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Collateral transactions and shadow banking

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Citation

Spence, R. (2021, October 13). *Collateral transactions and shadow banking*. Meijers-reeks.
Retrieved from <https://hdl.handle.net/1887/3217145>

Version: Publisher's Version

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Note: To cite this publication please use the final published version (if applicable).

8 | How should margin operate in the EU shadow banking sector?

1 INTRODUCTION

The good times of low margins and high leverage will, inevitably, turn bad. Financial collateral valuations will therefore drop, resulting in *ex-post* controls that force market participants to call for additional margin and subsequently either decide not to 'roll-over' the contract or enter into a new contract and raise margin levels in response. As a consequence, as margin calls generally result in a need for market participants to deleverage, there is a high risk of leveraged market participants losing net wealth. In sum, changing margins can have a procyclical impact with the potential to substantially exacerbate financial volatility.¹ Consequently, market participants could find themselves scrambling for liquidity precisely at a time when market volatility is high and such liquidity is hard to come by. Ultimately, the situation of low margins and high leverage would result in rapid deleveraging which would trigger procyclical price corrections and systemic liquidity and leverage spirals, generating contagion and reinforcing stress in the financial system. The aforementioned market volatility and the subsequent downward spirals would be more pronounced in a highly leveraged environment compared with a financial system with less leverage.²

Significantly, the reoccurring theme of highly leveraged financial institutions being forced to deleverage has been "at the heart of recurrent episodes of financial instability since the late 19th century".³ Importantly, events of the 21st century illustrate that the same problem keeps reappearing. It has indeed been observed during the 2007/2008 Global Financial Crisis that:

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- 1 J Brumm, M Grill, F Kubler and K Schmedders, "Margin Regulation and Volatility" (2015) 75 *Journal of Monetary Economics* 54 at 55.
 - 2 D K Tarullo, "Shadow Banking and Systemic Risk Regulation" (22 November, 2013) *Speech at the Americans for Financial Reform and Economic Policy Institute Conference, Washington D.C.*, available at: <https://www.federalreserve.gov/newsevents/speech/tarullo20131122a.htm>.
 - 3 V Constancio, "Margins and haircuts as a macroprudential tool" (6 June, 2016) speech at the ESRB international conference on the macroprudential use of margins and haircuts, Frankfurt am Main. See also, 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.

*“The build-up of excessive leverage and subsequent deleveraging in the banking sector and within financial markets more generally, is widely viewed as one of the main causes of the global financial crisis. Notably... leverage and liquidity were closely interlinked and reinforced stress in the financial system”.*⁴

A not dissimilar reoccurring problem of leveraged market participants being forced to deleverage as a result of margin calls has also been observed in relation to the 2020 Covid-19 pandemic, where it has been stated that:

*“The Covid-19 pandemic has caused some of the largest – and fastest – market dislocations in modern history. Contemporaneous with the significant fall in market values is the evaporation of market liquidity... The withdrawal of global liquidity suppliers is correlated with the increase of over 400% in margin requirements, driving a procyclical downwards liquidity and leverage spiral”.*⁵

Financial instability, such as the episodes outlined above, can have major economic and societal implications. The negative externalities can be, and often are, catastrophic. It is therefore not entirely evident why regulators are not learning lessons from the past. The same recurring problems continue to reappear at different moments in time and it is truly unfortunate that EU regulators are not tackling this problem head on.

In light of these observations, it is natural to explore a regulatory setting aimed at taming financial uncertainty, mitigating excessive leverage and dampening procyclicality. A regulatory framework of mandatory margin requirements is one such setting. Because there is no comprehensive EU wide regulatory framework for the application of margin in the shadow banking sector, potential tools subjecting all collateral transactions to a regulatory framework of mandatory margin requirements should be considered paramount.⁶

A potential future macroprudential regulatory margin toolkit would be beneficial and could conceptually take several forms and consist of a range of different elements. While the general mechanisms by which excessive leverage and procyclicality in collateral transactions can induce systemic risk

4 Constanancio (n 3).

5 S Foley, A Kwan, R Phillip and B A Odegaard, “Contagious Margin Calls: How Covid-19 threatened global market stock liquidity” (August, 2020) UiS Working Papers in Economics and Finance. See also, European Systemic Risk Board, “Liquidity risks arising from margin calls” (June, 2020) 1 at 2-4, available at: https://www.esrb.europa.eu/pub/pdf/reports/esrb.report200608_on_Liquidity_risks_arising_from_margin_calls_3~08542993cf.en.pdf; Bank for International Settlements, “Containment Measures: Policy Interventions” (June, 2020) *Annual Economic Report* 1 at 44, available at: <https://www.bis.org/publ/arpdf/ar2020e.pdf>.

6 European Systemic Risk Board, “The macroprudential use of margins and haircuts” (2017) 1 at 67-68, available at: https://www.esrb.europa.eu/pub/pdf/reports/170216_macroprudential_use_of_margins_and_haircuts.en.pdf.

are well understood, several options are available to address risk.⁷ For example, some macroprudential tools seem to be better suited to containing the build-up of leverage during the upswing phase of the financial cycle, whereas other tools would be more focused on dampening the excess deleveraging in the downswing phase of the financial cycle.⁸ This chapter will therefore analyse each proposed tool and will proceed as follows.

Section 2 recommends the introduction of mandatory CCP clearing for all collateral transactions. Despite the transfer and centralisation of risk being key concerns, the benefit of introducing the CCP infrastructure to the EU shadow banking sector is the *de facto* implementation of mandatory margin requirements, as well as the default waterfall structure and multilateral netting. Such mechanisms arguably contribute to financial stability. However, it should be noted that while the *de facto* implementation of mandatory margin requirements is a key feature of the CCP infrastructure, the setting of margin levels is currently discretionary. Section 3 will recommend the introduction of minimum margin floors. Because leverage has been at the heart of many past financial crises, minimum margin floors can prevent leverage building-up. The idea is that the higher the margin level imposed *ex-ante*, the lower amount of leverage a financial institution can obtain. A minimum margin floor framework would therefore introduce an *ex-ante* cap on the minimum acceptable margin level. Section 4 recommends the introduction of a countercyclical margin add-on. Because procyclicality is a driver of financial instability, taming uncertainty is key. The countercyclical margin add-on is primarily designed to build-up margin in the upswing, when financial collateral prices increase. The idea is that the additional margin that has been built-up in the upswing can relieve financial pressure in the downswing when margin calls materialise. Section 5 recommends the introduction of a discretionary margin ceiling. Margin calls in the downswing exacerbate procyclicality. A discretionary margin ceiling aims to provide an *ex-ante* cap by limiting the amount of margin that can be called. These recommendations could either be standalone measures or complementary. A complementary approach would ensure that recommendations 2, 3 and 4 be transposed into the CCP framework requiring market participants to operate within clear and definitive margin boundaries in the hope of taming financial uncertainty. However, these measures do not come without risk. Section 6 concludes.

2 RECOMMENDATION 1: MANDATORY CENTRAL COUNTERPARTY CLEARING

“Unlike... the shadow banking system, CCPs played a key role in the global financial crisis (GFC) in containing the propagation of risks and contagion of financial shocks, which

⁷ *Ibid* at 59.

