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The Endowment Model Reimagined

Developed by a select group of university investors and later adopted by many nonprofits, the "endowment model" was often considered the gold standard for maximizing long-term returns. In recent years, many adherents have underperformed compared to simpler, lower-cost portfolios of index-like public bond and equity allocations.

We don't believe the endowment model is broken. In our view, it excels at the "art" of asset allocation: emphasizing diversifying alternative investments, seeking alpha-generative skill, and leveraging a long investment horizon to capture risk and illiquidity premia. However, it has not placed as much emphasis on adopting the "science" of portfolio construction: technological and analytical tools that help detect and adapt to changes in market structure.

In this paper, we examine the challenges facing the endowment model and propose a more dynamic, holistic and scientific approach to modernize it.

Executive Summary

- The endowment model has been an important blueprint for many years, taking advantage of long investment time horizons to make large illiquid asset allocations.
- The model has been challenged by opportunity costs that arise from unexpected liquidity crunches.
- The model prioritized skills-oriented, return-seeking manager selection in alternative strategies, but this resulted in limited transparency, overlapping risks, operational complexity and cost inefficiency.
- We believe advances in portfolio management technology and analytics allow for a more adaptive playbook that can better navigate evolving macroeconomic conditions:
  - A holistic portfolio approach focused on true portfolio exposures, risks and diversification
  - Streamlined manager relationships, with greater oversight and holdings-level transparency
  - Better integration of private investments and their liquidity and cash-flow profiles
- We summarize this playbook in five key "ABC" principles:

  A. **Attribute** and Adjust

  B. **Balance** Liquidity

  C. **Consolidate** Manager Relationships

  D. **Directly** Invest

  E. **Eliminate** Silos

The endowment model of investing, pioneered in the 1980s at Yale University by Chief Investment Officer David Swensen, was an evolution of traditional public market allocations like the 60/40 Equity/Bond portfolio.

The model's core principles leverage endowments' perpetual time horizons and limited liquidity needs from structured spending policies. It seeks high equity-like returns at higher risk levels, prioritizing diversification for return enhancement rather than volatility reduction. Hedge funds were included for managers' alpha-generating skills rather than low correlations, while significant allocations to venture capital and growth-focused private equity targeted illiquidity premia and high return potential.

