examining the strategies of the US endowment funds is of relevance to investors for a number of reasons. Firstly, US endowment funds have consistently achieved superior investment returns. This is especially the case for the largest endowment funds – those with assets greater than $10 billion comprising Harvard, Yale, Stanford, Texas and Princeton. They have achieved an average 10 year annualized return of around 15 per cent, roughly 7 percentage points greater than the returns for traditional 50% equity and 50% bond portfolio, while incurring a lower level of investment risk (see Table 1).[1]

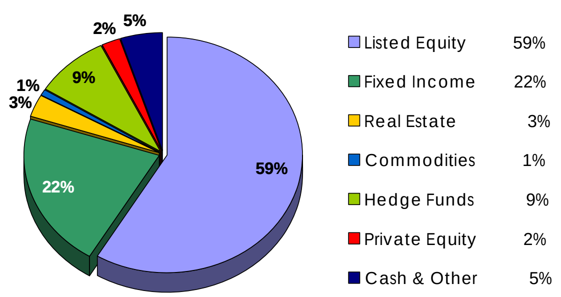
[1] For the purpose of this note, traditional portfolios comprise 50 per cent equities and 50 per cent bonds. All data are hedged into USD unless otherwise stated.

Table 1 – 10yr Annualised Returns by Endowment Fund Size to June 2006					
	US Equity/Bond Portfolio	UK Equity/Bond Portfolio	Average endowment funds	Endowment funds with assets greater than $1bn	Endowment funds with assets greater than $10bn
10yr Annualized	7.5%	7.4%	8.8%	11.4%	14.8%
Traditional Assets % of Total	100%	100%	81.2%	59.6%	47.5%

Source: NACUBO (2006); various university annual reports; Bloomberg; Frontier Capital Management

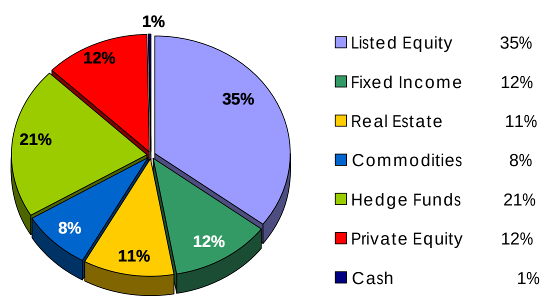
Secondly, US endowment funds have innovative portfolios with exposure to multiple asset classes that provide additional diversification benefits. In this arena the largest endowment funds tend to be leaders. Those endowment funds with assets greater than $10bn hold roughly 48 per cent of their portfolio in traditional assets (listed equities, bonds and cash) (see Table 1 & Chart 2). In contrast, the average US endowment fund still holds a roughly 86 per cent in traditional assets. The additional diversification in large endowment portfolios is one of the reasons for their superior long-term investment performance.

Chart 1
Average US Endowment Funds



Source: NACUBO (2006)

Chart 2
US Endowment Funds With Assets Greater than $10bn



Source: Various annual reports; Frontier Capital Management

Finally, endowment funds typically have long-term investment horizons and stable asset allocations overtime; allocations that rely less on market timing for generating returns and have lower trading costs.

The Super Endowments of Harvard and Yale

Of the US endowment funds Frontier places significant emphasis on the asset allocation methodology of the 'Super Endowments' of Harvard and Yale. These endowment funds have been two of the best performing with annual returns consistently placing them in the top 10 of all US endowments. For the 10 years to June 2006 the annualised returns for Harvard and Yale are 15.2 and 17.2 per cent respectively (see Table 2), greater than the returns of their peers and those of traditional portfolios. The Harvard endowment fund is also the largest in the US at $29.2 billion and the Yale Endowment fund is the second largest at $18 billion.

