Post-Modern Asset Management: The Credit Crisis and Beyond
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Post-Modern
Asset Management: The Credit Crisis and Beyond
compiled by :: cs venkatakrishnan
this brief collection of articles
produced by investment professionals at j.p. morgan asset management is an effort to inform individual and institutional investors on the lessons of the credit crisis with thoughts on the likely consequences for investment management. this document is divided into three parts. the first part has a section on the global economy followed by one on each of the major asset classes in the market: fixed income, equities, hedge funds and real estate. the second part discusses structural aspects of investment: money markets, wrapped products, securities lending, liquidity management, regulation and risk management. the last section offers guidance for different segments of investors: pension funds (db and dc), sovereign wealth funds and individuals.
The post-modern period in the arts signified the renewal of traditional elements in reaction to an excessive deviation from them. The credit crisis is forcing the staid business of managing money to undergo a similar change—a return to traditional approaches in response to some of the failings of the modern infrastructure of the market. Investors are particularly scrutinizing those features which have been found most wanting in the crisis. Among these are risk pooling, whether in complex securitizations or in pooled funds; counter-party management, particularly with reference to derivatives; liquidity, in individual securities and in funds; and the trade-off between principal preservation and return generation.

This document collects the views of professionals at J.P. Morgan Asset Management on the impact of the credit crisis on the practice of investment. It has three parts. The first looks at individual asset classes: fixed income, equities, hedge funds and real estate. The second part examines structures and practices: money market funds, structured products, securities lending, risk management and regulation. The final part considers the crisis from the standpoint of investors: pension funds, 401(k) plans, individual investors, and sovereign wealth funds. Each article is self-contained and aims to be informative in its own right; the objective of the entire collection is to provide a comprehensive overview of investment management.

We did not ask our writers to reach a consensus, and were therefore surprised at the commonality of their views. Perhaps we should not have been, because, after all, this was a credit crisis and credit is the lifeblood of the financial system. The common view is that the weakening and failure of critical elements of the financial markets is likely to have an enduring impact. These initial elements are as follows:

**Risk Pooling:** The pooling of risk took many forms. One example is in asset securitizations. Agency mortgage loans have been pooled for decades, affording investors the ability to purchase them efficiently in relatively large blocks. However, this securitization always carried an agency guarantee of principal and interest payment and, on this basis, is likely to endure. On the other hand, when non-agency loans were pooled in securitizations, and these securitizations were often further combined into Collateralized Debt Obligations (CDOs), they were rated by credit agencies on a presumption of diversification from risk pooling. When the credit crisis hit, the hoped for diversification did not materialize as loans began to default en masse. Consequently, as the prices of these securities sank, so did the reputation of the credit agencies that rated them and the asset managers who purchased them.

Another form of risk pooling is the combining of funds from different investors. Pooled vehicles can purchase more diversified portfolios of securities and with greater liquidity than can most individual investors. Indeed in some private markets, pooling is the only practical investment option for all but the very largest of investors. However, each investor in a pooled vehicle is subject to the behavior of other investors and, in stressed situations, may be forced to divest sooner or later than desired because of the withdrawal of other investors.

Hence, whether as purchasers or as participants, investors are likely to weigh much more carefully the costs and benefits of risk pooling. Complex securitizations involving credit risk are unlikely to take place in the size and frequency that they did before. Investors, particularly in private markets, will closely examine the costs and benefits of pooled vehicles.

**Counter-party Management:** With progressive technological innovation and increasing deregulation, investors took stronger comfort in the assumption that market participants were managing their own risks prudently. It was assumed that large players in the credit derivative market were well-hedged, that

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1 Many aspects of this crisis were anticipated by Raghuram Rajan of the University of Chicago in a paper in 2005 titled “Has Financial Development Made the World Riskier?” We have followed some of his categorization of the “superstructure” of investment.

2 See the sections on Fixed Income, Securities Lending and Hedge Funds.

3 See the sections on Equities, Hedge Funds, Structured Product and Regulation.
investment banks and GSEs were controlling their leverage and funding prudently, that rating agencies were properly analyzing default behavior in complex securities, that the investment managers who bought them had modeled the risks accurately, and that hedge fund returns were to be believed because the managers were wizards and returns were audited. Many of these assumptions did not hold and hurt debt and equity investors in financial institutions, purchasers of structured notes issued by investment banks, practitioners of “relative value” strategies and investors in fraudulent hedge funds.

Investors are unlikely to be so sanguine again, at least as long as memories persist. They are likely to be more demanding of themselves and their asset managers in understanding how they invest in derivatives, which hedge funds they choose to invest in, what controls are put on investors and on compensation arrangements and how carefully investment guidelines are crafted. In addition, there is likely to be more regulation, and more strictly enforced at that, covering all these matters. This will probably favor larger investment organizations that already have, or will more easily afford, the systems and infrastructure required to support this justified scrutiny.

**Liquidity:** Across asset classes, investors have been surprised at how difficult it has been for them to sell their portfolios. This was due in part to the reduction of capital provided by broker-dealers to support trading activity and in part to the rush to get out of investments. Further, in recent years, the true underlying illiquidity of some sought-after strategies, like real estate, private equity and hedge funds, may have been masked by heavy asset growth. The consequences of this re-discovered illiquidity will be two-fold. First, liquidity is likely to be priced and allocated, more rationally by investment managers. Second, sophisticated investors are likely to provision for liquidity more carefully in their own portfolios by increasing allocations to cash, Government bonds and public risk assets instead of private ones.

**Principal Preservation versus Return Generation:** Arguably, the growth in the financial markets in recent years obscured two important distinctions. The first is between savings and investment—in some strategies, such as money market funds, preservation of capital is more important than return. The second distinction is between market risk (beta) and idiosyncratic risk (alpha). The latter was especially true in hedge funds, many of which aimed to produce positive returns by having little market risk and lots of idiosyncratic risk. Unfortunately, the returns of these funds in 2008 proved dismal and were neither “absolute” nor uncorrelated to the equity markets. Investors thus experienced losses in supposedly safer money market funds and lack of diversification in riskier hedge funds. It is likely, therefore, that a whole generation of investors will be more attentive to principal preservation than they were before.

We believe that investors of all types are likely to reconsider their strategic asset allocations and rebalancing strategies and, in doing so, try to control their risk of severely negative returns (downside risks). Consequently, there is likely to be reduced risk-taking in the “safer” parts of the portfolio, like fixed income or securities lending. Additionally, allocations to risky assets are likely to be based on rather less optimistic views of their mutual correlations.

The above discussion begs the question as to how so many people could obviously misjudge so much for so long. In part there were behavioral reasons—the safety of herd investing and following the momentum of the market—exacerbated often by liberally structured compensation programs and a more permissive regulatory environment. At the same time, it is important to note, as our writers do, that while many structural aspects of the investment business have been questioned, the fundamental principles by which investments are valued have not. Indeed,

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4 See the sections on Fixed Income, Hedge Funds, Structured Product, and those with the perspective of investors.

5 See the sections on Money Market Funds, Risk Management, and those with the perspective of investors.
it is on this basis that many investment opportunities in many sectors seem so attractive today. Where structural risk has been reduced by government involvement, risk spreads have sharply declined, as for example with bonds guaranteed by the FDIC.

As our writers are careful to point out, post-modernism in investment management does not mean that every innovation is to be discarded. Risk pooling in securitizations may become less common in the future, but diversification—where it truly exists—will remain sought after. The correlation assumptions among asset classes may be questioned but portfolio optimization techniques will continue to play an important role in asset allocation. The “value premium” in equities has been tested as never before but investors will still seek “cheap” stocks. Derivatives and leverage may be costlier and more sparingly used, but should still play an important role in risk management and return generation. That, then, is the challenge for investors and investment managers alike: how to put into proper perspective the events of the crisis and to build, or rebuild, a sustainable structure for investment while taking advantage of financial innovation and global capital markets.
The Impact of the Financial Crisis on Asset Classes
ORIGINS OF AN ECONOMIC CRISIS

It is clear that we are living through the deepest, most prolonged and most synchronized global economic downturn in post-WWII history. A problem that originally appeared confined to a set of risky, so-called sub-prime mortgage borrowers in the U.S. has speedily morphed into a massive global deleveraging cycle affecting first hedge funds and broker-dealers, spreading to commercial banks and securitized debt markets and, ultimately, impacting even money and other short term funding markets. The colossal withdrawal of lending capacity from the financial system has sent the global economy into a tailspin. Credit, the lifeblood of modern commerce, is being drained away and consumers and businesses around the world are being forced to pull back sharply.

The roots of this downturn are manifold. While the collapse in U.S. home prices that began in 2006 may have been the trigger, the stage for the housing bubble and its subsequent burst had long before been set. The start of the modern era of economic globalization, characterized principally by the increased mobility of goods and capital across borders, led to a surge in export-led growth in the emerging economies in general, and emerging Asia in particular. The IMF estimates that while the world’s working age population grew by just over 50% between 1980 and 2005, the number of people working in the production of goods for global markets (or the so-called export-weighted labor force) almost quadrupled (See Figure 1).

This contributed both to a surge in excess global savings as exporting nations built up huge current-account surpluses, and to low long-term interest rates as those savings were invested in creditor-nation bonds. The flip side of export-led growth in the developing countries was debt-financed growth in the West, as an abundance of cheap capital encouraged households and businesses to increase leverage. While companies remained relatively prudent, consumers were egregious. Household debt in both the U.S. and U.K., perhaps the two most prodigal consumer markets, essentially doubled relative to the size of the economy over roughly the same period (See Figure 2).

Thus, while globalization brought prosperity to many, particularly in the east, the economic imbalances to which it led meant that a powerful enough catalyst could quickly turn what had been a long period of relative stability (until now, for example, the United States had experienced only two mild recessions since 1982) into one of massive instability such as we see today. What made the sub-prime crisis particularly ‘effective’ as a catalyst was that the exotic debt instruments collateralized by...
the risky mortgage debt were sold in so many countries, and on such a scale to banks and other financial institutions that were so interconnected (both with each other and the real economy), that a problem for one institution quickly spread to others, ultimately impacting levered participants in the real economy as well as those economic agents (domestic companies and exporters) who depended on their demand.

Thus, it was a lethal cocktail of financial leverage, consumer leverage and a heavily interconnected financial system that set the stage for the breakdown in confidence and resulting economic woes in which the world is now mired. The housing bubble was simply the straw that broke the camel’s back. The job of policymakers is to short circuit this vicious cycle in which depressed, ‘fire-sale’ asset prices are ravaging the capital positions of banks and other financial institutions, sucking credit and confidence out of the real economy and further weakening the financial sector. While too much credit was the cause of this crisis, going from too much to too little too quickly will make matters far worse.

**THE RESPONSE OF POLICYMAKERS** Monetary policy, the tool that has always been relied upon to re-stimulate the economy after past downturns, has been insufficient in the face of the powerful deleveraging forces now at work. This is due not only to a breakdown in the supply of credit, but also in the demand for it. On the supply side, the securitized loan market has broken down. On the demand side, consumers are in retreat, beleaguered by the simultaneous collapse in the value of their real estate and equity wealth and hit with rising unemployment and slowing income growth. They are in no mood to re-lever. Policymakers have therefore been forced into trying unconventional means to free up the credit markets and restore confidence.

Beyond cutting interest rates to historic lows, major central banks are now embarking on the process of so-called ‘quantitative easing,’ in which monetary policy bypasses the banking system via direct purchases of financial assets in the secondary markets. In the U.S., the Federal Reserve is buying Treasuries, agency mortgages and commercial paper, while its new Term-Asset Backed Securities Loan Facility (TALF) will inject up to $1 trillion into the market for new credit card, student, automobile and small business loans. Meanwhile the Bank of Japan is buying both commercial paper and government debt; in the U.K., the Bank of England is purchasing gilts.

Though such unconventional monetary policy measures, if successful, may help to soften the deleveraging blow, they cannot halt it altogether. For people stuck with too much debt relative to income, there is now no choice but to spend more prudently.

**THE GLOBAL Fallout** One of the unique features of this crisis is the degree to which it has impacted almost all countries around the world, even those with low reliance on debt. In the painful wake of their 1997-1998 currency crisis, emerging Asian economies, and China in particular, played their part in fueling the ‘global imbalances’ by orienting their economies around export-led growth while keeping their currencies competitive by using the proceeds from their export sales to acquire the debts that their Western customers were incurring. In its over-reliance on external demand, emerging Asia could thus be accused of its own excesses. Though they have since begun to recover along with a global inventory drawdown and signs of stabilizing global demand, extreme weakness in exports led savage double-digit GDP declines in places such as Taiwan, Malaysia and Korea, an even more alarming a rate than in the U.S. over the same period (See Figure 3). This highlights the high degree of interdependence across the global economy and argues firmly against the once popular ‘decoupling’ thesis.

In the longer run, it may be in the interest of a more balanced world economy that the countries of emerging Asia reorient themselves away from export-led growth and towards a greater reliance on domestic demand. However, the accumulation of...
The Global Economy

Looking to the Future: Hopes and Fears

It is becoming increasingly difficult to view this economic slump as just another severe recession. The size and the interconnectedness of today’s global credit system sets the current economic backdrop apart from the one we knew at the times of the other severe post-war recessions of 1973-1975 and 1981-1982. But while this feature of the global economy is new, the basic principle at the root of the turmoil is not: individuals and economies alike cannot expect to perpetually run up excessive debts without expecting their creditors to one day pull in the reins. Economists have been warning for years about unsustainable debt burdens and it now looks as though borrowers are finally being forced to reverse.

We expect the coming years to bring a major shift in the global saving/investment balance. In short, debtor nations such as the U.S. and U.K. will need to continue to de-lever, dampening consumption and raising accumulated savings for use in
productive investment. Conversely, the manufacturing-driven, export-led countries, typified by China, who face slower growth in demand from the rest of the world will need to save less and spend more domestically.

Policymakers are working hard to ensure that this rebalancing process takes place in as orderly a way as possible. Central banks across the developed world have slashed interest rates, but with the banking system still deleveraging, traditional monetary stimulus has been forced to give way to unconventional monetary policies; at the same time, governments around the world have also begun to involve themselves more directly in the private sector.

Fiscal spending has been ramped up globally, with plans estimated to total just over 3% of GDP on average. While much of it may be back-end loaded and thus have a relatively limited impact on the immediate slump, the investments being made now should pay off in the post-crisis world. Under the Obama administration in the U.S. for example, a more progressive tax structure should lead to a more balanced economy in which wealth is more evenly distributed, consumers are better able to live according to their means and the economy is more stable. Moreover, investment in ‘human capital’ from increased government outlays for healthcare and education are likely to enhance longer-term economic performance. Similarly, efforts by China to increase social security and healthcare spending should lower the need for precautionary saving and help to promote the domestic demand that is sorely needed for a more balanced global economy.

But the severity of the crisis also makes it politically tempting for the government to over-involve itself in the private sector. Talk of nationalization of major banks by the U.S. government was rife earlier this year for example, highlighting the risk that bank lending could become politicized. Competitive market forces, for all their shortcomings, are more likely than politicians and regulators to guide credit and other resources to where they can be used most productively.

In addition, the longer the economic woes endure, the more likely that governments turn towards protectionism in an attempt to support their domestic industries, potentially compromising the hard fought benefits of low inflation, low interest rates and higher prosperity that the globalization era has produced. While inflation has faded of late, it could easily make a comeback unless resisted staunchly by policymakers once the economy finds its footing.

**REGULATORY LAPSES** Although the financial crisis had many causes, including poor lending decisions, excessive leverage, and reliance on short term financing of illiquid assets, regulatory lapses undoubtedly contributed. Large parts of the market were unregulated, global capital adequacy standards (the so-called Basel II framework) were inadequate, and there were too many regulators with overlapping responsibilities and insufficient authority.

Finding ourselves, as we do, in the thick of the crisis, it may still be premature to come up with the definitive list of actions required to prevent the next one, but a few points may be worth making at this juncture:

- There is a need for a single, systemic U.S. financial regulator, with access to all relevant information, the responsibility to assess risk across all markets, firms and financial instruments, and the authority to act on this information.
- We need to establish standard procedures for dealing with potential distress on the part of large, systemically important financial institutions. Large institutions should be able to fail, but only in an orderly, controlled manner that keeps the system as a whole secure.
- The entire mortgage business needs to be regulated to ensure proper disclosure and clarification of responsibilities of lenders and other market participants.
Bank capital adequacy standards, particularly Basel II, need to be fixed to take account of and address the liquidity of bank assets, and to prevent standards from being pro-cyclical, i.e. easing up in good times and vice-versa.

Accounting practices need to be reviewed. Mark-to-market accounting makes sense, but it should not apply to all assets at all times. There should be contingency measures allowed where accounting rules inadvertently affect the functioning of the capital markets.

Far-sighted, multilateral decision-making will be critical in the period ahead to guide the global economy through this most challenging time. There is a delicate balance between ensuring that the mistakes of the recent past are not repeated and taking care that the benefits of free enterprise and contained inflation are not lost in the process. If, and this is a big if, policymakers can succeed in striking that balance, the future can again be bright.

**Benchmarks for Progress** The global economy is transitioning toward what we hope will be a future of more balanced and more sustainable growth, but this will be a long-term transition that takes place over several years. In the shorter term, stabilization and a return to positive, if tepid, growth will be needed. These are a few signposts that may help in assessing progress on this front:

- Draw-downs from Fed liquidity facilities begin to subside
- U.S. home foreclosure rates begin to stabilize
- Lending standards ease and money aggregates begin to rise
- Bank stocks begin to outperform on a sustained basis
- Inflation expectations return to normal levels

While credit expansion takes its share of the blame for the current woes and is unlikely to return to the excessive levels of recent years, it is doubtful that the economy can stabilize in the nearer term without a pickup in the sectors which typically drive economic recoveries, such as housing and autos. This, in turn, will require a functioning financial system that is able to attract capital from private investors and extend it to households and businesses.
OVERVIEW Fixed income instruments have been at the heart of the financial mayhem. They arguably caused the crisis and the asset class has been most affected by it. In some respects, this market crisis was similar to previous ones, just more vicious. For example, the widening of corporate spreads and increase in credit defaults were also features of past market downturns. In other respects, though, this crisis was entirely new, with structured financial instruments causing unprecedented damage, market liquidity falling precipitously, and volatility surging due to the unwinding of leverage and concerns stemming from derivative counterparty risk. The response to these surprises will likely cause enduring changes to the business of fixed income.

The credit crisis had its roots in the housing market. Consequently, credit sensitive (non-agency) mortgage backed securities have been eviscerated in value. Unfortunately, many of them were AAA-rated and resided in high quality, supposedly safe, fixed income and securities lending portfolios. Some of these instruments have lost up to 70% in value. Floating rate securities (again “AAA-rated”) issued from adjustable rate sub-prime mortgage pools were used as part of leveraged strategies that had heretofore been considered low risk, or in un-leveraged “Enhanced Cash” strategies. The latter portfolios were not expected to lose principal, but often ended up losing 10% of asset value.

In addition, the banks and brokers at the epicenter of the financial damage created two types of problems for investors. First, strategies that used derivatives experienced enormous volatility when highly-rated counterparties such as Lehman Brothers failed. Second, many financial institutions held significant quantities of mortgage securities on their own balance sheets. This made them unwilling to commit capital to the mostly over-the-counter fixed income market, with disastrous consequences for liquidity.

Many traditional fixed income portfolios disappointed their investors in two important ways: first, they failed to provide a ready source of liquidity, and second, they produced poor returns due to a combination of defaults, leverage, and exposure to complex mortgage instruments. Broadly speaking, the performance of fixed income managers was often more a function of their approach to portfolio structure—whether they employed leverage or used non-agency mortgage instruments—than it was a result of their successfully anticipating the crisis or managing through it. Hence the response is likely to be structural, with managers broadly reducing or eliminating leverage and eschewing non-agency structured securities. Derivative usage is also likely to decline until clearing houses are established for interest rate and credit derivatives.

Why Such a Crisis

The preceding Economics section argues that the 1997-1998 currency crisis persuaded Asian governments to keep their currencies competitive by using income earned from exports to acquire the debt of advanced economies, particularly the United States. The effect of this was to keep interest rates in the United States lower than they might otherwise have been, and trigger a credit boom.

FIGURE 1: GROSS ANNUAL ISSUANCE OF SECURITIZED DEBT 1995-2008

Note: Consumer ABS combines credit card, student loan, and auto.
Source: Barclays Capital
The allocation of easier credit was primarily to the U.S. Housing market (See Figure 1). It came in the form of increased issuance by the agencies as well as by private entities. Agency mortgage-backed securities (MBS) are comprised of pools of agency-eligible (implying higher-quality credit) mortgage loans and are standardized with respect to coupon and term. These securities carried, further, a guarantee of principal and interest payment by the agencies. Since they were deemed to carry little credit risk (or none, as in the case of Ginnie Mae, which had the full faith and credit of the U.S. Government) the over-riding risk factor was interest rate related prepayment risk. This was also true of Collateralized Mortgage Obligations (CMOs) comprised of agency passthroughs, but tranched in terms of priority of interest and principal payment. Because Agency CMO tranches are comprised of agency mortgages, they carry no additional credit risk but they could have far greater interest rate risk.

In the case of private-label (non-agency) mortgages, however, not only were the credit standards for individual loans lower, but there was no guarantee of principal or interest repayment to the owners of securities. The absorption of this weaker debt was facilitated by credit structuring: individual non-agency mortgages (whether of prime or sub-prime borrowers) were combined into securities in which the principal and interest was not “passed through.” Rather, the payments were fed into tranches (slices), the riskiest of which absorbed initial credit losses in return for higher yield, and the safest of which paid a lower yield, but had additional credit support. The latter were typically designed to receive a AAA rating when analyzed according to the statistical models in use by the rating agencies.

