

SCIENTIFIC REPORT

***Concerning implementation of the
project***

***„Uncertainty, Complexity and Financial Stability”
in the period January 2014 - December 2014***

The research activity carried on by the team for implementation of the project „**Uncertainty, Complexity and Financial Stability**” was focused, during the year 2014 , on fulfilling, as well as possible, the objectives assumed, namely:

- A good knowledge of the *topology of the financial systems of Romania, of the European Union, as well as of the global one*. This approach is determined by a more and more complex interconditioning between several financial systems, generated by the continuous deepening of the globalization process.
- Identification of the conditions that assure the *stability of the financial system*, by using Complexity Theory, Network Theory, etc.
- Knowledge of the functioning mechanism of the *banking system and of the financial and currency markets*, in the new conditions that occurred in the economic space, after the world financial crisis started in 2008.
- Use of complex models: *DSGE (Dynamic Stochastic General Equilibrium) type* and *ABM (Agent-Based Model) type*, in order to identify the conditions that assure financial stability.
- Perfecting models, techniques and methods for analyzing *Systemic Risk, Sovereign Risk, volatility, contagion*, etc.

Synthetically, the activity of implementing the project materialized, in 2014, in:

1. Publishing the book "SYSTEMIC RISK AND SUSTAINABLE GROWTH ", coordinated by Professors *Iftekhar Hasan* and *Moisă Altăr*, Pro Universitaria Publishers, Bucharest, 2014, ISBN 978-606-26-0165-2, 620 pages.

The work contains studies regarding methods for computing *Systemic Risk, probabilities of default for banks, analysis of volatility and contagion on the capital market and in the banking system, the study of Sudden Stop phenomena*, occurring, in general, in emergent economies, etc.

These problems are studied for the economy of Romania, and, for comparison, also for other Central and Eastern European countries.

In order to calculate Systemic Risk, the proposed models generalize the *CCA (Contingent Claims Analysis)* type techniques or are based on *Network Theory* and on the entropic properties of networks.

Other studies treat aspects concerning *sustainable economic growth and the role of monetary and fiscal policies, especially of fiscal multipliers, in this field.*

We use in the work models of *GVAR (Global-VAR)*, *FAVAR (Factor Augmented VAR)*, *DSGE (Dynamic Stochastic General Equilibrium)*, *ABM (Agent- Based Model)* type.

The study of the *volatility* of financial markets was performed by using *GARCH* type models and models based on the *Theory of Extreme Values.*

We also use techniques based on *Fractal Theory* and on the *Mathematical Theory of Catastrophes.*

Each study ends with suggestions for improving the functioning of the financial system, and for intensifying the process of de sustainable economic growth.

2. **Publishing the chapter "Mergers and Target Transparency"** (Iftekhhar Hasan et al..) in **volume 17** of the series "**Advances in Financial Economics**", entitled "**Corporate Governance in the US and Global Settings**", ed. Ferris, S.P., John, K., Makhija, A. K., Emerald Group Publishing Limited, pp.193 – 227, ISBN: 978-1-78441-292-0.

3. **Publishing 14 papers, in ISI Master journals** , of which 4 papers are In Press.

The papers were published in top journals, such as *Journal of Financial Economics*, *Review of Finance*, *Journal of Banking and Finance*, etc.

We mention that *Journal of Financial Economics* is considered to be one of the best journals in the field of Finance, having, in 2014, a Relative Score of Influence of 9,162.

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

Table 1 – Papers published in 2014 in ISI journals

Nr. crt.	Name of ISI journal	ISSN	Impact Factor	Relative Score of Influence	Papers published in 2014	Papers In Press In 2014
	Journal of Financial Economics		impact			
1	Economics	0304-405X	3,027	9,162	1	
2	Review of Finance Journal of Financial	1572-3097	1,314	3,878	1	1
3	Intermediation Journal of Corporate	1042-9573	1,283	3,454		1
4	Finance Journal of Banking and	0929-1199	1,105	1,487	1	
5	Finance Journal of Comparative	0378-4266	1,094	1,191	3	1
6	Economics Journal of Financial	0147-5967	0,945	1,330	1	
7	Services Research	0920-8550	0,833	1,139	1	
8	Economic Systems Romanian Journal of	0939-3625	0,491	0,000	1	
9	Economic Forecasting	1582-6163	0,167	0,072	1	1

