

Credit Derivatives

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Abstract

Credit-line management and “regulatory arbitrage” are two of the most important applications of credit derivatives motivating market participants to purchase protection against credit risk. Funding arbitrage and product restructuring are important factors that motivate market participants to sell protection against credit risk.

Credit-line management is particularly relevant for dealing with situations where a bank is over-concentrated in loans to companies in specific sectors of the economy, for example, because it has a comparative advantage in originating loans in those sectors. While concentration risk can be mitigated by other means (such as selling loans in the secondary market or originating loans in non-traditional sectors), there are advantages to using credit derivatives for this purpose.

To begin with, loan sales can potentially damage valuable client relationships. Second, the origination of loans in non-traditional sectors can expose the bank to new risks. Credit derivatives can help banks to diversify their loan portfolios more costeffectively, without damaging client relationships.

If used inappropriately, however, they can exacerbate some of the risks that market participants regularly face. Moreover, the use of credit derivatives can potentially distort existing risk-monitoring and risk-management incentives.

We will examine two kinds of credit derivatives: credit swap and credit option.

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Introduction

By surveying the academic and practitioner literature on this argument, this paper will give readers a basic understanding of credit derivatives.

We will start by describing the actual credit derivatives market development just to understand which is the importance of these instruments and which is their main use in banks today. We will spend some words about their relationship with the old and the new Basel Capital Accord to provide some basic information on this important argument.

Section 2 provides a description of two kinds of credit derivatives, credit swap and credit option, analyzing their structure and their uses to cover credit risk.

In the last section we give a summary and concluding remarks.

1. Credit derivatives market

The credit derivatives market is relatively small compared with other, more mature, derivatives markets (e.g., derivatives markets for interest rates and currencies), and represents about 1 per cent of the underlying principal (or “notional”) value of the global volume of over-the-counter derivatives¹. However, it is growing rapidly, reflecting the fact that credit derivatives have proven to be a very useful means of managing the relatively large and growing volumes of credit risk that global markets deal with on a daily basis.

Several observers have suggested that global markets are faced with much larger exposures to credit risk (than to interest rate or currency risk). They therefore suggest that the credit derivatives market has virtually unlimited growth potential².

This enthusiastic assessment, however, overlooks a number of practical difficulties. First, the documentation underlying these transactions can be quite complex and lengthy, and the interpretation of credit-event clauses (i.e., determining whether or not a contingent payout has been triggered) can be difficult. Second, the market for these derivatives is not perceived to be very liquid (with infrequent trading in specific credits) or transparent (given the over-the-counter structure of the market and the relatively small number of marketmakers who actively quote and disseminate prices). In addition, credit risk will always be a less standardized and more complex “commodity” than interest rate and currency risks (whose homogeneity has helped propel the growth of other derivatives markets).³

Finally, a number of market participants have suggested that regulatory capital charges on credit derivative positions, particularly when they are being used in a hedging context, make credit derivatives a prohibitively expensive hedging tool.

¹ Caouette J.B., Altman E.I. and Narayanan P. (1998), p.304.

² “The growth of credit derivatives?”, *Financial Time*, October 7, 1998, p.1.

³ Cossin D. and Piroette H., (2000), p. 301.

1.1 Regulatory landscape

Banking supervisors have been supportive of the credit derivatives market within the confines of their interpretations of the BIS regulatory capital framework. Broadly speaking, the regulatory treatment of credit derivatives depends on whether the position is “uncovered” or hedges an existing position.

The regulatory capital charge on an uncovered position is generally the same as the charge on an equivalent cash position in the reference asset. For example, the sale or purchase of protection on a corporate bond that draws an 8 per cent capital charge, would also draw an 8 per cent charge⁴.

The capital charge on an existing position that is hedged with an offsetting credit derivative can be reduced to the charge associated with the counterparty, if the counterparty is more creditworthy than the issuer of the reference asset (within the BIS credit-risk framework). For example, if a corporate bond held in the banking book (on which the capital charge is 8 per cent) is offset by a matching credit derivative with an OECD bank (on which a 1.6 per cent charge applies), the capital charge on the bond is reduced to 1.6 per cent. Essentially, the credit risk of a properly matched position is deemed to relate primarily to the potential for default by the derivative counterparty.⁵

A number of market participants have suggested that the counterparty-risk charges on positions that are deemed to be matched are too high. They argue that the purchaser of protection will face a loss only if the reference asset and the seller of the protection default simultaneously. As a result, they believe that historical default correlations should be used to recognize this “added” level of protection⁶. However, given that default correlations have proven to be quite unstable over time, banking supervisors remain justifiably skeptical about the extent to which these correlations could be used to reduce capital charges on matched positions. Anyway, this is the position to which is moving the New Base Accord, that should be implemented at year-end 2006, and then is expected to increase the credit derivatives use.

