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Global Money Notes #5

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What Excess Reserves?

2016 is shaping up to be an important year for the Federal Reserve.

Before the year is over, the Fed will conclude the review of its long-run monetary policy implementation framework, which will include thoughts on the size and composition of its balance sheet in the long run. One conclusion of the review will be that there is limited scope to shrink the balance sheet, in our view.

This is because the Liquidity Coverage Ratio (LCR) coupled with the Fed's preference that banks hold significant amounts of reserves as high-quality liquid assets (HQLA) represents a step change in the amount of reserves banks will have to hold – not to comply with reserve requirements but with the LCR.

In the LCR we have what is essentially a global reserve requirement regime, where regulators prefer reserves over bonds as the primary source of liquidity (for U.S. banks) and reserves over bank deposits as the settlement medium for Eurodollar transactions (for the New York branches of foreign banks).

With Basel III constraining the size and elasticity of matched repo books – the hearts whose beats gave market liquidity a pulse – bond market liquidity will never be what it once was. Regulators know this. After all they were the ones who designed the new system and constrained repo and with it market liquidity.

They do realize that in the post-Basel III world order base liquidity (reserves) will inevitably have to replace market-based liquidity. This in turn means that there are no excess reserves – every penny is needed by banks for LCR compliance. And this also means that the Fed has only a limited ability to shrink its portfolio.

The Fed will also have no choice but to scrap the fed funds rate as its policy target and replace it with the overnight bank funding rate in 2016, in our view.

This will be a necessity, not a choice. One side-effect of the LCR is that the fed funds market will fade into irrelevance as banks no longer hold their liquidity buffers in unsecured interbank markets, but rather in secured repo markets (versus Treasury collateral) or by accumulating reserves at the central bank.

Switchover to the OBFR will be a big deal for at least two reasons: it will be a switch from an interbank rate to a customer-to-bank target rate and it will be a switch from an onshore dollar funding rate to a global dollar target rate.

The Fed targeting OBFR would be as if it targeted Libor today. What this means for the Fed's reaction function isn't clear, but our instinct tells us that we will deal with a Fed inherently more sensitive to global financial conditions, inherently more sensitive to global growth and inherently more dovish than in the past…

Contrary to conventional wisdom, there are no excess reserves – not one penny.

Labelling the trillions of reserves created as a byproduct of QE as "excess" was appropriate only until the Liquidity Coverage Ratio (LCR)[1] went live, but not after.

Before the LCR, excess reserves were indeed excess: every penny was in excess of the amount of reserves required by the Federal Reserve's Regulation D. Under the LCR, all excess reserves became required: not to comply with Regulation D, but with the LCR.

It is helpful to think about the LCR as a *global* reserve requirement regime.

Before the LCR, banks were required to hold reserves only against demand deposits issued in the U.S. (i.e., reserves were required only against onshore overnight liabilities).

As banks went about their usual business of making loans and creating deposits, they routinely fell short of reserve requirements. To top up their reserve balances, banks with a shortfall of reserves (typically the big money center banks) borrowed fed funds from banks with a surplus of reserves (typically the small regional banks).

These transactions comprised the fed funds market.

Under the LCR, banks are required to hold reserves (and more broadly, high-quality liquid assets or HQLA) not only against overnight deposits, but all short-term liabilities that mature in less than 30 days, regardless of whether those liabilities were issued by a bank subsidiary, a broker-dealer subsidiary or a holding company onshore or offshore (i.e. reserves are required not only against onshore overnight bank liabilities but any short-term liability issued by any legal entity under the hood of a bank holding company *globally*).

Take note of the *global* scope of the LCR and consider that the genesis of the Eurodollar market was that banks did not have to hold reserves against deposits issued offshore. Under the LCR this loophole is gone. From a liquidity requirement perspective, onshore and offshore dollar deposits are treated the same, and as an important corollary, the Fed's dollar swap network makes onshore and offshore deposits practically the same.

The LCR thus represents a structural leap in the demand for reserves not only by U.S. banks but also by all foreign banks that are active in Eurodollar markets. All this in turn will underwrite the need for a big Fed balance sheet for a long time to come.

The LCR has implications for the future of fed funds market, the Fed's reaction function and the Fed's balance sheet. This issue of Global Money Notes discusses each in turn. Part one provides a detailed look at the present and future of the fed funds market to explain why the Fed has no choice but to scrap the fed funds rate as its policy target.

Part two explains what switching from the fed funds rate to the overnight bank funding rate (OBFR) would mean for the Fed's reaction function and how the Fed now has two parallel corridor systems: one onshore for banks and one offshore for the shadow banking system.

Part three explains why the LCR coupled with regulators' preference for reserves to play a more prominent role in liquidity portfolios means that the term excess reserves is a misnomer and why there is only limited room for the Fed to shrink its balance sheet.

Finally, part four concludes with the notion that quantities matter again but in ways the Fed has yet to appreciate and different from the way they mattered under Paul Volcker's reign. Back then the issue was too much private money creation too willingly accommodated by the Fed until Chairman Volcker came along. Now, the issue is constrained private money creation and a Fed unwilling to fill the vacuum and focused solely on prices, not quantities.

Focusing on prices only is possible if balance sheets are completely elastic. In the new financial world order they are almost completely inelastic. Something will have to give…

[1] For an explanation of technical terms please refer to the glossary on page 14.

Part I - LCR and the Fed Funds Market

One unintended consequence of the LCR is that the federal funds market will slowly fade into irrelevance.

The fed funds (FF) market is a shadow of its former self, down from $250 billion in 2007 to about $60 billion today. All of this decline came from the near-total collapse of bank-to-bank FF trades. What is left of the FF market reflects transactions between the Federal Home Loan Banks (FHLBs) as lenders and a dozen or so foreign banks as borrowers.

Banks no longer trade in the FF market for at least three reasons.

First, banks have no incentive to borrow reserves as they already hold amounts in excess of what is needed to comply with reserve requirements. With so many reserves, the days of money center banks falling behind reserve requirements are over, possibly forever.

