Credit derivatives and structured credit products: transforming the debt capital markets

The market in structured credit, driven by an increasingly liquid and transparent market in credit derivatives, is only now beginning to take off. The opportunities for the debt capital market, and the benefits for a wide range of market participants, are increasing as new products are introduced on a seemingly monthly basis. In this article, by dint of discussing a small sample of products that demonstrate the wide application of credit derivatives, we aim to illustrate how the market in credit is being transformed – much as the way the market in interest rates was transformed after the introduction of interest-rate derivatives in the early 1980s.

Credit derivatives growth

The market in credit derivatives has grown significantly in a short space of time. Figure 1 shows trading volumes from the start of the market reported by the British Bankers Association, with estimated figures for 2004-2006. If recent growth rates are any indication, the actual figures for these years will be higher than these estimates.

The key to the applicability and accessibility of the product is its flexibility and its increasing transparency. As shown in Figure 2, credit derivatives enable the market to trade credit as an asset class in its own right. In certain sectors the market in synthetic credit is more liquid and transparent than cash, such that the credit default swap (CDS) market is used as the pricing source for cash market products. This is the "tail wagging the dog", which was first observed for interest-rate products after a liquid market for swaps and futures had developed in the 1980s. To continue the analogy, the availability of a liquid market in the basic product – the CDS – allows banks and other financial institutions to structure hybrid products that tailor a risk/reward profile directly to a customer's requirements. Thus, the key objective of a financial market, intermediation between the suppliers and users of capital, is achieved more efficiently.

The convergence of a number of factors has contributed to this growing accessibility of the market. These include:

- standardized documentation: the 1999 and 2003 ISDA standard definitions has reduced translation and legal risk for market participants;
- greater transparency: credit derivative brokers such as CreditTrade and third-party price providers such as Mark-It Partners assist in a wider dissemination of prices;
- index products: the availability of standardized credit indices such as iTraxx and CDX in Europe, North America, Asia and emerging markets, provide investors access to a benchmark credit product in both funded and unfunded form;
- growing maturity: market events such as 9/11 as well as high-profile defaults such as WorldCom and Parmalat have left a perception that the market is maturing and able to cope with such disruption;
- a wider market: the sources of market growth include (i) more participants, such as regional banks, insurance companies, corporates and institutional investors as well as the traditional investment banks and

Figure 1 Credit derivatives trading volume growth

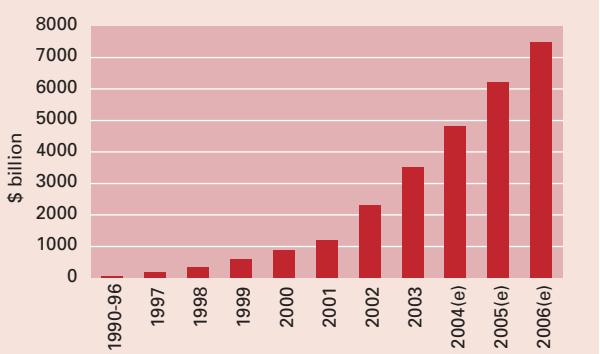
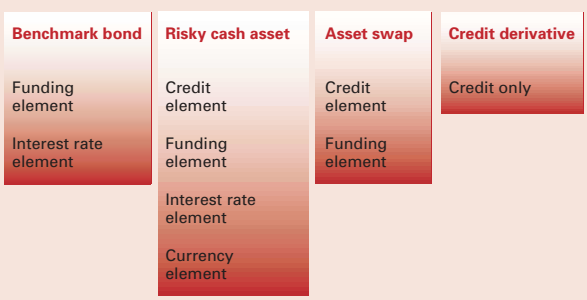


Figure 2 Credit derivatives isolate credit as an asset class and risk element



"The key to the applicability and accessibility of the product is its flexibility and its increasing transparency"

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hedge funds; and (ii) more products such as index and portfolio products; and crucially;

- a growing number of underlying reference credits, including middle market loans, receivables and mortgage assets.

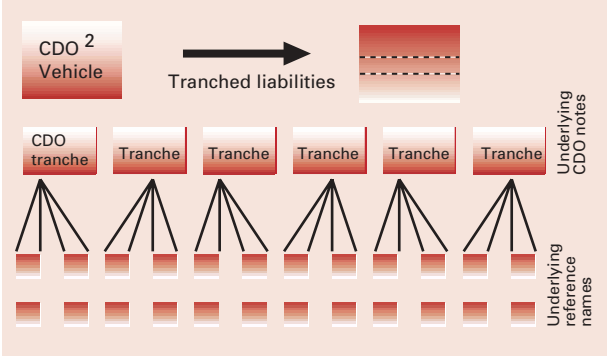
The remainder of this article discusses new products that illustrate the flexibility and wide application of the credit derivative and synthetic structured credit market.

