Analytics of Financial Risk Management
2016-17

Course Title	Analytics of Financial Risk Management
Instructor	Prof Vineet Virmani <vineetv@iimahd.ernet.in> Ext 4868
Programme/Year	PGP II Elective, 2016-17 (Slot 9)
Course credits	0.5 (10 sessions)

Course Objectives

The objective of this course is to introduce methods for analyzing market risk in financial institutions and discuss issues that arise in managing it. After studying the need and the process of risk management in financial institutions, the course exposes students to techniques and practicalities of market risk measurement. The course ends with a discussion of systemic risk and the evolving environment after the 2008 financial crisis.

Text Book

There is no single textbook for the course. The reading material would consist of articles from journals and central bank research publications.

Evaluation

Class Participation	20%
End Term Examination	30%
Group Presentation	50%

Other Programs

The course is also open to registration by PGP-FABM (max. 10) and PGPX (max. 10) students.

Session Outline

1 XX/09	Need for risk management in financial institutions Read: M. Hellwig (1995). Systemic aspects of risk management in banking and finance. *Swiss Journal of Economics and Statistics*, 131(4/2), pp. 723-737. P. Jorion (2009). Risk Management Lessons from the Credit Crisis. *European Financial Management*, 15(5), pp. 923-933. $\cdots$ (2010). Risk Management: Historical Perspectives, *Encyclopedia of Quantitative Finance*.
2 XX/09	Popular approaches to market risk: Value at Risk (VaR) and Expected Shortfall (ES) Read: J. P. Morgan (1996). RiskMetrics, 4th edition, chapters 1 - 3, pp. 5-39. M. Gibson (1997). Information systems for risk management. *FRB IFDP Working Paper* 585. T. Linsmeier & N. Pearson (2000). Value at Risk. *Financial Analysts Journal*, Mar-Apr, pp. 47-67.
3 XX/09	Implementing VaR and ES in practice Read: A. Damodaran. Value at Risk. (`http://people.stern.nyu.edu/adamodar/`)
4 XX/09	ABCD of ARMA Read: Rama Cont (2001). Empirical Properties of Asset Returns: Stylized Facts and Statistical Issues. *Quantitative Finance*, 1, 223-236. Python/R notebook to be circulated
5 XX/09	Forecasting volatility Read: R. Engle (2001). GARCH 101: The use of ARCH/GARCH models in applied econometrics. *Journal of Economic Perspectives*, 15(4), pp. 157-168. C. Brownlees et. al. (2011). A Practical Guide to Volatility Forecasting Through Calm and Storm. *Journal of Risk*, 14(2), pp. 1-20.
6 XX/09	Measuring portfolio risks Read: T. Beder (1995). VaR: Seductive but Dangerous. *Financial Analysts Journal*, Sept-Oct, pp. 12-24. A. Krause (2003). Exploring the limitations of Value at Risk: How good is it in practice? *The Journal of Risk Finance*, February (Winter), pp. 19-28.
7 XX/09	Limits to risk measurement Read: Jón Daníelsson (2002). The Emperor has no Clothes: Limits to Risk Modeling. *Journal of Banking and Finance*, 26 (7) 1273-1296. R. Rebonato (2010). *Plight of the Fortune Tellers - Why We Need to Manage Financial Risk Differently*, Princeton University Press.
8 XX/10	Capital requirements and systemic risk Read: Jón Daníelsson et. al (2013). Endogenous and Systemic Risk, in *Quantifying Systemic Risk*, *NBER*, Joseph G. Haubrich and Andrew W. Lo (eds.), pp. 73-94.
9 XX/10	Risk management after the Global Financial Crisis Read: J. R. Varma (2009). Risk management lessons from the Global Financial Crisis for derivative exchanges. *IIMA Working Paper*. 2009-02-06. K. Davis (2011). Regulatory reform post the Global Financial Crisis: An Overview. *Melbourne APEC Finance Center Report*.
10 XX/10	Group presentations