



ATLANTIC CAPITAL MANAGEMENT

WHY THE SHADOW CREDIT MARKET IS FAILING

How Wall Street Has Done It To Us Again

SPECIAL INVESTMENT RESEARCH REPORT
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INTRODUCTION

WHY THE SHADOW CREDIT MARKET IS FAILING

How Wall Street Has Done It To Us Again

According to one estimate the credit derivative market had grown to \$34.5 trillion by the end of 2006 from just over \$6 trillion at the end of 2004ⁱ. At that growth rate, sometime in 2007 – and this may have already happened – the notional value of credit derivatives (CDOs, CLOs, ABSs, etc.) will surpass the entire real credit market (\$46 trillion at the end of Q1 2007). Is this cause for concern? Should we care since the primary focus of ACM is the equity market?

To answer the first question we only need to take a look at the players in each market. In the real credit market \$34 trillion of the total market (or 74%) is held by domestic financial institutions: commercial banks (\$8 trillion), savings & loans and credit unions (\$2.2 trillion), pension funds and insurance companies (\$4.5 trillion), mutual funds (\$3.8 trillion), and finance companies, REITs and broker dealers (\$3.3 trillion). The last part is owned by asset backed securities and mortgage pools (\$10.6 trillion)ⁱⁱ which is the conduit into the derivative world. But what these financial holders of credit have in common is transparency and regulation that the derivative market does not have. The players in the CDO market are mostly the same (banks, insurance companies, broker dealers) but with one important addition: hedge funds. It is estimated that 60% of the CDO market is owned by and related to hedge fundsⁱⁱⁱ.

Why is the hedge fund involvement a potential problem? To put it simply, lack of transparency. But it isn't just the hedge funds that are secretive, the rest of the players who are open and forthright in the real credit market suddenly hide their interests in the CDO market. To understand why this is and how it is accomplished we will have to look at the structure and purpose of the CDO market more closely, and then determine if the lack of scrutiny poses a danger.

The answer to the second question becomes obvious in the context of trouble in the banking system. Credit system problems cause economic trouble, which is not conducive to bull markets. The results of a credit crunch (slowing growth in lending) are higher interest rates, slower economic growth and perhaps a recession.

A basic examination of these factors goes a long way toward understanding why so many market participants are growing nervous. The Bear Stearns subprime hedge fund trouble from early June is a good example of some of the flaws in the system. Using that as a guide we will try to determine what kind of damage is possible and a course of action for our clients.

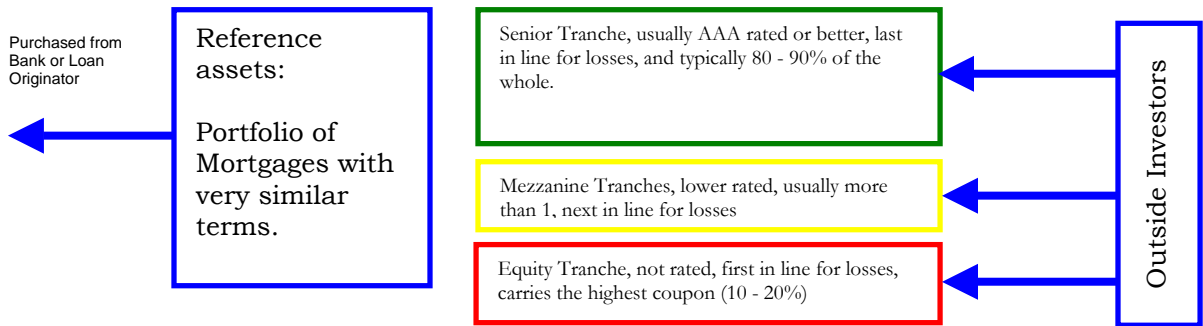


Part One Slicing & Dicing, Risk Made to Order

For those who are familiar with tranching, or constructing credit derivatives, please skip to Part 2.

The explosion in the CDO market can be traced to the search for higher yield in a low interest rate environment without adding risk. Normally an investment manager has to take on more risk to obtain a higher interest rate. But some smart people on Wall Street figured out a way to get around that old rule. They create SPV's (Special Purpose Vehicles) that hold the risky assets, then tranche them into slices that have different risk characteristics:

For the investors in the equity and mezzanine pieces there are additional risk-reducing methods. Tranche holders can contract with a counterparty for a credit-default swap (CDS). The investor pays the counterparty (usually an insurance company, bank, or broker) a premium in return for a cash payment in the event of a default, or other predetermined credit events (a ratings downgrades is one example of a credit event). The deal can be



Investors in the senior tranche are protected against losses by the thickness of the equity and mezzanine tranches. The higher the percentage of assets in the lower tranches, the more credit protection in the senior pieces.

In addition to the slicing, the SPV can use other credit enhancements to decrease risk. These include over-collateralization and very specific covenants for incoming cash flow (known as a waterfall). Principal and interest payments will go to fees and expenses, then to senior tranches, then to mezzanine, and so on. These credit enhancements plus tranching lead to a AAA rating on the senior piece. The net affect has been to take risky assets, in this example mortgages, and turn much of them into credit securities with well-defined loss characteristics and loss protection.

settled in cash or delivery of defaulted assets. As an example, an investor who purchases a BBB rated mezzanine tranche would pay a 2.67% premium for a CDS, betting that the spread between the CDS premium and the mezzanine coupon is greater than the coupon for the senior tranche. Again, the investor is gaining more yield without taking on default risk. The same can be done for equity tranches since the coupon rate is large, easily affording the higher CDS premiums. Big returns with little added risk (the default risk is shifted to the counterparty).

Since the equity portion of a CDO yields the most it was thought it might be beneficial to tranche a group of equity tranches. It works in much the same manner as the above example, instead of a reference portfolio of mortgages or bonds, the reference assets are a group of



equity tranches. The reference portfolio is carved up according to rating agency standards, with the usual credit enhancements, resulting in a senior tranche being rated AAA. The equity tranche yields on this “synthetic” CDO are truly immense (the riskiest of risky). Again CDS agreements can be used to move some of the risk to a counterparty. Synthetic CDO’s are the fastest growing segment of the credit derivatives market.

In 2004 much of the CDO deals were done with collateral, that is actual cash paying for the tranches. By 2006, hedge funds had taken over much of the market, paying for tranches with letters of credit secured with minimal actual collateral. So synthetic CDO deals would be put together with little actual cash changing hands – even CDS’s premiums are paid for on credit. This economic leverage allows hedge funds to outsize their returns on equity (more on this in Part 2).

