RCM
<u>Recession Watch</u>
<u>The Wondrous Alchemical Structured Finance Sausage Machine</u>
<u>The U.S. Credit Crunch</u>
<u>Not A Transitory Event</u>

To: GPC and FICO
From: Frank Veneroso

September 5, 2007

Executive Summary

1.) *The U.S has a credit crunch. Because of the recent turmoil structured finance has come to a halt. It accounted for possibly 40% of aggregate mortgage finance flows and a significant share of other finance flows in the U.S. economy.*

2.) *But credit crunches can come and go quickly, like in 1966 or 1980.*

3.) *There has been a loss of confidence in the credit markets. But losses of confidence can come and go quickly - like in 1998. Some of this has already happened. Some – but certainly not all – of the short term money market crisis has abated in response to central bank actions.*

4.) *I believe the current situation is neither a credit crunch <u>only</u> nor a loss of confidence <u>only</u>. I believe it is an old fashioned credit revulsion.*

5.) *Credit revulsions are a response to real credit losses resulting from real failures of borrowers to pay. Most of the credit revulsions of the pre war period and the credit revulsion of 1989 – 1992 took a considerable time to repair. In some cases they set the stage for deep economic contractions and a compounding of the credit crisis.*

6.) *The most famous example of this was the first banking crisis in 1930 which turned a severe recession into a great depression. The only U.S. postwar example was*

the credit revulsion of 1989-1982. It contributed to the 1990 recession and resulted in a very sub par initial economic recovery.

7.) *The most famous example of a credit revulsion in the postwar period is the Japanese banking experience from the bursting of the bubble in 1990 to the final onset of recovery in 2003. It was credit revulsion that kept Japan in stagnation and recession for more than a half decade despite a zero interest rate policy and unprecedented fiscal stimulus.*

8.) *If one compares the situation of 1989-1992 in all respects to the present situation there is a prospect for aggregate credit losses of almost a half trillion dollars. Though in great disarray, today's markets have yet to discount such an outcome.*

9.) *The "inflation" in the prices of structured credit instruments above the "underlying" as a result of the structured finance process adds a second layer of potential loss which also may not be fully discounted by today's agitated markets.*

10.) *If the intensification of financial distress leads to deep house price declines and perhaps a recession aggregate credit losses relative to U.S. GDP may be much higher than in 1989-1992. Such losses could be compounded by the unwinding of the "inflation" in structured product prices above the underlying.*

11.) *Unlike credit crunches, credit revulsions tend to have a long tail. And they do not always respond to a large policy ease. They didn't in 1930. They didn't in Japan. They did in 1989-1992, but with a lag.*

12.) *So far it appears the U.S. financial problem is largely in the (albeit very large) non bank sector. This makes it more like the U.S. in 1989-92 and unlike 1930 in the U.S. or Japan in the late 1990's.*

13.) Let's hope that 1989-1992 and not something more adverse is the appropriate precedent for today.

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The Transitory Nature of Most Credit Crunches

Let me provide three alternative "concepts" of a credit crunch based on three historical financial market episodes to which the term was applied.

Episode 1

The term credit crunch became common in U.S. financial market parlance back in the 1960's. Then it referred to a very specific event: "disintermediation" of the U.S. system of "thrift" institutions, engaged almost solely in housing finance, and to a lesser degree "disintermediation" of the commercial banking system.

At that time there were ceilings on bank and thrift deposit interest rates. When the Fed raised the policy rate above those "Reg Q" interest rate ceilings, funds would leave the thrifts and the banks. As a consequence new lending would stop and some institutions were forced to reduce their loan portfolios.

In those days the U.S. had a simple and segmented financial market. There were commercial banks and thrift institutions and a bond market. Each was focused on a specific kind of lending. Thrifts lent to the housing sector. Commercial banks lent to businesses and their household mortgage lending was quite limited. The bond market financed corporations; there were no mortgage backed securities at the time. Because of this segmentation disintermediation of the thrift institutions resulted in a severe "credit crunch" for the housing sector. To a lesser degree disintermediation in the banks created a credit crunch for businesses.

