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# **BACK TO THE FUTURE: CONVENTIONAL INVESTING IN A COMPLEX WORLD**

**SIMPLE, TRANSPARENT, AND FOCUSED**

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## INTRODUCTION

Investment life in the early 1990s was easy. The guiding conventional investment philosophy was to have a portfolio that was simple, transparent, and focused: “simple” in relying primarily on the public markets over time and maintaining a consistent presence in those markets; “transparent” in being relatively easy to understand and explain; and “focused” in concentrating extra efforts on a relatively small number of special strategies that would have material impacts on the portfolio. It favored implementing five to 10 basic portfolio initiatives that looked for extra return over five to 10 years, rather than 50 to 100 return strategies designed for the next five to 10 months or quarters. It did not rely on strategies that depended on intense or opportunistic active management, or rely on that active management for the success of the program. In fact, simply indexing to a number of public market asset classes was a very reasonable institutional investment approach.

The resulting portfolio’s risk control relied primarily on the transparency of the portfolio as a whole and the clear nature of the relationship and behavior to its parts, and only secondarily on extensive quantitative risk models and systems. It avoided investment approaches that used significant leverage or non-transparent structures.

This uncomplicated approach followed from some basic views about the capital markets:

1. Markets were generally rational and efficient.
2. Prices were random in the commonly understood “coin-tossing” sense.
3. Markets were generally straightforward with return largely proportionate to risk as measured by volatility.
4. Diversification was a central principle of good portfolio structure.

As a result, passive indexing of a diversified asset type was the basic investment vehicle. Portfolios could be constructed using mean-variance models under the assumptions of proportionate return to risk relationships for major asset types and normal randomness. Linear models (with the concepts of “alpha,” “beta,” and a number of related risk ratios) could approximate market and portfolio behavior for purposes of both monitoring risk and as tools to generally predict portfolio behavior. For example, an existing Sharpe ratio or market beta could have some predictive power for future behavior of the portfolio.

These views were, and still are, largely correct for longer periods of time. For 5- or 10-year periods and longer, the behavior of the capital markets has been generally consistent with assumptions of normal randomness, market efficiency, and linear relationships between risk and return. The long-term behavior of broad asset types (e.g., large- and small-cap U.S. equities, long-term corporate bonds, long-term government bonds, intermediate government bonds, and cash) also has been consistent with the general linear views of market returns and the basic principle that higher long-term returns generally are proportionate to longer-term risk (as measured by volatility). This principle is supported by the Ibbotson yearbook series *Stocks, Bonds, Bills, and Inflation*. Over longer periods the median active manager in major public markets has underperformed broad indices. Institutional investors who could take the 5-year or longer time frame, survive the interim volatility, and meet their liabilities through general capital market returns could construct and manage portfolios using these basic views and approaches. This still remains true.

But this conventional approach came under severe attack in the late 1990s and 2000s. Attacks particularly were based on the growing disparity between the long-term views of the capital markets and the shorter-term behavior of those markets and tended to focus on five tenets.

First, on a daily, weekly, monthly, and often yearly basis, public markets, and especially public equity markets, were much more volatile than investors understood, and that total portfolio risk was dominated by public market equity risk. Second, on these shorter time horizons, the markets did not exhibit consistent rational and efficient behavior. Third, the assumptions that led to mean-variance efficient portfolios were incorrect, that return was often not proportionate with risk, and that the markets were much more complex (and could be accessed by increasingly numerous and complex vehicles). Fourth, liquidity was overvalued in the public markets, and extra return should be sought through illiquid markets. Fifth, the principle of diversification could be extended to a huge number of markets, investment vehicles, different types of active managers, and illiquid investments.

As a result, in the past decade, the conventional approach moved from being in the mainstream of multi-billion dollar investment portfolios to an outlier. The investment world moved on to a new model of investing, often described as the “endowment model.” The endowment model places much less reliance on major public market exposures and, instead, emphasizes intense active management, illiquid instruments and vehicles, often embraces leverage, and uses many detailed and often opportunistic investment strategies.

The endowment model is based on its own set of views. First, because the public market is extremely volatile, one should avoid that volatility by spreading out into other asset types that could be accessed effectively only through intense active management, such as timber, private equity, commodities, and complicated (and often less transparent) fixed income (e.g., distressed debt and bank loans). Second, because the public market is inefficient, one can base a long-term investment approach primarily on intense active and opportunistic management, whether through hedge funds, the “search for alpha” (e.g., portable alpha), extensions into shorting (market neutral, “130/30” strategies, and the like), tactical asset allocation or global macro, use of leverage (either directly or through shorting), absolute return, or similar strategies. Third, because the market had become complex both in structure and in behavior, a complex investment organization and strategy was needed and one should let “a hundred flowers bloom” (or a thousand) in the hopes that there would be more gains than losses, and the portfolio as a whole could thereby consistently beat the market. Finally, as an outgrowth, there was the notion that if some diversification was good, then a lot of diversification must be better – that diversification into dozens of often illiquid investment opportunities and into dozens or hundreds of active management bets was the hallmark of a sophisticated organization.

The premises were largely correct, but the conclusions were wrong – often disastrously so. The events of 2008-2009 showed that both theoretically and practically the endowment model failed its first stress test miserably. The markets are extremely volatile – but there was no place to hide, and many of the places where the new model took shelter turned out to be stunningly worse. The shorter-term capital markets are inefficient – but it turns out that they are even more unpredictable than assumed by the standard model, and active management faces even higher hurdles than previously imagined. Typically, liquidity is overvalued – but as many endowments found out in 2008-2009, it becomes a pearl without price and invaluable when it generally disappears in crisis.

The capital markets are a complex, interactive, tightly coupled, and adaptive world, but the best response is not automatically a complex, tightly organized, and highly opportunistic investment structure. That type of organization is often more brittle, prone to cascading failure, at best opaque to risk management, and has liquidity, headline, resource, and continuity risks. I believe a simple and robust structure is usually better positioned to survive. Finally, it is true that diversification is the central goal, but too much diversification – particularly if it is aimed at active management and private assets – is likely to increase specific risk, lose the potential “free lunch” benefits of diversification, and increase complexity without noticeable improvements.

Even in a non-efficient, complex, non-linear, and turbulent market world, the best response still lies in a simple, transparent, and focused (but still fully diversified) portfolio – both for long-term returns and for purposes of real risk control. While the assumptions of the conventional approach may be incorrect to some degree (and perhaps materially for shorter-term conditions), they prove to still be generally valid and useful for portfolio construction and long-term management. A simple and transparent approach also is more easily explained to constituencies, provides greater personal fiduciary security for boards and their staffs, and permits smaller and more manageable investment organizations. It also allows more attention to be paid to other activities that deeply affect the portfolio beyond the narrow confines of pure investment management.

The different nature of shorter-term markets turned out to offer only opportunities for pain, not gain. Long-term investing is best accomplished using straightforward, uncomplicated approaches. After the Great Collapse of 2008-2009, there is now little reason to believe that anything more complex is required, even of the most sophisticated institutions. While it is true that the long-term assumptions of the conventional model do not apply to shorter-term time horizons, the alternative of the endowment model provides no better solution, and may lead to even worse results.

## **CONVENTIONAL INVESTING VS. THE “ENDOWMENT MODEL”**

Conventional investing emphasizes the values of simplicity, transparency, and focus. It relies primarily on general public markets as traditionally identified (global equities and investment grade fixed income) with additions of some private investments (real estate and other private equity). It maintains a consistent presence in those markets, rebalancing as appropriate to keep positions relatively constant over time. The approach depends on market movements, not active management, for success, and in its core positions stays primarily in instruments that can be readily sold and confidently priced. It favors public and independently verifiable daily pricing for non-private instruments.

The modern trend among institutional investors is often called the “endowment model.” This model places much less reliance on major public market exposures and, instead, emphasizes intense active management, illiquid instruments and vehicles, often embraces leverage, and uses many detailed investment approaches rather than a few. It tears apart the traditional asset class categories of equity and fixed income in favor of supposedly underlying factors, such as “real” returns (commodities, Treasury inflation-protected securities or TIPS, timberland, real estate), inflation/deflation investments, credit-based returns (high yield, equity), quality differentiations, and similar categories to reorganize the investments in the portfolio. It requires that risk be managed actively through extensive quantitative models and risk control systems. Exhibit 1 compares a very simple approach of 55% U.S. equities (Russell 3000 Index), 15% international equities (MSCI EAFE Index), and 30% fixed income (Barclays Capital U.S. Aggregate Index), with that of a relatively simple fund, the Public Employee Retirement System of Idaho (PERSI), and two leaders of the endowment model – Harvard and Yale (roughly illustrative as of late 2008).

### Exhibit 1: Asset Allocation for Various Investment Models\*

	55-15-30	PERSI	Harvard	Yale
<b>Public Equity (Total)</b>	<b>70%</b>	<b>55%</b>	<b>33%</b>	<b>26%</b>
Russell 3000	55%	29%	11%	11%
EAFE	15%	17%	11%	6%
EMG	0%	9%	11%	9%
<b>Public Bond (Total)</b>	<b>30%</b>	<b>30%</b>	<b>15%</b>	<b>9%</b>
U.S.	30%	20%	8%	4%
Non-U.S.	0%	0%	2%	0%
TIPS	0%	10%	5%	5%
<b>Alternatives (Total)</b>	<b>0%</b>	<b>15%</b>	<b>52%</b>	<b>65%</b>
Real Estate	0%	8%	9%	18%
Commodities	0%	0%	14%	5%
Private Equity	0%	7%	13%	19%
Hedge Funds	0%	0%	16%	23%

\* The data featured in this exhibit was drawn from published material and information available at the Harvard Management Company and Yale University websites. Given the negative cash positions in the Harvard and Yale models, reflecting their use of leverage, I approximated allocations for select asset classes.

Sources: Swensen, David F. *Pioneering Portfolio Management: An Unconventional Approach to Institutional Investment*. New York: Free Press, 2009; PERSI; Harvard Management Company; Yale University.

