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INVESTMENT MANAGEMENT

AN IN-DEPTH ANALYSIS

- ◆ WHAT HAPPENED?

- ◆ WHY DID IT HAPPEN?

- ◆ QUESTIONS AND ANSWERS
 - *When Will the Turmoil Be Over*
 - *What is Our Outlook*
 - *Other Important Questions From the Field*

- ◆ GLOSSARY OF TERMS

CREDIT CRUNCH

April 2008



CER • E • BRATE

To use the mind: think

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INTRODUCTION

“The crisis was an accident waiting to happen. If it had not been triggered by the mispricing of securitized subprime mortgages, it would have been produced by eruptions in some other market.” Alan Greenspan

“Old fogies like me expected the bust to come earlier than it did.” George Soros, chairman of Soros Fund Management

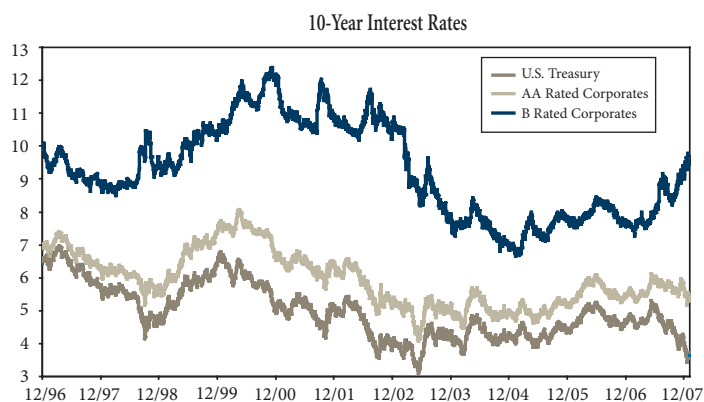
“We’ve seen an unprecedented decline in market liquidity, really beyond what we thought possible.” Noel Kirnon, executive vice president in charge of structured finance at Moody’s Investors Service

In early August 2007, credit markets in much of the world effectively seized up. They have been in a state of disarray ever since, with the collapse of the **subprime mortgage** market and fears about a broader economic slowdown sending a series of shockwaves throughout the financial system. Virtually overnight, the price of risk surged with interest rates on a wide range of asset classes (including interbank lending, **asset-backed commercial paper, and junk bonds**) rising sharply relative to riskless U.S. Treasury securities.

A DRAMATIC DECLINE IN DEBT ISSUANCE

- The decline in U.S. **junk bond** issuance was most dramatic with just over \$9 billion in **high-yield bonds** issued in 3Q 2007, down from \$56 billion in 2Q 2007.
- The pipeline of new **leveraged loans** shrunk to \$156 billion in 4Q 2007 from over \$200 billion in 2Q 2007.
- The volume of new **asset-backed** bonds issued globally in the second half of 2007 fell 60% to \$331 billion compared with the same period in 2006 while **mortgage-backed** bond volume fell 45% to \$418 billion.

A SURGE IN YIELD SPREADS



Source: Bloomberg

- While staying away from debt issued by companies with risky credit profiles, investors continued to buy safer investment-grade corporate bonds so long as companies were willing to pay higher yields—in 2007, the investment-grade corporate bond spread over Treasuries jumped to 2.03% from 0.91%.
- Investors demanded to be paid more for riskier investments—the **high-yield spread** surged to 6.45% in early January 2008, up from the historic low of 2.40% in June 2007.

So what happened and why? What are we to expect going forward? Much has been written on the subject—yet many questions remain. We will begin by addressing the seemingly easier question of “*What Happened*” (Part I). Here we will identify key players and trace the factual sequence of events that formed the phenomenon that is the subject of this paper. We will then move to the more challenging “*Why Did It Happen?*” question (Part II), where we will dig deeper, identifying key “fault lines” that led to those events. We will conclude with a Q&A Session (Part III) intended to shed some light on a number of the most common and pressing investor questions. So please hold your very important “Why” questions until the end, and don’t forget to use the Glossary of Terms (Part IV), designed to ease our journey through the complex world of today’s financial-markets terminology.

Ready? Let us begin.

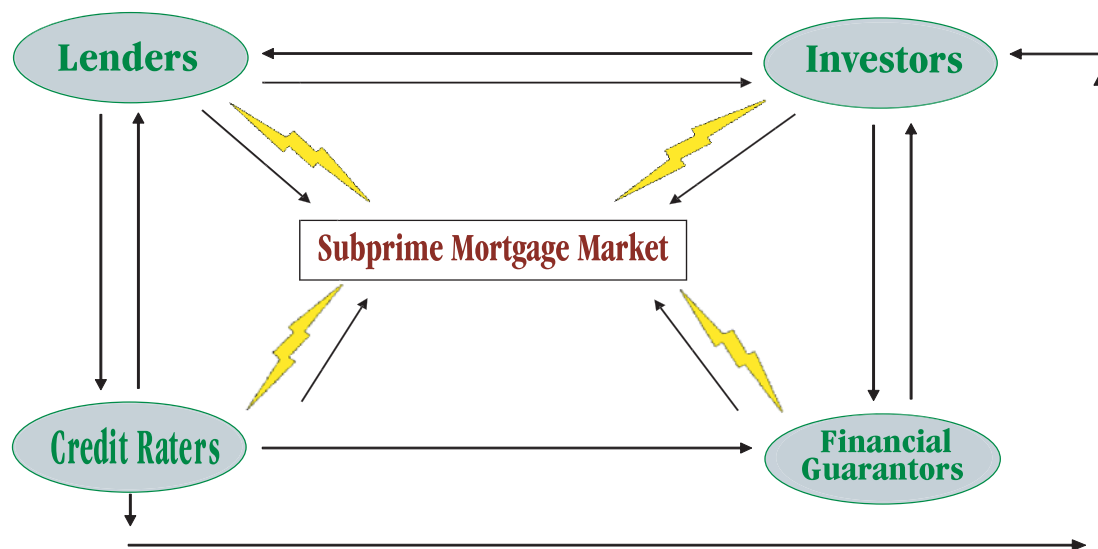
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PART I – WHAT HAPPENED?

Today few will have trouble identifying the main character of the “Credit Crunch 2007” show—the once glorious and now troubled subprime mortgage market. But who were some of the other key players? With the vast scale financial system globalization and structured finance markets proliferation of the recent decade, firms acting as Lenders, Credit Raters, Financial Guarantors, and Investors in markets tied to subprime mortgages became key actors in the drama that has unfolded before our eyes in recent

months. All four played their own important role in this drama, all four got their share of fame (and profits) when the times were good, and all four shared the pain when the show was “rudely interrupted” by a sudden collapse of this closed system. This led to unprecedented losses, massive risk repricing, and overall crisis of confidence in the credit markets, ultimately resulting in the August 2007 credit freeze.

STRUCTURED FINANCE MARKET — A CLOSED SYSTEM



IT ALL STARTED WITH A SURGE OF SUBPRIME MORTGAGE DEFAULTS...

Years of lax lending by banks and other financial institutions gave way to a surge in defaults over the past year, as home prices have fallen from their peaks at the top of the recent housing boom. Initial estimates of total losses on **subprime** and similar mortgages range from \$150 billion to \$400 billion, the latter equal to roughly 3% of U.S. annual economic output. Liquidation is made all the more difficult by the ample supply of homes and vacant land for sale. There were 2.1 million vacant homes for sale in the third quarter 2007, or a record 1.6% of all homes in the country. Unless lenders greatly step up efforts to restructure loans, Moody's Economy.com forecasts that 3 million home loans will go into default by mid-2009, with about two-thirds of those resulting in foreclosures.

CREDIT QUALITY DATA IS TROUBLING

- Foreclosure rates rose 75% in 2007, reaching their highest level since World War II. Roughly 25% of all **subprime mortgage** loans were delinquent or in foreclosure at the end of 2007.
- Defaults on privately insured U.S. mortgages rose 37% in December 2007 from the same month a year earlier.
- About 5.7% of home equity lines of credit were delinquent or in default at the end of 2007—up from 4.5% a year earlier.

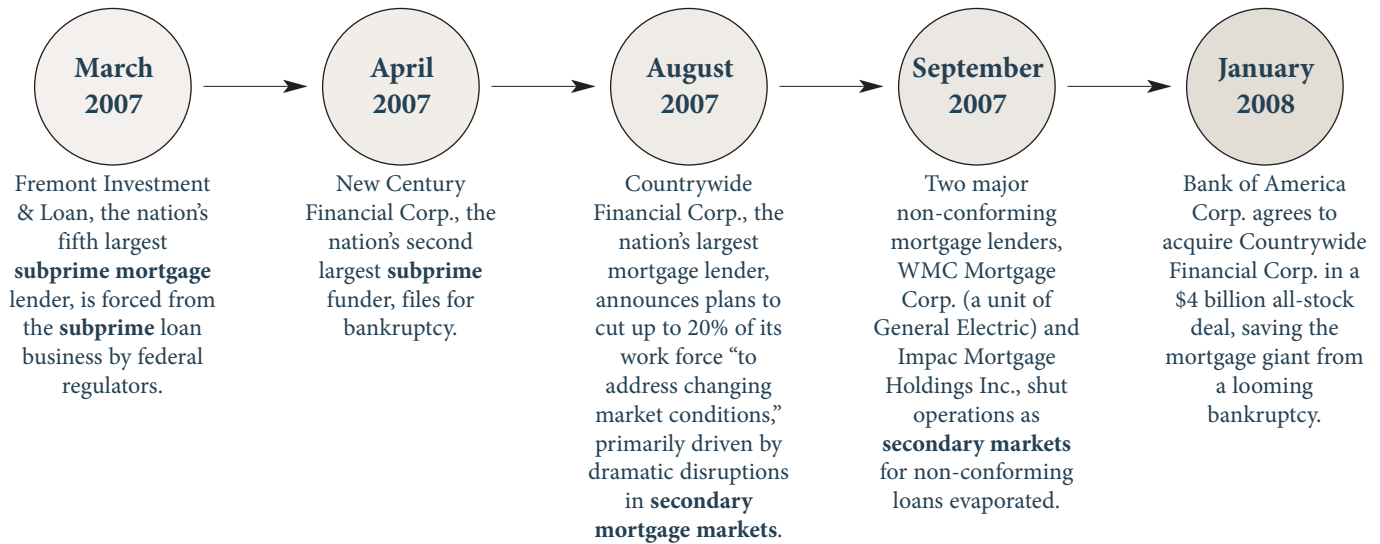
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SUBPRIME MORTGAGE LENDERS WERE FIRST ONES TO FEEL THE PAIN...

With defaults mounting, the **secondary market** for **subprime mortgages** became largely unavailable, bringing a giant loan-origination machine to nearly a complete halt. It is vital to understand the importance of these **secondary markets** in this

industry, where loans were not typically retained by Lenders but packaged and sold off to be later used in the manufacturing of various **structured finance** products, such as **mortgage-backed securities (MBS)**—more on this in Part II.

COLLAPSE OF SUBPRIME MORTGAGE LENDERS



CREDIT RATING FIRMS PLAYED AN IMPORTANT SUPPORTING ROLE IN THIS DRAMA...

Moody's, one of the three largest **Credit Rating Firms**, earned \$884 million (or 43% of total revenues) from the so-called **structured** notes (securities that package **asset-backed** and **mortgage-backed** debt) in 2006—more than triple that in 2001.

As increasingly worrisome delinquency data rolled in, analysts upped their estimates of total losses on **subprime MBS**. Within weeks, **Credit Rating Firms** began to change their views.

INCREASING DOWNGRADES BY CREDIT RATERS

- In October 2007, Moody's downgraded \$33.4 billion of **mortgage-backed securities (MBS)**, setting the stage for a review of **collateralized debt obligations (CDOs)** backed by those securities and further downgrades. By mid-December 2007, \$153.5 billion in **CDO tranches** had been downgraded.
- In January 2008, Standard & Poor's changed the way it reviews **subprime** securities to further increase assumptions on losses indicating further rating downgrades. On January 30, 2008 alone, S&P downgraded more than 8,000 residential **MBS** worth over \$500 billion.
- As of mid-February 2008, S&P cut ratings on 1,567 **tranches** from 434 U.S. **CDO** transactions, and 2,305 ratings from 589 transactions remained on watch for possible downgrades. The affected **CDO tranches** had a total value of \$344 billion.

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SO DID FINANCIAL GUARANTORS...

Typically **Financial Guarantors** (also known as **bond insurers**) carry better **credit ratings** than bond issuers, allowing the issuers to receive more favorable interest rates on their debt by obtaining **bond insurance**. If the **Financial Guarantors** lose their top ratings (typically a triple-A rating is needed to generate new business), the bonds they insure are also downgraded. Many buyers of **credit insurance**, the largest **MBS** investors (primarily large Wall Street firms and banks), were using these guarantors as hedges to keep some of the risk of their mortgage holdings off their balance sheets. The **bond insurers'** exposure to **subprime**-related investments has cast doubt, however, on whether their capital cushions are sufficient to absorb potential losses and retain their triple-A status. Needless to say that a **bond insurer's** insolvency, which triggers losses at financial institutions, could set off a chain reaction affecting many investors.

