

From LIBOR To Swaps: Changing The Yield Curve Calculation

Most of us are familiar with the story of a gambler sitting down to a poker game only to be reminded the house is crooked. He responds, “Yeah, I know. But it’s the only game in town.” How different is this from the situation in LIBOR extending from the backstopping of BNP-Paribas by the European Central Bank in August 2007, an action that would prove to be the opening salvo in a multiyear campaign of extraordinary actions by major central banks, through the rescue of Bear Stearns in March 2008, years of suits against various banks for rigging the rates and, finally, the transfer of the whole sordid mess from the British Bankers’ Association (BBA) to NYSE-Euronext in July 2013?

These columns participated in the charade by default, particularly through the widespread use of the forward rate ratio between six- and nine-month LIBOR ($FRR_{6,9}$) as an indicator of expected short-term interest rate differentials. This is the rate at which we can lock in borrowing for three months starting six months from now, divided by the nine-month rate itself; the steeper the yield curve, the more the ratio exceeds 1.00.

The mea culpa above can be followed with some notes in self-defense. Columns were written on the cost of LIBOR illiquidity, (see “The Hidden Cost of Illiquidity,” March 2009) and on differential currency behavior before and after the Bear Stearns rescue (see “Major Currencies and The Great LIBOR Kerfuffle” and “Minor Currencies Less Affected By Great LIBOR Kerfuffle,” June-July 2013).

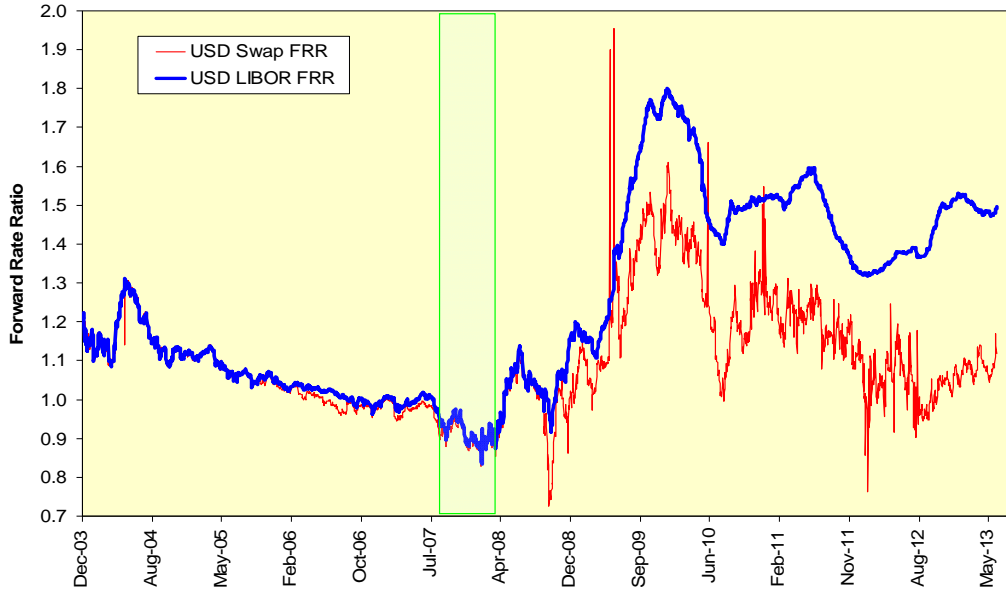
One of the conclusions drawn from the columns noted above and one certainly understandable to our gambling friend is you cannot cheat an honest player. The misreporting of LIBOR during the financial crisis met the needs of the reporting banks, to be sure, but it also met the needs of central banks and finance ministries desperate to hide the magnitude of the financial calamity from their citizens. Borrowers whose loans were pegged to these made-up rates may or may not have received lower borrowing costs; they did endure lower visible volatility.

The era of financial repression, the artificially low rates produced and maintained by quantitative easing, masked the degree of the subterfuge. Anyone, the author included, who looked at any of the LIBOR quotes between 2009 and 2013 was struck by how low their volatility appeared. That low volatility reflected a combination of deception and official suppression. By early 2013, the rates were scarcely moving at all. The final blow did not arrive, however, until the BBA stopped reporting nine-month LIBOR altogether at the end of May 2013. This rendered calculation of a LIBOR-based $FRR_{6,9}$ impossible and necessitated a switch to short-term swap rates.

