SPECIAL REPORT

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Telling You What Wall Street Doesn't Want You To Know

STREETTALKADVISORS

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FEATURES

ABOUT MARKET MYTHS

THESE ARE ARTICLES THAT WILL ADDRESS INVESTING STRATEGIES, UNCOVER TRUTHS ABOUT MONEY MANAGEMENT AND HELP GUIDE YOU THROUGH THE TRAPS AND PITFALLS OF PLANNING AND SAVING FOR RETIREMENT.

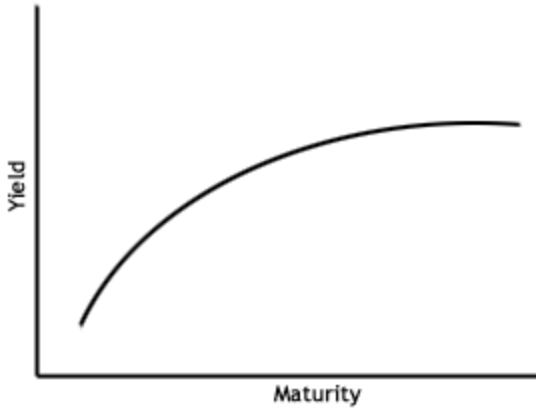
INTEREST RATES AND YEILD CURVES by Lance Roberts

Everything You Ever Wanted to Know About Interest Rates & Yield Curves

What Is A "Yield Curve"

A line that plots the interest rates, at a set point in time, of bonds having equal credit quality, but differing maturity dates. The most frequently reported yield curve compares the three-month, two-year, five-year and 30-year U.S. Treasury debt. This yield curve is used as a benchmark for other debt in the market, such as mortgage rates or bank lending rates. The curve is also used to predict changes in economic output and growth.

The shape of the yield curve is closely scrutinized as it helps to give an idea of future interest rate change and economic activity. There are three main types of yield curve shapes: normal, inverted and flat (or humped). A normal yield curve (pictured here) is one in which longer maturity bonds have a higher yield compared to shorter-term bonds, due to the risks associated with time. An inverted yield curve is one in which the shorter- term yields are higher than the longer-term yields, which can be a sign of upcoming recession. A flat (or humped) yield curve is one in which the shorter- and longer-term yields are very close to each other, which is also a predictor of an economic transition. The slope of the yield curve is also seen as important: the greater the slope, the greater the gap between short- and long- term rates.



Trying To Predict Interest Rates

Most investors care about future interest rates, but none more than bondholders. If you are considering a bond or bond fund investment, you must ask yourself whether you think interest rates will rise in the future. If the answer is yes then you probably want to avoid long-term maturity bonds or at least shorten the average duration of your bond holdings; or plan to weather the ensuing price decline by holding your bonds and collecting the par value at maturity.

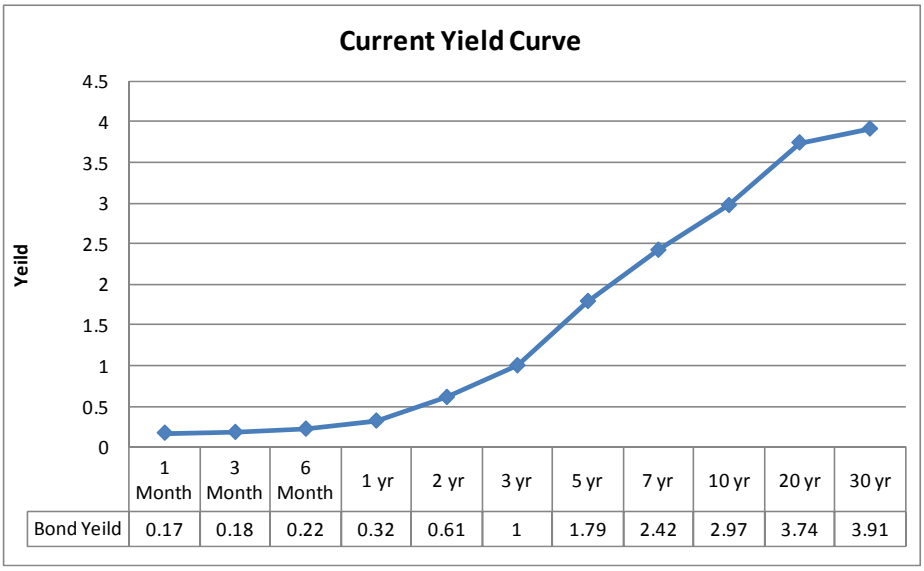
The Treasury Yield Curve

In the United States, the Treasury yield curve (or term structure) is the first mover of all domestic interest rates and an influential factor in setting global rates. Interest rates on all other domestic bond categories rise and fall with Treasuries, which are the debt securities issued by the U.S. government.