Second, banks have no incentive to lend reserves either. This is because only reserves held at the Fed are HQLA but when reserves are lent in the FF market and become fed funds sold, the lending bank ends up with less HQLA and worsens its LCR.

Third, in general the LCR disicentivizes banks from lending to other banks on an unsecured basis (the FF market is unsecured) and rather incentivizes them to lend on a secured basis via repos (versus Treasury collateral) or to keep cash at the central bank.

In plain English this means that the widely-held view that the trillions of “excess” reserves sloshing around in the financial system are depressing the FF rate to trade below IOER and are causing the Fed difficulties to control short-term interest rates is simply *incorrect*.

Excess reserves are not sloshing but rather sitting at the Fed. They sit passive and inert because banks must hold these reserves as HQLA to meet LCR requirements. You have to fund what you hold and since HQLA cannot be encumbered, you can only fund them unsecured. And banks always attempt to fund assets with positive carry.

Therefore it is not surprising that unsecured bank funding rates up to the one month (the point within which banks must hold HQLA against liabilities) all trade lower than IOER. Structurally, that means operating and non-operating deposits, CDs, CP (both onshore and Eurodollar), and the effective FF rate will nearly *always* yield less than IOER.

Regulatory parameters will set the spread between IOER and funding rates and differences between regulatory regimes will determine where U.S. and foreign banks fund.

That is all there is to understanding the performance of money markets after liftoff, really (see Exhibit 1). Analyses that do not put the LCR front and center lack in perspective.

Of the unsecured markets mentioned above, FF is a special case: it exists in a bubble. It’s a $60 billion air pocket in a broader money market complex that’s about $600 billion in size.

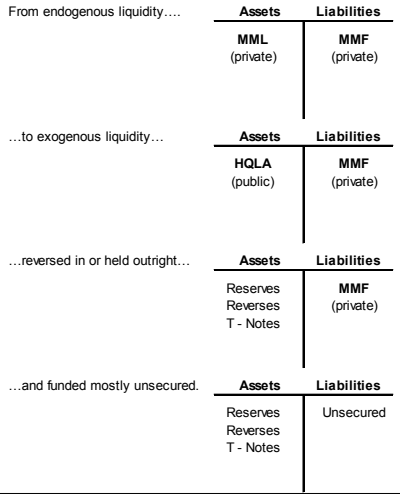
There are ten FHLBs and about a dozen non-U.S. banks that trade in this air pocket, and at present they appear to be splitting the bounty so to speak. The lending side of the market gets 12.5 above the RRP rate and the borrowing side gets 12.5 above the FF rate.

We highlighted the "split" behaviour in a previous issue of Global Money Notes and argued that the small size of the market and the small number of participants make the market prone to trade in a very stable manner (our analysis of the micro-structure of the market was the basis of our call that the FF rate would trade in the middle of the range after liftoff).

Indeed, the FF rate has been trading in the middle of the target range for the past 15 months in a remarkably stable manner – practically along a straight line (see Exhibit 2).

Exhibit 1: From Inside to Outside Liquidity Portfolios

MML = money market lending. MMF = money market funding. Reverses = reverse repos with clients (*not* the Fed).



Source: Credit Suisse

Is that stability a virtue or a vice? To answer that question, consider Exhibit 3.

You see two lines that for a while trade identically.

Now consider that the thin blue line plots the path of the effective FF rate and the thick orange line plots the path of the RMB/USD exchange rate from March to October in 2015.

Both trade along a straight line and then there is a jump: the PBoC devalues in August and the Fed hikes interest rates in December. Then, trading along a straight line continues.

But now, think about the fact that the reason USD/RMB trades along a straight line is because the PBoC is enforcing that price by putting its big balance sheet behind it.

But the Fed is not an active participant in the FF market: it only sets the range but does not enforce how FF trades within that range.

What that means is that the FF market is a market that enforces itself to trade along a straight line. But should a venue that trades that way still be considered a market?

Official control versus self-control?

Part II - LCR and the Fed's Reaction Function

Liberty Street, we have a problem.

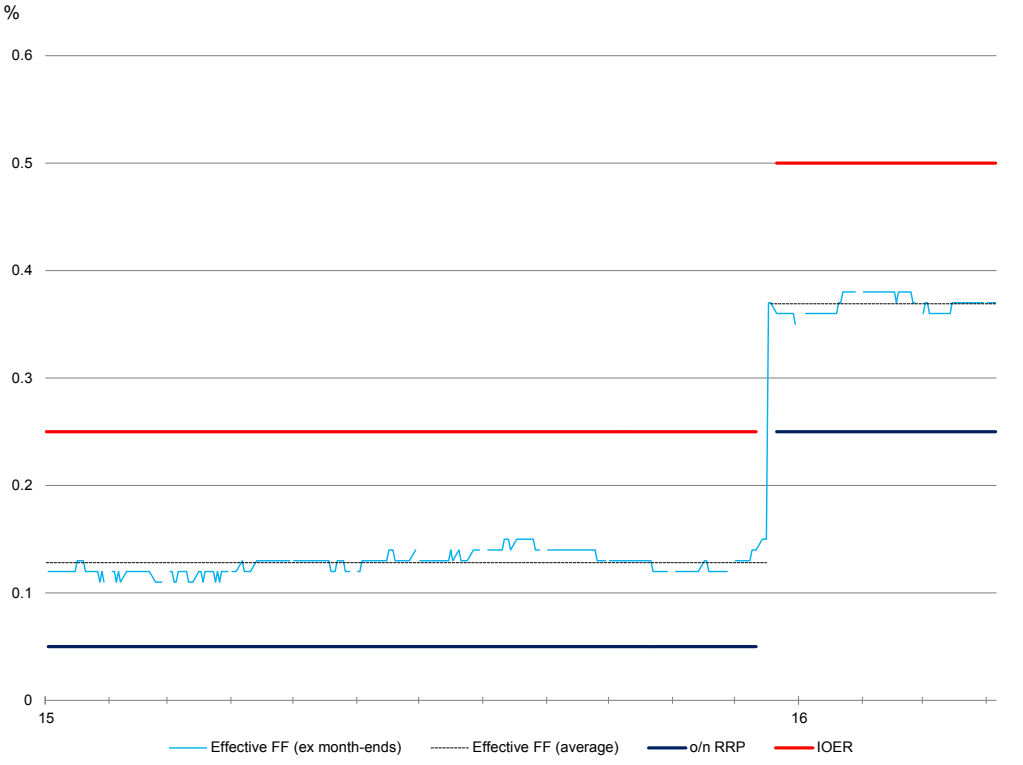
The FF market has gone from a big pond where FHLBs were small fish to a small pond where FHLBs became one big fish, providing a stable source of funding for risk-free arbitrage at the New York branches of a handful of foreign banks (see Exhibits 4, 5 and 6).

