



The Deleveraging Events of 2007-8

TEXPERS Subprime Workshop

May 12, 2008



**Three-time Morningstar®
Fixed-Income Fund Manager
of the Year (2007, 2000, 1998)**

Biographical Information

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Mr. Pimentel is a Senior Vice President and Product Manager responsible for PIMCO's credit products, including investment-grade corporates, high yield, bank loans, convertibles and absolute return credit strategies. Prior to joining PIMCO in 2003, he was associated with the global crude oil trading group of Chevron Corporation. Mr. Pimentel has 7 years of investment experience and holds a bachelor's degree in mechanical engineering from the University of California, Los Angeles and an MBA in finance and accounting from the Kellogg School of Management at Northwestern University.

Overview

Summary of Conclusions

- The global financial system is damaged but still functioning
- ... and is most likely nearer the end of a stabilization process than the beginning, driven by a series of private and public responses
- Fed policy responses have been particularly noteworthy
 - Lower targeted Fed fund rates and important extensions of liquidity facilities
- Efficacy of the US fiscal response is less clear and is clouded by the political exigencies of this election year
- Reasons for continued caution
 - The value of the US housing stock is still falling
 - Banks are still aggressively deleveraging the leveraged investor
 - The overhang of structured financial paper is still large and markets are not yet freely functioning and clearing on price
- Investment conclusions
 - Returns from leveraged investing are likely to be limited
 - Returns from committing capital to “structured” credit that offers fundamental value but cannot find a traditional home may be “high”

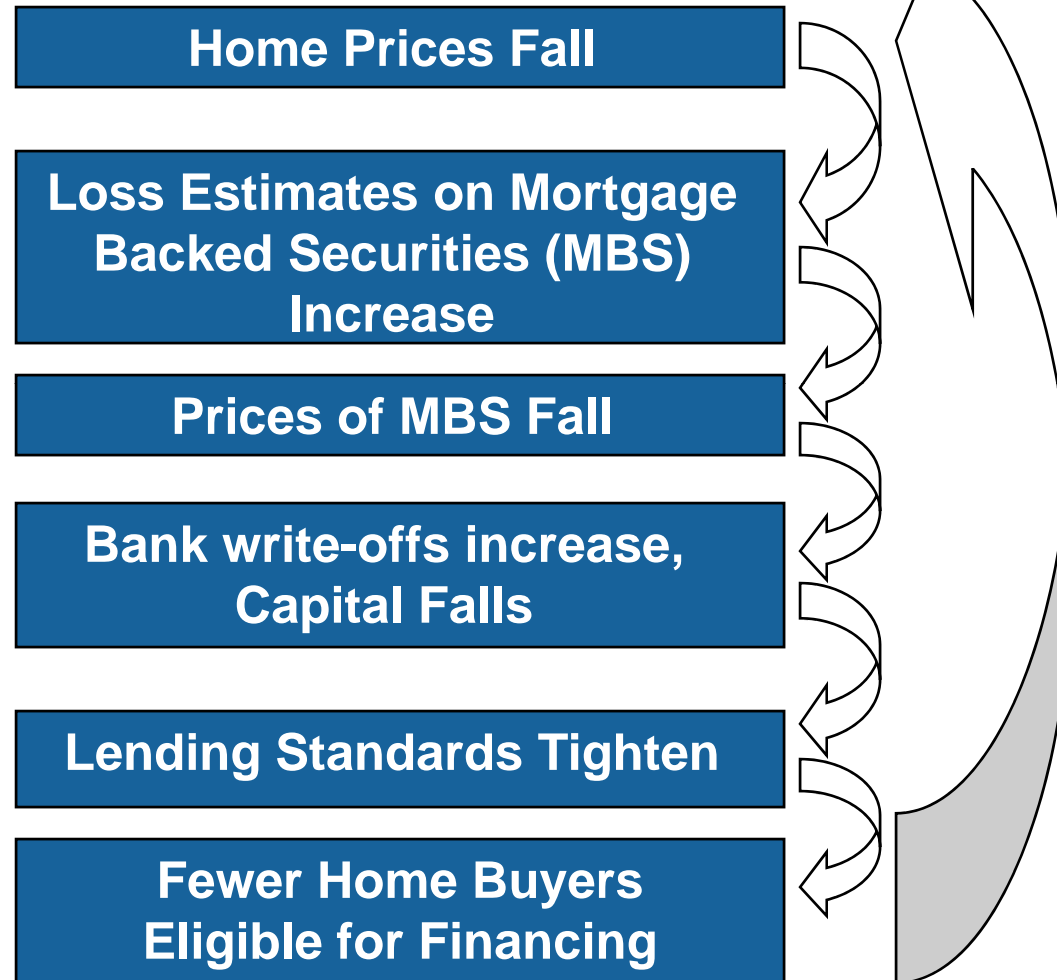
How We Got Here

- Rapidly rising home prices
- Innovative finance in the non-agency mortgage market that justifies ever higher home prices by:
 - Obscuring the meaning of “creditworthy”
 - Leveraging the mortgagee and increasing the risk exposure to housing prices
 - Leveraging the ultimate investor in “structured” mortgage credit
 - Mysteriously establishing a credit rating

