Are CDOs, as we know them, finished?

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Executive summary

Collateralized Debt Obligation (CDOs) and other credit risk transfer instruments have been much discussed in the wake of the subprime crisis and much of this discussion has been on the negative side. Many banks and financial institutions have burnt their hands in dealing with these instruments after it was found that the quality of the credit had been overstated and that the exact implications of the terms of the instruments had not been understood as clearly as they should have been.

This dissertation takes a look at the causes of this crisis, possible remedies and also some recent trends.

In the beginning…

Collateralised Debt obligations (CDOs) are securities that represent a portfolio of different financial instruments or assets. They constitute a class of credit risk transfer instruments combine the following three mechanisms:

(a) the construction, by a financial institution, of a reference portfolio comprising a pool of bank loans and/or negotiable financial instruments (bonds, other debt securities, etc.), and/or credit derivatives. CDOs are usually backed by heterogeneous exposures to a limited number of names;

(b) the de-linking of the portfolio's credit risk with that of the originator of the portfolio *via* the use of a Special Purpose Vehicle (SPV), that issues the CDO and holds the underlying assets;

(c) the tranching of CDOs backed by this portfolio. Each tranche has a specific seniority rank in terms of the rights to the cash flows generated by the underlying assets or credit derivatives. The senior, mezzanine, and equity tranches have decreasing ranks in terms of these rights. The risk and return offered by these tranches increase symmetrically. Whereas the senior and mezzanine tranches generally have an original maturity of close to five years and offer bond-type returns, the equity tranche does not have a predefined maturity and offers a return linked to the performance of the underlying portfolio, which has no *ex ante* upper or lower bound.

CDOs have been in the limelight after the subprime crisis – the collapse of financial institutions and the present economic turmoil. Many questions have been raised about the future of these instruments. These questions range from regulatory issues to attacking the very basis of issuance of CDOs. Credit derivatives have been blamed for whatever ills are travelling around the market today.

Do CDOs do what they are meant to do?

The question to ask here is whether lending practices have changed in light of the new credit risk management products. This addresses the ability to lend, the willingness to lend, and possibly the degree of thoroughness contained in the process of due diligence which has typically attended most bank lending activities.

It is said that insurance can have the paradoxical effect of producing risky and wasteful behavior. This is a "moral hazard" for good reason. Insurance is an attempt to make human life safer and more secure. But, if those efforts can backfire and produce riskier behavior, providing insurance becomes a much more complicated and problematic endeavor."

Have banks really become less cautious in their lending behavior? There are a number of factors which make this more of a discussion point than a well-posed question in search of a definitive answer. Recent advances in banking deregulation, the Basel Accords, modernization of financial markets, the evolving role of financial institutions, consolidation in the banking (and especially the investment banking) industry, heightened competition, collapsing spreads, innovative products and new technology, make the answer to this question difficult.

A 2007 paper on credit securitization by Hansel, Dennis says: "*we find evidence that the securitization of debt provokes banks to change their (systematic) risk inversely proportional to their financial performance… In other words, financially weak firms increase their systematic risk by more than financially healthier firms, everything else equal*."

And subsequently, the impact on the banking industry…

"(T)he role of banks as the ultimate holders of credit assets has become less important. … We are therefore witnessing a fundamental change in the business of banking from buy and hold strategies to so-called 'originate-to-distribute' models." - Dr. Nout Wellink, President of Netherlands Bank and Chairman of the Basel Committee on Banking Supervision (2007)

If the real worry is systemic risk, a more fundamental threat comes from the change in the structure of the banking industry whereby credit risk is packaged into tradeable IOUs or hedged via credit derivatives and shunted off bank balance sheets. This, combined with the marked decline in risk premiums and in lending standards, is the story of credit markets this decade. The mechanics of moral hazard in the exponentially growing newer financial markets entail the destruction of the old relationship between banker and borrower. This is because banks no longer retain the credit risk in much of their lending. They originate and distribute; and where the intention is to distribute, the lender is inevitably less bothered about loan quality.