DOWNGRADES OF FINANCIAL GUARANTORS

- In mid-December 2007 Standard & Poor's cut its **credit rating** on one of the **Financial Guarantors** (ACA Capital Holdings Inc.), which guaranteed more than \$75 billion of debt to the deep junk triple-C level, and Fitch Ratings placed the triple-A rating of MBIA's insurance business on review for a downgrade.
- In mid-January 2008 Ambac was stripped of its triple-A rating by Fitch, and Moody's and Standard & Poor's were reviewing MBIA and Ambac for a possible downgrade, throwing doubt on the \$2.4 trillion of municipal and **structured finance** debt that the industry guarantors.
- In late January 2008 both Standard & Poor's and Fitch Ratings cut the triple-A **credit rating** of Financial Guaranty Insurance Co., the world's fourth largest **bond insurer**, to the double-A level.

INVESTORS IN SUBPRIME MORTGAGE-BACKED SECURITIES BORE THE BRUNT OF LOSSES...

Because banks owned the lion's share of these securities, they have been bearing the brunt of the losses, with over \$195 billion in write-downs and credit losses on mortgage investments announced by more than 25 of the world's largest banks and securities firms (including Merrill Lynch, Citigroup, UBS, HSBC, Morgan Stanley, and Bank of America) since the beginning of 2007.

The industry's middlemen (packagers and brokers) have taken a hit also. In mid-March 2008, Bear Stearns, one of the largest securities firms that derived about a sixth of its income from packaging and trading mortgage bonds, faced a near-collapse caused by a dramatic liquidity squeeze as traders became reluctant to engage in long-term transactions (such as **credit default swaps**) with the firm as the counterparty. In late March 2008, J.P. Morgan Chase & Co., with backing

MULTI-BILLION DOLLAR LOSSES AT THE WORLD'S LARGEST BANKS AND SECURITIES FIRMS

- Merrill Lynch, the largest underwriter of CDOs, has written down \$24.5 billion in losses from CDOs and other mortgage-related investments.
- Citigroup has recorded \$22.4 billion in mortgage-related losses and slashed its dividend 41%.
- UBS, the fourth largest underwriter of CDOs, has written off \$18.1 billion.

from the Federal Reserve, agreed to take Bear Stearns over at a fire-sale price of \$10 a share in order to save the 85-year old securities firm from a looming bankruptcy.

TROUBLE SPREAD FAR AND WIDE, REACHING EVEN ONE OF THE SAFEST INVESTMENT CLASSES...

The **commercial paper** (CP) market and its subset, the **asset-backed commercial paper** (ABCP) market, which used **subprime mortgages** as underlying **collateral**, have also come under pressure amid worries about the fallout from the **subprime mortgage** market. The **ABCP** market has contracted

significantly over the last several months (as of early December 2007, the volume of **ABCP** outstanding stood at \$0.8 trillion, down nearly a third from the end of July 2007), causing tremors in money-market mutual funds investing in these assets.

AND THEN CAME SIVs...

In October 2007, concerns arose about securities issued by **structured investment vehicles** (SIVs). Set up by banks, **SIVs** raise money by selling **commercial paper** and buying higher yielding long-term securities. With some of debt backing **SIV commercial paper** tied to lower quality mortgages, investors shied away from the asset class, forcing banks backing **SIVs** to take the vehicle's assets onto their own balance sheets in order to stave off potential further losses and forced sales. Citigroup, the largest player in the **SIV** market with nearly \$100 billion in **SIV** assets prior to the credit crunch, has now brought about half of these back onto its balance sheet. More than \$100 billion in **SIV** assets had been brought onto bank balance sheets as of

mid-December 2007—roughly a third of total outstanding **SIV** debt (read more on **SIVs** in Question #2 of the Q&A Session in Part III, page 10).



We have now covered some key events and developments that have amounted to a major liquidity crisis drama that unfolded in the credit markets last summer. The show is hardly over as anyone reading the papers today is painfully aware. We are ready, however, to dig down and identify the roots of the credit crunch phenomenon. Let us now address the question of "*Why Did It Happen?*"

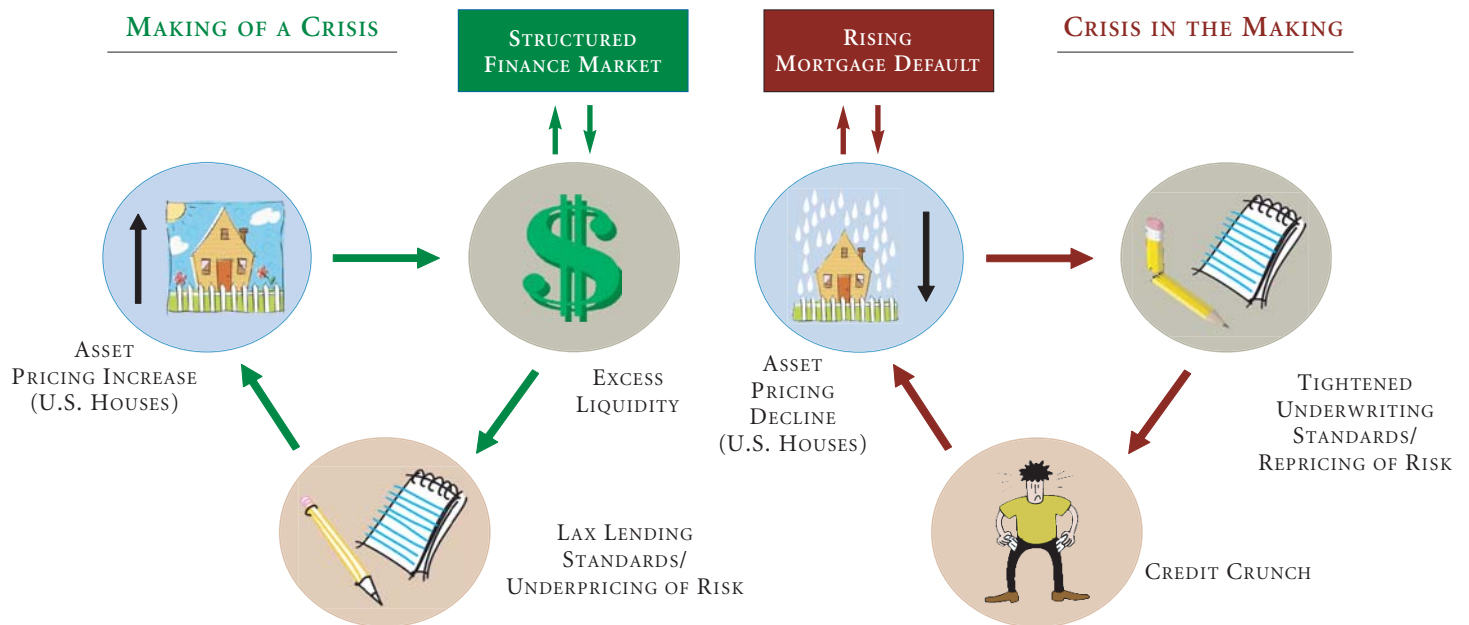
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PART II – WHY DID IT HAPPEN?

“History has not dealt kindly with protracted periods of low risk premiums.” Alan Greenspan

History...how many times have we heard that it often repeats itself? But doesn't it always do so “with a twist,” in some new hard-to-recognize way? And how many times have we heard that “it's going to be different this time?” And how many times has it, in fact, turned out to be “different?” Hindsight is always “20/20,” isn't it? So let's use this perfect hindsight to answer the question of “*Why Did It Happen?*” But let's dig deeper to not only uncover the roots and understand the makings of the current crisis, but identify patterns and construct a framework along the way that will provide us with a tool kit for identifying a future crisis in the making.

Long before the credit crisis erupted last summer, veteran financiers saw a familiar pattern: investors' enthusiasm for an asset class (in this case, U.S. houses) driving up prices, attracting more capital, and lifting prices to unsustainable levels. Said differently, instead of economic fundamentals that are supposed to drive asset prices, it was the flood of capital that made asset's fundamentals appear sounder, attracting even more capital. Eventually, a turning point was reached where the value of the asset **collateral** began to decline, reducing the willingness to lend, and reinforcing the fall in the value of the underlying asset.



At first, home prices rose for good reason. With the economy in recession, the **Federal Reserve** slashed interest rates in 2001 and kept them low until mid-2004. That, plus an influx of foreign savings to the U.S., kept long-term (and thus mortgage) rates low. When the **Fed** began raising interest rates in 2004, mortgage rates also began to climb. Initially, home prices kept rising as home buyers turned to mortgages with low initial payments, assuming (and rightfully so at that time) that they could sell or refinance before the mortgage rate adjusted higher. That kept defaults low and encouraged **Credit Rating Firms** to continue blessing securities backed by such mortgages with high ratings. These ratings were based on two faulty premises: (1) They looked backward to a time when rising house prices and easy credit kept

defaults low; (2) They assumed that these securities would not all go bad at once as the housing market soured.

- At the end of 2006, the value of all homes in the U.S., excluding rentals, peaked at 153% of GDP (or about \$21 trillion)—the highest level in at least six decades. By the end of September 2007, this number declined to 150% of GDP as home prices began to slide.

However, the pressure on homeowners is only part of the picture. A bigger issue is the impact of this bad debt on Lenders and Investors in terms of Lenders' reduced ability and willingness to lend to consumers and businesses, and Investors' reduced ability

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and willingness to invest in instruments tied to these credits. With mortgage losses mounting and **secondary markets** frozen, banks all over the world are shying away from risk. Their balance sheets are constrained by lack of available capital and loans that did not make it into **securitization** when the **secondary market** froze. Banks are also wary of lending to one another. They are trying to keep as much cash as possible to cushion against potential losses, and they are worried (and for good reason) that their counterparties (such as **Financial Guarantors**) could default on their obligations. As a result, banks have been charging each other higher interest rates. Those rates, in turn, affect monthly payments on millions of loans, including credit cards and mortgages both inside and outside of the United States.

Remember the star of our “Credit Crunch 2007” show? Today, the **subprime mortgage** market is a fraction of its former size—at the peak of the housing market in 2005, **subprime mortgage** originations stood at a staggering \$625 billion of loans (or a fifth of all home mortgages that year). Competing for business, mortgage Lenders loosened their underwriting standards and loan terms often requiring no down payment, proof of income, or even principal and interest payments (recall the now forgotten **no documentation (No Doc)**, **interest-only (IO)**, and **negative amortization (NegAM)** loans). For years, home price gains masked the repercussions of poor underwriting decisions. As home prices flattened out and began to fall, defaults jumped. To make matters worse, best credits tend to prepay with remaining poorer quality loans, driving up delinquency and foreclosure rates, not to mention a variety of large-scale mortgage fraud schemes that are now coming to light in great numbers. To top it off, selling is made extremely difficult by vast inventories of unsold homes driven by the surge in foreclosures. It is estimated that as many as 5 million U.S. homeowners may have mortgages that exceed the value of their homes by the end of 2008, while almost 40% of those who purchased their homes two years ago are already “underwater.”

As defaults surged, Investors who had been eager to buy **subprime** loans from Lenders retreated from the market, effectively shutting down the (vital for this industry) **securitization** market. “Why so vital?” you may ask. An important question—the answer to which probably contains the essence of that “new twist” that made this bubble somewhat harder to recognize.

SO WHAT WAS DIFFERENT “THIS TIME AROUND?”

As we discussed earlier, it was an oversupply of cheap capital (and not rising return on assets) that was driving up asset prices. Making matters worse, a big chunk of this credit was not counted in the traditional definition of **liquidity** (which is made up of **central bank** money and bank lending). The reason for that was simple—Lenders did not keep loans they made on their books anymore, and it is only loans on bank balance sheets that get counted as money. Now, a bank made a loan and moved it off its balance sheet through a process called “**securitization.**” There were two ways of doing this: (1) To sell the **securitized** loan as a bond; (2) To use “synthetic” **securitization** that involved, for example, using financial **derivatives** to get rid of the default risk

with **credit default swaps (CDS)** and lock in the interest rate due on the loan with **interest-rate swaps**. Both forms of **securitization** meant that the lending bank was free to make new loans without using up any of its lending capacity once its existing loans had been **securitized**. So, added to the traditional definition of **liquidity** was a vast chunk of credit being created and moved off mortgage lenders’ balance sheets and onto balance sheets of non-bank **financial intermediaries**. It was this new form of **liquidity** that changed the very nature of the credit markets—what now determined credit growth was risk appetite alone.

No longer could **central banks** determine how much debt was created. They used to do that by limiting the amount of **central bank** money they supplied and then obliging commercial banks to make reserves for every loan, thus making lending capacity finite. Now with the loans off banks’ balance sheets, this control mechanism was ineffective, and lending capacity became almost infinite. Indeed, **central banks** could not even control the price of money very well anymore—risk appetite set how risk was priced and **central bank** rates held very little sway over the outcome. Cheap capital proliferation was also aided by an unprecedented global growth rate. Since 2000, the real GDP growth of the developing world has been more than double that of the developed world, with low-priced exports from developing nations flattening labor compensation in developed countries and, thus, reducing the rate of inflation expectations throughout the world, including those embedded in global long-term interest rates.

As home prices and mortgage lending boomed, and investment banks found ever-more-clever ways to repackage trillions of dollars in loans and sell them off to Investors around the world, many financiers and regulators believed that all that activity would disperse risk and make markets both safer and stronger. Over the past decade, Wall Street built a market for more than \$2 trillion in securities sold globally and backed by loans to U.S. homeowners on two shaky premises: (1) Home values would never fall nationwide, and people would almost always make their mortgage payments; (2) Packaging mortgage loans and turning them into securities would make the global economy more resilient if anything went wrong. In a matter of months, however, much of the promise of the new financial architecture (shifting risk from banks to securities markets), together with its underlying assumptions, has proven to be a mirage. As house prices fall and homeowners default on mortgages at troubling rates, the pain has spread far and wide.

