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Japanese Banks, LIBOR and the FX Swap Lines

July saw the maturity of $100 billion in formerly six-month unsecured funding provided by prime money funds to foreign banks in New York. With then only three months left to go until the October 17 prime money fund reform deadline, most of this funding was refinanced into three-month unsecured funding. The rest went to boost prime money funds' growing liquidity buffers.

The rapidly shortening tenor of foreign banks' funding profile from six months to three months, together with shrinking demand for three-month funding, has been driving three-month Libor fixings higher since the middle of July.

August and September will see the maturity of another $200 billion in formerly six month unsecured bank funding provided by prime funds to foreign banks. But unlike in July, we now have less than three months to go until October 17th and so most of this funding will be refied on terms shorter than three months; the rest of the maturities will be used to boost liquidity buffers further still.

Term unsecured funding lost to money fund reform can be replaced by another form of unsecured funding, but not secured funding. This is because global regulatory guidance appears to be that banks are not supposed to let their liquidity coverage ratios deteriorate as money fund reform runs its course. Replacing unsecured funding with secured (repo) funding would encumber HQLA portfolios and so worsen LCRs, which makes secured funding a no go.

Term unsecured funding can be shortened to a month at most for similar reasons: an increase in funding less than a month would worsen one's LCR

With secured funding off limits, and the size and tenor of term money markets shrinking and shortening by the day, banks have three options to choose from: (1) pay up for dollar funding from money funds in New York and secure a bigger share of a shrinking pie; (2) raise dollar funding offshore via FX swaps; or (3) leave money markets altogether and issue term unsecured debt instead.

Japanese banks are the key drivers of current dynamics. In recent weeks, they have been issuing three-month paper to money funds at 90 bps. While much higher than three-month Libor at 75 bps at present, 90 bps are way cheaper than the cost of raising three-month dollar funding via FX swaps at 120 bps.

Given their sheer size – they are the largest issuers of unsecured paper – Japanese banks appear to be the marginal price setters of the term premium in unsecured money markets at present. There is plenty of room for them to pay up for funding from money funds before they become indifferent between raising dollars in New York City via money funds or in Tokyo via FX swaps. With the term premium being credit blind and country neutral, Japanese banks' frantic quest for term funding is driving the term premium wider for everyone else and will push three-month Libor to 90 bps by September, in our view.

FX swap lines are not meant to make life cheap, but to make sure life goes on as we know it. Even though it is already cheaper to do so, Japanese banks won't tap the Fed's dollar swap lines until it becomes impossible to tap money funds for funding beyond one month. At that point, the swap lines will save the day and make sure life goes on without banks worsening their LCR.

Having a view on how much steeper the U.S. dollar Libor curve will get from here and what other funding rates will rise as we approach the October 17 prime money fund reform deadline requires familiarity with the structural balance sheet features of every single foreign bank branch in New York City – what their assets and liabilities are, their funding relationship with headquarters, and to which U.S. repo market segment they have access.

This issue of Global Money Notes provides a one-by-one review of the balance sheet of every major foreign bank branch in New York that is a habitual issuer of unsecured paper to prime money funds. Our analysis relies on the call reports of foreign bank branches. While these reports are publicly available, they are not collected by data vendors in an easily digestible form at present and – perhaps as a result of that – are not used by any branch of government for purposes of financial stability analysis. Conducting the analysis that follows would not have been possible without the help of Sarah Quirk Smith on our Global Strategy and Economics team, who wrote a program to scrape together every line item from individual call reports. The underlying data are the same that goes into the Fed's 4.30 statistical release (see here), but having the numbers on a branch by branch basis allows us to look behind the aggregate and peel the onion to uncover layers of "stress."

Our analysis has seven parts to it.

Part one explains the three phases of prime money fund reform and the dynamics that are currently driving 3-month U.S. dollar Libor higher by the day. Part two explains the options of bank funding desks to replace funding from prime money funds, and why there is room for 3-month Libor to catch up with the all-in cost of dollar funding raised via FX swaps. Parts three to six discuss the structural balance sheet features of the New York branches of four groups of foreign banks – those that do mostly arbitrage, those from Japan, those from the eurozone and those from Canada – and what these features mean for the future of the o/n eurodollar market that underpins the Fed's overnight bank funding rate (OBFR) and the JPY, EUR and CAD cross-currency bases (we provide a balance sheet snapshot of Swiss, British, Singaporean and Chinese banks without commentary in the Appendix). Finally, part seven concludes by explaining when it is reasonable to expect foreign banks to tap the Fed's dollar swap lines and why October will feel like a month-long quarter-end.

Part 1 – The Three Phases of Money Fund Reform

It is helpful to think about the implementation of prime money fund reform in three phases.

Phase one, now complete, was about the pre-announced conversion of prime funds (which fund foreign banks' New York branches, broadly speaking) to government funds (which fund the U.S. government and primary dealers, broadly speaking). These conversions affected both retail and institutional-class money funds. $350 billion worth of such conversions have been announced since last March, all of which are now complete. At the system level, adjusting for these conversions was relatively simple. The asset managers themselves were in control of the amount and timing of conversions, and bank funding desks could easily figure out how much funding they would lose by keeping track of the list of prime funds about to convert. Banks responded to the loss of funding from conversions by tapping either the FX swap or term debt markets, and the newly formed government funds invested the inflows from conversion mostly in agency discount notes and bills (inflows to the latter were helped by extra bill issuance and foreign central banks trading out of bills and funneling cash into FRBNY's foreign repo pool instead, see here).

Phase two, currently underway, involves only institutional-class funds (but not retail funds) and is about the build-up of liquidity buffers in anticipation of outflows come October 17th. Unlike the pre-announced conversions of phase one, these types of flows have a more "sinister" nature. In phase one, asset managers were in total control – they decided how much in AuM will convert and when, and these conversions were telegraphed well in advance. While in phase one, the conversions were forced onto investors, in phase two, asset managers are the ones being forced: investors will either stay in prime funds or they

will transition to government funds. And unlike conversions, no one has a clear sense as to how much money is going to flow from prime to government funds. Under intense regulatory spotlight, prime funds are preparing for the worst and hoping for the best. In an era of limited secondary market liquidity, the only true liquidity is maturity, and prime funds are building up massive liquidity buffers. While the SEC requires prime funds to keep at least 30% of their AuM in 1-week liquid assets, their current liquidity buffer is already 50% of AuM and the industry target for late September is near 70% (see Figure 1). In essence, it is the ramping up of these liquidity buffers that is behind the recent steepening of the U.S. dollar Libor curve. Between July 1st and October 17th, about $300 billion in 6-month CD and CP issued by foreign banks to institutional-class prime funds is set to mature, and since the week beginning July 18th – which marked the start of "T - 3 months" to the October 17th deadline – it is increasingly difficult to roll these maturities into 3-month paper (see Figure 2). Importantly, the money is still with prime funds, but the growing size of liquidity buffers makes it feel as if term money has already left the room. To be sure, 3-month money is still available, but less so by the day and, as August progresses, term funding will soon be available for only two months at most. Before long, even 2-month funding will fade away. At that point, the dollar swap lines will save the day.

Phase three, which has yet to occur, will be about the flow of funds from prime to government funds. The outflows from prime to government funds are actually not a big deal. Investors transferring money over to government funds will be a smooth affair, as prime funds will be flush with liquidity and in a position to manage as much as $550 billion in outflows (70% of their AuM as of June 30th) with ease. As funds get wired out of prime and into government funds, the latter will place the proceeds either into Treasury bills, agency discount notes, repos with primary dealers or, as a last resort, RRPs with the Fed. Bottom line, liquidity will be there for outflows, and inflows will find assets to the last penny.

The big deal instead is the extent to which these outflows will limit foreign banks' ability to fund at tenors longer than one month, and prompt them to use the Fed's dollar swap lines until the dust settles and there is clarity around how much money will stick with prime money funds and come back to term unsecured money markets after October 17th.

Part 2 – An Airbag Loaded with Bricks

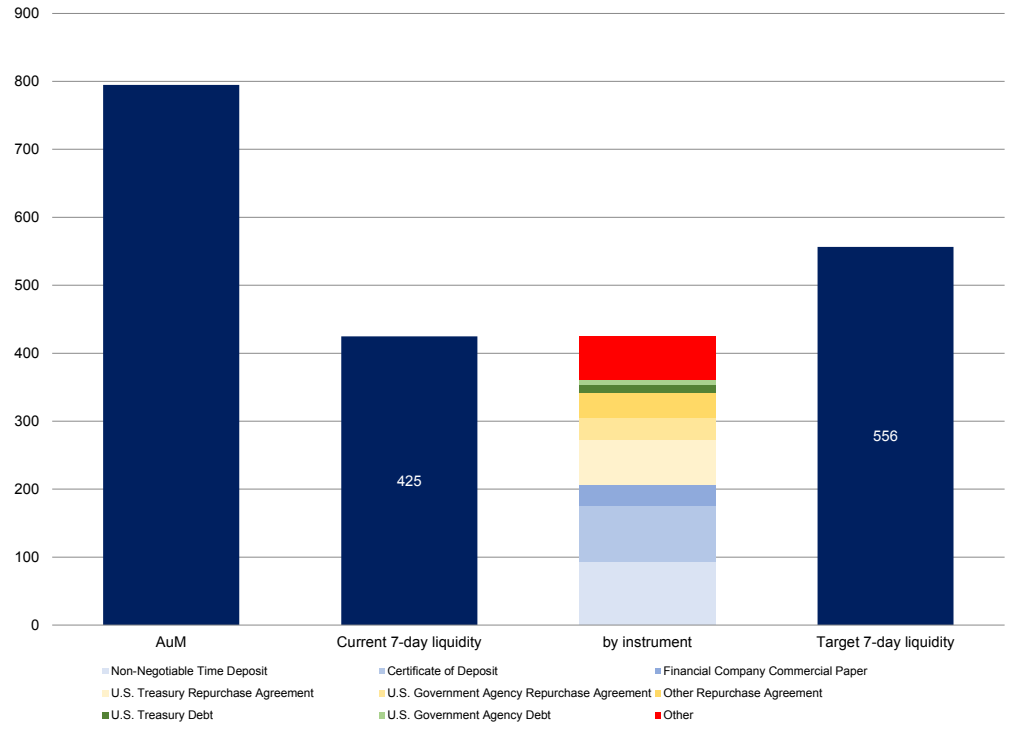
That prime money funds will be well placed from a liquidity perspective for outflows means that banks will end up short liquidity one way or another. While every single bank that will be impacted by prime money fund reform is subject to Basel III and compliant with the liquidity coverage ratio (meaning they have the liquidity to pay off maturities as prime funds pull away), regulatory guidance appears to be that banks should maintain their liquidity ratios (LCR) while prime money fund reform runs its course. In English, this means that foreign banks are not meant to lose HQLA or let their LCR deteriorate between now and October 17th. In essence, foreign banks' HQLA buffers are like airbags filled with bricks – they look soft and puffy on paper, but feel hard if you ram your head into them.

This in turn means that foreign bank branches will have no option but to replace the unsecured funding they get from prime funds with another source of unsecured funding. But not secured funding, as secured funding encumbers HQLA and so worsens banks' liquidity coverage ratios (for more on Basel III's funding rules of HQLA portfolios, see here).

The universe of foreign bank branches that are habitual issuers of unsecured paper to prime money funds is huge – as of March 31st, 2016, their aggregate balance sheet size was more than $1.8 trillion (see Figure 3). Our number is different from the Fed's aggregate of $2.1 trillion as we do not aggregate the balance sheets of all branches, only those that are habitual issuers of unsecured paper to prime funds. While these data may seem a bit lagged and stale in the context of the day-to-day monitoring of the yields where banks issue CP and CD presently, and the week-to-week monitoring of money fund flows, it is the only measure we have to gain insight into the structural balance sheet positions with which foreign bank branches are entering the brewing storm of prime money fund reform.

