



Universiteit  
Leiden  
The Netherlands

## Collateral transactions and shadow banking

Spence, R.

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## 9 Conclusion

To conclude, this thesis has been discussing the role margin plays in the EU shadow banking sector from both a legal and economic perspective. It first explores margin from a positive perspective, in the sense of how margin *does* operate in the EU shadow banking sector. The discussion then proceeds by exploring margin from a normative angle, which is the focus of the central research question, namely: *how should mandatory margin requirements operate, from a legal and economic perspective, in the EU shadow banking sector?*

In order to provide an answer to the central research question and understand the pivotal role margin plays in the EU shadow banking sector, it is first important to understand that financial collateral is applied to a transaction to hedge default risk. Provided the financial collateral is liquid and thus ‘safe’, it can be used as ‘cash equivalent’ to financially underpin the transaction. Margin is then *ex-ante* applied to overcollateralise the transaction by adding a further layer of safety. In this sense, margin plays an important risk mitigation function and is principally in place to hedge the risk on the price volatility of the financial collateral.

However, margin is also procyclical and is paradoxically a source of systemic risk. Within a collateral transaction, margin is maintained through *ex-post* mark-to-market controls for the lifecycle of the transaction. Because financial collateral consists of marketable securities, its price can be subject to volatile price swings. Should the value of the financial collateral plummet in value, margin will be called to rebalance the transaction. The more margin calls there are, the more volatile and procyclical the financial sector becomes, ultimately causing leveraged market participants to deleverage precisely at a time when asset prices are low and volatility is high. Margin calls have therefore been noted as a systemic indicator and a precursor to financial crises. It is often thought that the more leveraged a financial sector is, the riskier it becomes given that leverage is a multiplier of gains as well as a multiplier of losses.

The level of margin applied by private markets to any given collateral transaction is generally “set to the lowest possible level”.<sup>1</sup> There are two reasons for this. Firstly, to maximise profits – as this is the primary objective

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<sup>1</sup> J Brumm, M Grill, F Kubler and K Schmedders, “Margin Regulation and Volatility” (2015) 75 *Journal of Monetary Economics* 54 at 55.

of market participants operating in the EU shadow banking sector. As already noted, leverage is a multiplier of gains (as well as losses), therefore, an *ex-ante* lower level of margin equates to a higher level of leverage and thus higher gains. This is beneficial for market participants because it facilitates their ability to reach optimal yield. Greater leverage for the economy as a whole allows greater investment – at the price of greater fragility.<sup>2</sup> Secondly, and more importantly, the level of margin in any given transaction is largely left to the discretion of the contracting parties. Margin is therefore a mechanism that has minimal regulatory oversight. This is problematic given that profit maximising and leveraged market participants fail to internalise the systemic costs associated with a downturn.<sup>3</sup>

The reciprocal of margin is leverage. Because leverage has been at the heart of many past financial crises and margin is a mechanism that can tame financial uncertainty, regulating margin would, this thesis argues, seem like a step in the right direction. Margin is therefore a mechanism that has the ability to limit the amount of leverage a market participant can obtain. Any new reform/regulation would likely result in a higher level of margin resulting in lower levels of leverage compared with the current situation of lower margins and therefore higher leverage. Significantly, there is currently no comprehensive EU wide legislative mechanism for regulating margin in the shadow banking sector. While margin is addressed, both directly and indirectly in several parts of the EU regulatory framework, the fact remains that the response to date has been piecemeal at best. In light of this, this thesis has endeavoured to provide a constructive and meaningful response to how margin *should* operate in the EU shadow banking sector. The main conclusions answering the central research question can be summarised as follows.

