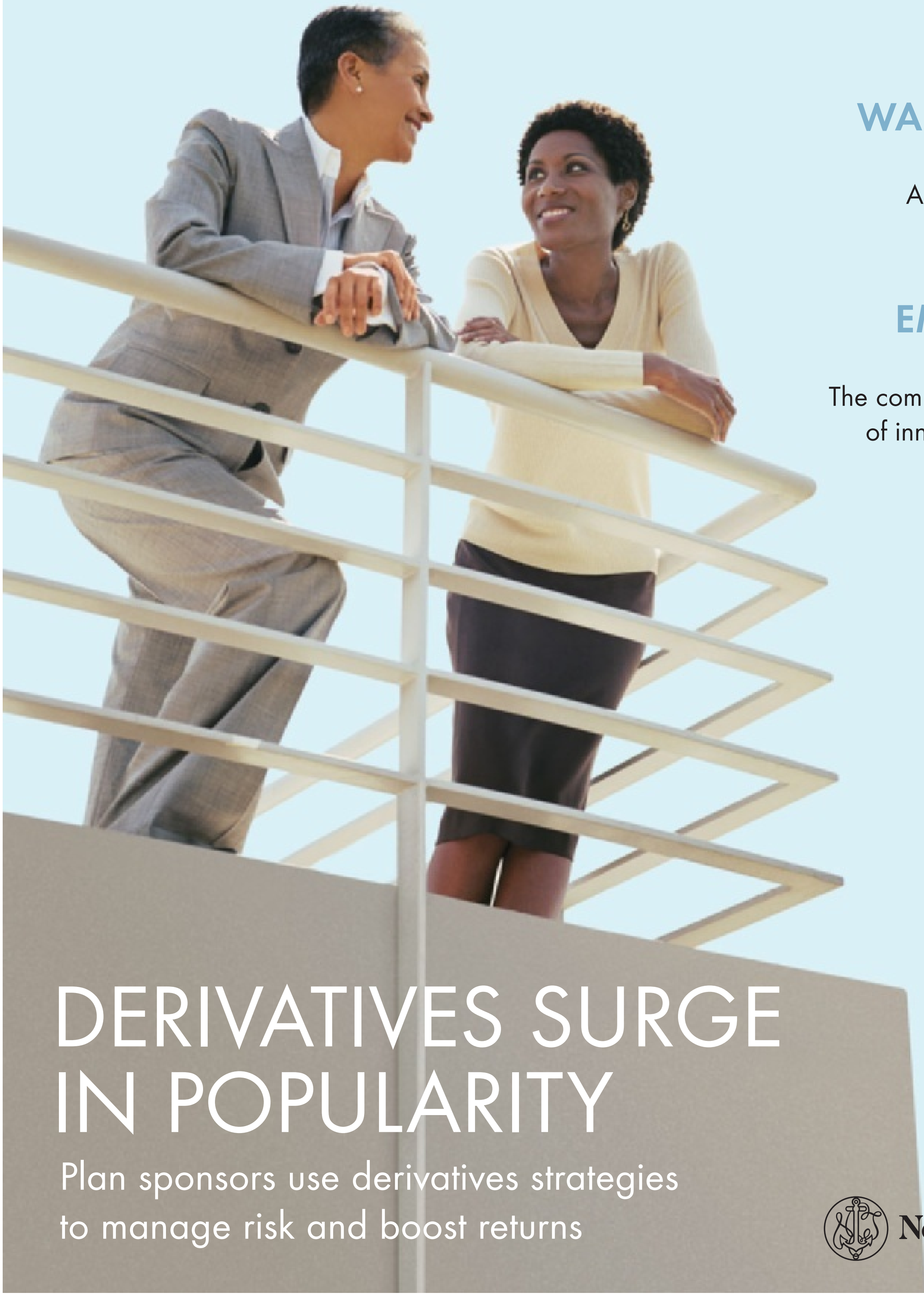
POINT OF VIEW

GLOBAL INVESTMENT SOLUTIONS FROM NORTHERN TRUST

October 2007



WALKING THE BETA LINE

Adding value in the hedge fund world

EMPLOYING LEVERAGE

The common denominator of innovative strategies

DERIVATIVES SURGE IN POPULARITY

Plan sponsors use derivatives strategies to manage risk and boost returns

Northern Trust

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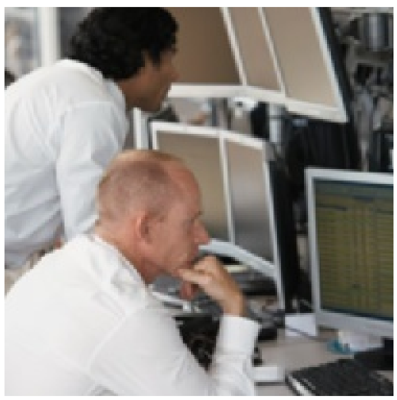

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Northern Trust

Point of View is published quarterly by:
Northern Trust
50 South La Salle Street
Chicago, Illinois 60603
pointofview@ntrs.com

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Expanding the Efficient Frontier

Managers and clients must use new strategies and an evolving investment landscape to their advantage.

By Chris Carlson

It is striking to look across the asset management business and witness so much change. Around the world, investors are experiencing unprecedented challenges that asset management firms are just beginning to address. Pension plan funding pressures, changing demographics, normalized investment returns and increasing regulation are just a few megatrends changing our business.

Institutions are responding by shifting the burden for financial planning to the individual, and requiring more cost-efficient capabilities from asset managers. Clients are looking at existing investment frameworks and realizing capabilities that seemed to make sense just a few years ago are now inadequate to fund their future needs and aspirations.

A Need to Adapt

Initially, asset management firms were slow to respond, overwhelmed by so much turmoil resulting from the bursting tech bubble and the growing importance of alternatives. But recent asset management innovations are giving us a glimpse into the future of our business.

Whereas we once took an approach defined by long-only, style box confined capabilities, allocated through traditional methodologies, today's tool box takes a much more sophisticated approach to portfolio construction. Driven by an increasing reliance on risk budgeting, managers and clients are partnering to build portfolios that have absolute return goals, incorporate active extension capabilities and, where benchmarks are used, often focus on nontraditional standards such as liability-driven requirements.

As a result, the skill set incorporated by clients and investment professionals who seek success in this new world will be substantially different. Traditional portfolio construction, monitoring and execution are no longer enough. Successfully helping clients meet their needs will require advanced risk-management skills, financial engineering capabilities and structuring competencies to package investments into focused financial solutions. No longer can managers simply focus on providing alpha and/or beta return. Beta return now comes at a rational price, alpha return must be consistently sourced and the two must be paired in a portfolio that can meet the client's future needs.