Until the credit crisis, conventional wisdom held that the diversification benefits of spreading credit risk among hundreds or thousands of regionally distributed and relatively uncorrelated individual borrowers were powerful, and the basis for a security receiving a AAA rating. This faith held even when lower-rated credit mortgage securities (such as BBB-rated tranches based on sub-prime borrowers) were themselves combined into a new security, in which the tranche with the greatest support was rated AAA. These new securities were known as Collateralized Debt Obligations or CDOs. Indeed a striking measure of the broad confidence in this ratings paradigm is the fact that “in January 2008, there were 12 AAA-rated companies in the world [and] 64,000 structured finance instruments...rated AAA.”

These AAA-rated securities were to find themselves in portfolios that were designed to produce high-quality, principal-protected returns. However, they started falling precipitously in price from August 2007, to the point that many AAA-rated securities based on non-agency mortgages now trade at 40 cents on the dollar, and the AAA-rated tranches of CDOs are worthless. The decline in price stemmed from distrust in complexity and disbelief that the credit support in senior tranches was sufficient to protect the investor from the weakening borrower and shoddy loan underwriting standards.

THE IMPACT OF THE CREDIT CRISIS ON FIXED INCOME Sector Performance

The credit crisis has seen the worst aggregate performance for fixed income spread markets in modern memory. As the crisis evolved, U.S. Treasury rates fell and credit spreads widened, leading to much higher bond yields overall. Figure 2 on the opposite page shows the excess returns of different fixed income index sector indices over the last decade. A revealing measure of the extent of the crisis is the ratio of underperformance between 2008 and 1998 (during the Long Term Capital crisis). In the Agency MBS sector, 2008 was “merely” two to three times as bad as 1998. In credit (Emerging Market Debt, High Yield and Investment Grade) the corresponding multiple ranges from 2 to 8. However, in CMBS and ABS\(^5\), the multiples were 13 and 278 (!) respectively. The shockingly low returns in 2008 reflect not only erosion in value but decline in liquidity as well. Illiquidity was a particular problem in structured securities (CMBS and ABS) as well as in credit.


\(^{8}\) CMBS refers to Commercial Mortgage Backed Securities. Asset-backed Securities (ABS) includes securitized credit card receivables, auto loans and, importantly, securitized sub-prime mortgage loans. Confusingly, the latter are classified as asset-backed and often referred to as “home equity” loans even though they are residential first mortgages.
Manager Performance

Long-only actively managed fixed income portfolios are typically expected to return between 50 bps and 150 bps annually above their benchmarks. In 2008, the median manager (See Figure 3) underperformed by about 600 bps to 800 bps in some sectors (Mortgages and Core Plus respectively), which is many standard deviations worse than anticipated. The range of performance between top and third quartile managers was also unusually large and often in the hundreds of basis points.

The explanation for the magnitude and range of this underperformance lies largely in leverage, allocation to weaker sectors, and individual security selection, approximately in that order of importance.

![Figure 3: Manager Performance in Fixed Income in 2008](image)

Note: All categories show excess returns versus the benchmark, excluding munis, which show total returns. Source: eVestment (all categories, excluding municipals) and Lipper (munis).

### Table: Excess Returns Versus Treasuries of Fixed Income Sectors (1998-2008)

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<td>Ratio between 1998 and 2008</td>
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<td>3.0</td>
<td>2779</td>
<td>13.2</td>
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Source: Barclays Capital
Traditional fixed income portfolios contained two forms of leverage which we will term structural and opportunistic.

**Structural leverage** was commonly used in closed end funds, municipal bond funds and taxable fixed income funds. In taxable funds, the leverage stemmed from the purchase of agency mortgage backed securities. Asset managers have a choice of purchasing mortgage pools or TBAs (for To Be Announced), which function like a forward contract. A purchaser of the TBA receives the return of mortgage securities corresponding to a specified agency, coupon and term (e.g. Fannie Mae 5% 30 year mortgages) less the return of cash (typically the risk free rate). The advantage of TBA purchase is that they possess greater liquidity and involve less operational complexity than buying pools. The cash set aside for TBA settlement was often invested in instruments that obtained a higher expected return than the financing cost, including floating rate AAA securities based on sub-prime mortgages. Managers that engaged in such structural leverage lost returns in proportion to their sub-prime exposure.

Closed-end funds were structurally leveraged in Auction Rate Preferred securities. These are longer-term securities with shorter term interest rates periodically reset through an auction process. The auctions started to fail in late 2007 and left their issuers and holders at a disadvantage. Fund investors suffered leveraged losses in fixed income asset classes and investors in the Auction Rate Preferred securities held illiquid long maturity investments unless the fund redeemed them.

Municipal funds were structurally leveraged using Tender Option Bonds (TOBs). The fund would acquire partial ownership of a trust by placing longer term securities in it. The trust would issue short term securities collateralized by the longer term ones and, invariably, use the proceeds of the issue to purchase even more long term instruments. The shorter term securities were able to be put at par (the tender option) into the trust. When credit spreads of the longer term securities rose, the short term funding became impractically expensive. The losses in the resulting leveraged structure were borne by the fund investors.

**Opportunistic leverage:** The growth in derivatives provided traditional and hedge fund managers the opportunity to express views in the interest rate and credit markets without the use of cash. While such “relative-value” strategies were mainly found in hedge funds, they were present to some degree in major “long-only” strategies as well. Whereas structural leverage invariably hurt the investment vehicle, opportunistic leverage produced profit if the positions were “short” the market. But, more commonly, these “relative-value” strategies, which were supposed to be “market-neutral,” were positively correlated to the market, and therefore lost value.

The Shape of Things to Come: Simplicity and Low Leverage

The breakdown in structured credit securities, the impact of leverage, the loss of liquidity and the disappearance of derivative counterparties were surprisingly simultaneous and severe and, as a consequence, are likely to lead to some enduring structural and philosophical changes in fixed income investment.

**Little to no leverage in Long-Only:** The use of structural and opportunistic leverage outside of hedge funds is likely to be reduced sharply. Indeed, it may be eschewed in long-only strategies as mutual fund boards of directors and institutional clients impose tighter restrictions on managers.

**Complexity is corrosive:** The failure of structured finance has been mathematical as well as moral. Very few people understood structured finance securities well; many assumed that others did. The risk premium for complexity is likely to remain high enough to close some markets—such as that for commercial mortgage backed securities—for the foreseeable future, barring considerable government help.

**Out-of-benchmark may mean out-of-portfolio:** Non-benchmark securities such as hybrid bank debt, floating rate asset-backed securities, and non-agency mortgages were commonly found in
long-only portfolios. Investors are likely to reverse the decades-long easing of guidelines that permitted out-of-benchmark securities. As a result, portfolio excess return expectations may diminish, but so too their potential to surprise to the downside.

The net effect of these changes is that traditional fixed income investors will likely demand traditional products: government and corporate bonds along with agency mortgage-backed securities. The asset-backed security market is likely to be concentrated in consumer finance: auto and credit card loans. Residential mortgages that are agency-eligible will likely be the only ones securitized and all else will reside on bank or Government balance sheets. All other types of loans, whether collateralized by commercial property or intellectual property, will probably be found only in private markets.

Investors need not despair, though. Traditional investors are likely to buy traditional portfolios with familiar and liquid assets dependent on the traditional skills of interest rate management and security selection. These portfolios are likely to have lower expected returns over the benchmark, but less down-side risk as well. Aggressive portfolios should be well-rewarded for knowingly accepting the risk of leverage (structural and opportunistic) and, possibly, complexity in security structure. Those who wish to obtain the added returns of private markets may do so with full knowledge of their illiquidity. The path to this simplicity is likely to be long and painful, however, as funds de-lever and sell assets whose AAA-rating, let alone par value, is a poignant memory.

In the interim, new risks are being created. The massive liquidity injection by the Government and its intervention in private asset markets may be necessary to cure this crisis, but it creates distortions. Financial institutions are issuing debt with government backing (Temporary Liquidity Guarantee Program); the Federal Reserve is buying government, agency and mortgage debt; new asset backed securitizations are taking place with Government leverage (Term Asset-backed Lending Facility); legacy mortgage securities are being purchased in Government aided partnerships (Public-Private Investment Partnership); various facilities exist to prop-up the commercial paper and money market complexes; and the Government is issuing vast amounts of debt. Hence, current market prices do not clearly reflect risk and their adjustment to the withdrawal of Government support is unlikely to be painless. To fear the withdrawal of a cure is not to question its need or criticize its administration—it is merely to acknowledge that we have shifted from one form of easy credit to another.

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9 David Bowie securitized the right to current and future revenues of all his songs recorded before 1990. This asset-backed security had a face of $55 million.
INTRODUCTION Equity investors may well be feeling a little aggrieved about the tremendous damage that has been done to their market over the past year or so. After all, wasn’t this supposed to be a fixed income crisis? In the bear market of 2000 - 2002, the near 50% fall in the S&P 500 index (and 70% fall in the value of the NASDAQ composite) was clearly the consequence of the excesses on display in the stock market during the late 1990s. In that period, “new economy” stocks were driven to speculative levels, which even at the time looked very aggressive, and the returns on the entire market regularly exceeded a 20% annualized rate from 1995-1999. This time around, however, stocks were not looking especially expensive before the fall. Indeed, returns over the previous few years had not been considered excessive, with the S&P 500 returning 11% annualized over the five years to September 2007.

The warning signs of excess this time were elsewhere, and particularly in the debt markets, where risk premia virtually disappeared, and hugely complex new structures mushroomed to support a massive issuance of “high quality” paper. Yet when the storm broke, equity investors suffered the worst fall in stock prices since the 1930s. It was a violent bear market in domestic equities that exceeded anything seen in the career of any current market participant. In modern times, only the collapse of the Japanese bubble looks comparable.

Why did equities suffer so much? First, the financial sector of the market started to underperform severely as soon as the credit bubble burst. Financial stocks made up 20% of the S&P 500 index in mid-2007. Given the high exposure that these firms had to credit markets, and their high financial leverage, the damage has been very substantial. Even after the recent rally (April 2009) the S&P Financials index has lost almost 75% from the pre-crisis peak. Second, the financial crisis rapidly spread to the real economy around the world, despite lingering hopes amongst equity investors that the damage would be contained. Earnings are likely to fall by the most they have since WWII, and valuations, however modest, based on the peak earnings pre-crisis have not provided much support.

We believe that this painful episode is likely to weigh on equity investing for a while. The risk premium in equities, compared to other asset classes, is now very high but may remain elevated until investors recover their confidence in risky assets. In the same vein, value investors are enduring a testing period for their strategies. It is unlikely that financial stocks will find favor until they settle into operating models with less leverage. It is very likely that the world of equity investment management gets re-ordered as their own business models face the challenges of asset shrinkage and, in some cases, poor relative performance. But for long term investors, there are potential opportunities on offer, and the equity asset class is likely to provide a more rewarding experience again in the coming decade.

REESTABLISHING THE EQUITY RISK PREMIUM Equities are a risky asset class, and the risk premium is there for a reason. Of course we all knew that, at least in theory. Today’s equity investors, however, have actually experienced a crushing bear market the likes that most had only read about in the history books, or watched unfold in a distant country. After all, the impact of two severe declines in stock prices during the past decade, separated by a fairly modest recovery, left the S&P 500 down over a trailing ten year period for the first time since the 1930s (See Figure 1).

This is not at all what investors had in mind when they piled hundreds of billions into equity mutual funds during the late 1990s. For example Lipper data tells us that a net $174 billion was invested in large cap domestic equity funds during 1998; the S&P 500 index in March 2009 was 32% below the average level of that year. For a long time, investors have been comfortable with stocks as the risk asset of choice. That commitment is likely to be severely tested by the many disappointments of the past year; among them, for example, the long term underperformance that stocks now display versus fixed income (See Figure 2).
One of the important unknowns at this point is the extent to which the appetite for equity risk on the part of individual or institutional investors has been damaged by this poor performance. So far, individual investors have modestly withdrawn assets, with flows of about $50 billion, out of domestic equity funds since the beginning of the crisis in mid-2007. That represents about 4% of the starting value, although when combined with the valuation effect of falling prices, this seemingly modest decline leaves individual investors with much lower exposure as a share of total assets. Institutional investors meanwhile have been trying to scale back their domestic equity allocations since the early part of this decade, shifting to emerging and international equity, as well as alternatives. Unfortunately these “diversifying” strategies have been highly correlated with the weak equity market during the downturn.

It appears that most institutional investors have delayed their usual rebalancing schedule over the past few months, partly due to a lack of liquidity, but perhaps also as a re-evaluation of the desired long run level of equity exposure. Of course the returns that are likely to be achieved from here could well be very good, given the extremely low valuations on offer across the stock market. But with the risks of equity investment now so fresh in their memories, it may be a long time before investors are willing to allocate quite so freely to this, or any other, risky asset class. As we discuss in other sections of this document, investors are now likely to pay more heed to managing their liquidity and downside risk. It is probable that these considerations will reduce their overall allocations to risk assets but, in the end, U.S. investors may favor U.S. equities over International Equity and, indeed, equities over less liquid alternatives.

VALUE INVESTING IS NOT A FREE LUNCH
For many years, it has been widely accepted that cheap stocks do better than expensive ones. Great careers have been built on this simple and intuitive observation, and virtually every equity fund manager incorporates valuation into his or her investment process. Of course there have been times when value investing has been challenged; in the late 1990s for example, value investors were forced to sit back and watch the internet bubble rise for much longer than most had expected. In the international arena,

**FIGURE 2: TOTAL RETURN–S&P 500 VS BARCLAYS US AGGREGATE BOND INDEX**

![Figure 2: Total Return–S&P 500 vs Barclays US Aggregate Bond Index](source: S&P, Barclays, as of December 31, 2009)

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10 Please see the section on Downside Risk Management, and the sections related to Defined Benefit, Defined Contribution and Individual Investors.
valuation disciplines kept most non-Japanese investors on the sidelines as the bull market in Tokyo roared throughout the second half of the 1980s.

In both these examples, value investors faced some difficult questions from clients, and their commitment to the value creed was no doubt being tested when the best returns were accruing to others with less respect for fundamentals. But keeping the faith was easier when it was clear that those stocks most in fashion were highly vulnerable to change in sentiment and were driven by little more than pure speculation.

Surely enough, patience was rewarded when the bubbles burst, crushing the market indices and allowing active managers to post superb relative returns. International managers, for example, could have outperformed the MSCI EAFE index by almost 20% over a ten year period simply by staying away from the implosion of the grossly overpriced Japanese banking sector. In domestic markets, the returns to value investing that followed the bursting of the internet bubble were almost as good; Russell’s Large Cap Value index outperformed the Growth equivalent by 125% between March 2000 and May 2007.

This time has been very different—many value investors did not underperform because growth stocks did better; rather, they underperformed because of severe price declines in many seemingly low-priced stocks, especially financial stocks. Some of the very worst returns in the equity market over the past year have come from stocks that, at least in terms of price/earnings measures, were very modestly valued in the first place. Value seeking investors who owned these stocks, and added to them as they fell in price, have seen their relative results crushed as never before. The returns to the Barra Value factor (essentially price/book) tells the story very clearly (See Figure 3). The relative returns from stocks with low valuations relative to their book values have been as poor as at any time since the 1970s. The culprit is financial leverage, which quickly magnified the impact of deteriorating business conditions and, in the worst cases, wiped out the company’s book value (See Figure 4).

If we look at the ten worst performers in the S&P 500 index last year, we see that as of January 1st, 2008, the group traded at a median multiple of only 9x forecast 2008 earnings, compared to a market average multiple of 12x. Yet these stocks lost a mini-
mum of 89%, and five were completely wiped out. Looking at the sector composition of the biggest decliners gives us a clue as to why: nine of the ten were financial companies. The problem was financial leverage, which doesn’t show up in a price/earnings or price/book statistic, but can make valuation irrelevant or even dangerous when the business concerned gets into difficulties.

Unless an active manager looks at the risks involved in a particular equity investment and factors those into the final decision, then value investing can bring unpleasant surprises, especially in a deteriorating economy. Simply buying leverage is likely to result in quite good returns during benign economic environments, followed by very poor results indeed during the bad times that usually follow.

Quality matters, and the value managers who have successfully navigated through this period are the ones who have recognized that. The most painful aspect of this value underperformance is that at least part of the damage will be permanent. The names that have fallen most in price are highly unlikely to recover again—what hope can there be for equity investors in AIG, Fannie Mae, or even worse, Lehman Brothers? Unlike the prior episodes of pain for value investors, this one will require more than patience to survive. In 2008, financial firms occupied a special circle of hell for value investors. As a result, investors are unlikely to show much interest in highly levered financial companies for a while, especially if that leverage is supported by wholesale funding. Whatever the regulatory response (and we expect a significantly less lenient environment), equity markets will demand a more conservative style.

Good portfolio construction has also been a key requirement to survive the events of the last eighteen months. As volatility has spiked, equity portfolios have been subject to a severe stress test. Successful risk management in this environment has required the ability to understand this, and to see how the rapidly changing macro environment is impacting stock selection decisions across different industry groups. Quantitative risk analysis tools have been helpful, but there is no substitute for fundamental insights into risk at the company level and across the total portfolio.

MANAGING THE EQUITY MANAGERS The dramatic fall in markets worldwide will, absent a rapid recovery, likely encourage some rationalization of the asset management business. Equity management has historically been a very profitable business, but a firm with, for example, $100m of equity revenue and $60m of costs in 2007 is probably now running at an annualized revenue rate of $55 million, after market movements and negative client flows. Some costs are variable, but profitability is likely to be very depressed, and some firms won’t be able to withstand that. One should expect fund closures, fund mergers and the restructuring of unprofitable and/or underperforming teams within asset management organizations. Of course in the long run, the quality of a manager’s performance record will be the key driver of financial results, but business pressures will be severe in the interim.

The pressure will be widespread across the equity management industry, but will likely be most severe on dedicated equity firms with no diversification in terms of their market exposure. The favored model for many investment consultants has been the boutique equity firm focused on a single investment strategy. But a severe equity bear market may well impose more strains on this type of firm than a larger and more diversified business with revenues less dependent on the level of the equity market.

THE FUTURE OF EQUITY INVESTING: OPPORTUNITY FROM CRISIS Unfortunately, the lessons described above are backward looking, and may be more harm than good if followed too literally. Stocks are no doubt risky, but the premium now being offered to own them is the highest it has been in over twenty years (See Figure 5).
All things being equal, now does not seem to be the best time to commit to a much lower equity allocation. Free cash flow yields from the mid-teens are in abundance from good companies, while investment grade corporate debt trades at 6-7%. Meanwhile, value investing is risky, but the discount of the more risky names with respect to, for example, the S&P 500 benchmark is also at extreme levels by past standards, as our own research-driven ranking data illustrates. Figure 6 shows the spread of valuation between the cheapest two quintiles in our research-driven stock rankings and the overall market average. This spread widens out at times of stress and uncertainty, presenting a real opportunity for investors who are willing to take risk.

However, all things are not equal, and equity investment is part of a larger asset allocation by institutions and individuals. As later sections in this document argue, the severe and correlated under-performance of risk assets has scarred many investors. Those who are unwilling to tolerate much further loss may maintain a reduced allocation to equities in spite of the return potential. Others, who have a longer time horizon but are worried about liquidity, may view with favor the traditional benefits of the equity asset class—attractive long term returns together with transparency and liquidity. In their minds, public equities may well be more attractive when compared to other, less liquid, risk assets that have been so popular in recent years.
INTRODUCTION  The Hedge Fund Industry suffered its most severe period of market stress in 2008, with the HFRX Global Hedge Fund index declining by 23.3%. As Figure 1 below shows, poor performance was across all types of strategies, with nearly every strategy producing its largest 12-month drawdown in history last year.

In this section, we consider where the industry may now be headed. We believe that it is likely to experience a substantial realignment driven by both supply and demand factors. On the supply side, there are likely to be fewer funds as assets are withdrawn, leverage remains expensive, strong operational controls are demanded and fees compress. On the demand side, investors will remain cautious in the near term, but we believe that the investment performance of talented traders and investors, as represented by the set of hedge fund managers who have survived the recent tumultuous period, will cause demand to increase in the moderate/long-term. The result will be a more consolidated industry in which long-term investors will require transparency, controls, rational fees, strong liquidity management and, of course, credible investment professionals. First, however, we will briefly discuss performance in 2008.

HEDGE FUND PERFORMANCE  It is fair to say that the bulk of under-performance was experienced after the Lehman bankruptcy in September. Under-performance was associated typically with one of the following factors:

- **“Long-bias”**: This refers to the correlation of a fund’s performance to that of the overall market. Some strategies (like distressed securities) have a long bias by construction, and others, including market neutral ones have a latent bias. This latent bias is often disguised as an exposure to another factor, for example illiquidity or credit quality. Hence, as markets suffered in the fall of 2008, the long-bias of many funds caused under-performance.

- **Basis risk**: The primary risk when executing relative value trades is that the pricing relationships move in an opposite direction than expected, without an offsetting movement from the related security or securities paired/hedged against it. For example, when you invest in a convertible bond and hedge that position by shorting the stock of the same company it is termed convertible arbitrage. However, if the convertible falls and the stock price remains stagnant (or worse increases in value) the loss is amplified, especially when leverage is used— as it often is in relative value positions.

