The Education Committee of
The Greenwich Roundtable
Knowledge, Veracity, Fellowship

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In This Issue

Best Practices In Alternative Investing: Portfolio Construction

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The Research Council enables the Greenwich Roundtable to host the broadest range of investigation that serves the interests of the limited partners and investors. This group wishes to help investors document the allocation process. Their business activities serve as an example to all of their sincere desire to educate investors and of their belief in our mission. Members of the Research Council not only provide no-strings funding but they have also assisted the members of our Education Committee by rolling up their sleeves in the discovery and editing phases.

About the Greenwich Roundtable

The Greenwich Roundtable, Inc. is a not-for profit research and educational organization located in Greenwich, Connecticut, for investors who allocate capital to alternative investments. It is operated in the spirit of an intellectual cooperative for the alternative investment community. Mostly, its 200 members are institutional and private investors, who collectively control $6.9 trillion in assets.

The purpose of the Greenwich Roundtable is to discuss and provide current, cutting-edge information on non-traditional investing. Our mission is to reveal the essence of both trusted and new investing styles and to create a code of best practices for the alternative investment industry.

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The Education Committee has been working as a group of altruistic investors who contributed their time and worked to raise professional standards. The final result is intended to demystify alternative investing and to bring about greater understanding. Investing in alternatives is not well documented. The Education Committee is chartered to conduct original research and develop best practices from the investors' point of view.

Acknowledgements

I am grateful for—indeed humbled by—the depth of commitment of so many friends, investors, and members. This was truly a team operating at its best. It would be difficult not to acknowledge first, Aleks Weiler, the leader of our Best Practices Working Group. Aleks went headlong into this project with a calm determination and a pursuit of excellence. He conducted all of the original focus groups that cut across investor types and asset classes and wrote the first draft. Ed Barksdale, a GR trustee and Chairman of the Education Committee, set the tone for the discussion when he suggested that we emphasize the qualitative aspects of portfolio construction. For more than two years he generously opened the doors of his offices for this diverse committee to meet. To say that Rusty Olson was invaluable would be an understatement. His clear thinking and his clean writing style transformed this work into a readable, enjoyable summary. His unselfish respect for other opinions served to inspire others to do the same. Meanwhile, GR staff editor, Alex Poletsky, was Rusty's mission control. This former newspaperman tirelessly rewrote and negotiated over 20 drafts. Mark Silverstein provided most of our guidance on managing risk. His practical common sense approach was only exceeded by his humility and good-natured cooperativeness. Ray Gustin provided a lot of our intelligence on hedge funds. His ability to articulate the nuance was invaluable.

On her weekend retreats in New Hampshire, Lyn Hutton edited several drafts and provided many innovative insights. Lyn often provided a middle way to reconcile the philosophical differences between the quantitative and qualitative approaches. Bob Hunkeler, also a trustee of the Roundtable, kept us focused on the realities of the investment trustee's experience. It was his idea to write with an eye on educating trustees who incur the liability and provide governance. Finally, Nathan Fischer opened our minds to organizing the portfolio along functional rather than asset class lines.

We are deeply grateful to the members of the original focus group. Peter Bernstein challenged us to show how to "play by ear." Charley Ellis urged us not to look at our neighbor's work. Clark Binkley unlocked the world of timber, and John Hill guided our view on energy. Rian Dartnell painted the picture from the private investor's view. Peter Lawrence, Sue Carter, and Alexis Palmer took us on an insider's tour of the venture and private capital markets. Barry Sternlicht gave us a foundation to build our view of real estate. Neal Triplett and Mary Cahill offered the endowment perspective. We also appreciate the editorial insights of Ray Dalio, Mark Casella, Don Raymond, Afroz Qadeer, John-Louis Lelogois, and Wim Kooyker.

"Investor education is one of the greatest needs in the marketplace."

—Stephen McMenamin
Executive Director

Introduction

"*By three methods we may learn wisdom. First, by reflection, which is noblest; second, by imitation, which is easiest; and third, by experience, which is bitterest.*"

—Confucius

Greenwich Roundtable members practice a different investing approach with an active management style in alternative investments such as hedge funds, private equity, real estate, and commodities. We have written on the art and science of finding, evaluating, and hiring talented managers (the three *Best Practices in Hedge Fund Due Diligence* white papers).

We now turn our attention to building and managing a portfolio of alternative investments.

We entered the project with the simple notion that there is no one right way to craft a portfolio. We manage portfolios based on the needs of our institutions, not by market conventions. Also, we determine our own appropriate risk levels. Most importantly, as the Roman philosopher Seneca said almost 2,000 years ago, "When a man does not know what harbor he is making for, no wind is the right wind."

Chapter 1 distills the philosophical framework behind best practices in portfolio construction into two basic principles: Collect quality partners opportunistically, and give top priority to risk management is a sine qua non of success.

Chapter 2 covers the practical side of building a portfolio of alternative investments. We discuss building portfolios based on fundamental economic drivers rather than conventional asset class definitions or statistical constructions.
Chapters 3 through 6 cover the specifics around each alternative investment grouping: hedge funds, private capital, real estate, and natural resources. In each case we discuss the various sub-styles of each grouping, issues around funding, and idiosyncrasies particular to each.

The final chapter on governance expands on some practical elements to bringing about a solid fiduciary structure. In all, we stress that we should strive to do what is right for our institution and not what others are doing.

Conversations on all of these topics began two years ago and took on greater importance early in 2008 when our symposia speakers' darker prognostications became reality. We sat down early in the summer of 2008 to begin the work of speaking to the members and friends of the Greenwich Roundtable in the same spirit we approached our other research: openness and curiosity coupled with humility as we faced the scope of the topic.

Throughout this paper you'll see frequent uses of "we" and "our." These refer to investors who are responsible for managing a portfolio for an institution or themselves. It is for them that this study has been written.

Overall, we hope that you find this publication helpful in navigating your institution through the calm and the storms and safely into port.

Aleksander Weiler, CFA

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Chapter 1 – Building A Successful Portfolio Of Alternatives

"*When the facts change, I change my mind. What do you do, sir?*"

—John Maynard Keynes

In this chapter we examine alternative investments at a high level and look to answer three main questions:

- What are alternative investments?
- Why consider alternative investments?
- What are the best practices investors should use in approaching them?

What Are Alternative Investments?

While long-only purchases of common stocks, bonds, and cash dominate most portfolios, they represent only part of the full range of investment possibilities. In the simplest sense, alternative investments are everything that is not one of these three traditional investments.

Despite its name, alternative investing has been a "traditional" way to make a lot of money. The most successful investors have invested without restrictions—whether across asset classes or investment styles. They did so because constraints are expensive and reduce net portfolio returns. Constraints reduce the number of tools available to successfully profit from a given environment. Great fortunes—the Medicis in the Renaissance, the Rothschilds in the 1700s and 1800s, or American capitalists (Mellon, Carnegie, and Rockefeller)—were made by adapting to the opportunities apart from a particular asset class.

Why Consider Alternatives?

The growing use of alternative investments arose from a simple truth: they represented some of the best investment opportunities for improving chances of generating sufficient returns to meet most institutions' obligations. Investors' expectations for returns became greater than what was readily available in the market, so many investors stretched for return, sometimes unrealistically.

Historically, publicly traded equities and fixed income securities met investors' needs. Starting points matter, however, especially for U.S. equities. T rose to levels incompatible with a future repetition. By 2000 equity valuations were off the map. Price-earnings ratios could hardly rise further. Unsurprisingly, from 2000-2007 (prior to the market's collapse in 2008), the real annual return on the S&P 500 was a negative 1.1% while the real return on the Lehman Brothers Aggregate bond index[1] was 3.8%.

Such returns led investors to become more global in their asset allocation, including larger allocations to alternative investments, many of which provided better returns during this interval, as did non-U.S. stocks. Real returns during 2000-2007 were 2.8% on EAFE[2] and 12.5% on the emerging markets. However, their returns brought their P/Es close to those of the S&P 500—all based on earnings that appeared increasingly unsustainable as 2008 progressed.

There has been little chance of traditional investment categories meeting return hurdles—such as pension assumptions of 8% annualized returns, endowment targets of 5% real annualized returns, and foundation needs of 10% nominal annualized returns. With 10-year Treasury yields below 3% in February 2009 and around 1.7% for the corresponding Treasury Inflation-Protected security (TIPs), it's difficult to envision fixed income providing much opportunity for return unless we encounter outright deflation.[3] Asset sponsors will be forced to change expectations of returns to more realistic levels.

"In the simplest sense, alternative investments are everything that is not common stocks, bonds, and cash."

"The most successful investors have invested without restrictions—whether across asset classes or investment styles."

[1] Renamed the Barclays Capital Aggregate Index on Nov. 3, 2008.

[2] The Europe, Australasia, and Far East Index from Morgan Stanley Capital International. An unmanaged, market-value weighted index designed to measure markets.

[3] In "Estimating the Stock/Bond Risk Premium" in the *Journal of Portfolio Management*, Volume 29, Number 2, pp. 28-34, Lacy H. Hunt and David M. Hoisington note that "contrary to intuition, historically bonds have outperformed stocks when bond yields started at a low nominal level" (p. 33) as this has presaged periods of "severe deflation," which hurts equities and benefits bonds.

Investment management has always been about solving clients' problems. The profession did so by benchmarking and indexing (alpha-beta separation), equity-heavy mean-variance optimized Policy Portfolios, and increasing manager specialization. The difficult task of finding talented managers and of diversifying portfolios into alternative investments became the next evolutionary step.

"An alternative manager must earn substantially higher returns before fees than a traditional manager in order to provide investors with the same net returns."

Common Characteristics Of Alternative Investments

There are a number of characteristics common to most alternative investments:

1. The objectives are achieved by using techniques, instruments, markets, assets, and capital structures unavailable to traditional investors. Techniques include shorting, control positions, activism, private ownership, and operational improvements. Instruments include derivatives and hybrid securities. Markets and assets include private markets, direct real estate, direct ownership of companies, commodities, and foreign exchange. Capital structures include leverage achieved directly from borrowing or indirectly through derivatives.
2. The investment objective tends to be high absolute returns, with low or moderate correlations to public markets. Nearly all alternative investments follow a risk-centric investment process. They focus on downside risk designed to minimize the left tail and to achieve favorable risk/reward tradeoffs. This is in contrast to the relative performance and benchmark-centric approach of traditional investments.
3. Unconstrained mandates (relative to traditional managers) are typical for marketable alternatives. Most managers of illiquid alternatives (private equity, real estate, natural resources) have more defined techniques, markets, and mandates to exploit their specialized talents. Managers of liquid alternatives are given more flexibility to move to the opportunity.
4. Liquidity, if any, tends to be poor. Private equity, natural resource partnerships, and real estate require commitments that extend to 10 years or longer. Many hedge funds require lockups of at least a year; allow redemptions only quarterly or annually with anywhere from 65 days' to six months' notice; and have up to 30 days from the redemption date to actually pay out the requested funds. Gates and side-pockets for illiquid holdings are not uncommon.
5. The incentive structure differs from traditional investments through higher management fees plus an emphasis on performance fees. Hurdle rates, clawbacks, and redemption provisions, if any, differ from type to type and manager to manager. The presence of a performance fee acts as an incentive to investment talent and encourages managers to take risks. Most managers of common stocks charge fees of 0.5% to 1%. Fees for many alternative managers are 1%-2% plus 15%-20% of nominal profits. An alternative manager must earn substantially higher returns before fees than a traditional manager in order to provide investors with the same net returns.
6. Most are private placements, with many being partnerships and restricted to accredited investors or qualified purchasers.[4]
7. Many managers of alternative investments are not registered with the U.S. Securities and Exchange Commission (SEC). Institutional participation in their funds is limited to qualified purchasers.[5]

Following is a summary of different kinds of alternative investments. Each is described in more detail in subsequent chapters.

[4] Qualified institutional investors for 3(c)(7) funds (500 investor limit) must have $25 million in "investments." Qualified institutional investors for 3(c)(1) funds (on-shore, 100 investor limit) must have $5 million in net worth. Both are open to individuals as well as institutions.

[5] New regulatory and legislative action is likely to result in greater oversight of hedge funds and other alternative investment managers. Source: Price Waterhouse Coopers.

Hedge Funds

What differentiates hedge funds from traditional investment partnerships isn't necessarily the invested instruments, public equities, fixed income, and cash; rather, it's the way they're traded.

Short selling is actively employed, leverage is commonly used, and superior risk profiles are sought using derivatives and active hedging. Managers possess relatively unconstrained investment mandates. They are free to invest wherever they can find the best risk/reward tradeoff. In practice, however, they tend to confine themselves to strategies and markets in which they are especially proficient, which vary widely from manager to manager. Finally, the objective of the investment process differs from traditional investing. Rather than outperforming a benchmark on a relative basis, hedge funds typically focus more on producing high absolute returns with low or modest correlation to equities. The notion that hedge funds should always make money is simply not so. In addition to record frauds, large losses by leveraged funds, and investor needs for liquidity, this misunderstanding added to the spike in redemptions at the end of 2008.

Private Capital

This involves direct equity investment in private companies, turning public companies private, or making private investments in public companies. Methods include seeding and establishment of businesses through venture capital, the expansion of smaller to mid-sized enterprises through growth capital, or buyouts of mature businesses. Some investors also include private fixed income and distressed debt strategies in this category. The industry divides it into four main strategies:

1. **Private equity:** These are managers who buy companies—public or private—and run them privately. They aim to generate above-market returns by effectively implementing operational improvements or growth strategies at portfolio companies. Some generate returns through financial engineering—as by modifying a sub-optimal capital structure, usually by increased borrowing. Roll-up strategies build a large company in a fragmented industry by unifying many smaller enterprises. Some managers focus on companies that are headed toward or in bankruptcy.
2. **Venture capital:** The business of venture managers is finding, funding, and nurturing startup businesses that successfully commercialize innovations. Historically, venture investing has been focused in the information technology, telecommunication, media, and health care sectors in the United States. A single investment's astronomical returns (greater than 10x) can pay for multiple investments that break even or fail. Growth capital can be thought of as a subset of venture investing with a focus on post-early stage companies.
3. **Secondary funds:** Historically, investors have made commitments to private equity and remained with the manager until the completion of the partnership. Sometimes immediate liquidity needs arise and secondary fund managers step in to buy these partnerships normally at a discount. Some commitments are fully funded; others are still calling down funding from their investors. Secondary funds can be beneficial to the seller, who gets immediate cash and is released from further obligations to honor capital calls. The buyer gains access to otherwise closed managers, or can top up allocations to existing names, or can make an immediate full investment to private equity.

"Rather than outperforming a benchmark on a relative basis, hedge funds typically focus more on producing high absolute returns with low or modest correlation to equities."

"Real estate can improve portfolio efficiency because over the years it has shown only modest correlation with U.S. equities."

4. **Private debt:** Fund managers may also infuse capital into a company by offering senior debt secured by collateral or mezzanine debt; the latter typically earns the highest coupon of debt in the capital structure in exchange for being the most junior obligation while collateral offsets the risk of the former. There are a number of distressed strategies such as gaining control of a company through debt instruments, restructuring the company in bankruptcy, and exiting the investment by selling the new equity.

Real Estate

The third major category of alternative investments is the most easily understood and is divided into roughly three main strategies:

1. **Core:** Long-term ownership and management of income-producing properties. These include fully leased office, retail, or industrial properties in prime locations. They're coupled with light to modest (up to 35%) leverage, targeting high single-digit returns. Long-term depreciation from property as a result of use or obsolescence requires that capital expenditures be built into cash flow projections.
2. **Value-added:** Buying properties to upgrade them and resell them within three to seven years as core real estate. Such funds include moderate leverage (up to 60%-65%) and low to mid-teens internal rate of returns (IRRs) net of fees to investors. Value-added is riskier than core real estate because of the higher leverage, and the risks in redevelopment.
3. **Opportunistic:** Investment in select opportunities, often with above 70% leverage, usually on individual properties. The goal is to produce high-teen returns and sometimes more. Greenfields (undeveloped property) as well as distressed projects fall into this category.

Real estate tends to be a highly cyclical industry. In good times vacancies are low and so are capitalization rates. The overbuilding that follows eventually depresses returns and leads to underbuilding until supply and demand equalize. The economic cycle, especially the local one, affects returns more than other alternative investments. Real estate can improve portfolio efficiency because over the years it has shown only modest correlation with U.S. equities.

Natural Resources

The fourth major category of alternative investments is natural resources. This involves liquid and illiquid investments in commodities and commodity-focused companies. As in the case with real estate, natural resources tend to have low correlations with traditional assets.

This category is divided into four main strategies:

1. **Energy partnerships:** Private capital focused on the global energy industry. There are five main categories: resources (exploration and production), equipment (the leasing of drilling rigs, transportation, and extraction heavy machinery), services (engineering, IT, and staffing), infrastructure (transmission lines, power supply, and pipelines), and alternatives or opportunistic investing (renewable energy such as solar, hydroelectric, wind, nuclear power, or specific opportunities).
2. **Timberland:** Partnerships that acquire, hold, develop, and harvest forests. Returns come from organic growth, good forestry practices, and selling at appropriate times. As with other natural resource investments, timber prices and returns tend to be cyclical.

3. **Commodity indexes:** Passive investment in commodity index futures or swaps. As with equities and fixed income, enhanced indexing—the act of actively making adjustments away from index weightings—is often employed.
4. **Active commodities:** Hedge funds and private equity with a dominant investment focus on commodities or commodity-focused companies.

Liquidity for investments ranges from excellent (daily) for futures on commodity indexes to very poor for energy partnerships and timberland (typically 10 to 15 years).

"Systems traders do not anticipate, they follow the system. Discretionary traders develop a point of view usually based on fundamental analysis."

—Ken Tropin

Best Practices In Alternative Investments: The Principles

> "Unlike traditional investments, the quality of the manager matters more than the asset class in making decisions about alternative investments."

Management of alternative investments is characterized by two principles, which we identify as best practices in alternative investment portfolio construction. Both principles have three important subsets:

1. Collect quality partners opportunistically
   a. Listen to and learn from our managers
   b. Be contrarian when appropriate
   c. Innovate
2. Risk management is a key to success
   a. Diversify among asset classes, strategies, and managers
   b. Maintain enough liquidity to stay the course
   c. Accept and plan for the eventuality that we are wrong

Collect Quality Partners Opportunistically

Unlike traditional investments, the quality of the manager matters more than the asset class in making decisions about alternative investments. Build portfolios from the bottom up by opportunistically identifying and allocating to quality managers, and only quality managers. While in search of quality managers, we must "stick to our knitting." That is to say, stick to our mission and objectives, stop looking at what our neighbor is doing, and don't chase returns that might have risks inconsistent with our basic strategy.

Traditional investment managers work under the disadvantages of investing in the most efficient markets and long-only constraints. The best domestic fixed-income managers add merely 20 basis points compared to the median while assuming considerable market risk (i.e. most of their return is beta, not alpha). The same could be said of the best managers of U.S. large cap equities which add not quite 1½%.[6] Even in international equities, the value-added for top quartile managers is little more. Most results can't exceed passive indexation.