And of course, the markets…

The ability to minimize financial fluctuations and lessen price volatility are typically not included among the benefits associated with free markets. Was the unprecedented level of sub-prime lending a result of a change in the market's appetite for credit risk, a reflection of the influx of ready, new investors into this area, or simply an error on the part of those who assessed the risks in this case? Those who sing the praises of free markets usually assert that, while markets are not always correct and can frequently be "wrong", they are generally not stupid.

In the age of derivatives-enabled structured finance, the term "private equity" has become passé. Nearly every financial buyer deal we see coming to market involves a large degree of debt finance, regardless of the type of sponsor. Looking at the staggering numbers for public and private bond

issuance in 2006, measured in the trillions of dollars, it seems clear to us, at least, that OTC derivatives and kindred structures like CDOs are driving a process whereby assets are being packaged and sold at prices that understate the true economic risk.

Impact on credit cycle:

If there were no bankruptcies, defaults, repudiations, or need for restructuring, credit markets (and credit derivative contracts in particular) would be dull and uninteresting. In the end, it will be credit events that test these products, contracts, markets, and institutions.

Credit risk is influenced by both business cycles and firm-specific events. Credit risk typically declines during economic expansions because strong earnings keep overall default rates low. Credit risk increases during economic contractions because earnings deteriorate, making it more difficult to repay loans or make bond payments. Firm-specific credit risk is unrelated to business cycles

Instruments like CDOs tend to disrupt the natural credit cycle by hiding unworthy borrowers behind a gossamer of financial ingenuity.

Criticism of the CDO market:

Most of the anxiety that has been voiced centers on three aspects of this market: (1) the sheer size of the notional outstanding (and, more importantly, the fact that the face amounts being traded in many names – independent of the added volume via credit indices – are integer-multiples of the current notionals outstanding in that name's debt: bonds and loans); (2) the increasing involvement of the hedge fund community in this market; and (3) the operational backlogs and issues surrounding confirmations, clearing, and settlement.

To give an example of another credit instrument - the total size of the CDS (credit default swap) universe is now believed to be 10 times bigger than the total pool of underlying cash bonds.

CDOs are difficult to model, and therefore, to value:

Credit risk is more difficult to model than market risk for several reasons. First, the lack of a liquid market makes it difficult – or impossible – to price credit risk for a specific obligor and tenor. Second, true default probabilities in the market cannot be observed. Users must determine these probabilities by either inferring default rates based on observed historical experience of the public credit ratings, using a model such as KMV's Credit Monitor, or determining the default rate through a subjective credit approval process. Third, default correlations are quite difficult to observe or measure, making it hard to

aggregate credit risk. And fourth, to calculate the equity/capital cushion, it is necessary to estimate the tail risk probabilities of asymmetric, fat tailed loss distributions."

Which side are the banks on?

When one looks at aggregate market data on credit derivatives broken down by market participant, it appears that banks/dealers account for about half of the buying and half of the selling. In short, the marketmakers are probably acting as marketmakers. They drew a distinction between what they called their "flow business" and their "structured business" – the former being primarily a marketmaking operation or market conduit and the latter generating trades that would likely not be backed-to-back (even if they were ultimately hedged using more standardized credit products).

Bank-owned and operated SIVs (Special Investment Vehicles):

SIVs are essentially hedge funds by another name. They invest in risky and sometimes illiquid assets; they use significant amounts of leverage and credit in their operations; and they are not transparent. Investors in such funds are well-capitalized, savvy individuals, firms, and mutual funds. These funds remain outside the financial safety net; in the event of difficulties, their principals can choose to restructure them or close them down. According to Moody's (September 5, 2007), there were some 30 SIVs and the total volume under management of SIVs and SIV-Lites had nominal values of approximately US$400 billion and US$12 billion respectively at the end of August 2007. The weighted average life of the asset portfolios in these vehicles is in the 3-4 year range.

