

Residential Mortgage
EMEA
Special Report

**EMEA Cash RMBS Structural
Overview**

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Related Research

- See Appendix 1

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Introduction

This report contains detailed analysis of the most common structural features of EMEA RMBS and represents valuable “background reading” to support the criteria report, “*EMEA RMBS Cash Flow Analysis Criteria*”, dated 6 May 2009 and available at www.fitchratings.com. Its objective is to give readers sufficient background knowledge to understand EMEA RMBS mechanics and their credit implications, as well as to better appreciate the rationale of the modelling approaches detailed in the criteria report.

This report refers in particular to “cash flow” residential mortgage-backed securities (RMBS), ie securitisation notes that rely on the cash flows generated by the underlying mortgage loans to meet the issuer’s interest and principal payment obligations under the notes.

Cash RMBS: Structural Recap

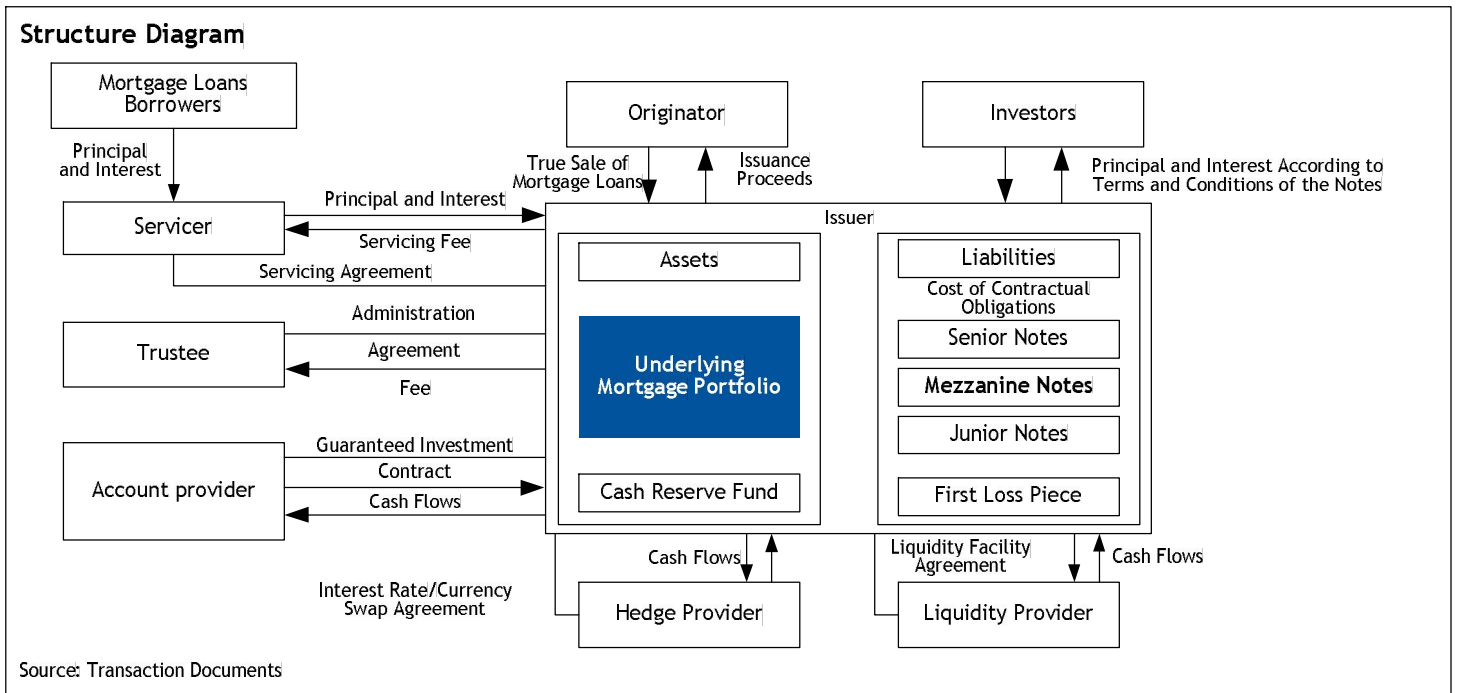
The diagram on page 2 outlines the structure of a generic cash RMBS transaction, showing the contractual agreements binding the main transaction parties and the cash flows between them.

The originator, generally a bank or another financial institution, initiates the transaction by selling mortgage loans from its own loan book or purchased from a third party to another entity (the issuer). The purpose of the sale is to achieve structural isolation (or “de-linking”) of an underlying pool of assets from the corporate credit risk of the originator of those assets, so that neither the assets, nor their proceeds on realisation, will be available for distribution as part of the bankruptcy estate of the originator (the so-called “true-sale”).

The issuer is a bankruptcy remote entity established solely to purchase the mortgage loans through the issuance proceeds of the RMBS. The issuer benefits from a known universe of transaction creditors: the noteholders and a selected number of known transaction counterparties; these creditors agree to limit their enforcement rights over the pool of assets (for more details in this respect, see “*Special-Purpose Vehicles in Structured Finance Transactions*”, published on 13 June 2006).

The issuer’s balance sheet comprises the mortgage loans acquired from the originator and, in some instances, a cash reserve, which may be funded by the originator and/or later on through excess spread (see *Excess Spread* and *Reserve Fund* sections). The issuer’s liabilities are limited to the RMBS issued and, if applicable, any additional subordinated notes or loans that are indicated in the diagram as “first loss piece”.

Other creditors include counterparties with whom the issuer has entered into contractual agreements for operational reasons or to improve the credit quality of the RMBS. Indeed, the issuer of an RMBS is not intended to be an operating business and it therefore needs to contract “operating” agreements with several third parties.



The servicer - often the originator - is responsible for the collection of interest and principal repayments deriving from the pooled assets and the remittance of these funds to the issuer. The servicer is entitled to receive a fee for these services. The issuer deposits the cash flows received from the mortgage pool on the accounts it holds with an account provider. The issuer may also enter into a guaranteed investment contract with the account provider (see *Limiting the Negative Carry* section) or invest in highly rated short-term investment instruments.

The issuer also requires a trustee (also called representative of the noteholders in certain jurisdictions) which administers the transaction on behalf of the investors, in exchange for a fee. The exact role of the trustee depends on the jurisdiction but, overall, it must oversee the performance of the other parties involved in the transaction, review periodic information on the status of the pool, superintend the distribution of the cash flows to the investors and, if necessary, declare the issuer in default and take the legal actions that are necessary to protect the investor's interest.

Other parties not shown in the chart and with whom the issuer may also contract agreements include the arranger who structures the transaction, the financial agent or paying agent (who will pay the amounts due to the noteholders on behalf of the issuer), as well as the relevant stock-exchange institutions if the RMBS securities will be listed.

In addition to these agreements, the issuer may also enter into contractual agreements designed to mitigate risks associated with the assets or with the transaction and which may impact the credit quality of the securitised bonds. For instance, a swap agreement with a hedge provider may mitigate the interest rate or currency risk of the transaction while a liquidity provider may mitigate liquidity risk. The role played by these counterparties and their impact on the credit quality of the securitised bonds are discussed in the following sections.

All transaction creditors agree on a predetermined schedule that prioritises the manner in which the cash flows generated by the underlying mortgage collateral must be used or distributed. These rules of cash allocation - also known as the priority of payments (PoP) or waterfall - are defined in the terms and conditions of the transaction (see *Cash Allocation* section). At the top of the waterfall are typically the standard fees and expenses due to the transaction counterparties

(such as the servicer, the account provider, etc) followed by cash flows owing to the holders of the senior notes. After the cash flow obligations at the top of the waterfall are met, cash flows down to lower priority bond classes, called mezzanine and junior notes. Cash left may then be allocated to the holders of the first loss piece or returned to the originator.

Building Blocks of Fitch RMBS Cash Flow Analysis

The major driver of the cash flow analysis is the expected performance of the mortgage collateral, mainly in terms of defaults and loss severity (or loss given default); aspects which are discussed in detail in the country-specific default model criteria (see *Appendix 1*).

The effects of a potential disruption to the performance of the portfolio on the noteholders can be reduced by including some form of credit enhancement for the notes, ie, by providing the notes with “extra-protection”, either in the form of external or internal supports.

Credit enhancement in EMEA cash RMBS generally consists of a combination of excess spread (ExS - see *Excess Spread* section for a definition), subordination among different classes of notes, over-collateralisation (where assets of the issuer exceed its liabilities - see *Overcollateralisation and Undercollateralisation* section), cash reserves (see *Reserve Fund* section) and, in some instances, support provided by third parties (such as the hedging counterparty - see *Swaps: Interest Rate and Currency Risk* section).

Some of these credit enhancement elements (such as the ExS and cash reserves) not only protect the notes against losses but provide the structure with the necessary liquidity to compensate for temporary liquidity shortfalls caused by, eg, delinquent mortgages or adverse interest rate movements. Additional liquidity support may be provided by third-party liquidity facilities (see *Liquidity Facility* section) or by structural mechanisms, for example by way of “borrowing principal funds” to pay interest (see *Economic Cost of Liquidity* section).

The following paragraphs provide a detailed analysis of these elements and their role in RMBS transactions, while the following two sections (*Cash Allocation* and *Specific Structures*) analyse the different structural ways the notes can benefit from available credit enhancement.

Excess Spread

Excess spread (ExS) is the difference between: (i) the interest cash flows generated by the mortgage portfolio; and (ii) the interest paid on the notes and issuer’s administrative expenses and other costs such as liquidity facilities, if any.

Generally, ExS represents the first layer of credit enhancement available to the rated notes in EMEA RMBS, and is used to absorb losses, as well as to provide liquidity support. However, some EMEA RMBS envisage a so-called “ExS extraction”, ie, one or more “senior extra obligations” (that can be in the form of excess spread notes, detachable coupons, etc - see *Types of Excess Spread Extraction* section) to be covered by ExS, thereby limiting, in whole or in part, the credit enhancement role of the ExS.

