

## **Derivatives: Understanding their usefulness and their role in the financial crisis**

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A derivative is an agreement between two parties to exchange cash, goods or other securities in the future according to some pre-arranged rules. Neither of the two parties pays or receives a significant amount of cash upfront. Only margins are posted to ensure the performance of the obligations of the counterparties under the agreement. Should one of the parties default, the other party can seize the posted margin and compensate itself for the losses incurred.

Mortgage backed securities (MBS) and collateralized debt obligations (CDO) played a crucial role in the financial crisis. But they are not derivatives. Investors pay for these securities upfront and then receive the subsequent cash flows to which they are entitled.

Until early September 2008, the spectacular failures of the financial crisis were caused by a combination of high non-derivative leverage and falling prices of mortgage loans, MBS and mortgage backed CDOs, which are not actually derivatives.

Lehman's financial condition deteriorated as a result of not derivatives but too much borrowing and high exposure to real estate related assets. Lehman's bankruptcy did trigger the liquidation of its large derivatives positions. Moreover, firms that had written insurance on Lehman's debt in the form of credit default swaps (CDS) had to make good the losses. But Lehman's OTC derivatives books were relatively liquid and balanced. Their liquidation was not disruptive to the financial system.

Prices were volatile after Lehman's default but the markets for interest rate swaps and CDS on corporate bonds did not break down. Also, no derivatives counterparty failed because of having lost or having to replace its derivative contracts with Lehman. Some counterparties might have lost money while others gained. But these were zero sum outcomes.

At the time of Lehman's bankruptcy, there were \$ 400 bn of outstanding CDS referencing Lehman. But few market participants had made large one sided bets on the credit quality of a single firm. When the uncertainty was resolved, on October 21, 2008, it turns out that only \$ 6-8 bn was owed by protection sellers to protection buyers. The amount of offsetting trades was very large. So there were no systemic consequences following the settlement of CDS written on Lehman.

Derivatives did play an important role in the collapse of AIG which had sold \$ 78 bn of CDS protection on mortgage backed CDOs. As MBS prices fell, counterparties demanded collateral. While AIG had to be bailed out, we must remember that CDS on CDOs was not the only contributory factor. The securities lending business also lost a lot of money and drained substantial amount of cash.

Only about 28% of the bailout package was used to manage and eventually liquidate AIG's derivative positions. AIG's largest derivatives counterparties were also not as badly affected as it was made out to be. Their exposure ranged from 1.3% of equity to 7.6%.

Synthetic CDOs made up a relatively small part of risk taking in residential mortgages, i.e. about 8-15% of residential mortgage risk, which resided predominantly in the cash markets.

Mandatory clearing, an important provision of Dodd Frank could have been of little help in mitigating the financial crisis. A central counter party will agree to clear a particular derivative only if it can confidently both price the security and calculate the margin amount. Synthetic CDOs and AIG's CDS on mortgage products were the only derivatives that contributed to the financial crisis. And they were far too illiquid to have cleared. Since the passage of Dodd Frank, only the most liquid derivatives, namely interest rate swaps and CDS on government and corporate bonds have been forced into clearing. But these derivatives did not really contribute to the crisis.

Derivatives are useful for managing business risk. They can be dangerous if misused because of their embedded leverage. But other forms of leverage can be equally dangerous. It is unfair to single out derivatives. Restrictions on the use of derivatives may not make the financial system safer. They may only end up creating a situation in which various business risks that had been managed with derivatives will sprout up in their absence.