Even with letters of credit being used as currency to do CDO deals, each deal requires an investor to purchase each of the tranches (in many cases the financial institution will keep a tranche for themselves based on their own needs). Since the senior tranches are often quite large (several billion dollars) usually an insurance company or bank investor large enough to absorb such a large piece is needed.

This has led to the development of single tranche synthetic CDO’s. A CDO deal will be done with a single investor, carved up in such a way that fits that investors exact risk/return needs. The dealer will retain the remaining tranches. The investor gets a tailor-made investment piece, and the dealer gets the deal done without having to find multiple investors. The leftover tranches will have to be dynamically hedged, but many hedge funds believe they are equipped to do it and can take advantage of spread differentials.

Some CDO’s are not static, that is they do more than take in reference assets at the beginning. Arbitrage CDO’s allow for trading of reference assets during a specified period of time. Trading within the reference assets can increase returns even further with the same loss protections. An arbitrage synthetic CDO with a waterfall structure that is dynamically hedged may be the most complicated financial asset yet invented.

By looking at the structure of credit market derivatives (this has been a very basic overview, actual deals are much more complex) we have begun to examine what each party to these vehicles have at stake, and what their motivations are. In Part 2 we will more closely examine each.

Part Two Motivations

Slicing and dicing makes these securities more appetizing for investors, but the search for yield is not the only enticement. Each party to the CDO market gets other benefits as well:

Broker Dealers & Agents Huge Fees. CDO deals are complicated legal arrangements that require careful consideration from seasoned professionals. Of course seasoned professionals arranging complicated financial frameworks for cash flow credit derivatives do not come cheap. Looking at a company like First Marblehead (FMD – [ACM Report dated](#)

[11/15/05](#)) shows us the profit potential for a dealer.

FMD’s sole purpose is to package student loans into CDO deals. They derive all of their revenue from this securitization process. In the fiscal year ended June 30, 2007, it is expected that FMD revenue will nearly reach \$900 million from securitization deals with a total notional value of nearly \$10 billion. On its latest securitization deal finalized in early June, it expects to raise over \$1 billion on the sale of asset-backed securities, while acquiring



\$769 million in student loans from originators. For its trouble FMD will be paid an upfront fee of \$89.7 million^{iv} or **11.7%** of the loan total! It will book additional revenue for servicing the loans and residual fees totaling 6.3% of the loan values. And that is just the student loan market.

These Collateralized Debt Obligations (CDO) can be arranged with any kind of credit asset: mortgages (traditional, HELOC, subprime, etc.), corporate bonds, bank loans, auto loans, boat loans, aircraft leases, anything anyone on Wall Street can think of. From Part 1 we saw the benefits of slicing and dicing reference assets to investors. And, as with FMD, brokerage firms get big fees from arranging them.

The record profits reported by Wall Street firms recently are not from old time stock transaction fees. Nor are they from mutual fund commissions. The big earnings are coming from investment banking. In the first quarter 2007 earnings report for Merrill Lynch, commission revenue increased 8.7% to \$1.7 billion, while advisory fees (fees from plain vanilla asset management) decreased 19.4% to \$1.3 billion. By themselves these numbers do not indicate a blowout quarter. But total revenue for ML was up 23.2% over Q1 2006. The principal transactions segment and the investment banking segment, the two segments that are most directly involved in derivative fees, both showed big increases, +37.5% and +47.9% respectively. These are not small but growing segments, these two segments now account for 49.9% of total ML revenue.

This same scenario is seen in the earnings reports of Bear Stearns, Goldman Sachs,

Lehman Brothers, and Smith Barney. Overseas we see it again with Deutsche Bank and Barclays^v. The fees generated from these deals are big enough to drive the earnings at all the large investment houses and banks, and provide powerful motivation to make sure these deals get done, and keep coming.

Insurance Companies The insurance company role has been limited mostly to investor and counterparty. Safe, well-defined risk/return characteristics are attractive to insurance companies wanting to match assets with liabilities. Different tranches can fit different balance sheet needs for insurers and reinsurers. But they have been most active in the CDS market selling credit protection, which is nothing more than insurance against defaults. Having highly-rated, experienced companies take some of the risk from credit derivatives is a good thing, as long as they have good knowledge of the deals they are getting into.

VIE's, SPV's & CDPC's Special purpose entities created to hold reference assets. QSPE's (Qualified Special Purpose Entities) are SPV's that have surpassed certain legal requirements freeing the sponsor of the entity, usually the dealer, from having to consolidate the balance sheet and income statement of the SPV with its own. QSPE's can be used to shift reference assets off a company's balance sheet. VIE's are SPV's that do have to be consolidated with the sponsor's accounting statements.

CDPC's are specially designed and funded companies that do nothing other than issue credit default swaps. Typically they are leveraged sixty to seventy times, yet maintain

Revenue growth for major credit derivative players. Investment Banking growth shows strength from LBO's, Principal Transaction growth strong – CDO's and CDS's. Bear Stearns takes a second quarter hit in that segment – more to come?

	Goldman Sachs		Bear Stearns		Merrill Lynch		Lehman Bros		Barclays Bank	
2007 vs 2006	<i>1st Qtr</i>	<i>2nd Qtr</i>	<i>1st Qtr</i>	<i>2nd Qtr</i>	<i>1st Qtr</i>	<i>2nd Qtr</i>	<i>1st Qtr</i>	<i>2nd Qtr</i>	<i>1st Qtr</i>	<i>2nd Qtr</i>
Investment Banking	16.9%	13.0%	3.6%	27.1%	48.0%	26.0%	18.6%	55.2%	366.0%	5.9%
Trading & Principal Transactions	35.7%	-10.0%	16.7%	-18.1%	37.5%	201.0%	1.8%	11.6%	16.2%	27.7%
Asset Management & Sec Serv	-27.0%	9.0%	5.1%	32.9%	-5.8%	-3.6%	14.3%	44.1%	4.5%	4.4%
Interest Income	37.5%	32.0%	54.1%	41.9%	49.6%	55.0%	46.8%	14.5%	1.9%	14.2%
Total Revenue	29.2%	13.0%	31.9%	15.6%	37.9%	42.5%	33.8%	35.3%	11.2%	8.5%



a AAA rating with minimal collateral. They depend very heavily on their cash flow and credit default models to maintain their ratings.

