

***SCIENTIFIC REPORT regarding
implementation of the project
„Uncertainty, Complexity and Financial
Stability”
in the period January 2015 - December 2015***

Bucharest

Worldwide, 2015 was an extremely fruitful year regarding the study of the financial system and investigation of conditions assuring its stability. Deepening the analysis of financial stability led to the conclusion that this topic is much more complex than was assumed at the beginning of the financial crisis, in 2007-2008.

At present, it is almost unanimously accepted that assuring financial stability represents a central problem of economic science. At the same time, identification of econometric models for calculating systemic risk, in order to avoid new financial crises, represents a problem of major importance for economic practice.

Taking into account the scientific relevance and the practical importance of the subject, the implementation team of the project PN-II-ID-PCE-2011-3-1054 developed in 2015 numerous scientific contacts with similar teams from European and American universities, as well as teams responsible with financial stability at the National (Central) Bank of Romania, at the Authority of Financial Supervision and at the European Central Bank.

The research activity performed by the team of the project „**Uncertainty, Complexity and Financial Stability**” was focused, during the year 2015, toward satisfying, in the best possible conditions, the objectives assumed through the Project Implementation Plan, namely:

- Further thorough analysis of the *topology of the financial system of Romania, of the European Union, as well as of the world economy*;
- Modeling the **contagion phenomena in banking systems**, with application to the Romanian banking system;
- Thorough study of the **functioning mechanism of financial and currency markets**, with special accent on building **econometric models aiming at substantiating the role of volatility in price formation of financial assets**. At the same time, we worked out econometric models for studying the **yield curve of financial assets**. The models were applied for the Romanian economy;
- Working out an econometric model for **estimating the real equilibrium exchange rate for Romania**;

- Modeling the **transmission mechanism of monetary policy**;
- Special attention was granted to investigating the way of **correlating the financial cycle with the economic cycle and the influence of this correlation on the systemic risk**;
- On the basis of the **Additional Act Nr 2/2015** for implementation of the project, we started working out **DSGE (Dynamic Stochastic General Equilibrium) type models and ABM (Agent-Based Model) type models** ; this activity will continue in 2016.

The results obtained in 2015 in the activity of implementing the project materialized in:

I. BOOKS

Publishing the volume "FINANCIAL MARKETS AND BUSINESS CYCLES: UNCERTAINTY AND COMPLEXITY ", coordinated by Professors **Iftekhar Hasan** and **Moisă Altăr**, Editura Pro Universitaria, București, 2015, 530 pag., ISBN 978-606-26-0478-3.

The work contains 18 chapters:

Ch. 1: "Modeling and Forecasting the Yield Curve" (Jelea, A.)

Ch. 2: "Financial and Business Cycles. Worldwide Correlations and Determinants" (Zaharia, A.)

Ch. 3: "An Empirical Approach to Regime Switching Volatility Models" (Bănică, M. V.)

Ch. 4: "Stochastic Volatility Model under Bayesian Approach" (Gavrilă, L. I.)

Ch. 5: "Identifying the Monetary Policy Transmission Mechanism" (Chezan, V.)

Ch. 6: "Output Gap and Financial Cycles" (Stoica, M.)

Ch. 7: "Contagion. Systemic Risk" (Spoială-Slav, A.)

Ch. 8: "Models and Techniques for Quantifying Macroeconomic Risk" (Trușcă, N. D.)

Ch. 9: "Estimating Equilibrium Exchange Rate" (Nacu, I. A.)

Ch. 10: "The Transmission Mechanisms of Monetary Policy"(Roman, D. G.)

Ch. 11: "Early Warning Systems for Bankruptcy Prediction and Credit Risk Assessment"
(Dumitran, R. A.)

- Ch. 12: “Unconventional Monetary Policies: Impact of Verbal Interventor” (Florescu, C. D.)
- Ch. 13: “Modeling the Yield Curve Dynamics” (Gașpar, E.L.)
- Ch. 14: ”The Transmission Mechanisms of Financial Shocks in Global Economy” (Lolev C. D. P.)
- Ch. 15: “Banks' Self-Insurance Using Bail-In Measures” (Măgdălin, I. A.)
- Ch. 16: “Volatility Modeling in Finance and Banking” (Marin, A.)
- Ch.17: “The Evolution of Fiscal Multipliers during the Global Financial Crisis. The Case of Romania” (Marin, C. G.)
- Ch. 18: “Identifying the Effects of External Shocks on the Romanian Economy Using Factor Augmented VAR” (Chifu, A. M.)

