
[A Brief History of the Credit Crisis](#)

Thank you all for your encouragement and questions during this extremely difficult time.

The news media conception of the credit crisis has foolish bankers allowing indulgent consumers to use their houses as ATMs to buy SUVs and swimming pools, while America's free market philosophy - or dogma - allowed the bankers to run amok, taking us to the edge of the abyss. As is often the case, the real story is much more interesting.

I believe that many - maybe all - of today's important issues are more subtle and complex than the single variable, on/off, black/white polarities that the news media can deal with or would have us believe, yet they are not too difficult for people of normal intelligence to grasp if they are given the facts.

My goal here is to distill the complexities of the credit crisis. There may be, I hope, two main benefits: clients will be better equipped for, and be more comfortable with, our investment strategy discussions in the coming months and years, and also that clients will have meaningful discussions with their own friends about the public policy and other implications of the crisis.

Following is a very brief summary of how the housing downturn managed to detonate the US financial system.

Banking 101: simplified primer on banking

A bank works on the premise that on any given day, fewer than 10% of depositors might need their money. So for every \$10 in deposits, a bank can lend \$9, keeping \$1 in reserve. This leverage means bankers are very sensitive to losing money.

A banker can blow himself up two ways. First, if 1% of his loans go bad, his capital is reduced by 10%; and in turn for every \$1 capital lost, lending capacity is reduced by \$9. So a banker has to be very careful to minimize losses and maintain capital.

Second, a 'run on the bank' is usually fatal: for each \$1 of deposits withdrawn, the banker has to reduce his loans by \$9. Bad loans *and* a run are particularly nasty, as we shall soon see.

A banking crisis is important because credit is vital to an economy, and a crisis can flash out of control extremely quickly. Banks have therefore been closely monitored by governments to ensure that capital ratios are maintained, loan quality standards are followed and so on, so that public confidence is maintained. If there's only one chair for nine bankers, the music better not stop.

The saga

You may recall from earlier newsletters that mortgages have long been bundled up by banks and sold to investors. These bundles, called Mortgage-Backed Securities (MBS) were not AAA securities but they efficiently enabled investors to invest large amounts in residential mortgages. No problem here.

The first morph of MBS was when investment bankers had the idea of slicing an MBS into tranches, with the tranches ranked so that any defaults in the underlying mortgages would hit the lower tranches first. The genius was that the top MBS tranches then qualified for the coveted AAA rating by the credit rating agencies, leaving the lower levels as B-grade or lower 'junk' bonds.

The next morph was when bankers began to collect the B-grade tranches of various MBS and bundle those into a new security, called a Collateralized Debt Obligation (CDO). The top 2 or 3 tiers of a CDO would qualify for investment grade AAA ratings, because the ordering of the tranches gave them payment priority and any defaults would hit the lower tiers first. Thus was B-grade lead spun into gold.

The next morph was when the middle tiers of CDOs, rated as low as BBB, were collected and again securitized, this time called CDO-squareds (I'm not kidding). The upper tranches of these CDO-squareds, because they were ranked first in line for payment, were given A credit ratings. You may find this hard to believe, but that's how it worked - you take bundles of BBB-rated CDOs, slice them and dice them, and the top tier ranks AAA. But it gets better (or worse).

High Explosive

TNT was rolled into the mix with the next morph: leverage. These creatures, known more generally as Structured Investment Vehicles (SIVs) would borrow, so that each investor dollar would buy say \$2 or more in CDOs, thereby magnifying the return.

Hedge funds, which are private investment pools, got into the act in a very big way. Hedge funds could be levered 10 or 20:1 and more. A hedge fund would take \$1million of investors' capital, borrow \$20 million, and invest the \$21 million in CDOs of all kinds, including the levered ones (SIVs).

The trade was profitable because short term loans were so cheap. (Japan was a popular place to borrow because interest rates were close to zero). A hedge fund could borrow at say 3% to invest in levered SIVs that paid 6% thereby generating a positive spread of 3 points on \$21 million or about \$600,000 on investor capital of \$1 million. That's a return of 60% ... per year. This train was moving fast ...

All these super-smart people were taking the same risk: borrowing at low short-term rates to buy longer term, higher-yielding assets ... if short-term interest rates went up, or if asset prices declined a speck, their 'positive carry' would become a loss.

Shadow Banking System

This combination of A credit ratings and cash flow was very popular with yield-starved investors. More and more money was ploughed into structured or asset-backed investment vehicles of all kinds. Credit card balances, car loans, all kinds of debt obligations were packaged up and sold, including Asset-Backed Commercial Paper (ABCP).