⁸ *Ibid*.

otherwise could have led to a far deeper disruption during the crisis. This made CCPs the unlikely heroes of the GFC”.⁹

As noted in Chapter 7, mandatory CCP clearing in the EU only applies to certain standardised derivatives transactions. Yet because the procyclical effects of margin are a common trait in all collateral transactions, one has to wonder why mandatory CCP clearing does not apply to all collateral transactions?¹⁰ While it is true that not all derivatives are collateralised, and not all collateral transactions are standardised, unsurprisingly, there have been numerous calls for uncleared collateral transactions to be mandatorily cleared and settled through a CCP.¹¹ According to Alexandra Balmer, the “CCP structure... was put to the test during the 2008 financial crisis when Lehman Brothers collapsed – and it succeeded perfectly”.¹² This view was echoed by the Bank for International Settlements, stating that “the CCP-cleared euro repo market proved remarkably resilient during the financial crisis, and that, when backed by high-quality collateral, it also acted as a shock absorber” in times of stress.¹³ The Financial Stability Board therefore recommended that:

“Authorities should evaluate, with a view to mitigating systemic risks, the costs and benefits of proposals to introduce [mandatory] CCPs in their... [collateral transaction] markets”.¹⁴

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- 9 H Nabilou and I G Asimakopoulos, “In CCP we trust... or do we? Assessing the regulation of central clearing counterparties in Europe” (2020) 15 (1) *Capital Markets Law Journal* 70 at 79.
 - 10 According to the International Capital Markets Association, about 70% of the EU repo market consists of centrally cleared transactions. This does not mean that parties to a repo or securities lending transaction have to use CCPs, even though parties often do, there is no explicit mandate requiring parties to do so. On this see, the International Capital Markets Association, “frequently Asked Questions on Repo” (2015) 1 at 25. See also, P Norman, *The Risk Controllers: Central Counterparty in Globalised Financial Markets* (2011) 12.
 - 11 P Saguato, “The Liquidity Dilemma and the Repo Market: A Two-Step Policy Option to Address the Regulatory Void” (2017) 22 *Stanford Journal of Law, Business & Finance* 126 at 130-138. See also, S L Schwarcz, “Central Clearing of Financial Contracts: Theory and Regulatory Implications” (2019) 167 (6) *University of Pennsylvania Law Review* 1327 at 1341; A Miglietta, C Picillo and M Pietrunti, “The impact of CCPs’ margin policies on repo markets” (2015) 515 *BIS Working Papers* 1 at 6-8, available at: <https://www.bis.org/publ/work515.pdf>; J Gregory, *Counterparty Credit Risk: The new challenge for global financial markets* (2010) 369.
 - 12 A G Balmer, *Regulating Financial Derivative: Clearing and Central Counterparties* (2018) 53-54.
 - 13 Miglietta *et al* (n 11) 1 at 5.
 - 14 Financial Stability Board, “Strengthening Oversight and Regulation of Shadow Banking: Policy Framework for Addressing Shadow Banking Risks in Securities Lending and Repos” (29 August, 2013) 1 at 18, available at: https://www.fsb.org/wp-content/uploads/r_130829b.pdf?page_moved=1.

2.1 Regulatory Shortcomings

The CCP infrastructure, while subject to ‘prudential requirements’ and various risk mitigation mechanisms, still has several regulatory shortcomings that are directly correlated to margin. For example, under EMIR margin requirements are mandatory for centrally cleared derivatives transactions.¹⁵ However, similar to uncleared bilateral transactions,¹⁶ EMIR does not require setting margins at any specific level, leaving it to the discretion of the CCP.¹⁷ Given the CCP is subject to prudential requirements, EMIR expects that the CCP will set the margins at an optimal level. Yet what exactly does ‘optimal’ mean? While the advantages of mandating robust margin requirements are clear, there are equally consequences associated with an excessively high margin framework. CCPs indeed have a strong incentive to set margin at a level that avoids a possible reduction in market and funding liquidity that could occur should margin levels be excessive. A potential solution could be to implement a margin framework consisting of a minimum margin floor, countercyclical margin add-ons and a margin ceiling as illustrated in recommendations 2, 3 and 4 below into the CCP structure. Alternatively, another approach may be to set margin levels above what is needed to cover any perceived risk as measured by the CCP. The optimal margin level could therefore be defined as a balance between too much and too little margin.¹⁸

Another potential shortcoming worth noting is that some CCPs are private “for-profit” financial institutions; their primary objective being profit maximisation.¹⁹ This would imply that these CCPs may adopt a lax approach to collateral and margin requirements,²⁰ potentially leaving them heavily undercapitalised. Therefore, the CCP may not internalise the systemic risks of its operation, arguably leaving it to third parties to deal with the problem if (and when) the problem occurs.²¹ This would undoubtedly lead to unwanted negative externalities. A related problem is the fact that CCPs are now considered “too-big-to-fail” financial institutions, which leads to a moral hazard problem. Moral hazard occurs when an entity has an incentive to increase its risk exposure knowing it will not bear the full cost of the risk should something go wrong. To mitigate the moral hazard problem, robust and harmonised

15 Article 41 of Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July on OTC derivatives, central counterparties and trade repositories (“EMIR”).

16 See previous Chapter 7, section 4.1.

17 Article 41 EMIR.

18 R Heckinger, R T Cox and D Marshall, “Cleared margin setting at selected CCPs” (2016) 4 *Economic Perspectives* 1 at 2.

19 Nabilou and Asimakopoulou (n 9) 70 at 88.

20 As noted above, this is because it is up to the CCP to decide what to accept and what not to accept as collateral and margin.

21 Nabilou and Asimakopoulou (n 9) 70 at 88.

mandatory margin levels have been proposed.²² Yet it should be noted that while imposing more stringent margin requirements is laudable, there is an implied opinion that should a CCP run into difficulty, the central bank will access its liquidity facility and essentially bail-out the CCP thus leading back to the initial moral hazard problem.²³ However, because most risk is centralised in the CCP, leading to CCPs themselves becoming the main hub for risk, should failure occur, the consequences could be unthinkable.²⁴

2.2 The Way Forward

Despite these shortcomings, the CCP infrastructure is in place precisely to promote financial stability and mitigate systemic risk.²⁵ Various risk mitigation mechanisms, including mandatory margin requirements, the so-called ‘default waterfall’, as well as CCPs’ ability to mutualise risk (through multilateral netting) among all counterparties, would contribute substantially to making the EU shadow banking sector a safer place.²⁶ Crucially, an important consequence of imposing mandatory CCP clearing to all collateral transactions is the *de facto* implementation of mandatory margin requirements. CCPs indeed require all counterparties to post initial margin at the point of trade, as well as cover any margin calls via variation margin throughout the lifecycle of the transaction. One may therefore conclude that, recommending the implementation of mandatory CCP clearing to all collateral transactions in the EU shadow banking sector, *de facto* implementing mandatory margin requirements, is necessary in the quest to reduce systemic risk.