CORE PRINCIPLES OF THE ENDOWMENT MODEL

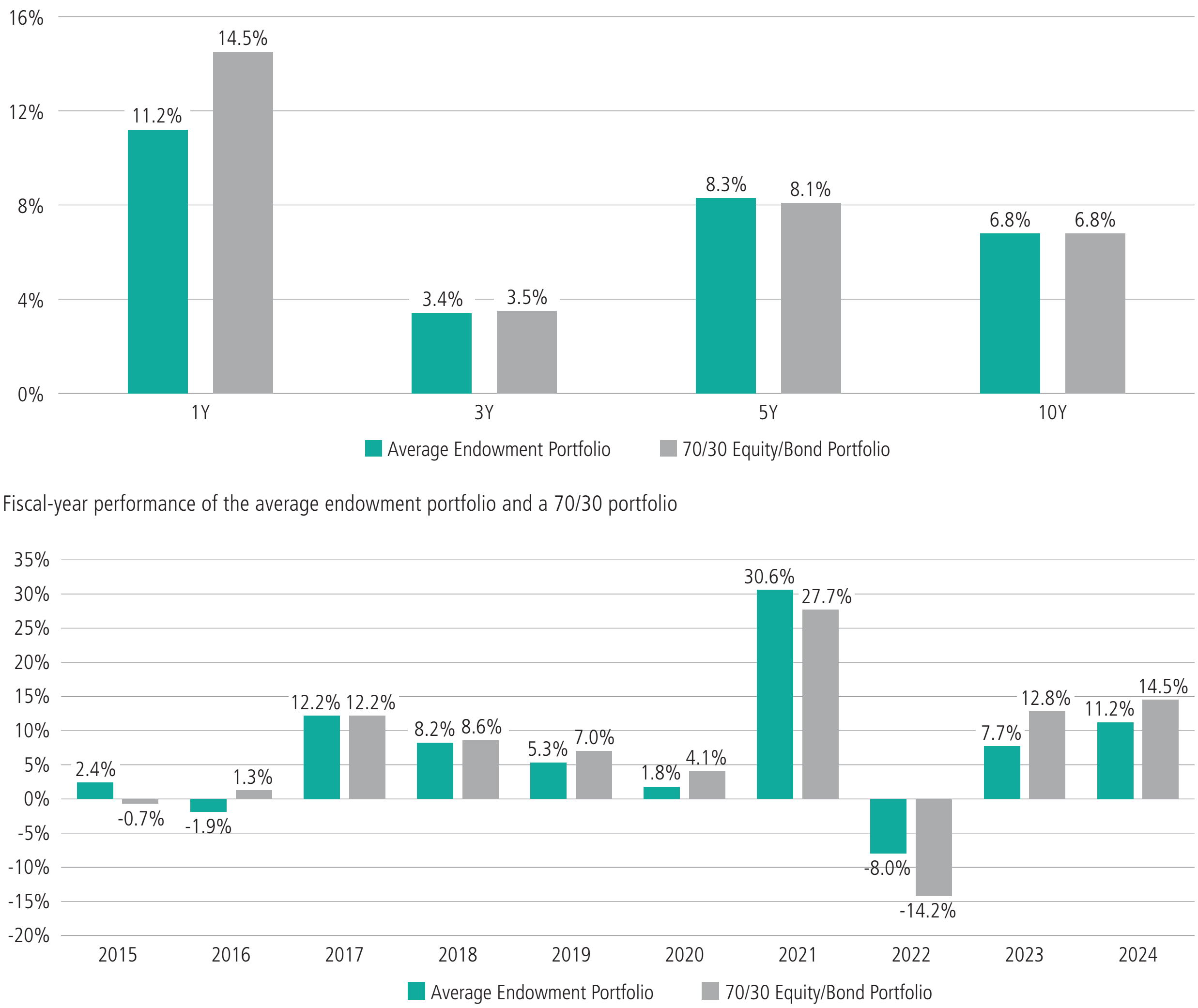
Long-term Focus	Exploiting a perpetual time horizon
Diversification	Allocating across many strategies and managers to seek diversification
Alternatives	Increasing allocation to return-seeking alternative and illiquid assets
Alpha Generation	Deliver excess returns through selection of top-performing active managers

The framework gained prominence as Yale and other leading university endowments delivered strong results over several decades, becoming a blueprint for allocators. However, performance has faltered in recent years, with extended underperformance since the Global Financial Crisis and a particularly pronounced lag since 2021. Over the past decade, the average endowment has struggled to match a developed-world 70/30 portfolio (figure 1). Year-by-year analysis reveals that this underperformance has been relatively consistent, except during the immediate post-pandemic period of 2021–22 (figure 2). Over the last 10 fiscal years, the average endowment outperformed a 70/30 passive blend in only two years. In 2023 and 2024, the average endowment lagged the 70/30 portfolio by a cumulative 10.5 percentage points.

FIGURE 1: A DISAPPOINTING DECADE

Trailing performance of the average endowment portfolio and a 70/30 portfolio

Fiscal-year performance of the average endowment portfolio and a 70/30 portfolio



Nothing herein constitutes a prediction or projection of future events or future market behavior. **Past performance is no guarantee of future results.**

Source: *2024 NACUBO-Commonfund Study of Endowments*, Bloomberg. Endowment returns are net of costs. Returns for periods over one year are annualized. Indices used for the 70/30 Portfolio: MSCI World Index; Bloomberg U.S. Aggregate Index.

