HEC CEMS Spring 2018-2019

Country Risk: Concepts and quantitative tools for measurement

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Professors

Thierry Apoteker graduated from HEC in 1978 and obtained a PhD in monetary economics from the University of Paris Dauphine. After an initial position as a junior economist in a French think tank (BIPE), he joined Banque Indosuez (now Crédit Agricole Corporate and Investment Bank-CACIB) where he became the banks' Chief Economist and Head of the Research Department. In 1991, he created TAC ECONOMICS as an independent group working on applied economic and financial research, in order to better "translate" core macro issues into operational decision-making process, both at corporate and government levels. Thierry is the chairman of TAC ECONOMICS today. He has been teaching at HEC since 2003 and was Associate Professor of Economics at Rennes University in 1994-98.

Sylvain Barthélémy is Chief Executive Officer at TAC ECONOMICS, where over the past 25 years he over-headed all quantitative developments in the field of country risk analysis, currency and market projections and scenario-building. Sylvain obtained a Master's Degree in Economics from Rennes University and is very much involved in academic, fundamental and empirical research using new quantitative techniques that originated from big data and artificial intelligence. Sylvain is a member of the Scientific Committee of the international conference Forecasting Financial Markets, and has taught country risk and quantitative economics for more than 10 years at Rennes University, where he is now Associate Professor.

Sandrine Lunven is Senior Quantitative Economist at TAC ECONOMICS. She specializes in the development and implementation of quantitative models and techniques to meet operational requirements in the field of risk assessment (country risk, industry risk, counterparty risk…). Sandrine obtained a Master's Degree in Economic Engineering & Econometrics from Rennes University and a PhD in Economics from University of Aix-Marseille. She is a lecturer in quantitative economics at Rennes University.

Objectives and presentation of the course

The objective of the course is to help incorporating the notion and consequence of country-risk in international management decisions. The ability to make a valid diagnostic, to understand / grasp the key technical / data issues and requirements behind a sound judgement, to think about possible policy or corporate response, and to understand the implications of country-risk should prepare future leaders to mitigate such risk and adapt their organization accordingly

Preparation, teaching methods and participation

Pre-requisites:

- Basic understanding of international economics and finance related to developing countries
- Ability to deal / work with databases and numerical tools
- Preliminary knowledge of statistics / statistical software, notably R

Teaching is delivered through formal presentations (concepts, key background for quantitative assessment), as well as more interactive empirical observations and illustrations / case examples, and guided group work for applying different techniques for risk assessment.

The schedule-concentration of the teachings is a challenge and requires a strong preparation from students so that they can both absorb and participate in effective ways. Full attendance is compulsory and active participation is strongly encouraged.

Course content

The course focuses on …

- ➔ Understanding the key factors fostering economic development, the likelihood of adjustments and the factors for breaks in development paths.
- ➔ Identifying the key variables or combinations of economic circumstances that create situations more prone to systemic crisis and macroeconomic difficulties and failures.
- ➔ Understanding the other sources of country-risk (political, social, environmental, regulatory) and defining how they can be incorporated in overall risk assessments.
- ➔ Assessing and analyzing the operational consequences of such shifts in emerging countries, for corporations and public authorities
- ➔ Describing, clarifying and testing the different families of methods that are deployed when measuring country-risk, and providing the ability to identify the merits and limits of each methods.
- ➔ Providing preliminary capabilities in designing and using sophisticated quantitative techniques for risk measurement.

The course is a 24-hour teaching, structured in three sections:

(A) Fundamentals for long-term development: key questions and critical debates around factors that are supportive for improvement in standards of living, economic and social development, and market opportunities *(6 hours)*

(B) Fundamentals for country risk analysis: economic, financial, political, social and environmental risks affecting development paths and investment performance. Concepts, indicators, relevant combinations *(9 hours)*.

(C) Measuring country risk: from data identification to review of different quantitative techniques and modeling instruments (classification, linear predictive, non-linear predictive); usage and constraints for each type of methods; Interest and limits of using Big Data, datamining and text-mining techniques for macro-risk assessment. This section includes a practical session where students will be guided in constructing and calibrating a risk measurement tool *(9 hours)*.

Bibliography

Prerequisite reading (*depending on initial level in the field of international economics and econometrics / statistics):*

International Economics: Theory and Policy (10th Edition)
Paul R. Krugman, Maurice Obstfeld, Marc Melitz, ed. Pearson, 2015

Basic Econometrics
Gujurati, N. Damodar, US Military Academy, West Point, 2002

Recommended reading:

Country Risk Assessment
M.H. Bouchet, E. Clark & B. Groslambert, ed. Wiley Finance

This Time Is Different: Eight Centuries of Financial Folly,
Reinhart & Rogoff (2010, Princeton Univ. Press)

A comparison of currency crisis dating methods: East Asia 1970-2002,
Lestano, Jacobs, (2004).

Monitoring banking sector risks: an applied approach,
Weistroffer, Valles, (2008).

Stories of the Twentieth Century for the Twenty-First
Pierre-Olivier Gourinchas and Maurice Obstfeld, July 2011

Understanding Financial Crises: Causes, Consequences, and Policy Responses
Stijn Claessens, M. Ayhan Kose, Luc Laeven, Fabián Valencia, January 2013

Resolution of Banking Crises: The Good, the Bad, and the Ugly
Luc Laeven and Fabian Valencia, June 2010

Course schedule

The optimal scheduling for the course would be:

(A) Fundamentals for long-term development (T. Apoteker): 6 hours in two 3-hour sessions, ideally one afternoon and the next morning.

(B) Fundamentals for country risk analysis (T. Apoteker): 9 hours in three 3-hour sessions, ideally one afternoon and the next day (morning and afternoon).

(C) Measuring country risk (Sylvain Barthélémy and Sandrine Lunven): 9 hours in three 3-hour sessions.

- From data identification to review of different quantitative techniques and modeling instruments (Sandrine Lunven): 3-hour session
- Interest and limits of using Big Data, datamining and text-mining techniques for macro-risk assessment: (Sylvain Barthélémy): 3-hour session

Ideally, these two sessions should be one afternoon and the next day in the afternoon.

- Practical session (applying techniques, guided group-work) (Sylvain Barthélémy and Sandrine Lunven): 3-hour session measurement tool *(9 hours)*.

  Ideally, this session should be one week after the previous one.