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Global Money Notes # 1

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The Money Market Under Government Control

The Fed's new Reverse Repo (RRP) facility could get big – very big – as interest rates start to rise, despite what Fed officials have been saying. The facility has been trending around $150bn, roughly 1/20th of the level of bank reserves.

A much larger RRP facility – think north of a trillion – would represent the end-point of an evolution that began before the crisis, when large dealer repo books stood between institutional cash pools and leveraged carry trade investors to…

after the crisis, when bank balance sheets were expanded by both reserve assets and deposit liabilities created by QE to…

the future, when government-only money funds grow to hold large volumes of RRPs as assets and issue fixed-NAV shares (money) to institutional cash pools.

What are institutional cash pools? Think corporate treasuries and the cash desks of asset managers and FX reserve managers. Their demand for short-term, money-like assets has had a strong secular growth for several decades.

New regulations have constrained some investors in terms of what they can buy, and many institutions, in terms of what they can (profitably) issue.

History shows that when financial innovation occurs or rules change, the least constrained players grow.

In contrast to banks and dealers that face various charges on capital and balance sheet, and prime funds whose shares have lost "moneyness" due to regulation, government funds are relatively unconstrained.

They will likely grow, fed by an RRP facility that may grow much larger and become a permanent fixture of the financial system. In our view, this would herald the arrival of an era of financial "RRPression" in the US money market where the sovereign dominates and dealers play a supporting role – the inverse of the pre-crisis state of affairs.

While this shift would undoubtedly reap massive financial stability benefits, the main reason why the RRP facility might need to get much bigger is not financial stability related, but rather revolves around the Fed's potential inability to control short-term interest rates in an era where Basel III and banks satiated with excess reserves hinder monetary transmission.

Why pay attention to this plumbing stuff?

Because the infrastructure of markets determines which trades can profitably be done, and which institutions will grow in importance over time.

This piece marks a return to our prior focus on shadow banking and the global financial system (see references at the end).

Circumstances rule central banks. And the current circumstances include new regulations, banks satiated with reserves, and institutional cash pools that are still large and growing.

Institutional cash pools, the short-term debt portfolios of asset managers and corporate treasuries, have experienced strong secular growth in recent decades. Since 2000, they have grown from $1tn to $7tn. Their ascent has played a key role in shaping the global financial system. In particular, it drove the rise of wholesale funding markets on the one hand and carry trading on the other and the associated rise in the fragility of the system.[1]

The 2008-2009 crisis marked a structural shift in how the money demand of cash pools is intermediated. Intermediation shifted from private balance sheets to the balance sheet of the sovereign. The untold story behind the changes in the money market since 2008 is policymakers' struggle to find a permanent home for the money demand of cash pools in a financially stable manner that is also consistent with control over short-term interest rates.

From Private Carry to Public Carry

Before 2008, broker-dealer balance sheets had virtually unlimited elasticity and were the main source of short-term debt supply, with $4.5 trillion in repos outstanding at the peak.

Broker-dealers "manufactured" these short-term assets by financing (predominantly) "safe," long-term assets such as US Treasuries and agency RMBS for leveraged bond portfolios. They reused these securities through their matched repo books for their own funding. Cash pools held dealer repos directly or indirectly through money funds (see Exhibit 1).

Exhibit 1: Pre-Crisis System of "Private Carry" and "Private Money Dealing"

Cash pools' direct and indirect holdings of repo

"Carry Trading"		"Money Dealing"					
Bond Portfolios (**private carry**)		**Broker-Dealers** (**matched books**)		**Money Funds** (prime/government)		**Cash Pools**	
Bonds	Repo	Repo	Repo	Repo	$1 NAV	$1 NAV Repo	

Source: Credit Suisse

After the crisis, dealers' repo books shrank, and the Fed became the marginal source of supply of short-term assets through its $2.8 trillion increase in bank reserves. The Fed "manufactured" short-term assets by purchasing US Treasuries and agency RMBS and paying for them with newly created reserves.

