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# ANNUAL FINANCIAL MARKET LIQUIDITY CONFERENCE

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HUNGARY



**10<sup>th</sup> Annual Financial Market Liquidity Conference, 2019**  
**Budapest, Hungary**  
**14<sup>th</sup>-15<sup>th</sup> November, 2019**

CONFERENCE PROCEEDINGS

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## WELCOME FROM THE CHAIR

A warm welcome to all the participants of our jubilee conference, the 2019 Annual Financial Market Liquidity (AFML) Conference. This liquidity conference dates back to almost a decade ago when we first sought to respond to the new financial challenges caused by the crisis. Throughout the years, this event evolved and became a special occasion to bring together well-acknowledged academics and professionals to discuss their latest results in the broad field of financial market liquidity. The presentations offer insight into classic liquidity related topics and also into a myriad of related fields in finance covering macroeconomic modeling, financial stability, with a special focus on the new challenges of our ever-changing world, and the role finance plays in it. We named this field as climate finance.

All the conditions are met to refresh and further build your network since we have more than 150 participants registered, many of them are returning lecturers or participants and remain strongly connected to our community.

Many people have contributed to this event. First of all, I would like to thank the speakers, poster session participants and the chairs for their participation, and our sponsors for their contribution.

I wish to thank the members of the scientific committee: Péter Csóka, Jonathan A. Batten, Edina Berlinger, Dániel Havran, Zsuzsa R. Huszár, Hubert János Kiss, László Á. Kóczy, Igor Lončarski, Mihály Ormos, Péter Szilágyi, Niklas Wagner, Adam Zawadowski; and the local organizing committee: Anita Lovas, Judit Lilla Keresztúri, Péter Kerényi, Gábor Kondor, Dóra Gréta Petróczy, Balázs Árpád Szűcs, Kata Váradi. Our assistants Judith Andaházy, Zsuzsa Fried, and Margit Hajnal also did an excellent job in taking care of ongoing tasks and challenges.

I trust everybody will contribute to the friendly and interactive atmosphere.

Enjoy the 10th AFML Conference and Budapest.

Kind regards,  
Barbara Dömötör  
Chair of the Organizing Committee

Ps. We are also announcing the date for the 11th AFML Conference that will be held on 26-27 November 2020 in Budapest. We hope to see you again next year.

## SOCIAL INNOVATION

The aim of the Social Innovation session is to open a new research line corresponding to financial market liquidity. We set a special focus on social effects, externalities, new market tendencies, and innovative technologies from the perspective of households, enterprises, and/or financial intermediaries. Research papers are invited in the topics of household finance, social banking, financial innovations, financial engineering, etc. As members of the Finance Department at CUB are heavily involved in a 3-year research project on the financial inclusion of disadvantaged regions, this new session gives an opportunity to present and discuss our preliminary findings, to exchange ideas, and to initiate new research collaborations.

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## KEYNOTE SPEAKER

**KAROLYI, Andrew**

***Andrew Karolyi: The State of Research on Climate Finance: An Inconvenient Void***

Professor Karolyi will give a lecture that outlines recent research insights on the new topic of climate finance. The research asks whether and how climate change and global warming may be impacting financial markets, from how assets are priced to how corporate financial decisions are made. The lecture will emphasize that this line of inquiry is still very new and there is much work ahead. He will share ideas on what new questions yet need to be answered.

### **Andrew Karolyi**

is a scholar in the area of investment management, with a specialization in the study of international financial markets. He has published extensively in journals in finance and economics, including the *Journal of Finance*, *Journal of Financial Economics* and *Review of Financial Studies*, and has published several books and monographs. His research has been covered extensively in print and electronic media, including *The Wall Street Journal*, *Financial Times*, *The Economist*, *Time*, *New York Times*, *Washington Post*, *Forbes*, *BusinessWeek*, and *CNBC*. Professor Karolyi served for seven years as editor of the *Review of Financial Studies*, one of the top-tier journals in finance. He is also an associate editor for a variety of journals, including the *Journal of Financial Economics*, *Journal of Empirical Finance*, *Journal of Banking and Finance*, *Review of Finance* and the *Pacific Basin Finance Journal*. He is a recipient of the Jensen Prize for Corporate Finance (2017), the Fama/DFA Prize for Capital Markets and Asset Pricing (2005), the William F. Sharpe Award for Scholarship in Finance (2001), and the *Journal of Empirical Finance's* Biennial Best



Paper Prize (2006). He joined the Cornell SC Johnson College of Business's Graduate School of Management in 2009, after teaching for 19 years at the Fisher College of Business of The Ohio State University. He leads various executive education programs in the U.S., Canada, Europe, and Asia, and is actively involved in consulting with corporations, banks, investment firms, stock exchanges, and law firms. He is currently president of the Western Finance Association, a current trustee and past president of the Financial Management Association International and has served as a director of the American Finance Association. Karolyi received his BA (Honors) in economics from McGill University in 1983 and worked at the Bank of Canada for several years in its research department. He subsequently earned his MBA and PhD degrees in finance at the Graduate School of Business (Booth School) of the University of Chicago.

## INVITED SPEAKERS

**BATTEN, Jonathan A.**

***Jonathan A. Batten, Harald Kinateder, Peter G. Szilagyi, Niklas Wagner: Asset Price and Liquidity Impacts: Can the Two Oils (Palm and Brent) Hedge Local Stocks?***

The study links with the financial market development debate (e.g. access to finance, technology and financial inclusion) and extends recent work on stock-oil hedging to consider the liquidity and price effects of commodities on local stock markets. We consider how hedging two key oils (Brent and palm oil) can be used as a hedge on the stock markets of two countries, Indonesia and Malaysia, which are the world's largest palm oil producers.

Within the Asia-Pacific region, most economies are smaller open economies with floating exchange rates. Their commodities exports are priced in USD and international trade is also invoiced in USD. The overall economic impact is that many Asia-Pacific corporations (including Indonesia and Malaysia) are subject to both commodity price, as well as foreign exchange price fluctuations. These risks are especially important for agriculturally based small and medium enterprises (SMEs), whose products are ultimately destined for export markets.

In this paper we show that adverse Indonesian and Malaysian stock price movements can be reduced by hedging using palm oil, Brent oil as well as exchange rates hedges. We first determine the sensitivity of one asset to another within a capital asset pricing framework. We employ two different measures of stock market liquidity to determine the impact that liquidity has on the time varying hedge ratio and correlation; then, we identify strategies to minimize the two oils and exchange rate risks and establish the most appropriate strategy using a hedging effectiveness statistic.

These results have important policy implications: Risk management is rarely mentioned in the development literature, although we show clear economic benefits from engaging in some form of hedging. Policy suggestions could involve the centralized collection and sale of agricultural products, to facilitate hedging, as well as the sale of relevant insurance and option-like products to SMEs, although financial literacy, in addition to financial inclusion, will be a key impediment to implantation in most developing nations.

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**Jonathan A. Batten**

holds the CIMB-UUM Chair in Banking and Finance at University Utara Malaysia and is an Honorary Professor in the Discipline of Finance at the University of Sydney Business School, Australia. Prior to these positions he worked as a Professor in Finance at Monash University, Australia, the Hong Kong University of Science & Technology, and Seoul National University, Korea. He is the managing editor of Elsevier's highly ranked *Emerging Markets Review*, and *Journal of International Financial Markets Institutions and Money*, and co-editor of *Finance Research Letters*.



Jonathan's research crosses several disciplines: in the business area he has published work on insider trading and market manipulation, bond pricing and corporate foreign exchange risk management in journals used by the *Financial Times* for ranking business schools (e.g. *Journal of Business Ethics*, *Journal of Financial and Quantitative Analysis* and the *Journal of International Business Studies*). In addition, he has also published work in leading journals in applied mathematics on complexity in financial time series (e.g. *Chaos and Physica A*), on stock, gold and energy market integration (*Energy Economics*, *Energy Policy* and *Resources Policy*), and importantly in economic policy on financial market development and societal impacts of foreign direct investment (e.g. *Applied Economics* and the *World Bank Research Observer*). His current research is based on assessing the impact on financial markets and investor portfolios of the expected worldwide shift to renewable energy.

**Niklas Wagner**

University of Passau  
See pp. 10.



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**LILLO, Fabrizio*****Fabrizio Lillo: Better to stay apart: asset commonality, systemic risk, and investment strategies***

Common asset holdings and fire sales spillovers are considered among the most important channels of propagation of systemic risk. Due to finite asset liquidity and market impact, the deleveraging of distressed financial institutions can propagate the distress to other institutions with similar portfolios. Common risk management practices and the use of adaptive expectations of risk can exacerbate this contagion leading to unstable or even chaotic market conditions. In this talk I will review some of my recent work on the subject, considering both theoretical modelling and econometric perspectives. Moreover, I will show the relevance of taking into account the risk of fire sales spillovers in portfolio allocation and risk management.

**Fabrizio Lillo**

is Full Professor of Mathematical Methods for Economics and Finance at the University of Bologna (Italy). Formerly he has been Associate Professor of Mathematical Finance and leader of the group of Quantitative Finance at the Scuola Normale Superiore, Pisa (Italy). He has been also External Faculty and Professor (2009-2012) at the Santa Fe Institute (USA). He received the Master (laurea) in Physics and PhD in Physics at the University of Palermo (Italy). He has been postdoc (1999-2001) and then researcher of the National Institute of the Physics of Matter, INFN (2001-2003). After that he has been postdoc (2003) and member of the External Faculty (2004-2009) of the Santa Fe Institute. He has been awarded the Young Scientist Award for Socio- and Econophysics of the German Physical Society in 2007. He is author of more than 85 referred scientific papers, which, according to Google Scholar, his papers have received more than 5,600 citations and his h-index is 36. He has been invited speaker in more than 25 international conference in the last 4 years. He is also member of the editorial board of 5 journals (including Journal of Statistical Mechanics (JSTAT) and Market Microstructure and Liquidity) and he is referee for many international journals and national funding agencies. Besides other projects, he is responsible of one of the units of the H2020 project SoBigData. He has also been responsible of one of the units of the FP7 funded European project CRISIS (Complexity Research Initiative for Systemic Instabilities) and of an INET grant, both focused on financial systemic risk and of ELSA and ComplexWorld, two European projects on Air Traffic Management. His current research activity is focused on financial markets, with a special emphasis on high frequency finance and market microstructure, network models and inference of temporal networks, systemic risk, data science in finance, economics, and social sciences.



**SCHIOZER, Rafael*****Frederico A. Mourad, Rafael F. Schiozer, Toni R. E. dos Santos: Bank loan forbearance: evidence from a million restructured loans***

Forbearance is a concession granted by a lending bank to a borrower for reasons of financial difficulty. This paper examines why and when delinquent bank loans are forborne, using a novel dataset with over 13 million delinquent loans to non-financial firms in Brazil, from which 1.1 million are forborne. Our evidence shows that larger loans are more likely to be forborne, and that the greater the difficulty to seize collateral, the larger the probability of forbearance. Previous forbearances to a borrower are also positively associated to the probability of forbearance, which may be an indicative of loan evergreening. We also show that more than 80% of forbearance events occur in less than four months after a loan becomes more than 60 days past due (after which the bank may no longer accrue interest). Finally, we find that a regulatory rule that forces banks to increase provisions of non-delinquent loans when the same borrower also has a delinquent loan creates incentives for banks to forbear delinquent loans. Because loan evergreening may pose macroeconomic resource allocation problems and forbearance may be used to conceal loan losses, decrease provisions and manage earnings and capital, our findings have implications for the design of regulation and supervisory processes.

