

BACKGROUND -NOTE¹

WORKING GROUP ON RATINGS IN STRUCTURED FINANCE NON-CREDIT RISKS IN STRUCTURED FINANCE TRANSACTIONS AND THE ROLE OF RATING AGENCIES

Rating agencies provide investors with opinions on their chances of receiving contractual interest and principal repayments on securities in a timely and predictable manner. This can be a challenging enough task when a security is linked to the performance of a single obligor. It is far more demanding in structured finance, where there are multiple obligors and the issued securities are tranching to provide investors with varying combinations of risk and return.

In formulating an opinion on a structured finance transaction, a rating agency will obviously have regard to the credit risks attaching to the obligors in the underlying portfolio, including the correlation of these risks. But they also need to assess a significant number of non-credit risks which will vary in size and complexity, depending on the exact structure of the transaction – whether, for example, the underlying portfolio is actively managed in an attempt to lift returns and/or control the associated risks. Moreover, the complexity of the transaction may prove to be greater in the case of synthetic transactions in which the underlying exposures are generated by credit default swaps.

This paper highlights some of these non-credit risks, particularly those commonly associated with collateralised debt obligations (CDOs). In doing so, it allocates the risks to one of four broad categories:

- those associated with the **liability structure** in which the tranching of securities generates conflicting/competing interests which, if left unchecked, may disrupt the appropriate distribution of receivables to end-investors;
- the non-credit risks attached to the **underlying pool of assets** which may lead to a shortfall in the flow of receivables available for meeting payments to end-investors;
- **exogenous factors** relating to the performance and standing of third parties. In other words, there is no point in the rating agencies satisfying themselves about the structure only to find that value is subsequently destroyed, or appropriated by third parties; and
- the **legal and documentation risks** which may be higher than in traditional finance due to the complexity and novelty of some structured finance transactions

Rating agencies need to assess the totality of these risks before assigning a rating to a security – a process that involves, inter alia, a detailed cash-flow analysis of the transaction under various scenarios. This will establish the potential for any shortfalls in receivables and, where these exist, the adequacy of the proposed credit enhancements to ensure that the risk of default on the notes to end-investors is consistent with the chosen rating. The need to assess the structural features – the “moving parts” of a transaction – is one of the features that set the structured finance rating process apart from that of the traditional ratings process.

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RISKS ATTACHING TO THE LIABILITY STRUCTURE

One of the defining characteristics of structured finance is the tranching of the securities offering investors a variety of risk-return options. This tranching provides both issuers and rating agencies with one of their most challenging tasks – the design of a structure that will appropriately balance the competing/diverging interests of investors of each tranche. Senior noteholders, receiving a fixed rate of return, for example, will want to maximise the quality of the underlying portfolio over the life of the transaction, while equity holders may prefer to trade-off some of the credit quality for higher returns and early repayment. As a result, asset managers are often called upon to make decisions which might be interpreted as benefiting one class of noteholders at the expense of another. Moreover, the managers themselves will often hold an equity position in the transaction, which could align interests with investors, but could in itself become an important potential source of conflict.

There is no single panacea for balancing all of these interests. Instead, the market has evolved a number of structural mitigants and managerial-aligning incentives that help to shape investor interaction and CDO performance.

Payments waterfall

The key to any structured finance transaction is the, so-called, payments waterfall – the set of covenants that dictate the ordering of interest and principal payments and allocation of losses among investors. Under normal circumstances, proceeds from the underlying collateral will be used to pay fees and will then be disbursed to investors, starting from the senior noteholders downwards.

A powerful influence over CDO performance is the treatment of any excess spread arising within a transaction – that is, the difference between interest collected from the assets and the interest payable to CDO noteholders. On one hand, the trapping and redeployment of excess spread provides the senior noteholders with some protection against unanticipated credit deterioration over the full life of the transaction. On the other, quick disbursement of excess spread is equally important to equity holders since front-end distributions will help determine the internal rates of return on the investment. And in many cases this disbursement will have been factored into the returns used to market the transaction to equity investors.