Banks Loan originators and security arrangers can make big fees too. But banks can also get another benefit – relief from reserve requirements. Through CDO deals they can move loans off their balance sheet and out of the reserve requirement calculation. They can also gain exposure to loan markets outside their traditional comfort zone.

According to reserve requirement rules of the Basel Accord of 1988^{vi} banks are required to reserve for the asset side (loans) of their balance sheet, not just the liability side (deposits). The accord requires a reserve of 8% of capital to risk-weighted assets. In other words, the riskier the asset (loan) the more reserve required. A bank that holds subprime mortgages will have a far greater reserve requirement than a bank that holds US Treasuries as assets.

By doing CDO deals a bank can transfer risky loans to a SPV, retaining a tranche for themselves according to their risk appetite and yield spreads needs. This reduces its overall risk profile, and therefore the required reserve. Even if an equity tranche is retained by the bank, it can be coupled with a credit default swap to diminish the tranche's risk profile, and the overall risk profile of the bank, effectively reducing the required reserve balance while maintaining exposure to the original loans. Banks can also use securitization to avoid being fully loaned. If a market opportunity presents itself for a bank that is up against its reserve requirement it can sell its loans in a CDO deal.

Exposure to a market outside of its traditional operating area is made possible by purchasing CDO tranches with reference assets that are not available to them through the traditional credit market; i.e., a regional bank with little expertise in aircraft leasing can purchase a CDO tranche with aircraft leases as reference assets.

Hedge Funds The Shadow Players. They make all the money, leverage until they can't leverage anymore, and do it all without regulation or even transparency. And now they are, by some estimates, 60% of the credit derivatives market.

They are often the investors, the investment managers, and the fundraisers. Hedge fund returns have been terrific the past few years making it easier to raise even more money (both equity cash and leverage) for even bigger and more exotic deals. They are, perhaps, the single biggest reason the total notional value of credit market derivatives has exploded from \$6.3 trillion in 2004 to \$28.8 trillion at the end of 2006.

Since hedge funds need leverage to generate outsized returns they have been a big appetite for borrowing at low interest rates. Low-cost borrowing has amplified the leverage hedge funds have been using for big returns. But the flip side of low borrowing costs is the low rates on assets. So hedge funds have been at the forefront of the search for higher yield in a safe environment.

Ratings Agencies The AAA seal of approval is the only real requirement in a CDO deal. Getting the AAA or higher (for "Super Senior" tranches) is a must, so any potential deal has to be structured around this need. Cash flow, legal, and investment management criteria are supposed to be obstacles in receiving a high rating, but it is really hard to tell for sure since Moody's, Fitch, Standard & Poor's, etc., share very little information about their cash flow models and official ratings standards. We should also remember that the ratings agencies get their compensation from the SPV's and their sponsors – a little caution before taking their ratings as gospel. Not to mention that ratings agencies, like research analysts, seem to lag events. Subprime assets were not downgraded until after the mess at Bear Stearns became public.



Part Three Complexity, Not Certainty

A system of debt securities that predicts default risk while diffusing it amongst many market participants sounds really good. Creating securities that have very definable risk/return characteristics is a great idea. Is there a Mr. Hyde to the CDO Jekyll?

While the credit derivatives market may be doing a good job of diffusing default risk (and that point cannot be emphasized enough) it may be tempering that good by creating new risks that are not yet tested, or even understood. Model risk, liquidity risk, and the greed factor are three new concerns, or risks, that have been created out of the structuring of credit finance.

Model Risk The biggest issue is complexity. Credit derivatives are not exactly easy to value and measure since they are not straightforward securities. Add additional complexity in synthetic versions, plus various derivatives in the hedging process, and the valuation process can only be understood by theoretical mathematicians.

The One-factor Gaussian copula model is probably the most popular in the financial services industry^{vii}. The Gaussian random default variable maps each underlying default risk, whose value determines the time of default. The random default variables are assumed to be correlated with a constant correlation matrix.

Some formulas for CDO valuation:

$$p_i^{G1} = \Phi\left(\frac{-\rho V + \Phi^{-1}(F_i(t))}{\sqrt{1-\rho^2}}\right) \quad \left| \quad \begin{array}{l} \text{The One-Factor Gaussian copula model where V is the} \\ \text{independent Gaussian random variable.} \end{array} \right.$$

$$V_i = B_i(\rho V + \sqrt{1-\rho^2} \bar{V}_i) + (1-B_i)(\beta V + \sqrt{1-\beta^2} \bar{V}_i) \quad \left| \quad \begin{array}{l} \text{Stochastic Correlation Model}^{\text{viii}}, \text{ modeled to} \\ \text{imitate "correlation smiles" in the CDO market} \\ \text{where V is the Gaussian random variable and} \end{array} \right.$$

$$p_i^{G2} = p \Phi\left(\frac{-\rho V + \Phi^{-1}(F_i(t))}{\sqrt{1-\rho^2}}\right) + (1-p) \Phi\left(\frac{-\beta V + \Phi^{-1}(F_i(t))}{\sqrt{1-\beta^2}}\right) \quad \left| \quad \begin{array}{l} \text{Bernoulli random variables. The} \\ \text{conditional default probabilities are} \\ \text{represented by the second formula.} \end{array} \right.$$

The big drawbacks of this model are: 1) the assumption that recovery rates in the event of a default is a known, static quantity. That is, recovery rates are predictable and constant. 2) It is also assumed that default rate correlations amongst reference assets are constant over time. Furthermore, the Gaussian copulas do not match market observations. So in order to match market observations, and to make further hedge calculations on the more complex CDO structures (CDO's of CDO's) some models have forced the Gaussian model to match the market using "base correlation",

which is similar to an error term. So there are now models that can better predict "base correlation" and its tendency to skew with higher implied correlations. Essentially more models incorporated into models.

The point of this part of the discussion (and this is a very basic view of very sophisticated calculations) is that these valuation models are dependent on an intense understanding of the mathematics and statistics of the model assumptions. There are assumptions that need to be made in order for the math to be



meaningful – often assumptions that do not match the real world. The complexity of the interaction of so many meaningful, real-world variables and the degree to which each variable holds power over the result is hard to boil down into a single, yet complex, formula. Perhaps the biggest shortfall is the maturity of the CDS market, or lack of it. The models and assumptions are based on a very short history, there has not been a really good test of many of the assumptions and variable correlations. They have never been tested in a down period – there has been steady-to-good economic and income growth since 2004 when the credit derivative market blossomed.

