

Beyond the Endowment Model



Abstract

This document explores the potential obsolescence of the endowment model for institutional investors, specifically endowments and foundations. The paper examines the historical performance of the endowment model, highlighting the significant role of private equity and venture capital in its success. However, the future prospects for these asset classes are less certain, due to factors such as increased competition and higher interest rates. The paper then explores alternative investment models, including the Canadian model, the MIO Portable Alpha model, the Total Portfolio Approach, and various private markets-focused models. The author ultimately suggests that while the endowment model may not be entirely obsolete, it may need to be adapted to account for changing market conditions and the uncertain future of private equity and venture capital.

Introduction

The question many capital owners and allocators are asking today is whether the endowment model remains, for certain institutional investors, the best model for achieving the typical investment goals. We know that different models fit best with different types of investors (e.g., LDI for pensions), and this paper cannot cover all possible combinations. Keeping it simple, endowments and foundations have historically been the users of the endowment model, so we will focus our discussion on what model may be best for foundations and endowments in the future and then we can discuss how well that fits with SWFs, pensions, and taxable and non-taxable family offices.

While there are many different definitions of the endowment model (TEM), most agree that it is recognized by what it's users' long time frame enables them to exploit: high static risk, multi-asset class diversification with a strong bias towards equities and illiquid private markets, and a leaning toward fully aligned third party asset managers. The definition shown on page 8 provides a fuller definition of TEM describing it along 11 dimensions based on the responses to my survey of the 15 CIOs listed in Appendix IV.

What are the current challenges to the Endowment Model? Why do we need to go beyond?

How has the endowment model performed? To answer this, I would first point you to the whitepaper published by TNI in May 2024 which is posted on the TNI Website here. I have also included the key tables in Appendix II, and summarise the conclusions here. A group of 12 top US endowments shown below earned between 8.1% and 11.5%, averaging 10% over the 10 years ending June 2023.

Exhibit 1: The range of absolute performance of 12 large US endowments over the 10-Year period ending 30 June 2023.

Endowment	MIT	Brown	Yale	Princeton	Notre Dame	Dartmouth	UVIMCo	U Penn	Stanford	Cornell	Harvard	Columbia	Average	Hi-Lo Range
10-Yr Annual Absolute Return	11.5%	11.3%	10.9%	10.8%	10.6%	10.5%	9.8%	9.7%	9.5%	8.4%	8.2%	8.1%	10.0%	3.4%

Source: True North Institute analysis of publicly available data

This 10% compares to

- MSCI ACWI equity index in USD: 10%
- 72% average equity-like risk of endowments: 7.2%
- Top 5 Canadian Pensions: 8.6%
- Future Fund in Australia: 8.8%
- GIC: 5.1% (with 40% in bonds/cash)
- Norwegian Government Pension Fund Global: 7.1% (10 yrs to June 2024)
- Multi-asset class index benchmark matching endowments' average allocation: 8.8%.

So, against many different benchmarks, these 12 endowments have done very well over the last 10 years.

Over the last 5-, 3- and one-year, absolute performance and performance against the equity risk equivalent benchmark have continued to look quite strong, with average alpha against that investible equivalent equity risk benchmark continuing at approximately 2.7% a year. Against a tougher multi-asset class benchmark, alpha is clearly slipping as you can see below. Our assumption is that, partly due to their size, many of these endowments have struggled to keep up with a very strong performing private equity benchmark. We used Cambridge Associates, but other PE benchmarks like State Street, show the same result over 5, 3 and one year.

Exhibit 2: Average University Endowment Performance over 1-, 3-, 5- and 10-year periods (12 endowments).

Period	Absolute Return	ENEB Benchmark		Asset Allocation Benchmark	
	Average Absolute Performance	ENEB Benchmark	Alpha vs ENEB Benchmark	Asset Allocation Benchmark	Alpha vs Asset Allocation Benchmark
1-Year	1.8%	13.8%	(12.0%)	5.3%	(3.5%)
3-Year	12.3%	9.5%	2.8%	12.2%	0.1%
5-Year	10.1%	7.2%	2.8%	9.4%	0.7%
10-Year	10.0%	7.3%	2.7%	8.8%	1.2%

Source: True North Institute analysis of publicly available data

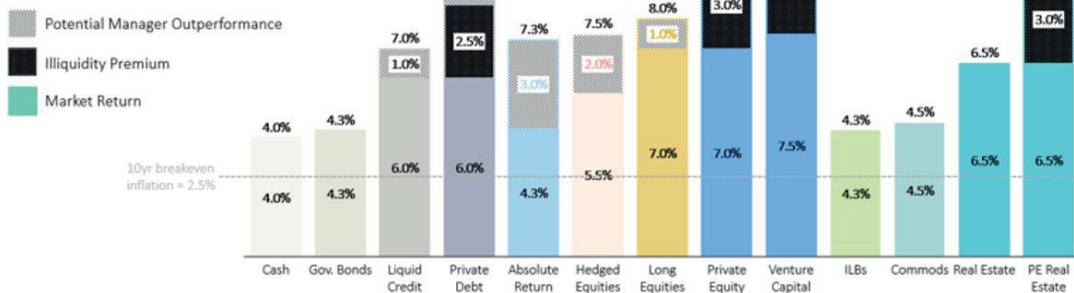
A key conclusion from the whitepaper will surprise no-one. This outperformance is attributed to large allocations to private equity, with large allocations to venture capital within the PE allocation. Logic would then follow by having us ask how confident are we that private equity and venture capital returns will continue to deliver returns ahead of any alternative asset class options?

What are the future return prospects for Private Equity?

Below are the Partners Capital 10 year forward return forecasts for all asset classes. We have not generally found their estimates to differ materially from other respected sources (Goldman, JP Morgan, Credit Suisse, Cambridge Associates, et al). Below each bar, you can compare the 10-year forward forecast with the actual historical performance, to see that the biggest increases in expected returns are in cash, forecast to pay 4% vs 1% historically, liquid credit, forecast to generate 6% beta only returns vs 3% historically, and Absolute Return hedge funds, forecast to generate 4.3% beta only returns vs 2% historically. The biggest declines are expected from public equities, forecast to earn 7% beta only return vs 10% historically, private equity, forecasting 10% beta only returns vs 13% historically and venture capital forecasting 11.5% beta only returns vs 13% historically. **Applying the current average “top 12” endowment asset allocation to these forward-looking returns, suggests that the endowment model will still deliver an annual average return of 9%, only 1% below what was earned over the last 10 years.**

Exhibit 3: 10-year Asset class return forecasts.

The 10-year forecasts for annual asset class returns in nominal USD & GBP terms are decomposed into the market return (risk-free rate plus risk premium), estimated illiquidity premium where relevant and the level of manager outperformance that we believe is achievable in each asset class.



Compounds annualised returns - last 10 years ⁽¹⁾	1%	1%	3%	9%	2%	6%	10%	13%	14%	5%	1%	5%	9%
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Source: Partners Capital Insights. The 10-year annualised forecast returns for market return, illiquidity and potential manager outperformance should be viewed as indicative. Manager outperformance estimates by asset class are net of manager fees.

(1) Historical 10-year performance is from TNI. from 2014 – 2023. Cash: US Treasury Bills 3M; Govt Bonds: Barclays Capital US Treasuries 5-10 Year TR; Liquid credit: Barclays Global Corporate BBB; Private debt: State Street Private Debt; Absolute return: 0.1x MSCI ACWI NR w DM 100% Hedged to USD + 0.9x 3m US T-Bills); Hedged equities: PivotPath Murli Strategy Hedge Funds; Long equities: MSCI ACWI; Private equity: State Street Buyout PE; Venture Capital: State Street Venture PE Index; ILBs: Ishares TIPS ETF Shares Outstanding Index; Commodities: BBG Commodity TR Index; Real Estate: S&P 500 Real Estate Index; PE Real Estate: Preqin Real Estate Opportunistic.

The first two layers in the bars in the chart above represents the beta or next 10-years’ average market return. The grey on top is Partners Capital’s estimate of manager selection alpha. So, in the absence of manager selection alpha, Partners Capital expects PE returns (buyouts) of 10% per annum and venture capital returns of 11.5%. This represents approximately 5% lower returns than the market has experienced in the last 10 years. The difference largely reflects higher interest rates, higher discount rates, little multiple expansion, but holding onto faster earnings growth than public company averages. The faster earnings growth reflects our continued conviction that certain PE firms are better owners of certain private companies than their previous owners.

