

# Treasury FRNs

03 April 2012



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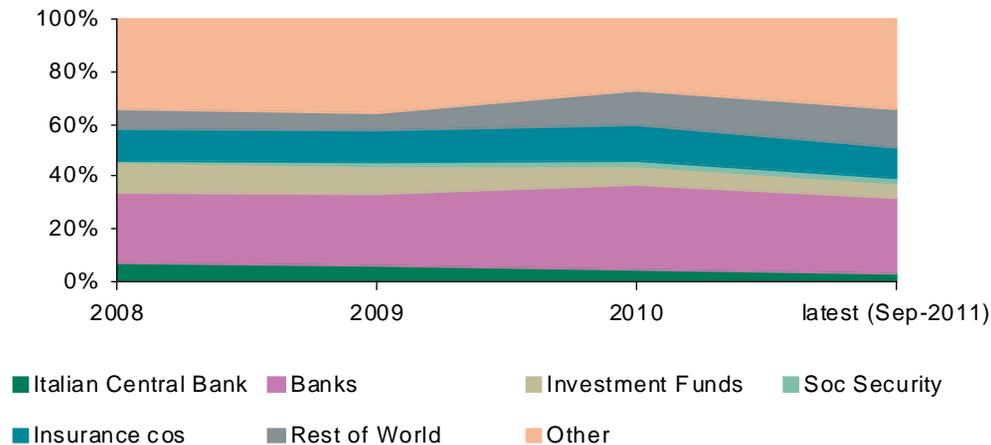
## Summary

- ✓ This instrument could see decent demand from commercial banks, money market funds, and foreign central banks. It will be a natural instrument for investors needing an cash flows that closely tracks inflation. It may well attract a few extra investors to Treasuries because the instrument will behave like a T-bill but pay around 10bp more yield.
- ✓ On the negative side: it will severely eat into existing demand for T-bills and TIPS. FRN issuance will reduce the liquidity of other Treasury instruments and in the sovereign space, FRN issuance is associated with weaker credits.
- ✓ We recommend linking the instrument to OIS because of the existing basis swap market between OIS and Libor. The Italian and Greek FRN experience demonstrated that the absence of liquidity in the T-bill-Libor swap market and the need for peculiar valuation models damaged the liquidity of the Italian CCT and Greek FRN markets, and affected valuations in the markets significantly. Ultimately, the Greek FRN market died out in the late 1990s and the Italian Tesoro dropped its T-bill reference for a Libor rate.
- ✓ **We do not see an overwhelming case for a Treasury FRN. But, if anything is to be issued our recommendation is a 3-5Y maturity, 3 month OIS-linked security.**

# Italian experiences

- ✓ Aside from a short experience in Japan, the longest lasting sovereign FRN markets are Italian and Greek in origin and we will recount the market experiences and problems that the market had in terms of valuation.
- ✓ Both Greek and Italian markets originally referenced local T-bills. For Italy, this began as a 12 month rate plus a yield spread, before becoming a 6 month bill auction rate plus a yield spread and more recently, the Italian Treasury switched to a Libor reference, the CCTeu bond.
- ✓ For a long time, the Italian instrument was popular with banks, retail (you could buy CCTs over the counter at your local bank and people did), insurance/pension funds and from the boom in mutual funds from 1995 onwards, also in the money market mutual funds. There was a period during the convergence of Italian yields converged to German levels when hedge funds and other foreigners owned vast amounts of CCTs. These days, foreign investors are few, mostly Central Banks and a limited number of bank prop traders, mainly from Germany. CCTs do not feature in European bond indices.