**Rafael F. Schiozer**

is a Professor of Finance at FGV-EAESP, and is currently the head of the Accounting and Finance Department and a Brazilian National Research Council (CNPq) fellow. He teaches in graduate and undergraduate programs and supervises MSc and PhD students. His research focuses on financial stability, banking, risks and financial crises and has been published in journals such as the *Review of Finance*, *Journal of Corporate Finance*, *Journal of Financial Stability* and *Journal of Banking and Finance*. He holds a BA in Business from the University of São Paulo (1999), a MSc in Petroleum Engineering from the State University of Campinas (2002) and a PhD in Business (Finance) from Fundação Getulio Vargas (2006). Rafael was a visiting professor at Copenhagen Business School in 2016/17, and a visiting scholar at the Wharton School of Business – University of Pennsylvania (2013/2014) and the University of Illinois at Urbana-Champaign (2009). He has been a referee for journals such as the *Journal of Financial Intermediation*, *Review of Finance*, *Journal of Corporate Finance*, *Journal of Financial Stability*, *Emerging Markets Finance and Trade* and the *International Journal of Business and Economics*, among others.



**SZENTES, Balazs*****Doron Ravid, Anne-Katrin Roesler, Balazs Szentes:  
Learning Before Trading: On the Inefficiency of Ignoring  
Free Information***

This paper analyzes a bilateral trade model where the buyer's valuation for the object is uncertain and she can privately purchase any signal about her valuation. The seller makes a take-it-or-leave-it offer to the buyer. The cost of a signal is smooth and increasing in informativeness. We characterize the set of equilibria when learning is free and show that they are strongly Pareto ranked. Our main result is that, when learning is costly but the cost of information goes to zero, equilibria converge to the worst free-learning equilibrium.

**Balazs Szentes**

is a professor at the London School of Economics. After receiving his PhD in Economics from Boston University in 2002, he held positions at the University of Chicago and at the University College London. Professor Szentes has co-authored various contributions in top journals in economics and game theory, in particular in contract theory and auction theory. He was many times invited to give talks at seminars and conferences, last time to the World Congress of the Game Theory Society. He is member of the editorial board of the Review of Economic Studies and he was also editor of the American Economic Review.



**SZIMAYER, Alexander*****Zsolt Bihary, Péter Csóka, Péter Kerényi, Alexander Szimayer: Managerial Power and Say-on-Pay in a Principal Agent Framework***

We study a continuous time principal agent model with two non-standard features. First, the agent has managerial power restricting the principal's set of strategies. Second, the agent uses realized past pay as reference point for demanded future pay also addressing pay for luck. Additionally, we include the principal's say-on-pay, that is, the ability to deny the demanded pay at the expense of a shirking agent. Our framework relates to the managerial power theory in executive compensation and the adoption of say-on-pay vote regulation in the 2000s. The model predicts that say-on-pay increases principal's value, decreases the "outrage constraint", that is, the natural barrier to excessive compensation arrangements, and by this is decreasing the pay of the agent in high demanded pay states. For low to medium demanded pay states, the adoption of say-on-pay can lead to a small increase in the overall pay with the structure shifting towards a higher proportion of incentive dependent salary components.

**Alexander Szimayer**

is a Professor of Finance in the School of Business, Economics and Social Sciences at University of Hamburg, Germany. He studied Mathematics and Economics in Heidelberg, Munich, and Bonn, and previously held positions as a Professor of Finance in Bonn, Germany, and as Senior Lecturer of Finance at the Australian National University, Canberra, Australia, as well as the University of Western Australia in Perth, Australia. His main research area are Mathematical Finance, Financial Economics, and Applied Probability.





**Zsolt Bihary**

is an Associate Professor of the Department of Finance at Corvinus University of Budapest (CUB). Previously he worked as a researcher in physical chemistry, and as a financial modeler at Morgan Stanley. His research interest focuses on portfolio optimization, evolutionary finance and financial networks.

**Péter Kerényi**

is a PhD Student at the Department of Finance at Corvinus University of Budapest. He earned his master degree in financial mathematics at Eötvös Loránd University. He is working on dynamic contract theory.

**Péter Csóka**

Department of Finance, Corvinus University of Budapest  
See pp. 26.

**WAGNER, Niklas**

***Patrizia Perras, Niklas Wagner: Asset pricing with distinct premia for trading and non-trading risk***

This paper investigates the intertemporal relation between expected returns and conditional variance and its link to periodic trading breaks on the aggregate stock market. We consider a model that merges two different processes driving asset prices, (i) a continuous process that models diffusive risk during the trading day and, (ii) a discontinuous process that captures random overnight price changes. Based on this framework, we construct a modified version of Merton's (1973) intertemporal asset pricing model that considers distinct premia for trading and non-trading risk. Model estimation results reveal that both, trading risk as well as the risk of jumps due to overnight price changes, are crucial in explaining the expected market risk premium. Most notable, market price of risk estimates differ significantly for diffusive trading volatility and random overnight jumps. Only overnight jumps carry a positive market price of risk and contribute to observing a positive intertemporal risk-return trade-off. Overall, the findings indicate that exchange closures are usually accompanied by a sharp increase in investors' risk aversion resulting in a higher premium demanded by investors to hold the market portfolio overnight.

**Niklas Wagner**

is Professor of Finance and Financial Control at the University of Passau, Germany. After receiving his PhD in Finance, he held postdoctoral appointments at the Haas School of Business, U.C. Berkeley, and at Stanford GSB, thereafter finishing his habilitation doctoral degree at TU Munich. Professor Wagner has co-authored various contributions in finance, covering research in the areas of asset management, empirical asset pricing, applied financial econometrics as well as derivatives and risk management. Professor Wagner has co-edited book volumes on derivatives and risk management, currently is an associate editor of *Economic Modelling*, *Emerging Markets Review*, *Finance Research Letters*, the *Journal of International Financial Markets, Institutions and Money*, and the *International Review of Financial Analysis*, and is Editor-in-Chief of *Studies in Economics and Finance*.



**Patrizia Perras**

is research assistant at the Finance and Financial Control Research Group and PhD candidate at the Department of Business Administration and Economics at the University of Passau, Germany. She earned a M.Sc. in Accounting, Finance and Taxation from the same institution in 2015. Her field of research is primarily related to dynamic asset pricing, capital markets and risk management.



## SPEAKERS

**ALEKNEVIČIENĖ, Vilija; KLASAUSKAITĖ, Vaida**

### ***Behaviour of Calendar Anomalies and Adaptive Market Hypothesis: Evidence from Baltic Stock Markets***

The research is designated to test the Adaptive Market Hypothesis (AMH) by using calendar anomalies in Baltic stock markets. Analysis of the behaviour of well-known calendar anomalies over time is carried out with GARCH(1,1) regression model with dummy variables as well as with Kruskal–Wallis statistics. The results revealed existence of the weekend effect in all Baltic stock markets. The January effect was found to be significant in Lithuanian and Estonian stock markets, while the July effect – in Latvian. Test of the turn of the month (ToM) effect showed that Latvian stock market investors are more rational compared to the ones in the other two Baltic markets. Sub-sample analysis and GARCH(1,1) regression with rolling windows confirmed the AMH in respect with the weekend, January (month-of-the-year) and ToM effects in all Baltic stock markets. Possibility to earn abnormal returns from investment strategies based on the weekend, the January and the ToM anomalies disappeared during the financial crisis of 2008-2009. Test of calendar effects considering economic cycle confirmed dynamic investor behaviour and the AMH in all Baltic stock markets.

#### **Vilija Aleknevičienė**

is the professor of the Department of Accounting and Finance at Vytautas Magnus University (VMU) in Lithuania. Her primary research interests are risk-adjusted performance of companies and farms and decision modelling in financial markets. Currently she focuses on financial behaviour of investors, risk assessment and management. She is working as an expert in the Lithuanian Academy of Sciences and the Research Council of Lithuania; supervising and participating in national and international projects; supervising doctoral students, one of which has written the best dissertation in Social and Humanitarian Sciences in Lithuania in 2015. During her career at the University she was a Chairman of the Council of Faculty, Vice-president of Senate.



ANDERSONS, Matīss; KRASOVSKIS, Lauris; LUBLÓY, Ágnes

*Price evolution of major cryptocurrencies and attitude on the Internet*

Vast empirical evidence shows that stock prices are affected by information available online. Information accessible online might have an even more severe impact on cryptocurrency returns due to the online verification process of the transactions and the online attention paid to cryptocurrency price evolution. This study aims at investigating the association between the cryptocurrency-related user sentiment on the internet and cryptocurrency returns. We follow the price evolution of the 13 largest cryptocurrencies by market capitalization over a 5-year period (2014-2018), including the period considered as a cryptocurrency crisis. The user-created online sentiment is extracted from three major sources: Twitter, Reddit, and Bitcointalk. In total, over 35 million posts were extracted. By using the VADER sentiment tool and employing a Vector Autoregressive model, we find that user-created online sentiment is not a good predictor of cryptocurrency returns. Moreover, we find no empirical evidence that the predictive relationship between user-created sentiment on social media and cryptocurrency returns deteriorate as the market capitalization of the cryptocurrencies decrease. The only consistent predictor of cryptocurrency returns is Google Trends, showing the trend in Google search queries for specific cryptocurrencies over time, and measuring investors' overall interest in cryptocurrencies.

**Matīss Andersons**

is an eCommerce developer, mostly passionate about front-end and complex algorithms. He is currently working for Magebit, a small Latvian company. Matīss holds a Diploma of Bachelor of Social Sciences in Economics from Stockholm School of Economics in Riga (2019). Since June 2019 he is a researcher in the Department of Finance and Accounting at Stockholm School of Economics in Riga. Matīss finds data-heavy research interesting because he enjoys the crawling and scraping process, and the related textual analysis.



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## Ágnes Lublóy

is an Associate Professor in the Department of Finance and Accounting at Stockholm School of Economics in Riga. Ágnes holds a Master of Science in Finance and a Ph.D in Business Administration, both from Corvinus University of Budapest. She wrote her Ph.D dissertation on the systemic risk implications of the Hungarian interbank market. From 2005 to 2007, she was a Junior Fellow and later a Research Fellow with the Institute for Advanced Study at Collegium Budapest. Between 2004 and 2007, Ágnes worked on three distinct research projects related to financial networks at Magyar Nemzeti Bank, the central bank of Hungary. After receiving a two-year post-doctoral fellowship from AXA Research Fund in 2011, Ágnes turned her research focus to health economics (diffusion of pharmaceutical innovations, patient-sharing networks in healthcare, diagnostic delay for patients with bipolar disorder, economic cost of migraine).



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**ANTON, Sorin Gabriel*****The efficiency of financial intermediation and SME cash holdings. Empirical evidence from emerging Europe***

The level of corporate cash holdings and their determinants represent currently a hot issue in corporate finance research. Despite the extensive research conducted on this topic, current knowledge on the cash policies in the case of SMEs is limited. The aim of the paper is to examine the determinants of cash holdings for a large sample of gazelles from Central, Eastern, and South-Eastern Europe over the period 2006-2014. Gazelles are interesting to study because they are considered cash-hungry firms. We provide empirical evidence for a non-linear relationship between cash holdings and short-term debt. At the same time, large gazelles, firms with more tangible assets and firms holding liquid assets other than cash were shown to hold less cash. Regarding the impact of country-level variables, we find a negative and statistically significant relationship between bank lending-deposit spread and cash holdings in all estimations. Our results prove to be robust regarding the use of different estimation approaches and different sub-samples.