Elements of the Deleveraging Process

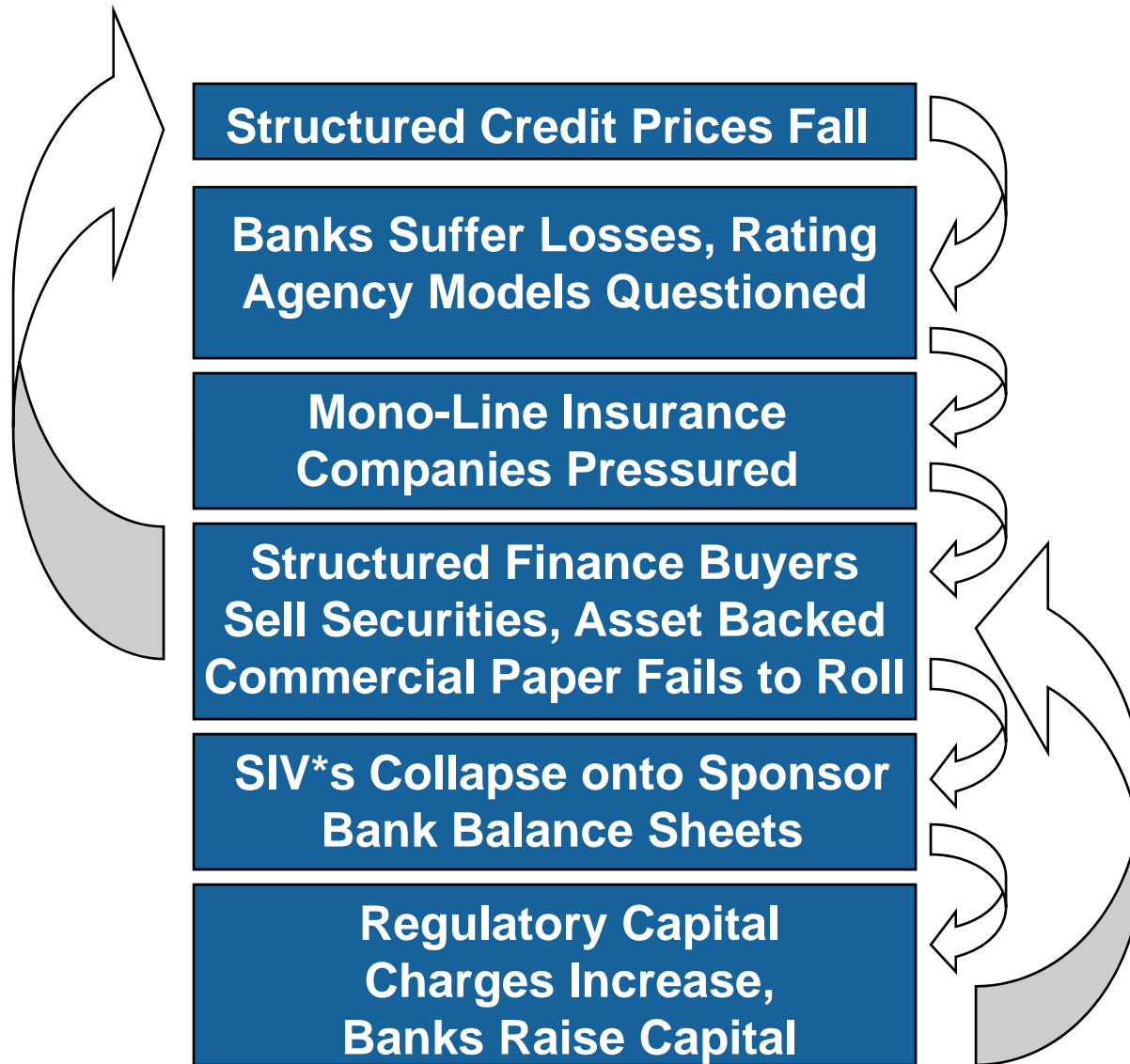
- Three inter-related downward spirals
 - Deleveraging the American homeowner
 - Deleveraging the global banking system
 - Deleveraging the leveraged investor
- Collateral damage throughout the global financial system
- Dramatic public sector responses

Deleveraging the American Homeowner



SOURCE: UBS

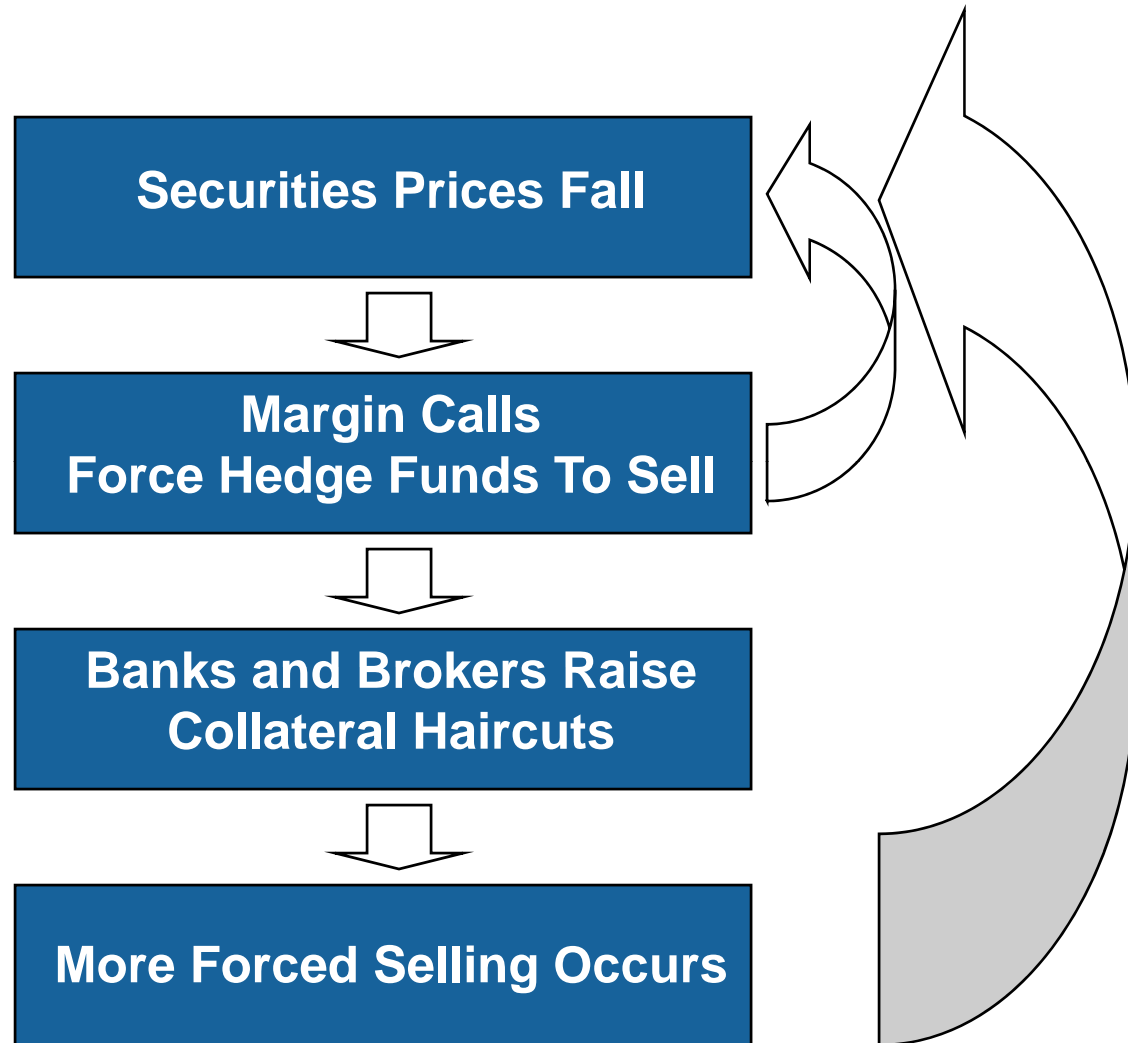
Deleveraging the Banking System



SOURCE: PIMCO

*SIV: Structured Investment Vehicle

Deleveraging Hedge Funds



SOURCE: UBS

Groups Suffering Collateral Damage

- Homeowners
- Global commercial banks and US broker-dealers – the engineers of “structured” finance
- Monoline insurance companies
- Rating agencies
- Institutions investing in “structured” finance paper
- Individual investors in certain, innovative “LIBOR Plus” “cash” securities, municipal Auction Rate Preferred securities, Asset-Backed Commercial Paper (ABCP) programs, Structured Investment Vehicles (SIV)
- All types of investors in credit sensitive products
- A number of hedge funds