Chapter 2 explores shadow banking in terms of what it is, how it functions and its relevance to the economy. The term ‘shadow banking’ was first coined in 2007 by American economist Paul McCulley to describe a sector that is subject to minimal regulatory oversight precisely because it operates on a subterranean level. However, it was not until the Global Financial Crisis that the shadow banking sector started to gain prominence given its contribution to financial instability. It is argued that there are several lines of reasoning as to why the shadow banking sector has risen in prominence to now account for a significant part of the financial system. Changes in prudential regulation, namely the introduction and amendments to the Basel Accords, which has resulted in a drop in profitability for the traditional banking sector leading to a mass exodus to the less regulated and more profitable shadow banking sector where an equivalent, cheaper and less burdensome service is offered. As a result, and with the progress of financial innovation, there is now a

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2 G B Gorton, *Misunderstanding Financial Crises: Why We Don't See Them Coming* (2012) 179.

3 H McVea, “Targeting hedge funds and ‘repo runs’”, in I H Y Chiu and I G MacNeil, *Research Handbook on Shadow Banking Legal and Regulatory Aspects* (2018) 177 at 181.

genuine and economic demand for services conducted in the shadow banking sector.

Lumped into the ‘shadow banking’ bucket are a number of divergent entities, activities and transactions. Such diversity has arguably become a key obstacle to providing a clear and commonly agreed shadow banking definition. There have indeed been various definitional responses encompassing both ‘broad’ and ‘narrow’ views. A broad view does very little in providing a workable definition however. This approach is more suited for monitoring and surveillance purposes. A narrow approach to defining shadow banking is better and can be adapted based on the purpose for which shadow banking is used. For the purpose of this study, shadow banking can be defined as: “*leveraging on collateral to support liquidity promises*”<sup>4</sup>. This definition is beneficial because it is able to unpack the economic purposes of the transactions used within the shadow banking sector. Such an approach is beneficial because it is able to capture the complex practices through which money is created in the modern financial system – where debt relationships are organised via tradeable securities.

Shadow banking is therefore a sector that intermediates credit by performing “bank-like functions” by transforming long-term securities such as government bonds, which are used as financial collateral to secure short-term funding.<sup>5</sup> It is indeed the presence of financial collateral that gives the shadow banking sector its distinctive character. Financial collateral comes in the form of marketable securities and depending upon the liquidity of the financial collateral, implies the promise of a credible financial underpinning. Specifically, should default occur, then the financial collateral can be liquidated to make good on the initial promise. Financial collateral is therefore widely regarded as having ‘money-like’ equivalence.<sup>6</sup> However, the implied liquidity of financial collateral, and the fact it is often considered to be as safe as money, makes the contracts backed by the financial collateral, such as repos, securities lending and derivatives transactions, subject to run<sup>7</sup> – which was a fundamental issue during the Global Financial Crisis and continues to be an issue during the current Covid-19 pandemic.<sup>8</sup>

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4 A M Paccès and H Nabilou, “The Law and Economics of Shadow Banking” (2017) *ECGI Working Paper Series in Law* 1 at 11.

5 Gorton (n 2) 43.

6 M Singh, *Collateral and financial Plumbing* (2016) 35.

7 Paccès and Nabilou (n 4) 1 at 5.

8 At the time of writing 16 January, 2021. See also generally, A Schrimpf, H S Shin and V Sushko, “Leverage and margin spirals in fixed income markets during the covid-19 crisis” (2 April, 2020) 2 *BIS Bulletin*. See also, OECD, “The impact of the coronavirus (COVID-19) crisis on development finance” (24 June, 2020), available at: [https://read.oecd-ilibrary.org/view/?ref=134\\_134569-xn1go1i113&title=The-impact-of-the-coronavirus-\(COVID-19\)-crisis-on-development-finance](https://read.oecd-ilibrary.org/view/?ref=134_134569-xn1go1i113&title=The-impact-of-the-coronavirus-(COVID-19)-crisis-on-development-finance).

