Collateral transactions and shadow banking

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4 Margin

1 INTRODUCTION

In the context of collateral transactions (within the EU shadow banking sector), there are various mechanisms that are designed to mitigate risk. Two such mechanisms within a collateral transaction are financial collateral and margin, both of which perform important and complementary risk mitigation functions. As noted in chapter 3, financial collateral serves as security and is intended to hedge default risk; margin is in place to hedge the risk arising from the unintended price fluctuations on a security used as financial collateral.[1]

Upon accepting financial collateral as security in exchange for the contracted property (cash or securities), there is always a danger that the value of the financial collateral will fall. If the value of the financial collateral falls below the value of the cash or securities, there is incentive for the collateral giver to default. The reverse is also the case – on the other side of the transaction; if the value of the financial collateral increases, it is in the collateral taker's interest to default. Another concern is that one of the parties to the collateral transaction becomes insolvent prior to the end of the contract and so fails to perform its obligations, thereby causing the non-defaulting party to suffer loss. Margin is therefore applied to a collateral transaction to mitigate these risks by providing the parties with a loss absorbing financial buffer.[2]

Margin is a mechanism that is both precise and dynamic. It is precise in the sense that at the point of trade, each collateral transaction generally has its own designated *ex-ante* margin requirement to cover future potential losses. Margin is also dynamic through *ex-post* margining controls, where the financial collateral is periodically valued mark-to-market to take account of gains and/or losses on an open position.[3] Mark-to-market entails tracking the current market value of the financial collateral so that gains and losses on an open position can be calculated. One of the main reasons for applying the mark-to-market technique is to ensure that market participants adhere to *ex-post* controls by

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1 M Choudhry, *An Introduction to Repo Markets* (2007) 42. See also, P C Harding and C A Johnson, *A Practical Guide to Using Repo Master Agreements* (2017) 169.

2 Harding and Johnson (n 1) 65.

3 Basel Committee on Banking Supervision and the Board of the International Organization of Securities Commissions, "Margin requirements for non-centrally cleared derivatives" (March, 2015) 1 at 4, available at: https://www.bis.org/bcbs/publ/d317.pdf.

providing sufficient margin to reflect any change in the value of the financial collateral. Such techniques ensure that the risk inherent in open positions can be regularly monitored, managed and adjusted to mitigate net exposures.

Part of the inherent risk mitigation attribute that margin encompasses is its ability to limit the amount of leverage (or debt) a financial institution can obtain.[4] The fact that margin represents the share of a security that requires the collateral giver to draw upon its own equity at the point of trade, means that margin requirements applied to a collateral transaction determines the maximum amount a party can borrow when using a given security as financial collateral.[5] For instance, the lower the margin requirement, the more that can be borrowed and the higher the margin requirement, the less that can be borrowed. Margin is, therefore, a risk mitigation tool capable of controlling the build-up of excessive leverage.[6]

The focus of this chapter is 'margin' and will be structured as follows. Section 2 will address the question – "what is margin?". In order to answer this question, it is important to explore the rationale behind applying margin to a collateral transaction. Section 3 discusses the application of *ex-ante* margin requirements by way of a 'haircut' or by way of 'initial margin'. Both these concepts perform the same function, resulting in overcollateralisation – the only difference being the arithmetic used in the calculation process. Section 4 analyses *ex-post* margining controls. Financial collateral is susceptible to price fluctuations, resulting in either gains or losses on an open position. The margining process seeks to mitigate this risk by marking the financial collateral to market on a frequent basis. Section 5 focuses on the issue of leverage. Margin has the ability to limit the amount of leverage a financial institution can obtain. Because leverage has been at the heart of many past financial crises, it is an issue of systemic importance especially given the negative externalities that could arise from potential future crises.[7] Section 6 concludes.

4 Leverage will be discussed in this chapter in greater detail below, see section 5 "Leverage" and subsequent Chapters 6, 7 & 8.

5 M K Brunnermeier, "Deciphering the Liquidity and Credit Crunch 2007 - 2008" (2009) 23 (1) *Journal of Economic Perspectives* 77 at 91. See also, J Walmsley, *Macmillan Dictionary of International Finance* (1985) 136; European Systemic Risk Board, "The macroprudential use of margins and haircuts" (2017) 1 at 25.

6 V Constancio, "Margins and haircuts as a macroprudential tool" (6 June, 2016) Vice-President of the ECB, at the *ESRB international conference of the macroprudential use of margins and haircuts*, available at: https://www.esrb.europa.eu/news/speeches/date/2016/html/sp160606.en.html.

7 K Knot, "Rethinking Financial Stability; Evaluating regulatory prime concerns a decade on from the financial crisis" (3 December, 2018) *DeNederlandscheBank* 1 at 8-9.

2 WHAT IS MARGIN?

Within a collateral transaction in the EU shadow banking sector, the posted financial collateral and the contracted for property, such as cash in a repo transaction or securities in a securities lending transaction, will usually not be of equal value. The price difference between the market value of the financial collateral and the value of the contracted for property is often referred to as the 'margin', which is *ex-ante* financed by the collateral giver's own equity.[8] Marcia Stigum and Anthony Crescenzi note that in practice, margin is posted by the collateral giver at the point of trade because the collateral taker is providing the contracted for property, such as cash or specific securities. Therefore, the collateral taker is in a position to demand financial collateral and extra security in the form of margin in order to protect its position.[9]

Margin is applied to the transaction to account for the risk of the market value of the financial collateral declining. The concern is that, the cash realised by the liquidation of the financial collateral may turn out to be of less value than the contracted for property, which may ultimately result in an actual loss for the collateral taker.[10] To mitigate the risk that the financial "collateral falls below the notional amount of the transaction, the market standard" is to overcollateralise the transaction such that the additional financial collateral, in the form of 'margin', covers net exposures from a collateral transaction with a given counterparty.[11] By applying margin at the point of trade, the collateral taker (or both parties in the case of a derivatives transaction) is/are ensured a financial buffer against the downward price fluctuation of the security posted as financial collateral.[12]

Parties to a collateral transaction generally negotiate and agree upon an appropriate margin level at the point of trade. Once agreed, margin securities are posted to reflect the agreed margin level.[13] Eligible margin securities often consist of high quality and liquid securities, such as cash (cash margin) or cash like instruments (margin securities).[14] To account for the risk that the value

8 G Yeowart, R Parsons, E Murray and H Patrick, *The Law of Financial Collateral* (2016) 465-466; see also, Brunnermeier (n 5) 77 at 91; Walmsley (n 5) 136; European Systemic Risk Board (n 5) 1 at 25.

9 M Stigum and A Crescenzi, *Stigum's Money Market* (2007) 534-535.

10 Harding and Johnson (n 1) 65-66. See also, European Systemic Risk Board (n 5) 1 at 22.

11 European Systemic Risk Board, "ESRB opinion to ESMA on securities financing transactions and leverage under Article 29 of the SFTR" (October, 2016) 1 at 4.

12 R Steiner, *Mastering Repo Markets* (1997) 79.

13 N Battistini, M Grill, P Marmara and K van der Veer, "A case for macroprudential margins and haircuts" (May, 2016) *Financial Stability Review – special features* 110 at 110.

14 It should be noted however, that eligible margin can vary significantly, depending on the agreement between the counterparties and transactions involved. See, European Systemic Risk Board (n 5) 1 at 22. See also, P C Harding and A J Harding, *A Practical Guide to the 2016 ISDA Credit Support Annexes for Variation Margin* (2018) 27-28; Annex 1 of the GMRA 2011.

of the financial collateral fluctuates, the margin level is generally set *ex-ante* and maintained through *ex-post* controls for the lifecycle of the transaction through various margining techniques.[15]

There are, therefore, two touchpoints by which margin is applied in a collateral transaction, and there is a distinction between margin being applied at the point of trade and margin being applied during the lifecycle of the transaction. At the point of trade, margin can be applied either by way of 'initial margin' or by way of a 'haircut'. These are applied and set *ex-ante* to cover future exposures that could arise from losses as a result of the market value of the financial collateral falling.[16]

Margin can also be exchanged *ex-post*, on a periodic basis and during the lifecycle of the transaction to "cover current exposures arising from the gains or losses on an open transaction".[17] Because the haircut or initial margin level is generally set for the lifecycle of the transaction, and because the value of the financial collateral can fluctuate, margin is often exchanged periodically during the transaction to mitigate risks arising from one party having a net exposure over the other.[18] Each of the margin components outlined above will be explained in greater detail below.

3 Haircuts and initial margins

Haircuts and initial margins in a collateral transaction perform the same function, they both typically overcollateralise the lender in a securities lending transaction, the buyer in a repo transaction and/or the exposed party in the collateralisation of a derivatives transaction.[19] Haircuts and initial margins are two alternative manifestations of overcollateralistion in that the value of the financial collateral will always be higher than the value of the contracted for property.[20] As is demonstrated below, the key difference between haircuts and initial margins is arithmetical.[21]

15 For a more in-depth analysis of these margining techniques, see below in this chapter, section 4 "Margining". See also Chapter 5, section 3.3.4 "Margin" for a graphic illustration of how these margining techniques operate in practice.

16 Choudhry (n 1) 42.

17 European Systemic Risk Board (n 5) 1 at 4. See also, *Ibid* at 41.

18 European Systemic Risk Board (n 5) 1 at 28.

19 Walmsley (n 5) 108.

20 However, as noted below in this chapter, section 3.1 "Haircut" - haircuts can also result in under-collateralisation.

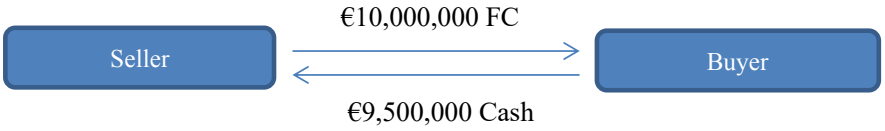
21 R Comotto, "Shadow Banking – Minimum Haircuts on Collateral" (2013) *European Parliament Economic and Monetary Affairs* 1 at 13.

3.1 Haircut

A 'haircut' is a discount deducted from the market value of the security posted as financial collateral.[22] In a repo transaction, for example, a haircut is expressed as the percentage difference between the market value of the security posted as financial collateral ("FC") and the purchase price. The formula for calculating a haircut is:[23]

$$\text{Haircut} = \frac{\text{market value of FC} - \text{purchase price}}{\text{market value of FC}} \quad \text{X } 100$$

A working example would perhaps be beneficial in demonstrating how a haircut is calculated in practice. At the point of trade in a repo transaction, the seller sells € 10 million of financial collateral to the buyer, who in return transfers € 9.5 million of cash to the seller.



The exact haircut percentage calculation of the above example is:

1. € 10,000,000 – € 9,500,000 = € 500,000
2. € 500,000/€ 10,000,000 = 0.05
3. 0.05 x 100 = 5
4. Haircut = 5%

There are two ways by which this 5% haircut can be applied in practice and both will be explained:[24]

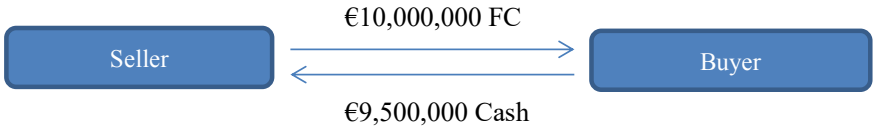
1. A haircut of 5% means that financial collateral worth € 10 million can be repoed out for a cash purchase price of € 9,500,000. The calculation for determining the cash purchase price is done by multiplying the market value of the financial collateral by one minus the haircut:

22 In a repo transaction in the EU, 'Margin Percentage' is the formal terminology found under the Global Master Repurchase Agreement ("GMRA") 2011. However, in practice the term 'haircut' is almost always used. On this, see paragraph 2 (aa) GMRA 2011. See also, Harding and Johnson (n 1) 156; Comotto (n 21) 1 at 13.

23 Comotto (n 21) 1 at 13.

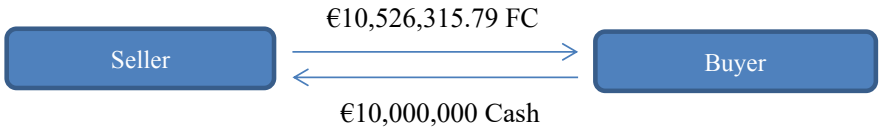
24 R Comotto, "A Guide to Best Practice in the European Repo Market" (December, 2017) *ICMA European Repo and Collateral Council* 1 at 50.

€10,000,000 x (1 – 0.05) = €9,500,000



2. A repo transaction with a cash purchase price of € 10,000,000, which is subject to a 5% haircut, would require the financial collateral to be valued at € 10,526,315.79. The calculation for determining the valuation of the financial collateral is done by dividing the cash purchase price by one minus the haircut:

$$\frac{€10{,}000{,}000}{(1 - 0.05)} = €10{,}526{,}315.79$$



Importantly, it is often assumed that haircuts applied to collateral transactions result in overcollateralisation. Consequently, in a repo transaction (for example), the value of the financial collateral received by the buyer will be higher than the value of the cash received by the seller. However, this is not necessarily always the case. In the repo market, where there is concern over the creditworthiness of a particular counterparty seeking to invest cash, haircuts can be negative resulting in *under-collateralisation*. In short, this means that the cash being sold by the buyer to the seller *exceeds* the market value of the financial collateral. The cash in this situation is, in fact, collateralising the financial collateral as negative haircuts are intended to ensure the restoration value of the financial collateral rather than its liquidation value. *Under-collateralisation* is rare and negative haircuts were last applied during the Japanese Banking Crisis of the 1990s and proposed, but never applied, during the 2007/2008 Global Financial Crisis.[25]

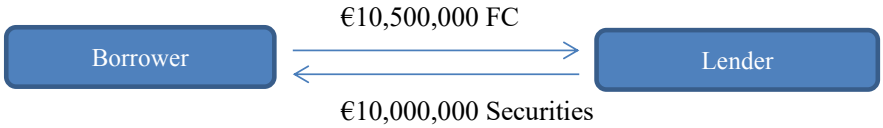
25 It has been noted that under-collateralisation does not arise in securities lending or the collateralisation of derivatives because lenders are inherently risk-averse and are reluctant to deal with risky counterparties. On this see Comotto (n 21) 1 at 14.

3.2 Initial Margin

Initial margin can be defined as a ratio, or as a percentage premium added to the market value of the security posted as financial collateral. In percentage form, the formula for calculating initial margin is as follows:

$$\text{Initial margin \%} = \frac{\text{market value of FC}}{\text{cash or market value of loaned security}} \text{ X } 100$$

A working example will demonstrate how an initial margin is calculated in practice. At the point of trade in a securities lending transaction, the borrower lends € 10.5 million of financial collateral to the lender, who in return transfers € 10 million worth of securities to the borrower.



The exact initial margin calculation in percentage form is:

1. € 10,500,000/€ 10,000,000 = 1.05
2. 1.05 x 100 = 105
3. Initial margin = 105%

In percentage form, initial margin is expressed relative to 100% (where an initial margin of 100% is a zero margin). In ratio form, the formula for an initial margin is as follows:

$$\text{Initial margin ratio} = \frac{\text{market value of FC}}{\text{cash or market value of loaned security}}$$

The ratio calculation of an initial margin is:

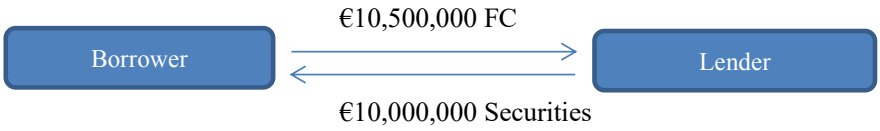
1. € 10,500,000/€ 10,000,000 = 1.05
2. Initial margin ratio = 1.05

There are two ways that this initial margin (either in percentage or ratio form) can be applied in practice and both will be explained:[26]

26 Comotto (n 21) 1 at 12-13. See also, Comotto (n 24) 1 at 49.

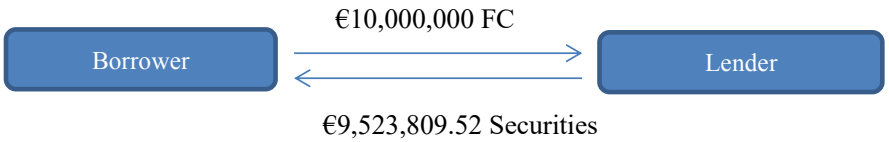
1. A securities lending transaction with an initial margin of 105% or 1.05 means that the specific securities worth € 10 million can be borrowed against financial collateral valued at € 10,500,000. The calculation for determining the valuation of the financial collateral is done by multiplying the value of the securities by 105% or 1.05.

$$€\,10{,}000{,}000 \times 105\% = €\,10{,}500{,}000$$



2. Financial collateral valued at € 10,000,000 with a 105% or 1.05 initial margin applied to the transaction would require the specific securities to be valued at € 9,523,809.52. The calculation for determining the value of the securities is done by dividing the value of the financial collateral by 105% or 1.05.

$$\frac{€\,10{,}000{,}000}{1.05} = €\,9{,}523{,}809.52$$



In the case of a derivatives transaction, such as a swap, initial margin is posted by both parties to the transaction and held in such a way as to ensure that the margin collected is immediately available in the event of counterparty default. Initial margin is therefore "a broader measure of a party's current and potential risk exposure between its last margin" transfer and the liquidation of positions following that party's default or insolvency.[27] In a derivatives transaction, initial margin can therefore be viewed as a collateral buffer; a haircut can subsequently be applied to the initial margin/collateral.[28]

27 A Harding, "Is it time to start planning for initial margin regulatory requirements?" (30 May, 2018) *Derivatives Documentation Blog*, available at: https://www.derivsdocu.com/blog/2018/05/30/is-it-time-to-start-planning-for-initial-margin-regulatory-requirements. See also, Basel committee on Banking Supervision (n 3) 1 at 5.

28 Haircuts applied to a derivatives transaction will be discussed in subsequent Chapter 5, section 5.2.2.6 "*Haircut*". See also, Harding and Harding (n 14) 25 and 28.

