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Investigating time-variation in the marginal predictive power of the yield spread

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Abstract

We use Bayesian time-varying parameters VARs with stochastic volatility to investigate changes in the marginal predictive content of the yield spread for output growth in the United States and the United Kingdom, since the Gold Standard era, and in the Eurozone, Canada, and Australia over the post-WWII period. Overall, our evidence does not provide much support for *either* of the two dominant explanations why the yield spread may contain predictive power for output growth, the monetary policy-based one, and Harvey's [1988. The real term structure and output growth. Journal of Financial Economics 22, 305–333] 'real yield curve' one. Instead, we offer a new conjecture.

JEL classification: E32; E47; E52; E58

Keywords: Bayesian VARs; Stochastic volatility; Time-varying parameters; Median-unbiased estimation; Monte Carlo integration; Frequency domain; Great inflation; Volcker disinflation

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1. Introduction

Since the end of the 1980s, a large literature has investigated the predictive content of the long–short nominal yield spread for both inflation, and for the rates of growth of GDP and individual expenditure components.[1] While the spread's predictive content for inflation, once having controlled for lagged inflation, has almost uniformly been found to be low or non-existent, several papers have documented how, both in the United States, and in other OECD countries, the yield spread appears to have contained information on future output growth *independent* of that contained in other macroeconomic aggregates, thus allowing forecasting improvements upon models including standard predictors like indices of leading indicators, inflation measures, etc.[2] Especially intriguing is the finding, documented by Estrella and Hardouvelis (1991) and Plosser and Rouwenhorst (1994), that the informational content of the spread appears to have been independent of both nominal and real short-term interest rates, thus providing *prima facie* evidence that the spread's information may be (at least partly) independent of monetary policy actions.[3] Interestingly, as first documented by Dotsey (1998) and Estrella et al. (2003), in the United States the marginal predictive content of the spread for output growth appears to have largely disappeared in recent years.[4]

Although the predictive content of the spread for output growth has now been systematically documented for almost two decades, such finding is still to be regarded essentially as a stylised fact in search of a theory. Currently, there are two main explanations why the nominal yield spread may contain information on future output growth, one dealing with the workings of monetary policy, the other with the interaction between intertemporal consumption smoothing, on the one hand, and the stochastic properties of inflation, as determined by the underlying monetary regime, on the other.

A simple, 'introductory macro' description of the first explanation runs as follows. A temporary monetary tightening can be expected to produce two results: first, a recession; and second, a fall in inflation, and therefore in inflation expectations. To the extent that the tightening – i.e., the increase in the short rate – is temporary, the fall in inflation expectations automatically guarantees that long rates increase less than short rates, thus causing a flattening of the yield curve. By the same token, a

[1] For a literature survey, see Stock and Watson (2003), Section 3.1.

[2] As stressed by Stock and Watson (2003), the predictive content of the nominal yield spread for output growth was discovered independently by Laurent (1988, 1989), Harvey (1988, 1989), Stock and Watson (1989), Chen (1991), and Estrella and Hardouvelis (1991).

[3] As discussed by Estrella and Hardouvelis (1991), however, this does *not* imply that such information might be systematically used by the monetary authority, as by the Lucas critique – and by Goodhart's law – the spread's informational content could not be reasonably thought to remain intact in the face of systematic attempts to exploit it on the part of the policymaker.

[4] Estrella and Hardouvelis (1991) perceptively conjectured such a phenomenon for the very latest years of their sample period, 1955–1988. In recent months, the apparent breakdown of the relationship between the yield spread and output growth has also received a lot of attention in the press – see e.g., Jennifer Hughes' article on the *Financial Times* of February 9, 2006, page 13 ('A World Turned Inside Out: Why Investors Are Re-Evaluating the Predictive Power of Bonds').