⁴ BIS, (1988).

⁵ Saunders A. (1999), p.186.

⁶ Das S., (1998).

2. Types of credit derivatives

Credit derivatives are swap, forward, and option contracts that transfer risk and return from one counterparty to another without actually transferring the ownership of the underlying assets. Similar products have been around for centuries and include letters of credit, government export credit and mortgage guarantees, private sector bond reinsurance, and spread locks⁷.

Credit derivatives differ from their predecessors because they are traded separately from the underlying assets; in contrast, the earlier products were contracts between an issuer and a guarantor. Credit derivatives are an ideal tool for lenders who want to reduce their exposure to a particular borrower but find themselves unwilling (say, for tax- or cost-related reasons) to sell outright their claims on that borrower.

They were introduced by banks in the early 1990s. The bank has to find a counterparty that will assume the credit risk in exchange for a fee, while the bank itself retains the asset on its books. In this way the bank hasn't to sell its loans, risking to lose the opportunity of future business with that borrower⁸.

Credit derivatives can cover any part of the credit risk, not only the bankruptcy risk, but the risk of downgrade, too.

The derivative seller is called protection seller, while the other is the protection buyer.

2.1 Credit options

It is possible to find two types of credit option:

- Credit spread option (call or put)
- Default option.

The second one is very simple: it is an option that pays a stated amount in the event of a loan default (Figure 1).

⁷ Duffee G.R. and Zhou C., (1999).

⁸ Smithson C. and Hayt G. (1999), p. 54.

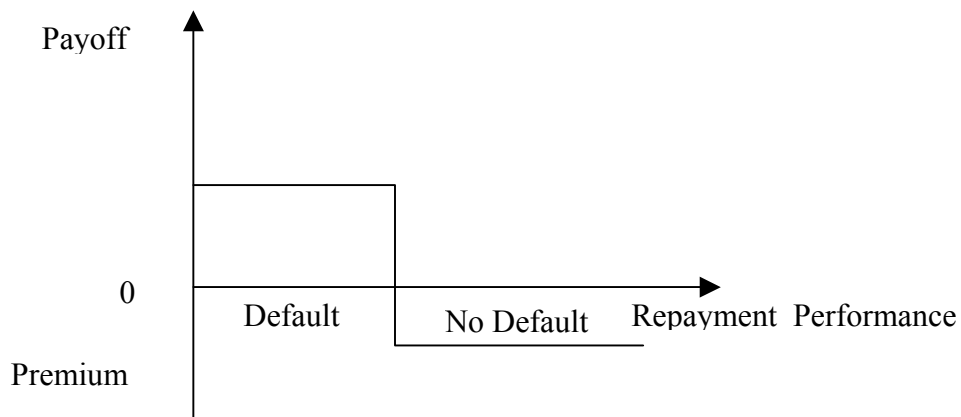


Figure 1 - Credit default option graph

Credit spread put options are somewhat similar to total-rate-of- return swaps in that they do not rely upon any specific credit event occurring. A credit-spread put option consists of the buyer who wishes to guard against an increase in the spread, where spread is the yield differential between an asset held by the buyer and usually a interest-rate swap, and a seller who writes the put option. The buyer pays a one-time fee to the seller and in return the seller agrees to pay some agreed upon amount should the spread breach some preset level. The benefit here is that during times of heightened uncertainty, especially concerning emerging markets, risky assets can decrease in value with no apparent cause which renders default swaps useless since they only provide protection in the case of some credit event. A credit spread put option would be useful in this situation because it would entitle the holder of the risky asset to a payment as soon the yield spread passed some preset threshold. Therefore as this riskier asset now declines in value, due not to a credit event but instead to some financial crisis or panic, the holder is compensated by the seller of the credit spread put option.

Obviously, in the case that the payoff increases as the credit spread on a borrower's specified benchmark bond increases above some exercise spread, we will have a credit spread call option (Figure 2).

