



Comparison of China and US' Bank Reserves and Their Implications

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On February 4, the People's Bank of China (PBOC) announced across the board and targeted cuts to reserve requirement ratios (RRR), with RRR for large banks being cut to 19.7%, and RRR for medium to small banks to 17.5%. After the cut, RRR set out by the PBOC still remains the highest amongst the world's major central banks. Historically, the United States was the first economy in the world to enact legislation requiring banks to set aside reserves with the central bank. And the expansions of the Federal Reserve (Fed) and the PBOC's balance sheets since the sub-prime crisis look surprisingly similar, and their bank reserves also reach similar heights. But their use of reserve requirements as a monetary policy tool cannot be more different. Now that China looks set to push for important reforms such as exchange rate and interest rate liberalizations down the road, its reserve requirements are believed to evolve as well. Comparing the two systems could yield valuable implications.

Similarities and differences in balance sheet expansions and RRR

By end 2014, the PBOC's balance sheet totaled RMB33.8 trillion, or USD5.4 trillion using the yearend exchange rate of one US dollar for 6.2052 Yuan. It was equal to 53% of China's GDP in 2014 (RMB63.6 trillion), and 2.6 time bigger than its size of RMB12.9 trillion at the end of 2006. Meanwhile, the Fed's balance sheet rose to USD4.5 trillion, equal to 26% of the US GDP in 2014 (USD17.4 trillion), and 5.0 times bigger than its size of USD903.7 billion at end 2006. The PBOC's balance sheet was larger than the Fed's in both the absolute and relative terms, but the Fed's balance sheet registered faster expansion. These two balance sheets dwarf the world's other major central banks'.

However, they took different routes to get there. The Fed's balance sheet has expanded mainly through three rounds of asset purchases or quantitative easing. As a result, the Fed was holding USD2.46 trillion worth of US treasuries, USD1.74 trillion worth of AMBS at the end of 2014, which make up of 93% of its total assets. The PBOC never resorted to asset purchases. Instead, its balance sheet expansion came mostly from purchasing foreign currencies from inflows. Consequently, it was holding RMB27.1 trillion worth of foreign currencies that made up 80% of its total assets.

Notwithstanding different causes, the substantial sizes of their balance sheets mean the PBOC and the Fed have injected huge amounts of base money into their respective systems, which in turn highlights the completely different approaches to the use of reserve requirements. Since 2008, the PBOC began to implement differential RRR. After the latest cuts, RRR for large banks is 19.5%, and 17.5% for medium to small banks, while banks such

as the Agricultural Development Bank of China is facing RRR as low as 13.5%. The Fed also implements differential reserve requirements. However, instead of applicable to depository institutions, RRR applies to their net transaction accounts balances. For example, RRR for deposit liabilities from zero to USD14.5 million is 0%, 3% for amounts between USD14.5 million to USD103.6 million, and 10% for amounts of more than USD103.6 million. For nonpersonal time deposits, and Eurocurrency liabilities, RRR is 0%.

Given the substantial differences in their respective RRR, the total bank reserves in both China and the US are surprisingly similar. The Fed's statistics show that at end 2014, required reserves totaled USD142 billion, while excess reserves totaling USD2.5 trillion. Put together, reserves in the US banking system were equal to 25% of its USD10.4 trillion total deposits, 20% of the US GDP, and 59% of the Fed's balance sheet. The ratio of required reserves to excess reserves is 1 to 18. On the other hand, although the RRR is in double digits, the ratio of excess reserves in China was 2.7%. Combined they were equal to 22% of the Chinese banking system's total deposits of RMB106 trillion, 37% of China's GDP, and 69% of the PBOC's balance sheet. But the ratio of required reserves to excess reserves is about 7 to 1.