An example of the short-comings of modeled assumptions is the Bear Stearns mess, or the Bear Stearns High Grade (high-grade?) Structured Credit Strategies Fund and the Bear Stearns High Grade Structured Credit Strategies Enhanced Leverage Fund (the name itself has an Orwellian ring to it)^{ix}. The latter fund was an offshoot of the former started three years previous. It returned nearly 50% with little expected default risk, even though the reference assets at its heart were subprime mortgages, and went 40 months without a decrease in value. The new fund started in 2006 with a similar bet on subprime mortgages, but there was an important distinction between the subprime mortgages originated in 2006 (especially the third and fourth quarter) and those originated earlier. This distinction cannot be modeled in any stochastic probability function nor Gaussian copula.

The strategy for the hedge funds, in simple terms, was to invest in senior tranches backed by subprime mortgages, hedged by puts against an ABX index. Information on the exact nature of the investments is still hard to come by under the veil of hedge fund secrecy but it looks to be that 90% of the investments were senior or better, meaning that 90% of the assets were AAA rated. The two funds were very highly leveraged, the BSHGSCS with \$500 million in equity capital and \$5 billion in leverage, and the BSHGSCSELH with \$699

million in equity capital and between \$11 and \$14 billion in leverage.

The ABX hedge was the key – the ABX in question (there is more than one) is an index of the most liquid mortgage-backed securities of a specific investment grade. If losses began to mount in the fund's subprime reference assets, the assumption was the ABX index would fall since losses in subprime securities would be widespread. That would lead to lower valuations, and therefore a lower index value. By owning puts, a falling index value would dramatically increase their value, and more than offset the losses from the subprime references.

That strategy worked, at first. As the subprime mortgage mess became big news in February, valuations of CDO's backed by them fell. The market value of them in the BSHGSCS fell 14.4%. Just as the hedge was designed, the ABX index value also dropped and the fund saw 13.5% gain – not a full hedge but effective enough to limit the losses. The BSHGSCSELH fund saw a 4.4% decline in market value but earned 5.3% on its hedging.

Then the wheels fell off, exactly where the models cannot predict. Despite the falling valuation of subprime CDO's the ABX index stabilized. It seemed that the subprime loans made before the middle of 2006 were performing within constraints - it was the loans made in the third and fourth quarters that were the trouble (more on this in Part 4). This distinction was the reason for the “all clear” signal that Wall Street and the Fed sent shortly after the New Century and Countrywide troubles were made public. They signaled the subprime mess was contained to a limited segment and would not spread throughout the credit markets. But that distinction could not be modeled, how could it? Default rate and recovery rate assumptions were based on historic information that did not include a period of borrower distress.

So losses on the CDO's mounted without any effective hedge, the ABX was no longer falling (it tracks subprime loans across the entire



market place, not just those from late 2006). By the end of April the BSHGSCSELH was down 23%, and falling. Margin calls came and by early June the funds were out of cash, unable to make the calls. There were headlines, nervousness and strange behavior on the part of participants that indicates the extent of damage across the entire CDO spectrum. What happened next is a good example of the next category of new risk created by the credit derivatives market.

Illiquid Without an actively traded market for CDO's (there are some liquid securities, but the vast majority are not traded) how does an investor value them? The answer is the complex formulas we just finished exploring. But who does those calculations, and who decides what values to use as some of the variables? The answer is the investment managers themselves. They crunch their own numbers to use as recovery rates, default rates, correlations, etc. Since they assign values for the assets there is little to no transparency for anybody on the outside, including investors and creditors, without similar investments trading actively. Investors and creditors are depending on a system where the investment manager has sole discretion in detailing how much the investments under his/her management are worth.

But that was not the problem with the two Bear Stearns funds. They were actually upfront and honest about the decline in market values. They were not attempting to hide them from investors or creditors. The funds' manager, Ralph Cioffi, was, by all accounts, an upstanding, respected, and most importantly seasoned manager. This was no Gordon Gecko prowling the garbage bins for ill-gotten rewards. Mr. Cioffi was just wrong in his strategy.

Being wrong had brought the two Bear hedge funds to the brink of collapse. Merrill Lynch seized \$800 million in collateral while other creditors issued margin calls. In a meeting detailed in a WSJ article, the counterparties were shocked that Bear wanted a "60-day moratorium on margin calls and release of its

derivatives collateral back to the fund." After reluctance on the part of the counterparties, Bear finally agreed to lend \$3.2 billion to the BSHGSCS, but let the BSHGSCSELH fail. They also wanted one year without margin calls. Those terms were not accepted, so Bear set out to come to terms with their creditors individually. Merrill Lynch decided they would not wait and seized \$850 million in collateral, likely in the form of the CDO securities themselves. JP Morgan seized \$450 million. But when they tried to sell them privately the bids they received were far below their expectations, if they got any bids at all. JP Morgan even went the next step by scheduling an auction for its seized assets, but pulled the plug minutes before by finally reaching an agreement with Bear Stearns.

No doubt the agreements Bear worked out with the creditors of the funds were expensive. And now news from July 17 that the equity in both funds is wiped out completely. So why were they allowed to fail? The answer may lie in the darkside of allowing managers to value their own investments. By going to auction or selling off collateral they would set a market price for similar CDO's. Shining a light on hidden pricing of securities would force the Wall Street firms (they are all raking in the money on these deals, and at the same time highly exposed to them if they fail) to admit losses. Why kill the goose and then destroy the golden eggs?

No other funds have as yet admitted to huge losses from subprime credit derivatives. Was Bear the only fund to get it wrong? It is estimated that half of all CDO's issued in 2006 had subprime mortgage reference assets^x. The most likely scenario is that managers are using the lack of liquidity, and darkside pricing, to hide losses in the hope that the market will turn around, or a new hedge strategy can be implemented for recovery. Each of the players have compelling interests in keeping this market moving forward, at the expense of defining and solving its current problems.