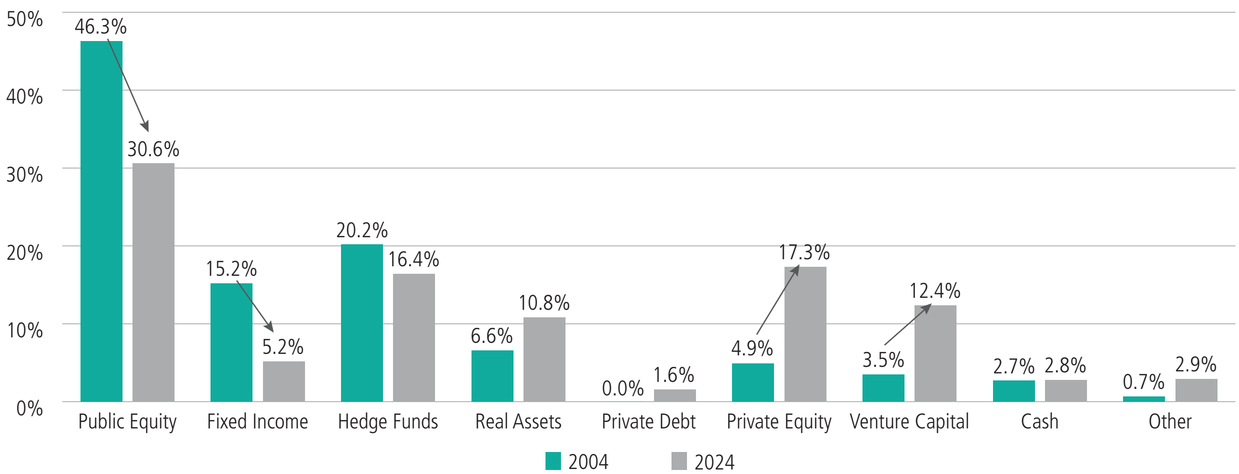
The endowment model has seen declines in both its cumulative relative performance and its frequency of beating the market. What went wrong? We identify two key factors, both tied to the traits that once made the model so successful.

Venture Capital and Growth Private Equity: A Double-Edged Sword

Over the past 20 years, endowments significantly increased their allocations to illiquid private equity and venture capital. For many years, these allocations were the engine of endowments' outperformance. More recently, they have struggled to keep up with the U.S. public equity market (figure 2).

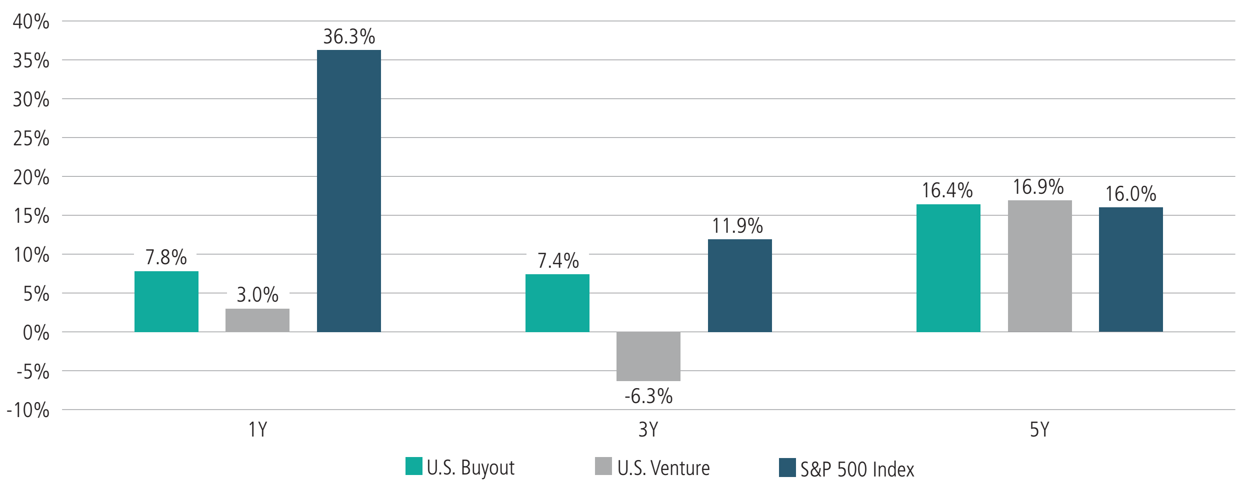
FIGURE 2: GROWING RELIANCE ON PRIVATE EQUITY AND VENTURE CAPITAL

Change in large endowments' asset allocation, 2004 – 2024



Source: *2024 NACUBO-Commonfund Study of Endowments*. Data as of June 30, 2004 and June 30, 2024. Shows average asset allocations of endowments with assets over $1bn.