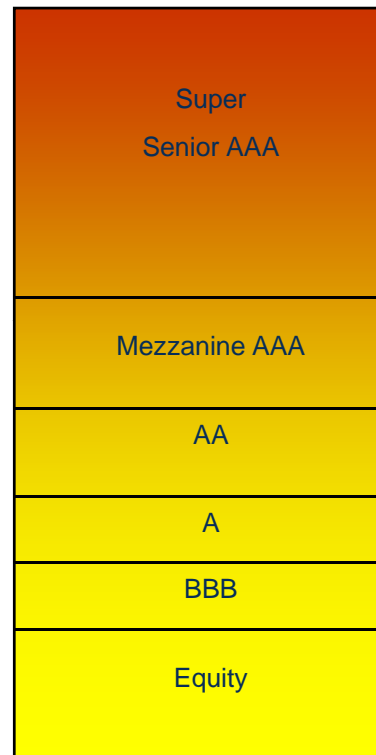
Leveraging Homeowners, Banks and Investors

Leveraging the American Homeowner

Year	Value of US Housing Stock (\$ billions)	Value of Home Mortgages (\$ billions)	Mortgage Backed Securities (MBS) Outstanding (in \$Billions)					Percent Of MBS Outstanding that is Adjustable Rate
			Agency	Non-Agency Outstanding				
				Total	Jumbo	Alta-A	Subprime	
2002	13,800	6,100	3,313	489	256	67	167	10.9%
2007-Q1	22,800	10,000	4,021	1,963	468	765	730	29.1%

SOURCE: The Federal Reserve Board, Inside MBS&ABS, Loan Performance, UBS estimates

Leveraging the Institutional Investor in Structured Credit: Buyers



Estimated super senior buyers

- Dealers (50%)
- Monoline Insurers and other “arbitrage” investors (24%)
- Hedge funds & investment managers (10%)
- Insurance Companies (10%)
- Banks (5%)
- Conduits & Structured Investment Vehicles (1%)

Estimated Mezzanine AAA to BBB buyers

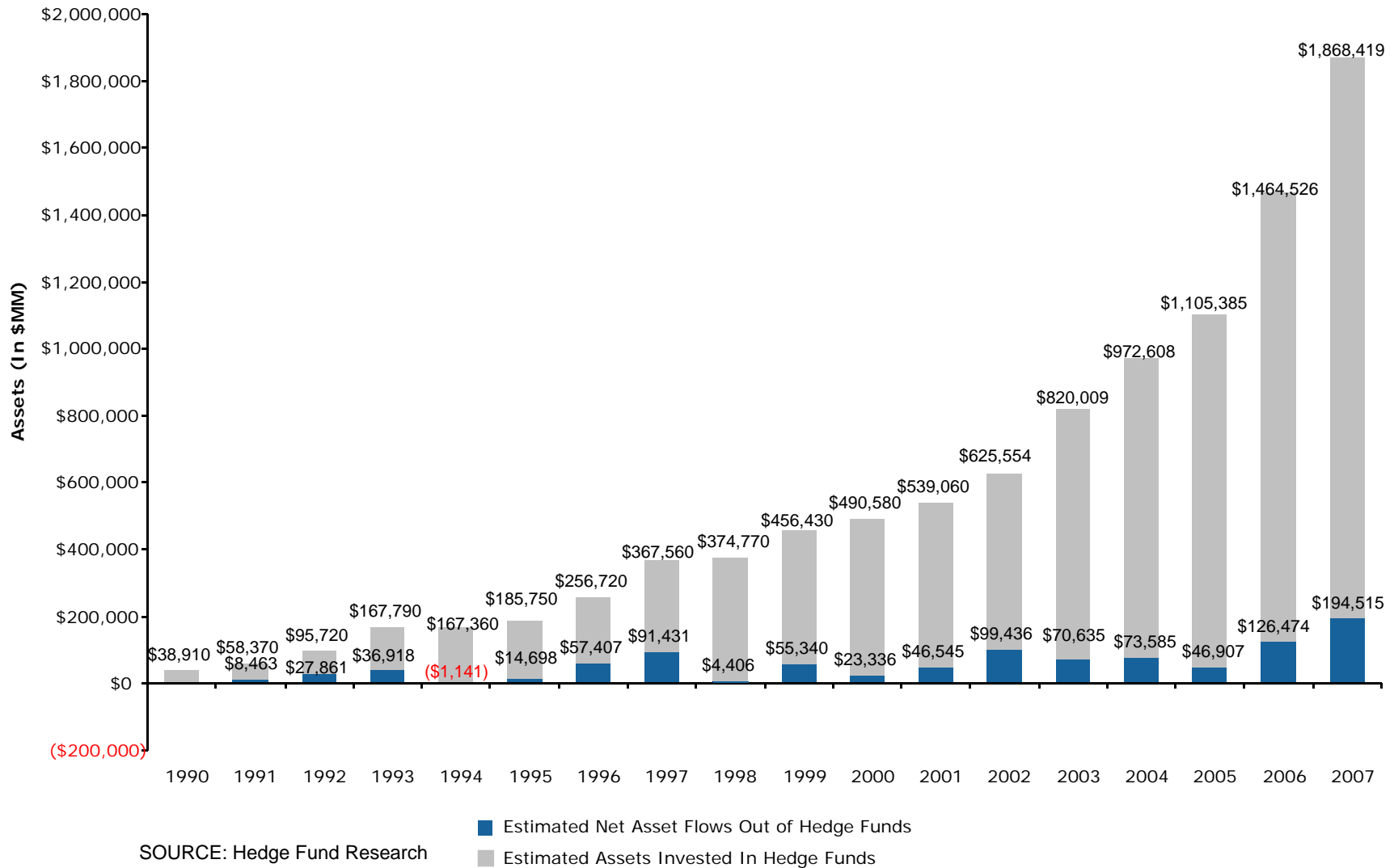
- CDOs (55%)
- Hedge funds & investment managers (20%)
- Bank (12.5%)
- Insurance (7.5%)
- Dealer (5%)

Estimated BB and Equity buyers

- Hedge funds & investment managers (65%)
- Banks (20%)
- Pension funds (10%)
- Insurance Companies (5%)