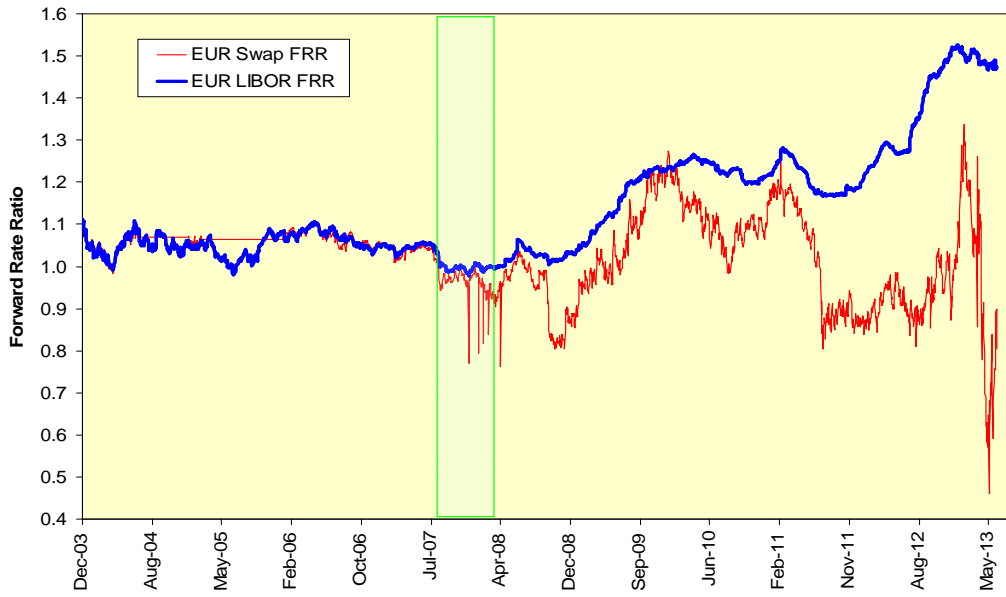
Comparing The Measures

First, let’s compare the two $FRR_{6,9}$ measures for a set of seven major currencies over the period between December 1, 2003 and May 31, 2013. The late startdate is necessitated by the availability of short-term swap rate data for the U.S.; while the LIBOR data go back to 1989, the short-term swap measures do not, and for good reason: As we can see below, the two $FRR_{6,9}$ measures were very close until the divergence began with the ECB backstopping of BNP-Paribas on August 9, 2007. The date range between this backstopping and the March 2008 backstopping of Bear Stearns is marked on the charts below with a green-shaded rectangle. The first set of charts is presented as a graphic appendix without comment.

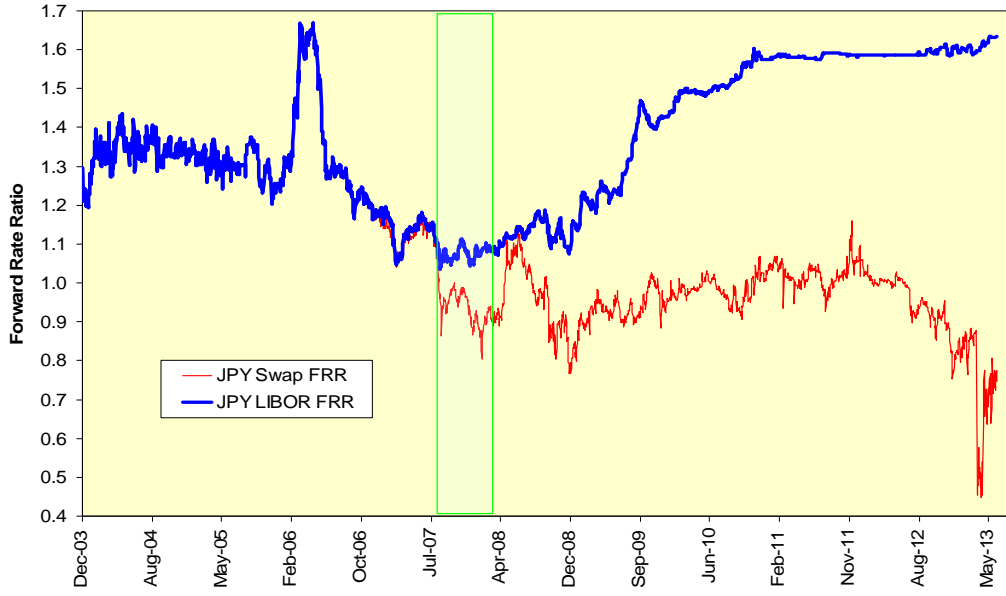
Comparative Six-Nine Month Forward Rate Ratios
U.S. Dollar



