2 Cases of convergence trades using swap spreads.

PiVe case (Veronesi pp 189-198).

This case starts with an observation that the swap spread is 59 basis points. On June 30, 2006, the yield-to-maturity on the new 5-year Treasury note is 5.10%. The 5-year swap rate is 5.69%.

The trade entails selling the note short and entering into receive fixed in the swap.

This will require that we pay Libor on a quarterly basis, and receive the repo rate on the cash proceeds from the short sale (since we are borrowing the note in a reverse repo). The current 3-month repo rate is 5.27% and 3-month Libor is 5.5081%.

Thus, the swap spread is 59 bps and the Libor repo spread is 23.81 bps. Historical data showed that this spread is generally around 20 bps, and 99% of the time it was less than 37 basis points. Note that as long as this spread is less than 59 bps the trade is profitable.

The first economic issue is why are these spreads positive, and why might they converge or diverge? Qualitatively what risks would this trade entail?

The PiVe spreadsheet shows that if the Libor repo spread stays where it is for the next 5 years, then PiVe would make about $332,900 annually for the next 5 years.

The second economic issue is to show these cash flows.

But it is rare to find free money in the financial markets, and one consequence of the financial crisis is that the Libor repo spread spiked following August 2007.

The January 2001 On-the-run convergence trade.

This is an attempt to capture the on-the-run premium in the spread of spreads.

In this case swaps are used to hedge the risk of a change in the slope of the yield curve.

The economic issues involve identifying the risks of the 4 securities so that we can put on the appropriate hedge and understanding all of the cash flows.

Because this case involves a known time-horizon which is much shorter than the lifetimes of the securities, we work out the analysis using the forward market.

The forward price of a note is simply the cost of buying the note in the market today and financing it until the forward date. We have to compute:

1. The note's forward price
2. The note's forward yield
3. The note's forward DV01

Our hedge will be on a forward basis.

A forward swap is a binding agreement to enter into a swap with fixed terms at a future date. We have to compute the forward swap's DV01.

Trades 1, 2, and 5 effect a forward sale of an asset swap of the on-the-run note. This position will make or lose money when the swap spread of this note changes. But this is not where we want to bet. So Trades 3, 4, and 6 effect a forward purchase of an asset swap of the off-the-run note. This position will make or lose money when the swap spread of this note changes.

Now since the hedge ratios are all set to the position on the on-the-run note, then we will only make or lose money as the spread of spreads changes.

Another way to consider this is that trades 1, 2, 4, and 5 create a standard on-the-run / off-the-run convergence trade – on a forward basis. This position is not hedged against the shape of the yield curve changing. By hedging this trade with an offsetting position in the forward swap market we again shift the exposure from the spread between the two notes (which might be affected by a change in the shape of the yield curve) to the spread of spreads.