A number of structural provisions exist to balance the competing interest of noteholders and equity investors. In particular, the seniority of noteholders is normally protected by the existence of:

- over-collateralisation (O/C) tests which ensure the existence of sufficient collateral in the underlying pool of assets to cover principal payments; and
- interest coverage tests (I/C) to ensure that there are sufficient interest proceeds to cover interest payments to noteholders².

In addition, protection is also likely to be provided by rules regarding excess spread – rules introduced in reaction to the poor performance of some earlier CDOs which underperformed during the recent economic downturn. Residual excess spread which would have previously leaked out of the transaction is now commonly retained in a reserve fund to satisfy a range of other predetermined

² See attachment for some further detail on O/C and I/C tests.

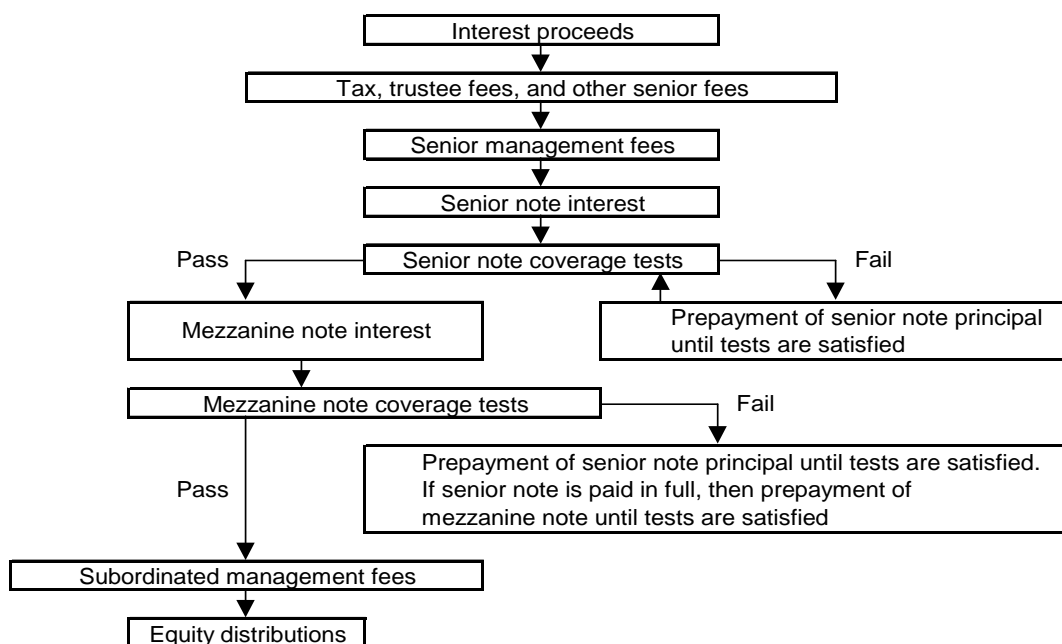
triggers, including minimum average rating levels within the underlying asset pool and concentration limits on single entities, industries, ratings, and other specified categories.

The definition of excess spread has also been extended over time. Traditionally, realised gains from asset sales were classified as “interest proceeds” making it possible for them to flow through the waterfall structure to equity investors. Nowadays, such proceeds are usually trapped to purchase additional collateral assets to protect par value, unless certain conditions are met (e.g. the prevailing O/C ratios are higher than the original levels).