Drivers of Excess Spread Level

The level of ExS is not constant for the life of the transaction (unless it is guaranteed by a swap, see *Swaps as an Additional Source of Credit Enhancement* section), and depends on several factors, with the highest dependency on the following two factors:

- the weighted average spread (WAS) of the notes: if the notes have a sequential paydown (see *Sequential and Pro-Rata Amortisation* section) lower margin senior notes pay down prior to higher margin subordinated notes and the notes’ WAS will therefore increase, reducing the level of ExS, while the notes’ WAS will stabilise if the notes amortise pro-rata;

- the WAS of the portfolio: if borrowers paying higher margins repay their loans more quickly or have a higher propensity to default than the other borrowers, the WAS of the mortgages will decline and so with it, the level of ExS. This is referred to by Fitch as the portfolio's "WAS compression" and is discussed in greater detail under "WAS Compression Assumptions" in the report "EMEA RMBS Cash Flow Analysis Criteria". Moreover, the amount of ExS available over the life of the transaction depends significantly on the level of prepayments experienced by the assets: the higher the rate of prepayment, the lower the lifetime volume of ExS. The ExS amount also depends on the level of defaults experienced by the portfolio and the capacity of the structure to keep an alignment between the amount of notes outstanding and the performing portfolio (see *Provisioning* section for more details).

Finally, ExS will be influenced by the presence of one or more "ExS extractions" (see Types of Excess Spread Extraction section).

Structural Use of the Excess Spread

The amount of ExS available to support the notes is dependent not only on the notes' amortisation, the prepayment rate or WAS compression, but also on how the structure is able to use it as a source of credit enhancement and/or liquidity support.

Generally, the ways to "capture" ExS vary from "turbo amortisation" provisions (a portion of the ExS is diverted to amortise the notes' principal, in some cases subject to triggers linked to the performance of the portfolio) to using the ExS to cover for portfolio losses or defaults through the principal deficiency ledger (PDL) mechanism (see *Principal Deficiency Ledger* section).

In most cash flow RMBS structures, ExS is available to the structure only on a "use it or lose it" basis, so any ExS remaining after the "trapping features" described above is paid back to the originator.

On the other hand, it is not uncommon to see structures where some ExS is retained even before any trapping mechanism kicks in (eg, the triggers for starting the turbo amortisation are hit or losses/defaults are debited on the PDL) - for example, through the building of the reserve fund up to a required amount higher than the initial reserve fund level (see *Reserve Fund* section).

Principal Deficiency Ledger

In absence of structural mitigants, and assuming that the principal of the RMBS notes can be exclusively repaid out of the principal collections from the mortgage portfolio, any principal loss on the portfolio would result in a corresponding principal loss on the notes. The PDL is one of the structural features that prevent such an outcome.

The PDL is not a physical cash account but rather a ledger that is debited, in its simplest form, in respect of the portfolio's principal losses (see *Provisioning* section for alternative ways of debiting the PDL). On each payment date of the notes, funds available to the issuer are provisioned according with the priority of payments (PoP or "waterfall"; see *Cash Allocation* section) to pay down the notes' principal in an amount equal to the losses debited on the PDL; at the same time, the PDL is credited in respect of the provisioned funds. If there are insufficient funds to extinguish a debit balance, it is normally carried forward on the PDL to the following payment date.

Structures envisaging separate principal and interest waterfalls (see *Cash Allocation* section) are normally associated with a PDL mechanism. Crediting of the PDL takes place in the interest waterfall using funds available after all items senior to it have been paid in full. This allows the transfer of interest funds to cover principal losses registered on the PDL, and thereby to prioritise the amortisation of the notes even in case of principal losses.

A PDL mechanism can often be found where the notes have a combined waterfall (whereby principal and interest funds are allocated together according to a single payment schedule). In many cases though, the PDL mechanism is not explicit but embedded in the rules defining the principal amount of the notes to be repaid (see *Combined Waterfalls* section).

Sub-Ledgers

The PDL can be split into sub-ledgers with a size corresponding to each note class. In this case, if we assume for example two classes of notes - a senior one (class A) and a junior one (class B) - with sequential paydown (see *Sequential and Pro-Rata Amortisation* section) and separate waterfalls (see *Cash Allocation* section) then a debit balance is first established on the class B sub-ledger. As the notes' paydown is sequential, funds credited to the class B sub-ledger will be used to redeem the class A notes until fully redeemed: if this was not the case (ie, funds credited in class B sub-ledger used to redeem class B notes), class A notes' seniority with respect to class B would be undermined.

While uncovered losses may continue to accumulate, the maximum debit balance that can be recorded on the class B sub-ledger is capped at the outstanding balance of that class. Theoretically, this is meant to reflect the fact that class B noteholders could not lose more than the outstanding principal of their investment. Hence, any further losses would be registered on the class A sub-ledger, indicating that senior bondholders are now at risk of suffering an ultimate principal shortfall.

In such circumstances, in order to protect the senior classes, payment of interest under the class B notes is often subordinated to the payment of funds needed to reduce to zero the debit balance on the class A sub-ledger. Such an interest waterfall can be represented as follows:

1. interest on class A notes;
2. amounts to reduce to zero any debit balance on PDL class A sub-ledger;
3. interest on class B notes;
4. amounts to reduce to zero any debit balance on PDL class B sub-ledger.

The resulting effect is that no interest on class B notes is paid when the uncovered losses exceed the size of class B notes (in other words, the recovery of principal losses exceeding the size of class B is in priority of class B interest payments).

Reserve Fund

Most cash flow RMBS structures in Europe benefit from a reserve fund (RF), which provides credit enhancement as well as liquidity support to the issuer.

In order to fund the cash reserve at closing, the originator typically grants a subordinated loan to the issuer, whose interest and principal repayments are normally subordinated in the waterfall to the ones of the rated notes. Since in most EMEA RMBS the amount of the rated notes corresponds to the portfolio's size, the subordinated loan will be necessarily repaid by using the ExS remaining after the issuer's senior expenses and the interest and principal payments due on the notes have been made.

The amounts standing to the credit of the RF will form part of the available funds on each payment date and will be distributed in accordance with the PoP. In those deals where there is a distinction between interest and principal available funds, the RF is considered as part of the interest funds and therefore is part of the interest PoP, if there is any.

Normally, the RF will be "replenished" at some stage in the waterfall from the remaining funds, after payment of all the waterfall items senior to it. The RF is typically replenished only after interest on the notes and payments in respect of

the PDL have been made, thereby providing credit enhancement to the notes as well as liquidity support. Some structures restrict the use of the reserve fund to providing liquidity only, for example by crediting the reserve prior to the PDL in the waterfall or excluding the RF from the funds available to credit the PDL.

In structures with combined waterfalls, the RF replenishment is usually made after the principal payment on the notes, thereby ensuring that no principal available funds can be used to credit the RF.

In a limited number of structures, the replenishment of the RF is in priority to the principal repayment of the notes. Clearly, while this significantly limits the risk of principal loss for the subordinated loan provider, it has some drawbacks for the noteholders, especially if the RF cannot be used to credit the PDL. In these structures, the pure liquidity source function of the RF is reinforced at the expense of its credit enhancement role.

In most EMEA structures, on the last payment date the remaining RF, if any, is returned to the subscriber of the subordinated loan if the notes have been repaid in full.

Reserve Fund Build-Up

The RF can also be used to “trap” ExS. This is the case where the waterfall requires the RF build up to a “required amount” greater than the amount that was funded at closing. In some extreme instances, the RF is not funded at closing but is built up by ExS trapping only.

Some structures require the reserve build-up to be subject to triggers ensuring that the build-up starts only when the portfolio performance (eg, delinquencies, defaults, losses, etc) deteriorates. Fitch rating criteria with respect to this structural feature are described in “*EMEA RMBS Cash Flow Analysis Criteria*”, dated 6 May 2009 and available at www.fitchratings.com.

Reserve Fund Amortisation

Most EMEA RMBS provide that the RF can amortise in line with the principal amortisation of the notes (typically, the RF required amount is expressed as a percentage of the outstanding notes), provided that certain conditions related to the structure and portfolio performance are met.

The standard provisions included in EMEA RMBS rated by Fitch often allow for the reserve fund to amortise subject to a combination of the following:

- the credit enhancement from other notes’ subordination/overcollateralisation (ie, excluding the RF - see *Internal Credit Enhancement - Definition*) in favour of the most senior class(es) of notes doubles compared to its level at closing or at least three to five years (depending on the jurisdiction and on the structural features of the deal) have elapsed from the deal closing;
- if the structure includes defaults or loss coverage mechanisms, such as the PDL, there are no uncovered defaults or losses;
- if the structure benefits from a liquidity facility (see *Liquidity Facility*), there is no outstanding amount under it. Similarly, if principal collections from the pool can be used to pay waterfall items that differ from principal of the notes (see “*Separate Waterfalls - Principal to Cover Interest Shortfalls*”), any principal draw has been refunded;
- the RF is equal to its required amount (ie, if it has been used, it has been fully replenished);
- the proportion of the RF over the rated notes after the amortisation will not be lower than the same proportion at closing;

- the RF cannot amortise below a floor, normally corresponding to the size of the 10 largest loans at closing (depending on the jurisdiction and on the pool's characteristics, such as its "granularity").
- cumulative defaults do not exceed the expected long-term default performance of the pool, considering the characteristics of the portfolio and the expected economic scenarios;
- 90+ days delinquencies do not exceed the expected delinquency performance of the pool, considering the characteristics of the portfolio and the expected economic scenarios.

In some instances, these provisions not only stop further RF amortisation but require the RF to increase back to its original level through ExS trapping.

Overcollateralisation and Undercollateralisation

Overcollateralisation (OC) can be defined as those situations where the amount of rated notes issued is lower than the principal amount outstanding of the portfolio, while the reverse situation is known as undercollateralisation.

OC constitutes a source or credit enhancement for the rated notes, as the notes "have access" to a pool whose principal that is in excess of the amount of principal due under the notes.

Broadly speaking, the presence of a RF available to credit the PDL can be seen as a form of overcollateralisation, as the pool of resources the notes have access to (portfolio plus monies made available for funding the RF) is larger than the notes' aggregate amount. The difference between the two sources of credit enhancement is that, while the RF is comprised of money that is immediately available, the benefits of the OC are subject to the principal cash-ins on the portfolio, which in turn depends on the default, delinquency and prepayment behaviour of the borrowers.

Where the notes are undercollateralised, a portion of the notes will have to be repaid out of funds other than the principal collections from the portfolio. More precisely, the full principal repayment of the notes will be subject to the availability of enough ExS to cover the gap between the aggregate principal on the notes and the portfolio outstanding principal.