Figure 1: Battening Down the Hatches

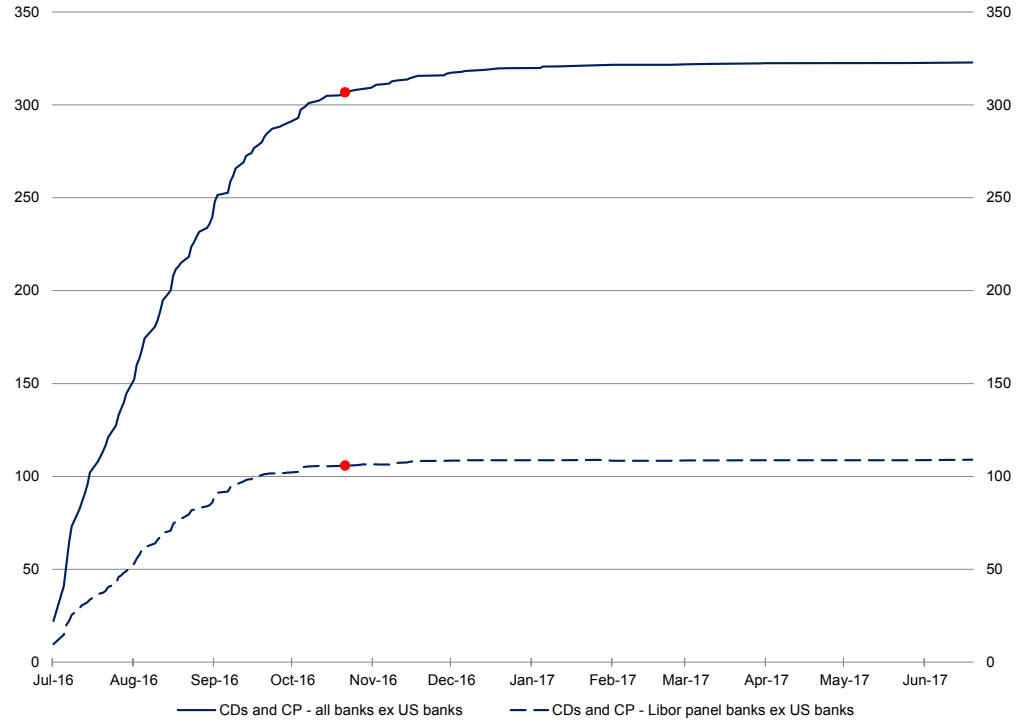
Institutional-class prime funds, $ billion



Source: Crane Data, Credit Suisse

Figure 2: The Last Hurrah

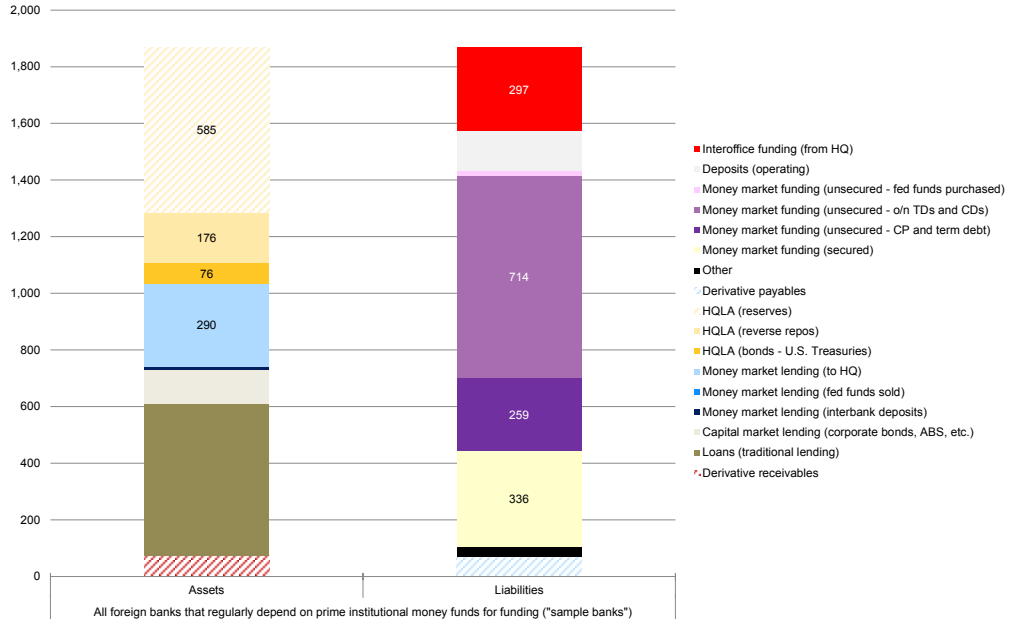
Holdings of institutional-class prime funds, $ billion



Source: Crane Data, Credit Suisse

Figure 3: Foreign Bank Branches in New York

as of March 31st, 2016, $ billion



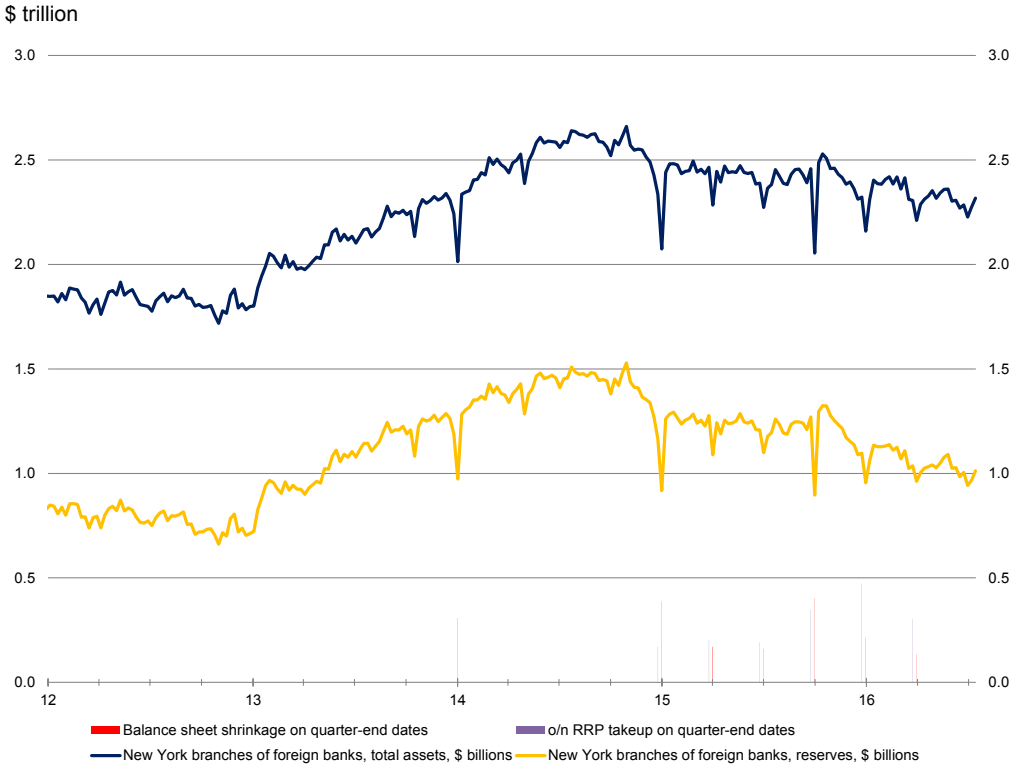
Source: FFIEC 002, Credit Suisse

The question we are trying to answer is what will happen to the balance sheet of these branches when a sizeable chunk of the $714 billion in unsecured funding goes away due to prime fund reform (again, see Figure 3). Unsecured funding funds one of four activities.

First, unsecured funding can fund IOER arbitrage trades. Similar to the way foreign banks borrow from the FHLBs in the o/n fed funds market in order to fund reserves at the Fed earning IOER, foreign banks borrow from prime funds in the o/n Caribbean eurodollar market to fund reserves at the Fed earning IOER (in essence, the cost of these arbitrage trades is what is captured by the Fed's new overnight bank funding rate). The volume of such o/n eurodollar transactions is about $250 billion on any given business day, but the quarter-end balance sheet snapshot on display in Figure 3 only includes $100 billion of such trades. This is because on quarter-ends, foreign banks trim arbitrage by $150 billion (see Figure 4). As such, foreign banks could lose $100 billion in funding from the $714 billion pod highlighted in Figure 3 without any major consequence for their balance sheet or the market. As money leaves prime funds for government funds, prime funds won't roll overnight loans to banks, banks give up the reserves that were funded overnight and the Fed swaps these reserves into o/n RRPs for government money funds – unless of course these flows are absorbed by the Treasury boosting its cash balances or FRBNY luring more foreign central banks into the foreign repo pool, boosting the effective bill supply.

Second, unsecured funding can also fund HQLA portfolios. Unlike arbitrage trades, where banks decide to put on trades that inflate their balance sheet, the amount of HQLA a bank needs to hold to be compliant with the liquidity coverage ratio is determined by the liquidity needs of a bank's customers. These liquidity needs determine a bank's liability profile which in turn determines a bank's HQLA needs. By definition, assembling an HQLA portfolio that complies with a bank's customer-driven liability profile can only be funded on tenors longer than 30 days. This is because funding shorter than 30 days would increase a bank's HQLA needs further. In fact, any trade that involves funding reserves at the Fed (or other forms of HQLA) with funds shorter than 30 days is surely motivated by arbitrage (see previous example) and not genuine HQLA needs. But arbitrage is possible only if one has "excess" balance sheet, which is a luxury available to only a handful of foreign banks. Foreign bank branches' genuine HQLA needs – and the associated volume of funding – is

Figure 4: Arbitrage On, Arbitrage Off



Source: Federal Reserve, Credit Suisse

about $600 billion. About one half of this comes from prime funds (see Figure 2 above), which in turn means that foreign banks would have to replace that much in term unsecured funding in order to maintain their LCR as prime fund reform washes through the system.

Third, unsecured funding can also fund loan books in New York. Here, the options are fairly limited. Loans are illiquid and hence cannot be sold and so a bank either pays up for funding and sees its net interest margin erode on fixed rate loans (painful), or it pays up for funding without a sweat and passes it on to customers via floating rate loans (painless).

Fourth, unsecured funding can also fund dollar loans to headquarters, which typically represent the dollar funding leg of dollars loaned through FX swaps. Loans to headquarters can also fund customer loans that finance the global flow of commodities and tradable goods. As dollar funding from prime money funds gradually fades away, the options are either to (1) reduce the volume of dollars loaned through FX swaps or shrink one's commodity and trade finance books (in essence reducing one's balance sheet) or (2) keep on bidding for unsecured funding from prime money funds at higher and higher rates and pass higher rates on to those on the other side of FX swaps and to customers. Either way, it is clear that the impact of prime fund reform will continue to be felt in offshore dollar funding markets and remain visible in the JPY and EUR cross-currency bases.

It is important to appreciate that, until now, all four of the above activities (assets) have been funded in the "no man's land" that's between the 30-day point of the LCR and the 1-year point of the NSFR. The most active funding points in this no man's land were three and six months and the single largest buyer base of unsecured paper of those tenors were prime funds. And it is precisely this part of the market that prime money fund reform is about to obliterate by decimating the buyer base of, and hence demand for, these tenors.

Structurally, foreign banks have two choices to make between now and October 17th – the first one involves "digging your heels in" and the second one involves term debt markets.

First, keep hanging around in "no man's land" and issue unsecured paper at ever shorter tenors (but not shorter than one month) and ever higher rates. The view here is that sharply higher funding costs are a temporary phenomenon, and that it is better to pay a steep price for short-term funding for a few months than to lock in expensive long-term term funding for several years. This choice is based on an optimistic view of the post-reform prospects of prime funds: that much less money will leave than what prime funds are currently provisioned for and that it is worth paying a steep price for a few months because after October 17, at least some of the money that is currently on the sidelines will be back in "no man's land" for term trades. But, until then, the cost of term dollar funding raised onshore from prime funds will be high – driving three-month Libor higher and higher – and will approach the cost of term dollar funding raised offshore via FX swaps.

Second, turn the page and leave "no man's land" behind and issue term debt. Term debt issuance will have to be ramped up to get compliant with the NSFR and TLAC anyway. This stance is based on a pessimistic view of the post-reform prospects of prime funds and, unlike the previous choice, won't have much of an impact on U.S. dollar Libor fixings.

Judging from the recent issuance record of foreign banks, Canadian banks appear to be going down the path of term debt, and Japanese and French banks are showing a high tolerance for pain, by borrowing for three months at 90 bps – versus Libor at 75 bps. While much higher than the current three-month Libor fixing, these levels are still cheaper than the all-in costs of using either JPY or EUR to raise dollar funding via FX swaps at 120 bps.

Bottom line, what we need to do from here is to separate the arbitrageurs from the "rest," and figure out what the rest's structural balance sheet features suggest about their ability to shrink balance sheet, reprice certain assets or tap alternative sources of funding and what these mean for various cross-currency bases, the Libor curve and various repo rates.

With that, let the great onion peeling begin…

Part 3 – Les Arbitrageurs

You can spot an arbitrageur by the share of one's balance sheet devoted to high-volume, low margin activities, like borrowing fed funds and eurodollars overnight to fund reserves at the Fed earning IOER. The bulk of such arbitrage trades are generated by a small coterie of Australian, Canadian, German, Dutch, Finnish, Swedish and Norwegian banks.