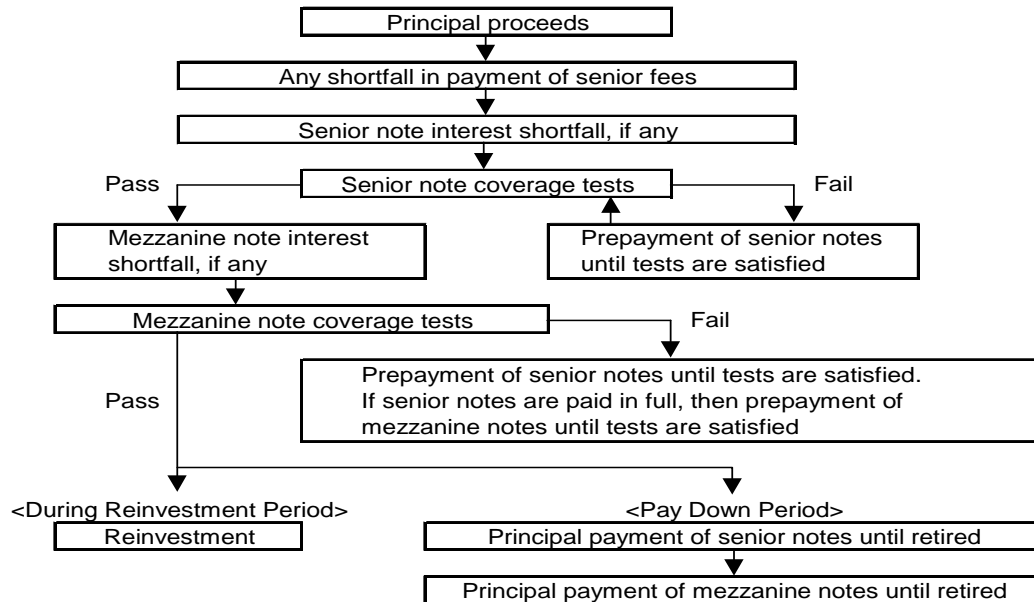
When coverage tests are breached, the structure will protect the senior noteholders by reducing the leverage of the transaction. This is usually done by channelling interest and principal proceeds towards the repayment of liabilities in a sequential fashion – that is from the most senior tranches downwards – until the tests have been fully restored. Under normal circumstances both the interest and principal proceeds flow first to senior noteholders, then down to the mezzanine noteholders and finally to equity tranche investors. However, where O/C and I/C tests have been triggered cash flow will be diverted to protect the senior noteholders (i.e. cash does not flow to investors beyond the trigger point until test requirements are fulfilled). A sequential, or waterfall structure, for a cash flow CDO with three tiers of investors – senior noteholders, mezzanine noteholders and equity investors – is illustrated in Charts 1 and 2.

It is worth emphasising that this process of sequential deleveraging has significant implications for the overall success of a CDO transaction. The early repayment of the least expensive liabilities protects the position of senior noteholders, but it does so by reducing the overall attractiveness of the deal to equity and mezzanine investors. This may be appropriate when the structure is under severe pressure due to a sharp downturn in credit quality within the asset pool. But in some situations, other options may be more sensible – allowing the manager to reduce leverage in the transaction by purchasing more assets, for example. This would ensure that the transaction remains fully invested while preserving the possibility of achieving the rate of return anticipated by investors.

(Chart 1) Cash CDO interest proceeds waterfall



(Chart 2) Cash CDO principal proceeds waterfall



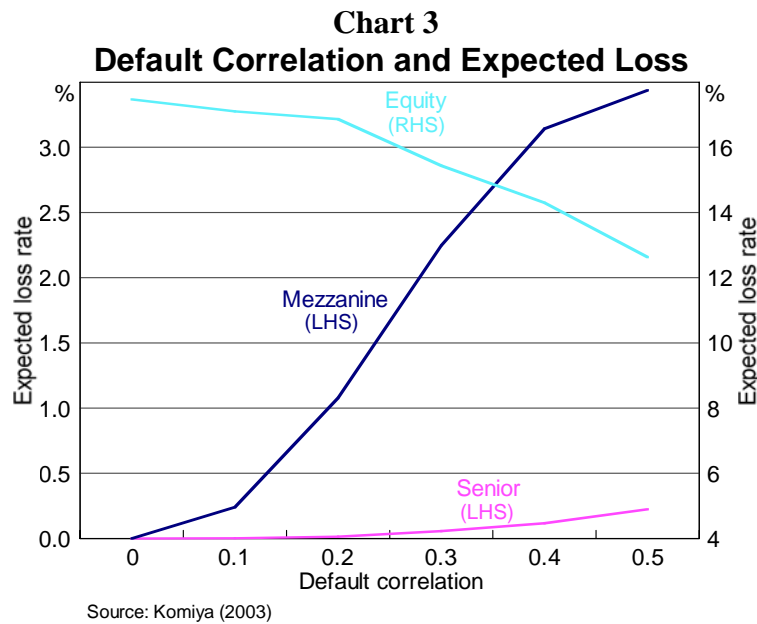
Conflicting interests

The potential for conflicting interests between noteholders and equity investors is particularly pronounced in those deals in which the arranger/manager holds an equity position. This is true both when the portfolio is under construction and in the subsequent trading of an actively managed transaction.