Exhibit 4 shows the back-up analysis for the private equity expected returns. This illustration is for a middle market buyout deal (or fund) making certain assumptions about entry and exit prices, debt and interest cost, earnings growth and fees. This arrives at a 12.4% net return, higher than the 11.5% net return forecast for all private equity including large cap buyouts and growth equity. The table usefully shows the change in these future inputs from what has been seen in the past. The 16.7% past return included manager selection alpha (buying and selling well and growing earnings), in contrast to the average historical 13% PE return shown in Exhibit 3 above.

Exhibit 4: Illustrative LBO model return predictions assuming no multiple expansion, higher interest rates, less debt, but greater focus on earnings growth.

Model Assumption	Past Decade ⁴	Recent Deals in the Ground ⁵	New Deals – MM Base Case ⁶
Entry Multiples (EV/EBITDA) ²	12.0x	13.0x	11.0x
Exit Multiples (EV/EBITDA) ²	13.0x	11.0x	11.0x
Debt / EBITDA Multiple	6.5x	6.5x	5.0x
Cost of Senior and Sub-debt	7.0%	12.0%	12.0%
EBITDA CAGR	8.0%	8.0%	8.0%
Hold Period	5 Years	7 Years	5 Years
Fund Fees: Management / Performance ³	2.0% / 20%	2.0% / 20%	2.0% / 20%
Gross Cash Multiple	2.6x	2.2x	2.1x
Gross IRR	21.1%	11.7%	16.3%
Net Cash Multiple	2.2x	1.8x	1.8x
Net IRR	16.7%	8.6%	12.4%

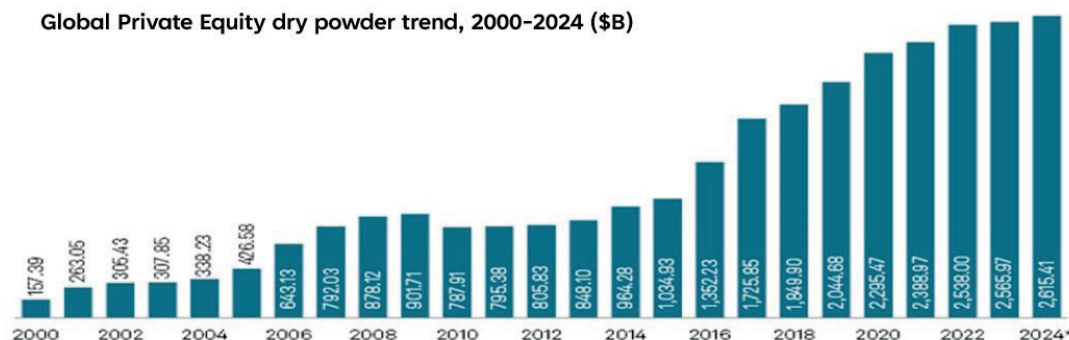
Source: Partners Capital
Notes:

- Other assumptions in the model not shown above: EBITDA Margin = 25%, No Margin Expansion, 100% Cash Flow Sweep, Management Pool = 10%, Interest on Cash = SOFR, Tax Rate = 25%, RCF = 1.0x EBITA, OID = 100.0, Underwriting Fees = 2.25%, No M&A, D&A = 1% of Revenue, CapEx = 1% of Revenue.
- 13.0x multiple represents the post-GFC peak multiple. 11.0x multiple represents the current multiple in the DealEdge sample. EBITDA growth rates based on Cambridge Sample (10 Years of Operating Metrics) for MM companies.
- Private Equity Fund Fees: Based on fee rates seen in recent fundraises.
- Past Decade' represents hypothetical return expectations for Private Equity LBOs in prior market conditions with lower interest rates and higher leverage availability.
- 'Recent Deals in the Ground' represents hypothetical return expectations for Private Equity LBOs transacted post-GFC, reflecting current interest rates. LBOs completed post-GFC are expected to have longer duration, reflected in the 7-year hold period vs. the standard 5-year underwritten hold period.
- 'New Deals' (LMM and Base Case) represents a reset in valuation with 2023 entry and exit multiples, leverage availability, and higher cost of debt for the entire hold period.

The environment has changed with high interest rates expected to persist and investor caution to cast a cloud on venture investing. The essence of what justifies high allocations has not disappeared. At the end of the day, private company ownership is just a better model than public ownership. There is better management alignment and PE firms are increasingly becoming more capable of value addition, making them the better owner. And to the extent that private equity is focused on smaller companies, faster earning growth and multiple expansion should favour private companies. We expect 10 to 12% net returns, or 12-14% returns with 50% deployed in fee free co-investments (note in Exhibit 4, the 16.3% gross IRR which corresponds with expected co-investment returns vs 12.4% expected fund returns net of fees). This is, in essence, the fee reduction afforded to large investors.

The dynamic that occurs within PE firms is that they raise the capital and have to deploy it. LPs insist. Business plans migrate from being conservative to aggressive to win the deal. So higher prices are paid, while similar operational outcomes emerge, thus resulting in lower net returns. There is a possibility that even higher prices are paid at exits as business plans keep getting inflated, but that just portends even lower returns in the very long term.

Exhibit 5: Global PE dry powder has grown from \$1T 10 years ago to \$2.6T today but appears to have flattened in recent years.

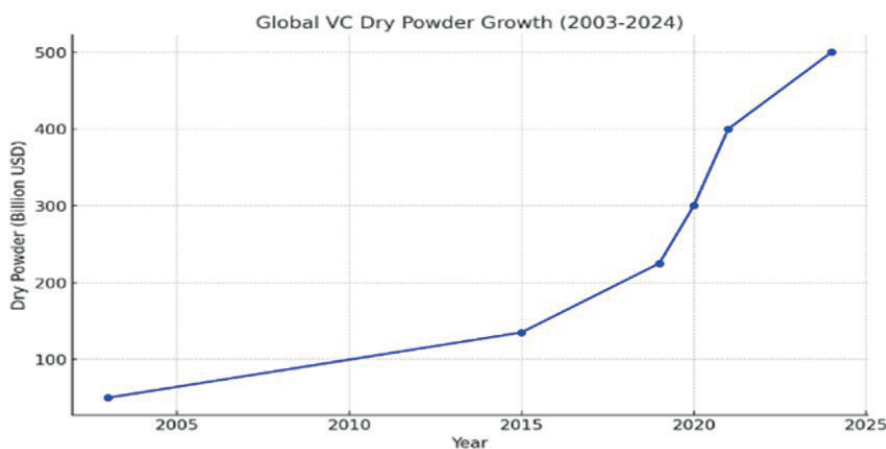


Source: Preqin. Data compiled 10 July 2024 with the *2024 dry powder figure being on that date. Analysis includes aggregate dry powder of global PE funds with vintage years between 2000 and 2024.

The future of venture capital returns is harder to call. There are a lot more VC firms and capital in existence today compared to 20 years ago. In 2004, there were approximately 900 VC firms in the world, but over 2000 today. In the 2000-2010 decade, VCs raised on average about \$30B per annum vs \$100B per annum in the 2011-2020 period. 2021 set an all-time record seeing \$240B according to Cambridge Associates. VC dry powder typically sat at about \$100B from 2005 to 2015, but today is five times that at \$500B.

Exhibit 6: Venture Capital dry powder is 5x what it averaged from 2005 -2015.

Global VC Dry Powder Growth (2003-2024)



Source: Pitchbook

The next 2-3 years will be harder on VC returns (with constrained new VC fund raising), but it would appear to be the best time to be deploying capital given decreased competition from funds who are running out of capital and cannot raise more without showing a track record (that they don't have). Over the longer term, supply of opportunities is driven by the pace of innovation and that seems to be relentless with new categories cropping up all the time, the latest being AI/ML, space tech, Web3 and blockchain, quantum computing, robotics, augmented/virtual reality, Ag/Food tech, and climate tech, on top of some older tech that are still presenting new opportunities including cloud computing, biotech, cyber security, consumer internet, enterprise software and finTech.