Contrast this with alternative investments. Allocation and access to top-tier illiquid alternative investment managers is the primary difference among top-performing funds even after adjusting for the additional risks and illiquidity assumed. The spread between top quartile and median managers in most alternatives is very large, and the spread between even second and third quartile is huge on a raw return basis. It is often better to have zero invested in an alternative strategy than to have the target allocation invested with a mediocre manager.

What Is Quality And Does It Matter? One answer to "What is quality?" paraphrases the late U.S. Chief Justice Potter Stewart's 1964 opinion on obscenity ("I know it when I see it"). But the answer to the second question is much more concrete: Does quality matter? Yes!

The Greenwich Roundtable's first three *Best Practices* publications examined the question of ascertaining what quality is for hedge fund managers. The capital asset pricing model holds that returns can be broken down into passive market exposure (beta) and active management (alpha). Mathematically, "quality" therefore means high and consistent alphas.[7] Applying this definition mechanically, however, ignores the possibility of the alpha being the result of simple mis-measurement or parameter mis-specification. There is considerable academic and practitioner work suggesting that many alternative investments contain exposures to both traditional and nontraditional betas as well as to other risk factors. These include size and style exposures, interest rate term structure, momentum, short volatility, corporate events, liquidity, and leverage.[8] Nor does it

[6] Source: Commonfund.

[7] What makes up alphas – some combination of market making, insurance provision, liquidity provision and security selection and/or market timing skill, or perhaps simply luck – is beyond the scope of this publication.

[8] Nontraditional betas arise as trading strategies mature, become more widely understood and can be largely replicated by simple mechanical approaches. Examples would include foreign exchange carry, long-term trend-following, convertible arbitrage and merger arbitrage. Research includes academic work by Mitchell and Pulvino ((2001) "Characteristics of Risk and Return in Risk Arbitrage," *Journal of Finance*, Vol. 56, No. 6 (December: 2135-2175), Andrew Lo and Harry Kat along with a large body of practitioner work.

answer the question of whether the returns were luck or genuine skill.

The process of investment manager selection—evaluating people, culture and business structure, operations, value proposition, and identifying skill—applies to all asset classes and sectors, not just alternatives. For liquid alternatives, the three previous *Best Practices in Hedge Fund Due Diligence* publications offer some practical guidance at not only finding but doing the hard work or ascertaining whether real skill is present.

Ultimately, after all the due diligence and reference-checking is done, the decision boils down to investor judgment and intuition regarding whether the person or team is a money maker who can maintain a durable competitive advantage, possesses integrity, is personally invested and motivated, is a fair partner, and offers a reasonable value proposition. Past performance is a clue to quality, as are other markers such as time spent at proven firms and academic success. But how managers achieve their results is more relevant to answering the main questions: is it probable that they will replicate their past success, and do I get to keep a sufficient portion of it to justify committing capital and bearing the inherent risks?

How Do We Get Quality? Access to quality is neither democratic nor egalitarian. Whom we know and, more importantly, how *we* are known, matters. If we as long-term investors want excellent managers to work hard for us and offer their insight, we need to make a commitment and demonstrate "staying power"—that we are able to stay the course.

Since quality is scarce and has historically been difficult to access, it is often best to allocate opportunistically when capacity becomes available regardless of our particular view of the asset class, sector, or strategy. The most successful investors willingly rebalance their portfolio by selling liquid positions in the associated or proximate asset class or use derivatives to stay reasonably within their Policy Portfolio.

How Do We Keep Quality? Quality managers are in high demand and can extract better economics for themselves—either through higher fees or less liquidity for investors. Typically, such funds are closed to new investors or are adjusting liquidity provisions to attract only investors that have staying power. Both the supply of investment talent and the demand for it fluctuate over time. Between 2003 and 2008, demand outstripped the supply and investors had to give up larger and larger portions of the economics to managers. Starting in the fall of 2008, this balance began shifting increasingly in the investors' favor.

How do we gain confidence that the manager's interests are aligned with ours? First, we prefer a fee structure that is more biased toward the performance fee. This aligns incentives more strongly. Among other advantages, it can lead the manager to be more responsible in raising costs. Second, a manager's principals should demonstrate their commitment by having a meaningful portion of their personal net worth invested in the fund. While this is often difficult to verify, the general partner's or fund manager's capital commitment should represent a meaningful commitment. Terms should also provide a key person clause[9] and other "investor friendly" provisions. Third, a manager should be building an investment culture that encourages cooperation, competition, mentoring, and a climate of mutual respect.

"With top quality managers, it is often best to allocate opportunistically when capacity becomes available regardless of our particular view of the asset class."

[9] The clause prohibits the fund manager from making new investments until an acceptable replacement is made for a key executive who ceases to devote a specified time to the partnership and may result in the winding up of the fund.

"Being contrarian means that you risk being wrong, being alone, and having much higher volatility. If you're not lonely, you're probably not a contrarian. Being contrarian takes the courage to be wrong and alone for extended periods of time. Contrarian investing is not for sissies."

—Peter Bernstein

Listen To And Learn From Our Managers

Hiring a manager is like getting married. Both are characterized by the seriousness of the decision to say "I do," the need for work and time to build a relationship, and the pain of parting company.

Getting to know our managers is a two-way street requiring plenty of communication. We need to understand how they are going to think or react to certain circumstances. They need to know some of the same about us. It is best to treat the due diligence process as never-ending. We should be constantly verifying that the managers are playing the role in the portfolio that we expect.

We must understand the risks they are taking since these will change over time. A balance between trust and skepticism is needed. Managers in certain strategies may see what they do as highly proprietary and confidential and may be reticent to be as sufficiently transparent unless they understand our need to manage the whole portfolio of which an individual manager is only one part.

Preparing well for the meetings, offering honest and forthright feedback, are all components of building this kind of relationship. It is more important to listen, listen some more, and continue listening. The manager will likely be examining us as well. If we set the standard high during the due diligence phase by being open and forthright, we have a better chance of building a strong overall relationship.

Some managers can be original thinkers, and others may be early warning indicators. Some are ahead of investment trends, expert in spotting untapped opportunity. Listening to our managers and understanding the quality of information and the accuracy of their predictions will go a long way in helping us build our own portfolio and make the whole greater than the sum of the parts.

Be Contrarian When Appropriate

Great long-term track records are not built by being like everyone else. They are the result of purchasing high quality assets at favorable prices, often when others perceive them as low quality. The appeal of alternative investments is the lack of consensus. There is more room for non-consensus thinking within the investment structures they employ. A best practice in portfolio construction is, selectively and when appropriate, to be contrarian.

The only way to "pay a little/get a lot," is to buy when others are selling and vice versa. While a value bias is part of being contrarian, it is not the whole story. Being a true contrarian is not about reflexively betting against the consensus. It's about betting against the consensus when our assessment of fundamentals differs materially from those priced into the markets.[10]

The 2007-2008 success of shorting the subprime asset-backed securities index was about a divergent view of home equity borrowers. The consensus held that residential mortgage borrowers represented little credit risk because the underlying collateral—their houses—always went up in value. But small disturbances in the rates of house price appreciation, not even requiring actual losses, would result in material default risk.

At any given time, there are hot asset classes sporting high valuations while other sectors languish with cheap or distressed pricing. Alternative investments are no different. An area

[10] Michael Mauboussin states that the "crowd is usually right" in his speech at the Greenwich Roundtable symposium "Contrarian Investing: The Psychology of Going Against the Crowd," Feb. 24, 2005. Also see *The Wisdom of Crowds* by James Surowiecki.

is undercapitalized, with few investors showing interest, so participants within it have to attract investors with high yields and/or low prices. Capital then flows in, the opportunity becomes less attractive until it becomes the new hot area and should be avoided. Venture capital was a great investment in the early 1990s but it was terrible in 1998-1999. Convertible arbitrage in the late 1990s was great while in 2005 it was terrible.

Talking to managers across a wide range of sectors, geographies, and strategies gives institutional investors a unique vantage point. It helps us understand the differences in pricing, fundamentals, and ultimately opportunities. The key is to use this information to our advantage.

Innovate

The success that some institutions enjoy through alternative investing is a result of the institutionalization of a culture of innovation. Strong results at the leading institutions are the result of reaping what was sown a decade or more ago. We should not invest in what these institutions are investing in, but rather invest *how* these institutions are investing. That is to say, remain open-minded and innovative.

Earning great returns means being invested when the idea or market is cutting edge and riding the compression of risk premiums until it reaches mainstream. Take for example the heavy use of alternatives by endowments. Hedge funds were on few people's radar screens in the 1980s when these investors began allocating to them. Returns to the now-mainstream strategies like merger arbitrage or convertible arbitrage were sometimes in the 25%-30% range. Timberland was bought with 12%-15% yields.

Like a contrarian benefiting from shorter-term dislocations, executing on this practice requires an investment culture supportive of innovation and long time horizons (especially the ability to lock capital up over a decade or more). It also requires a way to source fresh ideas. Listening to our best and brightest managers is a good place to start. And it requires an acutely tuned appreciation for where the idea is in the spectrum.

Innovation in investment management is about moving to areas rich in opportunities and poor in capital. While alternatives currently offer some of the best chances of meeting acceptable return levels, most of the strategies and sub-strategies are relatively well understood and no longer cutting edge. There may be a time when most alternatives could be too widely owned and become unattractive.

Risk Management Is A Key To Success

Effective risk management is crucial to successfully managing a portfolio. It is often viewed as a distinct responsibility, but it's executed most effectively when it's an integral part of the investment process. The best practitioners consider risk management and portfolio management as two sides of the same coin. Successful investors are good at assessing the relationship between potential return and downside risk. To make solid investment decisions, it's impossible to ignore risk. Successful investors understand and manage risk in several ways:

1. **At individual decisions:** They integrate risk analysis into individual investment manager selections or terminations.
2. **At the portfolio level:** They manage their portfolio to a risk target or constraint. Based on their objectives and risk tolerance,

> "Innovation in investment management is about moving to areas rich in opportunities and poor in capital."

"Understanding risk in alternatives is a qualitative process."

they determine a specific amount of downside they are willing to suffer. They then construct a portfolio that optimizes the mix of opportunities within that risk limit. The most effective investors work to adjust their portfolio risk as a function of the quality of investment opportunities available and their outlook for the markets. This approach limits excessive leverage and manages liquidity so the investor isn't forced to sell assets at an inopportune time.

3. **As a feedback loop:** As events unfold, investors can determine if their *ex ante* risk expectations were accurate to the given market conditions. If assumptions are off, they can recalibrate them to improve the process should the delta be considered non-random. The more turns of this process, the better investors can deal with future risks and opportunities.

Key points to remember:

- Liquidity risk takes two forms—the ability to access cash when we need it, and if we borrow money, ensuring that our loan can't be called at a time when we need the money.
- Time becomes a risk if we invest in opportunities requiring a long horizon and we lack the ability to wait for a positive return.
- There are many approaches to risk management. Investors need to find what works for them and their organization.
- Any risk analysis is only as good as its data and assumptions—garbage in, garbage out.
- Risk measurement is not risk management.
- The cost of a "rainy day" portfolio is a drag on returns. Insurance is a governing board decision and is only cheap and effective before the storm hits.
- Effective investors use a variety of risk metrics to understand their exposures.

Mistakes investors make:

- Too much leverage!
- They commit to one type of risk measurement without considering other potential sources of trouble.
- Risk analysis may be too dependent on historical data without consideration of root causes of risk and how the future could differ widely from the past.
- Mismatch of borrowing and lending liquidity.
- Investing without adequate understanding of the fundamentals or the players involved.
- Ignoring counterparty risk.

In the end, risk control is the CIO's responsibility and can't be handed off.

Diversify

Four themes underlie this principle:

1. Diversification is a qualitative assessment;
2. Differences in asset class, sector, strategy, and manager weightings reflect demonstrable differences in characteristics;
3. Flexibility around the Policy Portfolio is important; and
4. Rebalancing is more for beta and other risk measurements than for managers.

Best Practices In Alternative Investments: the Principles (cont.)

Caveats About Applying Diversification: The principle that some risks can be diversified away applies equally to traditional and alternative investments, but it needs to be approached differently with alternative investments.

For most alternatives the data are infrequent (monthly or quarterly) and lack a standardized calculation methodology (net vs. gross; IRR vs. cash return). Also, the performance indexes are less robust because of smoothed pricing, voluntary reporting to indexers, and relatively recent inception dates. Investors cannot form statistically robust conclusions with the index data, especially across asset classes. We should be cautious about relying too heavily on quantitative measures.

The opportunistic nature of most alternative investment managers further complicates the analysis. Managers seek opportunities wherever they may arise, leading to varying exposures over time.

Investors must therefore deal with the possibility of an unintended concentration in market risk exposures. For example, many different managers currently view distressed credits and companies as an attractive opportunity. Hedge funds of marketable alternatives (event strategies), fixed income (distressed debt), private equity (turnaround/distressed companies), and even real estate portfolios (distressed sellers and properties) are all likely to be developing highly correlated distressed exposures. Compounding this problem are changes in markets where globalization and financial innovation have increased correlations among asset classes. The result is less diversification with increased exposure to certain sectors.

The way to achieve true diversification with alternative investments is to develop a deep qualitative understanding of the managers—what, how, and why they are making their investment decisions—and form conclusions based on reasoning and judgment. This applies equally to initial and ongoing assessments. How managers are currently thinking and positioned is often far more important than historical factors. A hedge fund may have demonstrated an historical beta of 0.9 to the S&P 500 Index. But knowing that the manager is now bearish and lowered the fund's net exposure to 15% is relevant to the risk profile of our portfolio. Recently, for example, many multi-strategy or equity oriented fund managers, who several years ago had zero allocation to credit, may now have portfolios dominated by credit and minimal equity exposure. The strategy change was driven by market conditions and opportunities. Once we understand these fundamentals, we then understand more about the total portfolio risks and can decide to either retain them or hedge appropriately.

Portfolios generically contain three levels: the asset class (the "bucket," such as equities or growth as we will see later), the strategy (publicly traded equities, hedged equity, or private equity), and the individual managers selected. All three should be diversified.

We achieve diversification in two ways: by selecting uncorrelated investments and by sizing them appropriately. While an uncorrelated position helps, even at 1% weighting, it does not materially influence a portfolio's overall risk profile. The same position sized at 25% changes it dramatically.

Position Sizing: How then do we size alternative investments? Successful investors must make judgments based on their knowledge

"Investors should embrace volatility. Build a portfolio of strong performers and the diversity of the portfolio will dampen volatility."

—Byron Wien

of markets as well as the risks associated with various strategies and individual managers. Differences in sector and manager weightings should always reflect demonstrable differences in characteristics. Because it is difficult to demonstrate clear quantitative differences among managers, equal weighting is often a reasonable first step because it focuses the investment team on what will make a difference in the portfolio. For example, assume we have access to three hedged equity managers, each with a different investment philosophy and process, all of whom meet our quality standards. A logical starting point would be to give each one-third of our hedged equity allocation.

Investors should look to roughly equal-weight both in terms of capital and risk in the portfolio. Judgment is used in determining the balance between the two. This allows us to avoid the false sense of precision generated by statistical risk measures while benefiting from the insights they can provide.

There are three caveats to an equal-weighting scheme:

1. Since manager capacity may be limited, we may not be able to get to equal weighting in all investments. In those cases, we take what we can get.
2. As we gain confidence in our managers over time, we may have a greater sense of the managers and a stronger sense of their return characteristics. Having a higher weighting for established, long-term investments and a lower weighting for less proven investments may be wise. Also, some thought should be given to half positions in especially volatile managers or strategies.
3. Most institutional investors use some sort of Policy Portfolio to size allocations among strategies. Policy Portfolios serve two vital yet distinct roles: they establish a risk target and they represent our passive asset allocation. Risk tolerance should be set independent of how risk is obtained (i.e., what investments are selected). Alternative investments allow us to squeeze more return from the same level of aggregate risk.

> "The best long-term investment performance is earned by those who not only survive market crashes but have the 'staying power' to maintain fundamentally sound positions and the liquidity to invest when others cannot."

Maintain Enough Liquidity To Stay The Course

The best long-term investment performance is earned by those who not only survive market crashes but have the "staying power" to maintain fundamentally sound positions and the liquidity to invest when others cannot.

Liquidity means having an unfettered ability to deploy capital to an opportunity. No matter how correct we are in our views on the long term, our ability to stay in the trade when the going gets rough ultimately decides whether we had adequate liquidity to make the investment in the first place. History is replete with sad tales of investors who were forced to sell into turmoil but who, if they had just been able to hang on—had staying power, would have realized gains consistent with their objectives. It is ironic that during the 2001-2002 routs in stocks, investors who were locked-up often did better because they were unable to heed the emotional desire to sell. Staying power, of course, is more than staying in the investment—it is the ability to adhere to the long-term investment objectives and not abandon those objectives to meet shorter-term needs.

Ultimately, investors have two sources of liquidity: internal and external.

Internal Source of Liquidity. Within most institutional settings, the first source of liquidity is the authorization of the board (or investment

committee or capital provider generally) to take risk. The board understands the needs of the organization, offers continuity, and sets investment policy. The investment team is charged with executing that investment policy, and, given the team's expertise and constant contact with managers and the marketplace, is in the best position to ascertain the most efficient and effective implementation of investment policy—which risks are likely to be rewarded. It is easy to see why good governance is essential to good risk-taking. It brings the two sides together in a way that makes the whole greater than the sum of its parts. This is why CIOs should spend an inordinate amount of time making sure their board is knowledgeable and well informed.

A key responsibility of the CIO is the education of the board and appropriately involving board members in decision-making. Time, forthright communications, and proper expectation-setting are needed to build a solid foundation of trust on both sides. It is a partnership: the board needs to be supportive of and a resource to the CIO and, at the same time, hold the CIO accountable.

External Sources of Liquidity. While most CIOs focus on the returns that alternative investments can provide, they fail to understand that cash management becomes materially more complicated when investing in them. It requires a dedicated effort to evaluate and monitor our counterparties and credit risk from an operational and total portfolio perspective.

It is a best practice to diversify our borrowings across a number of counterparties, maturity schedules, and borrowing types when dealing with external lenders. Not being diligent enough in this department can come back to bite us. A number of institutional investors found this out the hard way when the credit markets froze in 2008. This forced them to liquidate investments in order to meet operating costs and other obligations. If we are invested in swaps, we need a special staff person looking after all of the liquidity issues—such as International Swaps and Derivatives Association negotiations (the governing document between broker and investor), margin calls, capital calls and distributions, and operating budget payments. Done well, liquidity management can be a competitive advantage. Done poorly, it is the end of many investors. Ask ourselves if we can truly devote the necessary resources to managing liquidity well. Consider scaling back our efforts if the answer is no.

