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## VITALIY VANDROVYCH

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### Education

*Brandeis University, International Business School, Waltham, USA*

Ph.D. Candidate in International Economics and Finance (expected 2007)

Thesis title: "Essays on Exchange Rate Dynamics"

*Central European University, Budapest, Hungary*

M.A. in Economics, 2001

*Ivan Franko National University of Lviv, Lviv, Ukraine*

M.A. in International Economics, 1997

B.A. and M.A. in Mathematics, 1992

### Teaching and Research Fields

International Finance, Financial Economics, Time Series, Macroeconomics, Quantitative Methods

### Teaching Experience

#### *Brandeis University*

- Mathematics for Economics and Finance, *Instructor*: Summer 2005 and 2006, Spring 2006
- Financial Economics, *Instructor*: Fall 2005
- Introduction to Econometrics, *Teaching Assistant*: Spring 2006
- Applications of Econometrics, *Teaching Assistant*: Spring 2006
- International Macroeconomics, *Teaching Assistant*: Spring 2005
- International Corporate Finance, *Teaching Assistant*: Spring 2004, Spring 2005
- Advanced Macroeconomics, *Teaching Assistant*: Fall 2002, Spring 2003, Fall 2004
- Computer Simulations and Risk Assessment, *Teaching Assistant*: Fall 2003, Fall 2004
- Macroeconomics, *Teaching Assistant*: Fall 2001, Spring 2002

#### *Harvard University*

- Introduction to Econometrics, *Teaching Fellow*: Summer 2005 and 2006

#### *Ivan Franko National University of Lviv*

- Statistics, Financial Accounting, International Finance, Investment, *Lecturer*: 1997-2000

## **Research and Business Experience**

- Brandeis University, *Research Assistant* for Prof. Rashmi Shankar: Summer 2004
- Consulting company Veto, Lviv, Ukraine, *Intern*: Summer 1997
- Electron Bank, Credit Department, Lviv, Ukraine, *Intern*: Spring 1997
- Center of Creativity for Children and Youth in Halychyna, Lviv, Ukraine, *Computer Informational Specialist and Translator*: December 1995 – August 1997
- Lviv Regional State Administration, Board of Foreign Affairs, External Economic Activity and Foreign Investments, Lviv, Ukraine, *Intern*: Summer 1993
- Academy of Science of Ukraine, Institute of Applied Problems of Mechanics and Mathematics, Lviv, Ukraine, *Engineer-Mathematician*: October 1992 – November 1993

## **Research Interests**

Exchange rate regimes and currency markets; nonlinear dynamics and chaos; agent-based finance; market microstructure; financial forecasting; quantitative trading strategies; derivatives and continuous time finance

## **Research Papers and Work in Progress**

- ***Nonlinearities in Exchange-Rate Dynamics: Chaos?*** (Job market paper)

Deterministic chaotic systems represent an appealing new way to model an economy, especially financial markets. They allow the generation of interesting dynamics without exogenous shocks and are unpredictable in the long run. In this paper, I test the hypothesis of chaotic dynamics in exchange rates by applying tools from dynamical systems theory. I find that exchange rate returns are highly nonlinear even when a GARCH-type process is fitted to the data and this result is compatible with chaos. But the calculation of two other prerequisites of chaotic dynamics, namely the correlation dimension and the maximum Lyapunov exponent, rejects the hypothesis of chaos in the data. I emphasize the importance of the proper implementation of chaos tests, as in limited data sets there is a tendency for downward bias in estimates of correlation dimension and this might lead to an incorrect conclusion that chaos is present in the data. As pure chaotic dynamics is not observed in the data, I stress the significance of considering a dynamic noise element in theoretical chaotic asset pricing models.

- ***Two-Corner Hypothesis for Exchange Rate Regimes and Their Relevance for Transition Economies***

In this paper, I investigate the theoretical and empirical background of the hypothesis that intermediate exchange rate regimes are no longer viable for countries open to international capital flows and only irrevocably fixed or pure floating regimes are possible. The empirical part of the paper focuses on the transition economies of Central and Eastern Europe and the former Soviet Union with the application of a Markov chain model for the determination of future exchange rate regimes in the region. Using official data I find support for the two-corner hypothesis, as it turns out that the fixed regime will dominate the landscape of exchange rate arrangements in the region. As actual exchange rate management frequently differs from the one that is officially proclaimed, I also use the ‘de facto’ classification. This classification assigns the country to one of the regimes according to the behavior of three variables, namely absolute monthly exchange rate changes, volatility of these changes and absolute monthly volatility in foreign exchange reserves. The limiting distribution of the regimes obtained by the “de facto” classification indicates that all three regimes will be present in the region, thus invalidating the two-corner hypothesis. Additionally, I show that almost all countries in the region classified as floaters in reality use some form of intermediate or even fixed regimes.

## **Research Papers and Work in Progress (continued)**

- *Placement and Execution of Price Contingent Orders in the FX Market: A Customer Level Analysis*” (with Carol Osler, work in progress)
- *What Can We Learn from Agent Based Models of FX Market?* (work in progress)
- *Policy Influence on Economic Growth in Transition Countries* (Published in “*Visnyk of Lviv University, International Relations Series*”, #7, 2002)
- *Periodic Marginal Problem for Hyperbolic Equations of 2nd Order in Cylindrical Regions* (in Ukrainian)

## **Conference Presentations**

*“Study of Nonlinearities in the Dynamics of Exchange Rates: Is there Any Evidence of Chaos?”*

- *14<sup>th</sup> Annual Symposium of the Society for Nonlinear Dynamics and Econometrics*, St. Louis, March 2006
- *11<sup>th</sup> International Conference on Computing in Economics and Finance*, Washington, DC, June 2005

*“Periodic Marginal Problem for Hyperbolic Equations of 2nd Order in Cylindrical Regions”*

- *International Scientific Mathematical Conference in memory of A.Kravchuk*, Kyiv, Ukraine, May 1992

## **Honors, Scholarships and Fellowships**

- Brandeis International Business School Fellowship (2006-2007)
- Outstanding Service as a Teaching Assistant for 2004 - 2005 academic year, International Business School, Brandeis University (Spring 2005)
- Muskie Ph.D. Fellowship (2001-2006)
- Soros Foundation M.A. Fellowship (2000-2001)
- Soros Foundation Scholarship for participation at the Central European Summer University “Capital Markets: Theories, Models and CEE Experience” (Summer 1999)

## **Professional Activity**

*Member:* American Economic Association, Canadian Economics Association

## **Skills**

*Computer:* Matlab, Stata, SPSS, Microsoft Office, Access, DataStream

*Languages:* Ukrainian – native, English – fluent, Russian – fluent, French – basic, Bulgarian - basic

## **Personal Information**

*Gender:* Male

*Citizenship:* Ukrainian

**Thesis Committee and References:**

Professor Blake LeBaron (chair)  
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