Mortgages today are, in fact, dispersed among banks as well as thousands of investment pools, each of which may have hundreds, if not thousands, of Investors. Many of those pools have been further repackaged into specialized funds known as **structured investment vehicles (SIVs)** and **collateralized debt obligations (CDOs)**, each of which have their own set of Investors. That makes determining who owns the securities, what they are worth, and the nature of the underlying **collateral** a tricky process. Indeed, coming up with a value of a **CDO** is a

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daunting task that entails analyzing more than a hundred separate securities, each containing several thousand individual loans—an undertaking that can require millions of dollars in computing power alone.

In fact, the complexity of the **structured finance market** has made financial markets not less, but more vulnerable to losses. It also turns out that **MBS** issuers (primarily large investment banks) kept a large portion of risk in various forms (including pieces of **CDOs** they helped bring to market) on their own balance sheets. They often struck deals to provide emergency funding to **SIVs** and managers of **CDOs—off-balance sheet (OBS)** obligations that were not always clearly spelled out in their financial statements. Amid a steep decline in house prices and rising mortgage defaults, the value of **subprime**-backed securities went into a free fall. And as worrisome delinquency data rolled in, analysts upped their estimates of total losses on these **subprime-backed** securities. Within weeks, **Credit Rating Firms** began to change their views. Because investment banks owned the lion's share of these investments, they bore the brunt of the losses. And with **Financial Guarantors** now looking unsteady, investment banks doing business with them are on the hook for additional losses, not to mention the vast municipal bond and **CDO** markets that stand exposed to a broad threat of risk repricing as a result.

Let's summarize—with our economy having grown so dependent on the **securitization markets** as a funding source, the troubled **structured finance market** has turned (figuratively speaking) from what was intended and expected to be a “credit markets buffer” into a “credit crunch accelerator.” Billionaire investor George Soros put it best: “**Securitization** had the effect of transferring risk from people who are supposed to know risk and know the borrowers to people who don't.” See the “new twist?” Let's call it “separation of risk assessment (read: credit underwriting) from risk bearing (read: **structured finance** products).” There is one other important ingredient of the current credit markets turmoil that we have only touched upon so far, although there is hardly anything new about this one. We are talking about the “good old” reliance on short-term funding to finance long-term assets. It was behind the emerging markets crisis of the 1990s when countries that depended on short-term debt got squeezed after investors became skittish about the emerging markets' growth. It was behind the S&L crisis of the 1980s with a dramatic mismatch between the maturities of thrifts' long-term assets and their short-term liabilities. Lenders get nervous once cheap short-term borrowing becomes expensive or disappears altogether. This happened to borrowers who took out **adjustable rate mortgages (ARMs)** planning to refinance into **fixed rate mortgages (FRMs)** if rates reset higher. Not surprisingly, nearly 16% of **subprime ARMs** were at least 90 days delinquent as of September 30, 2007 versus 6% for **subprime FRMs**.

Wall Street has also gotten trapped by short-term borrowing. Recall our discussion of **asset-backed commercial paper (ABCP)** and **structured investment vehicles (SIVs)** in Part I. In both cases, banks and their clients used short-term **commercial-paper (CP)** markets to raise money and used that money to acquire long-term investments, such as mortgage debt or make long-term loans. When the **CP** markets seized up, the short-term borrowing rates soured, and the strategy imploded. Something similar is currently happening in the **auction-rate-securities (ARS)** market. Municipalities, museums, and student lenders issue these securities (which have interest rates that reset every week to 35 days) and use the money to finance projects or make student loans with long repayment periods. Investors have fled the market, and issuers are forced to digest soaring interest costs.

And what about Bear Stearns? What caused the giant securities firm's liquidity squeeze? And why did it happen so fast? Shockingly, the reason behind the firm's demise is very similar. As we now know, Bear Stearns was highly dependent on a kind of short-term loans called “repos” (repurchase agreements). Repos are loans that extend for only a few hours or days which makes them one of the few kinds of debt that responds to market panics almost as quickly as stocks. When some of Bear's counterparties panicked, they pulled those repos nearly overnight leaving the company scrambling to find cash to cover the financing. It is the very short-term nature of repo agreements that makes it possible for a firm to be left uncovered when sentiment changes quickly (or, literally, overnight), and that is exactly what happened in the Bear Stearns' case.

We have now examined some of the key drivers as well as the very mechanism of the credit markets crisis—a viscous cycle of declining asset prices and tightening underwriting standards or what economists call a “deleveraging spiral.”

We started this section by saying that history always repeats itself, but usually does so in some new, hard-to-recognize way. Doesn't it all look rather simple now? With all this knowledge under our belt, the next bubble should be easier to spot.



The next section of this paper is intended to address some of the most pressing questions that you have probably had on your mind all along the way, but were afraid to ask.

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PART III – QUESTIONS & ANSWERS

Q 1.) How does a CDO work?

A The concept behind **collateralized debt obligations** (CDOs) has been around since the 1980s. A CDO, most broadly, is a device that repackages the income from a pool of bonds, **derivatives**, or other investments. A mortgage CDO might own pieces of a hundred or more bonds, each of which contains thousands of individual mortgages. The CDO issues a new set of securities, each bearing a different degree of risk. The highest risk pieces of a CDO pay investors higher returns, while pieces with lower risk and higher credit ratings pay less. Investors in the lower risk pieces are first in line to receive income from the CDO investments while investors in the higher risk pieces are the first ones to take losses and the last ones to get paid.

In fact, different slices of CDOs receive different ratings because some protect the others from losses to defaults. A “junior” slice might take the first \$30 million in losses on a \$1 billion CDO, while a triple-A “senior” slice would not be affected until losses reached \$200 million or more. But the system works only if the securities in the CDOs are uncorrelated—that is, if they do not go bad all at once.

“Ideally diversification makes investors in a CDO less vulnerable to the problems of a single borrower or security. But, in reality, instead of spreading the risk of a global home-finance boom, the instruments have magnified the effects of the subprime mortgage bust by virtue of the increased liquidity they created.”

Corporate bonds, on the other hand, tend to have low correlation because the companies that issue them operate in different industries, which typically do not get into trouble simultaneously. Mortgage securities, on the other hand, have turned out to be very similar to one another. They are all linked to thousands of loans across the U.S., so anything big enough to trigger defaults on a large portion of those loans (like falling home prices across the country) is likely to affect the bonds in all mortgage CDOs.

So, ideally, this diversification makes investors in a CDO less vulnerable to the problems of a single borrower or security. But, in reality, instead of spreading the risk of a global home-finance boom, the instruments have magnified the effects of the **subprime mortgage** bust by virtue of the increased **liquidity** they created. Rather than diversifying their investments, they bet heavily on securities that had one thing in common—they were among the most vulnerable to a rise in defaults on **subprime mortgage** loans.

While this boosted returns, it also increased the chances that losses would hit investors severely. These losses are now behind tens of billions of dollars of write-downs at some of the world’s largest banks and securities firms (as discussed in Part I).

CDOs also added potentially fatal new twists to the model by investing in more than simply **subprime-backed** securities. The CDOs held chunks of each other, as well as **derivative contracts** that allowed them to bet on **mortgage-backed** bonds they did not own. The use of **derivatives** magnified risk because they allowed bankers to create an unlimited number of CDOs linked to the same **mortgage-backed securities**. UBS Investment Research estimates that CDOs sold credit protection on around three times the actual face value of triple-B-rated subprime bonds. To put it differently, the **subprime mortgage** crisis is far greater in terms of potential losses than anyone expected because it is not just physical loans that are defaulting.

To make matters worse, Wall Street banks took big pieces of CDOs on their own balance sheets, concentrating the losses rather than spreading them among investors. Typically, investment banks do not operate CDOs acting just as middlemen, but many investment banks with CDO businesses frequently kept or bought the super-senior pieces whose lower returns were of little interest to investors. Merrill Lynch became an investor in CDOs shifting from trading for customers only to trading for the firm’s own account. By mid-2007, the bank held \$41 billion in **subprime CDOs** and **subprime mortgage** bonds—more than its shareholder equity of \$38 billion.

By now some of you are probably wondering how easy it is to make a CDO. Using the CDO home recipe (on the following page), let’s make one together step-by-step. To be in tune with the times, let’s make a **subprime mortgage-backed CDO**. We’ll need just one ingredient, but lots of it—in fact, we will be using several thousand of **subprime mortgage** loans for just one CDO. One

CONTINUED

RECIPE

SUBPRIME MORTGAGE-BACKED CDO

INGREDIENT(s):

Thousands of **subprime mortgages**

STEP 1

We will start by buying **subprime mortgage** loans from a variety of lenders all over the country—we need several thousand of these for just one **mortgage-backed security (MBS)**, and we need as many as 150 of these MBS for one **CDO**.

STEP 2

Each **MBS** repackages and redistributes the income from these loans among different classes of bonds. Highly rated bonds are the first to receive income and the last to suffer any losses, but they also offer the lowest return. Low-rated bonds pay a better return, but are also among the first to take any losses if borrowers renege on their loans.

STEP 3

Now let's mix the 150 **mortgage-backed** bonds together—we may want to add any other MBS (like a piece of another **CDO** for instance) into our **CDO**.

STEP 4

Our **CDO** will now issue new bonds, each with its own level of risk and return. Let's add some flavor and get these rated by a **credit rating agency**. Remember, since we are doing all of this prior to the credit crunch, there isn't much to worry about.* When analyzing our **CDO**, **Credit Raters** would be looking backward in time to periods of rising house prices, easy credit, and low mortgage defaults. Plus, they would have a good reason to believe that the securities wouldn't all go bad at the same time, as each security contained mortgages from a different mix of lenders and had its own unique team of companies collecting the payments. Prior to serving, we may also want to sprinkle some **bond insurance** on the top of the **credit ratings** to enhance taste and, thus, lure more investors to the table.

*Yes, times have changed quite a bit. **Bond insurers** are struggling to keep their own **credit ratings** as we speak, and Moody's and S&P may be restricted from advising banks of **structured debt** securities due to their failure to downgrade **subprime mortgage**-related securities as investors' losses mounted.

STEP 5

We are ready to serve our freshly baked **CDO** to interested investors, including other **CDOs**.



word of caution, however, this recipe is quite outdated as the credit crunch has not only changed all recipes in the **structured finance** market as a whole (with higher quality ingredients now used both by issuers and **rating agencies**), but also effectively halted mass **CDO** production making the vehicle somewhat antique. Thus, our strong advice to you: Please do not try this at home.

All of the hard work done in the “home **CDO** kitchen” had actually proven to be a rather lucrative business for some “commercial producers,” prior to the credit crunch that is. Merrill Lynch, the top underwriter of **CDOs** from 2004 to mid-2007, had generated hundreds of millions of dollars in profits from assembling and helping to distribute **CDOs** backed by mortgage securities. For each **CDO** underwritten, the bank earned fees of 1.00% to 1.50% of the deal's size, or as much as \$15 million on a typical \$1 billion **CDO** (read more on the subject in Question #4, page 13).

Q 2.) What are **SIVs**, and why have they been in the spotlight recently? What is a “**Super SIV**,” and why has the “**Super SIV**” plan been abandoned?

A In September 2007, concerns arose about securities issued by **structured investment vehicles (SIVs)**. Set up by banks, **SIVs** are financial vehicles that raise money by selling short-term notes (known as **commercial paper**) at relatively low interest rates to investors and use proceeds to buy longer term debt carrying higher rates, including debt backed by mortgages. Banks profit from **SIVs** by pocketing the difference between the two rates. Sounds easy? Well, here is the catch—the model only works if **SIVs** can keep issuing new debt as old borrowings come due (remember, this is short-term paper, so banks are on a sort of “**commercial paper treadmill**” here).

With some of the debt backing **SIV commercial paper** tied to lower quality mortgages, investors shied away from their **commercial paper**, forcing banks backing **SIVs** to either sell the vehicles' assets to pay off maturing debt or take these assets onto their own balance sheets in order to stave off potential further losses and forced sales. Citigroup, the largest player in the **SIV** market with nearly \$100 billion in **SIV** assets (compare this to the total **SIV** market of \$350 billion) prior to the credit crunch, has

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now brought about half of these assets back onto its balance sheet. About \$109 billion in **SIV** assets had been brought onto bank balance sheets as of mid-December 2007—roughly a third of total outstanding **SIV** debt.

Why is the **SIV** issue important? The reason is simple—major banks like Citigroup that were forced to take **SIV** assets onto their balance sheets now have less capital available to make new loans, thus exacerbating the credit crunch.

The mission of the so-called “**Super SIV**” rescue fund (just like that of Superman) was exactly that—to rescue. The Treasury Department encouraged banks to set up the **Master Liquidity Enhancement Conduit** (the fund’s official name) that was to buy the troubled **SIV** assets in an orderly way with three banks (Bank of America, Citigroup, and J.P. Morgan Chase) leading the effort.

The measure was controversial from the start, with critics viewing it as a bailout for the **SIV** industry—they did have a point. Interest in the fund waned as several banks concluded they could not wait for it to get up and running and decided to bail out their own **SIVs** by taking **SIV** assets and liabilities onto their balance sheets. One may say that the “**Super SIV**” measure had the intended effect without ever being implemented. Another reason for the plan’s downfall was that the conduit was designed to buy the highest quality assets from the **SIVs**, while the assets that the banks most wanted to unload were those backed by more troubled slices of mortgage debt. Not surprisingly, that further reduced the banks’ motivation for the plan.

