MUTUAL FUND

ReWISE

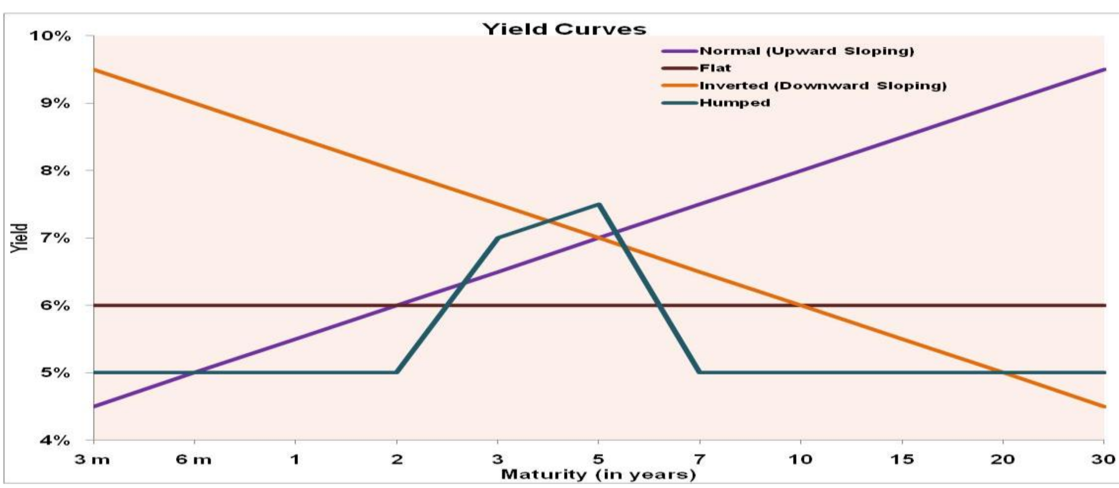
Yield Curve

What is yield curve?

- Yield refers to the interest earned on a bond till it matures.
- Yield curve is a graphical presentation showing relationship between a bond's yield and its maturity.
- A yield curve describes relation between yield on short term bond (referred to as short end of the yield) and long term bond (referred to as long end of the yield).
- It shows investor's expectations on future interest rates.
- Yield curve is also used as a leading economy indicator.

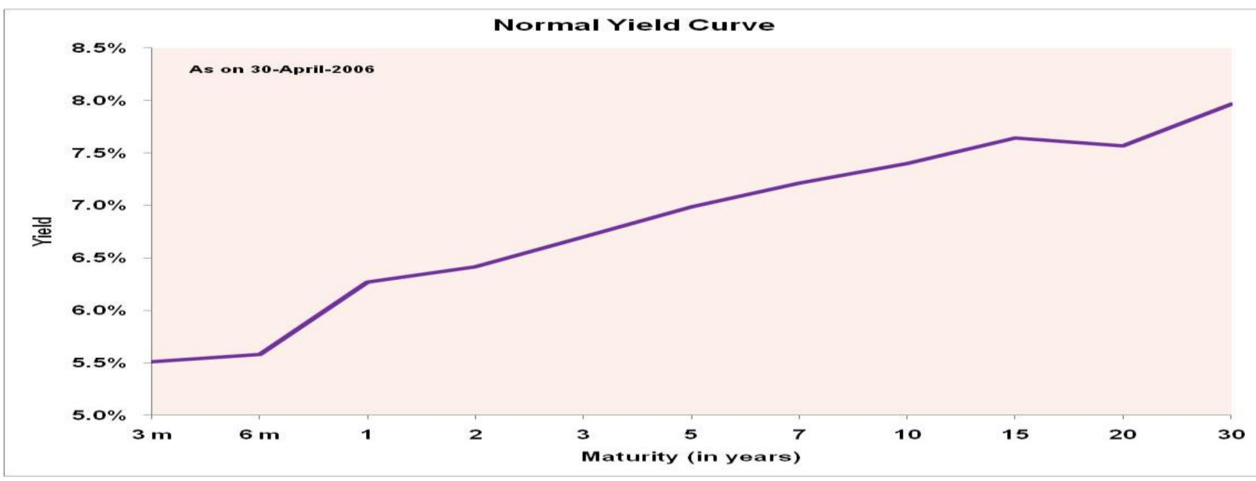
Types of yield curve

- There are four types of yield curve - normal, inverted flat and humped.
- Normally the yield curve is upward sloping (**normal yield curve**) where bond with longer maturity pay higher yield. Yield on long term bond is higher than yield on short term bond.
- An upwardly sloping steep yield curve is when gap between yield on long term bond and short term bond widens which makes the curve look steeper. Yield on long term bond is rising faster than yield on short term bond or yield on short term bond is falling faster than rising yield on long term bond.
- **Inverted yield curve** is a downward sloping curve where yield on long term bond is lower than yield on short term bond.
- **Flat yield curve** is almost like a straight-line curve where yield on long term bond and short term are almost similar.
- **Humped yield curve** is when yield on long term and short term bond are almost similar and yield on medium term bond is high forming a hump shape.
- Chart below uses hypothetical yield to show the types of yield curves.