At the time the indebtedness of households and firms in the U.S. economy was quite low. Most loans had been made on a conservative basis and proved to be sound, even when economic conditions deteriorated. The "credit crunch" in that environment was due entirely to the interest rate rigidity imposed by the deposit rate ceiling (Reg Q). As a consequence this type of credit crunch was quickly and totally eliminated once the Fed lowered its policy rate below the Reg Q ceiling.

Episode 2

The interest rate ceilings that created these "credit crunches" of prior decades were eliminated in the 1970's. The Reg Q induced credit crunches resulted in disintermediation and quantity credit rationing of demand. The Fed only needed to raise the policy rate modestly to above the Reg Q ceiling to halt or reverse the flow of credit.

Once these rate ceilings were eliminated in the 1970's the Fed had to ration aggregate demand by price rather than quantity. This required much higher interest rates than in the prior "era". It also led to much greater variability of interest rates. At the end of the 1970's inflation rose and inflation expectations began to soar. Recognizing the danger of spiraling inflation the new Fed Chairman Paul Volcker raised interest rates quickly and to an exceedingly high level in both nominal and real terms. A 20% Fed funds rate in the context of only 10% inflation resulted in draconian interest rate rationing of demand.

This environment was accompanied by elements of quantity credit rationing as well. In that era most mortgage lending institutions lent on a fixed rate basis. When their deposit rates soared as a result of Fed policy they were thrown into a huge loss position. This made it impossible for many thrift institutions to lend at any rate, even if there had been demand. Lastly, in March of 1980 U.S. consumers were encouraged to curtail the use of credit cards. And they did. This provided yet another element of quantity credit rationing.

The combination of a draconian Fed interest rate policy and elements of quantity credit rationing “CRUNCHED” demand. In the months that immediately followed, the U.S. economy fell at a faster rate than at any prior time in the post war period. However, once again the indebtedness of U.S. households and firms was quite low. Again, loans had been made on a very conservative basis. Debt servicing was well maintained even though the economy went into free fall. Consequently, this second kind of credit crunch also proved to be readily reversed.

Volcker dropped the Fed funds rate from 20% to 8% in the first half of 1980. Despite the ongoing severe economic decline credit repayment performance was barely affected. As soon as interest rate levels fell banks were able to lend freely and borrowers were quick to borrow. The credit crunch simply disappeared, and it was followed by an immediate and vibrant economic rebound.

In fact, it was so immediate and so vibrant that there was little alleviation of inflation pressures. Volcker felt compelled to put the economy through a second credit crunch in 1981. This time the ensuing recession was severe and protracted. But, once again, when the inflation rate broke, Volcker eased by bringing the policy rate back down to 8%. The credit crunch immediately reversed. Banks once again lent freely. Borrowers were willing to borrow. The economy took off in a violent recovery.

Episode 3

In the 1980’s the indebtedness of U.S. households and firms rose in an unprecedented way. Lax lending behavior by thrift institutions coupled with the growth of the mortgage backed securities market led to a significant increase in the mortgage indebtedness of households. The “Milken junk bond machine” led to an unprecedented increase in corporate indebtedness. By the end of the decade high debt burdens began to lead to debt repayment problems. Financial problems emerged in the thrift institutions, in the junk bond market, and eventually in the commercial banking system. This resulted in "rentrenchment" across numerous credit markets. Such retrenchment slowed the economy and set it up for the recession in 1990. When the recession of 1990 followed debt repayment difficulties increased in a quantum fashion. Thrifts went bust, Milken's Drexell Burnham went bust. Many banks in New England and Texas went bust. And even some of the New York City money center banks like Citibank went to the brink.

This was a very different kind of "credit crunch". It was not caused by policy, and so it was not reversed by policy. Greenspan lowered the Fed funds rate from 9% to 3% - but still borrowers were unable to pay and credit institutions were buried in losses. The government's Resolution Trust Corporation and the FSLIC were engaged in a "bailout" operation that persisted for two years. Even though the policy rate was dramatically lowered the economic recovery was atypically slow because of the financial difficulties of so many U.S. credit institutions.

The Longer Term Nature Of Credit Revulsion

There have been credit crises as long as there have been capitalist financial markets. But prior to the Second World War these adverse credit events were referred to as "credit revulsion". It's an old term that arose in England in the 19th century and was commonly used until the post war period. A credit revulsion was quite different than a credit crunch. To understand its significance one has to understand the pre-war context.