The problem arises when SIVs are initiated by banks (which are protected by a country's financial safety net). Some SIVs are wholly owned and operated by a commercial or investment bank, with bank employees running the portfolio and the same bank providing the credit line. In such cases, financial engineers simply disguise and repackage traditional banking, and the distinction between the bank protected by a safety net and the SIV left to its fate becomes wholly artificial. Among other things, banks are in the business of maturity transformation (they use short-term funding to make long-lived long-term investments). Here the maturity transformation by which banks use short-term funding to make long-lived term investments occurs through the off-balance sheet arm, outside the purview of regulators.

As the credit crisis intensified and the mortgage-backed securities held by the SIVs suddenly started to decline in value, some of the ABCP were downgraded, sometimes all the way to default within a few days. An increasing number of SIVs became unable to roll their ABCP and turned to their sponsor banks for rescue. HSBC was the first bank (November 28, 2007) to transfer US$45 billion of assets on to its balance sheet. Other banks soon followed: Standard Chartered took (December 5, 2007) US$1.7 billion, Rabobank (December 6, 2007) took US$7.6 billion, and Citigroup (December 14, 2007) US$49 billion.

This is not a complete listing. Société Générale bailed out its investment vehicle with a US$4.3 billion line of credit (December 11, 2007).

It follows that banks that own and operate SIVs should bring them onto their balance sheets, and those SIVs should be subject to regulatory scrutiny.

Role of Rating Agencies:

The role of modern credit rating agencies is to provide specialized intelligence, in the form of publicly-available ratings, for use by investors seeking to price opaque securities. The subprime crisis suggests that the rating agencies' execution of this function was subpar. They failed adequately to distinguish between the riskiness of different securities. They were too generous in providing AAA ratings. They failed to downgrade mortgage-backed securities as the housing market and hence the value of the underlying mortgage obligations deteriorated. They then aggravated the crisis by reacting with wholesale downgrades once the market collapsed.

One explanation for this dismal performance could be that these instruments are difficult to model. In building their estimates of default probabilities on historical evidence, the rating agencies used data from both good and bad times for corporate bonds but only data from good times for newer assets (since these novel products had never previously experienced serious market turbulence.).

A second problems, stems from the use of ratings by bank regulators. Basel II directs regulators to use bond ratings to determine the range of permissible bank investments and, for (smaller) banks lacking their own internal models, weighted capital requirements. unsurprisingly, banks have responded to this delegation of public authority by applying subtle pressure on the rating agencies to elevate the entire spectrum of bonds a couple of notches, without necessarily disguising information about relative risks, in order to widen their investment choices and lower their capital costs. This dynamic works to heighten banking-sector risk and subverts the intent of regulators' use of bond ratings.

A related source of problems concerns the agencies' conflicts of interest. Rating agencies first earn fees from advising on how to structure bonds and derivatives so that these receive the desired rating. They then have a not-so-subtle incentive to rate those issues in the promised manner. There is talk of separating the rating-issuing and advisory roles of agencies.

