WHITE PAPER NO. 43

CREDIT CRUNCH Q & A

White Paper No. 43 – *Credit Crunch Q & A*

"If bankers are busy, something is wrong."
- Walter Bagehot

What started last summer as a traditional credit crunch has mutated into something much worse: collapsing home prices; a global stock market rout (the Chinese market is down some 50% as we write); recessionary economic conditions; accelerating inflation, especially in the emerging economies (almost 9% in China); a plunging US dollar; a meltdown in corporate profits; a bubble in commodity prices; danger in completely unexpected places (cash and commercial paper, for example); and the collapse of important institutions, including hundreds of mortgage brokers and lenders, to say nothing of Bear Stearns. In talking with investors, we find that they are more concerned than at any time since 1974. In the following Q&A we explore what a credit crunch is, why it happened, how it morphed into the mess we find ourselves in today, and what investors ought to be doing about it in their portfolios.

What exactly is a "credit crunch?"

A "credit crunch," "credit crisis," or "credit contraction" is a fairly common feature of free market economies. The US economy, for example, has experienced at least a minor financial crisis roughly every five or ten years since World War II. The crunch occurs when people with money to lend stop lending it out.

Why would they do that?

Because they fear they won't be repaid. Or, more accurately, they fear that default rates will expand significantly and lending will become an unprofitable activity. This unwillingness to lend can arise from many different causes. If the economy seems to be weakening, lenders recognize that marginal borrowers will be much more likely to default on their loans. For example, if housing prices are dropping, rather than rising, mortgage lenders realize that mortgagors will be less likely to make their payments. (Recently, it has become common for borrowers simply to mail the house keys to their lender – so called "jingle mail" – rather than continuing to make mortgage payments.) If lenders' balance sheets are overloaded with debt instruments whose value is falling and which must be marked-to-market everyday, they will lack the legal capacity to lend.

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Which of these factors caused the current crisis?

All of the above, and more. Let's go back to the late 1990s. After initially expressing concern about a bubble in the equity markets ("irrational exuberance"), the Fed went back to sleep and allowed the bubble to grow into a massive hot-air balloon, which burst explosively in early 2000. Figuring that late was better than never, and worried about stock market woes and the shock of the September 11 attacks spreading into the broader economy, the Fed then began to inject massive liquidity into the system. By 2003, it was clear that economic conditions were continuing to strengthen, but the Fed – along with central bankers around the world – continued to encourage easy money, partly out of an unfounded fear of deflation. Markets rallied from 2003 through 2006 and the economy remained strong, but bubble conditions were emerging once again, this time in emerging markets equities, emerging country debt, small cap stocks, value stocks, housing and real estate broadly, credit everywhere, and so on. Federal budget deficits didn't help, either.

Worse – far worse – easy money combined with the proliferation of new derivative securities allowed aggressive investors not only to invest in risky securities without fear, but to leverage those investments. Without the widespread use of leverage we would still likely have experienced a market contraction and a mild credit crunch, but leverage magnifies everything.

So what happened to bring it all to a crashing end?

What happened broadly, as noted above, is that central bankers encouraged investors to take foolish risks – which many of them promptly did. Low interest rates and plentiful credit made it all look easy and riskless.

But in early 2007 it gradually began to dawn on people that the housing market was in trouble. Housing prices not only stopped rising, but in large and important markets (Florida, California) they were actually dropping – a very rare, and therefore frightening, scenario in the US. Falling housing prices would always have been bad news for the economy and for the availability of credit, but with so many loans issued to financially strapped (so-called subprime) borrowers, falling prices was an almost certain catastrophe.

In the Good Old Days, of course, this would have been a problem mainly for home lenders and home owners, but in the Bad New Days, where mortgages – including subprimes – are bundled together and securitized, the risks associated with poorly-underwritten mortgage securities were distributed very broadly throughout the financial system. So now it wasn't just mortgage banks who would feel the pain, it was every important financial institution and every important investor – including small villages in Norway and cities in Alabama.

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Securitization also fueled another aspect of the credit bubble. Increasingly, the firms originating mortgages were paid purely for volume and had no stake at all in credit quality. If a poorly underwritten mortgage defaulted, it wasn't the originator who felt the pain. Securitization and leverage both play useful roles in capital markets, but the combination of broad securitization and very high leverage is toxic.