### **Simple vs. Complex**

The conventional portfolio relies on long-term market returns to meet its investment goals. The portfolio as a base position would have major exposures to the public markets of U.S. large- and small-capitalization equities, international developed market equities, emerging markets equities, real estate securities, inflation-indexed securities (TIPS), investment grade bonds and straightforward, government-guaranteed mortgage securities. The combination of these exposures would be designed to give a high probability of achieving the return needed over long periods. For return needs in the 4%-5% range, this would result in a portfolio consisting of roughly 60% to 70% equity positions and 30% to 40% fixed income positions. The portfolio would maintain a consistent presence in those markets, rebalancing as appropriate and particularly after volatile market movements. The investment discipline is simple and easy to follow, and would not tactically allocate the portfolio in any significant way over near-term periods.

In contrast, the endowment model radically reduces exposures to public securities. Standard investment grade bonds and “buy and hold” long-term policy portfolios are discouraged. Public market equity and fixed income exposure is materially reduced. In their place, there is great reliance on intense active and opportunistic management through often much less transparent investment vehicles (hedge funds), a belief in the inflation protection aspects of commodities, and a much greater emphasis on private investments (real estate and private equity).

## **Transparent vs. Opaque**

A conventional approach relies on transparency as the primary method for risk control. Index funds provide the base position, primarily in the larger, more liquid markets for broad, basic exposures, and as the primary vehicles for portfolio rebalancing and transitions (as well as cost control). Active managers usually have broad mandates, with a preference for either clear styles or concentrated portfolios (as much if not more for risk control purposes than clear additional return benefit). Because the style or portfolio is very clear and transparent with daily and independently priced securities, activity can be monitored contemporaneously. Unexpected behavior, if it occurs, is instantly clear, and explanations for unexpected behavior can be quickly determined. The portfolio would concentrate the relationships to relatively few. “Black box” investing is avoided and there is a strong preference for public securities that can be independently priced daily and private strategies that would be understandable to reasonably intelligent people who may not have extensive investment training. After a certain size, separate accounts would be employed for public market strategies so as to avoid commingled funds and allow for the requirement that every security be priced daily and independently verified.

The endowment model, on the other hand, emphasizes illiquid investment and non-transparent vehicles, not only through the use of hedge fund and private equity investments, but also in the use of leverage, structures such as “portable alpha,” and complex public and private fixed income strategies. Risk controls depend on quantitative measurement and modeling.

## **Focused vs. Scattered**

Conventional investing focuses extra efforts on a few initiatives that would be held for the long term. As examples, some might prefer global portfolios rather than separate developed markets and U.S. equity portfolios, with some additional U.S. portfolios to maintain a slight home country bias. (U.S. inflation is the main issue for U.S. portfolios, and over the very long term, the best protections against U.S. inflation are U.S. stocks and, now, TIPS.) There might be a bias to emerging market equities. There also could be a dedicated manager for publically traded real estate investments (REITS). Special opportunities might occasionally be added, but only if their return and risk profiles were so clear as to overcome the bias in favor of overall portfolio simplicity, transparency, and focus. Special opportunities would be expected to be rare if generally available to institutional investors.

The endowment model advocates many differentiated and highly active investment strategies, often employing leverage (including short positions), limited transparency, and often quantitatively based investment and trading systems. Timber, distressed debt, infrastructure, portable alpha, “130/30,” credit default swaps, derivative strategies, absolute return, bank loans, tactical asset allocation, and a myriad of other approaches are all encouraged under this investment framework.

## **Surviving, Rather Than Fighting, Market Volatility**

Conventional investing accepts capital market volatility and accepts that the volatility will be greater than the standard tools assume. The approach is to make the portfolios sturdier and work to ensure that the liabilities that are being funded can be easily met over the much longer term while being maintained at acceptable levels through short-term turbulence. It views attempts to avoid that volatility and reach for shorter-term gain as leading to more danger and disruption than the potential (and elusive) rewards justify.

The endowment model attempts to be a salmon swimming upstream against market collapses. The direction is toward “absolute returns” and apparent diversification away from public markets through both strategies (such as long-short and market neutral hedge funds) and asset types (including commodities, timber, and private investments) that are expected to be havens against severe public market disruptions.

## **ISSUES WITH THE ENDOWMENT MODEL**

I believe the endowment model should be used only in a minority of situations. Conventional investing is more than sufficient when multi-decade capital market returns are expected to be broadly sufficient to cover the particular liabilities of an organization – such as when the real return requirements of an organization are in the range of 3% to 5% over long periods. The conventional approach probably would not be sufficient if the real return requirements of an organization are above 6% for prolonged periods, as is sometimes the case with some endowments, corporations, and public systems. Then, “beating the market” becomes an absolute requirement for an organization and the endowment model is the only current alternative. Similarly, the endowment model may be attractive if the organization is very sensitive to annual volatility, or has an artificially shortened time horizon. Some organizations simply have to find alternatives to conventional investing because of peculiar individual situations. But those who adopt the endowment model approach should be aware they are entering a game where the odds are stacked heavily against them.

But endowment model advocates in recent years have shifted from arguments that “we have to do this” to “this is the best way to invest under any return goal.” It has become almost an accepted truth that to be a “sophisticated” institutional investor in a complex, interactive, tightly coupled and adaptive world, one has to adopt a complex, interactive, tightly coupled and opportunistic investment model (and organization) tied to that world.

In my opinion, that conclusion is simply wrong: a simpler, transparent, and focused approach is a very viable alternative. The goal should be to survive comfortably with the highest odds over the very long term. As long as an institution enjoys long-term stability, produces returns comparable to the market, and produces returns at least in the pack of institutional investors, there should be no reason to be jealous of the few that hit home runs.

The endowment model relies too heavily on a false sense of diversification, on too many strategies, on selecting exceptional managers where the odds are heavily against that exercise, and on an underlying view of the market that has been demonstrated to be severely compromised. To use a cliché, it tries to pick up hundreds of nickels (often using excessive leverage or severely restricted liquidity) while underestimating the speed and the acceleration of the steamrollers coming in their direction. Not only is the achievement of additional return over longer periods problematic, but also when turbulent markets arise, additional issues of liquidity and lack of transparency can devastate the portfolio.

A complex investment world does not require a complex response – either in the nature of the investment organization or the particular investment strategies chosen. The cockroach lives in a very, very complex environment with one of the best long-term success rates of any creature. Yet it has only one defense mechanism – running in the opposite direction from a puff of air. The equivalent for the investment world is, at the core, a very simple structure founded upon public market diversification with one basic defense mechanism: see a volatile movement, and react in the opposite direction (i.e., rebalance into it). A simple structure and strategy, if adhered to, has one of the best chances of surviving for many decades.

The Great Collapse of 2008-2009 devastated all approaches, and most of the more complex strategies. The markets of 2008-2009 showed that simple strategies can survive as well if not better than complex strategies, that there is no running from the fat tails, and that no one has yet come up with a total portfolio strategy that can both pick up the nickels in the longer and milder trending periods and, at the same time, defend against the wild turbulence of the fat tails. Further, the endowment model incurred liquidity and other complications that made matters much worse, not better.

There are good theoretical and practical reasons to be doubtful that the endowment model contains the path to long-term success. Wandering from simple, transparent and focused portfolios raises issues concerning (1) the turbulent nature of near-term capital markets, (2) problems of risk management and risk control, (3) difficulties in maintaining a more complicated investment posture over time, (4) issues of resource management, (5) a lack of a demonstrated long-term investment benefit, (6) liquidity, headline, and other risks, and (7) the lure of phony diversification.

### **Turbulent Capital Markets**

One of the theoretical reasons that the endowment model is problematic is that emphasizing intense active management and attempting to capture near-term market opportunities through numerous complex strategies (such as hedge funds) misreads the nature and dangers of the capital markets. The markets pose severe and underappreciated dangers for opportunistic investing, not only in the demonstrated vulnerability of those strategies to severe market disruptions like that of 2008-2009, but also in their tendency to fool market participants into thinking that skill is demonstrated when success occurs for longer periods than “normal randomness” would predict.

Many believe that markets are inefficient, particularly in the Gaussian “bell-shaped curve” sense – with independent and identically motivated investors and the linear models that describe that activity. The assumption of efficiency has been demonstrated to be incorrect – at least for near-term market activity. There is, however, an often unstated inference that if investment markets are not efficient, then intense active management can be a consistent success and form the basis of a long-term portfolio investment approach.

That inference has not been demonstrated, and is most probably wrong. The markets can be “inefficient” as generally understood yet still be deeply unpredictable. In fact, actual market dynamics are more dangerous in that they fool our perception of regularity to a much greater degree than the milder form of randomness underlying most current investment tools (on both the return and risk sides). Therefore, while conventional investing uses active management in many forms, it does not base portfolio success on intense active management.

The capital markets – at least on a daily, monthly, and quarterly basis (and perhaps up to years at a time) – can be far more turbulent and wild, *and* have longer stretches of calm, than standard capital market theory would suggest. The models based on standard capital market theory (e.g., linear regression models and mean-variance models based on bell-shaped curves) give a false sense of security and can lead to disaster when pushed to extremes in managing money over the near term.

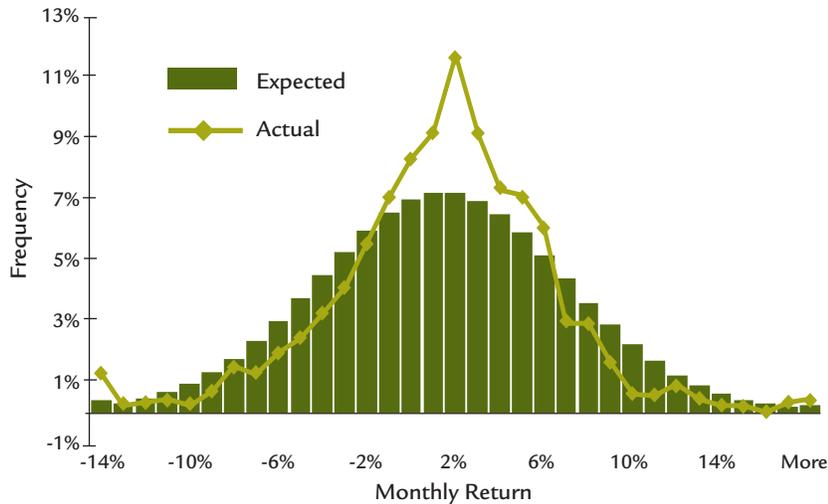
To oversimplify, for periods under one year at least, the markets have been both wilder and milder than commonly assumed. For the near term, the markets follow Mandelbrot more than Markowitz, and display non-linear (disproportionate) impacts of market forces. The market is inefficient but nonetheless highly unpredictable.

