



February 10, 2016

The \$34 Trillion Experiment: China's Banking System and the World's Largest Macro Imbalance

All,

Over the past decade, we have worked diligently to identify anomalies in financial systems, governments, and companies around the world. We have been vigorously studying China over the last year, with the view that the rapid credit expansion in the Chinese banking system will result in significant credit losses that will require the recapitalization of Chinese banks and materially pressure the Chinese currency. This outcome will have many near-term and long-term effects on countries and markets around the world. In other words, what happens in China will not stay in China.

The unwavering faith that the Chinese will somehow be able to successfully avoid anything more severe than a moderate economic slowdown by continuing to rely on the perpetual expansion of credit reminds us of the belief in 2006 that US home prices would never decline. Similar to the US banking system in its approach to the Global Financial Crisis ("GFC"), China's banking system has increasingly pursued excessive leverage, regulatory arbitrage, and irresponsible risk taking. Recently, we have had numerous discussions with various Wall Street firms, consultants, and other respected China experts, and they almost all share the view that China will pull through without a reset of its economic conditions. What we have come to realize through these discussions is that many have come to their conclusion without fully appreciating the size of the Chinese banking system and the composition of assets at individual banks. More importantly, banking system losses - **which could exceed 400% of the US banking losses incurred during the subprime crisis** - are starting to accelerate.

Our research suggests that China does not have the financial arsenal to continue on without restructuring many of its banks and undergoing a large devaluation of its currency. It is normal for economies and markets to experience cycles, and a near-term downturn that works to correct the current economic imbalance does not qualitatively change China's longer-term growth outlook and transition to a service economy. However, credit in China has reached its near-term limit, and the Chinese banking system will experience a loss cycle that will have profound implications for the rest of the world. What we are witnessing is the resetting of the largest macro imbalance the world has ever seen.

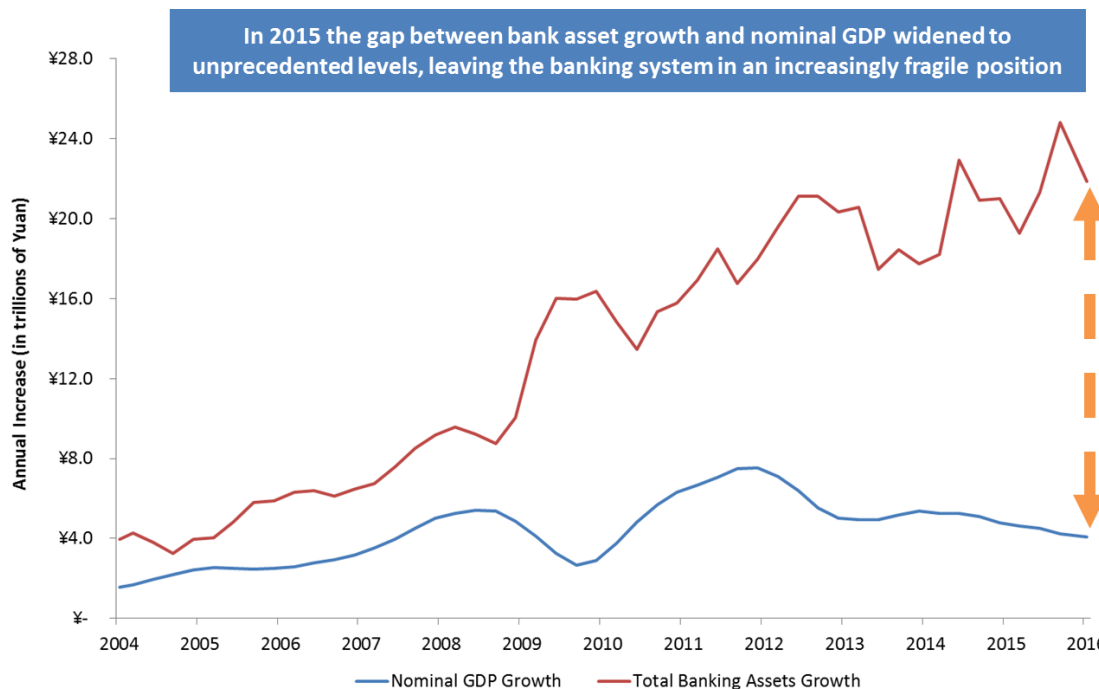
So how did we get here? Since 2004, China's real effective exchange rate has appreciated 60%. The majority of this appreciation occurred in the last few years as the ECB and BOJ both actively targeted weaker exchange rates to stimulate Europe's and Japan's large export sectors, respectively. While the markets seem solely focused on China's exchange rate versus the US dollar, this fixation misses the point that many other manufacturing economies and currencies, including those belonging to Japan, Europe,