Causes

Amongst the world's top two bank reserves, US banks put up more reserves relative to their total deposits than their Chinese counterparts. The key difference lies in that China's bank reserves are mostly required reserves, while the US excess reserves. Moreover, the PBOC has been adjusting RRR more frequently. Record shows that since mid-2006, there have been more than forty time of RRR adjustments from the PBOC, while the Fed has left the RRR unchanged, only slightly adjusting the deposit amounts applicable each year. This illustrates the vastly different importance of RRR to these two central banks as a monetary policy tool. With similar total reserves but vastly different required and excess reserves, it suggests that the two central banks have been facing different challenges in recent years.

The three rounds of asset purchases or quantitative easing resulted in the Fed's skyrocketing balance sheet. The asset purchases were unconventional monetary policies designed to stimulate the US economy after official rates were cut to zero. For the US economy, the bond market is its most important capital market. According to the IMF's statistics, the size of the US bond market in 2013 was 2.2 times of its GDP, 1.7 times of its stock market capitalization, and 2.3 times of its total banking assets. Bank credit in this regard is the smallest of the three financing channels. Thus, the Fed's zero interest rate policy and the ensuring quantitative easing provided the largest stimulus to its bond market, which in turn successfully pinned down short and long term interest rates, spurred the stock market and simulated the economy. But for the US banking industry, the economic recovery relied less on it anyways, and it faced heightened regulation and deleverage, etc. Consequently, the liquidity injected by the Fed through QE was deposited back into accounts held with the Fed by the banks in the form of excess reserves, as the financing needs of the US economy was largely met by the bond market and the stock market, leaving limited room for bank credits. And beginning in 2008 when unconventional monetary tools were deployed, the Fed began to pay interests at the rate of 0.25% to both required and excess reserves, which topped the Fed Fund

target rate and provided an incentive for banks to hold large amounts of excess reserves.

The PBOC's balance sheet expansion came mainly from buying foreign currencies. In China's banking system, banks hold reserves mostly in the form of required reserves, reflecting the practice of the PBOC using required reserves to sterilize forex intervention in time of inflows. For China, bank credits are the most important financing channel. The banking system's total assets stood at 2.6 times of China's GDP in 2013, 6.3 times of its stock market cap, and 6.1 times of its bond market. Amongst its social financing totaling RMB16.5 trillion in 2014, new loans in foreign currencies and local currency, together with off-balance sheet financing, accounted for 79.1% of the total, while equity and bond financing accounting for only 17.3% of the total even though it was at new high itself. Between the year 1999 and 2003, China's RRR stood at as low as 6%. Since then, it has been raised consistently due to inflows and the subsequent need to rein in the extra liquidity and money supply. In 2011, RRR for large banks was the highest at 21.5%. Without it, the potential surge in money supply would have overheated the economy to the point of no return.

In times of inflows and currency appreciation, a central bank can use open market operations to sterilize forex intervention in order to remain neutral on money supply. Such tools include repo, sale of debt securities, and issuance of central bank bills and notes, etc. In China's case, reserves requirements become the most cost efficient tool to the PBOC. Beginning at the end of 2008, the PBOC has been paying interests at the rate of 1.62% to required reserves, and 0.72% to excess reserves. Comparatively, between 2010 and mid-2011 when large inflows were recorded and the PBOC was busy raising RRR, interest rates for repo operations (7 days or 28 days) ranged between 2.6% and 2.7% (currently at more than 4.5%), and the reference rate of 1-year PBOC bills averaged 2.4% (currently at 3.5%), much higher than the interest rates paid to reserves. Moreover, repo and PBOC bills tend to have short maturity and need to be rolled over again and again in times of continuous inflows, making them less convenient to use than reserves, and subsequently less used. According to the statistics from the China Central Depository & Clearing Co. Ltd., outstanding PBOC bills and notes stood at RMB4.0909 trillion at the end of 2010, before declining to RMB2.1290 trillion, RMB1.3440 trillion, RMB552.2 billion and RMB428.2 billion in the subsequent four years. This clearly demonstrates the PBOC's choice of tools.

Implications

Albeit different causes, both the Chinese and US banking systems are sitting on huge stockpiles of reserves. Then the next question is whether China can lower its RRR to levels closer to the US, and under what circumstances.

