Abstract

In this paper we discuss some state-of-the-art methods in the macroeconomic forecasting literature that can be adapted for macroeconomic forecasting in Cyprus emphasizing the Mixed Data Sampling (MIDAS) models. MIDAS models are reduced form parsimonious regression framework, which do not require modeling the dynamics of the individual high frequency predictor series. There are many advantages in macroeconomic forecasting from using mixed data frequency models. Take for example the situation that a high frequency financial variable (e.g., daily stock market returns), possibly together with other lower frequency macroeconomic indicators, are used to predict a low frequency macro variable (e.g., quarterly gdp growth). The choice is between using a midas model, which will use all the information in the sample by using the data at the higher frequencies or aggregate the data first (typically by taking an average) and then specify a predictive model at the lower frequency. Not using the readily available higher frequency series has two important implications: (1) one loses information through temporal aggregation which can lead to biased forecasts and (2) one foregoes the possibility of providing real-time daily, weekly or monthly updates of forecasts. The topic of mixing different sampling frequencies also emerges even when time series are available at the same frequency, but one is interested in multi-period forecasting. Multi-period forecasts can also be constructed using a mixed-data sampling approach. For example, a MIDAS model can use past quarterly data to produce directly multi-period forecasts. The MIDAS approach can be viewed as a middle ground between the direct and the iterated approaches. Namely, one preserves the past high frequency data, to directly produce multi-period forecasts. In addition, we review multivariate models and especially Vector Autoregressive (VAR) models that deal with mixed frequency variables in forecasting key macroeconomic variables (MIDAS-VAR). This is compared with the standard state-space approach of structural multivariate models which involves the Kalman filter. The state-space approach differs from the MIDAS-VAR approach in that the latter does not rely on latent processes/shocks representations and is formulated exclusively in terms of observable data. As a result it tends to be quite involved, as one must explicitly specify a linear dynamic model for all the series involved: the high-frequency data series, the latent high-frequency series treated as missing and the low-frequency observed processes. The system of equations in a structural Kalman filter approach therefore typically requires a lot of parameters, namely for the measurement equation, the state dynamics and their error processes. Therefore, state space models might be prone to specification errors.

Keywords: Macroeconomic forecasting, Mixed frequency, MIDAS regressions, State space models.