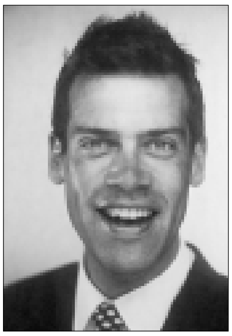
Financial collateral and capital adequacy requirements

To what extent can the use of financial collateral as a credit risk mitigant affect capital adequacy requirements? This article considers the current and future capital adequacy regimes applying to credit institutions as they relate to collateralised transactions.



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In this article we shall consider the current and future capital adequacy regimes applying to credit institutions as they relate to collateralised transactions. First we discuss briefly what capital adequacy regulations apply at international, European and Dutch levels respectively. After that our attention will be directed to the regimes that apply to balance sheet and off-balance sheet items and the distinction between the banking book and the trading book. In particular, we shall consider to what extent the use of financial collateral as a credit risk mitigant can affect capital adequacy requirements. Finally, we look at the proposed capital adequacy regime of Basel II insofar as it relates to financial collateral.

The current regulatory framework in a nutshell

Although capital adequacy regulations have been set out at international, European and national levels, the 1988 Basel Capital Accord (Basel I) is probably the best known. The contents of European directives, which set out the capital adequacy requirements for credit institutions, are to a large extent in line with Basel I and these directives have in turn been implemented in national regulations. The most important European directives are the 2000 Directive, relating to the taking up and pursuit of the business of credit institutions, and the Capital Adequacy Directives (CAD). In the Dutch context, the Basel documents and the European directives have led to the framework set out in section 20 of the Act on the Supervision of the Credit System (1992) which forms the basis for solvency supervision by De Nederlandsche Bank (DNB) and, more importantly, the Credit Supervision Manual (the *Manual*) issued by DNB. The Manual is the implementation of section 20 of the Act and contains detailed capital adequacy regulations for Dutch credit institutions. In Basel I, the 2000 Directive and the Manual, the word 'collateral' as a rule refers to a flow of cash, a cash equivalent or securities intended to secure an outstanding obligation. It does not seem relevant for capital adequacy purposes for such collateral to be subject to a security interest (for example a pledge) or to an outright transfer of ownership (confer Box 1). We shall confine ourselves in this article to such financial collateral. The regulatory treatment of claims secured, for example, on residential property or commercial real estate is beyond the scope of this article.

Balance sheet and off-balance sheet items

Capital adequacy regulations usually distinguish between the treatment of balance sheet items and off-balance sheet items. Also collateralised transactions are registered partly on the balance sheet and partly off balance sheet. The risk connected to balance sheet items is based on the total value of a particular exposure as well as on the presence of collateral flows mitigating this risk. As will be shown below, the collateralised part of a transaction is multiplied by the risk weight factor appropriate to the collateral, whereas the uncollateralised exposure is multiplied by the risk weight factor applicable to the counterparty. The risk weight factors associated with the collateral received (for the collateralised part of the transaction) and the counterparty (for the uncollateralised part) are also applied to off-balance sheet items. There is an extra element, however, that must be taken into account in this case. Off-balance sheet items are always subject to an initial so-called credit conversion factor, reflecting the risk associated with that particular category of off-balance sheet items. This credit conversion factor is applied before the risk weight factors associated with the transaction are taken into account.

The distinction between banking book and trading book

When discussing collateralised transactions, it is useful to distinguish between the banking and the trading book as collateralised transactions must be registered in one or the other of these books, depending on the context in which they are used. Consequently, different capital adequacy rules may apply to them as well. In general terms, the difference between the banking and the trading book can be explained as follows. Trading activities are usually carried out by trading desks and are typically focused on short-term profit opportunities arising from price-

Box 1: The two functions of financial collateral in OTC agreements

Repo transactions can be defined as transactions in which party A (seller) sells certain securities to party B (buyer) for an amount of cash (the purchase price), while at the same time committing itself to buying back equivalent securities at a future date at a specified price (the re-purchase price). The need for cash is the principal reason for entering into a repo and the principal flow is thus the cash flow. The collateral flow can now be defined as the flow of securities in return for this principal flow. In a securities lending transaction, a lender transfers specific securities to a borrower for an amount of cash or other securities, while lender and borrower commit themselves to transferring equivalent securities and / or cash at the end of the transaction. The need for specific securities is the main reason why securities lending transactions are entered into and the flow of securities from lender to borrower is therefore the principal flow. The collateral flow at the outset of a transaction can now be defined as the flow of securities and / or cash in the opposite direction to this principal flow. Also, in the course of a repo or securities lending transaction, transfers of collateral cash and / or securities can take place to secure a net exposure arising from price fluctuations in the value of securities transferred earlier in the transaction. Such transfers are usually referred to as margin transfers.[1]