### FIGURE 1: HEDGE FUND PERFORMANCE IN 2008

![Graph showing hedge fund performance in 2008](image-url)

Source: Hedge Fund Research (HFR), Please see Important Notes page.
Overcrowding: Overcrowded stock positions held by managers (or shorted by managers)—many of the companies, from a fundamental perspective, may have been good “stock picks”, but similar to what happened to managers in other strategies, the technical pressure overwhelmed fundamentals (including in short positions). Bank proprietary trading desks wound down their operations in the second half of 2008, and spurred liquidations of many widely held stocks. In turn, hedge fund managers were forced to liquidate positions to satisfy redemptions, to meet margin calls, or simply to reduce gross exposure, and many of these widely held positions were therefore sold to raise cash.

One bright spot in the industry during this period was in the opportunistic macro sector. Macro managers have perhaps the most flexible mandate. They can invest in any asset class, can be long, short, and/or arbitrage oriented, and can employ little or significant leverage. Traditionally, managers in this space have focused on currency trading and fixed income (interest rates) trading. In 2008, macro managers fared better than most, with the HFRX Macro index appreciating by +5.6%. The best managers held cash on the sidelines as others suffered, and took leverage down leading into the second half of the year. Many were also able to capitalize on the significant currency volatility (e.g. long USD and short GBP), and on yield curve trading (especially being long cash instruments at the front of the curve).

The performance of non-macro managers was correlated to the poor performance in traditional asset classes (although the decline for hedge funds was generally not as severe). In addition, fraud ensnared many prominent funds of funds, private banks, and consultants, causing additional investment losses and business challenges. The combination of these factors is likely to lead to substantial changes in the industry, which we will focus on addressing throughout the remainder of this section.

TRANSPARENCY AND REGULATIONS In the aftermath of 2008, it is not surprising that the drumbeat for more transparency from hedge funds is getting louder.

U.S. Government insiders and regulators have called for the regulation of hedge funds and the international committee of current and former senior regulators, the “Group of 30,” has begun to outline proposed hedge fund regulation requirements. Below are several of the directives under consideration by the Group of 30:

- Federal registration
- Ongoing information reporting requirements
- Substantive regulation (such as leverage limits)
- Stricter investor suitability standards; An investment advisor “self-regulatory organization,” and
- Self reporting requirements

While it is unlikely that specific reforms will be adopted in the near term, we are confident that transparency will increase. Following the dramatic market stresses and volatility of 2008, the revelation of the fraud committed by Bernard Madoff, and the increasing pressure on and from regulators, managers will be required to be more transparent.

As the balance of power shifts to investors, those with the requisite scale, resources and expertise will be far more competitively positioned, because they will be able to demand more information from managers, and perhaps more importantly, to digest, analyze and act upon it. Further, hedge funds of funds and individual funds with scale will also be better equipped to provide their investors with detailed exposure data on a “look through,” consolidated basis. In addition, the scope of operational due diligence will expand to include numerous evaluations of a manager’s business operations, service providers, financial statements and legal documents.
FEES Quite simply, we expect management fees to decline and align with the actual ongoing expenses of the business, such as salaries, overhead and a modest profit. Performance fees, on the other hand, should continue to create a strong incentive and handsomely compensate those managers who perform well.

That said, many investors will hesitate to pay performance fees on returns that are heavily attributable to beta, which is the case notably within strategies that require managers to maintain a long bias in order to access the most attractive opportunities. Increasingly, investors will demand that performance fees be charged only after some hurdle is exceeded. The size of the hurdle, naturally, will correspond to the strategy’s beta. This puts pressure on investors to understand the beta component of each hedge fund manager’s returns. Another option to align performance fees more appropriately with investor interests is for managers to charge performance fees based on a longer investment cycle, as opposed to charging performance fees in each year that returns are positive. This may smooth out the fees and avoid overpayments during windfall years, thereby ensuring that years such as 2008, in which most managers suffered losses, impact the wealth of the manager as much as the client. Further, a longer calculation period may lessen the incidence of managers taking excessive risk in a single year in order to recoup losses and boost a fund’s performance back above its high watermark. We believe that hedge fund principals should also be prepared either to hold working capital on the management company’s balance sheet, or to otherwise tap into their own financial resources to support their business when performance fees fall short of expectations.

LIQUIDITY Investors will need to be much more discerning about liquidity when evaluating managers. This includes both the liquidity of a manager’s portfolio and the liquidity terms a manager offers to investors. The study of a fund’s terms, investor base, amount of leverage employed and underlying exposures will remain critical to a proper due diligence process. So will scenario analysis, which allows investors to consider various what-ifs and to be better positioned to exit a vulnerable fund before it is forced to suspend redemptions or issue fund holdings in kind.

HEDGE FUND LEVERAGE
Leverage
Leverage has and will continue to come down. The drivers of the reduction are both demand and supply, which in this case each will intersect at investment value.

The demand for leverage by hedge funds has declined and will remain much lower than it has been during prior years, we estimate by 30%-50% cumulatively across the industry. Strategies that have historically used high leverage witnessed dramatic declines in 2008 as “basis risk” took hold. A number of managers who traded strategies such as fixed income arbitrage, statistical arbitrage, and even fundamental equity long/short managers who used excessive leverage have gone out of business (or will do so in the coming months). In addition to hedge fund managers who have reduced leverage or closed, another large segment of highly leveraged investors has almost ceased to exist: proprietary trading desks. In the past, these desks may have been leveraged by as much as 20 times, depending on the trading strategy. Many were shut down by large banks starved for capital or by those struggling to improve their balance sheets, and many of those that remain now employ less leverage. As a result of the capital withdrawals and leverage reductions by managers and the closing of proprietary trading desks, some estimate the “alpha seeking money” to have declined by as much as 85% (See Figure 2).

The Supply of Leverage Has Also Decreased
First, several historical providers have ceased to exist, with Lehman Brothers and Bear Stearns being two prominent examples. Second, the remaining willing providers have scaled back their own balance sheet risk, and in some cases found themselves constrained by capital shortfalls. The result is that
A SAMPLE CASE STUDY IN LIQUIDITY ASSESSMENT

The liquidity assessment process must be considered dynamically. While a fund’s redemption terms are important, many other variables can have an impact as well. Let’s use a hypothetical example including the considerations that need to be vetted before a decision.

Assume that a credit hedge fund manager has the following liquidity terms:

- Two-year hard lock-up\(^1\), followed by one-year soft lock-up with 2% penalty
- Semi-annual liquidity with 90-days notice
- 20% fund-level gate with priority\(^2\)
- 10% maximum-allowed side pocket usage

Note: 25% of portfolio is illiquid and valued by manager.

Does the manager’s portfolio warrant such restrictive liquidity? If yes, is it perhaps not restrictive enough?

The liquidity of the fund’s assets must be assessed. Sometimes, managers may be offering liquidity that is too generous, in which case it might make sense to propose that the manager revise these terms with the investor base.

Does the manager employ leverage? If so, what form(s) does it take—prime broker financing, OTC swaps with ISDAs, futures, options, etc.?

This is a critical piece of information, since leverage providers often will demand that their capital be returned if the fund’s equity declines by some threshold amount. Because leverage providers have a first call on capital (i.e. before redeeming investors), they can put a manager in a precarious position if the liquidity of the assets are not consistent with the ability of a manager to de-lever the portfolio in a difficult environment.

Who are the other investors in the fund in terms of their seasoning (i.e. how long they have been invested), concentration levels and liquidity needs?

If the majority of the fund’s AUM is with seasoned investors who have owned shares beyond the lock-up period, then a gate—whether investor-level or fund-level—becomes even more important. If a gate is not in place, then new investors have no flexibility to redeem their assets even if the majority of the other investors redeem. In satisfying these redemptions the manager may be forced to liquidate the most-liquid assets first, potentially leaving remaining investors with a less-liquid portfolio.

Another important consideration is the fund’s client base (i.e. individuals, institutions, funds of hedge funds, etc.). For example, if the fund has significant pools of capital invested that are also seeking liquidity, the manager is at a greater risk of receiving unmanageable withdrawals if proper restrictions are not in place. In 2008, several hedge fund of funds were also wrapped inside structured products, including principal-protected notes. Because many such structures were leveraged vehicles, leverage-ratio requirements forced them to quickly withdraw from the underlying hedge fund of funds upon only a minimal decline in performance.

Can the manager manipulate the fund’s liquidity by moving items into and/or out of the side pocket portfolio?

Side pockets are typically for the fund’s most illiquid assets and are not subject to the same redemption terms as the remaining assets. Investors should try to learn when positions can be moved into a side pocket, how they are valued, whether performance fees are charged, etc. Side pockets should not be used as a fund gate to curtail redemptions. Ideally, assets should be designated as side pocket items when purchased.

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\(^1\) A lock-up is a restriction on redeeming any capital out of the fund. It can be “soft,” where any amounts withdrawn are subject to a redemption penalty during the initial period, or “hard,” where there are no withdrawals for a specified initial period, or a combination of each.

\(^2\) Gates are restrictions that managers impose on redemptions. They are usually spelled out in the terms offered by the fund, and expressed as a percentage of the fund’s AUM (a “fund-level gate”) or the amount invested by any one investor (an “investor-level gate”). For instance, in the case of a 25% fund-level gate, if cumulative redemptions from the fund exceed 25%, each investor’s redemption is reduced, pro rata, by an amount sufficient to bring the total redemptions down to 25%. Further, for the portions unable to be redeemed due to a gate being triggered, managers have provisions or terms that spell out when the remaining portion is due to be paid (these “clean-up” or “priority” provisions are common). For instance, if amounts not redeemed are guaranteed to be paid within six months after the redemption period, the fund has a “six-month clean-up.”
leverage is less readily available (especially for non-“A list” clients of prime brokers), and may include unappealing terms.

Where Value and Leverage Intersect
One can say that there is an equilibrium that has played out in the market for leverage. The demand by hedge funds and proprietary trading desks is much reduced, and so is the supply. Importantly, in the hedge fund industry demand and supply of leverage intersect with each other at investment value, and this should be more than just a discussion point to truly determine the attractiveness of certain asset classes and managers going forward.

The value of various classes of securities is currently very attractive compared to historical levels. The catch is that much of this is a result of the leverage that came out of the system, which was either driven out by a forced reduction as suppliers recouped their capital, and/or a concurrent willing reduction in leverage by investors (hedge fund managers included).

Regardless of the motivating forces, it resulted in a mass liquidation of assets, which in turn created the attractive valuations we see today. However, to truly say that valuations are attractive, one must also think about the leverage supply and whether it will increase again any time soon. After all, a security may appear cheap compared to when there was excess leverage and capital driving its value to lofty levels, but if leveraged capital is not likely to be reintroduced into the market, then using that prior reference is a flawed approach to determining cheapness. Such a course of action would be similar to an equity manager who feels the resulting pain of investing in a “value trap” stock, where earnings multiples appear attractive until the actual earnings collapse.

SECONDARY TRANSACTIONS The recent liquidity challenges are likely to present more opportunities for stable investors, as activity in the secondary market continues to increase.

Supply Side
On the supply side, investors wishing to sell their allocations usually do so for several reasons:

- **Distressed hedge funds, often driven by a bad capital structure:** if a hedge fund manager’s portfolio is impaired, investors often want to simply exit as quickly as they can, even if it means selling at a rather steep discount.

- **Distressed hedge fund investors are themselves desperate for liquidity:** in this case, a fund may limit or suspend redemptions due to outsized investor redemptions driven by investors who themselves have large liquidity concerns. These investors may be required to meet redemptions of their own. One such example in 2008–hedge fund of funds that were leveraged and wrapped inside structured products, in which case the structured product manager was forced to redeem from the hedge fund of funds to bring leverage ratios back into balance.

- **Funds with prudent liquidity terms:** before the wave of redemption suspensions that occurred in 2008, these fund shares were the vast majority of those transacted in the secondary market. In such cases, the hedge fund manager was prudent in restricting liquidity and managed his or her capital structure well. The portfolio may hold assets that are very high quality, and may or may not be illiquid. However, the manager’s terms restrict investors from withdrawing capital, usually through lock-ups, and those locked-up investors have occasionally put their shares up for sale in the secondary market.

<table>
<thead>
<tr>
<th></th>
<th>Hedge funds</th>
<th>Proprietary desks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Equity</td>
<td>Leverage</td>
</tr>
<tr>
<td>Early 2008</td>
<td>$2.0</td>
<td>3.0x</td>
</tr>
<tr>
<td>Early 2008</td>
<td>$1.2</td>
<td>1.5x</td>
</tr>
</tbody>
</table>

Source: GFIA of Singapore

**FIGURE 2: DECLINE OF “ALPHA SEEKING MONEY”**

- **Figure 2:** Decline of “Alpha Seeking Money”

<table>
<thead>
<tr>
<th>Year</th>
<th>Hedge Funds</th>
<th>Proprietary Desks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Equity</td>
<td>Leverage</td>
</tr>
<tr>
<td>Early</td>
<td>$2.0</td>
<td>3.0x</td>
</tr>
<tr>
<td>Early</td>
<td>$1.2</td>
<td>1.5x</td>
</tr>
</tbody>
</table>

Source: GFIA of Singapore

- **Table:** Decline of “Alpha Seeking Money”
As one might expect, the best opportunities in terms of value are often found in the latter two categories. Long-term investors are best equipped to capitalize on these opportunities.

Demand Side
On the demand side, the situation leading to a hedge fund’s shares being listed needs to be understood by investors in detail before making a bid. To determine the appropriate bid, investors need to gauge how much a seller needs to sell and what discount he is likely willing to accept, as well as the quality of the hedge fund shares for sale.

Each secondary transaction is different, and there are important factors investors need to consider. Below are a few examples:

- **Is the high-water mark attached to the transaction?** If purchasing shares where the NAV is below the high-water mark due to negative performance, investors need to know if the high-water mark will reset to the current NAV upon a change in beneficial ownership, or if they get to keep the embedded loss post-transaction.

- **What share class is available in the secondary market?** Many hedge funds have decidedly different fees and liquidity terms, or even underlying investments (e.g., side pocket eligible), depending on the share class.

- **Do liquidity restrictions reset?** Similar to the high-water mark consideration, does a change in beneficial ownership after a secondary transaction result in a reset of investor lock-ups or other liquidity restrictions, or does the seasoning embedded in the shares transfer to the new investor?

- **What is the transaction charge?** Investors pay a fee for each transaction. The fee varies, but may be 50-100 basis points or more.

**IN SUMMARY** As is often the case following challenging periods of performance, not only does the environment improve but the participants become stronger and more efficient. The environment will be one with more regulations and investor demands, which will in turn serve as a barrier to entry to funds without the necessary talent, expertise, and scale. Overall, there will be fewer players and fewer assets to manage, but the rewards in terms of risk-adjusted returns may very well be more attractive for all concerned.
OVERVIEW Recent economic and capital markets events have demonstrated once again that commercial real estate is a cyclical business. Investors recognize this, but bull market enthusiasm sometimes seems to reduce their awareness. Of course, real estate cycles are affected by both the general business cycle, which strongly influences operating earnings from property, and capital markets factors. It may fairly be said that each cycle is different, but many shared features exist.

Thinking about past real estate cycles, we note that commercial real estate seems to be hard hit, as distinct from just suffering mild pain, in “every other” recession. The downturn of 1973-1975 was caused, in part, by excesses in commercial real estate lending and construction in the period leading up to the recession. Not surprisingly, property investments performed poorly. In contrast, the dual recessions of the early 1980s—which we lump together as one incident due to the brevity of the “recovery” in between—were much less virulent with respect to real estate investment performance, likely because neither real estate supply nor valuations had been egregious or overextended. The recession of 1990-91 was similar to 1973-75 for property: excess supply existed due to abundant debt financing and notable overvaluation. The collapse of commercial property was a precipitating factor in ensuing financial institution failures and economic woes. The 2000-2001 recession that followed the tech collapse had an interesting twist: operating results for business-oriented real estate, such as offices and warehouses, were horrible, but compression of property capitalization rates, or yields (the inverse of price-earnings ratios), generated decent investment results.

The current recession continues the historical pattern: it falls into the “every other recession” category. We anticipate an extended period of weakness for property operations, mirroring the projected length and severity of the downturn (especially with respect to the bleak employment picture). A positive element is that the pipeline of new supply is quite muted in comparison to prior cycles. When recovery comes, we anticipate that property performance may turn up more quickly than has been the case when emerging from previous down cycles. Liquidity and transaction volume likely will continue to be low as long as debt capital remains scarce. As a result, upward movements in asset values are likely to lag the general recovery.

We don’t expect large percentage shifts in investors’ overall allocations to property, although we do anticipate a reduction in the amounts deployed in riskier strategies, particularly those that relied heavily on financial leverage. In the near term, perhaps one to three years, investors who have risk capital will be able to command above-normal risk-adjusted returns for providing liquidity.

CONDITIONS COMING INTO THE CRISIS AND EFFECTS OF THE CREDIT CRISIS The credit crisis caused the real economy to go into reverse. That almost always means a deteriorating operating environment for the earnings or business aspect of commercial property. So far, nothing has been different on this front.

But capital market factors have been different. Compared with residential housing, commercial real estate arrived late to the party being thrown by the triumvirate of low interest rates, yield-hungry investors and structured finance instruments. As Figure 1 shows, commercial property values started to rise well
after home prices began to accelerate. This was, not surprisingly, concurrent with the expansion of inexpensive debt financing provided through lending programs operated to generate “product” to be securitized and sold via CMBS and CDOs (See Figure 2). Investors in property equity were able to obtain higher amounts of leverage at very little incremental cost. As a result, the weighted-average cost of capital declined, buyers were willing and able to bid asset values up, and the marginal or price-setting buyer tended to be private-equity funds that had discretion to make highly leveraged deals. Trading/flipping, rather than owning/operating, seemed to become the most profitable way to participate in the market.

To date, price declines from peak levels have been similar: home prices have dropped approximately 27% from their mid-2006 peak and commercial values, as measured by a transactions-based index, have fallen roughly 22% since mid-2007. Importantly, these indexes reflect national averages. Individual metropolitan areas may exhibit significant dispersion, both in magnitude and timing of value changes relative to the average.

If we had to choose a signal event to mark the peak of the U.S. commercial property market, it would be the acquisition of publicly traded office REIT Equity Office Properties by one of Blackstone’s real estate funds in February 2007. This roughly coincided with the first inkling of trouble in the residential mortgage markets. The initial round of credit deterioration, which occurred in the second and third quarters of 2007, caused modest upward movement in required returns from property, mirroring increases in investor risk aversion and consequent credit spread widening in liquid markets. Transactions continued to close and public (CMBS) and private debt markets remained open, albeit at significantly reduced levels compared with late 2006 to early 2007 volumes. It was apparent, though, that liquidity was retreating from the market.

As the crisis spread and shut down structured finance markets, property transaction volume started to plummet, responding to the withdrawal of CMBS financing and increased uncertainty about asset valuations. By early 2008, it was clear that the credit crisis had not been contained, and real economic activity across many sectors was being affected. Commercial property valuations in markets that were wracked by the excesses in residential housing fell significantly. It became increasingly difficult to find liquidity for transactions, although properties with below-market (rate) assumable financing appealed to buyers.

By mid 2008, job losses had materialized in almost all major metro areas. Rents and occupancy rates were declining, reflecting deterioration in the real economy. Lowered expectations of future earnings, an obvious consequence of broad-based economic weakness, started to cause a second downward leg in property valuations, compounding the effect of higher required returns.

Grim economic reports and the massive decline in equity markets put extreme pressure on U.S. commercial real estate values in

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13 We used an index of sales prices from the NCREIF Property Index (NPI) database that is produced by MIT’s Center for Real Estate. This transactions-based index uses a repeat-sales methodology that is similar to the technique used to generate the S&P/Case Shiller home price index. Compared with the published NPI, which reflects both actual sales and property appraisals, the transactions-based index exhibits greater volatility, and its turning points tend to precede those exhibited by the broad NPI.

14 We used Dec. 31, 1997 as the index base because that is approximately when home price increases, measured by the S&P/Case Shiller 20-City Index, began to diverge from per capita personal income growth, which we believe serves as a natural governor or trend rate-of-change for house prices.
fourth quarter 2008. The chaos caused any remaining liquidity to dry up: trading activity effectively ceased. Marked-to-market asset values were slashed, consistent with and likely prompted by what occurred in other more-liquid risk markets.

**INVESTMENT RESULTS: THERE WAS NOWHERE TO RUN, NOWHERE TO HIDE** Private real estate equity generally is the largest portion of investors’ real estate allocations, which may also include publicly traded real estate debt and equity securities and private-market debt instruments. Commercial property is primarily a “long only” market. Consequently, few investment strategies, whether equity- or debt-focused, offered positive results in 2008 after accounting for mark-to-market valuations (See Figure 3). Shorting REIT shares and CMBS, using swaps, index and/or ETF trades, was an exception. However, such trades were more likely to be executed by hedge funds rather than traditional real estate investors such as pension funds and insurance companies.

On a relative basis, unleveraged investments in properties generally fared better than similar investments that used debt. Evidence also suggests a meaningful vintage year effect. Assets purchased at the 2006-2007 peak of the debt market/credit expansion have been most exposed to significant declines in value.

Results from defensive plays, such as lending mezzanine debt at the asset level rather than owning leveraged equity in the same asset, have been mixed. Some positions have held up fairly well from a cash flow perspective, although they have experienced significant valuation declines. Other positions have effectively turned into highly leveraged equity with dramatic reductions in value, or else been entirely wiped out due to falling asset values and eroding cash flows.

**THE DEATH ZONE AND BEYOND** Most investors incorporate real estate into mixed-asset portfolios as a diversifier to help dampen overall portfolio volatility. Historically this has worked quite well, as shown in Figure 4. In particular, until Q3 2008 there were no periods when both U.S. commercial real estate and a 60% stocks/40% bonds balanced portfolio simultaneously produced negative total returns (observations in the lower left quadrant), which we label the Death Zone. Q4 2008 produced the most extreme “double negative” ever.

