

# Collateral transactions and shadow banking Spence, R.

## 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

License: License agreement concerning inclusion of doctoral thesis in the

Institutional Repository of the University of Leiden

Downloaded from: <a href="https://hdl.handle.net/1887/3217145">https://hdl.handle.net/1887/3217145</a>

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



# Collateral transactions and shadow banking

#### **PROEFSCHRIFT**

ter verkrijging van de graad van doctor aan de Universiteit Leiden, op gezag van rector magnificus prof.dr.ir. H. Bijl, volgens besluit van het college voor promoties te verdedigen op woensdag 13 oktober 2021 klokke 16.15 uur

door

Ross Alexander Spence

geboren te Edinburgh, Schotland, UK

in 1980

Promotores: prof. mr. drs. M. Haentjens

prof. dr. A.M. Pacces (Universiteit van Amsterdam)

Promotiecommissie: Prof. mr. W.A.K. Rank

Prof. K. Pistor (Columbia University, New York, USA)

Prof. R. Wibier (Tilburg University)

Prof. dr. E. Avgouleas (The University of Edinburgh, UK)

Omslagontwerp: Primo!Studio, Delft

Opmaak binnenwerk: Anne-Marie Krens – Tekstbeeld – Oegstgeest

#### © 2021 R. Spence

Behoudens de in of krachtens de Auteurswet gestelde uitzonderingen mag niets uit deze uitgave worden verveelvoudigd, opgeslagen in een geautomatiseerd gegevensbestand, of openbaar gemaakt, in enige vorm of op enige wijze, hetzij elektronisch, mechanisch, door fotokopieën, opnamen of enige andere manier, zonder voorafgaande schriftelijke toestemming van de uitgever.

Voor zover het maken van reprografische verveelvoudigingen uit deze uitgave is toegestaan op grond van artikel 16h Auteurswet dient men de daarvoor wettelijk verschuldigde vergoedingen te voldoen aan de Stichting Reprorecht (Postbus 3051, 2130 KB Hoofddorp, www.reprorecht.nl). Voor het overnemen van (een) gedeelte(n) uit deze uitgave in bloemlezingen, readers en andere compilatiewerken (art. 16 Auteurswet) kan men zich wenden tot de Stichting PRO (Stichting Publicatie- en Reproductierechten Organisatie, Postbus 3060, 2130 KB Hoofddorp, www.stichting-pro.nl).

No part of this book may be reproduced in any form, by print, photoprint, microfilm or any other means without written permission from the publisher.

## Acknowledgements

Throughout the process of conducting and writing this research, I have benefitted enormously from the generous help and support of many people. Writing a legal, financial and economic dissertation is not an easy feat that requires much research and I am thankful to all those who gave me advice and pointed me in the right direction.

First and foremost, I would like to thank my PhD supervisors, Professor Matthias Haentjens and Professor Alessio Pacces, who coached me personally and professionally and greatly supported my undertaking to complete this book. Their mentoring, encouragement and support over the last four years was instrumental in lifting my spirits to help navigate the dark and often confusing shadow banking infrastructure.

I would also like to thank the European Centre for Economic and Financial Governance ("EURO-CEFG") who generously co-funded my four-year PhD project. EURO-CEFG is an international multidisciplinary network of researchers and societal stakeholders initiated by researchers from Leiden University, Delft University of Technology and Erasmus University Rotterdam who collaborate in the area of European and global economic and financial governance.

My gratitude for their time and effort to review this dissertation also goes to my PhD committee, Professors Pistor, Rank, Wibier and especially Professor Avgouleas who first introduced me to the exciting world of financial law during my LLM in International Banking Law and Finance at the University of Edinburgh in 2015/2016.

I am also indebted to John Siena for his knowledge, support and help in relation to the practical operation of collateral transactions. Without John's expertise and guidance, I would undoubtedly still be trying to write Chapter 5.

My thanks also to my fellow colleagues at Leiden Law School, the European Banking Institute and EURO-CEFG. I have hugely benefitted from an academically rich, collaborative and stimulating interdisciplinary environment and have enjoyed the company of leading academics, practitioners and peers.

I am also greatly indebted to James Davie. James, I'm not sure if you realise this but it was your energy, drive and determination that first gave me the courage to pursue an LLM and subsequently, my PhD.