A powerful feedback loop was developing between relaxed lending standards, rising house prices, low interest rates, and supply of capital from investors (including institutions) seeking higher yields. Bankers were happy to ride the train.

What it also meant was that a disconnect was developing between lenders and borrowers. The disconnect was a time bomb. In the past, when a mortgage defaulted, the lender took the hit directly. The disconnect was that mortgage lenders could give anyone a loan, have it insured by the government agency, then toss the loan into an A-rated security and sell it to an eager investor or institution. They couldn't lose - it's no wonder they'd lend to anyone.

We aren't talking small change here - by 2001 the value of these pooled asset-backed securities *exceeded the value of all bank loans outstanding*, according to The Bank Credit Analyst. (A look at any Canadian bank balance sheet will verify).

Some voiced concern that this 'shadow banking system' was developing outside the normal regulatory framework. Mortgages that used to sit on a bank balance sheet now resided in a security outside the jurisdiction of the bank regulators; but since structured investment vehicles (MBS, CDOs etc.) were contractual arrangements and did not trade on a stock exchange, they weren't picked up by the securities regulators either. The switchyard boss was looking the other way.

Politicians Urge the Bankers On

What is not yet widely recognized is the role of government regulators and elected leaders in the crisis. It is difficult to exaggerate the importance of the next few paragraphs.

First, US tax policy encourages Americans to hold large mortgages by making mortgage interest tax-deductible. Mortgage interest deductibility has been widely recognized as encouraging a debt culture, but it has been politically 'difficult' to change.

More importantly, the government took specific steps to broaden the access to credit for a wider spectrum of the population. Beginning with the Clinton Administration, US lending standards were perceived as 'discriminatory' and certain groups were (unfairly) 'excluded from home ownership'. The White House encouraged the mortgage insurance industry (via Freddie Mac and Fannie Mae) to guarantee a broader range of nonstandard or subprime mortgages. Income, collateral, and down payment requirements were intentionally relaxed - by *government initiative*.

As well, US mortgages are 'limited recourse' loans, which means that the lender takes only the property as collateral. This makes it easier to walk away from a mortgage, since the homeowner doesn't lose all his assets. The risk of defaults is therefore borne much more by the bank than the homeowner.

It gets even worse: the US taxpayer was already on the hook - Freddie and Fannie (originally Federal National Mortgage Association), responsible for insuring US mortgages against default, were given an implicit government guarantee. The government was underwriting, via the mortgage insurance system, the whole subprime mortgage business. Yet governments were not managing their own risk by regulating or even monitoring the mortgage system. (Governments guarantee bank deposits (to \$100,000 in Canada) because they closely regulate the banking business)

Thus specific government policies encouraged residential leverage, encouraged the relaxation of mortgage lending standards, and backstopped the whole thing by underwriting the mortgage insurance system. It was this asymmetrical risk/reward regime - you do the lending and I'll guarantee it all - that was the fundamental cause of the disaster.

Enter the CDS

A Credit Default Swap (CDS) is a different animal altogether. A CDS is a private contract where one party, an investment bank for example, pays the other an amount if a particular investment asset such as a corporate bond defaults. It's like an insurance contract that can be traded. It's called a swap because one party is simply trading a particular risk to another party. Interest rate swaps have been around since the early 80's, so a whole generation of finance people have grown up with the concept.

Here's where the steel bands began to be wrapped tightly around the whole subprime package. A bank or pension fund would buy a CDS to protect itself from a decline or default in the value of a bond that it held. If the bond defaulted, the CDS would pay the loss. At least it would pay the loss as long as the firm that issued the CDS (the counterparty) was able to make the payment.

So if I thought Bank of America might blow up, I would buy a CDS from say Bear Stearns, a broker, that would pay me if BoA went under.

For its part, the firm that issued or sold the CDS could 'lay off' or offset that risk by buying an equivalent CDS from someone else, say AIG Insurance. Because default risk was perceived to be low, CDSs were inexpensive, and proved a very popular way for firms to apparently reduce the risk of holding various investments.

The numbers started to get really big when firms started using CDSs to 'insure' or hedge investment portfolios or simply to speculate. Trillions of dollars of CDSs were issued and bought. Many firms had more CDSs outstanding against them than they had market value.

Normally insurance contracts are closely monitored and regulated so that insurers have sufficient capital to back potential expected claims. And normally insurance companies take steps to limit their exposure to certain risks, such as a big hurricane in Florida.

In this case, nobody was taking the overall perspective and determining what would happen if, say, a large company defaulted, triggering large payments under outstanding CDSs. Nobody was looking at what might happen if a large counterparty failed to settle its CDSs. Yet the number and amount of outstanding CDSs was great enough that it bound the financial firms together, ensuring that if one blew up, they all would go.