We know that prices being paid at various stages are higher than they were 20 years ago, when they were \$5-10M compared to \$20-50M today. Additionally, the time to exit or IPO is extending, and we know more of the innovation is staying inside the large public companies (magnificent 7). But the maxim still holds that, for early-stage capital, the best founders go to the best firms, and this creates a virtuous cycle of success that will outperform the average by far. But that paradigm may be breaking down somewhat, to the extent that early-stage capital is only a small part of the capital raised by Sequoia, Accel, Andreessen, General Catalyst and others among the top-rated VCs, with the majority of the capital available to LPs being in their growth equity or late-stage venture funds which we would not expect to deliver the 13.5% venture capital returns forecasted above.

In summary, we take the simple view that there is much less certainty today than in the past around the range of expected returns from private equity and venture capital, but in all likelihood, they will be lower than historical returns along the lines of the predictions above.

This does not obsolete the endowment model but suggests the outperformance from the average will come down. Partners Capital's solution is to diversify private markets allocations across private markets asset classes to include private debt and many different forms of private equity real estate.

What can we learn from other highly respected institutional investment models?

If the endowment model's outperformance is shrinking vs other alternatives, are there other alternatives we should consider? The appendix takes us through 10 models including the Canadian model, the MIO portable alpha model, and the Total Portfolio Approach which we touch on here.

The essence of the **Canadian model** is direct internal team investing. Our analysis of the last 10 years of performance suggests that the Canadians would have performed better if they had outsourced to third party PE and VC firms and paid the fees, perhaps with a large amount of fee free co-investments.

The **MIO Portable Alpha model** is the best performing model we have found in the world, and may be relevant to smaller pools of capital (<\$10B), and it would take at least 10 years to build and scale. It is also highly complex and difficult for lay members of the investment committee or trustee board to understand, especially given the leverage and heavy use of derivatives. Execution risk is also very high.

Like the endowment approach, the **Total Portfolio Approach ("TPA")** is defined differently by different practitioners. TPA embraces the use of betas and factors for risk and allocation purposes, but this is a common feature of how many investors deploy the endowment approach including UC Regents, Australia's Future Fund and Partners Capital. The aspect of bottom-up manager selection trumping top-down asset allocation is also a feature of many endowment model practitioners and is the most interesting element of TPA to us. The simple concept of fewer, but on average higher quality, managers must have merit against the endowment model with its 100+ manager composition.

Is the world changing so much that we need a new model?

In September 2021, Australia's Future Fund published a provocative position paper calling for a "New Investment Order" based on paradigm shifts in the world including deglobalisation, populism, technology breakthrough-driven disruption, demography (aging and migrating populations), climate change and corporate earnings challenges (given implied earnings limits being reached of 10% of GDP today vs 5% in 1990). They argue that these shifts are leading to a world with lower expected returns, higher inflation risk, and increased market fragility. In response, the Future Fund proposes a new investment approach that focuses on increasing its structural risk profile, maintaining flexibility, and prioritising private market opportunities.

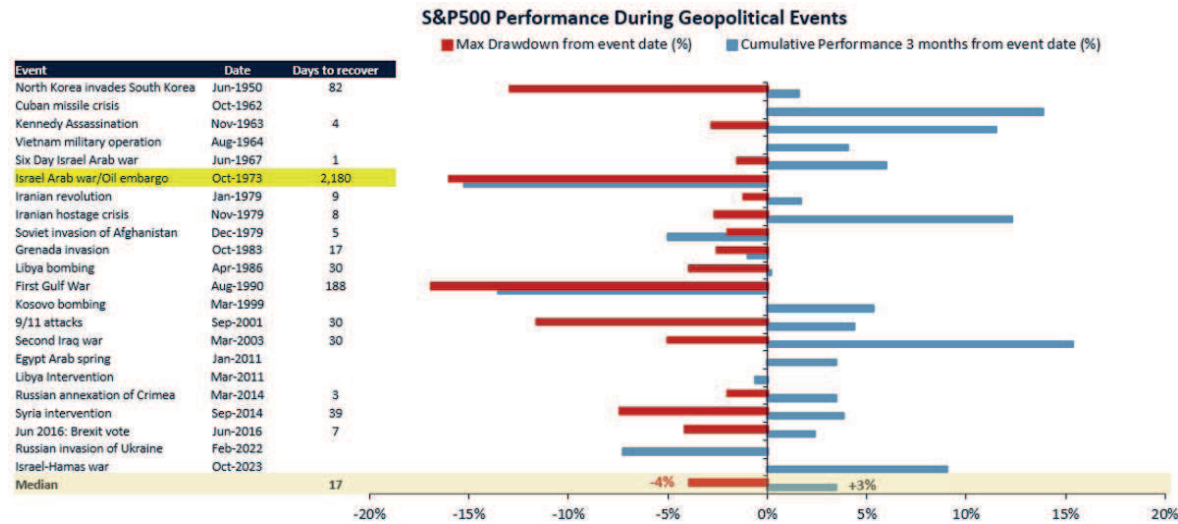
The connection between the environmental changes and actions may be tenuous to the extent that it observes higher risk in the world and calls for a higher risk portfolio as the solution, but to be agile. We highlight this research as it may actually support many key elements of the endowment model but makes the case to be more dynamic and flexible in response. The 2024 update to this paper focused on growing geopolitical risk and made a similar point about more tactical or dynamic asset allocation.

Clearly, geopolitical risk has become highly elevated today vs. the last 30 years. So Future Fund's observation warrants debate by institutional investors. We are reminded that historically, major geopolitical events, despite their horrific human tragedy, do not generally leave an enduring impact on financial markets.

Exhibit 7 shows the maximum market drawdown following every significant geopolitical event (hot wars, not cold wars) since 1950 in the red bars on the left and then the blue bars show the cumulative market performance since the event after just three months. You can see that nearly all events saw positive market performance in the 3 months to follow. The only major exception was the 1973 Israel/Arab war which resulted in the oil crisis which did have a significant and lasting impact on markets, where markets only recovered six years later. This sudden price increase from \$3 per barrel to \$12 caused major economic disruptions worldwide, leading to inflation and recession in many countries.

Is geopolitics changing fundamentally to the point where investment strategies should be altered in terms of geographic allocations, sector allocations and overall risk profile? Should the investment model become more flexible and agile in response to more geopolitics-driven volatility? This is not about predicting geopolitical events, but rather being positioned differently to prepare for more.

Exhibit 7: Geopolitical events can create high volatility but usually do not leave an enduring impact on financial markets.



Source: Bloomberg

Notes: Days to recover = Number of days for S&P500 to recover to level prior to geopolitical event.

Key Dimensions in Defining a Better Model

The outperformance of the endowment model almost certainly will be waning in the coming decades and we certainly live in a world that will be very different. So, what model deals with greater uncertainty around PE and VC returns and prepares us for the major geopolitical, technological and social changes in the world? Is it one of the other models profiled in the appendix or something we can custom design from the various building blocks of any investment strategy as listed below. Debating a superior model in some wholistic fashion (like endowment vs TPA) may be less productive than debating the individual major dimensions of institutional investing.

We list 11 dimensions in order of importance and impact below, and ask the question, should we move away from the endowment model's place along each of these dimensions?

1. Time Frame
2. Overall Risk Level
3. Static or Dynamic Risk Management
4. Asset Allocation
5. Active v Passive
6. Direct (internal) or Third-Party Asset Managers
7. Manager concentration
8. Team specialisation
9. Bottom up or Top down – or the breadth of asset allocation ranges
10. Asset Manager Relationships
11. Governance

On the next page, we have created a table laying out where on each dimension we see the endowment model and the Total Portfolio Approach which and highlight where the differences are most extreme. Debate, perhaps, should focus on these differences (see the “?” in the far right column).

