KENSLEY BLAISE

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RESEARCH FIELDS

Data Analytics, Computational Financial, and Applied Machine Learning.

Employments

Bank of England: Economist (June 2025 - Present).
University of East Anglia (UEA): Teaching Assistant & Module Organizer (2021-2025).
Central Bank of Haiti: Economist in the Data Analytics Division (2014-2020).

EDUCATION

- **2020-2025:** Ph.D. in Economics, University of East Anglia (UEA), Norwich, UK.
  Thesis: Digital Currencies and the Macroeconomy.
  Advisors: Peter G. Moffatt (UEA).
- **2017-2018:** M.Sc. in Economics with distinction, University of East Anglia (UEA).
- **2011-2015:** B.Sc. in Business (conc.: Analytics and Mathematical Finance), National Higher School of Technology. *Ranked 1st out of 400 students.* .

TEACHING EXPERIENCE

- Text Analytics with Python, graduate. Course Leader. School of Economics, UEA. Summer 2024.
- Business Analytics, undergraduate. Seminar Leader. School of Mathematics, UEA. Spring 2024.
- Computational Finance, graduate. Course Leader. School of Economics, UEA. Spring 2024.
- Mathematics, graduate. Seminar Leader. School of Economics. Autumn 2023.
- Financial Econometrics, graduate. Seminar Leader. School of Economics, UEA. Spring 2023.
- Advanced Macroeconomics, undergraduate. School of Economics, UEA. Spring 2023.

RESEARCH

1- Volatility on the Crypto-currency Market: A Copula-GARCH Approach (with A. Calef and Peter G. Moffatt). (Forthcoming in World Finance Handbook).

This study analyzes the relationship between crypto-currencies, proxied by a Bitcoin (BTC) and Ether (ETH) index, and key macroeconomic variables from April 2013 to May 2024. We focus on US term spread, Volatility Index (VIX), and 5-year breakeven inflation as predictors. Our findings reveal no significant dependence between returns and the term spread, suggesting investors do not consider policy paths or economic cycles when trading crypto-currencies. In contrast, extreme low VIX values are linked to high Crypto-currency Market (CM) volatility, with upper tail dependence estimated at 3.7% and 7.6% using Gumbel-Hougaard and Joe copulas, respectively. Our copula modeling exercise also shows a weak correlation of crypto-currency returns with breakeven inflation. Robustness checks, including a subsample analysis and variable transformation, confirm these results. We find that while crypto-currencies exhibit weak links to certain financial fundamentals, they respond differently to economic indicators compared to traditional assets, showing increased returns during restrictive monetary policies. The study highlights a need for further research integrating extreme events with dynamic time series analysis to better understand these relationships.

2- A Continuous-time Theory of Currency Substitution. (Under revision).

We analyze the coexistence of cash (fiat money) and privately-issued currencies (crypto- currencies) in a dynamic model where all factors of production are paid in fiat money. This introduces a cash-in-advance constraint that affects both consumption and investment, leading to non-neutrality of money. Crypto-currencies add distortions through labor reallocation and transaction fees. Using flexible utility specifications, we explore the impact of substitutability between money and crypto-purchased goods. Our main result is that an increase in the money supply raises inflation and shifts labor allocation, affecting growth dynamics. While broader economic variables remain stable, real wages are highly sensitive to changes in consumer pref- erences and crypto-fees, underscoring the impact of private digital currencies on the economy's long-term trajectory.

3- Currency Competition and Monetary Non-neutrality. (Under revision).

We build a theoretical model where both fiat money and crypto-currencies are used as media of exchange for differentiated goods. Crypto-currencies offer pecuniary benefits, such as avoiding consumption taxes, and non-pecuniary benefits like transaction privacy, while non- users face utility losses that grow with available goods. We identify an endogenous threshold good where consumers are indifferent between government-backed money and privately-issued currency, leading to three equilibrium scenarios: all goods purchased with fiat, all with crypto, or a mix of both. Our model predicts that, while fiat money is neutral, crypto-currencies are non-neutral due to mining costs, which affect labor allocation.

4- A Direct Test of the Fundamental Assumption of Option Pricing Model (with Peter Moffatt). **New Draft Coming Soon.**

The most fundamental assumption underlying option pricing models is that the market price of an option is equal to the discounted expected value of the final payoff. In this paper, we test this assumption directly with data on market prices of options combined with data on realised final payoffs. The data set contains around 1.5 million European options written on the SP500 index, between January 2022 and December 2023, with expiry dates ranging from January 2022 to July 2025. Only "near-the-money" options are included in the sample. The framework for testing the hypothesis of interest is a heteroscedastic regression model with discounted actual payoff at expiry as the dependent variable, and market price of the option as the independent variable. The joint hypothesis under test is essentially that the intercept is zero and the slope is one. This hypothesis is tested both parametrically and non-parametrically. As well as being tested for the entire sample, it is tested separately for call options and put options. It is also tested separately for bull-market phases and bear-market phases. The fundamental assumption is always strongly rejected, usually with the intercept being different from zero but the slope not being different from one. We conclude that a useful way of judging the performance of an option pricing model is to compare computed option valuations to discounted final payoffs, rather than to market prices.

5- Using Digital Records and Machine Learning to Detect Tax Avoidance in Customs Declarations (with N. Angelopoulos and R. C. Vincent. **Complete Draft Coming Soon.**

This project uses a large administrative dataset combining customs declarations and firm registration records to study how firms strategically choose tax offices to lower their tax burden. We identify firms that declare goods at offices that do not align with their business location or logistics patterns, which we interpret as potential tax avoidance behaviour. Using machine learning classification and a recentred instrumental variables approach, we estimate a causal relationship showing that for every additional deviation from the nearest appropriate customs office, there is a 9.6 percent increase in the likelihood of paying less tax than the national average for the product declared. Our results suggest that manual processing and uneven enforcement across offices facilitate these practices. We recommend accelerating digitalisation of customs procedures and propose that our model can support real time monitoring and detection of tax evasion risks.

GRANTS AND AWARDS

- **May 2025**: Received a 23,000.00 grant to conduct a study on tax evasion using Big data analysis. PI.
- **August 2024**: Received a $20,000.00 grant from the USAID to study the impact of microfinance and entrepreneurship in Haiti.

CONFERENCES AND PRESENTATIONS

- 2024: Second Edition of the UEA Time Series Workshop.
- 2023: First Edition of the UEA Time Series Workshop.
- 2022: Warwick Digital Currency Conference.
- 2022: Oxford University's PhD mini-conference (School of Economics Summer School).
- 2022: Barcelona Graduate School of Economics (School of Economics Summer School).

TECHNICAL SKILLS

- **Softwares**: Proficiency in Python, R, Matlab, C++, Bloomberg and Stata.
- **Languages**: French (Native), Creole (Native), English (Fluent) and Spanish (working knowledge).