Because of what has been called the “Joseph” effect (high peaks in the distribution of returns), there can be trends or periods of regular, calm activity far beyond what one would expect (the 1950s, the mid to late ‘90s, the mid ‘00s), while capital market disruptions (the so-called “Noah” effect) can appear quickly and violently as if arising out of thin air (e.g., October 1987, September/October 2008, the Great Depression, etc.). Looking back, while the number of turbulent periods (such as monthly periods) were relatively few and the calm periods were numerous, close to half of the market long-term action (and contribution to long-term returns) happened in those far less numerous turbulent periods.

The calmer and trending periods are also dangerous because they give added confidence in styles, portfolio construction techniques, or quantitative approaches that are often useless when the storms of the “fat tails” arrive. And, the storms can have return impacts far beyond previously reasonable expectations. Standard risk controls, such as Value at Risk (“VaR”) and the discipline of “risk budgeting,” for example, tend to work when they aren’t important and fail just at the time protection is needed most. Factors that can give regular outputs for prolonged periods of time can suddenly cease to work or, just as dangerously, have overwhelming impacts.

Much of the mathematics of the investment world is based on the idea of “normal” randomness, where returns and actions are based on identical and independent activities (like coin tossing). The world on a month-to-month basis, however, is not “normal.” Actual market returns have been both wilder and milder than standard theory predicts when looked at on a monthly (and shorter) basis. A histogram of the actual monthly returns compared to what would be expected for “normal,” randomly distributed monthly returns is shown in Exhibit 2.

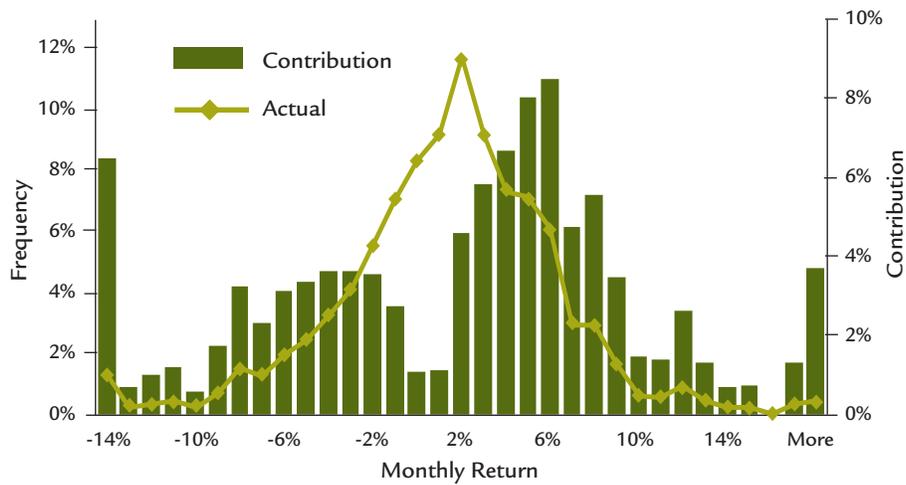
**Exhibit 2: Expected vs. Actual Frequency of Monthly Returns for U.S. Stocks (1926-2008)**



Source: Actual returns from Ibbotson’s *Stocks, Bonds Bills and Inflation*, as of 12/31/08. Expected returns were generated under the assumptions of a normal distribution using Ibbotson data. Past performance is not a guarantee of future results.

First, there are “fat tails” – meaning that there exist periods of very high volatility that are much worse (or much better) than would be expected. Note the upticks at each edge of the graph. These “fat tails” are not very numerous, but exhibit far more turbulent periods of extreme returns than are expected under normal random market theory. The extreme movements, while relatively rare, are responsible for much of the total market return. Over 10% of market movements came in only 1% of the months and over 40% of the market “action” came in 13% of the market months (stock market movements of +/-10%). See Exhibit 3.

### Exhibit 3: Frequency vs. Contribution in Monthly U.S. Equity Market Returns (1926-2008)

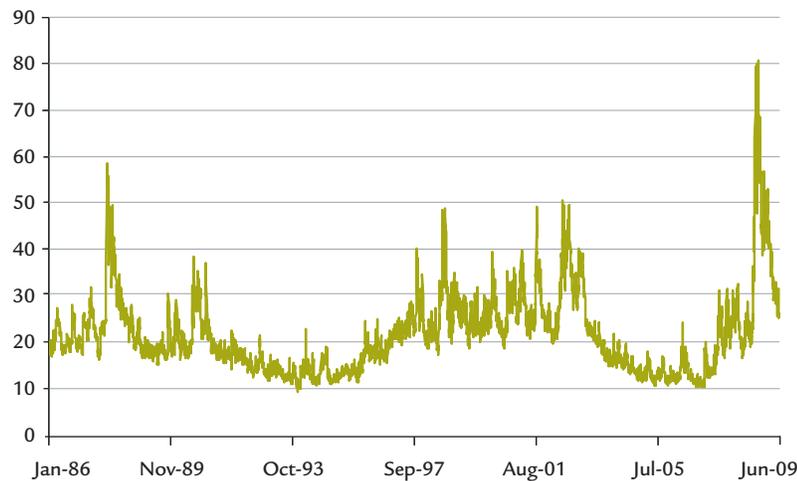


Source: Actual returns from Ibbotson's *Stocks, Bonds Bills and Inflation*, as of 12/31/08.  
 Past performance is not a guarantee of future results.

Second, there was a “high peak” or many more months than one would expect where returns were mildly positive. Those periods often followed one another, and led to longer trends (and more of them) than one would have normally expected if “coin-tossing” randomness prevailed.

Volatility tended to cluster, meaning that turbulent periods tended to follow one another – and calm periods have also been more likely to follow one another, as well. Unfortunately, the transition from one to the other is totally unpredictable (as is the direction of the volatility). While one volatile month was more likely to follow a previous volatile month, whether it was a big up month or a big losing month was still random. The daily behavior of the stock market volatility index over the past three decades exhibits these periods of calm (e.g., 1991-1996, 2003-2006) punctuated by explosions of intense volatility. See Exhibit 4.

### Exhibit 4: VIX Stock Volatility Index (1986-2009, excluding October 1987)



Source: Chicago Board Options Exchange website, as of 6/30/09.  
 Past performance is not a guarantee of future results.

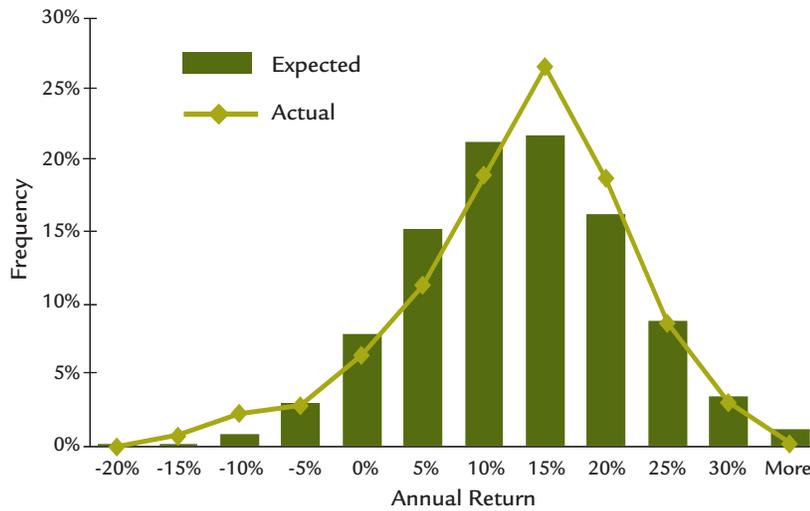
As a result, at least when viewing a portfolio on a daily, weekly, or monthly basis, the market tends to be much more turbulent and wild, yet also milder, than standard theory would suggest. Non-linear (disproportionate) influences have often been a major factor in describing market activity over near-term periods.

There are a wide range of potential reasons for explaining demonstrated patterns of daily, monthly, and other near-term market behavior that are different than the assumptions of “normal” randomness. One of them, for example, is that the assumption of independence occasionally can be violated – that market actors for various and individually rational reasons occasionally can generally act in the same manner at the same time. This leads to self-reinforcing behavior that drives total market activity in the same general direction to extremes. Market activity periodically exhibits this “herd” behavior, from portfolio insurance in the crash of October of 1987, through the liquidation of the “super-portfolio” that brought down Long-Term Capital Management in 1998, to the liquidity freeze of the Great Collapse of September/October 2008.

Complex and non-linear models of the financial markets are therefore much more accurate descriptions of the capital markets than the standard models that rely on linear tools and assumptions of “normal” randomness (such as the Capital Asset Pricing Model or CAPM). But that does not end the inquiry. Unfortunately, the non-linear, turbulent, and wild (but milder) market world is described by mathematics that are intractable for reasonable use in portfolio construction. The models developed so far are at best descriptive, and offer no prescriptive or prospective advice on constructing a portfolio. Also, the statistics that do exist require far too much data, and offer far too little predictive ability to be useful. Non-linear market theory has had periods of enthusiasm on a number of occasions since the 1960s, but has always foundered on the rocks of usability.

Luckily, the impact of turbulent market behavior fades as the years pass and time horizons lengthen, and planning portfolios for returns over 5-10 year periods generally can use the tools based on the standard theory that have been created over the past 40 years. For example, annualized 5-year rolling stock returns show a sharp reduction in the “fat tails” and high peaks, and exhibit behavior much more consistent with the assumptions of normal randomness. See Exhibit 5.

### Exhibit 5: Expected vs. Actual Frequency of Annualized, 5-Year Rolling Returns (1926-2008)



Rolling periods represent a series of overlapping, smaller time periods within a single, longer-term time period. A hypothetical example is the 20-year time period from 12/31/82 through 12/31/02. This long-term period consists of 16 smaller five-year “rolling” segments. The first segment is the five-year period from 12/31/82 to 12/31/87. The next rolling segment is the five-year period from 12/31/83 to 12/31/88, and so on.

Source: Actual returns from Ibbotson’s *Stocks, Bonds Bills and Inflation*, as of 12/31/08. Expected returns were generated under the assumptions of a normal distribution using Ibbotson data. Past performance is not a guarantee of future results.