First, recessions were very frequent and periodically deepened into depressions. When deep recessions or depressions occurred real incomes available to service debts fell significantly.

Perhaps of greater importance were the frequent deflations in the general price level that accompanied those recessions and depressions. In the United States from 1789 to 1940 the U.S. price level was more or less unchanged. In the interim there were very significant inflations and very significant deflations. Sometimes these deflations were gradual, like in the 1880's. In other cases they were very severe. From 1919 to 1921 there was a large decline in the U.S. price level. In the economic expansion of the 1920's there was a further slight decline in the price level. And then in the period 1929 to 1933 the price level had another large decline overall. From 1919 to 1933 the U.S. price level fell by roughly 50% - something that is unimaginable to people today.

When the price level falls nominal incomes fall. But debts and debt service are fixed in nominal terms. Therefore price deflation – independent of a recession or depression in real incomes – increases payment difficulties and leads to debt defaults.

From the above one can see that, in serious recessions and depressions accompanied by significant price deflations, debt payment difficulties became severe. Debt defaults rise sharply. Because this happened every decade or two creditors knew that, should overall economic conditions become adverse, even seemingly sound borrowers could go bust. This awareness of recessions, depressions, and price deflations and their consequences occasionally led to credit revulsions in which creditors panicked, would not make any new loans, and would try to call in loans before conditions deteriorated further and debt defaults exploded.

Credit revulsion in this pre-war era was a very draconian event, and it had its roots in a completely rational fear of widespread debt payment failures.

One last feature of credit revulsions must be considered: such revulsions usually occurred after, not before, the onset of recessions and price deflations. They sometimes turned recessions into deep depressions. In 1930 the U.S. economy began to recover around mid year. However, credit revulsion led to the so called "first banking crisis" of September of 1930 which many believed turned a recession into the Great Depression. Hence, credit revulsion was often not a transitory event. Rather, it often had long lasting and very adverse consequences for the real economy and financial markets.

Credit Revulsion And The Current Cycle

Except for a brief moment measured in months in 1949 the U.S. economy has had no outright price deflation since the end of the 1930's.   Since 1982 recessions have been very infrequent and very mild. Therefore it would seem that credit revulsion would be unlikely today.

However, I believe that is not the case.

In the pre-war period it was recession, depression and price deflation that made borrowers insolvent and unable to pay and warranted a creditor revulsion. In the postwar period economic agents have come increasingly to expect price inflation and a benign stable economic environment. As a result they have had more and more recourse to debt relative to their incomes and assets.

This became especially marked in this cycle. There has been an explosion of a non bank financial system which has operated in parallel with the traditional system of commercial banks and thrifts. After decades of complacency coupled with moral hazard and the "financial innovations" of the New Financial Architecture the U.S. economy has reached levels of indebtedness which may be as untenable as those brought about in the prewar period by recession, deflation and price deflation.

This has been especially so in the U.S. mortgage market.

Over the last several years non bank mortgage originators, along with securitizing investment banks, made mortgage loans to a large number of households who were quite simply unable to service those loans to maturity, This "inability to pay"does not only refer to so-called sub prime borrowers. Subprime only refers to the credit ratings of proven "dead beats". This inability to pay refers as well to Alt A mortgages which are loans to "next to dead beats". It also encompasses many so called to "prime" borrowers. Faced with 100% financing and minimal upfront service charges many so called "prime" rated borrowers decided to speculate on residential real estate on a massive scale. Remember, just last year 40% of all homes sold were "investment" and "second" homes, with the latter all too often just speculations by another name.

Worse yet, this extremely liberal lending led to an unsustainable bubble in home prices, leading to loan collateral of dubious value. As long as borrowers and lenders believed that the home price bubble would persist, the inevitable failure to repay of the borrower could be managed for a while longer through refinancing on a yet larger scale against appreciated collateral.

In effect, complacency, moral hazard and the "innovations" of the New Financial Architecture turned U.S. housing finance into a system of Ponzi finance. Like all Ponzi schemes it was doomed to inevitably "crash". The widespread illiquidity and insolvency of borrowers created by recession, depression and price deflation in the prewar period was, after decades of moral hazard, finally replaced by a similar illiquidity and insolvency resulting from a Ponzi finance game that could finally no longer continue.

