Abstract

Policymakers, firms, investors and households are constantly making important decisions to improve their, or general, economic conditions. This decision-making process mainly consists of using historical information to make a statement about the future. Forecasting thus plays a vital role in everyday life as well as in the economic sciences. While there is, strictly speaking, no need for an econometric model to make predictions about future economic events, it allows us to elevate the discussion of forecasting to a scientific and systematic level. In this thesis, we propose several novel approaches on forecasting key economic and financial variables.

In the first chapter (Algaba and Boudt 2017, we argue that despite the intuitive appeal of the channel of mean-reversion through which the ratio between prices and fundamentals predicts the equity risk premium, the point-in-time value of the classical financial ratios are not designed for forecasting purposes. We show that changes in the economic conditions and market composition lead to a time-varying relationship between prices, fundamentals and the equity premium. To account for this, we propose the Generalized Financial Ratios (GFR) that compare the price per share with a time-varying transformation of the fundamentals per share. We find that using the GFR leads to economic and statistical gains when forecasting the equity premium of the S&P 500 at the 1, 3, 6 and 12 month horizon, as compared to using the classical financial ratios or the prevailing historical average excess market return.

In the second chapter (Algaba, Boudt, and Vanduffel 2020), we provide an alternative approach for estimating the conditional correlation matrix of assets returns. Compared to the standard multivariate modeling approach, such as Multivariate Generalized Auto Regressive Conditional Heteroskedasticity (MGARCH) models, where the conditional correlations are jointly estimated, our approach is a computationally simple filter. The proposed Variance Implied Conditional Correlation (VICC) exploits the polarization result that links the correlation between two standardized variables with the variances of linear combinations thereof. The VICC can thus exploit the flexibility in modeling the univariate variance process, namely the class of univariate GARCH models, while only requiring the optimization of a univariate likelihood function. In a Monte Carlo study, we show that the VICC yields accurate correlation estimates for common choices of the correlation dynamics. We also provide an empirical application to cross hedging that confirms the effectiveness of the VICC.
In the third chapter (Algaba, Borms, Boudt, and Verbeken 2020), we transform the traditional monthly survey–based consumer confidence indicator into a daily updated index by augmenting it with the sentiment embedded in economic media news articles. We implement this under the framework of a mixed–frequency dynamic factor model with a state space representation. We illustrate our approach in a Monte Carlo simulation study, and with an empirical application concerning Belgian consumer confidence. We find that augmenting the traditional survey–based indicator with media news sentiment leads to reliable real–time nowcasts of consumer confidence.