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Interest Rate Trends in a Global Context

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The level of long-term interest rates is of central importance in the macroeconomy. Social Security trust fund projections rely on assumptions about the long-run interest rate to discount the benefits stream, to assess fiscal sustainability, and to project income and outlays.

Long-term interest rates in the United States and in other advanced economies have been falling since the early 1980s and have reached historically low levels. Past forecasts largely missed this global, secular decline in interest rates and tended to predict rate reversals toward the long-run historical average year after year.

This project has two major objectives. First, we review empirical studies on the global component of interest rates and provide a synthesis of methodologies that use cross-country data for U.S. interest-rate forecasting. Second, we provide an organizing framework for analyzing influences of domestic and global factors on the dynamics of U.S. interest rates.

We find that two methodologies are potentially useful for constructing long-range interest rate projections: semi-structural methods of interest rate trend decomposition and standard statistical forecasting models with an extended set of explanatory variables, including forward-looking economic indicators. These methodologies use different data and samples, and they provide complementary pieces of information. We deploy both methods to examine the determinants of U.S. interest rates.

We begin with an overview of macroeconomic trends that could contribute to falling U.S. interest rates. Changes in demographics, productivity growth, and demand for safe assets by private and institutional investors are all correlated with changes in long-run interest rates. It also is evident that global factors have become more important over time. This suggests a possibility that global macroeconomic variables may contain useful information for long-run interest rate forecasts.

We perform a decomposition of the long-run nominal interest rate over the period 1981 to 2019 under the assumption that, in the long run, inflation has no effect on the real interest rate. Three variables, the earnings-price ratio of the stock market, the weighted average of past and forecasted consumption growth, and year-on-year productivity growth, explain 87% of variation in the 10-year real rate. The relative importance of the various macroeconomic determinants

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changes over time, with the earnings-price ratio mattering most in the 1981 to 1988 period and consumption growth most significant following recessions.

We next implement a dynamic statistical forecasting model that uses two sets of explanatory variables. The first set summarizes information extracted from the yield curves themselves: the changing patterns in long-run rates (i.e., shifts in the yield curve), as well as the relationship between interest rates of different maturities (i.e., the shape of the term structure). The second set includes macroeconomic variables, the choice of which is informed by our synthesis of prior studies as well as our own results on interest rate decomposition.

We find there is little information in the earnings-price ratio beyond what is already captured by the yields themselves. In contrast, consumption growth and productivity growth play distinct roles in explaining the variance of yields, with consumption growth being most important for short-term rates, and productivity growth for both short- and long-term rates. We find that growth indicators for Europe and Asia are strongly significant, suggesting that international factors are increasingly important for U.S. interest rate determination.

An important contribution of our work is the addition of international, forward-looking indicators to the forecast. We compare the out-of-sample forecasting properties of the dynamic model under three specifications: a yields-only model, a macro-finance model with domestic macroeconomic indicators, and a macro-finance model with both domestic and international indicators. We find that the model with international factors can outperform the other models by better tracking the falling trajectory of U.S. interest rates in the post-2008 period, a trend missed by domestic variables. Further, we find that global economic indicators, especially the composite leading indicator for the European Union, are capable of accounting for a large portion of yield variance, not only in the U.S., but in other advanced economies as well. ❖

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