A year ago mortgage originators were making "loony" mortgages at a rapid clip. Borrowers couldn't get enough of these mortgages to speculate in rising real estate. Investors were all too happy to purchase these mortgages in strangely transformed structured products in order to obtain a marginally higher yield. Now, suddenly, everyone fears that these final investment products are not worth what they thought they were worth.

Worse yet, where forced sales have occurred these mortgage based instruments have resulted in secondary market prices that have been at huge discounts to what people thought they were worth. The current so called "crisis of confidence" in the credit markets is classic pre-war credit revulsion. The investors who are the ultimate creditors in this New Financial Architecture realize that events have transpired which now make their "loans" worth far less than they believed they were worth a short time ago. They now realize that the interplay of short term oriented fee seeking mortgage originators, securitizing investment bankers, and cooperating and compromised rating agencies has generated real irreversible losses. These losses will come from likely future repayment failures and inadequate collateral. They will be little different from the losses that arose from recession, depression, and price deflation in that earlier pre-war era when credit revulsion was a periodic event.

Let us compare this modern day credit revulsion to the three credit crunch episodes described above. In the first and second episode it was a Fed tightening action that resulted in a credit crunch. There was no problem to speak of with the ability of borrowers to repay. Hence there was no credit revulsion. When the Fed eased policy, the credit crunch went away and financial markets were able to function normally.

Now let us consider the third episode. Obviously the1989 – 1992 period had a lot of resemblances to a prewar credit revulsion. Record high post war private indebtedness and a mild recession led to very, very significant loan losses. So significant were these loan losses that they took down much of the U.S. thrift system and some big banks in New England and Texas and damaged some of the big money centers. A many faceted government bailout was required in order to get the financial system functioning normally again.

How large were the loan losses? If one adds up the losses absorbed by the FSLIC, the Resolution Trust Corporation, and the hits to the capital of all the thrifts and banks involved the losses apparently approached $200 billion dollars. In nominal terms U.S. GDP was less than half of what it is today. Scaled to today's economy that is an aggregate loss of more than $400 billion dollars. That is not $400 billion dollars of adversely affected loans; that's $400 billion dollars in aggregate outright losses. The banking system was crippled, and the bankers knew it. Despite a decline in the Fed funds rate from 9% to 3% and a prompt mega government bailout program the credit system was still retrenching well after the recession was officially declared over.

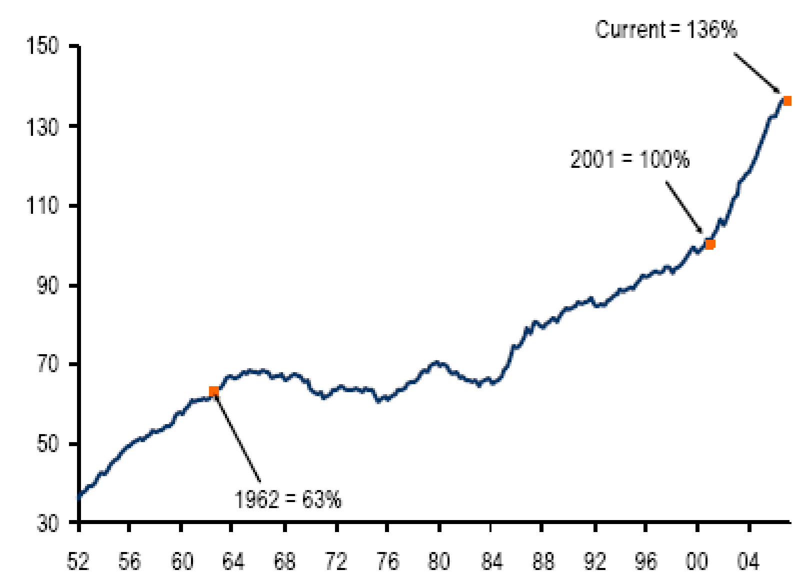
So the period 1989-1992 was more a credit revulsion than a credit crunch. Like a credit revulsion, it adversely impacted the credit mechanism for a considerable period of time.

The current episode resembles far more the 1989-1992 episode than it does the earlier credit crunch events. Except looking at it on first pass the situation this time would seem to be far worse.

First, private debt and household debt are far higher relative to income.