22 D Duffie, “Replumbing our Financial System: Uneven Progress” (2013) 9 *International Journal of Central Banking* 251 at 267-269. See also, Nabilou and Asimakopoulos (n 9) 70 at 88.

23 Article 85 (1) (a) EMIR. See also, Nabilou and Asimakopoulos (n 9) 70 at 88; R Foroohar, “How the virus became a credit run” (16 March, 2020) *Financial Times* 1 at 17.

24 These risks will be discussed in greater detail below. See also, Nabilou and Asimakopoulos (n 9) 70 at 77.

25 Recital 19 EMIR.

26 The ‘default waterfall’ and the CCPs ability to mutualise risk among counterparties was discussed in greater detail in Chapter 7, section 4.1.

3 RECOMMENDATION 2: MINIMUM MARGIN FLOORS

3.1 Introduction

“From a macroprudential perspective, there may be a need for measures that prevent initial margins from falling to excessively low levels”.²⁷

Initial margin and haircut levels are *ex-ante* decided at the point of trade, are at the discretion of the contracting parties and in practice, are often “set to the lowest possible level”.²⁸ The problem with allowing contracting parties to determine the appropriate level of margin is that their singular objective of profit maximisation, which often results in minimum margin and maximum leverage, is systemically risky.²⁹ While leverage is a multiplier of gains, it is also a multiplier of losses and significantly, profit maximising parties rarely take into account the effects of the expansionary and contractionary impact of the financial cycle on the broader economy when setting margin levels.³⁰

In good times, *ex-ante* margin requirements tend to fall to extremely low levels because market participants perceive there to be little risk. However, as noted in Chapter 6, good times are coupled with instability and the difficulty lies in identifying for how long such a period should be allowed to continue or whether the speculative bubble of instability should be reined in.³¹ There is indeed considerable risk that margin requirements might become too low, resulting in overly leveraged market participants coming under pressure from *ex-post* margin controls during stressed market conditions.³² To mitigate these risks, a system of minimum margin floors is one potential way to ensure financial stability and will be discussed as follows.

3.2 Rationale for Minimum Margin Floors

The rationale behind proposing minimum margin floors is “to limit the build-up of leverage in a benign market environment and reduce the size of any [potential] ‘shock effect’ ... [due to] a sudden increase in margins and haircuts” as the cycle turns.³³ Minimum margin floors would introduce a loss absorption mechanism by implementing an *ex-ante* cap on the maximum accept-

²⁷ European Systemic Risk Board (n 5) 1 at 53-54.

²⁸ Brumm *et al* (n 1) 54 at 55.

²⁹ A Damodaran, *Applied Corporate Finance* (2015) 1-3.

³⁰ See Chapter 6 generally for an explanation of the expansionary and contractionary impact of the financial cycle on the broader economy.

³¹ P Mehrling, *The New Lombard Street: How the Fed Became the Dealer of Last Resort* (2011) 12-13 and 15.

³² European Systemic Risk Board (n 5) 1 at 54.

³³ Constancio (n 3).

able leverage level.³⁴ To the extent that minimum margin floors introduce a higher financial buffer at the point of trade, thus limiting the build-up of leverage in good times, significantly, with less liquidity pressure on market participants, the need to de-leverage may be less pronounced when good times turn bad and volatility increases.

In certain situations, and to avoid administrative costs and burdens, the fluctuation in the value of the financial collateral may result in only minor price changes. In such a case, the pre-set and conservative “Minimum Transfer Amount” (as discussed in previous Chapter 5, section 5.3.2.5) would absorb these price changes.³⁵ In a situation where the value of the financial collateral exceeds the pre-set Minimum Transfer Amount and to avoid exacerbating procyclical margin calls, the affected counterparty could be entitled to apply one of two options to the transaction.

1. Should the value of the financial collateral exceed the Minimum Transfer Amount, this option would entitle the affected counterparty to recalibrate the transaction via repricing or adjustment to reflect actual developments in market volatility – namely, introducing a higher margin requirement to account for that market risk.
2. Provided the value of the financial collateral exceeds the Minimum Transfer Amount, another option would entitle overly cautious market participants, who foresee future market risk, to accelerate the transaction and either roll-over the contract with new and updated terms or bring the transaction to a close. The idea behind options one and two is to ensure that the collateral taker is never undercollateralised.

A key externality that market participants often fail to internalise is that if leverage were *ex-ante* curtailed, losses would be much less when the cycle turns because the economy would be less indebted.³⁶ This view is corroborated by John Geanakoplos, who argues that “the best way to stop a crash is to act long before it occurs, by restricting leverage in ebullient times”.³⁷ Importantly, introducing minimum margin floors with a conservative pre-set Minimum Transfer Amount can not only limit leverage but also limit the need for market

34 Financial Stability Board, “Transforming Shadow Banking into Resilient Market-based Finance: Regulatory framework for haircuts on non-centrally cleared securities financing transactions” (12 November, 2015) 1 at 7, available at: <https://www.fsb.org/wp-content/uploads/P190719-1.pdf>.

35 The Minimum Transfer Amount was discussed in greater detail in Chapter 5, section 5.3.2.5. 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.

36 This will be explained in greater detail below. See also, J Geanakoplos, “Leverage, Default, and Forgiveness: Lessons from the American and European Crises” (2014) 39 *Journal of Macroeconomics* 313 at 320.

37 J Geanakoplos, “The Leverage Cycle” (2009) 1715R *Cowles Discussion Paper* 1 at 4.

participants to abruptly raise initial margins/haircuts in a downturn, since the margin level would already be higher as the cycle turns.³⁸ Consequently, there would initially be more overcollateralisation than the market would demand resulting in the financial system being arguably more resilient to future stress during bad times.

Certainly, such an adjustment would require a higher level of margin initially but being primarily targeted to reduce the build-up of leverage in the upswing, minimum margin floors may also indirectly dampen the procyclical effects of margin calls in the downswing. Because minimum margin floors result in higher haircuts/initial margins in good times, liquidity and deleveraging pressure may be less severe compared to a situation in which haircuts and initial margins increase from excessively low levels. For instance, the flipside of higher margins is that spikes in financial collateral price volatility and risk aversion may lead to less pronounced procyclical increases in margin throughout the lifecycle of the transaction. Hence, A system of minimum margin floors would arguably contribute to financial stability, which in turn would reduce the overall procyclicality of the financial system thereby minimising parties' incentive to 'run'.³⁹

3.3 Experience from the USA: Regulation T

In the USA, 'Regulation T' is a tangible illustration of legislation implementing a minimum margin floor. However, at the outset it is important to note that Regulation T is limited in scope and only applies to certain securities dealers and brokers dealing in certain 'margin' accounts. While this thesis argues that the macroprudential regulatory toolkit should be extended to include a system of minimum margin floors, Regulation T does not provide an overarching margin framework for collateral transactions in the (USA) financial sector, although it is often argued it should.⁴⁰

Regulation T was motivated by the 'boom' period of the Stock Market Bubble of 1927-1929 and the subsequent 'bust' period of the Great Depression of 1929. These events led US Congress to pass the 1934 Securities Exchange Act, which granted the Federal Reserve Board the power, under Regulation T, to set initial margin requirements for partially loan-financed stocks on national

38 Constancio (n 3).

39 Federal Reserve's Second Monetary Policy Report for 2014, Hearing before the Committee on Banking, Housing, and Urban Affairs, United States Senate (15 July, 2014) 1 at 39-40. See also, European Systemic Risk Board (n 6) 1 at 61.

