

# CAIO VIGO PEREIRA

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EDUCATION	<div><div>PhD. in Economics</div><div>University of Kansas</div><div>Graduate Certificate in Data Science</div><div>Graduate Certificate in Applied Mathematics</div></div> <div><div>M.A., Economics</div><div>University of Kansas</div></div> <div><div>M.Sc., Applied Economics</div><div>University of São Paulo</div></div> <div><div>B.Sc., Economics</div><div>University of São Paulo</div></div>	2021 (Expected)	2018	2016	2011
RESEARCH INTERESTS	Econometric Modeling, Financial Economics/Econometrics, Macro-Finance, Statistical and Machine Learning Methods				
PUBLICATIONS	“Exchange Rates in South America’s Emerging Markets” Cambridge Elements in the Economics of Emerging Markets, 2020 (with Molinas Sosa, L.)				
WORKING PAPERS	<div>“A Machine Learning Factor-Based Interpretation for the Bond Risk Premia in the US” [Job Market Paper]</div> <div>↳ Paper Award: Notable Graduate Student Paper at the 57th MVEA Conference</div> <div>“Portfolio Efficiency with High-Dimensional Data as Conditioning Information” [Revise and Resubmit, International Review of Financial Analysis] [SSRN] [RePEc]</div> <div>“Portfolio Efficiency Tests with Conditioning Information - Comparing GMM and GEL Estimators” (with Laurini, M. P.) [Under Review] [SSRN] [RePEc]</div> <div>“Identifying Short-Lived Signals in Intraday Foreign Exchange Returns” (with Adams, A.)</div>				
WORK IN PROGRESS	<div>“Ambiguity and Options Movements” (with Izhakian, Yehuda)</div> <div>“A Dynamic Quantile Regression Model for US Banking Sector” (with Liu, Xiyuan)</div> <div>“Causality and Comparative Statics in Machine Learning Models: An Overview” (with Sabarwal, Tarun)</div>				
PRESENTATIONS	<div>2020: 84th Midwest Economics Association Annual Meeting*, Perspectives on Analytical Research - University of Kansas, XX Brazilian Finance Meeting, Ph.D.-EVS, 2020 Financial Management Association (FMA) Doctoral Student Consortium, 90th Southern Economic Association (SEA), 57th Missouri Valley Economic Association (MVEA), 42nd Meeting of the Brazilian Econometric Society, University of Kansas Economics Department Seminars, Kansas State University Economics Seminars.</div> <div>2019: 56th Missouri Valley Economic Association (MVEA), University of Kansas Economics Departmental Seminar.</div> <div>2018 and earlier: XVI Brazilian Finance Meeting, 38th Meeting of the Brazilian Econometric Society†.</div> <div>(† by coauthor, * cancelled due to COVID-19)</div>				
SERVICES	<div><div>Refereeing</div><div>- Journal of Management Science and Engineering</div><div>- Brazilian Finance Review</div></div> <div><div>Academic Services</div><div>Graduate Student Representative</div><div>Department of Economics, The University of Kansas</div></div>	2018-2019	2016-2017	2020-2021	

TEACHING EXPERIENCE	<b>Instructor</b> <i>Department of Economics, University of Kansas</i> · Introduction to Econometrics - Spring 2020 <sup>†</sup> Fall 2019 [4.53/5] Summer 2019 [4.77/5] Spring 2019 [4.43/5] Fall 2018 [4.63/5]  · Intermediate Macroeconomics - Spring 2018 [4.71/5]		August 2018 - May 2020 📍 Lawrence, KS - USA
	<b>Graduate Teaching Assistant</b> <i>Department of Economics, University of Kansas</i> · Statistics and Data Analysis - Fall 2020 · Principles of Microeconomics - Fall 2016, Fall 2017 · Principles of Macroeconomics - Spring 2017		August 2016 - May 2021 📍 Lawrence, KS - USA
	<b>Graduate Teaching Assistant</b> <i>Department of Economics, University of São Paulo</i> · Econometrics  ( <sup>†</sup> due to the pandemic, a custom survey without a numeric scale was used for teaching evaluation.)		February 2015 - July 2015 📍 Ribeirão Preto, SP - Brazil
	SKILLS		
	<b>Expertise:</b> R, Python, SQL, Stata, VBA, L <sup>A</sup> T <sub>E</sub> X <b>Experience:</b> Spark, Bash (UNIX Shell), SLURM, git, Matlab, EViews, Julia, C++		
	PROFESSIONAL EXPERIENCE		
	<b>- Funds Analyst</b> <i>Patria Investments Ltd.</i>		2012-2013
	<b>- Financial Planning Analyst</b> <i>Kraft Foods Brazil</i>		2011-2012
	HONORS, AWARDS & GRANTS		
	<b>Notable Graduate Student Paper</b> <i>Missouri Valley Economic Association (MVEA)</i>		2021
<b>Graduate Studies Summer Research Award</b> <i>University of Kansas</i>		2020	
<b>Nomination for the Outstanding GTA Award (Teaching Excellence)</b> <i>University of Kansas</i>		2020	
<b>Shu Wu Memorial Scholarship</b> <i>The University of Kansas</i>		2020	
<b>Graduate Scholarly Presentation Travel Fund</b> <i>The University of Kansas</i>		2020	
<b>Summer Research Scholarship</b> <i>The University of Kansas</i>		2017 & 2018	
<b>Full scholarship for Master’s Studies</b> <i>Coordination for the Improvement of Higher Education Personnel (CAPES)</i>		2014 - 2015	
<b>Fellowship - Research Project</b> <i>National Council for Scientific and Technological Development (CNPq)</i>		2008 - 2009	
LANGUAGES			
<b>English</b> - Fluent   <b>Portuguese</b> - Native   <b>Spanish</b> - Intermediate   <b>French</b> - Basic			
PERSONAL INFORMATION			
Full name: Caio Augusto Vigo Pereira Citizenship: Brazilian (US Permanent Residency in progress)			
REFERENCES			
<b>Tarun Sabarwal</b> Full Professor of Economics University of Kansas Department of Economics sabarwal@ku.edu		<b>Yehuda Izhakian</b> Professor of Economics and Finance Zicklin School of Business Baruch College yud@stern.nyu.edu	
		<b>Tsvetan Tsvetanov</b> Assistant Professor of Economics University of Kansas Department of Economics tsvetanov@ku.edu	
March/2021			