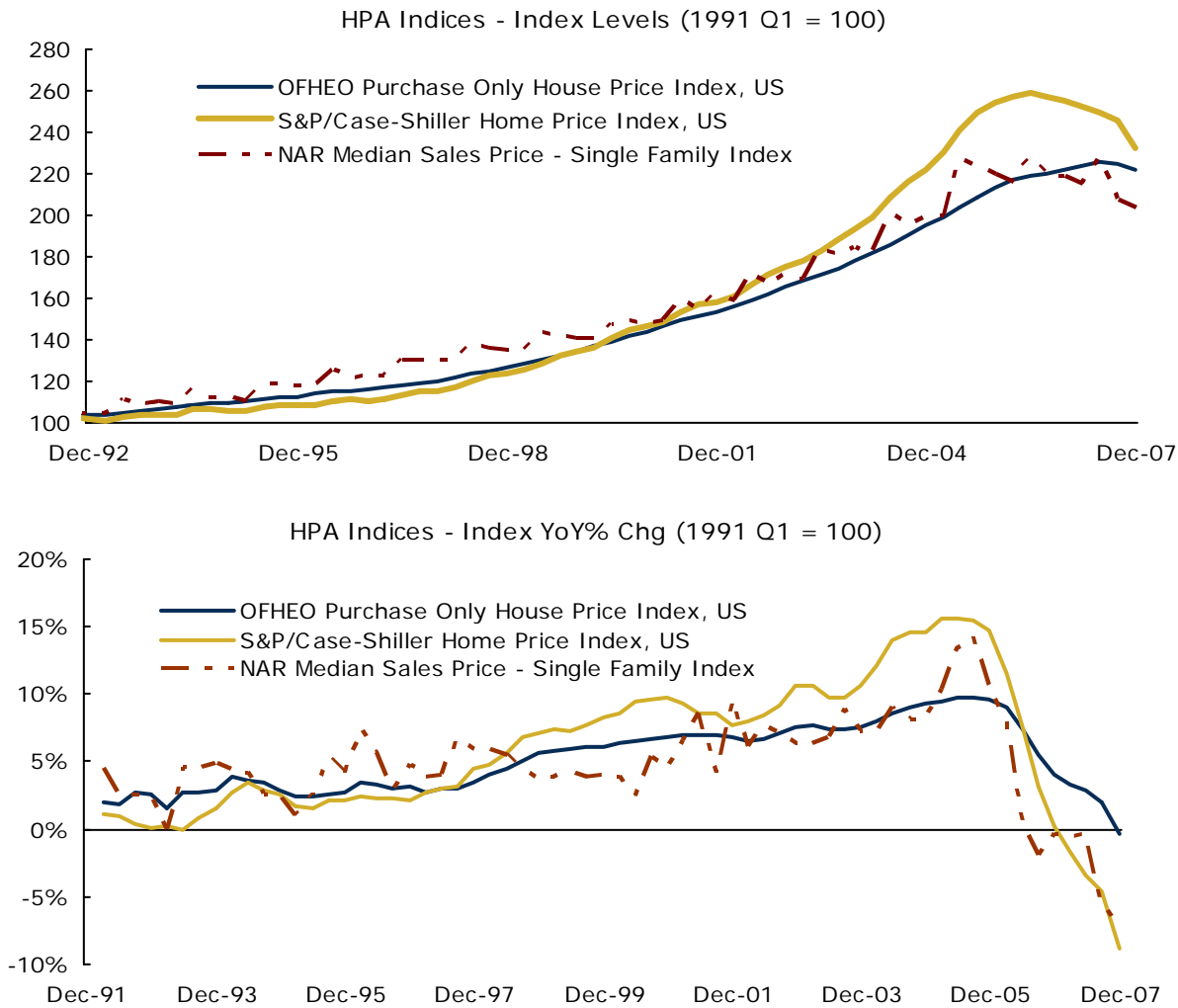
SOURCE: JPMorgan

Leveraging Hedge Funds: Hedge Fund Assets and Capital Inflows (Outflows)



Deleveraging Follows

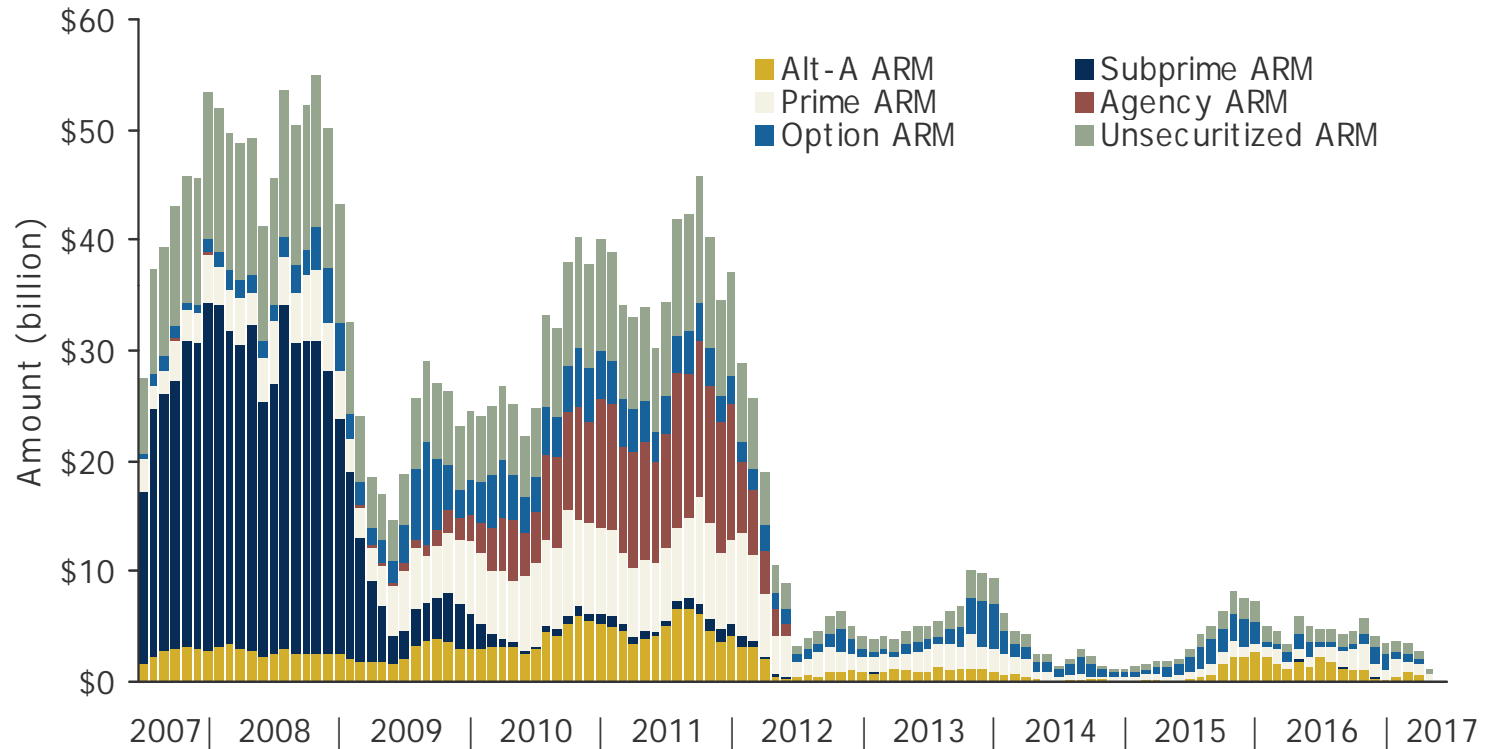
Deleveraging Catalyst: Housing Prices



SOURCE: OFHEO as of 12/31/2007, S&P as of 12/31/2007, NRA as of 12/31/2007
Refer to appendix for additional index information