More Sophisticated Solutions

This approach is pushing investors to increase their use of derivatives and incorporate asset classes that were previously considered alternative. It also is driving traditional and alternative investment management skill sets to converge. Successful firms of the future must be able to tailor more sophisticated investment solutions than in the past.

As we arrive in this new asset management world, clients will benefit greatly. New capabilities such as portable alpha and structured products, combined with a renewed focus on liability-driven benchmarks and risk management, will allow managers and clients to partner in constructing investment portfolios that are more tailored to each client's individual needs. ❖

CHRIS CARLSON

Managing director of strategic development for Northern Trust's global investment group

Derivatives Surge In Popularity

Plan sponsors' use of strategies to manage risk and boost returns fuels explosive growth in the derivatives market.

As institutional investors embrace the use of derivatives-based strategies for minimizing risk exposures and enhancing performance, they have grown more comfortable with the contracts and pushed the derivatives market to new heights.

At the end of 2006, the notional value — or principal amount used to calculate payments on contracts — of outstanding over-the-counter (OTC) derivatives stood at a tremendous $415 trillion globally, as measured by the Bank for International Settlements (BIS), a Basel, Switzerland-based clearinghouse for central banks. That represents an increase of 39.5% from the previous year. Another $87.1 trillion worth of exchange-listed derivatives — $30.4 trillion in futures and $56.7 trillion in options — were outstanding as of March 2007. In all, between June 1998 and December 2006, global derivatives markets surged at an annualized pace of 21.3%.

Exchange-listed derivatives such as futures contracts on the S&P 500, are as carefully regulated as any other listed security. OTC derivatives are private contracts between two parties. One of the most frequently traded OTC derivatives is an interest-rate swap where payments are made between counterparties based on LIBOR.

A Hedge Against Volatility

The surge in popularity of derivatives-based strategies is in part due to the increasing need among investors to manage risk. For example, multinational corporations might be active in currency derivatives to hedge their exposure to exchange-rate volatility, while many pension funds are drawn to interest-rate swaps because they offset a significant amount of their interest-rate exposure.

"Interest-rate swaps, which are contracts where two counterparties exchange one stream of interest for another, help hedge risks relative to pension plan liabilities," says Lee R. Freitag, product manager for liability driven investing (LDI) strategies at Northern Trust. Interest-rate swaps are an effective solution to help match assets to liabilities and lessen surplus volatility, he says.

For example, a pension plan with fixed payments to beneficiaries might pay a floating rate of interest in exchange for a fixed-income stream that matches its benefit obligations. "There are two advantages to this approach. One, you've secured a payment stream for your beneficiaries. At the same time, you've hedged your liability value against adverse movements in interest rates," Freitag says.

To hedge the funding gap, swaps can be implemented at different points along the yield curve. "Because a pension plan's future liabilities are discounted using current interest rates, when rates decline the plan is exposed to a potentially large funding gap," says Greg Dennerlein, strategist, alternative solutions group at Northern Trust. "Moreover, there's a duration mismatch between a plan's assets and its liabilities. When rates decline the present value of liabilities grows and that increase potentially could outpace any increase in asset value."

Pension plan sponsors need an instrument that increases in value when rates decline and that is flexible and liquid enough to extend portfolio duration by 30 years or more, he says. This is exactly what a fixed-rate swap can accomplish, and Dennerlein notes that not many bonds on the cash market have these long maturities. Interest-rate swaps accounted for 69% of the notional value of all derivatives outstanding at the end of last year, as measured by BIS.

"Interest-rate swaps are an effective solution to match assets to liabilities and lessen surplus volatility."

— Lee R. Freitag, product manager for liability driven investing strategies at Northern Trust

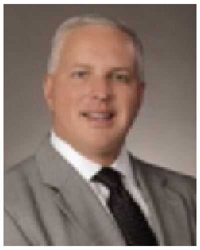
Efficient Credit Exposure

Credit default swaps (CDS) — which act as a form of insurance against default on a corporate loan or bond — make up the fastest growing segment of the derivatives market. Although these contracts comprised only 7% of the total notional value of derivatives at the end of 2006, the segment has grown at a staggering 112% annual rate during the past two years.

"Investors can use credit default swaps to reduce the level of credit risk inherent in certain securities," Freitag says.

Investors also can use credit default swaps to gain exposure to credits. "Investors can customize their exposure by specifying the terms, such as notional amount, underlying, maturity and currency. They are very flexible, and protection can be sold to generate additional portfolio income," Dennerlein says. "Unlike a cash bond where an investor gets credit and duration exposure, a CDS is a pure credit play."

This type of derivative instrument is appropriate for investors who want to gain broad market exposure to either a customized basket or an index, Dennerlein says. "In addition, single-name credit default swaps are quicker to implement and in many cases, more efficient than trying to find the cash bonds, which



"Investors can customize their exposure by specifying the terms, such as notional amount, underlying, maturity and currency. [Credit default swaps] are very flexible, and protection can be sold to generate additional portfolio income."

– Greg Dennerlein, strategist, alternative solutions group at Northern Trust

may not be available due to limitations of maturity, currency or size because of supply-demand imbalances."

For relative-value managers who want to short a bond, credit default swaps also can serve as a convenient solution. "If an investor wants to go short in the credit derivatives market, the cost is known and it's fixed for the life of the contract," Dennerlein says. "In the cash market, shorting a bond is often difficult and costly."

The Search for Increasing Returns

The growth in the derivatives markets also can be traced to investors searching for ways to capture increasing returns outside of traditional portfolio management.

Within the pension plan market, plan sponsors are considering derivatives as a complement to their existing manager programs. In this case, derivative strategies can be employed by pension plans seeking to enhance returns as they strive to fully fund their plans in the face of new accounting and pension regulations. Portable alpha strategies, where derivatives are used to selectively choose sources of portfolio alpha and beta, have grown in popularity.

Hedge funds commonly utilize derivatives to capitalize on movements in all asset classes, including currencies, interest rates and credit markets. Hedge funds are prominent players in the credit default swap market, accounting for about 25% of the credit default swap volume.[1] Often, leverage is used in the portfolio construction process, which means funds can obtain much more market exposure with less capital. This market exposure is obtained through the use of derivatives since the full notional amount invested does not need to be paid at contract initiation. The use of leverage in this case must be carefully monitored, as adverse market movements coupled with leverage can exaggerate losses.

Another use of derivatives is structured products, which seek to enhance returns through the use of stock options. Products in this space use options to provide investors with multiples of index returns. A common structured product can be designed to deliver expected returns of three times the S&P 500 return on the upside with one times the downside exposure.

The growth in the derivatives markets also can be traced to investors searching for ways to capture increasing returns outside of traditional portfolio management.