Exhibit 8: Endowment Model vs Total Portfolio Approach

Dimension	Endowment Model	Total Portfolio Approach	Areas to debate
1. Time Frame	<ul style="list-style-type: none"> Very Long (10 – 20 years) 	<ul style="list-style-type: none"> Very Long (10 – 20 years) 	No debate
2. Overall Risk Level	<ul style="list-style-type: none"> Very high > c 75% equivalent equity risk 	<ul style="list-style-type: none"> Very high, but measured in equivalent equity beta terms 	No debate
3. Static v Dynamic Risk Mgmt	<ul style="list-style-type: none"> Static: no market timing 	<ul style="list-style-type: none"> Multi-beta/factor driven risk management More thematic driven and dynamic Dynamic or Tactical Asset Allocation (TAA) 	?
4. Asset Allocation	<ul style="list-style-type: none"> SAA driven “Go anywhere” – broad diversification Equity bias; near zero bonds Alternatives heavy Early adopters of new opportunities 	<ul style="list-style-type: none"> No SAA Every investment competes from the same pool of capital Broad bands (min/max spread) 	?
5. Active vs Passive	<ul style="list-style-type: none"> Active 	<ul style="list-style-type: none"> Active 	No debate
6. Internal v External Asset Mgmt	<ul style="list-style-type: none"> External 	<ul style="list-style-type: none"> External 	No debate
7. Manager Concentration	<ul style="list-style-type: none"> 100+ managers largely due to optimization within each asset class 	<ul style="list-style-type: none"> Much more concentrated; No optimization within asset classes (target 20-30 managers) 	?
8. Team Specialization (vs Generalists)	<ul style="list-style-type: none"> Mixed. Divided view among endowments 	<ul style="list-style-type: none"> Can be either but all compete for same pool of capital 	?
9. Bottom-up vs Top-down (asset class ranges)	<ul style="list-style-type: none"> Generally top-down Strategic Asset Allocation driven. With guardrails (min/max) 	<ul style="list-style-type: none"> Bottom-up, manager selection drives ultimate allocation (within limits) 	?
10. Asset Manager Relationships	<ul style="list-style-type: none"> Bias to owner-operated mgrs with highly aligned interests “True partnership model” – LPs seek to be value added with GPs 	<ul style="list-style-type: none"> Same as endowment model, but as more concentrated, can be more meaningful to any given GP 	No debate
11. Governance	<ul style="list-style-type: none"> IC/Board sets policy: risk, liquidity, asset allocation; lets team select managers and execute against policy 	<ul style="list-style-type: none"> IC/Board works more closely with internal team on most decisions including themes, tactical moves and managers 	?

Source: Endowment model – survey of Endowment CIOs by TNI, Partners Capital. TPA from CAIA Rise of the Total Portfolio Approach (Mar 2024)

Alternative Wholistic models

Below, we describe three alternative long-term institutional investment models beyond the 10 other models profiled above and in the appendix. If one believes that the essence of the endowment model is its high risk and large allocation to PE and VC, then a logical extension of that learning would be to simply focus on that asset class to the extent that illiquidity limits allow. Below we describe two permutations of a private markets heavy model. Following an alternative thesis about the future of PE, we describe a high-risk liquid model.

Option #1: Private and Public Equity-Only Model

Thesis: Private companies offer the best risk-adjusted ROI across all asset classes. Truly long-term investors should not care about short term volatility and should be able to weather extreme declines in value, staying focused on the avoidance of permanent losses. Private equity will carry on delivering a premium (3-4%) over public equities due to higher leverage risk and more value-added ownership. Little alpha is generated from huge efforts to find it in absolute return, credit, fixed income, commodities, property, resources and other asset classes. 50% is the maximum illiquidity that can weather crisis scenarios. Focus on PE will translate into access to the best managers.

Strategy: 50% private equity and 50% public equity asset allocation. The internal team is 90% focused on building relationships with the top private equity firms and securing large quantities of fee-free co-investments (or lower fees). This avoids the complexity of having to stay on top of multiple complicated asset classes including absolute return, liquid and private credit, property, commodities, etc. The public equity investment strategy is largely passive (directly held or index funds) and is used to balance the portfolio to target geographic, sector, factor exposures where the PE portfolio has certain embedded skews. PE capital calls are met from highly liquid public equities.

The private equity portfolio will have a skew to the highest risk and return strategies across VC, buyouts, growth equity and select infrastructure. This will be relatively concentrated, with approximately 20 core manager relationships.

Expected Returns: 11% long-term returns (PE/VC 14% net due to co-investments, Public Equities 8% net). Beta 1.2 to global equities.

Option #2: Diversified Private Markets Model

Thesis: Venture Capital and Private Equity returns are less certain in the coming environment as described above. As long-term investors, we can still attract an illiquidity premium by diversifying illiquid assets to a broader range of private markets asset classes.

Strategy: 50% allocation to all categories of private assets to include PE, VC, property, natural resources, private credit, infrastructure and other illiquid alternative asset classes (e.g., insurance). Private credit, in particular, will attract a meaningful allocation of 10% or more given the positive outlook for the asset class and the presence of skilled asset managers.

This private markets portfolio will have a skew toward the higher risk and returning strategies across all asset classes, concentrated in approximately 20 core manager relationships, a small enough number that the internal team can build strong relationships.

Expected Returns: 9.2% long-term net returns, but with a narrower confidence interval than the PE only model above, given the return patterns of private credit and property in particular.

Option #3: High Risk Liquid Asset Class Strategy

Thesis: We should not rely on private markets to earn the returns that our long-term time frame and tolerance for high risk allows.

Strategy: Reduce the allocation to private markets to 20% and substitute the reduction with allocations to the higher end of liquid asset classes including long equities, liquid credit and absolute return strategies. The focus would be avoiding high risk of permanent losses in favour of high volatility, where long-term mean reversion is likely. This would include high growth equities, specialist lending and, potentially, highly leveraged multi-strategy hedge funds.

Expected Returns: 10.5% long-term net returns with c 15-20% annual volatility. Assumes 11% returns from high growth equities, 9% from multi-strat hedge funds, 9% from specialist liquid credit.

Conclusions for debate

The primary reason any investment model should change is if the fundamental principles that underpin it have changed. These would include:

1. We are truly long-term investors and that is our primary advantage as investors
2. There are sizeable pockets of inefficiency in certain financial markets where skilled investors can perform above average over the long-term
3. Diversification delivers a superior relationship between risk and return up to a certain point

Investors should revisit these, but it is our observation that these principles still stand today.

The other reason to change the model is if the world has changed. The future macroeconomic environment is not sufficiently different from the past to warrant a different model from the endowment model. If it did, the main changes would be in response to geopolitical risk calling for geographic exposure changes and more dynamic or tactical asset allocation – not major changes to the model.

The prospects for private equity and venture capital are sufficiently different to warrant a different model from the endowment model. It may be imprudent to rely as much on private equity as the endowment has in the past. The institutional investor's view on the best alternative allocation or model is largely dependent upon their outlook for private market returns.

Sticking with the broadly defined endowment model (see Exhibit 8), the TPA model embodies some features that would usefully find their way into the endowment model. This includes, most importantly, the bottom-up manager biased construction leading to a more concentrated manager line-up which only works with broader asset class (or beta) allocation bands. Other attractive TPA features for the endowment model are beta/factor-based risk measurement and some restrained form of tactical asset allocation. The former has been widely used with the endowment model, while TAA is more controversial and not generally deployed.

Aspects of the MIO portable alpha model may be valuable additions in certain institutional investor's portfolios where the scale and complexity can be managed by a skilled internal team.

Labels like "the endowment model" can be useful shorthand for only high-level discussions, but any investment strategy with any moniker attached to it needs to be clear on where it stands on each of the 11 or so key dimensions to investment

strategy. Perhaps the most relevant dimensions to debate today are asset allocation and bottom-up vs top-down portfolio construction.

Such an exercise will generate different answers for SWFs, Pensions, non-taxable and taxable family offices. The big challenge for the largest of **SWFs and Pensions** is achieving high allocations to private markets. We would argue that the changes in PE and VC markets may make this even more challenging, to the extent that such large portfolios invest with the largest private markets managers who will see lower returns than smaller managers. This focuses SWFs and pensions on liquid asset class returns. Given the elusiveness of alpha in these asset classes, the key focus here must be on a) asset allocation of uncorrelated long-term return streams, and 2) establishing the maximum risk level for certain portions of the portfolio (i.e., non-LDI portion) and seek returns from high growth – high beta sub-asset classes to achieve maximum returns for the target level of risk.