40 See generally, W G West, "Recent Ruling: Securities Regulation – Margin Requirements – Installment Purchase of Tax-Sheletered Programs" (1973) 24 *Case Western Reserve University Law Review* 391. See also generally, B Berman, L S Harmetz, C M Horn and A T Pinedo, "Extended Settlements and Regulation T" (2013) *Lexology*.

exchanges.⁴¹ The current wording of Regulation T sets an initial margin floor at 50%, which means that an investor who wishes to purchase USD \$1000 worth of equity, can borrow no more than USD \$500 to do so.⁴²

The rationale for the introduction of Regulation T is ultimately to mitigate systemic risk by preventing the build-up of excessive leverage. By setting the initial margin floor at 50%, Regulation T effectively limits the amount of leverage an investor can obtain. The Federal Reserve has therefore attempted to tame uncertainty by minimising the amount of trouble investors can get into if there is a margin call. Gikas Hardouvelis has commented that the “Fed typically attributes its decision to increase margin requirements to a rapid increase in stock prices... and to a rapid expansion in stock market volatility. Sometimes high trading volumes, inflationary pressure, and an expanding economy were also given as reasons” to set initial margin floors at 50%.⁴³ However, evidence on the success of Regulation T is, at best, ‘mixed’.⁴⁴ For example, whilst some empirical analyses support the view that higher margin levels at the point of trade significantly lowers volatility in a downturn because leverage is limited,⁴⁵ other analyses support the view that Regulation T impedes liquid and efficient markets because it ultimately restricts the amount of liquidity circulating the financial system.⁴⁶

3.4 Some Concerns

While higher margins may tame uncertainty by limiting leverage, an initial margin floor of 50% does, in the author’s view, seem excessively high. Rather than maximising benefit while minimising risk, the 50% initial margin floor outlined in Regulation T appears to minimise benefit whilst minimising risk. Such a provision undoubtedly impairs market and funding liquidity and significantly, due to the extra associated cost borne by market participants, may facilitate regulatory arbitrage, triggering market participants to seek to find an alternative and more profitable solution outwith the regulatory perimeter.

41 Brumm *et al* (n 1) 54 at 56-57.

42 12 C.F.R. § 220.12 (a).

43 G Hardouvelis, “Margin requirements, volatility, and the transitory component of stock prices” (1990) 80 (4) *American Economic Review* 736 at 740-741.

44 Constancio (n 3).

45 O Rytchkov, “Asset pricing with dynamic margin constraints” (2014) 69 *The Journal of Finance* 405. See also, G Hardouvelis and P Theodossiou, “The asymmetric relation between initial margin requirements and stock market volatility across bull and bear markets” (2002) 15 (5) *Market Review of Financial Studies* 1525; Brumm *et al* (n 1) 54 at 54; Hardouvelis (n 43) 736 at 740-741.

46 P Fortune, “Margin Lending and Stock Market Volatility” (2001) 4 *New England Economic Review* 3-26. See also, T Moore, “Stock Market Margin Requirements” (1966) 74 *Journal of Political Economy* 158-167.

A number of policy proposals have already been developed recommending the setting, calibration and implementation of a minimum margin framework in the EU shadow banking sector.⁴⁷ However, it is unfortunate that these proposals continue to remain ‘non-binding’ – the market preferring to leave it to the contracting parties to decide.⁴⁸ Empirical evidence suggests that key reasons as to why these margin proposals remain ‘non-binding’ is due to a “lack of knowledge on the side of the regulators [who feel]... uneasy about imposing measures based on their limited knowledge [due to the difficulty in assessing]... what the side effects are because of the bad data”.⁴⁹ Significantly, “regulators doubt whether they could identify the right haircuts better than market agents” could.⁵⁰ While the lack of conviction on the side of the regulator is worrying, allowing market participants to set the appropriate margin level is equally worrisome, and often a source of systemic risk. Market participants do indeed fail to take into account the negative externalities that arise from setting the margin level too low. As a result, when good times turn bad, there can be a sharp contraction in the supply of secured financing when assessments about the quality of the pledged financial collateral change abruptly. Such a miscalculation increases the probability of a cumulative downward systemic spiral and reinforces stress in the financial system.

3.5 The Way Forward

A better approach may be to implement a framework for minimum margin floors that is far more comprehensive than that proposed by the Financial Stability Board in *Table 7* above.⁵¹ One solution may be to adopt the haircut schedule proposed by the BCBS depicted in *Table 4* above.⁵² However, one must remain wary about adopting any new schedule given that issues in relation to imposing and calibrating meaningful margin levels due to poor

47 See for example above *Table 6* published by the BCBS and IOSCO in Chapter 7, section 4.2.7 and/or *Table 7* published by the FSB in Chapter 7, section 4.3.

48 These proposals include: Financial Stability Board, “Regulatory Framework for haircuts on non-centrally cleared securities financing transactions” (2015), available at: <https://www.fsb.org/wp-content/uploads/P190719-1.pdf>. See also, Basel Committee on Banking Supervision and the International Organization for Securities Commissions, “Margin requirements for non-centrally cleared derivatives” (2015 – revised in April, 2020), available at: <https://www.bis.org/bcbs/publ/d499.pdf>; European Systemic Risk Board, “ESRB opinion to ESMA on securities financing transactions and leverage under Article 29 of the SFTR” (2016), available at: https://www.esrb.europa.eu/pub/pdf/other/20161004_esrbopinion.en.pdf.

49 M Thiemann, M Birk and J Friedrich, “Much Ado About Nothing? Macro-Prudential Ideas and the Post-Crisis Regulation of Shadow Banking” (2018) *Kolner Zeitschrift für Sozialpsychologie* 259 at 270.

50 *Ibid.*

51 See Chapter 7, section 4.3 “SFTR: Repurchase Agreements and Securities Lending”.

52 See Chapter 4, section 3.3 “Determining Margin at the Point of Trade”.

data remain. It is clear that bad data does impede any margin reform especially in light of the fact that numerical haircuts (such as those imposed by the Financial Stability Board) are often “much below average haircuts and... thus not constraining for market actors... for fear of unintentionally causing market disruptions”.⁵³

How then to move forward? On a more positive note, given the introduction of the SFTR,⁵⁴ important data is already starting to be collected as of 2018. While the exact outcome of this data analysis is yet to be discerned, it is hoped that the aggregation of data will provide meaningful results, particularly in relation to mandatory minimum margin requirements. Once this data is available, this thesis argues that the framework proposed by either the Financial Stability Board or the BCBS should be recalibrated, thus providing appropriate margin levels encompassing all types of asset class as well as covering all collateral transactions, whether cleared or uncleared in the EU shadow banking sector.