I would also like to thank my family for their unconditional and continuous support during this research. Specifically, my parents Mike and Linda Spence and my brothers Jamie, Michael and Crawford Spence. A particular word of thanks to my mother Linda, who introduced me to academia and has sub-

VI Acknowledgements

sequently helped me enormously during this whole journey starting back in 2009 – her love, patience and resourcefulness has always been a great support for me.

Most of all I would like to thank Sarah. Without her unwavering love, support and kindness over the years, I would certainly not have been here today.

Acknowledgements are always necessary, but never sufficient. I apologise to all whom I could not cover in this brief acknowledgement. Of course, all errors are my own.

Ross Spence

# Table of contents

PREV	XV	
Tabi	LE OF ABBREVIATIONS	XVII
4	•	4
1	Introduction	1
1	Problem Statement	4
2	Research Questions	8
3	Methodology	11
4	Scope and Limitations of Research	12
5	Structure of Thesis: A Roadmap	17
2	SHADOW BANKING	17
1	Introduction	17
2	Defining Shadow Banking	19
	2.1 The Origins of Shadow Banking	19
	2.2 The Characteristics of Shadow Banking	20
	2.3 Appropriateness of the Term	24
	2.4 The Definition Problem	26
	2.4.1 A broad definition	26
	2.4.2 A narrow definition	28
3	The Rise of Shadow Banking	29
	3.1 Introduction	29
	3.2 Prudential Regulation	30
	3.2.1 Evolution of the Basel Accords	30
	3.2.1.1 Basel III	31
	3.2.1.2 Basel IV	33
	3.2.1.3 Some observations	34
	3.3 Profitability	36
	3.4 Regulatory Arbitrage	37
	3.5 Financial Innovation	39
4	The Global Financial Crisis	40
	4.1 Lehman Brothers	40
	4.2 Beyond Lehman Brothers	42

VIII	Table of contents
------	-------------------

		The Need for Regulation 4.3.1 Systemic risk and financial stability	44 45
		4.3.2 Market failures	46
		4.3.2.1 Negative externalities	46
5	Conc	lusion	47
5	Coric	1431011	-17
3	Finai	NCIAL COLLATERAL	49
1	Intro	duction	49
2	Defin	ning Financial Collateral	52
	2.1	Collateral	52
	2.2	What is Financial Collateral?	52
	2.3	Liquidity and Safety	54
		2.3.1 Introduction	54
		2.3.2 Market liquidity	54
		2.3.3 Funding liquidity	55
		2.3.4 Liquidity risk	55
		Financial Collateral Securities	56
3	The I	Financial Collateral Directive	58
	3.1	Cash	58
	3.2	Financial Instruments	60
		3.2.1 The debt and equity dichotomy	61
		3.2.2 Other securities which give rise to cash settlement	62
		Credit Claims	63
	3.4	Scope of the Financial Collateral Directive	63
		3.4.1 Personal scope	64
		3.4.2 Material scope	65
		3.4.2.1 Types of financial collateral	65
		3.4.2.2 Property law	65
		3.4.2.3 Possession and control	66
	3.5	Conflict of Laws	69
		Shadow Banking and the Financial Collateral Directive	69
4		ateral Transactions	70
1		Repurchase Agreement	70
		4.1.1 What is a repurchase agreement?	70
		Securities Lending	72
			72
		4.2.1 What is securities lending? Derivatives	73
		4.3.1 What is a derivative?	73 75
		Margin	75 76
_		Master Agreements	76 76
5		Velocity of Financial Collateral	76 70
		Two Functions of Financial Collateral	78 70
		The Scarcity of Financial Collateral	79
_		Defining the Market Practice of Collateral 'Velocity'	81
6	Conc	lusion	84