Russia, and several Southeast Asian countries, have gained significant price advantages at China's expense. If China is to achieve the required clawback of its real effective exchange rate, the renminbi will need to devalue against a trade-weighted basket of currencies and not just the dollar. In effect, the required devaluation against the dollar will need to be multiplied to achieve the necessary result.

As the renminbi appreciated over the last decade, China undertook a massive infrastructure spending program in order to maintain politically-determined GDP growth targets in the face of these headwinds. This policy action created a system of distorted incentives (not to mention a dramatic misallocation of capital) whereby local officials were promoted to higher office by exceeding those targets without regard to the return on investment of the projects they supported. In 2005, exports and investment constituted 34% and 42% of China's GDP, respectively. By 2014, exports had fallen to 23% and investment had grown to 46%. This growth in investment was funded by rapid credit expansion in China's banking system, which grew from \$3 trillion in 2006 to \$34 trillion in 2015.

Today China is at a point where its banking system can no longer support such massive growth, and the strong renminbi has effectively undermined the competitiveness of China's export economy. A dramatic devaluation of the renminbi is warranted to regain export competitiveness; however, the Chinese authorities have errantly fought against this so far, spending around \$1 trillion to defend their currency. The continued capital outflows and emerging need to deal with losses in the banking sector will eventually force China to change tack and allow (or enable) a devaluation that resets growth as many countries have done over the past eight years.

China: Divergence in Bank Asset Growth and GDP



Source: CEIC, National Bureau of Statistics of China, and China Banking Regulatory Commission.

China's current situation reminds us of Ireland and Spain, where construction, real estate, and infrastructure investment activity constituted a disproportionate share of economic activity, government

revenue, and bank lending. A cyclical downturn in these sectors will have a profound impact on the Chinese economy just as it did in Spain. In fact, Chinese residential real estate investment as a percentage of GDP, which peaked in 2013, was the second highest in global history, only after Spain in 2006, and 60% higher than the US peak in 2005.¹

“Consider the past quarter century: a credit boom in Japan that collapsed after 1990; a credit boom in Asian emerging economies that collapsed in 1997; a credit boom in the north Atlantic economies that collapsed after 2007; and finally in China. Each is greeted as a new era of prosperity, to collapse into crisis and post-crisis malaise.”

- Martin Wolf, Financial Times

China’s Hard Landing

No matter how one analyzes the available data, China’s economy has already started to experience a hard landing. Consider that China’s National Bureau of Statistics reported that China’s migrant population (defined as Chinese people that have left their hometown to seek employment or education elsewhere in the country) decreased by 5.7 million people in 2015. This was the first reported decrease in 30 years. This abrupt reverse migration is noteworthy because it signals a slowdown in urban labor opportunities for Chinese workers and could undermine the Chinese urbanization process that has been one of the key pillars of China’s economic growth over the past few decades. The following charts illustrate additional evidence of China’s hard landing.

China hasn’t seen it this bad in the last 40 years... Yet Yellen doesn’t see a “significant downturn” in China...