Deleveraging Catalyst: Adjustable Rate Mortgage (ARM) Resets

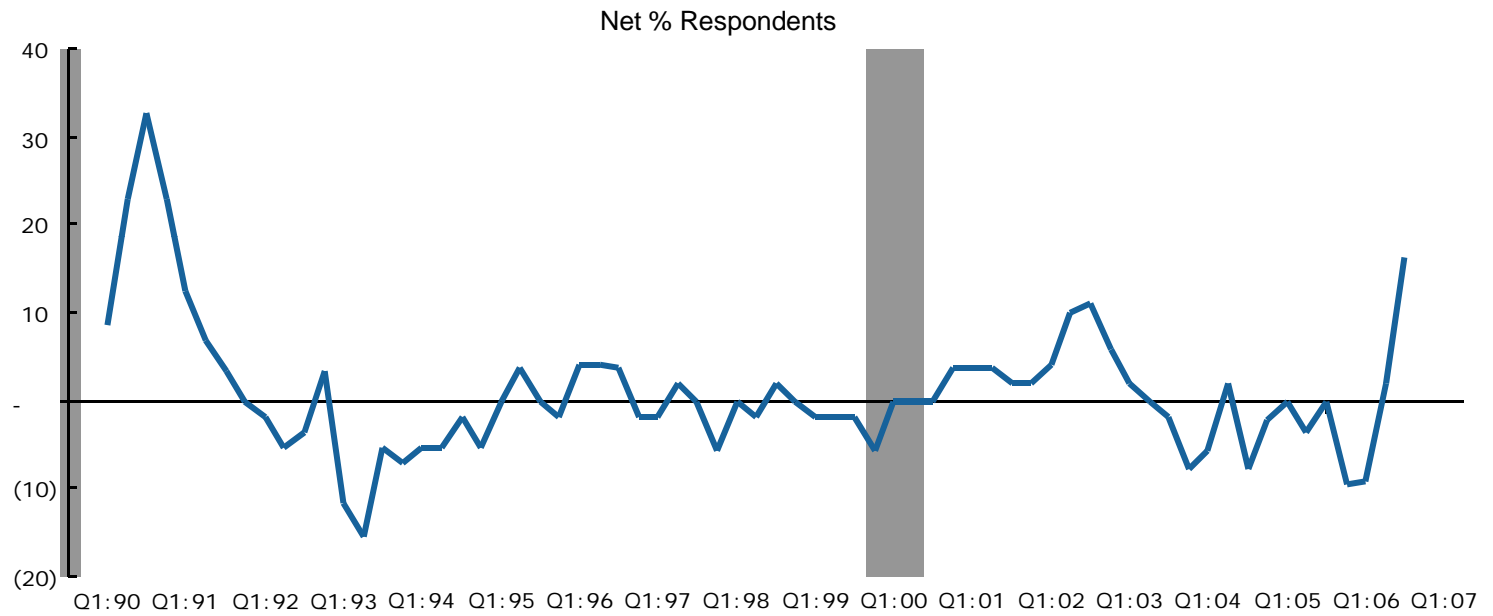
Adjustable Rate Mortgage Reset Schedule



SOURCE: CSFB, LoanPerformance

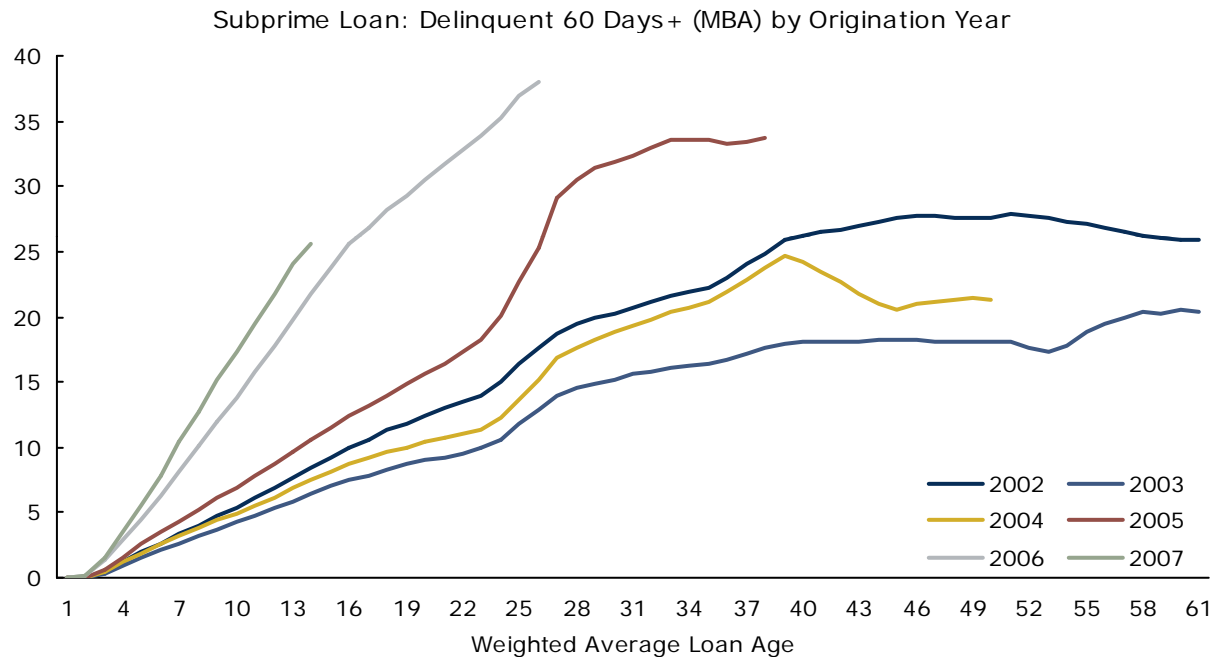
Deleveraging Catalyst: Tighter Lending Standards

