

Understanding Financial Crises - a statistical perspective

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Abstract:

In their recent book "This time is different", Carmen Reinhart and Ken Rogoff describe a rich dataset of financial crises including sovereign and domestic default, currency devaluation, inflation bouts, bank runs and stock market crashes over a span of 800 years and 66 countries. In the first part of this mini course I'll review all the publicly available sources for their dataset, updated to the summer of 2012, and independently reproduce their statistical analysis of the most salient features of financial crises, including a detailed comparison with the 2008 crisis and its aftermath. In the second part I'll show how to implement the signals approach suggested in the book to obtain early warning indicators using currency and bank crises as examples. I'll then move to the more challenging case of stock market crisis, implementing both the signals approach and a multivariate logit regressions model. I'll conclude with a proposal for the construction of a stock crisis index composed of a sum of the indicators weighted by their performance and suggest how it can be used as a macroeconomic input to traditional problems in financial mathematics, such as optimal portfolio selection.