

Question 2: Credit Derivatives

Overview

There has been a phenomenal growth in credit derivatives trading over the past five years. The emergence of credit derivatives comes from the progressive decomposition of financial risk. A traditional financial instrument will typically confront a series risks – liquidity risks, interest rate or price risks, currency risks, contingent risks, and default risks. Correspondingly, derivatives can be classified based on the form of risk that is being transferred – interest rate derivatives, currency derivatives, options, and credit derivatives and so on.

Credit risk is the potential economic loss which results from that the counterparty fails to fulfill its obligations. Credit derivatives are defined, according to Das (2005), as *“a class of financial instrument, the value of which is derived from an underlying market value driven by the credit risk of private or government entities other than the counterparties to the credit derivative transaction itself”*. The basic motivation of credit derivatives is to transfer the credit exposure of the underlying assets to a specific counterparty. Banks and institutional investors are the major participants of the credit derivatives market.

The reasons of market expansion

There are several key factors that lead to the rapid development of the market.

The first two of the following factors are the requirements of the whole market.

Others are the specific advantages of credit derivatives which are desirable from the point of view of different market participants.

The first one is the concerning about concentration of credit exposure in bank asset portfolios. The rapid deterioration of credit quality in the asset portfolios in the early 1990s and the poorly diversified structure of bank credit portfolios are the catalysts of the emergence and further development of the credit derivatives market. For instance, the deterioration in the credit quality of the emerging market obligators combined with weak local currency system, high interest rates, asset duration matching problem in local bank portfolios and that the foreign capitals are rapidly drawing out from the Asian markets lead to a systemic solvency problem and finally Asian financial crisis. Market participants began to realize the importance of the transfer of these credit exposures.

Secondly, there are plenty of developments in the management of credit risk. This also triggers the expansion of the credit derivatives market.

Thirdly, credit derivatives enable the market participants to isolate the credit risks from the assets and transfer the credit risks to the counterparties. This allows banks to hedge their credit exposure.

Fourthly, credit derivatives provide non bank investors the opportunity to access new classes of credit assets, such as emerging market assets. Credit derivatives provide market participants the opportunity to manage the credit risk of investments and an efficient mechanism to exchange credit risks.

Another useful function of credit derivatives is price discovery. The cost of credit risk can be observed and measured through the creation of credit derivatives. Credit risk is classified as a unique investment asset class. Credit derivatives entitle investors the ability to add value to portfolios through trading credit risk as a separate sector.

Finally, arbitrageur can trade credit risk to enhance yields and total returns. Credit derivatives can be used by investor to arbitrage the pricing of credit risk.

Credit derivative products

Credit derivatives are over-the-counter instruments. They are roughly classified as the following table:

Table 1¹

Type	Percent
Credit default swaps	73
Synthetic securitizations	22
Credit-linked notes	3
Total return swaps	1
Credit swap options	1
Total	100

Source: RISK (February 2003)

Credit Default Swaps:

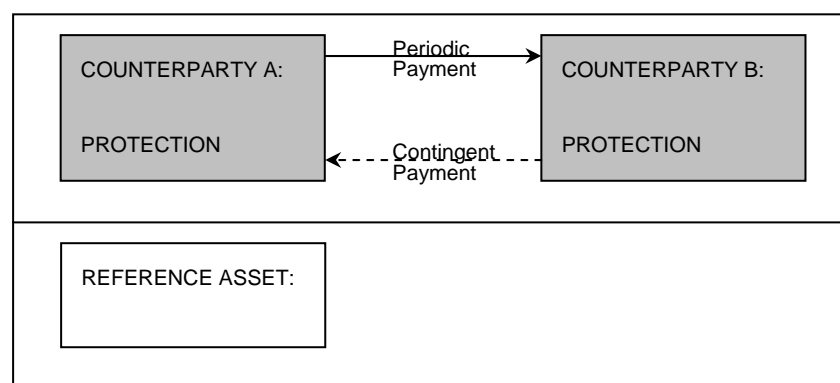
As can be seen from the table above, credit default swaps are the most important credit derivatives and have occupied 73 per cent of the credit market. The instruments are structured to make a negotiated payment when a specific credit event occurs. There are eight possible credit events which are provided in the 1999 ISDA Credit Derivatives Definitions.

For example, a bank (Say A in Figure 1) seeking protection to hedge credit risks inherent in its debt portfolios pays a fee to the counterparty (Say B in Figure 1) providing protection on an identified reference asset or entity. The fee that protection buyer (A) pays could be an up-front amount that is paid at the beginning of the credit default swap transaction or periodic amount quarterly / semi-annually.

¹ Extracted from Jorion, P. (2003). *Financial Risk Manager Handbook* (2nd Ed.).

If the specific credit event occurs, protection seller (B) would make an agreed payment to protection buyer (A) to cover any loss from the credit exposure to the reference asset or entity. If nothing happens, there is no payment by the protection seller (B). Through this process, the bank (A) pays a series of fee or a lump sum to hedge its credit risks.