Holders of Italian CCTs



Source: Banca d'Italia

# What were practical implications of trading CCTs?

- ✔ Firstly, CCTs referenced a 6m BoT (Tbill) auction at the end of the month preceding the start of the new six month coupon period. On average, one sixth of CCTs would reference the same auction and because CCT coupons were rounded to the nearest 5bp, it became possible for players to manipulate the 6m T-bill auctions to a favourable rounding on the CCT coupons, particularly at times of decreasing bill issuance. Over time, the Italian Treasury was almost forced to increase the size of the 6m T-bill auction relative to others in order to limit this practice.
- ✔ More sophisticated investors often wanted to compare CCTs to the fixed coupon BTPs and so models were created (one by FMR was widely used or in-house models) to facilitate these comparisons. For these models to operate effectively, there needed to be a basis swap market between 6m BOT and Italian Libor or later Euribor. For instance, the difference might be 10bp T-bill and libors over the life of the CCT.
- ✔ After the start of EMU, the BOT-Euribor basis swap market became extremely illiquid and died away. It became impossible to accurately assess values between CCTs and BTPs. Instead, the models required the user to assess the level at which 6m BOT auctions might come relative to Euribor and hope that estimates were accurate. Even before the credit crunch, the market seemingly assumed a larger 6m T-bill auction to 6m Euribor spread than was actually occurring, meaning that CCTs were trading and being issued cheaply to BTPs.

## Implications for Treasury floaters

- For correct valuations for US T-bill floaters an active basis swap market between Tbills/Libor and Tbills/OIS would need to develop.
- The Treasury may need to adjust T-bill issuance policies to provide liquidity to the reference maturity. The problem would be bigger if the size of the FRN market became large.
- Investors had trouble valuing these instruments accurately even when the basis swap market existed because the models were complex. For example LTCM had very large CCT positions as the market was ripe for technical investors that could identify the large discrepancies.

- ✓ From 1992 until Greek entry into EMU, Greece issued a lot of floating rate debt referencing 12 month T-bill rates. Around the start of EMU approximately half the debt was in this format. Prior to EMU convergence trades, these instruments were held almost exclusively by domestic investors.
- ✓ Owing to the size of the market the variable rate of interest meant that government funding costs could oscillate significantly and so it was determined that the instrument should be phased out and replaced with long maturity fixed rate instruments. Italian debt suffered from the same problem of too many T-bills and floating rate debt at around the start of EMU.
- ✓ Based upon our experience as far as models could determine, floating rate Greek government bonds traded very cheap compared to equivalent fixed rate issues. In the immediate run up to Greek EMU entry when both fixed and floating rate issued were compared to Athibor many FRN securities were trading around 50-100bp cheaper than fixed rates (although some strong assumptions were needed in models to come to this conclusion).
- ✓ Greece did enter the floating rate market in 2009. At the start of the Greek crisis it sold floating rate debt directly to banks in a EUR2bn private placement.

- ✔ Introduced in 2000, the MoF stopped issuing Japanese floaters in 2008. They were 15Y maturities linked to the 10Y JGB yield minus some issue specific basis point spread (alpha). This was a typical Constant Maturity Treasury.
- ✔ The idea was to reduce the funding cost to the government by reducing the term risk premium, but not increase the rollover risk, which would be associated with issuing a 10Y bond.
- ✔ It is said that the low yield volatility environment in Japan caused a general lack of interest in the product. Since mid-2007, market pricing of these instruments fell below their “theoretical” levels. Some banks decided to buy large quantities of this instrument before the cessation of issuance.
- ✔ There was originally a good Hedge Fund participation in the instrument but it is said that once they began to exit as they deleveraged in the credit crisis, the gap between actual and theoretical value began to open up. Eventually, the price gap was so large that it was believed to contribute to the cessation of issuance.

# Pros and cons of different types of indexation (1)

## T-bill auction rate reference

- ✓ **For:** Simple structure that has been used before (by the Italians). It is based upon a government reference rate. Could be a good retail product because it would offer a yield that is superior to existing T-bills. A 3Y nominal Treasury approximately trades at OIS+10bp. Arbitrage should take the FRN to a similar level.
- ✓ **Against:** This product may be subject to manipulation or it may force the Treasury to adjust its issuance into each T-bill line so as to keep the reference maturity large enough to have an efficient floater market. The Italian experience is important here. Whilst budget deficits are large, this will not be a problem. If budget surpluses are run in the future there could be difficulties. This reference rate would likely eat into existing investors in T-bills most strongly.