In addition, minimum margin floors that are set through the cycle should be conservative enough so that the margin level acts as a disincentive to secured lending at low margins in good times. Once the appropriate data is collected, the stable component of mandatory minimum margin floors could in turn be based and calibrated on a market volatility element. This element would introduce a margin level that would vary depending on the quality of the financial collateral in question. In other words, there is not a ‘one size fits all’ solution. For example, minimum margin floors applied to collateral transactions would require a market participant that wants to borrow any security to post a minimum amount of excess margin dependent upon the quality of the financial collateral used to secure the transaction.⁵⁵ This would be reflected in the appropriate minimum margin floor schedule, which in turn would reflect market conditions. The idea is that the higher the quality of the financial collateral, namely government debt, the lower the margin and the lower the quality of the financial collateral, namely equities, the higher the margin. Additionally, in a situation where the market does become stressed, and the pre-set Minimum Transfer Amount is breached, it is possible for the affected counterparty to recalibrate the transaction via repricing, adjustment or acceleration. By creating a binding and harmonised EU-wide supra-national regulatory tool for mandatory margin requirements, it is hoped that financial uncertainty will be tamed, leverage limited and procyclicality reduced.⁵⁶

⁵³ Thiemann *et al* (n 49) 259 at 271-272.

⁵⁴ And also, the reporting obligation under Article 9 EMIR.

⁵⁵ Tarullo (n 2).

⁵⁶ Other similar examples of a minimum margin floor framework include that developed by the Basel Committee on Banking Supervision and the International Organization for Securities Commissions, “Margin requirements for non-centrally cleared derivatives” (2015 – revised in April, 2020) 1 at 26-27, available at: <https://www.bis.org/bcbs/publ/d499.pdf>.

4 RECOMMENDATION 3: COUNTERCYCLICAL MARGIN ADD-ONS

4.1 Introduction

While minimum margin floors prevent the build-up of leverage and may help dampen procyclicality, other complementary margin options are available to mitigate systemic risk in the EU shadow banking sector.⁵⁷ Countercyclical margin add-ons are one such option and while Basel III already imposes a similar countercyclical capital buffer on prudentially regulated banks, there remains no equivalent provision for the EU shadow banking sector. Countercyclical margin add-ons could therefore be viewed as a novel introduction. However, before discussing the potential *modus operandi* of countercyclical margin add-ons in the EU shadow banking sector, it is first important to provide a brief overview of countercyclical capital buffers as prescribed under Basel III.⁵⁸

4.2 Basel III: Countercyclical Capital Buffer

*“Countercyclical regulation that imposes sufficiently large macroprudential add-ons... can lead to significant reductions in... volatility”.*⁵⁹

As noted in Chapter 2, credit institutions operating in the EU are required to maintain a set minimum capital level of 8%.⁶⁰ Complementary to the 8% capital requirement, the countercyclical capital buffer as regulated under the Capital Requirements Directive,⁶¹ is a macroprudential supervisory tool designed to help counter procyclicality in the traditional banking sector. It is intended to increase the resilience of prudentially regulated banks by building up a capital buffer (between 0% – 2.5% of risk weighted assets) in the upswing so that when losses materialise during periods of stress, market

57 A further option will be outlined in Recommendation 4 below, which will argue for a margin ceiling to be introduced to the margin framework.

58 Basel Committee on Banking Supervision, “Basel III: A global regulatory framework for more resilient banks and banking systems” (December, 2010) *Bank for International Settlements* 1 at 5-7, available at: https://www.bis.org/publ/bcbs189_dec2010.pdf.

59 Brumm et al (n 1) 54 at 67.

60 For a more detailed explanation, see Chapter 2, section 3.2.1.1. See also, Article 92 (1) (c) of Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending regulation (EU) No 648/2012 (OJ L 176) (“CRR”).

61 Articles 130 and 135-140 of Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC.

participants can rely on the buffer as a financial backstop during a downswing.⁶² By forcing credit institutions to hold more capital when their assets grow (i.e. when they make many loans), regulators can ensure that a larger buffer protects bank solvency should the value of those assets decrease. The countercyclical capital buffer is principally in place to increase the loss-absorbing capacity of banks, although it would also help dampen the downswing of the financial cycle by maintaining a supply of credit to the economy should the buffer need to be released.⁶³ Significantly, an empirical study by Miguel Faria e Castro demonstrates that an additional financial backstop in the form of a countercyclical capital buffer during the Global Financial Crisis could have helped prevent the crisis by creating a “soft landing” for affected economies in financial distress.⁶⁴

4.3 Shadow Banking: *Modus Operandi* of Countercyclical Margin Add-Ons

The EU shadow banking sector is not subject to prudential regulation. However, minimum margin in the shadow banking sector does act as the functional equivalent to capital adequacy rules found under Basel III in the prudentially regulated banking sector. Both margin and capital require the respective (shadow banking and traditional banking) institutions to hold a specific level of capital against assets. By requiring market participants to hold a higher level of capital (either margin in the shadow banking sector or capital in the traditional banking sector), it is thought that financial institutions may be “less susceptible to runs and, thus, to the need for engaging in fire sales that can depress capital levels” further.⁶⁵ Yet given the tendency of financial market participants to collectively under price risk in good times, stable and through the cycle minimum margin floors may not fully internalise the systemic costs associated with a downturn. To mitigate this risk, a countercyclical margin add-on could be used in the EU shadow banking sector as a macroprudential tool to increase capital levels when “authorities (such as the ECB and/or ESRB) judge that markets are under-pricing collateral risks” and/or in periods of

62 Articles 130, 136 (4) and 135-140 of Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC.

63 Basel Committee on Banking Supervision, “Frequently Asked Questions on the Basel III Countercyclical Capital Buffer” (2015) *Bank of International Settlements* 1 at 1, available at: <https://www.bis.org/bcbs/publ/d339.pdf>.

64 M Faria e Castro, “Can Countercyclical Capital Buffers Help Prevent a Financial Crisis” (2019) 15 *Economic Synopses Federal Reserve Bank of St Louis*, available at: <https://research.stlouisfed.org/publications/economic-synopses/2019/06/21/can-countercyclical-capital-buffers-help-prevent-a-financial-crisis>.

65 Tarullo (n 2) also, E Perotti, “The roots of shadow banking” (2013) 69 *Policy Insight - Centre for Economic Policy Research* 1 at 5.

“excess aggregate credit growth” that can ultimately be drawn upon during periods of financial uncertainty.⁶⁶

Similar to the countercyclical capital buffer under Basel III described above, countercyclical margin add-ons could be a complementary mechanism to minimum margin floors requiring institutions operating in the EU shadow banking sector to set aside a higher portion of their capital during good times when credit is expanding and leverage is high. The idea is that while the minimum margin floor is stable, countercyclical margin add-ons are dynamic and respond to economic conditions, so that when the value of assets used for financial collateral purposes increase (as opposed to decrease), margin will be called. Adrian and Shin argue that when the price of assets used for financial collateral purposes increase, the balance sheet of entities operating in the shadow banking sector generally becomes more sizeable, and as a result, their leverage level lowers.⁶⁷ Because leverage becomes lower as asset prices increase, the immediate result is that these entities hold ‘surplus capital’. Surplus capital equates to a larger balance sheet given that market participants understandably find ways in which to employ this capital to reach optimal yield. The consequence is that leverage levels are high during booms and low during busts.⁶⁸ In this sense, “leverage is procyclical... as a consequence of the active management of balance sheets by financial intermediaries who respond to changes” in asset prices.⁶⁹ The flipside is that, and as noted above, there are aggregate consequences (such as negative externalities) of such behaviour for the economy as whole that are (more often than not) not taken into consideration when market participants put their ‘surplus capital’ to ‘presumably’ better use.