Operationally, quantitative easing (QE) involves four parties: the Fed, dealers, banks, and asset managers. The Fed purchases bonds from asset managers through dealers. Bond owners are credited with bank deposits. Bond owners' bank balance sheets increase on both sides: assets rise in the form of reserves; liabilities rise in the form of deposits.[2]

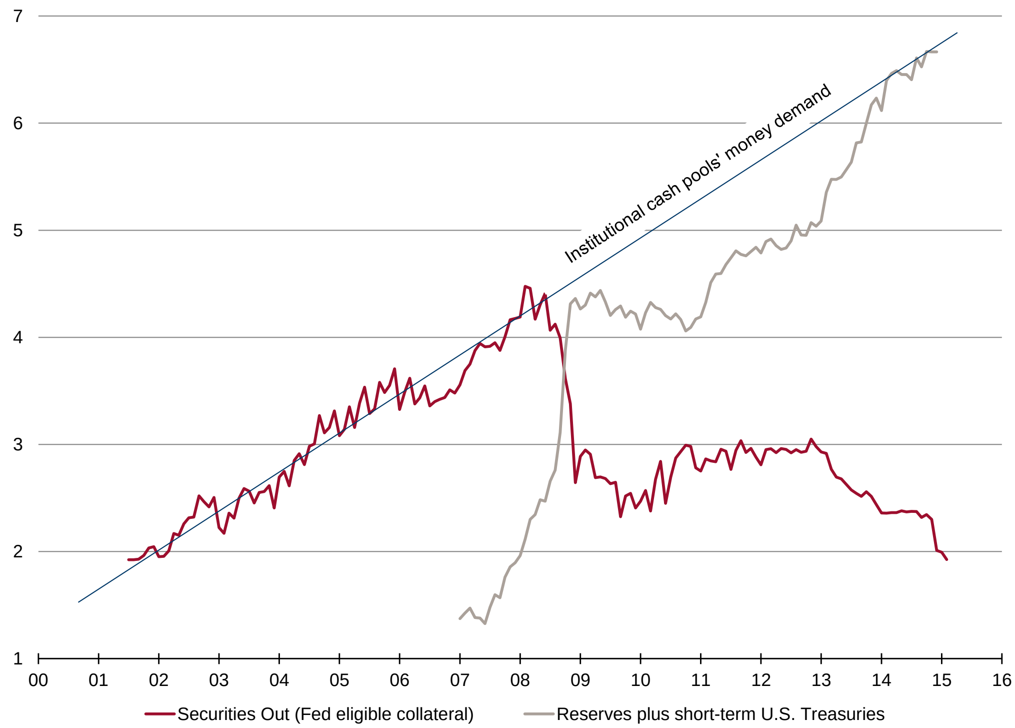
Meanwhile, the crisis brought about a massive decline in dealers' repo liabilities. This was initially due to crisis deleveraging, but was later enforced by regulation (Basel III).

[1] See "Institutional Cash Pools and the Triffin Dilemma of the US Banking System" by Zoltan Pozsar (IMF, 2011).

[2] If the Fed had bought bonds from banks directly, deposits (M1) would not have risen, because one form of bank assets (bonds) would simply offset another (reserves).

Exhibit 2: Tectonic Shifts in the US Money Market

Short-term sovereign claims substitute dealer repos to accommodate the secular trend growth of cash pools, $ trillion



Source: Federal Reserve, U.S. Treasury, Haver Analytics®, Credit Suisse

As the level of dealer repos fell, the level of reserves rose. The increase in reserves drove an increase in deposits and other bank liabilities. The Fed's massive new carry trade was an offset to shrunken leveraged bond portfolios. As the "shadow banking system"[3] shrank, the traditional banking system grew.[4] Exhibit 2 shows the uninterrupted growth of institutional cash pools along their pre-crisis trend. The growth in reserve balances and Treasury bills (government money-like assets) took off when repo collapsed. Interestingly, government short-term debt appears to be riding the same trend as repo did pre-crisis.

Money dealing – the high volume, low margin business of borrowing and lending in short-term markets – is being done by various entities in Exhibits 1 and 3. But what is clear is the migration of the money-dealing function from dealer balance sheets to traditional banks and the migration of carry trading from bond portfolios to the Fed's balance sheet.

In these charts we see alternative systems of intermediated flows from savers to borrowers. Compared to the pre-crisis state of affairs, the role of borrower shifted from the private sector (bond portfolios earning profits from private carry trades) to the public sector (the Fed's "seigniorage" revenues/profits from its public carry trades).