3.3 Determining Margin at the Point of Trade

There is no industry guidance on best practice with regard to the application of appropriate *ex-ante* margin levels applied to a collateral transaction. An unsurprising outcome of this is the wide variation in market practice when applying margin. In practice, it has been noted that market participants generally prefer individual calibration of haircuts/initial margins rather than a one-size fits all approach.[29] Therefore, the size of the margin applied is a reflection of the quality/liquidity of the financial collateral, the creditworthiness of the counterparty, the volatility of the market, the duration of the transaction and the existence or absence of a legal agreement – all of which are unique to that particular transaction.[30] When determining the appropriate *ex-ante* margin levels, market participants do have a series of possible approaches:

1. Some market participants are guided by official schedules, such as those published by the Basel Accords, the FSB and/or BCBS/IOSCO.[31] Since the Global Financial Crisis, greater attention has been paid to margins and haircuts applied by market participants in relation to the financial collateral they accept in their market operations and the standard supervisory haircut schedules under the Basel Accords, FSB and/or BCBS/IOSCO. As one example, the official Basel Accord haircut schedule is reproduced and depicted in *Table 4* below.

29 Harding and Johnson (n 1) 66-67.

30 Choudhry (n 1) 42.

31 Other schedules include those published by the Basel committee on Banking Supervision (n 3) 1 at 26-27 and the Financial Stability Board, "Regulatory Framework for haircuts on non-centrally cleared securities financing transactions" (2015) 1 at 8, available at: https://www.fsb.org/wp-content/uploads/P190719-1.pdf.

Table 4: Basel Accord Haircut Schedule

Issue Rating for Debt Securites	Residual Maturity	Sovereigns	Other Issuers	Securitisation Exposures
AAA to AA-/A-1	<1 year	0.5	1	2
	>1 year - <3 years	2	3	8
	>3 years - <5 years		4	
	>5 years - <10 years	4	6	16
	>10 years		12	
A+ - BBB-/A-2/A-3/P-3 and unrated bank securities	<1 year	1	2	4
	>1 year - <3 years	3	4	12
	>3 years - <5 years		6	
	>5 years - <10 years	6	12	24
	> 10 years		20	
BB+ to BB-	All	15	N/A	N/A
Main Index Equities	20			
Other Equities	30			
UCITS and Mutual Funds	Highest Haircut Applicable to any Security			
Cash in the same currency	0			

Source: BCBS[32]

2. When applying margin at the point of trade, many market participants have traditionally agreed on a standard round number approach, such as 2% for foreign/domestic liquid government bonds and between 5% – 10% for less liquid securities. In the securities lending market, initial margin of 102% and 105% were, and to some extent remain, industry practice for good quality fixed income securities.[33] In the EU repo market, haircuts and initial margins are often compiled by a pre-determined round numbered percentage, relating to country of issue, currency, term to maturity and rating or asset type.[34]

3. Quantitative methodologies are also common approaches used in determining the appropriate margin levels at the point of trade. The Value-at-Risk ("VaR") method is one example where a statistical technique is used to measure the level of financial risk within a firm or portfolio of securities over a specific period of time. Using historical data, the VaR method seeks to measure and quantify financial risk using various techniques running from statistical behaviour models of financial collateral price volatility to linear extrapolation.[35]

32 Basel Committee on Banking Supervision, "Basel III: Finalising post-crisis reforms" (December, 2017) *Bank for International Settlements* 1 at 47, available at: https://www.bis.org/bcbs/publ/d424.pdf.

33 Harding and Johnson (n 1) 60-67.

34 *Ibid* at 60-67.

35 Linear extrapolation is a process by which the value of the financial collateral is estimated beyond the specific/observed range.

4 MARGINING

As previously mentioned, initial margins and haircuts are *ex-ante* agreed at the point of trade. Once agreed, the haircut or initial margin level is generally 'maintained' for the lifecycle of the transaction through *ex-post* margining controls.[36] The market value of the financial collateral is susceptible to price fluctuations and without margining, the cash realised by the liquidation of the financial collateral may turn out to be significantly different from what was originally contracted for.[37]

To ensure that the net exposure is kept in check, regular adaptions to changes in the market value of the financial collateral are taken into consideration by marking the financial collateral to market. The phrase 'mark-to-market' means that the posted financial collateral in a collateral transaction is valued based on the current market price and this value is then compared with the original/last valuation.[38] Marking to market is an *ex-post* control and is customarily done at the end of each business day, or as agreed between the contracting parties.[39] If the value of the posted financial collateral has decreased, then a margin call will be made by the collateral taker requiring the collateral giver to post additional margin securities. On the other hand, if the value of the posted financial collateral has increased, then a margin call will be made by the collateral giver requiring the collateral taker to deliver margin securities back to the collateral giver.[40] The fluctuation of the value of the financial collateral may result in only a very small movement in the price. In such a case, and to avoid administrative burdens and costs, the parties generally agree a margin threshold or "Minimum Transfer Amount"[41] – above which changes in the value of the financial collateral triggers a margin call.[42]

The GMRA, the GMSLA and the Credit Support Annex[43] under the ISDA master agreement all set out margining methods to take the unintended price fluctuations of the posted financial collateral into account.[44] It should be noted, however, that while margining does mitigate risk, it is not a watertight solution. Market participants could still find themselves short of a sufficient amount of financial collateral due to adverse market movements between the

36 Choudhry (n 1) 43. See also, Comotto (n 24) 1 at 50-51.
37 M Haentjens and P de Gioia-Carabellese, *European Banking and Financial Law* (2020) 237-239.
38 A G Balmer, *Regulating Financial Derivatives: Clearing and Central Counterparties* (2018) 49-50.
39 Steiner (n 12) 79.
40 Haentjens and de Gioia-Carabellese (n 37) 238.
41 The Mimimum Transfer Amount will be discussed in greater detail in subsequent Chapter 5, section 4.2.2.5 "*Minimum Transfer Amount*". See also, Paragraphs 2 (a), (b), 10 and 11 (b) (i) (A), (B), 1995 ISDA English Law CSA and Paragraphs 2 (a), (b) 10 and 11 (c) (i) (A), (B), 2016 English Law CSA for Variation Margin.
42 Steiner (n 12) 79.
43 ISDA 2016 Credit Support Annex for Initial Margin and ISDA 2016 Credit Support Annex for Variation Margin.
44 Comotto (n 24) 1 at 50-51.

last mark-to-market valuations. In addition, there may also be an element of concentrated risk associated with illiquid issues, where the collateral taker holds a high proportion of assets from the same asset class, which subsequently become illiquid and, therefore, difficult to realise.[45] The following will give a very brief overview of the various margin techniques found in repos, securities lending and derivatives transactions.[46]

4.1 Repurchase Agreements

Under Paragraph 4 of the GMRA 2011, different methods of 'margin maintenance' in a repo can be distinguished. These methods are 'margin transfers', 'repricing' and 'adjustment'; each will be briefly discussed in turn.[47]

4.1.1 Margin transfers

Margin transfers are designed to reduce counterparty credit risk by requiring the parties to a repo transaction to transfer financial collateral to each other, in the form of securities or cash, on a periodic basis. Each party's 'Net Exposure'[48] is calculated periodically, using the mark-to-market technique, and the party who has a Net Exposure to the other is entitled to request, by way of a margin call, that the other party makes a margin transfer to it.[49] Depending upon market conditions, the Net Exposure may fluctuate from day to day and it is not a given which party will have a Net Exposure; the collateral taker may have the Net Exposure to the collateral giver on a certain day, whereas the collateral giver may have the Net Exposure to the collateral taker on another day.[50]

4.1.2 Repricing and adjustment

Margin transfers are not always the most appropriate method of margin maintenance, especially if the posted financial collateral undergoes a significant change in value. The GMRA 2011 accounts for this possibility by way of repricing and adjustment.[51] If margin is to be repriced then the original trans-

45 Choudhry (n 1) 50.
46 For a more in-depth overview of the precise margining techniques used in repos, securities lending and the collateralisation of derivatives, see generally subsequent Chapter 5 "Collateral Transactions in Practice".
47 These margin maintenance methods will be explored on a deeper level in the subsequent Chapter 5, section 3.3.4 "Margin".
48 Paragraphs 2 (ff) and 4 (c) GMRA 2011.
49 Paragraphs 4 (c) and (d) GMRA 2011.
50 Paragraphs 4 (a)-(h) GMRA 2011.
51 Paragraph 4 (j) GMRA 2011. See also, Haentjens and de Gioia-Carabellese (n 37) 238.

action will be terminated, and a new transaction is simultaneously entered into.[52] In this way, the original financial collateral is maintained, but the purchase price of the new transaction is re-set at a new market value of cash/securities.[53] In the case of margin adjustment, the parties agree that the original collateral should be replaced with a different kind and amount of collateral, thus terminating the original transaction and entering into a new one.[54] The new securities used as financial collateral will be transferred at market value at the point of trade, with due consideration of the original haircut/initial margin previously agreed between the parties.[55]

4.2 Securities Lending

Under Paragraphs 5.4 and 5.5 of the GMSLA 2000, margin maintenance provisions comparable to margin transfers found in the GMRA 2011 are in place.[56] This means, if there is a fluctuation in price between the market value of the lent securities and the market value of the posted financial collateral, one of the parties will be obliged to make a margin transfer. For example, if the mark-to-market value of the financial collateral *exceeds* the aggregate required financial collateral in respect of the loan, the lender is obliged to transfer margin to the borrower to eliminate the excess.[57] The same is also true on the other side of the transaction. If the mark-to-market value of the posted financial collateral plummets in value, the borrower is obliged to transfer margin to the lender to eliminate the deficiency.[58]

4.3 Derivatives

In terms of margining requirements for derivatives transactions, initial margin and variation margin play a key role.[59] In a derivatives transaction, it is often the case that both parties pledge initial margin at the point of trade with daily

52 Paragraphs 4 (k) (i) and (ii) GMRA 2011.
53 Paragraph 4 (k) (v) GMRA 2011. See also, Comotto (n 23) 1 at 64. See also, Haentjens and de Gioia-Carabellese (n 36) 238-239.
54 Paragraph 4 (l) (i) GMRA 2011.
55 Paragraph 4 (l) (ii) GMRA 2011. See also, Haentjens and de Gioia-Carabellese (n 36) 239; T Keijser, *Financial Collateral Arrangements* (2006) 31-32.
56 P C Harding and C A Johnson, *Mastering Securities Lending Documentation* (2002).
57 Paragraphs 5.4 (ii) and 5.5 (ii) GMSLA 2000.
58 Paragraphs 5.4 (iii) and 5.5 (iii) GMSLA 2000. See also, Keijser (n 55) 28; Haentjens and de Gioia-Carabellese (n 37) 238-239.
59 Paragraphs 1 and 10 of the ISDA 2016 Credit Support Annex for Variation Margin.

variation margin being pledged as necessary in response to mark-to-market moves in the value of the financial collateral and/or underlying asset.[60]

5 LEVERAGE

5.1 Introduction

The optimal amount of leverage (debt) held by a commercial firm is indeed a hotly debated moot point in corporate finance literature.[61] There are significantly opposing views in relation to the effect of leverage on commerical firms and, more broadly, the economy as a whole. Some commentators argue that debt heightens systemic risk, while others argue that overall, debt is beneficial for the economy.[62] The fact remains however, that in good times leverage magnifies gains and in bad times, leverage amplifies losses.[63]

The EU shadow banking sector can build up leverage via the use of collateral transactions. In a collateral transaction, leverage is obtained through the use of borrowed capital or the use of borrowed financial securities, to be repaid with interest, as an investment source in order to sustain continuing operations and to facilitate prospective growth. The ratio of debt in the financing structure is a measure of the institution's financial leverage; a higher debt ratio indicates a higher leverage and a lower debt ratio indicates a lower leverage.[64]

Yet the reciprocal of leverage is margin.[65] This means that in practice, leverage comes up against a significant problem – margin. Margin requirements applied to any given collateral transaction ensures that leverage can be limited – this holds true provided that market participants cannot fund their margin requirements through unsecured borrowing.[66] Markus Brunnermeier notes that because the collateral giver must finance margin with its own capital, it is not possible to borrow the amount equal to the market value of the financial collateral.[67] For instance, when a financial institution, such as a hedge fund enters into a repo transaction and uses AAA rated government

60 Harding and Harding (n 14) 25. See also, Basel committee on Banking Supervision (n 3) 1 at 11-12; P Madigan, "Sec lending key to overcoming margin test" (2017) *Securities Lending Times* 1 at 28-30.

61 J Loughrey, *Corporate Lawyers and Corporate Governance* (2011) 14-15.

62 H Nabilou, *The Law and Economics of Hedge Fund Regulation* (2014) 94-95.

63 As to how leverage can magnify gains in good times and amplify losses in bad times will be discussed in Chapter 6, section 5 "The Vulnerabilities of Debt".

64 K D'Hulster "The Leverage Ratio: A Binding New Limit on Banks" (2009) *11 World Bank Policy Brief* 1 at 1-2. See also, R A Spence, "Corporate Finance and the Role of Lawyers" (2017) *Volume III 2 Edinburgh Student Law Review* 102 at 105-106.

65 J Geanakoplos, "The Leverage Cycle" (2010) *1715R Cowles Foundation Discussion Paper* 1 at 1-2.

66 European Systemic Risk Board (n 5) 1 at 25.

67 Brunnermeier (n 5) 77 at 91-92. See also, European Systemic Risk Board (n 5) 1 at 25.

bonds as financial collateral, it must negotiate, *inter alia*,[68] the amount of cash that it can ultimately borrow.[69] For example, if the posted financial collateral is worth € 100 and the cash received is € 80, then the initial margin/haircut is 120%/20%, the loan to value ratio is € 80/€ 100 = 80% and the leverage ratio 5:1. These ratios are all synonymous. To put it another way, margin requirements determine the maximum amount that a party can borrow when using a given security as financial collateral.[70]

5.2 Procyclicality and Leverage

Despite the ability to limit leverage through the application of margin, leverage lies at the heart of many past financial crises. The common denominator of the Wall Street Crash of 1927-1929, the Japanese Banking Crisis of 1991 and the more recent 2007 Global Financial Crisis, was leverage.[71] These crises demonstrate that rising asset prices, rising leverage and the concentration of assets in the hands of fewer or different buyers are all suggestive of a possible bubble. If the prevailing margin requirements are not large enough to cover a price drop equal in size to the rising prices, then the market could be heading into dangerously leveraged territory prone to systemic consequences.[72]

Margin requirements are a determinant of the build-up of leverage via collateral transactions, and are strongly interlinked with the procyclicality of that leverage. The term 'procyclicality' can be defined as the "mutually reinforcing mechanism that amplifies fluctuations in financial markets, which, in turn, may result in negative feedback loops with the real economy" – financial collateral and the use of margin are part of these mutually reinforcing mechanisms.[73] While financial collateral and the use of margin are important

68 For example, the interest rate.

69 Or any other form of shadow bank, such as an insurance company, pension fund, investment fund etc.

70 Constancio (n 6). In addition, this paragraph contains and builds upon the following sections of work previously published by the author: R Spence, "The Vulnerabilities of Debt in the Shadow Banking Sector" (28-29 October, 2019) *Financial Stability Conference Paper, Berlin* 1 at 32-33, available at: http://financial-stability.org/wp-content/uploads/2019/11/2019_FSC-WS_PAPER_Spence_Vulnerabilities-of-debt-in-the-shadow-banking-sector.pdf;K Parchimowicz and R Spence, "Basel IV Postponed: A Chance to Regulate Shadow Banking?" (2020) 13 (2) *Erasmus Law Review* 13 at 27.

71 M Schularick and A M Taylor, "Credit Booms Gone Bust: Monetary Policy, Leverage Cycles, and Financial Crises, 1870 - 2008" (2012) *102 (2) American Economic Review* 1029-1061. Other crises where leverage played a central role include the financial derivatives crisis in 1994 that bankrupted Orange County in California and the 1998 emerging markets mortgage crisis that collapsed Long-Term Capital Management.

72 As noted in Chapter 8, section 4 "Recommendation 3: Countercyclical Margin add-ons" – countercyclical margin-add-ons are one potential way to mitigate these systemic consequences.

73 European Systemic Risk Board (n 5) 1 at 31.

risk mitigation techniques, they are equally both a central element of past economic cycles and are therefore a significant contributor to systemic risk.[74] If there is a lesson to be learned (again) from previous crises, it is that highly leveraged institutions pose systemic risk to the financial system. Systemic crises tend to erupt when highly levered financial institutions are forced to de-leverage, due to rising margin requirements, thereby sending the economy into recession.[75]

6 Conclusion

To conclude, the rationale for the application of margin in a collateral transaction is twofold. First, margin provides an important risk mitigation mechanism by hedging the price fluctuation of the financial collateral. By overcollateralising the transaction by way of a haircut or initial margin, parties are ensured a financial buffer. In addition, this overcollateralisation is monitored and managed through regular mark-to-market valuations on the financial collateral.

Second, the application of margin in a collateral transaction ensures leverage is limited. The higher the margin the lower the leverage and the lower the margin the higher the leverage. By limiting the amount of debt a financial institution can obtain has important financial stability implications. It should be noted, however, that margin is a mechanism that not only mitigates risk and limits leverage but it is paradoxically a mechanism that can amplify systemic risk. The procyclical effects of margin can, in good times allow for the build-up of leverage through low margin requirements. However, in bad times when margin levels rise, highly leveraged financial institutions are forced to de-leverage, which has systemic consequences. Because this leverage cycle is a recurring phenomenon, which has been at the heart of past financial crises, it is unfortunate that this issue has yet to be substantially tackled.[76]

74 J Geanakoplos and L H Pedersen, "Monitoring Leverage" in M Brunnermeier and A Krishnamurthy (eds) *Risk Topography: Systemic Risk and Macro Modeling* (2014) 113 at 114.

75 Interviewee #3 shared the views of the potential risks relating to leverage and procyclicality – this interview was conducted over the telephone on 17 June, 2019. See also, Harding and Johnson (n 1) 66. See also, Geanakoplos and Pedersen (n 74) 113 at 114.

