

## **HKUST Code: FINA 690S Operational Risk Management**

### **Measurement and Management of Operational Risks**

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### **Introduction and Background**

In recent years, regulators and the financial institutions have recognized the importance of measurement and management operational risk, particularly in Asia countries like China and Hong Kong. According to a recent survey, in Asia about 90 percent of banks consider operational risk as important as market or credit risks. In China, operational risk and morale hazard have been considered the major sources of risks for banks. For Bank of China (BoC), over the past five years, from the public sources, the operational risk related events have created over 10 billion RMB financial damages. Which included the one billion RMB loss from Gaoshan incident and 2.4 billion RMB losses from the Zhou Zhengyi incident at its Hong Kong Branch. However, this is just the tip of the big iceberg that many people believed only less than five (5) percent of operational risk related frauds or incidents had been caught or reported. Also the nature of the operational risks in the western countries and in China or some Asian countries are quite different that the losses from operational risks in western countries were mostly the expected losses, however, the losses of such risks in Asia were mostly unexpected losses that came from extreme events.

Developments on the use of highly automated technologies, such as, Straight Through Processing (STP), the growth of use of e-banking, e-finance, and ATM, the growth of complexity of financial services and products, the increase of globalization and overseas branches, the trend of large-scale mergers and acquisitions (M&A), as well as the increase of outsourcing all indicated that the operational risk exposures are substantial and growing. As a result, there is an increasing demand on sound operational risk management at financial institutions especially after the introduction of Basel II New Economy Accord, in which operational risk was the first time to be included in the calculation of capital adequacy requirement (CAR).

The banking industry is currently undergoing a surge of innovation and development in such areas to develop sound operational risk management practices and systems. However, lack of experienced and knowledgeable operational risk managers is a challenge to the financial institutions. The major reason is that management of operational risks and auditing are quite different. Auditing is focused on understanding or tracing something already happened, or what defined - post-event or post-transaction. Also, it is more on the compliance of accounting rules or procedures. However, management of operational risks is more on the proactive prevention of frauds or business disruption of financial institutions that cover four

areas: employees, process, systems, and external attacks. Therefore, the needed skill set is quite different and a course that covers such materials is needed.

Financial institutions also facing some challenges, such as, what is operational risks and what is its scope? Should financial institutions be concerned with operational risks? If so, how should they be assessed and intelligently integrated with other risks? What are the best practices for the measurement and management of operational risks? In this course, we will provide the first discussion and an up-to-date treatment of all these issues.

**“Tentative” List of Topics to be covered:**

1. Introduction and Famous Operational Risk cases
2. The rationale for regulation, corporate governance and responsibilities of management – monitoring, auditing, internal control, fraud prevention, and shareholder value improvement
3. The potential impacts of Basel II on the financial industry and a critique of operational risk regulation and control
4. The Basel framework of operational risk: people, system, process, and external environment
5. Understanding the models: mathematical background, normal distribution and EVT
6. Compare the BIA, Standardized, and AMA.
7. Implementing the internal measurement approach and the loss distribution approach
8. Data mining, Bayesian Network, and identification of key risk indicators (KRIs)
9. Implementing the scorecard approach, the use of 6-Sigma in the banking industry, as well as preparation of the “Operational Risk Management Manual”.

Textbook:

Operational Risk: Regulation, Analysis, and Management by Carol Alexander, 2003, Prentice Hall.

Grading:

1. Final Exam: 40 percent
2. Group Report (up to two members per team): 50 percent (divided into two parts: proposal (10 percent) due before Feb. 5th as well as final report and presentation (40 percent))
3. Participation: 10 percent

Useful Links

[www.ubs.com/1/ShowMedia/bank\\_for\\_banks/news/archive?contentId=28297&name=newsletter\\_jan2003.pdf](http://www.ubs.com/1/ShowMedia/bank_for_banks/news/archive?contentId=28297&name=newsletter_jan2003.pdf) (some nice articles about operational risks).

<http://www.pupress.princeton.edu/chapters/s8056.pdf> (do not worry about the mathematics, just focus on the background and short discussion about the cases)

<http://www.cmbf.mq.edu.au/MAFCpapers/paper22.pdf> (A nice article, which contains the framework of operational risks)

[http://www.adb.org/Documents/Books/Rising\\_to\\_the\\_Challenge/Sound\\_Practices/hkcg.pdf](http://www.adb.org/Documents/Books/Rising_to_the_Challenge/Sound_Practices/hkcg.pdf) (Corporate Governance in Hong Kong and China)

[http://www.isaca-london.org/docs/SOX\\_WhitePaper%20v2.0.pdf](http://www.isaca-london.org/docs/SOX_WhitePaper%20v2.0.pdf) (A nice paper about Sarbanes Oxley and corporate governance)

[www.johnthirlwell.co.uk/oprisk220704.pdf](http://www.johnthirlwell.co.uk/oprisk220704.pdf)

[www.johnthirlwell.co.uk/agencies280504.pdf](http://www.johnthirlwell.co.uk/agencies280504.pdf)

<http://www.usatoday.com/educate/college/business/casestudies/20030128-accountingfraud1.pdf> (nice short articles about corporate governance in Enron and WorldCom)

<http://cbae.nmsu.edu/~dboje/enron/reports.htm> (good webpage that contains reports that related to Enron and Sarbanes Oxley)

<http://www.wicpa.org/PDF/204cover.pdf>

[http://www.gthk.com.hk/cgi-bin/cms/upload/PageEditor/en/Web- BRS\\_12May05.pdf](http://www.gthk.com.hk/cgi-bin/cms/upload/PageEditor/en/Web- BRS_12May05.pdf)

<http://www.tdctrade.com/econforum/boc/boc020801.htm> (an old article about the response of Hong Kong Government to Enron and Sarbanes Oxley).

[http://www.kdpw.com.pl/konferencje/2004\\_06\\_15\\_innowacje/prezentacje/K.JajugaJ.Jakobczak.pdf](http://www.kdpw.com.pl/konferencje/2004_06_15_innowacje/prezentacje/K.JajugaJ.Jakobczak.pdf)