## T-bill secondary market average over a month

- ✓ **For:** Reduces problems of manipulation for the T-bill auction reference. It is a US Treasury reference point.
- ✓ **Against:** The averaging increases the complexity of the instrument.

## Libor

- ✓ **For:** Lower likelihood that a Libor floater would compete with existing T-bill holdings. Libor matches bank liabilities well and a liquid basis swap market for Libor vs OIS already exists should investors wish to change the basis.
- ✓ **Against:** In times of market stress, the Treasury's funding costs could rise when the government could least afford it. It is a bank rate and so less suitable politically, ie, it comes with the baggage of investigations into the Libor setting process and it is set in London.

## 3m OIS

- ✓ **For:** Rate is considered virtually risk free. Has gained wide acceptance as a reference rate. Is likely to be closely correlated with Government yields.
- ✓ **Against:** It is still based upon a level that banks charge for funds. Less widely used than Libor. Would require a trustworthy index to be created.

## Pros and cons of different types of indexation (2)

### Overnight General Collateral repo average over a month

- ✓ **For:** it is a very low risk reference, widely used by banks to fund US Treasury positions.
- ✓ **Against:** No official repo rate exists in a way that Eurepo is tracked in Europe. It might need the Federal Reserve to publish an official overnight general collateral rate based upon submissions from major repo market participants. The rate can be volatile (hence the average rate). No pre-existing basis swap market vs Libor.

### Fed Funds rate

- ✓ **For:** The Fed Funds effective rate is already published officially by the NY Fed (as opposed to the repo rate). It is a large market that is relatively stable and based upon actual transactions.
- ✓ **Against:** Perception risk: the name of the reference could prompt some mistaken accusation that the Fed might manipulate Treasury's funding costs.

## Pros/Cons table of different structures

	INVESTORS				
	Commercial bank	Central Bank	Insurance	Pension	Money market funds
<b>3m bill auction</b>	3	3	3	3	6
<b>bill secondary 1m average</b>	7	6	7	7	7
<b>3m libor</b>	1	1	1	1	3
<b>3m OIS</b>	2	4	2	2	5
<b>1m OIS</b>	4	7	4	4	4
<b>Overnight GC 1m average</b>	5	5	5	5	1
<b>Fed Funds 1m average</b>	6	2	6	6	2
<b>Strength of demand</b>	low	high	low	low	high
<b>New demand potential</b>	high	medium	medium	medium	low

Source: *Crédit Agricole CIB*

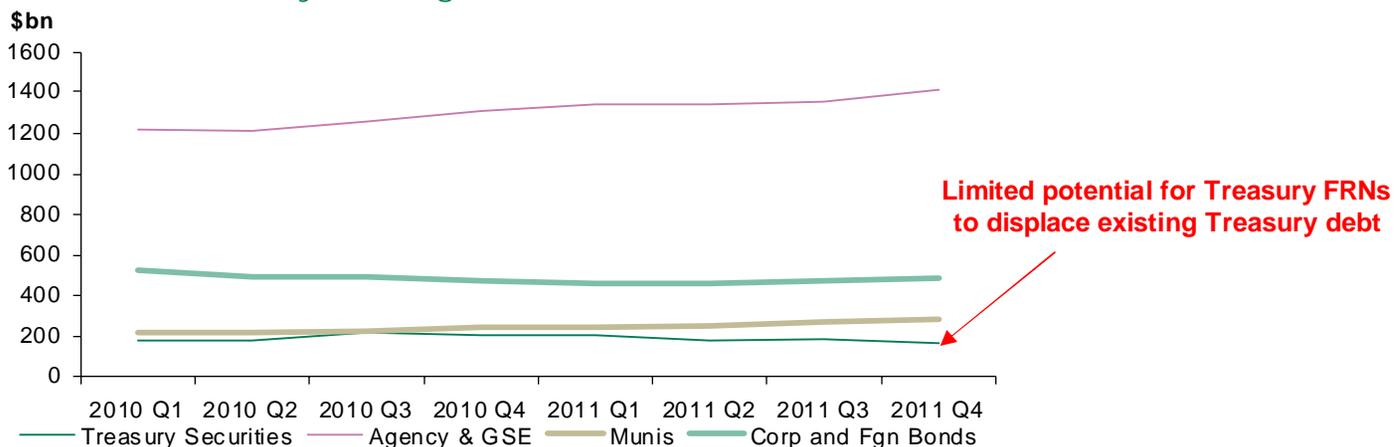
In the table above we have ranked the likely preference for each major investor type for each type of instrument. Thus, a **commercial bank** would likely prefer a Libor floater and least prefer an FRN based upon a one month average of a T-bill rate.