One can construct a portfolio with the basic goal of squeezing extra marginal returns out of the calm, trending periods (“picking up nickels”), or one can structure a portfolio with the basic goal of surviving shorter turbulent times in order to reach the calmer 10+ year time frames. It is difficult, if not impossible, to have both goals at once. The endowment model squeezes out extra marginal return at the risk of courting disaster in periods of high turbulence. A conventional approach prefers the goal of simply staying in the game during calm times in return for much higher chances of survival and avoiding disasters during the wild and turbulent times. A conventional approach can hit “home runs” that the endowment model will miss, particularly when large-capitalization equities have one of their periodic runs of substantial outperformance over other investment categories.

The lessons of the 2008-2009 markets are many, and include the lesson that one cannot become overconfident even if there is consistent success for years using a particular tool or technique. Strategies that would look as if they were successful when tested against normal random assumptions may only be successful because of the particular time period in the non-linear world. The true nature of the markets makes the search for “alpha” and extra returns an illusion – an illusion that is heightened and encouraged by a capital market dynamic that gives the appearance of reward for far longer periods than one would expect under coin-tossing randomness, only to be subject to devastation when the occasional tidal waves appear.

The Cook Inlet next to Anchorage, Alaska has the second-highest tides in the world. When the tides are out, the opportunities for harvesting clams and other shellfish are enticing. Occasionally, newcomers or tourists are killed as they are lured by the bounties unveiled at low tide, only to be stuck in the mud and drowned as the tidal surge appears at far greater speeds than they imagined possible from their previous experience. There is a great deal of similarity between the occasional Alaskan tourist and recent entrants into the endowment model of investing.

## **Portfolio Risk Management**

The best risk control lies in being able to see the whole portfolio easily and being able to spot deviations from the expected without difficulty. The more that detailed quantitative models are needed to describe a portfolio and its behavior, the greater risk a board and staff incur. Being able to see, relatively easily, all the investments in the portfolio, their behaviors, and how they fit together is the best risk posture. Quantitative, detailed models of portfolio characteristics are better used as supplemental, and not primary, risk control devices.

Simply because there is a common word “risk” doesn’t mean there is a common concept that connects all the issues raised, or a common approach to address those issues. As an analogy, the term “game” applies to both Candy Land and football – using one system for both is impossible. Similarly, the investment industry usually makes two fundamental mistakes in approaching risk: (1) assuming we are talking about one thing or concept, instead of a family of loosely related concerns; and (2) assuming that numbers can manage the conglomeration of concerns that have been lumped together. There is also a tendency to confuse the concept of “risk” (which can be measured) with the equally great problem of “uncertainty,” for which quantitative models are practically useless.

The best risk control lies in knowing what you have, what it is worth, and how it is behaving. This is an often overlooked benefit of public markets. There are millions of eyes watching each investment, and while perhaps more volatile than private activity on a month-by-month basis, there is no doubt as to current common opinion about the worth of a particular investment.

A conventional approach therefore does not rely on extensive quantitative controls or systems as the primary bastion to defend against risk. Instead, as its “front line” against suffering damage from unexpected and unforeseen events, conventional portfolios rely on the transparency of the portfolio, daily public and independent pricing for the public market securities (with the attendant liquidity), managers with clear styles or concentrated portfolios, and a reasonable number of active manager relationships that can be easily followed and understood. An example of conventional risk controls are the standards for public retirement funds, which were adopted by a number of national organizations such as the National Association of State Retirement Administrators, National Council on Teachers’ Retirement, Association of Public Pension Fund Auditors (APPFA), the Government Finance Officers Association (GFOA), and some others. These standards have been compiled into a comprehensive description of major risks and risk control techniques for long-only institutional funds. This document, *Public Pension Systems: Statement of Key Investment Risks and Common Practices to Address Those Risks*, can be found at the APPFA website (among other places).

The endowment model, because it is opaque and non-transparent, relies on quantitative risk control systems and models. The problem is that there are no risk systems that can currently be based on the mathematics of the non-linear world. Instead, the only usable tools are risk measures that are based on the assumptions of coin-tossing randomness (such as VaR), linear relationships (such as regression analysis, factor analysis, and concepts of alpha and beta), and the successful identification of potential future stresses and strains on the portfolio (scenario analysis and stress testing). These systems can be badly fooled in a non-linear and turbulent market structure. Numbers based on daily, monthly, or even quarterly return patterns, and measurements based on that data (historical or expected) provide little comfort when the occasional fat tail arrives.

Every few years someone describes an event as a 3-, 7-, or even 20-standard deviation event, as if this describes how unusual the event has been. In other fields and disciplines, this sort of occurrence would be taken as definitive proof that the underlying model or way of looking at the world is wrong and should not be used. The regular occurrence of these “unusual” events in near-term portfolio risk management simply means that linear models and risk systems based on “normal” randomness should be rejected as the primary tools for close to shore navigation.

The only comfort for those whose businesses, agencies, or educational institutions cannot handle extreme short-term market volatility is greater allocations to cash – all else is just hope expressed as quantitative assumptions.

I believe the best risk control in a non-linear world is simplicity, transparency, and maintaining sufficient liquidity to survive market disruptions of at least three years. The worst approach is an overly complicated, opaque portfolio that relies on a lot of moving parts maintained by people who have to be better than the average professional in order to produce returns even in the calm times (or quantitative models that continually add finer and finer linear adjustments and increasingly look like the continued additions of epicycles used to sustain the Ptolemaic view of the solar system). Complicated and “agile” craft with lots of moving parts have the greatest chance of overturning or breaking apart when navigating unexpected huge rapids; sturdier craft have a better chance of survival.

This is not to say that extensive quantitative tools should be avoided when available and useful. But all interesting information is not useful. If a piece of information is not actionable, in that signals raised by that system do not lead to some clear, subsequent action, then that information clutters the system, and should only be viewed at home for entertainment value. As the sign in Einstein’s office stated: “Not everything that counts can be counted, and not everything that can be counted counts.”

## **Continuity**

A key ingredient for investment success is maintaining a consistent investment focus through changing times. On the other hand, investment disasters regularly occur because of an inability to maintain the overall investment focus, the lack of a mechanism to monitor the ongoing long-term success or failure of particular investment postures, and the inability to maintain those postures over time. In the short term, these deficiencies often show up as a failure to maintain a consistent investment approach through an entire investment cycle. Often, strategies are abandoned after a poor period – just at the point they are about to become successful. And recently successful strategies are implemented just as they are about to become underperformers.

The problem is exacerbated in the public sector with rapidly changing boards and the short terms of the investment leadership of the typical organization. The average tenure of a public fund chief investment officer (“CIO”) is three to five years, which is also the average term of a public fund board member. The problem is that this type of turnover at the board and high staff level make it very, very difficult to maintain a consistent approach and investment philosophy through even one investment cycle (5-7 years), much less the “long term” of 20 to 30 years so often bandied about as the investment time horizon of public funds.

And the more complex and complicated the investment program, the harder it becomes to maintain a consistent approach. In this regard, Harvard’s well publicized problems are of particular interest, since it and Yale were the two acknowledged paradigms for the movement that the industry is now following. Prior to the Great Collapse of 2008-2009, the previous CIO, Mohamed El-Erian, increased the complexity and changed many of the underlying driving factors of the Harvard portfolio, but left after only a year and a half. The new CIO arrived after a 6-month period of operations with interim leadership. In between, the portfolio careened into disaster.<sup>1</sup> It would no doubt be Dr. El-Erian’s explanation that if he had stayed, he would have made the necessary adjustments to avoid the problems of the portfolio. He would probably be correct, but it misses the point.

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<sup>1</sup> Condon, Bernard and Nathan Vardi. “How Harvard’s Investing Superstars Crashed.” *Forbes*. February 20, 2009.

The problem is that the underlying structures were not set up to survive a period of inattention, temporary management by an interim committee or personnel, or the arrival of a new board that was not part of the organizing group. The principles and key drivers of the portfolio, and the reasons for entering into particular arrangements, were not immediately obvious, or even obvious after some contemplation by reasonably intelligent people.

Boards and staffs have obligations to the future as well as the present. One of those obligations is to pass along an investment approach that can be picked up and competently administered by the type of people likely to fill those positions in the future. For most public boards, those must be assumed to be reasonably intelligent, well-rounded individuals who are not trained investment professionals. For public staffs, the leadership must generally be assumed to have professional training, but not to be persons who will be spending more than five years at the position. The compensation structures of public funds make long-term associations the great exception, not the rule.

As a result, boards and staff are rarely around to suffer the consequences of most of their investment decisions. This, in fact, drives a number of the complicated portfolios seen in practice today. A new staff or board arrives with little in-depth understanding of the reasons for the existing portfolio and structure, and thus little commitment to sticking to that structure during poor times. The natural tendency is to “do something new,” particularly if it is part of a broader existing trend. Either the old parts of the program are left to languish with decreased attention, or abandoned as part of the new restructuring. This new approach takes about three to five years to implement, just as a new staff, with a significant number of new board members, now come to the fore. The dangers of complicated and non-transparent investment programs to long-term consistency and potential collapse have been demonstrated time and again, from Harvard, through CalPERS, to San Diego County, as only the most recent examples.

The path being taken by the pension fund community may trigger similar developments and consequences. The structures contemplated will be difficult for new board members to easily grasp, and will be tough to explain to the public if the inevitable embarrassing blow-up occurs. Staff turnover in the public sector over the past 15 years has been high, and there should be no expectation of longer tenures in the future (it would be a benefit, but should not be assumed). Investing is not simply a matter of reaching for the highest achievable returns – public investing is also about consistency, accountability, and avoiding disaster, and a complicated, illiquid structure has severe deficiencies in these areas.

## **Resources**

The endowment model attempts to replicate the investment returns of successful large, private, multi-asset investment organizations. A related problem is that in order to do so, one has to create the infrastructure, assets, people, and compensation of those types of organizations. For many institutions, this is a major, ongoing problem.

Replicating private structures in public settings has proven to be a severe impediment. Salaries of public fund investment personnel cannot approach those in the private sector, and attempts to provide for any incentive compensation often fail entirely when the market delivers losses – even if those losses are much less than expected for a particular fund. The infrastructures of the active investment organization, including supporting investment systems, are costly to purchase and maintain, and usually meet resistance if the budgets are reviewed by other public officials. Simply maintaining the number of people required for an organization that engages in complex and opportunistic investing, regardless of the problem of quality, is usually a challenge.

