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**SPRING JOIM CONFERENCE  
MARCH 26–28, 2023  
UC SAN DIEGO**

**CONFERENCE SUMMARIES**

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**Finance Research Symposium in Honor of  
Bruce N. Lehmann**

UC San Diego, Rady School of Management  
*Sunday, March 26<sup>th</sup>*

As part of our JOIM Conference, we featured a finance research symposium in honor of Bruce N. Lehmann. In keeping with Bruce's devotion to mentoring students and young scholars, the symposium featured the research of assistant professors less than three years since the start of their careers, with discussants who are established senior finance faculty or leading industry practitioners. Symposium topics focused on areas of Bruce's contributions: Theoretical and Empirical Asset Pricing, Behavioral Finance, Investment and Risk Management and Market Microstructure.

**Tjeerd de Vries**

University of California, San Diego  
*A Quantile Approach to Evaluating Asset Pricing  
Models*

This paper studies the misspecification of asset pricing models by examining the local difference between the physical and risk-neutral measure. Using quantile regression, I find that the conditional physical distribution differs most from the risk-neutral distribution in the left tail, while the right tails of both distributions are almost identical. I propose a new bound on the volatility of the stochastic discount factor (SDF) to show that the local difference in the left tail implies that the SDF is highly volatile. Finally, I propose a lower bound on the difference between the physical and risk-neutral distribution in the left tail, which is approximately tight in the data. I interpret the bound as a real time measure of the Peso problem and find that it fluctuates significantly over time. At the height of the 2008 financial crisis and 2020 Covid crisis, the bound predicts that a market return of  $-28\%$  or lower has a 5% probability. Both findings provide evidence for time varying disaster risk.

Discussants: Ravi Bansal, Duke University and Allan Timmermann, UC San Diego

**Thomas Ernst**

University of Maryland

*Payment for Order Flow and Asset Choice*

We investigate differences in execution quality and payment-for-order-flow (PFOF) across asset classes. In equities, retail trades receive meaningful price improvement, particularly in tick-constrained stocks, and PFOF is small. In single-name equity options, problematic market structures lead to worse retail price improvement, and PFOF is large. While all option trades execute on-exchange, option exchange rules facilitate internalization. We exploit variation in designated-market-maker (DMM) assignments, minimum tick size, and auction allocation rules, showing that option internalization is imperfectly competitive. Option market structure gives rise to a second potential incentive conflict of brokers: encouraging customers to trade assets offering higher PFOF.

Discussants: Pete Kyle, University of Maryland and Matthew Spiegel, Yale University

**Diego R. Känzig**

Northwestern University

*The Unequal Economic Consequences of Carbon Pricing*

This paper studies how carbon pricing affects emissions, economic aggregates and inequality. Exploiting institutional features of the European carbon market and high-frequency data, I identify a carbon policy shock. I find that a tighter carbon pricing regime leads to a significant increase in energy prices, a persistent fall in emissions and an uptick in green innovation. This comes at the cost of a temporary fall in economic activity, which is not borne equally across society: poorer households lower their consumption significantly while richer households are less affected. Not only are the poor more exposed because of

their higher energy share, they also experience a larger fall in their income. These indirect, general-equilibrium effects turn out to be quantitatively important. My results suggest that targeted fiscal policy can reduce the economic costs of carbon pricing without compromising emission reductions.

**Alejandro Lopez-Lira**

University of Florida

*Do Common Factors Really Explain the Cross-Section of Stock Returns?*

We document challenges to the notion of a trade-off between systematic risk and expected returns when analyzing stock characteristics' empirical ability to predict excess returns. First, we measure individual stocks' dynamic exposures to all common latent factors using efficient high-dimensional methods. These factors explain virtually all of the common time-series variation in stock returns. However, exposure to these latent factors appears to earn negligible risk premia. Next, we construct out-of-sample forecasts of stock returns based on a wide range of characteristics using machine learning methods and linear models. A zero-cost beta-neutral portfolio that exploits this predictability but hedges all undiversifiable risk delivers a Sharpe ratio above one with no correlation with any systematic factor, thus rejecting the central prediction of the arbitrage pricing theory.

Discussants: David Modest, Allostery Investments and Richard Roll, Caltech

**March 27–28, 2023**

UC San Diego

We covered selected presentations by distinguished experts who will provide recent important insights both for background and actionable follow-up.

**Andrew Lo**

Massachusetts Institute of Technology

*Keynote*

Healthcare Finance

Biomedical breakthroughs such as the sequencing of the human genome, immunotherapies, gene therapies, mRNA vaccines, gene editing, and AI-based drug discovery have had tremendously positive impact on the biotech and pharma industries and, consequently, on patients. But they have also increased the cost and complexity of the drug development process, causing many investors to move capital to more attractive investment opportunities in other industries. In this talk, Prof. Lo will describe how financial engineering can reduce the risk and increase the attractiveness of biomedical innovation so as bring more capital back into the sector and deliver new and better therapies to patients faster. These ideas are coalescing into a new field of study known as healthcare finance.

**Robert Engle**

New York University

*Have Capital Markets Forgotten Sustainability: Portfolios, Greenwashing, Stress Testing, and Long Run Risk?*

Investors who do not want to bear the full risk of climate change, will seek portfolios that hedge these long run risks. I will discuss several such portfolios and show how they can be used to assess the greenness of investment products and the exposure of financial institutions to climate risks.