There is also another side to the liquidity problem, another good reason for pushing the



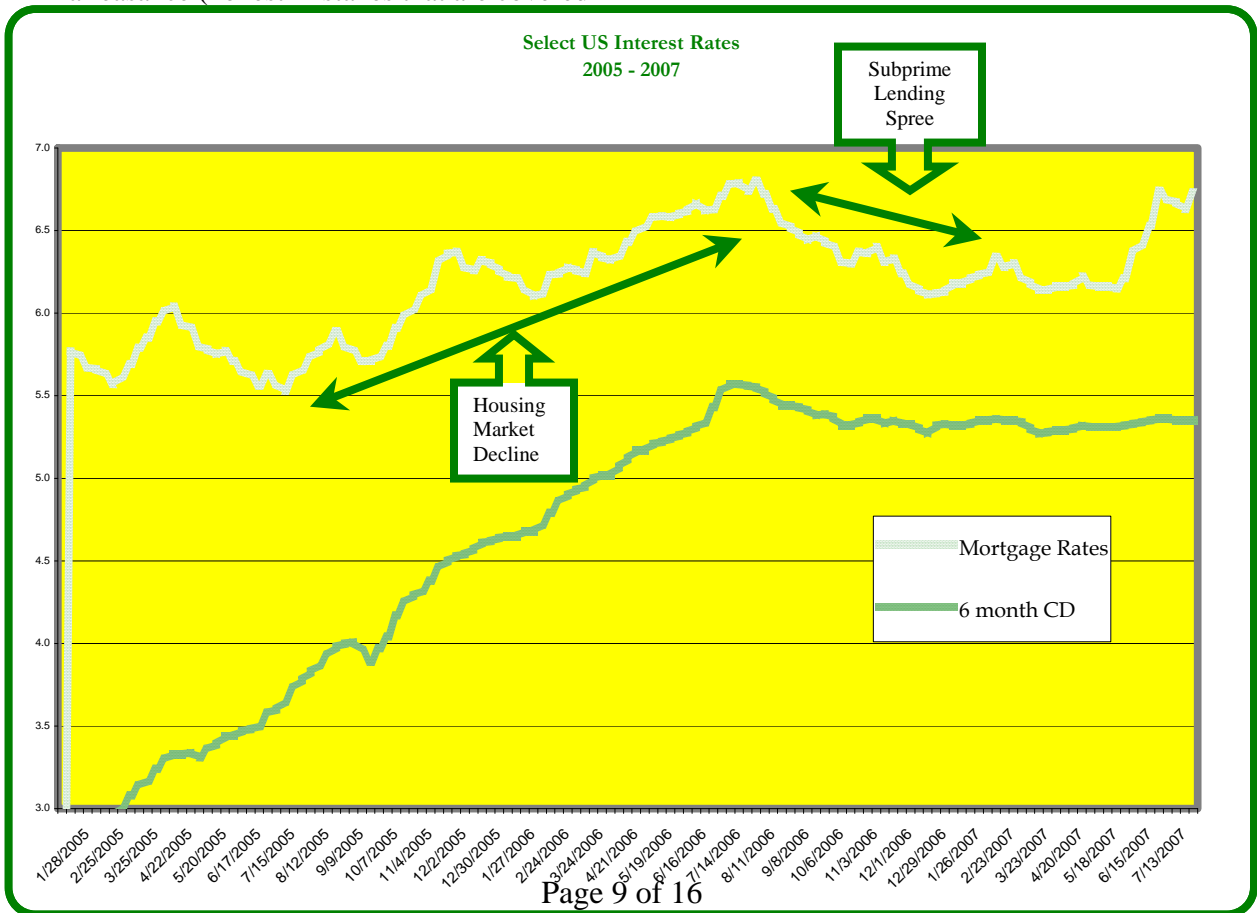
light of market pricing into the future. If recovery rates have fallen, default rates have risen, a correlation amongst and between both, then valuations across all CDO's, not just subprime-backed securities, may have to be adjusted lower. Since hedge funds use so much leverage, even a small decrease in valuations would lead to a run of margin calls. The resulting run of asset sales, in that illiquid market, would force prices still lower. The lower recovery rates would pressure all those counterparty default swap agreements and strain banks and insurance companies. The resulting cascade could jeopardize the entire financial system, a financial Armageddon. Small wonder Bear, Merrill, JP Morgan and other not-yet named parties to the debacle have eaten their losses very privately.

Greed Back to the question of whom else is hiding losses. Given the history of Wall Street, bull markets (can we deny the CDO market was a big, hairy bull?), and how they end, is it more likely that one honest player, and only one honest player, got it wrong and the rest of the market is fine and dandy, or that there are less than honest players who are not ready to throw in the towel and admit to malfeasance (honest mistakes that are covered

up, and some downright nasty thievery)? A short review of some troubling developments point to the latter theory.

We have already seen the profit potential from these derivative deals in Part 2. Addicted to the fees, was there a “do the deal at all costs mentality”? Given the nature of subprime mortgages, the state of the housing market and interest rate velocity, was that the reason so many were originated last year?

Examining the structure of the banking system shows that traditional lending logic may have been discarded in favor of deal-making. **First, a brief history of the housing decline:** The Federal Reserve’s rate increases of 2004-2005 initially had little affect on the mortgage markets. Since deposit costs were ridiculously low at the start banks could absorb deposit cost increases without too much profit loss, thereby keeping mortgage rates historically low and the housing boom alive. By July 2005 CD rates finally crept close to 4% and savings and money market deposit rates were nearing 3%, banks finally relented and mortgage rates began a 54-week upward journey^{xi}. By late July 2006 the average mortgage rate was up





130 basis points. It was during that climb that mortgage originations declined noticeably and the housing market began to fall apart. Not coincidentally, ABS mortgage holdings (CDO's, REMIC's, ABX's) declined sharply in the first half of 2006. But in the second half of 2006, and this is the key, mortgage rates began a steady decline despite persistently high deposit rates – banks began squeezing themselves in their traditional business line.

Why would a bank lower its revenue rates with costs increasing? They really did not have much choice. Banks in 2006 were between a rock and a hard place. The higher deposit rates not only increased costs but also began to attract more depositors. Flush with higher cost deposit cash, banks had to get the money out the door and into earning assets. With the previous mortgage cycle over there were only two things that might jumpstart a new cycle: decrease mortgage rates or try to tap new customers that had not been a part of the previous cycle, or both. Rates dropped, so did lending standards, and subprime became a household word (even though Microsoft Word does not recognize it as such).

Loading up on subprime loans also had another cost consideration – reserve requirements. Desperate to lower risk profiles, banks had to

unload these risky assets in the only place they could – the credit derivatives markets. Wall Street was more than willing to help. To summarize, squeezed banks flush with costly deposits lent to anyone they could, regardless of standards, and then shipped the risk to intricately structured, mostly hidden financial vehicles using complex and illiquid valuations. Lured by huge investment banking and principal transaction fees Wall Street began finding anybody and everybody to get these deals done, even lowering *their* standards.