We have then suggested what the strength of demand might be and whether that demand is new or simply replacing existing holdings. We assume a 3-5Y maturity for each FRN construction.

# The demand for Treasury floaters: banks

- ✓ The art of a successful introduction of a new instrument is to **find new buyers**, not simply push an investor to buy a UST floater but sell a nominal UST.
- ✓ **US banks hold very low amounts of Treasuries**, preferring Agency and GSE-backed instruments. There are roughly USD2.2trn of Agency, GSE-backed, munis, corporate and foreign paper that a new Treasury FRN could displace if correctly constructed. It is the banks where there is most potential demand. However, the potential is unlikely to feed into much actual demand, given the sub-Libor spreads that the instrument will provide.
- ✓ Also in the short term, the 0.25% rate offered by the Fed on excess reserves might compete strongly against a Treasury FRN.
- ✓ About 30% of the Italian floater market (chart on page 3) is owned by banks and clearly, this maps closely to a bank's floating rate liabilities. In the US, the Libor rate is the best match for banks, since it works well with the bank's funding. However, Italian floaters typically offered above-Libor yields.
- ✓ An OIS Treasury-floater could be swapped into Libor but banks would need a basis swap with the complexity of posting of initial and variation margin collateral, a less-than-clean approach.

Selected security holdings of US-Chartered Commercial Banks



Source: Fed Z1 report

# Why banks will and won't buy Treasury floaters

## Banks hold Treasuries for a variety of reasons

1. A liquidity buffer
2. For income
3. For regulatory reasons

### 1. Treasury FRNs as an immediate liquidity buffer: Treasury FRNs fail

- ✓ Banks currently hold a lot of excess reserves and the Fed is fairly active in providing liquidity facilities.
- ✓ The need for liquid T-bills and short term USTs is currently low because of other sources of ready liquidity.
- ✓ T-bills and short-maturity floaters will need to compete with the IOER at 0.25%. Currently, the comparison is unfavorable.

### 2. Treasury FRNs as a source of yield: Treasury FRNs fail

- ✓ Whilst the interest rate risk is low and yields may be better than on T-bills. Treasury FRNs are an inferior instrument to GSE paper from a bank's perspective.

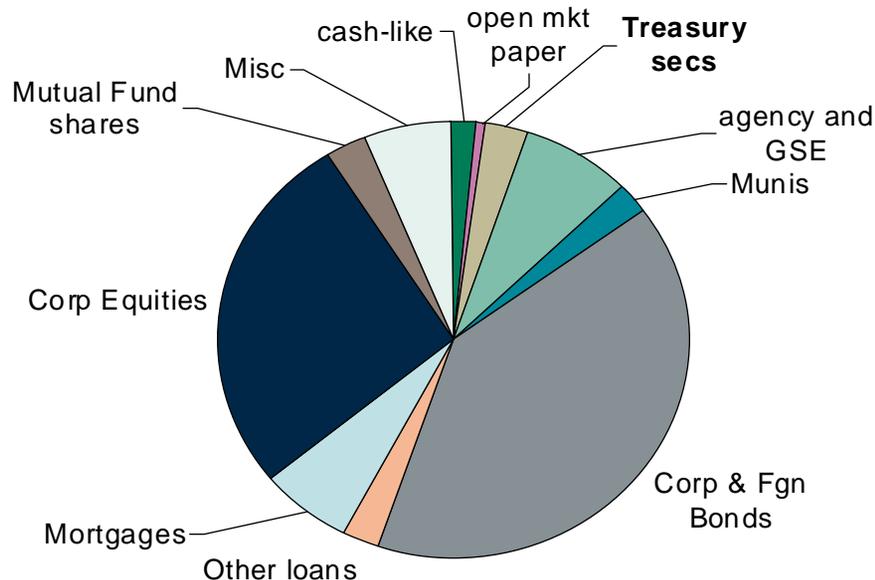
### 3. Treasury FRNs for Basel 3 reasons: Treasury FRN moderately good