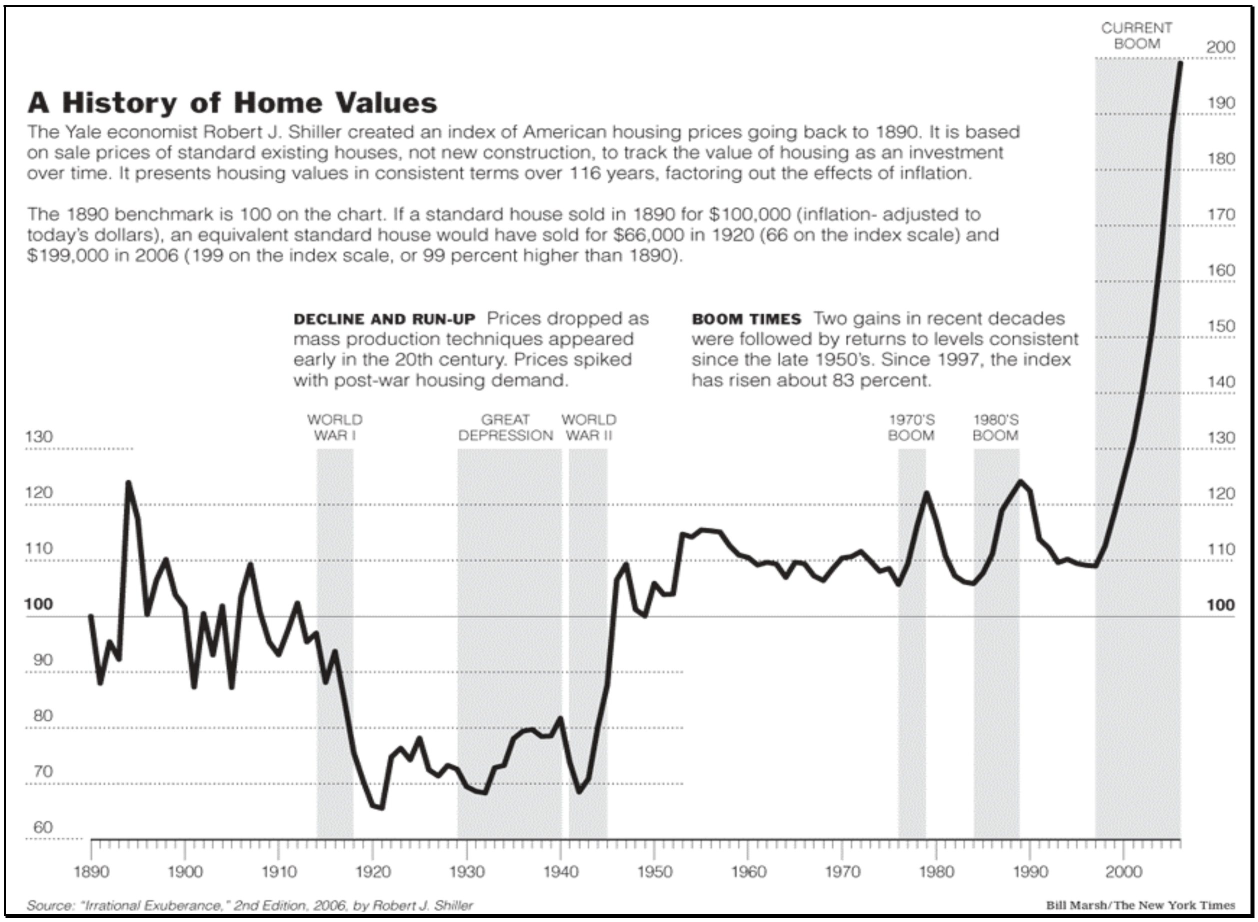
Chart 6: Household debt ratio soars to 136%

Household debt-to-income ratio (percent)



Source: Federal Reserve Board, Merrill Lynch

Second the underlying collateral for mortgages has been vastly more inflated and therefore vastly more vulnerable. That is made very clear by the Shiller Case real home price chart which shows only a 15% rise in real home prices from the mean in the 1980's versus a 100% rise in this cycle.



-*Robert Schiller*, August 28, 2006, New York Times

Third mortgage loans in the 1989 period were still rather conventional. Most still conformed to the conservative standards of Fanny Mae and Freddie Mac. Down payments of 15% or 20% were required. Teaser interest payments were not common. Documentation of the ability to pay was mandatory.

