Drobny Guest Research

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Interest rate fears continue to mount. A move by the BoJ looms, the market is braced for more by the FED and, this morning, an ECB member talked of acceleration and a possibly 50bps. This is adding to EMG turmoil, with Europe now at the center. And, the latest asset wobbles seem to (finally) be infecting the US junk bond market as well.

All this makes Lee's piece increasingly important. It is the outcome of conversations and discussions between several members of the group, trying to get to the bottom of what looks like a potentially nasty problem (what one smart guy calls a 'vast swamp'). One difficulty we've had was in finding a direct trade idea from the discussion, other than the usual bank crisis type of trades. Any ideas, comments and suggestions would be especially helpful……. – *Andres Drobny*

The Crash of '08

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Credit default swaps (CDS) occupy an ecological niche that was once reserved for banks. Banks used to be subject to infrequent but exciting panics. Banking panics were mostly eliminated during the second half of the 20th century after the formation of the Fed (though the Fed was hopeless during the 1930s), the FDIC, and the creation of some tough banking regulations.

If banks and CDS share some attributes, could the CDS market precipitate something akin to a banking panic?

Banks and CDS

Banks and CDS are alike because both provide insurance against a debtor's default. In the case of CDS the insurance is direct and easy to see. So is the fee. How much must be paid in the event of a default or other credit event, such as a downgrade, and what constitutes a default, are specified in the contract. The fee – the cost of the insurance – is set by a buyer and a seller. They are intermediated by a broker, generally a bank, and then the price fluctuates according to market conditions.

In the case of a bank the insurance is subtler. A bank makes loans. If they are not repaid on time the bank must make good out of its own equity. So if a loan defaults the bank

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pays. Of course a bank receives a fee for taking on this risk, just as a seller of CDS does. For a bank loan the fee appears as the spread between the loan's interest rate and Libor.

What causes bank panics? Let's look at what happens when a bank makes a loan to 'ABC' Corporation. For the bank, credit an account called something like 'deposit account of ABC'. Debit an account called 'loans owed to us'. For the borrower, 'ABC' Corporation, debit 'bank deposits' and credit 'bank borrowings', ie. Debt'.

Now suppose 'ABC' fails to pay. The bank makes good out of its equity. But there is an externality. The bank has to use its scarce capital to make good a defaulted loan, and the bank's equity capital falls when a loan defaults. As a result the bank may have to reduce its loan portfolio, either prudentially or because of banking regulations. Then some unfortunate third party, someone who had nothing to do with ABC -- say, 'DEF' Corporation -- gets drawn in. DEF has the misfortune of having its loans called, or it finds it cannot roll over a maturing loan. DEF has to sell its assets at fire sale prices. That is itself an externality that justifies government regulation of banks. Notice that it may get worse. DEF may go bankrupt if it doesn't have enough liquidity to make good immediately. Then the bank has to cover DEF's loan out of its own equity, too. The bad loans can multiply, even though neither the borrowers nor the lenders acted imprudently. But that externality is not the big problem. It is dwarfed by a much more important externality.

Recall that all this started when the bank made a loan to ABC, and credited 'deposit account of ABC'. As you know, this is how money is created. What happens if the word gets out that the bank's capital has been impaired? Or that DEF Corporation, and others like it, are short of liquidity? Then other banks, acting prudentially, try to become more liquid by reducing their loan portfolios. They refuse to roll over maturing debt in order to build up their capital reserves. In other words, bad loans cause the bank to withdraw some of its capital from loan production.

Of course it can get worse. Hearing nothing but bad news about ABC and DEF and many others, depositors may decide to play it safe. They may withdraw their funds from their bank and put them under the mattress instead.

But the banking system's reserves – hard cash – are much less than its deposits. The banks cannot provide all the liquidity depositors demand on short notice. They can try to call in loans owed to them. That just makes the liquidity position of the corporate sector more desperate. Some banks may even fail, unless the Fed bails them out. ***They don't fail because they don't have good assets. They fail because they don't have enough liquidity to satisfy their panicky depositors. The problem begins to engulf the entire financial system, particularly the stock market, as the money creation mechanism collapses.***

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Notice that one root of the problem is leverage. Banks have less cash than they have deposit obligations. A sound bank has assets, but not enough immediately available liquid assets. A second cause is the allocation of a bank's capital. In normal times the bank is willing to use its capital to make loans so long as the spread over Libor is sufficient, risk adjusted. During a crisis the bank wants to withdraw capital from loan production no matter what the spread is. The bank loan market freezes up.

A CDS plays the same debt insurance function that banks do. But a CDS does not create money, as a bank does when it makes loans. That means CDS cannot cause a collapse of the money supply the way a banking panic can. That is a big difference, but not one that eliminates the potential for the CDS market to crash.

Anatomy of a CDS Crash

I believe the following stylized facts describe the market for CDS:

If the CDS market were to collapse, then the disintegration would spread to the stock and bond markets, and affect many people who neither buy nor sell CDS. That is, there is a potential externality associated with the CDS market.