Chapter 3 focuses on the growing importance of financial collateral. In particular, the future of modern finance has become a “collateral-based banking system” where the plumbing of the financial system is lubricated with ‘liquid’ and ‘safe’ financial collateral in lieu of cash to settle credit obligations.<sup>9</sup> Widely regarded as the main currency used within the EU shadow banking sector, financial collateral is now described as the “lifeblood of the modern economy”.<sup>10</sup>

Importantly, there is a distinction to be made with ‘ordinary’ collateral and ‘financial’ collateral. Ordinary collateral can consist of tangibles, such as real estate, plant and machinery, motor vehicles etc. It can also consist of intangibles such as intellectual property or financial instruments. Financial collateral, on the other hand, consists of marketable securities that can be traded at high frequency with orders being executed in seconds. This type of collateral is beneficial for liquid and efficient markets because the more liquid the asset, the safer it is due to the promise of cash immediacy. Financial collateral is therefore highly sought-after as compared with other types of collateral.

Under the Financial Collateral Directive, financial collateral consists of cash, financial instruments and credit claims. However, the Financial Collateral Directive is limited in both material scope and personal scope and as such, not every collateral transaction will be afforded the protection offered by the Financial Collateral Directive, such as that related to property law, insolvency law and conflict of laws. ‘Privately’ negotiated transactions, such as those conducted in the EU shadow banking sector for example, often fall outwith the scope of the Financial Collateral Directive. The general idea regarding transactions conducted within the EU shadow banking sector is that, as long as the financial collateral is mark-to-market, underpinned by the respective master agreement and the parties are in agreement about what constitutes acceptable financial collateral, the financial collateral can generally be used as cash equivalent to secure the transaction.<sup>11</sup>

The sort of collateral transactions used in the shadow banking sector consists of repos, securities lending and derivatives transactions. It is these

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9 Bank of England, “Centre for Central Banking Studies” (2018) 1 at 14, available at: <https://www.bankofengland.co.uk/-/media/boe/files/ccbs/ccbs-prospectus-2018.pdf?la=en&hash=CC52F29880CDDAE54988A3F24065123B0EB633F5>. See also, P Mehrling, Z Pozsar, J Sweeney and D Neilson, “Bagehot was a Shadow Banker: Shadow Banking, Central banking, and the Future of Global Finance” (2012) *Institute for New Economic Thinking* 1 at 4 where the authors state that modern finance or the shadow banking system can also be termed the “collateral-based credit system”; see generally, J Benjamin, G Morton and M Raffan, “The future of securities financing” (2013) 7 (1) *Law and Financial Markets Review*.

10 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.

11 M Singh, “Collateral Reuse and Balance Sheet Space” (2017) *IMF Working Paper* 1 at 5.

sorts of transactions which give impetus to the growing importance of financial collateral. Although financial collateral is used to secure the transaction and hedge default risk and margin is then applied to the transaction to hedge the risk on the price volatility of the financial collateral, financial collateral is equally finite. There is therefore considerable concern that financial collateral is now 'scarce'. To alleviate the scarcity problem, financial collateral is given 'velocity' in the sense that it can be re-used multiple times. Velocity occurs because more often than not, there is generally a title transfer right in the financial collateral. This means that ownership rights pass as the financial collateral is used to secure the transaction. Financial collateral is therefore often viewed not as a mechanism to hedge risk, but as a tradeable and profitable instrument. However, velocity does not come without problems given that the long chains of intermediation often lack transparency and therefore heightened risk, particularly in relation to systemic contagion should one party default.

Chapter 4 analyses margin. The chapter proceeds by discussing what margin is and its economic rationale. Complementary to financial collateral is margin, which is a risk mitigation mechanism designed to hedge the risk on the unintended price fluctuations of the financial collateral. Within a collateral transaction, margin has two touchpoints. First, margin is *ex-ante* applied to the transaction to cover future potential losses. At the point of trade, market participants have an option on whether to apply margin either by way of a 'haircut' or by way of 'initial margin'. Both perform the same function by overcollateralising the transaction – the only difference being the arithmetic used in the calculation process. The level of margin is largely at the discretion of the contracting parties, but as a general rule, the appropriate level of margin will, *inter alia*, be dependent upon the quality of the financial collateral. Once the appropriate margin level is set, this level is 'maintained' for the lifecycle of the transaction through *ex-post* controls. The way it works is as follows: the financial collateral is regularly valued mark-to-market to take account of gains or losses on an open position. *Ex-post* margin controls ensure the over-collateralisation level is maintained and if need be, managed and adjusted to mitigate net exposures.