**A Machine Learning Factor-Based Interpretation for the Bond Risk Premia in the US**  
*Job Market Paper*, 2020.

↳ *Paper Award: Notable Graduate Student Paper at the 57th MVEA Conference*

In this paper, we study the time variation of the risk premia in U.S. Treasuries bonds. We propose a novel approach for deriving a single spanning state factor consistent with a dynamic term-structure with unspanned risks theoretically motivated model. Using deep neural networks to uncover relationships in the full set of information from the yield curve, we derive a single state variable factor that provides a better approximation to the spanned space of all the information from the term-structure. We also introduce a way to obtain unspanned risks from the yield curve that is used to complete our state space. We show that this parsimonious number of state variables have predictive power for excess returns of bonds over 1-month holding period. Additionally, we provide an intuitive interpretation of derived factors and show what information from macroeconomic variables and sentiment-based measures they can capture.

**Exchange Rates in South America's Emerging Markets**

*Cambridge Elements in the Economics of Emerging Markets*, 2020.

(with Molinas Sosa, L.)

Since Meese and Rogoff's (1983) work, results have shown that no model could outperform a random walk in predicting exchange rates. Many papers have tried to find a forecasting methodology that could beat the random walk, at least for certain forecasting periods. This Element compares the Purchasing Power Parity, the Uncovered Interest Rate, the Sticky Price, the Bayesian Model Averaging, and the Bayesian Vector Autoregression models to the random walk benchmark in forecasting exchange rates between most South American currencies and the US dollar, and between the Paraguayan guarani and the Brazilian real and the Argentinian peso. Forecasts are evaluated under the criteria of Root Mean Square Error, Direction of Change, and the Diebold-Mariano statistic. The results indicate that the two Bayesian models have greater forecasting power and that there is little evidence in favor of using the other three fundamentals models, except purchasing power parity at longer forecasting horizons.

**Portfolio Efficiency with High-Dimensional Data as Conditioning Information**

*Working Paper*, 2020.

[SSRN] [RePEc]

[*Revise and Resubmit*, *International Review of Financial Analysis*]

In this paper, we build efficient portfolios using different frameworks proposed in the literature with several datasets containing an increasing number of predictors as conditioning information. We carry an extensive empirical study to investigate several approaches to impose sparsity and dimensionality reduction, as well as possible latent factors driving the returns of the risky assets. In contrast to previous studies that made use of naive OLS and low-dimension information sets, we find that (i) accounting for large conditioning information sets, and (ii) the use of variable selection, shrinkage methods and factors models, such as the principal component regression and the partial least squares provide better out-of-sample results as measured by Sharpe ratios.

## **Portfolio Efficiency Tests with Conditioning Information - Comparing GMM and GEL Estimators**

*Working Paper*, 2020. [*Under Review*]  
(with Laurini, M. P.)

[SSRN] [RePEc]

We evaluate the use of Generalized Empirical Likelihood (GEL) estimators in portfolio efficiency tests for asset pricing models in the presence of conditional information. Estimators from GEL family present some optimal statistical properties, such as robustness to misspecification and better properties in finite samples. Unlike GMM, the bias for GEL estimators do not increase with the number of moment conditions included, which is expected in conditional efficiency analysis. By means of Monte Carlo experiments, we show that GEL estimators have better performance in the presence of data contaminations, especially under heavy tails and outliers. An extensive empirical analysis shows the properties of the estimators for different sample sizes and portfolios types for two asset pricing models.

## **Identifying Short-Lived Signals in Intraday Foreign Exchange Returns**

*Working Paper*, 2020.  
(with Adams, A.)

Using high-frequency foreign exchange data, we estimate short-lived signals to forecast one-minute-ahead rolling currency prices using other currency pairs, commodities and stock market indices as predictors. With such a large set of covariates, we impose sparsity using Elastic-Net estimator to find unexpected signals in the intraday currency market, what allow us to deal dynamically with multicollinearity, while constraining the size of the estimates of uninformative variables. We investigate the existence of signal patterns for the five most liquid currencies (British Pound, Canadian Dollar, Euro, Japanese Yen, and Swiss-Franc) for the year of 2018. The paper also shed lights on the time-of-day effects reported in the literature.

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