

# Credit Risk

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## DESCRIPTION

This course is intended to provide a market-oriented framework for modelling and analyzing credit risk. Lectures and readings will start providing an introduction as well as an in-depth understanding of the valuation of risk-free and defaultable bonds, the relationship between corporate and sovereign credit risk, and the role of credit ratings and credit ratings agencies. Then, we will study the structural models of credit risk and how they have been implemented by practitioners. We will also examine liquidity effects that are often so important in financial markets. Finally, in view of the recent episodes of financial instability, the course will cover the causes and effects of financial crises, especially of the Sub-prime crisis and the European debt crisis, and the impact of the recent process of global financial integration on credit risk.

## COURSE OUTLINE

1. An overview of capital markets (Class 1)
  - a. Equity and debt markets
  - b. Financial intermediaries
  - c. Domestic and international capital markets
  
2. The cost of capital and capital structure (Class 1)
  - a. Weighted average cost of capital
  - b. Financial distress, default, and bankruptcy
  - c. The trade-off theory
  - d. The pecking order of financing choices
  
3. Valuing risk-free bonds (Class 2)
  - a. Using the present value formula to value bonds
  - b. How bond prices vary with interest rates
  - c. The term structure of interest rates
  - d. Real and nominal rates of interest
  - e. Corporate bonds and the risk of default
  
4. Bond ratings and the probability of default (Class 3)
  - a. Credit ratings and credit rating agencies
  - b. Country and sovereign risk
  - c. Determinants and impact of sovereign credit ratings
  - d. Sovereign ceiling
  
5. Predicting the probability of default (Class 4)
  - a. Historical default experience
  - b. Credit scoring models

- c. Market based risk models
  - d. Value at risk
- 6. Structural models of credit risk (Class 4)
  - a. Merton model
  - b. Applications of structural models of credit risk: the KMV model
  - c. The success of structural models in explaining credit spreads
- 7. Additional determinants of credit risk (Class 5)
  - a. Liquidity risk
  - b. Rollover risk
- 8. Credit default swaps (Class 5)
- 9. Presentations of case studies (Class 6)
- 10. Financial openness and credit risk (Class 7)
  - a. Global financial integration
  - b. Capital account restrictions (*de jure* versus *de facto*)
  - c. Capital controls and credit risk
- 11. Financial debt crises (Class 7)
  - a. The history of financial crises
  - b. Costs and determinants of financial crises
  - c. The Subprime crisis and the sovereign credit crisis in the Eurozone
- 12. Exam (Class 8)

#### **TEXTBOOKS**

- Brealey, Richard, Stewart C. Myers and Franklin Allen, 2011, *Principles of Corporate Finance*, McGraw-Hill/Irwin.
- Duffie, Darrell and Kenneth Singleton, 2003, *Credit Risk*, Princeton: Princeton University Press.
- Lando, David, 2004, *Credit Risk Modelling: Theory and Applications*, Princeton: Princeton University Press.

#### **ADDITIONAL READINGS**

- Altman, Edward, 2000. Predicting financial distress of companies: Revisiting the Z-score and Zeta-Models, Working Paper, Stern school of business, New York University.
- Campbell, John Y., Taksler, Glen B., 2003. Equity volatility and corporate bond yields, *Journal of Finance* 58, 2321–2349.
- Cantor, Richard, Packer, Frank, 1996. Determinants and impact of sovereign credit ratings. *Federal Reserve Bank of New York Economic Policy Review* 2, 37–53.
- Cavallo, Eduardo, Valenzuela, Patricio, 2010. The determinants of corporate risk in emerging markets: An option-adjusted spread analysis. *International Journal of Finance and Economics* 15, 59–74.

- Covitz, Dan, Downing, Chris, 2007. Liquidity or credit risk? The determinants of very short-term corporate yield spreads. *Journal of Finance* 62, 2303–2327.
- Cowan, Kevin, Eduardo Borensztein and Patricio Valenzuela, 2013. Sovereign ceilings “lite”? The impact of sovereign ratings on corporate ratings in emerging market economies. *Journal of Banking and Finance* 37, 4014–4024.
- Durbin, Erik, Ng, David, 2005. The sovereign ceiling and emerging market corporate bond spreads. *Journal of International Money and Finance* 24, 631–649.
- Ferri, Giovanni, Liu, Li-Gang, Majnoni, Giovanni, 2001. The role of rating agency assessments in less developed countries: Impact of the proposed basel guidelines. *Journal of Banking and Finance* 25, 115–148.
- Kisgen, Darren J., 2006. Credit ratings and capital structure. *Journal of Finance* 61, 1035–1072.
- Kisgen, Darren J., Strahan, Philip, 2010. Do regulations based on credit ratings affect a firm’s cost of capital? *Review of Financial Studies* 23, 4324–4347.
- Prati, Alessandro, Schindler, Martin, Valenzuela, Patricio, 2012. Who benefits from capital account liberalization? Evidence from firm-level credit ratings data. *Journal of International Money and Finance* 31, 1649–1673.
- Riley, David, Richard Fox, Roger Scher, Brian Coulton, 2004. Country ceiling ratings and rating above the sovereign. *Fitch Ratings Criteria Report*.
- Standard, Poor’s, 1997. Less credit risk for borrowers in ‘dollarized’ economies. *CreditWeek*, April 30.
- Standard, Poor’s, 2001. Rating methodology: Evaluating the issuer.
- Valenzuela, Patricio, 2013. Rollover risk and corporate bond spreads. Wharton Financial Institutions Center Working Paper #13-11.

## **EVALUATION**

- Class participation bonus (15%)
- Case study presentation, 15 minutes (25%)
- Credit risk report, 600 words (25%)
- Exam (35%)