Commodities

Commodity contracts represent the smallest amount of notional OTC derivatives outstanding, with just $6.9 trillion as of December 2006. These contracts represent forwards, swaps and options on metals, grains, livestock and other physical commodities. This derivatives market has grown 39.6% per year, on average, since June 1998. Investors taking directional positions on the commodity markets, manufacturers hedging future commodity deliveries and companies hedging future commodity purchases are all users of commodity-based derivatives.

If an investor is seeking to reduce risk, structured notes linked to a commodities index allow investors to define their downside exposure. "It can range between zero protection to 100% principal protection," Dennerlein says. "Although 100% principal-protected notes might not be efficient for taxable investors, because of the 'phantom income' they generate, they work very well in a tax-exempt portfolio or qualified plan."

Safeguards

Skilled experts should evaluate every contract's potential risks, which largely involve the creditworthiness of each party in the transaction. The International Swaps and Derivatives

Association (ISDA), a New York-based trade organization, has standardized the template for use in counterparty negotiation and set up the "Credit Support Annex" to spell out guidelines for both sides to post collateral, typically cash. ISDA does not, however, actively manage or monitor collateral. The counterparties are responsible for that process.

In the United States, the Bankruptcy Abuse Prevention and Consumer Protection Act of 2005 also has helped bring derivatives out of the shadows. The legislation mandates immediate resolution of financial contracts — including derivatives — if either party files for bankruptcy or is otherwise unable to meet its obligations.

A Growing Wave

The U.S. Pension Protection Act of 2006 (PPA), which requires full funding of corporate defined benefit plans by 2013, is expected to further increase the demand among institutional investors for strategies such as LDI.

"We have about seven years before U.S. corporate pension plans are required to be 100% funded. This deadline is driving a good deal of the interest among plan sponsors to consider derivatives-based strategies in order to meet this requirement," Freitag says.

The PPA followed similar legislation in the United Kingdom and the Netherlands that sparked the greater use of derivatives by pension funds in those countries.

Institutional investors' desire to hedge various risks and to identify opportunities for higher investment returns will be the driving force behind the increased acceptance of, and comfort with, sophisticated derivatives-based investment strategies and should ensure the continued growth of the derivatives market. ❖

[1] *Brad Bailey; Wall Street & Technology "Trading Credit Derivatives: The New Frontier"*

GLOBAL MEGATRENDS

Today, and over the foreseeable future, a series of events — call them global megatrends — will have a profound impact on the world economy. Each issue of *Point of View* will share insight into these trends and how the institutional investment community is preparing to address them.

Greater Acceptance of "Alternative" Investments

As the population in industrialized nations grows older and worker-to-retiree ratios decline, pension plan sponsors increasingly are looking beyond traditional investment strategies to innovative approaches to fund pension liabilities. Strategies such as hedge funds and private equity, that five or 10 years ago were considered "alternative," have gained broader acceptance among pension plan sponsors. Many of today's investment innovations, such as derivatives and other synthetic instruments, are being spawned by the need to fulfill future pension obligations.

Alternative Allocations Of Top 200 U.S. Pension Funds ($ billions)

Plan sponsors increasingly are turning to the use of alternative strategies and asset classes to address their plans' underfunded liabilities. The trend is being spearheaded by some of the nation's largest pension plans.

	2006*	2005*
Overlay	$74.0	**
Portable alpha	$32.7	**
Hedge funds	$50.5	$29.9
Direct investments	$23.1	$13.1
Funds-of-funds	$27.4	$16.8
Commodities	$3.8	**

	2006*	2005*
Venture capital	$23.7	$21.0
Buyouts	$71.0	**
Distressed debt	$8.3	$6.0
Energy	$1.5	$3.0
Other private equity	$28.7	**
Other alternatives	$4.3	**

* As of Sept. 30

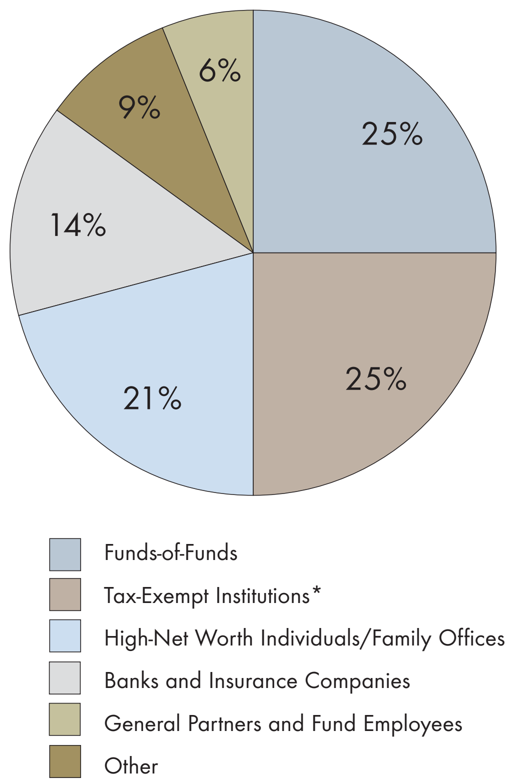
** New or modified category without comparable 2005 data.

Source: Pensions & Investments (Jan. 22, 2007)

Institutional Appetite For Hedge Funds

Direct investment by global institutional investors — corporate and public pension funds, endowments and foundations — represented 25% of the assets of the world's largest hedge funds in 2006. In addition, about 22% of U.S. institutions expect to increase their allocations to hedge funds.

Source Assets for Hedge Funds



* *Endowments, foundations, corporate pension funds, public pension funds*

Source: Greenwich Associates/Global Custodian Study

"Institutions choose to invest in funds-of-funds to access their diversification, risk controls and general industry expertise."

— Karan Sampson, hedge fund specialist, Greenwich Associates

The Global CDO Market

Collateralized debt obligations (CDOs) – securitized interests in pools of loans or debt – grew as a result of institutional investor demand. While interest in 2007 is up 35% from the year earlier period, it is expected to cool, in part due to subprime mortgage issues.