To answer this question, both the institutional and market factors have to be considered. Now that bank credits remain the most important form of finance in China, if direct financing from equities and bonds can take off, then the gap between direct and indirect financing will narrow, reducing the intensity and frequency of RRR usage. However, as China's banking assets are more than six times of its stock market and bond market, whilst the lead of the US bond market over its stock and banking markets is smaller, it is unrealistic to expect the

Chinese economy will turn into bond market dominant just like the US economy. As a result, reserves requirements may remain a more important monetary tool to the PBOC, instead of a little used tool to the Fed.

Nevertheless, the bond market dominant US economy is more an exception than a norm in the developed world. Only debt heavy Japan, Ireland and Italy have similar financing structures. As for most other developed economies, they are bank credits dominant, similar to China, but to a less degree. Take the Eurozone for example, its banking assets were 2.5 times of its GDP, 4.3 times of its stock market cap, and 1.4 times of its bond market in 2013. The European stock and bond markets are anything but underdeveloped. Yet when the Euro was born in 1999, ECB set the minimum reserves requirement ratio at 2%, only to lower it to 1% in 2012. This is a typical case of banking dominant economy with minimal use of RRR, suggesting that if capital flows are uninhibited, exchange rate is floated, the central bank's monetary policy objective is clear and simple without the involvement in macro management, then reserves requirements can become a secondary tool. For China, all these elements are unlikely to fall into places in the near term, implying that reserves requirements will remain a more important monetary policy tool.

The stark contrast of required versus excess reserves in the Chinese and the US banking systems reflects the fact that for years, China has been facing sustained capital inflows, while the US economy has been struggling with demands for credits. Looking into the future, providing that China's capital controls are to be dismantled gradually, and the RMB exchange rate and interest rates are set more by market forces, then even when inflows continue, rising exchange rate and falling interest rates may become the automatic stabilizers, reducing the need for RRR to sterilize inflows. Of course, impacts on domestic asset prices and external competitiveness have to be taken into considerations.

In reverse, if capital outflows are the norm, the currently high RRR will be in need of cuts in order to inject liquidity back into the system. At the end of 2014, China held USD3.84 trillion in forex reserves, the largess stockpile amongst the world's central banks. Capital controls help explain this phenomenon, as forex deposits in the Chinese banking system amounted to only USD573.5 billion. Together they are equal to 47% of China's GDP, but it is the PBOC who is holding the majority of the foreign currencies. The size of China's forex reserves is second to none in absolute terms. But considering China is the world's second largest goods importer, and it is the world's largest banking dominant economy, its tolerance of capital outflows and reduction to its forex reserves may be lower than most would believe. USD3.84 trillion is a lot more than the levels considered minimum safety of covering three months' of imports or all short term foreign debt. But since China's broad money supply M2 topped 193% of its GDP in 2014, the more stringent requirement of covering 20% of M2 takes the figure to RMB24.6 trillion or USD3.96 trillion, which is more than its current official forex reserves. In this case, its tolerance of outflows may be limited. And the related cuts to RRR to inject liquidity may be smaller.

Between 1999 and 2003, China's RRR stood at 6% in order to fight deflation. This is another market factor to consider besides capital flows. Providing China's current disinflation will not turn into prolonged deflation in the future, although there is room to cut RRR further, it will likely remain at elevated levels when compared to other economies.

主要經濟指標 (Key Economic Indicators)