Taxpaying family offices have traditionally focused their portfolios on the most tax-efficient asset classes, primarily public and private equity. This strong reliance on private equity indicates that the challenges may be most pronounced for this type of investor. The key to success with these investors lies in identifying niches and subsectors within the private equity landscape where competition is limited and opportunities for value creation are abundant.

The last page of the appendix highlights the different strategies executed today by SWFs, pensions and family offices and contrasts them against the endowment model.

True North Institute

19 November 2024

Beyond the Endowment Model -- Appendix

- I. Descriptions of 10 different institutional investment models
- II. 10-year historical performance of 12 US endowments and Canadian Pensions
- III. Differences between typical investment strategies of different types of institutional investors (endowments, foundations, pensions, SWFs, and family offices)
- IV. Views from 15 CIOs who debated the merits of the Endowment Model in a close conference in Boston on 7 November, 2024.

Appendix 1. The Full List of Institutional Investment Models

1. Norway Model

The Norway Model of investing, also known as the Government Pension Fund Global (GPF) Model, refers to the investment strategy used by Norway's sovereign wealth fund. Managed by Norges Bank Investment Management (NBIM), the Norway Model is characterised by a long-term, direct, passive, globally diversified investment approach with a focus on transparency, low costs, and ethical investing.

It was deemed "a model" by David Chambers, Elroy Dimson and Antti Ilmanen in their 2011 research paper called "The Norway Model." Their paper focused on contrasting it against the endowment model, which largely described the limitations presented by the Norway Fund's massive scale and the Ministry's ban on private equity. A cornerstone of the Norway Model is its commitment to a long-term investment horizon. This allows the fund to take relatively high risk (ENE of 72%) over extended periods and "emphasizes a willingness to hold investments through market downturns, resisting pressure to de-risk or change strategy during periods of volatility," as quoted from the Dimson/Chambers report.

The current asset allocation is 72% public equities, 26% fixed income, and 1.7% private real estate. Norway's Ministry of Finance does not allow private equity investments. The Ministry evaluates its performance against a 70% FTSE Global All Cap equity index and 30% against a set of Bloomberg Barclays fixed income indices. Historical performance has tracked very close to this blended index (23bps of alpha/annum over last 10 years).

The model incorporates a moderate degree of active management. While recognising that consistent outperformance (alpha) is challenging to achieve, the model leverages substantial in-house resources and external specialist equity managers to pursue excess returns. This approach focuses on specific investment areas like emerging markets, small-caps, and selected industries. The model acknowledges that most performance deviations from the benchmark are attributable to cost drag rather than superior stock selection ability.

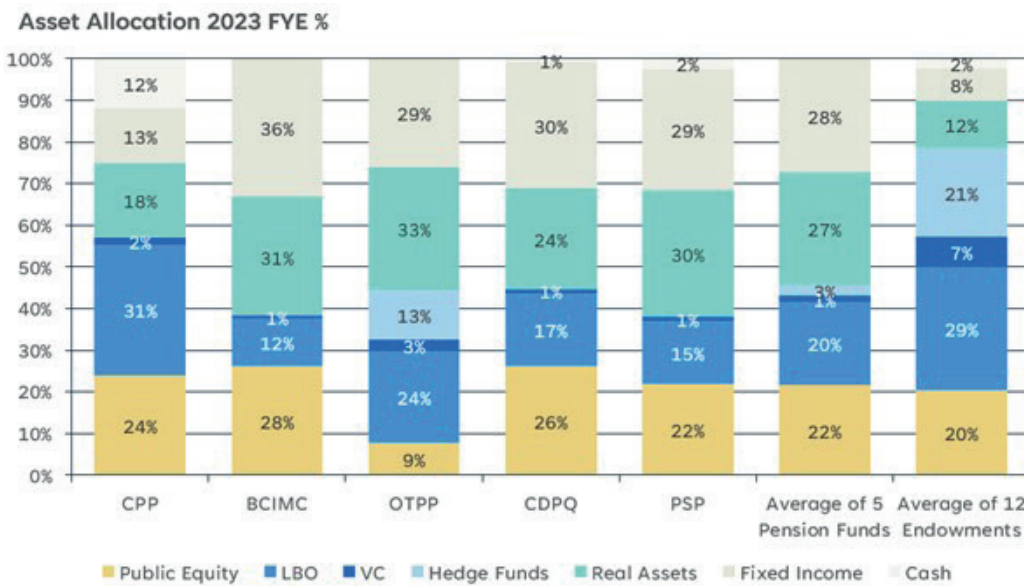
As a significant equity holder, the Fund prioritises good corporate governance and active engagement with management to generate value. The Fund diligently monitors and controls all fees and costs associated with its portfolio to ensure optimal performance.

2. Canadian Model

The Canadian Model is characterised by in-house active management, significant exposure to private markets, strong governance, global diversification, and a long-term investment horizon. These pension funds are governed by independent boards of directors and operate with a high degree of autonomy from government interference. This independence allows them to focus on long-term investment decisions without being subject to short-term political pressures.

While Canadian pensions pursue active management and high returns through private markets, they are still highly focused on aligning their investment strategy with their pension liabilities. This means balancing growth assets (like equities and private markets) with liability-hedging assets (like bonds and real assets) to ensure that they can meet their long-term obligations to pension beneficiaries. 28%, on average, is held in bonds which explains the majority of the 1.4% average annual performance differential vs the endowments.

Asset allocation for the five Canadian pension funds in 2023 shows 21% average PE/VC vs 36% for endowments, with very little in VC.



Over a 10-year period, alpha measured against the equity-like benchmark (ENEB) ranged from 3.3% to 1.4%, with an average of 2.3%.

Pension Fund	C	B	E	A	D	Average
10-Year Alpha vs ENEB Benchmark	3.3%	2.3%	2.3%	2.0%	1.4%	2.3%

Over a 10-year period, alpha measured against the asset allocation benchmark ranged from 0.0% to -1.8%, with an average of -0.9%.

Pension Fund	C	A	B	D	E	Average
10-Y Alpha vs Asset Alloc BM	0.0%	(0.4%)	(0.7%)	(1.3%)	(1.8%)	(0.9%)

The asset allocation benchmark includes the Cambridge Associates private equity index. The fact that the Canadian pensions did not generate positive alpha against this benchmark suggests that their internally managed private equity portfolio has underperformed the average PE performance.

The strengths of the model are cost efficiency (avoiding third party fees), direct investment control, transparency and risk management benefits. The challenges are operational complexity, potential adverse selection and talent retention.

3. McKinsey Investment Office (MIO) Portable Alpha Model

MIO deploy a portable alpha approach, with c.80% cash allocation to approximately 100 managers who run essentially market neutral, with a further c.100% exposure achieved mostly through derivatives of fixed income, commodities, currencies, equities and credit to achieve overall portfolio beta targets (see benchmark below). Leverage is estimated to be approximately two times invested capital based on ADV reported “regulatory capital” of c \$20B. Their benchmark asset allocation is 25% nominal bonds, 50% ILBs, 15% equities, 5% high yield and 5% commodities, reflective of a risk parity approach with alpha on top from their diversified portfolio of mostly absolute return or market neutral style of manager. We estimate that the Special Sits fund has about 35% of cash exposure allocated to long-short equity managers, 30% to commodities traders, 16% to macro, with the rest in multi-strats, quant and systematic credit. Anecdotally, recent outperformance has been attributed to their commodities book.

60% of assets are invested via separately managed accounts (SMAs) with managers and 40% are in funds. SMAs are managed through prime brokers. They explicitly refer to their portfolio as “a series of uncorrelated alpha engines” and not a portfolio of hedge funds. Leverage is primarily achieved via derivatives, but they also make use of a 50% lending facility. The flagship Compass Special Situation fund holds approximately \$9.5B in aum including 10% in privates (2022).

MIO officially target 2-4% returns from beta and 2-3% from alpha. Performance has exceeded these targets, with the most extreme outperformance in 2021 when alpha was +19.1% of +26.0% return). Alpha has been positive every year since 1999, with the exception of 2008. The portfolio runs at an average beta to MSCI World of 0.2x. Individual investors may have the option of adding their own beta on top – e.g., German equities, MSCI World, UK Gilts, etc.