CDO Issuance By Underlying Collateral ($ millions)

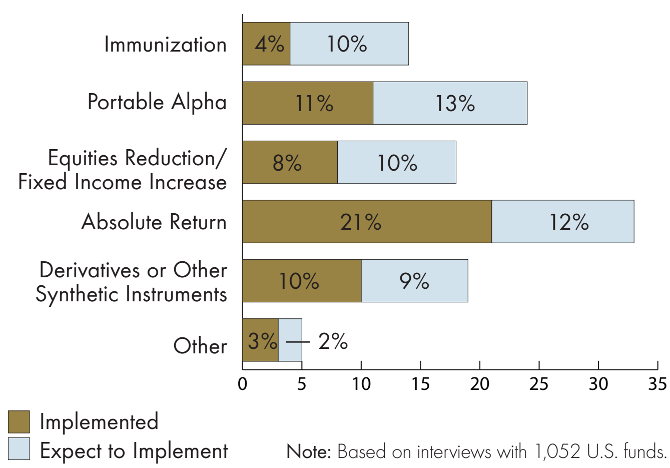
	2005	2006	2007*
High-Yield Loans	71,205.7	180,989.3	93,360.3
Investment Grade Bonds	4,044.9	39,510.7	42,930.6
High-Yield Bonds	3,074.4	2668.6	1,900.7
Structured Finance	176,639.1	312,571.7	174,055.2
Mixed Collateral	87.0	20.0	0.0
Other Swaps	2,461.8	716.8	243.8
Other	14,290.4	12,801.1	1,081.7
TOTAL	**271,803.3**	**549,278.2**	**313,572.3**

* First six months **Note:** Totals might not add up due to rounding.

Sources: Securities Industry and Financial Markets Association; Thomson Financial

Implementation of New Investment Strategies

About one-third of U.S. pension plan sponsors have adopted new strategies in response to the aging work force and changing regulatory environment. Another 30% expect to do so during the next two years.



Note: Based on interviews with 1,052 U.S. funds.

Source: Greenwich Associates' 2006 U.S. Investment Management Research Study

Employing Leverage

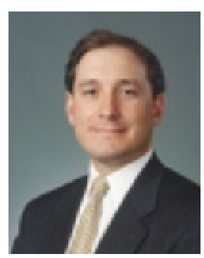
The common denominator of some of the most innovative investment strategies being developed to meet changing investor objectives is leverage.

Leverage, at its simplest, can be defined as attaining gross market exposure greater than what could be achieved if investing capital through traditional cash instruments. The key benefit of using leverage is to effectively manage portfolio risk while striving for enhanced returns.

As an investment tool, however, leverage provokes strong responses, both positive and negative. Some investors associate leverage with high-risk investment strategies or with investment products that heighten exposure to risk. The accuracy of that assessment is debatable, but there is no denying that leverage does increase exposure to risk, just as it can magnify potential returns.

Investment strategies that employ leverage have grown in popularity during the past few years. One catalyst is that institutional investors, such as pension funds, have become more open to adopting innovative and somewhat riskier strategies in order to meet growing liabilities.

"Leverage can be achieved in many forms, with common approaches including outright borrowing of funds or using derivative instruments to obtain notional exposure," says John Krieg, CFA, director, investment product management at Northern Trust. Examples of strategies that employ leverage include portable alpha, liability driven investing (LDI) and active extension 130/30 (also known as short extension or long/short). These investment strategies vary in terms of the potential returns and risks involved and how leverage can be used effectively while managing risk.



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Portable Alpha

An innovative and efficient method to help achieve a desired investment outcome is to employ a portable alpha technique. Portable alpha relies on separating the return attributable to a manager's skill from the return derived simply through passive market exposure. The alpha in theory can be transported to

another market index or strategy, one that is better aligned to the investor's overall investment objective.

Leverage is employed in many portable alpha portfolios. These strategies are implemented through the use of derivatives such as futures or swaps, resulting in the portfolio's gross market exposure exceeding 100%.

Assume a pension fund holds only bonds in order to match its liabilities. Maintaining that fixed-income exposure (beta) through derivatives would free up cash, which could be invested in another asset class or strategy in a quest for more attractive returns. If the pension plan sponsor wanted to capture the return of a particular active small-cap manager, the plan sponsor could invest the freed up cash with that manager and short the Russell 2000 Index. Shorting the index should remove any net exposure to small-cap stocks and isolate the alpha created by the selected manager. The small-cap alpha could then be ported onto the beta exposure captured through the fixed-income derivative, potentially resulting in a total portfolio return in excess of the liability.

Although this strategy could expose the portfolio to greater volatility, seeking alpha sources from an uncorrelated asset class or geographic region having a low or negative correlation with the beta could mitigate the risk. In addition, across an entire portfolio, this might create less volatility if the entire risk and return generated by the portable alpha strategy were uncorrelated with the remainder of the portfolio.

LDI

Liability driven investing seeks to better manage the risk-return trade-off between a pension plan's assets and its liabilities. LDI strategies often begin with reducing the interest rate and asset class mismatch between assets and liabilities.

Non-leveraged approaches, such as lengthening bond portfolio duration or fully immunizing pension liabilities, are fine first steps. Leverage does offer an advantage in that it can allow the plan to maintain its desired asset allocation — 60% stocks, 40% bonds, for example — rather than converting to a portfolio consisting entirely of long-term bonds. This would enable the pension plan to benefit from the potentially higher returns offered by a diversified portfolio.

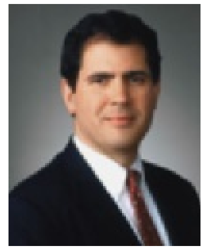
The use of leverage in an LDI strategy frees up cash to be invested in higher return-generating strategies. For example, by using an overlay of interest rate swaps, the plan can manage its duration profile better, reducing the tracking error between its assets and liabilities.

130/30

Active extension strategies, which could entail 120/20 or other degrees of long/short exposure in addition to 130/30, involve a more straightforward application of leverage. "In addition to a fully long core exposure to equities, the strategy allows for a regulated degree of short exposure, matched by a long extension of the same percentage," says Jeremy Baskin, head of active global quantitative management at Northern Trust.

The "30" in 130/30 refers to an additional 30% of the basic stock investment that could be sold short on selected stocks which are expected to underperform the long positions. The proceeds from the short sales would effectively fund an additional 30% in long positions. This leverage enables investment managers to further capitalize on their positive and negative insights on individual securities. The use of leverage has the potential to magnify returns — as well as risk — by adding exposure to potential alpha generation on both the long and short sides.

To illustrate this, let's assume the long portfolio generates outperformance of 5% relative to its benchmark. If the manager demonstrates equivalent skill with the 30% invested short and the additional 30% invested long, an extra 3% of outperformance would be generated. In addition, because the strategy does not leverage an investor's exposure to the overall market, the beta on the portfolio is about one.



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LEVERAGE AT WORK

The accompanying chart compares several actively managed equity strategies, each with its own distinct investment process and philosophy. Product A follows a traditional active long-only strategy. Product B allows short positions of up to 30% of portfolio assets and uses those sales to increase the long positions (up to 130%). Product C is a market-neutral capability in which offsetting long and short positions provide returns, but result in a net market exposure near zero.

While each strategy has "net" equity market exposure (long exposure minus short exposure) of 100% or less, products B and C have the potential for increased returns and risk through leverage. Net exposure, however, only provides a partial view of the risk profile of an investment strategy. A review and thorough understanding of the gross market exposure, the maximum allowed leverage and what is being levered is critical to a more robust evaluation of a strategy's risk and return potential.