To attract investors, any bond or debt security that contains greater risk than that of a similar Treasury bond must offer a higher yield. For example, the 30- year mortgage rate historically runs 1% to 2% above the yield on 30-year Treasury bonds. Corporate bonds also carry higher interest rates than government bonds due to the potential of corporate bankruptcy which would lead to default on repayment of the issued bond.

Note: For a lot of portfolio analysis equations the 10-year Treasury Bond rate is used in the calculation as a potential investment with a "Risk Free" return.

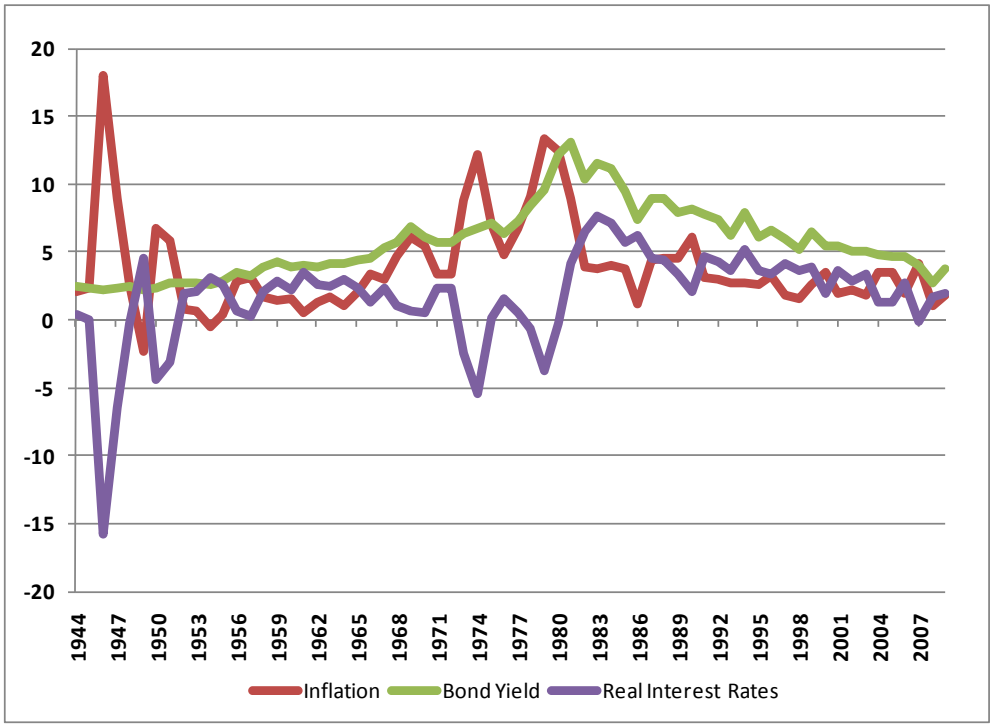
Below is a graph of the actual Treasury yield curve as of June 30th, 2010. This is a pretty normal sloping curve as an investor in a 1 month treasury receives very little interest for such a short loan period to being paid more for loaning money to the U.S. Government for 30 years.



	1 Month	3 Month	6 Month	1 yr	2 yr	3 yr	5 yr	7 yr	10 yr	20 yr	30 yr
Bond Yeild	0.17	0.18	0.22	0.32	0.61	1	1.79	2.42	2.97	3.74	3.91

In the chart above the Federal Reserve directly manipulates **only** the short-term interest rate at the very start of the curve. The Fed has three policy tools, but their biggest hammer is the federal funds rate, which is only a one-day, overnight rate. The rest of the curve is determined by supply and demand in an auction process.