Tak	able of contents	IX	
1	Margin	85	
4			
1	Introduction	85	
2	What is Margin?	87	
3	Haircuts and Initial Margins	88	
	3.1 Haircut	89	
	3.2 Initial Margin	91	
	3.3 Determining Margin at the Point of Trade	93	
4	0 0	95	
	4.1 Repurchase Agreements	96	
	4.1.1 Margin transfers	96	
	4.1.2 Repricing and adjustment	96	
	4.2 Securities Lending	97	
_	4.3 Derivatives	97	
5	Leverage	98	
	5.1 Introduction	98	
	5.2 Procyclicality and Leverage	99	
6	Conclusion	100	
5	COLLATERAL TRANSACTIONS IN PRACTICE	101	
	Introduction	101	
1	Parties Involved		
2		103 103	
2	2.1 The Significance of Intermediaries		
3	Repurchase Agreements	103	
	3.1 Structure of the GMRA	104	
	3.2 Modus Operandi of a Repo	105	
	3.2.1 Rationale for entering into a repo	106	
	3.2.1.1 Seller's perspective	107	
	3.2.1.2 Buyer's perspective	108	
	3.2.2 Types of repo	109	
	3.3 The Interaction between the GMRA and Market		
	3.3.1 Maturity	110	
	3.3.2 Financial collateral	111	
	3.3.3 The significance of the repo rate	112	
	3.3.4 Margin	112	
	3.3.4.1 Margin transfers	114	
	3.3.4.2 Repricing and adjustment	116	
	3.3.4.3 Substitution	116	
	3.3.5 Event of Default	117	
	3.3.6 Property functions of a repo	119	
4	0	120	
	4.1 Structure of the GMSLA	121	
	4.2 Modus Operandi of Securities Lending	121	
	4.2.1 What is securities lending?	122	
	4.2.2 Maturity	123	
	4.2.3 Fees, interest and rebates	123	
	4.2.4 Financial collateral	124	

X Table of contents

		4.2.5	Margin	125
		4.2.6	Property aspects of securities lending	125
			Event of default	126
		4.2.8	The significance of intermediaries	127
	4.3	Ratio	onale for Securities Lending	128
		4.3.1	The borrower's perspective	129
		4.3.2	Lender's perspective	130
	4.4		rences between Repo and Securities Lending	130
			Scope of collateral	130
			Right of recall	130
			Type of securities	130
			Payment & income	131
			Maturity	131
5		ivative		131
			duction	131
	5.2		ution of the ISDA Credit Support Annexes	131
			2009 G20 Pittsburgh Summit	132
			ISDA credit support documentation	134
			Structure of the Credit Support Annex	135
			Property law functions of the Credit Support Annex	135
	5.3		us Operandi of the Collateralisation of Derivatives	136
			What is a derivative?	136
		5.3.2	Setting up a collateralised relationship	138
			5.3.2.1 Eligible collateral	138
			5.3.2.2 Initial margin	139
			5.3.2.3 Variation margin	140
			5.3.2.4 Independent amount	141
			5.3.2.5 Minimum transfer amount	141
			5.3.2.6 Haircut	142
			5.3.2.7 Reuse of collateral 5.3.2.8 Substitution of collateral	143
			5.3.2.9 Event of default	$\frac{144}{144}$
6	Con	clusio	5.3.2.10 Intermediaries and Valuation Agent	144 145
,	Con	crusio	it.	14.
ó	Тне	ROLE	OF DEBT IN THE EU SHADOW BANKING SECTOR	147
l	Intr	oductio	on	147
2	Deb	t		148
			t is Debt?	148
		2.1.1	Traditional banking sector	149
			Shadow banking sector	151
			2.1.2.1 Trading at par	153
			2.1.2.2 The creation of shadow money	153
			2.1.2.3 The role of margin	154
3	Info	rmatic	on Sensitivities of Debt	155
	3.1	Infor	mation Insensitive Debt and Safe Assets	155
	3.2	Infor	mation Sensitive Debt	156