Accept And Plan For The Eventuality That We Are Wrong

Peter Bernstein outlines two important lessons about risk in his book *Against the Gods*. First, the appearance of predictability is almost always an illusion; we don't know what is going to happen, ever. Second, consequences matter more than probabilities.

What does this mean for investors? Our thinking and planning must be dominated by the possibility of being wrong (about a manager, a market, or a trade) as well as the consequences (cash losses, lagging performance in a rebound, or a sullied reputation). Investors, if they deal with this at all, use a probability-weighted approach under which they can be wrong simultaneously on both the probability and the severity of portfolio traumas. For investors in the Manhattan Fund, Long-Term Capital Management (LTCM), Amaranth, Bear Stearns, and Bernard Madoff, the consequences of being wrong mattered more than the probability assessments.

> "As in a good marriage, the CIO needs to communicate his or her philosophy and overcome differences with the investment committee."
>
> —Alice Handy

"The appearance of predictability is almost always an illusion."

Consistent ongoing monitoring of our managers includes periodic updating of the due diligence questionnaire with attention to any personnel changes and/or reporting issues, along with regular contact in order to build good lines of communication.

The best practice is to understand and consistently monitor our managers, how they trade, and the possible layering of risk that is taking place. We can best protect ourselves from times when we are wrong if we:

1. Diversify fundamentally across strategies, asset classes, and geographies;
2. Have an appropriate number of uncorrelated managers; and
3. Maintain sufficient liquidity to give us enough flexibility to make the adjustments as they become necessary.

Conclusion

Many of the principles may seem fairly self-evident, and in many ways they are. They all offer benefits to investors. However, applying all of them consistently is the real challenge. Short cuts that should be avoided abound in each case: filling buckets with average managers or chasing returns; relying solely on statistics to "optimize" the portfolio; letting day-to-day portfolio management get in the way of thinking about how we could be wrong; ignoring the needs of the board; assuming that current liquidity will last forever; failing to engage our managers in a deep dialogue; and following in the footsteps of other investors.

The first step is to be honest about the needs and the capabilities of our institution. Is an above-average return required to meet our goals? Do we have the staff resources and board-level buy-in to pursue a complicated and occasionally unconventional approach? The purpose of this paper is to present some of the rationales being used by sophisticated investors in alternative investments.

"The essence of risk is that we don't know what's going to happen. People act like they really know what's going to happen. We really don't know what the future will be. You must be alert to changes in the environment and continuously test the Policy Portfolio's assumptions."

—Peter Bernstein

Chapter 2 – Putting It All Together: The Policy Portfolio

"To know, is to know that you know nothing. That is the meaning of true knowledge."

—Confucius

This chapter will introduce what, for many investors, may be a new way to think about portfolio construction. It will start with basic precepts, discuss common tools for asset allocation and some of their weaknesses, especially with respect to alternative investments, and then discuss the emerging practice of grouping assets by their economic role in the portfolio.

The Investment Policy Statement

The investment process begins with the Investment Policy Statement. This covers the purpose or beneficiary of the portfolio spending, investment goals, and the Policy Portfolio. It also sets the range of investment alternatives, permitted vehicles, and constraints that govern the implementation of the actual portfolio.

The *purpose* of the investment portfolio should be foremost—the investment portfolio is the means to an end unto itself. As fiduciaries we should remember we serve the goal of the sponsoring institution or the individual beneficiaries.

An Investment Policy Statement spells out the objectives of the investment process. The return objectives and risk target must satisfy the obligations or purpose while not incurring undue risk of loss or failure to meet current or future needs ("short-fall risk.") We must assume risk in order to get any reward. Unfortunately, many fiduciaries start with rewards (the returns) and then move on to the resulting risks. This is backwards. The real question is: Can we afford these risks? Are we adequately compensated for them?

We should consider whether an above-average return is really necessary or realistic to accomplish our mission. We may prefer a more certain average return that accomplishes the mission because above-average returns almost always entail above-average risks.

The Policy Portfolio

An institution's Policy Portfolio is the clearest direct expression of an institution's risk tolerances and return objectives; it is a "passive" benchmark against which the achievement of the objectives of the investment portfolio will be measured. A Policy Portfolio is the sum of all qualitative and quantitative views on risk, liquidity, and funding needs. It communicates how the institution will allocate among asset classes and/or investment strategies to meet its investment objectives. Changes to the Policy Portfolio are infrequent and minor. A Policy Portfolio can also serve as a performance measure of the CIO and team, although this should not be the only measure.

We should remember that, in setting a Policy Portfolio, we should consider the capabilities of our institution. Harvard and other large endowments have dozens of talented, well-paid professionals. Most institutions have but a few staff members and even those may carry additional responsibilities. The Policy Portfolio should be appropriate to our specific institution in order to be sustainable over the long run.

"Don't ask 'who is winning?' but rather 'are we doing what really matters to us?'"

—Charley Ellis

"Optimizers are no better than the assumptions that are used."

"All models take advantage of the one 'free lunch' in investing—diversification. The lower the correlation, the greater the diversification benefits."

Existing Best Practices: The Old School

The most common tools used today to develop Policy Portfolios are computer models:

1. Mean/variance optimization,
2. Multi-factor models, and
3. Asset/liability studies.

All models take advantage of what David Swensen calls the one "free lunch" in investing—diversification. If there is less than a one-to-one correlation between the volatilities of any two assets, then their combined volatility is lower than the weighted average of their volatilities, and with rebalancing, their aggregate return can be slightly higher than the weighted average of their returns. The lower the correlation, the greater the diversification benefits.

Optimizers are models used for optimization. Some of the models use thousands of Monte Carlo simulations to find the "most efficient" asset allocation. Optimizers, however, have limitations:

Assumptions. Models are no better than the assumptions that are used. We must recognize that each assumption is the average depth of a river. Returns, volatility, and correlations change drastically in different economic climates. Many investors misuse their model by inputting only a single set of assumptions that they think is best. No one can come close to getting the assumptions right. We should run numerous iterations of the model using a wide range of reasonable assumptions. Our goal should be an asset allocation that holds up well under the range of assumptions, not an allocation that is best under any single set.

Illiquid Assets. Models see historical returns on illiquid assets as low volatility and tend to over-allocate to those assets. Illiquid investments rarely trade and prices can become stale. The use of appraisals, mark-to-model, and other pricing methods "smooth" returns with their reliance on infrequent trades or nonmarket-generated valuations. Liquid proxies are available for many illiquid securities, and we should use an appropriate haircut for their illiquidity.

The Bell-Shaped Curve. Mean/variance optimizers are built on the assumption that volatility always follows a bell-shaped curve, whereas we know that tails of the curve—especially on the downside—are much flatter and more dangerous. Over-reliance on the normal distribution has proved too simplistic, leaving investors unprepared for times like 2008.

Staying Power. Risk is generally expressed as volatility, but this ignores our staying power. Collecting the long-term equity risk premium can sometimes require waiting 15, 20, or 25 years. Can our sponsor sit while it loses 75%-80% as we rebalance into a declining equity market?

Investment Availability. Models assume investments can be made and maintained at the Policy Portfolio level. This can be difficult, or even impossible to do, if we follow the Best Practice of investing only with the highest quality alternative managers.

Chapter 2 – Putting It All Together: The New School

Recent Best Practices: The New School

We spend a lot of energy attempting to develop an optimal asset allocation. Adjusting for the uncertainty of our underlying assumptions, there are many portfolios, in a statistical sense, which might meet our objectives.[11] We must remember that risk changes over time. One dollar of equities at 30% volatility has twice the impact of one dollar at the historical average of 15%. We go through periods when risk appears to be low and others when risk is high. A constant dollar allocation means we are getting a changing risk allocation.

In 2003, Peter Bernstein questioned whether Policy Portfolios were obsolete. The rigidity with which many investors have applied Policy Portfolios, and our over-reliance on allocation tools, have caused a lot of pain. A more opportunistic approach seems warranted.

Sophisticated investors are increasingly adapting traditional multi-factor approaches to focus on how different assets behave in terms of risk and returns under different economic scenarios. In building portfolios, investors should think about the basic economic drivers in which we invest and use three fundamental economic groupings:

- Growth
- Inflation
- Depression

As time marches on, environments and relationships change. True diversification is a moving target. It disappears when markets get bad, when underlying fundamentals impact all traditional asset classes the same way. Take, for example, public equity, private equity, and U.S. sub-prime mortgage-backed securities. Correlations for the 10-year interval prior to 2007 appeared to offer useful diversification. In 2008, however, each group was impacted by increased leverage and banks' interrupted ability to lend. In a crisis all correlations go to one.

"Rather than sitting with a rigid asset allocation, you need more flexibility and a willingness to change in the short run. This implies market timing. These are two dirty words because it's so hard to do and few can do it well."

—Peter Bernstein

[11] Vijay K. Chopra and William T. Ziemba, 1993. "The Effect of Errors in Means, Variances and Covariances on Optimal Portfolio Choices," *The Journal of Portfolio Management*, Vol. 19, No. 6 (Winter).

"Three groups of drivers used by some leading investors are growth, inflation, and deflation."

Table 1:
Economic Environments And Their Impact On Asset Prices

		Prices	
Real Economy (Volumes)	Growth	Disinflation	Inflation
		[Falling prices, growing economy] (++) Public Equities (++) Private Equity (+) Credit (+) Real Estate (+) Bonds (?) Commodities (-) Bills	**[Rising prices, growing economy]** (++) Commodities (++) Real Estate (?) Public Equities (?) Private Equities (?) Credit (-) Bills (--) Bonds
	Contraction	**[Falling prices, shrinking economy]** (++) Bonds (++) Bills (-) Public Equities (-) Private Equities (-) Credit (--) Commodities	**[Rising prices, shrinking economy]** (++) Bills (+) Commodities (--) Public Equities (--) Private Equities (--) Bonds

Deflationary Depression	Inflationary Depression
[Falling prices, contracting economy] (+) Bills (+) Bonds (+/-) Cash	**[Rising prices, contracting economy]** (+) Inflation-linked Securities (TIPS) (+) Gold

Source: Bridgewater

Economic Environments And Their Impact On Asset Prices

The table above illustrates that each asset has a particular season in which it blooms. There is no one asset for all seasons. Inflation drives nominal longer-term interest rates. High growth rates and accelerating inflation hurt bonds. Commodities benefit from inflation and high economic growth. Real estate profits from economic growth and falling inflation. Inflation can help equities in terms of inventory gains and nominal price increases. But it can hurt in terms of the rising cost of labor, raw materials, and a higher discount rate on future profits. Some investors believe equity valuations may be at their best when inflation

is about 2%. Price changes above or below that level may hurt equities.

Most asset allocation exercises tend to mine historical data with a heavy reliance on the past 25 years, or less in the case of alternatives. This means that most programs are based on the analysis of a single economic regime—disinflationary growth, the best economic environment for risk assets. Extrapolating risk, return, and correlations from the last 25 years is dangerously simplistic for any asset class. In today's world we should consider which era might have the most predictive value for a particular asset class. Ultimately, it can be exposure to the underlying economic fundamentals and risk factors that matters. If two main economic dimensions are price and volume, then there are four possible normal environments and two terrible ones. The four normal environments are the result of blending accelerating or decelerating inflation with a growing or contracting real economy. They are disinflationary growth, inflationary growth, disinflationary contraction, and inflationary contraction. Two terrible ones are inflationary and deflationary depressions.

There's a difference between normal contractions and terrible ones. In normal environments, monetary authorities have tools to limit the downside. In a depression, authorities lose control, and massive de-leveraging results in wealth destruction. If it is deflationary, we preserve real wealth only by investing in government bills, notes, and bonds. If it's inflationary, we preserve real wealth through inflation-protected bonds and commodities.

Growth

Investing in a growth economic climate is done mainly through corporate equity-oriented securities, both public and private. These include:

- Long-only public equities;
- Directional corporate security-focused hedge fund styles, such as directional equity, hedged equity, and certain direct (or asset-based) lending;
- Venture capital; and
- Private equity investments driven by operational turnaround or by financial engineering.

The magnitude of the equity risk premium (historically more than 3% per year[12] over bonds) makes it the dominant allocation and driver of most institutional portfolios. It is the only scalable way for investors to reach their return goals. The problem with growth is that for something so vital, it is both too well and too little understood.

"Extrapolating risk, return, and correlations from the last 25 years is dangerously simplistic for any asset class."

[12] Over all 20-year intervals since 1961, the S&P 500 has averaged 3.3% higher return than long-term U.S. corporate bonds, ranging from 0% (the latest 20 years) to 7% (1979-1998).

Inflation

Inflation hurts portfolios in two ways. First, there's the loss of purchasing power. Even a low 2% annual inflation rate leads to a nearly 19% drop in *real* value in 10 years. It drops by more than one-third in 20 years. Second, inflation is a double-edged sword for equities. It helps when companies can book gains on their inventories but hurts when labor and input costs accelerate and future profits hold less value today due to higher discount rates. The combination of mild but stable inflation strikes the best balance. Rapid inflation and deflation can both lead to lower stock values.

"There is a wide variety of securities and strategies available to combat inflation."

There is a wide variety of securities and strategies available to combat inflation. Although TIPS were not issued in the U.S. until 1997 and subsequent periods of rapid acceleration in interest rates have been few and brief, there is evidence that inflation-protected bonds can provide direct protection. Commodity investments have been good hedges against inflation but also have some correlation with growth investments.

In addition, many illiquid inflation-sensitive investments exist. Real estate values historically track building replacement costs. Energy partnerships fund the exploration and production of oil and gas wells. Timber prices have, with considerable volatility, more than exceeded inflation.

Deflation

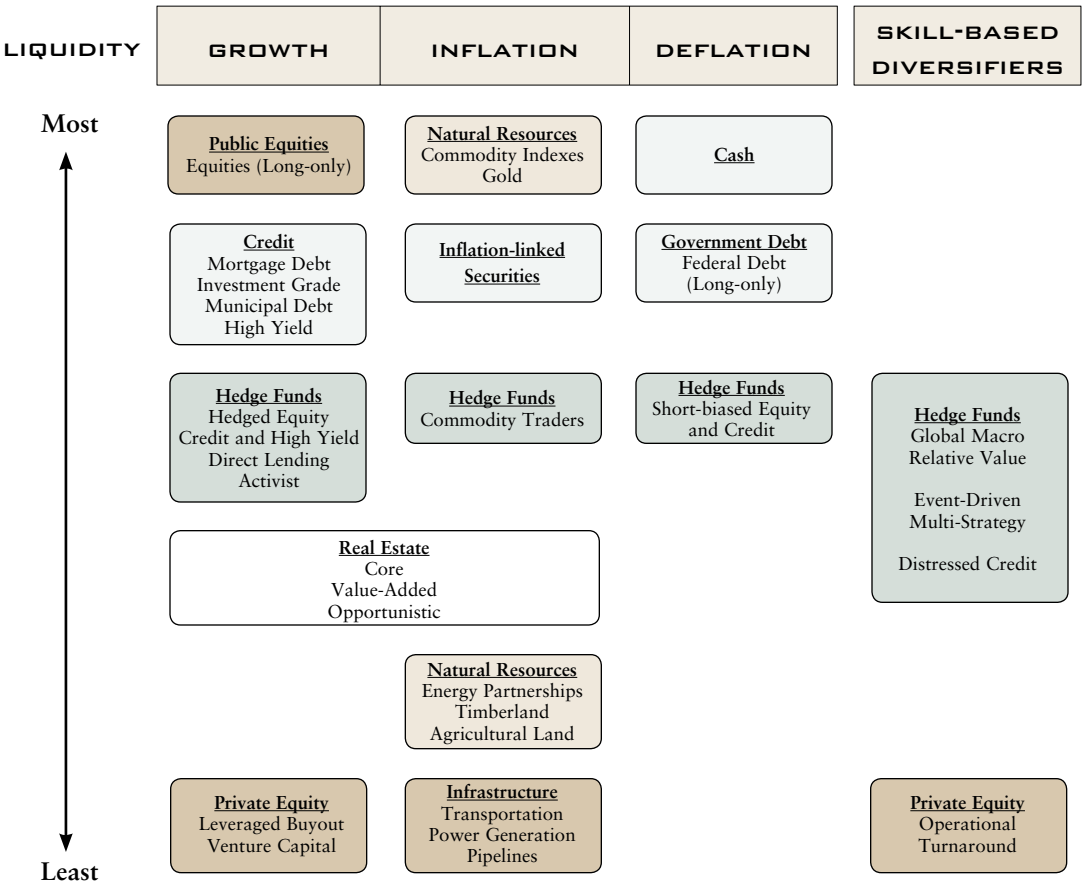
Declining inflation, if moderate, can provide a positive climate for growth and also one in which bonds can provide good returns.

A different economic dynamic takes hold when the overall financial system has too much leverage and moves to reduce it, and interest rates fall toward zero, as happened in 2002 and 2008—periods of asset deflation. The effect of leverage is symmetrical: just as leverage can boost returns of appreciating equity-oriented assets, it magnifies the losses on those same assets when they fall in value. These deflationary events can cause equities to plunge, as we witnessed starting in October 2007.

"Only two assets have proven to protect an investor during deflation: cash equivalents and longer-term government securities."

Only two assets have proven to protect an investor during deflation: cash equivalents and longer-term government securities. Hedging against deflation and financial panic can be done cheaply with U.S. bonds. A simple long-duration Treasury portfolio may be optimal.

Table 2:
Investment Strategies Under Different Economic Scenarios



Source: Greenwich Roundtable

> "What is seldom acknowledged is that getting the environment right matters enormously."

What is seldom acknowledged is that getting the environment right matters enormously. If the historical equity risk premium were 5% with volatility 15%, that means that, after 20 years, an investor would have 170% more wealth investing in equities than bonds with a 95% probability. If the premium were only 2%, then investors have to wait 200 years to get to the same 95% chance of success. If it is 0%, investors would have 50/50 odds of stocks beating bonds forever![13] Being invested in risky assets during a deflationary depression and being long fixed-income during inflationary expansions are both recipes for destroying wealth.

[13] Robert D. Arnott, 2004. CFA Institute Conference Proceedings, "Points of Inflection: New Directions for Portfolio Management" (July): 39-52.

> "Overlapping all the economic groupings is active management—which taps human creativity, intuition, and insight."

Establishing an appropriate asset allocation is one of our most important exercises. But we want to avoid the slavish adherence to a single-point allocation. We should be aware of the limitations of our tools and maintain some flexibility as we allocate actual assets. The world is generally in one of two states. One is a normal state where recessions are possible, with normal return, risk, and correlation assumptions. The other is a depression state, where a different set of assumptions prevails. We could profit by modeling both.

Skill-Based Diversifiers

Overlapping all the economic groupings is active management—which taps human creativity, intuition, and insight. Most asset classes are still dominated by the beta of those asset classes. Alternatives, such as hedge funds and private capital, are far more skill based. As discussed in Chapter 1, if we are invested with top-tier partnerships and managers, the returns justify the effort and the allocation—alpha can be earned. If we cannot access these top-tier managers, our selections are often wealth-destroying.