Regulatory reform since the crisis enshrined these changes. Broker-dealers' footprint as money dealers permanently shrank, as costs became prohibitive.

But the new rules made money dealing costly for banks too.

3 We define shadow banking as "money market funding of capital market lending." See "Bagehot was a Shadow Banker" by Perry Mehrling, Zoltan Pozsar, James Sweeney and Daniel Neilson (INET, 2013)

4 NB: This is a one example of the many important offsetting phenomena which characterize the financial system.

Exhibit 3: Post-Crisis System of "Public Carry" and "Public Money Dealing"

Cash pools' indirect holdings of reserves

Federal Reserve (public carry)		Foreign Banks (matched books)		Money Funds (prime)		Cash Pools	
Bonds	Reserves	Reserves	Repo CD CP	Repo CD CP	$1 NAV	$1 NAV	

Federal Reserve (public carry)		U.S. Banks (matched books)		Cash Pools	
Bonds	Reserves	Reserves	Deposits	Deposits	

Source: Credit Suisse

However, because only banks can hold reserves, the banking system is stuck with the new regulatory costs of money dealing. Depressed net interest margins and returns on equity are the result – along with a banking system resolute to minimize these drags. This structural shock to the profitability of the banking system is a likely impetus to change.

As always, changes will involve arbitrage. Not an arbitrage of Basel III (which is near-impossible due to the new accord's scope and invasiveness), but of the spirit of the Federal Reserve Act, by allowing access to Fed liabilities to entities the Act does not permit to hold reserves.

This arbitrage will intertwine the balance sheets of the Fed and money funds. A rapidly growing and ultimately permanent RRP facility will be the link, in an awkward "marriage" of necessity intended to help the Fed maintain precise control of short-term interest rates.

Basel III Disrupts Arbitrage

Exhibit 4 shows several short-term interest rates: the Fed's interest on excess reserves (IOER), the federal funds rate, the overnight (Fed) reverse repo (RRP) rate, the overnight GC repo rate, and the overnight AA financial commercial paper rate.

Some market participants have no choice but to lend money to banks at rates less than the Fed pays in IOER. This shows that the Fed's interest rate on excess reserves (IOER) has not been an effective floor to short-term interest rates.

The reasons for that require some key institutional details.

Banks were force-fed the excess reserve balances created by QE. They did not demand those reserves, and so are satiated with them. The actual holding of reserves is highly uneven across banks, with the largest US banks (and in particular the two clearing banks) holding a disproportionate share, and foreign banks holding the rest (see Exhibit 5).

Regulations make it costly for banks to hold reserves, limiting their appetite to pay up for funding. Reserves count against banks' leverage caps, and the largest US banks have to hold 6% capital against them – that's 6% capital against riskless arbitrage trades earning slivers of basis points in spread and involving what is considered the safest possible counterparty. For US banks there is a further FDIC fee increasing costs even further.

The interaction between reserves satiation and regulation means the Fed's control over short-term interest rates may be less than it used to be. Because reserves are the marginal supply of short-term assets post-crisis and because cash pools can hold these reserves only indirectly through the balance sheet of banks, banks maintain absolute control over what share of IOER flows through to cash pools and – by extension – the extent to which higher IOER rates (once the Fed begins to hike) will flow through to financial conditions more broadly.