Their branches run a $250 billion balance sheet in the aggregate (for a country by country breakdown of this aggregate, see Figures 5 - 8). Reserves clearly dominate the asset side (taking up anywhere between 100% and 50% of arbitrageurs' balance sheets) and unsecured funding – mostly o/n deposits – from prime funds dominates the liability side. As noted above, the quarter-end snapshot of March 31st showing $103 billion in o/n deposits outstanding is an understatement, as on days other than quarter-end, arbitrage volumes are greater by as much as $150 billion. Ditto fed funds (FF) borrowed – the quarter-end snapshots provided by call reports suggest that arbitrageurs borrow only about $10 billion, when in fact we know that daily average volumes in the FF market are around $65 billion.

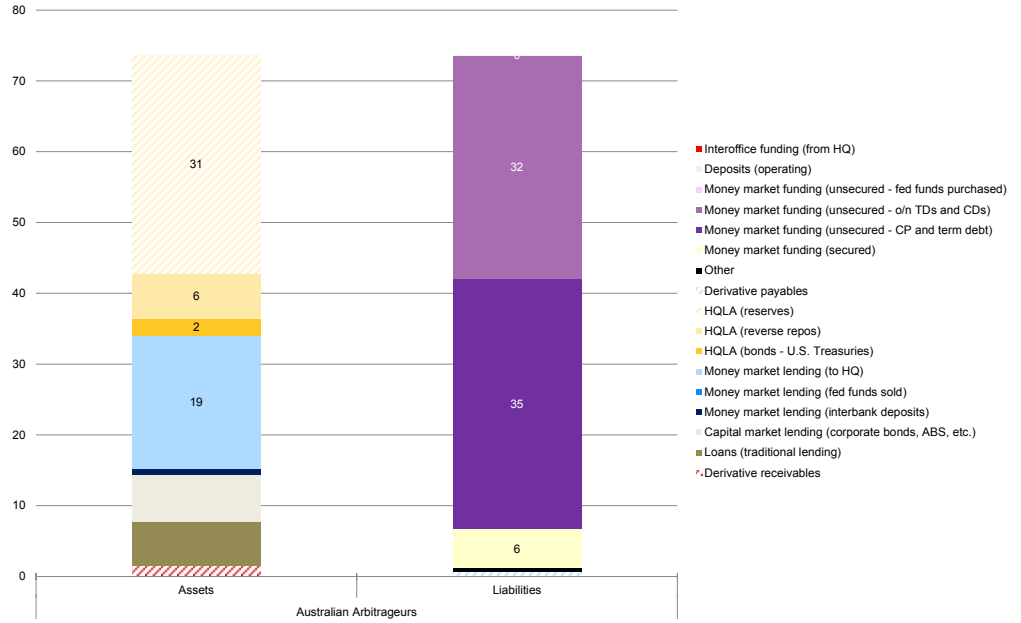
The implications of prime fund reform are the least painful for these banks. This is because their balance sheet is mostly about o/n arbitrage trades, which can be turned off and on with ease. Furthermore, they have no significant HQLA needs to fund; they have no loan books to fund; and they have no U.S. dollar needs at headquarters to worry about.

For these banks, money fund reform will be as simple as shrinking their balance sheet.

On the flipside, the reduced availability of o/n eurodollar funds for arbitrage will also mean much reduced volumes behind the Fed's new overnight bank funding rate (OBFR). Prime fund conversions to date have already reduced these volumes by close to $80 billion, and volumes could shrink by another $100 billion as prime outflows accelerate (see Figure 9). In other words, the depth of the o/n eurodollar market relative to that of the fed funds

Figure 5: Australian Arbitrageurs

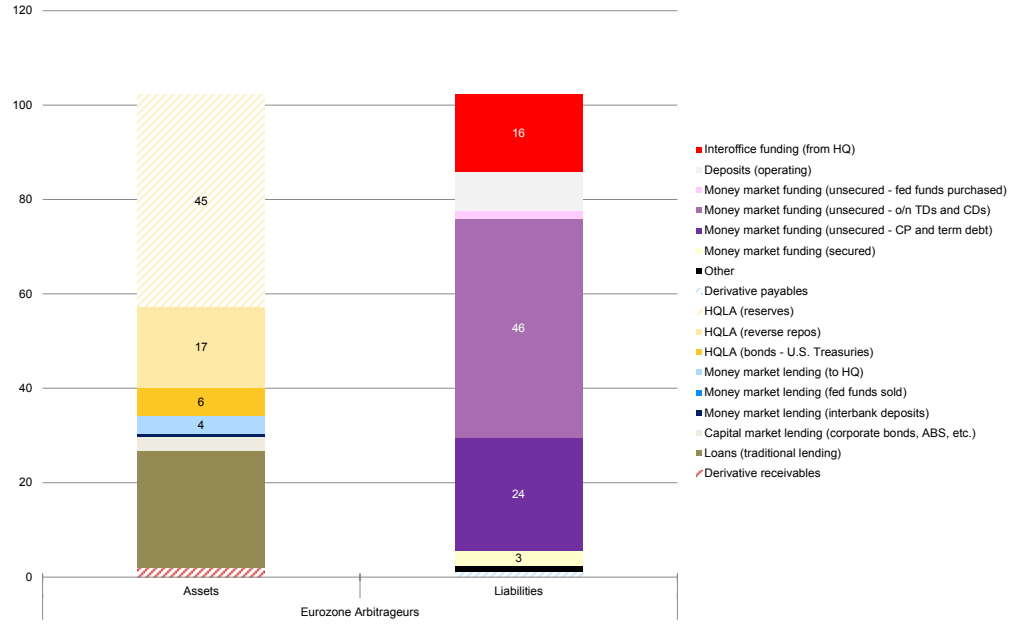
as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

Figure 6: Eurozone Arbitrageurs

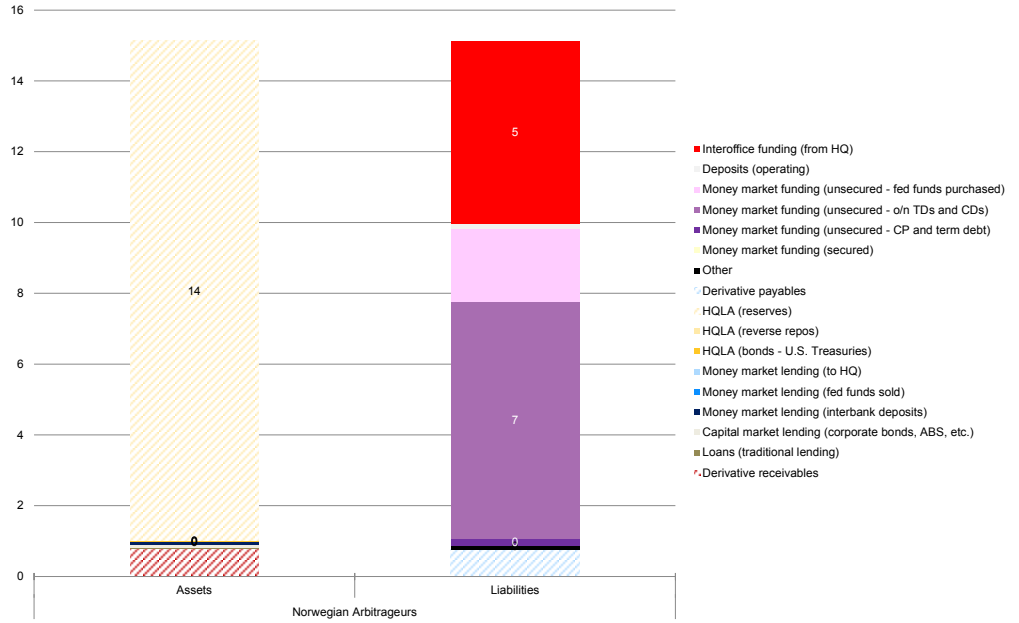
as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

Figure 7: Norwegian Arbitrageurs

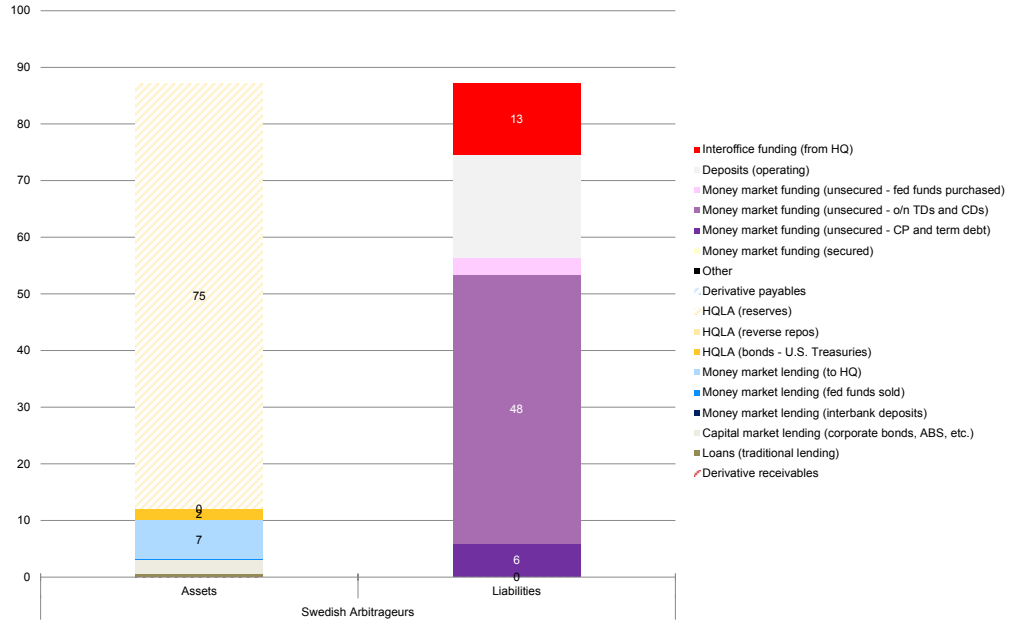
as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

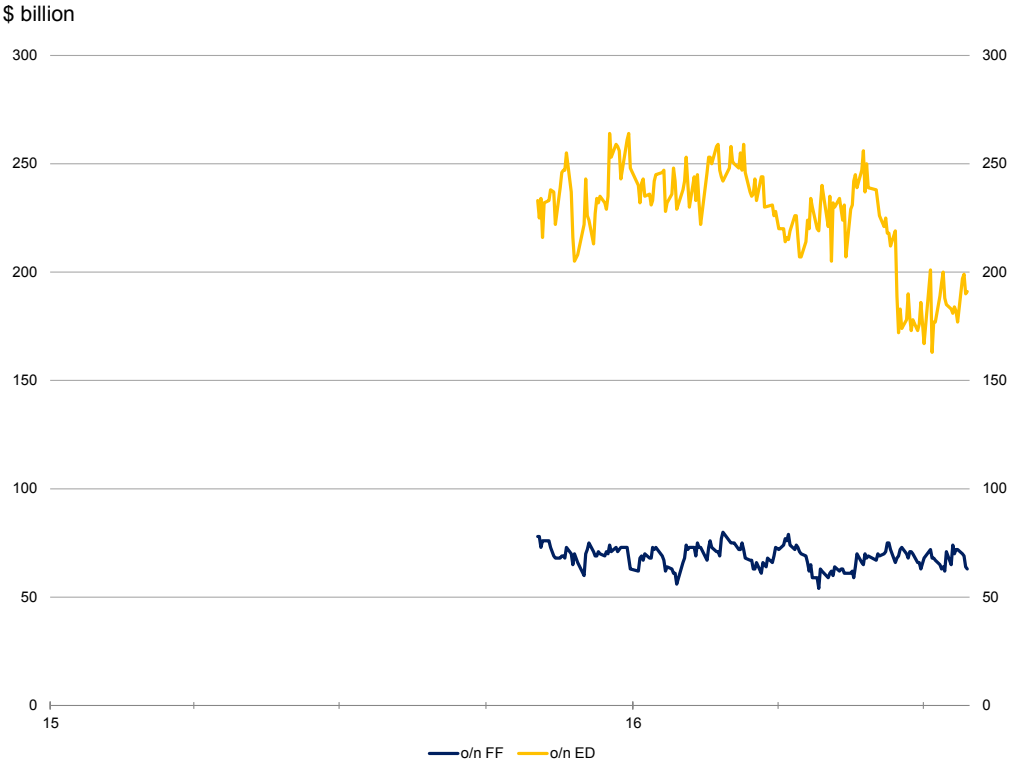
Figure 8: Swedish Arbitrageurs

as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

Figure 9: The Incredible Shrinking o/n Eurodollar Market



Source: FFIEC 002, Credit Suisse

market is set to shrink and with it the allure of the OBFR as an alternative reference rate (see here for why we think the o/n GCF repo rate is a superior alternative to the OBFR).