Table of contents	XI	
•		

4	Liquidity	157
	4.1 Introduction	157
	4.2 Market Liquidity and Funding Liquidity	157
	4.2.1 Funding liquidity	158
	4.2.2 Market liquidity	159
	4.3 The Interaction between Market Liquidity and Funding Liquidity	160
5	The Vulnerabilities of Debt	160
	5.1 The Two Faces of a Debt Contract	160
	5.2 The Leverage and Liquidity Spiral	162
6	Conclusion	165
7	THE REGULATION OF MARGIN IN THE EU SHADOW BANKING SECTOR	167
1	Introduction	167
2	Tracing Post-Crisis Policy Responses	168
	2.1 Derivatives	169
	2.1.1 BCBS and IOSCO	169
	2.2 Repurchase Agreements and Securities Lending Transactions	171
	2.2.1 Financial Stability Board	171
	2.2.2 The European Systemic Risk Board	173
	2.2.3 The European Securities and Markets Authority	174
	2.2.4 From ideas to action – some observations	175
3	Private Law	176
	3.1 Introduction	176
	3.2 Self-Regulation: Lex Mercatoria	177
	3.2.1 Master agreements	179
	3.3 Interplay Between the Private Sector and Public Law	180
	3.4 Financial Collateral Directive	181
	3.4.1 Traditional insolvency law	181
	3.4.2 Special insolvency treatment	182
	3.4.3 Close-out netting	183
	3.4.3.1 Close-out netting: some observations	185
	3.4.4 Margining	187
4	Public Law	188
	4.1 EMIR: Central Counterparty Clearing	190
	4.1.1 Defining 'clearing', 'settlement' and a 'CCP'	190
	4.1.2 Modus operandi of central counterparty clearing	191
	4.1.3 Variation margin	194
	4.1.4 Risk mitigation	195
	4.1.5 Default waterfall	196
	4.1.5.1 Margin	197
	4.1.5.2 Defaulting party: default fund	198
	4.1.5.3 Skin-in-the game	198
	4.1.5.4 Non-defaulting party: default fund	199
	4.1.5.5 Other financial resources	199
	4.1.6 Mitigating procyclicality of margin	200
	-	

XII Table of contents

4.2	EMIR	R: OTC Derivatives	200
	4.2.1	Introduction	200
	4.2.2	Post Global Financial Crisis reforms	201
	4.2.3	Risk mitigation requirements for uncleared OTC derivatives	202
			203
	4.2.4		204
		· ,	205
		ě	206
	4.2.6		208
		•	209
4.3	SFTR	: Repurchase Agreements and Securities Lending	211
			213
			213
			214
	4.3.3	•	214
			215
	4.3.4		215
		4.3.4.1 Benefits of collateral reuse	216
		4.3.4.2 Risks of collateral reuse	217
		4.3.4.3 The Article 15 information statement	218
4.4	The A	AIFMD	219
	4.4.1	Rationale of the AIFMD	221
	4.4.2	Leverage	222
	4.4.3	AIFMD: some observations	224
4.5	UCIT	S	225
	4.5.1	Leverage	228
	4.5.2	Enforcement	228
Con	clusior	ı	229
Hor		H D MADON OPEN TE NATURE HAS SHADOW BANKING GEOTOD	221
			231
			231
			233
			235
		•	236
		•	237
			237
			237
3.3	_ ^		239
3.4			240
			241
			243
			243
			243
4.3			
			244
4.4	Some	Concerns	246
	4.4 4.5 Con How Intre Recc 3.1 3.2 3.3 3.4 3.5	4.2.1 4.2.2 4.2.3 4.2.4 4.2.5 4.2.6 4.2.7 4.3 SFTR 4.3.1 4.3.2 4.3.3 4.3.4 4.4 The A 4.4.1 4.4.2 4.4.3 4.5 UCIT 4.5.1 4.5.2 Conclusion  HOW SHOU Introduction Recommer 2.1 Regul 2.2 The V Recommer 3.1 Introd 3.2 Ratio 3.3 Expen 3.1 Introd 3.2 Ratio 3.3 Expen 3.1 Introd 4.2 Basel 4.3 Shade Add-	4.2.1 Introduction 4.2.2 Post Global Financial Crisis reforms 4.2.3 Risk mitigation requirements for uncleared OTC derivatives 4.2.3.1 Scope of the risk mitigation requirements 4.2.5 Initial margin 4.2.5 Initial margin segregation 4.2.6 Variation margin 4.2.7 Haircut 4.3 SFTR: Repurchase Agreements and Securities Lending 4.3.1 Scope of the SFTR 4.3.2 Reporting requirement 4.3.2.1 What has to be reported? 4.3.3 Disclosure requirement 4.3.3.1 Pre-contractual information 4.3.4 Collateral reuse requirement 4.3.4.2 Risks of collateral reuse 4.3.4.3 The Article 15 information statement 4.4 The AIFMD 4.4.1 Rationale of the AIFMD 4.4.2 Leverage 4.4.3 AIFMD: some observations 4.5 UCITS 4.5.1 Leverage 4.5.2 Enforcement Conclusion  HOW SHOULD MARGIN OPERATE IN THE EU SHADOW BANKING SECTOR? Introduction Recommendation 1: Mandatory Central Counterparty Clearing 2.1 Regulatory Shortcomings 2.2 The Way Forward Recommendation 2: Minimum Margin Floors 3.1 Introduction 3.2 Rationale for Minimum Margin Floors 3.3 Experience from the USA: Regulation T 3.4 Some Concerns 3.5 The Way Forward Recommendation 3: Countercyclical Margin Add-Ons 4.1 Introduction 4.2 Basel III: Countercyclical Capital Buffer 4.3 Shadow Banking: Modus Operandi of Countercyclical Margin Add-Ons