Not a pretty picture, is it? “When will this turmoil be over?” and “Can it get worse?”—these are probably the two most common questions that we hear from investors today. The general consensus is that it will be at least three to six months before the debt markets improve notably. Our best case scenario is that investors become more comfortable towards mid-2008. Our crystal ball also tells us that while the worst of the crisis is probably behind us, 2008 is likely to see more aftershocks as the credit squeeze reaches into some of the more remote corners of the vast **structured finance** universe.

Speaking in more general terms, the current credit crisis will be over when the overhang of inventories of newly built homes is largely liquidated and home-price deflation comes to an end. That will stabilize the now uncertain value of the home equity that acts as a buffer for all home mortgages, but, most importantly, for those held as **collateral** for **residential mortgage-backed securities**. The ultimate extent of the crisis will depend largely on how steeply the price of the average American home falls. That will play a pivotal role in determining how many people are at risk of foreclosure as payments on **adjustable-rate mortgages** tick upward and in the size of losses on securities backed by those loans. It will also affect the size of the hit that consumers sustain to their spending power. According to Doug Duncan, the chief economist of the Mortgage Bankers Association, the bottom for the housing market will occur “no earlier than the end of third quarter of 2008 because of substantial inventories and house price declines.” Several factors make it difficult to predict a bottom for the housing market—not since World War II have home prices declined nationally for two consecutive years (in 2007 and forecast for 2008).

“...while the worst of the crisis is probably behind us, 2008 is likely to see more aftershocks as the credit squeeze reaches into some of the more remote corners of the vast structured finance universe.”

Q 3.) When will the credit markets turmoil be over? Could the crisis have been prevented? Can it be fixed with current government actions?

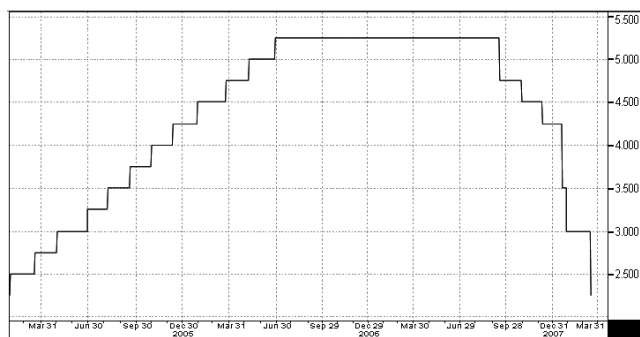
A The debt markets are suffering from a major crisis of confidence, causing paralysis in securitized markets. The **high-yield bond** markets have seized up. **Risk spreads** have widened dramatically across the board, but few are willing to step-in for fear of further spread widening. Banks do not trust each other’s balance sheets. Wall Street giants, stung by toxic **mortgage**-related debt, have tightened their purse strings. And it is now starting to look as if smaller banks are also catching on to the wave of risk aversion that is tightening credit around the nation. Nervous regulators, worried about lax lending standards, could amplify all of this.

Another common question is whether the crisis could have been prevented and if it can be fixed by current government’s actions. Recall that so far since September 2007, the **Federal Reserve** has lowered its target for short-term interest rates by **300 basis points (bps)** to 2.25% (including two 75 bps emergency cuts on January 22 and March 18, 2008), the most aggressive easing since the **federal funds rate** became an explicit target of policy in the late 1980s. The big question facing the **Fed** now is whether it has done enough with falling home prices leading to more defaults and foreclosures, loss of bank capital, tighter lending, and yet further declines in housing prices being Mr. Bernanke’s dominant concern these days. The **Fed** “will act in a timely manner as needed to support growth and to provide adequate insurance against downside risks,” Bernanke told the worried and somewhat skeptical Senate Banking Committee in Washington on February 14, 2008.

CONTINUED

FEDERAL FUNDS TARGET RATE

January 31, 2005 — March 18, 2008



Source: Bloomberg

Have there been any visible effects of the **Fed's** actions so far? Certainly. Mortgage rates have dropped, enabling many borrowers with **adjustable-rate mortgages** either to refinance into **fixed-rate mortgages** or lower their current loan rates. This should mean fewer foreclosures, although the drop in home prices may preclude some borrowers from taking advantage of this.

"In order for the Fed's actions to be effective, our foreign counterparts have to come on board—we are all in the same "global boat," so to speak. The global nature of this crisis calls for a global solution."

When assessing the effectiveness of the **Fed's** actions, it is important to understand a number of key limiting factors. First, although a correlation between short and long-term interest rates in the U.S. remain significant, it has been declining for over a half-century, with asset prices gradually being decoupled from short-term interest rates. Although **central banks** appear to have lost control of longer term interest rates (as discussed in Part II, page 7), they continue to be dominant in the markets for assets with shorter maturities, allowing them to contain pressures on prices of goods and services (conventional measures of inflation).

It is also important to realize that the **Fed** cannot do it alone. Yet, so far, when it comes to interest rate reductions, the Fed is pretty much "a lonely soldier on this battlefield." In order for the **Fed's** actions to be effective, our foreign counterparts have to come on board—we are all in the same "global boat" here so to speak. Indeed, the global nature of this crisis calls for a global solution. Some international effort has taken place, however. In December 2007, the Federal Reserve pledged to hold its biweekly **Term Auction Facility (TAF) emergency auctions** of loans "for as long as necessary" as part of a coordinated effort among the world's major **central banks** to provide **liquidity** to address elevated pressures in short-term funding markets and head off a potential further credit crunch. By the end of 2007, the **Fed**, in conjunction with the **European Central Bank (ECB)** had loaned more than \$40 billion in 35-day loans in two emergency auctions. In early

March 2008, the planned **TAF** auctions size was increased to \$100 billion. Further, on March 11, 2008, the **Fed** announced that it will, for the first time, lend Treasuries in exchange for debt (including **mortgage-backed securities**) under the so-called **Term Securities Lending Facility (TSLF)** program—the second new tool (following **TAF**) introduced by the **Federal Reserve** in the past three months. Up to \$200 billion will be made available under **TSLF** in the U.S. with **central banks** in Europe and Canada to inject up to \$45 billion into their banking systems. And, in mid-March 2008, the Bear Stearns **liquidity** crunch shook the financial markets with the **Fed's** active role in rescuing the troubled securities firm as indicative of the magnitude of the threat to the U.S. financial markets as the crisis itself. On March 14, 2008, the **Fed** extended a sizable \$30 billion in credit to Bear Stearns to stave off a collapse taking advantage of a little-known rule that allows the **central bank** to loan to non-bank corporations. On March 16, 2008, the **Fed** expanded on that rule by setting up a lending window for dealers in government bonds, similar to the lender-of-last-resort function it has traditionally reserved for banks.

Along with maintaining **liquidity** in the credit markets, the world's major **central banks** were also attempting to reduce the spread between overnight interest rates and benchmark **ECB**, and **Federal Reserve** lending rates, such as the spread between the U.S. **LIBOR** rate and 3-month U.S. Treasuries (a high spread suggests that banks are reluctant to lend to one another or see an increased risk in lending to each other). In December 2007, the **ECB** made \$500 billion in short-term loans available to banks to avert a year-end **liquidity** crunch. These measures were an extension of what the **central banks** were doing anyway: Substituting **central bank** money for funds normally lent and borrowed between banks in the interbank market. It is important to understand that these funds are not a net addition to **liquidity** as they are paid back when the loan becomes due. Therein also lies the problem: The auctions address the **liquidity** shortage caused by the banks' refusal to lend and borrow from each other due to mistrust of each other's balance sheets, but cannot address the solvency problem inherent in the balance sheets themselves.

There are a number of other measures on the table. The **Federal Reserve** has proposed new rules that would sharply curtail high-risk mortgage originations by prohibiting lenders from making loans without regard to a borrower's ability to repay "from sources other than the home's value" or loans that rely on unverified income or assets. A little common sense never hurts, does it?

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Led by Treasury Secretary, Henry Paulson, Bank of America, Citigroup, and four other U.S. lenders have recently announced steps to help borrowers in danger of foreclosure stay in their homes by offering a 30-day freeze on some foreclosures while loan modifications are being considered. Another proposal, by Credit Suisse, is calling for the **U.S. Federal Housing Administration (FHA)** to guarantee mortgage refinancings by some delinquent borrowers. And do not forget about more than 130 million tax rebate checks that will be in the mail in May 2008 under the \$168 billion economic stimulus plan signed by President Bush in mid-February.

"...restored liquidity does not mean that the impact of the housing slump on the U.S. economy would vanish. The growing mortgage defaults and unsold home backlog will continue to negatively affect the U.S. economy through at least 2008, and most likely longer."

It looks like a good set of measures, but is it too little too late? "Will these help and could the crisis have been prevented in the first place?" are other important and certainly valid questions. Let's hear the former **Fed** Chairman, Alan Greenspan's, opinion first: "Bubbles cannot be safely defused by monetary policy or other policy initiatives before the speculative fever breaks on its own. There was clearly little the world's **central banks** could do to temper this most recent surge in human euphoria." Well, many today blame Mr. Greenspan for keeping rates too low for too long after the collapse of the dot com bubble in 2000 and the 9/11 terrorist attacks. Some even go as far as to call him "the serial bubble blower."

Another view is not as harsh on the **Fed**. It sees the **liquidity** bubble as a result of a global macroeconomic disorder with massive flows of surplus capital from Asian economies (mostly China), oil exporters, and a few high-income countries. As discussed in Part II, cheap capital proliferation was, in fact, fueled by an unprecedented global growth rate, with low-priced exports from developing nations flattening labor compensation in developed countries and, thus, reducing the rate of inflation expectations throughout the world, including those embedded in global long-term interest rates. With loans off banks' balance sheets, **central banks** could not effectively control the lending capacity and, thus, the price of money any longer. It was the risk appetite that set how risk was priced, with **central bank** rates holding very little sway over the outcome.

Indeed, it was that excessively optimistic risk appetite and consequent mispricing of risk that created this **leverage** problem. The reversal of risk appetite is now driving the deleveraging process. Just as **central banks** were powerless to control the expansion of liquidity in the expansionary phase, it is unlikely that they can fully control its contraction and the economic consequences. Recall that much of the **leverage** that fueled the economy was and largely remains on the balance sheets of non-bank **financial intermediaries** (such as brokers, hedge funds, and investment banks) in the form of **securitized debt** and **derivatives**. Neither these entities nor many of the assets they

own are eligible for **central bank** loans. Plus, the **Fed's** actions are coming at a time when banks are struggling to protect their troubled balance sheets and are not very interested in passing on the savings from the **Fed's** cuts to borrowers. In any event, restored liquidity does not mean that the impact of the housing slump on the U.S. economy would vanish. The growing mortgage defaults and unsold home backlog will continue to negatively affect the U.S. economy through at least 2008, and most likely longer. So far, the biggest piece of "rescue cash" has come from abroad, with Wall Street mega-banks having raised some \$84

billion by selling equity stakes to investors in Asia and the Middle East.

There are two camps when it comes to the "What should the government do?" question. One is calling for a major government bailout plan similar to that of the **Resolution Trust Corporation (RTC)** that purchased impaired assets from troubled banks and thrifts during the savings & loan crisis of the late 1980s (read more on this in Question #5), while the other thinks that the government should simply step aside and leave it all to the market forces that created this mess in the first place. Where do we stand on the issue? Somewhere in the middle. We believe that the government's intervention was necessary before the turmoil erupted and had the potential of, at a minimum, reducing the crisis with such measures as stricter mortgage underwriting guidelines, the likes of which are being proposed today. Sadly, that opportunity was missed. We also subscribe to the view that a coordinated global **central bank** action is vital today. At the same time, we see government actions' potential in any market-driven economy as limited and believe this to be particularly true in today's world of financial markets globalization.

Q 4.) How will the financial-services industry change as a result of this? Will the **structured finance** market survive this turmoil?

A Banks had been riding high for years on hefty fees generated by bundling loans and securities into complex **structured products** that they then turned around and sold. The business model was brilliantly simple: Make loans that are then sold-off to investors while arranging financing through **off-balance-sheet (OBS) vehicles** that keep banks' capital costs down. The business had helped make banking very profitable over the past few years. The average return on equity among Wall Street's five big investment banks jumped from 12% in 2002 to 23% in 2007. As much as 30% of all investment banks' earnings in 2006 and the first half of 2007 came from **structured finance** fees.

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“...some of the banks’ more profitable lines of business have been shut, either temporarily or permanently.”

Collateralized debt obligation (CDOs), many of which were backed by **subprime mortgages**, were the favorite of the **structured finance** boom. Recall our discussion of **CDOs** in Question #1 (page 9)? Merrill Lynch, the top underwriter of **CDOs** from 2004 to mid-2007, had generated hundreds of millions of dollars in profits from assembling and helping to distribute **CDOs** backed by mortgage securities. For each **CDO** underwritten, the bank earned fees of roughly 1.50% of the deal’s size, or as much as \$15 million on a typical \$1 billion **CDO**. With Merrill’s fees from the business reaching \$700 million in 2006, it was hard to not get addicted.