However, a countercyclical margin add-on is a mechanism that can put such surplus capital to better use, mitigate the procyclicality of leverage and *de facto* tame financial uncertainty caused by an increasing balance sheet. For example, by forcing institutions operating in the EU shadow banking sector to hold and segregate proportionally more capital when asset values grow, regulators can ensure that a larger financial buffer can cover expected losses and protect the financial system from insolvency should the value of those assets drop and margin is called.⁷⁰

The intention of imposing countercyclical margin add-ons is to mitigate against any potential downturn. When good times turn bad, the additional margin that has been built-up as a financial backstop can be released back

66 Basel Committee on Banking Supervision (n 60) 1 at 1. See also, Committee on the Global Financial System, “The role of margin requirements and haircuts in procyclicality” (2010) 36 *CGFS Papers* 1 at 16-17, available at: <https://www.bis.org/publ/cgfs36.pdf>.

67 See generally, T Adrian and H Song Shin, “Liquidity and Leverage” (2010) 328 *Federal Reserve Bank of New York*.

68 *Ibid* 1 at 9 - 12.

69 *Ibid* 1 at 1.

70 Faria e Castro (n 64).

into the financial system to relieve distress in the economy when margin is called in a downturn. By applying countercyclical margin add-ons during the upswing of the financial cycle, market participants would be *de facto* prohibited from excessively building-up leverage and as a consequence, procyclicality would be reduced. Countercyclical margin add-ons would therefore be withdrawn in the downswing, the trigger point being falling asset prices, which in turn would decrease the deleveraging pressure because a substantial financial buffer would already have been built-up. Countercyclical margin add-ons could therefore enhance the resilience of the EU shadow banking sector and arguably prevent future financial crises.⁷¹

4.4 Some Concerns

While higher margin contributes to financial stability by limiting leverage, it should also be noted that higher margin may also increase risk. The cost associated with holding a higher level of margin is an example. Higher levels of margin can significantly raise the cost of funding putting additional pressure on the collateral giver as margin is financed by their own equity. The net worth of the collateral giver would therefore be severely eroded should they continually have to hold more capital in an upswing. Of course, the segregated capital in the form of margin that has been built-up in the upswing, may (or may not) be relied upon. In the event the built-up capital is utilised in a downswing, then financial stability is preserved. Yet built-up capital that is not utilised because no downswing has occurred, may prove too onerous for profit maximising market participants. Because profitability is a key concern for market participants, measures that are too costly and onerous may in fact facilitate regulatory arbitrage thereby encouraging market participants to find a cheaper alternative by, for example, restructuring financial transactions.

Another concomitant risk relates to market liquidity and funding liquidity. It has already been noted that one reason why regulators are uneasy about imposing stricter margin requirements is due to the impact these potential new measures will have on market and funding liquidity.⁷² Higher levels of margin would equate to less credit in the economy and as noted in Chapter 6, credit is required for investment, which in turn facilitates liquid and efficient markets.⁷³ If credit is tied-up because of higher margins, then it follows that funding and market liquidity may become impaired because market participants would find it particularly difficult to raise funds given the potentially

71 J Brumm, K Kubler, M Grill and K Schmedders, "Margin Regulation and Volatility" (July, 2014) 1698 *European Central Bank Working Paper Series* 1 at 3, available at: <https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1698.pdf>.

72 Thiemann *et al* (n 49) 259 at 270-275.

73 See Chapter 6, section 5.1 "The Two Faces of a Debt Contract".

limited marketplace activity. Any reform would therefore have to be weighed and calibrated against the potential risks.

Another concern is how to calibrate countercyclical margin add-ons. This is of course a very difficult task. Yet as argued above, countercyclical margin add-ons should be adjusted and calibrated according to the business/credit cycle. For example, when asset prices increase, margin is called and segregated so that should a downswing occur, the built-up financial buffer will be released. However, the practical challenges to achieve this level of calibration are difficult given that no indicators and triggers correlated to the business/credit cycle have been developed for the EU shadow banking sector as yet. It therefore goes without saying that indicators, triggers and precise calibration methods need to be substantially developed. The ECB and ESRB have been the most vocal of EU institutions in the area of countercyclical reform, recommending a broad and all-encompassing approach in relation to macroprudential margin and haircut setting practices for all collateral transactions.⁷⁴ Yet the sticking point remains: no countercyclical margin/haircut models or indicators have been developed in the EU shadow banking sector for the purpose of regulatory action.⁷⁵ While it goes beyond the scope of this thesis to provide precise calibration methods, currently, it has been observed that a key concern is that regulators “may encounter objective implementation difficulties due to a wide spectrum of financial instruments” that are utilised in collateral transactions.⁷⁶

It is not just triggers, indicators and calibration that are key concerns, however. There appears to be considerable division in opinions among international standard setters, EU legislative bodies and institutions, and in some cases, specific departments within an institution. Empirical evidence suggests that the ECB and ESRB are the main proponents of regulatory margin reform and as such, this thesis argues that these bodies should be primarily responsible for oversight and governance.⁷⁷ However, national central banks, ESMA as well as the market operations department of the ECB “represents strong veto players... against the implementation of countercyclical [margin] instruments”, fearing that market fragmentation will be a key concern in the EU thereby undermining liquid and efficient markets.⁷⁸ Svein Andresen, previous Secretary General of the Financial Stability Board has noted that the lack of inter-

74 European Systemic Risk Board (n 6) 1 at 61. See also generally ECB, “Financial Stability Review” (2016).

75 The closest the ECB has come to providing indicators and models for precise margin calibration is in relation to a theoretical leverage model. On this see generally ECB, “Financial Stability Review” (2016).

76 European Systemic Risk Board, “Report on the efficiency of margining requirements to limit pro-cyclicality and the need to define additional intervention capacity in this area” (2015) 1 at 23.

77 Thiemann *et al* (n 49) 259 at 275-276.

78 Thiemann *et al* (n 49) 259 at 276.

national convergence, multiple risk factors such as regulatory arbitrage and lack of data granularity are key impediments in moving forward.⁷⁹

Important legal and practical challenges do therefore remain. However, this thesis argues that the governance structure should be spearheaded by the ECB and/or ESRB and any new proposal should be based on the already operational countercyclical capital buffer found in the prudentially regulated banking sector.⁸⁰ It remains a puzzle why it is not possible for any new countercyclical margin add-on proposal to be based on, and functionally equivalent to, the already operational countercyclical capital buffer found in the prudentially regulated banking sector. This is especially so given that, and as noted above, minimum margin requirements are functionally equivalent to capital adequacy requirements found in the prudentially regulated banking sector.