**Sorin Gabriel Anton**

is Professor of Finance at the Faculty of Economics and Business Administration, Alexandru Ioan Cuza University of Iasi, Romania. He graduated with a Master's degree in Bank Management from the University of Rostock and took his doctorate in Finance at Alexandru Ioan Cuza University of Iasi. His research interests include financial risk management, corporate finance, and international finance. He has published articles in various international journals, such as *International Entrepreneurship and Management Journal*, *Journal of Business Economics and Management*, *Engineering Economics*, *Ekonomický časopis*/*Journal of Economics*, and *E&M Economics and Management*.



**BAJAI, Mátyás; HORTAY, Olivér; VÍG, Attila A.**

### ***Market Liquidity Analysis on the HUPX Day-Ahead Market***

The purpose of our research is to analyze the day-ahead price processes and its' liquidity indicators on the Hungarian Power Exchange (HUPX). We present the actualities of the electricity market and the special nature of its' price processes. Most theoretical frameworks are parameterized based on higher liquidity exchanges, such as the European Energy Exchange, which differ in some respects from smaller markets, such as HUPX. Articles are rare that target the analysis of liquidity indicators of the power markets, furthermore, in Hungarian perspective they are non-existing. Due to the day-ahead order books of the HUPX dataset, we obtain all the demand and supply side bids for each hour from 2014 until the end of 2018. We observe the effect that the change in liquidity indicates on the prevailing market price, the correlation between the price spikes and the market liquidity.

#### **Mátyás Bajai**

is an MSc in finance student at the Corvinus University of Budapest. He has been focusing my research activities mainly on energy economics. Additionally, to his academic activities he is the leader of an economic research project at Input Program.



#### **Olivér Hortay**

is a PhD student at the Department of Environmental Economics at Budapest University of Technology and Economics. In his research, he focuses on the financial implications of renewable energy subsidy systems. In addition to his university activities, he is the Head of Energy Division at Századvég Economic Research Institute. In recent years, he has carried out several modeling and policy consultancy works in the electricity market. He completed his Masters's Degree in Finance and Engineering Management at the Budapest University of Technology and Economics in 2017 and 2016.





**Attila András Víg**

is a PhD student at the Department of Finance at Corvinus University of Budapest. His main research area is heterogeneous agent modeling of financial markets. He received his bachelor's degree in finance from Corvinus University of Budapest, and his master's degree in financial mathematics from Eötvös Loránd University. His e-mail address is: [attila.vig@uni-corvinus.hu](mailto:attila.vig@uni-corvinus.hu)



**BALCILAR, Mehmet; GÜNGÖR, Hasan**

***Global Liquidity Effect of Quantitative Easing in Major Advanced Economies on Emerging Markets***

This study examines the global liquidity effects of the unconventional monetary policy (UMP)–quantitative easing (QE)–in the major advanced economies on emerging markets. Using quarterly panel data over the period from 2000Q1 to 2018Q4 and quantile panel vector autoregression (QPVAR) we estimate the liquidity effects of the quantitative easing in the US, Euro Area, the UK, and Japan on a large set of emerging market economies. Effects of QE through liquidity, portfolio balance, and confidence channels are estimated jointly using the impulse responses and spillover indices. The study evaluates the effects of QE tapering scenarios in advanced economies on global liquidity with special emphasis on cross-border bank capital flows. We mainly use impulse response functions as the main empirical assessment tool. Spillover indexes are also used to express the strength of the links among the variables. Several measures of QE are used for robustness. These include an indicator variable for the number of days of QE operations, central bank balance sheet, and shadow interest rates. We separately estimate the model for US, Euro Area, the UK, and Japan, which reveals liquidity impact of QE in each on emerging markets.

***The Impact of Economic Policy Uncertainty on Government Bond Risk Premiums on The EU***

Following global downturn started in the aftermath of the US 2007 subprime crises, the central banks of the major advanced economies, have introduced policies leading to historically unprecedented ultra-low and negative interest rates. These policies faced the so-called “zero lower bound problem”. They have also implemented unconventional monetary policies by various large-scale asset purchases (LSAPs), known as “quantitative easing” (QE), which aimed reducing long-term interest rates. Against this backdrop, the objective of our study is to analyze the role news-based economic policy uncertainty in advanced economies (US, Europe, UK, and Japan) predicting bond risk premiums in emerging economies. For our purpose, we generalize the recently developed higher (k-th) order nonparametric causality-in-quantiles model of Balcilar et al. (2018) to multivariate case. The study includes a large number of emerging markets, such as Argentina, Brazil, China, Chile, India, Indonesia, South Korea, Malaysia, Mexico, Peru, Philippines, South Africa, Saudi Arabia, Singapore, Thailand, and Turkey.

**Mehmet Balcilar**

is Professor and Chair of the Department of Economics at the Eastern Mediterranean University, North Cyprus; Extraordinary Professor at the University of Pretoria, South Africa; and Affiliated Professor at the Montpellier Business School, France. He received his PhD in Economics at Wayne State University, MA in Economics at Cleveland State University and bachelor's degree at the Dokuz Eylul University. His research focuses on macroeconomics, financial markets, energy economics, nonlinear time series analysis, and risk modelling.

**Hasan Güngör**

is an Associate Professor of Banking and Finance. He received his PhD from Marmara University, İstanbul, Turkey in 1999. He is currently working at Department of Economics, Eastern Mediterranean University, North Cyprus. He also served as the undersecretary to the prime minister and later undersecretary to the president's office of North Cyprus in total of eight years. He has been involved in restructuring of the financial sector of North Cyprus in 2001-2002; established the EU Coordination Center and served as the founding chair in 2003; and finally served as the chair of the economics committee of the Turkish Cypriot negotiation team at the Cyprus peace process in search of a possible federal solution for the Cyprus dispute between 2009-2014. After the completion of his public duties, he returned back to Eastern Mediterranean University in 2014 and currently teaching microeconomics, macroeconomics and monetary economics at undergraduate and postgraduate level. His research interests include financial development, economic growth, foreign direct investment, economic policy uncertainty and energy economics.



**BARANYAI, Eszter*****Open-ended real estate funds: from flows to property***

Investors of open-ended real estate funds (OEREFs) seek to gain exposure to the property market yet many of these funds also hold an important part of their assets in cash and other liquid assets. In an environment marked by strong cash inflows, the investment lag can translate into a significant drop in funds' exposure to real estate. The share of real estate at sampled Hungarian OEREFs, for example, fell from 79% to 50% on average over the period of 2011-2017. The purpose of this paper is to uncover the relationship between flows and real estate investment at OEREFs. The particularly marked growth of the Hungarian OEREFs in recent years, surpassing that in many other EU countries and of other Hungarian fund offerings, coupled with accessible and granular data suggest fruitful ground for analysis. The study employs fixed-effects panel regressions, relying on data from the Hungarian fund managers' trade association. Flows are found to affect funds' real estate holdings if they occurred 12-18 months earlier. Inflows (outflows) in the preceding 6 months demonstrably lower (increase) funds' real estate holdings ratio. Beyond this relationship, findings do not suggest that less funds are channelled to real estate as "CRE heat" intensifies.

**Eszter Baranyai**

is a lecturer at the MNB Department at Corvinus University of Budapest and a co-author of the *Economia* blog since 2018. Prior to that, she worked in a number of areas – financial stability, financial markets and liquidity risk management – across the Bank of England (BoE), the Financial Services Authority and Barclays Bank. Inter alia, she reported on financial market conditions and market intelligence as the UK voted to leave the EU, was amongst the drafters of the BoE's Financial Stability Reports, took part in efforts to support European securitisation markets and participated in banks' supervisory liquidity reviews. She holds first class honours Master's degrees from CUB and ES-SCA, France and qualified as an ACCA accountant. Her research interests include asset management, central banking, liquidity risk and childcare.



**BAVIERA, Roberto; NASSIGH, Aldo; NASTASI, Emanuele**

***A closed formula for illiquid corporate bonds and an application to the European market***

We deduce a simple closed formula for illiquid corporate coupon bond prices when liquid bonds with similar characteristics (e.g. maturity) are present in the market for the same issuer. The key model parameter is the time-to-liquidate a position, i.e. the time that an experienced bond trader takes to liquidate a given position on a corporate coupon bond. The option approach we propose for pricing bonds illiquidity is reminiscent of the celebrated work of Longstaff (1995) on the non-marketability of some non-dividend-paying shares in IPOs. This approach describes a quite common situation in the fixed income market: it is rather usual to find issuers that, besides liquid benchmark bonds, issue some other bonds that either are placed to a small number of investors in private placements or have a limited issue size. The model considers interest rate and credit spread term structures and their dynamics. We show that illiquid bonds present an additional liquidity spread that depends on the time-to-liquidate aside from credit and interest rate parameters. We provide a detailed application for two issuers in the European market.

**Roberto Baviera**

is Professor of Financial Engineering at Politecnico di Milano. Previously, he has been interest rates trader & structurer in leading Italian investment banks for more than 8 years and specialist consultant of some of the major European financial institutions for four years. Prior to joining the financial industry, Prof. Baviera has been in the Department of Finance&Economics HEC (Paris) for two years; he holds a PhD in Physics with a thesis on information theory applications to derivative pricing and portfolio selection.



**BENEDEK, Botond; NAGY, Bálint Zsolt*****Nonlinear asset pricing for cryptocurrencies***

Cryptocurrencies, crypto assets and crypto-portfolios have received increased attention from financial academia especially after the surge of bitcoin (BTC) prices during 2017 (arguably called “the bitcoin-bubble”). Although quite a few aspects of empirical finance have since been tested in the literature on crypto data, the issue of nonlinear asset pricing has not yet been examined. Nonlinear (or higher moment) asset pricing is an extension of the classical capital asset pricing model (CAPM), including higher moments (skewness and kurtosis) of the statistical distribution of returns. More specifically, non-linear asset pricing examines to what extent the correlation between these higher moments of an asset and those of the market portfolio (proxied usually by a stock index) can explain the evolution of expected returns, risk premia or portfolio-performance indicators. These non-linear effects on asset pricing become especially important in the context of large market fluctuations such as irrational bubbles, busts or market crashes, and as such are part of the extreme event/tail dependence methodology. Apart from the question of equilibrium asset pricing, our aim is also to examine the risk-return trade-off characteristics of crypto portfolios.

**Botond Benedek**

is a Teaching Assistant and a PhD student at the Faculty of Economics and Business Administration at the Babeş-Bolyai University, Cluj Napoca, Romania. He earned a M.Sc. in Banking and Capital Markets from the same institutions in 2017. He is teaching insurance, corporate finance, and economic informatics. His research interests are in financial fraud detection and in cryptocurrencies.

**Bálint Zsolt Nagy**

possesses Phd in Economics (Finance) from the University of Pecs (2008). From 2013 he is associate professor at Babeş Bolyai University Faculty of Economics and Business Administration, Cluj-Napoca, Romania. Courses taught: Portfolio theory, Financial markets, Derivative pricing, Investment management, Investment decisions. His research interests include mainly non-mainstream approaches to financial economics such as econophysics and behavioural finance with articles published in Physical Review E and Applied Economics Letters.