Whether due to skill, short selling, leverage, or the use of derivatives, alternative investment managers' returns conflict with our assumptions about efficient markets and bell-shaped curves. Good strategies and managers should demonstrate more upside than downside volatility, compressing the left tail.

Alternative investment managers may add more risk-adjusted value than traditional managers but not without a price. There are higher fees, possibly unorthodox investment approaches, dramatically reduced liquidity, and considerable public misunderstanding about the industry and the accompanying headline risk and shifting strategies.[14] The board and investment team need to take these issues into account when designing an investment program.

Making The Actual Investments

Appropriately sizing the allocations to economic groupings is the most important decision in building our Policy Portfolio. Asset class diversification and manager selection should be secondary in importance. Maintaining a consistent risk exposure over time dictates that allocations among assets be flexible.

Hiring active managers, especially in alternative programs, implies confidence in our ability to select managers that add value above their benchmarks and fees. It also means a willingness to spend the money and time necessary to source, perform due diligence, monitor, and manage them. The goal is positive after-fee and risk-adjusted alpha for the aggregate portfolio.

We should expect to take years to build a high-quality and diversified portfolio. Our goal is to hire only the best managers, even if this means passing on many managers for a few years. There was a mad rush into venture capital in 1998, 1999, and early 2000. Even mediocre partnerships and managers got funded as investors were eager to fill this bucket in their Policy Portfolio. In many cases, results have been very disappointing.

As we add managers to our alternative programs, we must decide on how much to allocate to each manager in a particular strategy or asset class depending on our assessment of risk and our confidence in our assessment of the manager's ability to add value.

Assuming their assessment of quality is roughly the same, some investors begin their allocation by equal-weighting their managers. We should

[14] This is especially true in today's environment where hedge funds defied expectations of protecting capital and fell 20% in 2008. Numerous alleged frauds—i.e., Petters Group and Bernard Madoff—shocked investors. Private equity saw its leveraged finance model hobble investors with many likely insolvent investments. Profit distributions dried up and capital calls unexpectedly taxed investors' capabilities. Real estate is in its cycle of huge losses, and natural resources offered little diversification.

be skeptical about being able to predict higher or lower information ratios with any degree of precision. On the other hand, if the volatility or leverage among our managers in the same strategy differs radically, we might half-weight our more volatile managers.

Before planning to rebalance our alternative programs, we should remember that we might not be able to make redemptions or have capital called when we want. Finally, no matter how great we think a particular manager is, we should ask ourselves this question: Are we are really confident enough to justify any allocation greater than 5% of our portfolio? We should never risk more money than we are willing to lose.

Rebalancing

The purpose of the asset allocation exercise is to produce a liquid, passive portfolio that, within risk constraints, provides the best expected rate of return. The resulting Policy Portfolio may have precise allocations or, so as to allow greater flexibility to manage risk and liquidity, might establish acceptable bands around those allocations.

A key difference of opinion exists between "market timing" and rebalancing the portfolio. Market timers buy because they believe an asset class appears undervalued. Those who have a discipline of rebalancing to their Policy Portfolios do so for two reasons. First, they don't feel capable of identifying undervalued asset classes. Second, they believe that an outperforming asset class has, on average, become more expensive than the one they are rebalancing into.

Market timing, of course, is a two-decision decision. If we move from stocks to cash in a timely manner, we will lose the benefit unless we reverse the move also in a timely manner.

Many investors find that hard to do.

Rebalancing or market timing is more complicated with alternative investments because of limitations on their liquidity and changing allocations within funds.

Summary

The fact is, when it comes to asset allocation, there is no single answer. Principles are needed rather than rules. Sophisticated investors are always anticipating what can go wrong, trying to assess the downside and unintended consequences, and making sure that they minimize opportunity costs. The sophisticated investor is alert to changes in the broad economic environment to anticipate potential shifts between asset groups.

Of course, the only thing that counts is the future. If we are to adapt this approach, how are we to know:

- What part of the economic cycle we are moving into and for how long?
- How much of that information is already reflected in today's asset prices?

That is the challenge all investors face. We can tackle it with our experience, our continuing research, and our diligent analysis of all that is going on in the world.

> "Assuming their assessment of quality is roughly the same, some investors begin their allocation by equal-weighting their managers."

"Sophisticated investors are always anticipating what can go wrong ... they are alert to changes in the broad economic environment to anticipate potential shifts between asset groups."

Table 3:
Allocation Of Some Prominent Institutional Investors Using Best Practices

SUM OF ALLOCATION		INSTITUTION			
Asset Group	GR Label	CalPERS	Ford Foundation	Harvard	Yale
		Distribution			
Growth	Domestic Equities	23.0%	37.5%	11.8%	11.0%
	International Equities	19.2%	26.5%	11.9%	14.1%
	Emerging Markets Equity			10.0%	
	High Yield			2.0%	
	Private Equity	14.0%	11.6%	12.0%	18.7%
Growth Total		**56.2%**	**75.6%**	**47.8%**	**43.8%**
Deflation	Fixed Income				4.0%
	Domestic Bonds	19.8%	20.0%	1.3%	
	International Bonds	2.2%	0.9%	3.1%	
	Cash & Equivalents	8.7%	3.5%	-5.3%	1.9%
Deflation Total		**30.7%**	**24.4%**	**2.0%**	**5.9%**
Inflation	Real Assets	2.0%			27.1%
	Liquid Commodities			9.8%	
	Timber/Agricultural Land			6.1%	
	Real Estate	11.2%		8.0%	
	Inflation-indexed Bonds			7.1%	
Inflation Total		**13.2%**		**30.9%**	**27.1%**
Skill	Absolute Return			19.3%	23.3%
Skill Total				**19.3%**	**23.3%**

Source: Published annual reports. Asset class definitions vary by institutions. Unless an institution specifically carves out absolute return, there is no way of knowing the allocation to "skill."

Chapter 3 – Constructing A Successful Hedge Fund Portfolio

"The only perfect hedge is in an English garden."

—Anonymous

Contrary to investors' experience in 2002, many hedge funds failed to protect capital in the severe climate of 2008. Disappointed investors expecting positive returns in a negative market environment redeemed or attempted to redeem substantial amounts from hedge funds. The long-term viability of the "hedge fund model" is being actively questioned. Prior to the Great Credit Crisis of 2007-2008, investors willingly accepted expanded fees and lock-ups for the notion of absolute returns. This trend may reverse. As many investors redeem, the balance of power may shift back in the direction of the investors.

The hedge fund business model is not broken but leverage will be significantly lower for the foreseeable future, driven by availability, cost, and risk management considerations. Hedge funds will shrink not only in numbers but also as a percentage of the value of security markets. This should lead to greater inefficiencies in the markets, enhanced flexibility, and more profitable investments for those who continue as investors and survive as managers.

Hedge Fund Styles

Hedge funds are mostly traditional assets managed in non-traditional ways. A key advantage of hedge funds is their enhanced flexibility relative to traditional strategies. There are many ways to classify hedge funds, each with its own particular nuances. These are often categorized as being either "market directional" or "relative value" and grouped using both the traditional dimensions of asset class, and geography, plus strategy.

"Opportunistic" or "directional" hedge funds are strategies that owe their returns primarily to the direction of the markets; hedged equity, net-short funds, trend following, and commodity traders are examples. Relative value strategies are more dependent on some form of arbitrage and try to minimize beta; examples would be equity market neutral and fixed-income arbitrage approaches. These strategies aim for a low beta to equity and credit markets depending on the strategy. In theory, non-directional implies being equally long and short to isolate the effects of security selection from market returns. However, if gross exposures of longs and shorts greatly exceed 100%, the leverage applied to small inefficiencies can be quite high.

Not all markets have developed equally in regard to the ability to short-sell assets. Also, not all assets are amenable to a given trading style. For example, event trading applies to corporate securities and is not relevant to foreign exchange or commodities; some event-driven managers are very opportunistic and often have directional market exposure; others are pure relative value traders. Hedge funds can be reduced to the dimensions of asset class and trading style, with a sub-classification of geography when relevant.

Directional Styles usually involve being both long and short securities, but with the overall net exposure being generally greater than 50%. Returns are strongly dependent on the direction of the underlying market traded. The performance of equity markets constitutes a material portion of the ultimate returns (i.e., stock index movements coupled with security selection alpha). Returns can be quite high with this approach, especially with high net exposures

"Hedge funds are mostly traditional assets managed in non-traditional ways."

"Volatility is awful for our psyches but good for trading opportunities."

—Todd Petzel

"Tail risk happens when market crises occur and liquidity disappears."

to volatile markets. But this comes with higher volatility and "fat tails."[15]

Directional strategies include:

- Directional equity (and sub-strategies) and short-biased equities;
- Directional credit (and sub-strategies) and short-biased credit;
- Global macro trading in equity, fixed-income, commodity, and currency markets; and
- Commodity traders.

Event-Driven Styles involve trading around corporate events—changes in capital structure, mergers and acquisitions, bankruptcies, and reorganizations. These styles profit from a combination of factors:

- Correctly anticipating the outcome (such as the actual closing of a merger and its effective date),
- Being positioned in an appropriate security (either a fulcrum security[16] in a reorganization or the security issued to facilitate a restructuring or refinancing), or
- Influencing the outcome through shareholder activism in equities or controlling the creditor committee in bankruptcies.

Because events either happen or they don't, little is earned ahead of the event. Most or all of the value is realized when the event occurs. Many event-driven managers trade a combination of the strategies.

Relative Value Styles, also called arbitrage, involve being long and short securities that tend to move together in roughly equal proportion. Profits or losses are earned almost entirely through security selection. A typical trade involves some form of mean reversion either in a statistical sense such as the spread between Libor-OIS[17] or fundamental reasons (i.e., cheaply valued stocks will tend to rise relative to more expensively valued ones). The reversion of spreads between longs and shorts of related securities tends to provide relatively low returns with only modest volatility. Therefore, some managers employ leverage much more heavily, with gross exposures as high as 600% in equities and 1,000% in fixed income.

This combination of mean reversion and leverage earns steady returns in good times. In bad times, especially in de-leveraging, it can suffer large losses. Historically, leveraged fixed-income strategies have been at the root of most hedge fund blow-ups. But some equity market neutral managers, especially quantitative ones, suffered losses of 20%-40% in August 2007 when 10x-12x leveraged balance sheets magnified losses of 3%-4%. Tail risk happens when market crises occur and liquidity disappears.

Multi-Strategy Managers: These blend some or all strategies across several asset classes. Most large firms, especially the largest multibillion dollar managers, started with a single specialty. They then evolved into multi-strategy blends, modifying the weighting of their various strategies over time because they were able to bring on talented traders in other specialties, or they believed the blend is more efficient than a single approach. When reviewing prior returns of multi-strategy managers, we need to take into account the particular strategies the managers were using at that time.

Managed Futures: This is a style that stands alone, a name given to investments in commodity futures, both physical and financial futures. They are managed by commodity trading advisers

[15] Events considered well outside of a normal range arising from both the underlying markets' behavior and the long/short aspect of the portfolios and the gross exposure/leverage being used.

[16] The layer in a company's capital structure that is most likely to receive equity in the reorganized company in a Chapter 11 plan.

[17] London Interbank Offered Rate and the Overnight Index Swap Rate.

(CTAs) and regulated in the United States by the Commodity Futures Trading Commission. Other hedge fund strategies, such as global macro, also trade in futures along with many other securities. Managed futures, however, denotes strategies devoted exclusively to futures.

Many of those who trade commodity futures are hedgers, business people who are buying *insurance*. The farmer sells corn futures because he can't afford the risk of fluctuating corn prices at harvest time. The importer buys futures on the Japanese yen because he can't afford unpredictable fluctuations in his cost of goods sold. Hedgers are not always in equilibrium. At times, more need to buy than sell, or vice versa.

Liquidity to commodity markets is provided by *speculators*, which include CTAs. The better of them are among the more quantitative academics in the investment world. They absorb the volatility in most commodity markets. They minimize their volatility by investing in a wide range of commodities with little or no correlation to one another, and they rationally expect to make a long-term profit on their investments.

CTAs rely primarily on price information but differ from one another dramatically in their trading styles. The majority pursue some form of trend following, while other styles include macro-fundamental, counter trend, relative value, volatility arbitrage, and pattern recognition. Most CTAs are quantitative investors, with all their trades triggered by computer, although some CTAs do discretionary trading. Futures trading is characterized by high turnover. Perhaps half of all trades are for three days or less, many for less than a day. A few are for 30 days or longer.

Funds of managed futures use multiple CTA strategies, either within their own firm or via a fund of funds. Individual CTA strategies are often quite volatile, but funds mitigate that volatility dramatically by assembling a portfolio of CTA strategies that have low correlations with one another.

One advantage to CTAs is the low correlation of managed futures *strategies* with stock and bond markets and other hedge funds.

The Beta In Hedge Funds

Hedge funds are typically thought of as sources of alpha but in reality have a strong link to betas. Since we can quite easily and inexpensively purchase beta through an index, we seek active managers who can add alpha. It's important to understand how much beta may be imbedded in our hedge funds. Hedge funds known to have high beta include naïve automatic implementations of strategies such as convertible arbitrage or merger and acquisition (M&A) arbitrage. It is important that we recognize this linkage and adjust our portfolio allocations accordingly.

Based on the Tremont hedge fund indices, Bridgewater Associates calculated that between July 2001 and June 2008, equity long/short hedge funds—which account for nearly one-third of all hedge funds—had an average risk-adjusted correlation of 0.81 with the stock market. Bridgewater also calculated that event-driven hedge funds had a 0.90 risk-adjusted correlation with high-yield bonds and a simplistic implementation of M&A arbitrage.

Most hedge funds had materially negative returns in 2008 because they had more exposure to beta than alpha, especially equity betas that perform poorly in bad economic times.

> "People have a tendency to miscalculate probabilities. Their decision-making framework does not include negative outcomes."
>
> —Nassim Taleb

Moreover, their alpha typically had systematic biases toward performing better in good times than in bad times.

Bridgewater calculated that systematic risks accounted for 95% of the returns on all hedge funds for the third quarter of 2008, composed as follows:

- 50% developed, market equities
- 23% corporate high yield
- 6% emerging markets debt
- 4% mortgage-backed securities
- 4% market trending
- 4% emerging markets equities
- 3% yields
- 1% short volatility

That, of course, was the average for *all* hedge funds. Because each hedge fund is different, we must assess the beta of each hedge fund individually. We can do that by calculating how a fund's historical returns and that of its relevant betas change together over as many years as possible and adjusting these links to make them volatility equivalent. We should further adjust these covariances based on our qualitative assessment of the predictive value of that hedge fund's historical returns. This is not an easy exercise.

To better understand 2008, especially the fourth quarter following Lehman Brothers' demise, we must realize how quickly credit evaporated from the global markets. That, along with redemptions, forced hedge funds to slash their leverage by selling into an illiquid market. This accelerated market declines. This disaster affected most investment strategies and raised another issue: Is illiquidity another form of embedded beta? How much of a hedge fund's alpha is simply the result of investing in securities that are less liquid? That should be a part of our analysis of every hedge fund we consider.

Ideally, we would prefer hedge funds with large alphas and low betas. If a hedge fund has an attractively high alpha but also a reasonably high beta, then we should take either of two steps:

- If we can accept the betas, then adjust the rest of our portfolio to reflect the additional beta in our hedge fund.
- If we cannot accept the beta, then we can hedge it out by changing the portfolio weightings or, if that is not feasible or desired, by selling futures or swaps that are highly correlated to that beta.

Hedging out the risks of less liquid securities, however, is a bit harder to do.

What Have Hedge Funds Produced?

Hedge funds' combination of skill and unconstrained mandates aims for attractive returns with low volatility of returns and low or moderate correlations to market indices. On average this has been true since the start of the 1990s, when reliable data first became available. Averages, however, conceal a wide variety of features and outcomes of individual manager and strategy results as well as variations over time. It is important to note that most hedge funds do not even have six-year track records. There is considerable variation across and within strategies as well as across and within years. There is considerable concern about the quality and the quantity of the historical return of hedge fund universes.

The first concern is the voluntary nature of funds reporting their results to market indexers. This may lead to an upward survivorship bias because poor-performing or liquidating funds drop out of the results. This leaves only

"Because each hedge fund is different, we must assess the beta of each hedge fund individually."

"How much of a hedge fund's alpha is simply the result of investing in securities that are less liquid?"

the "winners" to be counted. Andrew W. Lo and others estimated that it could account for 1%-2% annually. The industry seems to experience roughly 10%-15% attrition per year. Most funds fade away or close due to unspectacular performance rather than the much publicized blow-ups or much-feared fraud.[18] Considerable variations exist within the industry and across years, with certain strategies at the epicenter of losses and closings in a given year. One of the main incentives for a fund to report its returns to a database is publicity and attracting new investors. On the other hand, top-flight managers have little incentive to report results. Many are closed to new investors and often prefer that limited partners' experiences be kept private.

Second, there is concern about the instruments traded and their valuation. Hedge funds trade many instruments that are either less liquid or actually illiquid. These include bank debt, distressed securities, control positions in public equities, some structured derivatives, private equity, or debt and direct loans. Pricing these securities may not be as frequent, given their illiquidity, and requires the use of many estimates. This can tend to smooth returns and understate volatility. Cliff Asness of AQR first discussed this possibility in 2001.[19]

Third, managers shift and add strategies over time as opportunities and their abilities evolve. Hence, track records for a given strategy are hardly pure because they reflect managers' adjustments over time. We should understand these changes as we attempt to understand the managers' relative abilities in their original and new approaches.

Despite these possible shortcomings, the quality of hedge fund returns makes them compelling investments. Of particular interest is the nature of the returns, most notably their "asymmetry."[20] A "good" hedge fund's process should focus on hedging downside risk, either explicitly or implicitly. Many managers mitigate the inherent susceptibility of event-driven and relative value approaches to market crises and illiquidity by "spending" some return on insurance. Such insurance includes stock index puts or credit protection. In hedging risk implicitly, deep value strategies focus on buying securities with "margins of safety" at levels enough below the securities' intrinsic values. In this way, should the manager be wrong or markets go haywire, the fund will not suffer large losses.

Another approach is to seek managers who possess a positive volatility or gamma profile either through trading style or instrument selection and trade construction. In the first case, managed futures traders have historically performed well during market crises for a variety of reasons. Second, some managers in other strategies explicitly use long option positions to help when market crises occur and volatility and correlations both rise.

While individual funds can generate sharply different results including negative returns, a portfolio of hedge funds tends to possess a more muted downside than traditional equity indices. This positive "skew" is a source of debate and is also dependent on the skill and experience of the fund manager. However, the drawdown experience of hedge funds versus equities, fixed income, or a blend indicates that they offered these highly attractive characteristics from 1990 through 2007, including an interval of negative months for equities during the early 1990s. This changed, of course, in 2008 when the average hedge fund was down

> "A 'good' hedge fund's process should focus on hedging downside risk, either explicitly or implicitly."