Fourth, in the 1989 – 1992 episode default rates did not soar until the recession began. Most of the thrift and bank failures did not surface until the recession ended. In this cycle defaults have soared even though there has been no recession so far. Almost all of the subprime lenders and even some of the Alt A lenders have already gone out of business even though there has been no recession. This early crisis in home lending – long prior to an actual fall in aggregate incomes – is consistent with the thesis that this time there has been a more liberal if not Ponzi finance lending regime. It is also consistent with the view that today's significantly higher ratio of household debt to income greatly increases potential aggregate loan losses..

Looked at from this perspective the creditor revulsion we are now seeing makes sense given the fact that aggregate loan losses were very significant in that earlier 1989-1992 period.

But it is reasonable to argue that credit revulsion will be far more profound this time around and the loss realization of creditors has only begun to dawn. Most models show a high correlation between mortgage loan defaults and home prices. For the first time since the great depression nominal house prices are in decline. The housing market is a reservation price market: home prices are sticky and price changes occur slowly and with a long lag. We must remember that the hugely inflated real estate prices of Japan in the 1980's were reversed in only a very gradual fashion; there were high single digit declines in real estate prices that persisted incessantly for over a decade. The 3% decline in the Shiller Case home price index recorded so far must be only a fraction of what is to come given the sticky nature of home prices and the lags in data recording. The severe credit crisis over the last month or so can only deepen further any decline in home prices.

All the models would say that if home prices fall by 10% or 20% in the U.S. in this cycle – which does not seem unreasonable – future defaults will dwarf what has been experienced to date.

What does that mean for aggregate loan losses? A lot of analysts look at the size of the subprime market, assume a moderate home price decline, and conclude that aggregate losses will be on the order of $50 billion to $200 billion.

This is absurd. If total credit losses in the 1989-1992 period totaled $150 to $200 billion they will be several times that in this cycle. First, nominal GDP was only $6 billion dollars then. It is more than $13 billion dollars now. Simply scaling the loan losses of that cycle to the current economy would suggest aggregate losses of perhaps $400 billion or more.

But the risks of far greater mortgage loan losses relative to income would seem much higher this time for all the reasons cited above: relative indebtedness is higher, home collateral is vastly more inflated, lending terms have been absurdly liberal, and the incidence of loan losses is higher despite only a short passage of time to date and the absence of a recession so far.

If the loan loss experience of 1989-1992 scaled to the present size economy is more than $400 billion, a likely higher incidence of loan losses relative to income might bring this total to $800 billion by the time this entire cycle is over.

There is a loss of confidence in the U.S. credit markets. There is an awareness that all the paper on creditor's books isn't worth anywhere near what it is "marked" at. But has it really sunk in to the credit markets that aggregate loan losses in a cycle a little less than two decades ago were almost $200 billion and they could be several times that before it's all over this time around?

I doubt it.

Therefore I would assume that we are in a credit revulsion and that we are only part way down its path. If the economy falls into even mild recession like that of 1990 we are only a small way down its path. The loss in confidence and the ultimate carnage in the prices of low grade credit instruments has only preceded part way.

The Failed Alchemy Of Structured Finance Adds To The Aggregate Problem.

I have tried to compare the current situation to past episodes marked by credit crises – be they credit crunches or credit revulsions. To do this requires focusing on common points of comparison. But to focus on common points of comparison ignores what makes things different this time.

And things have been very different this time.

What is different is the New Financial Architecture and the explosion in structured finance

Sure we have had securitized credit markets since the early 1980's. And we have had hedge funds for even longer. But we never had a parallel financial system with non bank loan originators, packaging and peddling investment banks, and facilitating hedge funds on anything like the scale that has emerged in the last several years. The combination of all of these has resulted in a parallel channel of finance to the banking system that may have been delivering flows of credit equal to a third and perhaps close to half of the total aggregate flow of credit in the economy.

In the above discussion I focused on the potential for losses to creditors and investors from mortgage defaults only. But there is another source of loss that investors as ultimate creditors are now recognizing.