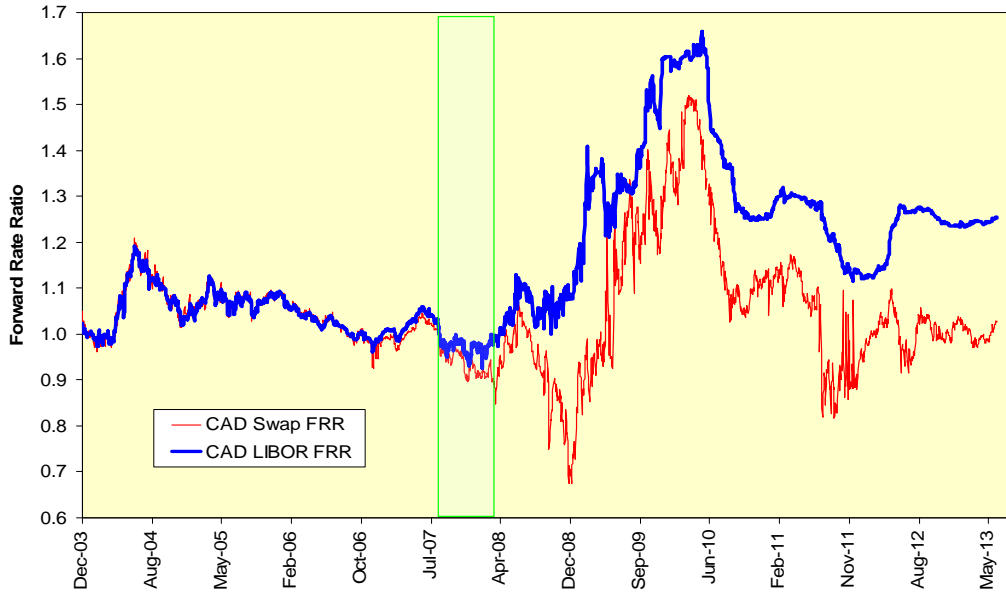
Comparative Six-Nine Month Forward Rate Ratios
Euro



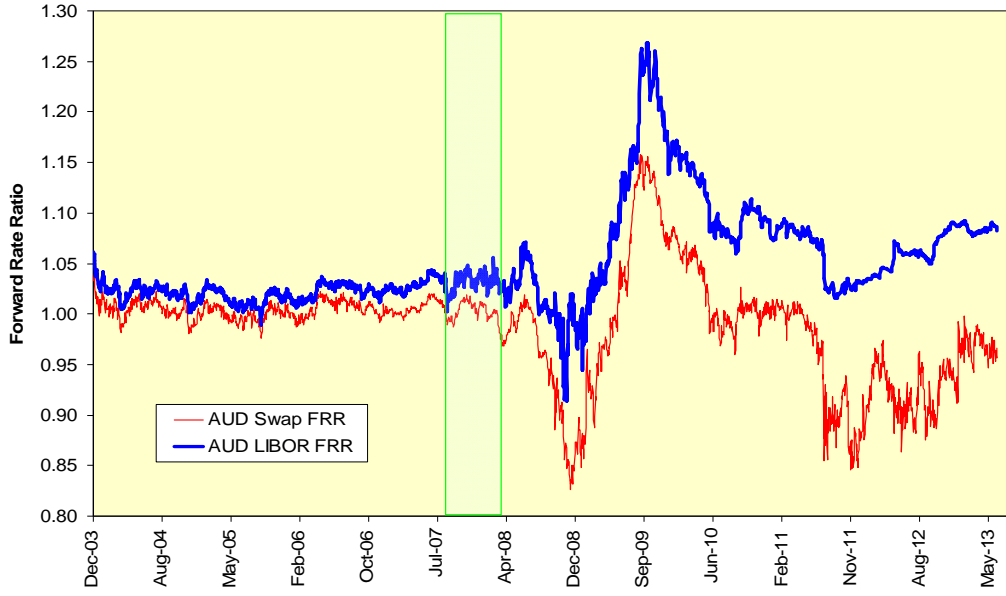
**Comparative Six-Nine Month Forward Rate Ratios
Japanese Yen**