This is not just a public entity problem. Corporate funds and university endowments also run headlong into this problem. Again, the Harvard example is instructive. After Jack Meyer had built an extensive, professional, and highly regarded team, it was decimated when both he and they left in disputes with the constituency over salaries and bonuses. Some believe that the recent problems faced by Harvard are a direct outgrowth of this exodus.<sup>2</sup>

Organizations that follow complex investing and opportunistic strategies typically have investment staffs of dozens, if not hundreds, often regardless of the size of the assets. In order to have a successful long-term strategy with this type of approach, it is necessary to consistently maintain the resources necessary to implement those strategies. That has often proved to be a stumbling block for many public and private institutions.

### **Liquidity, Headline, and Other Risks**

The Great Collapse also demonstrated that the endowment model carried many additional, serious risks. In times of great stress, liquidity disappears. What appear to be endless oceans of cash available to buy any instruments suddenly dry up like a shore line before a tidal wave.

The endowment model relies heavily on liquidity and cash inflow to support its emphasis on such approaches as private and other illiquid investments, portable alpha, leveraged positions, and similar strategies. Capital calls for those investments became impossible to meet because expected cash inflows from other private investments stopped. Margin calls for futures and other derivatives positions to support structures like portable alpha drained tens or hundreds of millions of dollars daily from cash-strapped pension funds. The market for fixed income instruments, except risk-free Treasuries, all but disappeared. Hedge funds refused to honor requests for redemptions and “gated” their funds. Securities lending collateral pools shut down, freezing the equity and fixed income investments that supported that activity. Attempts to sell private investments on the secondary market only received disastrously low bids.

It became so onerous that institutions like Harvard, Princeton, and Stanford had to issue billions in new bonds simply to meet short-term cash obligations. Liquid instruments, like public equities, had to be sold at rock bottom prices to meet other obligations. With the rest of the portfolio frozen, the portfolios of funds that had followed the endowment model could not rebalance, and generally missed the stunning rebound of the capital markets in the second quarter of 2009. The problems of the endowment model with liquidity have been well-demonstrated.<sup>3</sup>

Further, the endowment model found itself with some very embarrassing headlines due to the lack of transparency of many of the vehicles. The Madoff scandal trapped a number of public and private institutional investors who had used hedge funds as absolute return vehicles. The Westridge Capital blowup also caught some public funds flat footed.<sup>4</sup> Private equity also provided its share of embarrassments, including a very nasty placement agent scandal.

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<sup>2</sup> Munk, Nina. “Rich Harvard, Poor Harvard.” *Vanity Fair*: August 2009.

<sup>3</sup> Siegel, Laurence. “Alternatives and Liquidity: Will Spending and Capital Calls Eat Your ‘Modern’ Portfolio?” *The Journal of Portfolio Management*. Fall 2008. Pages 103-114.

<sup>4</sup> Williamson, Christine. “Alleged Westridge Fraud Hits 26 Institutional Investors.” *Pensions & Investments*. March 9, 2009.

Funds following the conventional approach had few, and even then, only very minor problems. Liquidity remained secure at all times because the primary dependence on independent, third-party daily pricing for securities kept it out of most, if not all of the toxic and illiquid assets that plagued many institutions. The avoidance of hedge funds, portable alpha, and the new asset classes of commodities and similar strategies allowed it to be spectators, and not participants, when much of the industry ran into both performance and liquidity problems. The ability to rebalance allowed those funds to capture the stunning market rise that began after March 9, 2009, and reduce total year losses to the mid-teens rather than the mid-twenties.

One of the main original investment rationales for the endowment approach was that it was a defensive strategy that would avoid the excessive volatility of the public markets when disaster struck. It failed its first big test, and additionally came with a number of operational, liquidity, headline, and other risks. There may be new reasons advanced, but it is not clear that that rationale is handy.

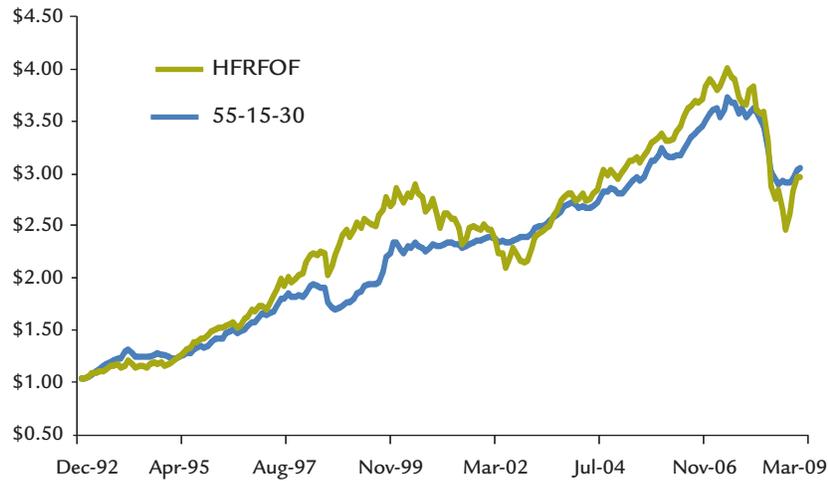
### **Illusory Returns**

If the increased complexity, illiquidity, and non-transparency led to near-certain benefits in either increase in returns or substantial reduction of risk, then the problems of the endowment model could be worth it (if only because there would be a certain clear record to point to in order to maintain the same approach). But more complicated and actively managed portfolios have yet to demonstrate a clear long-term investment return benefit over more simply constructed approaches. The inability of the median active manager to outperform public security indices after fees has been demonstrated time and again. Similarly, the inability of the median private equity and hedge fund (or fund of funds) manager to outperform public indices over time also has been repeatedly demonstrated. Everyone, including the leading advocates of more active and “diversified” investing, acknowledge that success in hedge fund or private equity investing requires picking the top quartile or even (for venture capital funds) top decile performers. The odds of consistent success over long periods of beating 3:1 or 9:1 odds are slim, particularly given the additional fees required to use active managers.<sup>5</sup> And decades-long experience by the public fund community supports this view. While particular periods may show some outperformance, over the longer term average public fund returns usually have resulted in a negative after-fee impact in actively managed strategies. The Hedge Fund Research Fund of Funds (HFRFOF) Index can be seen to be generally representative of the returns of professional intense active management. The returns over the past decade and a half (1992-2009) have been almost exactly the same as that of a very simple 55% Russell 3000 Index, 15% MSCI EAFE Index, 30% Barclay’s Capital Aggregate Bond Index portfolio, rebalanced monthly. See Exhibit 6.

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<sup>5</sup> For additional information, see David F. Swensen’s book, *Pioneering Portfolio Management: An Unconventional Approach to Institutional Investment*. New York: Free Press. 2009.

### Exhibit 6: Growth of \$1 in HFRFOF Index and 55-15-30 Portfolio, as of 6/30/09



Source: Standard & Poors; Hedge Fund Research, Inc.; Barclays Capital; MSCI, as of 6/30/09. Past performance is not a guarantee of future results.

Of particular interest is the dependence of any difference in returns between intense active management and simple approaches upon whether the S&P 500 Index adds to returns generally or doesn't. Intense active management, in large measure, acts as a giant short on the S&P 500 and with an offsetting long position in other markets. Exhibit 7 shows cumulative returns when the HFRFOF Index does better or worse than a simple 55-15-30 portfolio, compared to when the S&P 500 does better or worse than a 55-15-30 portfolio.

### Exhibit 7: HFRFOF and S&P 500 Index Excess Returns vs. a 55-15-30 Portfolio



Source: Standard & Poors; Hedge Fund Research, Inc.; Barclays Capital; MSCI, as of 6/30/09. Past performance is not a guarantee of future results.

The HFRFOF index outperformed the basic diversified portfolio at almost exactly those periods when the S&P 500 underperformed the basic diversified portfolio, and vice versa. For example, when the S&P 500 last had its period of significant outperformance compared to other capital markets in 1995-1999, the HFRFOF index dragged down a diversified fund's performance. When the S&P 500 collapsed relative to other capital markets from 2001-2003, hedge funds outperformed. The exact same pattern occurred during the Great Collapse of 2008-2009.

In essence, then, the choice for a basic diversified portfolio between simple and complex is, in a material way, a choice in the long term between embracing the return (and return patterns) of the S&P 500, or not. And, if one does not want the return patterns of the S&P 500, it is probably simply easier to reduce the exposure directly rather than indirectly through intense active management.

The "heyday" of intense active management over the past 10 years has corresponded to a period when the S&P 500 has been one of the relatively worst capital markets in the world. A dollar invested in the S&P 500 on July 1, 1999 would have been worth only \$0.80 ten years later. That same dollar would have been worth \$1.17 if invested in international developed market equities (MSCI EAFE), \$1.26 in small-capitalization stocks (Russell 2000), \$1.78 in investment grade bonds (Barclay Capital Aggregate) or REITS (Wilshire REIT Index), \$2.26 in private real estate (NCREIF Index), or \$2.37 in emerging market equities (MSCI Emerging Markets). Any strategy that underweighted large capitalization U.S. stocks, whether sophisticated or not, would have done well in the past decade. It is not clear that that large capitalization underperformance can be counted upon in the future.

A simple and transparent approach will wait for the occasional "big innings" when the S&P 500 will have one of its periodic runs. The endowment model will miss it. Whether a particular approach is seen as better or worse depends, in large measure, on the relative performance of large-cap equities. What is clear is that, in the abstract, one approach does not necessarily insure the long-term success of one over the other.

But it is the failure of the endowment model over the 2008-2009 timeframe that raises the greatest concern. While conventional portfolios lost in the neighborhood of -14% to -17% from June 30, 2008 to June 30, 2009 (the most common fiscal year), sophisticated pension and other funds that followed the endowment model lost between -22% and -27%, based on information available for various plans at their respective websites.<sup>6</sup> The disparity came from exactly those areas that the new form of investing was supposed to avoid – the movement from the "volatile" public markets to the new alternatives: hedge funds, private equity, and private real estate. The endowment model shifted money from fixed income to "absolute return" and hedge funds – and those alternatives lost over -19% for the year while the fixed income that had been abandoned gained 6%. Public equity was moved to private real estate and private equity – both of which lost generally around -20% to -30% or more for the year (the more opportunistic funds lost over -40% in leveraged real estate funds). While comparable to public markets for the full year, these private investments could not be rebalanced, and cost the overall fund at least 2% of the difference over the conventional approach when the market began its stunning rise on March 9, 2009. The behavior of commodities bore no relation to its ostensible purpose – to be a "real return" asset tied to inflation. After a huge run-up in the previous year, commodities collapsed in line with the public equities markets, and provided no relief.