Loan Officers' Survey: Tightening Standards on Mortgages



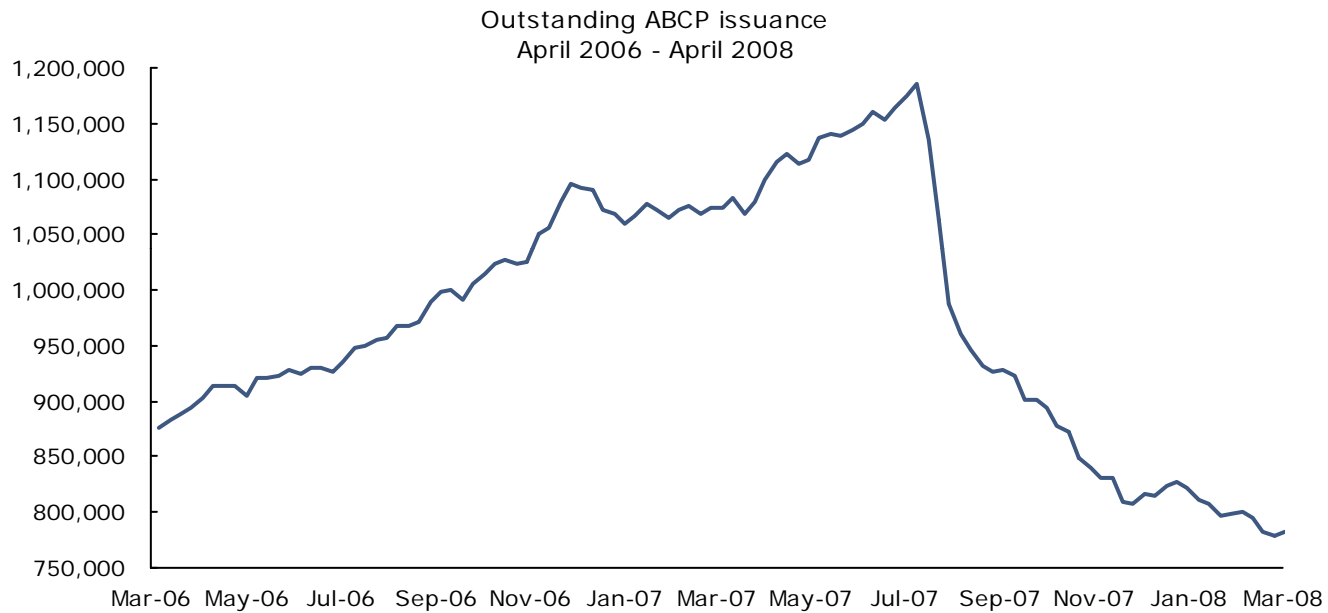
SOURCE: NAR, Census Bureau as of 3/31/2007

Deleveraging Homeowners: Delinquency Rates



SOURCE: LoanPerformance
As of April 6, 2008

Deleveraging Banks: Asset Backed Commercial Paper (ABCP) Market Collapse



SOURCE: Federal Reserve

Deleveraging Banks: Structured Finance (SF) CDO Losses

Lead Dealer	Estimated retained SF CDO Exposure	Estimated SF CDO losses
Merrill Lynch	38.8	13.3
Citigroup	30.7	10.6
UBS	20.3	8.6
Deutsche Bank	12.5	5.1
Goldman Sachs	14.1	5.1
Barclays	16.3	4.7
Credit Suisse	10.0	3.5
RBS-Greenwich	7.9	3.5
Calyon	10.0	3.4
Bank of America	8.8	3.2
Morgan Stanley	5.1	2.1
Bear Stearns	4.2	2.0
Lehman Brothers	4.8	1.9
Wachovia	5.5	1.7
Societe Generale	4.8	1.3
Royal Bank of Canada	2.5	1.0
JPMorgan	1.3	0.9
Mizuho	2.2	0.7
Other	16.2	5.0
TOTAL	216.2	77.5

SOURCE: JPMorgan, Company reports, MCM, IFR, CreditFlux, Bloomberg

Deleveraging Hedge Funds

2007

- May 2007: UBS shuts down its internal hedge fund Dillon Read after suffering subprime-related losses
- June 2007: Bear Stearns steps in with \$1.6bn pledge for one of two mortgage-related hedge funds. Both funds were forced to liquidate on massive levered subprime losses.
 - Leveraged long super-senior, short equity
- June 2007: Cambridge Place liquidates its Caliber Fund and sells assets
- July 2007: Basis Capital runs into troubles with two of its hedge funds. The firm hires Blackstone to help liquidate assets in an “orderly manner”, later announces losses may exceed 80%, August 30, Basis Capital files for bankruptcy protection
- August 2007: Quantitative Equity strategies and highly levered credit strategies were forced to sell liquid equities to cover margin calls on now illiquid credit positions and also to buy stocks to cover corresponding short positions, creating simultaneous massive distortions in global equity markets
- December 2007: Goldman Sachs flagship Global Alpha Fund posts losses of 39% for the year while assets shrunk over 50%

2008

- February 2008: Peloton Partners \$2bn ABS fund forced to close down after unable to meet margin calls
- March 2008: Carlyle Capital collapses as excessive leverage magnified losses, forcing liquidation of its portfolio as its banks seized and sold assets
- March 2008: Drake Management, global macro fund, restricts investor redemptions and forced to liquidate portfolio

Public Sector Response Plans

Public Sector Responses: Federal Reserve Funding Programs

- Discount Window (pre-existing)
 - Unlimited size
 - Wide variety of collateral can be used, including US Treasuries, GSE debt, Brady bonds, foreign government bonds, munis, corporate debt, CMBS, RMBS, CMOs, mutual funds, etc.
 - Daily Frequency
- Term Auction Facility (December 12, 2007)
 - \$50 billion per auction
 - Collateral same as Fed discount window
 - Twice Monthly Frequency
- Term Repurchase Transactions (March 7, 2008)
 - \$100 billion total
 - Collateral that is eligible for open market operations (Treasuries, agency debt, and agency MBS)
 - Variable. About twice a week.
- Term Securities Lending Facility (March 11, 2008)
 - \$75 billion per auction, \$200 billion total
 - Collateral eligible includes Federal agency debt, federal agency MBS, and non-agency AAA/Aaa rated private-label residential MBS, and CMBS
 - Weekly
- Primary Dealer Credit Facility (March 16, 2008)
 - Unlimited size
 - Collateral that is eligible for open market operations plus investment grade corporates, munis, MBS, and ABS. Must be “priceable”
 - Daily

SOURCE: Federal Reserve

Public Sector Responses: Fiscal Approaches

- Frank-Dodd (House) and Dodd-Frank (Senate) Plans
 - \$300 to \$400 billion voluntary plans to help homeowners avoid foreclosures
- White House FHA Plan
 - Lenders could potentially get FHA insurance for problem loans in exchange for “voluntarily writing down the outstanding mortgage principal”
- Senate Plan
 - Proposes \$25 billion in tax relief for home builders and banks, a \$7,000 tax credit for purchasers of foreclosed homes or homes on which foreclosure has been filed.
- House Plan
 - Proposes tax relief for first-time home-buyers and investors in low-income rental housing
- **The Shape of a Final Plan Remains Uncertain**

SOURCE: US Senate Committee on Banking, Housing, and Urban Affairs, Wall Street Journal, Associated Press, PIMCO

Issues

Issues

- The future of home prices
 - Negative Homeowner Equity Limits Refinancing Opportunities
 - May produce further deleveraging
- Undeclared portfolio problems from banks, insurance companies and other investors in all parts of the world
- Efficacy of public sector interventions
- Impact on US non-financial corporations
- Further structured credit unwinds
- Trends at the top of the capital structure

Appendix

Structured Credit Glossary

ABS (Asset-Backed Securities)

A broad term used to describe bonds backed by cash flows from various types of loans, leases and receivables, such as car loans, credit cards, aircraft leases, and royalty payments. Financial institutions such as auto finance or credit card companies sell pools of loans to a special-purpose vehicle, which then sells the assets to a trust, which in turn creates securities for sale to investors. ABS are often used as the reference portfolio for structured products. Mortgage-backed securities (MBS) are the most common type of ABS but are typically considered a separate category. While the term MBS mostly carries the meaning of agency-issued, prime mortgage securitizations, ABS often also refers specifically to subprime mortgage-backed securities.