The **subprime** crisis and ensuing credit crunch have thrown a wrench into this highly profitable game, however. The **off-balance-sheet** financing business is crippled. Banks are being forced back to the good old (and, yes, less profitable) business of holding loans on their own books. It is not clear how long this will last, or how the banking model might evolve in response to the current market crisis. What is clear is that some of the banks’ more profitable lines of business have been shut, either temporarily or permanently. Less **securitization** means lower fee income. More loans on the balance sheets mean higher capital charges. And bigger balance sheets mean less capacity to make new loans.

Changes in the banking business model are quickly becoming apparent. Citigroup has seen the amount of loans and leases it holds in inventory increase to about \$697 billion at the end of September 2007—up about 9% over six months. Bank of America said that it was curbing activities in structured products, including **CDOs**. In the meantime, issuance of **CDO** “cousins,” **collateralized loan obligations (CLOs)** tied to corporate loans, has also declined. Citigroup’s researchers expect issuance of **CDOs** to drop as much as 60% in 2008 from 2007.

We believe that investor wariness will lead to a long-lasting breakdown in the **securitized debt** “production line,” causing meaningful erosion in banks’ earning power. The deleveraging process will not be pretty, and it will take place during the most challenging times of an economic slowdown and deteriorating asset quality. Not all this news is bad, however. Keeping loans on the books will re-introduce discipline in the market, hopefully helping to avoid future meltdowns.

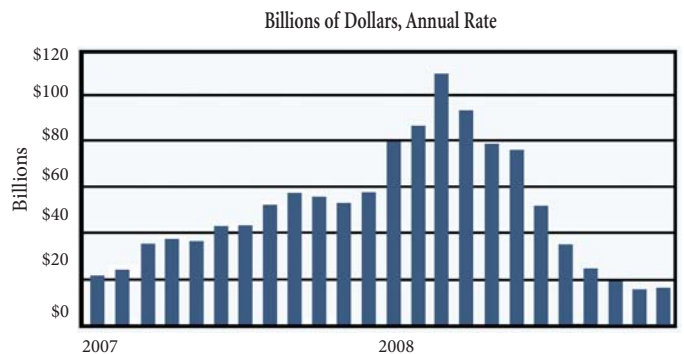
Will the **structured finance** market “as we know it” cease to exist? Probably—in fact, the **CDO** vehicle as such is already effectively “dead.” Yet don’t rush to declare the end to the **structured finance market** at large. As we have learned from numerous history examples (some of these very recent), one should never underestimate two things: (1) How creative Wall Street is; and (2) How forgetful investors are. Although it is certainly hard to imagine the **structured finance** business coming back full-scale any time soon, investor demand for **structured products** could slowly return once the turmoil subsides a little or returns get lucrative enough to overcome investor worries.

Q 5.) How does this credit crisis compare to the savings & loan crisis of the late 1980s and other bubbles?

A Investors’ memory is notoriously short. Yet when “lightening” strikes, we are often forced to become diligent students of history searching for answers in patterns, analogies, and precedents. For that very reason, many today are wondering to what extent this crisis is similar to some other market disruptions, including the savings & loan (S&L) crisis of the late 1980s, the dot com bubble, etc.

First, it is important to recognize that the current crisis centers on assets (houses) that, unlike stocks, have been bought with borrowed money with the easy credit of the recent past, having allowed many to borrow up to the full value of their homes. As prices fall, people who find themselves owing more than their homes are worth (and there will be an estimated 5 million of these folks by the end of 2008) are much more likely to default on their mortgages, leaving lenders to sell the foreclosed houses at a loss. To make matters worse, payments on more than \$500 billion in mortgages will reset in 2008, mostly to higher rates.

ADJUSTABLE RATE MORTGAGES — RESETTING PROBLEM



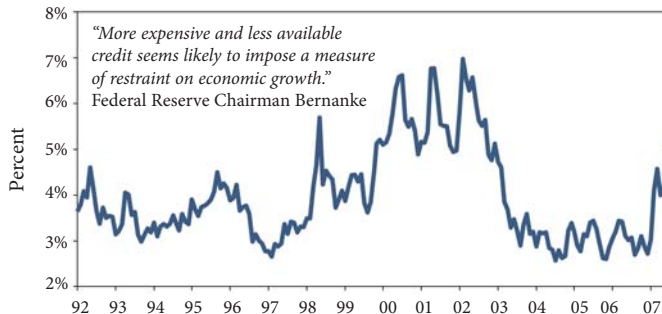
Source: ISI Group

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Let's look at the size of the crisis first. Initial estimates of total losses on **subprime** and similar mortgages range from \$150 billion to \$400 billion, with the latter equal to about 3% of U.S. annual economic output, similar to the losses suffered by S&Ls and commercial banks between 1986 and 1995. Home prices are down by 0.5% to 10.0% now, depending on the geography and measures used. If they fell 30% (that's what it would take to restore their historic relationship to inflation, rents, and incomes), some \$6 trillion worth of housing wealth would be wiped out. Measured against the size of the U.S. economy, that is less than what was lost in the stock market between 2000 and 2002.

Back in the late 1980s, banks and savings & loan institutions had gone through a real estate boom and bust followed by a regulatory crackdown. A lasting credit crunch ensued hurting consumer spending, small business, and real estate. Now, as then, some critics are saying that regulators are stepping in too late. By the way, the 300 basis points in **fed funds rate** reductions that we have seen since September 2007 is well above the initial pace of cuts in early 2001 following the bursting of the tech bubble, making them the most rapid in two decades.

YIELD SPREAD BETWEEN THE 10-YEAR B-RATED INDUSTRIAL BOND OVER THE 10-YEAR TREASURY BOND



Source: FactSet Research Systems

The credit crunch may indeed be trickling down, hitting smaller firms just as it did in the 1990s. In fact, we are already seeing signs of problems with residential mortgages spreading to the broader economy, with banks caught holding debt on their books making it harder and more expensive for some small and mid-size businesses to borrow. Seven percent of the small business owners

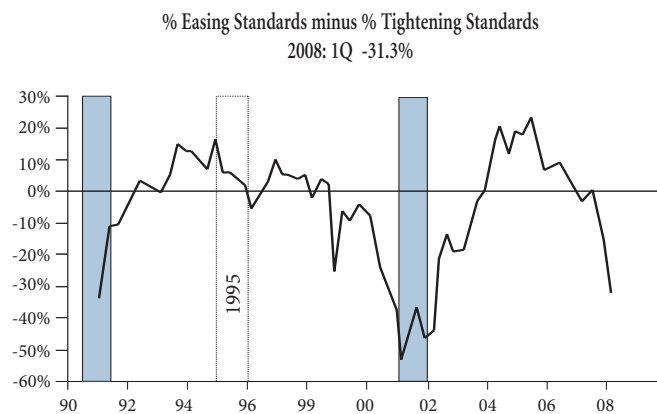
“The fact that this crisis is more global in nature and is taking place in a world that is more globalized than ever makes it a more complex phenomenon to begin with. In addition, this is the first global bubble with, not just one, but a number of asset classes affected making the impact even broader.”

Of course, there are important differences between 20 years ago and now. Markets for loans have expanded and are probably quicker to adjust. Banks are better capitalized. Plus, this time the pain has so far been felt mostly by Wall Street mega-banks. On the other hand, the shift of loans from banks to the **structured finance** markets has created a staggering complexity that threatens to prolong the crisis. We believe, however, that the current turmoil differs in even more crucial ways from both the recent tech stock bust and the S&L crisis. The fact that this crisis is more global in nature and is taking place in a world that is more globalized than ever makes it a more complex phenomenon to begin with. In addition, we would argue that this is the first global bubble with not just one, but with a number of asset classes affected, making the impact even broader.

The last significant credit crunch, which ran from about 1989 to 1992, began with a pullback on lending for **commercial real estate** that then spread to business lending. This time, the problems are spreading from the residential real estate to the commercial side, with small and mid-size companies being hurt most. Needless to say that a widening credit crunch does not bode well for the economy at large, but start-ups and small businesses are generally key when it comes to job creation during a downturn. Tighter credit curbs business investment and hiring as these companies recalculate the costs of investing in new machines, marketing campaigns, or ventures, thus magnifying the economic slowdown.

surveyed in December 2007 said they were having problems getting financing, up from four percent in November. While companies with strong balance sheets can still borrow at good rates, others feel the squeeze. Start-ups and smaller companies, in particular, are finding that banks are setting higher rates, seeking more collateral, or lending smaller amounts.

U.S. BANKS' WILLINGNESS TO MAKE BUSINESS LOANS

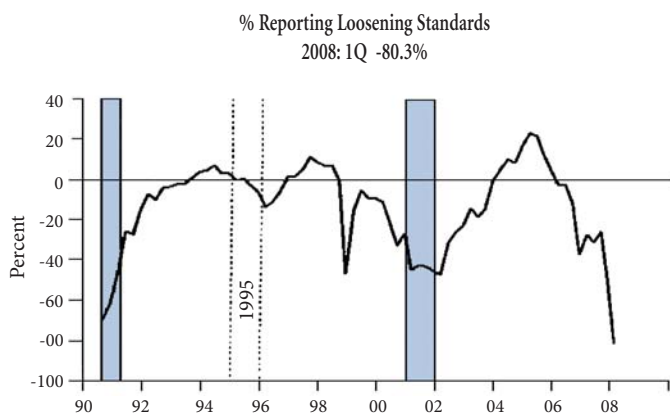


Source: ISI Group

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One area of growing concern outside housing is **commercial real estate (CRE)**. The ratio of CRE loans to capital at the nation's community banks has nearly doubled in the past six years to 285%, with lending especially robust in areas where there were housing booms, such as Florida. The crunch triggered by the downturn in the housing market is, in fact, creating problems in commercial real estate, driving down the prices of office buildings, shopping malls, and apartment complexes. Sales of larger office properties plummeted to \$7 billion in November 2007, representing a 55% drop compared with the same period a year earlier. So, few deals are getting done that market experts are often unable to put a value on buildings—yet almost everyone agrees that the valuations are dropping. Often, deals do not go through because financing either is not available or is so expensive that buyers are insisting on price reductions that sellers will not accept.

U.S. BANKS' WILLINGNESS TO MAKE COMMERCIAL MORTGAGE LOANS

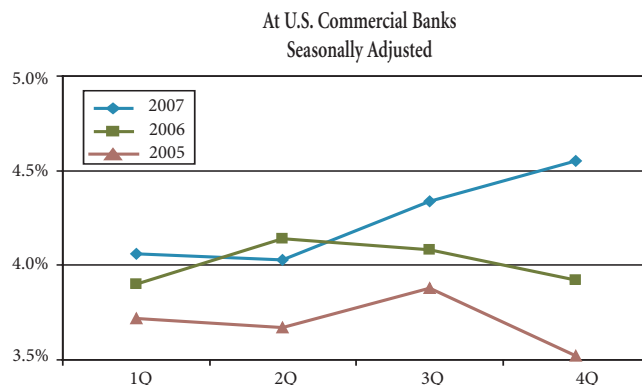


Source: ISI Group

Just like **residential mortgage-backed securities (RMBS)**, **commercial mortgage-backed securities (CMBS)** are pools of loans that are sliced up and sold to investors as bonds. Just like the RMBS market for residential housing, the CMBS market had been the engine that drove the commercial real estate boom, with CMBS issuance expanding dramatically from \$52 billion in 2002 to \$225 billion in 2007. The issuance of CMBS allowed banks to get rid of the risk on their books, and lend with cheaper rates and looser terms, making it easier for private-equity firms to do large real estate deals. Although the CMBS market has held up relatively well so far, the CMBS risk spreads have widened, causing a notable slowdown in **the commercial real estate** activity as discussed above.

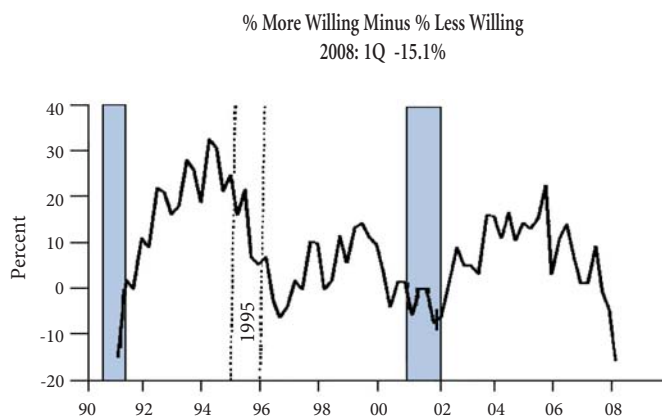
Turning to the consumer debt side, we are certainly not surprised to see credit card delinquencies rising across the nation with these mounting delinquencies, in turn, prompting banks to further tighten lending standards.

DELINQUENCY RATES ON CREDIT CARDS



Source: Federal Reserve Board; FactSet Research Systems

U.S. BANKS' WILLINGNESS TO MAKE CONSUMER LOANS



Source: ISI Group

Thus, our preliminary examination of the current crisis ("preliminary" because we are still in the midst of it) reveals that it is, on the one hand, quite comparable to some of the biggest financial disasters of the past, and quite a "different kind of an animal" on the other. While the potential losses look manageable compared with the savings & loan crisis and the tech stock crash, the housing debacle could take longer to work out. Until the dust is settled, investors will remain jittery, and banks are likely to hold back on all kinds of lending, thus feeding the credit crunch that is already dampening global growth and that could tip the U.S. economy into a recession. In short, if history is any guide, we are probably in for a long ride.

