Topic proposals

Here are some suggested topics for the master's seminar. However, we are also open to your own suggestions if you have a feasible topic in mind that is not on the list. Please contact the institute for further discussion.

1. **Decoding Oil Price Dynamics: An SVAR Analysis of Economic Impacts**
   This topic deals with analyzing the complex mechanisms behind oil price fluctuations and their impacts on the global economy. Based on Kilian (2009), supply shocks are differentiated from demand surges, and speculative influences in a nuanced way using structural vector autoregressions (SVARs). This approach provides clarity on how these variations affect macroeconomic indicators like GDP and inflation.

   Freely available data sources such as the U.S. Energy Information Administration (EIA), the *Federal Reserve Economic Data* (FRED), and the World Bank's Commodities Price Data can be exploited for this study.

2. **Using GMM with alternative moment specifications in asset pricing**
   Consumption growth is a central component in many asset pricing models. Parker and Julliard (2005) propose to use *ultimate* (i.e., aggregate) consumption growth when assessing the basic asset pricing equation in a GMM setting. This thesis deals with a reassessment of their findings and applies their methodology of handling consumption growth to newer data that also engulf the Covid-19 pandemic.
   Data for such an analysis can be obtained from Kenneth French's data library and the *Federal Reserve Economic Data* (FRED).

3. **After the pandemic: Reassessing the rare disaster hypothesis using empirical likelihood**
   According to the rare disaster hypothesis by Rietz (1988) and Barro (2006), the high excess returns observed in US postwar times resulted from possible disasters that investors anticipated ex ante, which then – due to a lucky path of US history – never realized ex post (e.g., the Cold War turning hot). This thesis deals with reassessing the rare disaster hypothesis in the empirical likelihood setting of Julliard and Ghosh (2012) using never data that also accounts for the Covid-19 pandemic.
   Data for such an analysis can be obtained from Kenneth French's data library and the *Federal Reserve Economic Data* (FRED).

4. **Comparing different volatility models using maximum likelihood**
   In this thesis, different volatility models are estimated using maximum likelihood. The topic engulf choosing an appropriate specification of the considered models (i.e., deciding on an appropriate number of lags) and delving into the maximum likelihood methodology.
   Data for this study can be obtained from Refinitiv or Yahoo Finance.

5. **Comparative Analysis of Realized Volatility and GARCH Models in Forecasting Financial Market Volatility**
   The accurate forecasting of financial market volatility is crucial for risk management, derivative pricing, and portfolio allocation. Traditional volatility models, such as ARCH and GARCH, have been widely used to model time-varying volatility. However, the rise of high-frequency data has enabled the use of realized volatility measures, which are constructed by summing squared returns over very short intervals, offering potentially more accurate volatility estimates.
   This seminar thesis aims to evaluate and compare the performance of realized volatility measures against traditional GARCH models in forecasting future volatility. The comparison might be carried out on crypto data.

6. **The Impact of Central Bank Announcements on Cryptocurrency Markets: An Event Study Approach**
   Central bank announcements, including monetary policy statements and interest rate decisions, are known to significantly impact traditional financial markets. With the growing integration of cryptocurrencies into the global financial ecosystem, there is increasing interest in understanding how these digital assets respond to central bank actions. This seminar thesis aims to explore the effects of central bank announcements on the returns and volatility of major cryptocurrencies such as Bitcoin and Ethereum using an event study methodology.
   Data on cryptocurrencies can be obtained, for example, from Binance or Kraken.

7. **Extracting hidden states in macroeconomic series using RNNs**
   This topic deals with the application of RNNs (with LSTM cells) to macroeconomic panel data. RNNs can be considered a more flexible generalization of autoregressive models. They can be used to extract joint hidden states from (possibly many) time series. Chen et al. (2023) have used such an approach as input for their asset pricing study, but they do not focus on the extracted hidden states explicitly. The research question for this project is how many hidden states there are in the panel by McCracken and Ng and how these compare to our understanding of business cycles.

   A suitable (and freely accessible) data set is the macroeconomic panel data by McCracken and Ng (2016).

Literatur

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