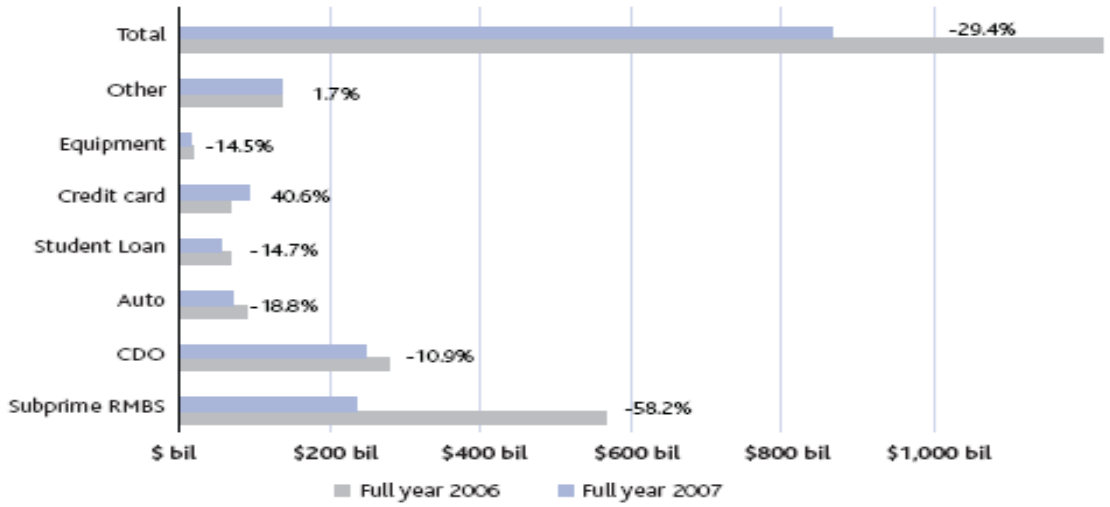
Absence of exchange

CDOs are characterised by their opacity. With one layer of derivatives built on another built on another, even specialists incompletely grasped the risks of the structured products they had bought. Because holders rarely traded these securities, their market value was elusive at best; often holders relied on their own complex economic models, with all of its limitations, to assign a value.

One explanation for the severity of the current crisis stresses that brokers trade CDOs and RMBSs over the counter (traditionally by telephone but now electronically) rather than through an organized exchange. An exchange would require participants to hold margin in order to maintain positions. It would subject nonbank participants to the equivalent of capital requirements. It would encourage instrument standardization, enhancing transparency and the liquidity of the market for distress sales.

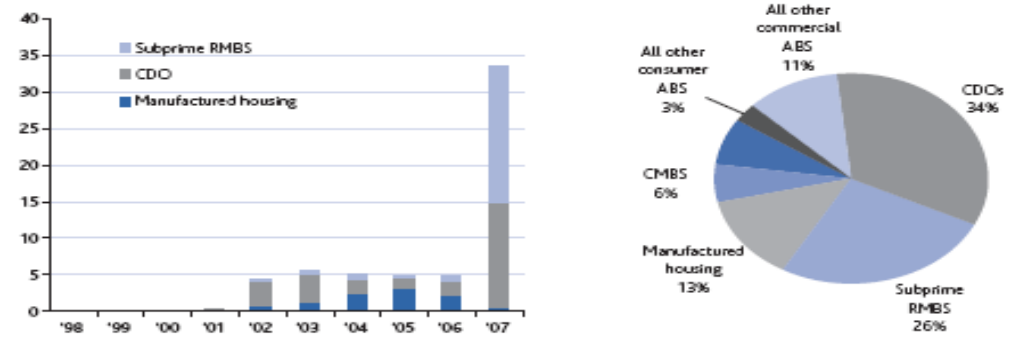
Present Distress in the CDO market:

Figure 2: Issuance of US ABS falters



Source: Thomson Financial Securities Data. Deutsche Bank

Figure 3: Expanding distressed market in US ABS (data as of year-end 2007)



(a) Securities downgraded to double-C or lower by at least one rating agency
(b) Cumulative totals of securities downgraded to double-C or lower by at least one rating agency

Source: : Deutsche Bank, Moody's, S&P, Fitch

Conclusion:

So what do we do? Go back to CDO-less days, citing the reason that the costs of securitization, in the form of risks to financial stability, exceed the benefits? But this would lead to lesser liquidity and would be tantamount to giving up on advances in financial technology and also in information and communications.

The class of assets that CDOs falls into needs to be looked into from a regulatory angle – to ensure greater transparency in the pricing and trading of these products. Also, the extent to which instruments actually transfer risk should be investigated in detail and brought onto balance sheets and public disclosures of banks and publicly-traded companies.

The first law of risk management says: Risk is neither created nor destroyed, just repackaged and redistributed.

CDOs need to be tested against this golden rule. They shouldn't be increasing the risk of the system. They shouldn't become the 'unknown unknowns'.

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