



PRMIA Hungary Chapter Research Conference, 2023
CONFERENCE PROCEEDINGS



October 19, 2023

Budapest

Corvinus University of Budapest

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Greetings

The Hungary Chapter of Professional Risk Managers' International Association (PRMIA) together with the Institute of Finance of Corvinus University of Budapest, is organizing its eighth research conference this year.

As environmental change is the greatest challenge facing the economy today, particular emphasis will be placed on ESG investments and biodiversity issues. Besides financial markets and financial institutions, behavioral effects and financial infrastructure are in the focus of the presented researches.

We warmly welcome all participants of the conference, and would like to thank the speakers, the session chairs, our sponsors, and everybody who has contributed to the success of the event.

On behalf of the organizers:

Barbara Dömötör

PRMIA

PRMIA believes in a world in which risk management is a recognized profession and embedded core competency of the financial services industry. PRMIA's main goal is to promote, develop and share professional risk management practices globally. The PRMIA education system includes, beside the formal certification program, informal training possibilities for both professionals and others interested in the field of risk management. PRMIA is a transparent, nonprofit, independent member-focused and member-driven organization open for working with other professional associations in furtherance of the PRMIA mission. PRMIA Hungary Chapter has been active for around 20 years, organizing events for both professionals and the academy.

Program

8:15	Opening	
8:30	<i>Section I. - Behavioral effects in finance</i>	<i>Chair: Erika Jáki</i>
	Péter Juhász, Tünde Tátrai	Perceived ethical behaviour on the Hungarian public procurement market
	Gergely Fazakas	Lessons from a stock market game
	Edina Berlinger, Barbara Dömötör, Krisztina Megyeri, György Walter	Gender differences and the benefits of advanced studies in financial literacy
	Fanni Dudás, Helena Naffa	ESG rating disagreement
11:00	<i>Section II. - Financial markets and ESG</i>	<i>Chair: Helena Naffa</i>
	Li Jinlong	ESG investing and systemic risk—based on analytical CoVaR method
	Li Xinglin, Helena Naffa	Biodiversity Finance – Where are we and why does it matter
	Gergely Czupy, Helena Naffa	Biodiversity Finance Investments
	Misik Sándor	Implied correlation on the CEE FX market
14:00	<i>Section III - Financial infrastructure and modelling</i>	<i>Chair: Zsolt Bihary</i>
	Petra Benedek, Ferenc Bognár	Compliance Risk Assessment in banks and financial institutions: A theoretical exploration
	Ölvedi Tímea	The resilience of the peer-to-peer market: a global perspective
	Nóra Felföldi-Szűcs, Balázs Králik, Kata Váradi	How market makers generate arbitrage profit - a measure of inefficient price setting
	Gábor Kürthy, Ágnes Vidovics-Dancs	Modelling the introduction of Central Bank Digital Currencies in a stochastic framework
	Zsolt Bihary, Edina Berlinger, Barbara Dömötör	Dynamic margin optimization

Péter JUHÁSZ¹, Tünde TÁTRAI²

**Ethics in the Hungarian public procurement market – as market players see it
(2009-2021)**

While the volume of public procurements in Hungary amounted to more than 7.6 percent of the GDP in 2021, based on Transparency International, those purchases are extremely vulnerable in terms of corruption. Our paper aims to map the ethical traits and integrity of the Hungarian public procurement market based on five consecutive questionnaire-based research among the players from 2009, 2011, 2013, 2019, and 2021.

As the structure of our samples showed considerable differences across types of players participating in a given year, we ran panel regressions for year effects, where we also controlled for the respondent's role on the market. Our results show that the quality of regulation, the preparedness and ethics of the players, the public procurement culture improved, and the level of market development increased. There seems to be a general agreement on the market that the level of corruption has peaked in 2019, and there was a considerable fallback in 2021. However, the level of administrative costs, the knowledgeability of the players, and the openness for e-procurement showed no improvement over the year and stagnated at the 2009 level.

Gergely FAZAKAS³

Lessons from a stock market game

There new trends in pedagogy: the goal is to involve students and to work together in the classrooms. One of the main tools for this is gamification. With participating in the game, the students manage to be involved in a story, identify with the goals set by the game, and in order to achieve these goals, they are willing to take in knowledge that they would have missed during passive lessons or boring lectures given by the teacher in the lecture hall. Lessons learned together at the end of the game, the discussion of the reasons and background factors of winning or losing strategies provide knowledge material that can be activated in the long term.

During the stock market game, the teams were only open to technical trading in their mode - i.e. they could not rely on background information or economic analyses, they could only draw conclusions from market movements, the often emotional fluctuations of market supply and demand – the only thing they could feel is risk. The decision sheets led by the teams provided a large amount of statistically significant data for the subsequent analysis on how underinformed market players make decisions during similar game sessions and market price developments, how they handle and face with risky positions. The behaviors shown during the game are therefore suitable afterwards for what kind of analysis and how the players take into account a market with a lack of information.