76 Knot (n 7) 1 at 8-9.

5 Collateral transactions in practice[1]

1 INTRODUCTION

Since the Global Financial Crisis, liquid and safe financial collateral is used extensively throughout the financial system. To an important extent, this is the consequence of more stringent requirements that have been promulgated since the crisis so as to prevent financial institutions from falling insolvent. The calculation of these requirements is done on the basis of, *inter alia*, exposure to counterparty credit risk, market risk and liquidity risk. High quality and liquid securities, i.e. financial collateral that is exchangeable at par, and on demand, with central bank money is therefore now in high demand[2] and the use of financial collateral has evolved to become an "integral component" of the global financial system.[3] Consequently, the demand for (high quality) financial collateral is not likely to decrease in the near future given that it is now one of the main building blocks upon which collateral transactions in the EU shadow banking sector are constructed.[4] One reciprocal, and therefore significant aspect of financial collateral is margin. Margin is a mechanism that hedges the risk on the financial collateral and is a tool designed to provide a further layer of safety to the transaction. According to Jonathan Wilmot and others, if margin and financial collateral are central transactional components of the EU shadow banking sector, then understanding these sorts of transactions are key.[5]

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1 The chapter contains and builds upon the following work previously published by the author: M Haentjens (ed), Y Diamant, J Siena, R Spence and A Zacaroli, "Financial Collateral: Law & Practice" (2020) 89-134.

2 B Aydin, "Evolution of Collateral "management" into Collateral "optimisation"" (2016) *8 (3) Journal of Securities Operations & Custody* 259 at 271.

3 J Cullen, "The repo market, collateral and systemic risk: in search of regulatory coherence", in I H Y Chiu and I G MacNeil, *Research Handbook on Shadow Banking Legal and Regulatory Aspects* (2018) 85 at 85-92.

4 J Wilmot, J Sweeney, M Klein, A Plant, J Schwartz, Z Shi and W Zhao, "When collateral is king" (15 March, 2012) *Market Focus: Global Strategy Research* 1 at 1-3. See also, M Singh, "Collateral flows and balance sheet(s) space" (2016) *5 (1) Journal of Financial Market Infrastructures* 65 at 66.

5 Wilmot *et al* (n 4) 1 at 2-3. See also, Aydin (n 2) 259 at 259-271; P C Harding and C A Johnson, *Mastering ISDA Collateral Documents: A Practical Guide for Negotiators* (2012) 9; Singh (n 4) 65 at 66.

Being the backbone of secured funding with market participants, financial collateral and margin underpin a variety of financial transactions within the EU shadow banking sector, such as repos, securities lending and derivatives transactions. In order to legally underpin a collateral transaction, parties to the transaction generally enter into the applicable master agreement – which will be a standard template document created and maintained by the relevant industry association. As noted in Chapter 3, these include the GMRA for repos, the GMSLA for securities lending transactions and the Credit Support Annex under the ISDA master agreement for derivatives transactions. The master agreements are standardised contracts in effect setting out the rights and obligations of the parties to relevant transactions.[6] These contracts provide market participants with substantial standardisation, efficiency, predictability, legal certainty and flexibility in respect of legal and commercial aspects of transactions. In essence, these contracts are so widely used and with so little derogations, that they function as *lex mercatoria* or the international law that applies to certain transactions between certain market participants.[7]

This chapter analyses the practical operation of collateral transactions in the EU shadow banking sector from the perspective of the relevant master agreement, focusing particularly on financial collateral and margin. The ensuing narrative will therefore be structured as follows. Section 2 outlines the parties typically involved in a collateral transaction. Section 3 discusses the role that repo transactions play in practice from a GMRA perspective. The fact that repos provide an efficient source of funding and are consequently a central component of modern finance, it is important to understand how such a transaction operates, particularly in relation to risk mitigation measures such as the application of margin. Section 4 relates to securities lending transactions from the position of the GMSLA. Repos and securities lending play a functionally similar role and this is also the case when discussing the role of margin. Section 5 will analyse the collateralisation of a derivatives transaction from the perspective of the Credit Support Annex. While the ISDA Credit Support Annex is crucial from a legal perspective, since the Global Financial Crisis there is now significant interplay between the ISDA Credit Support Annex and EMIR and the accompanying Regulatory Technical Standards ("RTS").[8] Section 6 concludes.

6 M Choudhry, *The Repo Handbook* (2010) 126.

7 For a more extensive discussion on the *lex mercatoria*, see Chapter 7, section 3.2 "Self-Regulation: *Lex Mercatoria*.

8 Commission Delegated Regulation (EU) 2016/2251 of 4 October 2016 supplementing Regulation (EU) No 648/2012 of the European Parliament and of the Council on OTC derivatives, central counterparties and trade repositories with regard to regulatory technical standards for risk-mitigation techniques for OTC derivative contracts not cleared by a central counterparty ("RTS").

2 PARTIES INVOLVED

The following is a non-exhaustive outline of the main parties involved when entering into a collateral transaction in the EU shadow banking sector:[9]

Investors (the "buy-side"): private individuals, hedge funds, pension funds, fund managers, corporate treasuries, local authorities, insurance companies, multi-national corporations and investment funds.

Financial institutions (the "sell-side"): investment banks, securities and brokerage firms and commercial, retail and central banks.

Intermediaries: inter-dealer brokers, custodian banks such as Deutsche Bank, JP Morgan Chase and Bank of New York Mellon, and international clearing organisations such as Euroclear and Clearstream.

2.1 The Significance of Intermediaries

Intermediaries play an important role in collateral transactions. Market participants often use intermediaries, such as custodian banks or entities offering collateral management services, to manage their transactions. There are several reasons for this, such as expertise, efficiency or where a counterparty to the collateral transaction lacks the internal resources to monitor and manage its own obligations. Intermediaries are equally an important provider of valuable services, such as supplying liquidity, credit enhancement and comprehensive administrative services covering collateral eligibility, margin requirements, mark-to-market calculations, custody of securities, daily reporting, inter-account transfers and dealing with dividends. Given the size and scale of the collateral transaction typically entered into, parties are going to want to ensure that their transaction is properly managed and regularly monitored to guarantee the sufficient coverage of collateral and margin in order to minimise risk.[10]

3 REPURCHASE AGREEMENTS

Repos have become a key source of money market liquidity and have "evolved from what was essentially a back-office activity in the 1990s, to become an

9 Choudhry (n 6) 6. It should also be noted that Governments and Central Banks play a crucial role in collateral transactions by means of implementing monetary policy, however this issue goes beyond the scope of this study and as such, will not be discussed further.

10 P C Harding and C A Johnson, *Mastering Securities Lending Documentation* (2011) Chapter 1.

integral component" of the global financial system.[11] In practice, repo transactions are now generally effected by front-office dealers who may either sit on the government bonds desk, money market desk or the Treasury desk. The front-office monitors and manages the trading book and will take a view on the short-term yield curve at the point of trade. Trades are subsequently settled by the operations area of the bank or financial institution.[12] In most repo transactions, legal documentation by way of the GMRA underpins the transaction.

The GMRA, jointly published by the International Capital Market Association ("ICMA")[13] and the Securities Industry and Financial Markets Association ("SIFMA"),[14] is the market standard model legal agreement for documenting repos in the domestic and cross-border arena. There are several versions of the GMRA, the most recent version of which was published in 2011. This recent version mainly purported to achieve a closer alignment with other master agreements, including the ISDA Master Agreement and the GMSLA, and to reflect changes in market practice and general legal developments since 2000.[15] While the GMRA is the most widely accepted legal documentation underpinning repo transactions and is the focus of this section, it should be noted that the GMRA is not the only option available to parties to document a repo in the EU shadow banking sector. As noted in Chapter 3, It is still possible for parties to rely on other forms of arrangements such as domestic or specific company documentation or even ad hoc agreements which may be more suited to the repo transaction.[16]

3.1 Structure of the GMRA

The structure of the GMRA consists of a pre-printed master agreement, containing standard provisions accompanied by a set of explanatory notes, plus a number of Annexes. Annex I, titled "Supplemental Terms or Conditions", sets out specific choices for the parties to elect such as the minimum delivery periods, and fields where parties can record supplemental information. Parties often seek to tailor the GMRA to reflect internal practices and policies or to

11 Cullen (n 3) 85 at 85-92.
12 Choudhry (n 6) 160-161.
13 The ICMA is the body representing the bond and repo markets in the EU and is formerly referred to as the International Securities Markets Association.
14 The SIFMA is the body representing repo markets in the US and is formerly referred to as the Public Services Association and the Bond Markets Association.
15 Choudhry (n 6) 343-344. See also the website of the ICMA, available at: www.icmagroup.org; P C Harding and C A Johnson, *A Practical Guide to Using Repo Master Agreements* (2017) 143; G Yeowart, R Parsons, E Murray and H Patrick, *The Law of Financial Collateral* (2016) 462-463.
16 M Haentjens and P de Gioia-Carabellese, *European Banking and Financial Law* (2020) 234-235.

reflect relative credit strengths of the counterparty; Annex I is therefore designed to allow for customisation by the parties of the GMRA to reflect the special terms and conditions of their business relationship.[17] The master agreement and Annex I thus serve as the umbrella terms and conditions applicable between the parties, under which one or multiple repo transactions can be concluded.

Annex II of the GMRA, which is a model template titled "Form of Confirmation", sets out the specific commercial and economic particulars of a single transaction, such as identifying the seller, the buyer, the notional amount, details of the collateral, margin, the tenor, etc. Parties are expected to refrain from unduly complicating the Form of Confirmation with provisions bearing more generally on the trading relationship: such all-encompassing provisions are expected to be included in Annex I.[18]

A number of other Annexes to the GMRA deal with transaction-specific issues. These include Russian, Italian, Netherlands and Canadian Annexes, which deal with legal issues of relevance to the respective countries, a Bills Annex, an Equities Annex dealing with specific securities, an Annex to document Buy/Sell-back transactions and, finally, an "Agency" Annex and Addendum. The parties decide which Annexes are applicable to the respective transaction: in practice, these Annexes are not normally amended or negotiated.[19]

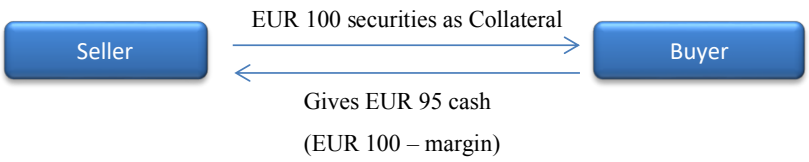
3.2 *Modus Operandi* of a Repo

The following outlines the *modus operandi* of a repo transaction highlighting the relevant elements of the GMRA that give it legal effect. As already noted in Chapter 3, a repo is a transaction where one party sells an asset to another party and at the same time commits to repurchase the asset back from that party for a different price upon maturity.[20] As demonstrated below under *Figure 8*, a *classic* bilateral repo consists of two transactions.[21] In the opening leg of the transaction, on the "Purchase Date",[22] the seller sells EUR 100 worth of "Securities"[23] as financial collateral to the buyer, subject to *inter alia* the seller's agreement to repurchase "Equivalent Securities" from the buyer on

17 Harding and Johnson (n 15) 143.
18 Yeowart *et al* (n 15) 462-463.
19 Harding and Johnson (n 15) 144. See also, Haentjens and de Gioia-Carabellese (n 16) 235-236.
20 Article 3 (9) of Regulation (EU) 2015/2365 of the European Parliament and of the Council of 25 November 2015 on transparency of securities financing transactions and of reuse and amending Regulation (EU) No 648/2012 ("SFTR").
21 As will be discussed in this chapter below, there are various types of repo transactions, see section 3.2.2 "*Types of repo*".
22 Paragraph 2 (mm) of the Global Master Repurchase Agreement ("GMRA") 2011.
23 Paragraph 2 (v) GMRA 2011.

a subsequent "Repurchase Date".[24] The repurchasing of 'Equivalent Securities' means that it is not necessary for the seller to repurchase exactly the same securities from the buyer. It suffices that the repurchased securities are of a similar value and type. In practice, 'Equivalent Securities' are often referred to as 'fungible' due to the interchangeable nature of the securities. In return, and based upon the agreed margin, the buyer transfers EUR 95 to the seller, referred to as the "Purchase Price" under the GMRA.[25] On the Repurchase Date, the transaction is closed with seller paying the "Repurchase Price" to the buyer, which is EUR 95.50 (consisting of the repayment of cash, plus the "Pricing Rate" (interest or in practice the 'repo rate'));[26] Simultaneously, the buyer resells Equivalent Securities worth EUR 100 back to the seller.[27]

Opening transaction (Purchase Date)



Closing transaction (Repurchase Date)

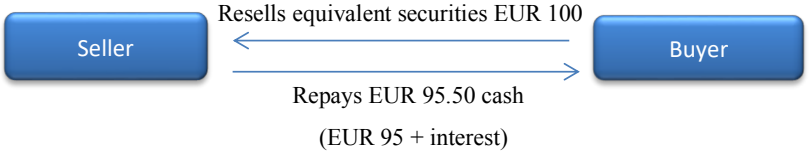


Figure 8: Modus Operandi of a Repo[28]

3.2.1 *Rationale for entering into a repo*

The buyer's and the seller's economic rationales for entering into a repo transaction are described respectively below.

24 Paragraphs 2 (u) and (qq) GMRA 2011.
25 Paragraphs 1 (a) and 2 (nn) GMRA 2011.
26 Paragraph 2 (ll) GMRA 2011. The difference between the Purchase Price and Repurchase price is known as the "Price Differential" – on this see, Paragraphs 2 (kk), (ll) and (rr) GMRA 2011.
27 Paragraphs 1 (a), 2 (ll) and (rr) GMRA 2011. See also, Yeowart *et al* (n 15) 462-464.
28 A M Pacces, *The Future of Law and Finance* (2013) 20-22.

3.2.1.1 Seller's perspective

Sellers are incentivised to enter into repo transactions in order to 'raise' cash quickly and – typically – on a short-term basis (in the case of a reverse repo – it is the buyer who would be raising cash). While there are many reasons a seller would need cash, often the cash obtained from a repo is used to fund and cover positions that have been created to trade, hedge or arbitrage against opposite positions in another transaction. An investment fund manager (e.g., an investment manager acting for a UCITS or Alternative Investment Fund) may require cash to fund redemption requests from the fund. In this sense, a repo can be seen as a tool to manage short-term cash needs, i.e., liquidity.

Repo transactions are also a relatively cheap method of financing. Given that repo transactions behave like a secured loan, the financial collateral posted, i.e. delivered, by the seller ensures only temporary use and possession of those assets by the buyer. Because of this, the seller has access to cash without the need to liquidate its positions in securities that it holds while also receiving the economic benefit in the value of the financial collateral increasing as well as any coupon payments.[29]

Repos can also be entered into by the seller to finance "long" positions in securities, i.e., a position taken in certain securities on the assumption that their prices will rise. A seller could enter into a repo transaction to finance the purchase price of the underlying financial collateral that it transfers to the buyer on the same settlement day as the purchase: In other words, the cash received from the buyer for the financial collateral is used by the seller to pay for the financial collateral, which it has purchased from someone else.[30]

Another reason that a seller enters into a repo transaction is to obtain leverage. Repos facilitate leverage by "enabling financial institutions to borrow cash to make leveraged bets on an already leveraged instrument".[31] To build such positions, the Bank for International Settlements has noted that in a repo transaction, "market participants use cash raised through an initial repo transaction to buy securities which, in turn, are repoed out to raise more cash to buy more securities and so on… [*ad infinitum*]".[32] With each transaction leverage increases because the cash raised – as form of borrowing – is used to purchase securities which in turn can be repoed in order to raise more

29 Haentjens and de Gioia-Carabellese (n 16) 231. See also, Choudhry (n 6) 148.

30 Choudhry (n 6) 156.

31 Cullen (n 3) 85 at 93-94.

32 Bank for International Settlements, "Repo Market Functioning" (2017) *CFGS Paper No. 59* 1 at 6. See also, Cullen (n 3) 85 at 93-94; European Systemic Risk Board, "ESRB opinion to ESMA on securities financing transactions and leverage under Article 29 of the SFTR" (October, 2016) 1 at 5.

'borrowed' funds. Leverage thus allows parties to take larger positions in the financial markets, which can amplify systemic risk.[33]

3.2.1.2 Buyer's perspective

From the perspective of the buyer, a repo is a profit-making activity in which a return can be earned on the principal cash amount paid to the seller. For example, there is a difference between the cash sum given by the buyer to the seller at the start of the repo and the price the buyer receives from the seller on maturity of the repo. It is the 'Pricing Rate' (interest) component that determines the amount of the return that the buyer can expect to earn. The largest buyers are generally banks who have surplus liquidity arising from their customer deposits: repos are a commonly used tool in order to ensure otherwise 'uninvested' cash earns a return greater than regular overnight or demand deposit rates of interest.

The wider the range of financial collateral the buyer is willing to accept, the higher the potential Pricing Rate and commensurate rate of return. In addition, provided that the financial collateral is sufficiently liquid, the buyer can finance its own activities during the lifecycle of the repo through re-use/rehypothecation of the financial collateral, i.e., by trading on the financial collateral as its owner.[34] The buyer would, of course, have to buy back equivalent financial collateral in order to fulfil his obligation with the original seller[35] to return equivalent financial collateral. This activity – and the attendant risks – became a focus of public authorities' attention following the Global Financial Crisis in view of the potential risks to the financial system it could create if left unchecked.

Another reason why a buyer enters into a repo is because it needs a safe place to house its capital. Demand deposits are generally of no practical use to market participants operating in the EU shadow banking sector and often, the buyer enters into a repo because it requires a safe place to house its capital.[36] The fact that entities often 'deposit' large amounts of money for short periods of time ensures that the European Deposit Guarantee Scheme threshold – found in the traditional banking sector – would quickly be exceeded. Any amount of cash deposited that exceeds this threshold (EUR

33 J Geanakoplos, "The Leverage Cycle" (2010) *1715R Cowles Foundation Discussion Paper* 1 at 10. See also, J Geanakoplos and lender H Pedersen, "Monitoring Leverage" in M Brunnermeier and A Krishnamurthy (eds) *Risk Topography: Systemic Risk and Macro Modeling* (2014) 113 at 117-118.

34 See Chapter 3, section 5 "The Velocity of Financial Collateral" for a more extensive discussion on reuse/rehypothecation.