Single-tranche CDO's, or on-demand CDO's, have become commonplace in this new environment. As has “cov-lite” and “cov-loose” deals^{xii}. Sensing banks' desperation and investment bankers' greed, hedge fund and CDO managers have been asking/demanding that the reigns be taken off. Those pesky cash-flow, collateral, and investment restrictions that were hallmarks of risk-management in the ordinary CDO's of the early years (2004-early 2006) were discarded to allow the hedge funds more freedom in trying to outsize returns. Couple that with valuation models run by the freedom-loving managers and the entire point of CDO securities has faded to a distant memory: well-defined risk.

Until Bear Stearns.

Part Four Economic Damage

Residential mortgages have made up the bulk of the reference assets in credit derivative securities for most of its short life. Even though there was a noticeable slowdown in that area, other reference assets have enjoyed a boom. Corporate debt and commercial mortgages are now the fastest growing segment. So it is no small wonder that the commercial real estate market is still booming despite its residential cousin's slump.

The recent strength in the US stock market appears to be tied to the growth in corporate CDO's. The largest cash inflow to the markets

has been from corporations themselves. Households and financial institutions have been net sellers of corporate equities, yet the Dow, NASDAQ, and S&P were enjoying strong returns and record highs (for the DJIA and S&P 500). Without the corporate share repurchases the indexes would be nowhere near those highs. The beginning of the buyback boom was financed as it should, through operational cash flows and internal sources. But the abundance of cheap debt, especially since late 2006, has tempted some CFO's to use borrowed money to pay for the share buybacks.



And we should not forget about leveraged buyouts (LBO), one of the biggest sources of not just cash for equity investors but the boundless optimism that has marked this latest market upswing. Some of the LBO deals are truly mind-boggling in size and the sheer lack of collateral. Since corporate debt has increased in popularity as a credit reference financing these mega-deals has been relatively simple and inexpensive.

Some of the biggest fears of the credit derivatives market have related to a systemic meltdown – counterparties not being able to pay off credit default swaps, a cascade of forced liquidations from margin calls, and huge losses that could take out large financial institutions. Such a financial pandemic would be the 21st century version of Great Depression bank runs. But a smaller, and perhaps more plausible fear, is the plain, old credit crunch. Symptoms would include increasing interest rates, tightening credit standards, and huge trading losses from overextended and unbelievably leveraged positions that resulted from greed multiplying complexity.

Those symptoms are already upon us. Interest rates outside of the treasury market have risen dramatically in a very short period of time. Mortgage rates, AAA corporate bond yields, BAA corporate bond yields, and credit default spreads have all jumped in the past two months while the 5 Year Treasury yield has remained relatively constant. That is a strong indication that the market is reevaluating DEFAULT risk premiums – inflation concerns would hit the treasury market too.

The increased cost of borrowing has forced some companies, including Chrysler, to take a closer look at some of the LBO deals that were planned for the near future. Some companies have even scaled-back stock buybacks. While this will have short-term negative consequences for the stock market (since these are the main sources of cash flow in recent quarters) it will also have very negative consequences for the economy at large. With weakness persisting in residential fixed investment, the housing sector, there really is

Recent Developments suggesting the beginning stages of credit distress:

- American Home Mortgage may be forced into bankruptcy. The company cannot find adequate liquidity despite the fact that it was NOT engaged in subprime mortgages! It is being hit with margin calls, suggesting the value of its assets (credit derivatives) have declined significantly.
- A third Bear Stearns hedge fund is in trouble, the \$900 million Asset Back Securities Fund is halting redemptions – only 0.5% exposed to subprime!
- A Sowood Capital admitted 50% losses in a fund on 7/3, while Australian Macquarie Bank expects 25% losses for July.
- Investment Grade credit default swaps jumped 20bp on 7/30.
- Citigroup was unable to sell debt for four LBO deals in Q2, and was left holding the bridge loans.
- KKR's takeover of Alliance Boots has been postponed – Deutsche Bank has not been able to sell \$10 billion in debt.
- GM's sale of its Allison Transmission business is on hold, no buyers for \$3.1 billion in debt.
- According to Fitch \$13 billion in LBO financing has been shelved, just in the past few weeks.
- Investors are having trouble raising the \$12 billion to purchase Chrysler when only a few weeks ago it looked like a done deal.
- Cadbury is delaying the auction of its North American drinks business.
- 50+ mortgage companies have been forced into insolvency this year.
- Possible downgrade of Home Depot debt due to borrowing tied to its massive stock repurchase plan.
- ServiceMaster had to delay a \$1.1 billion debt offering in early July, along with delayed debt offerings from Ahold's US Foodservice unit and Bombardier.
- DuPont is accelerating its \$5 billion buyback, financed with short-term borrowing.

	Household Equity Purchase Minus Mutual Fund Purchases	Reduction of Equity by Corps	Other Sectors
2007Q1	-553	510	451
2006Q4	-563	701	344
2006Q3	-624	535	191
2006Q2	-622	602	173
2006Q1	-623	569	402
2005Q4	-452	419	214
2005Q3	-480	469	310

Billions of Dollars, Annual Rates

The biggest source of cash for the stock market has been corporations themselves.



no room for any kind of slowdown in any other segment. Higher mortgage rates and lending standards, including the demise of the subprime, is not going to resuscitate the housing market any time soon. A reevaluation of default risk could jeopardize commercial real estate strength since it has been financed by the cheap and easy CDO deals. For an economy with little room for error there is a growing probability of recession in the not-too-distant future.

The preliminary second quarter GDP report underscores this vulnerability. While the topline growth number was a positive 3.4% (seasonally-adjusted, annual rate), consumer spending was a rather weak 1.3%. Consumer spending on non-durable goods fell by .8% in real terms^{xiii}. Inflationary pressures from oil, energy, and food are finally catching up to consumers. You would have to go back to the second half of 2001 to find a similar drop, in real terms, for non-durable goods spending. Even the durable goods segment, which had three straight quarters of real strength, was weaker than usual. In nominal terms the segment only increased .1%.

If personal consumption was not the driving economic force (for the first time since the first quarter of 2002) where did most of the 3.4% GDP growth come from? The answer is non-residential fixed investment, government expenditures, and an improvement in net exports. The weak dollar has allowed American exports to regain a competitive foothold while high commodities prices have contained import growth – even showing a decline in real terms. After posting a decline, in real and nominal terms the first three months of 2007, federal government spending, especially defense, came back strong in Q2 while state and local governments were steady. And the boom in non-residential structures – commercial real estate – has reached seven consecutive quarters, dating back to Q4 2005.