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Edina BERLINGER⁴, Barbara DÖMÖTÖR⁵, Krisztina MEGYERI⁶, György WALTER⁷

Gender differences and the benefits of advanced studies in financial literacy

Evidence from the literature suggests that financial literacy plays a crucial role in long-term individual decisions that affect future well-being. In this paper we investigate the interplay between financial literacy, gender, and educational programs. We aim to determine if the highest level of financial education, coupled with talent management programs, correlates with varying aspects of financial literacy. Additionally, we examine gender differences in this context. Based on our empirical study among finance major students in Hungary, the gender gap disappears when controlling for other variables, however, talent management program participants achieved significantly higher scores for knowledge (but not for attitude and behavior). Moreover, we observed that individuals' aspirations also influence their financial knowledge.

Fanni DUDÁS⁸, Helena NAFFA⁹

ESG rating disagreement

Sustainability considerations are increasingly important in financial decision-making. Environmental, Social, and Governance (ESG) indicators are the most well-known sustainability indicators widely used in academia and business. However, these indicators are not standardized; thus, rating organizations may give firms different performance ratings. Academic literature calls this ESG rating disagreement. Our fixed effect panel regression study examined the relationship between ESG rating disagreement and financial performance in MSCI All Country Index companies from 2018 to 2022. This study examines rating disagreement at the ESG rating and sub-pillar level in developed and emerging markets. Our work confirms earlier research on ESG rating disagreement, showing a positive relationship between disagreement and firm financial performance throughout the population. We found conflicting results for its sub-pillars: environmental rating disagreement in developed markets and social rating disagreement in emerging markets were significantly negatively associated with company financial performance. Our findings help us understand firms' ESG performance and its relationship to financial performance.

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Li JINLONG¹⁰

ESG investing and systemic risk—based on analytical CoVaR method

How can a firm reduce the risk contributions and the risk exposure of the banking system? Does it reduce them equally? To measure the interaction relationship between banks and firms, we created two indicators (CoVaRB2F and CoVaRF2B) to indicate the risk contribution and the risk exposure of the banks, based on the analytical CoVaR method Hong (2011). This paper mainly selects the data of Chinese A-listed firms from 2009 to 2020. The empirical result shows that good ESG performance could reduce both bank risk exposure and bank risk contribution, and one level of increase in the ESG ratings would lower the risk contributions of the bank system by -0.0010 while lowering the risk exposure of the banking system by -0.0046, which indicate an asymmetric effect. This paper has three contributions. First, it highlights the asymmetric influence of ESG ratings on risk contributions and risk exposure. In the meanwhile, it investigates two potential mechanisms, which include the financial constrained effect, and the social media effect. Second, it pays attention to the mutual interaction between the bank system and firms by considering both the risk contributions and risk exposure of the bank system. Third, this paper uses an analytical method to calculate the CoVaR, which can be computed more easily to measure risk contributions and risk exposures of the banking system.

Li XINGLIN¹¹, Helena NAFFA¹²

Biodiversity Finance – Where are we and why does it matter

When climate issue has drawn mass attention beyond traditional environmental science with socio-economic playing an active part, biodiversity seems a lost puzzle in the global effort to tackle environmental issues by financial solutions. Although the earliest research integrating both biodiversity and finance or financing concepts can be traced back to decades ago, the slow development of this subject stands in stark contrast to the urgent need in practice. This literature review thus aims to inspire ideas for future research in this field. As a result, there are three characteristics and four major themes identified in the literatures. The literature around biodiversity finance is ahead of a growth, researchers will be able to build on more standardized measurements that are currently being set-up in reporting frameworks. The TNFD (Taskforce for Nature-related Disclosure) was launched in September 2023 similarly to how the TCFD (Taskforce for Climate-related Disclosure) has evolved into a reporting framework for climate finance.

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Gergely CZUPY¹³, Helena NAFFA¹⁴

Biodiversity Finance Investments

We construct investment portfolios that promote nature preservation, through measuring biodiversity loss. We apply the popular sustainable and responsible investment (SRI) strategies of exclusion and tilting along different ambition levels. We use the MSCI All Country Index constituents for the 10 years between 2013 - mid 2022. We measure the cost of these portfolios to investors measured by the loss of potential risk-adjusted returns (Sharpe ratio), defined as the difference between the maximal Sharpe-ratio attainable to an investor in the investment universe and after application of the biodiversity strategy. The strategy ambition level relates to the level of targeting the biodiversity loss scores as measured by MSCI's ESG data. Results show that biodiversity alignment has a cost on top of the implementation of the screening and tilting strategies, but the cost is relatively small.

Sándor MISIK¹⁵

Implied correlation on the CEE FX market

The aim of the study is to compare the forecasting ability of the foreign exchange market implied correlation with the time series based models concerning the CEE foreignexchange markets - namely Czech Krone, Hungarian Forint and Polish Zloty - and to analyse the main drivers of the potential differences. Based on the daily data on CEE FX trios of 16 years between 2006 and 2023 the results seem to confirm the findings of others according to which the implied correlation alone cannot be considered a clearly better predictor but in most cases provides additional information to EWMA based correlation which seems to have the highest forecasting accuracy the currency trios formed between CEE FX rates and EUR - USD for one- and three-month forecast periods. Another result is that in case of the HUF and PLN currency trios, the forecasting accuracy of correlation between CEE/EUR and USD/EUR rates has a special importance that might be traced back to the market structure whereas CEE/EUR and USD/EUR FX rates can be considered as “independent” markets. Also, we find that FX volatility forecasting and FX correlation forecasting does not result the same rank among methodologies.