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<sup>6</sup> Investment returns for FY 2009 as available from their websites for, on the one hand, Harvard, Yale, Stanford, Princeton, CalPERS, CalSTRS, MassPRIM, New Mexico State Investment Council, North Dakota, Oregon, Washington State Investment Board, Texas Teachers, Pennsylvania Public Schools, San Diego County, and San Bernardino County with that of, on the other hand, Idaho PERS, Orange County, Iowa PERSI, Kentucky Teachers, Texas Municipal ERS, Oklahoma PERS, Oklahoma TRS, and Nevada. A very basic allocation of 55% Russell 3000, 15% MSCI EAFE, and 30% Barclays Aggregate would have returned -17.4% for FY 2009.

It may be that the endowment model can develop new rationales. It may be that hedge funds can redefine their benchmarks after the disaster of missing their initial claimed benchmark of LIBOR-plus 3% to 6% by over -25% in a single year. Portable alpha may be able to prove itself worthwhile after nearly devastating funds with the huge margin calls needed to support the transport vehicles (and with the embarrassing result of transporting negative alpha to boot). Commodities may yet find a rationale for a place in the portfolio besides keeping pace as a real or inflation hedge investment vehicle.

Further, all of these approaches had previously thrived in an era where large-cap equities, and particularly the S&P 500 Index, have been relative disasters. Hedge funds and private equity have only added to a diversified portfolio in periods when the S&P 500 has returned less than the classic diversified portfolio. The widespread adoption of these alternative investment approaches have yet to face an S&P 500 dominated capital market like the mid-1990s.

It is interesting to note, as well, that success also can be a disadvantage when the rest of an organization begins to count on a continuation of that success. The percentage of institutional support based on the expectation of continued investment success grew tremendously at Harvard and Yale over the past couple of decades, causing devastation to university budgets when that support was seriously curtailed. Public pension funds in Oregon, San Diego, Houston, and elsewhere ran into severe difficulties when funding schemes were adjusted on expectations of continued stellar returns.

Until there is more experience, one must view the return claims of the new investment approaches with at least suspicion.

### **Phony Diversification**

Proponents of the endowment model may concede that long-term returns could be difficult to achieve, but they counter by claiming that the additional activities increase the diversification vs. the standard conventional investment portfolio. This claim is largely, if not wholly, illusory. In fact, the endowment model *adds* diversifiable risk back into the portfolio through its emphasis on intense active management, reduces or eliminates the “free lunch” available from diversification by loading up on illiquid assets, and, to the extent there is any “new” factor of return discovered, has a meaningless impact on any possible reduction in total portfolio volatility from that of the basic, already diversified, classic institutional portfolio.

Although not as bad as the term “risk,” diversification as a concept actually masks two related but distinct impacts. The first is the reduction of the overall volatility of a portfolio through the elimination of idiosyncratic or specific risk (which can be individually good or bad, such as a particular “home run” company like Google, or an absolute disaster like Pets.com). Exposure to extreme events is softened or practically eliminated in exchange for the average result. One gives up both home runs and strike outs for walks and singles. But the endowment model’s reliance on intense active management (also known as the “search for alpha”) in fact adds specific risk back into the portfolio from the base passive (and diversified) index fund, thereby actually increases risk, and is, by definition, incompatible with the principle of diversification. By adding the attempt to hit home runs, the endowment model increases the chances for strike outs, and thus increases, not reduces, the potential for volatility.

The second favorable impact of diversification is in the free lunch that diversification may offer by taking advantage of correlations (or lack thereof) to increase return potential without increasing volatility (or to decrease volatility without decreasing return potential). But the move by the endowment model into illiquid assets eliminates most, if not all, of that potential benefit.

Rebalancing and the free lunch of diversification go hand in hand. There is no diversification return benefit without rebalancing – otherwise the total return will simply be the weighted average of the long-term geometric returns. If you don't rebalance to asset types, you will get no diversification return benefit. If you *can't* rebalance to an asset type, you cannot get diversification return benefits. Rebalancing benefits increase as volatility rises, and decrease in less volatile times. The benefit of rebalancing after a 10% movement is more than 10 times the benefit after a 1% movement, and the benefit from rebalancing after a 50% move is more than five times the benefit after a 10% move. The greatest benefit comes in times, like 2008-2009, when there are wild movements in portfolios. Of course, diversification does not assure a profit or protect against loss in a declining market that affects numerous asset types. (Please see the Appendix for a more detailed example of the potential benefits of diversification.)

The benefits of rebalancing only can be achieved by actually implementing a rebalancing strategy. This is difficult enough even if liquid assets are available. During extreme market movements, this has proved to be psychologically difficult for some CIOs, boards and staffs to execute. For example, strict adherence to a rebalancing plan would have dictated increasing the exposure to equities in late 2008 and early 2009 – precisely when fear and anxiety were pervasive in global equity markets. An investment policy statement that is well conceived and built upon traditional investment principles is useless if not put into action.

But even if there is the will to execute the rebalancing discipline, the ability must also exist. Private assets have, at best, limited rebalancing opportunities, and the ability to rebalance to private assets decreases markedly as volatility rises. The periods of wild movements are exactly the time that private securities cannot be used in rebalancing schemes. Many funds found that they could not rebalance in the Spring of 2009 because they were frozen into existing position by the illiquidity of their assets. Therefore the supposed low correlations of private assets are phony. They cannot be used, at least not in any way close to the benefits that their correlations imply. They are useless for diversification at exactly those times when the diversification benefits would be greatest.

Another issue is the amount of diversification advocated. The potential benefits of diversification are not linear; there is much more diversification gained in going from three to four asset types than there is going from the 39th to the 40th. In fact, after about six or seven asset types, the additional benefit of the next asset type is practically unnoticeable (and often does not even change the second decimal of any standard deviation calculation). The additional complexity and operational monitoring problems from these additional efforts far outweigh any marginal diversification benefits.

## **CONCLUSION**

I believe the endowment model, as generally explained and implemented here, goes too far in the direction of the complex, opaque, and complicated, and has too high a risk of breaking in turbulent times. It makes it difficult to maintain liquidity when it is needed most, and to explain to the entire constituency the benefits of the long-term plan, or even the progress of the fund as it navigates the shorter-term turmoil. It also incurs higher costs, more problematic risk control structures, and is more difficult to maintain over time through changing boards and staffs. Unless forced upon an organization because of unrealistically high return needs, in my opinion it should be avoided rather than embraced.

Conventional investing has proved its worth for a number of decades, and has survived many tests. The endowment model failed its first big test, and comes with many additional problems, as well. There is little reason for sophisticated institutional investors to feel compelled by the media or the anecdotal promises of its advocates to travel down that path.

## APPENDIX

One of the benefits of diversification is the potential to increase the return of a portfolio without increasing its volatility. This is the famous free lunch. But the move into illiquid assets eliminates most, if not all, of that potential benefit. (Even with liquid assets, failing to rebalance precludes realizing any possible diversification return benefits.)

With respect to rebalancing, the diversification benefit depends on the difference between geometric (or realized) returns and arithmetic (or average) returns. As an example, say the hypothetical company Suntan Lotion, Inc. gains 30% in sunny weather, but loses -10% in rainy weather, and each season occurs half the time. The average arithmetic return per half year is 10%  $((30\% - 10\%)/2)$ , which would be 21% over both periods if achieved. The geometric, or actually realized return, however is lower because of the volatility. \$100 becomes \$130 after the sunny season, and then drops to \$117 after losing 10% in the rainy season, for a total return over both periods of 17%.

Diversification to another asset that doesn't follow the same return pattern, however, may help increase the geometric or realized return of a portfolio by potentially reducing the impact of volatility or extreme events. Say there is another hypothetical company called Umbrella, Inc. that loses -20% in the sunny season, but makes 40% in the rainy season. Its average per period arithmetic return is also 10%, or 21% over both seasons (the same as Suntan Lotion, Inc.), but, because of the greater volatility, its geometric return is even lower (12%) over both periods. As an individual investment, Umbrella, Inc. is much worse than Suntan Lotion, Inc. – it has much lower returns with much higher volatility.

Because of the different return patterns, however, combining the two can increase total portfolio returns. See Exhibit A-1.

### Exhibit A-1: Illustration of Hypothetical Diversification Benefits

	Sunny Season	Rainy Season	Total
Suntan Lotion Inc.	30%	-10%	17%
Umbrella Inc.	-20%	40%	12%
50-50 Allocation	5%	15%	20.75%

This hypothetical example is intended for illustrative purposes only. Actual results will vary. No investment strategy can assure a profit or protect against loss.

If 50% of the hypothetical portfolio is kept in each company at the start of each season, the inverse return movements (negative correlation) eliminates the volatility, and brings the geometric return of the portfolio up close to the arithmetic average returns of its parts. Here the return of the total portfolio is actually higher than the returns of either part. But this free lunch depends crucially on keeping 50% in each investment. After the sunny season, there will be more money in Suntan Lotion than Umbrella. Money has to be shifted from Suntan Lotion to Umbrella to maintain the 50% weightings. If the money is not shifted, then the benefit disappears, the extra return is eliminated, and the final portfolio return is simply the average of the geometric returns. See Exhibit A-2.