Where the portfolio is assembled from the market, there is an incentive for the arranger to select credits that trade inexpensively (i.e. at a high spread) relative to the weighted average rating, a margin that may reflect lower credit quality. Equity investors also have a stronger interest in higher levels of default correlation in the asset pool (with a higher probability of zero default), since this will reduce their expected loss, while senior and mezzanine investors are best served by low correlation which reduces the probability of a large number of defaults. See Chart 3 below³. In other words, the senior noteholders will be relatively comfortable with a larger number of small defaults, since these will be absorbed by the equity tranche; equity investors by contrast will be happier to take a risk on very infrequent large losses.

Once assembled, the subsequent trading of the portfolio generates a number of areas of conflicting interest between noteholders and equity investors. In some poorly performing managed deals in the past, for example, some managers tended to routinely buy discounted securities and book them to par value, transferring the trading gains to equity holders, including the manager, as excess spread. This also helped managers avoid triggering O/C tests, hence avoiding the diversion of payments to senior noteholders at the expense of management fees.

³ The relationship between default correlation and expected loss for the mezzanine tranche will depend on its relative size compared to senior and equity tranches.



Over time, the rating agencies have designed various structural enhancements to address the problem of ‘par-building trades’ and to improve overall rating stability. These include:

- *Limits on the purchase of low-rated collateral.* CDOs originally had rules which disallowed the purchase of those assets which the manager viewed as likely to default (usually called credit risk securities). Now clauses have been introduced to specifically limit purchases of additional CCC-rated securities.
- *Haircuts for low-rated collateral* to penalise concentrations of such assets. If the percentage of assets rated CCC or below exceeds a certain level of the overall asset pool (e.g. 5 per cent), the excess is discounted when calculating O/C tests. The discounts may be fixed amounts (e.g. 25 per cent), or based on the market value of the collateral.
- *CreditWatch⁴ adjustments.* If an obligor is on CreditWatch, the rating must be adjusted for purposes of calculating default probability in the asset pool. The adjustment is one notch down for a rating that is CreditWatch negative and one notch up if on CreditWatch positive. This limits the ability of managers to buy assets on negative CreditWatch.

Adverse selection is also a problem in balance sheet CDOs, but one less easy to control through structural mitigants. Here the risk to investors is that the originator, usually a bank, has an incentive to transfer credits that, while still conforming to obligor credit rating requirements are in fact those most at risk of deterioration. Moreover, the bank is often in a position to determine the triggering of a credit event and may have considerable influence over the timing and amount of any subsequent loss. There is, in other words, the possibility of substantial moral hazard in the transaction.

Reflecting these various perverse incentives, it is not surprising that there has been a trend in structured finance markets towards transactions (e.g. CDOs) that allow investors to actively participate in the initial portfolio selection.

⁴ Formulation used by Standard and Poor’s for alerting the market of a possible upgrade or downgrade of a credit. Major rating agencies all have similar policies.

Economic Interest – aligning incentives

In addition to the introduction of structural features to contain conflicting interests, a well constructed CDO will seek to align the economic interests of managers, equity investors and noteholders.