Despite this, we don’t think the strategic rationale for investing in property has been altered by the credit crisis.

Our underpinning for this argument is that we don’t believe the credit dislocation has altered the fundamental dynamics of real estate’s earnings cycle. By comparison with corporate earnings, earnings from real estate tend to: (1) lag turning points in corporate operating earnings and the economy; (2) exhibit smaller peak-to-trough percentage declines and (3) have more extended earnings “bottoms” (See Figure 5).

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**FIGURE 3: 2008 TOTAL RETURNS**

<table>
<thead>
<tr>
<th>Direct real estate</th>
<th>Private-market commercial mortgages</th>
<th>Equity REITs</th>
<th>CMBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>-6.5%</td>
<td>-4.1%</td>
<td>-37.7%</td>
<td>-24.8%</td>
</tr>
</tbody>
</table>

Source:
1. Direct real estate is unleveraged property as measured by the NCREIF Property Index
2. Private-market commercial mortgages are fixed-rate senior loans as measured by the Giliberto-Levy Index
3. Equity REIT total returns are from NAREIT
4. CMBS is a market-value-weighted composite of Barclay’s Capital Investment-Grade and High-Yield CMBS indexes

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15 There is a nascent market in the U.S. for property derivatives, which would foster hedging of long positions or allow outright shorting of direct real estate. The U.K. has more developed commercial property derivatives market, and institutional property investors have been active users.

16 A similar result is found if one plots stocks and bonds separately instead of using a blended portfolio.

17 We attribute these stylized facts to the prevalence of multi-year leases in most commercial property sectors and the effect of underlying financial leverage on corporate earnings. We estimated real estate earnings on an unleveraged basis.
In our view, fallout from the credit crisis is more likely to occur on the capital market side of real estate investment. Importantly, proceeding from our view that the dynamics of the earnings cycle have not been altered, we do not think the crisis mandates a shift in investors’ long-term, equilibrium risk and return expectations for core direct real estate. This likely will continue to be roughly midway between publicly traded bonds and stocks. It is possible that expected correlations will be somewhat higher as investors incorporate the Death Zone experience into their assumptions, but we would expect this re-set still to produce moderate (0.3 to 0.5) anticipated correlations between financial assets and direct property. Consequently, we do not think strategic allocations to property are likely to change much, if at all.

The economic downturn’s severity on commercial property is reflected in the anticipated peak-to-trough earnings decline. It encapsulates important factors, such as employment and retail sales, that have been affected by the recession.

Because we don’t see an alteration in the dynamics of the earnings cycle, we don’t envision significant operational changes: the business of commercial real estate includes managing properties and portfolios through cycles. For example, as owners compete to fill their available space they offer greater inducements, such as periods of “free” rent and higher allowances for tenant improvements (the cost of building out or refurbishing space in conjunction with a new or extended lease), to prospective tenants. At the portfolio level, this increases the need to retain earnings to plow back into buildings, thereby reducing free cash flow and portfolio liquidity.
We have long been proponents of incorporating REITs within a real estate portfolio, and we continue to believe that real estate results will be long-term drivers of REIT cash flows. But several years of extremely high volatility (1.4 to 1.9 times S&P 500 volatility) and betas considerably above 1.0 with respect to stock indexes are cause for concern. Until these risk factors diminish, investors who can access private-market real estate may relegate REITs to a tactical role.

We think the biggest changes (and challenges) will occur in the debt financing of commercial real estate. It seems highly unlikely that the CMBS market will quickly rebound as a source for mortgage funds. Traditional portfolio lenders, such as commercial banks and life insurance companies, do not have the capacity to meet the total debt financing likely to be demanded over the next few years. As a result, we expect transaction activity and, possibly, asset values, to be constrained for several years by the lack of debt capital. We do think alternative debt approaches will start to show up. For example, “covered mortgages,” in which the lender retains on balance sheet a significant slice of the credit risk, have been mentioned. We also recall that the CMBS market in the late 1990s inspired some portfolio lenders to create private-label CMBS. Some variant of this could appear later in the cycle.

We do not think most institutional investors will make major changes in how they approach real estate as an asset class. In particular, we think investors recognize that while commercial property did get caught up in the general inflation of risky asset prices, the sector was not a root cause of the present debacle. This is in sharp contrast to, and perhaps because of, the 1990-91 downturn in which excesses in commercial real estate were a significant cause of financial institution failures and damage to the values of investors’ portfolios. Not surprisingly, we expect investors will return to being quite mindful of balancing the risks of financial leverage with the potential rewards. This may lead to some ratcheting down of allocations to real estate strategies that rely heavily on leverage to produce target returns. Indeed, we are already seeing that stance being adopted by some investors who have not previously had allocations to property. More importantly, that substantial capital pools with little or no exposure to commercial real estate exist is itself a positive factor. While it won’t occur overnight, capital inflows from such investors likely will provide a meaningful impetus for real estate’s gradual recovery.

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18 Some portfolio lenders set up conduit operations to originate loans to be securitized via CMBS. The transactions we refer to as “private-label” CMBS were different and arose from seasoned whole loans that were held on the lender’s books for several years. The lender would then bifurcate loans into senior pieces and junior pieces, sell the senior pieces as a package and retain the junior pieces. Oftentimes, this allowed a capital gain to be realized on the senior pieces.
Structural Aspects of Investment
The U.S. cash market is still relatively young. It began in the 1970s when investors sought higher returns for their cash to counter increased inflation but were unable to get it from depositary institutions subject to Regulation Q.19 The solution was the creation of money market funds which invested in short-term credit instruments, like commercial paper, in order to provide higher returns with minimal principal risk. By 1983 the SEC promulgated Rule 2a-7 in order to regulate these funds. This rule restricts investments in money market funds by maturity, diversity and credit quality. In just 25 years, the U.S. money market sector has grown into a $4 trillion industry (See Figure 1). Even (or especially) within this narrow historical perspective, the period since August 2007 has had a severe impact on the industry.

Money market funds aim to provide attractive cash returns with daily liquidity and principal stability. The net asset value of a fund is benchmarked at $1.00 and, if it drops below this value, the fund is said to have “broken the buck.” Prior to the credit crisis, only one fund, the Community Bankers U.S. Government Fund, had broken the buck, returning investors 96 cents a share in 1994. Immediately after the bankruptcy of Lehman Brothers on September 15, 2008, however, the oldest money fund, the Reserve Primary Fund, broke the buck and many others curtailed redemptions. Immediately thereafter, the U.S. Department of the Treasury helped stabilize the system by announcing an optional program to insure, for a fee, the assets of money market mutual funds.

The credit crisis has undoubtedly placed great stress on this industry and is likely to result in much change, in the near and longer terms. One concern is the comparative youth of this industry. Most market declines in the last 25 years have been corrected within a year, and there are very few people currently working in the cash market who can appreciate economic restructurings lasting more than two quarters. While the road into this problematic period has the classic characteristics of weak credit markets, there are features unique to this downturn, and the cash market’s current infrastructure poses significant long-term challenges for both issuers and investors.

This article provides some background on the impact of the credit crisis money markets and argues that credit scarcity will probably persist in the cash markets. It also discusses the ramifications of the support that the Government has provided to the money market fund industry and regulatory changes that may take place.

“Capital Market Standards” The typical cycle of financial crisis is that easy money drives economic booms, which are followed ultimately by busts. The last boom was fed its easy money through the structured products market. Securitization was hailed as a panacea, providing tremendous liquidity to issuing companies while offering higher returns and less risk to investors.

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19 The Banking Act of 1933 established controls over deposit interest rates for commercial banks that were members of the Federal Reserve System. This was otherwise known as Regulation Q. The Monetary Control Act of 1980 phased this regulation out by 1986.
Since the mid-1990s, many money market funds have participated in securitized debt through asset-backed commercial paper (ABCP) programs. These programs offered sound structural features that included primary repayment sources from strong banks, and secondary repayment sources from generic underlying assets—like accounts receivable—that quickly converted to cash. Over time, the underlying assets grew to include residential mortgage loans. Given the higher relative returns to this apparently low credit risk profile, the ABCP product was positioned to enjoy tremendous growth through the expansive economy and housing market during the last 20 years. In fact, ABCP grew from negligible levels in 1992 to almost $1.2 trillion and 53% of outstanding commercial paper by July 2007.

Several money market funds had experienced defaults and severe downgrades from corporate commercial paper issued by various financial and industrial companies during this time period. However, the structured issuers comprising the ABCP market had only posed marginal credit concerns. Programs would occasionally encounter problems—from troubled asset sellers and downgraded program sponsors, but these problems were always excised quickly, and any market dislocations were minimal.

With this backdrop, and the increasing competitive pressures to add yield and attract AUM, many fund managers began trading into the latest (and cheapest) structured money market products. But by July 2007 the latest products were highly “innovative,” and many of the safeguards, like backstop bank liquidity, that established ABCP products in their infancy had been abandoned.

An interesting anecdote helps underscore the problems that finally undermined the securitization market. In a credit committee meeting at a prominent U.S. mortgage bank in the winter of 2004, one member was arguing for reduced underwriting thresholds on residential mortgages. Others expressed concerns and rejected the proposals, but the member carried the day by saying, “these loans are underwritten to capital market standards.” Translation: the substandard loans could be sold off the books and into the market—caveat emptor.

**SYSTEMIC FAILURES** As the mortgage markets came under pressure starting in 2007, managers realized too late that poorly structured ABCP programs could fail. However, as they tried to exit these programs, which were structured without bank liquidity, the brokers were unable to find new buyers to assume their positions. These initial failures were widely publicized, leading to the wholesale exiting of the structured market by some fund families. Arguably, this marked the beginning of the current systemic crisis: even well-managed, established ABCP structures had a difficult time sourcing funds. Liquidity, which had been so abundant for much of the last 15 years for a few extra basis points, became unavailable at any price without a clear and easily demonstrated repayment source.

The loss of value in ABCP investments necessitated that nearly twenty different fund sponsors contribute almost $20 billion to money market funds in 2007-2008. While this $20 billion is a notional figure, not representing realized or unrealized losses, it did demonstrate that money funds enjoyed substantial sponsor support—that fund sponsors took the $1/share maintenance commitment very seriously.

The largest beneficiaries of the securitization boom would be undone eventually by the collapse in structured products. Bear and Lehman lost much of their capacity for placing debt, and as revenues tumbled they lost funding. Bear went first, but was saved by J.P. Morgan in a quickly arranged deal with the U.S. Government. At least one money market fund manager mistook this bailout as proof that failure was unlikely for major financial institutions. Many investors also mistook the numerous fund sponsor bailouts as evidence that money funds would not fail to deliver $1/share. On September 15, 2008 Lehman filed for bank-
ruptcy. One day later, The Reserves Fund announced that its flagship corporate money market fund had “broken the buck.”

The markets learned, almost simultaneously, that significant financial institutions and money market funds could fail.

**AFTERMATH** With confidence almost completely drained from the credit market after one money fund failed and two others closed, the government tried to bring liquidity back into the cash markets. The Treasury instituted a money fund insurance plan, and the Fed unveiled several programs designed to encourage and support corporate debt issuance. Despite these enhancements, the money fund sector remains challenged, and the credit landscape for cash markets is probably permanently altered.

Money market regulation, SEC Rule 2a-7, has gone through three major amendments since its 1983 inception, with the last occurring in 1996. Despite these adjustments, there remained many structural “innovations” that allowed funds to sell substantial liquidity to the market without violating 2a-7 standards. Most industry participants believe the rules must be toughened, with the most significant changes relating to fund liquidity and average portfolio credit maturities. Issuers could expect their short-term funding sources to reduce average maturity terms by half.

Change is also likely on the regulatory front. The Group of 30, led by former Federal Reserve Chairman Paul Volcker, have proposed that money market funds be consolidated onto the balance sheet of the sponsor with capital held against the product. Several industry players reject this idea, but it has the merit of recognizing the backing required by the commitment to preserve stability in the net asset value. One rating agency has already indicated that funds without well-capitalized sponsors will face a much tighter set of investment rules. Capital allocation for money funds will have two primary effects: it will force smaller and less dedicated sponsors out of credit products and raise management fees as those holding capital against the product seek a competitive return on equity.

Most significantly, the cash market will become increasingly selective for issuers seeking short-term liquidity. Tighter funding standards brought about by tougher regulation are only the beginning. The dollar space is dominated currently by six companies that make up half the demand for short-term credit either through money market funds or their securities lending cash re-investment businesses. Even if industry players are not required by regulation to consolidate fund liability onto their books, they will still have to justify playing in a costlier environment (fund bailouts are expensive). This will likely lead to consolidation as fund sponsors will need sufficient scale to justify the greater resources necessary for avoiding another round of cash infusions. However, one consequence is that fewer players will likely mean fewer divergent credit opinions, and, therefore, fewer companies receiving meaningful funding from the money markets.
Wrapped Products–Structured Product

:: JOHN SIMONE

**IMPACT OF THE FINANCIAL CRISIS** In Berkshire Hathaway’s 2008 annual report, Warren Buffett quoted Benjamin Franklin: “It’s difficult for an empty sack to stand upright.” The reference was to the diminished ability of some financial institutions to honor long term commitments—a critical consideration for investors and providers of structured product.

This article considers two important types of “retail” structured product: Stable Value funds and Structured Notes. The weakness and failure of large financial institutions in the recent crisis has, once again, highlighted the importance of counterparty credit risk for buyers of these products. Many institutions have underwritten strategies for which the collateral has lost value and an insufficient premium was charged. On the other hand, many investors in structured product own assets of diminished value with weaker guarantees of principal protection.

We believe that stable value and structured notes both have important uses for end investors and will continue to have a significant place in their portfolios. However, as a result of the credit crisis, the risk-reward characteristics of these products will change. Stable value products, in the long run, are likely to find a new “equilibrium” of stricter investment guidelines, higher fees, and more strictly specified wrap contracts. In the interim, given the buffers afforded by the popularity of stable value in a falling equity market (more cash flows in) and the longer term of the liability, the strategy for plans is likely to focus on earning themselves out of collateral deficit. Structured note investors are likely to revert to simpler, principal protected forms issued by stronger institutions. For all types of structured product, the desirability of having strong counterparties will likely reduce the number of financial participants and increase the cost of protection compared to the period before the crisis.

**STABLE VALUE**

The Stable Value Market and the Credit Crisis

According to the Stable Value Association, stable value options accounted for approximately 32% of 401(k) participant allocations representing over $396 billion in assets, as of December 31, 2008. Today, roughly 15-20% of stable value investments are in the form of Guaranteed Investment Contracts (GICs), which are direct credit obligations of insurance companies to pay principal and interest (crediting rate) over a predetermined time period.22 The remaining stable value investments take the form of ‘wrapped fixed income’ which bifurcates the obligation to pay back principal and interest between a wrap provider and a portfolio of fixed income securities, typically actively managed by a third-party asset manager. Synthetic GICs are accounted for at book value in a defined contribution plan if they are ‘fully benefit responsive.’ To be fully benefit responsive, the GIC wrap provider must provide liquidity to plan participants at book value, regardless of the market value of underlying fixed income securities, subject to the plan provision in place upon contract negotiation.

Historically, wrapper costs have been low (8 basis points on average) for a number of reasons. First, the asset exposure has been fully collateralized (the book and market values being nearly equal) and the economic exposure minuscule. Second, the competitive pressure for market share in a “low risk,” low overhead business created downward pressure on pricing given the growth of 401(k) plan assets. Third, wrap providers have created a series of underwriting restrictions on plan sponsors and stable value fixed income managers which reduces the wrap providers’ obligations to pay out at book value. Examples include market value adjustments (that is, a release from having to pay out at book value) if sponsors go bankrupt (as was the case with Lehman), restrictions on permitting competitive investment options (such as money market funds) in the 401(k) plan, exclusions for impaired securities, and reductions in crediting rates on wrapped portfolios to help fund any gap between book and market value. A final reason for low fees is that typically participant behavior in weak markets actually

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1. The section on Stable Value has been considerably shaped by Victoria Paradis, Head of Stable Value Asset Management
2. ‘A Closer Look at Stable Value Funds Performance’ David F. Babbel/Miguel A. Herce, 9/08/07

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benefits stable value options due to increased cash flow to the safer investment option in a sponsor’s 401(k) line up.

The credit crisis has tested some of the assumptions inherent in the wrap design and ratified others. For example, assets continued to accumulate in the weak market: according to Hewitt’s 401(k) Index, inflows to Stable Value options were a record 11.6% in 2008, for a total allocation of 32.3% of defined contribution assets as of 12/31/08. On the other hand, the crisis has placed severe pressure on the ratio of market value to book value in credit portfolios, and on the plans of some troubled companies. The bankruptcy of Lehman Brothers serves as a valuable illustration of these issues.

When Lehman filed for bankruptcy, its own employee 401(k) stable value investment option “broke the buck.” Employees suffered losses because the market value of assets was less than the book value and the bankruptcy of the firm stripped the fund of its insurance protection to make up the difference. For plan sponsors and plan participants, this highlighted some of the limits to the contractual obligations associated with book value ‘wrapper’ guarantees. Subsequently, the market dislocations in the wake of the Lehman bankruptcy and resulting systematic spread widening in fixed income markets created, in some cases, large differences between the market value of fixed income portfolios underlying stable value fund offerings and the book values guaranteed by stable value wrap providers. Ultimately, the severity of the credit crisis has forced the already small and shrinking group of wrap providers to limit their balance sheet exposures across their business lines, including in stable value contracts. These developments will have both short- and long-term implications for the market.

**STABLE VALUE AFTER THE CRISIS** The deterioration of the credit markets and lack of liquidity in some of the fixed income securities underlying stable value promises has resulted in the market value of many portfolios falling appreciably below book value. This has increased the financial stress on wrap provider guarantees, and their need to reserve more capital to back their promises. The credit crisis has created a capital crunch for banks and insurance companies, forcing many providers to reduce their stable value wrap exposure and cease writing any new contracts. This will ultimately result in higher prices for stable value wraps as well as stricter guidelines for managers to avoid similar problems in the future.

If the attractiveness of stable value returns is reduced significantly by higher fees and greater investment restrictions on managers, it is possible, though in our opinion unlikely, that the investment option may experience significant outflows in coming years as the markets stabilize.

The bankruptcy of Lehman will necessitate better communication between plan sponsors and participants about the limitations of the insurance protection. In that vein, current plans are unlikely to be replaced by GICs due to the direct credit risk plan sponsors would be taking because the financial institution would be providing the guarantee of both principal and interest. However, it is possible to permit NAV adjustments that could add to the stability of wrap contracts by relieving some of the pressure when portfolios under-perform. NAV adjustments do not detract considerably from the safety of stable value plans: after all, participants in the Lehman Stable Value plan may have lost 1.7% in a month, but they made a 2% return in 2008. Holding stable value was far better than being in the equity market or holding Lehman stock.

In the interim, an uneasy peace is likely to prevail among asset managers, wrap providers and plan sponsors. Asset managers are likely to maintain a long-term outlook and to earn back the difference between market and book values over time. They will be comforted in doing so by the large cash flows into stable

23 The proportion of Stable Value in 401(k) plans increased from inflows as well as the greater decline in other allocations, including equities.
24 According to the Stable Value Association’s survey of 12 wrap providers in June of 2008, six wrap providers stopped writing new business and seven were capping their exposure. (‘Stable Value Wrap Providers Rise to Challenges of Credit Crunch’, Randy Meyers, Stable Value Times, December 2008)
value and the relative unattractiveness of equity risk. Plan sponsors cannot fire poorly performing managers because that would involve canceling wraps, which are difficult to reinstate. Wrap providers will likely be unwilling to wind down portfolios and realize existing losses. They may, however, find it useful to pursue reinvestment programs.

In summary, Stable Value plans have an important role to play as the safe harbor within DC programs. The value and relative durability of this option will make it incumbent upon asset managers, plan sponsors and wrap providers jointly to navigate through the interim phase to the new equilibrium.

**STRUCTURED NOTES** The structured note market was dealt a major blow by the collapse of Lehman Brothers, which created a crisis of confidence in providers of principal protection guarantees. As per Figure 1, the growth in structured note solutions (principal protected notes) has been explosive in the United States among mainly retail investors.

Unfortunately during the rapid growth of these products the counterparty risk of the protection guarantee was largely ignored. The future of the structured note market will again rest with investors understanding their counterparty and structural risk and their ability to mitigate these risks while achieving a return which justifies the investment.

**THE STRUCTURED NOTE MARKET: “BACK TO THE FUTURE”** The structured note market has grown significantly in the United States since the early part of this decade (See Figure 1). (The “structured note market” which we refer to in this section of the paper goes by various names in the industry, including the exotic derivatives market, the equity-linked derivative market or simply the principal-protected note market.) A structured note typically provides an investor the return of some referenced instrument or market index over a period of time, with a guaranteed return of principal. The principal guarantee is offered by a financial institution and its cost is embedded in the price of the note.

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### FIGURE 1: PRINCIPAL PROTECTED VOLUMES (U.S.)