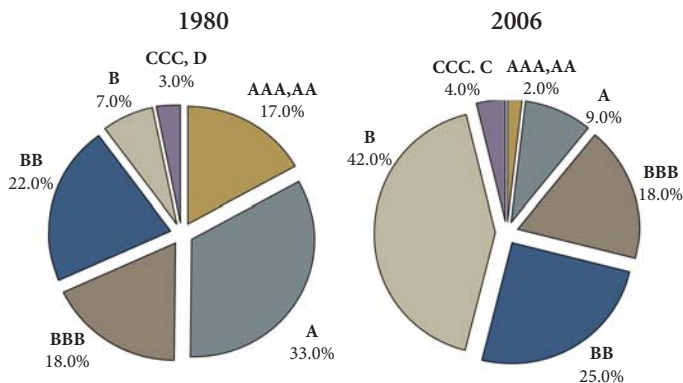
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“...with unprecedented junk debt proliferation coupled with the unsustainable profitability expansion of the recent past, any impact of an economic downturn is likely to be significantly more severe this time around.”

Q 6.) How do you reconcile higher leverage (with the proliferation of **junk bond** debt) and the stronger balance sheets of U.S. companies today? What does it mean going forward?

A Over the past decade, the exponential growth of credit **derivatives** has created unprecedented amounts of financial leverage on corporate balance sheets. Similar to that of **subprime mortgages**, the rapid rise of credit products benefited from favorable economic conditions and the disconnect between underwriters of risk and those bearing it. In 2007, prior to the credit markets collapse, more than 32% of new lending was to companies on the lowest rungs of the credit ladder, compared to 21% in 2006, the previous peak, bringing these borrowers' share of outstanding debt to above 25%, also a new high.

THE PERCENTAGE OF JUNK-RATED DEBT (RATINGS BB AND BELOW) HAS MORE THAN DOUBLED SINCE 1980

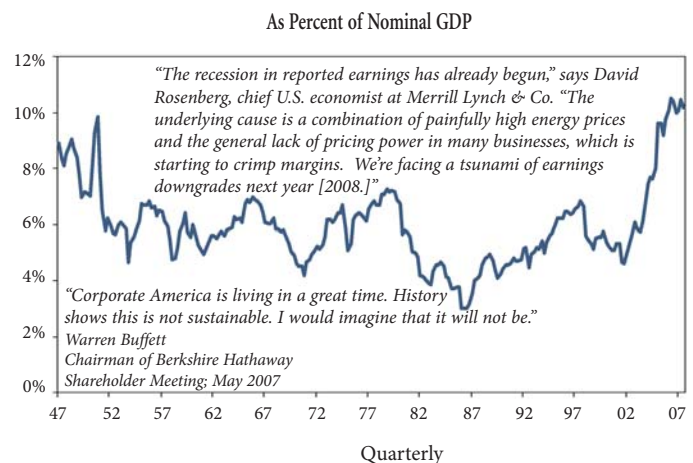


All S&P graded companies excluding utilities and financial institutions. Source: The Wall Street Journal Online; January 4, 2007.

As discussed in Part I, corporate bond issuance declined in the second half of 2007 as problems with risky mortgages spread to the broader credit markets. Investors demanded to be paid more for riskier investments—the **high-yield spread** widened, surging to 6.45% in early January 2008, up from the historic low of 2.40% in June 2007. The decline in U.S. **junk bond** issuance was most dramatic, with just \$9 billion in **high-yield** bonds issued in the third quarter 2007—down from \$56 billion in the quarter earlier. Even though the market contracted sharply late in the year, the issuance of **leveraged loans** still set a record in 2007.

At the same time, overall corporate credit quality remained remarkably solid in 2007, with the U.S. corporate default rate falling to 0.9% in December, the lowest level in 26 years. And corporate balance sheets are still strong by most measures, with **leverage** ratios (the amount of debt relative to equity) at industrial corporations near their lowest levels in a decade, and with many companies sitting on sizable piles of cash. Sounds like a paradox? It isn't. First of all, there is a time lag. The history of **junk bonds** tells us that defaults start to rise several years after credit gets very easy. Secondly, interest rates remain low (despite **risk spreads** surging nearly 400 basis points since the credit crunch began), and corporate profitability remains high, leading to overall strong interest coverage positioning. In fact, today's corporate margins are almost 40% higher than their long-term mean, suggesting that they will revert over time, reducing the overall level of earnings growth. History provides little comfort. Research by Edward Altman of New York University shows that, on average, 16% of single-B rated paper defaults within three years of issuance. For triple-C rated debt, the track record is dramatically worse—a 37% default rate over three years.

CORPORATE OPERATING PROFITS AT ALL TIME HIGH



Source: Bureau of Economic Analysis

Already, even without defaults, about a tenth of **high-yield bonds** are trading at distress levels—levels that provide yields of at least 10 percentage points above Treasuries. Moody's speculative-grade corporate-distress index reached 11.5% in December 2007, the highest level since July 2003 and up from 4.2% a year earlier.

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DELINQUENCY RATES ON LOANS AND LEASES

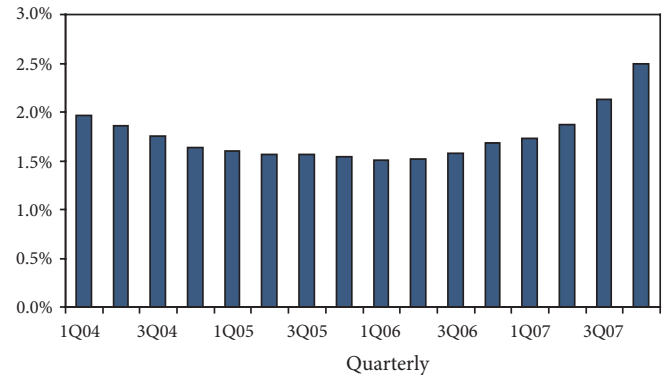
In early February 2008, low-rated corporate loans plummeted in value, with Standard & Poor's index of prices on high-risk corporate loans falling to a low of 86.28 cents on the dollar in mid-February 2008—the level that, in a normal environment, would indicate that the market expected the corporate borrower to restructure or seek bankruptcy protection.

Moody's Investors Service expects the U.S. speculative-grade default rate to rise to 5.3% by the end of 2008, assuming that the U.S. does not fall into a recession. If the recession does occur, one can easily foresee a dramatic wave of defaults in **junk bonds** and **leveraged loans**. According to Kenneth Emery, director of corporate-default research at Moody's, in the event of a recession, default rates would likely surge into double digits as was the case in previous downturns. In addition, a large volume of corporate debt is coming due in 2008 (about \$604 billion vs. \$484 billion in 2007), with roughly half of this from financial firms that could be forced to raise additional capital following their mortgage-related losses, thus crowding out other corporations and further pressuring debt values.

So what does it all mean going forward? We believe that with unprecedented **junk debt** proliferation coupled with the unsustainable profitability expansion of the recent past, any impact of an economic downturn is likely to be significantly more severe this time around. Richard Berner, chief U.S. economist at Morgan Stanley, expects a significant and lengthy contraction in earnings, even if the U.S. economy avoids a recession this year, because U.S. companies are more leveraged today than at any time in the past. Companies with high operating leverage have relatively high fixed costs (e.g., retailers that need to pay store rent regardless of how much is sold, a manufacturer with factories that must be maintained even if they are not churning out products, etc.). Operating leverage in a business can be great when the times are good, but when the economy slows, you get a much more pronounced impact on profits as results are hurt simultaneously by lower sales and thinner profit margins.

Let's try to draw a parallel with the now developed **subprime mortgage** market story. First, note that the corporate credit market is vastly larger than the **subprime** market. Just like the **subprime mortgage** market, it has enjoyed one of the greatest credit parties in history, made possible by new financial structures that shifted much of the lending activity out of regulated institutions into financial instruments that emphasized leverage over safety. Just like in the case of **subprime** borrowers, this **liquidity** glut allowed "**subprime**" companies to load up on cheap debt. And just like that in the mortgage space, pricing and asset quality held strong until they no longer did. While few expect the scale of defaults on the corporate side to match that of the **subprime mortgage** space, collectively they threaten to deepen the financial system's crisis and create a pileup of shaky assets on banks' balance sheets. Just like 2007 has become "the year of **subprime**," 2008 may enter history books as "the year of **junk**"—we certainly hope that it does not.

At U.S. Commercial Banks
Seasonally Adjusted



Source: Federal Reserve Board; FactSet Research Systems

Q 7.) How does KAR manage its exposure (both direct and indirect) to the subprime mortgage market and other credit issues in the financial-services segment and beyond?

A At Kayne Anderson Rudnick, we are strong believers in quality. We strive to build diversified portfolios of high-quality businesses, that we believe will outgrow their markets, purchased at discount values. Quality is a business characteristic for us—it is the ability of a business to maintain a protectable market position with a potential of excellent and sustainable profitability. This strong, stable profitability flows into the company's financial statements—both the balance sheet (in the form of lower leverage) and the income statement (in the form of superior operating margins relative to its industry). The strong underleveraged balance sheets and solid profitability profiles of our holdings represent vital "impact cushions" that become even more vital during times of an economic downturn. They are the key reason why we are comfortable with the ability of our companies to weather the current credit markets turmoil or any future storm to come.

Also, our companies have had no direct exposure to the **subprime mortgage** or a meaningful dependency on the **structured finance** markets. We have stayed away from mortgage lenders, homebuilders, **mortgage insurers**, title companies, and **bond insurers**, even during times when they were most tempting. We did so for reasons of fear—our concerns stemmed from what we were vividly seeing in the markets: Rapidly deteriorating underwriting standards, lenders' dependency on the **secondary markets** for funding loan originations, underpricing of risk in the **structured finance** markets, etc. Needless to say that all of these concerns have proven to be quite real. I realize, however, that this only partially answers the question. I assume that what you are after is our "secret sauce." I

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would have to say that our “secret sauce” is no secret—it is simply staying the course of high-quality investing, which often involves having true courage in passing on some very “hot and spicy” ideas, be it **mortgage REITs** in the midst of the **subprime mortgage** lending boom or dot com companies during the hey days of the internet bubble.

who, like us at KAR, have the knowledge base, commitment, ability, and (last, but not least) patience to search and identify pockets of niche differentiation, hand-picking rare distinct flavors in what can be described as “plain vanilla” segments of the market.

“At Kayne Anderson Rudnick, we are strong believers in quality. We strive to build diversified portfolios of high-quality businesses, outgrowing their markets, purchased at discount values.”

As an equity analyst, I cover the financial-services sector for the small and mid-cap strategies of the firm. It is certainly no surprise that the financial-services segment has been hit hardest by the recent market developments. While no one can be completely immune to the environment at large, our quality discipline has helped us position our portfolios across all segments (including financial services) in highly profitable businesses that may provide protection from the current credit markets turmoil. Indeed, our portfolios of financial-services stocks had strong relative performance in 2007, so let me talk about our investment strategy in the sector.

One thing that I absolutely love about the sector I cover is its diversity. The financial-services segment encompasses everything from banks to insurance companies to **real estate investment trusts** to asset managers to **credit rating agencies** to **credit bureaus** to financial technology firms to specialty finance companies. When I look at our holdings in the segment, I am struck by the “territory” covered as well as by the fact of how far removed some of these players are from issues behind the current credit markets’ turmoil. In addition to the “usual suspects” such as banks and insurance companies, you will find among our holdings credit card debt collectors, small loan lenders, equipment leasing companies, etc.

What makes the job of finding quality businesses in the financial segment more challenging, however, is the fact that a large chunk of this industry is effectively a commodity in nature (yes, loans and deposits are commodities, as are insurance policies), making it harder to create a protectable niche that defines and sustains a high-quality business. The reason for that is simple—it is very hard to build a sustainable competitive advantage in the industry where product is a commodity and any innovation is easily duplicated. This is particularly true on the banking and insurance side—think of a free checking account or a Certificate of Deposit promotion at your local bank or an enhancement to your home insurance policy. At the same time, a challenge always creates an opportunity—in this case, an opportunity for those investors

Let me give you an example. We have just said that niche positioning is hard to find in the banking segment. With their product a commodity while their service is local by nature (most people and particularly commercial customers still like to go to their local branch), banks can carve out a defensible niche by focusing on an attractive customer segment and/or lucrative footprint. For that exact reason, we like ethnic Asian (particularly Chinese) banks. These banks are U.S. banks that serve an Asian American customer base—the customer base that is not only growing faster than the general population in the U.S. (immigration has a lot to do with this), but is, on average, more educated, has a higher percentage of small business ownership (read: commercial lending and interest-free deposit gathering) with many of these businesses tied to the robust U.S.-China trade activity (read: trade finance fees). This is the customer base that likes to do business with the bank that is speaking their language or even dialect (read: “sticky” customer base) and that culturally has a higher level of loyalty to their financial institutions (again, “sticky” customer base, solid cross-selling opportunity) as well as a higher savings rate (read: deposit-gathering) and greater pride in paying off their debt (read: solid asset quality) than the U.S. population at large. What more can you ask for?

Another example—this time let us look at the property & casualty (P&C) insurance segment. We have said that, just like those of banks, insurance products are easily duplicated. To make things worse, unlike banks, insurance companies compete on a national, if not global, basis (does one really care where the insurance carrier is located, so long as they carry a solid **A.M. Best rating** and have a somewhat recognizable name). Needless to say that it makes it hard to build a profitable business in this highly regulated industry. Hard, but not impossible, especially if you are a smaller size player. One way to do this is by carving out a niche that stays below the radar screen of larger size competitors, being too small and too specialized to interest these scale players. We are shareholders of a company that has done just that by focusing on the smaller size P&C market, targeting a highly specialized-risk customer base, including non-profits, condo associations, sports clubs, etc.