Chinese Nominal GDP Growth – Y-o-Y % Change

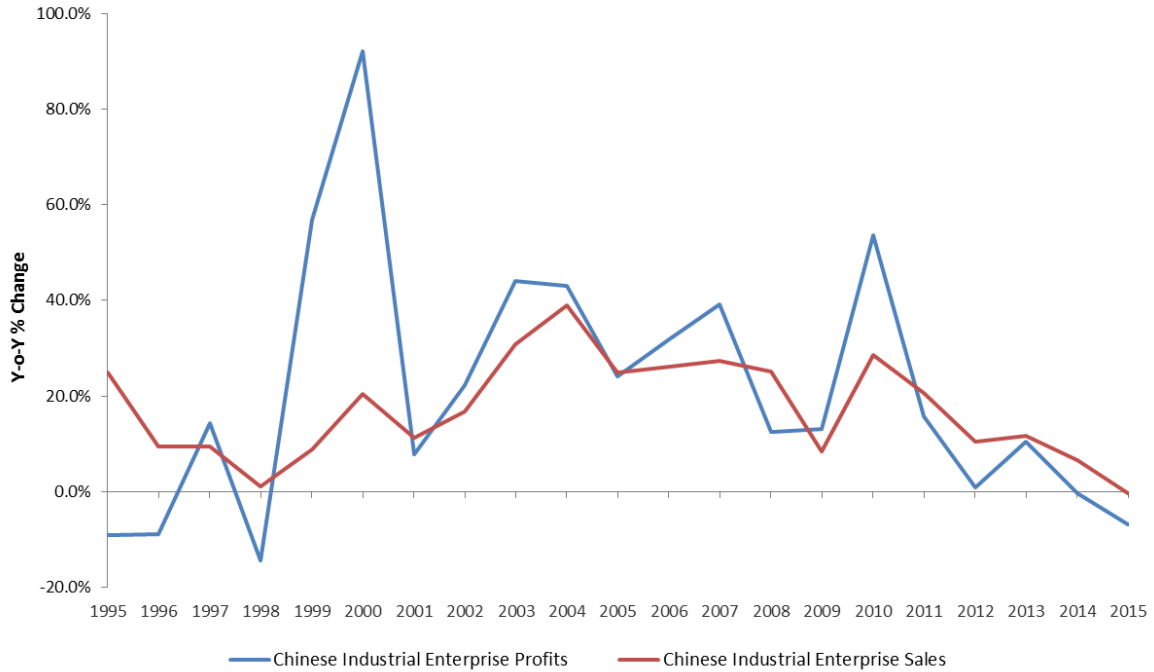


Source: CEIC and National Bureau of Statistics of China.

¹ IMF Working Paper 15/84, <https://www.imf.org/external/pubs/ft/wp/2015/wp1584.pdf>.

Chinese industrial sales and profits both declined in 2015 with sales falling for the first time in over 30 years...

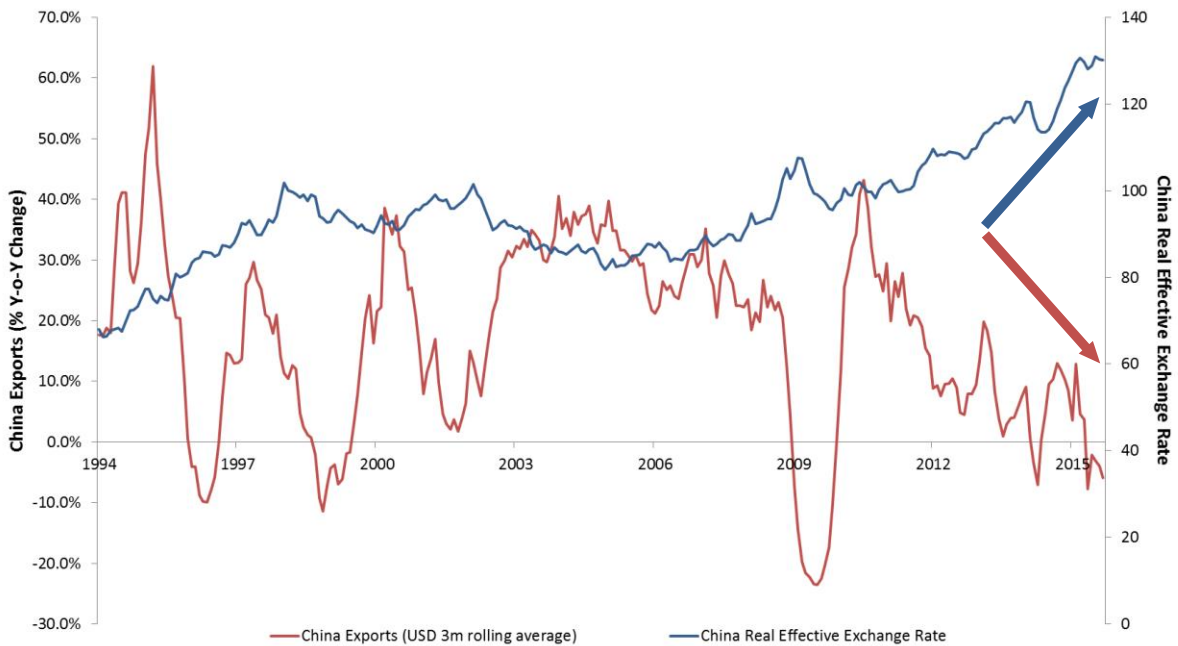
China: Industrial Enterprise Sales and Profits – Y-o-Y % Change



Source: CEIC.