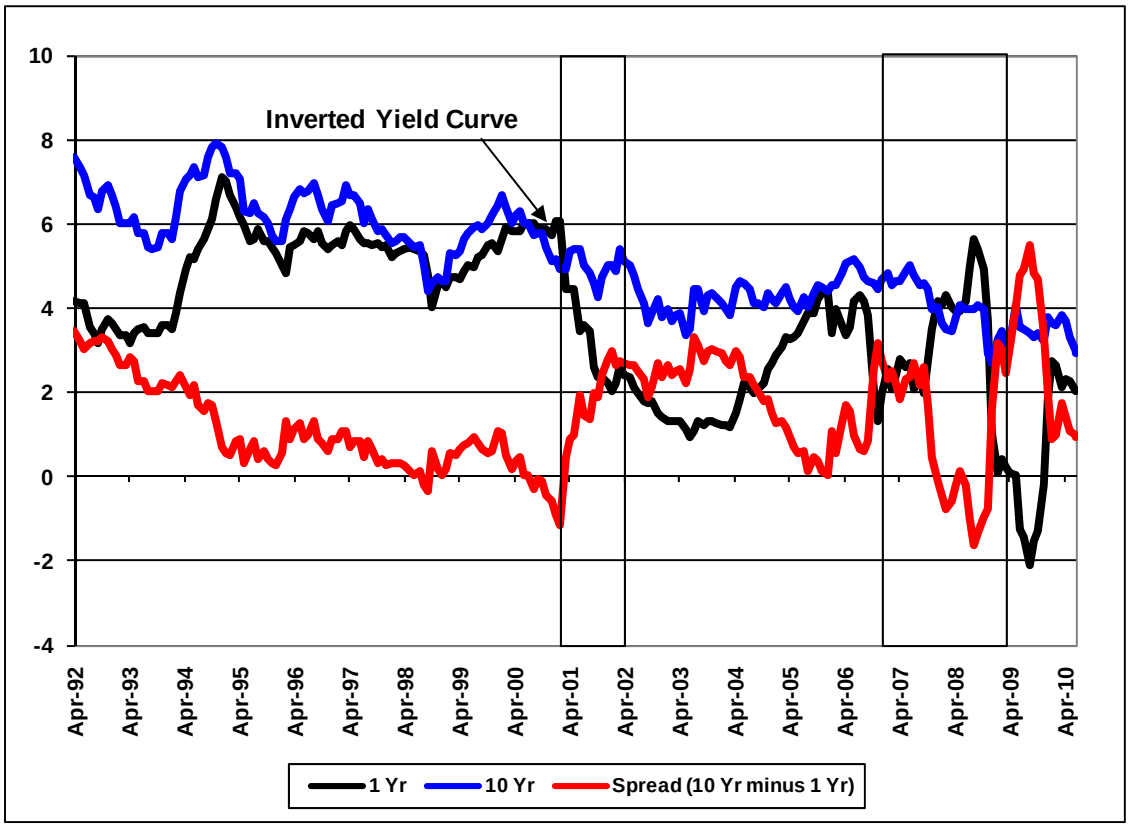
Consider the next chart. First, it shows nominal or real interest rates. Inflation will erode the value of future coupon dollars and principal repayments; the real interest rate **(in purple)** is the return after deducting inflation. The chart therefore combines anticipated inflation and real interest rates. We have had negative real interest rates in the past which is not good for the economy or the markets and we are dangerously close to a negative real rate again.



Long Rates Tend to Follow Short Rates, Somewhat

Technically, the Treasury yield curve can change in various ways: it can move up or down (a parallel shift), become flatter or steeper (a shift in slope), or become more or less humped in the middle (a change in curvature).

The following chart compares the 10-year Treasury yield **(blue line)** to the one-year Treasury yield **(black line)** from Apr 1992 to Apr of 2010. The spread between the two rates **(red line)** is a simple measure of steepness:



Consider two observations. First, the two rates move up and down somewhat together (the correlation for the period above is about 88%). Therefore, parallel shifts are common. Second, although long rates directionally follow short rates, they tend to lag in magnitude. Specifically, when short rates rise, the spread between 10-year and one-year yields tends to narrow (curve of the spread flattens) and when short rates fall, the spread widens (curve becomes steeper). In particular, the increase in rates from 1998 to 2000 was accompanied by a flattening and inversion of the curve (negative spread); the marked drop in rates from Mar 2000 to the end of 2003 produced a very steep curve by historical standards.