Part 4 – Japanese Banks

Japanese banks in New York have close to a $600 billion balance sheet in the aggregate (see Figure 10). On the asset side, there are no traces of arbitrage. The dominant form of assets are customer loans in New York (around $300 billion), dollars lent to headquarters in Tokyo (around $150 billion), and HQLA (around $130 billion). On the liability side, unsecured funding accounts for 2/3rd of funds raised. Secured funding accounts for the rest.

But this aggregate picture hides two distinct funding strategies.

Appreciating each is essential in anticipating how Japanese bank branches will influence how money markets will trade between now and the October 17th reform deadline.

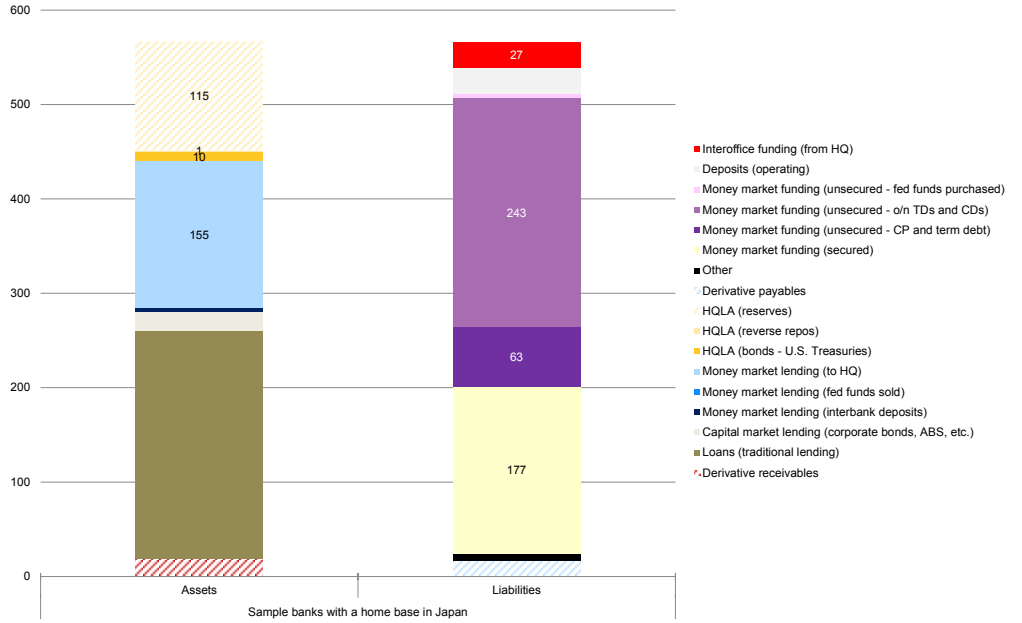
Figure 11 shows the balance sheet of the Norinchukin Bank's New York branch, which is unique by any standard. At $120 billion, it is the second largest foreign bank branch in New York (after Deutsche Bank) and it relies almost exclusively on secured funding in the GCF repo market. Norinchukin, like many other Japanese investors that try to avoid depressed rates in Japan, invests in U.S. dollar assets. But unlike other Japanese investors, who fund their U.S. dollar assets in the FX swap market, Norinchukin funds its U.S. dollar assets (mostly U.S. Treasuries) through its New York branch in the GCF repo market.

How come Norinchukin can pledge so much in Treasuries without affecting its LCR? Well, as an agricultural cooperative, Norinchukin is not subject to Basel III and so it can utilize its U.S. Treasury portfolio to a maximum extent to raise dollar funding cheaply in New York.

Norinchukin also taps the unsecured market to the tune of about $26 billion and if this source of unsecured funding slips away due to prime fund reform, Norinchukin will have that much more funding to do in the repo market, pulling o/n GCF and tri-party repo rates

Figure 10: Japanese Banks

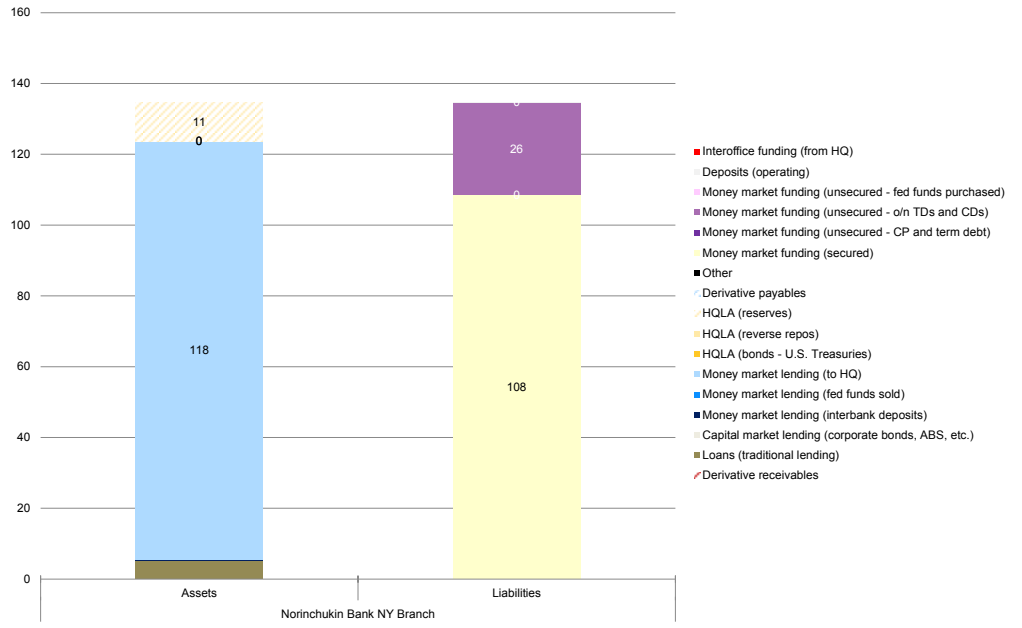
as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

Figure 11: Norinchukin Bank New York Branch

as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

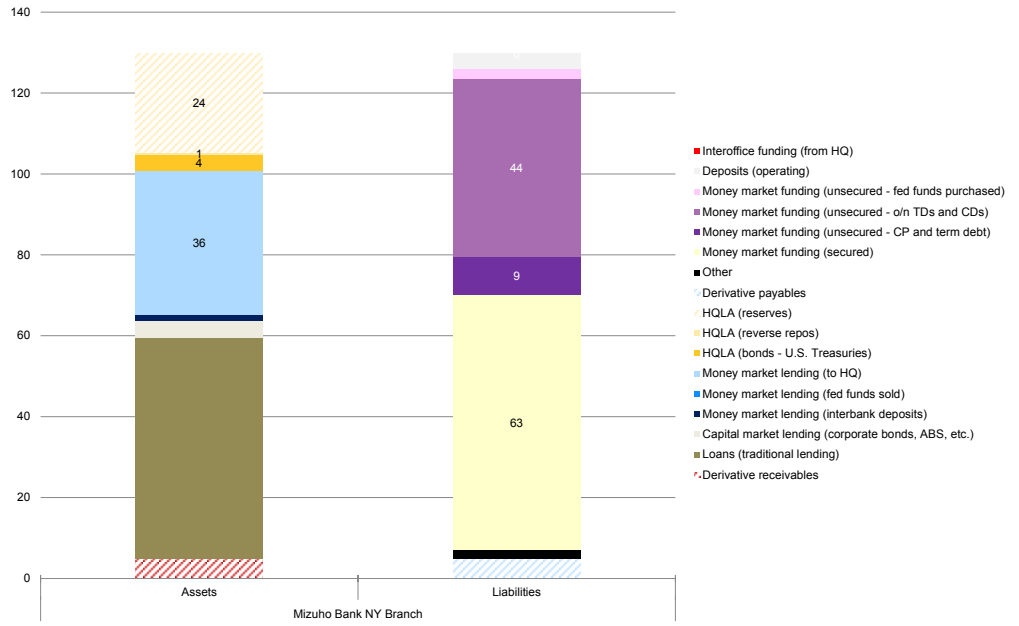
higher and wider. This is because the intermediation of flows away from unsecured to secured markets will flow through primary dealers' balance sheets, and primary dealers –

who since July 1st are now all subject to daily average balance sheet reporting – will charge for a greater use of their much scarcer balance sheets through wider repo spreads.

Figure 12 shows the balance sheet of Mizuho Bank's New York branch. This branch has more of a real economy "feel" to it than Norinchukin's: about half of its $120 billion in

Figure 12: Mizuho Bank New York Branch

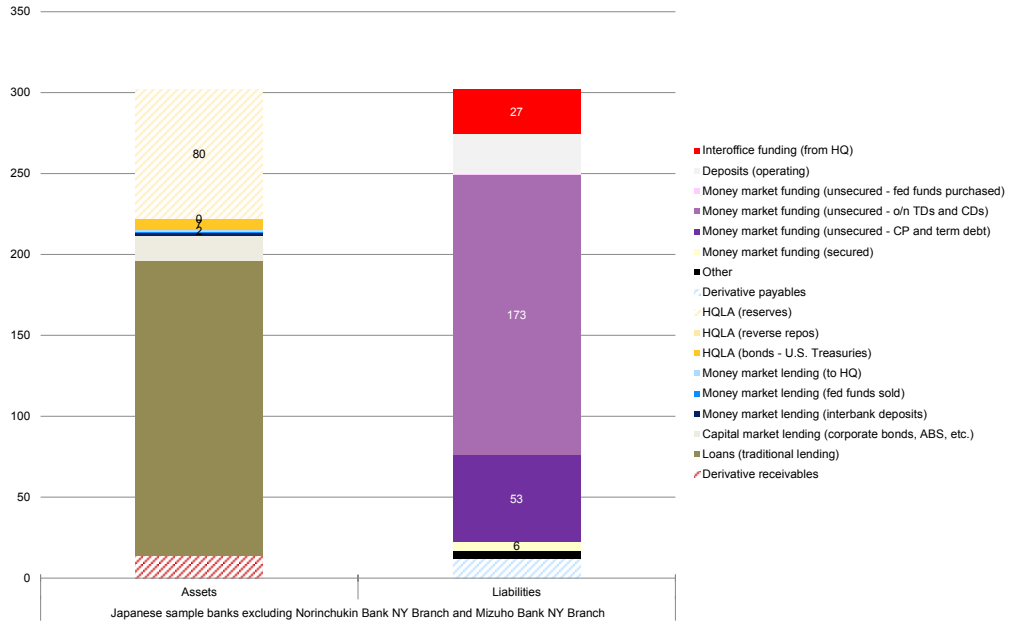
as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

Figure 13: Other Japanese Banks

as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

assets are customer loans, about $40 billion are dollar loans to headquarters in Tokyo, and the rest (about $30 billion) are HQLA. On the liability side, half of the funding comes

from the unsecured market and the other half from the secured (repo) markets. Similar to Norinchukin, Mizuho taps the GCF repo market as well and not the tri-party repo market (we know this because cross-referencing Mizuho's call report with Crane's data on money fund holdings, Mizuho's New York branch does not appear to be doing any repos with money funds; Mizuho's dealer subsidiary does, but we are not talking about dealers here).

If unsecured funding becomes less and less available and more and more expensive, Mizuho will likely respond by raising fewer dollars for Tokyo (a reduction of the supply of offshore dollars in the Tokyo money market) as it aims to prioritize funding for its illiquid loan book in New York. In turn, Tokyo will likely respond by trying to find an alternative source of dollar funding via FX swaps, which would push the cross-currency basis more negative still. Ultimately, the cost of onshore and offshore dollar funding would converge.

Figure 13 shows the universe of Japanese sample banks, excluding the New York branches of Norinchukin and Mizuho. The dominant names in this $300 billion lot are the New York branches of Sumitomo Mitsui Banking Corp. and the Bank of Tokyo Mitsubishi.

What we see is a picture that is drastically different from the prior two cases.

Illiquid loans dominate on the asset side and unsecured funding from prime money funds on the liability side. And, unlike the previous two banks, which ship dollars back to headquarters, these banks are already tapping headquarters for dollar funding. As unsecured funding from prime funds becomes less available and more expensive, they will have to pay higher rates to take down a large share of a shrinking CP and CD market (the path they have chosen to date), step up their term debt issuance (no sign to date), or tap the FX swap market through headquarters (no sign yet, as it is costlier than the first).

The sheer size of the New York branches of Sumitumo and the Bank of Tokyo-Mitsubishi is important to highlight in this regard as they are the single largest issuers of unsecured paper to prime money funds. In recent weeks, they have been issuing three-month paper at 90 bps, which while much higher than the comparable Libor fixing at 75 bps, is way cheaper than the all-in cost of raising three-month dollar funding via FX swaps at 125 bps.