Prospects for future business

For asset managers, a key incentive is ‘repeat issuance’ – that is, that by enhancing the performance of the CDOs, they will become a manager of choice for equity investors. The concern here, is that this may tilt managers towards favouring the interests of equity investors over those of noteholders. Rating agencies are alive to this concern and they emphasise the importance of maximising returns to all investors. Moody’s has argued that labelling an asset manager as “noteholder friendly” or “equity friendly” may be misleading. In its view, managers who are “noteholder friendly” are, in essence, “equity friendly”; asset managers that make decisions designed to protect the integrity of the senior notes are most likely to maintain good portfolio quality, which will also benefit the equity investor throughout the life of the deal. Although these managers may temporarily turn off or reduce equity payments, they are often able to reinstate these payments in the future.

Management fees

The trend in CDO deals had been to separate manager fees into a senior and junior portion with a majority of the fees subordinated to equity distributions. However, when the senior fees are too small, managers are excessively dependent on generating excess spread aligning their incentives more closely with those of the equity investors.

Accordingly, it is now more common for asset manager fees to be tiered at different levels of the waterfall structure. For example, senior management fees are linked to interest payments to the senior noteholders. This provides an incentive for the deal to be kept afloat and for par value of the underlying collateral asset pool to be preserved. Junior management fees are payable after payments to the mezzanine noteholders – an incentive for ensuring that the transaction generates more cash than needed for the payment of the mezzanine notes. Performance fees are linked to equity distributions and are typically payable once equity returns have reached 10 to 15 percent of the initial equity investment.

RISKS ATTACHING TO THE UNDERLYING POOL OF ASSETS

Rating agencies devote considerable effort to estimating the credit risk attaching to the underlying assets in structured finance transactions. But there are, in addition to these, a number of important non-credit risks that need to be assessed in projecting future cash flows within the structure. Prominent among them is ‘prepayment risk’ – the risk that a proportion of the assets in the underlying pool may be repaid early. These unscheduled repayments of principal are particularly common in residential mortgage backed securities (RMBS). They can be triggered for a number of reasons including an improvement in the borrower’s financial position or the emergence of more attractive mortgage products. In the case of fixed rate mortgages, a falling interest rate environment can significantly speed up the rate of prepayment as borrowers seek to refinance to lock in lower rates.

Prepayments can substantially reduce the weighted average life of the pool and, as a result, they expose investors to considerable uncertainty over future cash flows, which can be mitigated to some extent with the use of structural features. There are a number of ways to contain prepayment risk including through principal direction structures (which allow sequential pay-down of tranches) and prepayment direction structures (which offer at least two tranches, one of which is prepayment

protected). Other structures can include the separation of the payment of principal and interest, or the conversion of fixed-rate returns to floating rate.

In some transactions, there are also interest rate and currency risks to be taken into account. These arise from mismatches between assets and liabilities either in terms of interest rates (between the fixed rate of interest on the assets in the collateral pool and the floating rates of interest paid on liabilities or vice versa, and also basis risk) or exchange rates.

Liquidity risk within the collateral pool can also be important. The manager of a CDO, for example, must be able to meet the timely payment of principal and interest to noteholders by selling assets as and when required.

EXOGENOUS RISKS/THIRD PARTY RISKS

The satisfactory performance of a structured finance transaction depends on far more than the adequacy of the collateral – it also requires that a number of different parties to the transaction to fulfil their various duties and obligations. There are a substantial number of these. There are those associated with the structuring and handling of the transaction: the originator, servicer, manager and trustee. There are then those that provide direct credit enhancements in some structures such as the monoline insurers and liquidity support providers, usually banks. Finally, there are the exposures to various external counterparties that arise in the day-to-day management of some transactions, particularly actively traded CDOs.

The quality of the sponsoring or originating institution is obviously an important starting point for any transaction. Origination standards and method of origination will have an effect on the credit quality of the underlying pool. It is the responsibility of the **originator** to show that all loans satisfy certain origination criteria specified by the rating agencies (and the law) and that the appropriate documentation is in place.

A **servicer** plays an important role in maintaining credit quality once a transaction is up and running. It collects payments, tracks performance and is often responsible for calculating the distributions owed to investors. Servicer risk is particularly high in countries where no established third party servicer market exists. In continental Europe, for example, the originator usually doubles as the servicer. While it may be relatively easy to find a replacement should the originator/servicer fail for some asset classes such as credit card receivables and auto-loans, for other, more diverse, portfolios it may be considerably more difficult. As a result, there may be a significant delay in locating a replacement servicer with adverse consequences for investors. Against this background, the rating agencies have started to evaluate the standing of servicers and back-up servicers when assigning ratings to transactions.