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“...our ‘secret sauce’ is no secret—it is simply staying the course of high-quality investing, which often involves having true courage in passing on some very ‘hot and spicy’ ideas...”

What do these two companies have in common with the rest of our holdings? The answer is everything: A solid underleveraged balance sheet, a protectable niche positioning, and a sound business model that drives superior profitability and helps weather the storms that we are facing today. It has certainly been, and continues to be, a trying market with high-quality companies yet to be rewarded in terms of their equity market valuations. We believe that this is only a matter of time.

Q 8.) What is our outlook?

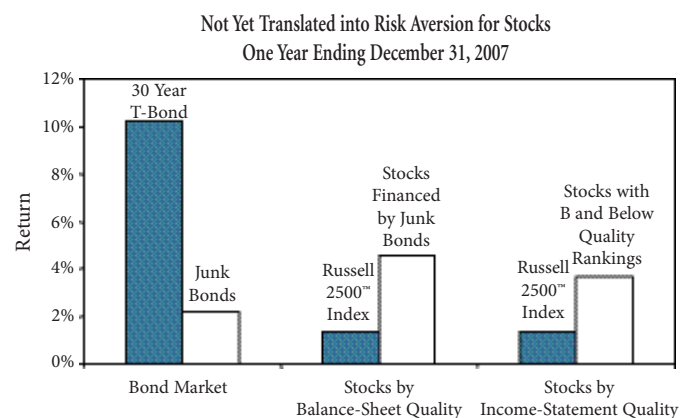
A Dealing with uncertainty is nothing new to us as investors—it is the essence of the profession, in fact. To answer the question, however, let us first put together a “laundry list” of things that we know for certain (at least in the near to medium-term):

- **Excess liquidity is no more**
 - Wider **risk spreads** are for real
 - The **structured finance** market will never be the same
 - Investor hunger for yield is no longer the primary driving force behind investment decisions
- **Underwriting discipline has increased and tighter lending standards have emerged**
 - Mortgage lending will never be the same
 - More loans will stay on banks’ balance sheets
 - **Credit Rating Firms** will be more careful in their rating decisions and so will be **Financial Guarantors** (those few that survive the turmoil, that is)
- **Corporate profitability will decline over time, reducing earnings growth**

This is what we know for certain, although one should be most careful using the word “certain” or “never” when talking about financial markets. In fact, if the **credit insurers** do turn out to have inadequate reserves, what will happen to the \$45 trillion **credit default swap (CDS)** market called by some “an insurance market with no reserves?” As mentioned earlier, banks and securities firms have reported credit losses and write-downs on mortgage-related investments nearing \$146 billion since the beginning of 2007, but downgrades by **bond insurers** may force financial firms to writedown an estimated additional \$70 billion. If 2007 was the year of **MBS, CDOs, and SIVs**, 2008 could very well turn out to be the year of **CDS and CLOs**. In fact, 2008 has barely started, but we are already learning some new terms with trouble now spilling into **auction-rate securities (ARS)** and **tender-option bonds** (like **SIVs**, these financing vehicles issued “supposedly safe” short-term securities, but investors are now running scared from these also).

It looks like it is going to be a bumpy ride in the near-term, but we believe that **liquidity** will return to the debt markets. We have designed our portfolios for the long-term and remain committed to our high-quality discipline. With the dramatic flight to quality now a reality in the credit markets, we expect the recognition of quality to occur in the equity markets in the very near future.

BONDS AWOKE TO RISK



“Stocks Financed by Junk Bonds” and “Stocks with B and Below Quality Rankings” are those defined within the Russell 2500™ Index.
Source: FactSet Research Systems

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“With the dramatic flight to quality now a reality in the credit markets, we expect the recognition of quality to occur in the equity markets in the very near future.”

With underlying business performance driving stocks’ valuations in the longer term, we remain confident in our portfolios’ positioning despite any near-term market volatility. Strong balance sheets and the solid, stable profitability profiles of our holdings represent vital “protective gear” that becomes ever so important during times of “market downpours” of the kind we are experiencing today.

Well, unless there any other questions, we have arrived at our destination point (if there is such a thing in the investment world). Thanks to all of you who have made it all the way through with us—it’s been quite a journey. The journey is hardly over, however. By the time this paper reaches many of you, the “Credit Crunch” show is certain to produce a number of brand new characters and episodes. As the financial-markets crisis story develops, we hope that you find the framework provided in this paper helpful in both assessing any of the issues arising and recognizing some of the new troubles in the making. Please do not hesitate to call or visit us at Kayne Anderson Rudnick with any questions. In the meantime, we wish you the best of luck with your investment decisions, and please be careful out there!



Disclosure:

Data included in this paper was obtained from a variety of sources, including The Wall St. Journal, Bloomberg, American Banker, Barron’s, Financial Times, and International Strategy & Investment (ISI). All data is assumed to be reliable.

This report is based on the assumptions and analysis made and believed to be reasonable by Advisor. However, no assurance can be given that Advisor’s opinions or expectations will be correct. This report is intended for informational purposes only and should not be considered a recommendation or solicitation to purchase securities. Past performance is no guarantee of future results. The principal value and return of an investment will fluctuate with changes in market conditions.

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PART IV – GLOSSARY OF TERMS

ACRONYMS

| | | | |
|-------------|-------------------------------------|---------------|---|
| ABCP | asset-backed commercial paper | LBO | leveraged buyout |
| ABS | asset-backed security | LIBOR | London Interbank Offered Rate |
| ARM | adjustable-rate mortgage | LTV | loan-to-value ratio |
| ARP | auction rate preferred | MBS | mortgage-backed security |
| ARS | auction rate security | MI | mortgage insurance |
| CDO | collateralized debt obligation | NegAm | negative amortization loan |
| CDS | credit default swap | No Doc | no documentation loan |
| CLO | collateralized loan obligation | OBS | off-balance sheet |
| CMBS | commercial mortgage-backed security | REIT | real estate investment trust |
| CMO | collateralized mortgage obligation | REMIC | real estate mortgage investment conduit |
| CP | commercial paper | RMBS | residential mortgage-backed security |
| CRE | commercial real estate | RTC | Resolution Trust Corporation |
| ECB | European Central Bank | SIV | structured investment vehicle |
| FHA | U.S. Federal Housing Administration | TAF | Term Auction Facility |
| FRM | fixed rate mortgage | TSLF | Term Securities Lending Facility |
| IO | interest-only loan | | |

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PART IV – GLOSSARY OF TERMS

ADJUSTABLE RATE MORTGAGE (ARM)

A mortgage that features predetermined adjustments of the loan interest rate at regular intervals based on an established index. The interest rate is adjusted at each interval to a rate equivalent to the index value plus a predetermined over the index, usually subject to per-interval and life-of-loan interest rate and/or payment-rate caps.

ALT-A MORTGAGE

A classification of mortgages where the borrower's risk profile falls between **prime** and **subprime**. Borrowers behind these mortgages typically have clean credit histories, but loans have some issues that increase their risk profile. These issues include higher loan-to-value and debt-to-income ratios or inadequate documentation of the borrower's income.

A.M. BEST RATING

Opinions of A.M. Best—a rating firm that issues ratings on insurers' financial strength and ability to meet ongoing obligations to policyholders.

ASSET-BACKED COMMERCIAL PAPER (ABCP)

A short-term investment vehicle typically issued by a bank or other financial institution with a maturity that is usually between 90 and 180 days. The notes are backed by assets such as trade receivables and are generally used for short-term financing needs.

ASSET-BACKED SECURITIES (ABS)

A security that is collateralized by assets other than real estate (such as loans, leases, receivables, etc.).

AUCTION RATE SECURITY (ARS)

Typically a debt instrument (a corporate or municipal bond) with a long-term nominal maturity for which the interest rate is reset through an auction. May also refer to an **auction rate preferred (ARP)** security for which the dividend is reset through the same process. Auctions are typically held every 7, 28, or 35 days with interest on these securities paid at the end of each auction period. Because of their complexity and the minimum denomination of \$25,000 or more, most ARS holders are institutional investors and high-net-worth individuals. Some negative aspects of ARS include lower **liquidity** and potential drops in the coupon rate.

BASIS POINTS (bps)

The smallest measure used for quoting yields in the bond market. Each percentage point of yield in bonds equals 100 basis points. An interest rate of 5% is 50 basis points higher than an interest rate of 4.5%. Sometimes referred to as bps or bips.

BOND INSURER – see FINANCIAL GUARANTOR

CENTRAL BANK

An entity responsible for the monetary policy of a country or of a group of member states with the primary responsibility of maintaining the stability of the national currency and money supply. Other active duties include controlling subsidized-loan interest rates and acting as a lender of last resort to the banking sector during times of financial crisis. Central banks may also have supervisory powers to ensure that banks and other financial institutions do not behave recklessly or fraudulently.

Examples include the Bank of England, the Reserve Bank of Australia, the **European Central Bank (ECB)**, and the **U.S. Federal Reserve**.

COLLATERAL

Assets pledged by a borrower to secure a loan or other credit, and subject to seizure in the event of default.

COLLATERALIZED DEBT OBLIGATION (CDO)

A security backed by a pool of bonds, loans, or other assets. CDOs are unique in that they represent different types of debt and credit risk. These different types of debt are often referred to as “**tranches**” or “**slices**.” Each tranche has a different maturity and risk associated with it. The highest risk slices of a CDO pay investors higher returns, while pieces with lower risk and higher credit ratings pay less. Investors in the lower risk tranches are first in line to receive income from the CDO investments, while investors in the higher risk pieces are the first ones to take losses and the last ones to get paid. Read more on CDOs in Question #1 of the Q&A Section (Part III).

COLLATERALIZED LOAN OBLIGATION (CLO)

A security backed by a pool of loans with **securitization** payments in the form of different **tranches**. Financial institutions back this security with receivables from loans. CLOs allow banks to reduce regulatory capital requirements by selling large portions of their commercial loan portfolios in the **secondary markets**, reducing risks associated with lending.

COLLATERALIZED MORTGAGE OBLIGATION (CMO)

A type of **mortgage-backed security** that creates separate pools of pass-through rates for different classes of bondholders with varying maturities called **tranches**. The repayments from the pool of pass-through securities are used to retire the bonds in the order specified by the bonds' prospectus.

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COMMERCIAL MORTGAGE-BACKED SECURITY (CMBS)

A type of a **mortgage-backed security** backed by mortgages on **commercial real estate**. In a CMBS transaction, many single commercial mortgage loans of varying size, property type, and location are pooled and transferred to a trust. The trust issues a series of bonds that may vary in yield, duration, and payment priority. Investors choose which CMBS bonds to purchase based on the level of credit risk, yield, and duration that they seek. Each month the interest received from all of the pooled loans is paid to the investors, starting with those investors holding the highest rated bonds, until all accrued interest on those bonds is paid. The same process applies to principal payments. CMBS has become an attractive capital source for commercial mortgage lending because the bonds backed by a pool of loans are generally worth more than the sum of the value of the whole loans, and the enhanced **liquidity** and structure of CMBS attracts a broader range of investors to the commercial mortgage market.

COMMERCIAL PAPER (CP)

Short-term promissory notes either unsecured or backed by assets such as loans or mortgages issued by a corporation. The maturity of commercial paper is typically less than 270 days, with the most common maturity ranging between 30 and 50 days or less. CP is usually sold at a discount reflecting prevailing market interest rates.

COMMERCIAL REAL ESTATE (CRE)

Income-producing real estate property such as apartments, shopping centers, office buildings, hotels, industrial facilities, etc.

CREDIT BUREAU

An agency that researches the credit history of consumers so that creditors can make informed decisions about granting of loans.

CREDIT DEFAULT SWAP (CDS)

A bilateral contract under which two counterparties agree to isolate and separately trade the credit risk of at least one third-party entity. Under a credit default swap agreement, a protection buyer pays a periodic fee to a protection seller in exchange for a contingent payment by the seller upon a credit event (such as a default or failure to pay) happening in the reference entity. When a credit event is triggered, the protection seller either takes delivery of the defaulted bond for the par value (physical settlement) or pays the protection buyer the difference between the par value and recovery value of the bond (cash settlement). The typical term of a CDS contract is five years, although being an over-the-counter **derivative**, credit default swaps of almost any maturity can be traded.

CREDIT RATING

An evaluation of an individual's or company's ability to repay obligations or its likelihood of not defaulting as determined by **credit rating firms**.

CREDIT RATING FIRM

A company, such as Moody's or Standard & Poor's, that rates various debt and preferred stock issues for safety of payment of principal, interest, or dividends.

CREDIT SPREAD

The difference in yield between different securities due to different credit quality. The credit spread reflects the additional net yield an investor can earn from a security with more credit risk relative to one with less credit risk. The credit spread of a particular security is often quoted in relation to the yield on a credit risk-free benchmark security or reference rate.

When spreads widen between bonds with different quality ratings, it implies that the market is factoring more risk of default on lower grade bonds. For example, if a risk-free 10-year Treasury note is yielding 5%, while **junk bonds** with the same duration are averaging 7%, the spread between Treasuries and **junk bonds** is 200 **basis points (bps)**. If that spread widens to 400 bps (increasing the **junk bond** yield to 9%), the market is forecasting a greater risk of default (which usually implies a slowing economy). A narrowing spread implies that the market is factoring in less risk (usually due to an expanding economy).