How Interest Rates Are Determined

Supply and Demand

Interest rate levels are a factor of the supply and demand of credit. An increase in the demand for credit will raise interest rates, while a decrease in the demand for credit will decrease them. Conversely, an increase in the supply of credit will reduce interest rates while a decrease in the supply of credit will increase them.

The supply of credit is increased by an increase in the amount of money made available to borrowers. For example, when you open a bank account, you are actually lending money to the bank. Depending on the kind of account you open

(a certificate of deposit will render a higher interest rate than a checking account, with which you have the ability to access the funds at anytime), the bank can use that money for its business and investment activities. In other words the bank can lend out that money to other customers. The more banks can lend, the more credit there is available to the economy and as the supply of credit increases, the price of borrowing (interest) decreases.

Credit available to the economy is decreased as lenders decide to defer the re-payment of their loans. For instance, when you decide to postpone paying this month's credit card bill until next month or even later, you are not only increasing the amount of interest you will have to pay, but also decreasing the amount of credit available in the market. This in turn will increase the interest rates in the economy.

Supply-Related Factors

Monetary Policy

If the Fed wants to increase the Fed Funds rate, it supplies more short-term securities in open market operations. The increase in the supply of short-term securities restricts the money in circulation since borrowers give money to the Fed. In turn, this decrease in the money supply increases the short-term interest rate because there is less money in circulation (credit) available for borrowers. By increasing the supply of short-term securities, the Fed is yanking up the very left end of the curve, and the nearby short-term yields will snap quickly in lockstep.

Can we predict future short-term rates? Well, the expectations theory says that long-term rates embed a prediction of future short-term rates. But consider the actual bond yield curves illustrated above, which is normal but very steep. The one-year yield is currently .32% and the two-year yield is .61%. If you were going to invest with a two-year time horizon and if interest rates were going to hold steady, you would, of course, do much better to go straight into buying the two-year bond (which has a much higher yield) instead of buying the one-year bond and rolling it over into another one-year bond. Expectations theory, however, says the market is predicting an increase in the short rate. Therefore at the end of the year you will be able to rollover into a more favorable one-year rate and be 'kept whole' relative to the two-year bond, more or less. In other words, expectations theory says that a steep yield curve predicts higher future short-term rates.

Unfortunately, the pure form of the theory has not performed well: interest rates often remain flat during a normal (upward sloping) yield curve. Probably the best explanation for this is that, because a longer bond requires you to endure greater interest rate uncertainty, there is extra yield contained in the two-year bond. If we look at the yield curve from this point of view, the two-year yield contains two elements: a prediction of the future short-term rate plus extra yield (i.e., a risk premium) for the uncertainty. So we could say that, while a steeply sloping yield curve portends an increase in the short- term rate, a gently upward sloping curve, on the other hand, portends no change in the short-term rate-the upward slope is due only to the extra yield awarded for the uncertainty associated with longer-term bonds.

As Fed watching is a professional sport, it is not enough to wait for an actual change in the Fed Funds rate, as only surprises count. It is important for you, as a bond investor, to try to stay one step ahead of the rate, anticipating rather than observing its changes. Market participants around the globe carefully scrutinize the wording of each Fed announcement (and the Fed Governors' speeches) in a vigorous attempt to discern future intentions. The Fed increasingly tips its hand in advance. In Aug 2003, for example, the Fed said it would keep rates low for a considerable period, so the bond community spent the subsequent months waiting for the Fed simply to drop this two-word phrase and thereby signal a future intention to raise the federal funds rate.