[18] Christopher Kundro, 2003. "Understanding and Mitigating Operational Risk in Hedge Fund Investments: A Capco White Paper," New York: Capco Consulting.

[19] Clifford Asness, Robert Krail, and John Liew, 2001. "Do Hedge Funds Hedge?" *The Journal of Portfolio Management*, Vol. 28, No. 1: pp. 6-19. Also, Clifford Asness, 2004. "Alpha, Beta, Schmalpha," *The 2004 IAFE Annual Conference*, p. 15.

[20] Alexander M. Ineichen, 2007. *Asymmetric Returns: The Future of Active Asset Management*, New York: John Wiley & Sons.

some 20%. Even so, that was better than the stock market or high-yield bonds.

Unfortunately, more money tends to flow into a fund in good times and be withdrawn in times of stress (when it is needed). This lends a "buy high, sell low" aspect, which is characteristic of the asset allocation decisions of many individual and institutional investors.

It is often said that past performance is no guarantee of future performance. The experience of 2008 proved that. The past gave few clues to the pain suffered by asset classes and hedge funds in 2008, which were many standard deviations away from any prior norms.

Best Practices In Investing In Hedge Funds

Selecting Investments

We all want to "collect quality" when investing in hedge funds. Translating this into specific managers and allocations is easier said than done. First, how do we determine and access "quality?" What does it look like? Will the manager take new investors, especially in capacity-constrained strategies? Second, we must investigate the managers and their claims. Third, we must execute the actual investment—negotiating and sizing it. Finally, once hired and funded, we must stay on top of what the manager is doing and take appropriate remedial action if necessary.[21]

These first two issues involve due diligence in selecting managers, a topic covered in detail in our three *Best Practices in Hedge Fund Due Diligence* publications. There are a few general principles worth emphasizing.

1. Finding and selecting quality partners is akin to getting married, not dating. It is hard work. It involves many ups-and-downs, but ultimately, like all good things, the rewards are well worth the effort. Keeping a longer-term perspective is important. Understanding that the investment is a partnership (a two-way street), in both a legal form and in its essence, is equally important. We should strive to be a good partner and expect the same of our manager.
2. Manager selection should not be done lightly. Building a portfolio of hedge fund managers is an involved process. It can be done in-house but requires considerable expertise and knowledge of specialized trading strategies, a variety of financial markets and instruments, investment and business management operations, trade execution and clearing, risk management, and portfolio construction. Then there's the ability to properly check references. Depending on the scale and abilities of our organization, we may or may not seek the expertise of advisers, consultants, or funds of funds.
3. People trump strategy and process. The basics of stock selection have been well-known since Benjamin Graham codified them. Singleness of purpose, the fortitude to be in an "unpopular" investment, constancy of curiosity, and the willingness to work hard are all requirements for success. What separates money makers from the merely good managers is the intangible quality of good judgment: knowing how and when to size their best ideas appropriately; knowing when to change their mind before they are proven wrong; when to stay the course; knowing how to keep the portfolio balanced so that losses are manageable; and, above all, knowing which ideas are worth pursuing and which are fads that are meant to pass. Managers

"What separates money makers from the merely good managers is the intangible quality of good judgment."

[21] Practical guidance on all items except the third is available from the Greenwich Roundtable's "Best Practices in Hedge Fund Investing" series.

characterized by the "five Hs"—honest, honorable, hungry, hard-working, and harmonious—are likely to perform better than those lacking one or more of these characteristics.

4. Remain skeptical. Investment management is a minefield filled with passing fads, impractical theories, and agency conflicts that have a sad track record of enriching managers at the expense of their clients. Never fall in love with an investment manager.

The capacity of any investment manager to handle assets is finite. It can be augmented by hiring additional skilled staff or by expanding the program to new markets. Beyond this finite level, risk-adjusted performance degrades. It is in the clients' best interest to keep assets below that level.

In terms of practical tips, a few that were noted in *Best Practices in Hedge Fund Due Diligence* include:

- Finding good managers is hard work. Take advantage of any network (professional contacts, our boards, alumni groups) that can provide introductions.
- In times of turmoil, managers are more likely to communicate proactively and call investors than when times are good. Take advantage of the long horizon that being an institutional investor allows you to have.
- When evaluating a manager, the track record is likely to spark initial interest. However, the focus of the due diligence should be getting into the managers' heads and understanding how they think. Beware of the tendency to "buy high and sell low" when selecting managers!
- Fees can occasionally be negotiable. The size of institutional allocations and the likely duration of the relationship act as carrots. It's preferable to structure something that more directly aligns a manager's interests with our own. The idea is not necessarily to reduce the overall fee paid. Rather, to more closely align the motivations of the manager and investors. Negotiating can be hard when other investors insist that hedge funds offer a "most-favored-nation" provision. However, in the post-2008 world, negotiating shifted in favor of investors.
- Selecting and performing due diligence on a manager is just the first step. After hiring, ongoing monitoring should be a primary activity. While finding new managers is exciting, we're only at risk with those we've funded. We should spend our time accordingly.

"Never fall in love with an investment manager."

"Assumptions for returns, volatilities, and correlations are highly uncertain, especially for hedge funds."

Sizing Positions

In sizing any position, there are three main considerations:

- What is the manager's expected risk-reward trade-off?
- How do we expect it to behave relative to everything else we are invested in?
- What is our confidence in these estimates?

Whether we are allocating dollars or risk further complicates this issue. A dollar in an unpredictable investment clearly has a greater impact and risk profile than a dollar in a subdued one.

Hedge funds aim for the highest reward-risk trade-off on the efficient frontier. Mean/variance models with Monte Carlo simulations randomly produce different outcomes for efficient portfolios. But the assumptions for returns, volatilities, and correlations on which they are based are highly uncertain, especially for hedge funds. Moreover, the long lock-ups and time lag to modify positions limit the application of quantitative models in managing a portfolio of hedge funds.

Fat Tails (events outside the range of normal) And Black Swans (extreme events that occur with great rarity)

Schizophrenia seemingly characterizes the behavior of securities markets. Prices reflect the relatively quick changes in perceived fundamentals. Many investors simplify these dynamics by using a Gaussian ("normal") distribution of price changes.

Yet, with some regularity, a seemingly reasonable idea is taken far beyond its logical conclusion. People over-invest, returns are compressed, and eventually enormous quantities of leverage are applied to maintain returns. This inevitably leads to a forced liquidation. Prices adjust far faster and with far greater magnitude than "normal" statistics would suggest (until they go too far most of the time).

In theory, many hedge fund strategies offer asymmetric return profiles. This can be good if the approaches offer upside participation with limited downside as opposed to those that offer substantial downside in exchange for limited (but mostly steady) upside. *Best Practices in Hedge Fund Investing: Due Diligence for Fixed Income and Credit Strategies* asked a key question: "Is the strategy long or short volatility? Is the strategy long– or short–tail risk?" The answer provides a useful summary of the impact of deleveraging events on hedge funds and a reason to plan for the tails:

"As part of understanding a manager's fundamental strategy as well as his ability to manage risk, it is often helpful to think of a strategy using the concept of optionality. In other words, is the strategy similar to owning (being long) an option or selling (being short) an option? Long volatility strategies may cost something to hold (the option premium) but will pay nicely as either volatility increases or the option becomes "in the money." This is often compared to buying an insurance policy. Short option strategies will pay the option seller, but will be costly if the inverse occurs, much like an insurer who writes only one policy that is triggered. Optionality can arise implicitly from the trading strategy employed or explicitly from being long or short options overall."

Absent explicit style or strategy objectives, we should also strive to balance different hedge fund strategies. But the caveat is always "managers first, strategy second." If we are only able to find quality players in one style, we should not allocate to sub-par managers in others just to "fill a bucket." Rather, it is particularly important to be on the lookout for first-rate managers in under-represented styles.

Forming A Portfolio Of Hedge Funds

Hedge funds can provide a valuable part of an institution's overall portfolio. Once we have assembled a group of hedge funds that we qualitatively judge outstanding, we can evaluate each quantitatively through:

- Its aggregate long-term historical return and volatility,
- Its built-in betas, and
- Cross-correlations of all the hedge funds within our portfolio.

We can do this mainly with hedge funds that have upwards of six years of monthly returns. The longer the better, provided a fund's strategy or management hasn't changed materially over that time. We should view such historical data over multiple intervals. Hedge funds behave differently in different investment climates, such as equity bear markets or credit crises. In short, we shouldn't simply operate by the numbers. We should look at what's behind the numbers and judge the predictive value of each. This exercise can be even more fruitful if you have position-level or risk transparency. In today's changed environment, it can be possible to get this.

A hedge fund portfolio will be most valuable to our overall fund if the portfolio is truly market neutral, because it will provide the greatest diversification benefit to our portfolio. To be truly market neutral means a near-zero expected correlation with the stock market (our portfolio's greatest source of risk) and about zero average correlation among the hedge funds in the portfolio. If the correlation is actually negative, that's even better.

We may use such a portfolio in three ways:

1. As an additional component of our overall fund. Most mean/variance portfolio optimizer models love an allocation that has zero correlation with the stock market. Its diversification benefit is an investor's "one free lunch."
2. As a separate section of our overall fund, one that has a near-zero correlation with the stock market. Most mean/variance optimizer models love a hedge fund portfolio like this. Its diversification benefit is an investor's "one free lunch."
3. As portable alpha, combined with either stock or bond index futures or swaps. The volatility added to the overall portfolio by hedge funds in portable alpha is very small if, and only if, the hedge fund portfolio has close to a zero correlation with the underlying futures. The near-zero correlation is imperative.

> "We should strive to balance different hedge fund strategies. But the caveat is always 'managers first, strategy second.'"

"To be truly market neutral means a near-zero expected correlation with the stock market (our portfolio's greatest source of risk) and about zero average correlation among the hedge funds in the portfolio."

Building a market neutral portfolio of hedge funds is a challenging assignment. It's equally difficult to maintain that market neutrality, especially in dynamic markets as we weight, re-weight, and rebalance our risks, managers, and allocations. Witness the historic correlations of various kinds of hedge funds from January 1991 to October 2008:

	Correlation to MSCI World	Correlations to Other Hedge Funds
Total Hedge Fund Index	.63	.57
Global Macro	.17	.56
Fixed-Income Arbitrage	.34	.61
Convertible Arbitrage	.37	.55
Long/Short Equity	.71	.31
Equity Market Neutral	.37	.31
Event-Driven	.64	.71
Emerging Markets	.45	.58
Dedicated Short Bias	-.70	-.45
Managed Futures	-.33	-.27
Multi-Strategy	.53	.60

Source: CSFB

Some of us also use top-tier hedge funds that have higher correlations with equities as a substitute for an active manager of equities or some other asset class. This may be beneficial, but not nearly as beneficial as a market neutral portfolio of hedge funds with an equivalent expected return.

Portable Alpha

Portable alpha provides an opportunity to have our cake and eat it too. But unless it's used correctly, it can dramatically increase the volatility of our portfolio through leveraging exposures at the wrong time (as often occurred in 2008).

Portable alpha is a portfolio of hedge funds overwritten with any index futures or swaps to gain exposure to the desired asset class. The MPA account must retain enough cash (or near cash) to meet marks to market on all futures, even when the market goes into a tailspin. It then invests remaining cash in a portfolio of underlying hedge funds. We might think of the MPA account as a corporation. Its assets are its cash reserve account and the hedge funds; its liabilities are the deposits by the futures account, on which it pays Libor interest. The difference each month between its assets and liabilities is its net earnings.

It is important to maintain flexibility in putting the program together. In that way, if we encounter extraordinary times, we're not locked into a failing strategy. We can get liquidity in the swap side of a portable alpha program even if we have greater rigidity in terms of the underlying hedge funds.

We should look at the long-term volatility of a portable alpha strategy versus a traditional long-only strategy as a basis for deciding whether we want to pursue a portable alpha course. This should be viewed in the context of the total portfolio risk and beta. We want the flexibility to change that. We should also be mindful of our overall leverage.

If our portfolio of hedge funds can outperform Libor by four to five percentage points per year, then even with the collateral and reserve, the result is far better than a truly exceptional active stock or bond manager who can outperform their benchmark by one to two percentage points per year.

A portable alpha strategy generally has higher volatility than the index fund alone—but not much higher if the hedge fund account has a low correlation to traditional markets.[22] Correlations that are greater than zero can rapidly increase

[22] Assuming (1) correlation is zero, (2) the standard deviation of the index future (f) is 15%, and (3) the standard deviation of the portable alpha (p) is 6%, then the combined standard deviation is:
$(f^2+p^2)^{½} = (.15^2+.06^2)^{½} = (.0225+.0036)^{½} = 16.2\%$
If the correlation (c) instead is .3, then the combined standard deviation is:
$(f^2+p^2+2*f*p*c)^{1/2} = (15^2+.06^2+4*.15*.06*.3)^{1/2} = 19.2\%$

volatility in stressed markets. This is where problems have arisen. Most hedge funds have a correlation with the stock market of 0.5 or a little higher. Too few investors have recognized that fact. It is challenging to assemble a hedge fund portfolio with a low correlation to stocks, especially during times of extreme stress when correlations tend to increase.

Each futures account is funded with cash equal to the notional value of the index fund that is accessed through futures. The futures account must post typically 5% cash collateral with the counterparty, and the rest can be deposited in a master portable alpha (MPA) account.

Is Portable Alpha Broken?

When measuring the relative success or failure of a particular asset class or strategy, the start- and end-points matter, and they matter greatly. One must be very careful when drawing conclusions about portable alpha after one of the worst years in capital markets history. Looking back on 2008—a year that saw hedge fund indices drop more than 20% and equity markets nearly twice as much—it is difficult to argue that portable alpha has been a successful strategy. But you'd also be hard pressed to demonstrate that portable alpha is irreparably broken. For this argument to be true, the losses would have to be so great as to render the program worthless.

A plan sponsor with a 10% allocation to portable alpha that experienced average results of -20% in its hedge fund portfolio in 2008 (i.e., -20%), could expect an alpha detraction of some 170 basis points (bps) at the total plan level. Under normal circumstances, assuming hedge fund returns of Treasuries plus 5%, the same program might produce 45 bps of alpha per year. This means the alpha lost in one year could be recovered in less than four normal years—within the time frame that might be considered "acceptable" (i.e., the average CIO's tenure is seldom shorter).

Most institutional investors are aware of the variety of betas that even a diversified hedge fund portfolio may contain. Separating causal from spurious factors is no easy task. Results are all that matter. Nevertheless, broad-based deleveraging, along with a massive reduction in liquidity, caused correlations across asset classes to rise dramatically. This cannot last forever; at some point fundamental factors must certainly overwhelm technical pressures.

We believe hedge fund beta, under *normal* conditions, is sufficiently small to afford the construction of a successful absolute return portfolio. The rest of the portfolio can be adjusted to offset the additional beta resulting from the portable alpha.

In sum, we believe reduced competition and reduced leverage have set the stage for attractive returns in hedge funds for years to come. While there are several industry shortcomings that need to be addressed, the investment thesis for employing a portable alpha program remains largely intact.

Source: A large U.S. pension fund

"LTCM taught us that we did not have reliable methods to understand non-linear risks, fat-tail risks, and illiquidity."

—Andrew Lo

"It is challenging to assemble a hedge fund portfolio with a low correlation to stocks, especially during times of extreme stress when correlations tend to increase."

"We should not fire a manager solely for performance reasons."

Terminating A Hedge Fund Account

Not all hedge fund investments work out as planned. Sometimes we must terminate a hedge fund. Some general principles include:

- We are fiduciaries. We must be objective in protecting the interests of our institution, including terminating managers we may like personally.
- It's really all about the people. Sometimes we are wrong about a manager's skill or diligence. Sometimes a key person leaves the firm. Either is a cause for reconsidering the allocation.
- A manager's non-performance-related growth in assets under management is often a strong signal that the manager values its revenues more than our returns.
- We should not fire a manager solely for performance reasons. Investing in alternatives is all about longer-term value-creation processes. The timing of returns can be uncertain. Performance is a clue to what is really going on. It should only be a cause for action if further investigation reveals that it is symptomatic of larger problems. These may include too many assets, style drift beyond competency, chasing returns, or a negative performance impacting the survivability of the hedge fund.

Dealing With Risk

Volatility of returns is the standard statistical measure of risk. The lack of symmetry of some hedge fund returns renders this measure less useful. Quality hedge funds focus on downside protection and positive compounding. Downside protection can be done in a number of ways: hedging market dislocations; implicitly by finding shorts; buying near value "floors;" or by activist strategies in bankruptcies.

Most hedge fund managers are highly dependent on liquid and "rational" markets, where arbitrage relationships mean-revert and fundamental value is eventually rewarded. The correlation of hedge funds to equity or credit markets may not be great most of the time. However, correlations can zoom toward one during market dislocations, as happened in 2008. In fact, many hedge funds exhibit a beta of greater than one during crises due to their leveraged balance sheets.

There are four practical implications of this:

1. **Diversification.** Balance and diversification by risk, both on a manager and on a strategy basis, provide a key management tool. An advantage of a hedge fund over a separate account invested like a hedge fund is that we can't lose more than our investment in the hedge fund but we could with a separate account.

2. **Liquidity matters.** Banks and prime brokers provide the financing for leveraged programs. Hedge funds tend to trade in less liquid, private, and longer-duration situations. And they may provide greater liquidity to investors than their underlying trading program. In such cases, they borrow short-term while investing longer term since it often takes time for individual investment strategies to pay off.

   This becomes problematic during market dislocations, when investors seek liquidity and lenders withdraw financing. Prime brokers and banks will move aggressively to protect their capital, withdrawing funding lines at the least opportune time. This can

force fire sales by the hedge fund. If a fund doesn't have term financing in place and long notice periods for changes in margin haircuts, it can blow up.

Redemptions from the fund also tend to increase during an economic downturn. Fund of funds may need to redeem because of their redemptions. Past market crises (1994, 1998, and 2002) saw outflows from the hedge funds overall. In the second half of 2008, $800 billion left the industry. More is likely to follow. Raising gates and suspending redemptions may offer temporary relief to the manager trying to quell a run on the bank.

Ironically, the worse the liquidity terms provided by a hedge fund, the better for investors in times of crisis. If few can redeem, managers do not have to destroy their investments by liquidating at inopportune moments.

A number of hedge funds have added side pockets for illiquid investments. These investments only apply to investors at the time an investment is made. They cannot be redeemed until the investment is eventually cashed out. This is fair to all investors, especially if a fund allows investors the option to participate in all side pockets or in none. Side pockets can be problematic for investors who require liquidity.

3. **Tracking-error and other benchmark-centric terms aren't relevant to hedge funds.** Hedge fund managers should be original thinkers. They are not likely to be integrated into large, established money management firms. They will have exposures dramatically different from indices. Trying to benchmark hedge funds is missing the point. For equity long/short managers who generally run net long, there is some logic in looking at indices as guideposts. For unconstrained hedge fund managers, T-bills plus a spread to reflect the riskiness of the investment is a good place to start.