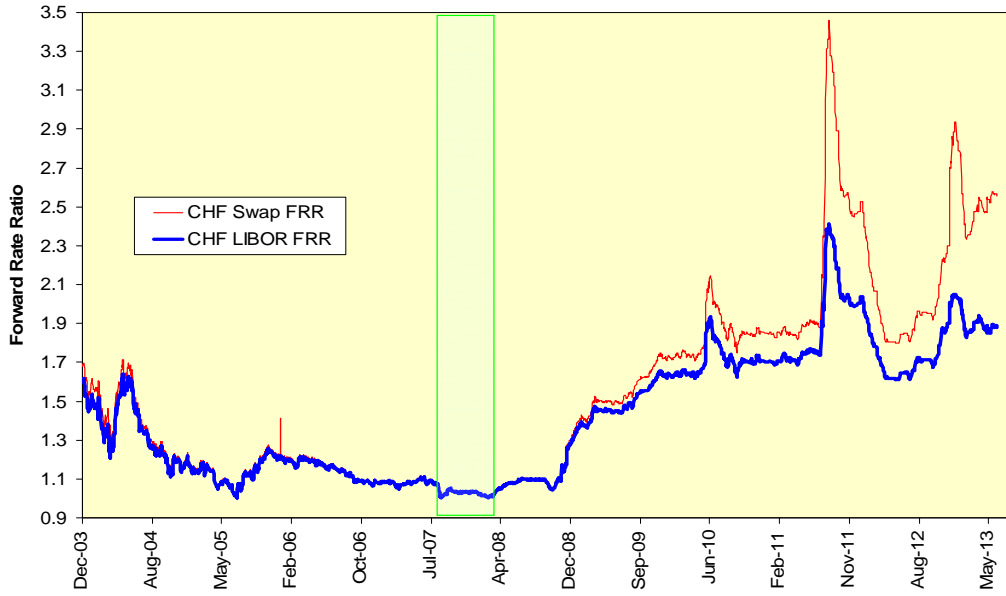
**Comparative Six-Nine Month Forward Rate Ratios
Canadian Dollar**



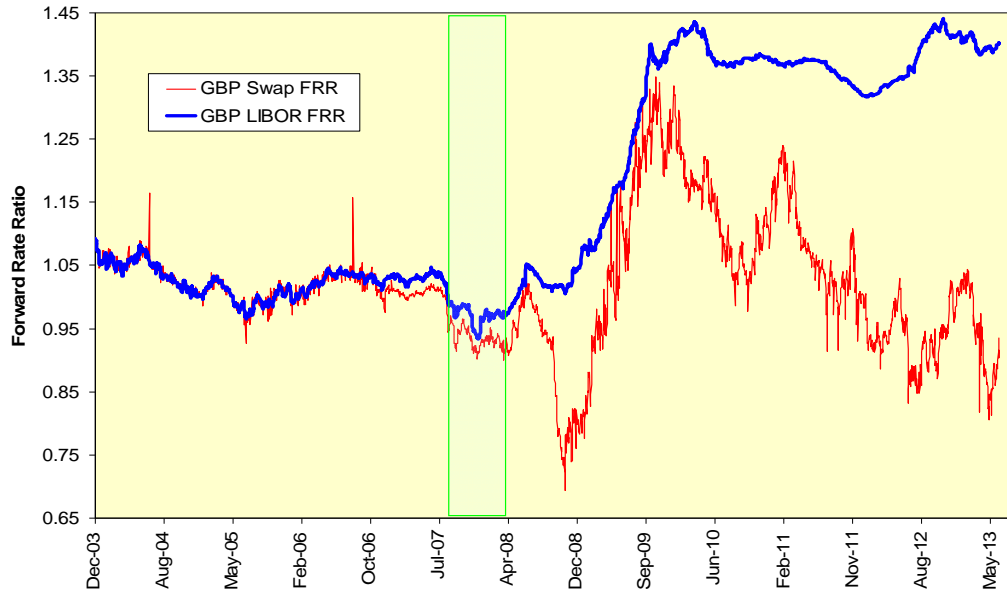
Comparative Six-Nine Month Forward Rate Ratios
Australian Dollar