CDO squared

The collateralized debt obligation (CDO) market, a development of the cash securitization market, was well established when, combining the technology with credit derivatives, banks originated synthetic CDOs (see Anson et al, 2003). The synthetic CDO provided greater ability to provide tailor-made structures for originators and investors alike. The CDO-squared (CDO^2) is the latest product in synthetic CDO development, although the market has witnessed also the CDO^3. A CDO^2 provides investors with greater leverage compared to a standard CDO, with more exposure to credit risk and less-so to event risk. It also increases the choice of risk/reward profiles for investors.

In a CDO^2, the liability notes are linked to an underlying portfolio of CDO notes and sometimes asset-backed security (ABS) notes. As a result the structure may reference as many as 1000 names or more, with some names repeated in underlying note tranches. Figure 3 shows a representation of the structure, with six CDO tranches, although in practice this number has ranged from five to 20 (DrKW 2004).

Figure 3 CDO^2



The rationale behind CDO^2 is appealing for certain investors. If the underlying notes include ABS as well as CDO notes, investors can potentially benefit from exposure to a diversified portfolio that might not be readily accessible otherwise. Because CDO^2 notes have lower exposure to event risk than in a standard synthetic CDO, they are able to withstand a higher number of reference entity defaults before suffering loss. However the proportionally greater leverage means that as defaults start to mount, the level of losses is faster. This risk means that investors receive a higher spread, for the same ratings risk, compared to CDO noteholders.

As with standard CDOs, CDO^2 liability side can be unfunded, partially funded or fully-funded. The key factor for investors to be aware of is the double subordination in a CDO^2 note. In a standard CDO, losses in the underlying portfolio feed through immediately to overlying notes, in order of subordination. This would only affect CDO^2 notes when the losses in an underlying CDO reached the specific level to affect the tranche being held in the portfolio. Thus CDO^2 investors benefit from an extra level of protection from credit events. This double subordination enables the CDO^2 to withstand a higher frequency of default of the ultimate reference entities.

The other key factor behind CDO^2 is higher leverage. Given that a synthetic CDO is itself a leveraged product, CDO^2 leverages this leverage. The impact of this is that, although the notes themselves begin to be impacted after a higher number of defaults, the effect is magnified once notes do start to suffer loss.

Investment opportunities: structured finance bond credit default swaps

We have noted how for many reference names there is greater liquidity in the synthetic market than in the cash market. This is key in the area of ABS and mortgage-backed security (MBS) issuer reference names, where the dearth of supply of paper in the cash market has led to a market in ABS/MBS CDS trading.

Market-making banks now quote prices for CDS written on MBS issues, which enables investors to access this market where they would otherwise be unable to, because there is no cash market paper available. This is of value to investors where the size of specific issue

Figure 4 Tranche size of selected recent home equity MBS issues

Bond	*CUSIP number*	*Amount issued $mn*	*Interest frequency*
ACCR 2004-3 2M7	004375BX8	7.665	Monthly on 25th
CWL 2004-6 B	126673BL5	46.0	Monthly on 25th
NCHET 2004-2 M9	64352VGJ4	19.374	Monthly on 25th

Source: Bloomberg L.P.

tranches is very small. For instance, consider Figure 4 where we see the tranche size for three recent MBS issues.

All three bonds were part of new issues, for first settlement in September 2004. The small size of these Note tranches is a key reason behind the low availability of paper. We see that only $7.6 million of the ACCR bond is available, a very low figure in any securitization. The entire securitization itself is a large issue, at a total of $766.43 million, but the tranche in question – the Baa3 / BBB-rated 2M7 piece – made up less than 1% of this total. Given this paucity of supply, the bond can be sourced more easily in the CDS market.

We observe similar characteristics for the two other bonds in our sample. The Countrywide Asset-Backed Certificates transaction is made up of a total of $4.426 billion in 12 different tranches; the mezzanine tranche rated Baa3 / BBB was issued in size of only $46 million. The total size of the New Century Home Equity Loan Trust deal was $1.937 billion, while the mezzanine tranche was issued in size of only 1% of this total.

The CDS contracts written on these structured finance securities have minor differences in their terms compared to vanilla single-name CDS instruments. This includes:

- a premium payment set to match the payment date of the cash bond, in this case a monthly payment on the 25th of each month. The standard CDS payment terms are quarterly in arrears;
- in practice, an un-fixed maturity date. The CDS written on these bonds is set to match their maturity. For instance the ACCR 2M7 tranche has a weighted-average life of 5.4 years. This is of course an estimate based on a specified pre-payment rate, which is standard practice for all RMBS bonds. In reality, the bond may well pay off before or after 5.4 years. The CDS contract language specifies that the contract expires when the cash bond itself is fully paid off.

Investors can access a greater notional value of bonds than is actually in existence. For instance the CDS that references the ACCR 2M7 tranche can be for a notional of $10 million. This is more than the actual amount in existence of the physical bond. Hence, it is standard practice for all structured finance CDS contracts to always be cash-settled instruments.

By setting the terms in this way, investors are able to access these types of names and asset classes where the cash market bond is no longer available to them, by selling protection on the bond tranches using a CDS.