In this sense, Sumitomo Mitsui and the Bank of Tokyo-Mitsubishi appear to be the marginal price setters of the term premium in unsecured money markets at present.

There is plenty of room for them to pay up for CDs and CP before they become indifferent between raising dollars onshore in New York (by issuing unsecured paper to prime funds) or offshore in Tokyo (by swapping yen for dollars via FX swaps). With the term premium being credit blind and country neutral, these two banks' quest for term funding is driving the term premium wider for every other issuer and pushing three-month Libor higher by the day – three-month Libor could hit 90 bps by the end of August, in our view.

Part 5 – Eurozone Banks

Eurozone banks in New York (excluding the Landesbanks) have close to a $500 billion balance sheet in the aggregate (see Figure 14) – a bit smaller than the Japanese banks.

The eurozone aggregate also masks various funding strategies – four in particular.

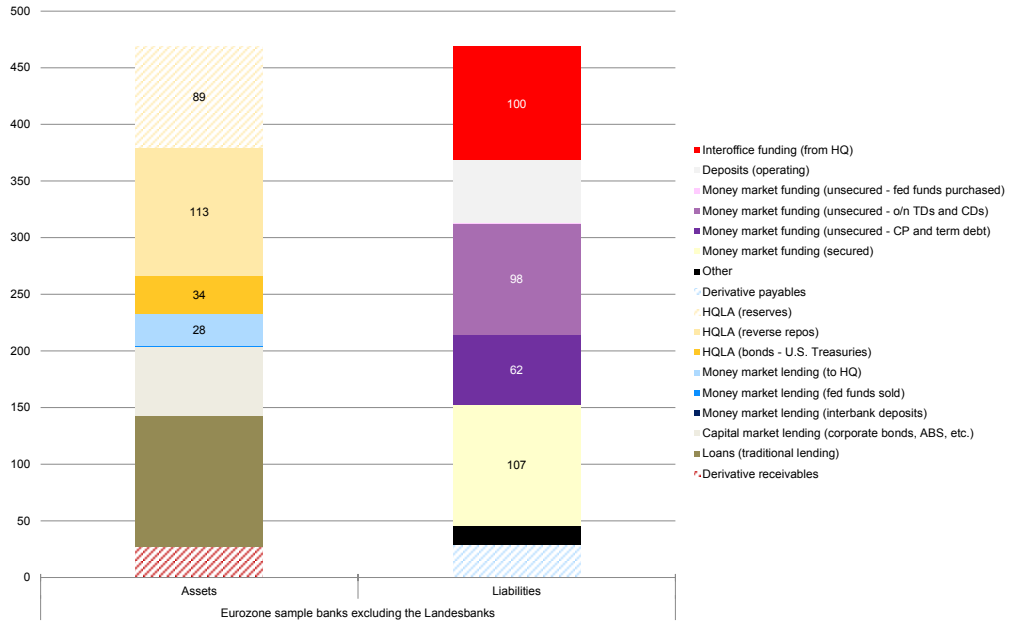
First, French "dealer banks" – the New York branches of Credit Agricole, Natixis and Societe Generale – harbor broker-dealer operations, which other foreign banks typically run out of a broker-dealer subsidiary, not a branch (see Figure 15). This is clear from their sizeable matched repo books (about $100 billion in the aggregate), which dominate their combined balance sheets. The rest of their balance sheet consists of credit ($70 billion) and HQLA ($50 billion) on the asset side, and unsecured funding on the liability side.

Like with Japanese banks, prime funds are the largest source of unsecured funding for French dealer banks and, if that funding source goes, the FX swap market is the backup alternative (French dealers banks already have a net funding need from headquarters).

Second, unlike the braches of its dealer compatriots, the balance sheet of BNP Paribas' New York branch has a distinct real economy feel to it (see Figure 16). Just over half of its balance sheet is made up of credit (loans, corporate bonds, ABS, etc.) on the asset side, with the rest in HQLA. On the liability side, we can see only unsecured sources of funding, most of which – like in all prior examples – come from prime money funds. At present,

Figure 14: Eurozone Banks

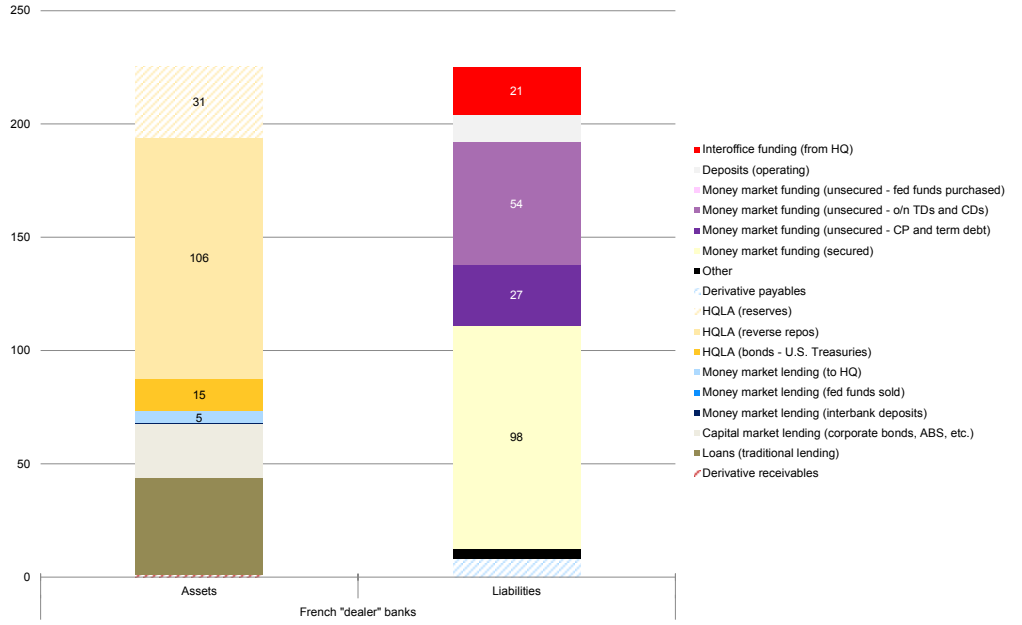
as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

Figure 15: French "Dealer" Banks

as of March 31st, 2016, $ billion



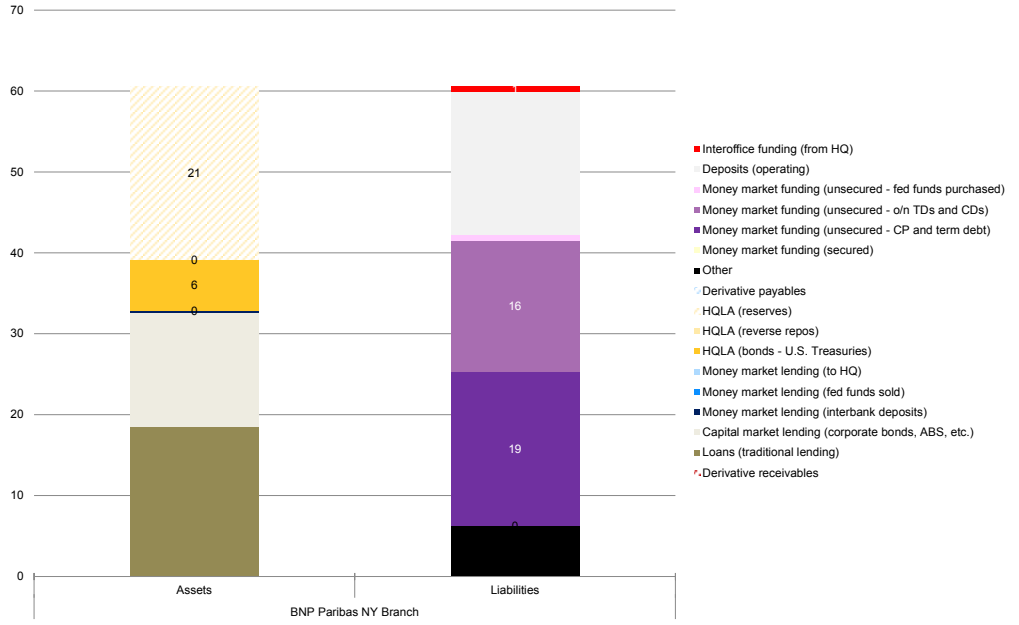
Source: FFIEC 002, Credit Suisse

BNP does not appear to be tapping headquarters for funding, but were that to change, it could join the dealer banks in crowding into the FX swap market and bid for dollar funding.

Third, Deutsche Bank's New York branch, like BNP Paribas', also has a real economy feel to it, with close to one half of its balance sheet funding loans and other forms of credit, and the rest of its assets is HQLA. However, unlike BNP, Deutsche Bank sources the bulk of its funding from Frankfurt and barely relies on prime funds anymore (see Figure 17).

Figure 16: BNP Paribas New York Branch

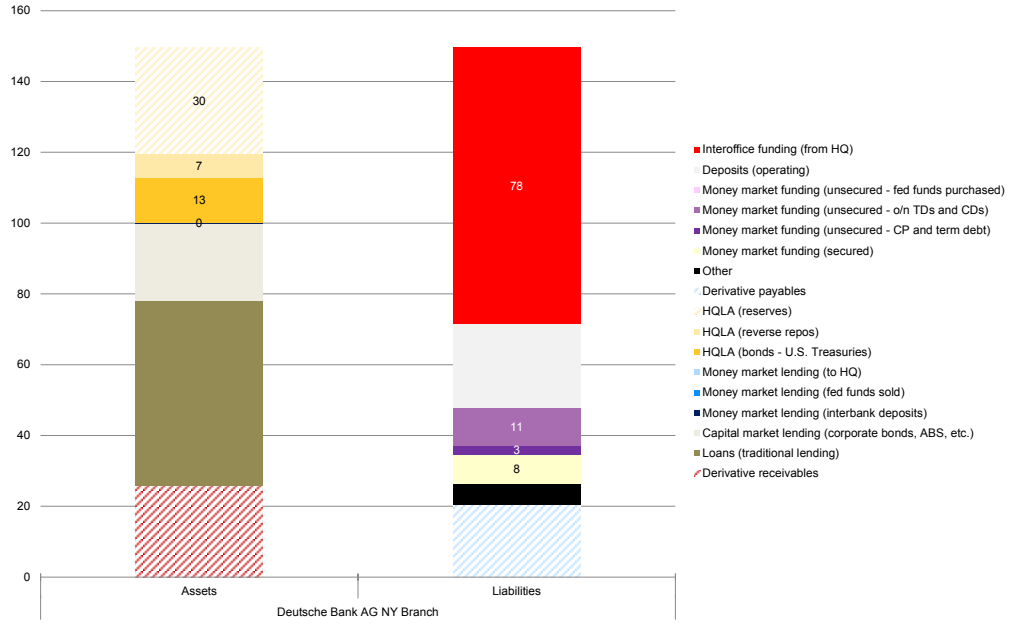
as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

Figure 17: Deutsche Bank New York Branch

as of March 31st, 2016, $ billion

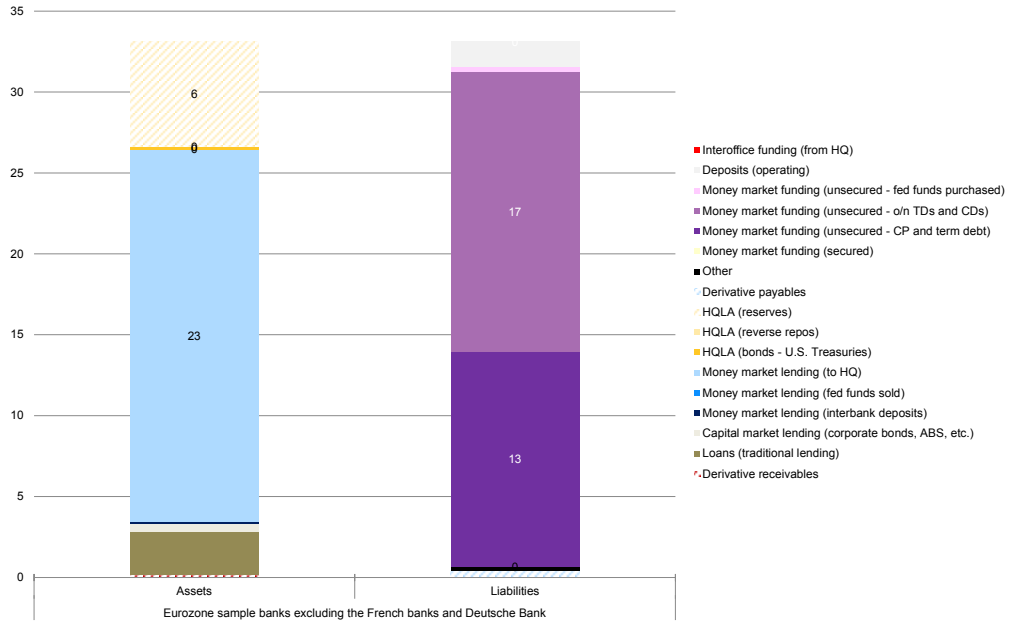


Source: FFIEC 002, Credit Suisse

The balance sheet of Deutsche Bank's New York branch provides a good example of what the balance sheets of the New York branches of the Bank of Tokyo-Mitsubishi, Sumitomo, Credit Agricole, Natixis, Societe Generale and BNP Paribas may look like once funding from prime funds goes away or becomes as expensive as the all-in costs of offshore dollar funding via FX swaps. They will all be calling headquarters for funding and in turn headquarters will be tapping the FX swap market for dollars – potentially to the tune of $100 billion each involving the swap of euros and yen for U.S. dollars. In both cases, the impact of such flows would be quite considerable for the relevant cross currency bases. In fact, according to the Bank of Japan's latest Financial System Report (see here), the current size of the JPYUSD swap market is around $300 billion. One can only imagine the "wonders" that an extra $100 billion in bids for U.S. dollars could do to the JPY basis.