4. **Consider hedging out tail risk.** Some hedge funds have similar volatility and correlation characteristics to those of fixed-income but with higher returns except, of course, in times of market distress. Spending some return to hedge against this possibility pays off when the markets suffer large losses. This gives us both the wherewithal to avoid fire-sale liquidations of our portfolio and the firepower by which to buy up those of others.

   How much insurance? Spend too little and the protection will not be enough. If we spend too much, the drag on performance will be too great. The answer of how much to spend will depend largely on how risky a program we are running. Some investors think it's between 1% and 3% a year.

   The simplest protection involves buying deep out-of-the-money puts on equity or credit indexes. Both have defined downside—the premium you spend. The composition and management is more art than science. Two reasons:

   - Index puts on the S&P 500 during 1998 wouldn't have helped. Large capitalization equity indices suffered relatively few losses compared with small cap equities, credit instruments, and most relative value spreads. The pricing of options varies as they approach expiration and also depends

"Ironically, the worse the liquidity terms provided by a hedge fund, the better for investors in times of crisis."

on how far away the strike price is from the current market price.

- Insurance costs vary based on demand. When the need to insure is high, normally indicated by elevated volatility, the price rises. The best time to buy insurance is when it is cheap. Yet this may be when it seems to be needed the least.

There is one caveat. When the exposure and the hedging instrument are not perfectly matched, there's likely to be enormous basis risk in this program. The program will never exactly hedge the specific risks in the portfolio. Nor will it hedge all market scenarios. It is not always smart to hedge. Hedges can be expensive to buy and time-consuming to maintain. Overpaying for a hedge is as poor an idea as overpaying for an investment. When the cost is reasonable, however, a hedging strategy may allow investors to take advantage of an opportunity that otherwise would be excessively risky. In the best of all worlds, an investment that has valuable hedging properties may also be an attractive investment on its own merits."[23]

"The best time to buy insurance is when it is cheap. Yet this may be when it seems to be needed the least."

As investors, we need to be honest about our ability to execute hedges. If we are a large, sophisticated organization that can devote the necessary resources to the task, we could run the program in-house. Otherwise, we should either refrain from hedging or hire others to do so.

"It is particularly important to be on the lookout for first-rate managers in under-represented styles."

[23] Seth Klarman, *Margin of Safety*, (1991). P. 214.

Chapter 4 – Constructing a Successful Private Capital Portfolio

"There are many painters, but few Picassos."
—Verne Sedlacek

Private capital is investing in non-publicly traded companies or by taking public companies private or making private investments in public companies. Some divide the industry into venture capital and other "private equity."

Venture capital finances the creation and development of new businesses. The focus of private equity is usually on the transformation of existing enterprises, although sometimes the term is used to encompass venture capital as well.

Private equity usually applies to equity-related capital that finances changes in private and unquoted companies. It is also associated with buyouts and mezzanine capital (subordinated debt and preferred equity). The term sometimes includes private equity investments in public companies (growth equity), direct loans, and distressed investments in companies headed for or already in bankruptcy.

Investment Strategies

1. **Buyout firms** acquire a company or business unit from shareholders, often with the use of financial leverage. Investment targets tend to be companies with mature cash flows and operations strapped with growth impediments that hinder performance. These companies tend to favor private over public capital because they can raise capital more quickly and with minimum publicity. Another benefit may include lower investment banking fees plus the buyer's ability to add value by providing financial expertise, management recruitment, and operational experience.

   Small buyout firms tend to invest regionally. Mid-sized firms tend to invest nationally. Large firms invest in global markets. Leveraged buyout funds often finance 70% or more of a target's price tag with debt. This takes advantage of a tax deduction on the debt's interest. Some buyout firms may rely chiefly on financial engineering to achieve their returns. This influences their purchase price during an auction, their exit strategy, and their portfolio companies' path to profitability. It also adds to the risk of the venture.
2. **Mezzanine capital** includes investments in debt or hybrid securities subordinated to a company's capital structure except senior to its equity. The structure and coupon of the investment are crucial given its subordination. This capital can be raised quickly without filing requirements and is employed when other sources are either unavailable or more complex with regard to disclosure and placement.
3. **Venture capital** makes equity investments in startup and less mature companies with small or no current earnings but with the potential for growth in revenue. Not all companies have revenue plans at the time of funding. Private capital helps launch products, fund early development, or expand an incipient business. Venture capital comes in stages. In contrast to buyout strategies, venture firms rely on their experience in selecting breakthrough technologies and entrepreneurial teams.

   Venture capital firms consist of a small group of experienced people. They are experts at evaluating and identifying the most promising enterprises. They take seats on the board, make important industry introductions, offer business strategy

"Venture firms rely on their experience in selecting breakthrough technologies and entrepreneurial teams."

advice, and aid in capital-raising strategies. They can add significant value to young companies.

4. **Buy-ins** include private equity investments in more mature companies looking to expand, restructure, enter new markets, or finance a major acquisition. These companies typically want to raise money but retain control of their business. Venture growth equity is often the first institutional capital in a profitable or near-profitable maturing business.
5. **Distressed investors** buy equity or debt securities in companies that are heading toward or are already in bankruptcy. They often nurse them through the bankruptcy process and help to control the outcome. Many traditional hedge funds include distressed securities in their portfolios. Beginning in 2008, many of the large LBO firms shifted strategies to allocate significant sums to buying bank loans at distressed prices.

Another private capital opportunity is a secondary investment in an existing partnership. Capital invested in private equity is normally locked up for a decade or more. Sometimes, an institution or a private investor has an immediate need for cash. Other investors are willing to buy its limited partner interests, often at a discount to net asset value. The purchase includes the obligation of undrawn commitments. Many secondary interests trade for premiums when the general partner is a top-tier player with limited capacity for new investments or investors. Discounts occur when the general partner's track record is mediocre. Discounts also occur if the portfolio companies are under water, the fund has large unfunded obligations, or the market environment is bleak.

"LBO funds know how to manufacture returns. As financial engineers they understand the impact of time and fees on IRR and the need to invest rapidly."

—Ed Mathias

Structural Characteristics Of Private Capital

Private capital investments are normally structured as limited partnerships with management and performance fees charged to investors. The management fee for such partnerships is charged on *committed* capital rather than the amount actually called and invested. In some cases (but seldom in venture capital) a "preferred" return hurdle must be cleared (around 8%) before paying the partnership's general partners.

The major differentiations between illiquid and marketable alternatives are the commitment's duration, the investment's cash-flow profile, and the lack of meaningful quarterly market values. Many private capital partnerships require investors to lock up their capital for 10 to 12 years. The manager often has the authority to call for an extension of two years or more. Some private capital partnerships are for shorter terms. Once capital is committed, it is called over a period of three to six years at uncertain rates. Many managers call all their committed capital well before six years.

The pattern of cash flows after the commitment depends on the opportunities the manager finds and the time needed to realize exits on investments. Exits depend on the pace of operational improvement and the public equity market environment. Early on, as capital is called, the partnership's cash flows and its portfolio's cash burn rates are both negative. Ideally, the partnership's returns increase, recover the initial capital, and generate return well in excess of this amount. This negative return pattern during the investment time frame yields what is referred to as a "J curve."[24]

Investors often overlook the fact that as time advances, private capital programs evolve from

[24] A graph that depicts a low internal rate of return (IRR) in the early stages of a fund, due to startup costs, and then an increased IRR due to profitability.

a use of cash to a source of cash. Distributions sometimes occur before all the commitment has been drawn. Therefore, the investor's peak allocation to private capital may only reach 65 cents for every $1 of commitment to private capital. This means that an investor would actually have to commit substantially more than $1 of exposure desired.[25] While it takes a number of years to get invested initially, it takes continued commitments to stay fully allocated to the asset class. The converse is also true. We can de-allocate to private capital by simply not re-upping at the same rate.

Managers face a declining revenue stream as their companies succeed with an initial public offering (IPO) or acquisition. They raise new funds once the previous one is nearly fully invested. With the current partnership still in progress, investors must base their investment decision on past partnerships and the manager's reputation. The good news is that the top-tier firms have shown persistence in staying on top.

What Have Private Capital Programs Returned?

Creating a successful private capital program fueled the difference between the good and the great endowments over the past 30 years. Private capital programs require long-term investments that offer advantages over public markets. Public companies tend to focus either on the short-term goal of meeting Wall Street expectations or investing in the long-term value of an enterprise. Companies backed by private equity know they must create a compelling position in five years in order to sell. This results in a more focused effort to increase a company's long-term efficiency and effectiveness.

Historically, many private equity investors have been well compensated for locking up their capital for 10 or more years. There's been a significant change in the industry's market capitalization focus. Early on it was investments in mostly small- and mid-capitalization situations (RJR Nabisco was the notable exception). In the past few years until the middle of 2007, it's been enormous funds investing in mega-capitalization companies.

Investors in first quartile venture capital firms have been even more generously compensated despite enormous fluctuations in annual returns. As in private equity, the quality of the lead general partners or the reputation of the venture capital firm has an overwhelming effect on investors' results.

Unpredictable changes in the investment environment mean that the vintage year matters enormously. Venture capital funds raised during the early 1990s yielded some enormous returns. Since 1999, with the notable exception of Google, it produced some spectacularly large losses. This is an argument for "vintage year diversification"—investing across multiple years. We can never be certain how investments made today will perform 10 years out.

Private capital has historically valued investments by holding them at cost until a realization or impairment occurs. This technique has resulted in smoothing returns and understating volatility, which also affects correlations and beta measures. The estimates on correlation for private capital range from zero through 0.78. Those advocating a lower beta measure note that private capital investments' underlying return generation does not *theoretically* depend on the performance of equity markets. But these correlations are understated because of the slow-responding valuations of private investments.

> "The name of the game is vintage year diversification."
>
> —Janet Hickey

[25] FLAG Capital Management, 2008. "The Commitment Conundrum," *Insights* (January). Using the example of their fund of funds, which call capital at the rate of one-third of the commitment per year for the first three years and return 1.75x over the lifetime of the partnership.

"In reality, private capital is more of an 'access class' than an asset class."

In the case of venture capital, the formation and nurturing of companies, as well as the underlying innovation cycle, are somewhat independent of equity markets. However, the outcome is highly dependent on the size of the IPO market. In reality, exit multiples for any private investment matter a great deal. Given this and the uncertainty over interim valuations, it's best to err on the side of safety and assume a higher beta. Higher return assumptions usually favor private capital over public equity investments in most optimizations. However, this may not be borne out by median returns of venture capital or other private capital.

The recent adoption of FAS 157 in the United States requires the use of fair market value estimates of an investment on financial statements. This means that partnership returns will now exhibit more mark-to-market volatility.

Best Practices In Private Capital Portfolio Construction

Selecting Investments

The difference in performance between top and average partnerships is enormous in private capital. Fortunately, selecting the best general partners might seem easier than other alternative investments because of the persistent top performance of the best firms. Since this is widely known, getting allocations to these general partners is neither egalitarian nor democratic, especially for venture capital. In reality, private capital is more of an "access class" than an asset class. Selecting quality private capital investments involves six main steps:

- Sourcing managers,
- Performing due diligence,
- Negotiating partnership terms,
- Funding commitments,
- Ongoing monitoring of the investments, and
- Rebalancing allocations.

There are many ways to find good fund managers. The best unbiased advice comes from references from institutions investing in the space or from an institution's own investment managers. Trade publications, databases, marketers, and facilitating service providers (investment banks, etc.) also provide some understanding of the universe and the tiering of quality.

Since access to top firms may be difficult, there is some merit in using a fund of funds for initial allocations to the class. Funds that buy partnerships on the secondary market may also offer the ability to invest in top-tier partnerships if they include some of those partnerships in their portfolio. There are also occasional spin-offs from top-tier firms where talented managers start their own businesses. Being a good investor and actively participating in the industry can help open doors.

We should perform the same due diligence and exacting attention required on any potentially large transaction. Gain confidence in a manager's investment process, understand its culture and business practices, verify its operational procedures, and check references. The 10-plus year lock-up on capital and the private nature of the investment requires extra due diligence and work. The allocation hurdle should be higher than for managers of liquid assets.

We should include an examination of and interviews with current and past portfolio companies in our due diligence—understand the track record in detail, not just the headline IRR numbers:

- What kinds of companies have been bought and sold, and at what multiples?

- Which companies have not been sold and why?
- What happened to underlying companies' fundamentals (revenues, cash flow, and margins)?, and
- Is the track record built on one or two home runs that might be luck, or on a record that is longer and more consistent?

We should know whether the manager brings value by actively improving the companies or earns value mainly by buying at the right price.

Every investment is about people. This is an important issue to understand, because the key people make the difference.

It is essential to examine investment terms to ensure fair treatment. Important partnership terms spelled out in the offering documents, such as fees, liquidity, and scope of the mandate are usually non-negotiable. This is especially true at a top-tier firm. An investor's size or reputation might lead to slightly lower fees in exchange for larger commitments or name association. The following four items are points to include in the limited partnership agreement:

1. **Key Person:** This clause provides for a vote on continuation of the partnership if the key principal(s) running the fund leave the firm. Since the quality of decision makers heavily drives returns and the investment can last a decade or more, it is vital to ensure that we continue to get the decision-making expertise of the key principals we expected when we initially invested.
2. **Expenses:** In addition to the management and performance fees, there are other fees charged to the partnership (legal, administrative, etc.). The LP always gets the first dollar of distributions. The key point is what fees and expenses are charged to the partnership before distributions.
3. **Clawback:** Initial successes by a partnership may not be matched in later years, and the general partner may receive more performance fees in the early years than are subsequently warranted. In that case, a clawback provides that the general partner must pay those excess fees back to the limited partners.

   It is best, of course, if there is no need for a clawback. Terms preferably should state that the general partner doesn't share in any profits until the LP receives its capital for the entire fund. A clawback never makes the investor entirely whole. It doesn't provide for the time value of money, especially at the fund's rate of return.
4. **Commitment:** A corollary to the key man clause, this concerns the amount of attention a key principal gives to the fund rather than his or her mere presence in the partnership. Non-compete clauses for the principal may be included. This means that there can be no bait and switch of a talented senior partner for less proven members of their team.

We can help ensure that issues of particular importance are addressed by negotiating a side letter with the fund. An important side letter is a most-favored-nation provision, which says we will be offered any better terms that are subsequently offered to any other investor.

In these negotiations, investors seek to strike a balance between fulfilling fiduciary obligations and dealing with highly sought-after general partners who may look askance at overly aggressive investors and their lawyers. The aim is for a genuine partnership between investors

"An important side letter is a most-favored-nation provision, which says we will be offered any better terms that are subsequently offered to any other investor."

> "Diversify across managers and vintage years, with a preference for weighting better managers more heavily."

and managers. Commitments by the general partner to put the investors' interests first and backed by legal protections allow the relationship to deepen with time.

Once the commitment is made, capital calls will occur over three to six years. Many investors fund the investments by liquidating public equity positions.

Monitoring follows the same as with other investments but with the need also to follow results of the portfolio companies. Visiting some companies while performing other investment duties can often be fruitful. This is especially true if we are looking at new markets or industries where ground-level knowledge can be invaluable.

Combining, Sizing, And Rebalancing Positions

When building portfolios of private capital investments on a stand-alone basis, there are three best practices to keep in mind:

1. Collect as much top quality private partnerships' capital as possible (but *only* top quality). Access and capacity are often limited. Get in when you can.
2. Diversify across managers and vintage years, with a preference for weighting better managers more heavily.
3. Develop a liquidity management plan.

Top Quality. Build the portfolio from the bottom up, allocating only as much as we can obtain in top quality managers. Filling buckets is a sure-fire road to disappointing results if the performance of median managers (let alone bottom quartile ones) is flat. Should some additional capacity in a top-quality fund become available and we find ourselves over-allocated to private capital, it is better to make the investment rather than take a pass. We can hedge the position with a suitable proxy, such as shorts on small cap growth or technology-health care indices. Some believe allocations to 25 or 30 venture funds (across managers and vintages) are considered necessary for good results. Others think it's too many.

Diversify. Diversify managers, strategies, and vintage years with an eye toward consistently equal-weighting *committed capital* by vintage year at the asset class level. It is almost impossible to make any robust prediction for any single fund over a 10-year period. Since top managers maintain a competitive advantage, it's best to allocate across the higher quality firms and participate in each subsequent fundraising. Allocations received will never be exactly as desired, but keeping commitments as close as possible to the target is a good discipline. Committing capital to private equity and venture managers over multiple vintages is important for proper diversification. Also, staying a member in good standing in "the club" helps to get an allocation the next time the manager raises a new fund.

Time to Hedge. Accept the uncertainty inherent in all investing, especially in private capital. The long period of operational improvement and entrepreneurial growth of portfolio companies may lead us to view them as largely uncorrelated with equity markets. But as an exit looms closer, the dependence on equity market performance increasingly influences the ultimate realization. This is especially true for venture capital, whose realizations tend to cluster as the IPO window opens and disappear as it closes. Investors who hedged their venture capital portfolio in 1999 still profited from the businesses floated without incurring

the risk of the market downturn starting the following year.

Liquidity Management. Develop a liquidity management plan for private capital investments. Assuming that we make commitments over time to a variety of managers across various sectors, the cash-flow demands for capital calls seem steady. During market downturns, capital calls for private equity may increase as managers seek to invest in temporarily depressed or mispriced assets. This is a challenge for investors. Their liquidity portion has likely declined at the same time as capital is being called. Liquidating investments at the bottom is a way to destroy value.

The need to over-commit to the asset class in order to achieve target allocations, plus "re-upping" to maintain access, sets up a potentially nasty situation. Investors would be wise to understand the potential timing of when existing commitments may be called and when managers may ask for new commitments. It helps to talk with our managers regularly and put contingencies in place, such as lines of credit with banks or brokers. Fortunately, after four or five years, cash begins flowing back from private capital allocations, although the timing is unlikely to match capital calls closely. Cash management for alternatives is considerably complicated. Investors need to dedicate time and effort in order to manage this effort properly.

"Develop a liquidity management plan. During market downturns, capital calls for private equity may increase as managers seek to invest in temporarily depressed or mispriced assets."

Chapter 5 – Constructing A Successful Real Estate Portfolio

"Three things are to be looked to in a building: that it stands on the right site; that it be securely founded; that it be successfully executed."

—Johann Wolfgang von Goethe

"Real estate assets tend to appreciate during times of high inflation, as replacement costs and rents rise."

Real estate, if you include all land investments, is the largest asset class. It is also one of the best inflation hedges and has only a modest correlation with stocks and bonds. This makes it a useful diversifier.

Property investments form the bulk of the "real assets" category, which also includes energy and timber. High inflation historically coincides with periods of poor performance for stocks, bonds, and cash on an inflation-adjusted basis. Real assets tend to appreciate during times of high inflation, as replacement costs and rents rise. These effects have generally more than offset the rise in cap rates that parallels the rise in interest rates.

