Course Outline

Credit Risk and Bankruptcy

MBA Spring 2021 Elective – FINC-GB.3306

MEETING ROOM – Zoom

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Aims and Objectives

Fuelled in part by burgeoning growth in the credit derivatives market in late 90's, the market in credit expanded dramatically for 10 years till 2Q 2007. These increased activity levels led to a much greater research focus on credit and one of the features of this work has been the high degree of complementarity between the research carried out by academics and by practitioners, for example, the investment banks and rating agencies.

The credit derivatives market was at the heart of the global financial and economic crisis, having contributed substantially to it by affecting lender incentives once loans were securitized, allowing banks to "game" regulatory capital requirements, and creating opacity due to their over-the-counter (rather than centralized or exchange-based) trading infrastructure. While the market for credit derivatives underwent a significant transformation as a result, a part of its underlying rationale in terms of risk transfer from banking sector to the rest of the economy remains robust.

In the meanwhile, however, we had a sovereign debt crisis in the Western Europe, which highlighted an important nexus between sovereign and financial sector (especially bank) balance-sheets. Credit derivatives can be used with powerful effect to study this nexus and understand its root causes as well as consequences.

The objective of the course is to provide an introduction as well as an in-depth understanding of single-name derivative products, primarily the single-name credit default swaps (CDS), as also index products, with a focus on sovereign CDS and index products. As with any derivatives course, the idea is to learn the key arbitrages between derivatives and cash markets well so that one knows when *the arbitrage breaks down!* Hence, the objective is to provide a balance between developing, on one hand, a sound conceptual framework and, on the other, market understanding and insight, especially with respect to liquidity and counterparty risk effects that are often so important in markets from a practitioner's standpoint. I regard both as essential to the informed practitioner and academic.

We will apply the tools by studying signs of market stress during the COVID-19 crisis and how Fed interventions alleviated the market turmoil in that period.

In particular, the liquidity in the markets for government bonds will become important to understand as well. Along the way, we will look at methods to quantify the systemic risk of the financial sector and regulatory as well as market-based stress-testing of financial firms. Finally, we will also pay some attention to the ongoing concerns around zombie lending to corporates by bond markets given the central bank backstop post COVID.

Overall, I want to enable students with using credit derivatives markets as a tool – a barometer of sorts – to understand macro events such as sovereign and financial sector crises, and their inter-linkages.

It should be fun and I welcome you the journey!

Topics Covered

- Historical default and recovery experience in credit markets and the present COVID context
- Introduction to single-name credit derivatives (corporate, sovereign, …)
- No-arbitrage relationship between underlying bond markets and credit default swaps
- Behavior of CDS-bond basis during 2008-09 global financial crisis and European debt crisis
- Basket default products and index tranches with a focus on sovereign credit index products
- Sovereign debt crisis in the Eurozone – Understanding its various dimensions
- Measuring and managing systemic risk, and stress tests of the financial sector
- Zombie lending and its implications for the post COVID world

Format and Teaching Methods

The classes will include discussions around empirical facts about credit, lectures on key no-arbitrage relationship between credit derivatives and underlying bond markets, and the use of credit derivatives in understanding the nexus between sovereign and financial sector balance-sheets (crises). Primary reading material will be my slides and handouts. Anything else that is relevant will be circulated over email to the class mailing list. Depending on evolving conditions in credit markets, there will be guest lectures on interesting topical themes.

Reading Materials

Besides my lecture notes and distributed readings, a few chapters of Duffie and Singleton for a primer on credit risk and derivatives may be useful**:**