Recent trailing performance of private equity, venture capital and U.S. public market equities



Nothing herein constitutes a prediction or projection of future events or future market behavior. **Past performance is no guarantee of future results.**

Source: Burgiss, Bloomberg. Data as of September 30, 2024. As a representation of the performance of U.S. private equity buyout and U.S. venture, we use internal rates of return (IRR) from the database of predominantly buyout and venture capital funds maintained by Burgiss, now part of MSCI: as of Q1 2024, Burgiss tracks 1,711 buyout funds and 2,630 venture capital funds. Returns are shown gross of fees. Returns for periods over one year are annualized.

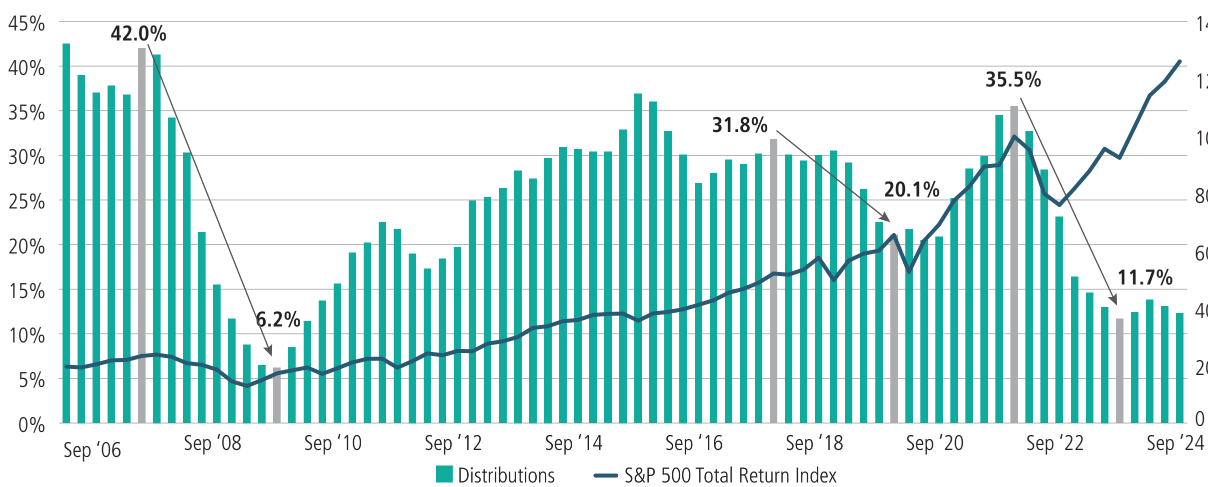
Several factors help explain this underperformance. Early adopters of the endowment model gained access to leading managers, but as more capital poured into private equity and venture capital, fund sizes grew and returns were diluted. Post-GFC, debt financing became harder to secure, and leverage levels declined. Although the prolonged low-rate environment supported valuation multiples and lowered the cost of capital for private equity managers, it also boosted bond and public equity performance, making it harder for private equity to outperform.

To some extent, the relative performance issues are likely to resolve through mean reversion: while the 16.4% annualized return to private equity over the past five years is not out of line with the long-term average, the exceptional 16% return to the S&P 500 Index is, in our view, much more likely to be in the 6 – 7% range over the next five years. That said, we think it is worth focusing on the pronounced underperformance in 2020 and during 2023 – 2024, which bookended a period of relatively strong performance in 2021 – 2022. This pattern highlights the critical role of liquidity in the performance of not just endowments' private equity portfolios but their overall portfolios.

In 2020, pandemic restrictions caused a sharp decline in private equity transactions, stalling both acquisitions and exits. This lack of cash flow prevented capital recycling into new investments just as public markets rebounded strongly from the early-pandemic sell-off. When restrictions eased in 2021, deal activity resumed, cash was distributed and reinvested, and endowments' relative performance recovered. However, as central banks aggressively raised rates to combat inflation, deal activity slumped again, leaving endowments short of capital just as markets rebounded strongly from the 2022 sell-off (figure 5). This was further compounded by overinvestment in 2020 and 2021, as general partners deployed twice the typical amount of capital in those vintage funds.[1]

FIGURE 3: PRIVATE EQUITY DISTRIBUTIONS SEIZE UP JUST AS PUBLIC MARKETS TAKE OFF

S&P 500 Index versus last 12-months' buyout fund distributions as a percentage of beginning NAV



Source: Pitchbook, FactSet. Data as of September 31, 2024. The distributions data for Q2 and Q3 2024 was estimated based on exit deal value.