DERIVATIVE

A financial instrument whose value is derived from the value of something else. The main types of derivatives are futures, forwards, options, and swaps. The main use of derivatives is to reduce risk for one party. The diverse range of potential underlying assets and payoff alternatives leads to a wide range of derivatives contracts available to be traded in the market. Derivatives can be based on different types of assets such as commodities, equities, bonds, interest rates, exchange rates, or indexes (such as a stock market index, consumer price index, or even an index of weather conditions, as well as other derivatives).

EQUITY REAL ESTATE INVESTMENT TRUST (REIT)

Equity REIT's own and operate income-producing real estate. Their revenues come principally from their properties' rents.

THE EUROPEAN CENTRAL BANK (ECB)

Established by the European Union (EU) in 1998 and headquartered in Frankfurt, Germany, the European Central Bank (ECB) is one of the world's most important **central banks** responsible for monetary policy covering the fifteen member countries of the Eurozone.

FED FUNDS RATE

The interest rate that banks with excess reserves at a **Federal Reserve** district bank charge other banks that need overnight loans. This is often viewed as the most sensitive indicator of the direction of interest rates.

CONTINUED

U.S. FEDERAL HOUSING ADMINISTRATION (FHA)

Federally sponsored agency chartered in 1934 whose stock is currently owned by savings institutions across the United States. The agency buys residential mortgages that meet certain requirements, sells these mortgages in packages, and insures the lenders against loss.

FEDERAL RESERVE

The Federal Reserve System (or the Federal Reserve or, informally, the **Fed**) is the **central banking** system of the United States. Created in 1913 by the enactment of the Federal Reserve Act, it is a quasi- public (part private, part government) banking system composed of (1) the presidentially-appointed Board of Governors of the Federal Reserve System in Washington, D.C.; (2) the Federal Open Market Committee (FOMC); (3) 12 regional Federal Reserve Banks located in major cities throughout the nation acting as fiscal agents for the U.S. Treasury, each with its own nine-member board of directors; (4) numerous private U.S. member banks, which subscribe to required amounts of non-transferable stock in their regional Federal Reserve Banks; and (5) various advisory councils. Currently, Ben Bernanke serves as the Chairman of the Board of Governors of the Federal Reserve System.

FINANCIAL GUARANTOR

A financial-services company that specializes in providing insurance for municipal bonds, **asset-backed** securities, and corporate bonds. Financial guarantors' core business is credit enhancement of municipal bonds and asset and mortgage-backed transactions in the new issue and secondary markets. Typically financial guarantors (also known as **bond insurers**) carry better **credit ratings** than bond issuers, allowing the issuers to receive more favorable interest rates on their debt by obtaining bond insurance.

FIXED RATE MORTGAGE (FRM)

A mortgage with a rate that is fixed for the life of the loan.

HIGH YIELD BOND

A bond with a credit rating of BB (by Standard & Poor's) or BA (by Moody's) or lower. Also known as **junk bonds**, high-yield bonds offer investors higher yields than bonds of financially sound companies because of higher default risk.

HYBRID REAL ESTATE INVESTMENT TRUST (REIT)

Hybrid REITs combine the investment strategies of **equity REITs** and **mortgage REITs** by investing in both **commercial real estate** properties and mortgages.

INTEREST ONLY (IO) LOAN

An interest-only loan is a loan in which, for a set term (usually 5 to 10 years), the borrower pays only the interest with the principal balance unchanged.

INTEREST RATE SWAP

A derivative in which one party exchanges a stream of interest payments for another party's stream of cash flows. Interest rate swaps can be used to manage fixed or floating assets and liabilities as well as to replicate unfunded bond exposures to profit from changes in interest rates.

INTERMEDIARY

Financial institution that facilitates the flow of funds from savers to borrowers. Financial intermediaries profit from the spread between the amount they pay for the funds and the rate they charge for the funds.

JUNK BOND – see HIGH YIELD BOND

LEVERAGE

The use of various financial instruments or borrowed capital to increase the potential return of an investment. A firm with significantly more debt than equity is considered to be highly leveraged.

LEVERAGED BUYOUT (LBO)

A strategy involving an acquisition of another company using a significant amount of borrowed money (bonds or loans). Often, the assets of the company being acquired, in addition to the assets of the acquiring company, are used as **collateral** for the loans. The purpose of LBOs is to allow companies to make large acquisitions without having to commit a lot of capital. In a LBO, there is most often a ratio of 70% debt to 30% equity, although debt can reach as high as 95% of the target company's total capitalization. Typically, the loan capital is borrowed through a combination of bank facilities and public or privately placed bonds, which may be classified as **high-yield** debt. In most instances, the debt will appear on the acquired company's balance sheet with the company's free cash flows used to repay it.

LEVERAGED LOAN

A loan that is extended to a company or an individual that already has considerable amounts of debt. Lenders consider these loans to carry a higher risk of default and, as a result, a leveraged loan is more costly to the borrower with their higher interest rates reflecting the higher level of risk involved. Leveraged loans are also often used in the **leveraged buy-outs (LBOs)** of other companies.

LIQUIDITY

The degree to which an asset or security can be bought or sold in the market without affecting the asset's price. Also refers to the ability to convert an asset to cash quickly. Liquidity is usually characterized by a high level of trading activity.

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LONDON INTERBANK OFFERED RATE (LIBOR)

An interest rate at which banks can borrow funds from other banks in the London interbank market. The LIBOR is fixed on a daily basis by the British Bankers' Association. The LIBOR is derived from a filtered average of the world's most creditworthy banks' interbank deposit rates for larger loans with maturities between overnight and one full year. The LIBOR is the world's most widely used benchmark for short-term interest rates. LIBOR is important because it is the rate at which the world's most preferred borrowers are able to borrow money. It is also the rate upon which rates for less preferred borrowers are based.

MORTGAGE-BACKED SECURITIES (MBS)

A type of an **asset-backed security** that is secured by a mortgage or collection of mortgages.

MORTGAGE INSURANCE (MI)

Insurance payable to a lender that may be required when taking out a mortgage loan. It is an insurance in the case that the mortgagor is not able to repay the loan, and the lender is not able to recover its costs after foreclosing the loan and selling the mortgaged property. The annual cost of mortgage insurance varies and is expressed in terms of the total loan value in most cases, depending on the loan term, loan type, proportion of the total home value that is financed, the coverage amount, and the frequency of premium payments.

MORTGAGE REAL ESTATE INVESTMENT TRUST (REIT)

Mortgage REITs deal in investment and ownership of property mortgages. These **REITs** loan money for mortgages to owners of real estate, or purchase existing mortgages or **mortgage-backed securities**. Their revenues are generated primarily by the interest that they earn on the mortgage loans.

NEGATIVE AMORTIZATION (NegAM)

Occurs whenever the periodic loan payment does not cover the amount of interest due for that loan period. The unpaid accrued interest is then capitalized monthly into the outstanding principal balance. All NegAM home loans eventually require full repayment of principal and interest according to the original term of the mortgage and note signed by the borrower. Most loans only allow NegAM to last for no more than 5 years and have terms to recast the payment to a fully amortizing schedule if the borrower allows the principal balance to rise above a pre-specified amount.

NO DOCUMENTATION (No Doc) LOAN

A type of a reduced-documentation-required mortgage program in which income and assets are not disclosed on the loan application, and employment is not verified. However, a credit check is typically required, as lenders are counting on the fact that the borrower has a good credit history. No Doc mortgages usually fall into the **Alt-A** classification and will tend to carry a higher interest rate charge, as well as require a higher down payment compared to a **prime mortgage**.

OFF-BALANCE SHEET (OBS)

Usually refers to an asset or debt or financing activity that is not on the company's balance sheet. May also involve a lease, a separate subsidiary, or a contingent liability such as a letter of credit. May also involve loan commitments, financial **derivative** contracts, or loans sold.

PAYMENT IN KIND (PIK)

A provision that gives a debt issuer an option to make coupon payments either in cash or in the form of taking on additional debt.

PRIME MORTGAGE

A mortgage that is typically made out to borrowers with solid credit histories.

REAL ESTATE INVESTMENT TRUST (REIT)

The REIT structure was created by Congress in 1960 to provide the general investor with the ability to invest in large-scale **commercial real estate** properties. Exempt from corporate federal and state income tax, REITs are required to distribute at least 90% of taxable income to shareholders annually in the form of dividends. There are **equity REITs**, **mortgage REITs**, and **hybrid REITs**.

REAL ESTATE MORTGAGE INVESTMENT CONDUIT (REMIC)

A typical structure for the **securitization** of **commercial real estate** loans, REMIC is a creation of the tax law that allows the trust to be a pass-through entity which is not subject to tax at the trust level.

RESIDENTIAL MORTGAGE-BACKED SECURITIES (RMBS)

A type of **mortgage-backed security** secured by mortgages on residential rather than **commercial real estate**.

THE RESOLUTION TRUST CORPORATION (RTC)

A U.S. government-owned asset management company created by the Financial Institutions Reform Recovery and Enforcement Act (FIRREA) of 1989 mandated to liquidate assets (primarily real estate related) of savings and loan associations (S&Ls) declared insolvent as a consequence of the S&L crisis of the 1980s.

RISK SPREAD - see CREDIT SPREAD

SECOND MORTGAGE

Typically refers to a secured loan (or mortgage) that is subordinate to another loan against the same property. Real estate property can have multiple loans or liens against it. The loan which is registered with a county or city registry first is called the first mortgage or first position trust deed. The lien registered second is called the second mortgage. Second mortgages are called subordinate because, if the loan goes into default, the first mortgage gets paid off first. Thus, second mortgages are riskier for lenders and generally come with a higher interest rate than first mortgages.

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SECONDARY MARKET

A market in which an investor purchases an asset, a security, or a financial instrument from another investor rather than the issuer.

SECURITIZATION

A process of creating a more standard investment instrument, such as an **asset-backed security** by pooling a number of assets (e.g., mortgages, etc.) together to back the instrument.

STRUCTURED FINANCE

A service offered by many large financial institutions for companies with unique financing needs that cannot be satisfied by conventional financial products, such as loans. Structured finance generally involves highly complex financial instruments, such as **asset-backed securities**, **collateralized debt obligations**, etc.

Structured Investment Vehicle (SIV)

A financial vehicle that borrows money by issuing short-term securities at lower interest and then lends that money by buying long-term securities at higher interest, making a profit for investors from the difference. SIVs are usually from \$1 billion to \$30 billion in size and invest in a range of **asset-backed securities** as well as some financial corporate bonds. An SIV has an open-ended structure whereby it is designed to stay in business indefinitely by buying new assets as the old ones mature. The risk that arises from this structure is twofold: First, the solvency of the SIV may be at risk if the value of the long-term security that the SIV has bought falls below that of the short-term securities that the SIV has sold; Second, there is a **liquidity** risk, as the SIV borrows short-term and invests long-term (i.e., out-payments become due before the in-payments are received). Read more on SIVs in Question #2 of the Q&A Section.

SUBPRIME MORTGAGE

A type of mortgage that is normally made out to borrowers with poor or patchy credit histories. As a result of the borrower's lowered credit rating, a conventional (**prime**) mortgage is not offered because the lender views the borrower as having a larger-than-average risk of defaulting on the loan. Lending institutions often charge interest on subprime mortgages at a rate that is higher than a **prime** mortgage in order to compensate themselves for carrying higher credit risk.

SUPER SIV

A rescue plan designed by the Treasury Department that encouraged banks to set up the **Master Liquidity Enhancement Conduit** (Super SIV's official name)—a fund that was to buy the troubled structured investment vehicles' assets in an orderly way with three banks (Bank of America Corp., Citigroup, and J.P. Morgan Chase) leading the effort. The Super SIV plan was abandoned in late 2007. Read more on Super SIV in Question #2 of the Q&A Section.

TENDER OPTION BONDS

Obligations, also known as "put bonds" or "puttable securities," that grant the bondholder the right to require the issuer or a specified third party acting as agent for the issuer (e.g., a tender agent) to purchase the bonds, usually at par, at a certain time or times prior to maturity or upon the occurrence of specified events or conditions. The put option or tender option right is typically available to the investor on a periodic (e.g., daily, weekly, or monthly) basis.

TERM AUCTION FACILITY (TAF) AND TERM SECURITIES LENDING FACILITY (TSLF)

Instruments of monetary policy, recently introduced by the **Federal Reserve** to increase liquidity in U.S. financial markets. Read more on TAF and TSLF in Question #3 of the Q&A Section.

TRANCHE

A slice of a **structured finance** instrument that is one of several related securities offered at the same time but having different risks, rewards and maturities. Tranche is a term often used to describe a specific class of bonds within an offering wherein each tranche offers varying degrees of risk to the investor.

YIELD SPREAD - see CREDIT SPREAD

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ABOUT THE FIRM

Kayne Anderson Rudnick

Kayne Anderson Rudnick Investment Management, LLC is a registered investment advisor based in Los Angeles, California. The firm's clients include high-net-worth individuals, endowments, foundations, corporations, public funds, and pension plans for who it manages a range of portfolios having a common disciplined, high-quality investment philosophy.

The KAR Cerebrate series is designed to provide informative, thoughtful, and timely insights into key economic and financial-markets issues to help guide investors in today's complex world. Speak to your financial or portfolio adviser to learn how we can help you reach your financial goals.

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