It is a problem when the Fed's policy target (probably the most important price in the world for interest rate derivatives) is set in a market as small ($60 billion), as sparsely populated (10 lenders and a dozen borrowers), and as easy to influence as the FF market today.

Nothing in our narrative suggests anything metapysical about how FF trades in that IOER works like a magnet pulling money market rates closer together nor the urban legend that the large capacity of the o/n RRP facility "could actually *reduce* o/n RRP takeup".

What we see is a small market where participants seem to have come to an agreement about how the market should trade.

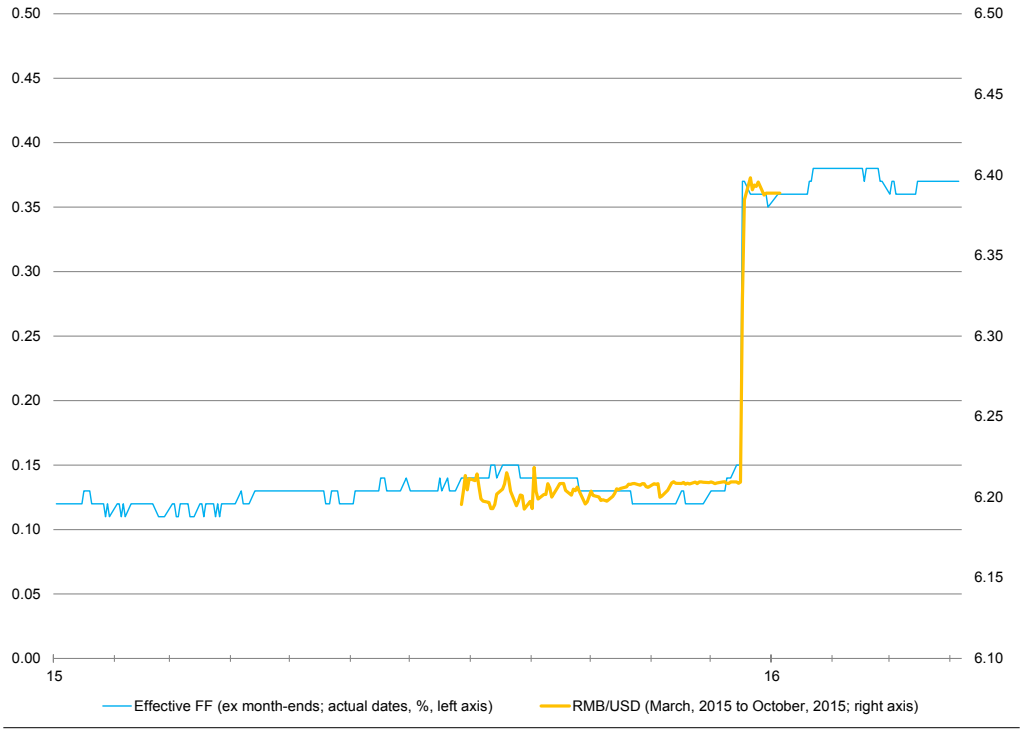
Exhibit 2: Snake in the Tunnel



Source: Federal Reserve, Credit Suisse

Exhibit 3: Official Control versus "Self" Control

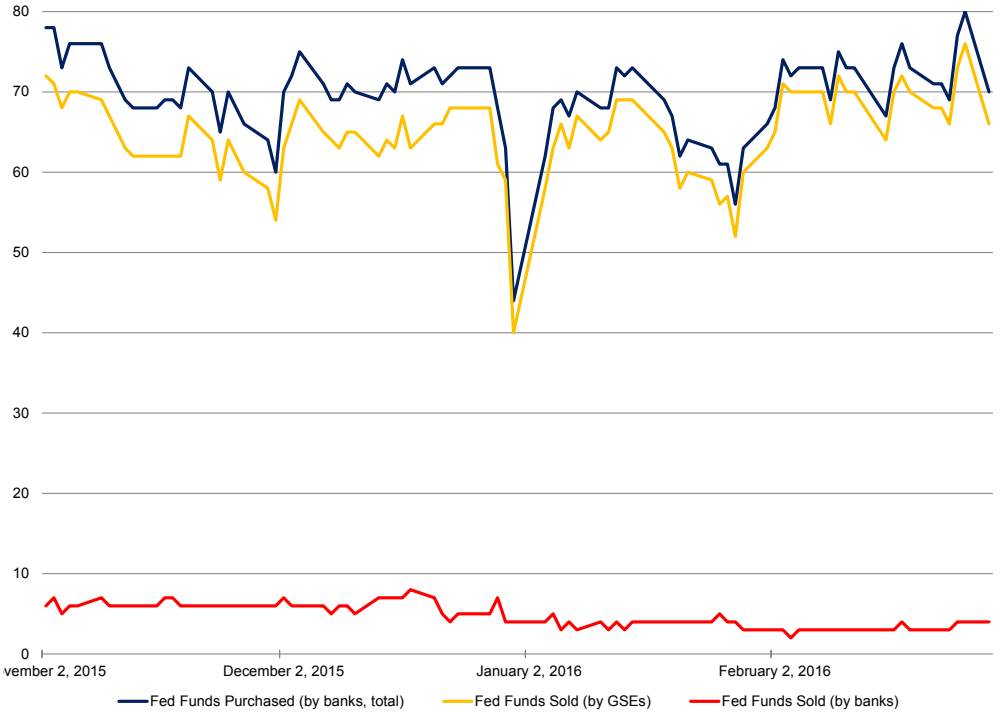
% (left axis) and RMB/USD (right axis)