<table>
<thead>
<tr>
<th>Level of Principal Protection</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009(e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>4,264</td>
<td>5,383</td>
<td>21,473</td>
<td>33,174</td>
<td>36,096</td>
<td>3,958</td>
</tr>
<tr>
<td>Less than 100%</td>
<td>1,695</td>
<td>3,170</td>
<td>14,270</td>
<td>22,904</td>
<td>26,131</td>
<td>2,935</td>
</tr>
<tr>
<td>100%</td>
<td>2,082</td>
<td>1,943</td>
<td>6,436</td>
<td>9,134</td>
<td>8,944</td>
<td>946</td>
</tr>
<tr>
<td>More than 100%</td>
<td>487</td>
<td>269</td>
<td>767</td>
<td>1,136</td>
<td>1,022</td>
<td>77</td>
</tr>
</tbody>
</table>

Source: StructuredRetailProducts.com, as of March 5, 2009
2009 (e) is estimated

The principal protected market was initially born out of the equity linked CD market created by the Chase Manhattan Bank in the early 1980s. The first notes simply took a term certificate of deposit and married it with a call option on a publicly traded index (i.e. S&P 500). The purchaser of the note received the return of the market index (if positive) and principal at the maturity of the CD, less fees. The structure allowed participants to reduce their risk and ‘outsource’ the options work to a wholesale provider in a ‘static’ environment.

The market for principal protection took off in Europe and Asia at a particularly rapid pace. With growing demand came increased innovation and the ability to purchase notes which referenced a wide variety of asset classes and investment types, ranging from equities to commodities to funds (hedge funds or mutual funds) using ‘dynamic’ principal protection methods. The static method typically made an initial allocation of capital to a risky instrument (or index or fund) and did not vary it. The dynamic allocation increased exposure to the risky asset, if it did well, and conversely if it did poorly. This increased returns when risky assets did well at the possible cost of getting “knocked out” prior to the maturity if the underlying asset underperformed.
As the structured note market grew and underlying risky assets performed well, the need for principal protection diminished, as did focus on the counterparty risk which manifests itself as the risk of the guarantor’s failure should the principal protection guarantee become required. One perverse reason for this was the structural design of the securities, which gave note buyers greater upside or exposure to a risky asset if the underlying issuer had a lower credit quality. If the issuer had a lower credit quality the present value of their debt, which was backing the promise to pay principal at maturity, would be lower, thus allowing more money to fund the exposure to the risky asset. Therefore, higher credit quality institutions were not offering the same level of participation in the underlying reference asset as weaker competitors. Since most notes do not pay a coupon and the issuer typically hedged its exposure to the risky asset being wrapped, the cheap funding was very attractive to issuers.

This “note bubble” broke with the Lehman bankruptcy. The industry was roiled, as investors came to realize that structured notes were debt of the issuer. Investors were wiped out along with other bond holders when the bankruptcy was filed.

In the U.S., issuers and investors are likely going “back to the future” with CD-backed structures possessing FDIC protection on return of principal, and looking to segregated collateral pools backing notes issued without a CD wrapper. Again, the collateral will need to be evaluated carefully by note purchasers and guarantees will need to be reviewed to understand the exposure to the issuer. One additional innovation as a result of the crisis has been renewed interest in protected funds. Protected funds use the same dynamic allocation deployed by note issuers, but are executed at the fund level with a swap. The purpose of the swap is to protect against the value of the risky asset falling below the present value of a future principal guarantee. The principal guarantee is analogous to a zero coupon bond. If a manager is not able to sell the underlying risky asset fast enough to raise the capital to purchase the zero coupon bond, then the swap pays the difference, which effectively guarantees execution of the bond purchase. Of course, all this has done is transfer the credit risk from the issuer to the swap provider.

Given the low cost funding to issuers afforded by structured notes and the attractiveness of principal protection in the current market, we do not see a large long-term reduction in the supply or demand for notes. Providers will, however, have to reserve more collateral to back the note guarantees and reduce their exposure to risk assets. The reduced return to investors may be offset by a reduction in structuring fees, which have generally been high. Given the increased focus on transparency in the note market, we believe institutional demand may increase in the future as pension plans and 401(k) providers look for ways to increase participant returns while placing a floor on large losses (fat tail risk).

**CONCLUSION** The structured market has been significantly affected by the credit crisis. We believe that the ultimate result will be risk-reduction in stable value portfolios and structured notes, greater transparency in the industry and consolidation to create stronger providers. As Ben Franklin might have put it, the market will seek providers that are sufficiently capitalized to remain upright.
OVERVIEW Securities lending and its risk/reward profile have been in the headlines as the credit and liquidity crisis has continued to unfold. Market events have focused attention on certain important aspects of the business for all parties involved. First, securities lending is a major driver of market liquidity, from both the lending of securities and the investment of cash collateral, through which the beneficial owner generates alpha. Second, with return comes risk. Beneficial owners typically lend securities through agents (financial firms who provide securities lending services). If the owners accept cash collateral, they can earn a return from reinvesting the cash. In doing so, beneficial owners also take on interest rate and credit risk from the investments; therefore, strong risk management coupled with transparency is an essential component of a successful securities lending program. Third, agent lender indemnification—the protection agent lenders provide to beneficial owners against counterparty default—has real value because broker-dealer counterparties do sometimes default. Given the importance of fully understanding all aspects of securities lending, including market liquidity, reinvestment risk and value generation, it bears reviewing how securities lending works, how it has been affected by the credit crisis, and what specific actions are needed to restore the confidence of beneficial owners.

SECURITIES LENDING FUNDAMENTALS Securities lending monetizes the intrinsic value of a portfolio of securities. It provides an opportunity for incremental income (alpha) that can be used to increase portfolio returns or reduce portfolio expenses. In a basic transaction, securities are lent short-term, collateralized by either cash or securities, and should be marked daily. If securities are held as collateral, the loan transaction is complete. If cash is taken as collateral, there is another leg to the loan transaction, as this cash is reinvested, typically in short-term money market securities. The transaction is unwound when the borrowed securities are returned to the beneficial owner and the collateral returned to the borrower.

Beneficial owners, who lend the securities, include mutual funds, pension funds, endowments, foundations, central banks, sovereign wealth funds, and other asset managers, all of whom are seeking to maximize risk-adjusted portfolio returns. In a securities lending transaction, a component of the beneficial owner’s return is affected by a particular security’s available supply compared to aggregate borrower demand. Initially, securities lending was a back-office function and the need to facilitate trade settlements generated demand. Today, demand for securities is driven by borrowers’ need to facilitate settlements generated demand. Today, demand for securities is driven by borrowers’ need to facilitate settlements, financing and trading strategies.

When the demand for a particular security outstrips its supply, its intrinsic value increases, making it more profitable for the beneficial owner to lend the security in the market. When a transaction is collateralized with securities, the borrower pays the beneficial owner a basis point fee on the market value of the borrowed security. Again, this fee varies by how much the borrower is willing to pay to borrow the specific security. When a borrower pledges cash as collateral, a rebate rate or yield on the collateral is negotiated. The greater the demand for the security being lent, the lower the yield paid to the borrower on the cash collateral. Securities that “go special” or have an extremely high borrowing demand can obtain negative rebate rates, requiring the borrower to not only pledge cash, but also pay a fee to the beneficial owner. The cash received as collateral is typically invested in high quality short term instruments under guidelines agreed with the beneficial owner. The difference between the yield paid on the cash collateral to the borrower and the yield earned on the investment generates return to the beneficial owner.

Securities lending, like all market activities, creates a risk/reward trade-off for the beneficial owner, borrower, and agent lender. The three primary risks in securities lending are: borrower/counterparty default risk, operational risk and cash collateral reinvestment risk. Participants in securities lending can manage these risks through a variety of controls with
Securities Lending

the agent lender’s assistance. Agent lenders typically provide indemnification against broker dealer default, which they manage by maintaining collateral at levels greater than 100%, and thereby absorb the counterparty default risk. Capital strength and effective collateral management are essential for agent lenders to fulfill their obligation under an indemnification. Operational risk management, too, is an important consideration when beneficial owners select an agent lender. Operational risk can be mitigated by agent lenders through a robust operating framework, global scale and a comprehensive understanding of transctional flows.

Cash collateral reinvestment risk—unlike the other two risks—sits squarely with the beneficial owner. Beneficial owners who accept cash collateral increase the leverage of their portfolio through the investments made with the cash collateral. For them, securities lending is an investment overlay strategy which generates incremental alpha in return for additional risk. Beneficial owners who accept cash collateral should ensure that investment professionals are engaged in securities lending transactions, monitoring how risk is managed and cash collateral is invested. Agent lenders directly contribute to strong risk management through the account structure, transparency, performance reviews and control the agents employ. An agent lender’s ability to provide independent, detailed credit analysis, rather than relying on rating agencies alone, creates a valuable resource to a beneficial owner as they make investment decisions. Now more than ever, strong partnerships between agents and beneficial owners are needed.

Although none of the risk management techniques discussed above or listed below are new, the credit and liquidity crisis has caused the industry to refocus its attention on the importance of risk management and transparency. Risk management must be at the forefront of what agent lenders are providing to clients, and must deliver a program that is transparent and understood deeply by both parties.

Risk Management Techniques Supported by Agent Lenders

- Robust counterparty and issuer credit analysis
- Indemnification against borrower default
- Over-collateralization of loans to borrowers, and robust daily process for collateral management
- Operational flexibility to restrict securities or borrowers when necessary
- Diverse universe of borrowers that are vetted as counterparties, subject to beneficial owner restrictions
- Reinvestment of account liquidity based upon collective agreement between beneficial owner and agent lender
- Reporting transparency and ongoing program reviews by both agent lender and beneficial owner
- Separate account management structure with customized guidelines or commingled funds for cash collateral reinvestment

The Impact of the Credit and Liquidity Crisis on Securities Lending

The credit and liquidity crisis that began in August 2007 has impacted the securities lending market in four ways:

- Reduction in borrower demand
- Reduction in beneficial owner supply
- Increased attention to risk and transparency
- Increased government intervention in financial markets, including securities lending

First, as the credit markets deteriorated throughout 2008, there was a significant drop in demand for securities as a result of de-leveraging by hedge funds and broker/dealers,
With regard to account type and reinvestment strategy, there is a difference between cash collateral investment via commingled funds versus a separately managed account, and there are implications for longer duration versus shorter duration strategies in a stressed market. Commingled funds offer beneficial owners the ability to invest using a pooled approach along with other beneficial owners according to a common guideline for risk-taking. Each participant owns a pro-rata share of the fund and transacts typically at a net asset value of $1. Separately managed accounts allow beneficial owners to customize a reinvestment program to meet their unique risk and reward requirements, and provide them with increased transparency and control.

Most cash collateral investments were/are part of a buy and hold strategy, with the cash that was pledged by borrowers invested in repurchase agreements, bank paper (e.g., certificates of deposit, time deposits, and bank notes) and corporate notes (e.g., medium-term notes, commercial paper and asset-backed commercial paper). Prior to the crisis, when markets were relatively calm and credit spreads fairly narrow, many beneficial owners enhanced diversification and returns by investing in AAA-rated structured products as well.

In a buy and hold strategy, beneficial owners gained liquidity from new loan activity, maturities or the sale of an investment. When new loan activity contracted as a result of decreased supply and demand, some beneficial owners had to sell cash collateral investments if they needed additional liquidity. Due to the seizure in the secondary markets and a lack of natural buyers, the cost of this liquidity was dramatic for those who did have to sell. For beneficial owners investing through commingled funds, exiting the fund meant liquidating their fund position, instead of selling specific securities. The Lehman bankruptcy and overall volatility in the market subjected what had been regarded as high quality paper to daily uncertainty. Since the value of the underlying securities was changing so dramatically, beneficial owners may have been restricted to

driven primarily by the need to decrease balance sheets and, for hedge funds, to raise cash to meet investor redemptions. These dynamics, combined with the downturn in the markets, caused the value of securities on loan to fall from a high of approximately $3.9 trillion (May 2008) to just under $2 trillion at year-end 2008, according to Data Explorers.

Second, risk aversion on the part of beneficial owners reduced supply. As noted above, agent lenders typically provide indemnification against broker dealer default, and all borrowers provide cash or securities collateral at rates typically greater than 100%. Despite these safeguards, many beneficial owners restricted the counterparties to which they were willing to lend securities. In addition, some restricted their collateral guidelines by type, preferring secured investments instead of unsecured, and bringing in the maximum maturity for cash collateral investments. These restrictions reduced risk, but also reduced yield so dramatically as to effectively eliminate the ability to generate alpha.

Third, all participants have become more focused on a few particular aspects of all programs: the importance of the agent lender’s indemnification, and the roles played by account type and reinvestment strategy in the flexibility of a program, particularly in times of stress.

With regard to the indemnification, the Lehman Brothers bankruptcy in September 2008 severely tested the industry’s ability to protect beneficial owners. In the end, however, the indemnification worked and beneficial owners were made whole by either the return of their securities or the cash value of the security borrowed. The protection offered by the indemnification demonstrated its value as insurance against borrower default and the importance of having a franchise equipped to execute on this obligation quickly and efficiently. Today beneficial owners are examining in much greater detail the capital strength of their agent lender as an indication of the agent lender’s ability to meet indemnification obligations.

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In summary, the credit and liquidity crisis has reminded beneficial owners that securities lending should be treated like any other market activity, and assessed in terms of its risks and rewards. Today, beneficial owners who reinvest cash collateral are reviewing their securities lending programs more frequently and, when reinvesting cash collateral, are considering their approach in the same light as any other money-market or short duration fixed income mandate. To the benefit of all, investment professionals are now more frequently involved in the beneficial owners' decision-making and oversight process, asking questions about collateral, borrower exposures, return attribution and drivers of securities lending demand. This strengthens the risk management of—and therefore confidence in—the industry, which should lead to increased activity and liquidity over time.

The Future of Securities Lending

As we collectively move forward, several themes will be important to help rebuild confidence and activity in the market. First, transparency and control must be increased so participants can monitor the risks in their program. Agent lenders should provide robust, frequent reporting to help beneficial owners monitor the performance of their securities lending program. When a beneficial owner accepts cash as collateral, investment professionals should be actively involved in decisions about the program, including the investment guidelines, the specific assets purchased under those guidelines, and the indicative market pricing of those assets on a daily or weekly basis even under a typical "buy and hold" strategy. Beneficial owners should also understand how account types impact control and transparency—separate accounts provide more control and transparency, whereas commingled funds provide less.

Second, intrinsic value rather than investment return will likely dominate the risk/return calculation in the near term, with earnings from securities lending programs driven primarily from the demand to borrow specific securities (i.e., specials, yield enhancement) rather than the lending of securities to raise cash collateral for investment.
Securities Lending

Third, with regard to collateral, a back to basics approach should become standard, with the focus on protecting principal and maintaining liquidity while generating incremental alpha. Going forward, reinvestment portfolios will likely be of shorter duration with more standardized maximum guidelines, possibly along the lines of 2a-7 funds. Agent lender leadership is needed to identify the right industry standard for cash collateral investments to drive adoption. Some beneficial owners may seek to reduce or eliminate the use of cash collateral altogether, and accept only high quality, liquid securities as collateral. While this could decrease earnings, it also reduces risk.

Fourth, beneficial owners that participate in securities lending programs will look to align themselves with well capitalized, high quality agents. The indemnification provided against borrower default was tested by the Lehman Brothers bankruptcy, and beneficial owners quickly realized that their lending agent must have the capital to deliver on the indemnification commitment, as well as the market skill to unwind and replace collateral positions as needed.

All of these elements are playing an important role in rebuilding beneficial owner confidence and activity in the market. Many beneficial owners have recently re-engaged in securities lending programs because the ability to generate incremental alpha continues to be important as long as these earnings come with appropriate risk management. There is no question that securities lending, currently a $2 trillion market, remains critical both in terms of enhancing returns and providing liquidity. There is certainly room for improvement—strong risk management, encompassing credit risk, interest rate risk, collateral valuation and/or counterparty risk, needs to be a central focus for beneficial owners and their lending agents. Time must be allocated for review, transparency provided and demanded, and expertise valued. Performance needs to be considered in terms of risk-adjusted return, not just total basis points generated. As questions are raised and addressed during the current financial crisis, it is important to note that even in this extreme environment, securities lending generated positive returns in 2008—and, certainly over time, the use of securities lending and reinvestment as an overlay strategy has generated alpha for market participants.
INTRODUCTION: THIN LIQUIDITY AND FAT TAILS

The credit crisis has brought more tumult to financial markets than any other event in the post-War period. The sequential and cascading shocks to asset classes, both individually and collectively, have made navigating the volatility unimaginably difficult. The diversification benefits that were expected from investments in higher returning illiquid markets never materialized; assumptions of asset behavior seem to have been turned on their head—even cash was not safe; all asset classes came under attack and performed worse than anticipated; most asset classes had negative returns month after month; income and liquidity were no longer an afterthought but of the greatest value. Above all, perhaps the most daunting question that has arisen from the crisis pertains to risk itself and the way we should manage it going forward.

After such a crisis it appears tempting to throw out everything we know about risk management and start afresh. However, that is an extreme response. While this financial crisis has been unprecedented in some ways, many patterns that have arisen in financial returns have not been so. In previous crises, we have seen asset class returns that were not normally distributed—they had “fat left tails” indicating both a higher likelihood of negative performance and greater severity. Similarly, asset classes have exhibited serial correlations in their individual returns and higher correlation in their collective returns. These were known weaknesses in standard asset-allocation frameworks which assume normality, constant correlations and an absence of serial correlation. In this crisis, though, assuming away these issues was very costly and one outcome is likely to be that asset allocation frameworks adjust explicitly by making more accurate estimates of downside risk. Further, investment processes may be forced to take into account the expected cost of downside risk and to sacrifice returns to protect against it. That, in turn, may change the way in which investors are evaluated and rewarded.

A special feature of this crisis has been that risks that were thought to be market-specific and sequential turned out to be universal and simultaneous. Investors had relatively little time to respond, and portfolios enjoyed relatively little protective benefit from diversification. A problem that began in low-quality mortgages spread to banks and brokers, affected the public and private debt and equity markets, dragged down all asset classes and led to severe economic recession. In risk management terms, the key issue has been to recognize the “shift in regimes” as the problems spread and compounded across markets. One likely outcome therefore is further efforts to help investors recognize when these changes in regime are likely to be underway. The integration of risk management with asset allocation is a key requisite to understanding how to take insurance within the portfolio.

CHARACTERISTICS OF THE CRISIS

High Downside Risk

A simple way to draw lessons for risk management from the current episode is to consider them under the rubric of “non-normality of returns”. Asset class performance studies and inferences to risk management practice are commonly based on the premise that returns are normally distributed, independent across time periods and have stable correlations to each other.25 In reality, though, these assumptions do not hold. This makes traditional performance measures such as Sharpe ratios and factor-based alphas somewhat flawed. Three major sources of non-normality are usually found in market returns.

Serially correlated returns: This refers to returns following a pattern where negative (positive) returns in one period are more likely than not followed by negative (positive) returns in the next. This violates an important assumption in many risk management and asset allocation frameworks: that returns are random and independent from one period to the next. The broadening and deepening of the financial and economic crisis since August 2007 has produced strong serial correlations in the returns of many asset classes with persistently negative returns.

25 The assumption is required for mathematical tractability in portfolio optimization.
Converging correlations/correlation breakdown: The premise that returns amongst different asset classes are imperfectly correlated over time, and that these correlations are stable, gives rise to the well-known benefits of a diversified portfolio. The credit crisis and its ensuing aftermath violently challenged this premise, as correlations amongst asset class returns grew systematically higher. This is not a new feature of market crises. During the Asian financial crisis, asset class correlations also converged and showed an element of “path dependence.” This was described as a period of contagion, starting off in currency markets, and spreading through financial and economic channels, to equity and bond markets. Convergence in correlations typically takes place when asset classes are experiencing higher than normal periods of volatility. Figure 1 below presents the difference between “crisis correlation” and “normal correlation” across asset classes. Crisis correlation was computed from August, 1998 to September, 1999 (the Long Term Capital Manage-
ment period), whereas the normal period covers October 1997 to September 2007. In all but two cases we notice a marked increase in correlations.

On the following page, Figure 2 shows the correlations of various asset classes with U.S. Equities over a full sample period and during a period of high volatility. Hence, U.S. Bonds have a long-term correlation of -0.2 which rose to 0.18 during the LTCM period. Standard risk systems do not typically capture this phenomenon and it takes active skill to adjust for it.

Fat-tails or negative (left-tail) skewness: this a statistical term to describe the condition that extreme events (either financial or non-financial) are more likely in practice than would be postulated by a normal distribution. These events inflate the left tail of return distributions and are potentially the most visible form of non-normality (See Figure 3).

These three sources of non-normality were far more extreme in this recent crisis than they were in previous ones, and presented themselves as the crisis spread from fixed income to equities, to hedge funds and private equity and real estate, and affected economies and markets worldwide. The severity of this recent crisis may, however, be a spur to including this feature formally in the asset allocation process. This will make

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**FIGURE 1: CORRELATION PICK UP DURING PERIODS OF HIGHER MARKET VOLATILITY**

<table>
<thead>
<tr>
<th></th>
<th>U.S. Bonds</th>
<th>U.S. Equity</th>
<th>International Equity</th>
<th>Emerging Markets Equity</th>
<th>REITs</th>
<th>Hedge Funds</th>
<th>Private Equity</th>
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<tr>
<td>U.S. Bonds</td>
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<td></td>
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<tr>
<td>U.S. Equity</td>
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<td>International Equity</td>
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<td>-0.02</td>
<td>0.00</td>
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<tr>
<td>Emerging Markets Equity</td>
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<td>0.03</td>
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<tr>
<td>REITs</td>
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<tr>
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<td>0.03</td>
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<td>0.00</td>
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<tr>
<td>Private Equity</td>
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<td>0.00</td>
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</tbody>
</table>

Arguably, the models were equipped to provide the output for which they were designed, but the specification was with respect to a ‘regime’ in which assets traded on fundamental value, in liquid markets, with little chance of government intervention by fiat. However, as we now know, the regime was anything but normal. In general, regimes can be described in financial or economic terms, based on technical or fundamental tenets, influenced by policy makers, and can vary in depth and duration. Bull and bear equity markets are examples of particular regimes and the acumen of an investor comes under test when he or she must identify what will govern the shift—and the timing of a shift—from the current regime to its successor. The most common example of a regime shift in normal markets is when the Federal Reserve goes from a stance of monetary easing to one of neutrality.