What causes yield curve to be normal, flat or inverted and its indication?

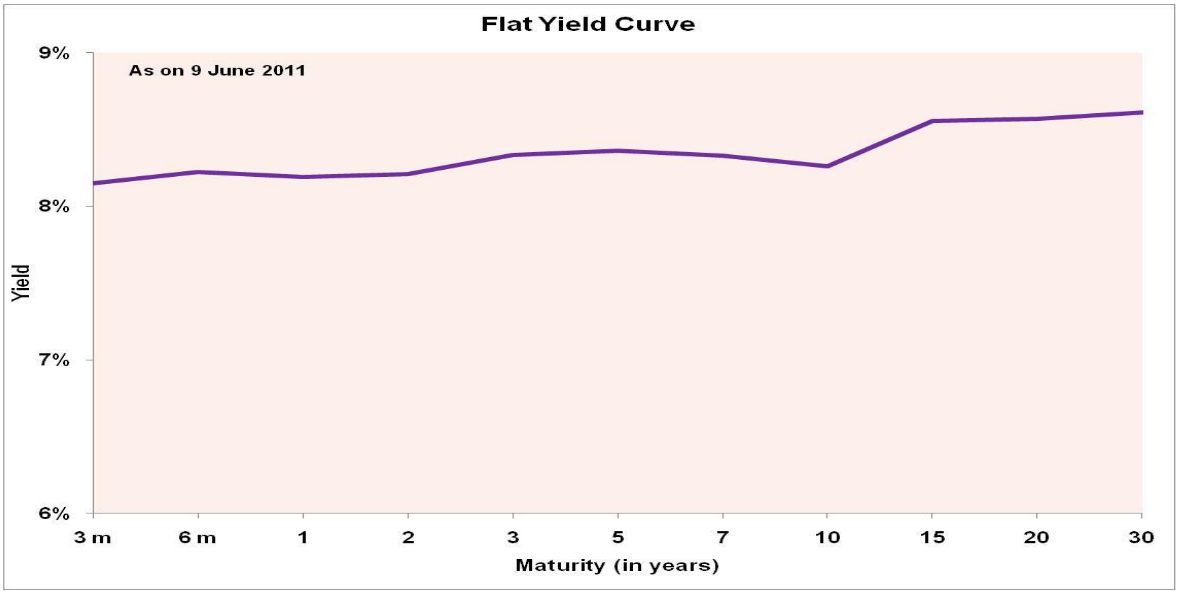
- Factors like monetary policy (also investor's expectation on future interest rates), inflation and economic conditions causes the yield curve to change shape.
- Before, we understand how the above factors cause changes to the yield curve; one must understand relation between short term interest rate and long term interest rate along with relationship between interest rate, yield and bond price.
- While short-term interest rates are managed by RBI, long-term interest rates are determined by market forces. Long-term interest rates are a function of the effect investors believe current short-term interest rates will have on future levels of inflation and economy.
- When interest rates rise, bond price falls, raising yield of older bonds to be at par with the newer bonds issued with higher coupons.
- When interest rates falls, bond price rises, lowering yield of older bonds to be at par with the newer bonds issued with lower coupons.
- Typically a yield curve is upward sloping (normal) or a steep yield curve as investors need to be compensated for risks associated with holding a bond with longer maturity.
- This happens when investors expect interest rates to rise on back of high inflation or excess liquidity in the market as RBI might increase interest rates to lower inflation or absorb liquidity.
- Upward sloping steep yield curve generally indicates economic growth as a growing economy will result in increase demand for money (Increase in borrowing for investments) resulting interest rates to rise.
- Chart below shows India Government securities yield curve as on 30 April 2006 depicting a normal yield curve.



Source: Bloomberg

- During the above mentioned period of time, India was facing high inflation and repo rates were increased from 6.5% to 7.5% (2006-07).
- As upward sloping curve indicates growing economy, that year India GDP (2006-07) was 9.5%.