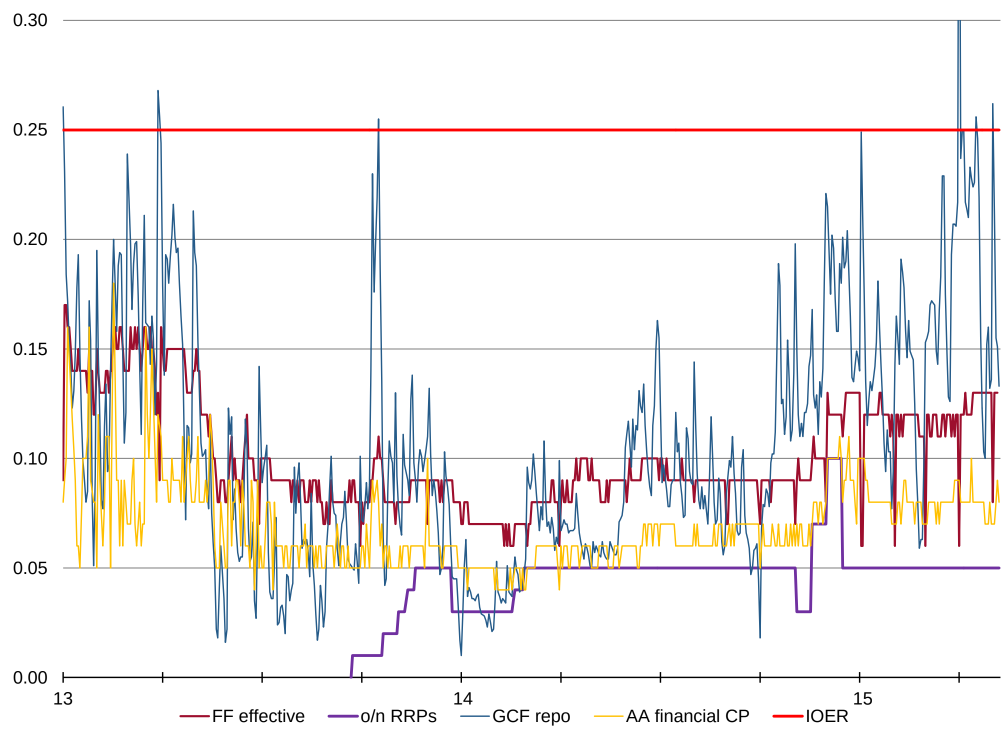
The Fed new reverse repo (RRP) facility regains control over short-term interest rates by allowing money funds to bypass banks and invest cash with the Fed directly (see Exhibit 6). Think of it as a buffer in case banks intent on minimizing the post-crisis costs of money dealing fail to pass on higher rates to their funding providers.

It can also be thought of as direct access to the Fed's balance sheet for "shadow banks." This is the arbitrage of the spirit of the Federal Reserve Act we mentioned above.

An arbitrage because the Act allows reserve accounts to be held only by traditional banks. But as banks became bottlenecks in the monetary transmission process a broader access to the Fed's balance sheet became necessary. This was possible only through arbitrage – the creation of quasi reserve accounts for shadow banks in the form of RRPs.