Hence, the viability of an undercollateralised structure will particularly depend - apart from the size of the undercollateralisation - both on the ExS drivers described above and on the structural provisions that divert the ExS to pay down notes' principal (see also the *Excess Spread Extraction* section for a more general discussion of the issuer's obligations funded by the ExS).

Internal Credit Enhancement - Definition

For the purpose of this paper, internal credit enhancement for a certain class of notes is defined as 1 minus the sum of the outstanding principal of a given note and the notes ranking senior to it plus the outstanding RF, divided by the aggregate amount of the notes (excluding those notes or portion of notes whose repayment is backed by ExS - see *Excess Spread Extraction* section). This definition assumes that the total performing portfolio equals the aggregate amount of notes, which is the standard in EMEA RMBS. In a way, it can be seen as the OC in favour of each specific class of notes.

Considering the example in the following table, the internal credit enhancement for the class B noteholders is 7% (5% from notes' subordination and 2% from the RF).

Example: Internal Credit Enhancement

Class	Amount	(%)	Internal Credit enhancement (%)
A	2,116	92	10
B	69	3	7
C	92	4	3
D	23	1	2
Total^a	2,300	100	
RF	46	2	

^a Total performing portfolio equals total notes; no notes are backed by ExS
Source: Fitch

Swaps: Interest Rate and Currency Risk

European RMBS typically pay a floating rate of interest based on either of the two main indices in Europe: GBP Libor or Euribor. The mortgages, on the other hand, can be fixed or floating, or combinations of each. Floating rate mortgages can in turn be based on indices other than Euribor or Libor (eg, UK standard variable rates, Spanish IRPH, etc), or on different versions of Euribor or Libor (for example one-month, three-month or six-month) and/or Euribor/Libor with reset dates that differ from those of the notes.

The mismatch between the interest basis of the mortgages and that of the notes, or the fixed-rate nature of the mortgages, would therefore expose the issuer to interest rate risk.

It is worth noting that in certain markets the assessment of interest rate risks is more complicated because of the presence of loans that can switch from a fixed rate regime to a floating rate one or vice-versa (the so-called mixed and modular loans, see *Weighted Average Spread of the Portfolio* section in the report, “*EMEA RMBS Cash Flow Analysis Criteria*”, dated 6 May 2009 and available at www.fitchratings.com).

To hedge interest rate risk, European RMBS issuers generally enter into hedging agreements. Interest rate risk hedging structures in European RMBS have widely diversified over time so that it is currently difficult to identify a standard hedging approach. On the other hand, leaving aside the issue of mixed and modular loans, it is not difficult to identify the two swap solutions that neutralise interest rate risk (with regard to pure floating and pure fixed rate loans respectively):

- **Basis swap:** the issuer pays one index and receives another. In particular, the issuer pays the index paid by the borrowers under their floating-rate loans and receives the notes’ index; the notional on both legs of the swap is the performing floating-rate portion of the portfolio;
- **Fixed-Floating swap:** the issuer pays a fixed “swap rate” and receives the notes’ index, on a notional equal to the performing fixed-rate portion of the portfolio.

As discussed, many departures from this simple and linear framework have been introduced over time, which will be analysed in the following sections of this report (see in particular the *Swaps as an Additional Source of Credit Enhancement* section).

It must be stressed that, while the hedging agreements discussed above cover the risks arising from an interest rate mismatch between the issuer’s assets and liabilities, they do not completely insulate it from the impact of interest rate movements on the non-performing portion of the portfolio, as discussed under the *Interest Rates* section in “*EMEA RMBS Cash Flow Analysis Criteria*”, dated 6 May 2009 and available at www.fitchratings.com.

Currency Risk

Another less frequent factor that may need to be hedged is currency risk, which arises when the notes and portfolio flows (interest and principal payments, as well as recovery proceeds from property sales) are denominated in different currencies. This type of risk can be neutralised by currency swaps where, in respect of both principal and interest, the issuer pays an amount in one currency (the currency of the portfolio) and receives an amount in another (the one of the notes), calculated with respect to a fixed exchange rate specified in the swap agreement at the closing date.

Fitch has developed a dedicated criteria for assigning credit ratings to the issuer's obligation under currency swap agreements in global structured finance transactions (see "*Criteria for Rating Currency Swap Obligations of an SPV in Structured Finance Transactions*", dated 10 January 2008 and available at www.fitchratings.com). It should be noted that these ratings relate solely to the payment obligations of an issuer to a swap counterparty and therefore the relative criteria differ entirely to Fitch's rating criteria with respect to counterparty risk in structured finance transactions (see *Swap Counterparty Risk* section).

Swap Notionals in EMEA RMBS

EMEA RMBS typically involve swaps whereby the notional is defined in relation to the mortgage balance or, occasionally, the note balance. With these types of swaps, prepayment risk is transferred to the swap counterparty, thus eliminating the risk to the issuer of under/over-hedging, which could arise where the amortisation of the swap notional is set according to a fixed schedule.

In some instances, the issuer retains part of the prepayment risk, for example where the notional has pre-defined caps and/or floors (the so called "flexi-swaps").

Swap Counterparty Risk

Although the use of swaps may mitigate the interest rate and currency exposure of the issuer, they also introduce counterparty risk in respect of the swap provider. Consequently, transferring more risks to hedge counterparties largely increases the counterparty reliance for transactions. Fitch counterparty risk criteria in respect to hedging agreements are described in the report, "*Counterparty Risk in Structured Finance Transactions: Hedge Criteria*", dated 1 August 2007, available at www.fitchratings.com.

Please note that Fitch is in the process of updating its counterparty criteria. For more information please see "*Exposure Draft: Counterparty Risk in Structured Finance Transactions*", published on 30 March 2009.

Liquidity Facility

In order to ensure timely interest payments under the notes, the issuer may need some form of dedicated liquidity support to cover possible shortfalls of funds arising from delinquencies or defaults under the mortgage loans. Third-party liquidity facilities (LFs) are the most common way to address this issue; under a standard LF contract, the issuer is entitled to draw down funds up to an agreed amount in order to cover interest shortfalls on the notes.

LFs are usually associated with strictly separate waterfall structures that restrict principal from being used to fund deficits in the interest waterfall (see *Cash Allocation* section) as the use of principal to cover short term interest shortfall would be an alternative source of liquidity.

The cost of a facility includes a commitment fee, normally on the available undrawn amount (usually expressed as a percentage of the available amount of the facility), together with a floating rate of Libor/Euribor plus a margin, on any drawn amounts.

Performance Triggers and Liquidity Facility Availability

When the structure includes protection mechanisms for the senior notes that limit the interest payments on the junior notes when the performance of the portfolio or the structure deteriorates (the so-called “interest deferral triggers” - see *Performance Triggers and Senior Notes Protection* section), the availability of the facility for junior notes’ interest is normally subject to the same performance triggers.

Should this not be the case, the presence of the LF would offset the benefit of these protection mechanisms, as normally all amounts due to the facility provider (drawn amounts, interest and fees) are paid at the top of the waterfall.

Liquidity Facility Agreements

When analysing a LF from a rating perspective, it is important to assess the terms under which the liquidity support from the LF provider is available.

One important aspect is whether the LF agreement requires the issuer to repay in full any outstanding principal on each payment date or if consecutive LF drawings are possible even if the balance of the LF facility is negative - this has a significant impact on the liquidity support provided by the LF under a stress scenario.

Most facilities are 364-day commitments. Should the provider decide not to renew the facility, then the issuer generally has the right to draw down the available amount in full and place it on deposit with a financial institution (whose characteristics are normally consistent and comply with the criteria specified in Fitch’s report, “*Commingle Risk in Structured Finance Transactions: Servicer and Account Bank Criteria*”, dated 9 June 2004, available at www.fitchratings.com). This means that, notwithstanding the 364-day term, there should always be liquidity available for the remainder of the term of the transaction. Of course, if the interest rate payable on the LF drawings is higher than the one paid on the issuer’s account, the exercise of this option implies a potential cost of carry to the transaction.

Credit Enhancement from the Liquidity Facility

In some instances, the combination of the waterfall and the LF agreement provisions result in the LF providing credit enhancement to the rated notes under certain circumstances.

In practice this would happen if, in case of poor performance of the structure and/or the portfolio, the structure allows the issuer to repay the noteholders in priority to the LF provider, which would take a loss. This is for example often the case in transactions with separate interest and principal waterfalls where the liquidity facility is only part of the interest waterfall and where principal can not be used to satisfy interest (and thereby liquidity facility) payment obligations. Fitch’s criteria with respect to structural features are described in “*EMEA RMBS Cash Flow Analysis Criteria*”, dated 6 May 2009 and available at www.fitchratings.com.

Liquidity Facility Amortisation

Some EMEA RMBS include a LF whose size can amortise in line with the principal amortisation of the notes (for example, the LF size is expressed as a percentage of the outstanding notes), provided that certain conditions related to the structure and portfolio performance are met.

The standard provisions included in EMEA RMBS rated by Fitch allow for the LF that cover liquidity risk only and do not bear credit risk, to amortise subject to the following:

- If the structure has defaults or loss coverage mechanisms, such as the PDL, there are no uncovered defaults or losses. Similarly, if principal collections from the pool can be used to pay waterfall items that differ from principal of the

notes (see “Separate Waterfalls - Principal to Cover Interest Shortfalls”), any principal draw has been refunded;

- there is no amount outstanding under the LF;
- the RF, if any, is equal to its required amount;
- the proportion of the LF over the rated notes after amortisation will not be lower than the same proportion at closing;
- cumulative defaults do not exceed the expected long-term default performance of the pool, considering the characteristics of the portfolio and the expected economic scenarios;
- 90+ days delinquencies do not exceed the expected long-term default performance of the pool, considering the characteristics of the portfolio and the expected economic scenarios.

Liquidity Facility Counterparty Risk

While the presence of a LF mitigates the structure’s liquidity risks, it introduces a counterparty risk in respect of the LF provider. Fitch counterparty risk criteria in respect to LF agreements are described in the report, “*Liquidity Support in Structured Finance Transactions: Liquidity Provider Rating Criteria*”, dated 13 July 2004, available at www.fitchratings.com.

Please note that Fitch is in the process of updating its counterparty criteria. For more information please see “*Exposure Draft: Counterparty Risk in Structured Finance Transactions*”, published on 30 March 2009.

It is important to stress that these criteria refer to LFs that cover liquidity risk only and do not bear credit risk.