Flows of cash and securities at the outset of a transaction

repo: $A \xleftarrow{\text{cash}} B$; $A \xrightarrow[\text{collateral securities}]{} B$

securities lending: $A \xrightarrow{\text{securities}} B$; $A \xleftarrow[\text{collateral cash and / or securities}]{} B$

The word 'collateral' does not do full justice to the two-sided nature of 'Over The Counter' (OTC) transactions such as repo or securities lending transactions, as it has a 'security interest related' meaning in an Anglo-Saxon law context. A collateral flow certainly does have such a security function. Indeed, the fact that the collateral is used for recovery in case of default illustrates its security function. The fact that securities and cash do not disappear from the balance sheets of the transferring entities and the fact that income payments are usually payable to the transferring entities is in keeping with this. It is as if no outright transfer of ownership has taken place. On the other hand, internationally used standard documentation such as the 2000 version of the *Global Master Repurchase Agreement* (GMRA 2000) for repos and the *Global Master Securities Lending Agreement* (GMSLA) for securities lending envisages outright transfer of ownership of securities. The standard agreements thus do not emphasise the security function of the collateral, but rather the fact that outright transfer is required.

Compare this with section 2.3 of the GMSLA, which contains a provision stating that 'collateral'is market terminology, but that parties do intend that there should be an outright transfer. The 'collateral' terminology does not reflect the fact that in the majority of cases the collateral is used to enter into subsequent trades, which is the second function of collateral. The transferee of the collateral has only an obligation to transfer equivalent (and not exactly the same) securities at the end of the transaction. For this second function, transfer of full ownership of collateral to the transferee is the only or the preferred route in many jurisdictions. It is for this reason that the use of collateral and pledge oriented terminology in, for example, the Basel Accords and the European directives could be challenged. Nevertheless, as Basel I and II and the European directives use collateral terminology and as it is also used in the GMSLA (although not in the GMRA 2000), we reflect this market practice, noting, however, that it should really be interpreted as implying both functions of collateral.

Derivatives illustrate that both the establishment of a security interest and outright transfer of ownership can be used as a method of creating collateral. Where derivatives are concerned, collateral cash or securities can be provided under the *International Swaps and Derivatives Association's* (ISDA) May 2001 Margin Provisions to secure a net exposure arising in the course of a transaction (the first function of collateral). This can be done by establishing a security interest (the New York law approach) or by outright transfer of the collateral (the English law approach). Note that in both cases provisions will be in place to guarantee that the collateral can be used to enter into further trades (the second function of collateral).

1. In this article 'repo' is used to refer to repurchase and reverse repurchase transactions or agreements, 'securities lending' to securities lending and securities borrowing, whereas 'repo-style' refers to both repos and securities lending.

Box 2: Repo-style transactions and the Manual

In the Manual, the quality of the collateral in repo-style transactions is reflected in so-called *supervisory haircuts* that reduce the market value of collateral for the purpose of risk mitigation. Note, however, that in Basel I and the 2000 Directive the quality of collateral is reflected in the risk weight factor, and no supervisory haircuts are applied. Another difference is that, under the haircut regime of the Manual, over-collateralisation can be taken into account, whereas Basel I and the 2000 Directive apply risk weight factors to the collateral to the extent that such collateral secures an exposure and do not take over-collateralisation into account.

Under the regime set out in the Manual, the distinction between the banking and the trading book is not insignificant, since it broadens somewhat the range of risk-mitigating collateral available for repo-style transactions registered in the trading book. More specifically, it states that readily marketable securities registered on recognised exchanges (other than those already accepted as risk-mitigating collateral) will be acceptable. This extra category of risk-mitigating collateral is thus not acceptable for use in transactions registered in the banking book. As somewhat different regimes therefore apply to trading and banking book, it is important for both banks and supervisors to determine which transactions form part of the trading book. The Manual pays particular attention to the minimum conditions which repo-style transactions must fulfil in order to qualify for the special capital adequacy rules that apply to trading book positions. The requirements may relate to marking-to-market techniques, re-margining, automatic set-off of obligations in the event of a default and the inter-professional character of a transaction, while transactions which could be construed as a sham are excluded.

movements in the financial markets. The risk related to such activities is usually termed 'market risk'. In contrast, banking book activities focus on longer-term, more traditional banking activities, such as the granting of credit. The risk in relation to such activities is usually referred to as credit risk. Whereas Basel I originally set out rules for credit risk only, the 1996 *Market Risk Amendment* (MRA) ensured that market risks were covered as well. On a European level, the 2000 Directive sets out the rules for credit risk, while trading book positions and market risk are dealt with in the *Capital Adequacy Directives* (CAD). As a result of the implementation of Basel I and the directives, the distinction between trading and banking books is also of importance on a national level and may result in a different treatment of collateral for capital adequacy purposes. The national regime applicable to repo-style transactions is set out in greater detail in Box 2.