The recent liquidity crunch highlights a structural flaw in the endowment model's focus on high multiple generation in private markets while overlooking liquidity risk. Although such crunches don't pose an existential threat to endowments with multi-decade horizons, they can lead to significant opportunity costs. In 2023 and 2024, liquidity constraints limited capital available for new commitments, opportunistic deals, and co-investments, as well as for capturing two consecutive years of 25%+ returns in public U.S. equities.

[1] Neuberger Berman's Institutional Solutions team undertook research on the impact on economic downturns on Private Equity which analyzed private equity characteristics through notable drawdown periods of early 2000s and the Global Financial Crisis. The analysis uncovered a similar pattern to that seen over the past five years. Net cashflows were negative during both periods, with distributions declining almost immediately and recovering with a notable lag as the economy and public markets regained their footing. In fact, over the GFC period, investors did not begin to see positive net cash flows until the fourth quarter of 2010, seven quarters after the beginning of the market recovery. See "The Historical Impact of Economic Downturns on Private Equity" (May 2022), at https://www.nb.com/en/link?type=article&name=the-historical-impact-of-economic-downturns-on-private-equity.

Manager Proliferation: Too Many Cooks?

Endowment portfolios typically follow a strategic asset allocation across traditional and alternative asset classes, with an investment committee providing oversight and an investment office managing portfolio construction. Implementation relies heavily on external managers, making manager selection critical for achieving high total returns, especially in alternatives. However, the model's focus on diversification for returns rather than volatility mitigation led to the inclusion of many private equity and hedge fund managers, not for their low correlations, but for their potential to deliver high alpha. This emphasis on manager additions, often based on perceived skill rather than evolving market opportunities, was in some cases not matched by an equal focus on removing underperforming managers.

The resulting proliferation of managers created significant administrative and governance challenges, even for well-resourced investment offices. Conducting due diligence on a broad universe of active managers while monitoring existing relationships became increasingly difficult. Commitments could become subscale based on limited manager capacity, and transparency on total portfolio exposures became difficult to monitor given managers that provide their portfolio data on a lag. Without adequate real-time holdings data, combining "best ideas" managers sometimes led to suboptimal portfolio construction, despite initial diversification benefits.

Understanding portfolio exposures is crucial, particularly as equity markets have grown more concentrated. Following the GFC, many hedge fund managers shifted to leveraged beta exposures, doubling up on market risk already present in long-only portfolios, all while charging high fees for what was essentially market exposure rather than alpha. At the same time, many managers avoided concentrated mega-cap U.S. technology stocks, such as the "Magnificent Seven," leaving endowments underexposed to one of the strongest investment themes in recent years.

THE ENDOWMENT MODEL REIMAGINED

We believe the core pillars of the endowment model remain sound: allocating meaningfully to diversifying alternative investments, seeking alpha-generative skill, and leaning into a long investment horizon to harvest risk and illiquidity premia. However, we believe five key principles can help improve performance:

A. **Attribute** and Adjust

B. **Balance** Liquidity

C. **Consolidate** Manager Relationships

D. **Directly** Invest

E. **Eliminate** Silos

A: ATTRIBUTE and Adjust

Much has changed since the formative years of the endowment model, including the depth of traditional and alternative assets, as well as the ability to generate value-add. As the opportunity set shifts across asset classes and managers, it is crucial to continually evaluate whether the portfolio is consistently delivering returns above the market. Allocations and resources should pivot toward areas with higher alpha potential—or shift away (or go passive) where success rates have declined. The endowment model emphasizes manager selection due to the higher tracking error of many active managers. Endowment investors should evaluate whether manager structure, tactical asset allocation or thematic investments have added value and adjust accordingly based on demonstrated skill.