When bubbles pop, which they always do, it is usually for reasons that seem innocuous at the time. What popped in the summer of 2007 was declining investor and lender confidence in the overheating residential real estate sector. It popped specifically because of nervousness about how new, widely held but untested securities linked to the residential home loan market (Residential Mortgage Backed Securities or "RMBS") might be affected if marginal borrowers began to default on their loans. But because of the widespread sale of these new RMBS securities into the portfolios of some very large and very leveraged investors (especially proprietary trading desks, hedge funds and banks themselves), it was difficult to isolate which securities, which investors, and which institutions might be affected. As a result, investors began to doubt the soundness of the value of many securities held on the books of institutional investors, especially financial institutions. Lack of confidence in the soundness of counterparties[1] caused investors to refuse to buy all forms of other securities issued by financial institutions.

Ouch! So it all started with housing and then spread to other parts of the market and economy?

Well, housing was just the first sector that went bad, so, yes, that's how it started. But it could have been almost anything else. What really went wrong was central bank policy.

First, in 1988, concerned over several notable bank failures, the world's central banks established stringent capital adequacy requirements for commercial banks (known as BIS I).[2] The imposition of these requirements limited how much banks could expand their lending practices without securing additional capital. In response, banks began to sell off

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[1] Technically, a "counterparty" is simply a party to a contract. In the financial sector, a counterparty is a bank, broker, investment bank or other dealer in securities who acts as a contracting party when completing over-the-counter transactions. Should one of these counterparties fail or otherwise experience difficulty performing its obligations, other parties to transactions with that counterparty can experience serious losses.

[2] The Bank for International Settlements is one of the more obscure features of the Bretton Woods global financial architecture. BIS essentially coordinates the regulation of financial institutions to avoid a "rush to the bottom," i.e., all the banks in the world would incorporate in, say, Luxembourg because it had the least strict regulations. Recognizing the failure of BIS I, BIS II went too far in the other direction, vastly expanding the ability of financial institutions to self-regulate their actions.

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their loans to others, keeping the lucrative underwriting and servicing fees for themselves – effectively allowing them to recycle their limited capital profitably. Selling individual loans one-by-one proved burdensome, so enterprising investment banks began to help lenders pool together groups of loans for sale. Thus began the securitized loan business. Unfettered by the consequences of faulty loan underwriting (some other fool was now on the hook if the borrower defaulted), banks began to relax – some would say they virtually eliminated – their due diligence efforts when underwriting new loans. Thus began the moral hazard[3] that, some twenty years later resulted in the crisis we now face.

Second, the Fed's unwillingness to prick the tech bubble in the 1990s caused, in 2000, the worst market crash since 1973-74. The 2000 crash in turn caused the Fed to inject too much liquidity into the system for too long, which caused people to behave badly. We certainly don't mean to blame the Fed while letting investors and financial institutions off the hook. But in our minds a good working definition of a successful central banker is a fellow who understands the conditions under which investors and the finance industry will behave badly, and to ensure that those conditions don't happen, or at least don't persist for very long. Human nature isn't going to change, but Fed policy could, one would think, get better over time.

Speaking of the Fed, what do you think of Bernanke's actions to try to deal with the problems you've just described?

It's too soon to know whether the Fed's actions – including it's bizarre "mission creep"[4] – are good, bad, or indifferent. But based on the Fed's questionable policy decisions from 1988 through 2006, we find it difficult to believe that Fed policymakers have suddenly developed a heretofore unsuspected wisdom. Remember that this is the same Ben Bernanke who said, in late 2006 (late 2006!), that "US housing prices merely reflect a strong US economy." The Fed has clearly been taken by surprise by nearly every development since early 2007, and like the (fear-based) injection of too much liquidity for too long after the 2000 market crash, we worry that the Fed's actions today are also fear-based, and that they will lead to no good end. Exactly what the nature of that end will be is

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[3] Moral hazard occurs when an investor is insulated from the risk of his actions and therefore behaves differently than he would if he were fully exposed to the risk. In other words, an investor who does not bear the full consequences of his actions – but can foist those consequences off onto someone else – will behave in riskier ways than he would if he had to bear the full consequences of his own behavior.

[4] I.e., bailing out not a bank but a largely unregulated investment bank, and opening its discount window to primary dealers (investment banks) as well as banks. Banks must maintain capital ratios within certain limits or face regulatory scrutiny and reduced activity. Meanwhile, Bear Stearns had written (we hope you are sitting down) $1.5 *trillion* worth of paper on a balance sheet of barely $100 billion.

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anyone's guess, but two obvious candidates would be the re-emergence of virulent inflation or the arrival of another, even bigger, bubble, engendered by ignoring the phenomenon of moral hazard.