Exhibit 4: Basel III Disrupts Arbitrage, Clogs Monetary Transmission

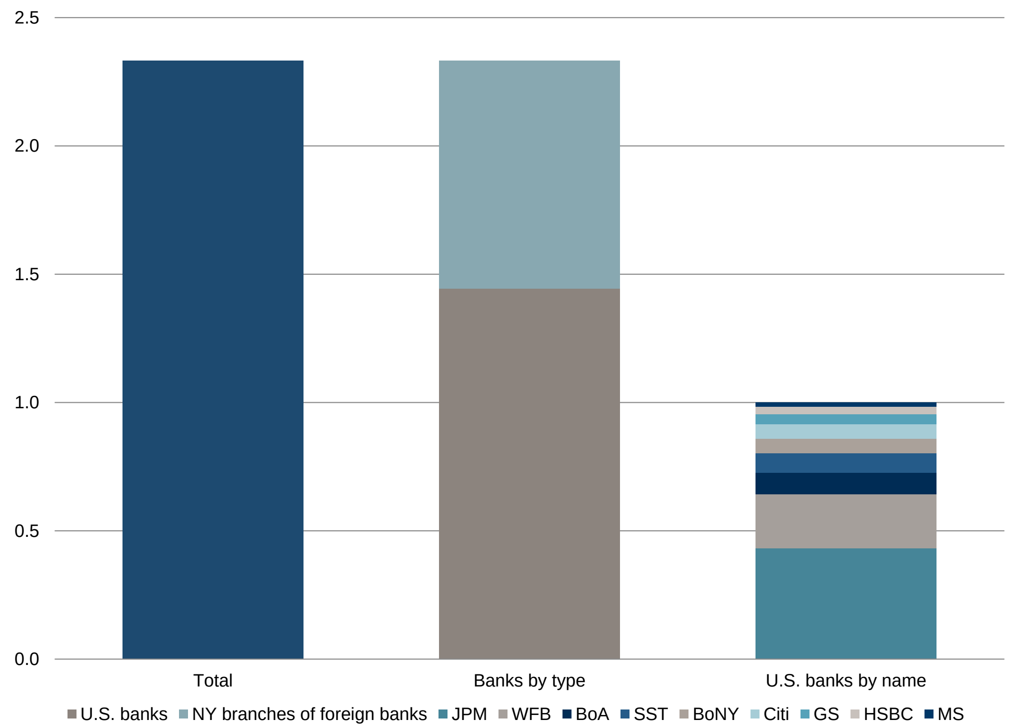
% per annum



Source: Haver Analytics®, Credit Suisse

Exhibit 5: Excess Reserves Burden Predominantly G-SIBs

Excess reserves, $ trillion



Source: Call Reports, Haver Analytics®, Credit Suisse

Exhibit 6: Enter the RRP Facility – Unclogging Monetary Transmission

Streamlining the money dealing process and getting around the depressed funding rates offered by banks.

"Carry Trading" **"Money Dealing"**

Federal Reserve (**public carry**)

Assets	Liabilities
Bonds	Reserves

Banks (**matched books**)

Assets	Liabilities
Reserves	Repo CD CP

Money Funds (prime)

Assets	Liabilities
Repo CD CP	$1 NAV

Cash Pools

Assets	Liabilities
$1 NAV	

Federal Reserve (**public carry**)

Assets	Liabilities
Bonds	RRPs

Money Funds (**matched books**)

Assets	Liabilities
RRPs	$1 NAV

Cash Pools

Assets	Liabilities
$1 NAV	

Source: Credit Suisse

The Money Dealing Hot Potato

The RRP facility is policymakers' latest attempt to create a redoubtable money market. So far, the overnight RRP facility has helped firm up short-term interest successfully.

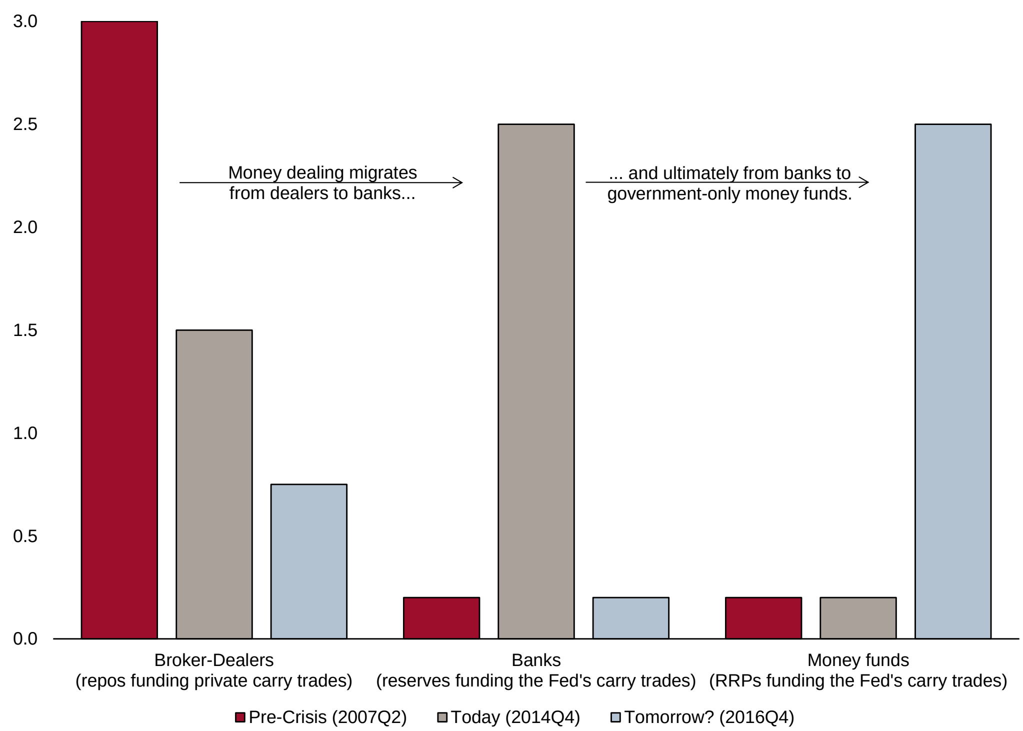
But maintaining control over short-term interest rates as policy is tightening will be challenging if the RRP facility does not grow significantly. As discussed above, banks might not pass on higher interest rates to their funding providers. If they don't, cash pools will attempt to leave banks and look for higher-yielding RRPs. Getting the size of RRP issuance right is tricky: as we have emphasized, whenever one component of short-term markets grows or shrinks, something will have to offset it.