Attribution can be paired with an active risk framework—a clear example of blending "science" with the "art." While endowments have traditionally focused on Sharpe ratios (absolute return relative to risk), we believe an information ratio approach—measuring value-add relative to active risk—should be an equal priority. If it becomes unclear whether active risk can be effectively deployed in a particular area, endowments can reduce the active risk budget, go passive or reallocate. No two endowments approach active management identically. Quantitative offices may succeed with strategies like risk parity or portable alpha, while fundamentally driven offices may favor concentrated active managers. Regardless of approach, success should be measured over three- to five-year periods, providing enough time to allow active management to play out while avoiding lingering in unproductive areas.

The Importance of Factor Awareness

Early in the endowment model's development, allocators often favored certain equity factors, particularly value and small cap. Over time, factors have become more balanced, but we believe further improvements could enhance public equity portfolios to better navigate increasingly complex market conditions. Portfolio construction can become more scientific with greater factor awareness, using analysis of historical manager returns and returns-based attribution models. These tools enable holistic analysis of factor exposures, biases, and alpha at both the manager and total portfolio level, including sensitivities to interest rates, credit spreads, equity risks, and macroeconomic shocks like growth or inflation. With full holdings-level oversight across liquid, semi-liquid and illiquid allocations, active managers can be added or re-weighted to provide "completion" exposures. Understanding these characteristics relative to different investment regimes is essential for adjusting portfolio positioning as market expectations evolve.

B: BALANCE Liquidity

Recent years have highlighted the risks of private investment allocations becoming overly concentrated in venture capital and growth equity, which have potential for high multiples on capital, but often require extended periods of time before cash is distributed to investors. A more diversified approach can improve portfolio agility by better navigating private markets' cycles and ensuring cash flows are available for recommitting to opportunities—or shifting to liquid strategies if better relative value arises.

Key components of such an approach include higher cash-flow private investment strategies such as private debt and private equity secondaries, which enhance program resiliency and help avoid liquidity crunches like those in 2000, 2009 and 2023. Secondaries and co-investments can further boost liquidity, enabling more tactical, opportunistic investments or addressing portfolio gaps. Semi-liquid fund structures, such as evergreen vehicles or interval funds, can also improve cash flow, compound returns more efficiently, and mitigate j-curve effects. Advanced analytical tools now enable holistic portfolio management across public and private markets and the liquidity spectrum. Combining long-term expectations for returns, volatility and correlations with stress-tested cash-flow and liquidity models can help flag potential liquidity crunches, ensuring allocators are prepared to act when opportunities arise.

C: CONSOLIDATE Manager Relationships

The endowment model prioritizes finding top-performing managers, but too many managers can lead to suboptimal portfolio construction. Active managers may gravitate toward similar positions in pursuit of high-growth ideas, creating risks when such concentration unwinds. Many managers fail to provide adequate real-time holdings data to monitor this risk. Additionally, the Magnificent Seven stocks have distorted U.S. equity benchmarks, exposing endowments to underperformance due to systematic underweights in these index-driving stocks, either through active manager decisions or portfolio constraints.

To mitigate future concentration risks, we recommend streamlining the roster to a select group of high-conviction active managers, which enhances oversight and cost efficiency. Complementing these exposures with a systematic asset manager can help "complete" the portfolio by addressing tracking error from unintended underweights and factor biases stemming from aggregated active manager exposures. Returns-based attribution tools can analyze factor exposures, biases and alpha at both the manager and portfolio level. Complete holdings oversight and understanding portfolio characteristics across different investment regimes are essential for adjusting positioning as market expectations evolve.

D: DIRECTLY Invest

The endowment model's decades-long history has fostered significant expertise among thousands of professional allocators. It has expanded beyond colleges and universities to include healthcare, cultural institutions, community foundations and other nonprofits. This network of investors is now quite skilled in alternative assets, having conducted due diligence on thousands of managers. Many investment offices have also advanced into more direct investments—through co-investments, capital solutions and other methods—benefiting from lower fees and stronger alignment.

For sophisticated endowments, net returns can be enhanced through greater use of direct investments, particularly co-investments targeted at compelling opportunities across public and private markets, throughout the capital structure. However, this requires expertise at the asset level. While this can be built in-house, in our view working with a well-established strategic partner in the industry is more likely to result in plentiful and diverse deal flow and bring the necessary resources to due diligence. This shift from allocator to investor improves agility and enables endowments to retain a larger share of gains.