Chinese exports are tanking because of China’s high real effective exchange rate...

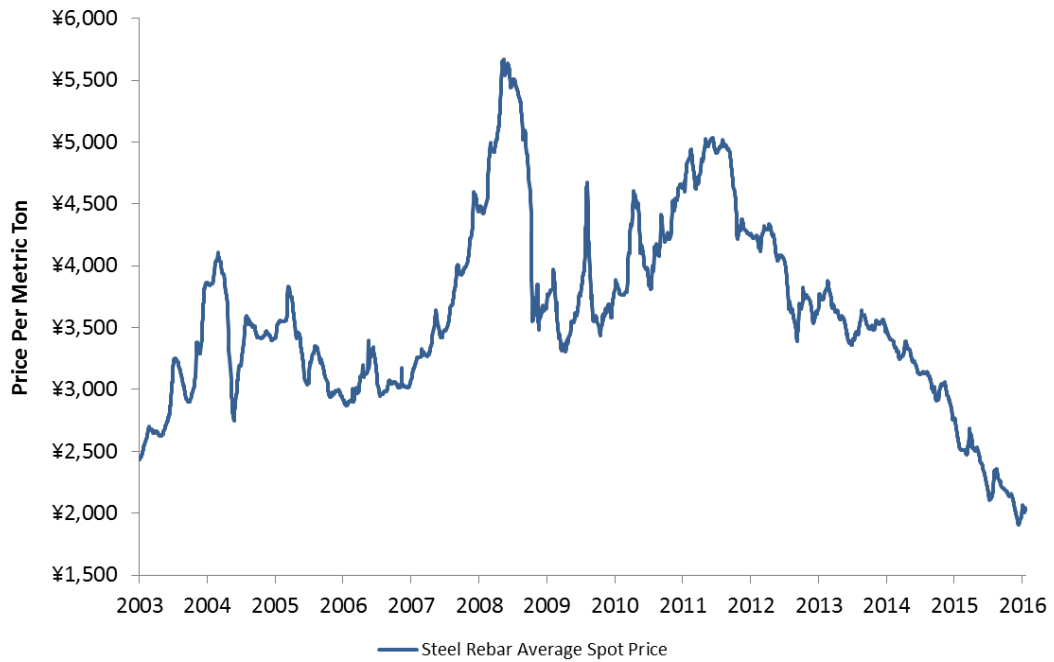
China: Exports Y-o-Y % Change vs. Real Effective Exchange Rate



Source: CEIC and Bank for International Settlements. Base Year 2010=100.

While Chinese steel prices have dropped 60% from 2011 to 2016...

China: Rebar Prices – Average



Source: Bloomberg.

Chinese iron ore prices have dropped 76%...

China: Iron Ore Prices



Source: Bloomberg.

And Chinese rubber prices have dropped 78%...

China: Natural Rubber Prices



Source: Bloomberg, Shanghai Longzhong Information.

The Largest Banking System Experiment in World History

China has allowed (and encouraged) its banking system to grow into a gargantuan \$34 trillion behemoth (a whopping 340% of Chinese GDP). For context, consider what the United States banking system looked like going into the GFC of 2007-2009. On-balance sheet, the US banking system had about \$1 trillion of equity and \$16.5 trillion of banking system assets (100% of US GDP). If non-banks and off-balance sheet assets are included, it would add another \$12.5 trillion to get to about 175% of GDP. US banks lost approximately \$650 billion of their equity throughout the GFC. We believe that Chinese banks will lose approximately \$3.5 trillion of equity if China's banking system loses 10% of assets. Historically, China has lost far in excess of 10% of assets during a non-performing loan cycle (The Bank for International Settlements estimated that Chinese banking system losses throughout the 1998-2001 cycle exceeded 30% of GDP).² We expect losses in this cycle to exceed prior cycles. Remember, 30% of Chinese GDP approaches \$3.6 trillion today. Think about how much quantitative easing (QE) the US Fed had to create in order to entice \$650 billion of common and preferred equity into the US banks and prevent a Japanese-style deflationary bust. The Fed had to expand its balance sheet by roughly \$4.5 trillion.