| 一. 本地生產總值 GDP | 2013 | 2014 | 2014/Q3 | 2014/Q4 |
|--|--------|--------|---------------------|---------------------|
| 總量 (億元) GDP(\$100 Million) | 20,961 | 21,446 | 5,456 | 5,733 |
| 升幅 (%) Change(%) | 2.9 | 2.3 | 2.7 | 2.2 |
| 二. 對外貿易 External Trade | 2013 | 2014 | 2015/1 | 2015/1 |
| 外貿總值 (億元) Total trade(\$100 Million) | | | | |
| 港產品出口 Domestic exports | 544 | 553 | 45 | 45 |
| 轉口 Re-exports | 35,053 | 36,175 | 3,074 | 3,074 |
| 總出口 Total exports | 35,597 | 36,728 | 3,119 | 3,119 |
| 進口 Total imports | 40,607 | 42,190 | 3,489 | 3,489 |
| 貿易差額 Trade balance | -5,010 | -5,463 | -371 | -371 |
| 年增長率 (%) YOY Growth(%) | | | | |
| 港產品出口 Domestic exports | -7.6 | 1.7 | 3.9 | 3.9 |
| 轉口 Re-exports | 3.8 | 3.2 | 2.8 | 2.8 |
| 總出口 Total exports | 3.6 | 3.2 | 2.8 | 2.8 |
| 進口 Imports | 3.8 | 3.9 | 7.9 | 7.9 |
| 三. 消費物價 Consumer Price | | | | |
| 綜合消費物價升幅 (%) Change in Composite CPI(%) | 4.3 | 4.4 | 4.1 | 4.1 |
| 四. 樓宇買賣 Sale & Purchase of Building Units | | | | |
| 合約宗數 (宗) No. of agreements | 70,503 | 81,489 | 8,130 | 8,130 |
| 年升幅 (%) Change(%) | -29.9 | 15.6 | 39.8 | 39.8 |
| 五. 勞動就業 Employment | | | 2014/10- 2014/12 | 2014/11- 2015/01 |
| 失業人數 (萬人) Unemployed(ten thousands) | 11.84 | 14.95 | 12.2 | 12.1 |
| 失業率 (%) Unemployment rate(%) | 3.4 | 3.2 | 3.3 | 3.3 |
| 就業不足率 (%) Underemployment rate(%) | 1.5 | 1.5 | 1.6 | 1.6 |
| 六. 零售市場 Retail Market | | | 2014/12 | 2014/1-12 |
| 零售額升幅 (%) Change in value of total sales(%) | 11.0 | -0.2 | -3.9 | -0.2 |
| 零售量升幅 (%) Change in volume of total sales(%) | 10.6 | 0.6 | -1.3 | 0.6 |
| 七. 訪港遊客 Visitors | | | 2015/1 | 2015/1 |
| 總人數 (萬人次) arrivals (ten thousands) | 5,430 | 6,077 | 561 | 561 |
| 年升幅 (%) Change(%) | 11.7 | 11.9 | 2.8 | 2.8 |
| 八. 金融市場 Financial Market | | | 2014/12 | 2015/1 |
| 港幣匯價 (US\$100=HK\$) | 775.4 | 775.6 | 775.6 | 775.3 |
| H.K. Dollar Exchange Rate (US\$100 = HK\$) | | | | |
| 貨幣供應量升幅 (%) change in Money Supply(%) | | | | |
| M1 | 9.7 | 13 | 13 | 18.3 |
| M2 | 12.3 | 9.5 | 9.5 | 10.3 |
| M3 | 12.4 | 9.6 | 9.6 | 10.4 |
| 存款升幅 (%) Change in deposits(%) | | | | |
| 總存款 Total deposits | 10.6 | 9.7 | 9.7 | 10.9 |
| 港元存款 In HK\$ | 5.1 | 9.3 | 9.3 | 11.4 |
| 外幣存款 In foreign currency | 16.2 | 10.1 | 10.1 | 10.5 |
| 放款升幅 (%) in loans & advances(%) | | | | |
| 總放款 Total loans & advances | 16.0 | 12.7 | 12.7 | 10.0 |
| 當地放款 use in HK | 13.8 | 12.1 | 12.1 | 9.3 |
| 海外放款 use outside HK | 21.4 | 14.2 | 14.2 | 11.6 |
| 貿易有關放款 Trade financing | 43.8 | -1.4 | -1.4 | 2.3 |
| 最優惠貸款利率 (%) Best lending rate (%) | 5.0000 | 5.0000 | 5.0000 | 5.0000 |
| 恆生指數 Hang Seng index | 23,306 | 23,605 | 23,605 | 24,507 |