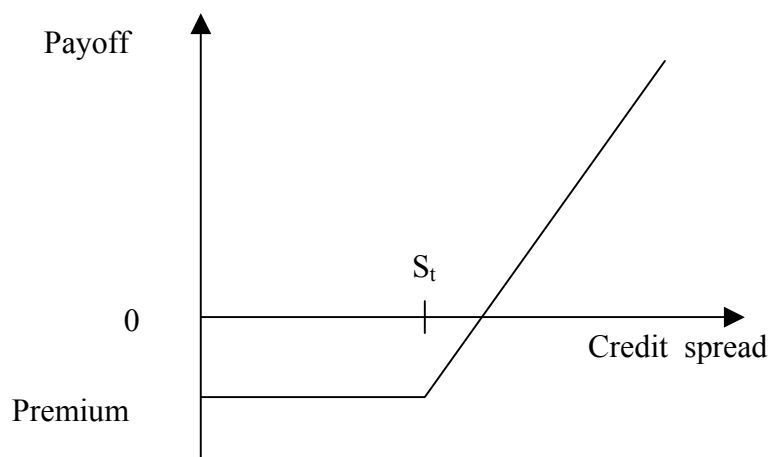


Figure 2 - Credit spread call option graph

2.2 Credit swap

As for the options, it is possible to find two types of credit swap, too:

- Credit default swap
- Total return swap.

Default swaps simply transfer the credit risk of an asset from one party to another. The holder of an asset, suppose a bond, would pay a periodic fee to the "risk buyer" and in return would receive some agreed upon payment in the case of some credit event, a default, bankruptcy, credit downgrade, etc⁹. The usefulness of these is straightforward as they help hedge against events which would cause a dramatic decrease in the value of an asset (Figure 3).

Total rate of return swaps have a "total return purchaser" who pays a periodic fee to the "total return seller" in return for the total net payments of some underlying asset. In this case if the underlying asset increases in value the "total return purchaser" receives this higher return but if the underlying asset depreciates in value then the "total return purchaser" pays the value of this decrease to the "total return seller". In the case of a default or some other credit event of the underlying asset the total rate of return swap usually terminates (Figure 4).

⁹ Hargreaves T., (2000).

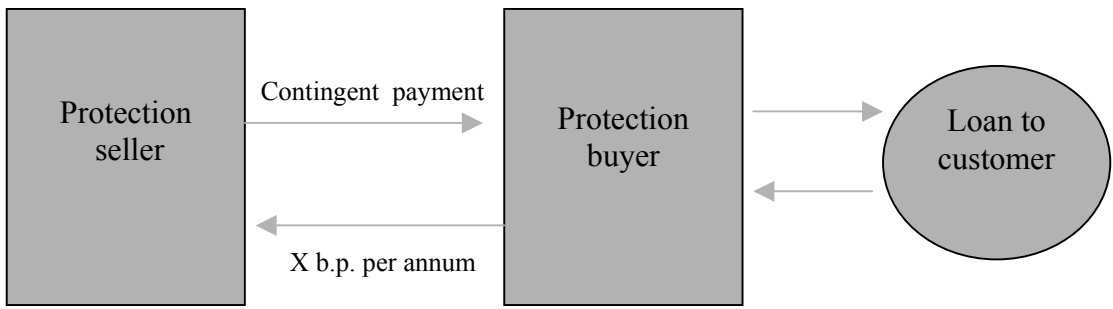


Figure 3 - Credit spread call option graph

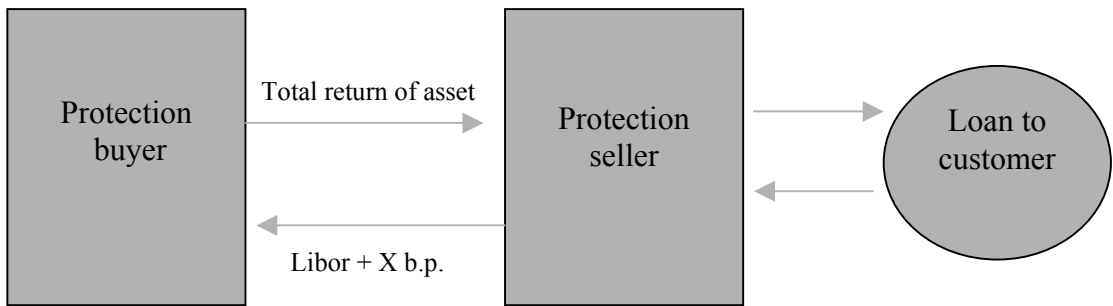


Figure 4 - Total return swap graph

3. Conclusion

This paper has looked at the role that credit derivatives are playing in allowing banks to hedge the credit risk of their loan portfolios.

The BIS capital requirements still not actively encourage the use of this instrument, but banks are attracted to them because of their attitude in improving loan return risk trade-offs without harming customer relationship.

Anyway, for the future, there are good hopes that the New Basel Capital Accord will change the present situation increasing the diffusion of credit derivatives and so probably they will have the right potential to help banks balance their conflicting goals, the goal of focus (achieving comparative advantage in credit evaluation administration by concentrating in selected areas) and the goal of diversification.

Some simple example of credit option and credit swap were discussed to show their structure and their functions.

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