The banking book regime

In principle, the starting point for the banking book is that any risk related to an exposure must be assessed in relation to the relevant counterparty. However, where collateralised transactions are involved, it is the issuer of the collateral assets which is assessed in terms of 'risk indicator' rather than the counterparty. This is called the *substitution approach*. The issuer of the collateral assets is assumed to represent the quality of the collateral which may ultimately be needed for recovery. Where highly trustworthy issuers are involved, such as OECD central governments, the risk weight factor may even be zero. Although only the collateralised part of a transaction will be subject to collateral risk weight factors, any uncollateralised part of a transaction will be assessed in accordance with the normal regime and therefore be weighted according to the risk profile category of the counterparty. After applying the collateral and counterparty risk weight factors as described above, the resulting risk position is multiplied by the 8% target ratio. Collateral thus plays an important role in the substitution approach since it becomes the basis for judging the risk profile of collateralised transactions. Risk weight factors are applied to each type of collateral eligible for risk mitigation. The main categories of financial collateral are presently cash, OECD or Zone A government and central bank securities, securities issued by certain regional governments and local authorities and multilateral development bank securities. The risk weight factors applicable to such collateral may differ slightly under the Basel, European and national regimes respectively; it may be said that Basel I has the most rigid approach to collateral, whereas the 2000 Directive and the Manual are somewhat more flexible.

The trading book regime

The approaches to collateralised transactions set out in the Basel Market Risk Amendment and in the Capital Adequacy Directives are essentially the same as far as trading book items are concerned. Whereas securities transferred in collateralised transactions falling under the MRA will usually be subject to the section relating to interest rate risk, the CAD sets out provisions relating to position risk in respect of such securities. We note that the philosophy behind the interest rate risk (MRA) and position risk (CAD) provisions is basically the same, as both are intended to take into account changes in the market value of securities. The MRA and the CAD distinguish two types of risk in respect of such volatility. The first relates to movements in the price of individual securities in relation to the issuer of the assets concerned (*specific risk*), whereas the second relates to general price movements in the financial markets which also have an effect on the prices of the securities involved (*general market risk*). The capital adequacy charges for specific and general market risk are calculated on the basis of the provisions of the MRA and CAD. The CAD additionally sets out special provisions relating to settlement and counterparty risk which may be relevant for collateralised transactions registered in the trading book. The MRA does not contain any specific provisions on these types of risk. The Manual deviates from the approach taken by both the CAD and the MRA since it does not provide for a special trading book regime. Its regime is, apart from a single addition discussed in Box 2, the same as the regime applicable to collateralised transactions in the banking book.

Financial collateral in the new Basel Capital Accord

In the next few years, the regulatory framework concerning financial collateral will undergo extensive revision, starting with a fundamental reform of Basel I. One of the often cited disadvantages of this current Accord is that it does not adequately take into account credit risk mitigation techniques, such as the use of collateral. Fortunately, the Consultative Document concerning the revision of the Accord provides for several improvements. An important one is that the use of a wider range of collateral should be allowed. Also, a capital adequacy treatment of collateralised exposures which allows greater differentiation is proposed. This better reflects the volatility of the underlying securities. In addition, Basel II sets a number of minimum conditions which collateralised transactions will have to fulfil in order to qualify for the collateral regime, and in particular to guarantee a minimum level of operational safety. The first group of minimum standards refers to the legal certainty of the collateral, since collateral will only effectively mitigate risk if the relevant legal mechanisms are robust and ensure that the lender has clear rights to the collateral. For example, collateral arrangements must be properly documented, with clear procedures for the timely realisation of collateral. Secondly, the credit quality of the collateral provider and the value of the collateral must not have a positive correlation. Finally, a robust risk management process should be in place and, importantly, banks must satisfy certain disclosure requirements. For the banking book the Consultative Document sets out two broad approaches for taking collateral into account: a comprehensive and a simple approach. Banks will be required to operate under only one of the two alternatives.[2]

Simple approach
The simple approach will be the most basic approach for taking collateral into account. Whereas the simple approach is easiest for banks to apply, it is also less accurate and it will be designed in such a way that it will result in higher overall capital requirements. Applying the simple approach is possible only if there is no mismatch between the maturity of the collateral and that of the exposure. Additionally, collateral is required to be marked-to-market and revalued at least every six months. Basically, in the simple approach, that part of a claim which is collateralised by recognised collateral receives the risk weight appropriate to the collateral instrument. However, this risk weight will be subject to a floor, or minimum, of 20% (except under certain specified conditions). The remainder of the claim should be accorded the risk weight appropriate to the counterparty. The simple approach is thus still based on the substitution approach and therefore resembles the treatment of collateral in the current Accord. The major changes are the recognition of a broader variety of collateral types and the introduction of a floor, or minimum, for the risk weight to be applied to the collateralised portion.