In the past, ultra liberal loans such as loony mortgages were not made because no one would make them at interest rates that borrowers could cope with. How was it that in this cycle investors would gleefully buy up patently Ponzi paper? The answer all has to do with the *wondrous alchemical structured finance sausage machine* of the investment bankers. The mortgage originators made loans they knew would go sour because in the course of making such loans they reaped great fees and sold them off to be eventually become someone else's headache. For them it was growing ones fee income, kiting one's stock higher, and cashing in one's stock options as fast as possible.

But how were the loans of these mortgage originators - most of whom are now already bust – placed with investors.

The investment bankers took these mortgages which were low grade and bundled them. Then, using derivatives, they sliced and diced them into an array of new instruments. Many of these new instruments were then placed in new bundles like CDO's where managers maintained an ever changing portfolio, spiced with leverage.

The final product was somehow given a higher rating than the credits it was composed of. It was as though the investment bankers took utility grade meat from an old cow and put it into a *wondrous alchemical structured finance sausage machine* and stamped the final product as prime. This required considerable cooperation from the rating agencies who were themselves fee driven and from mysterious mathematicians with obscure models who were bonus driven. In the end the final product was unfathomable. There was no way you could look into it and assess any fundamental value. Its price depended entirely on the models and the ratings of the fee earning operators of the *wondrous alchemical structured finance sausage machine*.

In effect, the process of structured finance transformed low grade credits into high grade credits which were so opaque that no one could question the final valuation of their purveyors.

In late June the Bear Sterns mortgage hedge funds suffered large redemptions. They had to sell assets. Their assets were structured products. The quantities they needed to sell were not large. Nonetheless, when buyers were found for only a portion of their assets, the best prices obtained turned out to be at massive discounts to what they had been marked in the books at using the investment bankers models and the credit agency's ratings. All of a sudden it became apparent that, like all alchemy, the *wondrous alchemical structured finance sausage machine* was not in reality turning Ponzi mortgage dross into AAA gold. The transformation of credit quality of structured finance was seen to be a fraud.

In episodes of credit revulsion – be it prewar or1989-1992 - there was a realization of real credit losses because borrowers could not pay. The revulsion was a response to a reality of payment failure, though often taken too far. But that was the sum and substance of it. Scaled to today's economy that sum and substance might create almost half a trillion dollar aggregate credit loss if "financial fragility" was comparable to what it was then. But because the financial superstructure is arguably more fragile now, the aggregate loss could be larger.

But to this aggregate loss all holders of structured finance products are subject to yet a second loss. This is due to the inflation of the purchase price of the final investors' claim above and beyond the price of the underlying credits such as mortgages. In the end, when all is said and done, this inflation in investor holdings above the "underlying" due to the alchemy of structured finance will add to the ultimate aggregate loss.

This inflation of structured product prices over the underlying greatly extends the scope for loss. So far I have been discussing mortgage related losses because it is "looney" mortgages where the greatest default potential lies. But structured finance has hovered up all kinds of credits and transformed them: auto loans, boat loans, credit card receivables, corporate long and short term borrowings. In many such cases, such as corporate loans, the underlying paper may be the obligations of sound borrowers. But the "inflation" of prices from the underlying loans to structured product creates loss potential for investors even if there is only "normal" underlying credit risk.

What is the source of this "inflation" in the price of structured product versus the underlying? Much of it is probably in the layers of fees that have been extracted by the many participants along the structured finance daisy chain, from the predatory lender to the investment banker to the CDO manager. Without going into details some of it may be due to trading profits earned by the investment banks as these securities passed through their hands.

In the end there has been an overstatement of principal value of structured product that is simply not warranted given the interest rate offered. It is hard to know, given the opacity of the market. But some such overvaluation of “mark” is surely there.

How great is this second layer of potential loss? No one knows. It’s that simple. So opaque is the structured finance process that there is simply no way of determining the “inflation” in value and consequent possible loss exposure due to the “alchemy” of the investment bankers and the rating agencies.

But it is a real loss. It is probably substantial. Investors now recognize this. It has them scared. And rightfully so.

Because structured credit instruments were made to be held to maturity they have no ready secondary markets. Investors in these products everywhere want to sell – but they can’t. There are hedge funds with leveraged structured spread trades that cannot easily be liquidated. There are money market funds and similar depositary funds with such assets that want out but cannot find buyers. The investment bankers who sold such structured products tried to make a secondary market but soon became swamped and illiquid. According to Dennis Gartman angry pensions are trying to get together to force the investment banks who sold them this paper to buy it back at par – or else. But, from what I hear so far little has been sold, and what has been sold has been sold at horrifyingly deep discounts from mark to model.