The strength of the model is to achieve high returns with relatively low market exposure. The challenges are operational complexity, high underlying fees and a labor-intensive manager monitoring operation.

4. Risk Parity Model

As its name implies, this model seeks to achieve roughly equal risk exposure (measured by standard deviation) to the major investment risk factors of equities, credit, rates and inflation. This is achieved through leverage, mostly provided through derivatives. The goal of risk parity is to achieve consistent performance across different environments, while minimising risk. However, some say that risk parity has underperformed traditional stock-to-bond portfolios, and that recent market volatility has magnified its shortcomings. The most famous RP strategy has been Bridgewater’s All Weather hedge fund portfolio.

The strengths of the risk parity model are that overall volatility is low relative to any one of the betas, as their returns tend to have low correlations, and each risk factor performs well in somewhat different environments. The main challenge is that this combination of betas in equal proportions over the long-term are expected to deliver a lower return than most institutions require. Long periods of strong performance by any one factor, particularly equities, can test the asset owner’s patience for the model to work. Additional challenges include the need for high levels of leverage and the breakdown of historical correlations.

5. Total Portfolio Approach (TPA)

Earlier this year, the Chartered Alternative Investment Analyst (“CAIA”) Association published a paper “The Rise of Total Portfolio Approach”, a thought leadership piece which challenges the traditional Endowment Model approach of investing and proclaims a new approach for the next era of investing – the Total Portfolio Approach (“TPA”). The paper was authored by a handful of senior investment professionals at leading institutional asset owners across SWFs (GIC,

Australian Future Fund) and Pensions (New Zealand Super and Canadian Pension Plan).

TPA is a holistic approach to investing, under which portfolios are managed to an overall risk/return level, but do not have a target strategic asset allocation (SAA). Portfolios are therefore more flexible in their asset allocations and all potential investments compete for capital against one another. Instead of a focus on traditional asset class ‘buckets’, this approach encourages investors to focus on underlying market risk exposures/factors including traditional betas such as equity, credit, inflation and rates. In addition to the portfolio construction aspects of the approach, TPA incorporates a board-inclusive governance approach and a culture of extreme cooperation horizontally and vertically in the organisation.

The paper suggests that the key benefits of such an approach are that it reduces ‘silo’ behaviour between asset class buckets/teams, improves overall return of the portfolio by enabling competition for capital across asset classes and improves portfolio risk management through better understanding of the underlying risks within a portfolio.

The TPA is employed by a number of large superannuation and pension funds and sovereign wealth funds, such as Singapore’s GIC, New Zealand Super, Canada Pension Plan, Australia’s Future Fund, and the Willis Towers Watson Pension Fund.

Using factors instead of asset classes to manage overall risk and diversification in a portfolio has become part and parcel of managing the endowment model by many institutions for a decade or more. This is also a confused part of the TPA model. Why do they care about the level of risk, whether measured by asset classes or betas/factors when they are largely bottom-up manager pickers with any given manager competing with any other manager? TPA must be executed with some guardrails on specific risk exposures in practical applications. So, without further understanding from its advocates, we see TPA as just broadening the allocation ranges to certain risks in favour alpha potential from a set of managers. This is a judgement call all endowment model practitioners should be making, in any case.

6. Liability-Driven Investment (LDI)

Commonly used by pension funds, the LDI model focuses on matching assets to liabilities. It seeks to hedge interest rate and inflation risks by investing in assets that correlate with the liabilities they must cover - bonds and inflation-linked bonds or their derivatives. The simple goal is to ensure the fund can meet its long-term obligations (i.e., pension payments), even if this requires a more conservative investment strategy.

7. Mission-Related Investing (MRI) and Impact Investing

Institutions, especially foundations or endowments, sometimes integrate mission-related goals into their investment strategies. This could include focusing on ESG (Environmental, Social, and Governance) factors, or impact investing that aligns the portfolio with the institution’s mission or values. The goal of this strategy is to generate competitive financial returns while also achieving social or environmental impact.

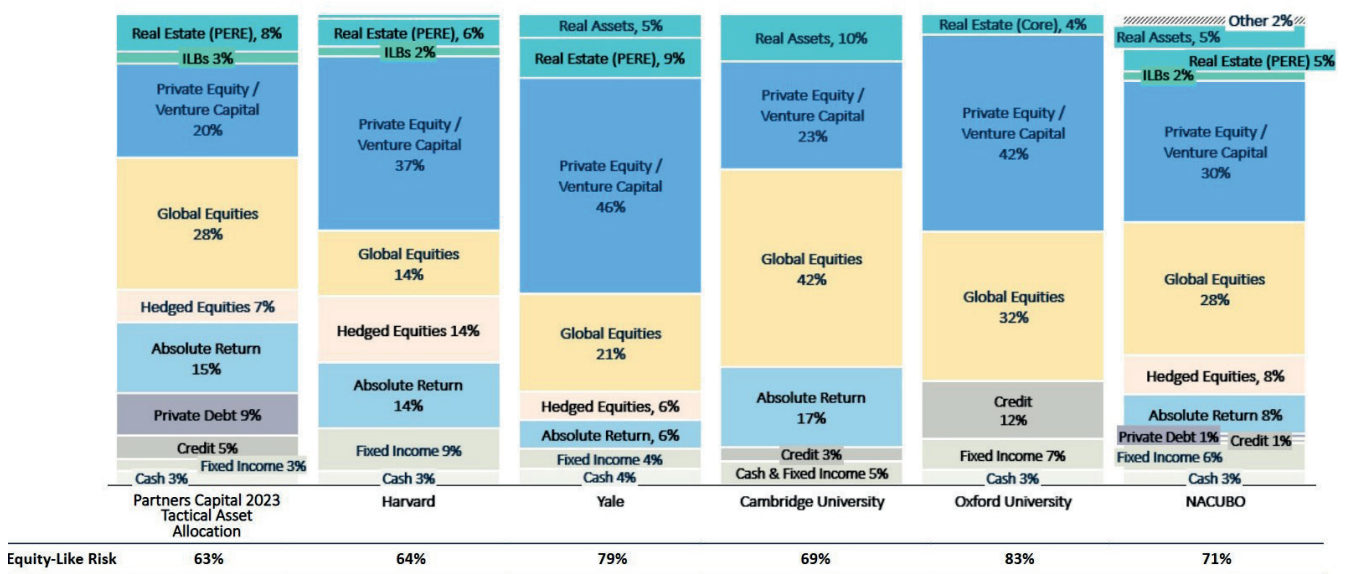
8. Hybrid Models (e.g., LDI + Risk Parity or Total Return + Endowment)

Some institutional investors combine multiple approaches into a hybrid model, tailoring their strategy to meet both return and liability objectives. For example, they might blend a liability-driven approach with a risk-parity portfolio to hedge liabilities while still seeking alpha in other areas. The goal is obviously to get the best from each model, maximising flexibility and adapt to specific institutional requirements.

Appendix II. Performance of the Endowment Model (and the Canadian Pensions)

The essence of the endowment model is multi-asset class diversification with a heavy bias toward illiquid asset classes, mostly private equity. Below we show the recent allocation of institutions following the endowment model. The tables below this have been taken from the recent whitepaper written by True North Institute entitled “Analysis of Large US University Endowment Outperformance,” in May 2024 which can be found [here](#).

The essence of the endowment model is multi-asset class diversification with a heavy bias toward illiquid asset classes, mostly private equity.



Source: Latest available financial reports. Where asset class classifications differ, we have interpreted to the most appropriate category. NACUBO represents the All-Institutions average.

Exhibit 1: The range of absolute performance of 12 large US endowments over the 10-Year period ending 30 June 2023.

Endowment	MIT	Brown	Yale	Princeton	Notre Dame	Dartmouth	UVIMCO	U Penn	Stanford	Cornell	Harvard	Columbia	Average	Hi-Lo Range
10-Yr Annual Absolute Return	11.5%	11.3%	10.9%	10.8%	10.6%	10.5%	9.8%	9.7%	9.5%	8.4%	8.2%	8.1%	10.0%	3.4%

Exhibit 2: Over the 10-Year period, alpha measured against the Equity-like risk (ENEB) benchmark ranges from 4.1% to 1.7% with a mean of 2.7%.