- ✓ Liquidity Coverage Ratio (due to start in 2015): banks need sufficient high quality liquid assets to face 30 days liquidity needs. Assuming that GSEs are level 2 assets, they can only contribute 40% to the liquidity cushion after haircuts. Again, the large quantity of excess liquidity in the banking system will limit the near term need for banks to own Treasuries. Also, if GSE reform results in an explicit guarantee to Freddie and Fannie, then they will become level one assets under LCR and destroy demand for Treasury securities. Alternatively, lobbying is taking place to allow GSEs to be level 1 assets.
- ✓ Some banks, claim to be already compliant with the LCR. However, based upon data from December 2010, The Clearing House (banking association) found a USD1.4trn liquidity shortfall in US banks.
- ✓ To achieve strong demand for Treasury-FRNs for regulatory reasons the Fed must drain liquidity and Freddie and Fannie must not become level one assets.

# Demand from life insurance funds

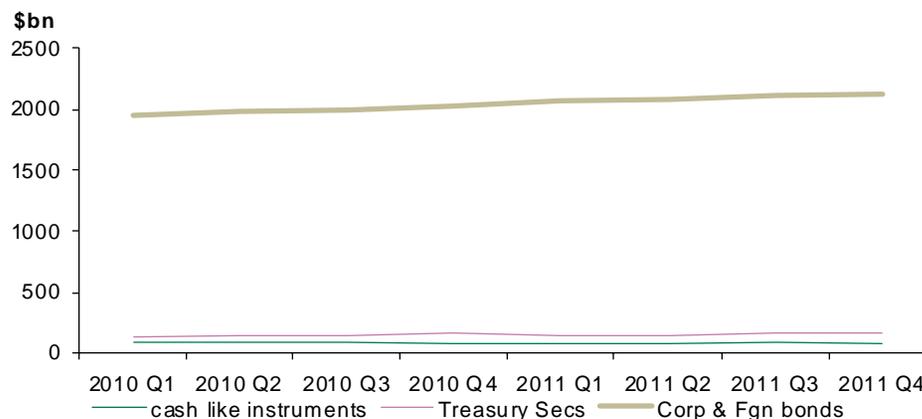
- About 12% of the Italian floater market is placed in pension/insurance funds. This relatively high amount is linked to a peculiarity of their pension/insurance liabilities, linked to what is known as the “Trattamento di Fine Rapporto” – rate of return paid to employees by firms. We will not go into the details here but the formula is  $1.5\% + 0.75\%$  of inflation rate.
- The inflation rate in this formula creates a structural demand for inflation protection in pension/insurance companies. Money market instruments that pay slightly more yield than T-bills are considered to be strong candidates to hedge this implicit liability.
- **US insurance companies** have different objectives and hold low allocations to US Treasury products but very high allocations to corporate bonds. We do not believe that a Treasury FRN would make a strong entry into life insurance funds.