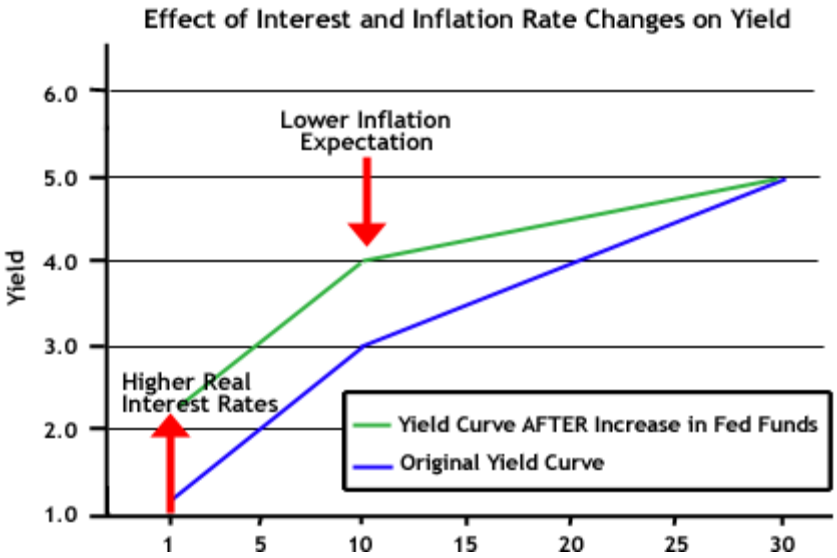
Fiscal Policy

When the U.S. government runs a deficit, it borrows money by issuing longer-term Treasury bonds to institutional lenders. The more the government borrows, the more supply of debt it issues. At some point, as the borrowing increases, the U.S. government must increase the interest rate to induce further lending. However, foreign lenders will always be happy to hold bonds in the U.S. government: Treasuries are highly liquid and the U.S. has never defaulted *(it actually came close to a default in late 1995, but Robert Rubin, the Treasury Secretary at the time, staved off the threat and has called a Treasury default "unthinkable - something akin to nuclear war")*. Still, foreign lenders can easily look to alternatives like Eurobonds, and therefore they are able to demand a higher interest rate if the U.S. tries to 'supply' too much of its debt.

Demand-Related Factors

Inflation

If we assume that borrowers of U.S. debt expect a given real return, then an increase in expected inflation will increase the nominal interest rate *(the nominal yield = real yield + inflation)*. Inflation also explains why short-term rates move more rapidly than long-term rates: when the Fed raises short-term rates, long-term rates increase to reflect the expectation of higher future short-term rates; however, this increase is mitigated by lower inflation expectations as higher short-term rates also augur lower inflation (as the Fed sells/supplies more short-term Treasuries, it collects money and tightens the money supply):



An increase in Feds Funds (short-term) tends to flatten the curve because the yield curve reflects nominal interest rates: higher nominal = higher real interest rate + lower inflation.

Fundamental Economics

The factors that create demand for Treasuries include economic growth, competitive currencies and hedging opportunities. Just remember: anything that increases the demand for long-term Treasury bonds puts downward pressure on interest rates (higher demand = higher price = lower yield or interest rates) and less demand for bonds

tends to put upward pressure on interest rates. A stronger U.S. economy tends to make corporate (private) debt more attractive than government debt, decreasing demand for U.S. debt and raising rates. A weaker economy, on the other hand, promotes a 'flight to quality', increasing the demand for Treasuries, which creates lower yields. It is sometimes assumed that a strong economy will automatically prompt the Fed to raise short-term rates, but not necessarily. Only when growth translates or overheats into higher prices is the Fed likely to raise rates.

In the global economy, Treasury bonds compete with other nations' debt. On the global stage, Treasuries represent an investment in both the U.S. real interest rates and the dollar. The Euro is a particularly important alternative: for most of 2010, the European Central Bank pegged its short-term rate at 1%, a more attractive rate than the Fed Funds' rate of .25%.

Finally, Treasuries play a huge role in the hedging activities of market participants. In environments of falling interest rates, many holders of mortgage-backed securities, for instance, have been hedging their prepayment risk by purchasing long-term Treasuries. These hedging purchases can play a big role in demand, helping to keep rates low, but the concern is that they may contribute to instability.

