4th World Conference on Business, Economics and Management, WCBEM

The yield curve as a predictor of gross domestic product growth in Nordic countries

Jana Hvozdenska [a]*

[a]Faculty of Economics and Administration, Department of Finance, Lipova 41a, Brno 602 00, Czech Republic

Abstract

The yield curve – specifically the spread between long term and short term interest rates is a valuable forecasting tool. It is simple to use and significantly outperforms other financial and macroeconomic indicators in predicting recessions two to six quarters ahead. This paper aims to analyse the dependence between slope of the yield curve and an economic activity of selected countries between the years 2000 and 2013. The slope of the yield curve can be measured as the yield spread between sovereign 10-year and 3-month bonds. The natural and probably the most popular measure of economic growth is by GDP growth, taken quarterly. The results showed that the best predictive lags are lag of four and five quarters. The results presented also confirm that 10-year and 3-month yield spread has significant predictive power to real GDP growth after financial crisis. These findings can be beneficial for investors and provide further evidence of the potential usefulness of the yield curve spreads as indicators of the future economic activity.

1. Introduction

The yield curve simply plots the yield of the bond against its time to maturity. Many market observes carefully The yield curve simply plots the yield of the bond against its time to maturity. Many market observes carefully track the yield curve's shape, which is typically upward sloping and convex. However when the yield curve becomes flat or slopes downward (the spread between sovereign 10-year and 3-month bond is negative) it may signal GDP decrease (recession).

---

* Jana Hovzdesnska. Tel.:+ 420-776-333-646.
  E-mail address: 174974@mail.muni.cz

The yield curve – specifically the spread between long term and short term interest rates is a valuable forecasting tool. It is simple to use and significantly outperform other financial and macroeconomic indicators in predicting recessions two to six quarters ahead.

Widespread use of the yield curve makes assessing its accuracy a worthwhile exercise for economists. But policymakers, too, need an accurate and timely predictor of future economic growth.

With sophisticated macroeconometric models and highly paid professional forecasters, is there any place for a simple indicator like the yield curve? Aside from the knowledge gained about the curve itself, there are several reasons to answer that question affirmatively. Simple predictions may serve as a check on more complex models, perhaps highlighting when assumptions or relationships need rethinking. Agreement between predictions increases confidence in the results, while disagreement signals the need for a second look. A simple, popular indicator also provides some insight into market sentiment. It is always a good idea to check whether the expensive and complicated forecasts actually do perform better. After first reviewing some basics about the yield curve and the reasons it might predict future growth, we look at the actual relationship (Haubrich and Dombrosky, 1996).

This paper builds on a wide range of previous researches, but differs in some ways. Bernard and Gerlach (1998) in their paper showed empirically on eight countries that the slope of the yield curve is a good predictor of the real economic activity. Berk and van Bergeijk (2001) examined 12 euro-area countries over the period of 1970-1998 and found that the term spread contains only limited information about future output growth. Their work is based on the previous theoretical researches of Estrella and Hardouvelis (1991), Estrella and Mishkin (1996). There was proven the evidence that the slope of the yield curve and the future GDP activity are related together. However it is necessary to say that this rule was true until the end of 20th century and it mostly disappeared at the beginning of 21st century and appeared again during the financial crisis (from 2008) and later on (De Pace, 2011; Giacomini and Rossi, 2006; Chinn and Kucko, 2010). Most of the studies are focused on the relationship of the yield curve and GDP activity of the United States of America.

The aim of this paper is to show if the yield spread possesses the predictive power of future economic activity in selected EU countries and the USA and to examine which time lag of the spread is the best for prediction of the future GDP.

Despite various researches, there is not any comprehensive theory that would prove the correlation between the yield spread and economic development of the country yet. We often come across the statements that have only theoretical basis without generally valid empirical evidence. Economic models are largely based on the argument that the yield curve tends to be flatter in the situation of the tight monetary policy and the economic slowdown typically occurs with a slight time lag (Szarowska, 2013).

Almost perfect tool containing the relevant future data provides the yield spread of government bonds. The simplest interpretation of the yield spread is through monetary policy of the country. Based on this criterion - relatively low spread reflects the restrictive and tight monetary policy and vice versa - high spread reflects loose monetary policy. We can find the theoretical justification for using of the spread in expectations hypothesis. It assumes that a long term rate of return is the average of the current and expected future short term yields. The investor's decision to invest in short term or long term asset is completely irrelevant (Mishkin, 1990).

Dependence of the yield spread and GDP can be derived from their connection to the monetary policy of the state. As bond yields react to monetary policy as well as monetary policy is able to respond to the output of the economy, the yield curve assumes overlapping of policy measures and responses. The yield curve has the ability to reflect future production either directly or indirectly. Indirectly it comes to predicting of the future interest rate and the future monetary policy. It may also reflect the future production directly because the 10-year yields may depend on estimates of the output of the economy in 10 years.

A question arises – how many months, quarters, years of future economic activity can be predicted by the yield spread? Based on the study of Bonser-Neal and Morley (1997) as well as Chinn and Kucko (2010) spread has the greatest ability in predicting one-year horizon (four quarters ahead). As it was mentioned above, to prove if the spread has the best predictive power in one-year horizon is one of the aims of this paper.