How significantly will the Chinese central bank have to expand its balance sheet in order to compensate for \$3.5 trillion of lost bank capital? What will that do to the renminbi? What will happen to Chinese credit

² Bank for International Settlements, "Sharing China's Bank Restructuring Bill."
<https://www.bis.org/repofficepubl/apresearch0605ma.pdf>

growth and broader Asian credit growth while this happens? If the US Fed's experience serves as a proxy for what could happen in China, we believe that China will likely have to print in excess of 10 trillion US dollars' worth of yuan to recapitalize its banking system. The weakening renminbi is the product of larger banking system problems. By the time the loss cycle has peaked, we believe the renminbi will have depreciated in excess of 30% versus the US dollar.

We must recognize that China is an emerging market. Emerging market banking systems should never be levered more or be larger than developed market banking systems for a variety of obvious reasons. China's system is even more precarious when we realize that, even at the biggest banks, loans are not made to borrowers based upon their ability to repay. Instead, loan decisions are political decisions made by the state. Historically, booms and busts are typically driven by rapid credit expansion and then contraction. Credit has never grown faster or larger than it has in China over the past decade. China's banking system has grown from under \$3 trillion to over \$34.5 trillion in assets over the last 10 years alone. No credit system in history has ever attempted this rate of growth. There is no precedent.

"There is no means of avoiding the final collapse of a boom brought about by credit expansion. The alternative is only whether the crisis should come sooner as the result of voluntary abandonment of further credit expansion, or later as a final and total catastrophe of the currency system involved."

- Ludwig von Mises

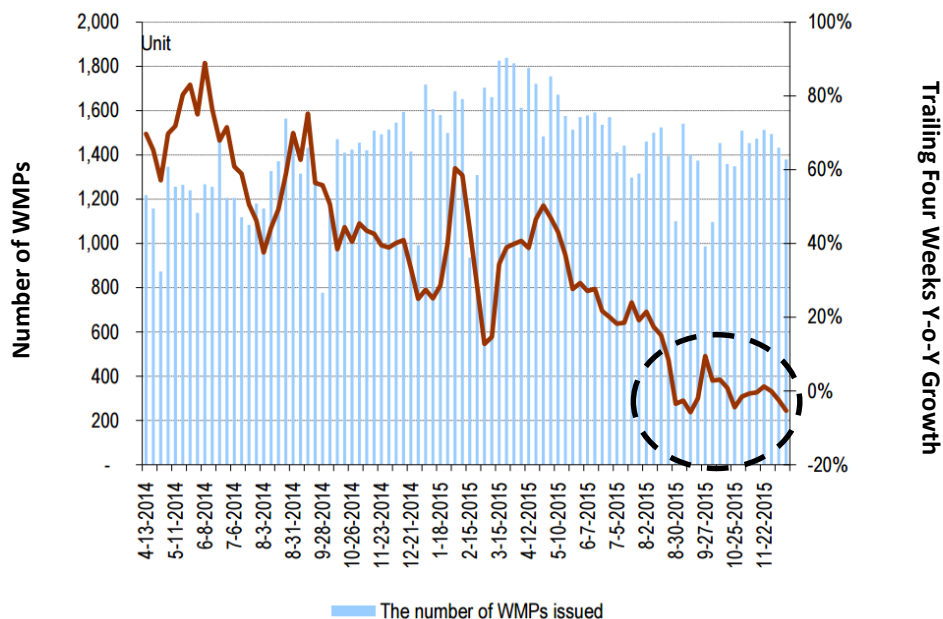
The Heart of Darkness: First Signs of Stress within China's Shadow Banking System

The combination of proscriptive banking regulations and explosive growth of the banking sector has incentivized Chinese banks to find ways to work around the rules. While the most publicized workaround has been the use of Wealth Management Products (WMPs) – devised to circumvent deposit rate caps and loan-to-deposit ratio restrictions – the most insidious is the use of Trust Beneficiary Rights (TBRs).