ACTIVE S&P 500 EQUITY INVESTMENT STRATEGIES – PRODUCT LEVERAGE COMPARISON

Investment Strategy	Benchmark Index	Long Market Exposure	Short Market Exposure	Gross Market Exposure[1]	Net Market Exposure[2]	Leverage Method
A) Long-Only Equity	S&P 500	100%	0%	100%	100%	n/a
B) 130/30 Active Extension	S&P 500	130%	30%	160%	100%	Implemented through borrowing/shorting
C) Market Neutral[3]	S&P 500	100%	100%	200%	0%	Implemented through borrowing/shorting

Source: Northern Trust

Notes:

1) Gross exposure represents the sum of long and short exposure.

2) Represents net long market exposure.

3) Strategy takes offsetting long and short market positions resulting in a market beta near zero.

Reasonable Expectations

There's no question that using any technique to obtain leverage, such as short selling or derivatives, opens the door to increased risk. "Different techniques employed to obtain leverage will carry their own kind of risk," Baskin says. "The key is to recognize that risk and manage it effectively."

For example, short selling is used to provide basic leverage or to extend the 130/30 active extension strategy. It exposes investors to the prospect of theoretically unlimited losses if a shorted stock should rise significantly, rather than fall in value as expected. With 130/30, there are built-in limits placed on the long and short positions overall, as well as maximum exposures to each industry and each individual security.

"Taking care to limit the magnitude of the leverage to a reasonable level is important," Krieg says. "Even more important is understanding how volatility and correlation play into the equation."

Build on Strengths

Leverage is a powerful investment tool. When employed strategically, intelligently and judiciously, it can enhance returns and be the difference between achieving critical investment goals or falling short. Care should always be taken to maintain risk exposure at manageable levels and to take appropriate measures to manage the risk-return trade-off. ❖

How Much Leverage Is Optimal?

Leverage is a highly flexible investment tool that can be dialed up or down like a thermostat to suit an investor's motivation, objectives or confidence in an investment manager.

What is the optimal leverage ratio for an equity strategy with limited shorting? Currently, the active extension strategy popularly known as 130/30 is receiving considerable investor interest. This strategy builds on a 100% long base and offsets limited short positions with long positions. The result is a gross market exposure of 160% – 100% long base plus 30% short plus 30% long – and a 100% long net exposure. But 130/30 is not a magic formula. This same approach could be taken with any leverage ratio – for example, 120/20, 140/40 or 150/50.

Factors influencing an optimal leverage ratio include:

- **The investor's risk tolerance —** The more risk averse the investor, the less likely shorting will be considered.
- **The specific risk in a security —** The lower the risk, the more attractive the short.
- **Frictional costs —** The higher the frictional cost of a short, the less attractive the short.
- **The weight of a security in the benchmark —** The smaller the weight, the more likely the short. This is because it is difficult to express a negative sentiment on a stock with a small weighting without taking a short position.
- **Benchmark concentration —** Highly concentrated benchmarks will tend to have more short positions. Short positions can be added with less impact on the overall residual risk of the portfolio since so much of the portfolio risk is embedded in very few names.

With these variables taken into consideration the optimal leverage ratio will be the one that maximizes risk-adjusted returns.

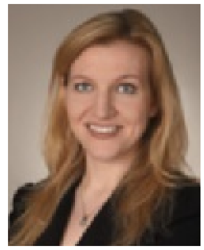
Walking the Beta Line

Hedge fund managers are increasingly distinguishing hedge fund alpha and betas.

Scores of hedge funds have lived up to perceptions in recent years, outperforming stocks in bull markets and reaping profits for investors even when equities are being hit hard. Still, not all hedge funds are meeting bold expectations. As a result, suspicion has grown that a large number of funds — even those insulating investors from market direction and keeping pace with the applicable strategy index — do not perform in a way that can be explained by the alpha-beta divide.

In this evolving view, buttressed by a number of academic studies, the non-beta returns a hedge fund delivers cannot be solely attributed to a manager's skill, or alpha. Rather, these returns are a function of managing exposures to various risk categories, some of which are known to be associated with traditional money management. While some hedge fund returns arise from risk management and capturing various risk premia, what traditionally is described as alpha can't be explained by known risk factors. In other words, hedge funds can produce returns that might not be alpha or beta.

This newly defined component of hedge fund returns is referred to as "exotic beta" or "hedge fund beta" and it's changing the way people look at hedge funds and their fee structures. "The common belief is that you should pay for alpha. In the past, you got true alpha from superior security selection or identifying inefficiencies in the market," says Victoria Vodolazschi, director of hedge fund investments at Northern Trust. "But it's hard to believe that all hedge fund managers are that much smarter than traditional money managers, or that there are enough inefficiencies in the market to provide consistent alpha for the $1 trillion-plus hedge fund industry. So it becomes apparent that not all hedge funds deliver pure alpha, but rather returns from earning various risk premia. That is hedge fund beta, and it should be distinguished from alpha."



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Simulated Returns

The notion that much of what hedge funds return is not actually alpha has given rise to a considerable amount of research. This research has focused on whether hedge fund performance minus the alpha, can be mechanically replicated — thus delivering the non-alpha upside of hedge funds without the high fees.

Hedge fund replication portfolios introduced during the past year and a half — arising from research conducted by academics such as Andrew Lo of the Massachusetts Institute of Technology, David Hsieh of Duke University and Harry Kat of London's Cass Business School — are seen as more sophisticated successors to investable indices, which carried the promise of liquidity and low fees. However, because of drawbacks such as survivorship

Traditional Beta Vs. Exotic Beta

TRADITIONAL BETA	HEDGE FUND BETA
Exposure to: ■ Broad equity market ■ Interest rates (duration) ■ Credit risk ■ Emerging markets	Exposure to: ■ Style factors, such as small cap vs. large cap, value vs. growth, momentum (Long/Short Equity, Equity Market Neutral) ■ Event risk (Merger Arbitrage) ■ Volatility (Convertible Arbitrage, Volatility Arbitrage) ■ Liquidity risk (Distressed Securities, Fixed Income Arbitrage, Reg D) ■ Spread risk, e.g., carry trades (Global Macro)

Exposure to hedge fund beta requires special investment techniques including short selling, leverage and the use of derivatives. Thus, hedge funds have exclusive access to these alternative betas.