5 RECOMMENDATION 4: MARGIN CEILINGS

5.1 Introduction

The upswing and downswing phases of the financial cycle are interconnected and hence considerably influence each other. If *ex-ante* initial margins/haircuts are set too low in good times and are followed by abrupt *ex-post* increases in margin in times of stress, this could trigger further price corrections and systemic liquidity and leverage spirals, generating contagion and reinforcing stress in the financial system. The aforementioned price corrections will be more pronounced in a highly leveraged environment compared to a financial system with less leverage. Margin calls can therefore substantially exacerbate procyclicality – the more margin calls there are, the more volatile the financial system becomes. For financial stability purposes, it may therefore be worthwhile to explore the need to limit the amount of margin that can be called. One potential way to do this is to implement a margin ceiling.

5.2 What is a Margin Ceiling?

A margin ceiling is a macroprudential tool designed to primarily target the downswing of the financial cycle. Such a ceiling would take the form of an *ex-ante* cap on the maximum acceptable level of margin that can be called,

79 Author's written notes from ESRB conference on the macroprudential use of margins and haircuts (6/6/2016).

80 For an overview of the currently operational countercyclical capital buffer - see above, section 4.2 "Basel III: Countercyclical Capital Buffer".

inclusive of any countercyclical margin add-ons.⁸¹ The aim would be to manage the procyclical effects in the downswing of the financial cycle by limiting the *ex-post* ability of counterparties to make large or indeed infinite margin adjustments in periods of market stress. Assuming that market participants have not anticipated any upcoming financial market stress, and in the absence of any macroprudential regulation, one could envisage a situation in which margin is rapidly called. Because margin calls exacerbate procyclicality, a margin ceiling may therefore contribute to financial stability by restricting the upper level of margin by placing a ceiling on the amount of margin that can be called. Consequently, margin ceilings could be an important recommendation with a view to placing a limit on the rise in margins for macroprudential considerations when the cycle turns. Introducing a margin ceiling mirroring the minimum margin floor may have strong positive effects on taming uncertainty through the reduction of procyclicality. As the minimum margin floor is set higher and the margin ceiling set lower, procyclicality and leverage can arguably be substantially reduced.⁸²

5.3 Some Concerns

From a theoretical perspective, margin ceilings could promote financial stability by restricting procyclicality. However, from a practical perspective, there are some concerns worth noting. Firstly, margin ceilings would be very difficult to implement. It has already been argued in sections 2 and 3 of this Chapter that there is still a severe lack of granular data in the EU shadow banking sector. As such, it would be very difficult to set, calibrate and regulate something that is not fully understood. Therefore, one major problem with implementing a margin ceiling is to try and calibrate the correct level and ensure that the regulator adheres to it in a crisis. Of course, because no one crisis is ever the same, the correct margin ceiling level would understandably be a guessing game. One solution could be that when the ceiling is reached, the National Central Bank of the applicable Member State must act as lender of last resort.⁸³ However, this could lead to a moral hazard problem where market participants will knowingly take on risk considering it will not bear the full cost of that risk should something go wrong.

Secondly, implementing a margin ceiling could facilitate runs. Imagine a situation where two parties have entered into a repo transaction and before maturity of that transaction, the market becomes stressed leading to numerous

81 As noted in previous section 4 “Recommendation 3: Countercyclical Margin Add-ons”, the countercyclical margin add-on would be lifted in a downturn, which would result in less margin-calls.

82 As to how the margin ceiling would operate, see below section 5.4 “The Way Forward”.

83 On this see below, section 5.4 “The Way Forward”.

margin calls. Given the amount of margin calls, a transaction with a margin ceiling would result in that margin ceiling being dangerously close to becoming breached – the more margin calls there, the closer the ceiling is to being breached. In such a situation, market participants could either continue with the transaction hoping that the market will improve or they could run. Because market participants are profit maximisers, the most probable outcome will be for market participants to run in the hope that they avoid making loss. Nobody wants a run because it generates market panic, fire-sales and is a systemic event that is generally a precursor to crises. Based on the aforementioned events of 2019 and 2020,⁸⁴ it is likely that the National Central Bank of the respective Member State will act as lender of last resort, which could potentially lead us back to the moral hazard problem discussed above.⁸⁵

Thirdly, as noted in Chapter 2 one reason why the EU shadow banking sector has risen to prominence is due to the tightening of prudential regulation. One therefore has to be cautious about imposing too onerous (and untested) regulatory rules on market participants. Regulatory arbitrage is indeed a key concern and regulation for the sake of regulation is impractical. The last thing anyone wants is a mass exodus of the market only to find an alternative unregulated market has been developed somewhere in the near future. Without the appropriate calibration, implementing rules in relation to a margin ceiling may in fact facilitate this exodus. Therefore, rather than stifling activity, a better approach would be an understanding of how best to manage it.⁸⁶

5.4 The Way Forward

How then to move forward? Margin ceilings could have destabilising effects upon the behaviour of market participants if these untested ceilings are applied as ‘hard’ macroprudential tools. A ‘hard’ macroprudential tool is binding and its application is prescribed by law. As such, a hard macroprudential tool intervenes directly upon the business activities of market participants. One way to counter this is to implement margin ceilings as a ‘soft’ macroprudential tool. Soft tools could take the form of discretionary powers, persuasive guidance and/or recommendations governed by an industry body such as ECB and/

84 *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>; Foroohar (n 23) 1 at 17.

85 However, as noted below in section 5.4 “The Way Forward”, the National Central Bank would only intervene to tame uncertainty once market participants have internalised as much of the cost as possible.

86 As to how best this situation should be managed will be discussed in the subsequent section 5.4 “The Way Forward”.

or ESRB.⁸⁷ This thesis argues that by allowing the respective regulator a discretionary power to implement an *ex-ante* margin ceiling, only activated in times of stress, could be a step in the right direction. This means that in good times, there are no 'hard' restrictive rules. However, as the cycle turns and regulators believe that a margin ceiling is warranted, namely due to issues in relation to quality of financial collateral, market risk, liquidity risk and counterparty credit risk, then a ceiling can be applied to a transaction to tame financial uncertainty. Additionally, when the margin ceiling is reached and the transaction thereby becomes 'too risky or systemic to manage', then the National Central Bank of the respective Member State can step in an act as lender of last resort to prevent a potential ensuing run. Without such intervention from the National Central Bank, asset prices would plummet and market participants would close positions, resulting in a credit freeze and subsequent crisis. A crucial step is central bank intervention to buy distressed asset prices with a relatively low haircut to tame any uncertainty and ultimately to avoid crises.

6 PIECING THE RECOMMENDATIONS TOGETHER

It has already been noted that CCP clearing is a tried and tested method to tame financial uncertainty, notwithstanding the regulatory shortcomings. The various CCP risk mitigation mechanisms, namely, mandatory margin requirements, the 'default waterfall', as well as CCPs' ability to mutualise risk (through multilateral netting) among all counterparties arguably contributes to a safer and sounder financial sector. Yet mandatory CCP clearing only applies to certain standardised derivatives transactions and, further, the precise margin levels are left to the discretion of the contracting parties. The viewpoint of this thesis is therefore twofold. Firstly, to extend the existing CCP clearing framework to cover all collateral transactions. Secondly, to transpose recommendations 2, 3 and 4, which creates a system of mandatory margin requirements, into the CCP framework.