35 Yeowart *et al* (n 15) 42-43.

36 A Krishnamurthy, "How Debt Markets Malfunctioned in the Crisis" (2010) *24 (1) Journal of Economic Perspectives* 3 at 9-10.

100,000 in the EU) would be uninsured and subject to bail-inable claims[37] – meaning that an entity could face a capital loss should the deposit bank face difficulties.[38] Repo provides an alternative to demandable debt not subject to prudential regulation and credibly backed by a direct claim on liquidity – demand deposits are backed by the European Deposit Guarantee Scheme (but only if the amount deposited is below the thresholds just mentioned) as repo contracts are backed by financial collateral.[39]

The buyer will often enter into repo transactions to cover 'short' positions. A short position is one in which a party will sell specific securities for delivery at a future date ('settlement date') without actually having the securities in its possession at the time the sale is agreed ('trade date') with the intention of buying them at a future date and at a cheaper rate in time to deliver on settlement date. Buyers often enter into repo transactions to meet such settlement obligations by buying financial collateral in order to meet their short positions.[40]

3.2.2 Types of repo

A significant variety of uses for repos – and the means by which they are employed – have emerged in the EU shadow banking sector whilst maintaining essentially the same legal and core contractual underpinnings. The repo lexicon now includes: reverse repo, tri-party repo, equity repo, general collateral repo, special repo, cross-currency repo and buy/sell back transactions. Like the

37 See Article 44 (2) (a) of the Bank Recovery and Resolution Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms and amending Council Directive 82/891/EEC, and Directives 2001/24/EC, 2002/47/EC, 2004/25/EC, 2005/56/EC, 2007/36/EC, 2011/35/EU, 2012/30/EU and 2013/36/EU, and Regulations (EU) No 1093/2010 and (EU) No 648/2012, of the European Parliament and of the Council ("BRRD"). A recent example of unsecured deposits being written down to zero was on 5 October, 2015 where the Danish Bank 'Andelskassen JAK Slagelse' applied the BRRD – on this see the European Parliament, "Bail-ins in recent banking resolution and State aid cases" (7 July, 2016) available at: http://www.europarl.europa.eu/RegData/etudes/IDAN/2016/574395/IPOL_IDA%282016%29574395_EN.pdf. See also the FDIC website: https://www.fdic.gov/deposit/deposits/faq.html; see generally, F Restoy "Bail-in in the new bank resolution framework: is there an issue with the middle class?" (March, 2018) available at: https://www.bis.org/speeches/sp180323.htm.

38 D Gabor and J Vestergaard, "Towards a theory of shadow money" (2016) *Institute for New Economic Thinking Working Paper* 1 at 10.

39 For a more in-depth discussion, see generally Chapter 6 "The Role of Debt in the EU Shadow Banking Sector". See also, E Perotti, "The roots of shadow banking" (2013) 69 *CEPR Policy Insight* 1 at 1.

40 Choudhry (n 6) 156.

classic repo transaction outlined above, each of the aforementioned repo transactions generally are governed by the GMRA.[41]

3.3 The Interaction between the GMRA and Market Practice

3.3.1 Maturity

Most repos are undertaken for a specific period of time and this is documented at the point of trade under Annex II of the GMRA. For instance, 'overnight' repos are concluded after one night; 'intra-day' repos are concluded within the same day; repos can also be 'rolling' in that although there is a fixed maturity date, the contract can specify that this date may be extended by one or both parties; repos can also be classed as 'term' or 'open', and are concluded with or without a fixed maturity date respectively.

In practice, the "maturity of the majority of repo transactions are between overnight and three months"; although longer trades, between six months and one year (or longer) are not uncommon. In 2016, just over 61% of repos transactions were for a period of less than one month.[42] Consequently, repos often are characterised as relatively safe 'money market instruments' – an important designation – because the financial collateral typically is composed of government securities, such as highly rated government bonds (although corporate bonds and equities can also be used, albeit to a lesser extent).[43]

Repos with longer maturity, however, usually are considered higher risk. During a longer tenor, factors such as repurchaser (seller) creditworthiness and interest rate fluctuations are more likely to impact the assessed value of the repurchased asset. In other words, the longer the term of the repo, the more likely that the value of the financial collateral will fluctuate prior to the repurchase and the longer period of time during which the buyer relies on the repurchaser's (seller's) ability to fulfil the contract.[44] In the end, counterparty credit risk is deemed the primary risk associated with repos. As with any loan, it is the creditor who bears the risk that the debtor will not be able to repay the principal, but this risk is intended to be effectively obviated with

41 It goes beyond the scope of this study to analyse each type of repo transaction available. This thesis will focus on a classic bilateral repo transaction unless otherwise stated.

42 Choudhry (n 6) 150-172. See also, Harding and Johnson (n 15) 2-3.

43 A money market instrument is a debt product issued with between one day and one year to maturity. This position can be contrasted with 'capital market instruments', which are debt instruments with a maturity greater than one year. On this see, Choudhry (n 6) 5.

44 P Hordahl and M R King, "Developments in repo markets during the financial turmoil" (2008) *BIS Quarterly Review* 37 at 37-38.

(in the usual case) very safe, highly liquid financial collateral that is expected to hold its value over time.[45]

3.3.2 Financial collateral

The GMRA does not contain a list of which types of assets are deemed acceptable as financial collateral but in managing risk the quality and the liquidity of financial collateral are key considerations for the buyer. Financial collateral secures the seller's repayment obligations under the repo, thereby neutralising default risk as much as possible. In this respect, the 'liquidity' of the financial collateral is important: the more liquid the financial collateral, the more likely it is that its value can be realised quickly: in other words, liquidity is a proxy for the ease with which an asset can be turned into money (defined as a generally accepted means of payment).[46] Counterparties unsurprisingly seek to ensure the financial collateral is of sufficient quality to be able provide appropriate liquidity under all scenarios.

Under the Form of Confirmation in Annex II of the GMRA 2011, the type of securities used as financial collateral to secure the transaction are documented at the point of trade. In theory, a wide range of assets may be used as financial collateral but, in practice, the most widely used and sought-after financial collateral in the repo markets are predominantly debt instruments, such as government bonds.[47] This reflects an emphasis on safety, liquidity and price stability. A Dutch government bond, for example, maintains a Moody's Aaa credit rating.[48] The Aaa rating reflects an assessment by the rating agency of the Netherlands' minimal credit risk. It should be noted however that government bonds are not immune to default: the prospect has been taken seriously in connection with the recent weakness in the banking sectors and associated instability and concerns over sovereign debt in certain Eurozone countries.[49] Liquidity in turn is a function of an available market

45 Examples of such financial collateral are highly rated government bonds, such as Treasuries, Gilts, German Bunds etc.

46 H W Arndt, "The Concept of Liquidity in International Monetary Theory" (1947 -1948) 15 (1) *The Review of Economic Studies* 20 at 21.

47 Debt instruments can also include corporate bonds and other forms of debt instruments as long as these are tradeable on the capital market, but government bonds issued by a credible government are the most sought-after.

48 At the time of writing, 15 December, 2020, A Dutch government bond has a credit rating of Aaa, see Moody's, Government of Netherlands credit rating, available at: https://www.moodys.com/credit-ratings/Netherlands-Government-of-credit-rating-543005.

49 *The Economist*, "Repo-market ructions were a reminder of the financial crisis" (26 September, 2019); see also, G Tett, "The repo markets mystery reminds us that we are flying blind" (19 September, 2019) *Financial Times,* available at: https://www.ft.com/content/35d66294-dadc-11e9-8f9b-77216ebe1f17; R Foroohar, "How the virus became a credit run" (16 March 2020) *Financial Times* 1 at 17; J Politi and K Allen, "Italian market turmoil deepens as president picks new premier" (Tuesday 29 May, 2018) *Financial* Times 1 at 1.

to sell the instrument. Like shares, after issuance in the primary market, bonds are traded between investors in the secondary market. However, unlike shares, most bonds are not traded in the secondary market via exchanges. Rather, bonds are traded OTC. An OTC trade is executed directly between two parties and is not overseen by or subject to the rules of major exchanges. Nevertheless, highly rated government bonds are relied upon due to their perceived safety and liquidity, including in times of crisis and market illiquidity.[50]

It should be noted that virtually any asset can be used as financial collateral in a repo. So long as there is a market for the asset, and so long as the parties are in agreement about 'acceptability', the financial collateral can be used as 'cash equivalent'.[51] That said, equity securities are considered more vulnerable to market price fluctuations, including intraday, whereas government bonds generally are not. The prospect of increased volatility translates to higher margin ratios and more financial collateral being required to secure against increased downside risk, taking into account the impact of potential extreme market events, which have in the past led to downward liquidity, downward price spirals, fire sales and full-blown financial crises.[52]

3.3.3 The significance of the repo rate

When central banks purchase securities from commercial banks, they do so at a discounted rate (the "repo rate"), which are set by central banks. This process is utilised to control the amount of available funds in the economy, thereby regulating the money supply. A decrease in repo rates encourages banks to sell securities back to the government in return for cash, which increases the money supply available to the general economy. Conversely, by increasing repo rates, central banks can effectively decrease the money supply by discouraging banks from reselling these securities.[53]

3.3.4 Margin

To address the level of risk taken by the buyer, parties to a GMRA are likely to negotiate the appropriate levels of 'margin'. Margin is the price difference between the market value of the securities used as financial collateral and the purchase price. The purpose of margin is to hedge market risk arising from

50 M K Brunnermeier, "Deciphering the Liquidity and Credit Crunch 2007-2008" (2009), *23 (1) Journal of Economic perspectives* 77 at 91-96. See also generally, M K Brunnermeier and L H Pedersen, "Market Liquidity and Funding Liquidity" (2008) *The Society for Financial Studies*.

51 Yeowart *et al* (n 15) 64-65. See also, M Singh, "Collateral Reuse and Balance Sheet Space" (2017) *IMF Working Paper* 1 at 5.

52 Wilmot *et al* (n 4) 1 at 1-3.

53 See the website of the International Capital Market Association ("ICMA"), available at: www.icmagroup.org.

the unintended price fluctuations on a security used as financial collateral,[54] where cash realised by the liquidation of the financial collateral may be less than the contracted-for purchase price.[55] To mitigate the risk that the financial "collateral falls below the notional amount of the transaction, the market standard" is to overcollateralise the transaction such that 'excess' financial collateral ('margin') covers net exposures from a repo with a given counterparty.[56] By requiring margin at the point of trade, the buyer hopes to ensure a financial buffer against downward price fluctuations of the security posted as financial collateral.[57]

At the point of trade, the market practice is to apply 'margin' either by way of a 'haircut' or by way of 'initial margin'; the correct terminology for both these concepts under the GMRA 2011 are "Margin Percentage"[58] and "Margin Ratio"[59] respectively.[60] As noted in Chapter 4, a 'haircut' is a discount deducted from the market value of the security posted as financial collateral and is expressed as the percentage difference between the market value of the security posted as financial collateral and the Purchase Price. Initial margin can be defined as a ratio, or as a percentage, and should be considered a premium added to the market value of the security posted as financial collateral.[61] Both initial margins and haircuts perform the same function by 'overcollateralising' the buyer's position in a repo transaction.[62]

As noted above, because the market value of the financial collateral is susceptible to price fluctuations, without margining, the cash realised by the liquidation of the financial collateral may turn out to be significantly different from what was originally contracted for, potentially resulting in actual loss for one of the parties.[63] It should be noted, however, that while margining does mitigate risk, it is paradoxically not a watertight solution. The buyer or seller could still find itself short of a sufficient amount of financial collateral due to adverse market movements since the last mark-to-market valuations.[64]

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54 M Choudhry, *An Introduction to Repo Markets* (2007) 42. See also, Harding and Johnson (n 15) 169.

55 Harding and Johnson (n 15) 65-66. See also, European Systemic Risk Board, "The macroprudential use of margins and haircuts" (2017) 1 at 22.

56 European Systemic Risk Board (n 32) 1 at 4. See also, Paragraphs 2 (aa) and (bb) GMRA 2011.

57 R Steiner, *Mastering Repo Markets* (1997) 79.

58 Paragraph 2 (aa) GMRA 2011.

59 Paragraph 2 (bb) GMRA 2011.

60 Harding and Johnson (n 15) 156 and 169-170.

61 R Comotto, "Shadow Banking – Minimum Haircuts on Collateral" (2013) *European Parliament Economic and Monetary Affairs* 1 at 12 - 13. See also, R Comotto, "A Guide to Best Practice in the European Repo Market" (December, 2017) *ICMA European Repo and Collateral Council* 1 at 49.

62 Comotto *Shadow Banking* (n 61) 1 at 13.

63 Comotto, *A Guide to Best Practice* (n 61) 1 at 50-51. See also, Haentjens and de Gioia-Carabellese (n 16) 238.

64 Choudhry (n 54) 50.

To ensure that party exposure is kept in check, regular adaptations to changes in the market value of the financial collateral are taken into consideration by marking the financial collateral to market. The phrase 'mark-to-market' means that the posted financial collateral in a repo is valued based on the current market price of the assets that constitute the financial collateral and this value is then compared with the original/last valuation.[65] Marking to market is customarily done at the end of each business day, or as agreed between the contracting parties.[66] If the value of the posted financial collateral has decreased, then a margin call will be made by the buyer requiring the seller to post additional margin securities. On the other hand, if the value of the posted financial collateral has increased, then a margin call will be made by the seller to require the buyer to deliver margin securities back to the seller.[67] Given that the value of the financial collateral fluctuates, there may only be a very small movement in the price; in such a case, and to avoid administrative burdens and costs, in practice the parties generally agree a margin threshold – above which changes in the value of the collateral triggers a margin call. The specific threshold is documented in Annex I of the GMRA 2011.[68]

Initial margins and haircuts are agreed and set out contractually at the point of trade. Once agreed, the haircut or initial margin level is generally 'maintained' for the lifecycle of the transaction through certain margining techniques[69] known as "Margin Maintenance"[70] and "Substitution".[71] Under Paragraph 4 of the GMRA 2011, the methods of Margin Maintenance include 'margin transfers', 'repricing' and 'adjustment' – each will be discussed.

3.3.4.1 Margin transfers

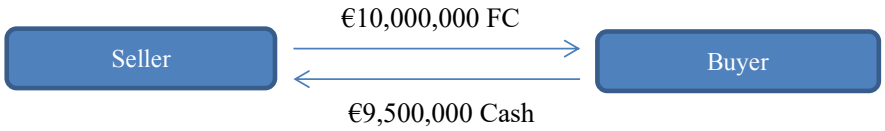
Margin transfers are designed to reduce counterparty credit risk by requiring the parties to a repo to transfer financial collateral to each other, in the form of securities or cash, on a periodic basis. Each party's 'Net Exposure'[72] is periodically calculated mark-to-market, and the party who has a Net Exposure to the other is entitled to request, by way of a margin call, that the other party makes a margin transfer to it.[73] Depending upon market conditions, the Net Exposure may fluctuate from day to day and it is not a given which party will have a Net Exposure; the buyer may have the Net Exposure to the seller

65 A G Balmer, *Regulating Financial Derivatives: Clearing and Central Counterparties* (2018) 49-50.
66 Steiner (n 57) 79.
67 Haentjens and de Gioia-Carabellese (n 16) 238.
68 Steiner (n 57) 79. See also, Harding and Johnson (n 15) 170.
69 Choudhry (n 54) 43. See also, Comotto, *A Guide to Best Practice* (n 61) 1 at 50-51.
70 Paragraph 4 GMRA 2011.
71 Paragraph 8 GMRA 2011.
72 Paragraphs 2 (ff) and 4 (c) GMRA 2011.
73 Paragraphs 4 (c) and (d) GMRA 2011.

on a certain day, whereas the seller may have the Net Exposure to the buyer on another day.[74]

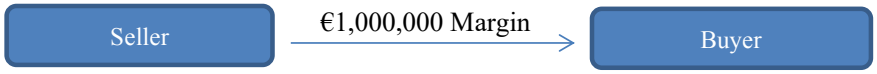
The transfer of margin between both the collateral taker and collateral giver may happen multiple times throughout the lifecycle of the transaction and at the end of the transaction, equivalent margin must be retransferred.[75] In terms of monitoring the Net Exposure, imagine the following working example where a buyer and seller enter into a 3-day repo transaction:

Day 1 – The Point of Trade



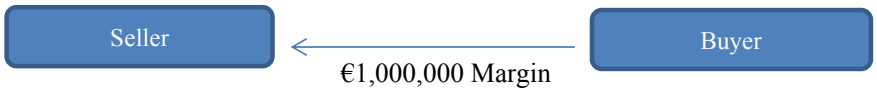
At the start of a repo transaction, the seller receives € 9,5000,000 from the buyer in exchange for financial collateral worth a total value of € 10,000,000.

Day 2 – Mark-to-Market Valuation



On day 2 of the transaction, the mark-to-market valuation of the posted financial collateral has dropped to € 9,000,000. This means the transaction is now *under-collateralised* and as such, the seller has a Net Exposure over the buyer. Because the transaction has to be overcollateralised and the margin maintained at € 500,000, the buyer will make a margin call requiring the seller to transfer margin securities worth € 1,000,000.