Manager quality is one of the most important performance drivers in structured finance. As previously discussed, the manager has responsibility for balancing the competing interests within a transaction. Rating agencies therefore devote considerable time to evaluating the quality of managers – the organisational support, the expertise, the stability of the team and their investment processes. Past performance of the manager in previous deals is taken to be an important guide to quality – the extent to which the manager has satisfied key covenants such as the O/C test and the I/C test in earlier deals. In some cases, rating agencies will adjust the targeted expected loss of a debt tranche based on their assessment of the manager's capabilities.

Major rating agencies have conducted some quantitative analysis on the relationship between manager quality and CDO performance. The data provided by S&P below (Table 1), illustrates just how widely manager performance varies even for deals with similar assets and vintage.

Table 1: Manager Performance		
Measure	Top 10	Bottom 10
Defaulted securities held (% of collateral)	0.10	13.91
Total sales net losses (% of collateral)	0.02	1.29
Recoveries (% of par, for deals with recoveries)	49.49	2.55

Source: Standard & Poor's (2001)

Moody's has studied the impact of manager behaviour on the performance of US high-yield collateralised bond obligations (CBOs), a category which experienced a large number of downgrades during the recent economic downturn. Moody's selected three CBOs structured in 1997, 1998 and 1999 which had performed poorly, and reviewed how they would have performed if the performance of the collateral asset pool mirrored that of various historical cohorts. The actual downgrade magnitudes for the senior rated notes could not be explained simply by the high stress experienced in the corporate bond market during this time period. Table 2 provides a comparison between the 1997 vintage CBO with historical cohorts.⁵

Table 2: Comparison of Rating Actions – 1997 CBO					
	Average	Best cohort	Worst cohort	Actual rating actions of chosen CBO as at Q2 2002	
	1997 cohort	1983-96	1983-96	1983-96	
Senior notes	+1	+1	+1	+1	-5
Mezzanine notes	-1	No change	+1	-1	-10

Source: Moody's (2003)

The studies point to a number of factors playing a role in the poor performance of some managed CDOs including poor credit judgement; a tendency to operate beyond the manager's area of expertise and the adoption of aggressive investment strategies.

The role of the **trustee** is another potential source of exogenous risk. Generally, the trustee's role involves:

- holding cash payments in segregated accounts and distributing cash to investors (to prevent servicer misuse or misappropriation of cash flows);
- notifying investors and rating agencies of covenant breaches and events of default; and
- managing succession of servicing in case of servicer default.

⁵ Moody's does add that poorly performing asset managers have been weeded out of the market.

In the US, there has been some debate over the trustees' responsibility for actively monitoring the performance of transactions. According to the rating agencies, the trustee has some responsibility for monitoring breaches of covenants and for facilitating the timely switching of servicers or acting as a back up servicer itself should problems arise with the original servicer. By contrast, trustees tend to see their role as that of an administrative agent with only limited oversight.

Credit enhancement is an important part of structured finance with the direct credit enhancement for many CDO transactions often provided by a limited number of **monoline** insurers. About 10 per cent of transactions in the European structured finance market involve a monoline guarantee. In some markets, notably Australia, the use of **lenders' mortgage insurance** (LMI) is a standard part of the RMBS market. It provides a cost-effective form of credit enhancement allowing issuers to reduce their funding costs. Mortgage insurers provide 100 per cent cover for the losses on the underlying mortgages. Rating agencies closely monitor these insurers to satisfy themselves and the market of their financial strength.