First, the WMPs. Chinese banks are only allowed to lend out 75% of their deposits in order to restrain lending growth and maintain a healthy balance sheet. WMPs are basically bank savings plans / money market funds that pay higher yields than traditional deposits due to the increased risks they undertake by purchasing corporate bonds as a portion of their investments. WMPs have been used to circumvent deposit-lending restrictions because they are considered non-consolidated assets and liabilities while nonetheless generating fee and spread income for the banks. WMPs offer much higher interest rates to investors than an average deposit, but are fraught with direct credit risk as the market is now coming to understand. Initially, investors bought these WMPs issued by Chinese banks assuming they came with a bank's guarantee. As WMPs have begun to fail (meaning the underlying WMP asset can no longer cover the WMPs guaranteed interest and principal payments), many issuing banks – but not all – have chosen to uphold the promise to make investors whole. As part of this process of being the implicit credit guarantor, the WMP is brought back onto the bank's balance sheet (moving from non-consolidated to consolidated). Standard & Poor's commented last week on WMPs: "A growing reliance on WMPs to manage regulatory capital ratios could undermine the banks' true capitalization, in our view, because a majority of these off-balance-sheet WMPs just serve as a handy funding tool rather than a channel to

offload credit risks.”³ We are beginning to see this occur on Chinese bank balance sheets. In addition, as credit conditions worsen and credit performance rapidly deteriorates, the net issuance of WMPs is collapsing into negative territory.

China: Growth Turns Negative in Wealth Management Products (WMPs) Issued by Banks



Source: WIND Database and BofA Merrill Lynch Global Research.

Now, the TBRs. When loans approach a nonpayment status, Chinese banks typically push them off-balance sheet. Without going into the nuances of exactly how this is done, the basic premise is that the non-performing loan is transferred to a “Trust Company” while the bank continues to be the “guarantor” (i.e. the bank retains all of the credit risk). In exchange, the bank records the “asset” as a Trust Beneficiary Receipt or TBR.

What does this mean for Chinese banks? There is a bad answer and a worse answer. The bad answer is that Chinese bank capital – the equity buffer – is significantly overstated. A TBR requires much less capital to be set aside (only 2.5c as opposed to 11c for an on-balance sheet loan) at the time of origination (anyone thinking Fannie and Freddie?). Adjusting reported bank capital ratios for this effect changes reasonable 8-9% Core Tier 1 capital ratios (CT1) to undercapitalized 5-6% levels.

Now, the worse news. TBRs are one of the biggest ticking time bombs in the Chinese banking system because they have been used to hide loan losses. The table below illustrates how pervasive TBRs are throughout the Chinese banking system. One can make many assumptions regarding the collectability of such loans, but our takeaway is that the system is already full of massive losses. Pay particular attention to the column of the ratio of TBR’s to loans on each bank’s books.

³ Standard & Poor’s, “China’s Banks Face Rising Risks from a Slowing Economy and Government Policy.”

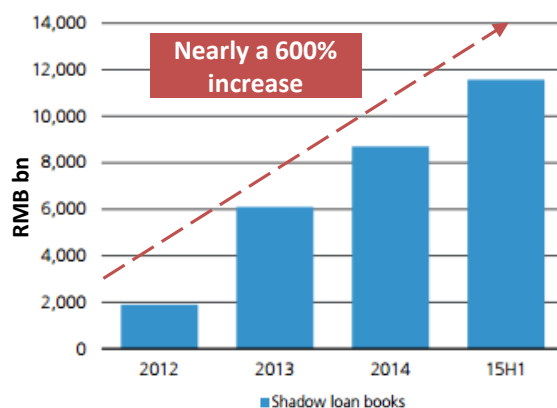
Bank	Assets (Bn RMB)	Loans (Bn RMB)	TBRs (Bn RMB)	TBRs/Loans	Reported NPLs	Past Due Not Impaired Loans	Comments
Evergrowing Bank	848.6	238.9	369.3	154.6%	0.94%	2.37%	UOB owns 14%
Bohai Bank	667.1	242.2	261.2	107.8%	1.33%	0.29%	StanChart owns 20%
Xiamen Bank	119.1	26.2	32.5	124.0%	1.00%	1.56%	Shinsei owns 10%
Xiamen Int'l Bank	348.9	111.4	101.5	91.1%	0.46%	3.59%	-
Jinzhou Bank	250.7	88.8	76.8	86.5%	0.99%	1.14%	-
Bank of Nanjing	573.2	174.7	137.9	78.9%	0.94%	0.56%	-
Industrial Bank	4,406.4	1,593.2	1,138.1	71.4%	1.10%	1.16%	50% LARGER THAN PORTUGAL'S BANKING SYSTEM

Source: UBS and SNL Financial. Balance sheet data as of FY 2014 year end.

