FINANCIAL TIMES
ft.com/alphaville

A timely confirmation of risky behaviour

Posted by **FT Alphaville** on Jan 11 15:48.

ECB papers are rarely the most riveting of reads but sometimes one crops up which is more attention-grabbing than usual...

This particular case, a paper by Biais, Heider and Hoerova, may be of interest as it at first glance appears to confirms what many already suspect — that hedging, while aimed at sharing risk, can lead to more risk taking. But it isn't in the way that you would think. The additional risk-taking isn't on the part of the hedger (they don't actually model that), it's on the part of the entity that sold the hedge.

First, a health warning

A gigantic sentence of caution here: this is a highly stylised paper with a mathematical model that makes many simplifying assumptions and contains no actual data.

FT Alphaville likes this paper though. It's a good start for analysing some potentially perverse incentives that are created by the credit derivatives market, and the authors also have some interesting discussion about how certain behaviours and activities (like posting margin) may, in some cases, prove destabilising or increase systemic risk. This is how academic research works.

Think about it like this: an economist comes up with a mathematical model around preferences (utility functions, etc) and concludes that demand will decrease when prices go up. Then, a different economist comes along, pumps some data into the model and shows that the model holds. Then a financial crisis happens, someone tries the same out on two-year Swiss or German government bonds and finds that the model breaks. Back to the theoretical modelling to define Giffen goods then.

The simple message being that even purely theoretical models have value when they encourage testing and discussion. We just want you to beware overly ambitious headlines about the results of this ECB paper.

What the paper says

Imagine a CDS protection seller and a buyer. Furthermore the seller has a pile of other assets that aren't the CDS. At the start of the contract, the CDS is fairly priced in that the premiums paid from the buyer to the seller perfectly compensate the seller for the potential default, given the probability attached to said default.

Now, imagine an unexpectedly negative news story comes along about the company that the CDS contract is referencing. The CDS seller is out-of-the-money and has a liability on her balance sheet. The buyer of protection is in-the-money and hopes that the seller can pay out if the company does actually default. In other words, the buyer of protection now has counterparty risk to the seller.

Remember how we mentioned that the protection seller also has other assets? Well, if the seller applies effort in monitoring those assets, then things will go well, the seller will remain a going concern and it should be no problem at all to pay the buyer in case the CDS trigger.

But, the thing is, effort is costly. It's exhausting. Frankly we'd rather play Angry Birds all day. In any case, who (in the narrow economic sense) gets the benefit of our effort to monitor our assets?

The protection buyer!! That thieving bastard!!

Confused? Yeah... welcome to economics.

Go back to when the CDS contract was signed. At that point the cost was zero. That's how the contract priced. But now, it's a liability for the seller. Whether the seller can pay is dependent on the ability to pay. The ability to

pay is dependent on the risk taken on other assets. And here's where the highly stylised analysis starts to feel a bit real...

Imagine if you were the Chief Risk Officer of Lehman Brothers and you knew that if you continued as you were, with all that mortgage-related exposure, you wouldn't be able to pay your debt, and your counterparties in about a year's time. What do you do about it? Well, hell, you double-down, don't you? You Repo 105 to buy yourself time. Bring on the risk, baby!!

What the ECBers have modelled in their paper is that tipping point where you throw your hat in. At least, they've modelled it in a small way, as their highly stylised world only involves two modes of actually trying to manage your risk: you do or you don't.

Another thing they do, is look at what role margin posting has to play.

Anyway, here it is in their words, but emphasis ours:

> *...when the protection seller observes bad news about the underlying asset of the derivative trade, the trade becomes a liability for her. For example, on observing a strong drop in real estate prices, sellers of subprime-mortgage CDS anticipate the positions to move against them so that they would have to make insurance payments.* ***The liability embedded in the derivative trade undermines the incentives of the protection seller to exert effort to reduce the downside risk of her other assets.*** *Similar to the debt overhang effect analyzed by Myers (1977), the protection seller bears the full cost of such efforts while part of its benefits accrue to the protection buyer.*

Got it?

What it comes down to really is the concept of limited liability. The protection seller can effectively walk away from her debts by going bankrupt. Hence the mathematical result is so intuitive and the conclusion is (actually): limited liability increases risk-taking behaviour.