The inclusion of the presence of regimes, rather than reducing the need for a robust risk management tool, increases the demand for it. Different correlations, risks and returns persist during different regimes and permit a more robust stress-testing. Further, the interregnum between regimes is a dangerous

Regime Shifts—When is a Market in Crisis?
In order to manage risk during a crisis, one must first recognize that one is actually in a crisis. During this recent episode, it has been widely documented that models used to infer valuation of assets led to erroneous conclusions. Hence, initially par-priced mortgage assets that were thought to be under-valued at $90 and purchased at $80, dropped in price in phases to $40. Part of the problem was peculiar to structured finance—instrument complexity and dependence on a falling housing market. But part of the problem was over-dependence on the output from what seemed to be complex, sophisticated models, but that later proved too naïve for the task at hand.

period during which extreme market outcomes are possible. So the critical question then is how does one know when such a transition is underway? There are no easy answers but we believe that this will be an area of much valuable research.

THE PATH FORWARD: A HOLISTIC, INTEGRATED APPROACH TO RISK MANAGEMENT Risk managers could do well to draw the appropriate lessons from the shortcomings of the past. We suggest the following important features for the future:

Identifying, incorporating and scrutinizing portfolios with known sources of non-normality: Serial correlation, correlation dependence and symptomatic sources of fat-tails can be addressed, treated and modeled with a fairly robust degree of accuracy. This will not mean that the risk system is immune from all sources of non-normality, but at least the primary ones would be identified in advance.

Risk measurement should be differentiated from risk management as “the way you keep the score will be a function of how you play the game.” Specifically, non-normality in returns will imply that certain measures of risk such as standard deviation and certain other symmetric measures are incomplete. It will be important to define and employ measures of downside risk, based on non-normality, as well.

Strategic vs. tactical risk management: Strategic risk management will make explicit allowance for extreme events during the portfolio construction phase. It will clearly account for the return sacrifice required to protect the portfolio against particularly adverse outcomes. Tactical risk management, which is far more difficult, will try to identify a shift in regimes and take more forceful actions during those periods. A stress-testing framework to monitor the risk management systems will assist in this task.

Using tail risk analysis in the active vs. passive management decision: Institutional investors are constantly debating the benefits of active vs. passive management. The extent to which tails are prevalent in asset returns may provide a robust aid to help ascertain the appropriate mix of alpha vs. beta. Specifically, those asset classes that have low tail risk (such as government bonds) could be seen to be more passively managed. In contrast, those asset classes with fat tails also provide opportunities for skill-based alpha seeking, or risk avoidance, and hence may be actively managed.

CONCLUDING REMARKS Evidence of fat tails in asset returns induced by non-normality is not a new phenomenon. While non-normality provides challenges for identification and modeling, it also amplifies opportunities for evaluating risk in the direct pursuit of alpha generation. According to historians, the great Mongol warrior Genghis Khan combined a mastery of strategic leadership and organization with superb tactical risk management that used spies to understand his own and the enemy’s weaknesses. Preparing for the unexpected requires investing in frameworks to understand better the catalysts of extreme events (the shifts in regimes). This is not easy or foolproof, but it could help us deal with problems before they become entrenched. Indeed, the fact that there have been so few Genghis Khans in history illustrates the difficulty of the task, and its value.

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28 For a masterful and imaginative account of Genghis Khan’s military strategies and tactical methods to mitigate loss, see Genghis: Lords of the Bow by Conn Iggulden (A Novel of Genghis Khan).
Warren Buffett has famously said, “It’s only when the tide goes out that you learn who’s been swimming naked.” The financial crisis has exposed an embarrassingly large number of frauds affecting numerous investors, of which the Ponzi scheme run by Bernard Madoff is the most famous example. Many critics have suggested that stricter enforcement and regulation of investment activity is a required solution and we expect more resources will be devoted to this. It is likely that the regulators will be more demanding and want to see many more records, and will be less forgiving of seemingly minor problems or technical violations of rules or laws.

For example, given the fraudulent activities that have been uncovered in the hedge fund arena, we expect that the Securities and Exchange Commission (“SEC”) will become more aggressive in investigating investment advisers and broker-dealers and other entities within its jurisdiction. Registered investment advisers, broker-dealers and other financial services firms inevitably will be spending more time and resources in dealing with their regulators in the course of normal examinations, issue investigations by regulators (whereby a regulator will seek information about a specific topic from all financial institutions in a given region or area), and targeted investigations.

One of the legislative proposals that is likely to be seriously considered is the appropriate level of regulation of hedge funds and other unregulated investment funds. Proposals have been floated to require the registration of virtually all investment advisers, and even the registration of all investment funds, including hedge funds and private equity funds. While we would expect that proposals to require more investment advisers to register with the SEC to gain momentum, we would be surprised if private equity funds, or even hedge funds, were required to be registered like mutual funds. However, we would expect Congress and the SEC to seek to require more transparency of hedge fund activities and holdings, at least to the financial regulators.
Another area of potential regulation that may gain momentum involves securities custodians. Proposals have been made to require every investment fund to retain a custodian that is independent of the investment adviser to the fund. While we would expect this proposal to be resisted by the larger banks and broker-dealers, it is too early to determine whether this proposal will be adopted in some form.

**DUE DILIGENCE** Given how many investment funds were invested in hedge funds that proved to be engaged in fraud, we would expect that industry regulators, such as the SEC or the Department of Labor (“DOL”), to issue a statement about the obligations of investment advisers and other fiduciaries to diligently investigate investments that they may make. For example, several hedge funds of funds were reported to have invested in Bernard Madoff’s fund with little or no investigation of how he earned his stated returns. However, it is not clear whether any legislation or regulatory action will be taken, or is needed, to remedy any perceived shortcomings. On the other hand, those regulators may very well investigate investors and investment advisers that hold interests in hedge funds to determine the extent of the due diligence that was undertaken before the investment was made, and take enforcement or other action against investors and investment advisers that do not appear to have performed sufficient due diligence.

The failure of Lehman Brothers had a far greater impact on the financial markets than appears to have been expected by regulators. Further, the large amount of government funds that have been used to support the derivative activities of AIG have led many to question whether there needs to be greater understanding of the securities and derivatives exposures of financial institutions. Hence, we expect that there will be a more concerted effort to enhance transparency in the financial markets and require more disclosure of holdings of financial instruments, including disclosure of derivatives positions, to regulators, nominally to enable regulators to better understand the risks in the financial system as a whole. In addition, there are likely to be efforts to reduce the amount of leverage in the financial markets. While there have been proposals to merge the SEC and the Commodities Futures Trading Commission (“CFTC”), it is not clear that there is the political will to do so. However, there may be more pressure on the CFTC to enhance disclosure and regulation of instruments within its jurisdiction to prevent the use of, for example, derivatives to circumvent securities regulations.

**FIDUCIARY STANDARDS** The investment advisory activities of broker-dealers will inevitably be the subject of renewed interest. One issue that may be the subject of new scrutiny is whether broker-dealers that provide investment “advice” should be required to register as investment advisers. For example, broker-dealers that have pension consulting businesses have claimed that their advice is merely “incidental” to their brokerage business and that they are not fiduciaries with respect to their customers. Thus, when such pension consultants earned much more in brokerage commissions than the normal fees that a pension consultant would earn, they claimed that the firm was not a fiduciary and did not have to act under a higher fiduciary standard of care. The question whether a broker-dealer’s “advice” is “incidental” to its brokerage business may be raised, again, by the SEC or Congress. Related to this question is the question of the standard of care to which broker-dealers should be held. In particular, proposals have been made to hold broker-dealers to the same fiduciary standards as registered investment advisers. Indeed, the LRN-RAND Center for Corporate Ethics, Law, and Governance issued a study in March 2008 suggesting that Congress should have similar rules for investment advisers and broker-dealers that are providing advice as to the value of securities. Such a change would almost certainly be the subject of fierce resistance from the broker-dealer community and it is difficult to predict how such a proposed regulatory change would fare before Congress.
**Regulation**

**RETIREMENT PLANNING** The Federal Reserve reported on March 13, 2009 that the wealth of American families plunged nearly 18% in 2008. This was the largest loss recorded since World War II and the situation has worsened in the first two months of 2009. Therefore, legislative or regulatory action is almost certain to occur in the retirement plan arena. We expect a focus on two aspects: fee disclosure and transparency, and investment allocations and choice.

Before the new administration came into office, the DOL had proposed regulations designed to enhance the disclosure by persons that provide services to pension and other retirement plans (including 401(k) plans) of their fees, expenses and other compensation. In addition, the DOL proposed rules designed to enhance the disclosure of the fees and expenses paid, directly or indirectly, by participants in 401(k) and other self-directed retirement plans. These proposed rules were placed on hold by the new administration, but these topics are almost certainly to be the subject of Congressional or DOL action in the relatively near future.

Further, the DOL had proposed rules requiring more extensive disclosure of the holdings of securities and other investments in funds that are offered to participants in 401(k) plans. We would expect that this requirement would be adopted in some form to enhance transparency for 401(k) plan participants.

Finally, certain lawmakers and others have expressed the idea that the sponsor of every 401(k) plan should be required to automatically enroll each of its employees in the plan (subject to opt out by the employee). There have been proposals to require most employers to adopt or contribute to some form of retirement plan (such as an individual retirement account or simplified 401(k) program) for their employees. Moreover, a number of states are exploring the possibility of adopting retirement plans to which all employers in the state would be required to contribute on behalf of their employees (unless the employer otherwise maintained a retirement plan for its employees). It is not clear whether these requirements will be adopted or the form they may take.

Another possible area of regulatory activity may be in the default options that a 401(k) plan may offer. In adopting regulations governing qualified default investment alternatives, the DOL rejected the pleas of the insurance and stable value communities to allow employers to make a fixed income option the default investment option for plan participants who fail to make an affirmative investment election. Instead, the DOL required employers to adopt an investment option that included equity investments (either in some type of balanced fund or age-based or similar fund). Among the complaints that have been made about these options is the extent to which even people very close to retirement were exposed to the equity markets. There may be pressure on the DOL or Congress to allow employers to use a fixed income option as the default investment option in a 401(k) plan.

Every crisis presents the opportunity to authorities to address its causes and this time will be no different. It is very difficult to anticipate the nature and extent of all regulatory changes but this much is certain: there will be many and they will be far-reaching.

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29 “Americans see 18% of Wealth Vanish,” The Wall Street Journal, March 13, 2009
Guidance to Investors
“All happy families resemble one another, each unhappy family is unhappy in its own way.”

Anna Karenina, by Leo Tolstoy

**INTRODUCTION** The liquidity and credit crisis has severely damaged defined benefit pension funds. Institutional investors lost about 20% to 25% of their assets in 2008 (See Figure 1). The average plan had a funded ratio above 100% at the start of 2007; this number was approximately 80% at the end of March 2009.

**FIGURE 1: PERFORMANCE FROM THE START OF THE CRISIS UP TO ITS WORST POINT**

<table>
<thead>
<tr>
<th>Event</th>
<th>Asset Return</th>
<th>Liability Return</th>
<th>Funding Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Savings &amp; Loan Crisis</td>
<td>95.0%</td>
<td>3.9%</td>
<td>90.0%</td>
</tr>
<tr>
<td>Asian Financial Crisis</td>
<td>93.5%</td>
<td>18.9%</td>
<td>74.6%</td>
</tr>
<tr>
<td>Sept 11, 2001 Terrorist Attack</td>
<td>83.0%</td>
<td>7.1%</td>
<td>75.9%</td>
</tr>
<tr>
<td>Global Financial Crisis</td>
<td>-22.5%</td>
<td>-3.8%</td>
<td>-26.3%</td>
</tr>
</tbody>
</table>

This relatively swift and severe decline in fortunes has raised a number of immediate and longer-term questions for defined benefit plans. The immediate issues are how best to tap liquidity to pay benefits and whether indeed current levels of benefits can be met given low funding ratios. In many instances, parent corporations are likely to be feeling the stress of the weak economy and may be unable to make contributions. Also, in the near term, plans need to consider whether or how they rebalance their allocations. In the longer term, the appropriateness of the strategic allocation itself needs to be questioned—asset classes performed more poorly than expected, and were highly correlated to each other—as well as the allocation approach, especially in the management of downside risk.

The answers to many of these questions are complicated by legislation. The impact of the Pension Protection Act (PPA) and of FASB guidance is to require greater contributions as the funded ratio deteriorates. So increasing allocation to riskier assets, in hopes of greater returns, entails the possibility that plans may have to make contributions they cannot afford if these assets continue to lose value.

To paraphrase the opening sentence from Anna Karenina, quoted at the start of this section, originally well-funded plans had similar asset allocations and were affected by the crisis in similar ways, but their paths to recovery will depend on their particular circumstances. Some general prescriptions, however, will apply. Re-balancing will be complicated by liquidity considerations and the constraints of pension legislation. The correlated underperformance of many asset classes will likely prompt many firms to perform new strategic asset allocations which explicitly consider downside risk, hold larger liquidity reserves and possibly continue to postpone rebalancing in the interim.

**ASSET ALLOCATION AND THE ILLIQUIDITY TRAP** Arguably, one of the most distressing impacts of this crisis has been on the liquidity of defined benefit plans. Traditionally, fixed income has been the source of liquidity in a portfolio and it became a larger part of the typical portfolio as other asset classes became stressed (See Figure 2). However, portfolios with fixed income exposure became increasingly illiquid as 2008 progressed. This was particularly the case if they had exposure to Corporate bonds or non-agency mortgages and structured credit. By year
To illustrate the impact of illiquidity, in Figure 3 we compare the theoretical “downside liquidated value” of a typical pension portfolio before and during the crisis with and without rebalancing. This downside liquidated value results from a two-step approach: we first identify a portfolio’s liquidated value, i.e. the cash generated should all its assets be sold immediately, given estimated transaction costs. We then estimate the portfolio’s theoretical downside liquidated value, which is the liquidated value adjusted for a downside haircut, to adjust for the uncertainty on portfolio value due to higher volatility.

At the beginning of the crisis, a pension fund with assets worth $100 and an allocation shown in the first column of Figure 3 would have had a portfolio with a liquidated value of $93, reflecting transaction costs to sell all the portfolio of 6.8%. Applying a downside haircut calibrated on one standard deviation, the downside liquidated value at that date would have been $82.

As of March 2009, the portfolio was worth only $72, with a liquid value of $65, as transaction costs have increased by 300bp on average. The downside liquidated value is $50, as the downside haircut has increased (with higher market volatility) to 24%.
The crisis has therefore reduced the ability of the investor to access cash by 39% (from $82 to $50), assuming no rebalancing.

If the investor were to rebalance from a 43% equity allocation to the 58% allocation held before the crisis, the downside liquidated value of the portfolio would drop further by more than 7%. This analysis has ignored potential illiquidity in securities lending portfolios which may have further hampered the ability of a plan to sell assets.

This example illustrates that rebalancing became more difficult than it would have been under normal circumstances by further depriving the portfolio of the oxygen of liquidity.

**RECONSIDERING THE STRATEGIC NORMAL** When performing an asset or asset-liability analysis, pension funds typically use long-term averages for the return and volatility expectations of their potential investments. It is of course understood that these long-term averages should be broadly consistent with historically realized asset performance. Equally strongly implied is that in the short term markets can deviate substantially from these longer-term estimates. The credit crisis has clearly tested the limits of history, particularly in asset classes that are relatively new, like alternatives.

A new strategic allocation has to revise assumptions for asset class returns and correlations. It would need to consider the sponsor’s tolerance for downside risk (see section 02.4) as well as a host of other plan-specific issues, as we discuss later. The result may well be a more conservative strategic normal depending on the degree to which risk is a concern.

As an illustration of the change that has taken place in the risk environment, consider Figure 4.

The Figure demonstrates that equity risk (measured as the observed yearly standard deviation based on the last 12 months) is now twice the long term average (measured as the yearly standard deviation based on a 10 year history), while fixed income risk is 40% higher than the long term average. This implies that the measured risk of a portfolio today is much higher than what traditional assumptions would suggest. Figure 5 illustrates this in a different way. It examines the risk of different portfolio allocations based on varying the time period over which return volatility is calculated. Hence, purely empirically, a portfolio allocated 60% to the S&P 500 and 40% to the Barclays Aggregate has a volatility of 12.8% based on 10 years of data. However, more recent data (one year’s worth) place

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**FIGURE 4: OBSERVED STANDARD DEVIATION OF EQUITY AND FIXED INCOME PORTFOLIO**

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Source: J.P. Morgan Asset Management, Datastream, analysis as of 02/28/09
this volatility at 25.5%, about twice the longer term estimate. Further, an allocation of 30% to the S&P 500 and 70% to the Barclays Aggregate has a short term volatility of 12.8%. In other words, speaking loosely, a 30-70 allocation to Equity and Debt has the same short term volatility that was associated, pre-crisis, with 60-40 allocation to these assets respectively. If historical volatility were the sole concern, the portfolio today might be rebalanced to reduce its equity allocation. The impact of recent market volatility, and consequent changes (or realization thereof) of the risk preferences of plan sponsors, are likely to have a substantial impact on asset allocations.

**PLAN CIRCUMSTANCES MAY OUTWEIGH ASSET CLASS BELIEFS** The unseen levels of transaction costs, liquidity pressure and volatilities will eventually return to more normal levels. But more fundamentally, beyond the impact of current market dislocations on the timing of rebalancing, the more critical question is—what should the portfolio be rebalanced to?

Many sponsors have seen considerable changes—not just at the broad market level, but at the individual plan sponsor level as well, which are driving a number of them to review more fundamentally their asset/liability model. Only by evaluating these changes, and in particular, their impact on the sponsor’s view of risk and tolerance for it, can a strategic norm be established that is pertinent to the sponsor’s current circumstances and future objectives.

First there is the liability profile of the plan: the demographics of the beneficiaries, whether the plan is cash balance or traditional, and whether payments are in lump sum or annuities. The situation may be complicated in the current economic environment by planned (or unplanned) restructurings of the firm or workforce. Hence an asset allocation must be particular to the circumstances of the plan sponsor. Sponsors’ reduced spare capacity for risk will be particularly affected by the implementation of PPA (regulation of contributions and benefits) and FAS158 (accounting rule reflecting the pension position on its accounts). Even though both rules have been enacted since 2006, this crisis is the first time they will be tested.

The PPA penalizes plans with a funding ratio below 100% with forced contributions and potential limitations on the ability to provide benefits. FAS158 forces plan sponsors to

**FIGURE 5: COMPARISON OF RISK OF PORTFOLIO, BASED ON LONG-TERM AND SHORT-TERM DATA. (AS OF 02/28/09)**

<table>
<thead>
<tr>
<th>Allocation</th>
<th>70%</th>
<th>60%</th>
<th>47%</th>
<th>40%</th>
<th>30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>S&amp;P500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BarCap Agg</td>
<td>30%</td>
<td>40%</td>
<td>53%</td>
<td>60%</td>
<td>70%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Yearly standard deviation</th>
<th>15.0%</th>
<th>12.8%</th>
<th>10.0%</th>
<th>8.6%</th>
<th>6.6%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Based on 10yr history</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Based on 5yr history</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Based on 1yr history</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equity risk allocation</td>
<td>94.6%</td>
<td>92.9%</td>
<td>90.7%</td>
<td>89.3%</td>
<td>85.9%</td>
</tr>
<tr>
<td>Based on 10yr history</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Based on 5yr history</td>
<td></td>
<td></td>
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<tr>
<td>Based on 1yr history</td>
<td></td>
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</tbody>
</table>

Source: J.P. Morgan Asset Management, Datastream, analysis done as of 02/28/09
immediately recognize an increase in deficit through a reduction of shareholders’ equity and an increase in debt. In the current environment, where corporations are trying to reduce leverage, increased deficits come at a bad time.

Perhaps the most critical variable is the plan funded status. Clearly a 20% funded status deterioration means that downside risk has been greater than it was believed to be in 2007, when plans were over-funded: every lost dollar is penalized and may result in additional contributions. If the PPA funding ratio drops below 80% (or 75% by the end of 2009), benefits offered will be restricted with an impact on the executive deferred compensation. If it goes below 60%, among other penalties, a plan could be frozen, particularly if the operating cash flow of the firm is suffering at the same time.

Given the recent market dislocation, it is likely that sponsors and pension funds have a lower tolerance for downside risk than in the past (cf. changes in regulations from a contribution perspective31 (PPA) or from an accounting perspective (U.S. GAAP)). Not too long ago, a viable approach to closing a funding gap was to target higher asset returns. Today, the answer is not as simple given that further deterioration of funding status impacts the balance sheet and cash flow of the plan sponsor directly, as well as impacting the benefit offering to plan members. Therefore it might be prudent to give “liability aware” strategies a second glance. These are strategies that reduce the volatility of the funding status by managing discount rate risk. 2008 has shown that the discount rate risk entailed credit spread management as well as interest rate (duration) management. Indeed, while long-term treasury rates decreased by 146bp32 over the year, discount rates pulled upwards and AA credit spreads increased by 186bp33. Consequently, a pure duration matching strategy using treasuries, futures or swaps would have been extremely successful in 2008 as asset values increased while liabilities remained approximately flat. However, there is clearly the risk that these trends will reverse themselves in 2009.