We observed that these hedge portfolios are performing badly. The same economic model of long run risk sheds light on many features we now observe. This framework suggests events we might expect and policies that should be useful.

Discussant: David Turkington, State Street

**Lisa Goldberg**

BlackRock

*Is Index Concentration an Inevitable Consequence of Market-Capitalization Weighting?*

Market-cap-weighted equity indexes are ubiquitous. However, there are growing concerns that such indexes are increasingly concentrated in a few stocks. We ask: Does market-cap weighting inevitably lead to increased concentration over time? The question of inevitability arises from research that develops probabilistic causal mechanisms for the dominance by a few firms over time. We show that while the concentration currently observed in major equity market indexes is substantial, it is not at an all-time high. Monte Carlo simulations calibrated to market data provide insight into various approaches to mitigate concentration, albeit at the expense of higher turnover.

Discussant: Cel Kulasekaran, Windham Capital Management

**Seoyoung Kim**

Santa Clara University

*The Past, Present, and Future of Decentralized Finance*

DeFi (decentralized finance) has become a standard part of the FinTech vernacular, rising to prominence in recent years. However, substantial confusion and misunderstandings surround this nascent field and the underlying technology that makes decentralized protocols and transactions possible. In this presentation, I cover common misconceptions, explain recent implementations (such as decentralized exchanges and decentralized loans), and discuss value-adding and elegant use cases on the horizon. Along the way, I also compare and contrast CeFi (centralized finance) solutions to their DeFi counterparts.

Discussant: Andreas Neuhierl, Washington University in St. Louis

**Ben Meng**

Anne Simpson and Anna Snider, Franklin Templeton

*A Capital Solution to Climate Change*

In a 2021 JOIM article titled “Are We at the Inflection Point of Climate Investing?”, we argued that financial markets were approaching an inflection point but missing two prerequisites: information and incentives. Addressing climate change (mitigation and adaptation) requires tremendous capital; philanthropic donation and public finance alone are far from sufficient. We must unlock the vast potential of the financial markets, and at pace and scale. To do so, investors require investment-quality climate data. This will allow them to develop the substantive climate-specific risk and return analytics necessary for broad-based investment. However, empowering investors with analytical tools is not enough. We must also provide the right incentives, for example in the form of carbon pricing, removal of subsidies to fossil fuel and creating tax incentives. This paper provides an update on the significant progress made on both fronts in 2022.

For example, this paper addresses how the capital market itself is responding to the progress around policy measures to improve information and align incentives, as evidenced by the recent rise in climate solutions (nearly \$1trn in 2022, according to Bloomberg) and growing corporate commitments to net zero emissions driven by investor engagement. We explain the dynamics of the financial ecosystem which are driving these trends, and describe the roles of the government and public sector (the visible hand), and the capital market (the invisible hand) to move us towards the Paris goals. To address climate change, we require public and private sector partnership to ensure policy frameworks reflect investor needs, and that in the capital structures for investment we design the blended finance

from commercial and concessional sources to catalyze private finance. Government must create the right market structure not only via regulation but also to help de-risk investments by providing concessional capital. The role of the multilateral development banks will be critical in this. Then, the capital market can do what it does best—allocate capital (in this case, to climate solutions). It is critical for the visible and invisible hands to work together in addressing climate change.

Many investors believe that there are multiple layers of premium to be earned from investing in climate solutions (the “greenium”). Carbon pricing is the most obvious greenium as a company (and investor) can capitalize on the carbon reduction in the carbon market. Simply put, the more carbon reduction, the higher the premium. However, there are less obvious forms of greenium which may lack clear empirical evidence, but still hold conceptual value. For example, do customers prefer products/services from companies that are doing more about climate change? If so, they affect the top-line revenue. Investors who do, affect the cost of capital and hence the bottom-line profit. We have some evidence on both points. Employees who do, affect the cost of talent acquisition and retention. Additionally, do more climate-aware and climate-friendly companies manage downside risk and capture upside potential better? And are there additional sources of this return premium? This paper concludes with a call for additional research—should a greenium exist theoretically? Does a greenium exist empirically? Is this form of premium return actually necessary in order to drive the financial flows needed by the Paris accord, or are the wider economics in play sufficient to drive capital to where it’s required?

Discussant: Yingshan Zhao, Alpha Simplex Group

**Jay Raol**

Invesco

*Diversification with Macro Factors: A Case Study of Canadian Pension Plan Investments*

Macro factors can guide the portfolio allocation process by organizing an investment opportunity set into distinct subsets based on specific economic rationale. We motivate the potential real world application of a macro factor approach by examining the investment process used by Canadian Pension Plan Investments which oversees C\$520 billion in assets. First, they employ macro factors to simplify their allocation decisions into

smaller and distinct sets of economically motivated factors. Second, they diversify their risk across and within these macro factors to reduce total portfolio risk. Finally, they employ leverage to bring total portfolio risk back in line with benchmark risk. Through this process, they are able to achieve notable diversification, facilitate liquidity management and implement one of the largest allocations to illiquid assets for plans at their size. We end our discussion by generalizing the CPP Investments approach and point to solutions for a variety of different allocation problems.

Discussant: Vineer Bhansali, LongTail Alpha