4. Working Papers posted on the site of the Project (<http://finsys.rau.ro>)

In 2014 a number of 6 Working Papers were worked out, which analyze the dynamics of macroeconomic volatility in the Central and Eastern European countries (Altăr, M., Bobeică, G., Necula, C. (2014): "Recent Dynamics of Macroeconomic Volatility in Central and Eastern European Countries"), as well as the volatility of financial markets in this zone

(Altăr, M., Spătaru., M. (2014): "*Volatility Forecasting Models for CEE Stock Exchange Indices*").

The paper "*Systemic Risk and Macprudential Capital Requirements in Romania*", by M. Altăr și M. Țurlea, proposes to calculate systemic risk by using techniques worked out within Network Theory, together with applying the Principle of Entropy Maximization.

In the paper "*Changes in the Monetary Policy Reaction Function in the Context of the Global Financial Crisis*", by M. Kubinski and A. Alupoaiei, the authors approach certain modern aspects of monetary policy, in the context generated by the world financial crisis.

In the paper "*An Estimated Dynamic Stochastic General Equilibrium Model for Central and Eastern European Countries – A Bayesian Approach*", the authors (M. Altăr and G. Ioniță) propose a new variant of a DSGE type model, worked out for the economy of Romania. A Bayesian approach is used for solving the model.

Adrian Codirlaşu, in the paper "*New Global Market Infrastructure for Trading Derivatives Instruments*", approaches several problems related to an important segment of the capital market, namely the segment of derivative products.

5. *Papers presented at international conferences*

In 2014, the members of the project's team participated, with papers, at six prestigious international scientific conferences.

We mention that Professor Iftekhar Hasan was invited as *Keynote Speaker* at several international conferences, including the scientific event "*Economic Development, Diversification and the Role of the State*" organized by the International Monetary Fund in April 2014, in Kuwait City. At this conference, Professor Iftekhar Hasan presented the paper "*The Role of Finance in the Diversification of Industrial Base*".

In what follows, we present the list of all results obtained in 2014 in the activity of implementing the project.

BOOKS: 1 book

Hasan, I. and Altăr, M. (ed.), "Systemic Risk and Sustainable Growth", PRO UNIVERSITARIA, Bucharest, 2014, ISBN: 978-606-26-0165-2, 620 pages.

BOOK CHAPTERS: 1 chapter

Hasan, I., Karlberg, J.G., Liu, C. H., Sun X., (2014), "Mergers and Target Transparency", in Ferris, S.P., John, K., Makhija, A. K. (ed.), "Corporate Governance in the US and Global Settings (Advances in Financial Economics, Volume 17)", Emerald Group Publishing Limited, pp.193 – 227, ISBN: 978-1-78441-292-0

PAPERS PUBLISHED IN SCIENTIFIC JOURNALS: 10 papers

1. Fang, Y., Hasan, I., Marton, K., (2014), "Institutional Development and Bank Stability: Evidence from Transition Countries", Journal of Banking and Finance, Vol. 39, February 2014, pp. 160-176, ISSN 0378-4266, revistă ISI, DOI: 10.1016/j.jbankfin.2013.11.003
2. Hasan, I., Song, L., Wachtel, P., (2014), "Institutional Development and Stock Price Synchronicity: Evidence from China", Journal of Comparative Economics, Vol. 42, Issue 1, February, 2014, pp. 92-108, ISSN 0147-5967, revistă ISI, DOI: 10.1016/j.jce.2013.07.006
3. Fang, Y., Hasan, I., Marton, K., Waisman, M., (2014), "Bank Valuation in New EU Member Countries", Economic Systems, Vol. 38, Issue 1, March 2014, pp. 55–72, ISSN 093-3625 revistă ISI, DOI: 10.1016/j.ecosys.2013.07.002
4. Francis, B., Hasan, I., Sun, X., Waisman, M., (2014), "Can Firms Learn by Observing? Evidence from Cross-Border M&As", Journal of Corporate Finance, Vol. 25, April 2014, pp. 202–215, ISSN 0929-1199 , revistă ISI, DOI: 10.1016/j.jcorpfin.2013.11.018