Duffie and Singleton (2009): *Credit Risk: Pricing, Measurement, and Management*

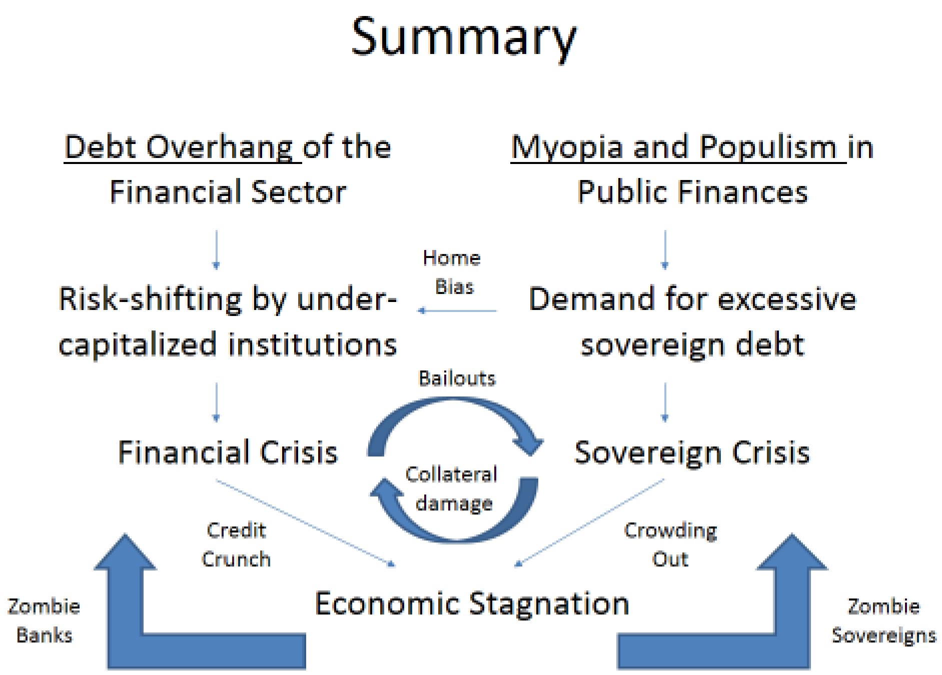
Assessment

The grade for the course will be based on a in-class midterm exam, a take-home final exam, and participation. The midterm exam will be a Q&A type of exam based on the material covered until the week prior to the midterm (week 6, see below). The final exam will require you to conduct credit analysis of an individual sovereign bond market and the related credit derivatives market based on methods learnt in the course. The final exam must be done in groups of four each. The midterm will determine 30% and the final 50% of your grade. There will also be 20% credit for class participation and bringing to the classroom discussion relevant themes from ongoing corporate, sovereign, sub-sovereign (municipal), and financial issues at time of the course. Please take class attendance seriously and enrich the classroom experience for yourself and others. No auditing is allowed unless approved by the Registrar's office.

PLEASE REVIEW THE RULES GOVERNING ACADEMIC INTEGRITY AND THE STERN CODE OF CONDUCT:

http://www.stern.nyu.edu/sites/default/files/assets/documents/con_039512.pdf

Week (dates) **9:30-10:50 am**	**Topic**	**Guest Lecture**
1-2 (1 February, 3 February, 8 February, 10 February)	• Introduction to credit risk: historical default and recovery experience on corporate and sovereign debt; the present COVID context	Or Shachar (10 February)
3-4 (17 February, 22 February, 24 February)	• Introduction to single-name credit derivatives • The changing nature and regulation of credit derivatives: CDS auction mechanism	
5-6 (1 March, 3 March, 8 March, 10 March)	• No arbitrage relationship between single-name credit default swap (CDS) and bonds • Behavior of CDS-Bond basis during Crisis episodes (global financial crisis, European sovereign debt crisis, COVID)	
7-8 (15 March, 17 March, 22 March)	• Review + Mid-term (March 17) • Basket credit default products and index tranches – focus on sovereign indices and Collateralized Loan Obligations (CLOs)	Quirin Fleckenstein (15/22 March)
9-10 (29 March, 31 March, 5 April, 7 April)	• Sovereign debt crisis in the Eurozone – Understanding its various dimensions and especially the nexus with the banking sector (see the summary diagram below)	Sascha Steffen (31 March) Tim Eisert (5 April) Patrick Augustin/ Davide Tomio (7 April)
11-12 (12 April, 14 April, 21 April)	• Measuring and managing systemic risk of the financial sector • Stress-testing the financial sector and implications for sovereign credit risk	
13-14 (26 April, 28 April, 3 May, 5 May)	• COVID issues: Liquidity in US treasuries and the implications of zombie lending by corporate bond markets	Matteo Crosignani (28 April) Ryan Banerjee (5 May)
15 (10 May)	• Review class	
(14 May)	**Final exam: Project assessing the nexus of credit risk of a <u>sovereign and its financial sector</u> due**	


Summary
Debt Overhang of the Financial Sector
Myopia and Populism in Public Finances
Home Bias
Risk-shifting by under-capitalized institutions
Demand for excessive sovereign debt
Bailouts
Financial Crisis
Collateral damage
Sovereign Crisis
Credit Crunch
Crowding Out
Economic Stagnation
Zombie Banks
Zombie Sovereigns