Source: Northern Trust

and selection biases, the investable indices generally have underperformed the universe of actual funds in operation. For example, one new breed of clone uses a technique commonly described as "hedge fund factor replication." This is said to better capture the actual return profile of a given strategy and therefore, rival the beta. Factor replication strives to provide exposure to hedge fund betas obtained from a properly assembled portfolio of non-correlated return sources, without the layer of fees carried by a fund-of-funds.

funds together in a basket, however, is that by doing so you diversify away what makes hedge funds special. Highly diversified indices typically have few true hedge fund features and are just traditional portfolios primarily driven by equity and credit risk. Viewed from this perspective, investing in these products doesn't make sense, as investors would just be trading in real equity and credit exposure to pick it up in a replication product. From the perspective of the supply side, it is a great deal, of course."

This newly defined component of hedge fund returns is referred to as "exotic beta" or "hedge fund beta" and it's changing the way people look at hedge funds and their fee structures.

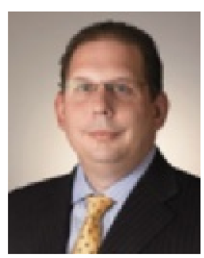
This type of replication portfolio sifts through hedge fund data and uses standard regression analysis to break out the risk factors (interest rate, volatility, credit, etc.) and the alpha from the expected returns of the sample. The passive portfolio assembled from this process is designed to mimic the full beta performance, including hedge fund beta, of the actual hedge funds. Replication portfolios claim better liquidity, full transparency, customization ease and scalability when compared with hedge funds-of-funds.

On the other hand, Lo and others have acknowledged ways in which replication portfolios do not truly replicate the returns attainable by funds-of-funds. Aside from the alpha of the manager's skill, the clones simply cannot replicate certain strategies. For example, a replicator that uses futures, with their high liquidity, to replicate risk exposure will not work with illiquid strategies. These strategies include convertible arbitrage, emerging markets securities and distressed debt, which has been one of the best-performing categories from January 2001 through the first half of 2007.

Furthermore, critics of hedge fund replication portfolios have said that research to date shows that performance in the categories the replicators mimic has been closely correlated to the S&P 500 Index. Cass Business School's Kat has argued hedge fund replicators expose investors to a high degree of traditional risk, and thus do not provide the same diversification as hedge funds-of-funds.

"The products that are out there aim to replicate highly diversified indices," Kat says. "The problem with adding hedge

Anthony Zanolla, senior director of hedge fund investments at Northern Trust, addresses the possible pitfalls of the index issue. "If you're trying to replicate hedge fund performance based on principal component analysis, you run into issues using historical hedge fund data," he says. "You don't know how the composition of the index has changed. Managers may have gone out of business or changed strategies — you are



"If you're trying to replicate hedge fund performance based on principal component analysis, you run into issues using historical hedge fund data."

— Anthony Zanolla, senior director of hedge fund investments at Northern Trust

looking in the rear-view mirror. Compare that with the S&P, which is replicable, transparent and has detailed, timely information that is publicly disclosed."

One study, conducted by Liability Solutions, a hedge fund placement and investment consulting firm with offices in New York and London, found both positives and negatives in hedge fund replicators. The study looked at returns for two replicators against the HFR Fund of Hedge Funds Index and the S&P 500. From the start of 2003 through February 2007,

the S&P produced the highest returns, while one of the replicators outperformed the fund-of-funds index. However, the fund-of-funds index showed much less volatility than either of the replicators, and on a risk-adjusted basis performed much better than they did. The report concluded that statistics do not yet prove whether replicators can duplicate "access to much of the average hedge fund return in a safe, transparent, regulatory-friendly manner." The report also stated the limited statistics available suggest that hedge funds-of-funds provide better capital protection attributes.

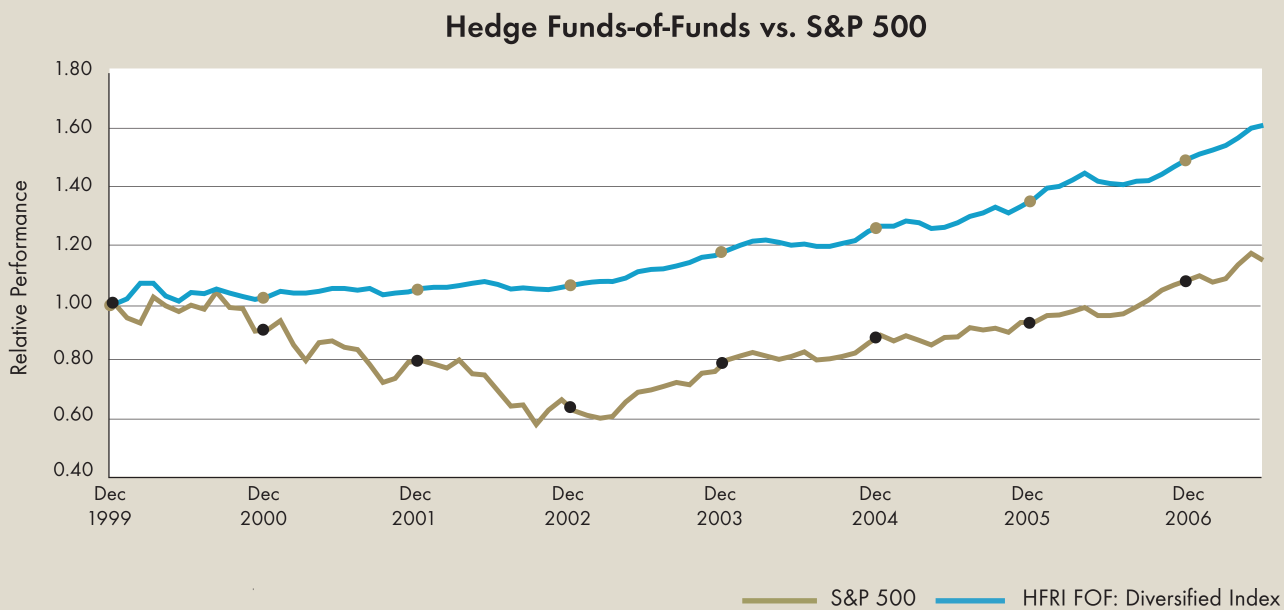
A Collective Approach

Vodolazschi acknowledges the significance of replicator innovations, especially for their scalability and potential to exert downward pressure on hedge fund fees. However, for investors seeking to reap the full potential of hedge funds as part of a diversified portfolio, she sees a continued central role for a managed fund-of-funds.

"An optimal fund-of-funds should consist of a true alpha component combined with a portfolio of different hedge fund betas," Vodolazschi says. "Aside from looking for pure alpha,

Upside Capture with Downside Protection

For the most part, hedge funds have performed as investors expected they would — capturing much of the upside appreciation during periods of strong stock market performance while also doing a better job than pure equities of preserving capital during times of stock market weakness.