**BERLINGER, Edina; LOVAS, Anita**

***Social enterprise under moral hazard***

We investigate the simultaneous optimization of four players, an entrepreneur, an advisor, a passive investor, and the state, in a one-period, two-outcome, fixed-investment analytical model inspired by (Tirole, 2006, p. 364). We understand the advisor in a broader concept, it can mean a mentor, a civil servant, a rural integrator, a venture capitalist, a consultancy firm, etc. The project offers a positive NPV only if the entrepreneur behaves which can be further improved if the advisor behaves, too. We show that this double moral hazard problem can be eliminated completely by an appropriate contract design among the three private players. Depending on the initial capital of the entrepreneur, the project may receive active financing (i.e. financing plus an advisory program), or only passive financing, or no financing at all. As the project has positive external effects, the state (community, municipality etc.) may have interest in subsidizing it. We prove that an investment subsidy or a success fee have positive effects on the incentives as the state removes the financing barriers and mobilizes private financing. A state guarantee, however, can be detrimental without any positive effect if it is given to the entrepreneur or to the advisor, therefore, this subsidy form cannot be explained in the model. A state guarantee for a passive investor, however, is feasible and even beneficial because the financial sector transforms the bad incentive system into a good one. Finally, we also present that even well-designed and well-operated state subsidy systems suffer from a special crowding-out effect as this opportunity motivates the entrepreneur to hide his initial capital and to invest less than he could afford. By this mechanism, the entrepreneur can privatize the positive externalities of the project.

**Anita Lovas**

is an Associate Professor of the Department of Finance at Corvinus University of Budapest. She received her PhD in 2016. Her research areas include venture capital, double moral hazard modelling and IPO.



**Edina Berlinger**

Corvinus University of Budapest  
See pp. 24.

**BERLINGER, Edina; DÖMÖTÖR, Barbara*****Wrong way risk of retail loans***

Financial regulation aims to capture all risk factors financial institutions are exposed to, however, capital requirements are prescribed to be calculated separately for market, credit and operational risk. The interaction of market risk and credit risk is built in the second pillar of the new Basel framework by requiring banks to identify, measure, monitor, and control interest rate risk in the banking book. This concept decomposes the interest rate elements and investigates the distinct effects of the changes of the market liquidity spread and general market credit spread on the present value of the assets in the banking book. On the other hand, the relationship of the idiosyncratic credit spread to the market risk components – that is a general wrong way risk – are monitored only for counterparty credit risk, the credit risk of settlement of mainly derivative transactions. This paper presents the market risk of retail mortgage loans with short term interest periods, and the effect of a potential increase of interest rates on the default probability of individual borrowers. Using scenario analysis and stress testing, we suggest a methodology for commercial banks to analyze their loan portfolios and to calculate the minimum capital needs of the wrong way risk of them.

**Edina Berlinger**

is a Professor at Corvinus University of Budapest and she is also the Head of Department of Finance. Her expertise covers asset pricing and risk management and especially the financial management of student loan systems. She has participated in several research and consultancy projects including design and implementation of student loan schemes as World Bank consultant and a research fellowship at the Collegium Budapest in complex systems. She received her PhD in Economics (2004) from Corvinus University.

**Barbara Dömötör**

is an Associate Professor of the Department of Finance at Corvinus University of Budapest. She received her PhD in 2014 for her thesis modelling corporate hedging behavior. Prior to her recent position she worked for several multinational banks treasury. Her research interest focuses on financial markets, financial risk management and financial regulation. She is the co-director of the Hungarian Chapter of Professional Risk Managers' International Association.





**CZECH, Robert*****Credit Default Swaps and Corporate Bond Trading***

Using regulatory data on CDS holdings and corporate bond transactions, I provide evidence for a liquidity spillover effect from CDS to bond markets. Bond trading volumes are larger for investors with CDS positions written on the debt issuer, in particular around rating downgrades. I use a quasi-natural experiment to validate these findings. I also provide causal evidence that CDS mark-to-market losses lead to fire sales in the bond market. I instrument for the prevalence of mark-to-market losses with the ratio of non-centrally cleared CDS contracts of an individual counterparty. The monthly corporate bond sell volumes of investors exposed to large mark-to-market losses are three times higher than those of unexposed counterparties. Returns decrease by more than 100 bps for bonds sold by exposed investors, compared to same-issuer bonds sold by unexposed investors. My findings underline the risk of a liquidity spiral in the credit market.

**Robert Czech**

is a Research Economist in the Capital Markets Division within our Financial Stability and Strategy Directorate. His research is mainly focused on the structure and interconnectedness of credit markets, with a particular interest in the sterling corporate bond market. Robert's research interests also include exchange-traded funds (ETFs), central clearing and the structure of over-the-counter (OTC) derivatives markets. Robert holds a PhD in Finance from Imperial College London, and a BSc and MSc in Business Administration (Major Finance) from the University of Cologne.



CSÓKA, Péter; HERINGS, P. Jean-Jacques

*Non-cooperative bargaining on debt restructuring*

An insolvent firm has liabilities towards a group of creditors. We analyze the problem of how to distribute the asset value of the firm among the creditors and the firm itself, using a dynamic non-cooperative bargaining model. We specify a bargaining protocol where a randomly selected active player can propose a coalition and a feasible asset allocation. If the proposal is unanimously accepted by all members of the coalition at hand, then the related creditors leave the game. However, the firm has to stay in the game until all creditors are satisfied. We analyze the stationary subgame perfect equilibria of the game. We show that when the discount factor goes to one, the equilibrium allocation is converging to the constrained equal awards rule, where creditors with smaller claims get a higher proportion of their claims than creditors with higher claims.

**Péter Csóka**

is a Professor at the Corvinus University of Budapest, Department of Finance and a senior research fellow at the game theory research group of the Institute of Economics, CERS. He received his PhD in economics from Maastricht University in 2008. His research topics include risk measures, risk capital allocation, various aspects of liquidity, and financial networks. He has papers published in journals like Management Science, European Journal of Operational Research, Games and Economic Behaviour, and Journal of Banking and Finance.



## DE GENARO, Alan

### *Market Impact: Evidence from the Brazil stock market*

Market impact risk is a specific type of liquidity risk. It describes the risk of not being able to execute a trade at the currently quoted price because this trade feeds back in an unfavorable manner on the underlying price. This makes market impact modeling a fascinating and active research agenda from a mathematical point of view. Moreover, market impact models are often used in practical applications and it would be desirable to gain a better understanding of their behavior and their stability. Supported by the international empirical evidence we calibrate the continuous-time version of the propagator model, discussed by Gatheral (2010), to Brazil equity market. We find mixed results supporting the adoption of the square-root law of price impact.

#### Alan De Genaro

is an Associate Professor of Finance of Getúlio Vargas Foundation (Sao Paulo School of Business Administration), Brazil. He received his PhD in Statistics from the University of Sao Paulo (Institute of Mathematics and Statistics - USP) in 2011. During 2012 he was a postdoc in the Courant Institute of Mathematical Science at New York University. He was an Assistant Professor of the Economics Department at the University of Sao Paulo between 2014 and 2018. In 2012 he was awarded the Brazilian Financial and Capital Markets Association (ANBIMA) best paper award, in 2017 a thesis under his supervision was awarded by the National Federation of Brazilian Banks (FEBRABAN). In 2018, he was awarded the Haralambos Simeonidis Prize - the most important Economics award in Brazil - the prize is awarded annually by the National Association of Centers of Graduate Studies of Economics (ANPEC) to the best article in economics, written by economists affiliated to Brazilian institutions. In July 2019 he was elected deputy director of Brazilian Finance Association (Term 2019-2021) and also serves as an Associate Editor for the Brazilian Review of Finance. He has published his work on high impacts journals, such as the Journal of Financial Economics, International Journal of Theoretical and Applied Finance, Journal of Banking and Finance and Journal of International Money and Finance, among others. He has also been acting as a referee for Journal of Financial Econometrics, Journal of Banking and Finance and International Journal of Theoretical and Applied Finance, the Sao Paulo State Research Foundation (FAPESP) and Chilean National Commission for Scientific and Technological Research.



**FAIN, Máté; NAFFA, Helena*****Pure Factor Megatrend Investments***

Factor investing in equity markets is rooted in the Fama and French (1996, 2015) three-factor model; several variants have since emerged that extended the number of factors in the literature. Others like Menchero (2010) and Clarke et al. (2017) enhanced the methodology to construe pure factor portfolios. In this paper, we introduce the term megatrend factors, which are a novelty in empirical financial research. The asset management industry's novice approach to thematic style investing is via identifying megatrends. These mid-to long term trends impact society, disrupt the economy and shape the environment. Some of these megatrends include the aging society, e-commerce, food scarcity, future mobility, genetics, internet of things (IoT), robotics, vanity consumption (luxury goods), and water scarcity and waste management. In this paper, we form pure factor megatrend investment portfolios using multivariate crosssectional regressions to examine the profitability of megatrend investments. Do these active thematic investment strategies yield positive excess return relative to the benchmark? Our empirical research is also a test of market efficiency. We collect data from developed market thematic ETFs from 2014-2019. Our results show positive alpha for all pure factor megatrend portfolios, however results are not statistically significant for any of the megatrend factors<sup>2</sup>. We also tested for traditional factors, our empirical results corroborate with findings in the literature, and show that the momentum and size factors remain relevant in generating alpha for the period examined.

**Máté Fain**

is a PhD student at the Department of Finance at Corvinus University of Budapest, where he teaches corporate finance, corporate valuation and financial market risk management. His main research interests are in empirical asset pricing, state subsidies and corporate finance. Recently he is working on his Ph.D thesis about factor investing in emerging and developed markets with a focus on ESG factors.

**Helena Naffa**

is a part-time senior lecturer at Corvinus Business School teaching applied valuation and the Student-Managed Investment Fund course. Her research areas include ESG investments, emerging equity markets and portfolio management. She earned her PhD in 2015 at Corvinus, the reviewer was Prof. Aswath Damodaran. She has more than 10 years of experience in working in CEE capital markets as a sell-side equity analyst. Currently, she is a senior buy-side analyst with Aegon Asset Management Hungary.



**FRIESZ, Melinda; MURATOV-SZABÓ, Kira; PREPUK, Andrea; VÁRADI, Kata**

*Cross-guarantee phenomenon in central clearing*

In our paper, we point out why it is essential to carefully calibrate the value of the default fund and the stress test required to apply for CCPs. Besides complying with the regulatory background, it is also crucial to carefully set up the risk management framework for a CCP. The amount of margin can affect the amount of the default fund, which has different effects on the CCP and the clearing member as well, not necessarily in a positive manner for both at the same time. The model we built is a simplified reality, but the results show how much impact the merged and separated market has regarding cross-guarantee. Our primary goal was to examine how the contribution to the default fund changes per each clearing member if we calculate on separated or merged markets. Practically our model shows that if a CCP's goal is to maximize the value of the guarantees, may choose to handle default funds separately, but if it wants to increase the risk-sharing between clearing members, the CCP should use merged guarantee system of different markets. Moreover, in this case, the margin is lower, which is in favor of the clearing members as well.

