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Steven Kou* (sk75@columbia.edu), 312 Mudd Building, Dept. of IEOR, Columbia University, New York, NY 10027. *The Recent Financial Turmoil and Related Research Problems.*

The past several months have been an eventful period for the U.S. financial markets, mainly due to the crisis in subprime credit markets and the difficulty in modeling collateralized debt obligations (CDOs). In this talk we will present two of financial engineering problems that are related to the recent financial turmoil: (1) How to model CDOs by incorporating clustering defaults? We propose a new model based on Polya processes and the cumulative intensity of counting processes that can calibration the current CDO data very well. (2) What are good external risk measures for the financial regulators? We propose a new axiomatic approach to justify the current governmental regulations, by using axioms from robust statistics and the separation by hyperplanes from functional analysis. (Received September 10, 2008)