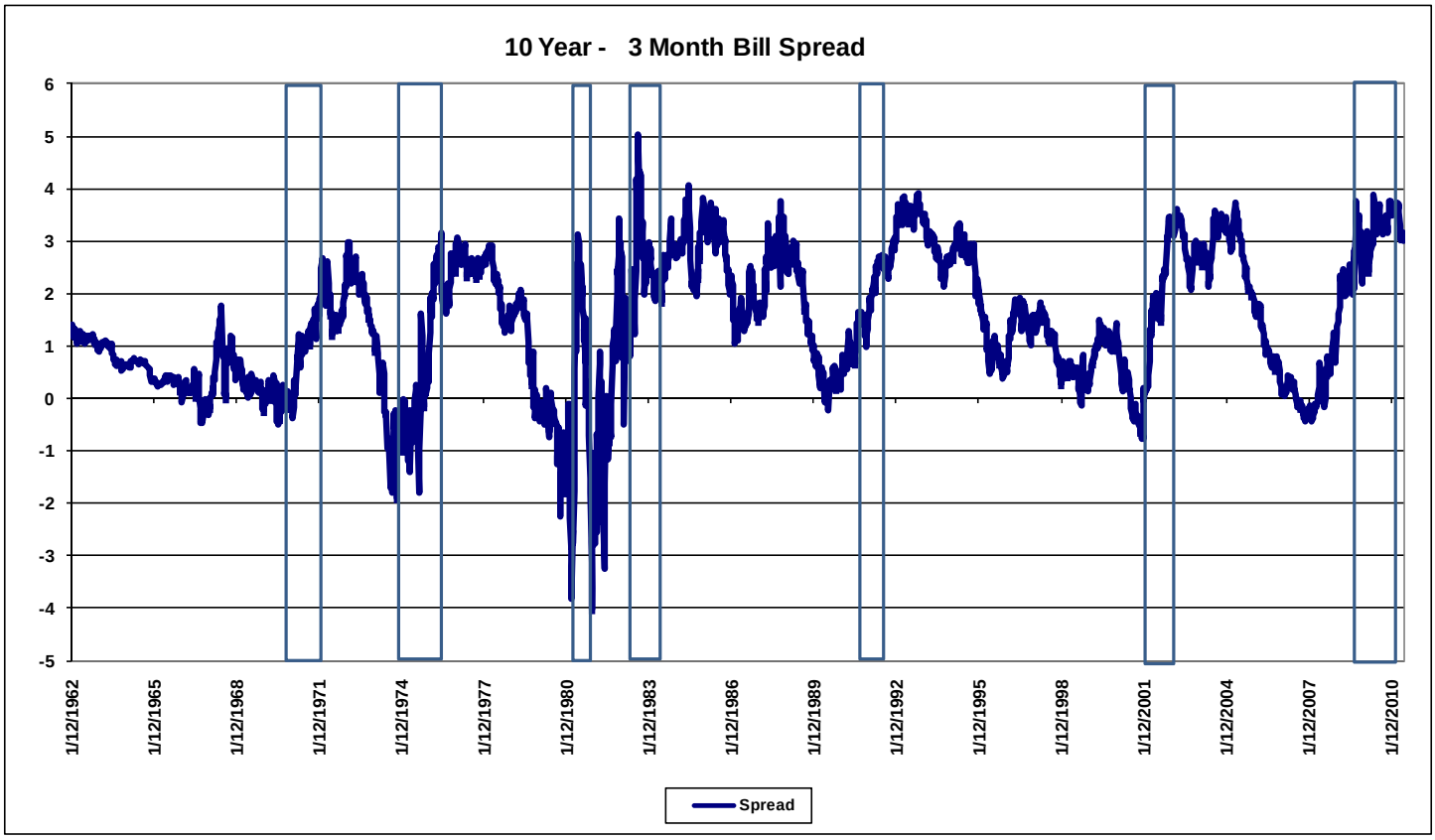
Inverted Yield Curves & Recessions

John Mauldin recently wrote the following: *"Now, let's review a little history. Professor Campbell Harvey of Duke was the one that wrote about the relationship between recessions and the yield curve, and proved that the yield curve outperformed other forecasting tools in his 1986 dissertation at the University of Chicago. He published his dissertation in 1988 in the Journal of Financial Economics. In 1989, he published a follow up piece in the Financial Analysts Journal. Estrella and Hardouvelis picked up on the idea and published an article in 1989 and a few more.*

Harvey's prediction about the usefulness of the yield curve was right on target. In 1991, after the 1990 recession he noted that inversions of the yield curve (short-term rates greater than long term rates) have preceded the last five US recessions, suggesting that the curve can accurately forecast the turning points of the business cycle.