Negative Carry

In the vast majority of EMEA RMBS the payment dates of the mortgages do not match those of the notes and therefore, the issuer incurs “negative carry” costs associated with holding cash.

For example, if the mortgages were to pay monthly and the notes quarterly, the issuer would be exposed to negative carry costs due to the differential between: (i) the interest payments received on mortgages over a quarter, which are calculated on a “notional” that decreases over the quarter (the performing balance of the pool); and (ii) the interest due on the notes, which do not amortise during the quarter.

The impact of negative carry on “pass-through” structures (ie, where the principal payments due on the notes’ correspond to the principal collections from the portfolio) is usually negligible since neither interest nor principal is held in cash for any significant length of time. However, negative carry can reach considerable proportions, for example, during the cash accumulation periods necessary for controlled amortisation and bullet notes (ie, where the notes’ amortisation is not entirely correlated to the principal paydown profile of the pool - rare in Europe). Negative carry costs also arise over the first 18 months in Italian RMBS, during which period the notes can not be redeemed - so as to avoid incurring “fiscal penalties” - and principal collections have to be held by the issuer for that period of time.

Negative carry can also be substantial when the structure envisages a pre-funding period, ie, where the proceeds resulting from the sale of the notes at closing are in part used by the issuer to buy a mortgage portfolio and in part held in cash in order to buy further portfolios at subsequent dates.

Limiting the Negative Carry

In order to limit the impact of negative carry, the issuer negotiates with the originator/servicer and/or the issuer’s bank a certain yield on the above-mentioned accounts (which will contain portfolio principal and interest collections between note payment dates as well as the amounts standing to the credit of the RF, if any).

In some instances, this is formalised in a guaranteed investment contract (GIC), where the issuer's counterparty agrees to pay a guaranteed rate of interest on the issuer's transaction accounts. The agreed rate of interest is usually Libor or Euribor (the same reference rate of the notes) minus a margin.

As a further way to mitigate negative carry, the issuer may invest the funds deposited on its accounts in certain types of investments (normally securities and repos), which would yield a return in excess of the guaranteed rate under a GIC. However, such investments would introduce counterparty risk and credit and market risk in the transaction, as well as liquidity risk. Fitch criteria in respect of these "investment-related" risks are described in its report *"Counterparty Risk in Structured Finance: Qualified Investment Criteria"*, dated 27 September 2007, available at www.fitchratings.com.

Commingling Risk

In EMEA RMBS, borrowers' payments are rarely made directly to the issuer's account. They are normally made to the bank accounts of the originator/servicer held by the collection account bank, and then transferred into a bank account opened in the name of the issuer for the benefit of investors.

As a result, depending on the transaction's structure and the legal environment, each of these steps can result in a counterparty risk related to the originator/servicer or the bank where the issuer holds its accounts. In the event of insolvency of any of these parties to the transaction, funds belonging to the issuer may get commingled with the insolvency estate of the defaulted party (the so-called "commingling risk").

Fitch counterparty risk criteria in respect to these aspects are described in the report *"Commingling Risk in Structured Finance Transactions: Servicer and Account Bank Criteria"*, dated 9 June 2004, available at www.fitchratings.com; for modelling details in EMEA RMBS see section *Commingling Risk* in *"EMEA RMBS Cash Flow Analysis Criteria"*, dated 6 May 2009 and available at www.fitchratings.com.

Please note that Fitch is in the process of updating its counterparty criteria. For more information please see *"Exposure Draft: Counterparty Risk in Structured Finance Transactions"*, published on 30 March 2009.

Cash Allocation

Priority of Payments

The priority of payments (PoP) or "waterfall" of a transaction determines the order in which available funds are allocated in satisfying the liabilities of the issuer (mainly interest and principal under the notes). Junior-ranking positions receive funds only after more senior items have been paid in full. Payments on the notes are normally quarterly or semi-annually, and principal and interest usually have the same frequency.

Normally EMEA RMBS have different waterfalls depending on the status of the deal, eg, pre- or post-enforcement of the notes. In this respect it is important to stress that, as post-enforcement waterfalls typically regulate the funds' distribution after an event of default on the notes, they are normally applicable only to scenarios that go beyond the scope of Fitch's rating analysis and therefore are not part of the agency's quantitative assessment of the transaction. Of course, a careful assessment of default events is conducted in every rating analysis to define the scope of the rating as well as any deviation from the market standards.

There may be several priorities of payments in a single transaction, each corresponding to a category of funds (eg, interest or principal - see below).

Most EMEA RMBS are "pass-through", ie, principal payments due on the notes' correspond to the principal collections from the portfolio; for this reason, the discussion below is based on a "pass-through" repayment structure.

Combined Waterfalls

In combined waterfall structures, principal and interest collected from the loans are merged and distributed according to one single priority of payments.

Interest Principal, Interest Principal – the simplest form of combined waterfall is the so called “IPIP” structure, where principal payments to each note class are subordinated to the payment of interest on the related note class only. The following example shows a simplistic two-class (class A and class B) combined IPIP waterfall with sequential notes paydown (see *Sequential and Pro-Rata Amortisation* section):

1. Interest A
2. Principal A
3. Interest B
4. Principal B
5. Remainder paid to the originator

By subordinating class A principal to the payment of class A interest, this waterfall employs the principal repayments from the portfolio as a sort of implicit liquidity line covering for potential shortfalls on the payment of class A interest.

To ensure that items junior to class A principal payments can be paid even if the class A notes have not been redeemed in full, the amounts distributed as principal in respect of class A notes are generally capped at an amount linked to the principal collections from the portfolio since the proceeding payment date (usually called the “target” or “maximum” redemption amount - see *Implementation of Provisioning* section for alternative uses of this feature). The objective of this feature is to ensure payment of class B interest during the class A amortisation period, by creating a correlation between the paydown of the portfolio and the notes. By also applying this mechanism to the class B notes, the structure will ensure that class B principal will only be paid once the class A notes have been redeemed in full. Any ExS will flow to the originator.

If the target redemption amount is defined as principal collections plus realised losses, it will implicitly include a PDL mechanism in the transaction. However, in some instances, combined waterfalls include an explicit PDL mechanism (and the target redemption amount consequently consists of the principal collections only).

In the case of both implicit or explicit PDL, it is important to understand whether those mechanisms have been designed to ensure that any principal flow used to cover interest payments (class A interest in the example above) is “returned” to the noteholders (ie, if the structure traps ExS to cover the use of principal as liquidity), otherwise the use of principal collections as a source of liquidity will create a principal loss on the notes (see also *Separate Waterfalls - Principal to Cover Interest Shortfalls* section).

Interest Interest, Principal Principal – with a waterfall structure as outlined above, principal funds provide liquidity support to the most senior ranking notes (class A) only. While class A notes remain outstanding, interest payments to the class B notes are served only by the interest flows generated by the portfolio, and therefore are more exposed to shortfalls caused by a rise in delinquencies, defaults or adverse interest rate scenarios. In order to also provide liquidity support to the interest payments on the junior notes (class B), combined waterfalls can be structured as follows (IIPP):

1. Interest A
2. Interest B
3. Principal A

4. Principal B
5. Remainder paid to the originator

With such a schedule, principal payments on all classes of notes are subordinated to junior note interest, providing liquidity support to all classes from day one.

Performance Triggers – IIPP structures are normally subject to certain performance triggers (see *Performance Triggers and Senior Notes Protection* section), which, if breached, will promote the position of principal on the class A notes above interest to the class B notes. The simple example above would revert from the IIPP waterfall to the IPIP waterfall shown at the start of this section.

Performance triggers are usually linked either to the performance of the portfolio (eg, default and/or delinquency level) or of the structure (eg, PDL or, in the examples above, failure to reach the target redemption amount of the notes).

To illustrate combined IIPP waterfalls which can switch to IPIP, consider the following example, taken from the Estia Mortgage Finance II Plc (Estia II) transaction (Greek RMBS).

Case Study: Estia II

Combined IIPP waterfall with triggers for switching to IPIP.

Pre-Enforcement PoP (Summary)

On each payment date, all the sums received or recovered in respect of the mortgage loans, plus all amounts received by the issuer under the transaction documents and standing on the RF, will be applied as follows:

1. fees, taxes, other senior expenses;
 2. amounts due to the swap counterparty (excluding termination payments);
 3. class A interest;
 4. class B interest, if the default ratio is lower than 12.4%;
 5. class C interest, if the default ratio is lower than 9.5%;
 6. relevant amortisation amount of class A notes;
 7. class B interest, if the default ratio is equal to or greater than 12.4%;
 8. following redemption in full of the class A notes, the relevant amortisation amount of the class B notes;
 9. class C interest, if the default ratio is equal to or greater than 9.5%, but less than 12.4%;
 10. following redemption in full of the class B notes, the relevant amortisation amount of the class C notes;
 11. replenishment of the RF;
 12. swap termination payments;
 13. junior payments and deferred purchase price.
- The default ratio is the ratio between the aggregate of all principal losses (loans 150 days in arrears or which have been referred to the servicer's non-performing loans division, whichever occurs earlier) and the aggregate principal outstanding balance of the portfolio at closing.
 - The relevant amortisation amount is the difference between the principal amount outstanding of all notes and the principal outstanding amount of the pool, net of principal losses. The notes can amortise pro-rata (see *Sequential and Pro-Rata Amortisation* section) if certain conditions are met.

Separate Waterfalls

With separate waterfalls, the principal and interest funds (the latter being inclusive of the RF) are kept segregated and applied in their own respective waterfalls.

Separate Waterfalls, in their “purest form”, allow the use of interest funds to cover principal shortfalls (via PDL), but not the reverse.

In order to limit the risk of the interest payment on the notes being subject to discontinuities as regards portfolio interest flows stemming from defaults and/or delinquencies, the issuer usually has access to an external LF. The LF is normally available to all classes of notes. However, this can also be subject to performance triggers, which, if breached, would terminate the availability of the LF to junior notes.

A further measure to protect the “continuity” of interest payments on the junior notes in separate waterfalls involves subordinating the payments associated with crediting the PDL to the interest on the junior notes.

Case Study: Storm 2007-II

Pure separate waterfall with PDL priority subject to the deal’s performance.

Pre-Enforcement Interest PoP (Summary)

Interest Available Funds: interest on the mortgages; GIC interest; prepayment penalties; drawings on the LF; RF; swap payments; recoveries relating to interest.