WMPs, TBRs, and the 8,000+ credit guaranty companies constitute the majority of China's shadow banking system. This system has grown 600% in the last 3 years alone. This is where the first credit problems are emerging, away from the eyes of regulators.

What's \$2 Trillion of Hidden Losses Among Friends?

Growth in Shadow Loan Books (2012 – H1'2015)



Source: UBS.

Standard & Poor's Weighs in With Strong Language

On January 28th, Standard & Poor's penned a report on the Chinese banking system which most market participants missed or ignored. The report, entitled "China's Banks Face Rising Risks from a Slowing Economy and Government Policy", points out rapidly deteriorating metrics in the Chinese banking system, which supports our view of what is taking place without people paying attention. The fact that a ratings agency that intends to continue doing business with China is calling attention to these issues with such strong language underscores the precarious situation of many of China's banks. A few excerpts say it all...

"We expect more negative ratings actions this year on Chinese banks."

"Deterioration in banks' asset quality is likely to accelerate in 2016. Credit distress has been spreading from a few segments that private companies dominate – such as wholesale and retail

trade, export-oriented light industry, shipbuilding, and coal mining—to broad-based manufacturing industries where large firms are common.”

So even if the Chinese economy is slowing and bank losses are mounting, doesn't China have a mountain of reserves?

Crisis Foreign Exchange Reserve Levels – China is Out of Money

Much debate has been focused around the magical \$3.2 trillion pile of foreign exchange (FX) reserves currently reported to be held by China (this figure was \$4.0 trillion not too long ago and is currently declining at a rate of \$100 billion a month). Responses we receive when discussing the FX reserve levels of China are filled with reverence: “No country in the world has ever achieved \$4 trillion in FX reserves by running such enormous trade surpluses with the rest of the world.” While true, this analysis fails to frame the proper context of the larger situation. When a host country has a large industrial base, enormous money supply (M2), and large import/export business, there is a certain amount of liquid reserves that are required to run the day-to-day operations of the country (think working capital). Over the years, the IMF has fine-tuned the formula used to calculate this ‘reserve-adequacy’ metric.⁴ It can be best calculated as follows:

Minimum FX Reserves = 10% of Exports + 30% of Short-term FX Debt + 10% of M2 + 15% of Other Liabilities

For China the equation is as follows:

10% * \$2.2T + 30% * \$680B + 10% * (RMB 139.3T / 6.6) + 15% * \$1.0T = **\$2.7 trillion of required minimum reserves**

Those that cite the size of China's FX reserves as a security blanket seem to lack a true understanding of the composition and liquidity of China's stated reserve position. In the table below, we deconstruct China's official FX reserve position while making our own assumptions regarding the liquidity of China's investment in its own sovereign wealth fund (CIC):

Official Reserves (as of January 31, 2016):	\$3.2 Tn
Hayman Adjustments:	
Less: China Investment Corporation (CIC)	(\$700 bn)
Less: Policy Bank Injections	
China Development Bank (CDB)	(\$30 bn)
The Export-Import Bank of China (Exim)	(\$30 bn)
Agricultural Development Bank of China (ADBC)	(\$10 bn)
Less: Asian Infrastructure Investment Bank (AIIB) Initial Capital Commitment	(\$25 bn)
Less: Open Short RMB Forwards by Agent Banks	(\$200 - \$300 bn)
Adjusted Official Reserve (Hayman Estimate):	~\$2.1 - \$2.2 Tn

⁴ IMF, “Assessing Reserve Adequacy.” <https://www.imf.org/external/np/pp/eng/2011/021411b.pdf>.

China's liquid reserve position is **already below a critical level of minimum reserve adequacy**. In other words, China is CURRENTLY out of the required level of reserves needed to safely operate its financial system. The view that China has years of reserves to burn through is misinformed. China's back is completely up against the wall today, which is one of the primary reasons why the government is hypersensitive to any comments regarding its reserve levels or a hard landing. China's public reaction in its state media to George Soros' comments in Davos was in character for a country that is on the precipice of a large devaluation. What is remarkable is the dissonance between the reality of the economic situation in China and the current belief systems of investors. As economic growth has slowed dramatically, bank credit growth accelerated sharply, leaving the banking system vulnerable to large losses.