Figure 1²:



Total Return Swaps:

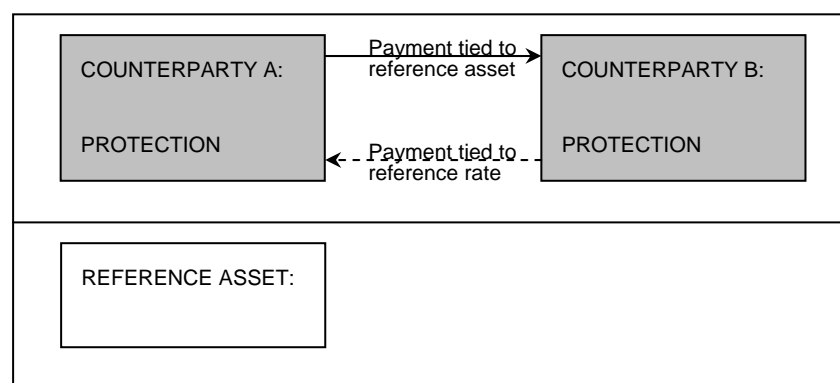
Total return swap is also one of the basic credit derivatives. Two counterparties enter an agreement whereby they swap periodic payments during the agreed period. The reference asset can be almost any asset. Typically, traded bonds and loans are the underlying assets of total return swaps.

Protection seller (B in Figure 2) makes periodic payments which are tied to a reference rate, usually LIBOR, plus a spread. Protection buyer (A) passes through all

² Figure 1-3 are extracted from Jorion, P. (2003). *Financial Risk Manager Handbook* (2nd Ed.).
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payments of the reference asset to the protection seller. Protection buyer (seller) will receive a payment when the price of the underlying asset goes down (up). Both parties' payments are based on the same notional amount. Through this mechanism, protection buyer (A) effectively eliminates the risks of the underlying asset whereas protection sell (B) bears the full risk of the price fluctuations of the underlying asset.

Figure 2:



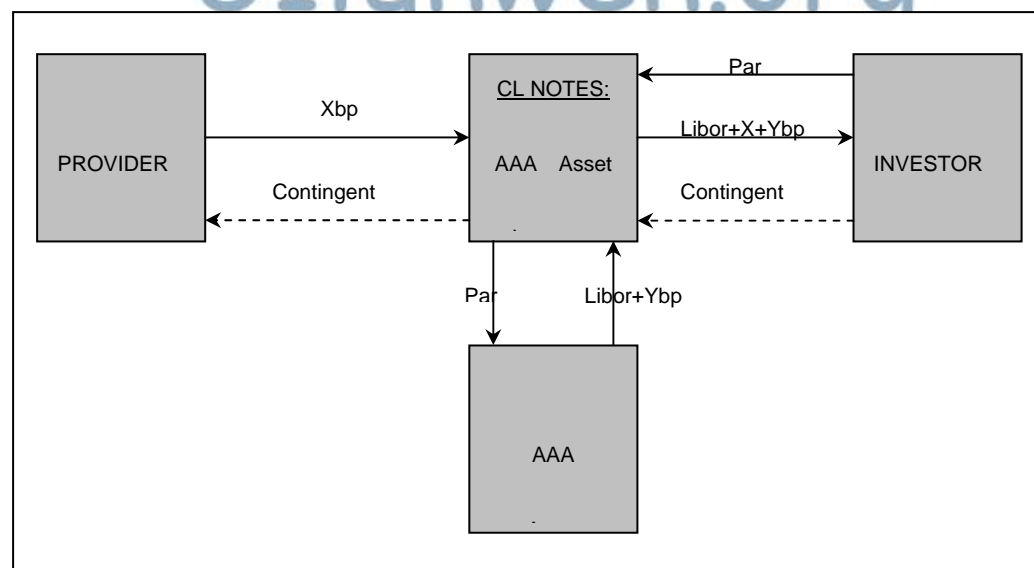
Credit Linked Notes:

A credit linked note is actually a debt instrument with a credit derivative embedded in it. Market participants may take the risk on a specific credit event of the underlying asset, as an exchange; receive a higher yield on the note.

For instance, as shown in Figure 3 below, the trustee gathers all the payments from investors as the par value of the credit linked note. Then, the trustee invests the fund in high quality debt instruments and short a credit default swaps to the provider – usually the bank seeking to hedge credit risks of its portfolio. The process provides the investor the opportunity to receive a higher return which is

$(LIBOR + Xbp + Ybp)$. $(LIBOR + Ybp)$ is the return on the high quality debt asset invested by the trustee and (Xbp) comes from the periodic payments by the buyer of the credit default swap. In return, the investor has to lose some of the principal invested if a specific credit event occurs.

Figure 3:



To sum up, there have been progressive developments in the credit market. Three basic instruments in this market are introduced in the report. A total return swap is not like a real credit derivative. Almost all the economic risks of the underlying asset are transferred or replicated to the risk bearer. Unlike a total return swap, a credit default swap only provides protection against specific credit events. Deferent from both two credit derivatives, a credit linked note is not a stand-alone

derivatives contact. Actually, it is a debt contact with some credit derivative elements built in.

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