

## *Hamlet and Modern Portfolio Theory*

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*"There are more things in heaven and earth, Horatio,  
Than are dreamt of in your philosophy."*

—William Shakespeare, *Hamlet*

### Introduction

In 2002, plan sponsors are thirsting for ideas to enhance the return on their portfolios. There is a widespread consensus that equity return expectations are lower for the future than the results of the 1990s, with most plan sponsors anticipating a return from their equity portfolios of less than ten percent. At the same time, the United States is in an era of low nominal interest rates, with yields on long term Treasuries as low as they have been in a generation. More pension plans are facing questions about whether they will have to resume funding of their plans in light of lower portfolio returns and higher estimates of the value of their liabilities. The longer actual returns fall below actuarial assumptions, the greater the number of plans that will have to resume contributions, and the lower the reported earnings on pension plan assets will be for all.

Compounding the issue, many more plans are experiencing higher benefit payout ratios as the population ages and the average retirement age continues to fall, leading many plan sponsors to focus on the cash yields of their investment portfolios. Hence, just as fixed income yields have made it harder to generate, there is increased pressure for cash flow to fund payouts.

Ironically, there are many investment ideas that could enhance the return or the yield of pension plans. But the current paradigm for institutional fund investing, with its roots in Modern Portfolio Theory (MPT), often is practiced in a way that makes it difficult for plan sponsors to assess them or get them approved. Plan sponsors can open up a wider range of alternatives if they understand the limits of that paradigm and deal with them appropriately. At the very least, a deeper understanding of the biases built into MPT as applied to pension plan asset allocation will allow for more innovative decision making by plan trustees and staffs. To understand why this is so, it is helpful to return to the roots of today's paradigm.

## *Asset Allocation*

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## The History of Pension Fund Asset Allocation

It is 1977, and the newly elected President Carter is at one of his first Cabinet meetings. He asks what ERISA is, saying that he has heard so many complaints from businessmen about it that he would like to better understand it. His new Treasury Secretary, W. Michael Blumenthal, a former corporate CEO, responds by telling him that most businessmen think the initials stand for Every Ridiculous Idea Since Adam, but that it is in fact the Employee Retirement Income Security Act of 1974, passed to limit abuses in the pension fund world by creating a series of regulations to govern plan sponsor behavior. By the time Secretary Blumenthal returns to his office that afternoon, he has an angry phone call from one of the legislation's original sponsors taking him to task for his irreverence. Lessons learned: in Washington politics, protecting employees is not something to joke about – and Cabinet meetings, even closed sessions, have no guarantee of confidentiality.

In fact, contrary to the initial skepticism of the business community, ERISA had a powerful and largely beneficial influence in the ensuing years on corporate plan sponsor behavior. By extension, it has shaped the thinking of many public sector pension plans as well. Not stepping out of line has become critical for more than Cabinet secretaries, because ERISA has established that the standard of governance for a plan is prudence. In practice, this has meant that plan sponsors cannot be sued successfully for investment decisions if what they did was something that a prudent investor would have done, regardless of whether it subsequently turned out well or badly. Effectively, the standard for testing whether a course of action is prudent has become whether a lot of others in similar circumstances are doing it too, or at least whether they followed a reasonable process to arrive at the result. Hence, the *legal* standard against which pension plan performance is measured is generally not success, but conformity to common practice.

This standard has reinforced the natural dynamics of risk taking in most pension plans. Pressure to avoid failure has become more important after ERISA than the pressure to achieve success. The only comfortable defense in the event of failure is to fail with a good deal of company, doing something that a lot of other plans have also done pursuant to a reasonable decision-making process. In response to these pressures and other benefits available from using consultants, a pension fund consulting profession exploded in the years following the passage of ERISA. By seeking expert advice from third parties with regard to the investment process, plan sponsors and staffs created a layer of insulation for themselves which industry cynics wryly referred to as “fiduciary insurance.” If an expert had advised as to the appropriate mix of assets and the selection of managers, there was greater comfort that any later second-guessing could be deflected. Prudence was pre-emptively established.

In fact, the widespread adoption of Modern Portfolio Theory was one of the key contributions made by the consulting community. Pioneering work on portfolio theory had become sufficiently advanced in the academic community to give consultants a basis on which to issue advice on portfolio construction. By the mid-1980s, software made this technique widely available and its use became nearly universal. This is not the place to describe this theory in any detail, but certain key attributes of the advice that flowed from it are critical to understanding today's institutional investment paradigm.