**Melinda Friesz**

is a risk analyst at KELER CCP. Her main responsibilities are operational risk management and regulatory reporting. She majored in finance and management at Babes-Bolyai University, Faculty of Economics and Business Administration (2013). Currently she is also a PhD student at the Corvinus University of Budapest. Her main research area is market infrastructures.



**HAVAS, Attila; MOLNÁR, György**

***A multi-channel interactive learning model of social innovation***

The paper develops a new model of social innovation (SI) by relying on the multi-channel interactive learning model of business innovation (Caraça et al. 2009). As opposed to the linear models of innovation, this model does not identify ‘stages’ of business innovation. It stresses that innovation is an interactive process, in which collaboration among various partners are crucial, as they possess different types of knowledge, which are all indispensable for a successful innovation activity. To develop a new model of SI, we identify the potential major actors in an SI process, their activities, modes of producing, disseminating and utilising knowledge. We also consider the mezzo and macro environment of SI, composed of the education and training system, the cognitive frame on social innovations, the policy governance system, regulations, and the funding opportunities. We will illustrate the proposed model with different types of cases. The model can assist SI policy-makers, policy analysts, as well as practitioners when devising and implementing SI.

**Attila Havas**

is Head of Research Group at the Institute of Economics, CERS, regional editor of International Journal of Foresight and Innovation Policy, and member of the editorial board of Foresight and STI Governance. His academic interests are in economics of innovation, national and sectoral innovation systems, theory and practice of innovation policy, (technology) foresight as a policy tool, and social innovation. He has participated in a number of international research projects on STI policies, innovation and transition, social innovation, as well as on foresight and prospective analyses, advised foresight programmes in several countries, been a member of EU expert groups, and invited speaker at international conferences.



**György Molnár**

is senior research fellow and the head of the Public economics and public policy research unit at the Centre for Economic and Regional Studies. His research interest covers welfare economics, subjective well-being, poverty, social innovation and social microcredit. As a volunteer, he is an expert and board member of a Hungarian microfinance initiative, Kiút-program, working mainly in poor Roma neighbourhoods.



**HAVRAN, Daniel*****What do bankrupted households do differently? Financial and labour market behavior around the poverty trap***

This paper aims to describe the bank account usage, labour supply, informal and formal borrowing activities, well-being and attitude of the households who bankrupted in their mortgage or personnel credit. The explorative analysis reports the results of a household-based, cross-sectional questionnaire (n=504), conducted in an underdeveloped area of Hungary. Regarding the level of income and indebtedness, we identify and compare the households those a) can manage their loan redemption, b) have smaller payment disorders, c) face significant financial problems. By exploring practices of managing day-by-day payments of the households, our evaluation helps to understand better the relationships between bankrupted loans and financial and labour market activities below and above the income threshold of the poverty trap. Keywords: bankrupted loans, household finance, survey

**Daniel Havran**

is Research Director of the Corvinus Business School. He is an Associate Professor of Finance at Corvinus University of Budapest, where he has been a faculty member since 2008. His research interests are corporate finance, financial markets, liquidity. He is a member of the editorial board of Budapest Management Review. Currently, he leads a research project titled Financial and Public Services sponsored by the Higher Education Institutional Excellence Program of Hungary. He teaches courses as Corporate Finance, Credit Risk Management and Market.



**JUHASZ, Peter*****Ethical challenges of using AI solutions in financial consulting***

AI solutions in the financial sector may radically raise the availability and the speed of service and reduce service costs while providing additional demand and transparency. An AI-based brokerage portal could boost competition and remove competitive disadvantages, thus benefiting the customers, and making the markets a kind of more liquid. However, using these solutions could raise ethical concerns, even if eliminating human staff interaction. The paper illustrates the identified challenges with the aid of a case study. When contrasting the experience gained with the two major Hungarian insurance brokerage portals on traveller's insurance offers, various issues were identified including biased recommendations, limited product offer, and offering the same product at inflated prices while seemingly promising a price guarantee.

**Peter Juhasz**

received his master in Economics and PhD in Business Administration from the Corvinus University of Budapest, where he is associate professor of Finance. He also serves as a board member of CFA Society Hungary. His field of research covers financial modeling, business valuation, corporate finance, and corporate risk management. Besides, he regularly works as a trainer and coach and acts as a consultant for SMEs.





**KONOPCZAK, Michał; GALESHCHUK, Svitlana;  
TYMOCZKO, Dobiesław**

***Evolution of the euro's role as an international currency vis-a-vis the US dollar***

This paper analyses foreign exchange rates' interdependence using a minimum spanning tree approach in order to determine the euro's area of influence and examine its evolution vis-à-vis the US dollar as world's top international and reserve currency. Though typically used in other disciplines, a minimum spanning tree proves to be a powerful statistical method for clustering and visualization of financial data. We address some of its shortcomings by employing nonlinear similarity measures and using the bootstrap technique to verify the reliability of links. The study reveals the formation of robust cluster with euro-oriented currencies over the past 27 years that undermines the US dollar's dominant position in the global FX market.

**Michał Konopczak**

graduated from the Warsaw School of Economics (MA in Finance and Banking – 2008, MA in Economics – 2008, PhD in Finance – 2012). Currently an assistant professor in the Institute of International Economic Policy (Warsaw School of Economics), and a deputy head of the Financial Markets and Instruments Division (Financial Stability Department at Narodowy Bank Polski). Member of the supervisory college for KDPW\_CCP. Areas of professional interest include financial markets and financial risk management.



**KOSIOROWSKI, Grzegorz; SIERADZKI, Rafał; THLON, Michał*****Game-theoretic approach to IPO underpricing: issuer vs broker***

Issuer and broker that are involved in an Initial Public Offering play a game in which they have to agree on the issue price. In a situation when both parties are risk neutral the issuer will tend to set the price as high as possible because this maximizes his proceeds from the IPO given the number of sold shares is fixed. On the other hand, the broker tries to lower the issue price because this maximizes the probability of selling all offered shares and at the same time to minimize his level of effort. We prove that the behavior of the issuer and the broker completely change if we assume that both parties are risk averse. Bearing in mind that the issuer is more risk averse than the broker because he carries a considerable fixed cost hiring the broker. In this situation the issuer will bargain with the broker to lower the issue price and the broker will try to set this price higher.

**Grzegorz Kosiorowski**

Assistant Professor at the Department of Mathematics of the Cracow University of Economics. Research areas: game-theoretic modelling in economics, in particular perceived inequality as an incentive for economic activity, dynamical systems, chaos theory.

**Rafał Sieradzki**

is an Assistant Professor of Finance at the Department of Economics, Cracow University of Economics (Poland). Before he worked as an economic expert in the Financial System Department at the National Bank of Poland. His research areas cover equity, bond and derivatives markets and the real economy. He is an author and co-author of many monographs, articles and reports and court expert in financial markets and risk management.



**Michał Thlon**

is Assistant Professor of Finance at the Department of Economics, Cracow University of Economics (Poland). In 2010 he defended his doctoral thesis on operational risk management in enterprises. He is a court expert in banking, compliance and risk management. He is a member of GARP and PRMIA. His articles have been published in various international journals, such as the Geneva Papers on Risk and Insurance. He is a member of Editorial Review Board of "Journal of Quantitative Finance and Economics".

He is the coordinator or an expert for over 50 research projects at the international or national level in the field of risk management, innovation and business environment. He is author and co-author of over 100 monographs, articles, advisory reports and research papers. His research interests focus on financial econometrics, pricing of derivatives, financial economics and risk management.



**LIBICH, Jan**

***Unpleasant Monetarist Arithmetic: Macroprudential Edition***

The paper shows that the recent trend of separating macroprudential and monetary policies (M&Ms) into two autonomous institutions is undesirable. The main reason is occurrence of a strategic (Game of Chicken type) conflict, disregarded in conventional microfounded macro models. It relates primarily to stabilization of exuberant credit booms, whereby each M&M prefers to ignore the forming bubble - inducing the other institution to tighten conditions. This strategic conflict between M&Ms has been observed in Sweden, Norway and other countries after 2010. To offer novel insights, we postulate a generalized concept of Stochastic leadership in which the policies can probabilistically revise their earlier actions in a Calvo-style fashion. Due to greater rigidities and constraints, the macroprudential authority is likely to be the Stochastic leader and have an upper hand on the central bank. Our game-theoretic analysis demonstrates how this leads to a second type of an unpleasant monetarist arithmetic. In the original version of Sargent and Wallace (1981) the danger to price (and output) stability comes from irresponsible fiscal policy, whereas in our version it comes from inadequate macroprudential policy.

**Jan Libich**

has completed his PhD at the University of New South Wales in Sydney. His research focuses on monetary and fiscal policy, the financial and banking system, game theory and sports economics. Over the past decade he has published close to 30 papers in academic journals including Journal of Public Economics, European Journal of Political Economy, Macroeconomic Dynamics, Journal of Sports Economics, Journal of Economic Surveys and Economics Letters. Jan's one-hour video interviews with esteemed central bankers, politicians and academic economists can be viewed at [www.youtube.com/c/JanLibich](http://www.youtube.com/c/JanLibich).



**MANZANO, Carolina; BAYONA, Anna; DUMITRESCU, Ariadna**

***Information and Optimal Trading Strategies with Dark Pools***

We study the competition between two trading venues with different degrees of transparency in the presence of asymmetric information: a fully transparent exchange organized as a limit order book, and an opaque dark pool. We find that the optimal order submission strategies depend on stock market characteristics (volatility, liquidity, adverse selection) and traders characteristics (immediacy and information). Adding a dark pool not only enlarges traders' strategies set but also may induce a substitution of trading venue, order type, and increase market participation in relation to when the dark pool is unavailable. We examine the effects of adding a dark pool on market quality, and our results reconcile the ambiguous effects of dark pools on market performance found both in the previous theoretical and empirical studies.

**Carolina Manzano Tovar**

is an associate professor in the Department of Economics at Universitat Rovira i Virgili. She has a PhD in Economic Analysis from Universitat Autònoma de Barcelona (1996) and a Degree in Mathematics from Universitat de Barcelona (1991). Her research interests are in the area of Financial Economics and, in particular, in Microstructure of Financial Markets. She has published several articles in international journals. She has also served as referee for different journals of her field of specialization and has been member of Scientific Committees of several conferences.



**NAGY, Oliver; NESZVEDA, Gabor**

*Individualism and Momentum in Emerging Markets*

Cultural differences measured with the individualism index across countries are strong predictors of the profitability of momentum strategy in large equity markets (Chui et al., 2010). We investigate the presence of the same relation in emerging markets. We also find empirical evidence on the positive relation between individualism and the profitability of momentum strategy even after controlling for several already known alternative explanations such as the behavioral and rational models, information uncertainty, and macroeconomic risks. Additionally, based on recent literature, we also test the hypothesis that conditioning on market states could explain these results. Although several variables coming from alternative explanations are related to the profitability of the momentum strategy, the relation between individualism and the profitability of the momentum strategy remains significant even after controlling for them.

**Oliver Nagy**

studied economic analysis at Corvinus University of Budapest. Research interests include behavioral finance, behavioral empirical asset pricing, and monetary economics.



**Gabor Neszveda**

Corvinus University of Budapest  
See pp. 39.