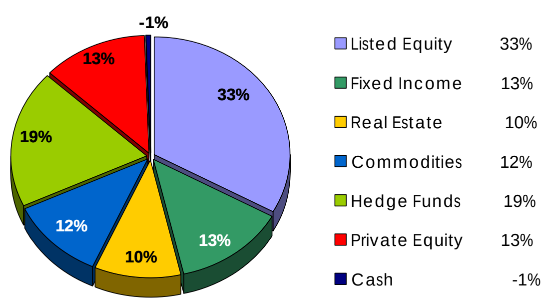
Table 2 – Summary of the Super Endowment Funds as at June 2006

	Size ($bn)	Annual Return 2005/06	10yr Annualised Returns	Manager	No of Investment Staff	Investment Style
Harvard	29.2	16.7%	15.2%	M. El-Erian	130	Diversified multi-asset
Yale	18.0	22.9%	17.2%	D. Swensen	20	Diversified multi-asset

Source: Annual reports (various)

The Super Endowment funds have been pioneers in multi-asset investing. Currently 46 per cent of their portfolios are in traditional assets (see Chart 3), much less than the 86 per cent for the average endowment. Of their alternative assets, the majority are allocated to hedge funds like those of the other endowments. However, the Super Endowment funds' holdings of commodities and private equity are much greater than average.

Chart 3
Super Endowment Asset Allocation



Source: Annual reports

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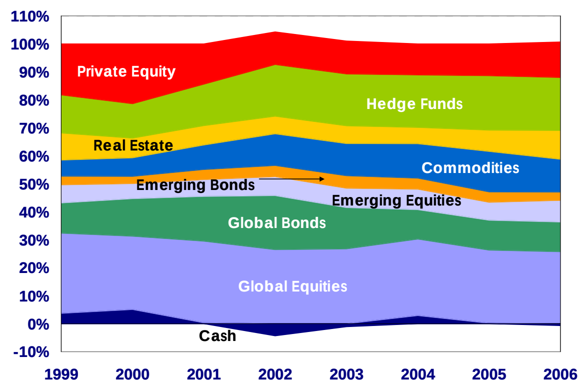
Like endowment funds in general, the asset allocations of the Super Endowment funds have been very stable over-time. Since the 1999, the Super Endowment funds have reallocated an average of just 8.5 per cent of their portfolio annually (see Chart 4). The stable allocations reflect their long-term investment horizons, desire to allocate assets through economic cycles and minimise trading costs.

Chart 4
Super Endowment Asset Allocation Over Time



Source: Annual reports (various); Frontier Capital Management

Index Investing Using the Asset Allocations of the Super Endowments

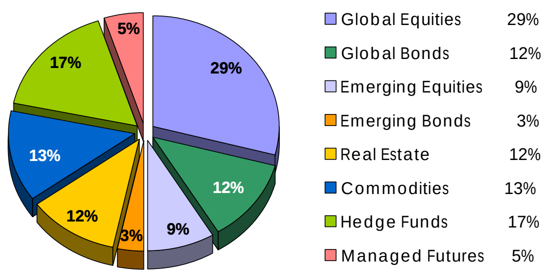
The superior returns, long-term investment horizons, and stable asset allocations of the Super Endowment funds make benchmarking to their asset allocations attractive. However, most individuals are not able to actively invest like the super endowments, particularly in asset classes such as private equity. Nevertheless, significant value can still be created by following the multi-asset investing approach of the Super Endowment Funds within an index tracking portfolio.

An index tracking portfolio is estimated by using the annual asset allocation weights of the Super Endowment Funds applied to the returns on eight global asset class indices.[2] Portfolio returns are estimated since January 1999 as it is difficult to aggregate earlier Super Endowment Fund data. Private equity was excluded as this asset classes is not suitable for an index tracking portfolio. Cash was also excluded so the portfolio could be directly comparable to traditional portfolios of equities and bonds. Estimated portfolio returns were calculated in USD based on yearly rebalancing every 31st of December.

[2] The indices for the 8 global assets are similar to those used in the Frontier Capital Management MAP funds. See the Appendix for a list of benchmark indices used in this analysis.