Tal	ble of contents	XIII
5	Recommendation 4: Margin Ceilings 5.1 Introduction	248 248
	5.2 What is a Margin Ceiling? 5.3 Some Concerns	248 249
	5.4 The Way Forward	250
6	Piecing the Recommendations Together	251
7	Conclusion	253
9	CONCLUSION	255
SA	MENVATTING (DUTCH SUMMARY)	265
BIE	BLIOGRAPHY	275
Cu	JRRICULUM VITAE	291

# Previously published work

This thesis contains and/or builds upon the following previously published work by the author:

M Haentjens (ed), Y Diamant, J Siena, R Spence and A Zacaroli, *Financial Collateral: Law and Practice* (2020) Oxford University Press (Chapters 3 & 9).

K Parchimowicz and R Spence, "Basel IV Postponed: A Chance to Regulate Shadow Banking?" (2020) 13 (2) Erasmus Law Review, 13-28.

R Spence, "The Role of Shadow Banking in the Capital Markets Union" (2019) in Major Trends in Banking Union and Capital Markets Union: Jean Monnet Project – Reform of Global Governance of EMU 75-101.

R Spence, "The Vulnerabilities of Debt in the Shadow Banking Sector" (28-29 October, 2019) *Financial Stability Conference Paper, Berlin* 1-33.

R A Spence, "Corporate Finance and the Role of Lawyers" (2017) 3 (2) Edinburgh Student Law Review 102-113.

#### Table of abbreviations

AIFMD Alternative Investment Fund Managers Directive

AT 1 Additional tier 1

BCBS Basel Committee on Banking Supervision

BIS Bank for International Settlements

BRRD Bank Recovery and Resolution Directive

CCP Central counterparty

CDO Collateralised debt obligation

CET 1 Common equity tier 1

CJEU Court of Justice of the European Union

CoCo Contingent convertible bond CRR Capital Requirements Regulation

CSA Credit Support Annex

DGSD Deposit Guarantee Scheme Directive

EBA European Banking Authority
ECB European Central Bank

EDGS European Deposit Guarantee Scheme
EDIS European Deposit Insurance Scheme
EMIR European Market Infrastructure Regulation
ESMA European Securities and Markets Authority

ESTER Euro Short Term Rate
EU European Union
FC Financial Collateral

FCD Financial Collateral Directive FSB Financial Stability Board G20 Group of Twenty GDP Gross Domestic Product

GESLA Gilt-Edged Stock Lending Agreement

GFC Global Financial Crisis

GMRA Global Master Repurchase Agreement GMSLA Global Master Securities Lending Agreement ICMA International Capital Market Association

IMF International Monetary Fund

IOSCO International Organization of Securities Commissions
ISDA International Swaps and Derivatives Association
ISLA International Securities Lending Association

LIBID London Interbank Bid Rate

MEFISLA Master Equity and Fixed Interest Stock Lending Agreement

MiFID II Markets in Financial Instruments Directive II

MMMF Money market mutual fund

XVIII Table of abbreviations

OSLA Overseas Securities Lending Agreement

OTC Over-the-counter

PRIMA Place of Relevant Intermediary Approach

Repo Repurchase agreement

RTS Regulatory Technical Standards

SFTR Securities Financing Transactions Regulation

SIFMA Securities Industry and Financial Markets Association

SOFR Secured Overnight Financing Rate

UCITS Undertakings for Collective Investment in Transferable Securities

Directive

UK United Kingdom

UNIDROIT The International Institute for the Unification of Private Law

USA United States of America

VaR Value-at-Risk