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Forecasting the macroeconomy with contemporaneous financial market information: Europe and the United States

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Abstract

Using Economic Tracking Portfolios (ETP), I find that it is possible to forecast future values of inflation and changes in industrial production in the United States and three core euro countries – Italy, France and Germany – utilizing only current and past financial market information. The longer the forecasting horizon, the better the forecasts based solely on financial market information compared to results from other methods. Of the countries I analyze, the overall forecasting performance of the tracking portfolios is the best for the U.S., and my method outperforms the forecasting performance of a VAR approach.

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1. Introduction

In recent public discussions, the possibility that financial market returns will affect the development of the future macroeconomy often emerges as a hot topic. For example, the then-chairman of the U.S. Federal Reserve Board of Governors, Alan Greenspan, frequently stimulated the discussion and also academic research on the relationship between the financial market wealth and future values of macroeconomic variables, such as private consumption¹. Also the academic

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¹ See, for example his speech on August 31st 2001 at a Federal Bank of Kansas City symposium in Jackson Hole, Wyoming (<http://www.federalreserve.gov/boarddocs/speeches/2001/20010831/default.htm>).

research community has long been interested in the relationship between the financial markets and the macroeconomy.

The mainstream empirical approach in the financial market vs. macroeconomy analysis has used Vector Auto Regressive (VAR) models to study the effects of macroeconomic innovations in the pricing equations of financial market assets. All the studies in this category mainly assume a priori that the direction of “indicator power” goes from the macroeconomy to the financial market. However, in this paper I turn this traditional point of view the other way around. Theoretically, I can do this analysis by using a recently advocated approach that [Lamont \(2001\)](#) calls an Economic Tracking Portfolio (ETP) analysis. Previously, the ETP framework was empirically analyzed in the closed economy context in [Hayes \(2001\)](#) and [Lamont \(2001\)](#) and in an open economy context in [Christoffersen and Sloek \(2000\)](#).

In ETP applications the previous results, especially for the out-of-sample forecasting performance, have been quite poor. However, in this paper I emphasize that first of all, the reason for this result might be that this kind of analysis should be performed using an international data set (i.e., national stock and currency returns), and second, that the tracking portfolios should consist of only a fairly small number of assets. I especially scrutinize the inclusion of currency market returns.

The results in my paper favor using the ETP approach with an international portfolio data set in out-of-sample macroeconomic forecasting. My main result is that for the data from 1982–2001, it is possible to forecast future values of inflation and changes in industrial production in the U.S. and at least three core euro countries, Italy, France and Germany, utilizing only the contemporaneous and past financial market information. Furthermore, the longer the forecasting horizon the better are these macroeconomic forecasts based purely on financial market information. Among the countries I analyze, the overall forecasting performance of the tracking portfolios is the best for the U.S. data.

In previous studies, [Campbell \(1991\)](#), [Campbell and Ammer \(1993\)](#), and [Cuthbertson, Hayes, and Nitzsche \(1999\)](#) examined the movements in U.K. aggregate stock prices using annual data and decomposed the variance of unexpected real stock returns into components due to revisions in expectations of future dividends, discount rates and the covariance between the two. One of their main results was that the contribution of news about future discount rates was about four times that of news about future dividends, and they found no significant covariance between them. Furthermore, their analysis of excess returns uncovered positive covariance between news about dividends and news about real interest rates, but because these two elements had opposite effects on current stock prices, their combined effect was negligible. Persistence in expected returns, as well as predictability, was found to be important in explaining stock price movements. The essence of their paper was in stock return predictability, and it also included discussion on the determinants of the expected return (dividend price ratio, yield spread, a default spread, gilt-equity yield ratio).

More recently, [Kim \(2003\)](#) analyzed the existence of long-run equilibrium relationships between the aggregate stock price, industrial production, real exchange rate, interest rate and inflation for monthly U.S. data set from 1974: 1–1998:12. The main finding was that the analyzed variables are cointegrated and hence, dependent on each other in the long-run. In addition, in [Kim \(2003\)](#) the cointegration vector was actually normalized for the stock price so the direction of causality between the fundamentals and the stock market was assumed to be the standard one, i.e., from the fundamentals towards the stock market.

In terms of causality assumptions, for example the recent papers by [Forni, Halli, Lippi, and Reichlin \(2003\)](#), [Chadha, Sarno, and Valente \(2004\)](#) and especially by [Engel and West \(2005\)](#) are more directly connected to the analysis in my paper. [Forni et al. \(2003\)](#) used a large data set consisting of 447 monthly macroeconomic time series from the main countries in the euro area and simulated out-of-sample

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