Figure 18: Other Eurozone Banks

as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

Fourth, the remainder of eurozone banks – KBC, DZ Bank and Fortis – are unique in that all their New York branches do is borrow dollars from prime funds and send dollars back to headquarters where they fund legacy dollar assets that are hard to fund in repo markets (see Figure 18). If these branches encounter problems rolling their funding with prime funds, their role would shrink and headquarters would take over the funding of legacy assets by tapping the FX swap market – exacerbating the dynamics described above.

Part 6 – Canadian Banks

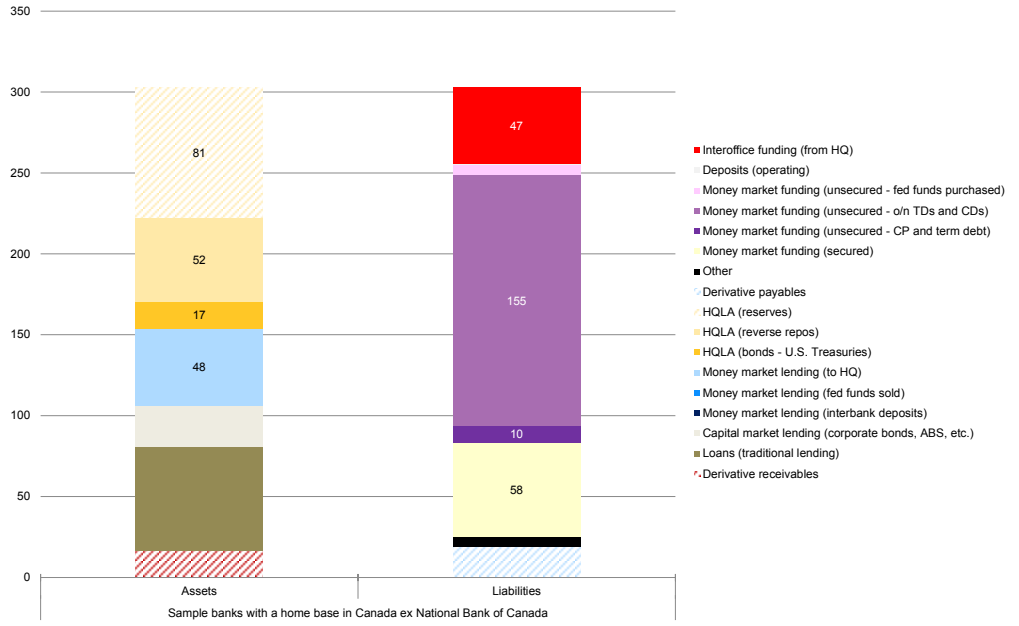
Canadian sample banks have a $300 billion dollar balance sheet in the aggregate. On the liability side, unsecured funding dominates at $155 billion (see Figure 19). But from this aggregate, we need to exclude two names which distort the picture. These names are the New York branch of the Bank of Nova Scotia and the Chicago branch of Bank of Montreal.

Figure 20 shows that the Bank of Nova Scotia's reliance on unsecured funding from prime money funds is miniscule and so its balance sheet should not be included in an analysis of Canadian banks' exposure to prime fund reforms. Furthermore, the Bank of Nova Scotia is running a primary dealer operation out of its New York branch – this can be seen from its large and comparable size of its repo and reverse repo positions – and so it is more akin to French "dealer banks" than the typical New York branch of a foreign bank.

Figure 21 shows that BMO's Chicago branch is also in the matched-book repo business, but unlike the Bank of Nova Scotia, it also raises over $40 billion in unsecured funding from money funds. One interesting feature of its balance sheet is that about $10 billion of the $40 billion in unsecured dollar funding raised is "northbound" – it flows back to headquarters in Montreal, where it is presumably funding Canadian dollar (CAD) assets.

Figure 19: Canadian Banks

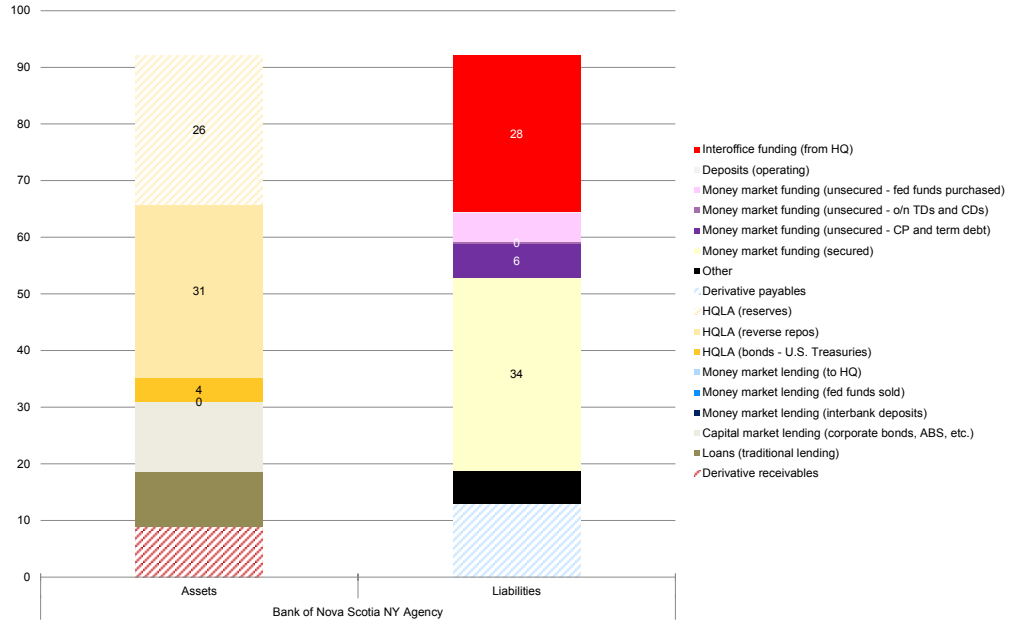
as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

Figure 20: Bank of Nova Scotia New York Branch

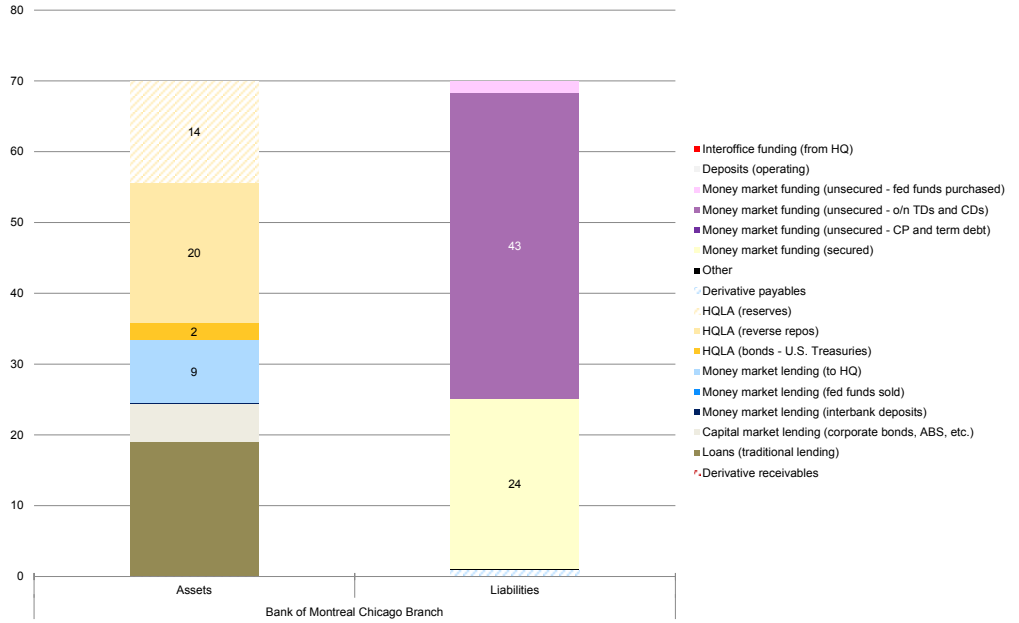
as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

Figure 21: Bank of Montreal Chicago Branch

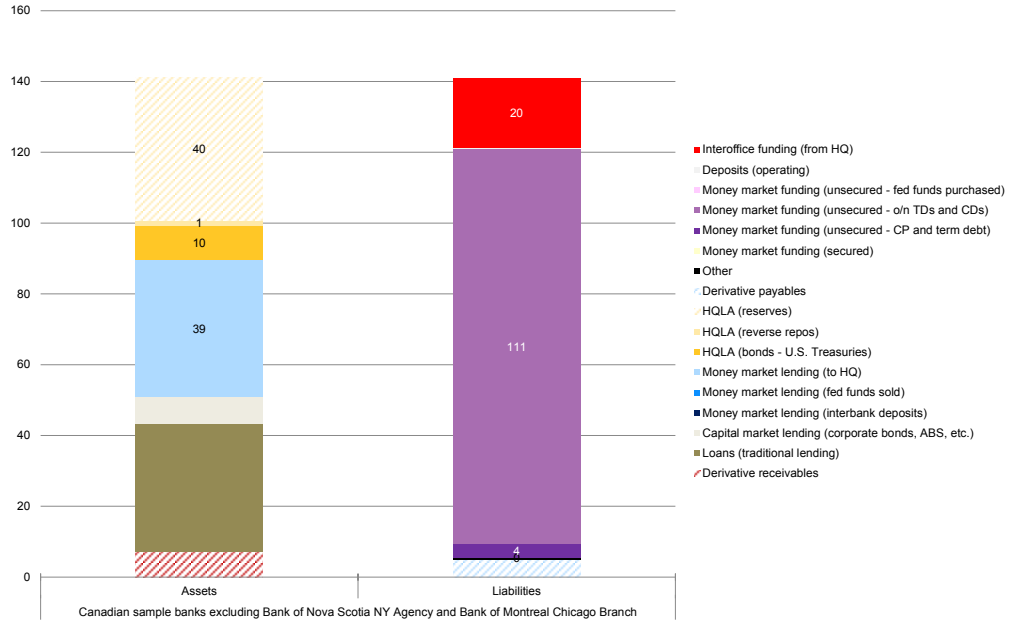
as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

Figure 22: Canadian Banks ex Bank of Nova Scotia and BMO

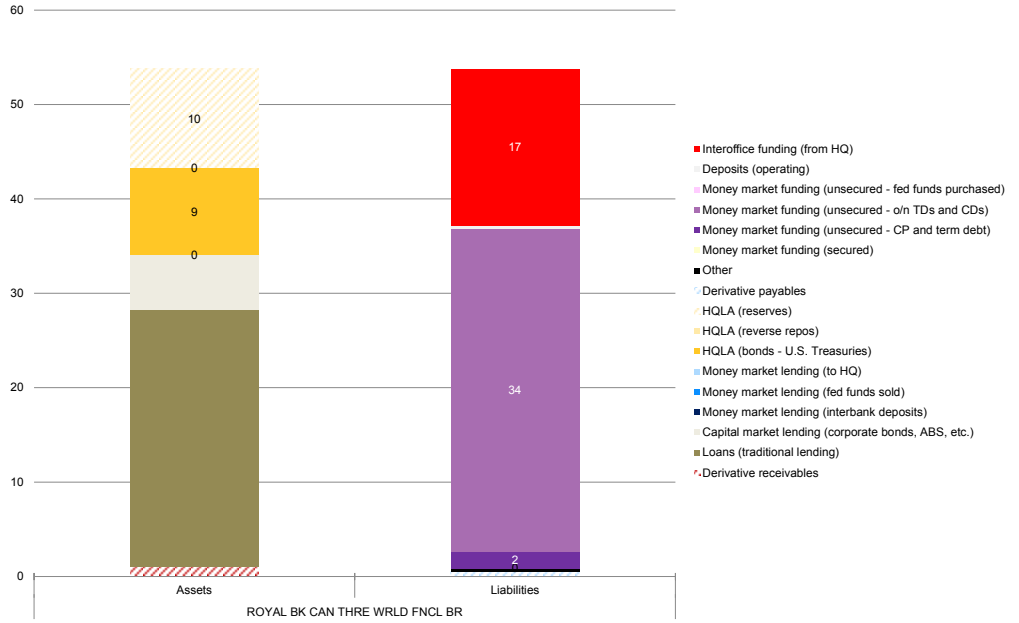
as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