First of all, the theory predicts that diversification of a portfolio makes it possible simultaneously to enhance expected return and to lessen risk, as measured by the volatility of the expected result. The mathematics of the models suggest that in fact the asset allocation decision is far more important to the outcome than the selection of individual investments or asset managers. Hence, a plan sponsor should above all get the asset allocation correct, and could regard all the other issues of investing as of secondary importance – needing attention, to be sure, but unlikely to affect the outcome as much as the allocation decision.

In addition, it became more important how well an asset manager fulfilled the role assigned to him in the modeling process. Managers were encouraged to behave in narrowly defined ways, not deviating too far from the behavior of the asset class to which they were assigned, rather than being encouraged to change investment strategies in reaction to market decisions. That function became the role of the plan sponsor, who achieved it by varying the mix of asset managers fulfilling assigned roles. In short, tools were created that allowed plan sponsors to more effectively control risks.

### **Where we are today**

The institutional investment paradigm that has resulted from this interaction of ERISA and the widespread dominance of MPT in asset allocation decisions has several characteristics that are obvious to virtually all the practitioners in the field. These inform and constrain virtually every discussion about investment strategy and tactics in the institutional world. Nevertheless, they get very little explicit discussion or examination. This is a shame, because a study of the biases they create has the potential to lead to some improvements in decision-making, and potentially to open up the range of possible answers in a way that can improve the performance of funds without sacrificing the risk controls that MPT has made possible. Now may be an excellent time to focus on these issues, as concerns about returns are growing in importance. A list follows, in no particular order.

- *There is a bias in favor of public market investments and against private market assets. This is due to several factors, including the fact that public assets are easier to invest in than private assets, and have performed very well for the past two decades. But it has also been because of the greater confidence in model inputs.* MPT requires estimation of correlation of returns among asset classes. Yet data regarding these items is only readily accessible for investments that are traded in public markets, preferably priced daily. In contrast, private market investments such as real estate or private equity have no such reliable measures of return and correlation. Estimates of their value are much less frequent and are much more likely to be estimates than actual transactions that establish a true market price. As a result, it is difficult to estimate both returns and correlation for all such assets. In fact, measurement effects embedded in the return series that are available create strange effects when private assets are used in the models – the relatively low volatility and correlation with public market assets created by less frequent measurement tends to make these investments look very attractive in the typical optimizer model, forcing *ad hoc* constraints on the modeling results.

- *Investments with benchmarks are favored for related reasons, and techniques for creating value by managers are constrained.* Because the modeling process requires inputs as to return correlations among different asset classes, the definition of an asset class rarely extends beyond those for which a return series is available. Thus index fund managers who are explicitly hired to replicate the behavior of an asset class are measured by tracking error, the tightness by which their results track those of the index. The logic of this desire to conform real world results to modeling assumptions has been extended even to styles of equity management, such that tracking error is now calculated even for growth stock managers. Managers have contributed to the spread of this practice by pushing for more benchmarks and building products managed against them, thereby limiting their business risk to failure to track the assigned benchmark, regardless of whether it performs well or badly. Conversely, if there is no benchmark for an investment idea, even one that invests in public market securities, the chances of it finding a home in an institutional portfolio are greatly reduced.
- *Value creation is primarily focused on manager selection, which has less value in public markets than in private markets.* One of the enduring ironies of the investment process is that the activity likely to add the most value – asset allocation – takes relatively little management time, while one that takes a lot of time, manager selection, is relatively unlikely to add much value. This is not true in private asset classes, where the spreads between top and bottom quartile performance can be enormous, especially over extended periods of time. But in the relatively efficient public markets, the difference between top quartile and below median performance is relatively small. This is summarized in the following table. For example, over the ten-year period ending 2001, picking a first quartile private equity manager would have earned a plan 26% above the median manager, while picking a first quartile manager of US public equities would have only earned an additional 60 basis points. This was during a period when equities were performing well above historical norms, so the future contribution from manager selection is likely to be even less in public equities.