Comparative Six-Nine Month Forward Rate Ratios
Swiss Franc



**Comparative Six-Nine Month Forward Rate Ratios
British Pound**



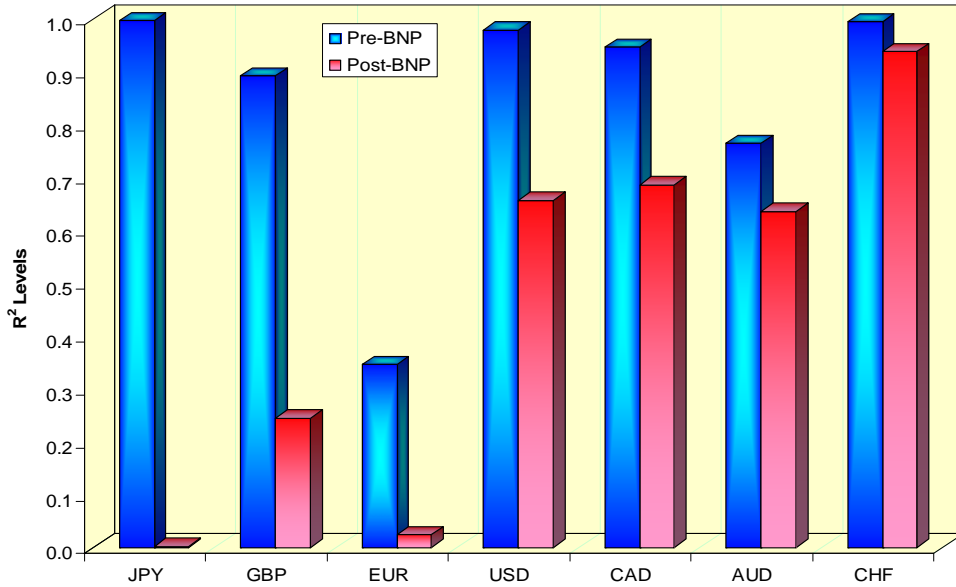
Currency Overlay

Now let's add the $FRR_{6,9}$ differentials to the USD, LIBOR-to-LIBOR and swap-to-swap, and see how they lead three month-ahead changes in the spot currency. No statistical assessment as to which measure was the more effective can be made over this period given the known manipulation of LIBOR and the suppression of short-term interest rates affecting the short-term swap markets as well. In addition, one of the currencies, the CHF, was capped against the EUR but not against the USD and another, the JPY, was assaulted by its own government and central bank between November 2012 and May 2013. Finally, both the USD and GBP were affected by their respective waves of quantitative easing and, in the USD case, by various haven bids in response to assorted global financial crises large and small.

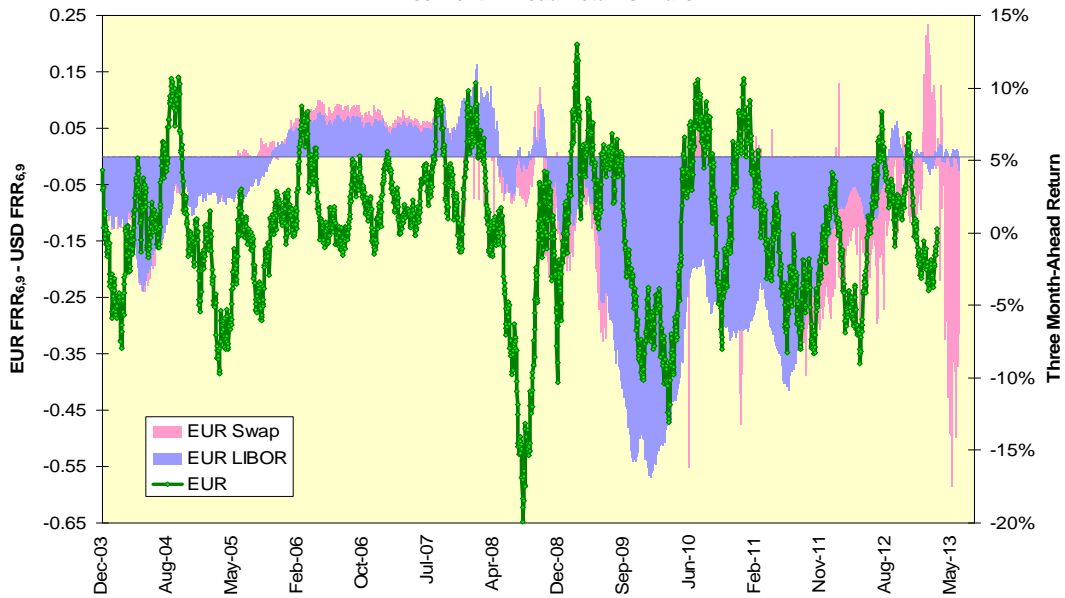
The initial ambition here was to provide such test results, but as the old saying from the first days of mainframe computing went, "garbage in, garbage out." Some minor comments will be offered where appropriate.