The work has the following Acknowledgement: ”The present volume was supported by a Grant of the Romanian National Authority for Scientific Research, CNCS - UEFISCDI, Project number PN-II-IDPCE-2011-3-1054, entitled "Uncertainty, Complexity and Financial Stability", within the Romanian-American University Bucharest”.

II. ARTICLES PUBLISHED IN SCIENTIFIC JOURNALS: 8

1. Altăr, M., Ifrim, A., Altăr-Samuel, A., N., “*Eastern Europe in the World Economy: A Global VAR Analysis*”, Romanian Journal of Economic Forecasting, Vol. 18, Issue 3, October 2015, pp. 5-26, ISSN 1582-6163, **ISI journal**
2. Altăr, M., Cramer, A-A., Altăr-Samuel, A., N., “*Sovereign Financial Asset Market Linkages across Europe during the Eurozone Debt Crisis*”, Romanian Journal of Economic Forecasting, Vol. 18, Issue 4, December 2015, pp. 28-49, ISSN 1582-6163, **ISI journal**
3. Francis, B., Gupta, A., Hasan, I., ”*Impact of compensation structure and managerial incentives on bank risk taking*”, European Journal of Operational Research, Vol. 242, Issue 2, April 2015, pp. 651–676, **ISI journal**

4. Hasan, I., Massoudc, N., Saunders, A., Songe, K., ”Which financial stocks did short sellers target in the subprime crisis?”, Journal of Banking & Finance, Vol. 54, May 2015, pp. 87–103, **ISI journal**
5. Hasan, I., Siddique, A., Sun, X., ”Monitoring the “Invisible” Hand of Market Discipline: Capital Adequacy Revisited”, Journal of Banking & Finance, Vol. 50, January 2015, pp. 475-492, **ISI journal**
6. Francis, B.B., Hasan, I., Song, L., Yeung, B., ”What Determines Bank-Specific Variations in Bank Stock Returns? Global Evidence”, Journal of Financial Intermediation, Vol. 24, Issue 3, July 2015, pp. 312-324, **ISI journal**
7. Coculescu. C., Altăr-Samuel, A.N., ”Aspects Concerning Nonlinearity in Econometric Modeling”, Journal of Information Systems & Operations Research, Vol. 9, Issue 1, May 2015, pp. 72-82, **BDI journal**
8. Altăr, M., ”Complexity, Uncertainty and Systemic Risk: A Survey”, Central Bank Journal of Law and Finance, Vol. 2, Issue 1, December 2015, pp. 3-48, ISSN 2392 – 9723, **publication of the National (Central) Bank of Romania.**

In Table 1 we present the number of articles and the ISI journals in which they were published. For each journal, we specify the Impact Factor and the Relative Influence Score (according to the data from the UEFISCDI site : http://uefiscdi.gov.ro/userfiles/file/CENAPOSS/Scor_Relativ_Influenta_2014.pdf și <http://uefiscdi.gov.ro/userfiles/file/CENAPOSS/FRI2014.pdf>).

Table 1 – Articles published in 2015 in ISI journals

Nr.	Name of the ISI journal	ISSN	Impact Factor	Relative Influence Score	Articles published in 2015
1	Journal of Financial Intermediation	1042-9573	1,283	3,454	1
2	European Journal of Operational Research	0377-2217	1,203	1,576	1
3	Journal of Banking & Finance	0378-4266	1,094	1,191	2
4	Romanian Journal of Economic Forecasting	1582-6163	0,167	0,072	2

III. PAPERS PRESENTED AT INTERNATIONAL CONFERENCES : 4

In 2015, the members of the implementation team of the project presented papers at 4 prestigious international scientific Conferences.

1. Coculescu, C., Altăr-Samuel, A.N., (2015),”*Aspects Concerning Nonlinearity in Econometric Modeling*”, **15th EBES Conference – Lisbon**, Lisbon, Portugal. Published in the volume ”15th EBES Conference - Lisbon Program and Abstract Book”, ISBN: 978-605-64002-9-2, EBES Publications, 2015
2. Altăr, M., Samuel, J., Altăr-Samuel, A.N., (2015), ”*Systemic risk and economic growth*”, **79th International Atlantic Economic Conference**, Milan, Italy.
3. Hasan, I., (2015) “*Bank enforcement actions and the terms of lending*”, **90th SBIF/UDP Conference ”Banking Development, Stability and Sustainability**”, Department of Management, Universidad Diego Portales, Santiago de Chile, Chile
4. Hasan, I., (2015), ”*Trust and Contracting with Foreign Banks: Evidence from China*”, **Conference on China’s Financial Intermediation**, Department of Economics and Finance, City University of Hong Kong, Hong Kong.

Project Director,

Iftekhhar HASAN