Fast forward to 1996. Arturo Estrella and Frederic S. Mishkin, economists for the New York Federal Reserve Bank, wrote an article in the "Current Issues in Economics and Finance" which is published by the New York Federal Reserve Bank. In it, they compare the usefulness of the yield curve as a prediction tool to other indicators:

'The yield curve--specifically, the spread between the interest rates on the ten-year Treasury note and the three-month Treasury bill--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.'



They compared the yield curve with three other possible indicators, including the so called 'leading economic indicators' from the Conference Board. The only reliable predictor four quarters out was the yield curve spread.

Note: For the record, the average ten year bond since 1980 has yielded 7.17%, the average 90 day T-bill was 5.39% and the average spread was 1.78%. Today we have the 90 day at .12%, the ten year at 3.12% for a difference of 3.0%.

Estimated Recession Probabilities

Estrella and Mishkin developed a probability table about how likely a recession would be 4 quarters later given a particular level of the yield curve spread. Let's look at that table from the 1996 paper.

The spread in the table above is the 90 day average. Basically, if the spread is 1.21 basis points, there is a 5% probability of a recession four quarters later. And today we are above the chart's maximum. The 90 day average is 3.249%.

But that level of spread has happened several times in the past 40 years and we have not had a recession follow. So why should we pay attention today?

Estimated Recession Probabilities for Probit Model Using the Yield Curve Spread

Four Quarters Ahead Value of Spread

(Recession Probability Percent)	(Spread Percentage Points)
5	1.21
10	0.76
15	0.46
2	0.22
25	0.02
30	-0.17
40	-0.50
50	-0.82
60	-1.13
70	-1.46
80	-1.85
90	-2.40

Note: The yield curve spread is defined as the spread between the interest rates on the ten-year Treasury note and the three-month Treasury bill.

Because for a full inverted yield curve to show up you will start seeing 'signs' in the yield curve. These things start innocuously, usually when the economy seems to be booming, and most observers suggest we ignore them. And sometimes they are right.

But most observers suggested we ignore full-blown yield curve inversions as well. I think it was something like 50 out of 50 Blue Chip economists failed to predict the last recession even a few months out. ***They ignored the yield curve, all finding reasons why 'this time it's different."***

Some Conclusions

"Like many empirical models, some formal predictive models that forecast output growth based on the term spread seem to have a structural break around 1979-1980. Stock and Watson (2003) find substantial evidence of a break for models that predict output growth and Estrella, Rodrigues and Schich (2003) find more modest evidence for models that predict industrial production.

'However, this evidence does not necessarily imply that the predictive power of the yield curve has disappeared altogether, only that the values of the parameters in the formal models may have changed. Models of a more qualitative nature, such as those that predict recessions, seem to be affected much less or not at all, as documented by Estrella, Rodrigues and Schich (2003). Theory suggests (e.g., Estrella (2005a)) that there is a persistent predictive relationship between term spreads and future real output, though the precise parameters may change over time.'

'Since yield curve inversions and economic recessions correspond to extreme values of those variables, a connection between inversions and recessions may be systematically detectable even if parameters change over time within reasonable bounds. ***Thus, although yield curve inversions may not be followed by recessions as a matter of universal mathematical principle, they should definitely raise warning flags about future output growth.****'*

The reason that this is important is that the stock market drops an average of 43% before and during a recession. *That is an ugly number. But it is a very real number and you do NOT want to wait until the last moment to head for the sidelines.* ***Much of the drop in the market will happen prior to a recession,*** *and we only know if there was a recession in hindsight. Usually, by the time we find we are in a recession, it is time to start buying.* ***Generally there are going to be a lot of people arguing that this time it's different if the yield curve goes into a full blown inversion.*** *When you have something as reliable as the yield curve telling you there are problems in Dodge City, it may be time to think about leaving town. Perhaps Sheriff Ben Bernanke can solve the problem before it emerges. But I am not sure I want to bet my portfolio on his ability.*

DISCLAIMER & CONTACT INFORMATION

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