But back to the credit crunch, how does fear of subprime mortgages lead to a credit crisis, and the credit crisis to, well, this mess we're in now?

In other words, how does financial contagion happen? It's a big question, but let's simplify it by looking at one important aspect of this particular crisis, namely, the massive deleveraging of investment portfolios that has been going on since last August. Since most of our readers don't employ leverage in their portfolios, it may not be clear exactly why investors de-lever or what happens when they do. We'll begin by looking at one leveraged investor, a hedge fund we'll call Margin Capital Management.

Like many hedge funds, Margin Capital employs leverage. It does so to amplify the persistent but small price discrepancies it believes exist between certain securities. Unleveraged, these price discrepancies are so small as to be unexciting, but through the use of leverage they promise to yield attractive returns. Margin Capital will keep increasing its use of leverage, magnifying its returns (and risk) until it reaches the degree of risk it and its investors are willing to tolerate. Proprietary trading desks at banks and investment banks and large institutional, private and governmental investors do the same thing.

Margin Capital isn't stupid – it knows leverage is potentially dangerous, and so, like most competent, highly leveraged investors, Margin very carefully monitors the risk its portfolio is subjected to. It uses risk metrics that are mathematically elegant and brain-numbingly complex – Value at Risk or something similar – but at the end of the day Margin is mainly looking at the price volatility of the markets. There is a good reason for this, of course: Modern Portfolio Theory equates volatility with risk, and generally assumes that higher risk levels generate higher return levels. So if Margin wants to achieve a certain target return, it will operate at a certain target level of risk.

Most days, the Margin partners arrive at the office, look at their risk metrics, and tweak the risk level of their portfolio modestly. If volatility ("vol") has gone up, they will dial risk down, and if vol has gone down, they will dial risk up. The way they dial risk up and down is by leveraging or deleveraging their portfolio, that is, by borrowing money and buying more securities than they could buy with their own capital, or by selling securities and paying their loans down.

But one hot day in August 2007 the Margin partners arrived at the office and discovered that volatility had gone through the roof. The reason was the sudden discovery by investors that housing prices were going down, that therefore massive tranches of complicated paper

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wasn't worth anything like what they had thought it was worth, and that no one knew who owned this paper or how much they owned. Margin's risk models had never seen anything like this, because risk models assume that securities prices in the real world act like they act in the theoretical world, that is, that prices are normally distributed and move up or down in discrete increments, rather than in quantum jumps.[5]

In fact, securities prices are *almost* normally distributed. That is to say, prices usually occur in a mostly "random" pattern whose data points can be plotted along a bell-shaped curve. But occasionally prices behave in unexpected ways, for the simple reason that prices are driven by investor behavior, not by some internal logic of their own.

In any event, all the partners at Margin Capital know is that their risk has gone sky-high and that they need to bring it down ASAP or they will be out of business. So naturally they sell whatever liquid securities they own – because these can be sold quickly and without much affecting prices. They use the proceeds of these sales to pay down margin loans. But now another risk has entered the portfolio: the ratio of short sales to long positions is wildly out of whack, since Margin has sold many long securities. So Margin is forced to rapidly cover its outsized short positions, driving up prices on those securities and thereby exacerbating their losses.

All this undesirable activity has a seriously negative effect on Margin's August performance, which means that its 3Q07 quarter is probably pretty bad, and its performance for all of 2007 is likely to be uninspiring at best. If Margin has been in business for years and its long-term performance is solid, it will survive. If it's a newish fund, it's probably toast.[6]

Before we leave the troubles of Margin Capital Management, let's pause for a moment to allow what is going on to sink in. Margin Capital – through the forced deleveraging process – has been selling securities it originally bought because it believed that they were attractive holdings and would appreciate. It is buying securities (to cover its short positions) that it originally sold short because it thought they were lousy holdings and would decline in price. Margin is selling its crown jewels and buying garbage. It has left the world of thoughtful investing and has passed through the Looking Glass into an Alice

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[5] Actually, many risk metrics don't always assume that outcomes are normally distributed. They do, however, assume that outcomes that haven't been observed before are outcomes that are impossible or impossibly rare. But the fact is that outcomes that have never happened before happen in the markets about every four years. It's just that these outcomes can't be predicted by mathematical models.

[6] Every year, many hedge funds sink quietly beneath the waves for reasons similar to this. In 2007, approximately 50 hedge funds, representing nearly $19 billion of assets.

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in Wonderland world where down is up, bad is good, and investors routinely buy high and sell low.

