

# Commentary

BUFFIN PARTNERS INC.

ECONOMIC INVESTMENT AND ACTUARIAL RESEARCH

## Ahead of the Yield Curve

To proclaim that the yield curve is flattening is far less dramatic than to proclaim that the sky is falling, but nevertheless, the proclamation has profound consequences. Many practitioners believe that the yield curve is a reliable indicator for predicting future economic output and inflation. The arcane practices of interpreting the shape and slope of the yield curve, analyzing non-parallel shifts in the yield curve, and forecasting economic conditions based on the analyses and interpretations, have generally been acknowledged to be useful but non-scientific activities. The analyses have been typically regarded as being based on empirical results rather than rigorous economic and financial theory.

The spread between long-term and short-term government bond rates may be found frequently in research papers in the econometric literature as a significant element in the mathematical equations that predict inflation and in equations that predict various measures of future economic activity, such as real GDP growth, industrial production growth and even recessions. These predictive relationships appear to be robust over time and have a good record in various different national economies in North America and Europe.

Various explanations that are often given include the fact that the yield curve tends to flatten when there is a tightening of monetary policy and that a slowdown in economic activity and inflation typically follows such a policy although with a time lag for the policy to take effect. For example, an inversion of the US Treasury yield curve in December 2000 was followed by a recession within a year; the National Bureau of Economic Research dated the business cycle peak in March 2001. Equity prices fell dramatically over the period 2000-2002 and the Federal Reserve implemented a policy of progressive interventions in setting interest rates. A recent

paper by Arturo Estrella of the Federal Reserve Bank of New York titled *Why Does the Yield Curve Predict Output and Inflation?* offers some insightful analysis of the yield curve and its changing shape and its tendency to shift over time. The paper constructs a rational expectations model that captures the relationships in question and enables the relationships to be more clearly observed. The model incorporates an explicit term structure of interest rates and is sufficiently flexible to accommodate various approaches to macroeconomic relationships, thus avoiding dependence on a single paradigm.

Various researchers over the last quarter century have produced empirical evidence of the predictive power of the yield curve, including a demonstration of a relationship between the slope of the yield curve and consumption in the economy. It has also been found to provide an indication of monetary policy and the pace of output growth, growth in aggregate GDP, and importantly, inflation and recession. Part of the predictive power of the yield curve may be attributed to the effects of countercyclical monetary policy.

We have observed how pension practitioners, including plan sponsors, asset managers and actuaries, typically react to events either as they happen or after they have happened. A case in point is the dramatic decline in the funded status of pension plans that occurred over the period 2000-2002. At the beginning of the period, most pension plans were well funded, with sufficient assets to meet pension obligations. However, as equity markets fell over the three-year period and as interest rates were pushed by Federal Reserve policy to historically low levels, the funded status of most pension plans declined significantly, particularly when measured in true economic terms by comparing market values of assets to the economic value of pension obligations priced

on a yield curve basis. In retrospect, pension practitioners now generally agree, that if they had had a way of anticipating the events of 2000-2002 at the beginning or during the period when so much damage was done to the pension benefit security and economic security of ordinary workers, they would have implemented investment strategies and asset-liability management practices that would have mitigated or prevented the tragic loss of benefit security and the ensuing funding crisis. Although yield curve studies are numerous, the important issue of how pension liabilities behave is often neglected; in real economic terms, pension liabilities tend to be very long and behave like Treasury STRIP zero-coupon bonds.

The fact that the interpretation of the predictive power of the yield curve is gaining a greater degree of acceptance and respectability in the academic community and among professional economists, should send an important message to asset managers and actuaries concerned with pension plans. The message is that traditional methods of managing assets and liabilities involving heavy reliance on retrospective methodology can be improved by incorporating soundly-based prospective assessments of economic conditions involving interest rates, inflation and security price movements. The yield curve has predictive powers that can be utilized in the framework of pension asset-liability management. Extensive research on yield curves and a complete set of yield curve indexes are available at [www.ryanindex.com](http://www.ryanindex.com)

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