Source: Federal Reserve, Credit Suisse

Exhibit 4: Big Fish in a Small Pond

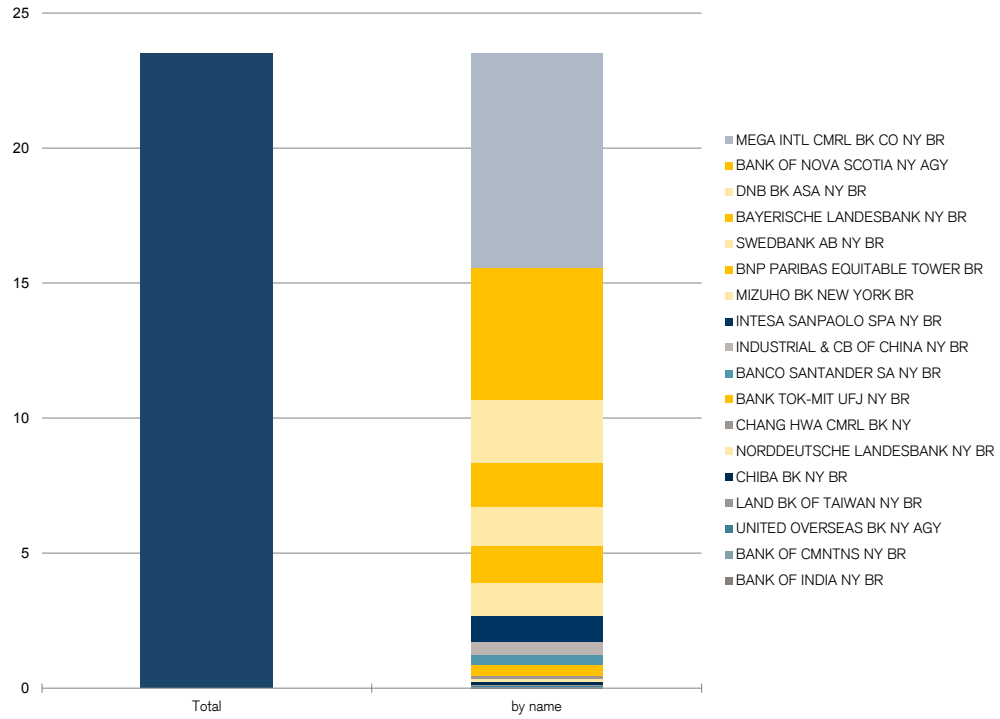
$ billions



Source: FRBNY, Credit Suisse

Exhibit 5: Who Determine the Fixing on Trillions of Derivatives?

$ billions as of 2015Q4



Source: FFIEC, Credit Suisse

Exhibit 6: The FHLBs' Unsecured Exposure by Credit Risk and Country

$ millions as of 2015Q4

	Investment Grade				
Carrying Value(2)	Double-A	Single-A	Triple-B	Unrated	Total
Domestic	$ 5,164	$ 6,426	$ 1,476	$ 2	$ 13,068
U.S. subsidiaries of foreign commercial banks	—	954	—	—	954
Total domestic and U.S. subsidiaries of foreign commercial banks	5,164	7,380	1,476	2	14,022
U.S. branches and agency offices of foreign commercial banks					
Canada	3,166	5,316	—	—	8,482
Australia	5,709	—	—	—	5,709
Netherlands	—	5,620	—	—	5,620
Finland	3,852	—	—	—	3,852
Germany	—	2,425	—	—	2,425
Norway	—	2,340	—	—	2,340
Sweden	200	1,440	—	—	1,640
Japan	—	375	—	—	375
United Kingdom	—	250	—	—	250
France	—	200	—	—	200
Total U.S. branches and agency offices of foreign commercial banks	12,927	17,966	—	—	30,893
Total unsecured investment credit exposure	$ 18,091	$ 25,346	$ 1,476	$ 2	$ 44,915

Source: Office of Finance, Credit Suisse

Moreover, the o/n RRP facility seems irrelevant in determining where FF trades.

This is because early return of cash is paramount, FHLBs will never invest in a facility that gives their cash back late in the day. The FHLBs would prefer keeping cash in their Fedwire accounts earning zero to locking it up for an entire day in o/n RRPs for a yield.

We think the Fed will soon have to begin a conversation with market participants about the problems of the FF market, the fading relevance of the FF rate as a reliable measure of banks' funding costs and the need to switch to another, more meaningful policy target.

The overnight bank funding rate (OBFR) is the obvious candidate and we think the switchover will happen before year-end.

We know that the OBFR is a volume weighted median of where global banks fund themselves in o/n FF and Eurodollar transactions and that it gets around the small volume and the small number of participants in the FF market. The volume of o/n Eurodollar transactions is near $250 billion and there are hundreds of market participants.

Switching over to the OBFR is not without questions, however. Three come to mind in particular, regarding design, concept and implications for the Fed's reaction function.

First, regarding design, we looked but could not find any hints as to whether the Fed surveys the rates on both operating and non-operating deposits to calculate OBFR.

The detail is crucial since the U.S. experience shows that banks value and price the two deposits differently. As European banks (the largest participants in Eurodollar market) ramp up their compliance with Basel III and reprice their deposits, the generally lower rates offered on non-operating deposits could cause Eurodollar rates to drift away from the FF rate over time. We do not see any signs of this yet (the two rates trade on top of each other at present), but without knowing the precise types of deposits the OBFR is designed to track, we cannot exclude this scenario. This is important to keep in mind especially if OBFR ends up replacing the effective FF rate in the pricing of swaps and futures contracts.