Interest Waterfall

1. Fees (trustee; servicer; paying agent etc).
2. Payments to the LF provider.
3. Payments under the swap (except termination payments).
4. Interest on the class A notes.
5. Class A PDL.
6. Interest due to the class B notes.
7. Class B PDL.
8. Interest due to the class C notes.
9. Class C PDL.
10. Interest due to the class D notes.
11. Class D PDL.
12. Interest due to the class E notes.
13. Replenishment of the RF.
14. Principal due on the class E notes.
15. Swap termination payments.
16. Additional amounts to the liquidity facility.
17. Deferred consideration.

Pre-Enforcement Principal PoP (Summary)

Principal Available Funds: scheduled and unscheduled principal receipts from the mortgages; recoveries with respect to principal; interest funds credited to the PDL.

Principal Waterfall

Sequential, starting with class A, then class B, class C and finally class D.

Similarly to the availability of the LF, this feature can also be subject to the performance of the transaction: for example, a significant number of deals require that, once the PDL debit balance exceeds the remaining outstanding balance of the junior notes, it is credited prior to interest on the junior notes. This is typically achieved by splitting the PDL into sub-ledgers, each corresponding to a particular note class (see *Sub-Ledgers* section). With such a provision, the level of “senior notes’ protection” offered by the PDL mechanism is automatically regulated by the performance of the deal.

The Dutch transaction Storm 2007-II B.V. (Storm 2007-II) is an example of a pure separate waterfall with PDL priority, subject to the deal’s performance. In this structure any remaining ExS, after crediting the PDL and building up the reserve fund to the target level, was used to amortise the junior non-collateralised notes.

Principal to Cover Interest Shortfalls – Often, structures with separate waterfalls allow principal to be used, within certain limits, to cover shortfalls on the interest PoP.

This feature can be structured by requiring the first item of the principal PoP to comprise the payment of what is often referred to as the “interest shortfall amount” (ISA). The ISA is normally defined as the difference, if negative, between interest available funds and a list of items that can then vary from “all items on the interest PoP” to “certain items on the interest PoP”; most commonly, it includes senior expenses, the LF and interest on the notes (possibly subject to performance triggers), while other items, such as the PDL and RF replenishment, are covered by interest flows only.

In most deals, principal funds re-allocated to meet interest payments are debited to the PDL. In these instances, rather than using performance triggers, the “borrowing” of principal to meet junior interest payments is only possible providing it does not create a debit balance on the next senior ranking PDL sub-ledger.

In some structures, eg, the Italian RMBS in the example below (Cordusio RMBS Securitisation S.r.l. - Series 2007 or Cordusio 4), “borrowed” principal is recovered via a specific provision in the interest PoP, which is not part of the PDL.

Case Study: Cordusio 4

Separate waterfall with ISA and separate “recovery” of principal used to pay interest.

Pre-Enforcement Interest PoP (Summary)

Interest Available Funds: interest collections; any recoveries from the defaulted loans; GIC interest; swap payments; payments received under the transaction documents; RF (if interest available funds are not sufficient to cover the payments from 1 to 14 of the interest PoP).

Interest Waterfall

1. Fees, taxes, senior expenses and senior swap payments.
2. Interest on the class A1, A2 and A3 notes.
3. Class A PDL.
4. Interest B (subject to class B default trigger).
5. Class B PDL.
6. Interest C (subject to class C default trigger).
7. Class C PDL.
8. Interest D (subject to class D default trigger).
9. Class D PDL.
10. Interest E (subject to class E default trigger).
11. Class E PDL.
12. Junior class PDL.
13. RF replenishment.
14. Subject to gross default trigger, the remainder of the interest available funds becomes part of the principal available funds.
15. Principal available funds used under item 1 of the principal priority of payments on any previous payment date.
16. Other junior payments.

Case Study: Cordusio 4 (cont.)

Pre-Enforcement Principal PoP (Summary)

Principal Available Funds: principal collections from the portfolio; amounts credited on the PDLs; amounts provisioned under items 14 and 15 of the interest PoP.

Principal Waterfall

1. Cover the ISA, ie, the difference, if negative, between payments due under items 1 to 11 of the interest PoP and interest available funds (excluding PDLs).
2. Sequential starting with class A, then class B, class C, class D and finally class E, subject to pro-rata triggers (see *Sequential and Pro-rata Amortisation* section).

Triggers - when the respective default trigger is breached, interest payments are “moved” to the principal PoP, immediately junior to the proceeding class in order of seniority (eg, interest B is positioned after principal A). Triggers on a certain class are deemed not breached if it is the most senior class (ie, all the classes ranking in priority have been repaid).

Economic Cost of Liquidity

Any liquidity support to the notes (whether provided by an external LF or by principal collections) comes at a certain cost, which is inherent one way or another in both combined and separate waterfalls and which can be defined as the “economic cost of liquidity”.

Separate waterfall structures supported by external LFs incur a direct cost made up of a commitment fee for the availability of the facility and an interest rate charged on any drawn amount (see *Liquidity Facility* section).

Using principal as a source of liquidity (ie, structuring a combined waterfall or an ISA in separate waterfalls) also incurs a “time value of money cost” arising from continuing to pay interest on a note balance that would otherwise have amortised. This cost is equal to the coupon on the most senior class of notes in sequential structures, or the WAS on the notes in pro-rata structures (see *Sequential and Pro-Rata Amortisation* section).

In addition, there is the risk that the future interest proceeds will not be sufficient to make up for the “borrowed” principal potentially leading to principal losses at lower ranking notes.

Performance Triggers and Senior Notes Protection

Maintaining liquidity sources (principal collections or external LF) available for paying junior note interest in a scenario where the performance of the portfolio or of the structure deteriorates beyond a level consistent with the rating of the junior notes represents a significant outflow of funds which negatively affects the senior notes.

For example, where principal is used to provide liquidity support, senior notes’ principal would only be repaid once interest on the junior notes has been paid in full. Similarly, since liquidity facilities are normally replenished on top of the waterfall, their unlimited availability to service junior notes would have the ultimate effect of redistributing funds away from the senior notes to the junior notes.

In order to complete the subordination of junior notes and to preserve more funds for the senior notes, the availability of liquidity support to junior notes is typically conditional upon the so-called “performance triggers”, which are normally referred to the portfolio performance (eg, default, loss or delinquency level) or to the performance of the structure (eg, outstanding PDL).

Types of Triggers

The most frequent performance triggers in EMEA RMBS are linked to:

- loss level;
- default level;
- delinquency level;
- PDL level (aggregate PDL uncovered debits or number of PDL sub-ledgers with uncovered debits).

It is not uncommon to find transactions where performance triggers refer to a combination of the above elements.

The default/delinquency triggers are more conservative than a loss trigger, as they are likely to be hit sooner (a loan will first be delinquent, then defaulted, while a loss will occur only at the end of the foreclosure process) and do not take into account the servicer’s recovery activity (not all delinquencies will become defaults, as the arrears management will “cure” part of them; not all defaults will cause a loss, as the servicer could recover the defaulted principal through the proceeds from the sale of the property). A loss trigger would therefore stop liquidity support

for junior interest later, and this could have a dramatic impact if high-default scenarios occur in jurisdictions with long foreclosure periods (as liquidity support would continue to be provided to junior notes while the portfolio performance was deteriorating, but had not yet realised significant losses).

PDL triggers combine the portfolio's performance with the structural characteristics. Indeed, PDL uncovered debits will depend not only on the portfolio performance in terms of losses (or defaults: see *Provisioning* section for alternative uses of the PDL), but also on the structure's "rules" to make a PDL debit (eg, the definition of default and loss; ISA coverage), the availability of ExS, and the position of PDL in the waterfall.

The Construction of Triggers

Triggers in EMEA RMBS are far from uniform in their construction, despite there being a certain homogeneity to the performance indicators they are linked to.

For example, the definitions of a delinquent or defaulted loan vary from transaction to transaction: they can refer to the number of missed instalments (the most usual choice), to the time elapsed since the first delinquency, to the balance in arrears, or to a combination of these elements. The term "default trigger" can in turn refer to net or gross defaults, depending whether they are net of the recoveries or not.

As mentioned, when the trigger refers to the PDL level, the trigger becomes even more transaction-specific, as it will be influenced by the portfolio ExS and the way in which the PDL mechanism is structured.

Another aspect to take into account is that the default, delinquency or PDL level for the purpose of the trigger, can be measured as a percentage of the portfolio at closing, the outstanding portfolio, or the outstanding notes, and this choice has an important impact on the triggers' effectiveness. Similarly, triggers can be cumulative (eg take into account all defaults since the closing of the transaction) or period triggers (eg refer to the defaults which have occurred since the previous payment date): clearly, other things being equal, period triggers will be less likely to be hit than cumulative triggers.

Finally, triggers can be reversible or not reversible, depending whether the liquidity support for the junior classes is restored when the level of the trigger returns below certain thresholds. For example, a net default trigger can be breached if a spike in the defaults occurs and then "restored" recoveries are cashed in.

Ideally transactions include performance triggers' that allow benchmarking against available historical performance data, as this improves transparency. For instance, if an originator were able to produce its cumulative gross default statistics as a percentage of the portfolio originated in a certain year, a trigger referencing the same performance indicators would make it easier for investors to assess the trigger-related risks they are taking, or the limits on the liquidity coverage they enjoy.

Triggers Level Sizing: Theory and Market Practice

As discussed, the levels of the triggers reflect the limit of the portfolio and/or structure's underperformance beyond which the liquidity support to the junior classes is stopped and all resources are used to serve the most senior classes. Put simple, the more remote the probability of the trigger being breached (eg, a gross default trigger set at a very high level), the higher the "benefits" to the junior noteholders and vice-versa.

As such, the sizing of the triggers should be the result of a "negotiation" between senior investors and junior investors, with the arrangers and/or the originator acting as "moderators".

While nothing prevents a different approach being taken, it is market practice for the three parties of this “negotiation” to size the trigger levels based on the rating agencies’ stress scenarios. For example, the default trigger stopping the liquidity support for a certain class rated ‘AA’ is normally set at a level exceeding the rating agencies’ ‘AA’ default probability expectations. While Fitch is aware of this practice, the agency does neither recommend nor require it for assigning a rating to the notes.

