**RISK MANAGEMENT                             G63.2753.001/MATH 9845                        SPRING 2017**

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Requirements (subject to change): HW 40%,  Midterm 30%,  Final  30%, +/- 10% for class participation

**Syllabus**

**Overview**

* Current Landscape
* Mission and Principles
* Historical Backdrop
* Institutional Interdependencies
* The Crisis

*E&Y, Market Risk Management: Putting the key components together.pdf*

[*http://emergingmarkets.ey.com/wp-content/plugins/download-monitor/download.php?id=171*](http://emergingmarkets.ey.com/wp-content/plugins/download-monitor/download.php?id=171)

*Conclusions of the Financial Crisis Inquiry Commission*

<http://fcic-static.law.stanford.edu/cdn_media/fcic-reports/fcic_final_report_conclusions.pdf>

*Anna Katherine Barnett-Hart, The Story of the CDO Market Meltdown: An Empirical Analysis*

<http://www.hks.harvard.edu/m-rcbg/students/dunlop/2009-CDOmeltdown.pdf>

Financial Stability Board*, Principles for An Effective Risk Appetite Framework*

<https://www.financialstabilityboard.org/publications/r_131118.pdf>

**Core Data Analysis**

* Exploratory Data Analysis
  + Graphics
  + Hypothesis Testing
  + Using Excel
  + Missing Data
  + Time Series Concepts

*Exploratory Data Analysis*

[*http://www.itl.nist.gov/div898/handbook/eda/eda.htm*](http://www.itl.nist.gov/div898/handbook/eda/eda.htm)

*Introduction to Time Series Analysis*

<http://www.itl.nist.gov/div898/handbook/pmc/section4/pmc4.htm>

**Methodology**

* Market Risk Methodologies & VaR
  + Variance/Covariance
  + Historical Simulation
  + Monte Carlo
* Stress Testing and Scenario Analysis
* Back-testing
* Problems with Market Risk Processes

 Maisterin, Nieppola, Backtesting Value-at-Risk Models:

<http://free-doc-lib.com/book/backtesting-value-at-risk-models.pdf>

**Risk Limits**

*TBD*

**Desk Quant Issues***(with***Karim Baguir, NYU/Courant ’06)**

*TBD*

**Pricing and Models (with Steve Allen)**

*OCC 2000-16:*[*http://www.occ.gov/news-issuances/bulletins/2000/bulletin-2000-16.html*](http://www.occ.gov/news-issuances/bulletins/2000/bulletin-2000-16.html)

*OCC 2011-12:*[*http://www.occ.treas.gov/news-issuances/bulletins/2011/bulletin-2011-12a.pdf*](http://www.occ.treas.gov/news-issuances/bulletins/2011/bulletin-2011-12a.pdf)

**Buy-Side Risk**

*Kenneth Winston, Buy Side Risk Management*

[*www.q-group.org/archives\_folder/pdf/Winston.doc*](https://newclasses.nyu.edu/portal/site/e84d835d-364d-4676-9c2e-0e98ee69d794/tool/c276a3c2-7d04-4d93-944f-84920eec6c9d/www.q-group.org/archives_folder/pdf/Winston.doc)

**Regulation, Credit and Operational Risk**

* Credit Risk Management
* Counterparty Risk
* Operational Risk Management
* Basel Capital
* Dodd-Frank, Volcker

*Canabarro and Duffie, Credit Risk for OTC Derivatives Portfolios: Exposure and Valuation,*www.math.nyu.edu/~cousot/Teaching/IRCM/Lecture13/**canabarro**-**duffie**\_020603.pdf

*Basel Committee on Banking Supervision, Consultative Document - Operational Risk*[*http://www.bis.org/publ/bcbsca07.pdf*](http://www.bis.org/publ/bcbsca07.pdf)

*Basel III Handbook*

[*www.accenture.com/.../PDF/Accenture-****Basel****-****III****-Handbook.pdf*](http://www.accenture.com/.../PDF/Accenture-Basel-III-Handbook.pdf)

*Dodd Frank Implementation: Navigating the Road Ahead*

<http://www.mofo.com/files/Uploads/Images/121220-Dodd-Frank-Implementation.pdf>

*Morrison and Foerster “The Dodd-Frank Act: A Cheat Sheet*

[*www.mofo.com/files/Uploads/Images/Summary****DoddFrank****Act.pdf*](https://newclasses.nyu.edu/portal/site/e84d835d-364d-4676-9c2e-0e98ee69d794/tool/c276a3c2-7d04-4d93-944f-84920eec6c9d/www.mofo.com/files/Uploads/Images/SummaryDoddFrankAct.pdf)

*Morrison and Foerster “Dodd Frank at 4”*

[*www.mofo.com/DoddFrankAt4*](http://www.mofo.com/DoddFrankAt4)

**Homework Topics:**

*EDA and Graphing*

*Bond Pricing*

*V/CV*

*Hist Sim*

*Comparative Methodologies*

*Missing Data*

*Time Series*

*Limits*

*Stress Testing*

*Model Review*

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