One comparison is possible, however, and that is the closeness of fit between the two measures pre- and post-August 9, 2007. If LIBOR $FRR_{6,9}$ levels bore some semblance to reality during the pre-August 2007 period, their r^2 or percentage of variance explained against the swap levels should be high. Conversely, if LIBOR's character changed after this date, the r^2 level should drop significantly. This was the case for six out of the seven currencies examined; only the CHF's quality of fit did not deteriorate after August 2007.

Only The CHF Did Not Change Significantly After August 2007

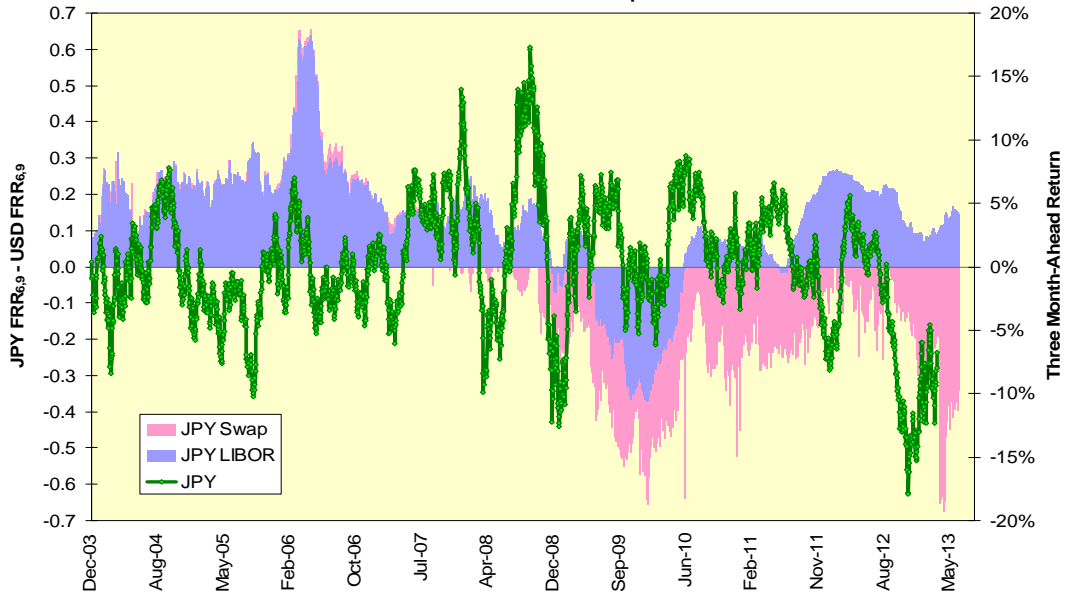


Comparative Forward Rate Differentials And Three Month Ahead Returns: Euro

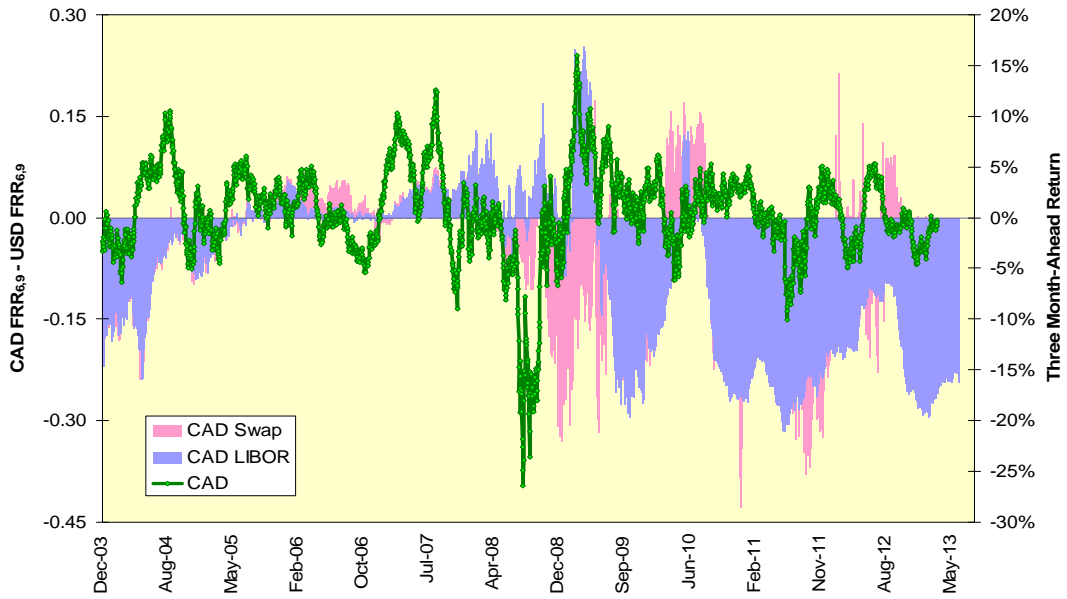


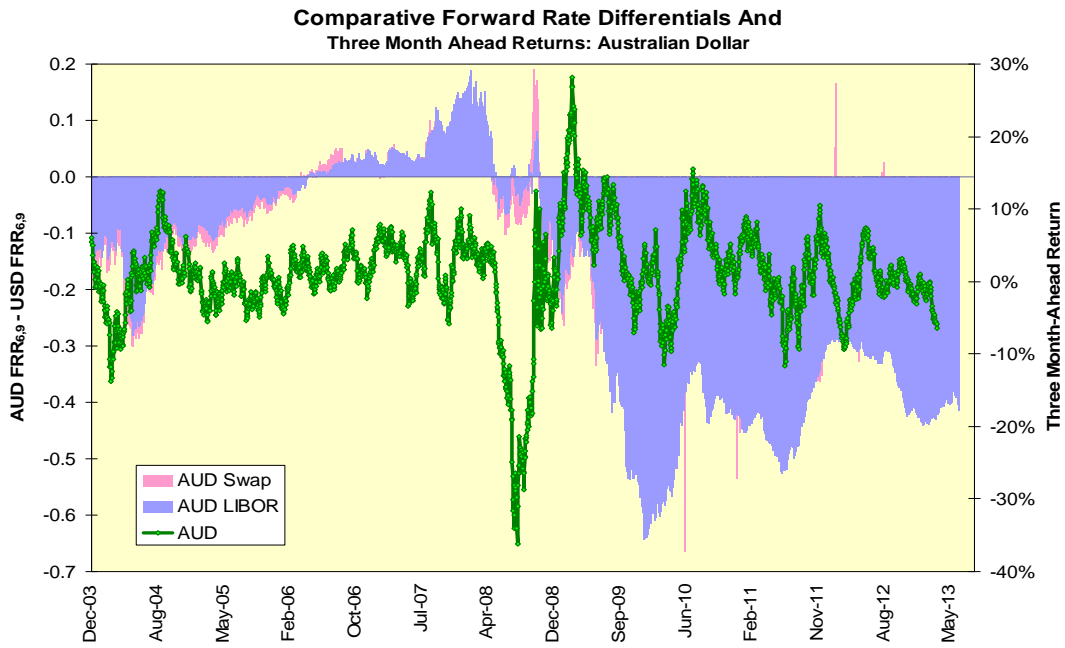
No set of $FRR_{6,9}$ differentials is as different between the LIBOR and swap bases after the manipulation era as is the JPY's. The JPY's swap-based measure was consistently flatter than that of the USD after March 2008, while the LIBOR-based measure was consistently steeper.