Second, regarding concept, switching from FF to OBFR is a big deal in the sense that the FF market is an interbank market, whereas OBFR is a customer-to-bank market.

Operationally targeting a customer-to-bank rate is very different from targeting an interbank rate. We are actually unaware of any central bank that is influencing customer-to-bank rates through open market operations (OMO). Does OBFR point to a system

where OMOs are obsolete and where administered target ranges are the norm? Where the Fed stands ready to make markets at the upper and lower bounds of the range? And where benchmark rates are set by surveyed customer-to-bank and not interbank trades?

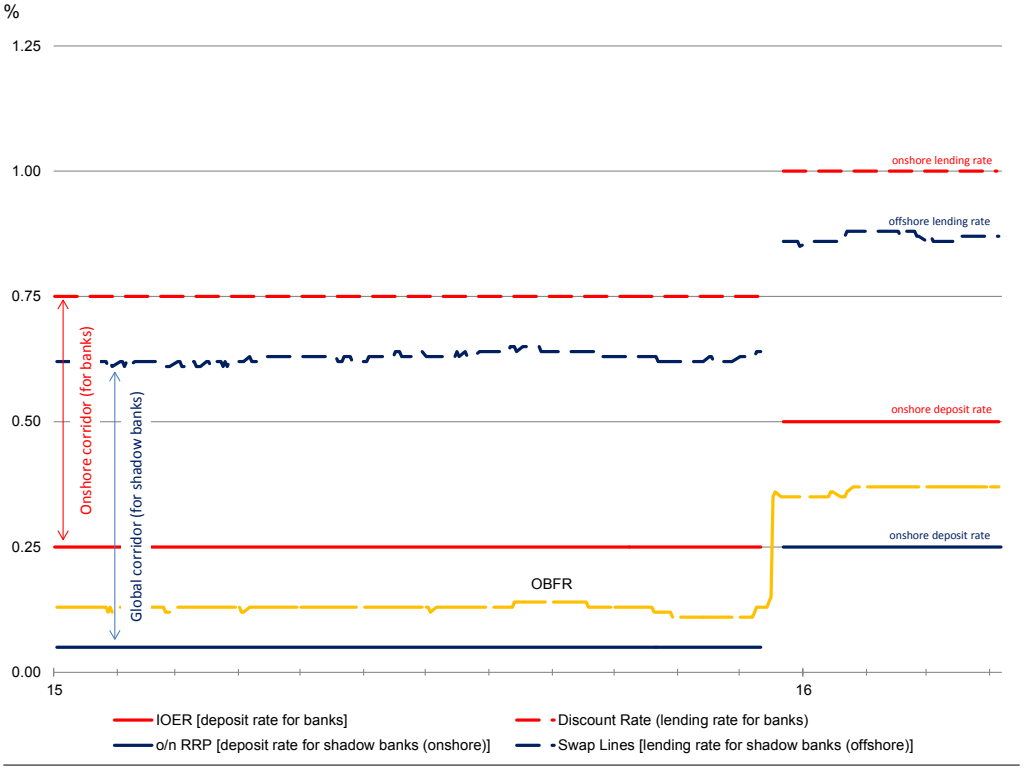
Third, regarding the reaction function, imagine the Fed targeted Libor as its policy rate.

Targeting the OBFR would essentially be the same, to the extent that both Libor and OBFR are meant to measure where banks fund in the Eurodollar market. Conceptually this means that the Fed would target *global* as opposed to domestic dollar funding conditions only: a central bank that targets the range where *global* dollar funding rates should trade.

With the standing FX swap network (see Mehrling, 2015) with the BoC, the BoE, the BoJ the ECB and the SNB, the Fed already made one big leap toward becoming the de-facto central bank of the world by being ready to broadcast global dollar liquidity at OIS + 50 bps.

Switching over to OBFR would represent a second major leap. But in this case, not as dealer of last resort in the cross-currency basis market, but rather as a central bank that aims to target the price of dollar funding not only onshore but also globally (see Exhibit 7).

Exhibit 7: The New World Order



Source: Federal Reserve, Credit Suisse

We have not one corridor, but two *parallel* corridors. The corridor everyone talks about is the o/n RRP-IOER range. The corridors everyone should be talking about are the Fed's onshore corridor for traditional banks and a *global* corridor for the shadow banking system.

The solid red line (IOER) shows where banks can deposit cash at the Fed onshore and the dashed red line shows where banks can borrow from the Fed onshore (through the standing discount window facility). This is the onshore corridor for traditional banks.

The solid blue line (o/n RRP) shows where shadow banks (dealers and money funds) can deposit cash at the Fed onshore and the dashed blue line shows where shadow banks (non-U.S. banks active in Eurodollar markets) can borrow from the Fed *offshore* (indirectly through their home central banks' standing FX swap lines with the Fed).

This is the global corridor for the shadow banking system.

In normal times, the OBFR (a measure of onshore and offshore funding costs) trades between the onshore deposit legs of the two parallel corridors (the o/n RRP-IOER range).

And unlike in 2007, when Libor shot 50+ bps above the fed funds rate, OBFR generally should never gap north of the rate on dollar swap lines – the offshore discount window rate.

What all this means in light of the Fed's domestic mandates on jobs and inflation is an open question, but our instinct tells us that all this points to a Fed that is inherently more sensitive to global financial conditions beyond the trade weighted value of the dollar; inherently more sensitive to the global growth outlook; and hence inherently more dovish.

The more plates you juggle, the more careful you will have to be.

Just think about it: if the design of your parallel corridor system pre-commits you to step in as dealer of last resort in Eurodollar markets you will be extra careful in how much you tighten dollar funding conditions globally. Tighten too much and the first port of call won't be the IMF like in the past, but your standing dollar swap lines with other central banks.