10-Year Endowment vs ENEB Benchmark

ENEB Alpha Rank	1	2	3	4	5	6	7	8	9	10	11	12	Mean	Hi-Lo Range
Endowment Code	B	C	A	D	F	H	E	J	I	G	K	L		
ENEB Alpha	4.1%	3.4%	3.2%	3.1%	3.1%	2.9%	2.3%	2.3%	2.2%	2.2%	1.9%	1.7%	2.7%	2.5%

Exhibit 3: Over the 10-Year period ending 30 June 2023, alpha measured against the tougher Asset Allocation Benchmark ranges from 2.6% to -0.2% with a mean of 1.2% p.a.

10-Year Endowment Return vs. Asset Allocation Benchmark

Asset Allocation Alpha Rank	1	2	3	4	5	6	7	8	9	10	11	12	Mean	Hi- Lo Range
Endowment Code	A	B	C	D	E	F	G	H	I	J	K	L		
Asset Allocation Alpha	2.6%	2.3%	2.1%	1.6%	1.3%	1.2%	1.1%	1.0%	0.5%	0.4%	0.1%	(0.2%)	1.2%	2.9%

Exhibit 4: The range of Canadian Pension absolute performance over 10-years was 2.4%, with the highest at 10% and the lowest 7.6%.

Pension Fund	CPP	PSP	BCIMC	CDPQ	OTPP	Average
Absolute 10-Year Performance	10.0%	9.2%	8.5%	7.4%	7.6%	8.6%

Exhibit 5: Average University Endowment Performance over 1-, 3-, 5- and 10- year periods (for 12 endowments).

Period	Absolute Return	ENEB Benchmark		Asset Allocation Benchmark	
	Average Absolute Performance	ENEB Benchmark	Alpha vs ENEB Benchmark	Asset Allocation Benchmark	Alpha vs Asset Allocation Benchmark
1-Year	1.8%	13.8%	(12.0%)	5.3%	(3.5%)
3-Year	12.3%	9.5%	2.8%	12.2%	0.1%
5-Year	10.1%	7.2%	2.8%	9.4%	0.7%
10-Year	10.0%	7.3%	2.7%	8.8%	1.2%

Exhibit 6: Five-year Alpha dispersion across 12 US endowments: the ranges of alpha across the 12 endowments studied is shown below.

Endowment	Endowment vs ENEB Benchmark		Endowment vs Asset Allocation Benchmark	
	Alpha vs ENEB Benchmark	ENEB Alpha Rank	Alpha vs Asset Allocation Benchmark	Asset Allocation Alpha Rank
B	5.9%	1	3.3%	1
D	3.5%	2	1.3%	2
A	2.8%	6	1.2%	3
G	3.1%	3	1.1%	4
J	2.9%	5	1.1%	5
C	3.0%	4	1.0%	6
E	2.4%	9	0.9%	7
L	2.5%	8	0.2%	8
I	2.2%	11	(0.0%)	9
F	2.5%	7	(0.2%)	10
H	2.3%	10	(0.5%)	11
K	0.9%	12	(1.1%)	12
Average	2.8%		0.7%	

Source: True North Institute analysis of publicly available data

Exhibit 7: Average overall portfolio risk levels (as measured by equity equivalent risk – ENEB), rose from 63% to 80% for endowments over the last 10 years, while Canadian Pensions maintained risk levels at approximately 65%.

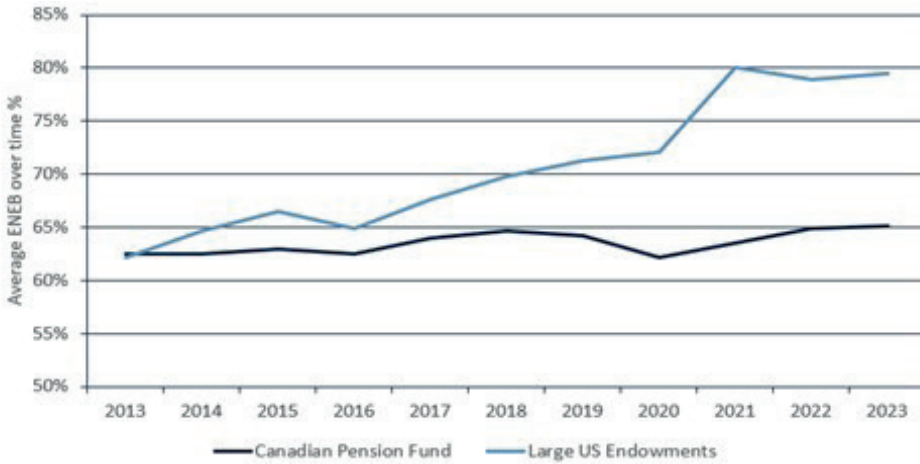
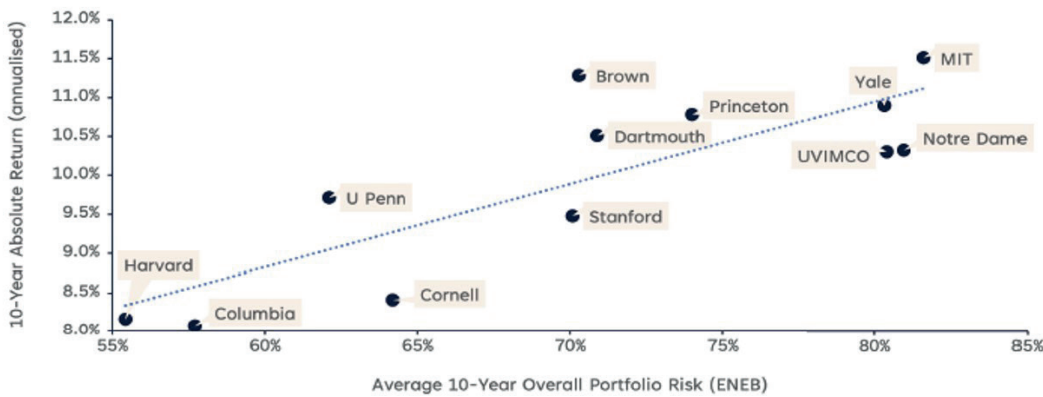
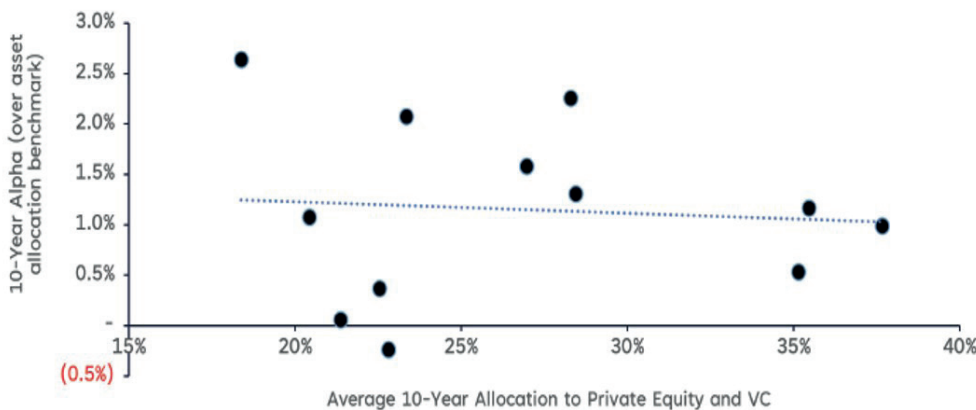


Exhibit 8: There is a positive relationship (R-squared of 0.67) between the overall portfolio risk level and 10-year absolute portfolio returns.



Source: True North Institute analysis of publicly available data

Exhibit 9: There is no meaningful relationship (R-squared 0.01) between the amount of PE exposure each of the 12 endowments had, and the alpha earned per year (vs asset allocation benchmark).