Margin can be adjusted via one of two routes. Firstly, should the value of the financial collateral suffer a significant change, the respective master agreement accounts for this possibility by way of repricing or adjustment. The idea is that the original transaction is maintained, but the margin is recalibrated to account for new market values/risk. Secondly, because margin calls understandably make lenders nervous, it is often the case that upon maturity of the contract, market participants will either bring the transaction to an end, or

alternatively roll-over the contract with renewed terms, such as increased margin requirements to account for market risk.<sup>12</sup>

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. The fact that margin represents the share of a security that cannot be funded in the market by requiring the collateral giver to draw upon their 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.<sup>13</sup> 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.<sup>14</sup> However, 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 asset prices fall and margin levels rise, highly leveraged financial institutions are forced to de-leverage, generating a cumulative downward leverage and liquidity spiral, which exacerbates systemic risk. Because the problems associated with leverage are a recurring phenomenon, which has been at the heart of past financial crises, it is unfortunate that regulators have yet to tackle this problem head-on.<sup>15</sup>

Chapter 5 discusses the market practice of collateral transactions in the EU shadow banking sector from the perspective of the relevant master agreement, focusing particularly on financial collateral and margin. Repos, securities lending and derivatives transactions are legally underpinned by the GMRA, The GMSLA and the Credit Support Annex under the ISDA master agreement respectively. Master agreements (or the Credit Support Annex in the case of a derivatives transaction) are the predominant choice for market participants operating in the EU shadow banking sector to legally underpin the collateral transaction. The benefit of using these standardised documents allows for efficiency and convenience. Importantly, key clauses within these documents

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12 As to how margin can be repriced, adjusted and/or rolled-over, see Chapter 4, section 4.1.2 and Chapter 5, section 3.3.4.2.

13 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.

14 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>.

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

accounts for specific risk mitigation mechanisms, namely financial collateral and margin.

Chapter 6 considers the role debt plays in the EU shadow banking sector. The origins of debt lie in the traditional banking sector by way of demand deposits. However, demand has now grown and the shadow banking sector has managed to successfully replicate the unique ability of the traditional sector to credibly promise liquidity on demand. It achieves this through its use of collateral transactions where long-term assets are used to obtain short-term funding. Generally, the tenor of the collateral transaction is short-term, albeit routinely rolled-over providing market participants with confidence in immediacy. Margin is applied to the transaction to tame uncertainty.

In order for there to be confidence in immediacy, shadow banking sector produced debt must be 'safe' meaning that the securities used as financial collateral must be insensitive to information. Government bonds are essentially a 'safe' asset given their credible underpinning. Shares, however, are sensitive to information and are subject to frequent and unpredictable intra-day price fluctuations. The sensitivities of a debt therefore play an important role in determining safety.

Synonymous with the sensitivities of debt is liquidity. The more liquid the asset, the safer it is given the promise of cash immediacy. Liquidity implies that assets can be bought and sold without loss. As a result, funding liquidity and market liquidity work at an optimal level. The more intermediation there is, the more credit there is to the economy. However, the flipside is that more credit equates to higher levels of leverage but with greater fragility.

Chapter 7 maps the regulatory framework in relation to margin within the EU shadow banking sector. The post crisis policy responses have largely been the catalyst for future development in this area. Although there is still no overarching margin framework in the EU shadow banking sector, margin is still addressed, directly and indirectly, in several parts of the EU legislature. From a private law perspective, self-regulation in the form of the *lex mercatoria* via the master agreements (and Credit Support Annex) is a crucial driving force in the EU shadow banking sector.<sup>16</sup> Because the global marketplace crosses national boundaries, often where regulation cannot, the industry associations "have been relatively successful in achieving certain degrees of standardisation in the design, governance, and regulation" of shadow banking transactions by way of the master agreements.<sup>17</sup> Another strand of private law relates to the Financial Collateral Directive, which has implications for margin in an insolvency setting. In particular close-out netting and margining. These mechanisms allow market participants within the scope of the Financial

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16 IOSCO, "Model for Effective Regulation" (May 2000) *Report of the SRO Consultative Committee* 1 at 4.