The structuring of any asset backed security (ABS) or CDO transaction will involve a range of external counterparties. Typically, ABS will include swaps or liquidity facilities to boost the attractiveness and/or rating of the transaction. In CDOs, the management of the asset pool will require the hedging of market related risks such as interest rate and currency risks. In synthetic transactions, the special purpose vehicle as seller of credit protection will be exposed to the credit risk of the swap counterparty. Generally, rating agencies will look to control the risks arising from the exposures to the various **counterparties** by requiring them to be of a certain rating. The general rule is that the long-term unsecured debt rating of the third party must be at least equal to the rating of the issue.

LEGAL AND DOCUMENTATION RISKS

Not all factors in a structured finance transaction can be quantified, in particular the legal and documentation risks associated with the pooling of assets and the tranching of liabilities.

What are the risks?

In ABS markets, the critical legal issues are:

- the *certainty surrounding the transfer of assets* (i.e. "true sale") from the seller/originator to the issuing special-purpose-vehicle (SPV) – the need to ensure that holders of ABS receive full control over the assets underlying the transaction. This involves, in particular, reviewing the details of the bankruptcy regime applying to the seller/originator and checking that appropriate steps have been taken to remove any uncertainties over the security interest of the SPV.
- the *bankruptcy remoteness* of the issuing SPV. This involves reviewing all the covenants governing the separation of the SPV from the seller (and checking whether the latter could be consolidated with the former) as well as corporate, bankruptcy and securitisation (if any) laws of the relevant jurisdiction.
- Legal precision regarding the role of the servicer and trustee across all relevant jurisdictions so that the operational and execution risks associated with the payment and receipt of interest and principal on any transaction are appropriately contained. This has become a more demanding task as the use of master trusts, which encompass a series of transactions, has grown.

Many of the same challenges arise in connection with cash flow CDOs. Synthetic CDO transactions, however, raise another dimension of risk relating to the use of credit default swaps (CDS) and the potential ambiguity over the definition of credit events and the means of settling the associated losses.

The simplest credit derivative transaction is the one that contains only bankruptcy and failure to pay as credit events. Inclusion of other credit events (e.g. obligation acceleration, restructuring) creates greater ambiguity with respect to the definition of default. The risk exposure for credit events defined only as bankruptcy will obviously be lower than if other “softer” events, such as failure to pay or (“modified”) restructuring (as devised in the 2003 ISDA Definitions), are used.

The choice of physical or cash settlement may also have an impact on the investor’s return. Either the SPV buys the defaulted assets for a price equal to their par value (physical settlement), in which case the investors are placed in the same situation as in a cash CDO transaction. Or, more commonly, the protection amount paid by the SPV is a cash amount equal to the difference between the par value of assets and their post default market prices (cash settlement).

Typically, recovery assumptions will be lower for transactions that use cash settlement rather than physical settlement. In a cash settled synthetic structure, the asset manager forgoes the choice of when to divest from a defaulted asset, which may increase market and liquidity risk. This is because the amount of the settlement is usually determined by taking market prices (typically by requesting bids from various market participants) a specified number of business days (often 45 days) after a credit event notice, at a time when the pricing conditions can still be volatile. This process directly influences recoveries and needs to be carefully defined (e.g. timing of post default valuation, bidder’s profile, minimum number of bids). In the case of physical settlement, the asset manager plays an important role as this party will be responsible for pursuing recoveries after having received the defaulted reference obligation (either by selling it at a fixed time or holding it for work out).

Overall, documentation and operational risks are becoming increasingly significant for investors as they face continuing evolution in the design of deal structures and a constant broadening of categories of underlying assets (e.g. future claims). Notwithstanding the legal opinions provided by the originators/arrangers, CDOs may thus often be seen as “black-box” structures that can hardly be fully understood by less sophisticated investors.

What is the role of rating agencies?

Credit rating agencies play an important role in controlling and checking the legal and documentation risks attaching to any transaction.