CDO (Collateralized Debt Obligation)

A CDO is a special purpose investment vehicle (SPV) established for the special purpose of purchasing and holding a portfolio of assets, in this case debt obligations. The purchase of these assets is funded through the issuance of several classes of securities, so called "tranches". In a full capital structure CDO, issued tranches range from the least risky AAA (Super Senior) tranche through to the most risky, unrated "equity tranche", which absorbs any first losses before the next higher tranche absorbs any higher losses. The repayment of the securities or CDOs is linked to the performance of the underlying reference portfolio that serves as collateral for the CDO liabilities. CDO reference portfolios can invest in a wide variety of asset classes, including corporate bonds, residential mortgage backed securities, commercial mortgage backed securities and other types of asset-backed securities, to name a few.

CDS (Credit Default Swaps)

In its most basic terms, a credit default swap is similar to an insurance contract against default of the issuer. A credit default swap is an over-the-counter (OTC) agreement, which means that it is not traded on an exchange. CDS contracts are documented under guidelines from ISDA (International Swaps and Derivatives Association), using standard terms, which depend upon the asset class and domicile associated with the underlying reference entity. The two parties of the agreement transfer the credit risk of an issuer or basket of issuers from one party to the other without transferring the underlying bond or other credit asset. The buyer of CDS protection pays a periodic fee ("premium") in return for a contingent payment by the seller upon a credit event (such as a default) occurring in the reference entity. CDS allow for the transfer of pure credit risk of an underlying issuer independent from interest rate risk. CDS are quoted on virtually all companies and sovereigns with bonds outstanding, and occasionally for companies with no tradable debt.

Structured Credit Glossary

CLO (Collateralized Loan Obligation)

A CLO is a specific form of CDO where the collateral pool consists of loans.

CMBS (Commercial Mortgage-Backed Security)

CMBS are similar to mortgage-backed securities, but are backed by mortgages on commercial or multi-family properties such as apartment buildings. CMBS may comprise or be included in a structured product reference portfolio.

CPDO (Constant Proportion Debt Obligation)

The original form CPDO was offered as a high coupon (LIBOR + 200 basis points), highly rated (AAA) and highly levered (approximately 15x) 10-year security, comprising formulaic rolling of positions in 5-year iTraxx and CDX indices. Rolling describes the selling of the current contract at maturity and reinvesting into the new "on-the-run" contract with a later maturity. The indices were required to be rolled every six months in order to maintain the AAA-rating of the note, which is achieved due to the "self-cleansing" nature of the index roll. In every roll, companies downgraded below Investment Grade are replaced by higher quality names in the new index. The high leverage generates carry in excess of the coupon. This enables the CPDO to "cash-in", i.e., repay the investor, and to de-lever before maturity, in the absence of losses due to defaults or excessive roll costs. Since the original CPDO was launched in late 2006, the product has evolved even further to now allow for investment manager involvement in the bespoke construction of the underlying collateral pool and the trading of the pool over time. These managed structures can reduce the risk considerably to the extent that leverage can be adjusted over time, longs and shorts can be implemented in the portfolio, curve trades may be used and positions may be rolled opportunistically.

Credit Indices

An index is a basket of securities that tracks the performance of a broad asset class. The most commonly used indices are those created by large broker-dealer firms such as Lehman Brothers, J.P. Morgan, Merrill Lynch and Citigroup. Investment products based on such indices enable investment in a broad asset class rather than specific securities. In the credit markets, "tradable" credit indices provide extremely liquid ways to invest in (or short) credit markets. One such index is the iTraxx Europe Main Index, which is a CDS on a portfolio composed of 125 equally weighted investment grade entities. Alternatives of this index with higher expected market returns exist, for example "HiVol" (a 30 name subset of the most volatile issuers from the Main Index) and "Xover" (an index of the most liquid high yield issuers). The U.S. counterpart of the iTraxx is the CDX North America with 125 names and in Australia, the iTraxx Australia Index with 25 names. New indices are created every six months to reflect changes in the index composition. The current version of the index is called the "on-the-run" index.

Structured Credit Glossary

LCDS (Loan Credit Default Swaps)

A derivative version of leveraged loans. The main difference between CDS and LCDS is the underlying asset, which is a loan rather than a bond. As a result, there are some specific issues for the buyer and seller to consider, such as the refinancing of the underlying obligation, which has different ramifications in Europe versus the United States. LCDS provide a mechanism to synthetically short loans, hedge long positions and create fully synthetic CLOs.

Leveraged Loans

A market for tradable loans has developed as an alternative to bonds. Leveraged loans (or bank loans) are loans sold by investment banks to investment companies that pay an interest spread over a floating or fixed rate. Though they are technically not securities, leveraged loans are generally considered to be more senior than bonds in a company's capital structure. The issuance of leveraged loans has exceeded growth in the high yield bond market in recent years, driven by activity in private equity and leveraged buy-out (LBO) space. Not all leveraged loans receive an independent rating but generally the credit quality is approximately equivalent to a high yield exposure (typically BB or B). Leveraged loans are issued from different levels within a company's capital structure (secured, senior, or subordinated).

Leveraged Super Senior

Leverage spread from the senior-most parts of the capital structure. The structure involves leveraging the super senior tranche to increase the spread, while still achieving a AAA rating. Spread and loss triggers usually exist.

MBS (Mortgage-backed Securities)

Generally, a type of asset-backed security that is secured a pool of mortgages. These securities must also be grouped in one of the top two ratings as determined by a accredited [credit](#) rating agency, and usually pay periodic payments that are similar to coupon payments. Furthermore, the mortgage must have originated from a regulated and authorized financial institution. Specifically, MBS are usually agency-issued, while non agency securities are often just called ABS.

Structured Credit Glossary

RMBS (Residential Mortgage Backed Securities)

Securities backed by residential debt, including mortgages, home equity loans and subprime mortgages.

Single Tranche CDO

A single tranche CDO is a specific form of synthetic CDO where the full capital structure is not issued to investors. In this case, the residual exposure from the tranches that were not issued is hedged by the investment bank involved with the transaction.

SIV (Structured Investment Vehicle)

A SIV (Structured Investment Vehicle) may be thought of as a virtual bank. It borrows money using commercial paper (CP), which it traditionally issues close to the interest rate of LIBOR. It then uses the money to purchase bonds – effectively lending it out much as a bank would provide loans. The bonds usually selected by a SIV are predominantly (70-80%) Aaa/AAA rated Asset-Backed Securities (ABS) and Mortgage-Backed Securities (MBS) and hence the SIV is effectively providing the funds for mortgages, credit cards, student loans and similar products. A SIV would typically earn more on the bonds than it has to pay the CP. This difference represents the profit for the SIV which is paid to the capital note holders and the investment manager. The capital note holders are the “first loss investors” in that if any of the bonds purchased default, the capital note investor will lose his investment before the CP investors.