In conclusion, the impact of the credit crisis on defined benefit pension plans has been far less than congenial. In past crisis, the response might have involved a rapid rebalancing strategy to an unchanged strategic normal. This time, however, under-funding and illiquidity complicate the response. Further, the existing strategic asset allocation may well be called into question given the extreme returns and correlations seen in new assets and the desire to incorporate downside risk management in any new allocation. Plans may find themselves in similar straits but their responses will likely depend on their particular circumstances.
As a consequence of this crisis, we expect increased and expanded government regulation and legislation with respect to fiduciary responsibilities, investment selection, education and account protocols such as withdrawals, taxation and employer responsibilities.

**Investment Behavior** In response to the market turmoil, participants increased their allocation to safer assets. According to PlanSponsor.com: $6.3 billion was moved out of equity investments during 2008, more than twice the second-highest annual equity outflow ($2.9 billion in 2002); guaranteed investment contracts (GIC)/stable value funds saw $5.3 billion in inflows during 2008—some of the largest inflows ever into this asset class; and bond funds received $1.2 billion in inflows in 2008, followed by money market funds with $459 million. Although these flows to traditional “safer” assets are unprecedentedly large, the majority of assets remain invested in equities.

J.P. Morgan Retirement Plan Services data underscores the apparent inertia of participants. Only one in 10 participants (149,113 overall) changed their deferrals during the quarter. Of those, 49% increased contributions, 26% decreased contributions and 25% opted out of contributing entirely. Participants did move their money to cash, bonds and capital preservation instruments with roughly $1.2 billion moving toward “less risky” assets. Consistent with above data from PlanSponsor.com, asset transfers from the J.P. Morgan data sample accounted for less than 1.5% of assets under administration.

Participant deferrals increased 13% from Q4 2008 to Q1 2009, an increase of 15% from the same period one year earlier. Among the salient data points, the number of participant requests for hardship withdrawals decreased 26% for the first part of 2009 (5,339 in Q1 2009 vs. 7,220 in Q4 2008) though the average withdrawal amount did increase by 18.3% for the quarter ($4,078 in Q1 2009 compared to $3,446 in Q4 2008).
However, the total amount of hardship withdrawals decreased more than $3 million from the previous quarter ($21.7 million in Q1 2009 vs. $24.8 million in Q4 2008), falling more in line with the previous year ($21.6 million in Q1 2008).

These aggregate statistics, however, reveal only so much. In Section 03.4, David Kelly discusses possible shifts in investment and saving behavior among individual investors in the post-crisis period.

**PLAN SPONSORS FACING CHOICES** For plan sponsors, the topography of the road ahead is uncertain. A changing landscape for investment choices, potential additional regulation, different plan design decisions and the increasing importance of retirement income are among the critical dimensions to be considered.

**INVESTMENT CHOICES**

**Stable Value**

Stable value funds played their role as a safe haven throughout the recent market events. From among our 1.5 million participants, more than $312m of assets moved into our stable value options in the first quarter of 2009. There are, however, challenges facing the stable value industry including portfolio shortfalls and weakness in wrap providers. As we discuss, though, in Section 02.2, the structural features of wrap contracts are not conducive to rapid change and we believe that there will be a gradual evolution to more conservatively underwritten stable value portfolios.

**TARGET DATE FUNDS** The current market volatility has renewed the focus of plan sponsors on target date funds. With a growing number of target date providers entering the marketplace and enormous differences among funds, third-party providers such as Morningstar, Lipper and Dow Jones, have developed classification systems and benchmarking solutions to help fiduciaries group, compare, evaluate and monitor similar investment strategies. However, given the large structural differences among providers, grouping them by target date alone can be imperfect. For example, one 2010 fund may allocate 65% to equities, while another 2010 fund may allocate 13% to equities\(^{35}\), resulting in two completely different strategies with varying degrees of outcomes. Some alternate techniques group managers based on similar underlying characteristics, such as percent invested in equities and level of diversification.

Concurrently, Congress is carefully reviewing target date funds. Recently, the Senate Select Committee on Aging held a hearing, “Boomer Bust? Securing Retirement in a Volatile Economy”. Notable among several critical themes is a request from the committee for information on allocations, glide path construction with respect to participants nearing retirement age, marketing programs and risk management. This Select Committee has asked the DOL and SEC to start a review of target date funds and to begin work on regulations to protect plan participants.

We believe it likely that there will be further regulatory oversight for this investment structure. The credit crisis has prompted a reconsideration of the design of allocations, timing and glide path particularly from a risk management perspective. As Anne Lester discusses in Section 03.3, target date fund managers are likely to seek efficient ways to protect those participants closest to retirement from risk of negative returns, likely by lowering overall portfolio risk.

**AN INCREASING UTILIZATION OF MANAGED ACCOUNTS**

Managed account products enable participants to delegate investment decisions. Professionally managed supported by automatic rebalancing each quarter, managed accounts have grown in popularity. Account balances are allocated based on the participant’s risk tolerance, savings rate and retirement age. Participants can customize data such as desired retirement age and maximum percentage invested in company stock. In the first quarter of 2009, J.P. Morgan Retirement Plan Services saw an increase of 18% in the number of participants enrolling into the firm’s managed account offering.

\(^{35}\) Morningstar as of December 31, 2008
**Potential Regulation/Legislation**

**Coverage:** During the campaign, President Obama advocated requiring 401(k) plans to automatically enroll employees with the opportunity to opt out. In his 2010 budget, the President calls for “laying the groundwork” for mandatory automatic enrollment. Employers who do not sponsor qualified plans would be required to provide employees the opportunity to make payroll deductions to an IRA. It is unclear to what extent, if any, mandatory automatic enrollment would incorporate auto-acceleration of contributions and if there would be an impact to matching contributions.

**Fee Disclosure:** DOL regulations on required fee disclosures to participants and plan sponsors rank high on the legislative roster in importance and impact. While legislation has been on hold, there is expectation that the administration will advance toward increased clarification and transparency.

Among the areas of focus that are expected to be addressed in the near future, are that plan sponsor disclosure will be required to be disaggregated in categories of administration, investment management, transaction based fees and “other.” Additionally, there is a question between House and Senate bills whether fees must be disclosed in a dollar format (estimates may be allowed) or reported as a formula. A further consideration is whether annual notice of investment options for participants should include each option’s investment objectives, risk level, management style (active or passive), and comparison to nationally recognized market-based index, historical rate of return and fees.

The House Bill introduced in 2008 would have required inclusion of an index fund if a plan wished to receive 404(c) protection (effectively a mandate).

**Investment Advice:** The Pension Protection Act (PPA) created a prohibited transaction exemption (PTE) for the provision of investment advice by an entity or an affiliate of an entity that also provided investment options to a plan. Certain requirements regarding review of advice and fees charged were necessary for the PTE to apply. DOL issued final regulations in January 2009, but the effective date has been delayed at the request of the Obama administration. These regulations will be subject to further review and could potentially be withdrawn.

**Annuitization:** There has been Congressional interest in encouraging participants to annuitize some portion of their distributions from defined contribution plans. Proposals have included:

- Provide tax incentives to participants if they annuitize. A portion of any distribution received in the form of an annuity would not be subject to taxation.
- Make annuities the default distribution option under defined contribution plans.
- Provide for “trial annuities” where a participant could elect to receive a portion of distribution in form of annuity and after two years decide if they wished to continue to receive an annuity or receive a lump sum distribution.

We are unlikely to see activity on this in 2009, it is more likely be part of a larger pension reform bill, although the form of that bill could begin taking shape in 2009.

**Plan Design Challenges for Plan Sponsors** The Pension Protection Act (PPA) has opened the door for private sector employers to take a larger role in determining how their employees save for their retirement future. This opening has only been widened by concerns about participant balances over the last six months. Earlier this year, the IRS released final regulations focused on the PPA automatic contribution safe harbor and rules allowing the distribution of “automatic” contributions where a participant elects out (within 90 days) of an automatic contribution program.

PPA included three “autos” for ERISA plans: automatic enrollment, automatic escalation and automatic default investment...
Defined Contribution Plans

alternatives. This auto-suite option is increasingly implemented by plan sponsors exercising fiduciary responsibility for their participants.

The prevailing economic and investment climate creates a fresh sense of urgency for plan sponsors to consider design changes. Retirement income, among other topics, is a central priority. As businesses face layoffs and restructuring, some sponsors are considering liberal rollover-in provisions, taking full advantage of employer contributions, maintaining tax deferred status for employees impacted by reductions in force (RIF), allowing access to funds that are not retail.

These issues—eligibility provisions, vesting, the maintenance of tax-deferred status for employees impacted by RIF and a consideration of maximum deferral percentage—are taking center stage against a backdrop of cost cutting and short-term concerns about market stability. As companies are working with more limited free cash flow and struggling to meet analyst expectations, they are likely to make temporary or permanent reductions in their matching contributions to DC plans. In addition, greater political concern for the financial health of the plan participant is likely to bring substantial attention to the DC industry and spur changes to it.

**RETIREDMENT INCOME** As explained above, DC plans complement personal savings, income from a defined benefit plan (if any) and income from social security. Even the best-designed plan options, target date funds and stable value plans are only a component of the “retirement solution” in the sense that they "take individuals to the point of retirement. What happens upon retirement?

We anticipate significant evolution in asset decumulation product design. Consider that approximately 20% of defined benefit plans currently offer annuities as a retirement distribution option, while conversely, 99% of defined contribution plans offer lump sum payments. Total distributions from defined contribution plans in 2006 were $229 billion and estimated to be $456 billion in 2012. As a result, plan sponsors are likely to consider strengthening retirement education and products to prepare the 78 million baby boomers who are approaching retirement over the next 20 years for asset decumulation.

**SUMMARY** The recent market events have certainly stressed the defined contribution business as we have known it. Helping participants manage to their own advantage, save as much as they should, make good investment decisions and maximize their retirement dollars as they move toward and into retirement, will take the combined partnership of the industry and government.
The increasing adoption of TDFs, focus on baby boomer retirement, and dreadful market returns in 2008 have resulted in a number of pointed questions from the media and legislators regarding the effectiveness and appropriateness of TDFs for those approaching retirement. Indeed, the Lipper 2010 Target Date universe (the fund recommended for workers in their 60s who are approaching retirement in or near 2010), had fund returns ranging from –3.61 to –41.84% in 2008. We believe that this wide dispersion in returns, resulting from the large differences in asset class allocation, may force a debate about whether there should be greater consensus around appropriate asset mixes and levels of risk for TDFs targeted to those approaching retirement. Not surprisingly, the strategies which focused on lower volatility at the point of retirement were at the upper end of the performance range for the period.

**Are Target Date Funds Broken?** The basic question—are TDFs broken—may best be asked in two different ways. The first is, “Did investors in 2010 TDFs do better or worse than they would have if they had NOT invested in a TDF?” The second is a more difficult question. “Are TDFs living up to the expectations that plan sponsors and participants had for them?”

We believe that, for the majority of employees in their 50s and 60s, TDFs did a much better job of protecting retirement savings from the brunt of the bear market than participants would have done on their own. An analysis of over 100,000 DC participants on J. P. Morgan’s Retirement Plan Services recordkeeping platform who did not have access to TDFs in their plan shows that workers in their 60s had a fairly high allocation to equities on September 30, 2008, just as the dramatic decline in equities was beginning. See Figure 2 on the following page.

The average participant return in this cohort was -32.1%, which is near the bottom quartile of the Lipper universe of 2010 returns. Most TDFs, regardless of their diversification and volatility approach, did better than the average 62-64 year-old investor on their own.
The second question—are TDFs meeting participant expectations—strikes at the heart of one of the greatest risks in defaulting participants into any investment solution, namely the unspoken assumption that the plan sponsor’s choice of default will necessarily allow the worker to achieve retirement income security. Indeed, the Pension Protection Act of 2006 specifically directed the Department of Labor to outline requirements for QDIAs precisely for this reason—the fear that participants would

Examples like this help to underscore one of the main challenges of fiduciary decision-making—undertaking decisions that are in the best interests of the majority of participants, while recognizing the potential impacts on all participants. We believe that plan sponsors must focus on selecting a QDIA that will provide the best outcome for the majority of participants in the plan, not necessarily the best outcome for every individual investor in the plan.
be unable to retire because prior default choices (stable value and money market funds) generated insufficient returns to provide for retirement security.

Managing the important tradeoff between protecting principal in stable value and money market funds and generating higher returns in target date funds or other QDIAs is the subject of much debate right now. But often overlooked in the debate about the appropriate level of risk and return in default funds is the crucial role that the savings rate plays. Essentially, the greater the certainty of outcome (and therefore the less risk taken in the equity market), the higher the savings which are required to reach the same expected outcome (because the assumed returns are lower than those from the equity market). We calculate that if DC participants wanted a more certain outcome (investing in stable value), they would have to approximately double their savings rate to generate the same expected outcome than if they invested in a 60/40 balanced fund. And we also know that participants, on average, currently save barely enough to generate income replacement of 40% from their 401(k) savings if they have invested their assets in a typical TDF glide path with relatively high levels of risk for much of the time.36 The other option, now much discussed, is the need to work past the age of 65.

We believe that the debate about appropriate levels of risk in default funds must also incorporate a discussion of savings. The Defined Contribution plan is merely one component of providing for retirement. The other parts are personal savings, social security and the defined benefit plan (if any). Plan sponsors and service providers must all do a better job of helping individuals understand all components of providing for retirement and articulating the tradeoff between lower risk and the need for higher savings.

DIVERSIFICATION: DID IT HELP OR HURT IN 2008? One of the many unpleasant lessons learned or relearned, in 2008 was that correlations increase with volatility, and many of the assets that TDF managers and other institutional investors included in their portfolios actually underperformed the very asset classes they were supposed to protect investors from. For example,

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Target Date Investing

U.S. small cap equities, international equities, emerging market equities, and REITs all underperformed the S&P 500, and so the more diversification a manager had into these “diversifying” asset classes, the worse the performance. Bond sectors behaved the same way, with high yield, emerging market debt, and TIPS underperforming the Barclays Capital Aggregate index. So did all TDFs with more diversification do worse than those, typically index funds, with less? Somewhat surprisingly, the answer is no. Diversification moves out the efficient frontier, allowing a manager or sponsor to choose between a portfolio with higher expected returns and the same amount of expected risk, or to choose a portfolio with the same expected return and lower risk than they would have been able to achieve in an undiversified portfolio (See Figure 3). In 2008, managers who chose to use diversification to lower risk did relatively well, especially compared to those who used diversification to try to increase returns.

Put another way, managers who diversified out of equities and into diversifying assets like high yield, emerging market debt and direct real estate did better than managers with higher equity weightings, but those that diversified out of fixed income into these same asset classes typically suffered larger losses, as Figure 4 illustrates.

In addition, many plan sponsors are asking whether active management makes sense in TDFs, given the higher fees and greater risk of under-performance. We believe that plan sponsors should first and foremost determine which glide path makes most sense for their participants, and then determine how best to implement that glide path—with active strategies, passive strategies, or some combination of both. Of course in some asset classes like Real Estate, High Yield, and Emerging Markets Debt and Equity, it may be difficult to build index strategies. In others, plan sponsors will have to decide on a case by case basis how much active management they want to maximize net-of-fee risk adjusted returns.

WHAT CHANGES CAN WE ANTICIPATE GOING FORWARD? To date, there have been relatively few changes in either participant or plan sponsor behavior. Participants, with the exception of those closest to retirement, have continued to make steady contributions into TDFs. We, and other TDF managers, have observed very small withdrawals from funds intended for those closest to retirement (2010, 2015, and to a lesser extent 2020) but we do not know if these withdrawals are due to participants’ decision to move to less risky asset classes overall or whether they have retired or otherwise separated from their plans. Participants appear to be staying the course, perhaps because they are observing the investment outcomes in TDFs and deciding that they still believe that these funds do a better job than the participants could do by themselves.
In dozens of conversations over the past six months, plan sponsors, too, continue to say that they believe that the changes they have made to their plans over the past few years, such as participant auto-enrollment, contribution auto-escalation, and the designation of QDIAs, should improve results for their participants. We observe greater interest from plan sponsors in understanding exactly how their TDF relates to their overall plan design and objectives, and we hope that one of the results of this very difficult market cycle will be a renewed focus on understanding the consequences of asset allocation choices made by TDF managers. All TDFs are not created equal and different funds will be a better match for different plan sponsors.

To date, TDF managers themselves seem to be making very few changes to their asset allocation glide paths. We believe that managers are reviewing and testing their asset allocation models to see if fundamental assumptions about asset class returns and volatility would drive a different glide path. In the interim, they likely have decided to keep intact their overall weightings to risk assets. However, an important question for the industry would be whether it can find a more efficient way to protect the funds closest to their retirement date against continued negative risk. We will certainly be pursuing this topic in our formal research going forward.

Likewise, we believe that many plan sponsors may be questioning whether the glide path represented by their TDF choice produces their desired risk-adjusted returns. If many plan sponsors are re-assessing their DB asset allocations with a renewed focus on downside risk management, we think it is likely that this should extend to TDFs offered in a DC plan lineup. TDFs using an institutional approach to asset allocation and diversification will, we think, emerge as strategies that will stand up to the rigors and stresses of challenging markets going forward.

FIGURE 4: INDEX RETURNS AS OF DECEMBER 31, 2008

<table>
<thead>
<tr>
<th>Traditional Asset Classes</th>
<th>1 Year</th>
<th>Extended Asset Classes</th>
<th>1 Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>S&amp;P 500</td>
<td>-37.00%</td>
<td>MSCI REIT</td>
<td>-37.97%</td>
</tr>
<tr>
<td>Frank Russell 2000</td>
<td>-33.79%</td>
<td>GPR 250</td>
<td>-50.32%</td>
</tr>
<tr>
<td>MSCI EAFE</td>
<td>-43.38%</td>
<td>MSCI EM Free</td>
<td>-53.18%</td>
</tr>
<tr>
<td>Barclays Capital Aggregate</td>
<td>5.24%</td>
<td>Barclays Capital Corporate High Yield</td>
<td>-26.16%</td>
</tr>
<tr>
<td>Ibbotson U.S. Treasury Bills</td>
<td>1.69%</td>
<td>J. P. Morgan</td>
<td>-10.91%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EMBI Global</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Barclays Capital U.S. TIPS</td>
<td>-2.35%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NCREIF</td>
<td>-6.46%</td>
</tr>
</tbody>
</table>

Source: J. P. Morgan Asset Management. Index returns are shown for the one year period ending December 31, 2008.
THE FINANCIAL CRISIS AND INDIVIDUAL INVESTORS For individual investors, the financial crisis of 2007-2008, followed by a dismal decade. While financial professionals are acutely aware of the timing of bull and bear markets, for the average investor reality lags and is more muddled, and the crisis which intensified so dramatically at the end of 2008 seems less like a one-time disaster and more like the last, ugliest phase in a continuum of economic and financial disappointment.

The crisis has battered the finances of American households and this reality will probably influence their investment decisions for years to come, with the strongest impacts likely for those in or approaching retirement. It is also shaping a wide range of investor attitudes that will have a direct impact on investment behavior and an indirect impact on both the financial services industry itself and the actions of regulators, as Washington and Wall Street accommodate themselves to this altered public mood.

Lessons will have been learned from the crisis—some useful and some less so. But in considering where we go from here, the question isn’t just how much investor attitudes have changed but whether the change will stick. The challenge for forecasters is not only to understand the current mood of investors but also to predict how quickly or slowly it might revert to a more aggressive and optimistic one in an economic and market recovery.

On balance, we think that some durable changes will occur. Investors, and especially older investors who feel that they just don’t have the time to “make it back,” are likely to be conservative in their asset allocation, preferring bonds to stocks. The crisis is also likely to usher in an age that values financial transparency and trust: no more black box investments or securities. Lastly, of necessity, workers will need to work longer and save more.

THE DECADE OF DISAPPOINTMENT An economic historian, writing some decades in the future, should have little problem in laying out the story of the financial crisis of 2008. A housing boom, which bubbled to an extreme in the middle of the decade, was financed in part by dodgy mortgages. The complexity of the packaging of these mortgages, the leverage used on Wall Street to buy them, a burgeoning web of derivatives based on them, and the hyper-liquidity of markets, primed the financial system for an explosion. A mild recession, an oil bubble just at the wrong time, and some Washington policy mistakes both in actions and messaging lit the fuse. The collapse of Lehman Brothers in mid-September marked the point at which the music stopped, sending financial markets into turmoil and, in quick order, plunging the global economy into a sharp recession.

But for the individual investor, the entire decade of the 2000s has been one of financial disappointment. At the turn of the millennium, following 18 years of mostly uninterrupted economic and market progress, American investors felt wealthy and confident. Measured in today’s dollars, the net worth of the average Americans had risen from $102,000 at the end of 1982 to $191,000—substantial progress over 18 years (See Figure 1). Some of these gains had been achieved in real estate but the most spectacular increases had been due to a rising stock market with the Dow
One necessary lesson from the decade of disappointment and its disastrous end is that the idea of automatic retirement at age 65 needs to be retired itself. In the last 50 years, the life expectancy of the average American has risen from 70 years to 78 years, substantially increasing the challenge confronting any retirement plan. In that space of time the age of eligibility for full social security benefits has increased by just two years. However, while the Government has been slow to realize the implications of greater longevity, the public is beginning to get it. Since the mid-1980s, the labor force participation rate for people aged 65-74 has jumped from 15% to 25% and the financial disappointments of this decade will likely cause it to rise further (See Figure 2). This is one rational response to the financial crisis. The longer people keep working, the longer they will contribute rather than draw from retirement accounts.

