

Economics 872: Financial Risk Management.

Spring 2012

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Because I will be on Sabbatical leave, I will offer this course as a reading course to a select number of students. There will be each week one lecture by me; and one lecture/discussion by students based on the reading.

This course provides an overview of risk management models and procedures in private banks and other financial institutions. We begin with the basic current regulatory structures, and the models and management procedures used by firms to control and track their risks.

The Financial Crisis showed that Risk Management (RM) systems used by banks, insurance companies and other Financial Institutions (FIs) were seriously flawed. Consequently there is ongoing research attempting to remedy the faults in risk management models and practices. These occur at two levels: the first is the microeconomic RM within FIs will require revision in dealing with credit and liquidity risks; and secondly there is a new attempt to model Macro system wide risks. The macro and micro approaches are used by regulators in an evolving debate about possible solutions and their effectiveness. This course will provide an overview on the methods and an introduction to the current debate.

Textbooks:

M.Crouhy, D.Galai, R.Mark, *Risk Management*, McGraw-Hill, 2001.

P. Jorion, *Value at Risk*, third edition, McGraw Hill 2007.

A.Saunders and L.Allen, *Credit Risk Measurement In and Out of the Financial Crisis*, third edition, Wiley, 2010.

Note: These three books have strengths and weaknesses. Jorion is more recent and informative on the latest market risk techniques (it is used as an “industry standard”) but has virtually nothing on credit risk; Crouhy is much more detailed on standard credit risk models, but is now dated. Saunders and Allen (2010) is a more recent discussion of credit models, discusses the Crisis, but is not as detailed on the models as Crouhy.

Other books that may be referenced are:

Jarrow and Turnbull, *Derivative Securities*, second edition, 2000.

G.Meissner, *Credit Derivatives: Applications, Pricing and Risk Management*, Blackwell, 2005.

X. Freixas and J-C. Rochet, *Microeconomics of Banking*, second edition, 2008.

V. Acharya and M.Richardson (eds.), *Restoring Financial Stability*, Wiley, 2009.

M. Brunnermeier, A.Crocket, C.Goodhart, A.Persaud, H.Shin, *The Fundamentals Principles of Financial Regulation*, ICMB, Geneva Reports on the World Economy, No.11, 2009.

D. Rosch and H.Scheule, *Stress Testing for Financial Institutions*, Risk books, 2008.

(There are a number of other recent books, articles and recent working papers that deal with specialized topics – I will choose an appropriate selection. The interested student should ask me for further references for deeper discussions of topics.)

Assessment: There will be a final examination worth 100%.

Topics:

Introduction to Regulatory Frameworks and Risk Management Basics:

1.The Need for Risk Management Systems:

Crouhy Ch.1.

Jorion Ch.1,2

Edwards,F. “Hedge Funds and the Collapse of Long Term Capital

Management”,*Journal of Economic Perspectives*, Spring, 1999, pp189-210.

http://www0.gsb.columbia.edu/faculty/fedwards/papers/Hedge_Funds_&_the_Collapse_of_L_TCM.pdf

2.The Regulatory and Corporate Environment

Crouhy Ch.2,

Jorion Chs.2,3.

3.Structuring and Managing the Risk Management Function in a Bank

Crouhy Ch.3.

Jorion Ch.3

4.The BIS Capital Requirements for Financial Risks:

Crouhy Ch.4

Jorion Ch.3

5. A Major Case Study in Regulatory Failure: The Credit Crisis.

Brunnermeier et al (2009) Chs.1-3.

F. Milne, “Anatomy of the Credit Crisis: The Role of Faulty Risk Management Systems”,

C.D.Howe Institute, Commentary No.269, July 2008.

http://www.cdhowe.org/pdf/commentary_269.pdf

V.Acharya and M.Richardson, "The Causes of the Credit Crisis" 2009.

http://pages.stern.nyu.edu/~sternfin/vacharya/public_html/acharya_richardson_critical.pdf

Saunders and Allen Chs 1-3.

Market Risk and VaR:

6. Measuring Market Risk: The VaR Approach:

Crouhy Ch.5.

Jorion Chs.4,5.

7. Measuring Market Risk: Extensions to VaR and Testing the Models:

Crouhy Ch.6.

Jorion Chs. 6,7, 8,9

Credit Risk:

8. Classic Credit Analysis: Cash Flows and Holding to Maturity:

J. Crean, (2009) Notes to Lectures 3, 6, 7.

This traditional analysis is crucial for understanding bank lending to major corporations.

Models provide a useful first pass, but traditional analysis is necessary to understand the sources of credit risks.

9. Credit Rating Systems:

Crouhy Ch.7.

10. Credit Migration Approach to Measuring Credit Risk:

Crouhy Ch.8.

11. The Contingent Claim Approach to Measuring Credit Risk:

Crouhy Ch.9.