**NESZVEDA, Gabor; FARKAS, Miklos**

*Attention and short term reversals*

Large movements in stock prices are subject to reversals as they may indicate the returns required by liquidity providers. We show at the monthly frequency that the returns to a simple liquidity provision strategy are large and significant for stocks with low attention and often insignificant for stocks with high attention. In the time series dimension the returns to providing liquidity to low attention stocks correlates with proxies for the costs of liquidity provision, while the returns to providing liquidity to high attention stocks does not. This is consistent with the idea that stock price movements which are under scrutiny by investors are more likely to reflect information than illiquidity.

**Gabor Neszveda**

moved to the Department of MNB at Corvinus University of Budapest in 2017. He studied quantitative economics at Corvinus University of Budapest and proceeded to do his PhD at the Department of Finance at Tilburg University. His main research interests include behavioral economics, behavioral empirical asset pricing, and experimental economics.



**OLEKSY, Paweł; CZUPRYNA, Marcin**

***The effect of digital communication on liquidity and price behaviour in fine wine market***

In the search for attractive risk-adjusted returns, individual and institutional investors look beyond traditional financial markets and explore investment opportunities in various non-financial assets. Fine wines belong to these increasingly popular alternative asset classes. Innovations in wine trading (e.g. electronic trading platform Liv-ex that operates similarly to stock exchanges) and the use of electronic or mobile-based communication channels have created space for improving efficiency and increasing liquidity in this traditionally opaque and fragmented market. In this paper we investigate how does the digital communication influence prices and liquidity in fine wine market. More specifically, we verify the existence of some textual regularities in market news and commentaries and examine their links to wine price movements and changes in liquidity measures. Our preliminary results reveal that linguistic structure of text corpora disseminated via digital channels may have a significant impact on wine prices and market liquidity. For instance, mean bid-ask spreads have been found to be negatively correlated with number of words or percentage of nouns, but positively correlated with percentage of numbers included in messages describing current market trends.

**Paweł Oleksy**

is an Assistant Professor at the Cracow University of Economics, Department of Financial Markets. He received his PhD in economics from SGH Warsaw School of Economics. His research interests focus on financial markets, market microstructure, alternative investments and financialisation of non-financial corporates and real assets. He is a member of the European Finance Association and the American Association of Wine Economists. He also serves as a reviewer for World of Real Estate Journal. He has papers published in journals like JASSS-The Journal of Artificial Societies and Social Simulation and Journal of Wine Economics (forthcoming). He has an extensive professional experience gained in real estate and energy markets. His teaching activity includes courses and workshops in Alternative investments, Fixed income analysis and Portfolio management.





PANAGIOTOU, Panagiotis; GAVILAN, Angel; JIANG, Xu

*Commonality in Liquidity and its Determinants in Euro-Area Sovereign Bond Market*

We test for a common component in liquidity variation across sovereign benchmark bonds from ten Euro-area countries, over a seven year period using tick-by-tick data from the inter-dealer market. We find strong evidence of commonality in liquidity in both quoted spreads and depths, irrespective of issuing country and maturity at issue, suggesting a pan-European market-wide common factor in liquidity. We further examine time-series variation in liquidity commonality and how it is driven by supply determinants (funding constraints of financial intermediaries) and demand determinants (investor sentiment, uncertainty, and cross-market linkages with the equity market) of liquidity. Commonality in liquidity does change over time, tends to intensify in stress periods as well as around ECB policy meetings on rate decisions, and we find stronger evidence in favor of the supply side determinants.

**Panagiotis Panagiotou**

is an Assistant Professor (Lecturer) at the department of Accounting & Finance, University of Greenwich and PhD Candidate in Finance at Cass Business School, City, University of London. His research agenda broadly falls within the field of empirical market microstructure.



**PINTÉR, Miklós*****How to generate objective ambiguity***

Taking advantage in strategic situations by using ambiguity is well documented in the literature. However, so far there are only few results on that how to generate objective ambiguity. In this talk we introduce a procedure, which generates objective ambiguity meaning it draws an element from the set of priors defined by a belief measure in a way that the procedure does not lead to any probability distribution on the priors. Moreover, we define the notion of ambiguous action in a precise way, in order to apply it in strategic models.

**Miklós Pintér**

is an associate professor at BME, Institute of Mathematics and a part-time associate professor at Corvinus University of Budapest. His research interest is decision and game theory, mathematical economics, and operations research. He has published papers in journals like European Journal of Operational Research, Annals of Operations Research, Journal of Mathematical Economics, Economic Theory among others.



**RAFFESTIN, Louis*****Confidence as a vector of financial contagion: how does it work, and how much does it matter?***

We provide a bank-run model in which confidence is proxied by the noise around the estimation by depositors of the distribution of the asset portfolio of their bank in  $t = 0$ . Banks are connected together through informational and balance sheet linkages, leading the probability that a bank  $i$  experiences a run in  $t = 1$  to depend on the realized returns of the other banks. We find that low confidence fosters informational contagion, because it leads depositors to strongly revise their estimate of future bank portfolio return following bad returns. More surprisingly low confidence also enhances balance sheet contagion because the marginal impact of a loss from balance sheet exposures is higher when expected returns are low, implying that size matters more when confidence is low.

**Louis Raffestin**

received his PhD in 2015 from the University of Bordeaux after graduating from Trinity College Dublin and Paris I Panthéon-Sorbonne. He is now an assistant Lecturer in Orléans. His research focuses on the endogenous dynamics that drive financial risk. He has publications in journals such as the JBF.



**RAZA, Hamid; BYRIALSEN, Mikael**

***Household Debt and Macroeconomic Stability: An Empirical SFC Model for the Danish Economy***

In the current environment of very low interest rates, Denmark has experienced a sharp increase in property prices and currently has the highest debt to income ratio amongst OECD countries. This has raised some concerns regarding the vulnerability of the Danish economy to scenarios such as a sudden fall in the house prices or increases in the interest rate. This paper attempts to address this issue by building an empirical macroeconomic model for Denmark, a small open economy with fixed exchange rate. To do so, we adopt a stock-flow consistent approach, using annual data on Danish national accounts. Our model has five main sectors namely, household, firms, financial corporations, government, and the rest of the world (Row) sectors. We analyse the model for two shocks; i) an increase in interest rates, and ii) a fall in house prices. Overall, our model suggests that a high household debt can magnify macroeconomic risks especially when the economy is hit by unexpected shocks.

**Hamid Raza**

is an Assistant Professor in Economics at Aalborg University. A major part of his research is devoted to developing macroeconomic models for open economies with a focus on the link between financial and real side of the economy. His research work has a strong empirical focus. He is currently involved in several projects, which broadly includes Monetary policy and Securitisation, Inequality, Empirical Stock-Flow Consistent Macroeconomic models.



**SAVVIDES, Andreas; ANDREOU, Christoforos;  
LAMBERTIDES, Neophytos**

***Sovereign Credit Risk, Liquidity and Global Equity  
Fund Returns in Emerging Markets***

We examine the rate of return earned by global funds on equity investment in emerging markets (EMs) particularly the role played by sovereign credit risk and liquidity. Sovereign credit upgrades or downgrades influence excess (over risk free rate) returns earned by foreign investors: lower excess returns are associated with lower risk. The effect of credit upgrades and downgrades, however, is not symmetric. By contrast, credit outlook or credit watch announcements do not seem to influence foreign investors' excess returns. When it comes to abnormal or risk-adjusted returns, foreign investors treat the information contained in credit rating announcements differently from that in credit outlook/watch announcements. Our results show that market greater market liquidity reduces abnormal returns. Furthermore, our findings provide evidence for the superior performance of foreign investors in EMs relative to the return of domestic market indexes in EMs, highlighting the influential role of sovereign credit risk announcements on foreign investors' abnormal returns.

**Andreas Savvides**

is Professor of International Finance at the Cyprus University of Technology (CUT). He has served as Department Coordinator and Dean of the Faculty of Management and Economics of the newly-established CUT since 2007. Prior to joining the CUT he served on the faculty of Oklahoma State University, Tulane University and University of Wisconsin-Milwaukee for over two decades. His areas of specialization are currency risk and emerging economies. He holds a PhD in International Economics from the University of Florida.



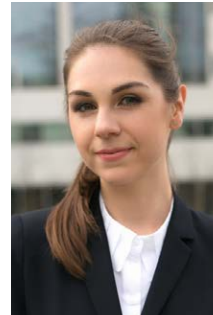
**SERIKOVA, Ekaterina; MENKVELD, Albert J.**

***Time for Dinner? No, for Risk Contraction***

The study sheds light on how traders allocate the risk of their equity portfolios throughout a trading day. They tend to contract risk around the market close, providing a central clearinghouse (CCP) with a "natural hedge". CCP members mostly trade stocks that have the largest impact on the daily margin requested from a clearinghouse. They sell stocks with the highest marginal risk and buy stocks that decrease the total portfolio risk the most. As our measure of portfolio risk corresponds with what the CCP uses for the estimations of daily margin requirements, we conclude that the risk-reduction behavior is driven by reluctance to provide end-of-day margin contributions to the CCP. Such trading in the direction of risk contraction distorts closing stock prices: for the top 10% most traded stocks, a pricing error at the close reaches 58 basis points.

**Ekaterina Serikova**

is a research assistant at the Chair of Finance and a PhD Candidate at the University of St Gallen (HSG) - Swiss Institute of Banking and Finance, Switzerland. She received MA in Economic Policy from the Central European University, Hungary. Her research focuses on market microstructure, liquidity, and the regulations of central counterparty clearing (CCP). Dreams to find the truth through numbers and contribute to a better quantitative world.



**SIMON, Zorka; PELIZZON, Lorian; RIEDEL, Max;  
SUBRAHMANYAM, Marti**

***Eurosystem Collateral Eligibility and Corporate Debt  
in the Eurozone***

In the unique institutional framework of the Eurosystem, we study the pricing and real effects of central bank collateral eligibility in both the secondary and primary markets for corporate bonds. We find that eligible bonds (i) trade at lower yields, (ii) depending on their initial liquidity, exhibit an asymmetric liquidity response, and (iii) have an increased securities lending market activity, all driven by banks' demand for pledgeable collateral. Moreover, we observe that following bond-issuing firms' first-time eligibility list inclusion, they reduce bank debt and expand corporate bond issuance activity, overall increasing the size and maturity of their total debt.

**Zorka Simon**

is an Assistant Professor at Goethe University in Frankfurt, Germany. She earned her PhD in Finance from Tilburg University, then held a position at the University of Mannheim. She is also a junior research fellow of Netspar. Her research areas include empirical asset pricing, sovereign debt pricing, money markets and collateral, as well as liquidity and credit risk. Her research considers the effects of regulatory changes and monetary policy on sovereign bond pricing, the interaction between market liquidity and money markets, and more recently, the ECB's collateral policy and the primary and secondary markets of corporate debt in the Eurozone. More information can be found on her personal website: [www.zorkasimon.com](http://www.zorkasimon.com)



**SOLYMOSSI, Tamás; CSÓKA, Péter; ILLÉS, Ferenc**

***Properties of the Shapley allocation rule in liability problems***

In a liability problem the asset value of an insolvent firm must be distributed among the creditors and the firm itself in situations when the firm is not just a passive subject to the decision of some external authority on the allocation of the asset to the parties, rather when the firm has some freedom in negotiating with the creditors. We propose an allocation rule, called the Shapley rule, to resolve such liability problems. We establish various desirable monotonicity properties of the Shapley allocation rule, for example, (i) creditors can only benefit from the increase in their claims or of the asset value; (ii) the firm can only benefit from the increase of a claim, but can end up with more or with less if the asset value increases, depending on the configuration of small and large liabilities; (iii) creditors with larger claims benefit more from the increase of the asset value. In most cases, we even establish sharp upper bounds for the changes in the payments. Finally, we show that calculating the Shapley payoff to the insolvent firm is NP-hard, henceforth application of the Shapley allocation rule for large liability problems could become computationally laborious.

