### **Thorsten Foltz**

Financial Stability Risk. Measuring the Illiquidity of Corporate and Sovereign Bonds

**Master's Thesis** 

## YOUR KNOWLEDGE HAS VALUE



- We will publish your bachelor's and master's thesis, essays and papers
- Your own eBook and book sold worldwide in all relevant shops
- Earn money with each sale

Upload your text at www.GRIN.com and publish for free



#### **Bibliographic information published by the German National Library:**

The German National Library lists this publication in the National Bibliography; detailed bibliographic data are available on the Internet at http://dnb.dnb.de .

This book is copyright material and must not be copied, reproduced, transferred, distributed, leased, licensed or publicly performed or used in any way except as specifically permitted in writing by the publishers, as allowed under the terms and conditions under which it was purchased or as strictly permitted by applicable copyright law. Any unauthorized distribution or use of this text may be a direct infringement of the author s and publisher s rights and those responsible may be liable in law accordingly.

#### **Imprint:**

Copyright © 2016 GRIN Verlag ISBN: 9783668410244

#### This book at GRIN:

#### **Thorsten Foltz**

Financial Stability Risk. Measuring the Illiquidity of Corporate and Sovereign Bonds

### **GRIN - Your knowledge has value**

Since its foundation in 1998, GRIN has specialized in publishing academic texts by students, college teachers and other academics as e-book and printed book. The website www.grin.com is an ideal platform for presenting term papers, final papers, scientific essays, dissertations and specialist books.

#### Visit us on the internet:

http://www.grin.com/

http://www.facebook.com/grincom

http://www.twitter.com/grin\_com

### University of Siegen

Faculty III: School of Economic Disciplines

# Financial Stability Risk: Measuring the Illiquidity of Corporate and Sovereign Bonds

### Master Thesis

for attainment of the academic degree of

Master of Science in Economic Policy

presented by Thorsten Foltz

### **Abstract**

Market liquidity is most important for financial markets and thus for the real economy. Market-makers seem to provide less liquidity recently. The reasons of such a behaviour are shown within this work. It exhibits the regulations which have changed, the behaviour of market-makers and how financial markets are able to become illiquid. After this more theoretical framework, which refers to financial stability, several measures of liquidity are introduced and empirically tested on a dataset of about 60,000 corporate and sovereign bonds in 34 countries over a period of eleven years. The result, is that bond markets became less liquid within the last three years than during the financial and the following European debt crisis.

Keywords: Market Liquidity, Market-Maker, Measuring Illiquidity, Financial Markets,

Corporate and Sovereign Bonds

JEL Classification: C22, E44, G14, G15, G21, G23

### Contents

Li	st of	Figure	5	V				
Li	List of Tables							
Li	st of	Abbrev	viations	VII				
List of Symbols								
1	Intr	oductio	on	1				
2	Rev	iew of	the Regulation Development of Financial Markets	2				
3	Liqu	uid Maı	rket and Market-Making	4				
	3.1	Market 3.1.1 3.1.2	Swiss Franc Revaluation	. 7 . 7				
	2.0	3.1.3	Treasury Market Rally and Volatility of European Sovereign Bonds					
	3.2		ples and Importance of Market-Making					
	3.3 3.4		et-Making Versus Proprietary Trading					
	0.4	3.4.1	A Simple Model of Market-Making					
		3.4.2	The Case of Fixed Income					
		3.4.3	The Case of Lower Risk-Adjusted Return					
		3.4.4	The Case of Non-Falling Interest Rates					
	3.5	Chang	ge of Market-Making	. 18				
		3.5.1	Trends in Market-Making and the Behaviour of Market-Makers	. 18				
		3.5.2	Drivers of the Trend	. 20				
	3.6	Dange	er of a Dry-Up	. 22				
		3.6.1	A Model of Herd Behaviour	. 22				
			3.6.1.1 Herding Measure	. 22				
			3.6.1.2 Herding over Time and Price Impacts	. 23				
		3.6.2	A Model of Self-Fulfilling Liquidity Dry-Ups	. 25				
			3.6.2.1 Structure of the Model	. 25				
			3.6.2.2 Equilibrium	. 26				
			3.6.2.3 Externality and the Result of the Model					
	3.7		ink between Liquid Markets and the Real Economy					
		3.7.1	The Households					
		3.7.2	A Household's Decisions					
		3.7.3	The Equilibrium	. 34				

		3.7.4 Result of a Liquidity Shock	35
4	Dat	a 3	36
5	Esti	mating Illiquidity	38
	5.1	Related Literature	39
	5.2	Bid-Ask Spreads	40
	5.3	The Conventional Liquidity Ratio	41
	5.4	Amihud Illiqudity Ratio	43
	5.5	The Index of Martin	45
	5.6	Marsh and Rock's Liquidity Ratio	47
	5.7	Change of Prices	50
	5.8		54
		-	55
		5.8.2 A Dynamic Approach	59
6	Con	clusion	51
Re	eferer	nces	54
Αŗ	pend	dix 7	70
	A	Datastream Information	70
	В	Calculations	71
	С	Further Results of Measuring Liquidity	72

# List of Figures

1	Dimensions of Market Liquidity	6
2	Simplified Model of a Market-Maker's Profit	10
3	Example of Multiple Equilibria	29
4	Spread of German Corporate Bonds	41
5	Spread of US-American Corporate Bonds	42
6	Gross Prices of German Corporate Bonds	54

### **List of Tables**

1	Market Participants' View on Regulatory Reforms	20
2	Results of Amihud and Conventional Liquidity Ratio	44
3	Results of the Index of Martin	46
4	Results of the Marsh and Rock's Index for Corporate Bonds	48
5	Results of the Marsh and Rock's Index for Sovereign Bonds	49
6	Results of the Price Change for Corporate, Sovereign and Supranational	
	Bonds per Country, Period and Year	51
7	Result of the Measure $\gamma$ for Corporate, Sovereign and Supranational Bonds	
	per Country and Period	56
8	Dynamics of Illiquidity	59
9	Number of Corporate Bonds per Country, Period and Year	73
10	Number of Sovereign Bonds per Country, Period and Year	74
11	Number of Supranational Bonds per Country, Period and Year	75
12	Bid and Ask Prices of Corporate Bonds per Period	76
13	Results of the Index of Martin for Corporate Bonds for Years	77
14	Results of the Index of Martin for Sovereign Bonds for Years	79
15	Results of the Index of Martin for Supranational Bonds for Years	81
16	Results of the Measure $\gamma$ for Corporate Bonds per Year	82
17	Results of the Measure $\gamma$ for Sovereign and Supranational Bonds per Year.	84