Specific Structures

Sequential and Pro-Rata Amortisation

Transactions with sequential amortisation repay the notes in order of seniority and therefore junior notes cannot amortise until all the notes ranking senior to them have been repaid in full. A number of EMEA RMBS deals can switch from a sequential to a pro-rata pay-down, where all classes of notes are redeemed proportionally in accordance with their respective outstanding balance.

To demonstrate the effect of pro-rata amortisation on internal credit enhancement (see *Internal Credit Enhancement - Definition* section), consider the following example:

Example: Pro-Rata and Sequential Amortisation

	Senior notes	Junior notes
Initial outstanding balance (OB)	150	50
Internal Credit enhancement (CE) (%)	25.0	n.a.
Funds available for principal redemption (funds)	20	20
Sequential amortisation		
Allocation of funds	20	0
Remaining OB after funds allocation	130	50
CE after funds allocation (%)	27.8	n.a.
Pro-rata amortisation		
Allocation of funds	15	5
Remaining OB after funds allocation	135	45
CE after funds allocation (%)	25.0	n.a.

Source: Fitch

With a sequential pay-down, the internal credit enhancement of the senior notes increases over time as a percentage, but remains the same in absolute terms. On the contrary, for pro-rata amortisation, the percentage of the credit enhancement is maintained while it decreases in absolute terms.

Pro-rata amortisation has the benefit of maintaining the notes’ WAS at a constant level over the life of the transaction, thereby helping to stabilise the level of ExS (see *Drivers of Excess Spread Level* section). By contrast, under a sequential pay-down, the notes’ WAS rises over time, as the senior notes are repaid first; as a result, the proportion of the more expensive junior notes increases. This means that the level of ExS will decline over time (unless the cost of senior notes is higher than the junior notes due to the presence of detachable coupons - see “*Excess Spread Extraction*”).

Nevertheless, a pro-rata repayment of the notes raises the risk of “adverse selection”: if less risky borrowers prepay first or repay their loans faster than riskier borrowers, the credit quality of the portfolio will deteriorate over time. This will in turn increase the credit enhancement needed to support the ratings of the notes (in contrast to pro-rata repayment which, as shown in the example above, keeps the credit enhancement percentage constant over time).

Adverse selection is particularly relevant for non-prime portfolios, since the best borrowers are more likely to refinance with a prime lender (and thereby reduce the all-in cost of their loan) at the earliest opportunity allowed by their credit profile.

It should also be remembered that, as the portfolio amortises, its borrower concentration increases and therefore, any defaults occurring towards the end of the portfolio's life can represent a large portion of the outstanding portfolio (eventually 100%, if the last loan defaults). Also in this case, the credit enhancement needed to support the ratings of the notes would increase over time, while pro-rata amortisation would keep it constant.

Pro-Rata Conditions

To mitigate adverse selection and concentration risks, pro-rata amortisation in EMEA RMBS can typically start only if sufficient credit enhancement for the most senior class has built up and/or certain conditions as regards the portfolio and structural performance are met.

The standard provisions included in EMEA RMBS rated by Fitch allow for the notes' amortisation to switch from sequential to pro-rata subject to a combination of the following:

- the credit enhancement from other notes' subordination/overcollateralisation (ie, excluding the RF - see "Internal Credit Enhancement - Definition") in favour of the most senior class(es) of notes doubles compared to its level at closing, or at least three to five years (depending on the jurisdiction and on the structural features of the deal) have elapsed since the deal closed;
- if the structure has default or loss coverage mechanisms, such as the PDL, there are no uncovered defaults or losses. Similarly, if principal collections from the pool can be used to pay waterfall items that differ from principal of the notes (see "Separate Waterfalls - Principal to Cover Interest Shortfalls"), any principal draw has been refunded;
- there is no outstanding amount under the LF;
- the RF, if any, is equal to its required amount;
- the principal outstanding amount of the portfolio is more than 10% of the portfolio's principal outstanding at closing.
- cumulative defaults do not exceed the expected long-term default performance of the pool, considering the characteristics of the portfolio and the expected economic scenarios;
- 90+ days delinquencies do not exceed the expected long-term default performance of the pool, considering the characteristics of the portfolio and the expected economic scenarios;

Revolving Periods

In those transactions which contain a revolving period, the principal collections from the portfolio are not used to repay the notes' principal but rather to purchase new mortgage loans from the originator, subject to certain conditions.

Indeed, these transactions always include triggers which stop the revolving period when the quality of the portfolio deteriorates beyond a certain level. These triggers are often combined with mechanisms that prevent further purchases of loans if the post-purchase portfolio composition differs too much from the aggregate characteristics of the pool at closing.

The standard provisions included in EMEA RMBS rated by Fitch allow for the revolving period to subject to a combination of the following:

- cumulative defaults do not exceed the expected long-term default performance of the pool, considering the characteristics of the portfolio and the expected economic scenarios;

- 90+ days delinquencies do not exceed the expected long-term default performance of the pool, considering the characteristics of the portfolio and the expected economic scenarios;
- if the structure has defaults or loss coverage mechanisms, such as the PDL, there are no uncovered defaults or losses. Similarly, if principal collections from the pool can be used to pay waterfall items that differ from principal of the notes (see “Separate Waterfalls - Principal to Cover Interest Shortfalls”), any principal draw has been refunded;
- there are no outstanding amounts under the LF, if any;
- the RF, if any, is equal to its required amount.

Portfolio Deterioration

EMEA RMBS with revolving periods normally also include mechanisms which prevent further purchases if the post-purchase portfolio composition differs too much from that of the pool at closing, in order to limit the risk that the revolving features of the deal cause a deterioration to the portfolio’s credit quality. The most common limits include:

- borrower concentration (top borrower, top 10 and top 20 borrowers);
- borrower characteristics (eg, share of borrowers with self-certified income or adverse credit history, self-employed borrowers, non-residents, etc);
- geographic distribution of the borrowers;
- loan-to-value (WA original and current loan-to-value and distribution);
- debt-to-income ratio or income multiple ratio (WA and distribution);
- arrears distribution;
- loan type (eg, payment frequency, WA and maximum maturity, loan purpose, product type, etc);
- property characteristics (eg, type, size, location, share of second homes, etc).

Ideally transactions include also rules that ensure the “stability” of the pool over time, not only in terms of pool composition, but also under the underwriting policy (eg, the transferred assets are originated according to underwriting policies that do not substantially deviate from those followed for the loans included in the initial pool) and product characteristics (eg, amortisation, interest rate options, etc are in line with those of the assets in the initial pool).

Step-Up Margin

The terms and conditions of a number EMEA RMBS include an increase in the notes’ margins, which take effect after a certain date, when the issuer has the option to redeem the notes in full (the so-called “call date” or “step-up date”). In certain jurisdictions, the call option is combined with an option for the originator to provide the issuer with the funds needed to redeem the notes in exchange of the outstanding portfolio.

The increased cost of funding to the issuer is meant to encourage the redemption of the notes at their call date. However, since there is normally no binding guarantee from the originator or any other third party to provide funding to the issuer to redeem the notes, Fitch’s rating analysis does not rely on the exercise of such an option, regardless of whether there is any historical track record of exercising such options.

Following step-up, the increased cost of the notes compresses the level of ExS, potentially bringing the cost of the notes above the yield of the portfolio. This will decrease the credit enhancement that the structure offers as a support to the notes.

Impact on Equity Investors

The step-up and call option analysis becomes very important when assigning a rating to the investments made by equity investors (to simplify this concept, in this paragraph the agency will refer to the “equity notes” - see *Excess Spread Extraction* section for more details). As the repayment of the equity notes is normally largely dependent on the levels of ExS that the structure generates over time, the presence of a step-up feature will have a significant impact on the funds available to them (see “*Rating Analysis of Excess Spread Extractions - General Approach*” in “*EMEA RMBS Cash Flow Analysis Criteria*”, dated 6 May 2009 and available at www.fitchratings.com for criteria details).

Put Options

Instead of a call option for the issuer, some EMEA RMBS envisage a put option for the noteholders, whereby they can require the issuer to fully repay the notes (starting from a certain date) by selling the outstanding portfolio. This element can also be combined with a step-up feature.

While the ultimate effect of a put option does not significantly differ from that of a call option (the “initiative” to have the notes redeemed starts with the noteholders and not the issuer, but the concepts discussed above remain valid), it is worth stressing that, where the put-option is exercised, certain transactions require the notes to be redeemed below par (typically at their principal outstanding, less the respective PDL).

In this respect, it is important to note that Fitch’s structured finance ratings address the fulfilment of the issuers’ obligations according to the terms of the notes (see “*Inside the Ratings: What Credit Ratings Mean*”, published August 2007 and available at www.fitchratings.com). However, such a redemption below par is only possible if the put option is exercised based on the instructions of a given noteholder and the rating does not and can not address the implication of an investor action.

Provisioning

The term “provisioning” refers to those waterfall mechanisms that aim to cover for expected losses (ie, losses that have not yet been realised) in respect of highly delinquent and/or defaulted loans. In structures which include these features, instead of waiting for a loss to materialise and the PDL to be debited, ExS (or available interest cash flows) are “captured” in the waterfall in an amount corresponding to the principal outstanding of the defaulted or highly delinquent loans and used to amortise the notes.

This practice will temporarily create some degree of over-collateralisation (corresponding to the defaulted or highly delinquent loans for which the ExS has been captured) and, more importantly, align - as much as possible - the outstanding notes to the outstanding performing portfolio, which ultimately benefits the transaction’s ExS. Of course, the benefits of this mechanism to the noteholders will vary depending on the definition of defaulted or highly delinquent loans and the position of the “funds trapping mechanism” in the waterfall (see *Implementation of Provisioning* section).

Provisioning is particularly beneficial in those jurisdictions where the foreclosure processes is particularly long, and where a sudden increase in defaults or delinquencies would translate into a large differential between the note balance and the balance of performing mortgage loans. This differential would cause a shortfall (the so-called “cost of carry” of defaults/delinquencies) between the issuers’ income (ie, interest from the performing portfolio) and its expenses (ie, interest on the notes plus senior costs); the issuer would have to service the notes inclusive of the proportion corresponding to such non-performing positions. Moreover, if subsequent recoveries are insufficient to cover both principal and

interest - up to the amount the issuer paid under the notes during the time needed to complete the foreclosure - such cost of carry would cause or compound principal deficiencies.