Source: Northern Trust

it is a fund-of-funds manager's job to identify and extract hedge fund betas. This requires a solid understanding of hedge fund strategies and cannot be substituted by an index or a replicator." In constructing an optimal portfolio, she says, portfolio managers and risk analysts work with a risk budget and allocate across strategies to try to map different risk factors to specific strategies.

The goal is a mix of funds that will capture returns from categories of risk where premia tend to be predictable in various market conditions. "If you can tell me what the market is doing, I'll have a good idea of how each manager should perform," Zanolla says. "Changing market conditions have a different impact for each individual manager."

Vodolazschi stresses the importance of dynamic allocation, where a fund-of-funds team actively seeks out managers who can find profits in changing market conditions. Such a mandate often points to managers in emerging strategies, as opposed to categories where the potential for profit has dried up or become stagnant. "The goal is to find new and unique sources of returns — often not what you would find in an index," Vodolazschi says. The reinsurance market and asset-backed lending can be cited as examples of where these opportunities may exist.

Better Understanding

The emergence of hedge fund replication tools probably has helped illuminate the actual return components of a multimanager hedge fund portfolio. Understanding the nature of hedge fund betas and identifying sources of hedge fund beta that may not be easily replicated is helpful as institutional investors think about the sources of hedge fund returns and the potential role of hedge funds in an institution's total investment portfolio. From the perspective of a hedge fund-of-funds manager, hedge fund beta is a conceptual tool. Portfolio managers can work with well-defined and measurable risk factors for the beta component of the portfolio while employing market knowledge, manager selection skill and an eye for innovation in scouting true alpha. ❖

Exploring New Horizons

Well-centered investment philosophies drive the success of large foundations and endowments.

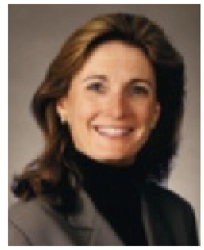
Among institutional investors, large foundations and endowments generally are regarded as the investment pioneers, constantly seeking new opportunities for superior returns. Although it can be difficult to stay ahead of other investors, their efforts generally have proven worthwhile.

Foundations and endowments with more than $1 billion in assets posted a median return of 10.28% for the five years ended December 2006, according to Wilshire Associates' Trust Universe Comparison Service (TUCS). That compares with a 9.06% median return for large public pension funds; 9% for large corporate funds; and 8.31% for the entire TUCS database of more than 1,450 institutional investors.

"Foundations and endowments have tended to be the first to enter into new, more interesting investment strategies," says Kendall Kay, director of institutional client services at Northern Trust. "They exercise a high degree of professional diligence, skill and prudence with regard to the assets under their direction."

"You have to be willing to sit in a conference room and listen to a lot of (idea) pitches. We turn over a lot of rocks," says Mike Patrick, chief investment officer of the approximately $1 billion Meadows Foundation, a Dallas, Texas-based organization that assists local people and institutions with improving the quality and circumstances of life for themselves and future generations.

In the mid-1990s, the Meadows portfolio was 100% allocated to U.S. stocks and bonds, but now up to 40% of the assets are invested in alternative investments, including hedge funds, private equity and inflation-hedging or real assets. "We try to add some spice to our portfolio, but we don't want to take on an undue amount of risk with the spice," Patrick says.



"Foundations and endowments have tended to be the first to enter into new, more interesting investment strategies."

– Kendall Kay, director of institutional client services at Northern Trust

Reaping the Rewards

One reason foundations and endowments pursue innovative strategies and alternative assets is the return goals they set to fulfill their missions. "Foundations typically attempt to balance short-term grant making obligations with the goal of providing grants into perpetuity," Kay says. "Many establish a flexible grant-making policy, stated as a percentage of the portfolio value, rather than set an absolute dollar amount year to year." That flexibility allows investment in more aggressive portfolios and the capacity to endure periods of underperformance.

One reason foundations and endowments pursue innovative strategies and alternative assets is the return goals they set to fulfill their missions.

The Yale University Endowment Fund, considered one of the elite institutional investors in the nation, has actively pursued innovative strategies and alternative assets for decades. Its real assets portfolio, which represents 27.8% of the fund and includes investments in oil and gas, real estate and timberland, has averaged a 17.4% return per year since its inception in 1978. Yale also was the first institutional investor to pursue absolute return strategies as a distinct asset class, starting with a 15% allocation in July 1990.

Other institutions share Yale's investment philosophy. Harvard University's endowment allocates about one-third of its assets to real assets, including commodities, real estate and inflation-indexed bonds. Another 18% is in absolute return strategies.

The Road Ahead

Given their past successes, it's not surprising that several studies have found that foundations and endowments are expected to remain significant players in the alternative investment universe.

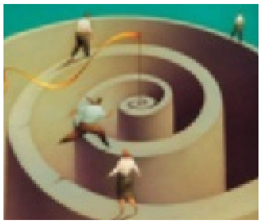
The *Commonfund Benchmarks Study 2007 Foundations Report*, for example, cites a general interest in increasing allocations to international equity and alternatives among the 279 institutions it surveyed.

Raj Gupta, research director at The Center for International Securities and Derivatives Markets at the University of Massachusetts, says he expects two vehicles to attract more institutional attention. The first is special purpose acquisition corporations (SPACs), which raise money through initial public offerings and acquire target companies in a specific sector, industry or geographic location. The other approach is business development companies (BDCs), closed-end funds that take private equity positions in small- and middle-market companies.

Patrick at the Meadows Foundation says he still sees opportunities for hedge funds, particularly those with a disciplined approach to investing. He also says the foundation will continue to explore small- and medium-sized private equity deals, as well as opportunities involving distressed companies.

"Our history has been very selective," Patrick says. "We like uniqueness of strategy, but that strategy has to be readily understandable."

Although it remains uncertain as to which strategies and asset classes will provide the best returns in the future, one thing is for sure: large foundations and endowments likely will lead the way. ❖



AHEAD OF THE CURVE

Ahead of the Curve covers developments that may impact the behavior and portfolio positioning of institutional investors. Take a closer look at events in the ever-changing regulatory, legislative and investment markets to determine how they may impact you.

Institutional Investors to Increase Emerging Market Private Equity Exposures

Emerging markets will play a bigger role in the private equity portion of institutional portfolios, with Asia and Central and Eastern Europe/Russia receiving the most interest.

The Emerging Markets Private Equity Association's *Survey of Limited Partner Interest in Emerging Markets Private Equity* found 42% of respondents expected to increase investments in this category in 2007. Foundation and endowment funds were the most active investors, with an average of 13.2% of their private equity portfolios allocated to emerging markets. Of the investors surveyed, 79% expected to invest in Asia in 2007 and 89% expected to do so by 2012. Among respondents, 61% expected to invest in Central and Eastern Europe/Russia in 2007 and 87% planned to do so by 2012. One-fifth of respondents (20%) were actively or opportunistically investing in Africa this year. The study can be found at empea.org.