5. Francis, B., Hasan, I., Wang, H., (2014), "Banking Deregulation, Consolidation, and Corporate Cash Holdings: U.S. Evidence", Journal of Banking & Finance, Volume 41, Issue 1, April 2014, pp. 45–56, ISSN 0378-4266, revistă ISI, DOI: 10.1016/j.jbankfin.2013.12.018
6. Shen, C.H., Hasan, I., Lin, C.Y., (2014), "The Government's Role in Government-owned Banks", Journal of Financial Services Research, Vol. 45, Issue 3, June 2014, pp. 307-340, ISSN 0920-8550, revistă ISI, DOI: 10.1007/s10693-013-0168-0
7. Hasan, I., Hoi, C.K., Wu, Q., Zhang, H., (2014), "Beauty Is in the Eye of the Beholder: The Effect of Corporate Tax Avoidance on the Cost of Bank Loans", Journal of Financial Economics, Vol. 113, Issue 1, July 2014, pp. 109-130, ISSN 0304-405X, revistă ISI, DOI:10.1016/j.jfineco.2014.03.004
8. Delis, M., Hasan, I., Tsionas, E., (2014), "The Risk of Financial Intermediaries", Journal of Banking & Finance, Vol. 44, July 2014, pp. 1–12, ISSN 0378-4266, revistă ISI, DOI:10.1016/j.jbankfin.2014.03.024
9. Delis, M., Hasan, I., Kazakis, P., (2014), "Bank Regulations and Income Inequality: Empirical Evidence", Review of Finance, Vol. 18, Issue 5, August 2014, pp. 1811-1846, ISSN 1572-3097, revistă ISI, DOI: 10.1093/rof/rft039
10. Altăr, M., Altăr -Samuel, A.N., Marcu, I., "Measuring Systemic Risk Using Claims Analysis (CCA)", Romanian Journal of Economic Forecasting, Issue 4, December 2014, pp. 22-39, ISSN 1582-6163, revistă ISI

PAPERS ACCEPTED (IN PRESS): 4 papers

1. Altăr, M., Țurlea, M., "Systemic Risk and Macroprudential Capital Requirements in Romania", Romanian Journal of Economic Forecasting, ISI journal
2. Hasan, I., Siddique, A., Sun, X., "Monitoring the 'Invisible' Hand of Market Discipline: Capital Adequacy Revisited", Journal of Banking and Finance, ISI journal

3. Francis, B.B., Hasan, I., Song, L., Yeung, B., "What Determines Bank-Specific Variations in Bank Stock Returns? Global Evidence", Journal of Financial Intermediation, ISI journal
4. Hakenes, H., Hasan, I., Molyneux, P. Xie, R., "Small Banks and Local Economic Development", Review of Finance Advance Access, ISI journal

WORKING PAPERS POSTED ON THE SITE OF THE PROJECT (<http://finsys.rau.ro>):
6 Working Papers

1. Altăr, M., Bobeică, G., Necula, C., (2014), "Recent Dynamics of Macroeconomic Volatility in Central and Eastern European Countries"
2. Altăr, M., Ioniță, G.A., (2014), "An Estimated Dynamic Stochastic General Equilibrium Model for Central and Eastern European Countries - Bayesian Approach"
3. Altăr, M., Spătaru., M., (2014), "Volatility Forecasting Models for CEE Stock Exchange Indices"
4. Altăr, M., Țurlea, M., (2014), "Systemic Risk and Macroprudential Capital Requirements in Romania"
5. Codirlaşu, A., (2014), "New Global Market Infrastructure for Trading Derivatives Instruments"
6. Kubinschi, M., Alupoaiiei-Iancu, A.C., (2014), "Changes in the Monetary Policy Reaction Function in the Context of the Global Financial Crisis"

PhD THESES : 1 thesis

Altăr -Samuel, A.N., (2014), "Designing and Implementing a Semantic e-Learning Platform", PhD thesis, ASE, Bucharest