If only a fraction of these discounts that have been realized in the secondary market reflect true values, this second layer of losses due to the bogus alchemy of the *marvelous alchemical structured finance sausage machine* may be very large indeed.

This potential for loss simply from the structured finance process greatly exacerbates the current U.S. and even global credit situation and will do so for a long time. First, it has engendered loss potential and fear of loss beyond the mortgage market, expanding the scope of the credit difficulties. Second, it cannot readily be "fixed".

One could price structured products differently, offering investors a higher yield. That would raise the cost of borrowing of the ultimate borrower which would ration demand and thereby reduce aggregate credit flows.

But, worse, yet the current justified collapse in confidence in structured product plus the opacity of the market will make it difficult for many investors to feel comfortable even if they are paid higher rates of interest. They cannot look into these securities themselves and evaluate them. The rating agencies and investment banks who have been valuing them have lost all credibility. And it isn't clear what new models should now replace the ones they were using since their methodologies have failed miserably.

One might argue that the financial intermediation provided by the structured credit markets will now simply be picked up by the banking system. But there are impediments. First, banks may not be willing to lend to the borrowers of structured credit at rates and terms they will or can pay. Second, the banks cannot expand their credit growth willy nilly because of the Basel capital adequacy limits on bank lending. And if the banks have been involved in mortgage lending and structured finance there may be losses ahead which will constrain their capital base.

Of course, in the end, if the credit restriction is severe enough the Basel rules might be changed. But that could happen only after current credit restraints prove to be very protracted.

Conclusion

The U.S has a credit crunch. Because of the recent turmoil structured finance has come to a halt. It accounted for possibly 40% of aggregate mortgage finance flows and a significant share of other finance flows in the U.S. economy.

But credit crunches can come and go quickly, like in 1966 or 1980.

There has been a loss of confidence in the credit markets. But losses of confidence can come and go quickly - like in 1998. Some of this has already happened. Some – but certainly not all – of the short term money market crisis has abated in response to central bank actions.

I believe the current situation is neither a credit crunch <u>only</u> nor a loss of confidence <u>only</u>. I believe it is an old fashioned credit revulsion.

Credit revulsions are a response to real credit losses resulting from real failures of borrowers to pay. Most of the credit revulsions of the pre war period and the credit revulsion of 1989 – 1992 took a considerable time to repair. In some cases they set the stage for deep economic contractions and a compounding of the credit crisis.

The most famous example of this was the first banking crisis in 1930 which turned a severe recession into a great depression. The only U.S. postwar example was the credit revulsion of 1989-1982. It contributed to the 1990 recession and resulted in a very sub par initial economic recovery.

The most famous example of a credit revulsion in the postwar period is the Japanese banking experience from the bursting of the bubble in 1990 to the final onset of recovery in 2003. It was credit revulsion that kept Japan in stagnation and recession for more than a half decade despite a zero interest rate policy and unprecedented fiscal stimulus.

If one compares the situation of 1989-1992 in all respects to the present situation there is a prospect for aggregate credit losses of almost a half trillion dollars. Though in great disarray, today's markets have yet to discount such an outcome.

The "inflation" in the prices of structured credit instruments above the "underlying" as a result of the structured finance process adds a second layer of potential loss which also may not be fully discounted by today's agitated markets.

If the intensification of financial distress leads to deep house price declines and perhaps a recession aggregate credit losses relative to U.S. GDP may be much higher than in 1989-1992. Such losses could be compounded by the unwinding of the "inflation" in structured product prices above the underlying.

Unlike credit crunches, credit revulsions tend to have a long tail. And they do not always respond to a large policy ease. They didn't in 1930. They didn't in Japan. They did in 1989-1992, but with a lag.

So far it appears the U.S. financial problem is largely in the (albeit very large) non bank sector. This makes it more like the U.S. in 1989-92 and unlike 1930 in the U.S. or Japan in the late 1990's.

Let's hope that 1989-1992 and not something more adverse is the appropriate precedent for today.