We think that switching from FF to OBFR will be a necessity, not a choice.

Unsecured interbank markets and the fed funds rate as a policy target are set to fade into irrelevance post-Basel III. OBFR is the alternative and switchover is bound to happen sooner rather than later. Therefore starting to think about these question *now* is paramount.

Part III - LCR and the Fed's Balance Sheet

The idea that there are no excess reserves stems from the fact that new regulatory rules underwrite demand for a big Fed balance sheet for a long time to come (possibly forever).

The Fed is currently considering imposing rules to require banks to hold a certain minimum target portion of their HQLA portfolios in reserves. This further underscores this point. As we have highlighted in earlier work (see here), the LCR is subject to considerable interpretation when it comes to how banks can build their HQLA portfolios: the outflow assumption on liabilities and eligible assets are uniform, but there is no guidance on the target duration of a portfolio or the mix between reserves and bonds among Level 1 assets.

Banks have taken very different approaches in building these portfolios: some banks have mostly reserves (JP Morgan), some mostly Treasuries (Citi) and some mostly mortgages (Bank of America) in their HQLA portfolio (see Exhibit 8; note that the issue we raise here pertains to the Level 1 portion of HQLA portfolios which is entirely separate from some large banks' Level 2 allocation issues which we discussed here).

The Basel III Monitoring Report of the BIS is a helpful benchmark in terms of what the Fed may potentially chose as a target, and that is about 85% Level 1 assets (made up of a minimum of 35% reserves and 50% Treasuries) and a maximum of 15% Level 2 assets.

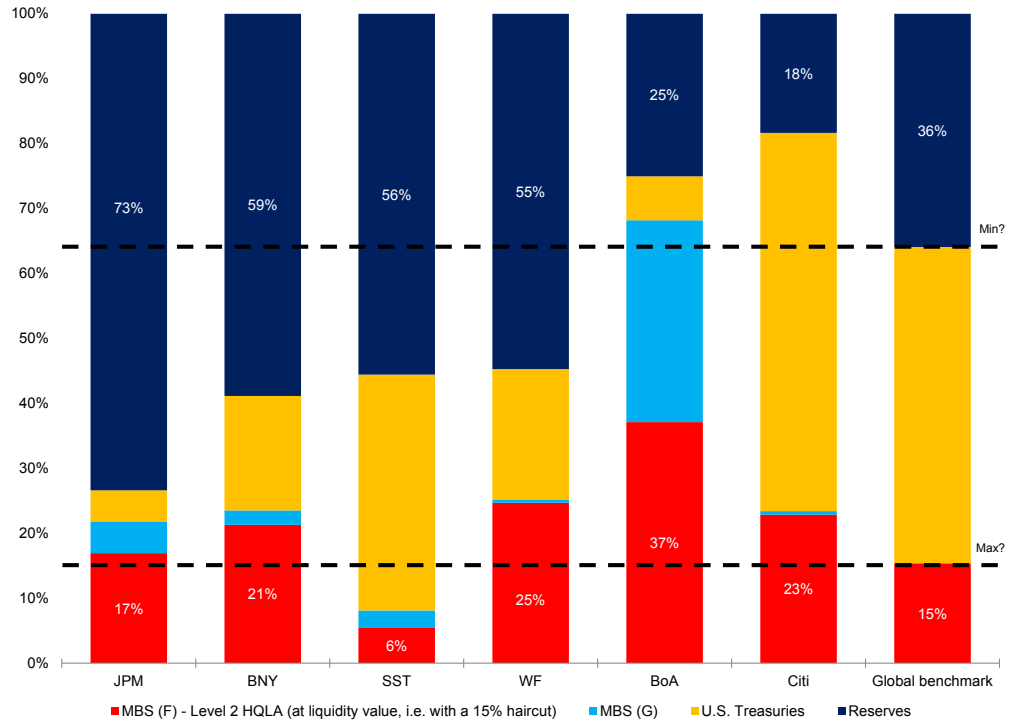
If history is any guide the Fed will likely choose something tougher than this

Under the leadership of Governor Tarullo the Fed chose to implement regulatory reforms a touch tougher and a touch faster than the Basel III baseline, and will likely chose HQLA portfolio mix targets that are a touch tougher than the findings of the BIS report.

Any question about when or whether the Fed will finally start to shrink its bloated balance sheet then ultimately comes down to this: do you think the Fed's regulatory arm would be comfortable with a banking system that has a greater share of bonds in its HQLA portfolio?

Exhibit 8: Are Banks Due for Uniform Liquidity Diets?

Bank operating subsidiaries only, % as of 2015Q4



Source: FFIEC, Credit Suisse

Likely not.

In an important speech, former BoE Governor Mervyn King noted the steady erosion of U.K. banks' reserve buffers from about 30% of assets in the 1960s to practically nothing by the eve of the crisis. In this sense the odd thing is not that the size of the Fed's (and other central banks') balance sheet rose five-fold since the crisis, but that it did not during the decades prior to the crisis and that regulators let banks shrink their official reserve buffers to nothing relative to the ballooning size of wholesale repo and Eurodollar markets.

Had the Fed forced banks to hold an additional say $50 billion in extra reserves year after year as wholesale funding markets expanded after President Nixon took the U.S. dollar off the gold standard in 1971, the size of its balance sheet would be roughly where it is today.

Big is not odd; small was odd (see Exhibit 9).