PAPERS PRESENTED AT INTERNATIONAL CONFERENCES: 6 papers

1. Hasan, I., "Diversification and the Economy: The Role of Government in Enhancing Industrial Base", **International Monetary Fund Conference: "Economic Development, Diversification, and the Role of the State"**, Kuwait City, Kuwait
2. Hasan, I., Tsoumas, C., Delis, M., (2014), "The Income Elasticity of Mortgage Loan Demand: Evidence from Loan-Level US Data", **13th Conference on Research on Economic Theory & Econometrics**, Milos, Crete, Greece
3. Hasan, I., (2014), "25 Years of Transition in Banking: the Role of Institutions", **Keynote speaker, 4th Annual CInSt Banking Workshop "Banking in Emerging Markets: Challenges and Opportunities"**, Moscow, Russia
4. Hasan., I., (2014), "Politics, Institutions and Innovations", **Keynote speaker, 4th Emerging Scholars in Banking and Finance Conference**, London, U.K.
5. Altăr, M., Samuel, J., Altăr-Samuel, A.N., (2014), "Financial System and Economic Growth", **77th International Atlantic Economic Conference**, Madrid, Spain
6. Altăr, M., Bobeică, G., Necula, C., (2014), "Recent Dynamics of Macroeconomic Volatility in Central and Eastern European Countries", **78th International Atlantic Economic Conference**, Savannah, Georgia, USA

SCIENTIFIC CONTENT OF THE BOOK "Hasan, I. and Altăr, M. (coord.), Systemic Risk and Economic Growth, PRO UNIVERSITARIA, Bucharest, 2014, ISBN: 978-606-26-0165-2.", 620 pages

The Book contains the following studies (chapters):

- Ifrim, A., "Eastern Europe in the World Economy: A Global VAR Analysis"
- Ivanciu, S. V., "A Copula Function Investigation of the External Dependence and Contagion of Romanian Financial Asset Prices"

- Cristiuc, A., *"A DSGE Model to Analyze Macroprudential Regulations and Monetary Policy for Romania"*
- Marcu, I., *"Measuring Systemic Risk in a CCA Global VAR"*
- Țurlea, M., *"Systemic Risk and Macroprudential Capital Requirements in Romania"*
- Ioniță, G. A., *"An Estimated Dynamic Stochastic General Equilibrium Model for Central and Eastern European Countries - Bayesian Approach"*
- Olteanu, B., *"Multi-Moment Approximate Option Valuation Models - A General Comparison"*
- Lung, E. M., *"Default Determinants in Case of Romanian State-Backed Mortgage Loans"*
- Marin, V. R., *"Forecasting Inflation in Romania under Model Uncertainty"*
- Bercia, M. A., *"An Agent-Based Model for Monetary and Fiscal Policy Implications"*
- Spătaru, M. A., *"Volatility Forecasting Models for CEE Stock Exchange Indices"*
- Antoni, V., *"Identifying the Effects of Monetary Policy Shocks using Factor Augmented VAR"*
- Coman, I. S., *"Probability of Default on a Retail Loans Portfolio, under Basel III Requirements"*
- Zechiu, M. A., *"Forecasting with Many Predictors"*
- Rebedia, V. M., *"Complex Nonlinear Dynamics of Financial Time Series. An Empirical Analysis Using Chaos Theory"*
- Șorodoc, M. M., *"Structural Changes in the Transmission Mechanism of Monetary Policy in Romania - A Markov Switching Vector AutoRegression Analysis"*

- Radu, O., *"Testing the Efficient Market Hypothesis on the Romanian Stock Market"*
- Pena, I., *"Sudden Stop and Optimal Holdings of International Reserves in the CESEE Emerging Countries"*
- Petroiu, I. A., *"Direct and Spillover Effects of Foreign Direct Investment in Central and Eastern European Countries"*
- Pîrvu, A. M., *"Fiscal Multipliers Analysis"*
- Pop, I. D., *"Application of Extreme Value Theory in Risk Management"*
- Tihan, C., *"Mean -Volatility Spillover Effects on European Bond Markets"*
- Tudoran, D., *"Conditional Probability of Default Methodology"*
- Carabaş, C., *"The Fractal Market Hypothesis and its Implications for the Stability of Financial Markets"*
- Vlăduţu, A., *"Analysis of Business Cycle Synchronization and Shock Similarities Between Euro Area and CEECs"*
- Ene, G.R., *"An Economic Analysis on Bitcoin"*.

Project Director

Iftekhar HASAN