The problem was that because there hadn't actually *been* a problem *yet* with all these derivatives, it was really difficult (impossible?) to say when or how a problem would actually present itself. It was like issuing hurricane insurance when you didn't know what a hurricane was. Knowing that something *could* happen is a lot different than that thing actually happening.

The Train Wreck Begins

Meanwhile, back at the housing market, prices were softening, and some mortgages were resetting at more normal rates. People with limited means to handle a mortgage (in the first place) were beginning to default.

I will spare you the math, but the reason that the detonation was so powerful was that the middle tiers of CDOs were fairly small percentages of the total, so that a *fairly small increase in the default rate* in the underlying mortgages would have a relatively large impact on that particular tier.

In other words, up to a certain point, the first few defaults would blow up the lowest tranche, and since it was small potatoes and junk (known as 'toxic waste') anyway, nobody cared. But a very small increase in the default rate from that point would have a large impact on the next tier. If your CDO was made up of Tier 3 MBS tranches, you needed only a small increase in the default rate to blow the entire tranche to kingdom come.

But, as it turns out you didn't need a default at all - you just needed a *chance* of a default. Like turning a corner into a bad neighborhood, people suddenly realized that even though the actual loss might be contained in the bottom tier, it was *theoretically* possible to have a loss in a middle or upper tier.

At the first whiff of mortgage defaults, people realized that MBS/CDOs were so complex, it was impossible to even analyze one: subprime mortgages might have been 2% or 50% of the total - you couldn't tell (quickly, anyway).

Since AAA securities are supposed to be bulletproof, the first hint of a problem meant that suddenly nobody would touch a structured security of any kind. An investment that nobody will touch is known in the jargon to go 'no bid'. Eric Bushell of Signature Advisors said when he saw the first CDO go 'no bid' in July of 07 he knew the first cars in the train were hitting the wall.

What we didn't know was that there were so many cars in the train, or that it was traveling so fast.

Cash Crunch

Faced with the merest possibility of a loss, investors (rationally) decided that only government bonds would do. In an instant, good companies were shut out of the money markets, and had to go to their banks directly for short-term requirements. That meant banks were seeing a surge in loan demand from their best customers at the same time as they needed to conserve capital by restricting new loans for risky ventures - like hedge funds.

This meant that hedge funds were having trouble rolling over their loans at exactly the same time as the CDOs/SIVs were being dropped like hot potatoes. A hedge fund levered 20:1 simply has no room to maneuver: a 5% drop in the price of its CDO/SIV investments wipes out 100% of investor capital.

Bear Stearns had 2 hedge funds blow up in the summer of 2007. This was only 2007.

The mounting loan losses reached the point in September 08 where depositors and clients of the US investment banks became concerned and began to pull their deposits and investments. Speculators began to short the bank stocks, making it impossible to raise more capital. Finally the music stopped: Bear Stearns, Lehman Bros, Merrill Lynch, Goldman Sachs, Washington Mutual, all were taken over or recapitalized.

The fall of the titans made people realize that they didn't know how many loans which banks had to which hedge funds. They couldn't tell which banks were strong and which were weak. Suddenly banks didn't want to lend to each other.

What about the Credit Default Swaps (CDSs) - the insurance that banks all owned on each other? Suddenly people realized that the CDSs were only as good as the bank that issued it - the counterparty - and if the counterparty was suspect, the CDS was no good either. Companies like AIG that had issued billions of CDS - and reserves weren't required on CDSs - were suddenly done.

Market Rout

It appears that the shocking price declines of September to November 08 resulted from leveraged investors forced to sell to unwind loans. This forced selling, aided by the media yelling 'Fire', spooked investors and started a full stampede for the exits.

Surprise?

The credit crisis wasn't a complete surprise, although the ferocity and scale certainly took pretty much everyone by surprise.

The risks in the derivatives business were clearly hinted at by the sudden collapse in 1998 of Long Term Capital Management, a \$6 billion hedge fund. Allan Greenspan, then Federal Reserve Chairman, called an unprecedented Sunday meeting with 6 US bank CEOs whose companies had lent LTC \$5 billion (of the \$6B) because the fund was going under Monday and he wanted to avoid a systemic problem as the debt and derivatives were wound down.

(The irony here is too much - LTC blew up because the mathematical models that drove its levered investment strategy were based on overly optimistic assumptions about market volatility because their data went back only 10 years and thereby excluded the previous market shock - October 1987!) (see *When Genius Failed* by Roger Lowenstein)

Today's subprime crisis was caused by leverage applied to overly optimistic assumptions about house prices, when prices had in fact declined significantly in the 1990's - 15 years before.