Jones Industrial Average climbing from a low of less than 800 in the recession of 1982 to a peak of 11,723 in January of 2000. With the nation in expansion and at peace and the much-hyped Y2K bug in the end causing few problems, the University of Michigan index of consumer sentiment rose to an all- time high of 112. The mood was one of giddy optimism although, as was noted at the time, many investors had difficulty in distinguishing the relative effects of personal genius and the more general blessing of a bull market.

The bursting of the tech stock bubble, the recession of 2001, the shock of 9/11 and anger at accounting scandals left investors disillusioned with the stock market. However, they were still not averse to the idea of turning a quick buck and the stock market bubble was followed by other bubbles in real estate, in commodities, and in exotic fixed income securities. All of these, however, ended badly, and by the end of 2008, real wealth per person, which had peaked at $218,000 in the wake of the housing bubble, had slid back to $168,000, lower than it was 10 years earlier.

This decline in wealth is a particularly sobering reality for the bulging baby-boom generation, i.e. those born between 1946 and 1964. The oldest baby boomers are now within two years of the traditional retirement age of 65. Over the years, their saving has generally been inadequate, even as they have assumed ever greater responsibility for financing their own retirement. For many of them, this decade has been a financial disaster. Even at the start of 2008, well before the biggest market declines and economic setbacks, just 18% of workers described themselves as very confident that they had enough money to live comfortably throughout their retirement years. Changes in attitudes and wealth since then have been dramatically negative.

LESSONS LEARNED FOR GOOD OR BAD What have investors learned from this crisis? Some of the lessons are useful and some are not.

USEFUL LESSONS

- **Keep Working.** One necessary lesson from the decade of disappointment and its disastrous end is that the idea of automatic retirement at age 65 needs to be retired itself. In the last 50 years, the life expectancy of the average American has risen from 70 years to 78 years, substantially increasing the challenge confronting any retirement plan. In that space of time the age of eligibility for full social security benefits has increased by just two years. However, while the Government has been slow to realize the implications of greater longevity, the public is beginning to get it. Since the mid-1980s, the labor force participation rate for people aged 65-74 has jumped from 15% to 25% and the financial disappointments of this decade will likely cause it to rise further (See Figure 2). This is one rational response to the financial crisis. The longer people keep working, the longer they will contribute rather than draw from retirement accounts.

![Figure 2: Labor Force Participation Rate*, (Americans Aged 65-74)](image)

* Percentage of population either working or looking for a job.

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37 2008 Retirement Confidence Survey, Employee Benefit Research Institute
38 Centers for Disease Control—data are from 1956 and 2006
• **Start Saving.** For years, the national savings rate has declined, as Americans kidded themselves into believing that consumption was investment and that the capital gains on existing assets would be sufficient to finance a comfortable retirement. That attitude is changing swiftly, with the savings rate in January of 2009 rising to its highest level since the mid-1990s (See Figure 3). While this poses a threat to the recovery of the national economy, for older Americans and those with inadequate financial resources, saving more is also a logical and important response to the crisis.

**FIGURE 3: PERSONAL SAVING RATE**


• **Consider Risk.** One likely positive lesson is a healthier skepticism about get-rich-quick ideas in general. While it is hard to find more than anecdotal evidence of this trend at this stage, there is a decided lack of giddiness about any investment strategy right now. If channeled appropriately this can be very valuable. No investment is a sure thing. No disaster is really inconceivable, so spread your money around. These are messages which have much greater resonance at the end of this decade than at its start.

**FIGURE 4: PERCENT OF INVESTORS DESCRIBING THEMSELVES AS BEARISH OR BULLISH**

Source: American Association of Individual Investors. As of April 28, 2009.

**LESSONS NOT WORTH LEARNING** If these are all useful messages for individual investors, there are certainly some that are not worth learning:

• **Stocks are Dead.** This has been a challenging year at the end of a dismal decade for the stock market and investors have certainly reacted in a negative way. In 2008, investors withdrew $234 billion net from traditional equity mutual funds.\(^39\) This wasn’t just the biggest net withdrawal in history, it was almost 10 times as large as the second biggest net withdrawal which occurred in 2002. Nor did investors feel more amenable to stocks in early 2009. Indeed, in early 2009, over 50% of individual investors described themselves as bearish with just 25% calling themselves bullish, the most negative relative view seen in almost 20 years\(^40\) (See Figure 4). But while the stock market is very beaten down now, this is no time for long-term investors to abandon equity investing. The great likelihood is that the U.S. economy will, over the next few years, return to full employment, boosting earnings while still leaving us with a relatively benign inflation environment. This may well be one of the best times in history to get into the stock market—and nobody wants to.

\(^{39}\) Data from the Investment Company Institute

\(^{40}\) American Association of Individual Investors
Cash is “King”. In withdrawing money from the stock market and building up their savings, Americans are also adding to their cash balances. One measure of long-term savings held as cash or near-cash is M2-M1, which includes CDs under $100,000, retail money-market funds and savings accounts. By February 2009, this stockpile totaled $6.7 trillion, significantly higher than the $6.4 trillion value of the S&P 500 (See Figure 5). Perhaps more significantly, in an era when credit cards and home equity lines have made it easier for consumers to access cash than ever before, this cash pile still represented over 8 months of consumer spending in January, its highest level in over 20 years.

Wall Street’s Rigged. Perhaps the most damaging—although hopefully the most fleeting of these attitudes—is that the investment business is somehow rigged against the individual investor. Recent polls show that the vast majority of Americans feel that the government has provided too much aid to Wall Street firms in this crisis. The traditional advice of financial professionals to buy-and-hold and asset allocate has been called into question. Some may even question the ability of the private sector to prosper in a healthy way without government direction. In the end, America is a capitalist country—it works because of the free-enterprise system—where individual choices to spend, to work, to save and to invest end up propelling our society forward in a way that Adam Smith explained more than two centuries ago. Over time, the public’s faith in this concept needs to be restored.

How long can the lessons last? Every shock to our society casts its own shadow. After major events, the numbing realization of how the world has changed, or the frenzy of our collective reactions to it, can obscure how significant the event really was or how it has changed us as a people. Often, in retrospect, the surprise is how much we adapted to the new reality and got on with life.

Such certainly was the case with the stock market crash of 1987 and the Asian financial meltdown of 1998. Such also was the case with the recessions of 1991 and 2001—no one doubted that the economy would eventually recover. Such even was the case in the aftermath of 9/11 which cast the longest shadow on American public attitudes but which we have, by now, seemed to adapt to and to incorporate in our national consciousness.

However, it must be said that this is not always the case. The Great Depression scarred a generation of Americans and for many of them, changed their economic and investing attitudes for ever. Even today, financial advisors talk about their older clients who grew up in the 1930s and are scared to spend any significant amount of their more-than-adequate resources for fear they might end up penniless. Even into the 1950s, investors were so scared of stocks that they demanded a dividend yield above the Treasury yield, in addition to potential capital gains, to convince them to hold them. Needless to say, such conservative attitudes, were they to take root, could prolong the economic recession and restrain a full recovery for the market. But will they?
The answer to this question is naturally speculative but there are some guideposts both in the numbers and our cultural environment. Looking at the data, while the current sharp recession has been caused by the biggest financial crisis since the Great Depression, it is still not in the same scale as that awful event. In the Great Depression fully 25% of the U.S. workforce found themselves unemployed in 1933—today the number is just over 8% with the Federal Reserve tentatively predicting a peak of about 10%. From its 1929 peak to its 1932 low, the Dow Jones Industrial Average fell by 89%. Today’s market decline, while vicious, is still not in that league, with a peak-to-trough decline in the Dow of 54%.

It is possible that the market will fall lower and that the unemployment rate will vault into the teens. But if they do not, and the economy commences a recovery in the second half of 2009 or early 2010, the impact of this debacle on consumer and investor attitudes should be more fleeting than that of the 1930s.

In our cultural environment, two forces are at war, which were both far less significant in the 1930s. In the early 21st century, Americans are bombarded by information from TV, internet, radio and print. Much of this information, as it pertains to the economy and markets, has a negative slant, warning of dangers ahead. At the same time, and, ironically, using the same means of communication, a powerful and sophisticated advertising industry has evolved with the not-too-subtle goal of making us feel comfortable about over-consuming today.

In the end, it may come down to age. Even if the national mood improves in an economic and market recovery, those on the brink of retirement may change their behavior in a permanent way, on the assumption that no resumption of the good times could come fast enough to allow them to stay on the path they had assumed in the late 1990s. These investors may well demand safety first, generating a strong demand for cash and bonds, despite better long-term prospects in other asset classes. But younger investors have more time to work with, may be braver, and, as the economy comes back, will want to make up for some of their losses of recent years. It is this group of investors who may be the natural buyers of riskier assets.

However, both groups will be left with a distrust of Wall Street complexity, black box models and sophisticated strategies. This has been the bear market of Bernie Madoff as much as mortgage backed securities, and for all investors, there will likely be an enduring lesson of the importance of understanding what you are buying and the financial strength and integrity of those to whom you entrust your money.
OVERVIEW  The credit crisis has swept through official institutions quickly and deeply, and the effects of it will influence the way central banks and sovereign wealth funds manage national financial assets for years to come.

Until 2008, the last decade has been one of asset growth and outperformance for sovereign asset managers. After the serial Asian, Russian and Long Term Capital Management crises in the late 1990s, there was a steady and significant expansion of national balance sheets as strong economic growth, favorable balance of payments positions, and rising wealth from commodity income helped to raise foreign exchange reserves (See Figure 1). This also encouraged the formation and growth of sovereign wealth funds in many countries throughout the developed and developing world in order to manage national assets in excess of immediate liquidity needs.

As national assets grew, so did investment choices. Central banks moved away from their old roles as liquidity managers and started acting as institutional investors with longer investment horizons. They increased interest rate risk in portfolios in expectation of higher returns, and expanded the universe of investable fixed income asset classes in search of greater portfolio efficiency. Sovereign wealth funds, already positioned as investors with long-term horizons, allocated investments to more sophisticated multi-asset strategies, extended markets and alternative investments. Before the credit crisis hit, a key agenda item for official institution asset managers was the improvement of risk-adjusted investment returns, as inefficient “traditional” investment strategies were shown to have quite significant opportunity costs over longer horizons.

With the onset of global financial turmoil, the landscape has changed. While national balance sheets, almost without exception, entered the current crisis in stronger positions than in previous downturns or market setbacks, official institution asset managers face a “triple-threat” of significant challenges. First, economic weakness and sharply lower commodities prices have significantly slowed the pace of national wealth accumulation for those countries previously reaping the benefits of balance of payments surpluses or commodity exports. Second, banking sector weakness, local and regional economic disruptions, and political commitment to alleviate these problems have burdened national budgets, placing demands on the use of long-term funds to solve immediate problems. Third, capital markets distress in every sector except government bonds has dramatically decreased the value of existing investment portfolios. As a result, fewer inflows, greater outflows and the diminishing value of current investments conspire to increase the difficulties facing official institution asset managers.

![Figure 1: Growth of World Reserve Assets](source:Bloomberg)
Central banks and sovereign wealth funds alike suffered in the crisis, relative to their goals. Central banks, with more modest return ambitions, and lower risk, were affected to the degree that they had exposure to non-government bonds as even (especially) highly rated fixed income instruments lost value. Sovereign wealth funds, with exposure to equities and alternatives, saw a correlated decline in asset values.

The current environment presents enormous challenges for sovereign wealth managers, but, as always, opportunities exist for those willing to re-evaluate assumptions, methodologies and frameworks in light of the dramatically changed economic and market landscape. This article will briefly discuss three topics with immediate relevance for official institution investors in the wake of the credit crisis: managing fixed income investments in a low-yield environment, the need to focus on asymmetric downside risk measures, and the re-evaluation of liquidity needs and assumptions. All of these will have importance in setting policy, whether for a central bank evaluating its investment benchmark, or a sovereign wealth management institution reconsidering fund design parameters.

RETURN EXPECTATIONS IN A LOW YIELD ENVIRONMENT

This topic is not new. In 2003, when the Fed Funds rate hit its then-record low of 1%, some authors and institutions noted that it would be unreasonable and, indeed, impossible, to expect forward-looking fixed income investment returns to match long-term historical return averages. Starting at lower interest rates, expected returns for any maturity segment on the yield curve would decrease, and the risk of negative returns would increase, relative to historical norms.42 By early 2004, however, yields in the United States started a steady rise, and concern in this issue faded somewhat—while fixed income returns were subpar as rates rose, bond investors soon felt the benefits of higher yields. In early 2009, though, U.S. interest rates have reached new lows, as have yields in many other developed markets. With global economic weakness arguably keeping rates low for some time, a low yield environment impacts many fixed income investors, and it is useful to revisit the consequences.

Central banks tend to favor investments that preserve capital, and many central banks have found a preferred investment habitat in the 1-3 year sector of government yield curves. This segment has historically provided a good balance of higher returns, relative to cash, and acceptable risk from interest rate volatility. An analysis of historic rolling 12-month returns for the Merrill Lynch 1-3 year government bond index shows that since 1976, the average 12-month return was 7.56%, 95% of returns were above 1.44%, and the worst 12-month return was -0.35%. The index has never had a negative return over a calendar year.

There is no reason, however, to extrapolate such performance into the future. Indeed, with U.S. 2-year yields currently hovering around 1%, one cannot expect 7%+ returns over a 12 month investment horizon, and one should expect greater downside risk. Figure 2 illustrates the simulation of possible yield paths for the U.S. 2 year note over a 12 month horizon, starting from current levels and using historical volatility. Considering that the primary return components for investments in government bonds comprise coupon income, capital gains or losses from price changes due to yield moves, and roll-down, high nominal returns are not possible in this environment. New investments at current yields will result in coupon income close to 1%, and this meager coupon income will not provide much cushion against rises in interest rates. Furthermore, as can be seen in the chart, upside potential from capital gains is limited, as yields cannot rally below 0. The downside is not capped in this manner, however, and significant yield rises can result in negative returns.

Figure 3 shows the historic returns and risk parameters of the 1-3 year government index, vs. forward-looking statistics from a simulation analysis based on market opportunities available today. It is clear that expected returns and risk on a forward-

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42 Some observers will note that the slope of the yield curve can compensate for expected rises in interest rates; the return simulation methodology further in this article captures the effects of curve shape.
will decrease the probability of negative outcomes, if negative outcomes are defined as negative returns.

At current yields, however, reducing interest rate risk may result in another negative outcome—not earning enough from the investment portfolio. Many official institutions rely on investment income to cover operating expenses, liabilities, dividend payments to finance ministries, etc., and the possibility of not reaching a minimum return threshold may be just as unpalatable an outcome as posting a loss in a given year. Official institutions may be facing the unpleasant realization that the current market environment does not present investment opportunities that simultaneously maximize the probability of meeting minimum return thresholds while minimizing probabilities of negative returns.

Hence official institutions have to consider the trade-off between risk and return more carefully than in the recent past. To increase the probability of meeting minimum return requirements, increased allocations to risk assets will be necessary, with the consequent assumption of increased portfolio risk.

**Focus on Downside Risk Measures** The previous analysis also highlights the inadequacy of traditional symmetrical risk measures in expressing risk in ways relevant to actual investors. For example, the previous simulation results demonstrate that while forward-looking expected returns are less than historic averages, risk, when measured as return volatility/standard deviation, has decreased as well. The historic volatility of the 1-3 year government index has been 4.4% annually, but the current expected volatility is only 1.26%. However, the probability of negative returns over a 12 month period is significantly higher (32.8% vs. 0.52% historically). Looking at the Value-at-Risk (VaR) statistics, there was historically a 95% probability of earning a positive return of at least 1.44%, while current market conditions suggest that the VaR with 95% confidence entails a loss of 1.68%. Conditional Value-at-Risk (CVaR, or Expected Shortfall) is an even more useful measure of downside risk, as it takes into

**FIGURE 2: SIMULATED YIELD PATHS OF THE U.S. GOVERNMENT 2-YEAR NOTE OVER A 12-MONTH INVESTMENT HORIZON**

![Graph showing simulated yield paths of the U.S. Government 2-year note over a 12-month investment horizon.](source: J.P. Morgan Asset Management, March 2009)

**FIGURE 3: COMPARISON OF HISTORICAL AND SIMULATED RETURNS FOR MERRILL 1-3 U.S. GOVT INDEX**

<table>
<thead>
<tr>
<th>U.S. 1-3 Year Government Index</th>
<th>Historic 12-Month Returns</th>
<th>Simulated 12-Month Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Return</td>
<td>7.56%</td>
<td>0.54%</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>4.40%</td>
<td>1.26%</td>
</tr>
<tr>
<td>Probability of Negative Returns</td>
<td>0.52%</td>
<td>32.80%</td>
</tr>
<tr>
<td>VaR, 95% confidence</td>
<td>1.44%</td>
<td>-1.68%</td>
</tr>
<tr>
<td>CVaR, 95% confidence</td>
<td>0.87%</td>
<td>-2.17%</td>
</tr>
</tbody>
</table>

Source: J.P. Morgan Asset Management, March 2009

looking basis are much less favorable than historical data would suggest, and reliance on historic return assumptions in this environment will likely lead to disappointment.

Hence, forward expected return from investment in a traditionally popular sector is now much lower than historical norms, and the probability of negative returns is much higher. For institutions most concerned about capital preservation and avoiding negative returns, an appropriate policy response would be to reduce portfolio duration. Decreasing interest rate risk
Sovereign investors should not only reconsider their own liquidity requirements, but also their assumptions of the levels of liquidity that certain asset classes can provide. Market developments since mid-2007 have shown that asset classes that were previously thought to be liquid have not been liquid in practice. Market losses, de-leveraging, redemptions, and a lack of buyers have conspired to increase bid-ask spreads dramatically, and continued selling and redemptions put further downward pressure on prices. At various times during the credit crisis, there was no bid on select highly-rated investment grade fixed income paper at all, and there were periods when liquidity in government securities was severely limited. Even money market funds lost principal or restricted redemptions. Looking ahead, sovereign investors will need to ensure that portfolios are liquid enough in practice to meet future stresses. For longer-term investors still seeking sizeable absolute returns with a diversified set of investments across asset classes and strategies, this may result in a “barbelling” of liquid, relatively risk-free investments, with more illiquid and higher risk, but higher returning, assets.

Closing thoughts

Global financial turmoil has affected sovereign asset managers just as it has private sector institutions. Portfolios of official institutions have been called into service to ease domestic economic and financial problems at a time when financial asset values have suffered due to extreme market volatility. External stakeholders are numerous and diverse and will scrutinize investment decisions. Central banks, having suffered unprecedented volatility from non-government fixed income securities, are exhibiting risk-avoiding behavior and constraining investment universes, and those institutions aware of increased downside risk in a low-yield environment are reducing portfolio duration accordingly. At some point, however, the expected absolute return of such strategies becomes so low that the funding of operations may become unsustainable. Senior stakeholders may then need to contemplate an increase in risk assets to maintain minimum return requirements.
Sovereign wealth funds face similar challenges. Inflows are decreasing, outflows are increasing, and the significant negative returns from equities, extended asset classes and alternatives are testing the patience of fund sponsors and investment committees. While many wealth funds continue to act as long-term investors, assumptions about long term return and risk expectations are likely to be revisited in light of recent market developments. For those who have not done so already, downside risk frameworks are likely to be adopted.

It is important to reiterate that Central banks and sovereign wealth funds do at least have comfort in knowing that national balance sheets were generally quite strong as the global crisis started. They, and the industry, have also developed a level of expertise that would help them navigate through this challenging investment environment.
We stated at the outset of this document that the investment management industry is entering a post-modern period, during which many traditional features of this business would re-assert themselves. Among these features would be a more conservative approach towards risk-pooling, counter-party risk, liquidity needs, and the trade-off between principal preservation and investment return. Subsequent sections of this document have elaborated on these ideas. It now seems fair to ask at the closing how we expect these ideas to be manifested in investment behavior and in markets.

We offer first the caveat that these are, at best, educated guesses and we would not venture to predict market levels based solely on these views. We believe, with reasonable confidence, that the following changes will (continue to) take place:

- **Principal preservation and liquidity management goals will drive asset allocation exercises**—for institutions as well as individuals—will more formally take into account requirements for principal preservation (downside risk) and liquidity (cash flow) as a trade-off against investment returns. This is likely to mean, all else being equal, a relatively more important role for public markets and income producing strategies and a more cautious assessment of private markets. One consequence is that institutions are more likely to differ amongst themselves in their asset allocations than they have done in recent years.

- **Counter-party worries will favor larger institutions** Trust in financial markets is once again a valuable commodity. At all levels, from brokers to asset managers to end investors, counter-party standards will continue to tighten and due diligence requirements will be stricter. On the margin, this will favor larger institutions in the investment world—narrowly focused players may find it difficult to survive.

- **Investment strategies will become more transparent and simple** The cost of managing leverage and counter-party risk, and the fear of the consequences of failing to do so, will tend to reduce complexity and opacity in investment strategies. Investors are likely to spend more time understanding all existing and proposed strategies and scrutinizing untested ones particularly stringently.

- **Market volatility is likely to be high and risk appetite relatively low** Markets are rarely calm during prolonged periods of economic stress, regulatory activism and high government spending. Credit markets and equity markets have improved since their lows in December 2008 and March 2009 respectively. However, investment performance has suffered during the crisis and asset managers are adjusting to a new and still unsettled financial environment. Hence, they are likely to be wary of assuming large risks in their portfolios.

The credit crisis will likely continue to re-order the goals of investors and the practice of investment managers. The process may take some time. It will probably lead to a more cautious and transparent business. For these reasons, though, it may ultimately be more rewarding to asset managers and investors alike.
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