In the vast majority of structures which include provisioning mechanisms, recoveries are not used to pay the notes' principal (ie, they are not part of the principal available funds of separate waterfalls or are excluded from the target redemption amount of combined waterfalls), unless the structure is unable to provision enough ExS to cover the defaulted/highly delinquent loans in full. All else being equal, from a non-equity noteholder perspective the inclusion of recovery proceeds in the principal waterfall is more beneficial.

Implementation of Provisioning

One way to implement provisioning for defaults/severe arrears involves defining the target redemption amount (see *Combined Waterfalls - IPIP* section) as the difference between the outstanding notes and the performing portfolio (ie, the portfolio excluding defaults and severe arrears, as defined by the terms and conditions of the notes).

Alternatively, provisioning can be implemented by debiting the PDL with defaults/severe arrears instead of losses.

The definition of defaults or severe arrears, despite varying from transaction to transaction, is usually linked to the number of unpaid instalments or number of days in arrears. These definitions therefore play an important role in determining the effectiveness of provisioning.

In some structures, as in Siena Mortgages 07-5 S.p.a. (Siena 07), provisioning becomes more "intense" as the number of days in arrears increases, as can be seen in the case study below:

Case Study: Siena 07

Combined IIPP waterfall with triggers for switching to IPIP.

Principal amortisation “capped” at the “expected amortisation amount” (equivalent to the target amortisation amount discussed under “*Combined Waterfalls*”).

Expected Amortisation Amount: aggregate principal outstanding of the rated notes, less notional outstanding amount.

Notional Outstanding Amount: principal amount outstanding of each receivable in the portfolio, multiplied by the respective performance factor, as specified in the table below.

Performance Factor

Monthly instalment loans	Number of missed instalments		Performance factor (%)
	Quarterly instalment loans	Semi-annual instalment loans	
0-4	0-2	0-1	100
5-8	3-4	2	75
9-11	5-6	3	65
≥ 12	≥ 7	≥ 4	0
Defaulted	Defaulted	Defaulted	0

Source: Siena 07 Prospectus

Defaulted Loan: monthly instalment loans with more than 12 missed instalments, quarterly loans with more than seven missed instalments, semi-annual instalment loans with more than four missed instalments (or classified as *sofferenza* as per Bank of Italy’s guidelines).

Excess Spread Extraction

In its most simple and common form, a EMEA RMBS envisages the obligation of the issuer to repay the notes’ principal out of the principal collections from the portfolio and to pay the notes’ interest and its general expenses out of the interest collections from the portfolio; when needed, the structure will employ available ExS as an additional source of cash flows to fulfil these obligations (eg, via the PDL or the RF).

Any “unused” residual ExS is generally paid to the so-called equity investors (in most instances the originator), ie, the holder of the most subordinated piece(s) of the issuer’s borrowings. While there is little standardisation in this area, the most typical forms of borrowings held by equity investors are:

- **Subordinated Loans:** the equity investors grant the issuer a loan, the repayment of which is subordinated to the full repayment of the notes and will consist of a combination of ExS and releases from the RF. Subordinated loans’ proceeds are generally used to fund the RF and the issuer’s start-up expenses.
- **Equity Notes:** the equity investor subscribes the most junior notes, ie, the first tranche of notes to suffer from any poor performance of the portfolio, the interest payments of which include the “unused ExS”.

The waterfall items providing for the payments to the equity investor generally rank junior to the payments in favour of the noteholders (interest and principal of the notes, LF and RF replenishment, PDL provisions, etc). This ensures that only ExS exceeding the noteholders’ needs is paid out.

However, some EMEA RMBS envisage a so-called “ExS extraction”, ie, one or more “senior extra obligations” for the issuer to be covered by ExS, thereby limiting - in whole or in part - the ExS availability to the noteholders as an additional source of credit enhancement.

Types of Excess Spread Extraction

These are the most common issuer senior obligations funded by ExS in EMEA RMBS:

- Detachable coupons (DAC) or interest only strips (IO): DAC/IO consist of additional coupons to be paid on a notional equal to the outstanding amount of one class of notes, normally for a limited period of time after closing and at a fixed rate. They are usually linked to the most senior class of notes (but traded independently from it) and generally rank pari-passu in the waterfall with the interests of the notes they are linked to.
- Undercollateralisation: undercollateralisation occurs when the amount of rated notes issued is higher than the principal amount outstanding of the portfolio (see *Overcollateralisation and Undercollateralisation* section). The “extra issuance” has to be covered by trapping ExS and using it to repay the notes’ principal. For example, in structures with combined waterfalls, this can be achieved by including the ExS trapping in the target redemption amount discussed under “*Combined Waterfalls - IPIP*”. If the waterfalls are separate, a possible option is to use a dedicated item in the interest waterfall to divert funds for paying down the principal of the notes, in addition to the principal collections from the portfolio.
- Excess spread notes: these notes are present in those undercollateralised structures where there is a clear distinction between the notes whose principal is repaid out of the portfolio’s principal collections and those notes that are exclusively repaid via ExS trapping (namely, the excess spread notes).

When these obligations rank more senior or pari passu with the issuer’s obligations to the noteholders, they limit the role of ExS as an “additional layer of protection” for the structure and qualify as “senior ExS extractions”.

Implications for the Rating Analysis

Since they constrain the availability of ExS as credit enhancement to the notes, the ExS extractions discussed above can have a severe impact on the issuer’s ability to pay interest and principal to the noteholders. For this reason, structures including senior ExS extractions normally have higher levels of other types of credit enhancement (eg, subordination, RF levels, protection given by the swap counterparty, etc) in favour of the noteholders.

In some cases, Fitch is able to assign a rating to the ExS extractions and/or to the investments made by the equity investors (see “*Notes Backed by Excess Spread*” in the report “*EMEA RMBS Cash Flow Analysis Criteria*”, dated 6 May 2009 and available at www.fitchratings.com).

Swaps as an Additional Source of Credit Enhancement

In EMEA RMBS it is not uncommon to find transactions with swaps whose purpose is not only to neutralise interest rate risk (as is the case for the swaps described under the *Swaps: Interest Rate and Currency Risk* section) but also to provide the structure with additional protection from the risks related to the portfolio and/or the structure’s poor performance.

Despite the types of additional protection offered by the swaps varying from transaction to transaction, the vast majority deal with two risks: ExS reduction and cost of carry of non-performing loans.

Protection from ExS Reduction

Those swaps which offer protection from the risk of ExS reduction normally have the objective of stabilising interest flows from the portfolio by limiting or eliminating the WAS compression.

In their simplest form, the swaps addressing WAS compression risk transform the interest flow from the performing portfolio into a “predictable” cash flow.

The most common “WAS protection swaps” are swaps where the issuer pays the interest received from the portfolio in exchange for a payment amounting to the performing portfolio, multiplied by the index payable on the notes, plus a fixed margin. Under such an arrangement, the swap counterparty assumes the WAS compression risk, while the issuer will have a guaranteed margin on the performing portfolio corresponding to the margin paid by the swap counterparty.

The swap of BP Mortgages S.r.l. (BP Mortgages) is a good example of this type of protection.

Case Study: BP Mortgages

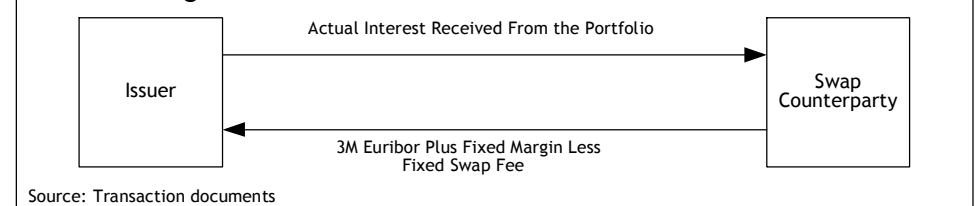
Swap Notionals

For both parties, the performing balance of the portfolio at the beginning of the collection period.

Swap Payments

- The issuer pays actual interest received from the portfolio.
- The swap counterparty pays three-month Euribor (same index as the notes’) plus a fixed margin and less a fixed swap fee.

Structure Diagram



The margin paid by the swap counterparty can be fixed, as in BP Mortgages, or changed over time, depending on the cost of the notes (eg, the margin corresponds to the weighted average (WA) spread of the outstanding notes, plus an additional margin). One interesting example in this respect is the swap of Hipocat 11 - Fondo de Titulización de Activos (Hipocat 11), where a stabilisation of sorts occurs on the expense side of the ExS, with the inclusion of the servicing costs among the amounts due by the swap counterparty (the mismatch in the notionals will be discussed under the *Protection from Cost of Carry* section).

Case Study: Hipocat 11

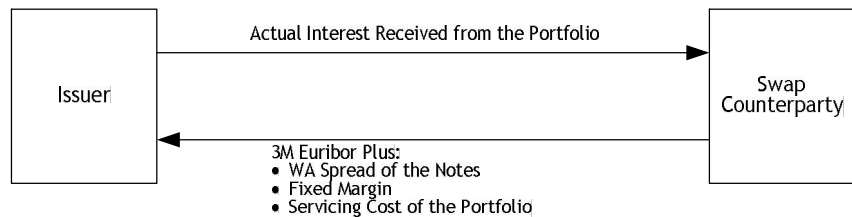
Swap Notionals

- Swap Counterparty: balance of performing loans and those less than 90 days in arrears (except those under a payment holiday option, if they represent more than a certain share of the collateral balance).
- Issuer: not applicable, as it pays the total interest received from the portfolio (theoretically, the notional corresponds to the performing balance).

Swap Payments

- The issuer pays actual interest received from the portfolio.
- The swap counterparty pays:
 - three-month Euribor (same index as the notes') plus the WA spread of the notes, plus a fixed margin;
 - servicing costs of the portfolio.

Structure Diagram



Source: Transaction documents

Protection from Cost of Carry

In addition to the performing part of the portfolio, the swap notional can also include scheduled interest on delinquent and/or defaulted mortgage loans, or even on losses. In these instances, if both the issuer and the swap counterparty's payments are based on the same notional, the issuer's payment obligations under the swap would exceed the interest flow available from the portfolio as soon as delinquencies or defaults occur. This could in turn create a "swap loss" for the issuer, the size of which is positively correlated to the level of delinquencies and/or defaults.