But now let's avert our gaze from the fictitious (but very lifelike!) Margin Capital and look at what actually happened in August 2007. What we find is not one investor deleveraging, but *thousands* of investors deleveraging. All of them (or most of them, anyway) followed the same process we have just walked through with Margin Capital. But the world is a very different place when it isn't one hapless investor who is deleveraging, but instead thousands of investors who are deleveraging all at the same time. Like Margin, these investors sold their most liquid securities to meet margin calls and were simultaneously forced to cover illiquid short positions. Like Margin, they assumed that these high quality securities were so liquid that they could sell without pushing the prices down. But when thousands of investors all do the same thing, prices get very weird.

Thus, deleveraging investors – prop desks,[7] hedge funds, banks, foreign banks, large individual and institutional investors – were not only selling their crown jewels, but they were selling them at distressed prices. They were also buying back their short positions at rapidly escalating prices.[8] But the process of financial contagion was just getting warmed up. After several terrifying days, just when the now-delevered investors thought the worst was behind them, their lenders (mainly prime brokers), noticing that prices had declined, recalculated margin coverage and issued margin calls. Investors now went through the deleveraging process all over again. And then – ironically! – the banks realized that the securities whose prices were being depressed, and because of which they were issuing margin calls, were the very securities sitting on their own balance sheets. Worse, back in the halcyon days of the bull market the accountants had decided that banks needed to mark their balance sheets to market every day.[9] That was fine then, but now the quality of bank balance sheets declined precipitously. Since the amount of loans a bank can make depends on the quality of its balance sheet (via its capital ratios), banks had to reduce lending activity just as a weakening economy most needed it.[10]

There is much more to say about financial contagion, of course. Some of the important supporting actors include:

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[7] Proprietary trading desks at financial institutions where the firms' own capital is being invested.

[8] As late as April 2008, Federal Street Partners, a hedge fund of funds, noted that, "[C]ertain homebuilding stocks which are suffering severe losses, even greater than analysts' projections, have seen strong price appreciation while other companies which are delivering strong profits, well above analysts' projections, have declined in value."

[9] FASB 157.

[10] According to the International Monetary Fund, banks globally are experiencing their worst financial crisis since the Depression.

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* Greed, almost across-the-board.

* Massive conflicts of interest all along the route from mortgage brokers originating mortgages, to banks bundling mortgages into securitized bundles, to investment banks creating complex new securities, to the ratings agencies granting investment-grade status to securities they neither understood nor particularly tried to understand. All along the way each of these parties was compensated handsomely even though much of the paper that passed through their hands eventually collapsed. They simply took the money and ran.

* Accounting firms whose interpretations of accounting rules allowed massive off-balance sheet exposures (Special Purpose Vehicles) to exist, vehicles that would ultimately become equity-swallowing black holes.

* Overconfident financial economists and policymakers who promoted the day-to-day application of elegant theories that were completely at odds with actual human behavior.

* The explosion in credit default swaps, where $40 trillion of insurance has been sold on approximately $6 trillion of debt, giving investors an almost certainly false sense of security.

And so on. But as can be seen from our tour of investor deleveraging, what begins as a seemingly isolated event in the markets – concern about housing prices – can quickly infect almost every sector of the markets and even, eventually, the broader economy itself.

So where does it all end, and when?

If we knew that we would be sitting under a palm tree on Fiji! The real question is not where or when does it end, but whether there is something so singular about this particular crisis that makes it fundamentally different from the four dozen or so other crises we've weathered since 1930, and therefore unprecedented and more like the 1929 crisis.

And the answer to that is…?

Unequivocally "No!" Sure, this crisis is "different" in the sense that there are new financial instruments and practices that haven't been tested in previous financial crises (derivatives, securitization, mark-to-market accounting, etc.), but it's the very nature of a free market economy to develop new products and usages, not all of which will stand the test of time (remember portfolio insurance?). It wasn't that long ago, for example, that nothing more exotic than high trading volumes – something we take entirely for granted these days – nearly brought the stock market to its knees. And many people have predicted for two decades that the next financial crisis would be triggered by derivative instruments (we're still waiting). The high leverage that caused firms who made entirely correct investment

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bets to blow up (Sowood, Peloton, Carlyle Capital)[11] isn't even a new phenomenon: Long Term Capital Management pioneered that particular means of self-destruction way back in 1998.

So what's a poor investor to do?