Day 3 – Mark-to-Market Valuation



On day 3 of the transaction, the mark-to-market valuation of the posted financial collateral has increased to € 11,000,000. This means that the transaction is back to being overcollateralised, giving the buyer a Net Exposure over the seller. Because margin needs to be maintained at € 500,000, the seller will make a margin call requiring the buyer to transfer margin securities worth

74 Paragraph 4 (a) – (h) GMRA 2011.
75 Haentjens and de Gioia-Carabellese (n 16) 237-239.

€ 1,000,000. At the end of the transaction, equivalent margin must be returned and this ensures that the parties are in an economically equal position again.[76]

3.3.4.2 Repricing and adjustment

As noted in Chapter 4, margin transfers are not always the most appropriate method of margin maintenance, especially if the posted financial collateral suffers a significant change in value. The GMRA 2011 accounts for this possibility by way of repricing and adjustment.[77] If margin is to be repriced then the original transaction will be terminated, and a new transaction is simultaneously entered into.[78] The idea is that the original financial collateral is maintained, but the purchase price of the new transaction is set equal to the new market value of the cash/securities.[79]

In the case of margin adjustment, the parties agree that the original financial collateral should be replaced with a different kind and amount of financial collateral as a means to mitigate market/credit risk thus terminating the original transaction and entering into a new transaction.[80] The new securities used as financial collateral will be transferred at market value at the point of trade, with due consideration of the original haircut/initial margin previously agreed between the parties.[81]

3.3.4.3 Substitution

Under Paragraph 8 of the GMRA 2011, "Substitution" can be agreed between parties. Consent for substitution can be given at the point of trade (in the Form of Confirmation found in Annex II of the GMRA 2011) or during the lifecycle of the transaction as agreed by the parties. Substitution allows the seller to substitute the original securities used as financial collateral for other acceptable securities.[82] Substitution and adjustment appear, on the face of it, to be the same or very similar. However, adjustment takes account of changes in the market value of the securities originally posted as financial collateral whilst substitution involves the seller replacing the original securities used as collateral with other types of securities, sometimes because the seller requires the original securities for use in another transaction elsewhere.[83] It is important to note that in practice, substitution cannot be agreed upon without the consent

76 T Keijser, *Financial Collateral Arrangements* (2006) 28-31. See also, Haentjens and de Gioia-Carabellese (n 16) 238.
77 Paragraph 4 (j) GMRA 2011. See also, Haentjens and de Gioia-Carabellese (n 16) 238.
78 Paragraphs 4 (k) (i) and (ii) GMRA 2011.
79 Paragraph 4 (k) (v) GMRA 2011. See also, Comotto, *A Guide to Best Practice* (n 61) 1 at 64. See also, Haentjens and de Gioia-Carabellese (n 16) 238-239.
80 Paragraph 4 (l) (i) GMRA 2011.
81 Paragraph 4 (l) (ii) GMRA 2011. See also, Haentjens and de Gioia-Carabellese (n 16) 239; Keijser (n 76) 31-32.
82 Paragraph 8 (a) GMRA 2011.
83 Keijser (n 76) 34-35. See also, Haentjens and de Gioia-Carabellese (n 16) 238-239.

of the counterparty. Right of substitution can be problematic because if not provided for carefully and in accordance with national law, so-called 're-characterisation risk' could arise, which stem from undermining title transfer aspects provision of the transaction and leaving the buyer, who is holding the securities, without legal ownership.[84]

3.3.5 Event of Default

Under the GMRA 2011, Events of Default can trigger termination of either a single transaction or of the entire contractual relationship existing between the parties. There are ten standard events under the GMRA 2011, which give rise to an Event of Default in relation to the seller or the buyer; these are:[85]

1. The buyer fails to pay the Purchase Price on the applicable Purchase Date or, the seller fails to pay the Repurchase Price on the applicable Repurchase Date[86]; or,
2. The seller fails to deliver the Purchased Securities on the Purchase Date or the buyer fails to deliver Equivalent Securities on the Repurchase Date – it should be noted that this sub-paragraph must be expressly included in Annex I of the GMRA 2011[87]; or,
3. The seller or the buyer fails to pay the sum owed when due[88]; or,
4. The seller or the buyer fails to either make a Margin Transfer within the minimum period; fails to provide margin; or, fails to pay any amount or transfer any Securities[89]; or,
5. The seller or the buyer fails to comply with Income Payments under Paragraph 5 GMRA 2011[90]; or,
6. An Act of Insolvency defined under Paragraph 2 (a) GMRA 2011 occurs in respect of the seller or the buyer[91]; or,
7. Any representations that are made by the seller or the buyer and are incorrect or untrue when made[92]; or,
8. The seller or the buyer admits to the other that it intends not to, or is unable to, perform its obligations under the contract[93]; or,
9. The seller or the buyer being declared in default or being expelled from membership of, or participation in, any securities exchange, or suspended

84 Harding and Johnson (n 15) 184-187.
85 Paragraphs 2 (w) and 10 GMRA 2011.
86 Paragraph 10 (a) (i) GMRA 2011.
87 Paragraph 10 (a) (ii) GMRA 2011.
88 Paragraph 10 (a) (iii) GMRA 2011.
89 Paragraphs 10 (a) (iv) (A), (B) and (C) GMRA 2011.
90 Paragraph 10 (a) (v) GMRA 2011.
91 Paragraph 10 (a) (vi) GMRA 2011.
92 Paragraph 10 (a) (vii) GMRA 2011.
93 Paragraph 10 (a) (viii) GMRA 2011.

or prohibited from dealing in securities by any Competent Authority[94]; or,

10. The seller or the buyer fails to perform any other of its obligations hereunder and does not remedy such a failure within 30 days after notice is given.[95]

An Event of Default is, of course, a serious matter and in practice, the non-"Defaulting Party"[96] will often carefully consider whether or not it wishes to trigger an Event of Default by issuing a "Default Notice"[97] indicating an "Early Termination Date" to the Defaulting Party.[98] Under the GMRA 2011, an Event of Default will not trigger close-out unless and until the non-Defaulting Party issues a Default Notice with an Early Termination Date to the Defaulting Party. Moreover, parties can choose, in Annex I of the GMRA 2011, whether they want the aforementioned events to lead to a so-called "automatic early termination".

In practice, the GMRA is often referred to as a "master netting agreement", which allows parties to enter into multiple transactions.[99] As a result, on default by one of the contracting parties, the entire agreement can be 'closed out', with all outstanding exposures netted, giving rise to the term 'close-out netting'.[100] Crucially, in this manner, parties may also circumvent automatic insolvency stays that typically are imposed so as to prevent – temporarily – creditors from realising contract rights on default of the insolvent party, by applying the close-out netting provision in the GMRA.[101] The purpose of close-out netting is to reduce the exposures on all open contracts should a party default or become insolvent during the lifecycle of the contract. Close-out netting provisions thus provide for the solvent party to terminate all contracts between parties, calculate the losses and gains on each contract, and then set them off so that a single balance is owed, i.e. the 'net' amount.[102]

94 Paragraph 10 (a) (ix) GMRA 2011.
95 Paragraph 10 (a) (x) GMRA 2011.
96 Paragraphs 2 (l) and 10 GMRA 2011.
97 Paragraphs 2 (n) and 10 (b) GMRA 2011.
98 Paragraphs 2 (r) and 10 (b) GMRA 2011.
99 Choudhry (n 6) 339-348.
100 Close-out netting will be explored in greater detail in Chapter 7, section 3.4 "Financial Collateral Directive".
101 Articles 7 and 8 of the FCD. It should be noted, however, that the European Commission published amendments to its Bank Recovery and Resolution Directive ("BRRD 2") on 23 November, 2016, which are intended to harmonise the use of moratoria powers by resolution authorities in the EU. See, ISDA, "Challenges with Expanding BRRD Moratoria Powers" (August, 2017). See also, European Parliament legislative resolution of 16 April on the proposal for a directive of the European Parliament and of the Council amending Directive 2014/59/EU (16 April, 2019).
102 Close-out netting can be distinguished from 'set-off'. 'Set-off' refers to a settlement of mutual debt between a creditor and a debtor through offsetting transaction claims.

There are arguably five significant consequences for market participants as a result of an Event of Default. First, all open positions are immediately accelerated.[103] Second, margin securities held by the Defaulting Party must be returned to the non-Defaulting Party. Cash Margin, plus accrued interest, becomes immediately repayable.[104] Third, each party's open transactions are accelerated, valued and crystallised in monetary terms, meaning that each party's obligations to redeliver equivalent securities is replaced with an obligation to pay cash.[105] Fourth, the monetary amounts referenced previously are set-off against each other, with a resulting net balance amount. The net balance is paid by the party owing a higher amount over the other.[106] Lastly, the Defaulting Party is liable to pay the expenses of the non-Defaulting Party, plus interest, in connection with an Event of Default.[107]

3.3.6 Property functions of a repo

In the European repo market, the securities posted as financial collateral in the opening leg of the repo are sold by means of a true sale/title transfer; this position can be contrasted with the USA where a repo is classed as a secured loan. A true sale/title transfer is the legally binding transfer of ownership or legal title of assets from the seller to the buyer, meaning that the assets are no longer the liability of the seller.[108] However, on maturity of the repo transaction, the seller has a commitment to buy back *equivalent* financial collateral. Economically, therefore, a repo serves a function akin to a collateral-supported interest-bearing loan. The buyer acts as a lender, the seller acts as a borrower, and the securities being 'sold' serve as the financial collateral for the loan. It is important to note that although ownership of the financial collateral passes to the buyer, the economic benefits of ownership and market risk remain with the seller. This means that if the value of the financial collateral plummets in value during the lifecycle of the repo, it is the seller who will initially suffer a capital loss. After all, it is the seller who has to provide additional securities (from its own equity) to the buyer by way of a margin call, resulting in a capital loss to the seller. In addition, if the posted financial collateral is a bond, and there is a subsequent coupon payment during the term of the trade, this coupon payment remains the benefit of the seller; although the buyer has received the payment of the coupon, it must be handed back to the seller.[109] This reflects the fact that although ownership of the

103 Paragraph 10 (c) GMRA 2011.
104 Paragraph 10 (d) (i) GMRA 2011.
105 Paragraph 10 (d) (i) GMRA 2011.
106 Paragraph 10 (d) (iii) GMRA 2011.
107 Paragraph 10 (e) (v) GMRA 2011. See also, Harding and Johnson (n 15) 189-190.
108 Paragraphs 6 (e), (f) and 9 (h) GMRA 2011. See also, P Wood, *Law and Practice of International Finance* (2011) 452-453.
109 Paragraphs 5 (a) and (b) GMRA 2011.

collateral passes to the buyer, economic costs and benefits remain with the seller. Consequently, the buyer has only temporary use and possession of the financial collateral, while the seller has only temporary use and possession of the cash. Therefore, a repo transaction within the EU behaves economically akin to a secured loan, yet the transaction is, in fact, structured legally as a sale and repurchase.[110]

In practice, lawyers, tax advisers and accountants have quite different perspectives in relation to repo transactions. A very important characteristic of repos is that they may be treated one way for legal purposes and another for tax and accounting purposes. Despite similarities to secured loans, repos for legal purposes (depending on applicable national private law) are considered actual purchases and sales, with the buyer having (generally) short-term ownership of the collateral. For tax and accounting purposes, however, repos are often treated as loans, not as purchases and sales. Characterisation of repos as one form of transaction or another will depend on factors that can vary depending on applicable laws and tax requirements and accounting practices.[111]

4 SECURITIES LENDING

The GMSLA, published by the International Securities Lending Association ("ISLA"), is the market standard master agreement for securities lending transactions in domestic and cross-border markets.[112] The first GMSLA, published in May 2000, sought to consolidate in one document various standard market agreements used in the market at the time. ISLA revised this nine years later with the publication of GMSLA 2009. This version was not welcomed by market participants due to its treatment of certain key elements (pre-collateralisation of manufactured dividends on Income Record Date and manufactured dividends[113]), leading to a quick revocation. The current revised version of the GMSLA was published on 20 January 2010, superseding the 2009 version. The 2010 version (as well as the 2009 version) reflects lessons learned from

110 Haentjens and de Gioia-Carabellese (n 16) 231. See also, Choudhry (n 6) 116-117.

111 J R Martinez-Resano, "Repo Markets" (2010) *World Bank* 1 at 40-57.

112 The GMSLA has largely replaced the Overseas Securities Lending Agreement ("OSLA"), the Gilt-Edged Stock Lending Agreement ("GESLA") and the Master Equity and Fixed Interest Stock Lending Agreement ("MEFISLA"). On this see Yeowart *et al* (n 15) 467 (footnote 17).

113 A 'manufactured dividend' is a payment that is received by a securities lender for a dividend distributed on a specific loaned security. By agreement, the borrower sends to the lender any dividends, interest or other distributions obtained from the securities during the lifecycle of the transaction. 'Income Record Date' is defined in Paragraph 2.1 GMSLA 2010 as: "the date as of which holders of such securities are identified as being entitled to payments of Income. This is relevant to manufactured payments under paragraph 6".

the 2007 Global Financial Crisis, in particular, default remedies which proved lacking for many market participants during the Global Financial Crisis.[114]

4.1 Structure of the GMSLA

The GMSLA is similar in some respects both to the GMRA that is used for repo transactions and the ISDA Master Agreement that is used for derivatives. Like the other standard documents, the GMSLA provides a standardised framework by which two parties may enter into multiple individual transactions. The GMSLA can be divided into two parts. The first part of the GMSLA is the standardised form, which sets out the legal and credit terms of the agreement, namely warranties, collateral, margin requirements, events of default and netting provisions. The second part of the GMSLA is the Schedule, which allows parties to modify or provide further specificity about aspects of the first part of the agreement. The first part of the GMSLA is never directly modified; instead, all modifications are identified and documented in the Schedule, similar to the way in which Annex I is used in the GMRA framework and the way in which the Schedule is used in the ISDA Master Agreement framework.

The GMSLA also consists of an attached Confirmation, pledge structure document, Addendum and Annex. The Confirmation sets out the particular commercial terms of the individual securities lending transaction. The Confirmation, which is similar to that used with Annex II of the GMRA for repo transactions, is to be read in conjunction with the GMSLA and accordingly, each transaction between the parties to the GMSLA will be governed by the terms of the respective Confirmation (as supplemented by the GMSLA and the Schedule).

Negotiations between parties in respect of the 2010 GMSLA focus on the content of the Schedule, rather than on the text of the master agreement itself. The GMSLA is premised on the possibility that either party could be the borrower or the lender, however, in practice the sell-side tends to act as borrower since it is they who will need securities in the manner afforded by the GMSLA.

4.2 *Modus Operandi* of Securities Lending

In practice, credit departments of institutions participating in lending arrangements will approve dealing lines for individual counterparties based on due diligence procedures and counterparty creditworthiness. Credit departments will also approve eligible financial collateral from borrowers. Traditionally, securities lending transactions are negotiated over the telephone between

114 Harding and Johnson (n 10) Chapter 4.

counterparties with subsequent electronic confirmation. The borrower typically initiates the transaction contacting the lender or its agent (usually by telephone) with a borrowing request. Today, bilateral and multilateral automated lending arrangements increasingly are used: these broadcast as securities as available for lending at particular rates through electronic channels; where lending terms are pre-agreed between the parties, automatic matching can take place – this is referred to as 'contract and compare'.[115] The following discussion outlines the *modus operandi* of a securities lending transaction, highlighting the legal underpinnings of the GMSLA along the way.

4.2.1 What is securities lending?

> *"Securities lending is an established practice by which a party holding securities, such as a pension fund, insurance company or sovereign wealth fund, or the like, lends them out to another party, such as a bank or hedge fund, against collateral and in return for a lending fee".*[116]

Securities lending refers to the market practice by which "securities are transferred from one party (the lender) to another party (the borrower), with the borrower contractually obliged to redeliver to the lender at a time securities which are equivalent in number and type".[117] As depicted below in *Figure 9* below, a securities lending arrangement consists of two transactions. In the opening leg of the transaction, the lender lends specific securities to the buyer on an open (indeterminate) basis or for an agreed period of time. In return, taking into account the agreed 'margin' to secure the transaction, the borrower transfers cash or securities as financial collateral to the lender or its agent.[118]

In the closing leg of the transaction, the borrower returns the specific securities, plus a fee to the lender;[119] simultaneously, the lender returns cash or securities used as financial collateral to the borrower.[120] Each party has a contractual obligation to return equivalent securities, cash or the financial collateral itself to its counterparty. 'Equivalent', in this context, means a security that is economically, but not necessarily legally, identical. Therefore, like repos, securities lending transactions involve the temporary transfer of assets. Also, like repos, there is in securities lending transactions commonly a transfer

115 Harding and Johnson (n 10) Chapter 1.
116 *Forsta AP-Fonden v Bank of New York Mellon SA/NV and Ors* [2013] EWHC 3127 (Comm), *per* Blair J at 33. This judgement was noted in Yeowart *et al* (n 15) 466.
117 *Beconwood Securities Pty Ltd v Australia and New Zealand Banking Group Ltd* [2008] FCA 594, *per* Finkelstein J at 4-6. This judgement was noted in Yeowart *et al* (n 15) 465. See also, Paragraph 1.1 GMSLA 2010; Article 3 (7) SFTR.
118 Paragraph 2 GMSLA 2010.
119 Paragraphs 7.1 and 7.2 GMSLA 2010.
120 Paragraph 2 GMSLA 2010.

of securities (in securities lending transactions: the loan, in repos: the financial collateral) against the transfer of cash (in securities lending transactions: the financial collateral, in repos: the loan). The main difference between the two types of standardised collateral transactions is that in securities lending transactions it is the transferee of securities, i.e. the borrower, who initiates the transaction as she is in need of securities, whilst in repos, it is the transferor of the securities, i.e. the seller, who initiates the transaction as she is in need of cash. This difference is reflected in the fee: in securities lending transactions, it is paid by the transferee of securities, i.e. the borrower, whilst in repos, it is paid by the transferor of the securities, i.e. the seller.

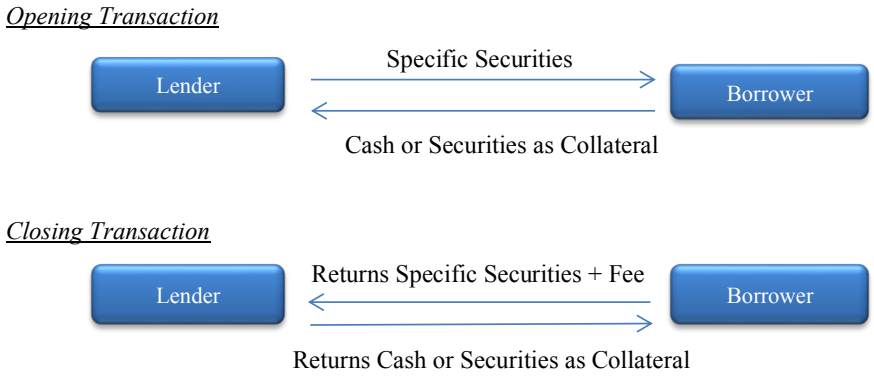


Figure 9: Securities Lending

4.2.2 *Maturity*

In a securities lending transaction, loans can either be 'open' or 'fixed' term. Open loans have no fixed maturity date; in practice, these are the most common securities lending transactions. Lenders often wish to preserve the flexibility to be able to sell at any time by simply recalling the securities when and as needed. Fixed term loans provide less flexibility in this respect.