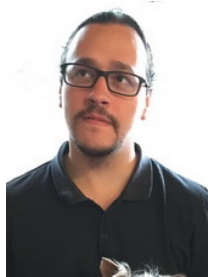
**Tamás Solymosi**

is a Full Professor at the Corvinus University of Budapest, Department of Operations Research and Actuarial Sciences. He received his PhD in mathematics (game theory) from the University of Illinois at Chicago in 1993. His research focuses on cooperative game theory and its application to various profit/cost allocation problems. He published papers in journals like *International Journal of Game Theory, Games and Economic Behavior, European Journal of Operational Research, Annals of Operations Research, Mathematical Programming and Mathematics of Operations Research*.



**Ferenc Illés**

is a PhD student at Corvinus University of Budapest at the Department of Finance. He received his degree in mathematics at Eötvös Loránd University in 2008. Prior to his PhD studies he worked in the banking industry.



**Péter Csóka**

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Corvinus University of Budapest  
See pp. 26.



**STEREŃCZAK, Szymon; UMAR, Zaghum; ZAREMBA, Adam**

***Is Stock Liquidity Priced in Frontier Markets?***

We perform a comprehensive examination of the role stock-level liquidity for the cross-section of frontier market stock returns. Using several popular liquidity measures and a battery of asset pricing tests, we investigate liquidity premium in 22 countries for the years 1990–2019. Contrary to typical relationships in developed and emerging markets, liquidity is not priced in frontier equities. Our findings support the hypothesis that for the countries not fully integrated with the global economy, the diversification benefits offset the liquidity risk, which, in turn, proves less important.

**Szymon Stereńczak**

is a Teaching Assistant at the Department of Corporate Finance at Poznań University of Economics and Business, Poland. His main research interests are in financial markets, stock liquidity, asset pricing and corporate finance. Recently he is working on research project focused on the relevance of stock liquidity for corporate financing.



## TARKOCIN, Coskun

### *Evolution of liquidity regulation in the UK and what it means for bank's liquidity management*

The UK Prudential Regulation Authority (PRA) new liquidity reporting requirement came into effect on 1 July 2019. New cash flow mismatch report (PRA110) is significantly granular than previous reporting requirements. The PRA aims to effectively monitor and measure daily cashflow mismatch and apply several liquidity stress tests. Another aim is to address following four risks: low point risk, monetisation risk, fx mismatch risk and cliff risk. In this discussion we aim to look at what this change in liquidity space means for bank's liquidity management, what are the challenges and briefly discussing importance of these four risks addressed in the new regulation.

#### **Coskun Tarkocin**

has a B.Sc in Industrial Engineering from Istanbul University and MA in Economics from Yildiz Technical University. Mr. Tarkocin is currently a PhD Candidate in Economics at Yildiz Technical University and Senior Liquidity Manager at HSBC Bank Plc. Mr. Tarkocin has 12+ years experience in Treasury and Risk Management space. He has CFA® Charterholder and Financial Risk Manager (FRM) accreditation.



**TASNÁDI, Attila**

***Production in advance versus production to order:  
Equilibrium and social surplus***

We determine a symmetric mixed-strategy equilibrium of the production-in-advance type symmetric capacity-constrained Bertrand-Edgeworth duopoly game for the most challenging case of intermediate capacities, which was unknown so far. Based on the obtained equilibrium we show that economic surplus within the production-to-order type environment is higher than in the respective production-in-advance type one, and therefore production-to-order should be preferred to production-in-advance if the mode of production can be influenced by the government.

**Attila Tasnádi**

is a Professor at the Corvinus University of Budapest and he is also the Director of the Institute of Mathematical and Statistical Modeling. His main research fields are theoretical industrial organization and social choice. He led the Strategic Interactions Research Group supported by the Hungarian Academy of Sciences for five years. He has papers published in journals like American Journal of Agricultural Economics, Economic Theory, Games and Economic Behaviour, International Journal of Industrial Organization, Journal of Economic Behavior and Organization, and Social Choice and Welfare.



**VARGA, Gyorgy**

*Liquidity Premium and Buyback Auctions*

This article investigates the return differential between liquid and illiquid Brazilian Government bonds, to find out if there is a liquidity premium among this asset like the evidence for the United States. We also investigate the effect of the Brazilian Treasury buyback auctions on the liquidity premium and the market impact cost by the Treasury. The result does not show positive or negative significant premium even when the bonds object of the buyback where excluded.

**Gyorgy Varga**

has a B.S. in Economics (UFRJ), an M.S. in Economy from EPGE/Fundação Getúlio Vargas and a PhD in Economics from EPGE/Fundação Getúlio Vargas. Mr. Varga is currently a Partner at FCE Consultoria, where he conducts research and provides consulting and training in Applied Finances. His experience includes Brazilian and multinational banks and teaching at many Brazilian institutions. He has several articles published in scientific magazines. His interests include topics related to fixed income, derivatives, equity, and mutual funds.



## POSTER PRESENTERS

**BENEDEK, Borbála; GYŐRI, Zsuzsanna**

### *Motivations and opportunities of debt settlement as banking activity in Hungary*

A certain form of values-based banking is about the financial inclusion of the poor. These initiatives enable marginalised people to enhance their dignity, self-respect and social recognition. Inclusive banks develop capacities to make decisions and implement them, reduce their dependence on the elite, and become increasingly self-reliant over time. Beside other initiatives debt settlement by values-based banks or other service providers is an important form of financial inclusion. Nevertheless, over-indebtedness of impoverished households and its relevance to the financial inclusion is not emphasized enough in literature and in practice. We would like to present - the activities of Bagázs, a Hungarian NGO and the situation of its indebted clients, - one of the leading Hungarian banks, a member of Global Alliance of Banking on Values, and - a planned debt settlement programme in cooperation between the organisations. Our case is quite complex as our purpose is to go beyond just quantitative results and understand the behavioural conditions and motivations of the different stakeholders within this specific context.

#### **Borbála Benedek**

has a law degree, she has been working for NGOs as a social worker with ethnic minorities (Roma people and refugees). She managed Legal Clinic and Debt Management programs in segregated settlements, so her research interest focuses on the debt trap of marginalized groups. She is doing her master's in sociology.



#### **Zsuzsanna Győri**

teaches courses on Business Ethics, Responsible and Sustainable Enterprise and Entrepreneurship at Budapest Business School as associate professor. She obtained her PhD in economics at Corvinus University of Budapest in 2011. Her research fields include business ethics, corporate social responsibility, sustainability in higher education, values-based banking, as well as values-driven business and entrepreneurship. Besides her theoretical interests, as a consultant she researches new forms of the realization of corporate social responsibility and sustainability.



**DIMCEA, Andrei; GAVRILOVA, Daria**

### ***Influence of Psychic Distance Stimuli on Stock Market Liquidity***

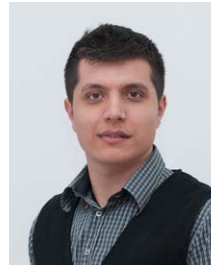
This study aims to bring together financial and psychological concepts, in an effort to explain stock market liquidity through the international investor's point of view. To do so, we use a proxy meant to measure an individual's perception upon the differences between his home country and other countries. Although there are numerous studies that analyze the cross-country cultural distance and the stock market quality, those studies only describe them through domestic investor's perspective. We went a step further, and used a proxy called psychic distance stimuli in order to capture how the difference between the home country and the target country affects an investor's decision to become an international trader, and subsequently, how this affects the overall stock market liquidity of the target country. The empirical results of our study performed on a sample of 21 developed and 24 developing countries, for the period between 1996 to 2017 confirm our test hypothesis that psychic distance plays an important role in explaining stock market liquidity of the target country. We find that in general the higher is the psychic distance score of a country, the less liquid is its stock market.

### ***Abnormal Return Determinants Post-Index-Addition***

Our study aims at uncovering what changes occur in abnormal return determinants after a stock is added to an index, and whether there is a dependency between a stock's additions to an index and a change in its price informativeness. We centered our study around S&P500 joiners for the period from January 1993 to December 2017. As a result, we gathered a sample of 1178 additions that occurred during our analysis period. After imposing several screens on the original sample, the final working database consists of 358 series, characteristic of 356 companies, which is consistent with Chen, Noronha & Signal's (2004) observations of nearly 3/4 of additions being caused by M&As. To test our hypothesis, we performed the Harris and Gurel (1986) event study methodology using two different event windows to quantify for the non-stationarity effects. Our results suggest that a stock's addition to the S&P500 does indeed affect the price informativeness in the event and post-event event windows, nonetheless, the effects of price informativeness over abnormal returns are only significant for the post-event window, whereas, for the ex-ante window, abnormal returns are arguably influenced by company-specific risk, suggesting more speculative practices rather than information-based decision-making in the pre-event period.

**Andrei Dimcea**

is a PhD student in Finance at the Faculty of Economics and Business Administration of the Babes-Bolyai University in Cluj-Napoca, Romania. His main research interest is the stock markets liquidity as well as non-conventional determinants of that liquidity. He is currently working as an analyst in the banking sector.

**Daria Gavrilova**

Having completed a BA in International Business and a MA in Banking and Financial Markets at the Faculty of Economics and Business Administration of the Babes-Bolyai University in Cluj-Napoca, Daria is now a Finance PhD student within the same university. Her area of research is stock market efficiency, price informativeness and company specific risk, focusing on changes in stock market efficiency that occur as a result of certain market-wide events.



**KRZYSZTOF, Echaust; BARBARA, Będowska-Sójka*****Do liquidity proxies based on daily prices and quotes really measure liquidity?***

This paper examines if liquidity proxies based on different daily prices and quotes truly approximate latent liquidity. We compare daily proxies with liquidity benchmarks and various realized variance estimates calculated on the basis of high-frequency data. Our sample covers more than 2,750 trading days. We find that proxies based on prices have higher correlation coefficients than with volatility estimates than with liquidity benchmarks. We consider different sampling frequencies for calculating realized variance and liquidity benchmarks, and find that changing frequency has no impact on the results. The only proxy, that is featured by higher correlation coefficients with the liquidity benchmarks than with volatility estimates, is the closing quoted spread, based on last bid and ask quotes within a day.

**Echaust Krzysztof**

is an associate professor at the Department of Operations Research at Poznań University of Economics. His main research interests are in financial modelling, especially modelling extreme events and derivatives pricing. He also focuses on the measures of liquidity.





**FAIN, Máté; NAFFA, Helena**

***Do ESG factors matter in Emerging Markets?***

This paper measures the validity of ESG factor investing in emerging markets between 2014-2019 in comparison to the traditional style investments popularised by the factor investing literature. First, we construct pure factor portfolios based on cross-sectional regression models. Second, we measure their performance compared to the benchmark using time-series regression analysis. Pure factor portfolios are methodologically handy tools in filtering out secondary factor exposures. The performance of pure factors is examined in emerging markets using the investment universe of the MSCI Emerging Markets Index. Apart from the traditional factors such as size, value or momentum that are well-researched in the literature, pure ESG (environment, social and governance) factors are of our primary focus in this paper. Our empirical results prove that excess return could be achieved by investing in long positions in the pure ESG factors.