The first valuable addition of the paper, therefore, is to say, "hey world, this debt overhang thing also applies to CDS liabilities and here's how." Hence you may want to watch developments like this a little closer:

> *Credit default swaps are steadily accounting for a larger proportion of flows in credit markets, as the illiquidity of bonds has seen a growing number of end-users turn to derivatives to hedge and take risk over the past year.*

That's from Chris Whittall in another amazing piece of reporting of his on IFR.

Back to the ECB researchers though:

> *This incentive problem limits the capacity to share risks and generates endogenous counter-party risk. Optimal hedging can therefore lead to contagion from news about insured risks to the balance sheet of insurers. Such endogenous risk is more likely to materialize ex post when the ex ante probability of counterparty default is low. Variation margins emerge as an optimal mechanism to enhance risk-sharing capacity.*

In other words, since there may be an incentive for the seller of protection to just throw in the towel, it raises doubts about whether CDS will actually be able to transfer risk (given the counterparty risk that naturally arises). While it may be in the buyer's interest to hedge, it is only transferring strain and bad incentives to the seller.

Of course it could be that the seller is just a good institution with good practices for managing risk and doesn't shirk her duties.

> *Those with good risk-management incentives reduce their risky exposures and engage in risk-prevention* ***while those with poor risk-management incentives retain or even enlarge risky exposures and engage in risk-taking.***

As per the previous quote, margin may also have a role to play.

But then... here's how that paragraph went on:

> ***Paradoxically, they can also induce more risk-taking.***

Dammit.

Now on this point, let's depart from the model for a moment and go to the theory of margin:

> *The first benefit of margins is direct and straightforward: The amount placed in the margin account is available to pay the protection buyer even if the protection seller defaults.*
>
> *The second benefit of margins is indirect and more subtle: The cash in the margin account is no longer under the control of the protection seller and therefore ring-fenced from moral hazard. Thus variation margins relax incentive constraints and therefore increase incentive-compatible insurance.*

About whether that means margins are good or bad:

> *Interestingly, these two benefits of margins can have opposite effects on risk-taking. Because of their indirect effect (less severe moral hazard), margins reduce the risk-sharing cost of incentives. This makes the risk-prevention effort more attractive, and hence tends to reduce risk-taking. But, because of their direct effect (cash available to pay insurance in case of counterparty default), margins reduce the value of risk-prevention effort. This can encourage risk-taking.* ***Thus, the overall effect of margins on risk is ambiguous.***

So there's good **and** bad when it comes to margins.

Another thing that's bad about margins is how much cash they tie up. More derivative trades = more margin = less cash available to lend to you know, the real economy. FT Alphaville mentions this in passing while tipping our hat to the researchers of the ECB.

By Lisa Pollack and David Keohane

Related links:
Will a Central Counter Party Tame Derivatives Market Risks? – Naked Capitalism
Counterparty risks distort insurance protection, says ECB paper - CentralBanking.com
Clearing vs collateral – FT Alphaville

This entry was posted by FT Alphaville on Wednesday, January 11th, 2012 at 15:48 and is filed under Capital markets. Tagged with credit derivatives, hedging, margin requirements, margins, moral hazard.

Comments

Gosh! Less cash available to lend. So you're saying available capital has become a by-product of the activities of a casino? I remember reading about that somewhere...

The IFR piece is interesting.

To the extent that "end users" of CDSs become a greater part of the market, it should become more viable as a risk management tool. That is, it will be possible to buy protection from someone whose business is less centred around writing insurance. Sure, they aren't riskless, but they are less likely to be leveraged and vulnerable. The trouble with the market as it stands seems to be that it's just leveraged dealers taking bets - which increases risk. These dealers would still warehouse positions to add liquidity (and some may get it wrong), but there begins to be a hint of a "real" market developing.

Developing in a rather back-to-front way, it's true. Eg interest rate and currency swaps began with transactions between end-users, and only once that volume had grown and some liquidity was evident, did the braver banks such as Bankers Trust start to underwrite finding counterparties and, later, to position.

Do they mention the idea that posting margin dimishes the incentives for monitoring by the buyer? That also seems relevant if you are going to try and look at all the effects.