Recall that the root problem that gave rise to bank panics was leverage. The CDS market has leverage, too, in two ways. First, CDS sellers can lose far more than the fee they receive. CDS is a leveraged credit bet. ***Second, and more importantly, the availability of CDS had encouraged bondholders to use more leverage than they would do otherwise. They are partially insured, so they take more risk.***

Issuers of CDS could default. Nevertheless, they are seldom subjected to much credit analysis. A CDS seller could use many brokers, and there is no central clearing house. Consequently, nobody – save the issuer himself – need see the issuer's whole book, if he wants to keep it hidden. In a crisis this makes banks less willing to buy CDS, and if they cannot buy CDS to hedge their positions they will not want to sell CDS either. This makes the market prone to freeze up during a crisis.

An issuer of CDS faces an unusual payoff. Almost all of the time he pays nothing, he just collects income, because the underlying bonds do not default. On a very few occasions he loses a fortune, because the underlying bonds do default. This encourages CDS sellers to overissue, since if there is a crisis all the issuer can lose is his equity. There is 'moral hazard' in the CDS market.

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For most other derivatives, issuers and holders can solve their credit risk problems by marking-to-market, with a subsequent exchange of margin. This won't work easily for CDS. For CDS the appropriate margin is either 0%, or close to 100%. ***Defaults occur as a step function, all at once, rather than, as in normal swaps, the underlying degrading gracefully over time.***

Banks need capital to support their CDS trading desk. During normal times the amount of CDS the bank wants to sell depends on how much is costs to buy back the same CDS elsewhere. In other words, it is determined by the bid/ask spread. During a crisis the bank's CDS buying or selling is determined by the amount of capital the bank wants to allocate to the CDS desk.

There is no lender of last resort, or an equivalent of the FDIC, for the CDS market.

Let's use these to tell a lurid tale, the story of the Crash of '08.

On day 1 there is a big bond default, or the threat of one, or a major CDS issuer defaults on his obligations under his CDS contract. There is the beginning of a panic. Some lucky CDS shorts manage to buy back their CDS. That eliminates those CDS and reduces the quantity available in the market. By day 1.5 there is no liquidity for CDS in one or two particular names. People who have previously sold CDS scramble trying to get out at any price, but nobody will make them a market, or the price is based on silly bid/offer spreads. Why so? Why does the price just not rise enough to clear the market? Because banks have already started to withdraw capital from their CDS desks, so CDS buyer/seller intermediation is being disrupted.

On day 2 all CDS sellers of all names are trying to lighten their positions. VAR systems, seeing rising volatility and rising correlations among CDS issues are signaling that the banks must allocate more capital to the CDS desk. Bank management wants to pull capital back. Liquidity dries up for any name. Some issuers do get out by buying back previously issued CDS, sometimes at extortionate prices, and this reduces the quantity of CDS in the whole market. Any CDS that matures is certainly not rolled. The market is collapsing. It is freezing up.

On day 2.5 rumors are already circulating that a big CDS issuer is in trouble. Bondholders -- particularly levered ones -- are trying to sell corporate and sovereign names. They may have good assets, but without CDS their positions are too big to hold, and they can see the CDS market drying up. Credit spreads explode. The stock market is falling fast. Treasuries are up 4 points.

On day 3 the Fed cuts the Fed Funds rate, and calls around to the money center banks to

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tell them the discount window is very much open. Back offices struggle to figure out who owes what to whom.

On day 4, a Senator appears on CNN to ask "How could we have permitted a market this big and this fragile to exist without regulation?" The editorial page of the WSJ is explaining why no regulation is just the right amount of regulation. The New York Times is taking the other side. The Times probably wins the argument, and new regulations are promulgated governing CDS.

Epilogue

A CDS crisis would have three elements in common with an old-fashioned banking crisis. First, there is leverage. Second, there are credit issues that may only surface once a crisis has begun.

Third, and perhaps the most important, is capital adequacy and capital allocation within banks. Banks' attempts to be prudent can make a banking crisis, or a CDS crisis, worse. Markets do not just move – the price changes rapidly. Instead the market may freeze up – no trades are done at any price.

The use of VAR systems will only make the capital problem worse. We may think our modern risk systems make for less systemic risk, but we may be wrong. Caveat Emptor.

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Andres Drobny comments: Why expect this to wait till 2008? If Lee is right, then there can be people out there who are right on a position, but lose money. So, for example, they buy EMG assets, equities or corporate bonds and pay away some bp's to buy CDS protection. But, as Lee's crisis unfolds, the assets devalue ***and*** the CDS may not pay (and those that are 'insured' will have to spend a lot of time trying to figure out their NAV!).

Lee's discussion also hits at what may prove a very significant point. Because the CDS market offers the perception of insurance, its rapid growth over the recent past my well be responsible for an overshooting of asset values……

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