Term structure of interest rates

Finance

Term Structure of Interest Rates Term structure of interest rates is defined as the relation that exists between yield to maturity of zero coupon securities of same credit quality and maturities of zero coupon securities. It explains the reason why different kinds of treasury spot rates will have differences. These differences change with the period length. The outline looks at this theory and how it does apply to the market.

I. Liquidity preference theory.

This theory tries to explain the relation linking the yield of a debit instrument and its maturity period.

This theory is sometimes referred to as the liquidity preference hypothesis. It originated from the Pure Expectations Theory, and it is described as its offshoot.

Explanation provided by this theory is that;

i. It sees investors as susceptible to change from their favored maturity, if they are offered a sum that is higher than expected.

ii. It assumes a comparatively small number of long-term investors. This is to offer premiums to encourage the number of long-term investors (Gibson, Rajna, François-Serge Lhabitant, and D Talay 311). The long-term bonds have to offer premiums in order to support investors to hold them.

iii. As opposed to the other theories, the yield curve is expected to have a positive slope.

II. Expectation Theory.

This theory states that, a forecast of the future interest rates is made before investing in bonds.

Some investors invest in long-term bonds because they believe interest rates will decline (Sutton, Gregory D 211).

Others invest in short-term securities because of the believe that the rates will rise.

The slope of the yield curve will change depending upon the larger group.

Short description of the theory.

According to this theory, a rising yield curve will occur if the economy is strong. Strong economic growth tends to increase the interest rates as;

i. Consumers have a loan of more money for cars and houses.

ii. Businesses borrow more money so that they can finance expansion of inventories.

This theory is sometimes used to give details about the yield curve. It has proven inaccurate in practice because the interest rates tend to remain flat

I. Market Segmentation Theory

This theory states that in a market there are different interest rates of close to three rates but not one (Lutz, Friedrich A, and Claus Wittich 196). They include; short term, long-term and intermediate-term.

The methods for segmenting consumer markets include;

i. Geographical segmentation. This approach combines demographic and geographic data to come up with an accurate and specific profile.

ii. Behavioral segmentation. Divides consumers into groups mainly according to knowledge and attitude towards response to a product.

iii. Segmentation by occasions. This relies on the special needs and desires.

Ho-Lee Model

This model is a significant concept of financial mathematics. It deals with rates of interest that are supposed to succeed in the future.

Model description

It considers the up to date yield curve to be fixed.

With this model;

There is an assumption that there would be one up term structure and a single down term structure.

In this case, a period of one year is considered.

This model is represented in equation form as follows;

drt = φtdt + σdWt

Dothan Model

This model is a short-term interest rate model that is based on algebraic Brownian motion.

In this model, Zero-coupon bond prices are computed by solving the associated PDE. This is done using heat kernels and the Hartman-Watson distributions.

Several integral formulas are obtained for price P (t, T) at time t> 0 of a bond that has maturity T> 0 complete those of the original paper. They do not satisfy the boundary condition P (T, T) which is equal to one (Cvitanić, Jakša, and Fernando Zapatero 318).

Works cited

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