17 *Ibid.* See also, H Nabilou and A Prum, "Shadow Banking in Europe: Idiosyncrasies and their Implications for Regulation" (2019) *European Journal of Risk Regulation* 781 at 785.



Collateral Directive special insolvency treatment by avoiding the traditional insolvency stays.

With regard to public law, it is submitted that more needs to be achieved in this area – particularly with regard to repos and securities lending transactions. While derivatives have arguably made substantial progress with regard to implementing mandatory margin requirements (provided parties are within the scope of the EMIR and the RTS), reforms in relation to repos and securities lending are far from convincing. For instance, the SFTR, while potentially a valuable data source, does very little in relation to the regulation of margin. The AIFMD, does impose a ‘light touch’ leverage regime on Alternative Investment Fund Managers. However, it is up to the manager of the fund to set the leverage level they believe to be appropriate. The UCITS Directive does go further than the AIFMD by restricting the amount of leverage a UCITS can obtain. It is however unfortunate, that margin is not tackled head on.

Chapter 8 directly answers the central research question by providing an answer to how margin should operate in the EU shadow banking sector. Based on the discussion of the last seven chapters, it is submitted that margin needs to be regulated, coupled with regulatory compliant master agreements. Leverage has been at the heart of numerous financial crises, and margin has the ability to limit leverage. The author therefore proposes four complementary measures that would ultimately result in a harmonised legal and regulatory supra-national margin framework in the EU shadow banking sector. Recommendation 1 argues for mandatory CCP clearing for all collateral transactions. The benefit of CCP clearing is that the infrastructure is already tried and tested; it *de facto* implements mandatory margin requirements, as well as providing a default structure and the ability to mutualise losses through multilateral netting. However, within the CCP structure, margin is still left to the discretion of the contracting parties.

Recommendations 2, 3 and 4 should therefore be implanted into the CCP structure to tame the negative consequences of margin levels being set too low. Recommendation 2 imposes an *ex-ante* minimum margin floor. A minimum margin floor is primarily designed to limit leverage by implementing a higher level of margin at the point of trade. Yet a minimum margin floor alone may not fully internalise the costs associated with a shock. In such a situation, and in order to avoid the negative effects of procyclical margin requirements, market participants should have the ability to recalibrate the transaction via repricing, adjustment or acceleration.

Additionally, recommendation 3 proposes a countercyclical margin add-on to tackle the upswing of the financial cycle and to monitor tracking the value of the financial collateral. If the value of the financial collateral increases, then the idea is to call for margin in order to build-up a sufficient financial buffer in expectation of a potential downturn. Recommendation 4 imposes a margin ceiling, which would ultimately place an upper limit on the amount of margin that can be called. This recommendation should be considered as a discretion-

ary measure only, to be applied in exceptional circumstances to maintain financial stability, with the possibility of a central bank backstop to ultimately prevent runs. Finally, this thesis argues that the implementation and oversight of these recommendations would be governed by the ECB and/or ESRB.

It has been argued that introducing stringent margin measures may tame financial uncertainty by limiting leverage and dampening procyclicality. However, it should also be observed that imposing stringent margin measures does not come without risk. For example, there is considerable cost associated with imposing higher margins. Because margin is funded by the market participant's own equity, any increase in margin is likely to affect market liquidity and funding liquidity, which would ultimately be impaired given that less funding and assets are circulating the financial system. Additionally, regulatory arbitrage could also be a cause for concern. If a market participant's activity becomes unprofitable as a result of increased margin rules, then by default, the shadow banking sector will likely circumvent those rules and find alternative sources of funding outside the regulatory perimeter. Margin calibration is therefore key, providing a situation where risks are minimised and benefits maximised. Failure to do so would, it is submitted, lead the financial system back into the shadows.