Figure 23: Royal Bank of Canada New York Branch

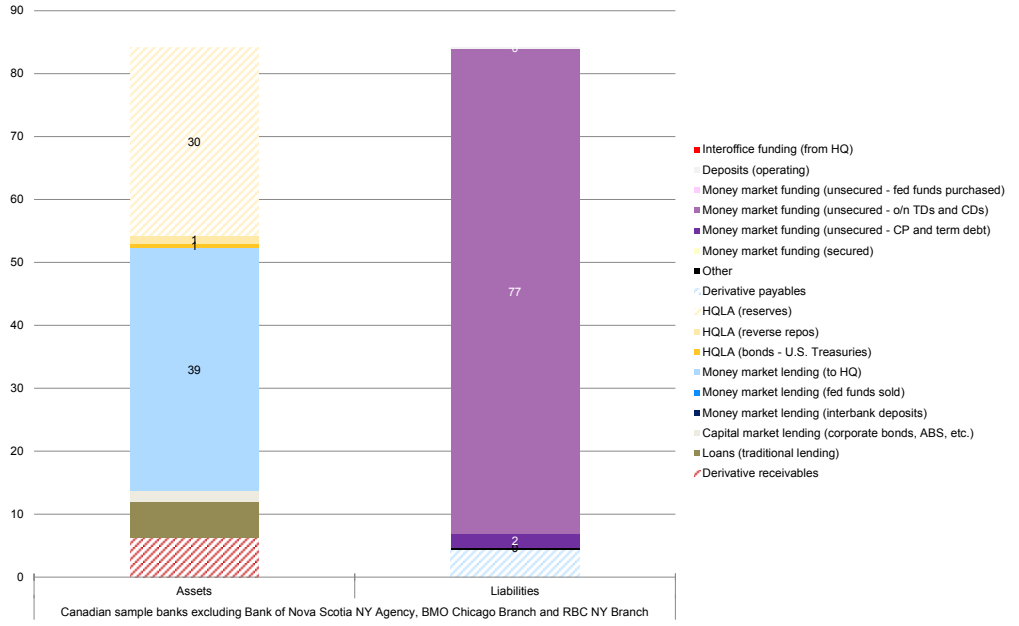
as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

Figure 24: Other Canadian Banks

as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

Figure 22 shows Canadian sample banks excluding the New York and Chicago branches of the Bank of Nova Scotia and BMO. This is a different image from where we started. Unlike all Canadian bank branches combined, this subset of Canadian bank branches rely nearly exclusively on unsecured funding from prime funds. $40 billion of this funding is northbound (going back to Canada), where – similar to BMO – it is funding CAD assets.

Figure 23 shows the balance sheet of RBC's New York branch, which is another outlier. Its balance sheet has a real economy scent to it – its main assets are loans and the rest of its balance sheet is HQLA (reserves and Treasuries). On the funding side, unsecured funding dominates and it also taps headquarters of U.S. dollars funding. RBC's options are fairly limited if it is unable to roll unsecured funding with prime funds. Its loan book would be difficult to shrink and so the alternatives are to issue term debt or to ask headquarters to swap CAD for USD via the FX swap market and downstream it to the New York branch.

Figure 24 shows the previous subset of Canadian sample banks excluding the New York branch of RBC. What we see is a simple balance sheet structure which relies exclusively on unsecured funding, the bulk of which is northbound, flowing back to headquarters.

The dominant names in this group are the New York branches of Toronto-Dominion Bank and CIBC. Together with the Chicago branch of BMO, these banks are responsible for the northbound flow of about $50 billion of U.S. dollars to Canada where these dollars are used to fund CAD assets. What types of assets is difficult to say, but a likely candidate are currency forwards whereby the long-only investors in Canada hedge their long U.S. dollar exposures back to CAD. It appears that the banks providing these hedges – TD, BMO and CIBC – get CAD by swapping USD with the Bank of Nova Scotia and RBC, which take these dollars, downstream them to their New York branch, and deposit them at the Fed.

It appears to be a distinctly Canadian game of cul-de-sac where TD, BMO and CIBC are all exposed to basis risk as their cost of unsecured funding goes up as prime money fund reform runs its course; the long-only community in Canada is exposed to rising hedging costs; and finally RBC and the Bank of Nova Scotia are set to benefit as lenders of CAD.

Conclusions - A Month-Long Quarter-End…

Three conclusions stand out from our analysis.

First, contrary to wide-held expectations, the impact of money fund reform on repo rates is shaping up to be relatively minor. Foreign bank branches that arbitrage a lot and are set to shrink their balance sheet as money flows from prime to government funds do not own a lot of Treasuries and so will have little to sell when their unsecured funding disappears. On the other hand, foreign banks that do not arbitrage will have to maintain their LCR and so won't be in a position to either sell or repo the Treasuries in their HQLA portfolio. The exception to this rule is Norinchukin's New York branch (not subject to Basel III), which as of March 31st, 2016, had $20 billion in unsecured funding from prime money funds and could potentially direct up to that much in funding needs into the term GCF repo market. Were this to happen, the spread between GCF and tri-party repo rates would widen as primary dealers step in to intermediate between Norinchukin and government money funds the flows that heretofore happened between Norinchukin and prime money funds directly.

Second, the cost of three-month unsecured funding raised onshore in New York from prime funds will converge to the cost of three-month funding raised offshore via FX swaps. The all-in cost of swapping euros or yen for dollars is around 120 bps, which makes unsecured funding at 95 bps look cheap by comparison. This gives us confidence that unsecured rates have upside from here which three-month Libor will gradually capture.

Third, the all-in cost of dollars raised through the dollar swap lines are already cheaper than the all-in cost of dollars raised through FX swaps. Although the ECB and the BoJ now both have a pre-announced schedule (see here and here) of one-week dollar operations, central banks actively discourage banks from actually tapping the Fed's dollar swap lines.

Both schedules of weekly operations run through the end of October and so fully cover the period when term unsecured funding markets may temporarily "close" due to prime money fund reform. In that sense, these operations are meant to put foam on the runway in order to ensure that banks will have access to funding that does not hurt their liquidity ratios.

As we approach October 17th, there will be a point where banks will only be able to fund with prime money funds at tenors shorter than 30 days. 30-day funding from prime money funds has a 100% outflow assumption meaning that every penny of such funding must be invested in HQLA. In turn, transitioning from a world where term funding is available beyond 30 days (0% HQLA need) to one where it is not (100% HQLA need) would be a shock to foreign bank balance sheets. Central bank funding has a 0% outflow assumption even at tenors shorter than 30 days and so could solve banks' funding needs with ease.

This is to say that the purpose of pre-announced dollar swap operations is not to make life cheap (for those with massive dollar funding needs), but to make sure life goes on… – that bills get paid and that the regulatory parameters set by Basel III are not breached.

As long as markets are continuous and trades get done, the Fed, the BoJ and the ECB encourage and expect banks to tap private markets, whatever the cost of funds. In other words, the swap lines are not meant to police the euro or yen cross-currency basis – yet.

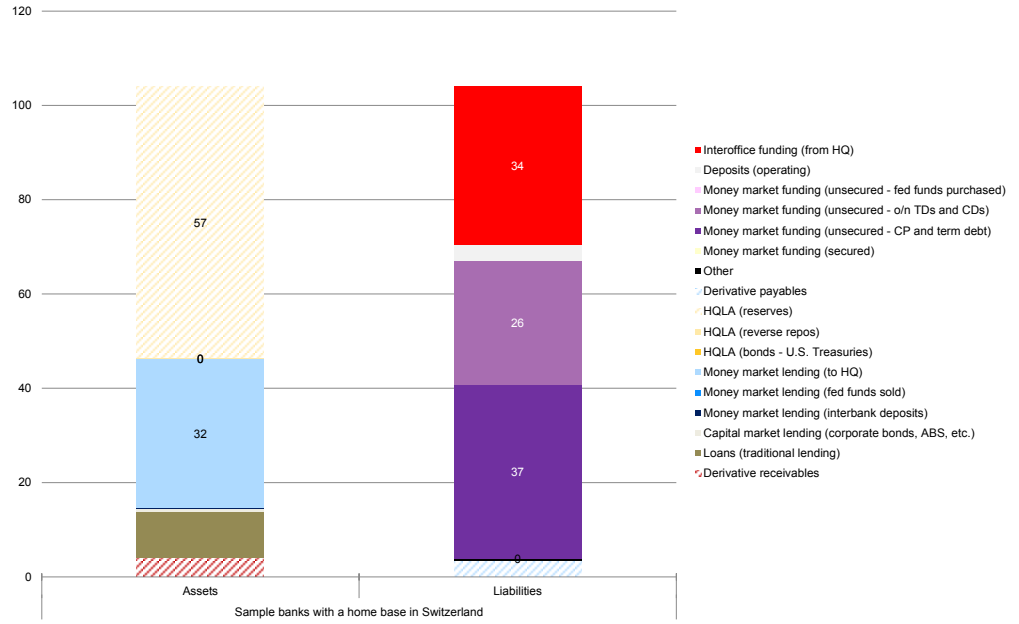
Rather, for now, the purpose of these swap operations appears to be to help banks sail through the storm of money fund reform without a dent in their 30-day liquidity buffers.

Dealer of last resort will be another day…

Appendix

Figure 25: Swiss Banks

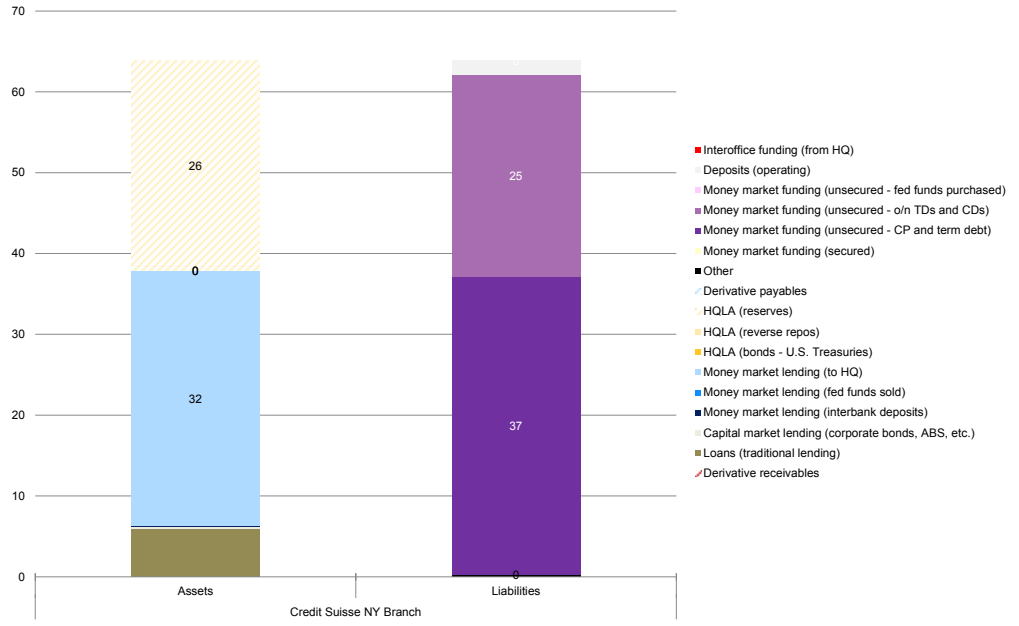
as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