E: ELIMINATE Silos

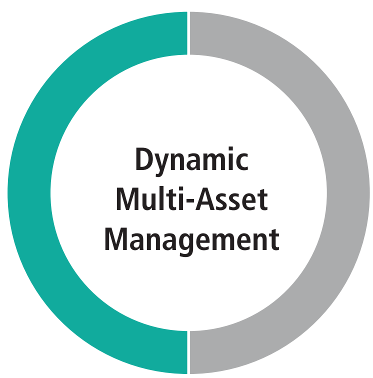
We believe simplified portfolio benchmarking is key for endowments to encourage a total portfolio approach. There is a risk that complex strategic asset allocations that use too many subcategories become overly granular and reduce competition for capital. Fortunately, endowments have increasingly broken down these siloes by benchmarking portfolios against simple equity/bond blends that reflect total portfolio risk, providing a framework for balancing capital appreciation and preservation.

Another key element of breaking down silos and encouraging competition for capital is embracing a generalist model among the endowment team. Flexible investment talent is better able to adapt as market conditions shift, with broader investment expertise. When successfully implemented, investment staff can compare ideas across equity, debt and the capital structure in both public and private markets. However, it requires strong leadership, collaboration and the ability to abandon a thesis when the investment case is weak.

While specialization remains essential for conducting thorough due diligence on managers or investments, the generalist approach enhances adaptability. Smaller endowment teams often rely on the generalist model due to limited resources. Larger teams may transition gradually by adopting a "majors and minors" structure, diversifying expertise while encouraging devil's advocate perspectives during the investment process.

Traditional Endowment Model

- Target asset allocation with distinct categories
- Asset classes categorized into private and public siloes
- Emphasis on manager selection
- Large number of external managers
- Strict benchmark-focused performance assessment
- Opaque fees and complex reporting



Endowment Model Reimagined

- Asset allocation determined by return and risk factors
- Holistic allocation across public and private markets
- Private investment diversified away from VC and Growth Equity toward higher cash flows from Private Debt, Secondaries and Traditional Buyout
- Streamlined external manager roster
- High transparency into underlying holdings

Conclusion: Bringing Together the "Art" and the "Science" of Portfolio Management

We believe the core principles of the endowment model are sound and represented an advance on previous portfolio construction methods. However, the model arguably hasn't evolved along with advances in analytical technology and understanding of portfolio risk.

The model's originators focused perfecting on the "art" of portfolio construction: identifying the "right" asset-class allocation to match their time horizon and return appetite, sticking to it with quite narrow bands for variation, and populating it via skills-oriented manager selection. The primary goals centered around finding and funding top-tier managers that could generate high returns.

During the 21st century, the "science" of portfolio construction was arguably advanced by pension funds and insurance companies as they became increasingly constrained from warehousing sizable equity and illiquidity risks. Their approaches are now heavily informed by a detailed understanding of the active investment and liquidity risk they are taking relative to their liabilities and regulatory requirements. That means a granular understanding of factor exposures, rigorous scenario- and stress-testing, and an insistence of holdings-level transparency. It has also led to a recognition that fewer asset-management relationships, with smaller boutique funds off the table due to capacity constraints, usually makes for more transparency, cost efficiency and an appropriate level of liquidity.

We think a reimagined endowment model can embrace both the old art and the new science. Maximizing estimated returns with meaningful equity and illiquid allocations should be combined with rigorous risk management to prevent unwitting factor concentrations or dilutions, unnecessary fees, and the opportunity costs associated with unexpected liquidity crunches. Leading-edge tools can support a more holistic and reflexive portfolio construction framework, which can help identify and adapt to shifting investment regimes. The somewhat static nature of the endowment model has left it struggling to adapt to post-GFC and post-pandemic conditions, and we think it is unlikely to thrive in our new era of higher volatility and economic and political uncertainty.

For allocators, transitions take time. We believe a good starting point is a comprehensive evaluation of each investor's current approach, resources and capabilities, alongside their overarching goals. The process to transition to a more adaptive model demands an evolution of culture, the building of expertise, and the development of operational infrastructure, data and analytics. But every end goal starts with a plan, and partnering with asset managers who can offer the breadth of capabilities and experience to support the journey can be an invaluable resource.

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