For instance, if in the BP Mortgage example above, the notionals of both parties also included defaulted loans, this would happen if the interest payable on the defaulted loans was higher than the "Euribor plus spread" payable by the swap counterparty. In this case, the swap would have the effect of increasing the cost of carry of defaults and decreasing the credit enhancement supporting the notes, unless there is an automatic correction mechanism in place (eg, the obligations of the issuer are capped at the interest flows actually received from the portfolio).

Case Study: Capital Mortgage

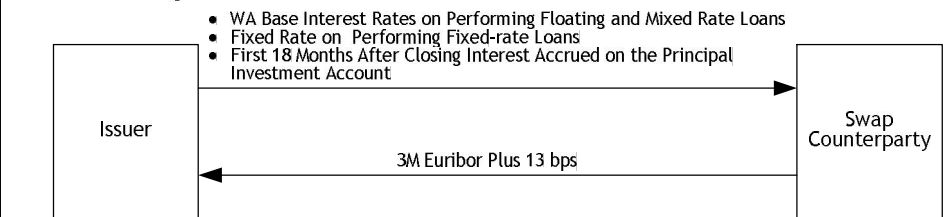
Swap Notionals

- Swap Counterparty: principal amount outstanding of the notes.
- Issuer: performing portfolio (see below for details).

Swap Payments

- The swap counterparty pays three-month Euribor (same index as the notes) plus 13bps.
- The issuer pays:
 - floating portion of the portfolio: the WA of the base interest rates on a notional equal to all performing floating-rate and mixed-rate mortgage loans; and
 - fixed portion of the portfolio: a fixed rate on a notional equal to all performing fixed-rate mortgage loans; plus
 - interest accrued during the first 18 months after closing on the principal investment account of the issuer.

Structure Diagram



Source: Transaction documents

Mismatches in the notionals between the two parties can be used to provide the issuer with coverage from the cost of carry of defaults. For example, this could be achieved by implementing a total return swap (as in the BP Mortgages case) where the notional of the swap counterparty consists of the sum of performing and non-performing loans, while the issuer pays on the performing portfolio only. In this case, the swap counterparty would have to make interest rate contributions on non-performing assets, locking the cost of carry of defaults and delinquencies at the difference between the cost of the notes and the “Euribor plus spread” paid by the swap counterparty.

Alternatively, the notional of the swap counterparty could be linked to the outstanding balance of the notes, as in Capital Mortgage S.r.l - Series 2007-1 (Capital Mortgage). This arrangement would ensure that the protection from cost of carry takes effect only if the structure is not able to amortise the notes in line with the amortisation of the performing portfolio - or, more generally, to pay enough ExS in the PDL to cover for losses or defaults/delinquencies.

Impact on Rating Analysis and Counterparty Risk

The swap agreements illustrated above constitute an important source of credit enhancement that can have a substantial impact on the rating analysis, especially in the case of the swaps covering the cost of carry.

As discussed under the *Swap Counterparty Risk* section, swap agreements introduce counterparty risk in respect of the swap provider. The Fitch counterparty risk criteria in respect to hedging agreements, described in “*Counterparty Risk in Structured Finance Transactions: Hedge Criteria*” (dated 1 August 2007, available at www.fitchratings.com), are designed to limit counterparty risks (also in case of swaps providing credit enhancement).

Investors should note that such complex swap structures are less marketable to alternative counterparties, and may go hand-in-hand with a “back-to-back” swap arrangement between the swap counterparty and the originator; this may fully mirror the swap terms between the issuer and the swap counterparty. This means that the ability to replace a swap counterparty following its downgrade or default may also hinge upon the then credit quality of the originator.

Furthermore, the more complex the swap, the more difficult it will be to univocally determine the collateral to be posted in case of a downgrade of the swap counterparty. For example, for the swaps offering protection from cost of carry, the collateral amount will depend, among other things, on the portfolio performance expected by the party which calculates the collateral to be posted.

Investors should be aware that the more transaction risks are covered by swap counterparties the more counterparty reliance is present. In extreme cases, the interest rate, prepayment and margin compression risks can be fully transferred to a swap counterparty and thereby isolated the transaction from such risks. However, as a result the transaction will have an increased counterparty dependency.

Please note that Fitch is in the process of updating its counterparty criteria. For more information please see “*Exposure Draft: Counterparty Risk in Structured Finance Transactions*”, published on 30 March 2009.

Interest Rate Caps

In EMEA RMBS it is not uncommon for the issuers to enter one or more interest rate caps on the notes’ index with a swap counterparty. Under these contracts, the swap counterparty commits to pay the difference (if positive), between the notes’ index and a strike rate (normally higher than the notes’ index as at the closing date), calculated on a pre-defined fixed or amortising notional. In most instances, the commitment expires a certain period of time after closing.

While the presence of caps constitutes a positive element for the noteholders (as it protects them from the negative effects of rising interest rate scenarios), Fitch is aware that a large number of caps are designed to mirror the standard interest rate stresses tested by the rating agencies.

For a description of Fitch modelling approach for transaction benefiting from a cap, see *Interest Rate Scenarios for Transactions Including Interest Rate Caps* section in “*EMEA RMBS Cash Flow Analysis Criteria*”, dated 6 May 2009 and available at www.fitchratings.com.

Unhedged Interest Rate Risk

In some EMEA RMBS the interest rate risk discussed under “*Swaps: Interest Rate and Currency Risk*” is not covered or is only partially covered.

The presence of fixed-rate loans not hedged by a fixed-floating swap has a significantly negative impact on the noteholders in a rising interest rate scenario, where the structure will suffer from the natural “cost of carry” of fixed rate loans. Similarly, transactions with floating rate mortgages and fixed rate notes would be negatively impacted in decreasing interest rate scenarios. For this reason, structures tend to combine unhedged fixed-rate loans with other sources of credit enhancement to protect them in a rising interest rate environment (for example, interest rate caps and floors).

There are also transactions where the basis and/or reset risk on floating rate loans (ie, floating rate mortgages with an index different from the notes and/or with an index reset date different from the notes) are not covered by a basis swap. In such instances, Fitch estimates the basis and reset risk by comparing the historical data available on the index of the notes and the index of the loans, as well as taking into account current and expected future market trends (for more details see *Analysis of Transactions Where Interest Rate Risk is not Hedged* section in “*EMEA RMBS Cash Flow Analysis Criteria*”, dated 6 May 2009).

Conclusion

Despite having reached a certain level of homogeneity in their general mechanics, EMEA RMBS structures still present significant differences in the way these mechanics are implemented. In particular, structures differ mainly depending on the jurisdiction, on the asset quality (eg, prime vs non-prime) and the originator's objectives (eg, funding, capital release, etc).

This report gives an overview of the “structural building blocks” and related “established mechanics” of EMEA RMBS, which represent the necessary knowledge background to understand the rationale of the Fitch rating approaches detailed in the criteria report “*EMEA RMBS Cash Flow Analysis Criteria*”, dated 6 May 2009 and available at www.fitchratings.com.

Appendix 1: Related Research

Related Research^a

Publication	Date
General rating and structured finance criteria	
Inside the ratings: What credit ratings mean	August 2007
Special-purpose vehicles in structured finance transactions	13 June 2006
Counterparty risk criteria	
Exposure draft: Counterparty risk in structured finance transactions	30 March 2009
Counterparty risk in structured finance transactions: Hedge criteria	1 August 2007
Commingling risk in structured finance transactions: Servicer and account bank criteria	9 June 2004
Liquidity support in structured finance transactions: Liquidity provider rating criteria	13 July 2004
Counterparty risk in structured finance: Qualified investment criteria	27 September 2007
Issuer's currency swap obligations rating criteria	
Criteria for rating currency swap obligations of an SPV in structured finance transactions	10 January 2008
Interest rate criteria	
Interest rate risk in structured finance transactions - Euribor	1 November 2006
Interest rate risk in structured Finance transactions - British pound sterling Libor	1 November 2006
Fitch Euribor stresses	Monthly updated
Fitch GBP Libor stresses	Monthly updated
Mortgage insurance criteria	
European criteria for mortgage insurance in RMBS transactions	4 July 2007
Country-specific criteria	
UK residential mortgage default model criteria	8 February 2008
Spanish residential mortgage default model criteria	21 December 2007
Dutch residential mortgage default model criteria	2 February 2009
Criteria for NHG guarantee mortgage loans in Dutch RMBS	8 June 2006
Italian residential mortgage default model II - Amended	2 November 2005
Revised MVD assumptions for Italian RMBS (Italy RMBS)	20 April 2007
German residential mortgage default model 2004	1 December 2004
French RMBS default model 2004	3 May 2004
Revised MVD assumptions for French RMBS transactions (France RMBS)	28 March 2007
Irish residential default model	7 March 2006
Portuguese residential mortgage default model	16 December 2005
Greek RMBS rating criteria (Greece RMBS)	13 December 2006
Belgian residential mortgage default model 2005 (Belgium RMBS)	10 May 2005
Revised MVD assumptions for Belgian RMBS transactions (Belgian RMBS)	8 January 2007
Country-specific market studies	
UK RMBS - Regional repossession study for England and Wales	8 January 2007
Diversity in union - Prepayment drivers in European RMBS - Update (Europe RMBS)	11 October 2007
Origination and servicing standards in Italy	4 April 2005
Underwriting practices and criteria in the Dutch mortgage market	19 October 2007
Ratings stress test: Impact of a housing market downturn on Dutch RMBS	2 February 2009
Legal issues in Dutch RMBS	13 June 2002
Italian RMBS market overview - Trends and impact on rating analysis	29 May 2008
Surveillance	
European RMBS surveillance: Post issuance reporting standards	19 November 2004
Around the houses - Quarterly European RMBS performance update	Quarterly publication
Origination & servicing	
European residential mortgage originator review criteria	5 February 2007
Global structured finance originator evaluations	3 December 2008
Rating criteria for European residential and commercial mortgage loan servicers	20 August 2007
Rating criteria for European mortgage loan servicers - Spanish market addendum	25 September 2007
Rating criteria for European mortgage loan servicers - UK market addendum	28 January 2008
Rating criteria for European mortgage loan servicers - The Netherlands market addendum	14 February 2008
Rating criteria for European mortgage loan servicers - German market addendum	14 December 2007
Rating criteria for European mortgage loan servicers - Italian market addendum	1 November 2007
Rating criteria for European mortgage loan servicers - Russian market addendum	7 September 2007

All the above research is available at www.fitchratings.com

^a Criteria can be updated or amended: readers should always make reference to the last criteria available at www.fitchratings.com

Source: Fitch

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