Of those three segments, only government spending is large enough to carry economic strength on its own. But that segment is

volatile and growth is rarely related to economic factors. The growth in exports in relation to imports will continue with the weak dollar, but in reality a slower pace of inflation in commodity prices will bring imports back with a vengeance (will oil prices remain above \$75/barrel or fall?). In other words, demand for imports has not fallen as much as inflation has increased, depressing import growth in real, inflation-adjusted terms. And an increase in interest rates in the US may put enough upward pressure on the dollar to balance slower growth fears, dampening export activity. Accelerating imports/decelerating exports will be a drag on GDP. That leaves the commercial real estate boom, which is pretty dependent on borrowing availability. A decline in the availability of credit derivatives borrowing will likely end that boom the way the increase in mortgage rates ended the residential housing boom.

Staying out of recession will require:

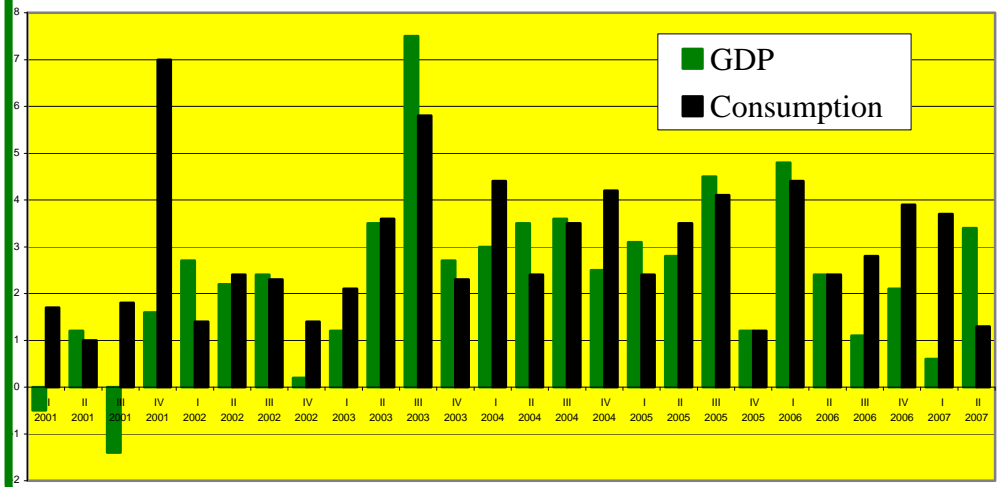
1. Continuing growth in government spending, local, state and federal.
2. Persistently high import inflation depressing import growth, in inflation-adjusted terms. Lower dollar value vs. other major currencies with rising US interest rates, fueling export growth.
3. A credit crunch not derailing commercial real estate despite the need for cheap, easy credit to keep it going.
4. Residential fixed investment stabilizing and returning to positive growth, in real and nominal terms, despite higher mortgage rates from the higher default risk premiums.
5. Consumer spending coming back in an environment of high non-durable goods inflation, probable stock market declines (domestic and abroad), rising interest rates, and continued residential real estate weakness depressing house prices further.

With all those factors working against the economy it is difficult to see how it can continue growing without a significant contraction. The question of recession is not “if” but “when” and “how severe”.



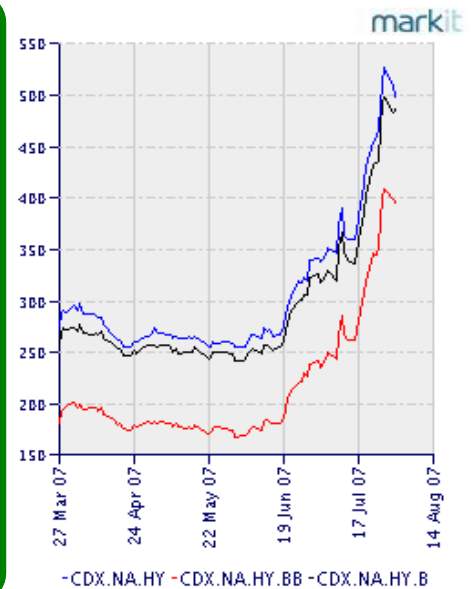
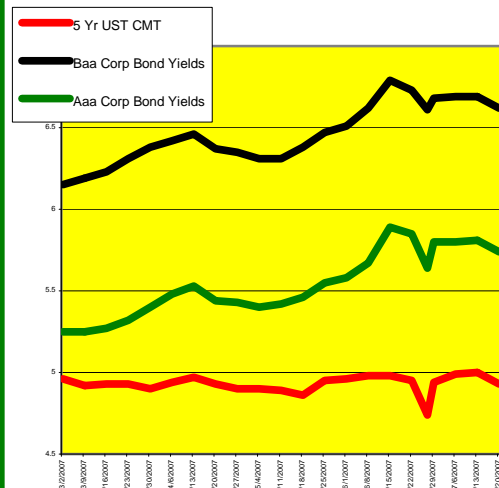
For the first time since the 1st quarter of 2002 consumption growth is significantly weaker than overall GDP growth. Since that time consumption growth has been the main engine of overall economic growth. Until the second quarter of 2007. Without a rebound in consumer spending, sustainable economic growth will be nearly impossible.

GDP vs Personal Consumption



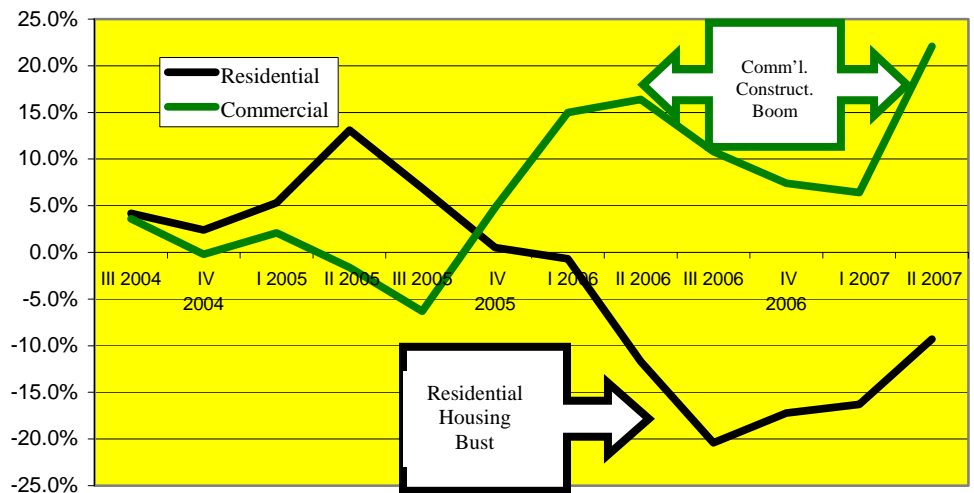
While US Treasury rates have been relatively flat to lower, corporate bond rates have jumped. Even high quality Aaa bond yields have increased 50bp in the past four months. The credit spread jump is even more stark – beginning in mid-June when the Bear Stearns mess became public. All of these indicate that the market is reevaluating default risk, and is demanding a higher premium – a symptom of a credit crunch.