4.2.3 *Fees, interest and rebates*

The borrower pays an agreed fee, quoted as an annualised percentage of the value of the loaned securities on a monthly basis. Calls by the lender and returns of financial collateral may take place during the life of the loan but have no effect on the fee. However, lenders can review their portfolios during the lifecycle of the loan and if a security is in high demand, the lender can negotiate a higher fee with the borrower for the remainder of the loan, or,

the lender can alternatively recall the security.[121] In addition, the borrower would receive interest from the lender on any cash posted as financial collateral. To increase returns, the lender or its agent can reinvest the cash so that it remains invested in (typically) money market instruments or other assets as agreed by the parties.

4.2.4 *Financial collateral*

The parties may designate suitable financial collateral in the GMSLA 2010 Schedule. As a general rule, as long as the financial collateral is liquid and the parties are in agreement regarding mutually acceptable financial collateral, the financial collateral may be considered cash equivalent pursuant to Paragraph 5 of the GMSLA 2010.[122] As mentioned above, cash that is provided as financial collateral typically may be reinvested in cash-equivalent and possibly other liquid securities depending on the agreement of the parties. Often securities lending agents will manage cash reinvestment vehicles for this purpose on behalf of the relevant parties on a pooled basis: the assets, investment objectives and liquidity policies of such vehicles often approximate those of money market funds.[123]

The financial collateral is designated in Paragraph 1.2 of the Schedule to the GMSLA 2010.[124] The parties can also elect whether the financial collateral is to be provided on the basis of individual loans or on an "aggregated" basis pursuant to Paragraphs 5.4 and 5.5 of the GMSLA 2010. In practice, aggregation of all loans is the more common option.[125] Paragraph 5.3 of the GMSLA 2010, providing for "Substitutions of Collateral", allows parties to agree that the borrower may substitute new acceptable securities for the securities currently posted as financial collateral (if and when it is securities and not cash that is provided as financial collateral). Borrowers often will pursue this option where they may require securities currently used as financial collateral for other transactions elsewhere.[126]

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121 Harding and Johnson (n 10) Chapter 1.

122 Provided that the posted financial collateral is not cash.

123 See generally, N Foley-Fisher, S Gissler and S Verani, "Over-the-Counter Market Liquidity and Securities Lending" (2019) *768 BIS Working Papers.* See also, F M Keane, "Securities Loans Collateralized by Cash: Reinvestment Risk, Run Risk, and Incentive Issues" (2013) *19 (3) Current Issues in Economics and Finance: Federal Reserve Bank of New York.* See also, ICMA website: www.icma.org.

124 The specific table outlined in Paragraph 1.2 of the Schedule to the GMSLA 2010 also provides for margin, which will be discussed below.

125 J Haines and J Knight, "Securities Lending: 2010 Global Master Securities Lending Agreement" (2019) *Practical Law* 1 at 28.

126 Keijser (n 76) 34-35. See also, Haentjens and de Gioia-Carabellese (n 16) 238-239.

4.2.5 Margin

Similar to a repo transaction, required margin is a function of the price difference between the market value of the financial collateral and the contracted for assets, such as the securities that have been lent. Market practice varies regarding whether the margin will be subject to a 'haircut' or provided as 'initial margin': the net result in either case is overcollateralisation in excess of the value of lent securities. In practice, initial margin is usually set at 110% of the market value of equity securities and between 102% and 105% for government bonds. Since the collapse of Lehman Brothers in 2008, institutions have increased their margin levels on collateral in order to further mitigate risk.

The GMSLA 2010 margin maintenance provisions are comparable to margin transfer requirements set out in the GMRA 2011:[127] if the difference between the market value of lent securities and the market value of the posted financial collateral changes, one of the parties will be obliged to make a margin transfer.[128] If the mark-to-market value of the financial collateral *exceeds* the aggregate required financial collateral in respect of a loan measured against the value of the lent market securities, the lender is obliged to transfer margin to the borrower to eliminate the excess.[129] Conversely, if the mark-to-market value of the posted financial collateral declines in value in comparison to the market value of the lent securities, the borrower is obliged to transfer margin to the lender to eliminate the deficiency.[130]

4.2.6 Property aspects of securities lending

A curiosity of securities lending transaction is the use of terminology premised on the concept of "lending".[131] At least under English law, securities lending transactions contemplate the transfer of title in securities in return for an irrevocable undertaking to return equivalent securities upon maturity of the transaction. Similarly, any cash or securities posted as financial collateral will be transferred on a title transfer basis (under English law) from the borrower to the lender, to be returned on maturity of the transaction.[132] As a con-

127 See Paragraphs 5.4 and 5.5 of the GMSLA. On the issue of 'margin transfers', please see this chapter above, section 3.3.4.1 "*Margin Transfers*". See also generally, Harding and Johnson (n 10).

128 See this chapter above, section 3.3.4.1 "*Margin transfers*".

129 Paragraphs 5.4 (b) and 5.5 (b) GMSLA 2010.

130 Paragraphs 5.4 (c) and 5.5 (c) GMSLA 2010. See also, Keijser (n 76) 28; Haentjens and de Gioia-Carabellese (n 16) 238-239.

131 Yeowart *et al* (n 15) 465. See also, D Turing, "Securities Lending" (2012) *Practical Law* 1 at 1.

132 International Securities Lending Association, "Securities Lending: A Guide for Policymakers" (accessed 18 February, 2019) 1 at 3 (footnote 1), available at: https://www.isla.co.uk/system/files/2017-10/sl_aGuide_for_Policy_makers.pdf.

sequence of transfer of ownership, the borrower can subsequently sell, pledge, redeem or otherwise dispose of the securities it has borrowed as if they belong to her or him and the lender can do likewise with respect to the lender.[133]

New York law governed GMSLAs, by contrast, contemplate "pledge" arrangements in which title to lent securities and financial collateral are not – under the law – transferred to the other party. However, right of re-use in respect of pledged assets is possible – so long as this is adequately addressed and agreed contractually between the parties – under the relevant provisions of the Uniform Commercial Code as adopted in New York. As a practical matter both English law and New York law governed arrangements permit the same use of the relevant assets by both lenders and borrowers, however, important distinctions do arise, in particular potential accounting and tax treatment.

4.2.7 Event of default

Under the GMSLA 2010, each of the following nine events constitutes an "Event of Default", provided that the "Non-Defaulting Party" gives written notice to the "Defaulting Party" (subject to Paragraph 10.1 (d)).[134]

1. Failure by the lender or the borrower to deliver cash collateral or other financial collateral at the outset of the loan or to deliver or redeliver cash collateral; or failure to deliver further collateral when called pursuant to the margining provisions under Paragraph 5.4 and 5.5 of the GMSLA 2010.[135]
2. Failure to pay manufactured dividends on their due date and not remedying such a failure within three business days after the Non-Defaulting party has issued a written notice.[136]
3. The lender or the borrower fails to pay any sum due under Paragraph 9.1 (b) (mini close-outs), 9.2 (b) (buy-ins) or 9.3 (related direct expenses) upon the due date.[137]
4. An Act of Insolvency by the lender or the borrower.[138]
5. Warranties made by the lender or the borrower which are materially untrue or incorrect.[139]
6. The intention of the borrower or the lender not to perform its obligations under the GMSLA 2010.[140]

133 Paragraphs 2.3 and 4.2 GMSLA 2010.
134 Paragraphs 10.1 and 10.2 GMSLA 2010.
135 Paragraph 10.1 (a) GMSLA 2010.
136 Paragraph 10.1 (b) GMSLA 2010.
137 Paragraph 10.1 (c) GMSLA 2010.
138 Paragraph 10.1 (d) GMSLA 2010.
139 Paragraph 10.1 (e) GMSLA 2010.
140 Paragraph 10.1 (f) GMSLA 2010.

7. The transfer of most or all of either party's assets to a trustee by order of its regulator following applicable law.[141]
8. The borrower or the lender being in breach of securities exchange rules or being suspended from membership of a securities exchange or being forbidden by a regulator, resulting in failure to meet the appropriate standards.[142]
9. Failure by the borrower or the lender to remedy any other breach under the GMSLA 2010 within a 30-day cure period following notice.[143]

In each of the cases outlined above, except for the appointment of a liquidator or the presentation of a petition for winding up pursuant to Paragraph 10.1 (d) of the GMSLA 2010, where automatic termination has been elected under Section 1.5 of the Schedule to the GMSLA 2010, the Non-Defaulting Party must serve notice on the Defaulting Party to trigger an Event of Default.[144] The underlying event must be *continuing* (as opposed to have just occurred) to be permitted to give the default notice.[145]

As noted in relation to other types of transactions, close-out netting has the effect of reducing the aggregate gross exposures of each party to the other across all transactions to an amount that nets the respective exposures of each of the parties against the other, thus reducing counterparty credit risk and, for prudentially regulated financial institutions such as banks, thereby reducing associated regulatory capital requirements.[146]

Paragraph 11.2 of the GMSLA 2010 sets out four significant consequences for the parties on the occurrence of an Event of Default. First, delivery and payment obligations are accelerated to the Termination Date. Second, the parties' obligations to deliver securities are valued and converted into a cash obligation. Third, the cash obligation is converted into one currency. Finally, all cash obligations are set-off or netted against each other to produce a single net sum that one party has to pay to the other.[147]

4.2.8 The significance of intermediaries

Intermediaries play an important role in securities lending transactions. Many lenders and borrowers regard securities lending as ancillary to their core business and prefer to use intermediaries ("lending agents"), such as custodian banks, who lend as agent certain securities they hold for institutional investors.

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141 Paragraph 10.1 (g) GMSLA 2010.
142 Paragraph 10.1 (e) GMSLA 2010.
143 Paragraph 10.1 (f) GMSLA 2010.
144 Paragraph 10.2 GMSLA 2010.
145 Haines and Knight (n 125) 1 at 21. See also, Harding and Johnson (n 10) Chapter 4.
146 Close-out netting will be explored in greater detail in Chapter 7, section 3.4 "Financial Collateral Directive".
147 Paragraph 11.2 GMSLA 2010.

Intermediaries typically provide facilitating services, such as supplying liquidity, credit enhancement and comprehensive administrative services covering collateral eligibility, mark-to-market calculations, margin, custody of securities, daily reporting, inter account transfers and dealing with dividends.

Arrangements are formalised in agency lending agreements among the borrower, the lender and the lending agent. Under this kind of arrangement, the lending agent receives the eligible financial collateral from the borrower, holding and maintaining it in a separate account to the order of the lender or on a pooled basis for all lenders participating in its lending programme. The lending agent will maintain continuous dialogue with borrowers, either electronically or telephonically, who identify their borrowing needs, which the lending agent can continually reconcile against securities potential lenders are willing to make available in the programme.

Custodians' lending clients gain from the economies of scale and established relationships with borrowers that the custodians can make available as lending agents. Borrowers benefit from these same economies of scale by obtaining a relatively reliable source of liquidity in needed securities. Lending agents will also conduct credit reviews and due diligence on borrowers pursuant to pre-determined criteria agreed with lenders in the programme. Lenders often will impose limits on which counterparties can borrow its securities and in what amounts. Lenders will also specify acceptable financial collateral and the level of required margin.[148] Where cash is delivered as financial collateral, lenders often will "reinvest" it on behalf of lenders, either on a segregated or pooled basis, with returns being subjected to sharing arrangements. Such reinvestment usually will approximate the investment strategy of an appropriately liquid money market fund, but this, too, is subject to negotiation.

4.3 Rationale for Securities Lending

> *"The modern securities lending markets [have] developed principally to accommodate two growing needs: first, to avoid settlement failure and, secondly, to accommodate short selling… broadly speaking, [securities lending] can be divided into two markets, one that is defined by the motive of the borrower (the 'securities driven' market) and the other by the motive of the lender (the 'cash driven' market)"*[149].

148 Harding and Johnson (n 10) Chapter 1.

149 *Beconwood Securities Pty Ltd v Australia and New Zealand Banking Group Ltd* [2008] FCA 594, *per* Finkelstein J at 4-6. This judgement was noted in Yeowart *et al* (n 15) 465.

4.3.1 The borrower's perspective

A borrower often may have an open contract elsewhere and require specific securities in order to fulfil a delivery obligation to settle. A borrower may also need to "cover" a short position, or "short sale". A short sale broadly defined is the sale of an asset (shares) the seller does not own. The main advantage of a short sale is that it allows the short seller to profit from a price decrease: short sellers therefore aim to sell shares "short" while the price is high and then buy them later in order to fulfil their obligations to return the securities they have borrowed after the price has dropped.[150] Short selling therefore is considered a 'directional' strategy, i.e., speculating that the price of a particular security will fall rather than constituting a part of a wider trading strategy.[151] Brokers typically borrow the shares for short sale transactions either from lenders directly or through lending agents.

Market makers play a key role in providing liquidity for securities in markets around the world. Securities lending contributes to allowing them to fulfil this role by being able to readily borrow securities to settle 'buy orders' from customers and to facilitate two-way pricing.[152] The ability to make markets in illiquid securities is sometimes impeded by poor access to borrowing: some specialist borrowers in less liquid securities have put in place special arrangements to gain access to such securities, including guaranteed exclusive bidding arrangements with lenders.[153]

Securities may also be borrowed in order to cover a short position which has been taken as a hedge on a long position. By way of example, index arbitrage involves the simultaneous purchase and sale of the same commodities or stocks in two different markets in order to profit from price differentials between those markets: if indices in these markets don't move as expected, hedging through borrowing arrangements may serve to neutralise losses that would otherwise result.

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150 "Naked short selling" can also occur when an investor shorts a stock without first borrowing it. In 2008, the SEC banned naked short selling for the purpose of driving down share prices and creating negative momentum – a form of market manipulation. Failing to deliver a stock and naked short selling are not illegal, however, regulatory authorities have for some time looked on the practice with suspicion. In Europe, the practice has been actively discouraged through imposition of so-called "financial transaction tax" in certain EU Member States (see, e.g., Italy and France).

151 *Beconwood Securities Pty Ltd v Australia and New Zealand Banking Group Ltd* [2008] FCA 594, *per* Finkelstein J at 4-6. This judgement was noted in Yeowart *et al* (n 15) 465.

152 'Two-way pricing' is a quote that provides both the bid and the ask price of security, informing potential traders of the current price at which they could buy or sell the security.

153 Harding and Johnson (n 10) Chapter 4.

4.3.2 *Lender's perspective*

Lenders of securities are often large institutions, such as pension funds, insurance companies, investment funds and the like, who generally have large quantities of securities available to lend. In order to put these securities to productive use and enhance return, the securities may be lent in order to make a profit through the lending fees and potential returns on investment of the collateral. In addition, a lender may seek "access to cash, often for the purpose of equity financing at interest rates which are better than the uncollateralised borrowing rate".[154]

4.4 Differences between Repo and Securities Lending

Repos and securities lending transactions share many of the same characteristics, e.g. outright transfer of title, margining and the transfer of collateral to secure transactions. However, there are also some key differences.

4.4.1 *Scope of collateral*

In a repo transaction, cash is paid by the buyer in return for (more often than not) government bonds as financial collateral. In a securities lending transaction, by contrast, securities or cash are posted as financial collateral, which may be in the form of cash, bonds, equities, certificates of deposit or letters of credit. There is therefore a greater range of financial collateral used in the context of securities lending.

4.4.2 *Right of recall*

Because securities lending transfers not only the legal ownership of equities, but also the attached voting rights and corporate actions, it has become convention in the securities lending market for loaned securities (both bonds and equities) to be subject to a right of recall by the lender, so that it can recover securities if it wishes to exercise its voting rights or respond to corporate actions. In contrast, unless a right of substitution is specifically agreed between the parties, repo does not allow a seller to recall his or her securities during the life of a transaction.

4.4.3 *Type of securities*

With a repo, the precise identity of the securities transferred as financial collateral is of secondary importance. In the case of a securities lending trans-

154 *Beconwood Securities Pty Ltd v Australia and New Zealand Banking Group Ltd* [2008] FCA 594, *per* Finkelstein J at 4-6. This judgement was noted in Yeowart *et al* (n 15) 465.

action however, the borrower will often require specific securities because it usually needs them to settle a transaction with a third party (e.g., in covering a short sale).

4.4.4 Payment & income

In a repo, the seller pays a repo rate (interest) to the buyer for his or her cash, which is accounted for on the repurchase date. In a securities lending transaction, the borrower pays a fee to the lender for the use of the securities based on their value. It is usually paid monthly in arrears. Interest is paid on any cash collateral.

4.4.5 Maturity

Most repos are for a fixed term even if only overnight. Most securities lending transactions are open or on demand.

5 DERIVATIVES

5.1 Introduction

Market participants seek to mitigate risk by collateralising derivatives (contractual) exposure by taking cash or cash equivalent securities as financial collateral from counterparties. ISDA has provided a contractual framework in the form of the Credit Support Annex, which is designed to ensure legally enforceable rights in favour of secured parties located in different jurisdictions.[155]

5.2 Evolution of the ISDA Credit Support Annexes

The use of financial collateral in derivative transactions began in the USA in the mid-1980s. The process until then was highly manual and labour intensive, with valuation of financial collateral and calculation of risk exposures taking place weekly or monthly at best. In the EU, the use of financial collateral in derivatives transactions started in the early 1990s, with the process being equally manual and laborious. During this period, collateral arrangements securing derivatives transactions largely consisted of individually negotiated pledge documentation, involving lengthy and detailed negotiations. The most

155 See generally, P C Harding and C A Johnson, *Mastering Collateral Management and Documentation: A Practical Guide for Negotiators* (2002).

sought-after forms of financial collateral tended to be government securities denominated in local currencies .[156]

In an attempt to standardise collateral documentation, ISDA published its first Credit Support Annex in 1994 (governed by New York law) and another Credit Support Annex in 1995 (governed by English law). A Credit Support Annex regulates the rules governing the posting of financial collateral in support of a derivatives transaction. As a supplementary document, it is one of four parts that make up the ISDA Master Agreement suite of documents. The Credit Support Annex is not mandatory: it is possible to enter into an ISDA Master Agreement unsecured without a Credit Support Annex, but a Credit Support Annex would not be entered into without an ISDA Master Agreement.[157]

5.2.1 2009 G20 Pittsburgh Summit

Financial collateral had been recognised as an important risk-reduction tool prior to the Global Financial Crisis. The 1997 Asian crisis triggered by the collapse of the Thai Baht, the 1998 crisis stemming from Russian Ruble devaluation and debt default and the – not unrelated – failure of the major hedge fund Long Term Capital Management in 1998 all called attention to the importance of "tighter credit controls and ... credit risk reduction techniques such as taking collateral" as security.[158] However, the effectiveness of any lessons learned are questionable in view of the fact that both derivatives and financial collateral were central to events leading to the 2008 Global Financial Crisis.