- Flat yield curve signals economic slowdown.
- Yield curve flattens when RBI to curb effects of rapidly growing economy raises interest rate causing yield on short term bond to increase.
- At the same time on the expectation of falling inflation investors don't demand risk premium for holding long term bond causing yield on long term bond to fall causing flattening of yield curve.
- Chart below shows India Government securities yield curve as on 9 June 2011 depicting a flat yield curve.

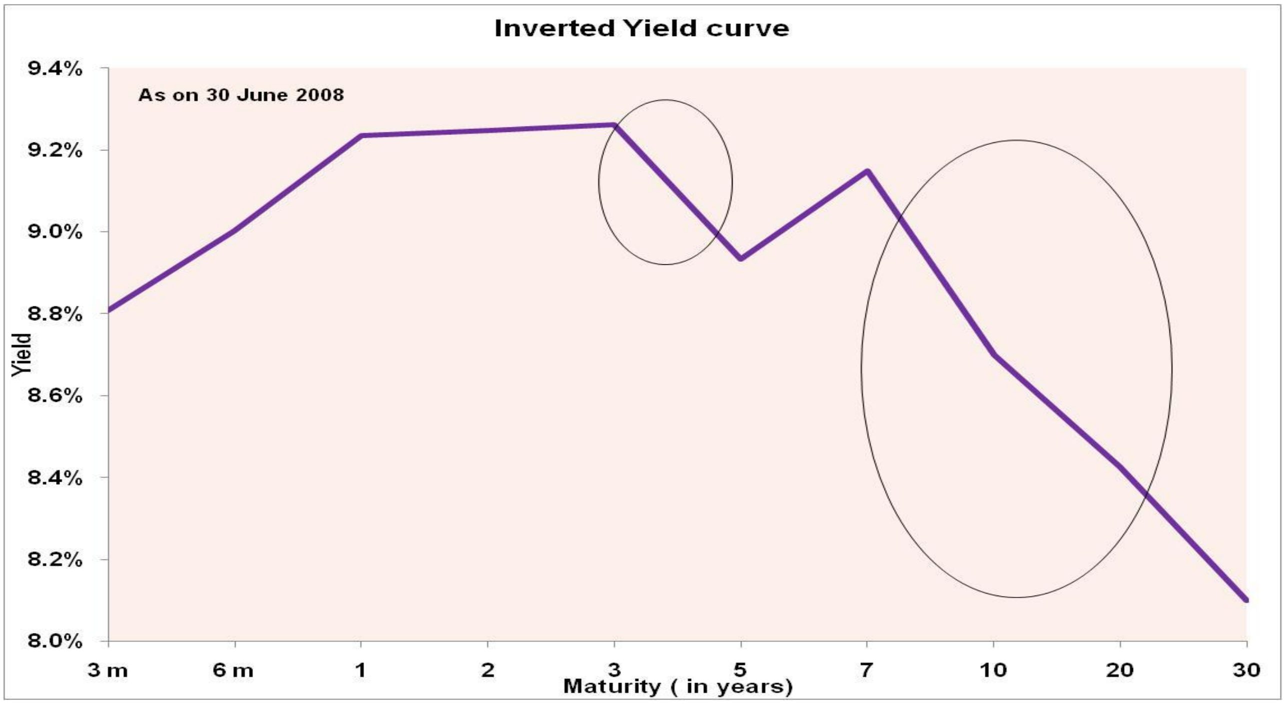


Source: Bloomberg

- During the above mentioned period of time, India experienced rising interest rates of around 100 bps and though inflation was high it declined to 7.69% by March 2012.
- Flattening yield curve indicator of slowing economy; India GDP fell to 6.2% (2011-12).
- On the above mentioned date, yield for 3 month T-bill was at 8.15% and on a 10 year Gsec bond was at 8.26% leading to a flatter yield curve.

- When investors expect interest rates to fall on back of lower inflation or tight liquidity conditions, investors do not demand compensation in form high yield on long term bond as they expect rates to fall further. This cause's yield curve to invert as yield on short term bond is higher than yield on long term bond.
- Inverted yield curve indicates economic recession as investors expect demand of money to decrease and interest rates to fall to stimulate growth, therefore not investing for longer period.

- Chart below shows India Government securities yield curve as on 30 June 2008 depicting a partial inverted yield curve.



Source: Bloomberg

- From the chart above we can see a partially inverted yield curve.
- During that period of time, India witnessed falling inflation from 10.89% in June 2008 to 1.48% in March 2009 and Repo rate was cut by 350 bps around the same time.
- Inverted yield curve indicates economic recession; India GDP for 2008-09 fell from 9.3% to 6.7%.