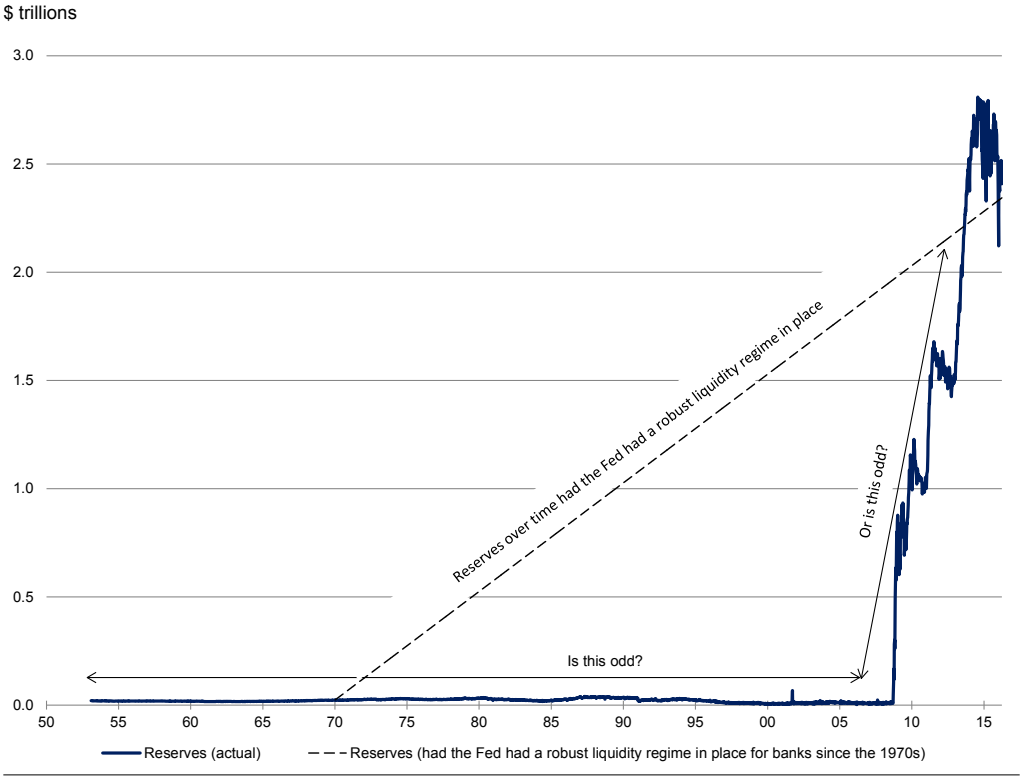
Don't get your hopes up about going back to an all-bonds liquidity portfolio.

With Basel III throwing sand upon sand into the functioning of matched repo books (the hearts whose beats gave market liquidity a pulse), bond market liquidity will never be what it once was. Regulators know this. After all they were the ones who designed the new system and put in place the constraints on repo and market liquidity that come with it.

They do realize that in the post Basel-III world order base liquidity (central bank reserves) will inevitably have to replace market-based liquidity.

With this in mind, does the Fed shrinking its balance sheet by taking reserves out of the banking system and replacing them with U.S. Treasuries and MBS still sound probable?

Exhibit 9: Big Is Not Odd…



Source: Federal Reserve, Credit Suisse

Instead of asking when the Fed will shrink its balance sheet, it's about time the market gets used to the idea that we are witnessing a structural shift in the amount of reserves the U.S. banks will be required to hold, where reserves replace bonds as the primary source of banks' liquidity. And that this shift will underwrite demand for a large Fed balance sheet.

And we are also witnessing a structural shift in the amount of reserves held by foreign banks as well. Gone are the days when foreign banks settled their Eurodollar transactions with deposits held at correspondent money center banks in New York. Under the new rules, interbank deposits do not count as HQLA, and foreign banks are increasingly settling Eurodollar transactions with reserve balances at the Fed. Foreign banks' demand for reserves as HQLA to back Eurodollar deposits and as ultimate means of settlement for Eurodollar transactions will underwrite the need for a large Fed balance sheet as well.

Prime money fund reform is a very important yet grossly under-appreciated aspect of this, one with geo-strategic relevance for the United States.

Prime money funds have been providing the overwhelming portion of funding for foreign banks' reserve balances. If the prime money fund complex shrinks dramatically after the October 14th reform deadline, funding these reserve balancees will become structurally more expensive. This in turn means that for foreign banks across the globe running Eurodollar businesses – lending Eurodollars and taking Eurodollar deposits – will become structurally more expensive. Why? Because if the LCR requires banks to hold more reserves as the preferred medium for settling Eurodollar transactions and the funding of these balances become more expensive, funding the liquidity portfolio corresponding to Eurodollar books may become a negative carry trade. Will that help diminish the dollar's pre-eminence as the global reserve currency and play into China's hand? You bet…

Conclusion - Quantities Matter Again

Of course the bulk of banks' demand for HQLA is driven by non-operating deposits. If banks push these deposits out, or if they choose to leave the banking system voluntarily in search of money market instruments elsewhere, the need for reserves would be lower.

That is true.

Keep in mind, however, that with the private sector's ability to issue money market claims sharply limited by Basel III, money can only find a home on the sovereign's balance sheet: either through the Treasury bill market or through the Fed's o/n RRP facility.

Either option will mean that demand for a large Fed balance sheet will remain: reserves will not be eliminated, but swapped into other liabilities – larger cash balances for the U.S. Treasury (and on the flipside more bills for institutional cash pools) and more o/n RRPs for money funds (and on the flipside safer money funds for institutional cash pools).

Oddly, however, the Fed keeps emphasizing that the o/n RRP is not there for the long haul or to meet money funds' demand for safe assets, but to put a floor under interest rates.

We disagree. Quantities matter again, in ways the Fed has yet to appreciate.

Quantities matter for HQLA reasons: we now have what is effectively a global reserve requirement regime which requires banks to hold more reserves than in the past. There is no turning back to the old days where reserves were scarce. The LCR does not allow that.

Quantities matter for balance sheet reasons as well: private balance sheets are smaller and less flexible, limiting the amount of short-term wholesale liabilities (and chiefly the size of dealers' matched repo books, or private money) that financial institutions can issue.

Quantities matter for money demand reasons too: with institutional money demand up – not down – since the crisis (partly due to initial margins at CCPs), if the private sector can't issue shadow money claims someone else will have to, otherwise rates go down, not up.