Following on the heels of the Global Financial Crisis, the Pittsburgh Summit of September 2009[159] concluded with a *communique* that included a commitment by the G20 to reform the OTC derivatives market in order to reduce systemic risk:

> *"All standardized OTC derivative contracts should be traded on exchanges or electronic trading platforms, where appropriate, and cleared through central counterparties… OTC derivative contracts should be reported to trade repositories. Non-centrally cleared contracts should be subject to higher capital requirements".*[160]

So as to implement the Pittsburgh's conclusions, by July 2010, President Obama signed into US law the 2300-page Wall Street Reform and Consumer Protection Act (the Dodd-Frank Act) and by 16 August 2012 the EMIR entered into force

156 Harding and Johnson (n 5) 4.
157 J Hull and A White, "Collateral and Credit Issues in Derivatives Pricing" (2014) *Journal of Credit Risk* 1 at 14-15.
158 Harding and Johnson (n 5) 5.
159 *Ibid* at 10.
160 G20 Leaders' Statement, The Pittsburgh Summit (September 24-25, 2009).

in the EU,[161] with the RTS taking effect by 2016 by means of a Delegated Regulation.[162]

In addition, the Working Group on Margining Requirements, formed under the auspices of the Basel Committee on Banking Supervision ("BCBS") and the International Organization of Securities Commissions ("IOSCO"), was created to reduce systemic risk by developing a consistent global standard of margin requirements for OTC derivative transactions not subject to central clearing. Because standardised OTC derivatives are more suitable for central clearing, increased standardisation of financial collateral agreements and more consistent methodologies for the calculation of initial and variation margin would make it easier for uncleared OTC derivatives to transition to clearing houses in the future.[163]

The Working Group on Margining Requirements initiative concluded with a policy framework entitled "Margin requirements for uncleared derivatives", which was published jointly by the BCBS and IOSCO in September 2013 and revised in March 2015, March 2019 and April 2020.[164] Regulators in various jurisdictions have since set about creating rules governing the use of financial collateral based on these global policy recommendations.[165]

The regulatory framework that has developed since the global financial crisis has called attention to differences between derivatives that are suited to central clearing and those that are not.[166] Financial collateral mechanisms are more flexible in OTC arrangements since they can be negotiated bilaterally. More than 90% of uncleared derivatives transactions that are collateralised now utilise the ISDA Credit Support Annex.[167]

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161 Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivative, central counterparties and trade repositories ("EMIR").

162 Commission Delegated Regulation (EU) 2016/2251 of 4 October 2016 supplementing Regulation (EU) No 648/2012 of the European Parliament and of the Council on OTC derivatives, central counterparties and trade repositories with regard to regulatory technical standards for risk-mitigation techniques for OTC derivative contracts not cleared by a central counterparty (Delegated Regulation 2016/2251).

163 Basel Committee on Banking Supervision and the Board of the International Organization of Securities Commissions, "Margin Requirements for non-centrally cleared derivatives" (March, 2015), available at: https://www.bis.org/bcbs/publ/d317.pdf.

164 Basel Committee on Banking Supervision and the Board of the International Organization of Securities Commissions, "Margin Requirements for non-centrally cleared derivatives" (September, 2013), available at: https://www.bis.org/publ/bcbs261.pdf; various revisions include: March 2015, available at: https://www.bis.org/bcbs/publ/d317.pdf, March 2019, available at: https://www.bis.org/bcbs/publ/d317_summarytable.pdf; and, April 2020, available at: https://www.bis.org/bcbs/publ/d499.pdf.

165 P C Harding and A J Harding, *A Practical Guide to the 2016 ISDA Credit Support Annexes for Variation Margin* (2018) 11.

166 M Singh, "Collateral Netting and Systemic Risk in the OTC Derivatives Market" (2010) 1 at 9. See also, International Monetary Fund, "Making Over-the-Counter Derivatives Safe: the Role of Central Counterparties" (2010) 1 at 11.

167 ISDA, "ISDA Margin Survey Full Year 2017" (April, 2018) *Research Study*. See also, Harding and Johnson (n 5) 5.

5.2.2 ISDA credit support documentation

Before the publication of the various 2016 ISDA credit support documents, four main ISDA collateral documents were used, namely:[168]

- 1994 ISDA CSA under New York Law
- 1995 ISDA CSA under English Law
- 1995 ISDA Credit Support Deed under English Law
- 1995 ISDA CSA under Japanese Law[169]

Three other ISDA collateral documents may be utilised but, in practice, they are used far less frequently:

- 2001 ISDA Margin Provisions
- 2014 ISDA Standard CSA under English Law
- 2014 ISDA Standard CSA under New York Law

ISDA's current widely used credit support documentation includes:[170]

- 2016 ISDA CSA under English Law for Variation Margin
- 2016 ISDA CSA under New York Law for Variation Margin
- 2016 ISDA CSA under Japanese Law for Variation Margin
- 2016 ISDA CSA under Irish Law for Variation Margin
- 2016 ISDA CSA under French Law for Variation Margin
- 2016 ISDA Credit Support Deed under English Law for Initial Margin
- 2016 ISDA CSA under New York Law for Initial Margin
- 2016 ISDA/Clearstream Collateral Transfer Agreement for Initial Margin
- 2017 ISDA/Euroclear Collateral Transfer Agreement for Initial Margin
- 2019 ISDA Security Agreement governed by Irish Law
- 2019 Clearstream CTA Additional French Provisions
- 2019 Multi-Law CTA Additional French Provisions

Parties for the most part have used (and still use) the 1994 ISDA New York law Credit Support Annex and the 1995 ISDA English law Credit Support Annex to document financial collateral arrangements. However, since the Global Financial Crisis, market participants have had to contend with additional strict regulations beyond the scope of the Credit Support Annexes prior to the 2016 versions, such as in the EU: EMIR and its RTS, and in the USA the Dodd-Frank Act. The 2016 Credit Support Annexes accommodate new margin

168 See the ISDA website: https://www.isda.org/.

169 Due to language constraints, the Japanese CSA will not be discussed.

170 ISDA has also published Irish and French documentation. Due to space and the fact that these are currently not widely used, they will not be discussed. For a more extensive overview, see the ISDA website: https://www.isda.org/.

requirements under post-financial crisis legislation, some of which is only coming into effect for certain market segments as of this writing.[171]

5.2.3 Structure of the Credit Support Annex

The English law Credit Support Annex (both the 1995 and 2016 version) consists of eleven paragraphs. Parties negotiate standard pre-printed terms set out in Paragraphs 1-10 in order to specify further how financial collateral will be provided, received, maintained and otherwise operate in the context of and for the duration of the transaction: agreed particulars are set out in Paragraph 11. The New York law Credit Support Annex (both the 1994 and 2016 version) by contrast, consists of thirteen paragraphs. Parties negotiate the standard pre-printed terms set out in Paragraphs 1-12 and make certain elections and modifications of the terms in Paragraph 13.[172]

5.2.4 Property law functions of the Credit Support Annex

The distinction between the Credit Support Annex for English law and the Credit Support Annex for New York law is predominantly legal in nature. While these instruments use much the same terminology, on property rights and entitlements, each party makes a "Representation"[173] to the other party that depends on applicable law. Under the English law Credit Support Annex, full legal title is transferred from the collateral giver to the collateral taker[174] while the New York law Credit Support Annex operates on the basis of a pledge/security interest arrangement that permits the collateral to be "re-used" by the collateral-taker.[175] The distinction in legal effect between title transfer under English law and pledge/security interest under New York law is signalled by the English law version's characterisation of the provision of financial collateral as a "Transaction"[176] and the New York law version's characterisation as "Credit Support".[177]

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171 Due to the reduced thresholds, many buy-side counterparties will have been forced to put ISDA and Credit Support Annex arrangements in place for the first time, posing challenges for smaller investment managers in particular.

172 Harding and Johnson (n 5) 103 and 253. See also, Harding and Harding (n 165) 42.

173 Paragraph 7, 1995 ISDA English Law CSA and Paragraph 7, 2016 English Law CSA for Variation Margin. See also, Paragraph 9, 1994 ISDA New York Law CSA and Paragraph 9, 2016 New York Law CSA for Variation Margin.

174 Footnote 1 and Paragraphs 5 (a) and (b), 1995 ISDA English Law CSA and footnote 1 and Paragraphs 5 (a) and (b), 2016 English Law CSA for Variation Margin.

175 Paragraph 1 (b), 1994 ISDA New York Law CSA and Paragraph 1 (b), 2016 New York Law CSA for Variation Margin.

176 See the opening paragraphs of the 1995 ISDA English Law CSA and the 2016 English Law CSA for Variation Margin.

177 See the opening paragraphs of the1994 ISDA New York Law CSA and the 2016 New York Law CSA for Variation Margin.

5.3 *Modus Operandi* of the Collateralisation of Derivatives

5.3.1 What is a derivative?

> *"A derivative is a risk transfer agreement, the value of which is derived from a value of an underlying asset".*[178]

A transaction in a derivative instrument takes the form of a contract between two or more parties. Any 'value' in rights conveyed under the instrument is, as noted above, based on a value 'derived' from another asset specified in the contract. The derivative's value therefore fluctuates with that of the underlying asset. For example, in a currency swap transaction, the referenced currencies would be considered the 'underlying assets'.[179]

A financial derivative refers to a wide range of financial products which can be as complex and sophisticated as the imagination of the parties permits. Certain derivative instruments have become widespread in financial markets, such as futures, options and swaps. An option is a price guarantee that can, but does not have to, result in a future sale. To compensate for the fact that the option will only be exercised if it is of benefit to the party purchasing the option, the purchaser must pay the seller who 'writes' the option a premium up-front. A forward contract obliges a party to buy the agreed upon asset (typically a commodity or security) and for the other party to sell that asset at an agreed upon price on a specified future date. A swap contract is an agreement between parties to exchange some value in different currencies or subject to different interest rates, or some other assets.

The purpose of entering into a derivative transaction is either to 'hedge' or to 'speculate'. To 'speculate' is to transact in the hope of receiving a financial benefit derived from the change in value of a particular asset. To 'hedge' is to seek protection against financial loss or other adverse circumstances – a loss that might be also be derived from the change in value of a particular asset.[180]

The following are typical examples of the kinds of products that could be covered under a Credit Support Annex agreement:[181]

- Interest rate swaps
- Cross currency swaps
- Currency options
- Bond options

178 See the ISDA website: https://www.isda.org/.

179 F J Garcimartin and S Sanchez, "Derivatives in a cross-border context: a conflict-of-laws analysis" in M Haentjens (ed), *Nederlands Internationaal Privaatrecht: Special Issue on Private international law and finance* (2018) 72 at 73. See also, Balmer (n 65) 14.

180 See generally, S M Bartman, "Corporate hedging and speculation with derivatives" (2017) *Journal of Corporate Finance*.

181 Harding and Johnson (n 5) 3-4.

- Equity derivatives
- Commodity derivatives
- Credit derivatives
- Forward foreign exchange
- Forward rate agreements

The following is an example of how collateralisation operates in practice (in this case, the example provided is a currency swap):

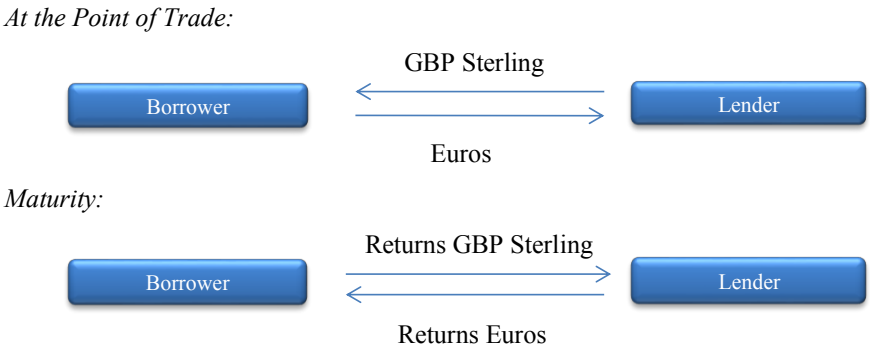

Figure 10: Derivatives

Figure 10 above shows that a typical currency swap is a transaction in which the borrower borrows GBP Sterling from, and simultaneously lends EUR Euros to, the lender. Throughout the lifecycle of the transaction, and as a result of the currency fluctuating in price, both the buyer and the lender commit themselves to a periodic exchange of collateral payments.[182] As a matter of principle, the aim of the transaction is that the Sterling and Euro payment obligations remain neutral in value, so that the value of the amount to be paid in GBP equals the value of the amount to be paid in EUR. In case either one of the currencies fluctuates in value, one of the parties is thus exposed to a credit risk against her counterparty. If in our example, the value of the Euro would decrease, the lender is exposed to the following credit risk: should the buyer not be able to return the amount in Sterling at maturity date of the transaction, the lender has received an amount in Euro that is of less value than the amount in Sterling she initially transferred to the buyer. The difference between the two values is the credit risk run by the lender on the buyer. This credit risk is addressed by the provision of collateral, so that the party whose payment obligation is lower in value than the value of the amount received must provide collateral to her counterparty.

182 Haentjens and de Gioia-Carabellese (n 16) 233-234.

If such a reciprocal payment of collateral obligations did not take place, then one party would be 'in-the-money' and the other would always be 'out-of-the-money', which may become more problematic over time – without a 'true-up' neutralising the parties' exposures to each other – and especially in the event of default. Consequently, the respective currencies are regularly valued mark-to-market for the lifecycle of the transaction in which buyer pays lender or lender pays buyer depending on the relative changes in value of the currencies. On maturity of the transaction, the parties agree that they will repay equivalent principal amounts in the original (designated) currency.[183]

On a more general note, derivatives transactions are inherently risky, primarily because the value of the derivative contract is derived from the underlying asset, which can cause the value of the derivative contract to substantially fluctuate. The Credit Support Annex seeks to mitigate this risk through the collateral management process where parties often seek financial collateral as a form of credit support to mitigate this risk. Financial collateral posted in a derivatives transaction typically is referred to as 'margin', which takes the form of either (or both) initial margin, which is applied *ex-ante*, and/or variation margin, which is applied *ex-post*. In practice, variation margin is the most commonly relied upon method of collateralisation, whereas initial margin is less commonly relied upon. However, since the Global Financial Crisis it has been noted that initial margin will take a more prominent role.[184] As mentioned above, initial margin is, at the time of writing (January, 2021), still being phased-in – it is therefore possible that ISDA will issue further Credit Support Annexes, Deeds and Collateral Transfer Agreements with regard to initial margin.

5.3.2 Setting up a collateralised relationship

The following are elements to consider when using a Credit Support Annex to collateralise a derivatives transaction.

5.3.2.1 Eligible collateral

Since the Global Financial Crisis, parties increasingly have taken measures to improve the liquidity of financial collateral. A credit department will generally liaise closely with a parties' collateral management group in determining acceptability of financial collateral. To ensure that the assets posted as financial collateral for initial and variation margin purposes can be liquidated quickly and efficiently, the BCBS, IOSCO and RTS have helpfully provided market parti-

183 Garcimartin and Sanchez (n 179) 72 at 73.
184 Balmer (n 65) 48.

cipants with a non-exhaustive financial collateral matrix, outlining the most liquid and safest forms of financial collateral:[185]

- Cash
- High-quality government and central bank securities
- High-quality corporate bonds
- High quality-covered bonds
- Equities included in major indices
- Gold

For financial collateral to be considered 'eligible', it must meet "Eligible Credit Support" criteria negotiated in the agreement, e.g., specifying which currencies the financial collateral may be denominated in, what types of bonds/assets are allowed, and which haircuts are to be applied. Generally, cash in the form of USD, GBP and EUR, and AAA government bonds are the most liquid and therefore the most sought-after forms of financial collateral. The type(s) of assets used as financial collateral and the applied haircuts are documented under the respective provision of the Credit Support Annex.[186] Depending on the form of assets used as financial collateral, the general rule is that so long as the financial collateral is liquid, the parties are in agreement and the financial collateral can be valued mark-to-market, then the asset can generally be considered effectively cash equivalent.[187]

5.3.2.2 Initial margin

Initial margin is a predetermined, fixed value cash or non-cash financial collateral with the objective of protecting the contracting parties from non-performance. It is posted at the point of trade and can either be a unilateral arrangement or a bilateral arrangement. A unilateral arrangement is common with supranational institutions entering into a transaction with a smaller institution, such as a corporate/hedge fund. This means that financial collateral flows one-way to the supranational institution. However, since the Global Financial Crisis and the default of Lehman Brothers in 2008, there is a greater trend to focus on bilateral arrangements, which is driven by industry bodies and regulators alike. A bilateral arrangement involves the mutual posting of collateral as initial margin by both parties to the transaction.[188]

185 Basel Committee on Banking Supervision (n 163) 1 at 17-18. See also Article 4 of the RTS, which provides a comprehensive list of eligible collateral types.

186 Paragraphs 3 (a) and 11 (b) (ii), 1995 ISDA English Law CSA and Paragraph 3 (a) and 11 (c) (ii), 2016 English Law CSA for Variation Margin. See also, Paragraphs 3 and 13 (b) (ii), 1994 ISDA New York Law CSA and Paragraphs 3 and 13 (c) (ii), 2016 New York Law CSA for Variation Margin.