## Assets of life insurance companies



Source all charts: Fed Z1 report

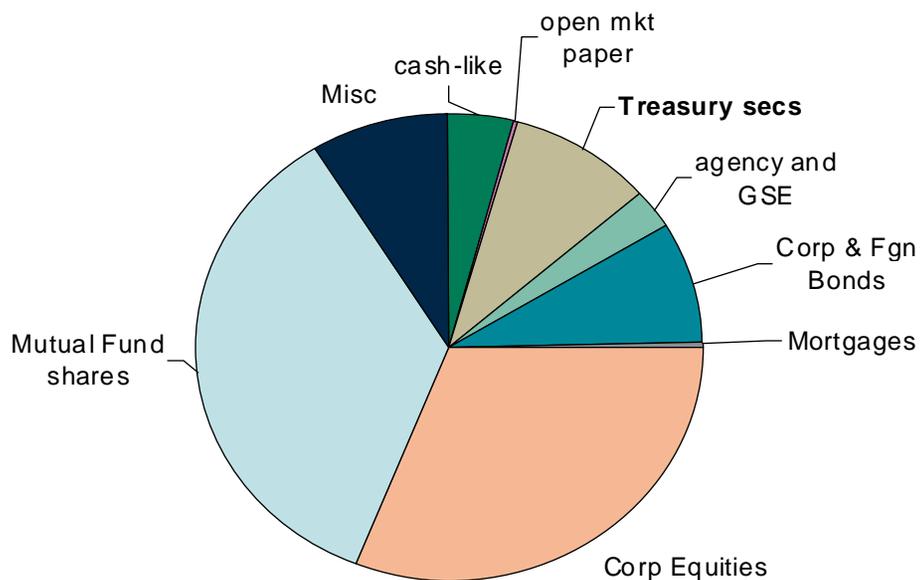
## Selected security holdings of Life Insurance Cos.



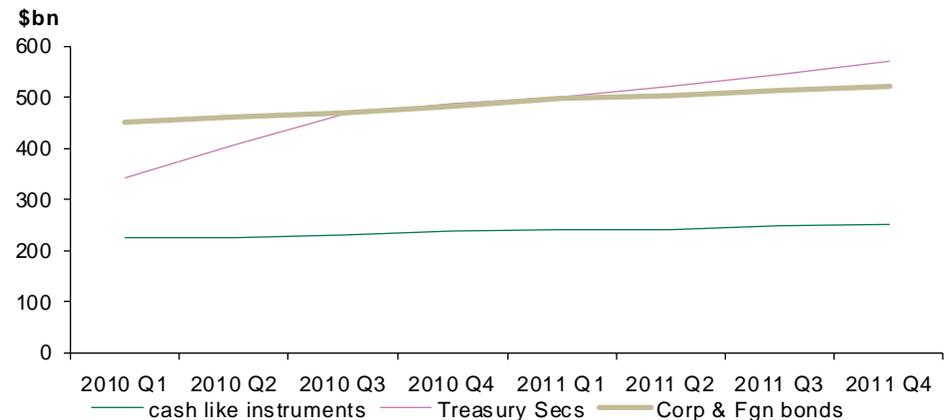
# Demand from pension funds

✔ **Pension funds** might be different since they hold USD250bn of checkable deposits, savings deposits, money market funds and security RPs. The higher yield of a Treasury FRN could compete well in a class of investor that like cash products and also compete with higher corporate yields. Treasury FRNs could make a USD50bn market penetration, without too much risk of displacing other Treasury paper.