**Máté Fain**

Department of Finance, Corvinus University of Budapest  
See pp. 28.

**Helena Naffa**

Department of Finance, Corvinus University of Budapest  
See pp. 28.

**JUHASZ, Peter**

***Risk of liquidity and leverage in the Hungarian manufacturing industry – Recent trends in dualities***

The literature on national economies in Central and Eastern Europe states that foreign companies arriving in the region seem to form a separate local economy with performance and competitiveness fundamentally different to that of the locally owned firms. This paper investigates whether dualities even hit the capital structure and the liquidity of the companies. It seems that recent trends in the Hungarian manufacturing industry show an ongoing pattern of duality. Locally-owned companies and firms with lower than subindustry average wage seem to have more extended payables and receivables turnover days while holding a similar amount of inventory. Thus, the cash conversion cycle is longer for locally-owned companies leading to higher liquidity risk and more cash-like items required. Given that the acid test indicated a higher value for locally-owned firms, it could be argued that these companies are less efficient in managing their working capital. As for leverage, locally-owned firms show a higher proportion of foreign capital in their financial reports than foreign-owned did, but even that level is far below the healthy optimum. We see little trace of any convergence within the Hungarian manufacturing industry regarding liquidity and financing risk: during the recent eight years, differences stagnated or even increased.

**Peter Juhasz**

Corvinus University of Budapest

See pp. 32.

**NÉMETH-DURKÓ, Emilia*****Financing a low-carbon economy***

Financial system is affected by climate change in many ways. The transition to a low-carbon society requires investing large amounts of economic resources in green sectors. The most common financial instrument for financing climate change is green bonds. Green bonds are becoming increasingly popular for investors, but many consider it is a diplomatic tool rather than a financial instrument. The purpose of the study is to compare the performance of green bonds with a conventional bonds based on a LOT model by Wulandari et al. (2018). One of the major statement that conventional bonds are less liquid than green bonds. The authors said that the impact of LOT decreases over time, implying that, nowadays liquidity risk is negligible for green bonds. The question arises when discovering the contradictory results of the literature whether illiquidity problems can be responsible for positive yield spreads relative to non-green bonds.

**Emilia Németh-Durkó**

She holds an assistant lecturer position of the Department of Finance at the Corvinus University of Budapest, where she teaches Corporate Finance and Business Valuation. She is now working on her PhD thesis about income inequality and changes in electricity consumption patterns. Her field of research is related to energy economics and environmental finance.



**OLVEDI, Timea*****The liquidity aspects of P2P lending***

In the last few years, the extension of sharing economy and different types of peer-to-peer approach become more and more popular. The trend impacted the financial market and lending activity in the form of peer-to-peer lending. The operational model is an online platform that links potential borrowers and lenders. The point of this business model is that the transaction is beneficial for both sides: borrowers have access to cheaper loans compared to commercial banks, while investors realize higher return on their investment compared to a bank deposit. However, it is a relatively new field, several platforms appeared on the market and their expansion is quite fast. The purpose of this study is to analyse the peer-to-peer investments from liquidity point of view, including the overview of different liquidity measures introduced by the platforms and the popularity of these measures in case of the main European players. Furthermore, the study investigates the secondary market of peer-to-peer platforms, where investors have the opportunity to sell their loans, using transaction data from one of the most significant European platform. The analysis covers the average time when the asset can be sold in comparison with conventional investment options and the main factors which contribute the selling success e.g. the borrower characteristics, the purpose of the loan, the interest rate etc.

**Timea Olvedi**

is a PhD student at the Department of Finance at Corvinus University of Budapest. Her research field is primarily related to credit risk management and peer-to-peer lending. She has been working for EY in the Financial Services and Risk Management team since 2016, currently as a senior consultant.



**SERIKOVA, Ekaterina**

***The Role of Daytime Stock Auctions in Intraday Return Seasonality***

The paper provides a fresh look at the role of daytime auctions in intraday periodicity of stock returns. First, I show that daytime auctions, together with market opening and market closing intervals, drive the periodicity of stock returns. Second, by applying the model of infrequent rebalancing, I find that price impact is the highest during the fifteen-minute interval after daytime auctions. Combining this evidence with high realized returns, high volume changes and high return volatility, I conclude that after-auction periods take over a large share of infrequent rebalancing, being attractive for a concentration of liquidity traders. Small, low-fragmented stocks heavily traded on the home market show the strongest evidence for infrequent rebalancing after the daytime auctions. Finally, I show that post-auction returns predict returns before the US market opening and before the domestic market closing, which might be further evidence on clustered liquidity trading.

**Ekaterina Serikova**

University of St. Gallen - Swiss Institute of Bank

See pp. 46.

**STEREŃCZAK, Szymon**

***Various Firm Characteristics, Market States, and Liquidity Premium: The Case of the Warsaw Stock Exchange***

The paper aims to analyse the stock liquidity premium in the Polish capital market, i.e., whether it exists, and if so, which factors influence its amount. Both, firm characteristics and market conditions are taken into consideration. In the empirical study a unique methodology was applied. The results suggest that there exists statistically significant liquidity premium, though only slightly economically relevant. It does not increase during bear market phase, what results from the lengthening of investment horizon when market liquidity decreases. Liquidity premium varies with the firm size, book-to-market value and stock risk, and these patterns vanish during bear market.

**Szymon Stereńczak**

Poznań University of Economics and Business

See pp. 49.

**TARKOCIN, Coskun; DONDURAN, Murat**

***Liquidity classification of the equities introduction of advanced internal models***

In this study we aimed to build advanced internal liquidity classification model for equities (shares) using Machine Learning techniques. We will specifically focus classification of equities to determine main characteristics of its liquidity. Establishing dynamic view of the liquidity levelling using advanced models will provide essential insight to the bank's liquidity management function. Liquidity Coverage Ratio (LCR) introduced to design detailed liquidity rules to prevent banks over rely on short term financing. Under LCR rules Equities classified as Level 2B HQLA when it meets specific criteria such as to be listed in major indices, not being issued by financial entities and passing the price drop test. This study investigates alternative approach to the regulatory view for objective criteria. Machine Learning technique provides powerful instrument to classify equities universe where relationship between parameters not easily predefined.

**Coskun Tarkocin**

Graduate School of Social Sciences, Yildiz Technical University  
See pp. 50.

## PRACTICAL INFORMATION

### Conference Venue

Corvinus University of Budapest, Main Building  
Registration, Plenary Sessions: Lecture room III (ground floor)  
Parallel Sessions: Lecture room III (ground floor), room 2001 (second floor, counting the ground floor as zero), room 3001 and room 3005 (third floor).  
8 Fővám tér  
Budapest  
1093  
Hungary

### Venue of Gala Dinner (by invitation or by registration)

Hungarian Academy of Sciences  
9 Széchenyi István tér  
Budapest  
1051  
Hungary

### Time Zone

Central European Time (CET) is used in Hungary, Budapest is 1 hour ahead of Greenwich Mean Time (GMT).

### Currency and Credit Cards

Hungarian Forint (HUF or Ft) is the currency of Hungary; the exchange rates are approximately EUR 1 = HUF 330 and USD 1 = HUF 300. Credit cards (Visa, Mastercard) are widely accepted (in all taxis and hotels, most shops) and there are ATMs on the campus and in the neighbourhood.

### Transportation

Budapest has a dense network of metros, trams and buses. Tickets should be purchased from a vending machine before boarding. Travelcards for 24 or 72 hours or 7 days are also available. <http://www.bkk.hu/en/tickets-and-passes/prices/>. Taxis are regulated, prices are fixed. Reliable Taxi companies include Főtaxi: +36 1 2222222, City: +36 1 2111111, Taxi2000: +36 1 2000000, Tele5: +36 1 5555555, 6x6: +36 1 6666666.

### Electricity

European type (Schuko) 2 pin sockets with 230V 50Hz are used.

**Emergency number: 112**

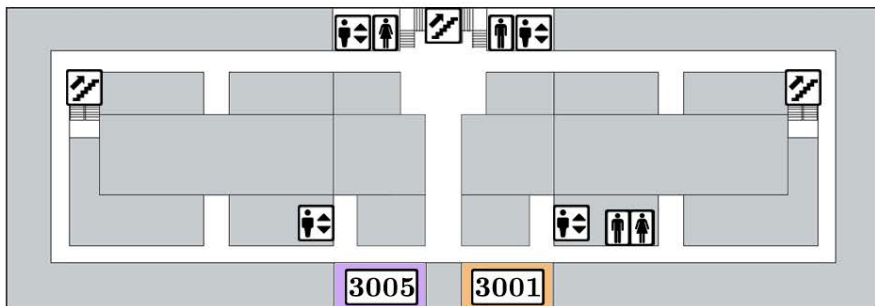


# NOTES

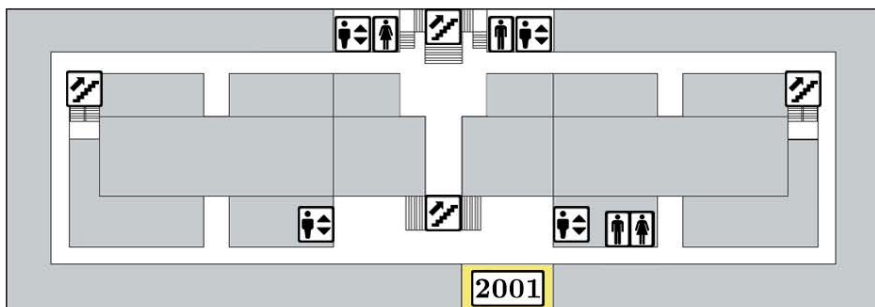


# AFML2019 Conference Map

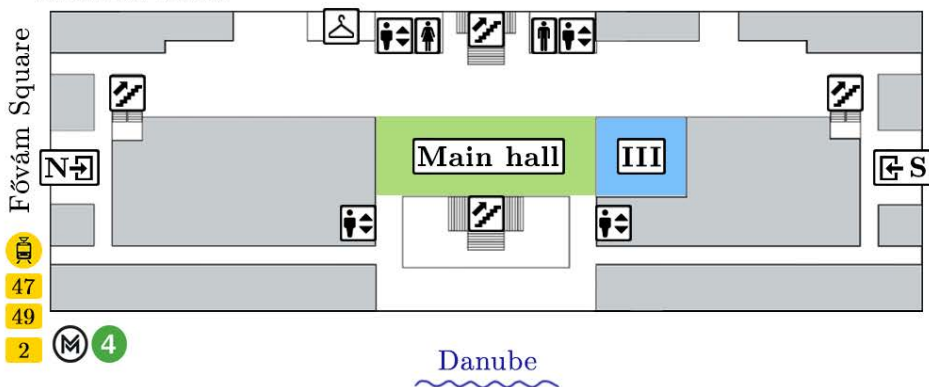
## Third floor



## Second floor







## Ground floor



## Main public transport at Fővám Square

  Metro line M4

    Trams 2, 47 and 49

## Organizers



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Institute of Finance, Accounting and Business Law  
Corvinus Business School  
Corvinus University of Budapest



Game Theory Research Group  
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