Exhibit 7 shows the money dealing function being passed around like a hot potato. Before the financial crisis, broker-dealers practiced money dealing through a matched book repo. However, dealers eventually facilitated so much risk transformation that it exposed the system to fire sale and run risks. Later, banks became the dominant money dealers, funding massive volumes of maturity transformation on the balance sheet of the Fed. While this change reduced risks of private maturity transformation, reforms made it so costly for banks that the Fed's ability to control short-term interest rates came into question.

Eventually, we expect a massive and permanent overnight RRP facility, with government-only money funds emerging as the ultimate home of money dealing. Money market funds in many ways are anathema to central bankers. But to regain control over short-term interest rates they deal with them directly: the "marriage" of necessity will occur.

Exhibit 7: In Search of a Home

The total volume of money dealing conducted by various intermediaries over time, $ trillion



Source: Federal Reserve, Haver, Credit Suisse

Of course, this is not the Fed's stated policy script. According to the latest minutes, the FOMC intends the RRP facility to be a temporary feature and "expects that it will be appropriate to reduce the capacity of the facility soon after it commences policy firming."

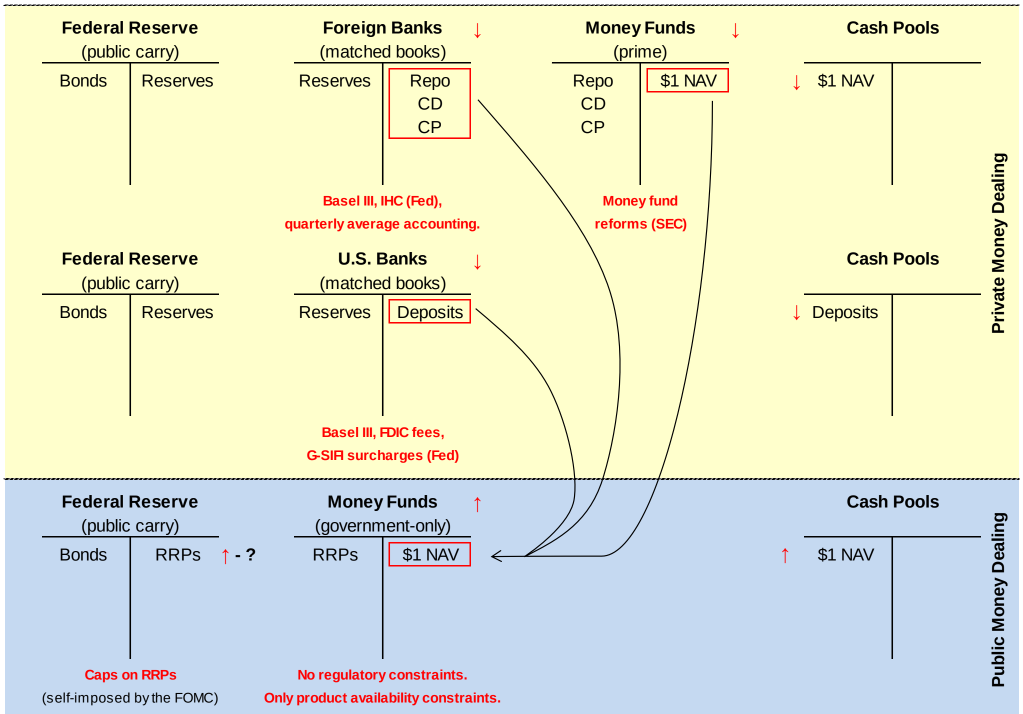
We disagree. The facility has already evolved in ways that are inconsistent with the FOMC's initial goals. Its size is now limited, but the latest FOMC minutes suggest a potential suspension of the cap during lift-off (albeit on a temporary basis).

Exhibit 8 illustrates the migration of money dealing to government-only money funds in this possible future state of the world. New rules force banks, dealers, and prime funds to shrink their short-term issuance. Government-only funds, in contrast, are relatively unconstrained; we think they will grow and become the key "money dealers" in the system.

A much larger or full allotment RRP facility could make this happen.