Initiative on Global Markets Fosters Exchange of Ideas

Launched in 2006, the University of Chicago Graduate School of Business Initiative on Global Markets (IGM) explores business, financial markets and public policy issues.

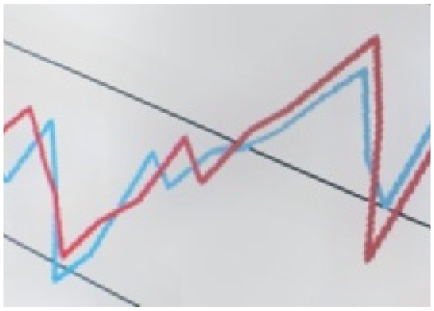
Among the research topics to be covered in the coming academic year are the surge in delinquencies in the sub-prime mortgage market and the future of private equity.

In addition to research projects, IGM promotes a greater exchange of ideas between GSB researchers and decision-makers in the private and public sectors. It will do this through conferences, the Myron Scholes Forum of prominent guest speakers, and enhanced interaction with corporate partners so that academics and practitioners can benefit from each other's insights. Corporate sponsors of the initiative are Northern Trust, AQR Capital Management, Barclays Bank and The Chicago Mercantile Exchange. For more information, go to research.chicagogsb.edu/igm.

SRI Funds in DC Plans

Almost one in five defined contribution plan sponsors offers at least one socially responsible investment option to participants, and that number is expected to grow to 60% of sponsors within three years.

Defined Contribution Plans and Socially Responsible Investing in the United States, a survey commissioned by the Social Investment Forum and conducted by Mercer Investment Consulting, found alignment with an organization's mission was the primary driver for adding an SRI option to a defined contribution plan. Health care organizations and government funds are most likely to offer SRI fund options to participants. For more information, go to socialinvest.org.



OECD Provides Financial Trend Analysis

The Paris-based Organisation for Economic Co-Operation and Development (OECD) publishes *Financial Market Trends* twice each year. The publication provides analysis and information on structural issues and developments in major global financial markets.

Articles in the current edition include:

- "An Overview of Hedge Funds and Structured Products: Issues in Leverage and Risk"
- "The Private Equity Boom: Causes and Policy Issues"
- "The Role of Private Pools of Capital in Corporate Governance: Summary and Main Findings about the Role of Private Equity Firms and 'Activist' Hedge Funds"
- "Longevity Risk and Private Pensions"
- "Asset Allocation Challenges for Pension Funds: Implications for Bond Markets"
- "Governments and the Market for Longevity-Indexed Bonds"
- "Housing Markets and Household Debt: Short-Term and Long-Term Risks"
- "Government Debt Management and Bond Markets in Africa"

The full publication is available online at oecd.org.

Lower Commissions May Affect Research

Institutional investors predict that half their U.S. equity trades will be conducted through electronic and portfolio trading systems by 2010. This development could have a significant impact on the research they receive from brokers, according to a Greenwich Associates report.

The *2007 U.S. Equity Investors Study* found that blended commission rates for institutional single-stock, program and direct-to-market electronic trades averaged of 3.16 cents per share during the one-year period ended February 2007, down from 3.9 cents in 2006 and 4.0 cents in 2005. As a result, equity brokers are reassessing the amount they spend to provide research and other services to clients. The Greenwich report predicts institutions, in turn, might need to cut back on the research and services they use, persuade brokers to provide the services for less money, or find another way to pay for the services. For more information, go to greenwich.com.

DC Plan Transitions Need Particular Care

In a new paper, Northern Trust's Transition Management Team discusses the unique circumstances involved in restructuring defined contribution (DC) plan portfolios. For instance, many plan sponsors consider a blackout period during a transition event, but this is undesirable to participants. The Northern Trust paper outlines steps to ensure a smooth portfolio restructuring. They include:

- **Hiring a transition manager early:** A defined contribution plan transition requires more planning and coordination than a defined benefit plan transition.
- **Coordinating all involved parties:** Regular communication and input from the plan sponsor, consultant, transition manager, fund accountant daily valuation team, custodian and investment managers is critical.
- **Developing a timeline:** The more lead time the better. Aim to develop the timeline at least one month prior to the transition.
- **Mapping fund flows:** This will detail projected movement of assets and help coordinate fund flows.
- **Planning for liquidity:** Ask the plan record keeper to provide an expectation of participant fund flows for the past two or three months.

Contact your relationship manager for a copy of the paper, "The Defined Contribution Plan Transition."

LOCATIONS

Amsterdam
World Trade Centre, H-Toren
Zuidplein 36
1077 XV Amsterdam
Netherlands
+31 20 799 7994

Beijing
Unit 601, Level 6, Tower W2
Oriental Plaza
No. 1 East Chang An Avenue
Dong Cheng District
Beijing
China
+8610 8520 0061

Chicago
50 South La Salle Street
Chicago, Illinois 60603
United States
+877 651 9156

Operating from offices in Connecticut's "Gold Coast," Northern Trust's hedge fund manager-of-managers research team scrutinizes investment opportunities for institutional clients.

Dublin
George's Court
54-62 Townsend Street
Dublin
Ireland
+353 1 542 2000

Guernsey
Trafalgar Court
Les Banques St. Peter Port
Guernsey GY1 3DA
+44 14 8174 5000

Hong Kong
Suite 703-4 One Pacific Place
88 Queensway
Hong Kong
+852 2918 9884

Jersey
2-6 Church Street
St. Helier
Jersey JE4 9ZF
+44 15 3483 2832

London
50 Bank Street
Canary Wharf
London E14 5NT
United Kingdom
+44 20 7982 2000

Luxembourg
4th floor Rose des Vents
16 rue Erasme
L-1468 Kirchberg
Luxembourg L-1468
+35 227 627 2220

Melbourne
Level 27
101 Collins Street
Melbourne 3000
Victoria, Australia
+61 3 9653 7482

New York
65 East 55th Street
24th Floor
New York, New York 10022
United States
+212 339 7474

Singapore
One George Street
#12-06
Singapore 049145
+65 6 437 6666

Stamford
300 Atlantic Street, Suite 400
Stamford, Connecticut 06901
United States
+203 351 8700

Tokyo
Izumi Garden Tower
6-1 Roppongi 1-chome
Minato-ku
Tokyo 106-6010
Japan
+81 3 5575 5780

Toronto
145 King Street West, Suite 1910
Toronto, Ontario
Canada M5H 1J8
+416 365 7161

Northern Trust
Attn: Investments Marketing, M-16
50 South La Salle Street
Chicago, Illinois 60603

ADDRESS SERVICE REQUESTED

PRSRT STD
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Northern Trust