Select Interest Rates Since March 2007



Residential housing construction spending peaked in the second quarter of 2005, becoming a drag on the economy by the end of 2005. The commercial construction boom really took off in the first quarter of 2006, not coincidentally just as the residential side fell off. This suggests that there was more than enough lending capacity to shift one to the other – credit market derivatives being the likely culprit.

Fixed Investment - Residential vs. Commercial





Part Five How Far is Down

The last recession in 2001 was accompanied by weak personal consumption, but was really driven by the destruction of companies as equity cash dried up and the subsequent decline in non-residential fixed investment spending – there was an overabundance of computer hardware and technology equipment, with some overbuilt telecom networks sprinkled in. The upcoming recession should more closely resemble the 1991 event, both being credit driven. That recession was caused by, briefly, a deregulation of banks that allowed a search for higher yields in credit and loan assets (many banks, particularly savings & loans, still owned mortgages from before 1973 that earned them less than 8%). That search for yield led many to pursue junk bonds and real estate – a misread of risk on both. When the inevitable correction came it took several large S&L's with it, resulting in a credit crunch that collapsed an overvalued real estate market. Even though the Fed stepped in and salvaged depositors the loss of lending capacity produced negative economic returns four quarters down the road.

This time around the recession from the crunch may be accelerated. The proliferation of credit derivatives technology makes the credit market much more reactive to changes in its structure. Trouble is likely to be settled quickly, and with diffused market risk, losses should be more evenly distributed, likely avoiding a systemic failure. That being said, there is still likely to be severe losses in some places; including hedge fund collapses and some institutions getting into liquidity trouble. The similarities between 1989 and 2007 are striking: a search for greater yield by financial institutions leading to a misreading of risk in non-traditional asset classes that were, at the time, viewed as definable and manageable. Of course the other big similarity is the immense fees for Wall Street firms.

The response of the Fed will most likely dictate the severity of the downturn. If there is

a Japanese-style push to save banks and funds that are in trouble, the economic trouble will be drawn out. The early Fed's policy to allow banks to fail, though painful in the short-term, proved to be the right course, while the Japanese suffered through 15+ years of deflation and recession (admittedly the Japanese banking system was in much worse shape).

While allowing some institutions into insolvency is the right course, a high rate of liquidity and money supply growth will be needed. The Japanese emergence from its slump in 2005 was in no small part due to a one-time surge in cash into the Japanese monetary system (which ACM argued last summer fueled the beginning of the credit bubble, the housing boom, the gold rush, surging stock markets in emerging countries, etc.). The inflationary pressure of such a surge finally produced the inflationary expectations needed to get out of the liquidity trap through negative real interest rates. The results are pretty impressive; Japan has experienced two years of significant real growth in GDP for the first time since the 1980's. Likewise, the additional liquidity added to the US monetary system in 1991 kept that recession to a minimum (as opposed to the double-dip recessions of 1982 – 1983).

However there will be some pressure on the Fed to keep liquidity lower this time around. Some analysts have charged that high liquidity from central banks created these asset “bubbles” in the first place. We believe that rather than monetary overstimulation, fundamental misunderstanding of risk has led to these bubbles. The credit derivatives mess is a perfect example. Misplaced confidence in the ability to define default risk has led to more demand for credit assets than fundamentally allowable. Expanding into less desirable reference assets without the accompanying increased risk premiums or tighter standards with the belief that risk could be handled by



tranching bubbled the credit market. Even if the Fed did overstimulate through liquidity, is it then responsible for lenders abandoning standards and disregarding long-term thinking? By overconcentrating investments in credit derivatives, counterweight mechanisms, such as increased interest rates and credit spreads, were overcome and did not function as an emergency brake – they could not since the overconfidence in rating agencies' cash flow models, illiquid price assumptions, and complex financial arrangements kept the true nature of the riskiness of the market hidden.

If the Fed, and other central banks, give-in to the “bubble” blamers then the recession will likely be more severe. If the Fed increases liquidity, stands behind depositors (and in rare cases investors) and allows insolvent institutions to fail, while encouraging greater understanding of risk (with the help of the SEC, Congress, and the Treasury Dept.), the financial markets will act as they are designed - to efficiently allocate cash resources on a fundamentally sound basis, creating real value.

Conclusions

The complexity of CDO's and credit default swaps has led to a misreading of credit risk. By not demanding sufficient risk premium over the past few years investors have been lulled into a false sense of security that has created speculative waves of new reference assets that should have never been underwritten. That artificial lending and subsequent multiplication through the financial system, with the aid of leverage, has created a fundamental misallocation of investment flows beyond the reach of normal economic activity and value creation. The reallocation of cash within the needed realignment of risk will likely cause an economic disruption in the near future. Our best estimate will be a contraction event two to four quarters from now, with the Fed providing stimulative policies. The end of the recession and beginning of the recovery should be well underway by the second half of 2008.

With regard to equity markets, the near-term will be extremely volatile as conflicting economic statistics alternate bull and bear tendencies. As the severity of the credit

crunch and the subsequent economic damage becomes more apparent, perhaps early fall, the bearish sentiments should overwhelm bullish sentiments. Earnings trouble will begin in the financial sector, brokerage houses and banks heavily exposed to default swaps will be first. Stocks exposed to commercial real estate will also feel the contraction before the general market.

For ACM clients, the companies we own should weather the storm. As price valuations decline with the inevitable earnings contractions, solid balance sheets and good management can position companies to come out of the recession in good shape, in many cases better than before. Portfolios that will allow fine-tuning should be positioned to take advantage of lower valuations by purchasing equities. Careful attention should also be made to companies not already under consideration should the inevitable downside overreaction produce true bargains. In short, prepare to buy during the correction. The one big wild card will be the actions of the Fed.



Endnotes

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