- In any structured transaction, the originator and/or arranger usually requests legal opinions on the deal and its structure from one or more specialised legal firms. Rating agencies then carry out reviews of these legal opinions, which form the basis of their own assessment of the soundness of the structure. These reviews should not be seen as a due diligence process, but more of a ‘plausibility check’ on the various links of the “chain” involved in the structure. In that regard, it is widely acknowledged, among both arrangers and lawyers, that rating agencies take an objective, systematic and fairly conservative approach following an interactive process with the originator and/or arranger. For some complex transactions, agencies may ask the arranger to provide distinct legal opinions from two lawyers as a prerequisite for their rating of the deal.
- Depending on their own internal organisation, agencies either review the legal opinions provided by the originator and/or arrangers in-house or outsource the review to external

lawyers. Generally, the rating agencies do not seem to rely substantially on their in-house capacity on legal matters, making outsourcing of reviews to external lawyers the most common practice. Nonetheless, rating agencies have accumulated over time a unique knowledge about the viability of structures combined with an ability to assess risks particular to various asset categories and country-specific legal frameworks. Given their central position in this market they have the ability to assess deal-specific information and challenge, if need be, the views of originators and arrangers about the legal soundness of transactions.

- Only a handful of specialised law firms operate in the structured finance area. Given this oligopolistic industry structure, which echoes the one observed in the rating sector, it is not unusual for the same firm to be approached by both the arranger and a rating agency with a mandate to deliver a legal opinion on a particular transaction. In order to reduce possible conflicts of interest arising in this context, rating agencies may either require Chinese Walls within the law firm's organisation or ask for additional legal opinions from different legal firms.

SOME CONCLUDING REMARKS

There is heightened awareness among market participants, including rating agencies, of the non-credit risks in structured finance and, in particular, of the need to effectively balance the interests of the various parties involved in transactions. A number of structural enhancements have been introduced and the incentives are now better aligned to protect overall CDO performance. The general tendency has been to introduce measures to better protect noteholders, but since without perspectives for sufficient equity returns a CDO deal cannot be closed, striking a balance is crucial for the healthy long-term growth of the CDO market. The single-tranche CDO, a rapidly growing part of the market, is another approach toward tackling this issue, by reducing the number of investors involved in a transaction and allowing for bespoke deals.

An important element in monitoring whether the new structural enhancements are effective, is to improve transparency in the CDO markets. Positive trends seem to be developing in this area as well, for example through closer surveillance of CDO performance by rating agencies and the Bond Market Association's publication of a standardised CDO trustee report template.

Overall, the track record of the CDO market tends to show that the legal, documentation and execution risks embedded in transactions have been addressed by rating agencies in a fairly systematic manner to date. Legal opinions provided by originators/arrangers, subsequently cross-checked by the agencies, are generally well-documented even though sometimes inconclusive on certain technical aspects of a given transaction. As a result, legal risks have materialized on a small number of occasions so far. While this is reassuring, it could still be a source of concern as only a few deals have actually been tested in court. Hence, there are still a number of uncertainties regarding the legal soundness of specific deal features, most notably in connection with the possible impact of bankruptcy proceedings on the rights of SPVs and investors with respect to the underlying collateral assets.

APPENDIX

Example of O/C and I/C tests where there are two debt tranches; a senior and a mezzanine.

O/C test

The test works to ensure there is sufficient collateral to cover the principal payments to the noteholders.

For each debt tranche an O/C ratio is calculated. If the trigger level is violated principal is paid down until the test is fulfilled.

$$\text{senior O/C ratio} = \frac{\text{total collateral asset pool par amount}}{\text{outstanding principal of senior tranche}}$$

trigger level = 110%

$$\text{mezzanine O/C ratio} = \frac{\text{total collateral asset pool par amount}}{\text{outstanding principal of senior and mezzanine tranches}}$$

trigger level = 108%

I/C test

The test works to ensure there is sufficient interest proceeds to cover interest payments to the noteholders.

For each debt tranche an I/C ratio is calculated. If the trigger level is violated principal is paid down until the test is fulfilled.

$$\text{senior I/C ratio} = \frac{\text{total collateral asset interest proceeds}}{\text{senior expenses and fees} + \text{interest on senior tranche}}$$

trigger level = 120%

$$\text{mezzanine I/C ratio} = \frac{\text{total collateral asset interest proceeds}}{\text{senior expenses and fees} + \text{interest on senior and mezzanine tranches}}$$

trigger level = 112%

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