Recommendations 2, 3 and 4 are proposed as complementary measures. *Figure 22* below provides a stylised example and brings together these three recommendations. The hypothetical example outlined below depicts a situation where an operational minimum margin parameter is set *ex-ante*. The minimum margin floor is set at 10% and the countercyclical margin add-ons provide *ex-post* controls to collateral price volatility.⁸⁸ The margin floor comes with a safety net in the form of the Minimum Transfer Amount, above which the affected counterparty would be entitled to recalibrate the transaction via repricing, adjustment or acceleration.

⁸⁷ This list could also include BIS, BCBS, IOSCO and EBA.

⁸⁸ The 10% minimum margin floor is an example – depending on various factors, such as collateral quality, market risk, credit risk etc. The margin floor may be higher or lower.

As an additional feature, and in the event that stress in the financial system materialises, the regulator can, for example, impose a discretionary margin ceiling in order to tame financial uncertainty. To fix ideas, this could be 80%.⁸⁹ The idea is that in periods of stress and in a situation where market participants are no longer confident to lend on distressed collateral, then the National Central Bank can intervene by committing to lending against distressed collateral at given margins. All market participants will automatically adapt to these margins having no reason to exceed them. Because it is intended the recommended margin ceiling be a discretionary feature, competent authorities may impose a ceiling only in exceptional circumstances “in order to ensure the stability and integrity of the financial system”.⁹⁰ This means that in times of stress, the competent authority, namely ECB and/or ESRB, can step in and offer additional transactional support.

Piecing together all four recommendations, it is the view of this thesis to propose that the macroprudential regulatory toolkit be extended to include all these recommendations into the EU shadow banking sector. In order to comply with this, the respective master agreements (and the Credit Support Annex) would be altered to become regulatory compliant thereby creating a transparent and harmonised supra-national EU legal and regulatory framework for all collateral transactions in the shadow banking sector.⁹¹ The compelling argument for harmonisation lies in the fact that collateral transactions have international scope and operate on a cross-border basis. It is therefore important that the EU legal and regulatory framework accounts for this cross-border nature to include transparency and harmonisation to avoid yet more piecemeal reforms.

89 This is merely an example; the margin ceiling can fluctuate depending on the risk involved and the asset class in question. It is not always set to 80%, but tailored to the specific transaction.

90 This is the wording of Article 25 (3) and (4) of Directive 2011/61/EU of the European Parliament and of the Council of 8 June 2011 on Alternative Investment Fund Managers and amending Directives 2003/41/EC and 2009/65/EC and Regulations (EC) No 1060/2009 and (EU No 1095/2010) (“AIFMD”).

91 Chapter 7, section 3.3 “Interplay Between the Private Sector and Public Law” highlights that the Credit Support Annex under the ISDA master agreement is now EMIR/RTS compliant and while this is only specific to derivatives transactions, there is no reason why it cannot apply to all collateral transactions.

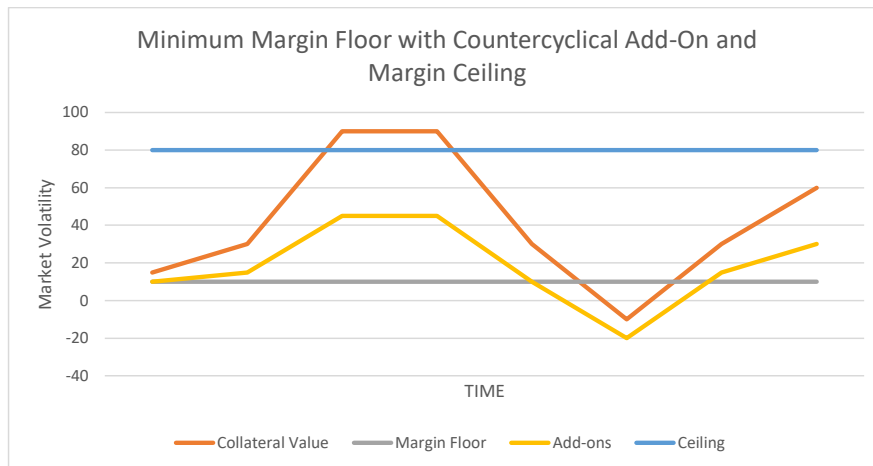


Figure 22

7 CONCLUSION

To conclude, taming financial uncertainty in collateral transactions should be a key concern for the EU shadow banking sector. Yet the problem of highly leveraged financial institutions being forced to deleverage as a result of margin calls is an ongoing recurring theme. It is clear that lessons are therefore not being learnt. In light of this and moving forward, this thesis has made several complementary recommendations in relation to imposing mandatory margin requirements in the EU shadow banking sector.

Recommendation 1 argues for the mandatory introduction of CCPs into the EU shadow banking sector for all collateral transactions. The CCP infrastructure is 'tried and tested' and has proved remarkably resilient in times of crises. It imposes the *de facto* implementation of mandatory margin requirements as well as a robust default waterfall mechanism and multilateral netting structure. However, a cause for concern is that margin requirements continue to be set at the discretion of the contracting parties. It is therefore the view of this thesis that recommendations 2, 3 and 4 could be implanted into the CCP infrastructure to tame the negative consequences of margin being set too low. One *caveat*, by introducing the CCP framework to the EU shadow banking sector, is systemically risky. All risk would be housed with the CCP and should the CCP itself fail – the consequences would be unthinkable.

Recommendation 2 imposes an *ex-ante* minimum margin floor. The rationale is to prevent margin levels being set too low and allowing market participants from obtaining too much leverage. A minimum margin floor is designed to introduce a higher level of margin at the point of trade and consequently dampening the build-up of leverage. Yet it should be noted that minimum

margin floors alone may not be enough to fully internalise the systemic cost of a downturn, which is why market participants have the ability to recalibrate the transaction via repricing, adjustment or acceleration.

Additionally, a countercyclical margin add-on, which is recommendation 3, could be an important complementary addition to minimum margin floors. A countercyclical margin add-on primarily targets the upswing of the financial cycle by tracking the value of the financial collateral. If the value of the financial collateral increases, margin will be called. The idea is to build-up a sufficiently robust level of margin in the upswing, which will be released in the event of a downswing to relieve deleveraging pressure in response to margin calls. Recommendation 4 introduces a discretionary margin ceiling, which could also be an important complementary addition. More margin calls in the downswing equates to higher levels of procyclicality. A margin ceiling would place an upper limit on the amount of margin that can be called thereby limiting systemic implications of procyclicality. It is proposed that margin ceilings be a discretionary measure only to be relied upon in times of stress. It is also proposed that these recommendations be regulated and supervised on the EU level by an EU institution, namely the ECB and/or ESRB, who will have the authority to oversee the transactions and, where necessary, impose margin ceilings.

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 that market participant's profitability and therefore net worth. Concomitantly, market liquidity and funding liquidity would be impaired given that less funding and assets are circulating the financial system as a result in increasing margins levels. Lastly, 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 for this proposed new regulation (and compliant master agreements) 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 down the familiar dark path of 2007/2008.