Figure 26: Credit Suisse New York Branch

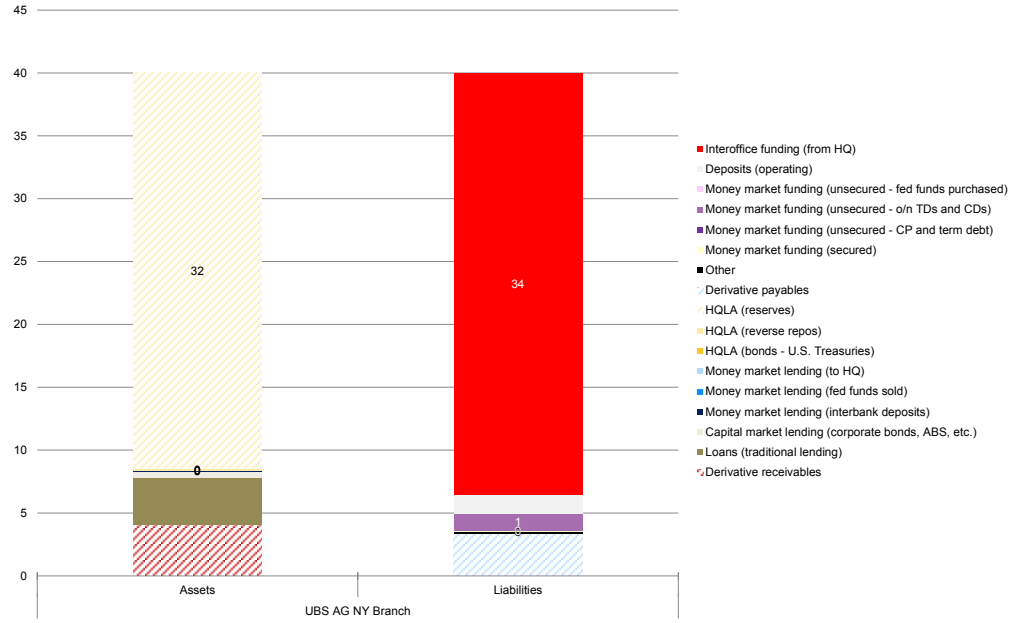
as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

Figure 27: UBS AG New York Branch

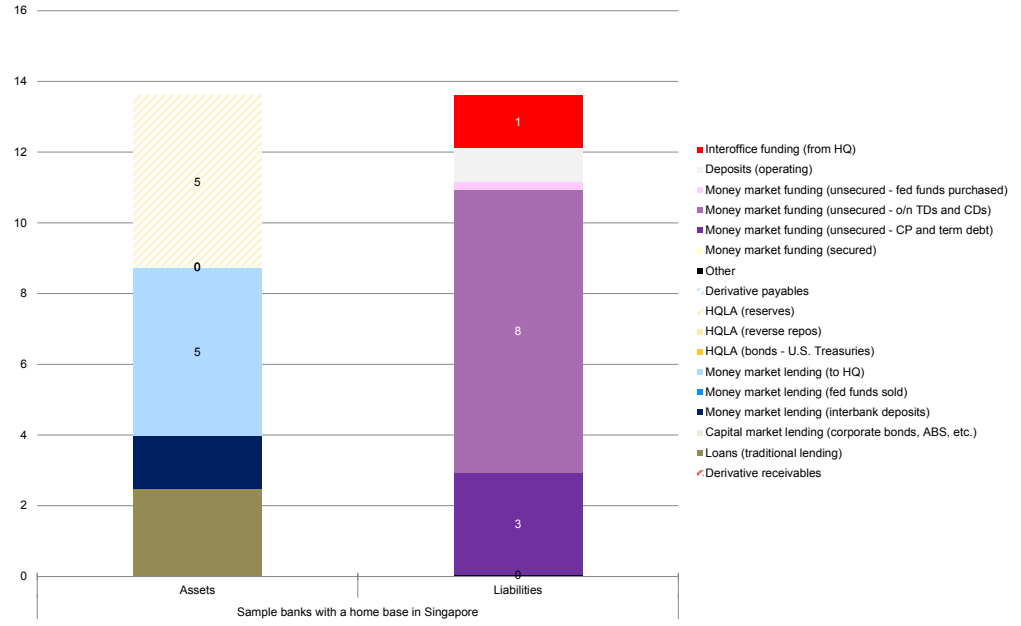
as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

Figure 28: Singaporean Banks

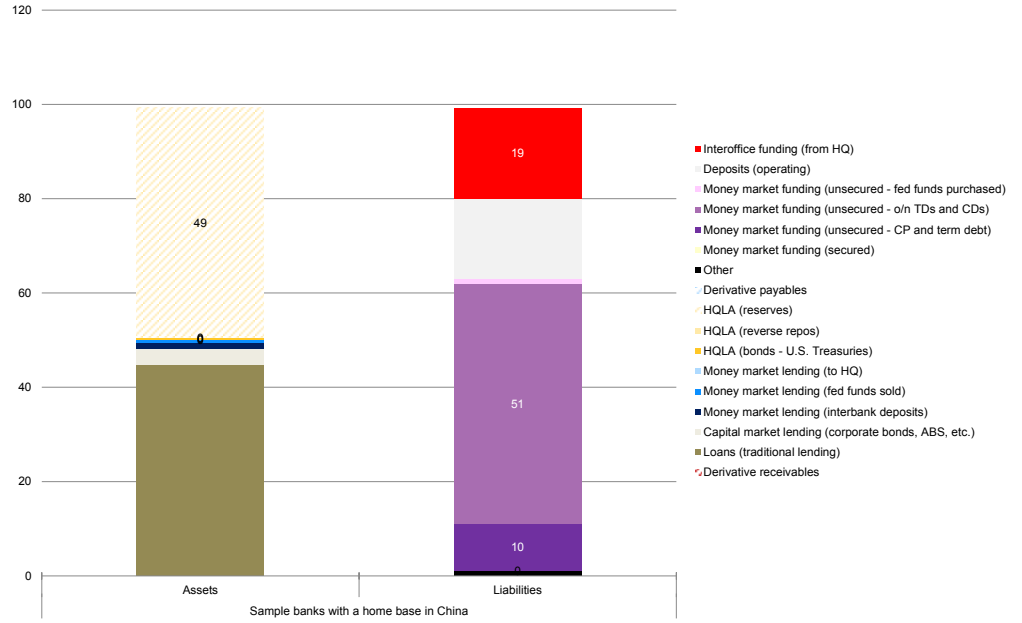
as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

Figure 29: Chinese Banks

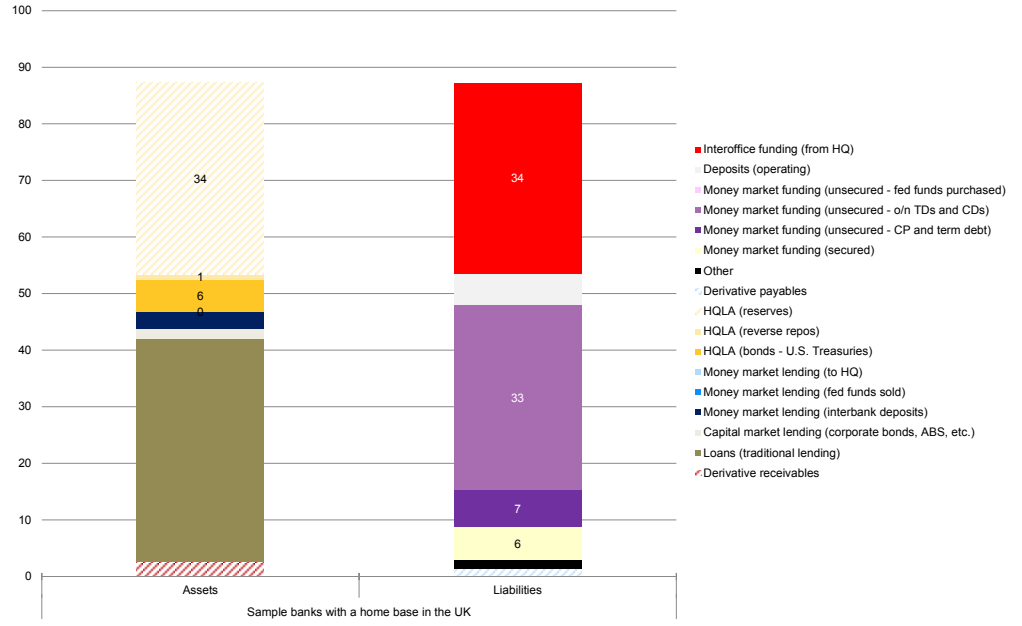
as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

Figure 30: British Banks

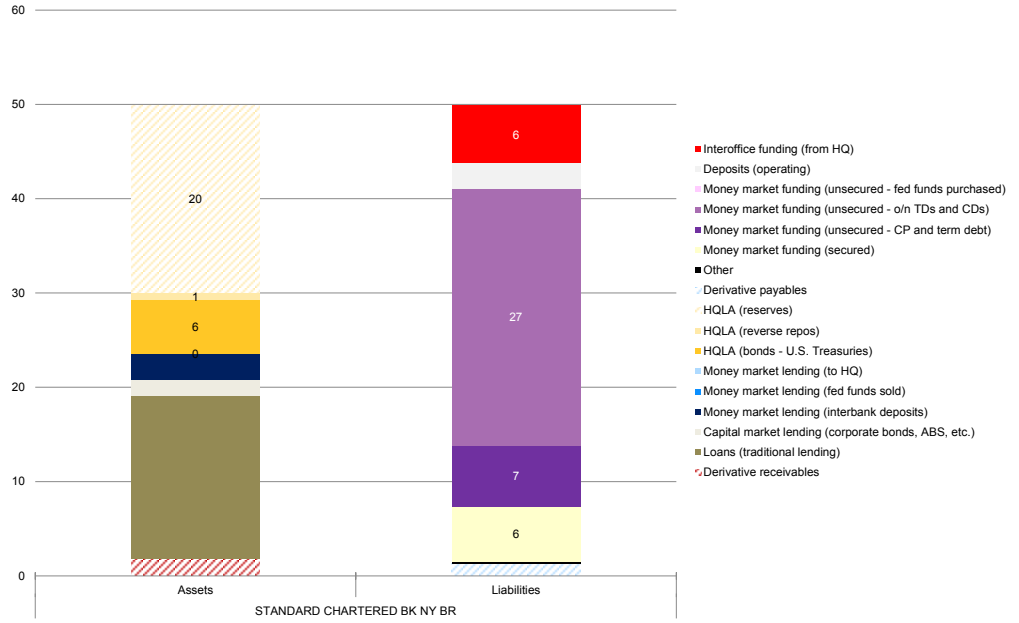
as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

Figure 31: Standard Chartered Bank New York Branch

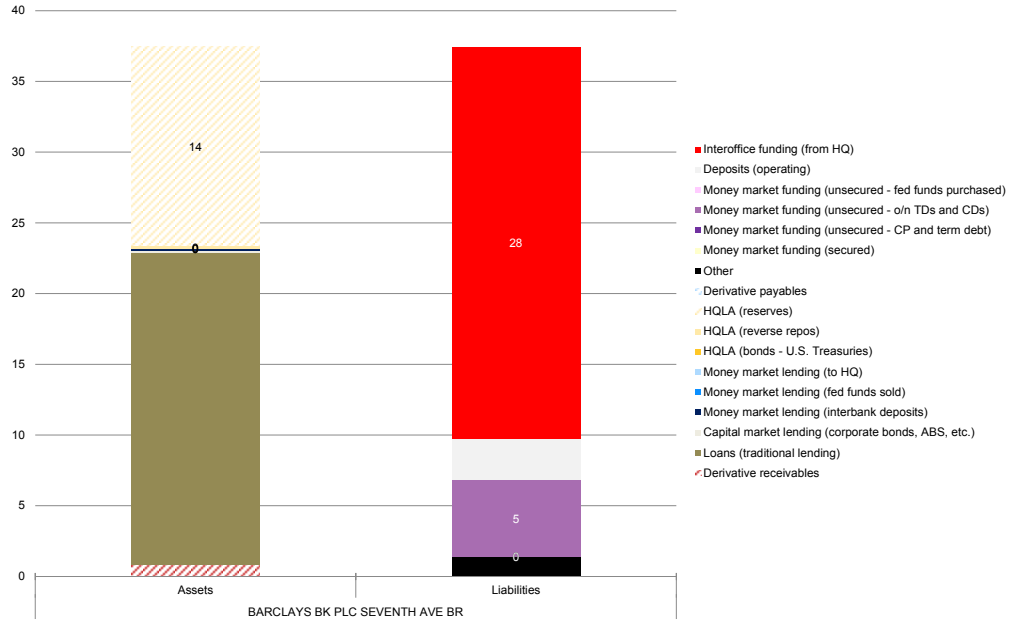
as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

Figure 32: Barclays Bank New York Branch

as of March 31st, 2016, $ billion



Source: FFIEC 002, Credit Suisse

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