Exhibit 8: Will the Fed Respond to Bulging Demand?

Regulatory constraints all point toward a dramatic supply response from the Fed.



Source: Credit Suisse

US banks, the New York branches of foreign banks, and prime funds have good reasons to pare their money-dealing activities.

Capital timetables for both US and non-US banks are ramping up with the phase-in of the Basel III accord's capital conservation buffers and countercyclical capital buffers, as well as Fed's G-SIB[5] surcharges starting to get phased in 2016 and ramping up through 2019.

A major US bank recently announced plans to shed $100 billion in non-operating deposits (and an equivalent amount of reserves) - just weeks after it emerged that it was the only US bank with a capital shortfall ($20 billion short once G-SIB surcharges are factored in).

Since raising more capital without shedding low margin money dealing would dilute the bank's RoE, it opted to reduce its money-dealing activities by trying to shed non-operating deposits by imposing fees on them or by engaging in a dialogue with clients to move them.

5 G-SIB = Global Systemically Important Bank

A bank can only reduce its reserve holdings by shifting them – and their dilutive burden – to another bank. Only the Fed can extinguish reserves and non-operating deposits, either by shrinking its balance sheet or by increasing the RRP facility.

Unless this happens, incentives will increase for banks to chase excess reserves off their balance sheets via imposing fees on deposits and/or offering depressed rates on their liabilities just as the Fed is hiking rates. The New York branches of foreign banks – which collectively hold just over $800 billion in reserves – will soon join US banks in trying to shrink their money dealing activities as the Fed will require them to establish separately capitalized intermediate holding companies and face more stringent leverage reporting requirements. Both will raise the burden of money dealing for foreign banks.

These are major factors which could complicate the Fed’s attempt to raise interest rates.

Furthermore, the SEC’s money market reforms mandate that institutional class prime funds float their net asset value (NAV) by October 2016. Government-only money funds may retain a stable NAV. This will incentivize cash pools to reallocate from prime to government-only funds. New rules end prime funds as we know them: going forward, prime funds will be viewed as a short-term yield product, not a short-term liquidity product.

Cash pools’ reallocation from institutional-class prime to government-only funds has already begun. It is getting an early tailwind from the voluntary conversion of prime money funds into government-only money funds by several large asset managers.

Exhibit 8 shows cash pools crowding into government-only money funds – the <u>only</u> balance sheets in the financial ecosystem <u>not</u> subject to new regulatory constraints.

A very large supply of RRPs will be needed to accommodate the demand for government fund liabilities from cash pools. Potential alternatives, such as Treasury bills and dealer repo, are unlikely to grow meaningfully unless the US Treasury makes dramatic changes to its debt management strategy or the bite of Basel III is reduced, which is unlikely.

In the extreme, the RRP facility could facilitate shifting the funding of the <u>entire</u> Fed portfolio onto the balance sheet of government-only money funds. This would help reduce reserve balances back to pre-crisis levels sooner than the market thinks, and enable the Fed to achieve its aim to get back to its old operating regime of targeting the level of the fed funds rate (as opposed to targeting a target range for the fed funds rate at present).

In this sense, if IOER is a magnet, the RRP facility is a dam, keeping excess reserves outside of the banking system and on the balance sheet of money funds. This could help interbank markets return to normalcy and provide a safer way to absorb the money demand of institutional cash pools compared with the pre-crisis shadow banking system.

Swapping excess reserves for RRPs on a large scale is unlikely to do anything dramatic to the flow of long-term credit in the economy. If RRPs are uncapped and demand for them soars, all that will happen (as a matter of double-entry bookkeeping) is that bank balance sheets will shrink and government money fund balance sheets will grow in equal amounts. As reserves are swapped for RRPs, cash pools’ holdings switch from bank liabilities to government-only money fund liabilities. About the only major change in this configuration is that more of the profits from money dealing will flow to money funds and less to banks.

The only link to the real economy in these chains is through the SOMA portfolio’s Treasury and RMBS holdings, the funding of which is unaffected by swapping reserves for RRPs. If anything, it would only get cheaper as RRPs pay only a fraction of the 25 bps offered on excess reserves, boosting the Fed’s remittances (seigniorage revenues) to the Treasury.