Assets of private pension funds



Selected security holdings of Pension funds



Source all charts: Fed Z1 report

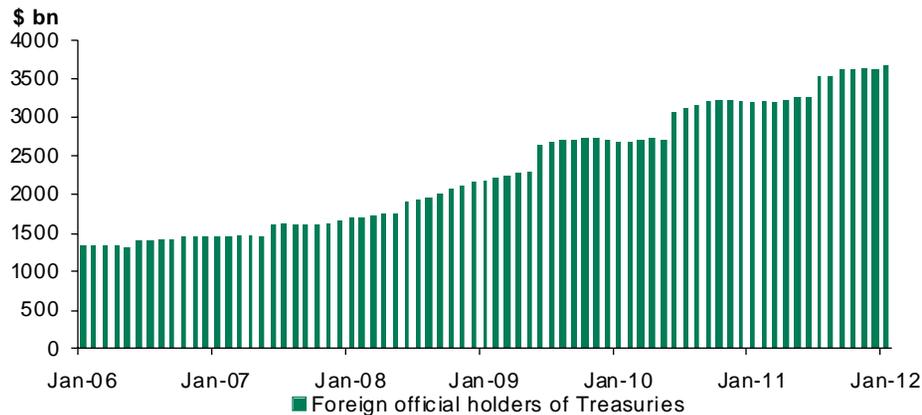
## Demand from money market funds

- ✔ Money market funds would be able to buy floaters since under rule 2a-7 maturity shortening provisions is seen as the date at which the coupon resets, not the actual maturity date. For this reason, a Treasury FRN with a quarterly or monthly rate reset would garner more interest from the money market community.
- ✔ However, there is a major problem of displacement of existing T-bill holdings from the money market funds.
- ✔ Funds would prefer Libor floaters or repo, to match their benchmarks, with very short resets.
- ✔ Additionally, participation of money market funds in the T-bill auction process (or buying in the secondary market from dealers) would be crucial to keeping T-bill rates low. Thus, if Treasury FRNs used T-bill rates as a reference rates then large money market funds could time their purchases of T-bills such that it could influence the resetting of coupons on the FRNs.
- ✔ We do not believe that any Treasury FRN that is targeted at money market funds should use T-bills as a reference rate.

# Demand from foreign central banks

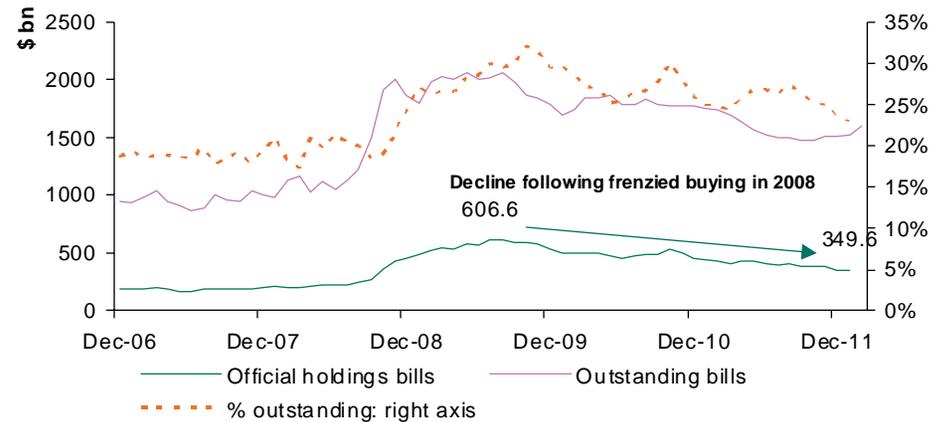
- ✔ Central banks own a lot of T-bills and Treasuries and so a Treasury FRN should see a good reception. FRNs markets are usually very liquid and deep given their low duration and so these instruments should meet the first requirement of a Central Bank.
- ✔ From the discussions we have had, the advantages for a Central Bank would be convenience, ie, less need to roll. Liquidity which would be very close to T-bills and this helps the smaller Central Banks in particular that still hold money markets but have a limited selection of instruments.
- ✔ Some agencies like KfW have issued floaters and these were widely bought by Central Banks.
- ✔ One problem is that Central Banks might buy large amounts of Treasury FRNs but will regard them as close substitutes for their large existing T-bill or short Treasury note portfolio reductions.
- ✔ Central Bank holdings of T-bills are in decline following their rush to buy in 2008; both in absolute terms and as a percentage of outstanding bills. For many Central Banks the size of their FX reserves is already so large that there is less need for liquid instruments and so are diversifying away from bills. Perhaps, there will be some substitution for repo or Agency positions and not just T-bills.

## Foreign official holders of Treasuries



Source: TICS data

## Foreign official holders of T-bills



Source: Treasury

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