**Asset Returns by Quartile  
Ten Years Ending December 31, 2001**

	<b>1st Quartile</b>	<b>Median</b>	<b>3rd Quartile</b>	<b>Range</b>	<b>Data source</b>
US Fixed Income	8.0%	7.6%	7.3%	0.6%	FRC Active Core Fixed Income universe
US Equity	14.7%	14.1%	12.6%	2.1%	FRC Market-Oriented Accounts universe
International Equity	10.6%	7.4%	6.4%	4.2%	FRC Non-US Equity Portfolios universe
Leveraged Buyouts	13.8%	0.2%	-10.4%	24.2%	Venture Economics Buyouts universe *
Venture Capital	32.9%	6.2%	-10.2%	43.1%	Venture Economics Venture Funds only universe *
Real Estate	10.4%	9.3%	8.2%	2.2%	FRC Real Estate Open-End Commingled Funds universe

**Notes:**

- Frank Russell Company (FRC) universe returns calculated using time-weighted returns, gross of manager fees
- \* Denotes cumulative vintage year composite performance. Returns calculated using internal rate of return, net of manager/partnership fees and fund manager's carried interest

In addition, there is evidence to suggest that serial correlation is stronger in private assets than in public markets. A good track record in the past is a more reliable indicator of future performance for investors in private markets assets than in public markets with their random walk characteristics. Once again, the point is that manager selection in private market assets is more likely to yield benefits than staff resources spent on manager selection for public market assignments.

- *Investment ideas that are not readily classified into an asset class, such as private placements, mortgages, CMBS, or REITs, find it difficult to attract an audience.* Even when an asset class has an available public market benchmark, such as REITs, there is resistance to expanding the number of asset classes to accommodate a new investment idea. REITs suffer from an identity crisis in the minds of plan sponsors, with a continuing debate as to whether they represent a stock or a real estate investment. This is a debate that is unlikely to ever be fully resolved, since REITs have characteristics of both. But the practical result is that few mandates to invest in REITs are given out, unless as a subset of a real estate mandate, despite evidence that they are a valuable diversifier that can have a beneficial effect on risk-adjusted portfolio results.<sup>1</sup> Likewise, private placements are routinely excluded from the list of potential fixed income investments, because their illiquid nature makes them “different” than other fixed income alternatives.
- *Risk has no common measure across all asset classes.* The standard measure of risk in MPT is volatility of results, rather than alternative measures such as risk of loss. Unsurprisingly, this measure of risk implies that illiquid assets have little if any correlation with liquid assets, because they are priced less frequently. In reality, the correlations are higher than is implied by the raw data. But they are almost certainly low enough that plan sponsors should take advantage of the real diversification benefits that their use creates. Those plan sponsors that use real estate or private equity despite the difficulties of measuring its correlation and expected return understand this tradeoff and have made the judgment to go ahead despite the issues posed by the measurement effects. However, the fact that the paradigm measures risk in a way that is nearly meaningless for private asset classes remains a significant obstacle to the use of these strategies, regardless of their potential to increase the alpha of the portfolio in an uncorrelated – and therefore highly valuable – manner.
- *Asset allocations tend to be static over widely varying market conditions.* The typical asset allocation has developed a central tendency to vary around a mix of 60% stocks and 40% bonds. This is an unsurprising consequence of using historical data to predict future behavior, but it leads to little if any meaningful adjustments to asset allocations based on market conditions. This may well be a sensible result, in that the random

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<sup>1</sup> An analysis of historical data by Ibbotson Associates, an authority on asset allocation, demonstrates that REITs can increase return and decrease risk for a wide range of portfolios. Ibbotson’s initial analysis was commissioned by the National Association of Real Estate Investment Trusts in 2001 and was updated in 2002.

walk qualities of the public markets make it difficult to add value by doing anything other than rebalancing. In fact, there are numerous studies that suggest exactly that. However, it is also true that those studies and conclusions are based on assets traded in public markets. There may well be greater predictability as to when it is appropriate to funnel cash flow to private markets, as many of them follow discernible cycles that could allow for a successful contrarian approach.