## Exhibit A-2: Illustration of Hypothetical Diversification Benefits Without Rebalancing

	Begin	Sunny Season	Midpoint	No Rebalancing	Rainy Season	Total
Suntan Lotion Inc.	\$100	30%	\$130	\$130	-10%	\$117
Umbrella Inc.	\$100	-20%	\$80	\$80	40%	\$112
50-50 Allocation	\$200		\$210	\$210		\$229
Return		5%			9%	14.5%

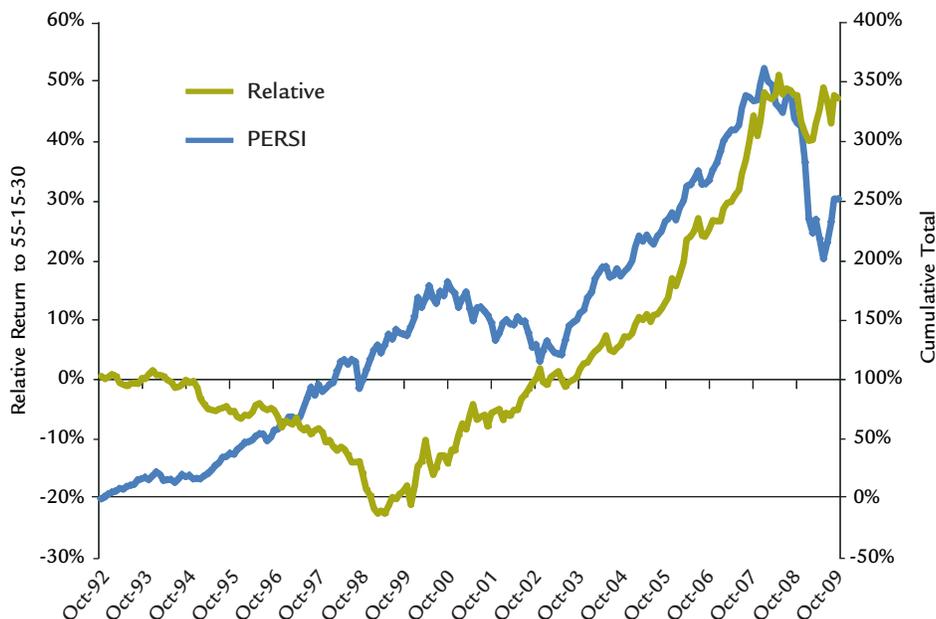
This hypothetical example is intended for illustrative purposes only. Actual results will vary. No investment strategy can assure a profit or protect against loss.

## CASE STUDY: PUBLIC EMPLOYEE RETIREMENT SYSTEM OF IDAHO (PERSI) EXPERIENCE SINCE 1992

The PERSI portfolio adopted the “simple, transparent, and focused” approach to investment in September 1992. Since then, both near- and long-term performance has been well above benchmarks, has outperformed the cumulative returns of U.S. equities, U.S. fixed income, and international equities, and has been consistently well above that of the median institutional fund. Performance also ranks in the top quartile when compared to peers over all longer-term periods.

As a long-term investor depending on market returns over extended periods, our basic goal is to lose less than the markets when they collapse, and keep up with the markets when they rise. Over time, the cumulative impact of this approach has served PERSI well. See Exhibit A-3.

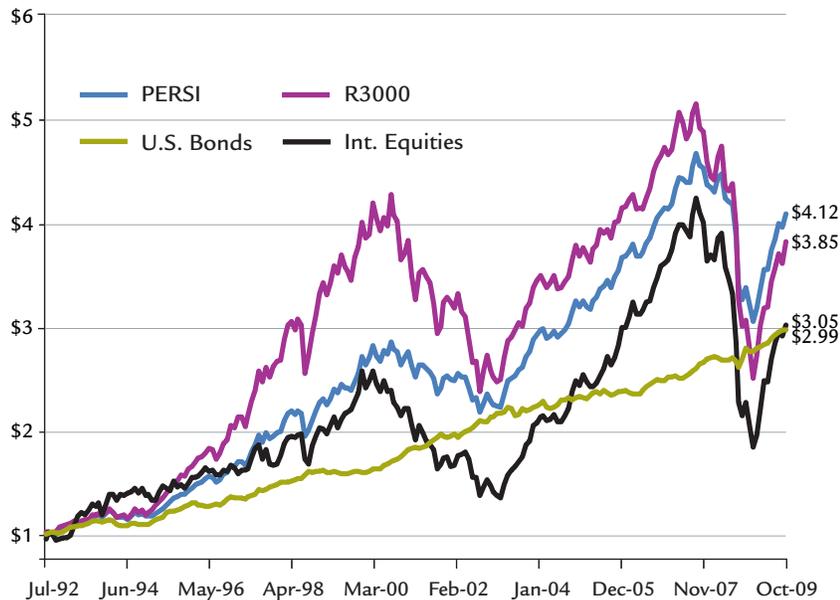
### Exhibit A-3: PERSI Relative and Cumulative Returns, 1992-2009



Source: PERSI, as of 6/30/09. Returns are relative to a composite benchmark: 55% Russell 3000 Index, 15% MSCI EAFE Index, and 30% Barclays Capital U.S. Aggregate Index. Past performance is not a guarantee of future results.

PERSI's cumulative returns have been excellent when compared to the general capital markets. Since 1992 through June 30, 2009, PERSI returns exceeded every major capital market. One dollar invested with the PERSI fund in 1992 was worth \$3.59 by June 2009, compared with \$3.22 invested in U.S. equities, \$2.87 in bonds, and \$2.49 in international equities. This outperformance added over \$1.2 billion to total fund value over the period. See Exhibit A-4.

**Exhibit A-4: PERSI Cumulative Return vs. Benchmarks  
(Fiscal Year 1993 to Fiscal Year 2009)**



Note: U.S. bonds represented by the Barclays Capital Aggregate Index. U.S. equities represented by Russell 3000 Index. International equities represented by MSCI EAFE Index. Source: PERSI, as of 6/30/09. Past performance is not a guarantee of future results.

This strategy also has performed very well when compared with our peers. For example, using Callan's database (PERSI's general consultant), PERSI is well above median and generally well into the top quartile when compared over near- and long-term time horizons both against all public funds and when compared with only large (\$1 billion plus) pension funds. See Exhibit A-5.

**Exhibit A-5: PERSI Annualized Returns and Percentile Rankings\*  
In The Callan Public Fund Universe, as of June 30, 2009**

	1 Year	3 Year	5 Year	10 Year	Since Inception
<b>Annualized Return (%)</b>					
PERSI	-16.0	-1.2	3.7	3.8	7.8
Policy Return	-17.5	-3.5	1.2	1.7	6.9
Median Fund	-18.1	-2.8	2.3	3.1	7.2
Median Large Fund	-19.1	-2.8	2.3	3.1	7.3
<b>Ranking</b>					
PERSI (among all funds)	33	20	10	18	14
PERSI (among large funds)	22	17	13	21	19

\* 1 is highest and 100 is lowest

Source: Callan Associates, as of 6/30/09.

Past performance is not a guarantee of future results.

PERSI’s adherence to rebalancing in volatile times was a major contributor to recent fiscal year relative returns. PERSI rebalances after major market moves – and did so in late October and early November 2008, and again in early March 2009. And, our rebalancing favored moving money to emerging markets and REITS. Both the decision to rebalance and the favoring of these areas added over 1% to total portfolio returns (0.7% from rebalancing to equities, and over 0.3% from favoring emerging markets and REITS in the rebalance).

Finally, during the severe “stress test” of the Great Collapse, PERSI had no problems. Our liquidity remained secure at all times. Our insistence on independent, third-party daily pricing for our securities kept us out of the toxic and illiquid assets that plagued many institutions. Our avoidance of commingled funds – including avoiding the custodial short-term investment funds (STIF) – kept us from any “rushing to the exits” of frozen accounts. And our non-participation in securities lending programs kept us out of the problems fostered on most of the industry in that arena.

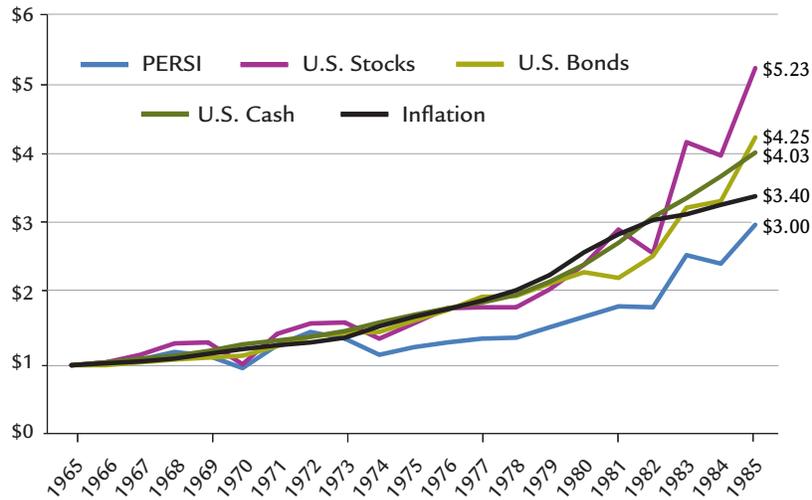
Our avoidance of hedge funds, portable alpha, and the new asset classes of commodities and similar strategies allowed us to be spectators, and not participants, when much of the industry ran into both performance and liquidity problems (and headline risk with incidents such as the Madoff ponzi scheme and Westridge frauds).

In other words, our emphasis on being “simple, transparent, and focused” and following the basic discipline of rebalancing not only turned out to be the best risk control, but also led to better returns than that experienced by many of our peers. In addition, PERSI enjoyed higher returns than the capital markets generally over both the short and longer term.

**Lessons Learned: PERSI 1965-1992**

Recent successes were not PERSI’s experience for the first two and a half decades of its history. PERSI was founded in 1965 and from its inception through 1992 relied primarily on active management, tactical asset allocation, and opportunistic investing. The results were a near disaster. From its founding in 1965 through 1992, PERSI’s cumulative returns lagged that of every asset class, including cash. As shown in Exhibit A-6, through 1985, PERSI’s total returns did not even keep up with inflation.

**Exhibit A-6: PERSI Cumulative Returns, 1965-1985**



Source: PERSI, as of 6/30/09.  
 Past performance is not a guarantee of future results.

As a result, by mid-1992, PERSI’s performance was at the bottom of peer rankings, according to Trust Universe Comparison Service (TUCS). See Exhibit A-7.