The usual platitude – stay the course! – is defective only because most investors aren't on the course to begin with. Sticking with a portfolio that was (badly) designed to flourish during a period of massive liquidity and very low interest rates is a good recipe for personal bankruptcy. Investors owning such portfolios would be well-advised to go to cash and rebuild from scratch. Naturally, our predilection would be for them to hire a superior open architecture firm to design and implement that new portfolio. But the truth of the matter is that if those investors would simply identify eight asset classes and spread their assets evenly across them, then rebalance once a year, they would be (mainly) just fine.[12]

The platitude – stay the course! – *does* apply to investors who went into the crisis with well-diversified portfolios. While these portfolios have experienced a couple of nasty quarters, those results are survivable and the portfolios are well-positioned to rebound nicely when markets return to normal conditions. (As happened with such portfolios after the bear market of 2000 - 2002.)

And, assuming the core portfolio is well-diversified, the main thing investors should be doing now is making money.

Are you joking?

Not at all! It's easy to make money in bull markets – in fact, the dumbest investors typically make the most money, because they ride the bubble all the way to the end. (Then, of course, they blow up.) It's during difficult markets that thoughtful investors have the greatest competitive advantage. When there is blood in the streets and everyone else is running for cover, opportunities spring up like flowers after a cloudburst in the desert.

We suppose you can cite examples….

You bet:

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[11] In other words, historically logical trading bets can in fact go haywire occasionally, and investors who over-lever such trades may be unable to stay in business long enough for logic to reassert itself: "The market can stay irrational longer than you can stay solvent." (Keynes)

[12] The problem, of course, is that as soon as the good times roll around again these same investors will be back on the bubble, albeit with fewer assets to lose this time around.

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* Immediately after the credit crunch struck last August, and continuing to this day, retail investors abandoned closed-end corporate bond funds in favor of US Treasuries. Discounts on the funds widened out to roughly 20%(!), while yields reached 8% or so. Buying a diversified portfolio of these funds was like picking up hundred dollar bills on the sidewalk.

* Even before the credit crunch, astute investors noticed that housing prices were due for a fall and that mortgage underwriting standards had all but disappeared. Shorting subprime mortgages[13] and, later, Alt-A mortgages, proved to be the trade of the century.[14] (Ok, it's a young century.)

* After seven years of extraordinary returns, and with housing prices headed south, the idea of shorting REITs seemed to have merit. In fact, the return differential between managers who shorted REITs in 2007 and the performance of REITs broadly was something on the order of 3,000 basis points. (At this writing we would prefer to be with a manager who was both short and long REITs, as opportunities in the real estate sector are beginning to crop up again.)

* As everyone knows, many hedge funds are, for all practical purposes, closed to new investors. But when a financial crisis hits, some of the investors in those funds get clobbered elsewhere in their portfolios and redeem, opening up slots for nimble investors who can make quick decisions. (The trick, of course, is knowing which previously closed funds are truly great investors and which were simply lucky!)

* When there is a credit crisis, opportunities naturally arise in credit sectors, as investors stampede for the exits, dumping good securities along with the bad. It can be a dicey proposition distinguishing one from the other, so the best bet at this early stage is to stick with a manager who has long experience in credit and the size (in terms of assets) to negotiate direct deals with banks and corporations.

* Speaking of banks, the entire financial sector has been laid waste by the credit crunch, even though many banks have virtually no subprime mortgage exposure. Buying financial

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[13] One more-than-slightly-interesting phenomenon was the spectacle of certain large firms – we won't mention names – busily packaging and selling CLOs stuffed with subprime mortgages while they were – at the same time! – busily shorting subprime mortgages for their own accounts. Exactly where a society should draw the line between over-regulation and tolerance of appalling conflicts of interest is a legitimate topic of debate, but we would certainly draw the line somewhere short of here.

[14] It's important to note that there is a big difference between recognizing that housing prices were too high and profiting from that fact. The timing of the short trade on mortgages had to be perfect and the structure of the short bet had to be exactly right.

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stocks now isn't without its risks – witness Bear Stearns, which tripped up many astute investors – but a thoughtful program of buying into the best-run, least-exposed banks could prove highly profitable when the crunch has run its course. There are several super-regional banks, and many smaller banks, that would be candidates.

* Saying Treasuries have been over-bought is like saying the sun rises in the east – in mid-March Treasury bills were yielding 0.30% (the lowest since 1947).

We could go on and on – people actually pay us for this stuff – but you get the idea: hold fast to the diversified core of your portfolio, while around the edges take advantage of opportunities as they present themselves. By the time the financial crisis has passed, your (wealth) advantage over other investors will be very significant.

You make it sound so attractive that pretty soon we will be looking forward fondly to the next financial crisis!

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