A perfect miniature of the subprime crisis was played out in Scandinavia in the 1990's as falling house prices took down major banks and forced government intervention to nationalize banks and purchase bad loans.

Canada Guilty Too

We Canadians are no better. Starting in 2006 the CMHC, the mortgage insurance arm of the Canadian government, announced a specific policy to encourage home ownership by a "broader cross section of Canadians" through high-ratio mortgages, zero-down mortgages, 35 and 40-year amortizations, and interest-only payments for the first 10 years by making CMHC insurance available at no additional fee. Your eyebrows ought to go up at that.

Was this popular? According to the Canadian Association of Accredited Mortgage Professionals (CAAPM), 37% of mortgages issued in a 12-month period in 2007 had amortizations of over 25 years. Bank of Canada data indicates that total residential mortgage credit rose 17% to \$881 billion, in the 12 months to August 2008, an increase of \$100 billion, as reported in the Globe and Mail.

The main reason we avoided the nightmare here is that the Americans walked off the cliff just ahead of us so we were able to stop in time, but we were close behind. CMHC has apparently reversed their policies and tightened standards.

Regulatory Failure

While of course the bankers bear a large measure of responsibility for the fiasco, the government regulators carry at least equal measure.

One primary responsibility of government is to set the legal and regulatory framework that the economy operates in. The failure of the US government regulators to take preventative action was not due as much to free-market dogma but rather because of the broader ineptitude of governments to regulate or manage risks. It was a refusal or inability of financial regulators to connect the dots and see the evolving problem.

The SEC said they had no jurisdiction because derivatives aren't traded on an exchange. Bank regulators said they had no jurisdiction because derivatives aren't bank loans and were AAA anyway. The insurance regulators said they had no jurisdiction because derivatives aren't insurance policies. Freddie and Fannie were just doing the bidding of their political masters (and paying themselves bonuses) and the rating agencies said it just seemed like AAA at the time.

So yes, of course, the broad risks of financial derivatives will have to be managed to control the chance of a systemic meltdown.

But as the drums beat louder for more regulations, consider that politicians are not always motivated to do the right thing, even when it is obvious. The \$700 billion proposal presented to Congress by Secretary Paulson had grown to \$850 billion when Congress approved it a few weeks later. The increase? Political pork: an Oregon Congressman had included \$22 million for an Oregon manufacturer of wooden hunting arrows for example. What do arrows have to do with a financial crisis?

The flooding of New Orleans by Hurricane Katrina is another example of a clear and well-known risk that was politically not feasible to solve beforehand. Scientific American had an article years before describing exactly how any Category 4 storm could breach the levees and flood the city, yet nothing was done.

Closer to home is the Canadian East Coast fishery. Two Canadian government ministries, against the expert advice from their own scientists, ran the East Coast fishery to complete destruction. (And have recently reopened the fishery under political pressure)

As Jack Mintz, Professor of Public Policy at the University of Calgary said at a recent dinner, the facts are that the governments of both the US and Canada were responsible for a number of specific policies which clearly had a role in making the housing/financial crisis worse. It was not free-market dogma but government meddling that sent the system off the rails.

This government meddling damaged the signals that the market usually rely on to transmit information about risk, says Mintz. Higher interest rates for higher-risk borrowers are a basic signal that tells lenders and borrowers that they are in a higher risk arena. The idea that higher mortgage rates for subprime borrowers are somehow unfair, and that government can provide utopian equality by guaranteeing subprime loans, demonstrates a childish oversimplification of important finance principles.

Of course the banks are culpable to a degree. But the government guarantees of mortgage debt through Freddie and Fannie - without the offsetting regulation of the instruments bearing the risks - destroy the signal that banks would normally use to control mortgage risk. By taking the risk off the banks' hands, it didn't matter if the mortgage stayed on the bank balance sheet or was securitized - the taxpayer was picking up the tab anyway.

If these signals had not been suppressed by misguided government policies, and if the existing government supervision of insurance contracts and bank capital had been applied to the mortgage securitization business, we would have avoided the mess.

Capitalism at Bay?

The media suggests that the credit crisis is an indictment of capitalism. This is a silly and dangerous oversimplification that has roots in leftist intellectual arrogance. This essay has shown how the credit crisis was a more subtle blend of government misdirection, corporate overconfidence, and public gullibility, and chance. Like many crises, it is really an indictment of the naïve idealism that supposes humanity's progress should somehow follow a smooth trajectory towards utopia. As the Steely Dan song goes, 'Only a fool would say that'.