Institutional real estate investments are more narrowly defined as land and structures in urban or semi-urban areas for commercial or industrial purposes. These include office buildings, apartment houses, hotels, retail malls, and industrial warehouses. Raw land for development may also be included. In all cases, tenants agree to pay rent in exchange for use of the property over a set period. In contrast to other alternative investments, rental income provides a much more sizable portion of returns.

Commonly viewed advantages of private real estate are that its volatility is lower than that of common stocks, and it has a low correlation with the stock market. Part of these advantages result from the hybrid bond-and-equity nature of real estate, and part from the smoothing effect that necessarily stems from valuations by appraisal.

Real estate investments fall into three general categories:

1. **Core Real Estate.** These are income-producing assets, usually intended for long holding periods, which use light leverage targeting high single-digit returns.
2. **Value-Added Real Estate.** These are usually short-term investments with moderate leverage where the manager strives to add value to a property in one of multiple ways, then sells it to earn low to mid-teen returns.
3. **Opportunity Funds.** These typically involve high leverage with a return target of high teens and sometimes more.

Property investments can further be segmented by size and geography. In almost all cases, a portion of rental income must be reserved for the cost of providing maintenance and periodic refurbishing. Though most structures are long-lived, changes in usage and "fashion" can lead to eventual obsolescence.

Real estate investments exist in more structures and forms than the dominant limited partnership structure of other illiquid alternatives. Some of the largest investors make direct investments in real estate, building the necessary property management and development skills in-house. Many investors use operating company wrappers, gaining talented managers through private equity investments in their development and operating companies.

The advent of the real estate investment trust (REIT) structure in 1960 permitted real estate (initially through mortgage pools) to be listed publicly. The Tax Reform Act of 1986 allowed direct property ownership and operation by REITs. This led to a wave of initial public offerings in the 1990s, which grew into a $300 billion market capitalization industry.

In the mid-1980s, institutional investors convinced real estate operators to adopt the private equity partnership and fee structures. The typical preferred return[26] was often 8%. Kodak and other corporate pension funds were doing this before 1985.

This forms a large part of the return to investors. From 1980 through 2007, as measured by the National Conference of Real Estate Investment Fiduciaries Index (NCREIF), private real estate returned 11.5% per annum (8.4% real). The rental income stream ("coupon") divided by the property's sale value is called the capitalization (cap) rate, a measure of the yield. Most institutional investors view cap rate as a yardstick for the value and attractiveness of a particular property.

Real estate has always been a highly cyclical business. There are periods of leverage-financed overbuilding that lead to low cap rates and eventual losses in an economic downturn. Real estate's value is based on appraisal pricing. In the case of NCREIF, appraisals are done quarterly. Appraisals tend to lag actual market pricing, which results in a smoothing of returns. The 3.75% standard deviation of returns indicated by NCREIF data substantially understates the true volatility of property investments.

Best Practices in Real Estate Portfolio Construction

Selecting Investments

In sourcing real estate operators, institutional investors have a range of options. There are REITs as well as private real estate, either owned directly or though private real estate funds.

Managers value each property quarterly (as reported to NCREIF) and have an outside auditor do an appraisal usually once a year. Investment analysts estimate the value of REIT properties on a macro basis because they have no independent appraiser on a property-by-property basis. Investor interest in REITs fluctuates. In good times, REITs trade at a premium to their net asset value (NAV)[27]. In a market downturn, investors tend to avoid the instrument and the class. This allows for a discount to open up. The companies may often take advantage of this fluctuation by issuing more shares at the premium and purchasing properties for their portfolios. They sell properties and buy back shares when shares trade at a discount to NAV.

Return variations between average and top private real estate managers lie somewhere between hedge funds and private equity. The difference is skill in acquiring, managing, and disposing of real properties. Operational competence and an innate sense of market timing are keys to success. We should invest the time to get to know the players, build a reputation as a committed investor, and collect quality teams.

> "399 Park Avenue is not very attractive when you look at it as a 1955 office tower. But it is attractive when its long-term leases are viewed as a 15-year bond with an 8 percent yield."
>
> —Sam Zell

[26] This entitles investors to receive a return on their money before any other portion is shared with the general partner.

[27] The total market capitalization is greater than the net asset value.

"Listen to our managers. They have the best sense of when the party is over and when it's time to move on."

There are two functions in running a fund—the entrepreneurial job of managing the fund, and the day-to-day job of managing the property (property management). Many fund managers hire independent property managers. Some prefer to do both functions. Real estate programs can be successful with the functions of fund management and property management either combined or separated. Due to potential conflicts of interest, the manager should have no other source of income from the program, either directly or indirectly than overall fund management and performance fees—no separate property management, development, or investment banking fees. And we should also ensure that the manager is meaningfully invested alongside us as a limited partner.

Combining, Sizing, And Rebalancing Positions

In building solid stand-alone real estate portfolios, there are four best practices:

1. Be a contrarian when appropriate (also plan for the worst case);
2. Collect quality operators opportunistically;
3. Diversify, but not excessively; and
4. Listen to our managers.

The ability to time the investment correctly is the largest determinant of success in real estate. Getting the theme and the timing right is essential. Arriving late to the party can be worse than missing it entirely. Just ask the Japanese investors who bought marquee U.S. properties in the late 1980s only to sell them at steep losses a few years later.

Real assets have a structural reason to be in investors' portfolios. But sizing of positions should vary opportunistically as opposed to the more static allocations given to hedge funds and private equity.

Finding quality managers is critical. Quality managers are better able to spot opportunities, do complicated transactions, execute the plan, operate the buildings profitably, and time the exit well. Should prospects for the overall real estate market appear poor, we can hedge by shorting some public REITs and real estate company stocks against the allocation.

We should diversify by property type (office, retail, commercial, residential, leisure) and by geography. Some investors believe they need only three to five partnerships with quality operators to obtain the desired exposure. Others believe a fairly sizable number of real estate managers may be required, depending on the portfolio's size and the operators chosen. Some top-tier real estate managers who concentrate in a particular area may be worth including.

Real estate is one of the few alternative investments where it may pay to build a core in-house capability. Even investment partnerships in core real estate must sell their properties at the end of a fund's term regardless of whether or not investors would prefer to continue holding the specific property.

Because of the cyclical nature of the asset class, it is vital that we establish an excellent partnership relationship and talk with the managers we hire. They have the best sense of when the party is over and when it's time to move on.

Value-Added Real Estate

Value-added and opportunity funds are more aggressive approaches. A manager buys a property, adds material value in a timely manner, and promptly sells the property to someone who wants good core real estate.

The epitome of adding value is development. This means converting raw land into a well-leased building or investing in sewers, roads, and other infrastructure to bring a much higher price from a developer. Development can earn the highest returns or, if unsuccessful, be the source of large losses.

Here are some of the ways real estate managers can add value:

- Buy a well-located Class C office building, rehabilitate it, and re-lease it as a Class B office building;
- Buy an office building with a poor leasing structure, perhaps leased in such a way that leaves pockets of unattractive rental space. Then re-lease the building to earn a higher aggregate rent;
- Buy a tired-looking shopping center and refurbish it. Through the new owner's national affiliations, give it more nationwide leasing clout;
- Buy an industrial park of warehouses and convert them to light industrial, inexpensive back offices, or special retail; or
- Buy a poorly managed hotel and install new, more aggressive management. (Hotels are classed as real estate, but they are more like operating businesses than passive real estate.)

Leverage

Leverage, borrowing up to 60% of book value, is one way that value-added real estate managers try to add return. As it adds volatility, leverage can increase the expected return and lower the correlation of the portfolio with stocks and bonds. But leverage is a double-edged sword. If the program is not successful, losses can be dramatic including loss of the property.

Leverage may make eminent sense for some real estate programs. But we should evaluate the appropriateness of our real estate manager borrowing at the prime rate plus X% while our bond manager is lending at prime minus X%.

Another key consideration of leverage is unrelated business income tax (UBIT). UBIT was established to keep tax-exempt investors from enjoying an advantage over taxable investors. The tax has applied, for example, to earnings resulting from acquisition indebtedness (leverage at the time of purchase). The rules do, however, allow for the tax-free use of leverage if done in certain ways. Therefore we will need to hire a competent tax adviser if we are a U.S. tax-exempt investor.

"The epitome of adding value is development. Development can earn the highest returns or, if unsuccessful, be the source of large losses."

Chapter 6 – Constructing A Successful Natural Resources Portfolio

"Though wisdom cannot be gotten for gold, even less can be gotten without it."

—Samuel Butler

"Natural resource returns are poorly or negatively correlated to stocks, bonds, and real estate."

—Clark Binkley

Natural resources include any hard assets extracted from above or below the ground. The sub-groupings are energy, timber, metals, and agriculture. Institutional investors traditionally allocate to energy and timber. Private investors and fund of funds allocate to all. There are four main types of investments:

1. **Commodity Indices.** A variety of commodity indices attempt to represent the performance of an asset class. Given the complications of trading and storing physical commodities, most investors trade the futures contracts instead. The indices measure an investment in the futures of various commodities. They are weighted by liquidity, annual production, or a combination of both. Because all futures contracts have a termination date, traders roll them forward using a common methodology. A wide variety of products provides index exposure. A total return swap is the simplest and lowest cost alternative. More complicated options-based and non-standard indices are a bit more costly. Liquidity can be daily.
2. **Commodity Traders.** A subset of hedge fund managers trades futures on physical commodities in a variety of fashions. The most common are discretionary commodity managers who examine underlying supply and demand fundamentals. Based on supply/demand imbalances, they trade long or short, both on an outright and spread basis. Trend followers use technical signals to capture larger directional moves. Relative value managers focus on spreads between related or proximate instruments. Some managers focus on the stocks and bonds of individual global commodity companies. Liquidity is most often monthly or quarterly. Those who trade futures systematically offer better liquidity than those who trade the physical commodity or structure private investments.
3. **Private Energy Partnerships.** There are enormous sums involved in finding, developing, and exploiting energy. Given this fact, the energy industry offers investors a number of choices. The 1980s and 1990s saw a secular decline in oil prices and under-investment in energy. Coupled with the growing demands from China, India, and Brazil, a potentially rich opportunity exists for investors. Most institutional investment is done through private equity partnerships in oil, gas, and other energy sectors. Private equity specialists in energy are few in number. But they offer expertise in evaluating the entire food chain, spotting bottlenecks, improving operations, and forecasting evolving opportunities. Some oil and gas partnerships are structured around individual exploration and production opportunities. These are organized mainly for private investors. Partnerships covering a broader range of opportunities are organized primarily for institutional investors. In both cases, investor commitments last a decade or longer.
4. **Timber.** Institutional investors began investing in timber in the late 1980s. Timberland investments are normally limited partnerships, which acquire, operate, and sell timber farms. Initially, they focused on North American forests, but increasingly they are also invested in the Southern Hemisphere. Timber management organizations offer access through limited partnerships lasting 10 to 15 years. A recent development has been the establishment of timber REITs (real estate investment trusts).

What Should A Natural Resource Program Produce?

Natural resources can be valuable additions to an overall portfolio because of their low correlation with stocks and other assets. With strong management, they can provide attractive returns and provide useful hedges against inflation. From the 1960s through recent years, natural resource indices outperformed inflation by roughly 5%.

Natural resources can be traded in a passive or active fashion. Passive programs normally involve commodity *futures* indices (not spot or cash), often with a heavy weighting toward various petroleum futures. Historically, returns follow large bull and bear market cycles.

Commodity markets offer many more inefficiencies for active traders. Their returns are a blend of market betas (commodity indices) and skill. As a result, returns are moderately correlated with raw materials indices but, especially on a risk-adjusted basis, can be greater than pure, passive investments.

The better energy partnerships blend private equity techniques to produce historically high returns. As a result, investors often ladder their private energy investments by vintage year, much like venture capital.

Timberlands were one of the past century's best investments, outperforming equities, partly because of rising land prices in the Pacific Northwest. Investments today are mainly in timber farms, as old growth can produce less and less of the world's timber needs. The price of timber has had strong cycles but with a modestly increasing trend over the long term. Well-managed timber farms can provide low double-digit returns.

Given the different return generation mechanisms, natural resource sub-categories bear little statistical relationship to each other. This allows investors to build attractive risk/reward portfolios. These real assets offer additional protection against rising (and unanticipated) inflation that normally impairs equities and fixed income.

What direction will commodity prices follow? Bullish cases come in two flavors:

- Malthusian[28] supply shortages brought on by emerging markets' rapid economic growth out-stripping the planet's physical production capacity (as in the case of agricultural commodities) or
- Outright production declines due to depletion of easily available supplies of nonrenewable commodities, such as Hubbert's Peak[29] theories on oil.

Supply can increase considerably in responses to higher prices, thereby moderating those price increases. Volatility may increase as more money and attention are devoted to these markets.

There is little evidence of the compression of embedded risk premium because index-related activity remains small relative to the total market size. Many commodity markets moved from backwardation to contango[30] a few years ago. This leads some to think that the risk premium disappeared. But backwardation is not synonymous with the presence of a risk premium. Instead, it can be an extra source of return to investors in commodity futures. Should the amount of capital deployed in indexed and active commodity programs become major ongoing allocations like stocks, bonds, and cash, the risk premium could decline.

> "Natural resources can provide attractive returns and provide hedges against inflation."

[28] Thomas Malthus (1766-1834). "The power of the population is indefinitely greater than the power in the earth to produce subsistence for man."

[29] Marion King Hubbert (1893-1989). Petroleum production begins at zero, reaches a peak, and then declines for any individual oil field, region, or globally.

[30] Contango is a condition in which the delivery prices for futures exceed spot prices due to the cost of storage as well as insurance of the underlying commodity. The opposite is backwardation. This is when near future spot prices are higher than later deliveries. This usually occurs because of excess of demand over supply.

"There will always be demand for the most highly skilled managers of commodity investments."

There will always be demand for the most highly skilled managers of commodity investments. Many less skilled traders will be disappointing. For energy partnerships, the search for crude oil and technological advances should offer ample opportunities to identify winners. But the area remains volatile. The price of oil tends to drive short-term results, and even in the course of a long-term uptrend, short- and even medium-term downtrends can easily occur.

Timber is a relatively small asset class, and especially in the U.S., the flood of institutional capital over the past 15 years dramatically increased prices and compressed yields. Opportunities in the Southern Hemisphere, where trees grow twice as fast as in the United States, remain promising for well-managed timber partnerships, subject to cyclical ups and downs in timber prices. Jeremy Grantham in his book, *All the World's a Bubble*, made the case that, because of its growth, low volatility, hedge for inflation, and lack of correlation, timber could conceivably warrant a risk premium lower than common stocks. But that has not occurred yet.

Best Practices In Natural Resource Portfolio Construction

Investors have a myriad of opportunities. Selecting the right type of exposure or the best active managers is crucial to the success of an investment program.

Passive Investing

The first allocation to commodities is often made through passive commodity index products. This can bring many of the benefits of commodities to the overall portfolio in a simple cash efficient and liquid allocation. The first decision is the choice of an index.

The various indices have dramatically different allocations to individual commodities, and they therefore have different risk/return profiles. The S&P/GSCI weights by annual production, which can be measured in various ways. The Dow Jones-AIG index weights primarily by the liquidity of the individual contracts. The Rogers Index weights by a combination of consumption and liquidity. In contrast, the Reuters-CRB index weights each underlying commodity equally.

Index weightings of gold and oil vary widely. Gold's weighting ranges from 1.6% in the S&P/GSCI to 7.4% in the Dow Jones-AIG. Reuters-CRB and Rogers split the difference at 5.9% and 3%, respectively. Crude oil sees even more dramatic variations in weightings—from 41% of the S&P/GSCI and 35% of the Rogers International, to 13% of the Dow Jones-AIG and 6% of the Reuters-CRB.

Given these differences, it is not surprising that index investors can have substantially worse or better outcomes than others, even over the medium term. From 2000 to 2007, energy was the best performing commodity group, with oil and gas up 12% to 13% per year and uranium up 19% a year. Not surprisingly, S&P/GSCI's energy-heavy weighting outperformed all the other indices by a wide margin. Such a tilt also brings much greater volatility to the index. Its beta is similarly dominated by the energy complex. The late 2008 energy sell-off disproportionately hit the S&P/GSCI with much greater losses.

Second, how an index "rolls" to the next contract can impact returns. Rules generally stipulate that the investment will be in the near-month contract and that the roll from one to another happens on a specific day at the close of

trading. Liquidity may be concentrated in various months, however, and the roll may instead skip ahead to the next liquid month.

Third, investors must choose their exposure. There are three components to the return of a commodity futures program:

- The change in the spot prices of the underlying commodities,
- The return from rolling expiring contracts to near months, and
- The return on the collateral posted to satisfy margin requirements.

Investors can usually choose between spot indices, excess return (spot plus roll), and total return (excess plus futures collateral). Most indices assume a *fully collateralized* futures program. This means the full notional exposure is backed by cash instruments rather than only the required margin (around 5% of notional).

We must also consider what instrument best suits our needs. Often exposure is obtained through simple total return swaps with a bank or investment bank. There are also futures on the indices as well as variations on exchange-traded funds (ETFs). The Chicago Mercantile Exchange offers futures on the S&P/GSCI while the Chicago Board of Trade offers them on the DJ-AIG. Due to regulatory issues, ETFs cannot hold commodity futures. Instead, companies have floated exchange-traded notes that use swaps to provide the same exposure within regulatory guidelines. Any complications beyond simple exposures materially add to the cost of obtaining exposure. If the goal is for passive exposure, it is difficult to justify the additional complications or costs.

Discretionary Commodity Managers

Discretionary commodity managers follow a different approach than commodity trading advisers (CTAs). Most use deep analysis of fundamental supply and demand trends to generate positions through futures contracts (and occasionally options or equities). A minority may also trade physical commodities. While large moves are not necessary to produce returns, large moves are necessary in individual commodities or in the spreads between them. Since these appear more often during commodity bull markets, good returns indirectly depend on upward trending markets.

Commodity equities managers are basically common stock hedge managers focusing largely on commodity-related companies. They are distinct from other long/short equity managers because their opportunity set is a function of commodity price moves. They produce superior returns when they correctly anticipate these moves *and* correctly forecast how these moves will play through their companies' balance sheets, and how management and other investors will react.

Commodity relative value managers are much smaller in number and tend to trade spread relationships between commodity futures or between the physical and futures markets. An example is calendar spreads where a manager will go long December versus short June natural gas to play the slowdown in demand normally seen in the summer.

Key considerations in hiring discretionary managers of commodities include:

1. Consider the quality and talent of the fund's principals. Do they have deep experience, an understanding of supply and

"The scarcest resource isn't oil, gas, coal, or uranium—it's management talent. It's best to find a proven and experienced operating team and keep investing with them."

demand in the relevant commodities, and the ability to trade equities and futures (and possibly provide physical delivery as well)?