**Exhibit A-7: PERSI Performance Rankings in the TUCS Public Fund Universe, as of 9/30/92**

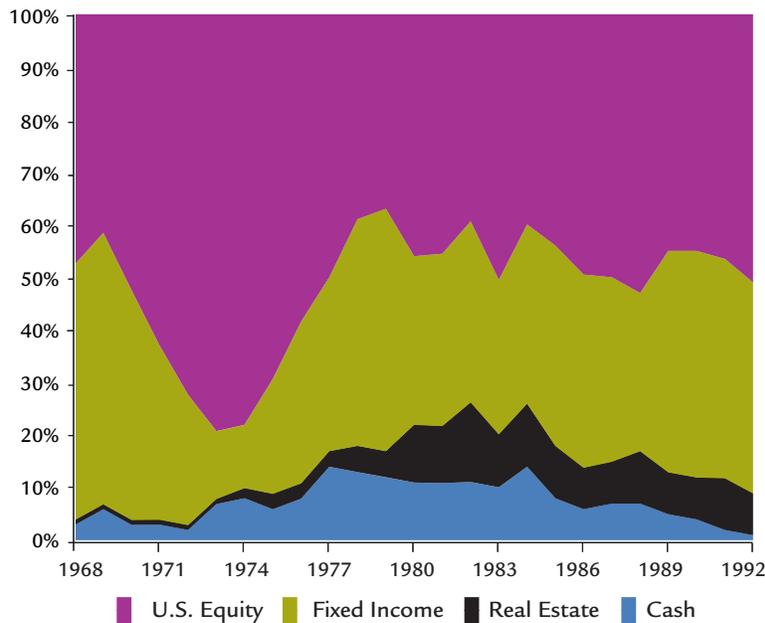
	1 Year	2 Year	3 Year	4 Year	5 Year	7 Year	10 Year
PERSI Ranking	99	90	90	79	99	99	99

Source: TUCS, as of 9/30/92

Until 1987, PERSI invested its assets through outside trust and insurance companies, (called “funding agents”), reaching a total of eight by 1984. These agents exercised “full discretion in investment activities,” with investment policy “influenced to a degree by frequent consultation with the Retirement Board concerning total portfolio composition and current economic considerations.”<sup>7</sup> The result was that during that period, PERSI’s overall portfolio essentially chased trends. Over the first 27 years of PERSI’s existence, the equity allocation moved radically (from 37% to 80% and back again) because of the tactical judgments of the outside active managers. See Exhibit A-8.

<sup>7</sup> PERSI Tenth Annual Report. 1975. Page 17.

**Exhibit A-8: PERSI Asset Allocation, 1968-1992**



Source: PERSI, as of 12/31/92

For example, much like the current reaction of many pension funds to the Great Collapse, PERSI reacted to adverse market conditions of 1973-1974 by increasing reliance on active management, radically pulling back its equity exposure, increasing exposure to other asset types, and covering all of these active investment movements under the rubric of “diversification.”

PERSI’s Tenth Annual Report, published in 1975, stated after noting the “adverse investment results” of 1973-1974: “With a long-term objective of an optimum rate of return foremost in mind, the Board has not only further diversified in the number of funding agents [investment managers] but has also moved in the direction of further diversifying the portfolio and reducing the ratio of equity investments.”

PERSI’s equity allocation subsequently declined from 78% to 80% in 1973-1974 to 37% by 1979 – just in time to miss the succeeding annualized 10-year equity return of almost 13% from 1975 and an annualized 5-year equity return of 16.5% from 1979.

In essence, PERSI’s reliance on intense active management, opportunistic investing, and tactical asset allocation by its agents and the board resulted in trend chasing, with equity allocations increasing from 40% to 80% after the bull markets of the late 1960s, collapsing back to 37% after the 1973-1974 market crash, then increasing to 50% after missing most of the bull market in equities of the early 1980s. The market crash in October 1987 caused another reaction against equities, with a drop in allocation back to the mid 40% levels. That allocation gradually was built back to only 50% by 1992. See Exhibit A-8.

PERSI ended the fiscal year 1992 far below its equity allocation of 65%. (PERSI guidelines had been amended at that point to maintain a 65% equity allocation.) During most of this first 27 years PERSI left actual allocations to the vagaries of active judgments by its agents with the board making ad hoc reactions when severe market events occurred. If PERSI had consistently maintained any reasonable asset allocation (50% or more in equities, for example) during this period, its assets would be more than \$2 billion higher today.

Two decades ago PERSI deliberately moved away from reliance on intense active management and attempts to tactically allocate assets in an opportunistic manner. We do not believe that a return to that reliance is called for today. We do not believe in the new paradigms of modern trends in investment management which, in our opinion, have yet to demonstrate that primary reliance on intense active management and opportunistic investing will lead to long-term outperformance.

Robert Maynard is Chief Investment Officer of the Public Employee Retirement System of Idaho and a member of the Brandes Institute Advisory Board.

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Created in 1993 by the Chicago Board Options Exchange® (CBOE®), the CBOE Volatility Index®, or VIX®, was originally designed to measure the market's expectation of 30-day volatility implied by at-the-money S&P 100® Index option prices. In 2003, CBOE, together with Goldman Sachs, updated the calculation of VIX. Now, it is based on the S&P 500 Index and estimates expected volatility by averaging the weighted prices of S&P 500 puts and calls over a wide range of strike prices. VIX has evolved into a widely followed measure of market volatility and often is referred to as the "investor fear gauge."

The S&P 500 Index is an unmanaged, market capitalization weighted index that measures the equity performance of 500 leading companies in leading industries of the U.S. economy. Although the index focuses on the large cap segment of the market, with approximately 75% coverage of U.S. equities, it can also be a suitable proxy for the total market. This index includes dividends and distributions, but does not reflect fees, brokerage commissions, withholding taxes, or other expenses of investing.

The Barclays Capital U.S. Aggregate Index is an unmanaged index consisting of U.S. dollar-denominated, fixed-rate, taxable bonds. The Index includes bonds from the Treasury, Government-Related, Corporate, Mortgage-Backed Securities (agency fixed-rate and hybrid adjustable-rate mortgage pass-throughs), Asset-Backed Securities and Commercial Mortgage-Backed Securities sectors. Securities must be rated investment grade (Baa3/BBB-/BBB- or above) by Moody's, S&P, and Fitch, respectively. When all three agencies rate an issue, a median or "two out of three" rating is used to determine Index eligibility by dropping the highest and lowest rating. When a rating from only two agencies is available, the lower ("most conservative") of the two is used. When a rating from only one agency is available, that rating is used to determine Index eligibility. The index is a total return index which reflects the price changes and interest of each bond in the index.

The Russell 3000 Index is an unmanaged market capitalization weighted index that measures the performance of the 3,000 largest U.S. companies representing approximately 98% of the investible U.S. market. This index includes the reinvestment of dividends and income, but does not reflect fees, brokerage commissions, withholding taxes, or other expenses of investing.

The MSCI EAFE (Europe, Australasia, Far East) Index is an unmanaged, free float-adjusted market capitalization weighted index designed to measure equity market performance of developed markets, excluding the United States and Canada. This index often is used as a benchmark for international equity portfolios and includes dividends and distributions net of withholding taxes, but does not reflect fees, brokerage commissions, or other expenses of investing.

The MSCI Emerging Markets Index is an unmanaged, free float-adjusted market capitalization weighted index designed to measure equity market performance in emerging markets throughout the world. This index includes dividends and distributions, but does not reflect fees, brokerage commissions, withholding taxes, or other expenses of investing.

The Hedge Fund Research Inc. Fund of Funds Index ("HFRFOF Index") is an equally weighted performance index that includes approximately 700 hedge fund of funds (both U.S. based and offshore funds). Funds in the index must have at least \$50 million in assets under management or have been actively trading for at least 12 months. All funds report assets in U.S. dollars and returns net of all fees on a monthly basis.

The NCREIF Property Index ("NPI") is a quarterly time series composite total rate of return measure of investment performance of a very large pool of individual commercial real estate properties acquired in the private market for investment purposes only. All properties in the NPI have been acquired, at least in part, on behalf of tax-exempt institutional investors – the great majority being pension funds. As such, all properties are held in a fiduciary environment. NCREIF ("National Council of Real Estate Investment Fiduciaries") was established in 1982 with the 14 managers that supplied data for the NPI becoming founding members. NCREIF in turn entered into an arrangement with the Frank Russell Company to collect data and publish the NPI under joint sponsorship. A jointly constructed index was first introduced in the late 1970s. In 1991, the name of the Index was modified to the Russell-NCREIF Property Index to reflect NCREIF's identity and its increasing role in overseeing data collection and promoting standardization. In 1994, it was mutually agreed between NCREIF and Russell that NCREIF had evolved to the point where it was capable of taking over data collection and Index production. On January 1, 1995, NCREIF assumed full Index responsibility. The name was changed to the NCREIF Property Index.

The Wilshire REIT Index (WILREIT) measures U.S. publicly traded real estate investment trusts. WILREIT is a subset of the Wilshire Real Estate Securities Index (WILRESI). Security types excluded from consideration for inclusion in WILRESI include: mortgage REITs, net-lease REITs, real estate finance companies, home builders, large landowners and sub-dividers, and hybrid REITs. The inception date, January 1, 1978, was selected because it coincides with the Russell/NCREIF Property Index start date.

**Alpha:** A portfolio's alpha measures the difference between its actual returns and its expected returns given its risk level as measured by its beta. A positive alpha indicates the portfolio has performed better than its beta would predict, while a negative alpha indicates a portfolio has underperformed given the expectations established by its beta.

**Beta:** A stock's (or a portfolio's) beta measures its volatility versus an index. A stock (or portfolio) with a beta higher than one has tended to exhibit more volatility than the index, while a stock (or portfolio) with a beta between zero and one has tended to exhibit less volatility than the index.

**TIPS:** Treasury Inflation-Protected Security. A security which is identical to a treasury bond except that principal and coupon payments are adjusted to eliminate the effects of inflation.

**LIBOR:** London Inter-Bank Offer Rate. The interest rate that the banks charge each other for loans (usually in Eurodollars). This rate is applicable to the short-term international interbank market, and applies to very large loans borrowed for anywhere from one day to five years. This market allows banks with liquidity requirements to borrow quickly from other banks with surpluses, enabling banks to avoid holding excessively large amounts of their asset base as liquid assets. The LIBOR is officially fixed once a day by a small group of large London banks, but the rate changes throughout the day.

**Sharpe Ratio:** A risk-adjusted measure developed by William F. Sharpe, calculated using standard deviation and excess return to determine reward per unit of risk. The higher the Sharpe ratio, the better the fund's historical risk-adjusted performance.

**130/30:** A strategy that uses financial leverage by shorting poor performing stocks and purchasing shares that are expected to have high returns. A 130-30 ratio implies shorting stocks up to 30% of the portfolio value and then using the funds to take a long position in the stocks the investor feels will outperform the market. Often, investors will mimic an index such as the S&P 500 when choosing stocks for this strategy.