Between Monetary Control and a Small Balance Sheet

Once again, we emphasize the nature of the financial ecosystem, where any new growth or reduction prompts an offset elsewhere – "for every action there is a reaction."

Fed RRPs, Treasury bills, and dealer repos are close substitutes and forms of money. The crisis showed that their relative supplies matter.

Perhaps markets will not be permitted to determine that again in our lifetimes.

If this is the case, we will have to adapt to a sovereign that's going to be a larger and more active (or rather, more *activist*) participant in the wholesale money market than before.

This implies that the sovereign may choose to accommodate some share of the growing money demand of cash pools on its balance sheet if it deems the volume of private or shadow money creation to be excessive and posing a risk to financial stability.

Accommodating some share of cash pools' money demand through a rising and permanent stock of RRPs would be similar to a central bank increasing the supply of currency to accommodate the growing money demand of households as the economy grows – a basic feature of all monetary systems.

We make little fuss about accommodating currency demand along a trend, perhaps because we are more familiar with the image of central banks accommodating the money demand of households than with the image of central banks accommodating the money demand of institutional cash pools by issuing RRPs. Economically they are the same.

If the Fed's balance sheet never shrinks much, cash pools will have migrated from funding broker-dealers (pre-crisis) to funding the sovereign (post-crisis). The composition of the money fund complex will have shifted from mostly prime (pre-crisis) to mostly government-only money funds (post-crisis). And the supply of short-term assets will have shifted from mostly shadow – or private – money (pre-crisis) to mostly public money (post-crisis).

And as the sovereign replaces banks and shadow banks as the dominant borrower in the wholesale money markets, risks to financial stability will decrease (as more money will be public and less will be private). And the Fed will have delivered on its financial stability mandate not by vigilance over systemic risks, but by increasing the supply of public money through its balance sheet. This echoes the 1940s experience, which left US banks with large holdings of Treasury bills, and without any major crises for several decades.

The size of bank holding companies, and hence their profits and RoEs, are checked by global capital, liquidity, funding and leverage rules, which have reduced balance sheet elasticity. As intermediaries are less flexible in their ability to furnish elastic currency, someone else will have to do it instead – and that won't be Bitcoin but the sovereign.

The secular rise of cash pools coincided with the three-decade trend toward lower interest rates. Although many investors target certain yield and return levels because of institutional arrangements, low yields did not eventually lead to sufficient issuance in long-term debt to steepen yield curves and attract savings out of cash pools (which were targeting short-term paper) and into intermediate and long-term debt. Perhaps the elasticity of dealer balance sheet before the crisis served to supply the leverage (via repo) to target higher returns in a low yield world (as an alternative to higher long-term issuance).

One long-term development, then, that could come from restrained balance sheets would be increased long-term issuance, increased long-term all-in yields for credit products, and a migration of savings toward longer-term securities. There are some signs of this already happening. And regulation may encourage this too. For example, new rules are forcing many banks to term out their debt issuance, increasing the supply of long-term credit.

In the meantime, however, we think government issuance is more likely to satisfy the demand of cash pools, not a large increase in long-term credit that drives up the yields and attractiveness of longer-term securities (traditionally “bonds”) relative to short-term securities (traditionally “money”).

For the Fed to get back to targeting a level for the fed funds rate, it will have to come to terms with the institutional realities of the modern financial ecosystem. Specifically:

- Wholesale money demand is a structural feature of the system, not an aberration that can be eliminated by forcing banks to term out their funding.
- Institutional cash pools, not households, are the dominant sources of funding in the US money markets.
- The shadow banking system exists parallel to the banking system.
- The economy’s critical funding channel is hybrid: deposits yes, but also secured repos issued either by broker-dealers or – if not – by the Fed through RRPs.

To paraphrase Herodotus “circumstances rule central banks; central banks do not rule circumstances.” The Fed must seek the correct monetary policy stance, including the right size and composition of its balance sheet, in world of great change and complexity.

The reduced elasticity of bank and broker-dealer balance sheets amid the still-growing money demand of institutional cash pools represent the defining challenge to the system.

Interest rates matter, and quantities do too.

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Disclosure Appendix

Analyst Certification

The analysts identified in this report each certify, with respect to the companies or securities that the individual analyzes, that (1) the views expressed in this report accurately reflect his or her personal views about all of the subject companies and securities and (2) no part of his or her compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed in this report.

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