The CDS market maker that is the counterparty to the CDS investor may gain from acting in this business in the following ways:

- buying protection on this class of assets releases economic capital that can be invested in higher-yielding assets elsewhere;
- it may be able to find similar assets in the cash market that yield a higher spread than the CDS protection it is paying for;
- it can treat this business as trading activity – CDS market making – and seek to gain a trading profit.

Irrespective of the motivation of the investor and the CDS counterparty to these trades, this business illustrates the contribution to market liquidity of credit derivatives.

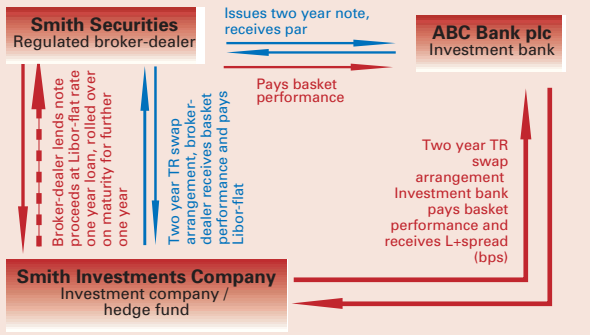
Treasury desk application of credit derivatives

Credit derivative-based synthetic funding structures are now being used for liquidity and balance sheet asset-liability management by banks and other financial institutions. The structures combine credit derivatives such as total-return swaps with commercial paper (CP) and medium-term note issuance vehicles, and enable originators to raise Libor-based funding from the wholesale inter-bank market. This includes synthetic asset-backed CP vehicles and off-shore SPV financing vehicles (Choudhry 2004).

Many investment companies hold positions in illiquid assets, such as Hedge Fund of Funds shares, or other difficult-to-trade assets. It is more difficult to raise funds in the wholesale markets using such assets as collateral, because of the problem associated with transferring them to the custody of the cash lender. The advent of credit derivatives and financial engineering has enabled companies to get around this problem by setting up tailor-made structures for funding purposes. An example of this is a combined referenced-note and total-return swap (TRS) funding or liquidity structure that raises cash in the wholesale market via a Note and total-return swap (TRS) structure that references a basket of illiquid assets.

Assume two entities that are part of a bancassurance group: a regulated broker-dealer ("Smith Securities")

Figure 5 Combined Note and TRS funding structure



and a hedge fund derivative investment house ("Smith Investments Company"). The investment house raises funds primarily from its parent banking group; however for diversity purposes it also wishes to raise funds from other sources. One such source is the wholesale markets, via a Note and TRS structure, illustrated at Figure 5.

The lender is a bank ("ABC Bank plc"). It is willing to advance funds to the investment company, secured by its assets, at a rate of Libor plus 20 basis points. This is a saving on the investment company's marginal cost of funds, and comparable with its parent Group funding rate. However its assets cannot be transferred as they are un-tradeable, and so cannot act as collateral in the normal way one observes in (say) repo trades.

Instead we structure the following in order to enable the funding to be raised:

- ABC Bank plc does not lend funds directly, instead it purchases a two-year Note at a price of par. The return on this Note is linked to the performance of a basket of assets held by Smith Investment Company. Assume Smith Investment Company is an unregulated entity, hence the Note is issued by its sister company, Smith Securities;
- the funds raised by the sale of the Note are transferred, in the form of a loan, from Smith Securities to Smith Investment Company at Libor-flat;
- simultaneously the two companies enter into a TRS arrangement, with start and maturity dates matching that of the Note. Under this TRS, Smith Securities receives the performance of the basket of assets, and pays Libor-flat;
- also simultaneously, Smith Investment Company and ABC Bank plc enter into a TRS arrangement whereby the Bank pays the performance of the basket of assets, and receives Libor plus 20 basis points.

The net cashflow of this structure is that Smith Investment Company pays ABC Bank plc Libor plus 20 basis points, and raises funds via the proceeds of the Note issue by Smith Securities. The economic effect is that of a two-year loan from ABC Bank to Smith Investment Company, but because of legal, regulatory, operational and administrative restrictions we need to have the structure described above to effect this.

Conclusions

The structures described above are a small sample, but illustrate the depth of variety in the structured credit market. Such products, to which we can add numerous others not mentioned (such as single-tranche CDOs), are only possible to structure and trade in the presence of a liquid and transparent market in credit derivatives. This enables market participants to be aware of an explicit price for credit. A recent paper (Gibson 2004) notes how the adoption of securitization technology in the synthetic market proves that the cost of arranging a CDO is lower than the cost an investor would incur were he to construct a portfolio of assets with similar risk/return profile and tranched risk. Investing individually in required assets incurs higher cost in the cash market, and one that is avoided in the synthetic structured credit market. There remain issues for the market to consider, for instance Gibson *(ibid)* notes that CDO tranches are exposed to correlation risk, yet default correlation itself is a value that is unobservable in the market. Nevertheless the existence of the products themselves, and the greater opportunity they afford both originators and investors, suggests a sea-change transformation in intermediation in the credit market.

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