Comprehensive approach
Banks may instead choose to use the comprehensive approach for the treatment of collateral. The most notable feature of the comprehensive approach is the introduction of haircuts, which will be applied to the market value of collateral in order to protect against the effect of price volatility. Three different categories of haircuts can be distinguished: haircuts that reflect the volatility of the exposure; haircuts that reflect the volatility of the collateral received; and haircuts that reflect currency volatility.[3] After applying the appropriate haircuts to the collateral value, and after subtracting this adjusted collateral value from the total exposure, the resulting exposure has to be multiplied by the risk weight applicable to this uncollateralised exposure. Note that, originally, the Consultative Document proposed that after the application of the appropriate haircuts, a floor factor or weight (*w*) had to be applied to that portion of the exposure which was actually collateralised. For collateralised transactions, *w* would be 0.15, but banks would be permitted to apply a zero *w* in certain government securities repo-style transactions. The reason for introducing *w* was to take into account the fact that collateral might turn out to be effectively worthless e.g. because it proves impossible to establish title to the collateral. However, in an Update on the Basel Committee's Work on the New Basel Capital Accord (issued 21 September 2001), the Committee announced that instead of using the w-factor under the minimum capital regime (also termed Pillar 1), the treatment of the so-called residual risk will be shifted to Pillar 2, the supervisory review process. Finally, an interesting feature of Basel II is the so-called carve out from the comprehensive approach. When, in case of government repo-style transactions, the counterparty is a so-called 'core market participant', supervisors may choose - when certain conditions are met - not to apply the haircuts specified in the comprehensive approach but instead apply a zero haircut.

In sum, it can be stated that, with the introduction of haircuts, the comprehensive approach will deviate substantially from the current Accord. However, it should also be noted that the concept of supervisory haircuts already forms a part of the regime as it is currently described in the Manual.

Summary and conclusions

The Basel Capital Accord of 1988 was an important first milestone in the regulatory treatment of collateralised transactions. However, the role played by risk mitigating factors in this Accord, such as the use of financial collateral, is still rather limited. The same holds for the European directives and national regulations derived from the Basel Accord. The regulatory treatment of collateral has recently entered a new phase, in the form of the proposed revision of the Basel Accord. The use of a wider range of collateral will be allowed in the new Accord and banks will be able to choose either the comprehensive or the simple approach for the treatment of collateral. Whereas the simple approach resembles the current Basel substitution methodology in its treatment of collateral, the comprehensive approach is more innovative. It assigns a central role to collateral haircuts, which may be based on banks' own internal estimates of collateral volatility. By making a wider range of collateral available for credit risk mitigation and making the calculation of risk-weighted assets more risk-sensitive, the revision of the Basel Accord is intended further to align regulatory capital which banks must hold and their actual economic risk structure. ❖

Notes

1 The authors would like to thank Harry Bolsius, Richard Comotto, Hilary Edginton, Rob Koopmans and Bas Rooijmans for helpful suggestions. All views expressed in this article are those of the authors alone. Any comments will be gratefully received and can be sent to th.keijser@jur.kun.nl or r.t.a.de.haas@dnb.nl.

2 We restrict ourselves to the standardised approach for calculating capital requirements. Banks may also choose to apply an Internal Ratings Based (IRB) approach, where a further distinction can be drawn between the so-called foundation IRB approach and the advanced IRB approach. Under the foundation IRB approach, the recognition of financial collateral closely follows the comprehensive approach to collateral under the standardised approach. Under the advanced IRB approach, a bank's own internal models will have to reflect fully the risk mitigating effects of collateral.
The present proposals will be further developed by the Basel Committee, taking into account, among other things, feedback from industry representative organisations such as The Bond Market Association, the European Repo Council and the International Swaps and Derivatives Association.

3 Haircuts may be calculated using a standard approach or an own estimates approach. Under the standard approach each item of eligible collateral receives a standard haircut, which ranges from zero in the case of cash to 30% in the case of non-main index equities listed on a recognised exchange. Under the own estimates approach supervisors may permit banks to use their own internal estimates of market price volatility and foreign exchange volatility (and thus the applicable haircut).