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Big Data & Economics

Final Project

Literature Review

There has been much scholarly work done regarding the yield curve and its implications on stock market performance. The yield curve is one of the most watched financial indicators that investors track, analyzing the shape of the curve. Typically, the yield curve is upward sloping, as the maturity of a bond increases, so does the yield, however, at times the yield curve becomes inverted signaling a potential recession. In the past 50 years, when we have seen an inverted yield curve, each one has been followed by a recession.

In Paul Cwik's, "The inverted yield curve and the economic downturn.", details the inverted yield curve based on two effects, the Wicksell and Fisher effects. The Fisher effect entails the upward pressure on interest rates, while the Wicksell effect entails the downward pressure on interest rates. Cwik states, "The short-term credit can create both short- and long term malinvestments in the social structure of production. These malinvestments are unsustainable and must be liquidated. The process of liquidation phase may take the form of a credit crunch, a real resource crunch, or a combination of the two. Each scenario culminates in an inverted yield curve approximately one year before the upper-turning point of a recession" (Cwik, 2005). This credit crunch occurs when monetary authority determines inflation is too high and are forced to raise short-term rates. The Wicksell effect dominates the Fisher effect at the short-end of the yield curve and causes this inversion, which increases the cost of borrowing and stunts economic growth.

Joseph Haubrich and Ann Dombrosky assess the predictive power of the yield curve on real growth using an expectations hypothesis approach in their paper, “Predicting real growth using the yield curve”. Haubrich and Dombrosky state, “The yield curve predicts future output because each of these shifts follows from the same underlying cause: monetary policy. Taking this logic one step further, monetary policy may react to output, so that the yield curve picks up a complex intermingling of policy actions, reactions, and real effects” (Haubrich and Dombrosky, 1996). The yield curve can reflect future output indirectly causing changes in risk premiums that hold information for how investors react to monetary policy and can affect output growth as a result.

Gürkaynak, Sack, and Wright, make public the Treasury yield curve estimates of the Federal Reserve Board at a daily frequency from 1961 to the present in their paper, "The US Treasury yield curve: 1961 to the present". The estimated yield curve can be expressed in a variety of ways, including zero-coupon yields, par yields, and forward rates. They construct a “synthetic” off-the-run Treasury security with any maturity date and coupon rate desired. The procedure is used to create a benchmark which can be used to measure spreads on various securities. They state, “The approach is quite effective at capturing the general shape of the yield curve while smoothing through the idiosyncratic variation in the yields on individual securities. As such, the results should prove useful for understanding the general macroeconomic and other factors that have broad effects on the shape of the yield curve” (Gürkaynak, Sack, and Wright, 2007).

Geungu Yu, Philli Fuller, and Dal Didia investigate the effects of an inverted yield curve and the performance of small, mid, and large-cap stocks between 2005 to 2007. Some investors may believe that big cap stocks are preferred over mid or small cap stocks when the yield curve

is inverted. This is based on the idea that during times of economic downturn, larger firms may be better equipped to weather the storm better than smaller companies. Based on larger firms being able to reduce their costs more easily, have greater access to capital, and are more diversified than smaller firms. Their results concluded that, “big cap stocks outperformed both small and mid cap stocks during the period of inverted yield curve. In particular, the biggest cap stocks performed best with the only statistical significance when the yield curve was inverted” (Yu, Fuller, and Didia, 2008). This suggests that large cap stocks perceived the effects of inverted yield curve as a positive signal during the period of an inverted yield curve during the Great Recession.

Arturo Estrella and Frederic Mishkin use the spread between the interest rates on the ten-year Treasury note and the three-month Treasury bill, as a forecasting tool in predicting US recessions. The steepness of the yield curve is a good indicator of possible future recessions for a few reasons: monetary policy has a significant influence on the yield curve spread and real activity over the next future quarters, expectations of future inflation and real interest rates contained in the yield curve spread also seem to play an important role in the prediction of economic activity. Since, inflation tends to be positively related to activity, the expected inflation component may also be informative about future growth. They use the probit model, which relates the probability of a recession to the specific explanatory variable of the yield curve spread. And tracked the results of the model with that of the NYSE stock price index. They found that, “When we look at how well the yield curve spread forecasts recessions six quarters in the future (Panel 7), we see that the performance deteriorates from the four quarter-ahead predictions. Nonetheless, unlike the other variables considered, the yield curve spread continues to have some ability to forecast recessions six quarters ahead” (Estrella and Mishkin, 1996).

References

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