2. More importantly, understand how discretionary commodity managers manage risk and collateral. Futures have the advantage of liquidity. It's possible to trade out of money-losing positions at a low price when viewed in terms of trading costs. Futures also have linear payoffs so losses are theoretically unlimited. Stop losses are often used to handle this. Risk management is critical in this strategy. An independent risk manager who liquidates positions by hitting a stop is better than relying on the trader who initiated the position.
3. Size is normally the enemy of performance. Do the managers' business and operational infrastructure support their type and quantity of trading? Are they adequate for the size of assets they trade? A large manager who trades infrequently may need less operations support than a smaller one who turns over the portfolio every few days.
4. Does the manager possess integrity and put the needs of the client first? Does the manager offer a fee arrangement that is fair compensation for value-added and rewards investors for the risks?

"Size is normally the enemy of performance."

Discretionary management of commodities is different from "managed futures," as described in Chapter 3 under hedge funds. Both are managed by commodity trading advisers (CTAs). The difference is that the CTAs who invest in "managed futures" trade not only physical commodities but also financial commodities, such as interest rate futures and foreign exchange, and they rely mainly on technical (price) information rather than fundamental supply/demand information. Their returns are little correlated with pricing cycles of physical commodities.

Private Energy

Private energy includes managers specializing in the energy sector, including direct investments in oil and gas producing properties. Selecting managers involves the same six steps as selecting quality private capital:

- Sourcing managers,
- Performing due diligence,
- Negotiating partnership terms,
- Funding commitments,
- Ongoing monitoring of the investments, and
- The rebalancing or exiting of the investment.

The energy sector adds a further twist—a specific skill set for exploration and production. It is a highly complex business. Ph.D.-level geologists and computer scientists search for wells; the wells are worked by roughnecks who are brought to deep-water platforms by specialist helicopter pilots. Investors should hire managers with operating skills in all of these areas plus financial and deal-making skills. The scarcest resource isn't oil, gas, coal, or uranium—it's management talent. It's best to find a proven and experienced operating team and keep investing with them.

As part of our due diligence, we need an in-depth understanding of the geology and economics of the properties, the management team's operating abilities, legal structures and cash controls, and the backgrounds of the professionals involved.

Timberlands

Selecting timberland investments seems fairly straightforward. The timber fund's manager buys a forest and then begins to harvest and re-plant, ideally leading to a forest with relatively equal amounts of each age tree. Most

institutional investors use partnerships, which typically have a three-year investment period. Most greenfield plantations (newly planted forests) take 25 to 30 years to grow. The lifecycle of a partnership is generally 10 or more years, so the opportune timing of the sale of the forest is important.

The quality of the investment manager and the staff is crucial—people skilled in evaluating timberlands, forestry management, and negotiating transactions. The initial price paid for a forest is a key determinant of ultimate return. But operational expertise can also make a material difference during the planting, thinning, trimming, and selling to squeeze the maximum dollar value out of every acre of forest.

Most timber investors participate through partnerships with multiple investors. Harvard and several other large institutions are the exception. Harvard has employed six foresters and prefers to own 100% of a property if the opportunity is good. That way, investors can hold onto forests if they choose rather than being in a partnership that sells them at a mandated partnership end date.

Combining, Sizing, And Rebalancing Positions

When it comes to building portfolios within the four sub-categories, we should consider the following:

- For commodity indices, the index providers decide the weightings. We must decide which index and how to obtain and fund exposures.
- For discretionary commodity traders, the principle of equal weighting of risk would be a starting point. Directional, relative value, and multi-strategy managers do not share the same risk levels. Margin-to-equity is a common measure of risk for commodity futures. Simple equal-dollar weighting will produce highly skewed portfolios from a risk perspective.
- Seasoned private energy managers stress the importance of having a macro view regarding attractive themes. These forces provide a "wind at your back" as managers choose among resources, services, equipment, and energy alternatives. Equal weighting of these kinds of energy investments might be theoretically optimal, but opportunistic investing should take precedence. Over the duration of a typical partnership the waxing and waning of relative attractiveness means that the partnership may end up equal weighted. An equal risk weight as a default, with some tilt toward attractive opportunities or particularly talented teams, is probably best.
- Timberland investors should strive for geographic diversification, including several locations in the Southern Hemisphere, as well as in a range of wood types. And again, because of the cyclical nature of timber pricing, it helps to diversify timber partnerships by vintage years.

> "The various natural resource investments are attractive because of their potential returns and their low correlation with the common stock market and also with each other."

Chapter 7 – Good Governance: The Crucial Element

"Important principles may and must be inflexible."

—Abraham Lincoln

"To be successful, committee members must become generalists and be open to growth and differing perspectives."

What Is Governance?

Financial decision makers for institutional investors such as pensions and endowments are fiduciaries and are held to very high standards by law. The chief investment officer (CIO) and support staff may devise a well-structured portfolio. However, it won't mean a thing if the investment committee doesn't understand the underlying rationale. This is necessary for policies to stand the test of time, especially times of market turbulence.

An investment committee makes the final decisions but typically devotes relatively few hours per year to the fund. The committee must have a competent staff (or consultant). One of the staff's foremost responsibilities is the continuing education of committee members. This is especially true in developing areas of asset allocation, liquidity, leverage, and conflicts of interest. Lower value decisions, such as implementation, can and should be delegated to professional staff devoted day-to-day to making those decisions.

Why It Matters

Much value can be created or lost at the governance level, depending on the depth of understanding of the investment committee. The committee may consist of outside investment professionals. This is often the case of endowment committees at large universities. Committees may also be composed of intelligent, responsible individuals who are not investment experts. However, with continuing education about best practices and investment strategies, they can gain an adequate depth of understanding.

Committee members who are investment professionals often contribute valuable experience and contacts to the committees and the staff. If their experience only focuses on particular investment areas, they may be less comfortable considering recommendations about other investment avenues. To be successful, committee members must become generalists and be open to growth and differing perspectives. They must also keep an open mind to new or different ideas.

One of the structural advantages endowments (and some foundations) have is their boards. Members are often large donors or prominent alumni who have likely attained a measure of success. They have broad experiences, developed networks, and a deep and emotional investment in the institution. In contrast, American corporate pension plan investment committees are more often composed of executives from within the sponsoring company. Public sector plans' boards include political appointees, with considerable conflicts of interest built in, incentives to minimize risk-taking, and limited expertise in many of the strategies pursued.

Conflicts can arise if the plan sponsor or a committee member has a special relationship with an investment firm. It is appropriate and often helpful for a fiduciary to ask the CIO to meet with certain investment managers known to the committee member. But it's not appropriate for a fiduciary to pressure the CIO to alter the criteria for hiring a manager or otherwise to give preferential consideration. Furthermore, a committee member should recuse herself in all matters concerning investments in her fund.

Functions Of The Investment Committee

The committee's foremost responsibility is approving the fund's investment objectives. Those objectives should be developed in the context of the needs and financial circumstances of the particular institution, not simply policies that are easy to measure performance against. Must the institution rely only on the current amount of assets presently in the portfolio? Can additional contributions reasonably be raised? How much does the fund sponsor rely on the annual income it receives from the fund?

In any case, the CIO should lead the committee, providing continuing education as a first priority and a cohesive approach as the second. The CIO and staff can't be going in one direction and the investment committee another.

The investment committee must first adopt a written operating policy. This policy addresses committee membership, meeting structure and attendance, and committee communications. The committee's written operating policies should specify which actions are in the sole discretion of the CIO and which actions must first be approved by the committee.

The next step is to adopt a written statement of investment policies. These policies should include one or more benchmark portfolios that will serve as a metric to evaluate multi-year portfolio returns. The committee then must decide whom to hire and retain as investment managers or delegate that responsibility—a substantial responsibility—to the CIO and staff. Since the committee meets for only a relatively few hours each year, it must rely on its CIO and staff (or a consultant) to do the research and make recommendations.

> *What is the difference between competent and incompetent boards? Competent boards have a preponderance of people of character who are comfortable doing their organizational thinking in multi-year time frames. These people understand ambiguity and uncertainty, and are still prepared to go ahead and make the required judgments and decisions. They know what they don't know. They are prepared to hire a competent CIO and delegate management and operational authority, and are prepared to support a compensation philosophy that ties reward to results.*
>
> —Keith P. Ambachtsheer and D. Don Ezra, *Pension Fund Excellence*, John Wiley & Sons, Inc., 1998, p. 90.

Committee members must recognize their reliance on the staff. Their greatest responsibility is to choose the staff and/or consultant. The committee should expect to approve most of the recommendations made by the people they select. If they lose confidence in their staff or consultants, they will need to select new ones in whom they can place their confidence.

The Staff/Committee Relationship

The staff must be the experts and the ones who do the work. But they should always remember that the fiduciary committee has the obligation of establishing objectives and policies. The committee makes or delegates the investment decisions and shoulders the ultimate responsibility.

> "The CIO needs to be a steward of the institution and refrain from playing the performance horse race. Being average is actually a skill."
>
> —André Perold

> "The staff's primary responsibility is to provide continuing perspective and education to the committee members."

The staff's primary responsibility is to provide continuing perspective and education to the committee members. In cases where there are few, if any, committee members who already possess a broad grasp of best practices, it is up to the senior staff members to teach the committee members. Education—including the setting of realistic expectations for return and volatility—should be done on a continuing basis. The staff should relate each decision opportunity to the fund's investment policies.

The CIO and staff may come upon investment opportunities that are highly attractive but off the well-trodden path of institutional investors. These require much greater due diligence and more careful explanation to committees. But these less conventional opportunities, if they pass this test, can add valuable diversification to a fund's overall portfolio.

The ultimate test should not be, "What are our peers doing?" Rather it should be, "What is best for our particular fund?" and "How are we doing against our benchmarks and needs?" To the extent we are concerned about our peers, we should monitor the most successful investors in similar situations whose sponsors have approximately the same resources.

Committees need to understand that there are years when their fund, if broadly diversified according to best practices, will underperform more traditionally invested funds. But committee members must learn to evaluate such relative performance over longer intervals. For the overall portfolio, qualitative benchmarks should be evaluated over multi-year intervals; quantitative benchmarks over much longer periods.

Committee Meetings

The committee should set the number of required meeting dates a year in advance to allow members to plan their calendars accordingly. Committee members should make every effort to attend all meetings—if not in person, then by conference call.

If an urgent matter arises that can't wait for the next scheduled meeting, a special meeting should be called. If a matter is simple and routine, the staff can avoid a special meeting by circulating to committee members a "consent to action," which, when signed by a majority of the committee, authorizes action.

In any case, relative to recommendations, the staff should send committee members full presentation materials several days before each meeting. By reviewing these materials in advance, members will be prepared to ask better questions at the meeting. The danger is that committee members may decide how they will vote prior to the meeting. Advanced preparation should lead to questions, not preconceived decisions.

Evaluating Performance

Some investment policy statements include the goal of matching or beating market benchmarks and/or some perceived peer group. This can be dangerous. Charley Ellis notes that outperforming markets and the "better-rate-of-return-than-the-other-folks" goals for investing have gotten way too much time and attention and are leading people away from focusing on what really matters.[31]

How do we evaluate the performance of our portfolio? The Policy Portfolio has historically formed a "passive" benchmark against which the outcomes of the investment process can be

[31] The Greenwich Roundtable's symposium presentation on "Contemporary Perspectives in Investment Policy," Nov. 15, 2007.

measured. Comparing the return with that of our benchmark Policy Portfolio[32] is only one part of the process.

We should also compare the actual results to those of our "allocation benchmark," which is the compound difference between our actual return and the quarterly return on our individual managers weighted by our actual allocations at the beginning of each quarter. Then the difference between the Policy benchmark and the allocation benchmark is the value added (or subtracted) by our deviations from the allocations of our Policy Portfolio.

These metrics are most helpful with the liquid portions of our portfolio. Illiquid positions, with their non-market-tested quarterly valuations, only muddy what we can learn from these metrics.

Such value added, of course, is history. Our focus should be on continuing to source and invest in order to modify our portfolio to strengthen future returns. There are two parts to every result: skill and luck. Focusing on results, except over very long periods (such as five years), emphasizes luck.

Meeting Topics

One meeting a year should be designated for an in-depth review of the prior year's performance. This should include a performance analysis of the fund and of each manager in the context of various market averages and established benchmarks. Quarterly full-blown performance presentations are a waste of time for the committee and the staff. Time is better devoted to activities more likely to benefit the bottom line.

Staff presentations should concisely cover the key questions the committee *ought* to ask. Presentations should cover only the salient points. They should not overwhelm the committee with more information than it can absorb. Staff members should have a rich depth of additional information and background so they can answer—knowledgeably and briefly—any question that might arise.

Candor is perhaps the number one criterion. The staff must gain and retain the committee's complete trust. The staff must be forthright about negative news or negative aspects about a particular manager.

Meeting The Managers

Investment managers should be brought before the committee when they serve an important educational purpose. This would include helping the committee understand new asset classes or new ways of managing a portfolio. It may include existing managers of the sponsor's fund, ones under consideration, or world-class independent investment professionals.

It is sometimes customary for committees to meet recommended managers. At times they meet "finalist" managers one after the other. But in 20 to 30 minutes, a committee's interview can be little more than superficial. The committee can, at best, determine a manager's ability to articulate. Eloquence, however, has a low correlation with investment capability. Committee members cannot bring the staff's perspective of having met with hundreds of managers. Nor can the committee do the kind of homework the staff should have done. The committee's decision ultimately comes down to whether the committee has confidence in the staff and believes the staff has done its homework adequately.

> "Crowds get diverse information. Committees get homogeneous information, and people are reluctant to express unique views. They suffer from dysfunctional politeness."
>
> —Arnie Wood

[32] Calculating the return of our benchmark Policy Portfolio is straightforward for standard asset classes – we simply use the passive index return for each asset class. Benchmarks for hedge funds, however, are more difficult. Hedge funds, by definition, don't have a passive index. Instead, we can use relevant hedge fund strategy indexes. Or, alternatively, some investors simply use T-bills or Libor plus the minimum incremental return they would expect in order to invest in a hedge fund.

"David Swensen's client is Yale University. His portfolio was underwater for several years, and he managed to keep his job. The real hero was the Yale Investment Committee. They were the buffer between the administration, the alumni, and the appearance of imprudence."

—Peter Bernstein

Bringing managers to the committee for performance reports is rarely helpful. Their reports generally cover their outlook for the economy, their interpretation of the account's recent performance, and recent transactions. The reports are superficial and myopic. A cogent, concise report by the staff can do a better job of surfacing issues and placing things in a helpful perspective for making decisions.

Working With New Committee Members

The staff should make a special effort to bring a newly appointed committee member up to speed. The staff should supply the new member with key documents. These include the fund's objectives and policies and its target asset allocation, together with their underlying rationale.

Understanding the *why* of everything is critical. One-on-one sessions with the CIO may be needed to supplement key documents. A brief meeting with the fund's legal counsel to outline the committee member's legal responsibilities may also be helpful.

What Can Smaller Funds Do For Staffing?

If the fund sponsor is too small to afford hiring a first-rate staff, it can either hire a consultant that performs some specific staff duties or outsource the entire staff function to a firm that takes it all on.

Sponsors of funds that can't afford a first-rate consultant should recruit one or two investment committee members who are broad-gauged investment professionals and are familiar with best practices. That member (or members) should be appointed to an investment subcommittee or working group, which would be responsible for making recommendations to the full committee.

Even larger fund sponsors sometimes find an investment subcommittee useful. It can work most closely with the fund's consultant, review the consultant's recommendations in advance, and help prepare the agenda for each meeting.

"One of the single biggest mistakes we make is taking irrelevant information and building it into a generality. Then everyone (on the committee) confirms that generality. This is confirmation bias."

—Arnie Wood

We, As CIO and Staff, Ask of Committee Members:

1. Keep an open mind and be willing to consider new investments and investment managers. Ask hard questions, lots of them. Make us prove to you that a new kind of investment or a new manager, net of fees, will add to the portfolio's expected return and either maintain or reduce the committee's expected portfolio risk.

2. Be willing to consider illiquid investments, provided our portfolio will remain liquid enough to meet all of our contingent payout obligations.

3. Relative to our policy allocation to illiquid asset classes, allow us the years and flexibility to build a diversified portfolio on an opportunistic basis.

4. Be willing to consider out-of-favor strategies or opportunistic investments that cause deviations in asset allocation if we provide a convincingly strong case.

5. For a pension fund, be willing to consider creative ways to hedge the plan's liabilities.

6. Understand that performance relative to the committee's policy benchmarks is more important than performance relative to peers. This is especially true in the short- to medium-time frame with market-valued investments.

7. Review written recommendations in advance of a meeting. Do so in order to develop hard questions, not make up your minds in advance. Ask difficult but fair questions to raise the bar for both the staff and the committee.

8. Expect the staff to give full consideration to an outstanding manager or investment opportunity that a committee member might suggest, especially if the committee member can provide a useful contact. However, do not expect that the staff will necessarily recommend the opportunity.

9. Don't insist on meeting all our recommended investment managers. The committee will not have time to meet all managers of an adequately diversified portfolio. Understand that in a half-hour meeting with an investment manager, committee members will only be able to evaluate the manager's articulateness, not investment prowess.

10. Investing is a never-ending acquired skill. Staff and the committee will grow with experience.

"Investing is a never-ending acquired skill. Staff and the committee will grow with experience."

We, As Committee Members, Ask Of The CIO And Staff:

1. Help us establish a viable policy benchmark for our portfolio. Report on a routine basis portfolio performance relative to that benchmark, especially on portions that can be market-valued quarterly. How much of the difference from the benchmark is due to deviations from policy allocations, and how much to managers' performance relative to their respective benchmarks?

2. Relate each individual recommendation to the organization's investment policy.

3. In recommending a new investment manager, help us understand the predictive value of the manager's track record, including its relevance to the current environment.

4. For any recommendation, help us understand its expected impact on our portfolio under a worst-case scenario.

5. Be prepared to explain why you are equipped to make sound judgments about new kinds of investments.

6. Pursue continuous improvement. Seek new managers who you believe will perform materially better than an existing manager. Recommend a change even if the existing manager has done a good job.

7. Be prepared to research any new manager or investment opportunity that a committee member believes worthy of consideration.

8. Provide reports and recommendations well in advance of each meeting. Don't snow us with more material than we can reasonably be expected to read. Be prepared to answer detailed questions at the meeting.

9. In reports, emphasize the "so what?" about manager performance.

10. Provide transparency. Distill information down to a summary that allows a reasonable person to ask intelligent questions about what you're proposing to do.

11. Provide us with an understanding of the process in which the valuation of the portfolio was derived. Are the risks being taken consistent with the risk that was expected? What are the metrics that you use to confirm your belief in the process?

> "Relate each individual recommendation to the organization's investment policy."

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"Liquidity providers can often be paid a premium when capital markets are closed and a company needs financing."

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"An asset class should offer unique investment return opportunities not available in other investment vehicles."

—Tom Schneeweis

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—John Dickerson

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"Correlations can zoom to one during market dislocations, as happened in 2008."

NOTES

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