In this sense, debates about whether the RRP facility should be temporary or permanent; whether it should be allowed to grow into a structural source of supply for safe assets; or how deep the Fed should or should not get in bed with money funds are just a sideshow.

The real question is:

How big will the o/n RRP facility *have to* get for it to serve as a hard floor for the short-term rates complex (in the absence of alternatives such as the ones we discussed here).

Safe assets are needed to store pools of wealth and to grease financial economy transactions (see Pozsar, 2014). If their provision were inelastic or only reluctantly elastic, the Fed would be unable to control short-term rates. The Fed has yet to learn that lesson.

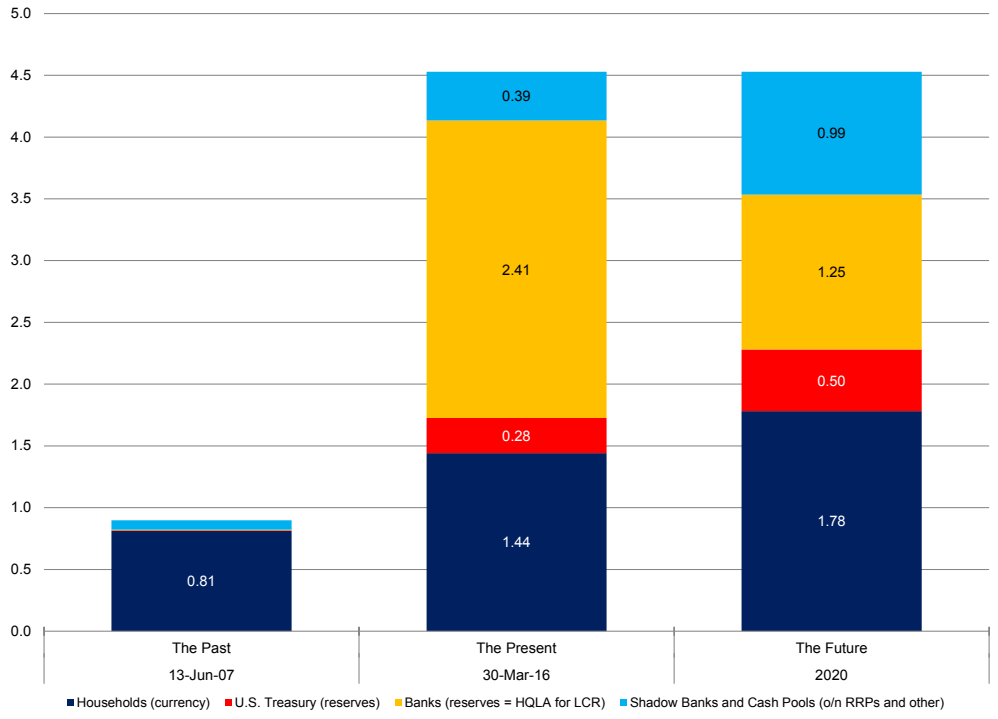
Either way, after taking into account households' demand for cold hard cash, the U.S. Treasury's decision to structurally boost its cash balances (from practically nothing to $300 billion today and possibly as high as $500 billion in the future), and the structural leap in U.S. and foreign banks' demand for base liquidity (reserves) under the global LCR regime, we see very little room for the Fed to ever shrink its balance sheet (see Exhibit 10).

Currency outstanding, U.S. Treasury's structural cash balances and demand for reserves under the LCR regime lock in the size of the Fed's balance sheet at around $3.5 trillion and as discussed in the maiden issue of Global Money Notes, the remaining $1 trillion will be needed as reverse repos for money funds and foreign central banks to offset the (forced) shrinkage in dealer matched books and the corresponding decline in safe assets.

Big ain't inflationary. Big is necessary. It is the future. Get over it…

Exhibit 10: How I Stopped Worrying and Love the Fed's Big Balance Sheet

$ trillions



Source: Federal Reserve, Credit Suisse

Glossary

Basel III is the most significant reform to hit the banking system in a generation. It represents an entitlement reform for the banking system: as an analogy think of retirement ages being raised from 60 to 80. It has four cornerstones: risk-based capital requirements; the (supplementary) leverage ratio (SLR); the liquidity coverage ratio (LCR) and finally the net stable funding ratio (NSFR). It applies to the largest banks in the G20 economies.

HQLA is a term itroduced as a part of bank liquidity requirements under Basel III. It stands for High-Quality Liquid Assets. HQLA fall into two broad categories: Level 1 and Level 2. Level 1 HQLA include reserves, U.S. Treasuries and Ginnie Mae MBS. Level 1 assets can be held in unlimited amounts and at no haircut. Level 2 HQLA include Fannie Mae and Freddie Mac MBS. Level 2 assets can only make up 40% of an HQLA portfolio and must be included at a haircut of 15%. Level 2 assets also include corporate and municipal bonds and also some equities. However banks don't hold large amounts of them as HQLA.

LCR stands for the Liquidity Coverage Ratio, a cornerstone of Basel III. The LCR requires banks to take stock of their short-term liabilities, assign pre-set outflow assumptions to them and hold an amount of HQLA against them equal to their outflow assumptions. The minimum LCR U.S. banks must have is 100% but are encouraged by the Fed to target an LCR of about 115% (with the 15% extra being banks margin of safety). Since July 1st of 2015 the largest U.S. banks have been subject to *daily* LCR compliance requirements.

For more on the LCR see Section II ("Rules") of Global Money Notes #3.

Non-operating deposits are a concept introduced as a part of LCR. They refer to deposits that are in excess of an institutional depositors typical outflow needs. Depending on the type of institution the outflow assumption associated with non-operating deposits are 40% at the minimum and can be as high as 100%. The higher the outflow assumption the lower the attractiveness of the deposit as a source of funding for a bank. This is because high HQLA requirement deposits leave no freedom for a bank to decide how to invest on its asset side: these deposits can only be held as low-yielding cash at the Fed.

For more on non-operating deposits see Section II ("Rules") of Global Money Notes #3.

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