What Happens Next? – Fasten Your Seatbelts

The troubles in China are much larger than market participants believe. Everyone (including Chinese citizens) knows something is wrong, but few, if any, can put their finger on exactly what it is. The narrative to date has been focused on the symptoms of the problem (i.e. capital outflows and low commodity prices) as opposed to the problem itself. We believe the epicenter of the problem is the Chinese banking system and its coming losses. Once analysts, politicians, and investors alike realize the sheer size of the impending losses and how they compare to the current levels of reserves, all focus will swing to the banking system.

As it is obvious that China's economy is slowing and loan losses are mounting, the primary question is what are China's policy options to fix the current situation? We believe that a spike in unemployment, accelerated banking losses / a credit contraction, an old-fashioned bank run, or more likely the fear of one or all of these events, will force Chinese authorities to act decisively. The policy options that China has then are limited to:

1. Cut interest rates to zero and let the banks "extend and pretend" bad loans – lower interest rates will force more capital abroad putting downward pressure on reserves and the currency.
2. Use reserves to recapitalize its banks – this will reset the banking sector, but wipe out the limited reserve cushion that China has built up, and put downward pressure on the currency.
3. Print money to recapitalize its banks – this will reset the banking sector, but the expansion of the PBOC's balance sheet will lead to downward pressure on the currency.
4. Fiscal stimulus to revive the economy – this will help some chosen sectors of the real economy, but at the expense of higher domestic interest rates (if not done in conjunction with Chinese QE). The 2009 fiscal stimulus was primarily executed through the banking sector so a similar program would require a properly capitalized banking sector. Also, any increase in Chinese investment would reduce China's trade surplus and ultimately pressure the currency.

The playbook from policy makers to deal with China's challenges will likely combine several of the above measures, but ultimately a large devaluation will be a centerpiece of the response. This will allow the Chinese economy to regain the competitiveness it has lost over the past few years.

Chinese officials will realize that a meaningful devaluation is exactly what China needs to help rectify the imbalances that have built over time. Look to Japan, Russia, Brazil, Mexico, and Europe as examples of countries (or a monetary union in the case of Europe) that have allowed their currencies to depreciate in order to correct the imbalances in their economies. This begs the question of whether governments are going to engage in a full-on currency war. In our view, this has already begun. One only has to look at what BOJ Governor Kuroda said to the Chinese during a panel at Davos last month. He told them to impose stricter capital controls to stem the flow of hot money out of China and to stabilize their currency. Just one week later, he moved the BOJ to negative rates and devalued the yen 2% versus the renminbi overnight. There is one thing central bankers loathe, and it happens to be free advice.

Once China realizes that it must save its banks (China only has a newly established deposit insurance system with limited coverage and little pre-funding, which could make bank runs very problematic), it will do so. The Chinese government has the capacity and the willingness to do what it needs to do to prevent a banking system collapse. China will save its banks, and the renminbi will be the valve for normalization. It is what any and every government would do if put into a similar situation. China should stop listening to Kuroda, Lagarde, Stiglitz, and Lew and start thinking about how to save itself from the impending disaster in its banking system.

Remember, Bernanke had the subprime crisis wrong when he said it was “contained,” Lagarde and Sarkozy had it completely wrong when they said speculators were the cause of Greece’s problems, and now they all have it wrong when they say China’s problems are due to a simple “communication problem” regarding its FX policy. The problems China faces have no precedent. They are so large that it will take every ounce of commitment by the Chinese government to rectify the imbalances. Risk assets will not be the place to be while all of this is happening.

Once we drew this conclusion in the middle of last year, we decided to liquidate the majority of our risk assets and position ourselves for the various events that are likely to transpire along this long road to a Chinese credit and currency reset. The next 18 months will be fraught with false-starts, risk rallies, and second-guessing. Until China experiences a significant devaluation, it will not be able to cope with the build-up of credit that has helped fuel its rise, but may, in the short-term, be its undoing.

Sincerely,

A handwritten signature in black ink, appearing to read 'J. Kyle Bass', written in a cursive style.

J. Kyle Bass
Managing Partner

*The information set forth does not constitute an offer, solicitation or recommendation to sell or an offer to buy any securities, investment products or investment advisory services. Such an offer may only be made to eligible investors by means of delivery of a confidential private placement memorandum or other similar materials that contain a description of material terms relating to such investment. The information and opinions expressed herein are provided for informational purposes only. **This may not be reproduced, distributed or used for any other purpose.***