187 Yeowart *et al* (n 15) 64-65. See also, Singh (n 51) 1 at 5.

188 Harding and Johnson (n 5) 79.

In practice, initial margin is commonly applied to cleared transactions but is currently not commonly applied in uncleared derivative transactions.[189] The distinction between initial margin in cleared and uncleared transactions arises mainly due to central counterparties requiring the mutual posting of initial margin at the point of trade to account for the risk that the respective party brings to the central counterparty by having its trade cleared there.[190] According to ISDA, the reason initial margin is employed in the derivatives market is to provide an additional financial buffer that insulates both the central counterparty and the surviving party against further losses following a default.[191]

5.3.2.3 Variation margin

Despite financial collateral needing to satisfy certain criteria intended to reduce volatility in value, the market value of the financial collateral may still decline. Furthermore, the creditworthiness of a counterparty may shift or the riskiness of a particular contract increase. Variation margin addresses these shifts in valuation and are a payment from one party to either the central counterparty or the counterparty to maintain sufficient levels of financial collateral depending upon the market risk exposure. To ensure that the exposure does not increase unexpectedly owing to changes in the creditworthiness of the participant or the value of the asset provided as financial collateral, regular adaptions to changes in the market exposure are taken into consideration by marking the risk to market. Similar to repo and securities lending transactions, the posting of financial collateral is subject to certain valuation thresholds, below which no collateral needs to change hands.

In practice, variation margin is the most commonly used method to collateralise a derivatives transaction. Variation margin operates in a manner similar to margin transfers under the GMRA and the margining techniques under the GMSLA. In a derivatives transaction, against the risk that the value of the underlying asset fluctuates in value, regular mark-to-market valuations of the underlying asset are conducted in order to mitigate exposure from one party (who is considered 'out of the money') to the other (who is considered 'in the money'). Variation margin is put in place to mitigate this risk of exposure by

189 As previously mentioned, initial margin is still being phased in and will play a much more prominent role in the future. See ISDA, "Initial Margin for Non-centrally Cleared Derivatives: Issues for 2019 and 2020" (July, 2018), available at: https://www.isda.org/a/D6fEE/ISDA-SIFMA-Initial-Margin-Phase-in-White-Paper-July-2018.pdf. See also, Financial Conduct Authority, "Margin requirements for uncleared derivatives" (2017), available at: https://www.fca.org.uk/markets/emir/margin-requirements-uncleared-derivatives.

190 D Domanski, L Gambacorta and C Picillo, "Central clearing: trends and current issues" (2015) *BIS Quarterly Review* 59 at 60-61.

191 See the ISDA website: https://www.isda.org/tag/initial-margin/. For an overview of CCP clearing, see Chapter 7, section 4.1 EMIR: Central Counterparty Clearing.

ensuring sufficiently liquid financial collateral is delivered to the in-the-money party pending the next mark-to-market date when the process repeats itself.[192]

As regulatory requirements changed to place significant new demands on counterparties entering into uncleared transactions, new Credit Support Annexes covering variation margin were developed for market participants in 2016 (the 2016 Credit Support Annex). It was decided that it would be simpler to introduce a new precedent Credit Support Annex – replacing previous forms (such as the 1994/1995 versions) entirely rather than trying to amend or revise the old forms.[193] Like the 1994/1995 Credit Support Annex, the 2016 Credit Support Annex serves as an Annex to the ISDA Master Agreement.[194]

5.3.2.4 Independent amount

Depending upon the wording used in the 1994/1995 ISDA Credit Support Annex, the term "Independent Amount" can confusingly mean either initial margin or variation margin. The 2001 ISDA Margin Provisions more helpfully differentiate between the two Independent Amount terms by calling them "Lock-Up Margin" (Initial margin) and "Additional Margin Amount" (variation margin). Independent Amounts can either be set for individual transactions or calculated on an entire portfolio of trades. In practice, Independent Amounts are typically defined by the risk department and are also defined in the respective Credit Support Annex at the point of trade.[195] When set at the point of trade by way of initial margin, the Independent Amount is either a fixed sum or a percentage of the notional amount of the underlying transaction(s).[196]

5.3.2.5 Minimum transfer amount

The "Minimum Transfer Amount" is a monetary figure agreed between the parties at the point of trade below which a call for collateral cannot be made.[197] Under the EMIR RTS (i.e. Delegated Regulation 2016/2251), the mini-

192 Paragraphs 2 (a), (b), 10 and 11 (b) (i) (A), (B), 1995 ISDA English Law CSA and Paragraphs 2 (a), (b) 10 and 11 (c) (i) (A), (B), 2016 English Law CSA for Variation Margin. See also, Paragraphs 3 (a), (b), 12 and 13 (b) (i) (A), (B), 1994 ISDA New York Law CSA and Paragraph 3 (a), (b), 12 and 13 (c) (i) (A), (B), 2016 New York Law CSA for Variation Margin.

193 Harding and Harding (n 165) 42 and 105.

194 See the ISDA website: https://www.isda.org/book/2016-credit-support-annex-for-variation-margin-english-pdf/.

195 Paragraphs 10 and 11 (b) (iii) (A), 1995 ISDA English Law CSA. See also, Paragraphs 12 and 13 (b) (iv) (A), 1994 ISDA NY Law CSA.

196 Harding and Johnson (n 5) 15-16.

197 Paragraphs 2 (b), 10 and 11 (b) (iii) (C), 1995 ISDA English Law CSA and Paragraph 11 (c) (vi), 2016 English Law CSA for Variation Margin. See also, Paragraphs 3 (b), 12, 13 (b) (iv) (C), 1994 ISDA NY Law CSA and Paragraphs 12 and 13 (a) (vii), 2016 New York Law CSA for Variation Margin.

mum transfer amount figure is set at a maximum of EUR 500,000.[198] This means that if the minimum transfer amount exceeds EUR 500,000, the entire financial collateral/margin amount is due – not the excess.[199] The minimum transfer amount provision represents the unsecured risk exposure parties to the transaction are prepared to accept. The rationale behind minimum transfer amount is to avoid administrative costs and burdens. For example, suppose that party A and party B agree that the minimum transfer amount is EUR 500,000. On day 1 of the transaction, party A is 'in the money' by EUR 250,000. Based on the agreement at the point of trade by both parties, no call for collateral will be made. Now suppose that on day 2 of the transaction, the mark-to-market valuation of the underlying demonstrates that Party B is now 'in the money' by EUR 600,000 as a result of the collateral fluctuating in price. Party A is, therefore, entitled to make a call for collateral for the entire EUR 600,000. In practice, this precise figure is a result of the "Rounding" convention applied in derivatives transactions.[200] Rounding is applied to avoid the transfer of uneven amounts of collateral (e.g. EUR 599,561.73). Typically, such amounts are rounded to provide a more accurate/precise assessment. It should also be noted that if a minimum transfer amount is not explicitly stated under the respective Credit Support Annex, then the minimum transfer amount would be zero.[201]

5.3.2.6 Haircut

A haircut is a discount applied to the market value of the financial collateral to cover the worst expected price movements over the mark-to-market frequency period and a holding period if the financial collateral needs to be liquidated following a default. While initial margin tries to deal with the volatility of risk exposure, 'haircuts' deal with the volatility of price movements between the time the financial collateral is called and its receipt.

> *"[In a derivatives transaction,] haircuts provide an extra cushion to protect the collateral value between Valuation Dates or during a liquidation period. They are highly correlated to the tenor and price volatility of the… collateral".*[202]

198 Article 25 (1) and (4) RTS.

199 Harding and Harding (n 165) 90.

200 Paragraph 11 (b) (iii) (D), 1995 ISDA English Law CSA and Paragraph 11 (c) (vi), 2016 English Law CSA for Variation Margin. See also, Paragraph 13 (b) (iv) (D), 1994 ISDA NY Law CSA and Paragraph 13 (a) (vii) (B), 2016 New York Law CSA for Variation Margin.

201 Paragraphs 2 (b), 10 and 11 (b) (iii) (C), 1995 ISDA English Law CSA and Paragraph 11 (c) (vi), 2016 English Law CSA for Variation Margin. See also, See also, Paragraphs 3 (b), 12, 13 (b) (iv) (C), 1994 ISDA NY Law CSA and Paragraphs 12 and 13 (a) (vii), 2016 New York Law CSA for Variation Margin; Harding and Harding (n 165) 28-29 and 90.

202 Harding and Johnson (n 5) 80.

The ISDA Credit Support Annexes use the term "Valuation Percentage" – the reciprocal term is 'haircut'. For instance, if the real value of the financial collateral asset is 100 and the agreed Valuation Percentage is 97%, then the haircut is 3%. Typical haircuts in derivatives transactions include 0% for cash, 1%-5% for highly rated government securities of up to ten years' remaining maturity. Corporate bonds normally attract a 5%-10% haircut depending upon the tenor and equities reach up to a 40% haircut. A haircut, being a discount on the value of the security used as financial collateral, means that more financial collateral has to be posted to cover risk exposure. For instance, with a 10% haircut, 110% of the value of the financial collateral value needs to be given to cover the risk exposure and in practice, the longer the maturity or the more volatile the financial collateral is, the higher the haircut should be.[203] Helpfully, the BCBS and IOSCO have published a haircut schedule that echoes the percentages outlined in this paragraph.[204] It should be noted, however, that this schedule is merely a guide but nonetheless provides market participants with an important benchmark.[205]

5.3.2.7 Reuse of collateral

Property law plays an important role in determining what rights the collateral taker has in the financial collateral. Under the English law Credit Support Annex, title to the financial collateral is passed from the collateral giver to the collateral taker[206] under a so-called "title transfer collateral arrangement" pursuant to English law.[207] Because title has transferred, the collateral taker is free to use the financial collateral for its own purposes. Under the New York law Credit Support Annex, even though title is not transferred to the collateral taker, a right of reuse can be granted in the transaction documentation,[208] resulting in the collateral taker being able to use the financial collateral in its own business as if it were his or her own. Given the larger volumes of liquid financial collateral currently sought in the marketplace following the Global

203 Harding and Johnson (n 5) 80. See also, Harding and Harding (n 165) 13.

204 The Haircut Schedule is depicted in Chapter 7, section 4.2.7 "*Haircut*".

205 Basel Committee on Banking Supervision (n 163) 1 at 27. For an overview of how haircuts are adapted both in terms of the value of the financial collateral rising and falling, see this chapter above, section 3.3.4.1 "*Margin transfers*". While section 3.3.4.1 relates to repos, the principle remains the same for both derivatives and securities lending transactions. On this see ISDA, "Whitepaper: Collaboration and Standardization Opportunities in Derivatives and SFT Markets" (October, 2020) 1 at 34-38, available at: https://www.isda.org/a/wVrTE/Collaboration-and-Standardization-in-Derivatives-and-SFT-Markets.pdf.

206 Footnote 1 and Paragraphs 5 (a), (b), 1995 ISDA English Law CSA and footnote 1 and Paragraphs 5 (a), (b), 2016 English Law CSA for Variation Margin.

207 See Financial Conduct Authority, available at: https://www.handbook.fca.org.uk/handbook/glossary/G3557t.html?date=2018-01-03.

208 Paragraph 1 (b) 1994 ISDA New York Law CSA and Paragraph 1 (b) 2016 New York Law CSA for Variation Margin.

Financial Crisis, the associated cost of funding collateralised exposures is leading firms to focus more of the optimisation of financial collateral.[209]

5.3.2.8 Substitution of collateral

Similar to repo and securities lending transactions, a collateral giver may request, by providing notice to the collateral taker, so-called "substitution"[210] of all (or part) of the financial collateral originally posted in exchange for new acceptable forms of financial collateral. Substitution is generally used by the collateral giver to fulfil another obligation elsewhere.[211]

5.3.2.9 Event of default

If an "Event of Default" occurs, an "Early Termination Date" will be triggered. An important aspect of the interaction between the Credit Support Annex and the ISDA Master Agreement is the so-called "Single Agreement" clause found in Section 1(c) of the 2002 ISDA Master Agreement – giving effect to "close-out" netting. Pursuant to close-out netting, on an Early Termination Date all transactions entered into between the parties form a Single Agreement and all open transactions are valued and aggregated against each other to provide a single net monetary amount owed by one party to the other.[212] This is intended to preclude so-called 'cherry picking' (i.e. making payments on specific favourable transactions as opposed to not making payments to less favourable transactions) by insolvency administrators.[213]

5.3.2.10 Intermediaries and Valuation Agent

As in repos and securities lending transactions, derivatives counterparties may use intermediaries, such as custodian banks or other entities offering collateral

209 ISDA, "2013 Best Practices for the OTC Derivatives Collateral Process" (23 October, 2013), available at: https://www.isda.org/a/l0iDE/2013-isda-best-practices-for-the-otc-derivatives-collateral-process-final.pdf.

210 The term "substitution" is used under the New York law CSA in comparison to the term "exchanges", which is used under the English law CSA.

211 Paragraphs 3 (c) (i), 10 and 11 (b) (ii), 1995 ISDA English Law CSA and Paragraphs 3 (c) (i), 10 and 11 (b) (ii), 2016 English Law CSA for Variation Margin. See also, Paragraphs 4 (d) (i), 12 and 13 (e), 1994 ISDA New York Law CSA and Paragraphs 4 (d) (i), 12 and 13 (f), 2016 New York Law CSA for Variation Margin. Additionally, please also see, ISDA, "2013 Best Practices for the OTC Derivatives Collateral Process" (23 October, 2013), available at: https://www.isda.org/a/l0iDE/2013-isda-best-practices-for-the-otc-derivatives-collateral-process-final.pdf.

212 Paragraphs 4 (b) and 6, 1995 ISDA English Law CSA and Paragraphs 4 (b) and 6, 2016 English Law CSA for Variation Margin. See also, Paragraph 7, 1994 ISDA New York Law CSA and Paragraph 7, 2016 New York Law CSA for Variation Margin; Sections 5 (a) (i) and (iii) (1), 2002 ISDA Master Agreement.

213 T James and P C Fusaro, *Energy and Emissions Markets: Collision or Convergence?* (2006) 148. See also, R Lichters, R Stamm and D Gallacher, *Modern Derivatives Pricing and Credit Exposure Analysis: Theory and Practice of CSA and XVA Pricing, Exposure Simulation and Backtesting* (2015) 260.

management services, to maintain financial collateral for the parties. There are several reasons for this, including expertise, efficiency or in case a counterparty lacks the internal resources to monitor and manage its own financial collateral obligations. Rather than appointing the larger contracting party to be a valuation agent, parties generally prefer to have a third-party intermediary involved given the size and scale of the transactions generally entered into. Assuming that both parties to the transaction want to use an intermediary, in practice both counterparties will enter into an ISDA master agreement together with the respectively applicable Credit Support Annex. In addition, they will also enter into a third-party agreement with the intermediary.[214]

Instead of appointing a third-party intermediary, the parties to the transaction could agree (as many do) that one of them should act as a "Valuation Agent". The Valuation Agent under the Credit Support Annex is responsible for determining whether financial collateral is to be delivered or received on mark-to-market.[215] 'Sell-side' firms and large financial institutions typically take on this role, especially where the counterparties are smaller 'buy-side' firms or corporates. Under the terms of the Credit Support Annex documentation and under common law principles, the Valuation Agent, it should be noted, is expected to act in "good faith and in a commercially reasonable manner".[216]

6 Conclusion

Within the EU shadow banking sector, collateral transactions are predominantly underpinned by the respective master agreements (and the Credit Support Annex in the case of a derivatives transaction). While these legal underpinnings are important for a number of reasons, the monitoring and management of financial collateral and the application of margin to mitigate risk are arguably the most significant.

Within a collateral transaction, there are three operational steps that are noteworthy in relation to margin requirements. The first operational step is the *ex-ante* application of margin either by way of initial margin or a haircut, at the point of trade. In repos and securities lending transactions, the haircut or initial margin is *ex-ante* set for the lifecycle of the transaction whereas in a derivatives transaction, the initial margin can be recalibrated.[217] Initial

214 Harding and Johnson (n 5) 33.

215 Paragraphs 2, 4, 5 (c), 10 and 11 (c) (i), 1995 ISDA English Law CSA. See also, Paragraphs 3, 5, 6 (d), 13 and 13 (c) (i), 1994 ISDA NY Law CSA.

216 Paragraph 9 (b), 1995 ISDA English Law CSA and Paragraph 9 (b), 2016 English Law CSA for Variation Margin. See also, Paragraph 11 (d), 1994 ISDA New York Law CSA and Paragraph 11 (d), 2016 New York Law CSA for Variation Margin.

217 Of course, repricing, adjustment and/or substitution can occur during the transaction, which will often affect the margin/haircut level.

margins and haircuts are applied at the point of trade to provide the collateral taker with a further layer of security should a problem occur.

The second operational step is with reference to margin being applied *ex-post* during the lifecycle of a transaction. Because the property used in a transaction, such as the financial collateral or contracted for assets can fluctuate in price – without margining techniques, the cash realised by any potential liquidation may turn out to be substantially less than what was originally contracted for, ultimately resulting in actual loss for one of the parties. In order to mitigate this risk, regular mark-to-market valuations are conducted to determine the net exposure one party has over the other and crucially the need, if any, to post margin to mitigate this exposure. In a derivatives transaction such a technique is referred to as variation margin, in a repo transaction the correct terminology is margin maintenance (margin transfers, re-pricing and adjustment) and in a securities lending transaction the technique is similar to margin transfers found under the GMRA. The final operational step relates to the maturity of the transaction, where equivalent property (including margin) should be returned.

In the securities lending and repo market, margin is largely dictated by market practice. There is no overarching matrix outlining applicable margin levels or eligible securities used for financial collateral/margin purposes. This position is in contrast to the derivatives market where, as a result of post Global Financial Crisis reforms, there is now significant legal interplay between the EMIR/RTS and the ISDA Credit Support Annexes. Such interplay ultimately requires in-scope entities to comply with mandatory margin requirements when collateralising their derivatives transactions. Such a move has undoubtedly created a safer and more transparent marketplace for derivatives and importantly, may set an important precedent for the repo and securities lending sectors in the future.