Synthetic CDO/CLO

A synthetic CDO is a specific form of CDO where the underlying collateral pool comprises CDS contracts. A synthetic CLO is a specific form of CLO where the underlying collateral pool comprises LCDS.

Appendix

Past performance is not a guarantee or a reliable indicator of future results. Charts provided are for illustrative purposes and are not indicative of the past or future performance of any PIMCO product. Forecasts, estimates, and certain information contained herein are based upon proprietary research and should not be interpreted as investment advice, as an offer or solicitation, nor as the purchase or sale of any financial instrument. Information contained herein has been obtained from sources believed to be reliable, but not guaranteed.

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Index Definitions:

The OFHEO House Price Index (HPI) is a broad measure of the movement of single-family house prices and is an indicator of house price trends at various geographic levels. It also provides a useful analytical tool that can be useful for estimating rate changes in the defaults, prepayments, and home affordability in the geographic areas.

The S&P/Case-Shiller Home Price Indices measures the residential housing market, tracking changes in the value of the residential real estate market in 20 metropolitan regions across the United States. In addition, the S&P/Case-Shiller® U.S. National Home Price Index is a broader composite of single-family home price indices for the nine U.S. Census divisions and is calculated quarterly.

The NATIONAL ASSOCIATION OF REALTORS® Existing-Home Sales Series is the premier measurement of the residential real estate market. On or about the 25th of each month, NAR releases statistics on sales and prices of existing single-family homes for the nation and the four regions. These figures include condos and co-ops, in addition to single-family homes.

Appendix

The Citigroup Mortgage Index is the Mortgage component of the Citigroup BIG index that is comprised of 30- and 15-year GNMA, FNMA and FHLMC securities, and FNMA and FHLMC balloon mortgages.

The Dow Jones AIG Commodity Total Return Index is an unmanaged index composed of futures contracts on 19 physical commodities. The index is designed to be a highly liquid and diversified benchmark for commodities as an asset class.

Dow Jones Wilshire Real Estate Investment Trust Index, a subset of the Wilshire Real Estate Securities Index (WRESI), is an unmanaged index comprised of U.S. publicly traded Real Estate Investment Trusts.

HFRI Emerging Markets (Total) is a composite index encompassing the following emerging markets sub-strategies: Asia, E. Europe/CIS, Global, and Latin America.

The HFRI Equity Hedge index is an unmanaged index that consists of a core holding of long equities hedged at all times with short sales of stocks and/or stock index options. Some managers maintain a substantial portion of assets within a hedged structure and commonly employ leverage. Where short sales are used, hedged assets may be comprised of an equal dollar value of long and short stock positions. Other variations use short sales unrelated to long holdings and/or puts on the S&P 500 index and put spreads. Conservative funds mitigate market risk by maintaining market exposure from zero to 100 percent. Aggressive funds may magnify market risk by exceeding 100 percent exposure and, in some instances, maintain a short exposure. In addition to equities, some funds may have limited assets invested in other types of securities.

HFRI Fixed Income: Arbitrage is a market neutral hedging strategy that seeks to profit by exploiting pricing inefficiencies between related fixed income securities while neutralizing exposure to interest rate risk. Fixed Income Arbitrage is a generic description of a variety of strategies involving investment in fixed income instruments, and weighted in an attempt to eliminate or reduce exposure to changes in the yield curve. Managers attempt to exploit relative mispricing between related sets of fixed income securities. The generic types of fixed income hedging trades include: yield-curve arbitrage, corporate versus Treasury yield spreads, municipal bond versus Treasury yield spreads and cash versus futures.

Lehman Brothers CDX Total Returns assume a monthly “buy and hold” position in which the returns index enters into an at-market CDX swap to sell protection on \$1 million notional balance at the close of the underlying series’ Roll Date.

Appendix

The HRFI Fund of Funds index is an unmanaged index that invests with multiple managers through funds or managed accounts. The strategy designs a diversified portfolio of managers with the objective of significantly lowering the risk (volatility) of investing with an individual manager. The Fund of Funds manager has discretion in choosing which strategies to invest in for the portfolio. A manager may allocate funds to numerous managers within a single strategy, or with numerous managers in multiple strategies. The minimum investment in a Fund of Funds may be lower than an investment in an individual hedge fund or managed account.

The HFRI Fund Weighted Composite Index includes over 2000 domestic and offshore funds listed on the internal HFR Database. It includes no Fund's of Funds and all assets are reported in USD. All funds report net of all fees returns on a monthly basis.

The Lehman Brothers Aggregate Bond Index represents securities that are SEC-registered, taxable, and dollar denominated. The index covers the U.S. investment grade fixed rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities. These major sectors are subdivided into more specific indices that are calculated and reported on a regular basis.

The Lehman Brothers High Yield Index is an unmanaged market-weighted index including only SEC registered and 144(a) securities with fixed (non-variable) coupons. All bonds must have an outstanding principal of \$100 million or greater, a remaining maturity of at least one year, a rating of below investment grade and a U.S. Dollar denomination.

The Lehman Brothers Investment Grade Corporate Index is an unmanaged index that is the Corporate component of the U.S. Credit Index. The index includes both corporate and non-corporate sectors and are publicly issued U.S. corporate and specified foreign debentures and secured notes that meet the specified maturity, liquidity, and quality requirements. The corporate sectors are Industrial, Utility, and Finance, which include both U.S. and non-U.S. corporations. The non-corporate sectors are Sovereign, Supranational, Foreign Agency, and Foreign Local Government.

The Lehman Brothers Municipal Bond Index is an unmanaged index considered to be generally representative of investment-grade municipal issues having remaining maturities greater than 1 year and a national scope.

The Lehman Brothers Treasury Index is a measure of the public obligations of the U.S. Treasury.

Appendix

The Lehman Brothers Treasury Index is a measure of the public obligations of the U.S. Treasury.

Lehman Brothers U.S. TIPS Index is an unmanaged market index comprised of all U.S. Treasury Inflation Protected Securities rated investment grade (Baa3 or better), have at least one year to final maturity, and at least \$250 million par amount outstanding. Performance data for this index prior to 10/97 represents returns of the Lehman Inflation Notes Index.

LIBOR (London Interbank Offering Rate) is the rate banks charge each other for short-term Eurodollar loans.

The Russell 2000 Index is an unmanaged index generally representative of the 2,000 smallest companies in the Russell 3000 Index, which represents approximately 10% of the total market capitalization of the Russell 3000 Index.

The Standard & Poor's 500 Stock Price Index is an unmanaged market index generally considered representative of the stock market as a whole. The index focuses on the Large-Cap segment of the U.S. equities market.

It is not possible to invest in an unmanaged index.