**Comparative Forward Rate Differentials And
Three Month Ahead Returns: Japanese Yen**

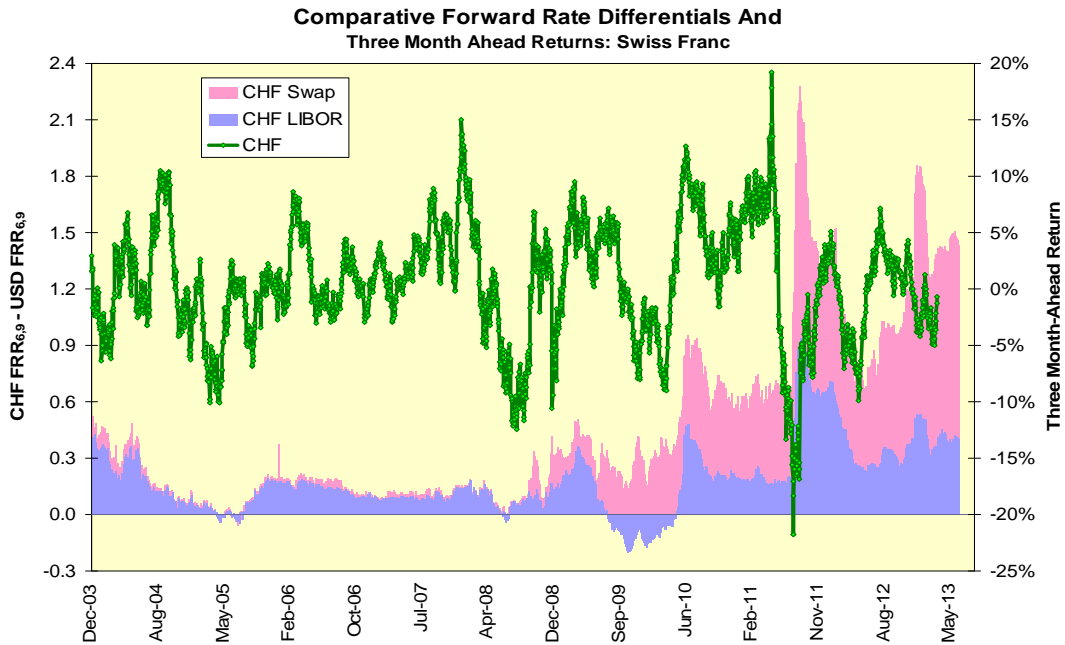


**Comparative Forward Rate Differentials And
Three Month Ahead Returns: Canadian Dollar**

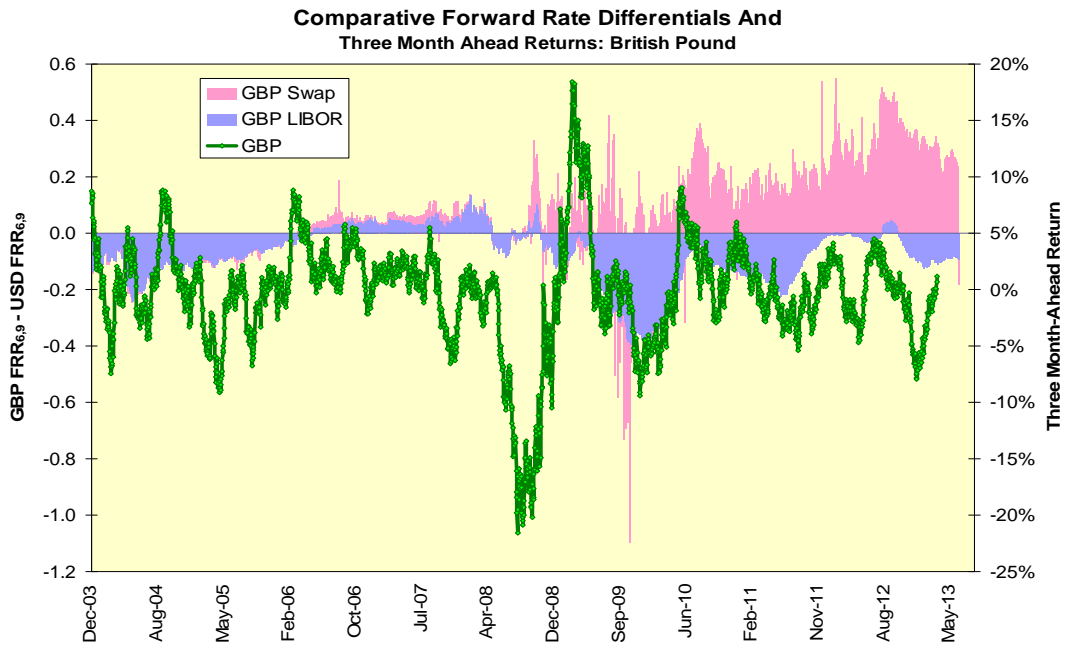




The CHF FRR_{6,9} differential illustrates the principle of “made-up numbers” very well. The swap-based differential was consistently higher after March 2008, and reached almost-meaningless levels during after the imposition of the franc ceiling in September 2011.



Finally, the GBP FRR_{6,9} differential split between the LIBOR and swap bases after March 2008 as well. The GBP swap-based FRR_{6,9} was consistently steeper than its USD counterpart; the opposite can be said for the LIBOR-based FRR_{6,9}.



Going Forward

We are left with the question whether the swap-based yield curve measures will represent the true state of the market or not. All of the major banks in the world are, to some extent, either wards of the state or so subject to regulatory pressure they might as well be. If the central bank, finance ministry or banking regulators make their opinions known no one's interests will be served by reporting high and volatile short-term interest rates, guess what will happen?

On the other hand, swap-based measures are now the only game in town.