S&A Ch.4.

12. Other Approaches:

Crouhy Chs.10,11.

S&A Ch. 6.

Hedging and Pricing Credit

13. Basic Ideas: Stochastic Interest Rate Models:

Crouhy Ch.12.

J&T Chs. 13,14,15,16.

14. Credit Derivatives:

J&T Ch.18.

S&A. Ch.12

Meissner Ch.5 (A detailed discussion of discrete tree applications, with model summaries for the thoughtful practitioner.)

15. Reduced Form Credit Models:

S&A Ch.5

16. Estimation of Model Parameters:

S&A Chs. 7,8.

17. Using the Models and Their Problems:

S&A Ch. 9.

18. Failures in Credit Security Markets:

A. Krishnamurthy, "How Debt Markets Have Malfunctioned in the Crisis" *Journal of Economic Perspectives*, Winter 2010.

<http://www.kellogg.northwestern.edu/faculty/krisharvind/papers/debtmarkets.pdf>

M. Kacperczyk and P. Schnabl, "When Safe Proved Risky: Commercial Paper During the Financial Crisis of 2007-9", *Journal of Economic Perspectives*, Winter 2010.

<http://www.nber.org/papers/w15538.pdf>

Other Risks:

19. Liquidity Risk:

Jorion Ch.13

M. Brunnameier, "Deciphering the Liquidity and Credit Crunch 2007-2008" *Journal of Economic Perspectives*, Winter 2009.

http://www.princeton.edu/~markus/research/papers/liquidity_credit_crunch.pdf

.L Pederssen, "When Everyone Runs for the Exits", Working Paper, 2010.

<http://pages.stern.nyu.edu/~lpederse/papers/EveryoneRunsForExit.pdf>

20. Operational Risk:

Crouhy Ch.13.

Jorion Ch.19

21. Model Risk and Stress Testing:

Crouhy Ch.15.

Jorion Chs.14, 21.

S&A Ch.10.

Rosch and Scheule Ch.2.

A. Foglia, "Stress Testing Credit Risk: A Survey of Authorities' Approaches", *International Journal of Central Banking*, Sept. 2009.

<http://www.ijcb.org/journal/ijcb09q3a1.pdf>

The Crisis: Risk Management and Regulatory Failures:

22. Shadow Banking and Failures in the Crisis

G. Gorton and Andrew Metrick, "Regulating the Shadow Banking System",
http://www.brookings.edu/~media/Files/Programs/ES/BPEA/2010_fall_bpea_papers/2010fall_gorton.pdf

Shleifer, "Comments on Gorton and Metrick", (2010).

http://www.economics.harvard.edu/faculty/shleifer/files/BPEA_Fall_2010_Shleifer_comment_on_Gorton_Metrick.pdf

A. Krishnamurthy, "How Debt Markets Have Malfunctioned in the Crisis" *Journal of Economic Perspectives*, Winter 2010.

<http://www.kellogg.northwestern.edu/faculty/krisharvind/papers/debtmarkets.pdf>

M. Kacperczyk and P. Schnabl, "When Safe Proved Risky: Commercial Paper During the Financial Crisis of 2007-9", *Journal of Economic Perspectives*, Winter 2010.

<http://www.nber.org/papers/w15538.pdf>

V. Acharya and M. Richardson (eds.), *Restoring Financial Stability*, Wiley, 2009. (An excellent detailed account of different aspects of the Crisis)

23. Systemic Risk and Macroprudential Regulation (a small selection of papers):

C. Upper, "Contagion due to interbank credit exposures: what do we know, why do we know it, and what should we know? (2007) <http://www.bis.org/publ/work234.htm>

F. Milne, "The Complexities of Financial Risk Management and Systemic Risks", *Bank of Canada Review*, Summer, 2009.

<http://www.bankofcanada.ca/en/review/summer09/milne.pdf>

Martin Hellwig, "Systemic Risk in the Financial Sector: An Analysis of the Subprime-Mortgage Financial Crisis" 2009.

<http://qed.econ.queensu.ca/faculty/milne/870/Systemic%20risk%20in%20the%20financial%20sector.pdf>

Martin Hellwig, "Capital Regulation after the Crisis: Business as Usual?", 2010.

<http://qed.econ.queensu.ca/faculty/milne/870/Capital%20Regulation%20after%20the%20Crisis.pdf>

Hyun Shin, "Procyclicality and Monetary Aggregates", 2010.

<http://www.princeton.edu/~hsshin/www/BOK2010.pdf>

Hyun Shin, "Macroprudential Policies Beyond Basel III", 2010.

<http://www.princeton.edu/~hsshin/www/MacroprudentialMemo.pdf>

David Longworth, "Macroprudential Policy and Financial Markets", 2011.

<http://viessmanncentre.ca/wp-content/uploads/2011/08/Longworth.pdf>