Source: True North Institute analysis of publicly available data

Appendix III. Most common investment model practiced by different types of investment institutions

Dimension	Endowments & Foundations	Pensions & SWFs	Taxable Family Offices
1. Investment Time Frame	<ul style="list-style-type: none"> Very Long. Greater than 10 years. Fixed 3-5% payouts 	<ul style="list-style-type: none"> Very Long, but with variable short term payout obligations 	<ul style="list-style-type: none"> Generally shorter term, with larger more sophisticated FO's long-term
2. Overall Risk Level	<ul style="list-style-type: none"> Very High > c 75% equivalent equity risk 	<ul style="list-style-type: none"> Pensions c 50% equivalent equity risk; SWF's often higher risk @ c 70% equity-risk 	<ul style="list-style-type: none"> c 60% equity-like risk
3. Static v Dynamic Risk Management	<ul style="list-style-type: none"> Static: no market timing 	<ul style="list-style-type: none"> Static: no market timing 	<ul style="list-style-type: none"> Market timers
4. Asset Allocation	<ul style="list-style-type: none"> Relatively consistent mix of asset classes with c 25-50% illiquid asset classes 	<ul style="list-style-type: none"> Varies hugely from one PF/SWF to another. Some with no or limited allocations to illiquid asset classes Heavy bond allocations for LDI (liability driven investing) 	<ul style="list-style-type: none"> Tax driven, bias to property and long-hold direct private companies
5. Active vs Passive	<ul style="list-style-type: none"> Active 	<ul style="list-style-type: none"> Active and Passive 	<ul style="list-style-type: none"> Active
6. Internal v External Asset Mgmt	<ul style="list-style-type: none"> External 	<ul style="list-style-type: none"> Larger scale PFs and SWFs warrant internal management. Canadian pensions have own bias for internal PE and Property teams 	<ul style="list-style-type: none"> Generally, a mix with bias to small internal teams
7. Manager Concentration	<ul style="list-style-type: none"> 100+ managers largely due to optimization within each asset class 	<ul style="list-style-type: none"> Varies depending on asset allocation - with high PE, there are high #s of managers 	<ul style="list-style-type: none"> Varies
8. Team Specialization (vs Generalists)	<ul style="list-style-type: none"> Mixed. Divided view among endowments 	<ul style="list-style-type: none"> Mixed. 	<ul style="list-style-type: none"> Bias to small generalist team
9. Bottom-up vs Top-down (asset class ranges)	<ul style="list-style-type: none"> Generally top-down Strategic Asset Allocation driven. With guardrails (min/max) 	<ul style="list-style-type: none"> Generally top-down SAA driven with more variability to match liabilities 	<ul style="list-style-type: none"> Varies; less stringent on tight allocations
10. Asset Manager Relationships	<ul style="list-style-type: none"> Bias to owner-operated mgrs. with highly aligned interests "True partnership model" – LPs seek to be value added with GPs 	<ul style="list-style-type: none"> Scale requires use of bigger institutional managers if not done mostly internally (Blackrock users) 	<ul style="list-style-type: none"> Light touch; smaller % of manager AUM and small team unable to spend the time
11. Governance	<ul style="list-style-type: none"> IC/Board sets policy: risk, liquidity, asset allocation; lets team select managers and execute against policy 	<ul style="list-style-type: none"> IC/Board has more mixed, non-investor members, introducing some non-financial goals and bias to conservatism. 	<ul style="list-style-type: none"> Principal often dominates DMP

Note: Assumes Endowments & Foundations are \$5B to \$30B AUM, Pensions are over \$100B in AUM and Family Offices are <\$10B AUM.

Appendix IV. Beyond The Endowment Model (TEM)

In order to “road test” this whitepaper, I sent it out to a group of 15 “CIOs” listed below. Some are not actual CIOs today including two Harvard Business School investment management professors and a highly respected podcaster. We gathered in the Boston office of Partners Capital on the 7th of November, 2024 and debated the key points of the paper.

True North Institute CIO Forum Volunteers (7 Nov 2024)

First Name	Last Name	Institution	Position	Home
Daniel	Balthasar	Norges Bank Investment Mgmt (Norway oil fund)	Co-CIO	London
Alex	Band	Partners Capital	CIO	Boston
Tilly	Franklin	Cambridge University Endowment Fund	CIO	London
Jeffrey	Jaensubhakij	GIC (Govt of Singapore Investment Corp)	CIO	Singapore
Letitia	Johnson	Amherst College	CIO	Boston
Jason	Klein	Memorial Sloan Kettering Cancer Center	CIO	New York
Kim	Lew	Columbia University Endowment	CEO & President	New York
Narv	Narvekar	Harvard Management Company	CEO	Boston
Colin	Pan	Valence8	Founder, CEO	London
Andre	Perold	HighVista, HBS Professor of Investment Management	CIO and Co-Founder	Boston
David	Salem	HedgeEye (TIFF founder, Whitehorse)	Managing Director	Boston
Ted	Seides	Capital Allocators podcast, ex-Yale Endowment	Founder & Host	Connecticut
Allison	Thacker	Rice University	Special Advisor, x-CIO	Houston
Jennifer	Urdan	SV Comm Fund, Marin Comm Fund, ex Cambridge Assoc	IC Member	San Francisco
Luis	Viceira	Harvard Business School	Prof Investment Mgmt	Boston

Ted Seides of the Capital Allocators podcast orchestrated a lively three-hour discussion with our group; of “CIOs”, (with two not able to attend, but where I had the opportunity to solicit their views 1-on-1). Below I summarise my take-aways from the discussion:

- 1. The endowment model** is still robust and compelling for many truly long-term investors, but not all. The future of private equity and venture capital is the main threat. Most, but not all, CIOs in the room felt PE and VC would continue to deliver outperformance vs public equities, but not nearly as much as in the past.
- 2. Scale.** The endowment model works better at a certain scale that is large enough to gain the attention of the best asset managers and to afford a highly capable internal team that can build powerful relationships with those exceptional managers. But scale becomes counterproductive when it precludes the investor from accessing the many smaller managers without incurring over-diversification and unmanageable complexity. No number was put on the size threshold that would largely obsolete the endowment model.
- 3. SAA.** The group disagreed on the role of a top town Strategic Asset Allocations, with a few wanting to do away with it altogether, but most feeling it just needs to be somewhat flexible and not act as a straitjacket.
- 4. The Total Portfolio Approach (TPA)** intrigued many of us in the room but see it as more of a permutation of the endowment model that puts less importance on the SAA, and more importance on bottom-up asset manager selection.
- 5. Risk Budget.** We spent a lot of time debating the best way to establish the risk appetite or budget for the portfolio with input from the board/investment committee. We spent the most time talking about maximum peak to trough drawdown in portfolio value, but many felt even this depends on the nature of the drawdown. Volatility and beta were

mentioned as other tools for setting overall portfolio risk level.

6. **Governance.** The role of governance and working with different stakeholders loomed large as a source of concern over effective portfolio management. Conflicting goals of different stakeholders (e.g., students, faculty, community, government) are a source complexity and stress that none of us feel we have nailed. Some did feel that good governance improved their risk-adjusted returns. We felt a future session could usefully address this.
7. **Target Returns.** An 8-9% long-term target nominal portfolio return target seemed sensible for most investors in the room, but not those which had a liability matching needs and were of a scale that precluded a significant private markets allocation. This 8-9% is built up from a 4% to 5% spend rate, 3% (increased from 2%) average inflations plus 1% HEPI (higher education price index).
8. **Performance Measurement.** There was very little agreement on how best to measure and evaluate portfolio performance.

The list of potential future topics for the group to debate include governance, active vs passive management, thematic investing and a more in-depth review of the future of private equity and venture capital. I would like to also re-open the discussion on how best to measure and evaluate performance.



Disclaimer

The value-added performance calculations in this document are being shared for illustrative purposes only. The assumptions used in our calculations may not accurately reflect the actual assets owned by the endowment and decisions made by the endowment investment management company. For example, the assumptions about average asset allocation may not reflect tactical asset allocation choices made by the management company during the year. Furthermore, the choice of benchmark for each asset class is based on available information about the endowment strategy but may not adequately reflect the total or type of risk being taken. Risk overlays and other hedges are not included in this analysis and may have a material effect on performance. Finally, the reporting periods for private equity and private debt may be different depending on the reporting standards each endowment uses. Each of these issues, and others not mentioned, could create basis risk between the illustrated value-added and the actual true value added.

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