- *Contrarian investing is discouraged, both in asset allocation and within asset classes.* In general, contrarian investing is not widely practiced in the institutional world. Certainly, the pressures of ERISA make it dangerous and rare to advocate asset allocations that differ greatly from the norms. Similarly, within each asset class, conventional wisdom as to how best to approach the distribution of assets among managers is hard to escape – it is difficult to take money away from investors with proven track records and harder still to award it to unproven but promising teams, even in public asset classes where it is hard to demonstrate that there is much serial correlation of returns among managers. Yet contrarian actions can pay rich rewards. The superior results achieved by many endowment funds suggest that avoiding the herd is rewarding in the long run.
- *Herd effects create significant risks of losses, as has been repeatedly demonstrated.* When there is a new strategy or a novel asset class that gains wide acceptance, there is a tendency for the pension fund community to throw so much capital at it so fast that a bubble in prices results, and subsequently collapses with painful effects. That is what happened to some extent in real estate in the 1980s, what clearly happened in private equity in the 1990s, and what many observers expect to happen with hedge funds in the 2000s. There is more to risk than volatility of results, and risk of loss can often be created by joining in a collective feeding frenzy. Yet the imperative to be prudent, as measured by conformity to market norms, can in fact encourage this particular kind of risky behavior, even while optimizer models suggest that risk is being controlled.

### **Can We Do Better?**

The introduction of Modern Portfolio Theory created significant improvements to the investment policies of the institutional world. What preceded it was too often a process of bartering influence at the expense of performance, or of observing Depression-era taboos about investing in equities that had long since ceased to be appropriate. No knowledgeable market participant would advocate a return to that era. But it is important to periodically remember that there are more investment opportunities than are contemplated by the paradigm in which most institutional investing takes place. A periodic review of what that paradigm excludes from consideration can sharpen any plan sponsor's thinking about how to set investment policy. Some ideas follow that might help respond to these problems.

- *Act as providers of liquidity to markets that are liquidity-starved or willing to pay a premium for capital.* Generally, excess returns are available in markets where capital is reluctant to take risks. Investing in these situations often requires a long term view that ought to be comfortable for pension plans trying to fund long term liabilities. When there is insufficient investment to force returns in line with risks, those who do invest should reap excess returns. A policy that explicitly creates an allocation for such situations, if successfully implemented, should add to the expected return of the fund by making contrarian bets.
- *Allocate more to unorthodox investment categories.* Over-reliance on liquid capital market investing inevitably deteriorates expected return by limiting upside. It is possible to correct this simply by adopting a policy of being contrarian in asset mix, aiming for the high side of typical allocations to unorthodox investments, and the low side of typical allocations to the main asset classes.
- *Search for weakly correlated assets ignored by others, especially those with absolute return targets rather than benchmarks.* These are likely to be private market assets, or assets that do not neatly and clearly fit into a category in common use in asset allocation strategies. By adopting a target allocation for such assets, plans are likely to expand the number of asset classes in their optimizer models and create more alpha with greater diversification.
- *Limit the use of tracking error as an investment criterion when selecting non-index managers.* Tracking error is an appropriate tool in the evaluation of index funds that are designed to replicate the performance of a given index. But there should be room in a portfolio for managers whose job is to deviate from benchmarks in order to generate alpha, and pressure for them to do so. Many large plan sponsors do some of this by assigning index funds to the role of “core” equity and then hiring “satellite” managers with greater style risk. But if the satellites in turn are measured by the extent of their tracking error against a benchmark, the behavior that is encouraged is to hug the benchmark.
- *Focus on dispersion of results by asset class.* The degree of difference between top and bottom quartile performance is a key topic that needs more explicit attention in policy setting. Plan sponsors that want to be aggressive should devote more resources to asset classes with greater dispersion of results. For example, a plan sponsor looking to add an allocation to private assets can dial risk parameters up or down by deciding between private equity – where the dispersion of results is very wide – and real estate, where it is wider than public market assets, but narrow relative to private equity.
- *Allocate staff resources to activities that are likely to add value.* More staff time is spent in the selection and monitoring of investment managers for public market assets than on anything else, yet this is precisely the activity least likely to add to the alpha of the fund, especially in periods of low nominal returns. Staff resources should be selected and focused with an eye on building the plan sponsor’s capabilities to add value.

These ideas are by no means an exhaustive list of the things that could be done differently to enhance the expected return of institutional portfolios while decreasing risks. But it is a suggestive list, because the common theme is that the industry is behaving in a more constrained way than is really necessary. While there are many who do not fit this description, too many industry participants are like thirsty travelers convinced that all the local sources of water are too dangerous to use. Pushing the analogy, prudence does not require dying of thirst. There are many ideas that can be used to address the industry's need for return without violating the boundaries of good sense. Recognizing them requires only understanding why the boundaries are drawn where they are, and when it makes sense to move them.

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