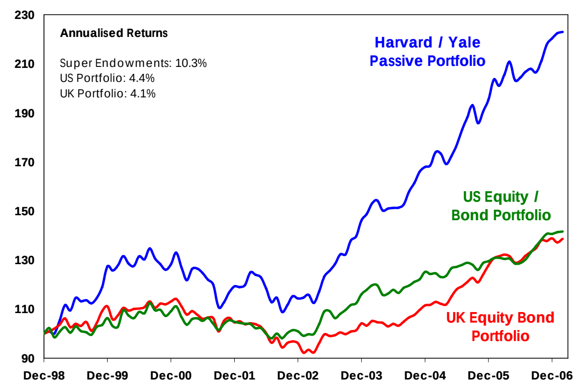
The current 'adjusted' Super Endowment Fund asset allocation currently places just 53 per cent of funds in traditional assets (Chart 5). This is slightly higher than their actual exposure to traditional assets (when private equity and cash are included).

Chart 5
Super Endowments Asset Allocation (Adjusted)



Source: Annual reports; Frontier Capital Management

Chart 6
Indexed Performance of Super Endowments



Source: Annual reports (various); Bloomberg; Frontier Capital Management

The estimated index tracking portfolio generated annualised returns of 10.3 per cent since 1999, relative to just 4.4 per cent for a US Equity/Bond portfolio and 4.1 per cent for a UK Equity/Bond portfolio hedged into USD (See Chart 6). Moreover, the estimated index tracking portfolio has also out-performed many managed macro funds. For example, the endowment index tracking portfolio has out-performed relative to the UK IMA Cautious Managed and Balanced Managed sectors over the last one and three years, and with considerably less volatility (See Table 3). The out-performance and lower volatility over long periods of time illustrates the benefits of index investing and the importance of globally diversified asset allocations.

Table 3 – Indexed Performance of Super Endowments (hedged into GBP)
Relative to UK Managed Funds

	Annualised 1yr Return	Annualised 3yr Return	Annualised 3yr Standard Deviation	3yr Return / 3yr Standard Deviation
IMA Cautious Managed	3.5%	9.2%	8.3%	1.1
IMA Balanced Managed	3.6%	12.7%	8.3%	1.5
Super Endowment Index Portfolio	10.4%	14.7%	6.9%	2.1

Source: Morningstar; Frontier Capital Management

Summary

The Super Endowment funds of Harvard and Yale have consistently achieved high investment returns and low volatility due to their multi-asset approach to investing and exposure to alternative asset classes. While most investors cannot invest like the Super Endowment funds, this research note shows that by applying their multi-asset principles to an index based portfolio, returns have historically been superior to those of traditional portfolios and even the average top rated managed funds.

Frontier takes inspiration from Super Endowment funds when determining our asset allocations. The current asset weighting of Frontier's three funds (Conservative, Moderate, and Plus) is designed to contain slightly less risk than the Super Endowments allocations, as the Super Endowments have a longer investment horizon and lower liquidity requirements (See Appendix B for Frontier's current asset weighting). Our small minimum investment requirements and high levels of liquidity means that it is possible for even smaller investors to adopt a multi-asset approach to portfolio management just like the Super Endowments.

This research note was prepared by Richard Brazenor at Frontier Capital Management LLP. Should you wish to obtain any further information on index investing or to learn about the range of Frontier's products please visit our website at www.FrontierCM.com

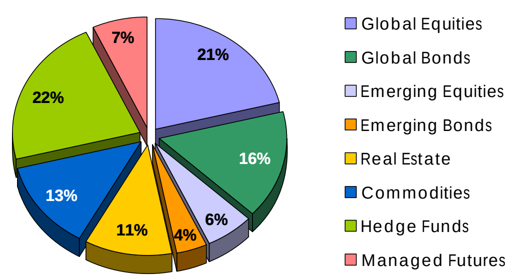
Appendix A – Benchmark Indices Used

All indices are total return and currency hedged into USD.

- Global Equities: MSCI World Equities
- Global Bonds: JPMorgan GBI; Citigroup US Corporate Bonds
- Emerging Equities: MSCI Emerging Market Equities
- Emerging Bonds: JP Morgan Emerging Market Bonds
- Real Estate: Dow Jones Wilshire Global Real Estate Securities Index
- Commodities: Dow Jones AIG Commodity Index
- Hedge Funds: HFR fund of funds
- Managed Futures: CISDM Composite

Appendix B – Frontier Capital Management's Asset Allocations

Chart B.1
Frontier's Asset Allocation from April 1st 2007



Source: Frontier Capital Management

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