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¹⁵ MVM Group

Petra BENEDEK¹⁶, Ferenc BOGNÁR¹⁷

Compliance Risk Assessment in Banks and Financial Institutions: A Theoretical Exploration

Managing compliance risk is crucial for banks and financial institutions in today's globalized financial landscape. This research highlights the significance of compliance risk assessment and the evolving theoretical paradigms guiding risk management strategies. It reviews existing literature and emerging concepts to provide a comprehensive overview of compliance risk assessment for large companies and financial institutions. Compliance risk assessment is pivotal for safeguarding institutions from penalties, reputational damage, and economic instability. As regulations become more complex, institutions must adapt. This research explores how traditional risk management frameworks have been tailored for compliance risk management, emphasizing the importance of standardized guidelines like ISO 37301:2021. Various compliance risk assessment frameworks and methodologies are examined, including key risk indicators (KRIs) and tools like FMEA and Partial Risk Map. Risk appetite, leadership, communication, and ethical conduct affect the compliance culture. Emerging trends incorporate environmental, social, and governance (ESG) factors into risk assessment. This research is a valuable resource for academics, practitioners, and policymakers. Compliance risk assessment's complexity and dynamism require ongoing exploration, ensuring the stability and integrity of financial institutions in an ever-changing world. Future studies should explore the integration of AI and machine learning into compliance risk assessment.

Ölvedi Tímea¹⁸

The resilience of the peer-to-peer market: a global perspective

In recent years different alternative funding methods appeared on the financial market, supported by the Fintech revolution. One of this new form is peer-to-peer lending (P2P), which is a platform-based solution that links lenders and borrowers. There is an extensive literature focusing on various aspects of P2P lending during a time of economic prosperity. The purpose of this paper is to contribute to the understanding of the segment in the case of economic distress indicated by the pandemic. The data set covers 61 countries with a diverse economic background. Unsupervised machine learning approach was applied to classify countries based on their pre-COVID economic profile. Then the clustering performance was tested in terms of the P2P market reaction of each group after the pandemic outbreak. The outcome suggests that the model with three clusters is able to classify countries with respect to their P2P market behavior. In addition to that, the results imply that the growth rate of marketplace lending is in line with the economic instability of the country and the demand excessively increases from regions with weak banking system.

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Nóra FELFÖLDI-SZÚCS¹⁹, Balázs KRÁLIK²⁰, Kata VÁRADI²¹

How market makers generate arbitrage profit - a measure of inefficient price setting

We test the put-call parity in detail for Ethereum (ETH) options listed on Binance using a one-second resolution data set. Our results show that significant PCP violations remain even after controlling for bid-ask spread, trading costs and funding costs. Since retail investors are not allowed to go naked short options, therefore the above arbitrage opportunities are only available to participants with special licenses to act as market makers. To quantify the pure arbitrage profit of market makers, this paper introduces the concept of "Absolute Market Unfairness" (AMU). As a single figure, AMU is easy to interpret and can also quantify the inefficiency of the market. Our findings are entirely model-free and don't depend on any previous assumptions related to pricing.

Gábor KÜRTHY²², Ágnes VIDOVICS-DANCS²³

Modelling the introduction of CBDCs in a stochastic framework

CBDC is a payment innovation that is being born in a world of uncertainty. Therefore, neither its designers nor its future users are fully aware of its impacts. Once introduced, it will redefine our payment habits and patterns. We capture these habits in the form of payment portfolios, whereas payment innovations, such as CBDC, are handled as enlarging the portfolio. Payment portfolios reflect the optimization of economic agents, which is imperfect in the absence of a complete information set. Building on this, we provide a comprehensive framework that models not only the static states but the learning process, hence the dynamics of the payment portfolios. We use a stochastic Markov process for modeling this evolution in payment patterns. Our framework is applicable for measuring several effects of the introduction of CBDC, such as the shift away from cash or disintermediation. The advantages of the approach include that it does not require the revelation of individual preferences and allows us to assess different impacts simultaneously. We illustrate the model through simulations and also estimations based on real data.

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Zsolt BIHARY²⁴, Edina BERLINGER²⁵, Barbara DÖMÖTÖR²⁶

Dynamic margin optimization

In this paper, we review the results on the impact of margin regulation following the Great Recession of 2007-2009. Our focus is on the pro-cyclical impact of risk management requirements and whether countercyclical margin calls are beneficial for market participants, in particular for the central clearing counterparty. We derive the optimal margin process in a multi-period theoretical model and present the results in realistic simulations. Our results show that countercyclical margin setting is beneficial in terms of reducing the expected losses of a clearing institution and thus reducing market vulnerability.

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