

Campanella, Miriam L.

Research Report

Turning China's money reserves into capital

ECIPE Policy Brief, No. 5/2015

Provided in Cooperation with:

European Centre for International Political Economy (ECIPE), Brussels

Suggested Citation: Campanella, Miriam L. (2015) : Turning China's money reserves into capital, ECIPE Policy Brief, No. 5/2015, European Centre for International Political Economy (ECIPE), Brussels

This Version is available at:

<https://hdl.handle.net/10419/174794>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

No. 5/2015

Turning China's Money Reserves into Capital

by **Miriam L. Campanella**

*University of Turin and Senior Fellow ECIPE Brussels*¹

In the wake of the financial crisis, there has – yet again – been an animated debate about global imbalances and foreign reserve accumulation. In the decade before the crisis, emerging markets and low-income countries accumulated reserve holdings of over 5 trillion U.S. dollars². These reserves were a powerful defence against external turbulence in 2007-2009. The IMF (2011) argued: “Countries with adequate reserves generally avoided large drops in output and consumption, and were able to handle outflows of capital without experiencing a crisis”.

However, the IMF and many others have questioned whether higher reserves are always better and argued that excess reserves held by China and other countries are destabilising the global economy. The IMF argued in a much-discussed analysis that in the new post-crisis environment it is necessary to reconsider the adequate levels of reserves and establish a metric for the reserve needs of emerging markets and low-income countries. Furthermore, the Fund concluded that “holding large reserves entails costs, both directly for each individual country, and globally as large

¹ The author would like to acknowledge the many valuable suggestions and encouragement made by Benjamin Cohen, Fredrik Erixon, an anonymous referee, and the Editor ² As the IMF admits the precautionary motive was an important reason for the build-up of reserves in a number of emerging markets in the early 2000s following the balance of payments and banking crises of the 1997-1998 in Asia. The Fund also admits the precautionary benefits of reserves were perceived to have increased not only in emerging economies but also in some advanced countries, in recognition of new sources of vulnerability that were highlighted during the crisis (IMF 2011).

EXECUTIVE SUMMARY

Some economies in East Asia have built up large amounts of foreign exchange reserves in the past decades. Holding large amounts of reserves helped these economies to stabilize their macro economy and exchange rates under periods of market stress and rapid shifts in relative economic size. Generally, it has been a strategy to provide a defence against external shocks with damaging consequences for exports.

Rules aimed at limiting foreign reserves, in order to prevent currency manipulation, have been discussed over a long period of time. Yet there are to date no rules that come with effective disciplines – and it is unlikely that such rules can be agreed multilaterally, at least for the foreseeable future.

What measures has China adopted to

cope with these challenges?

The first line of defense was assigned to the State Administration of Foreign Exchange (SAFE), part of the People Bank of China (PBOC), with the objective to diversify away from U.S. government securities. In essence, the purchasing of new U.S. Treasury bonds was going to decelerate, if not stop. This is not an adequate policy. Even if China would reduce its U.S. denominated foreign exchange reserves, it does not answer the question what China should do with all the assets it has already accumulated.

Improving the safety of its foreign reserves and the yields it can realistically expect is linked to improving China's institutional structure for financial competition and openness. In order to transition some of its current reserves, China

should “decentralize” and move capital into the economy guided by solid market mechanisms. Financial liberalisation would allow the country to consider redeployments of its foreign reserves – redeployments allowing for greater amounts of investment from China in America's real economy.

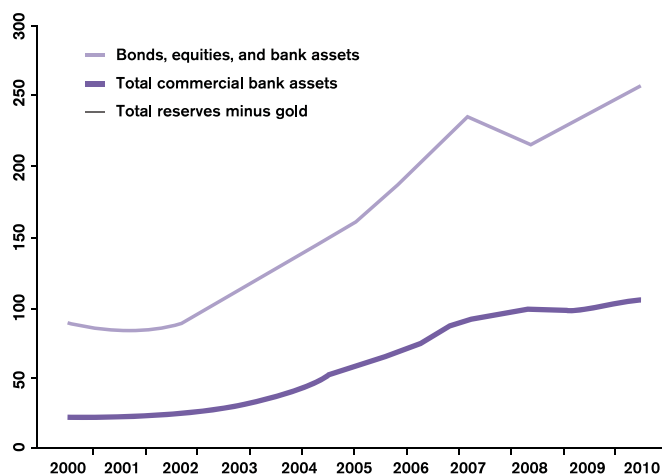
Even if China's foreign reserves seem destined to shrink, redeployment is necessary if China wants to gain better control over its reserves by reducing its exposure to larger systemic and macro risks. This Policy Brief offers a discussion around various alternatives for China's government to achieve that aim – and especially takes stock of an idea to shift reserves into equity.

reserves are detrimental in the form of macro-economic imbalances” (IMF, 2011).

Clearly, the Fund’s analysis suggests there is a strong correlation between excessive reserve accumulation and global imbalances. Moreover, it assumes that large foreign exchange reserves could be instrumental in altering exchange rates, consequently eroding the stability of the international monetary system. However, this view is contested.

One response has come from the Fund’s own Independent Evaluation Office (IEO). In a 2012 report, the IEO concluded that the IMF’s argument about foreign reserves held in emerging countries is not persuasive as it relates mainly to current account imbalances and not to reserves. In addition, the IEO argued that when compared to the expansion of global financial markets, the size of official international reserves does not appear excessive (Figure 1). Therefore, the IEO concluded, “in analysing the international monetary system the IMF should have placed greater emphasis on more pressing issues than reserves, for example the growth in global liquidity and capital flow volatility”.

FIGURE 1.
GLOBAL BANK ASSETS AND INTERNATIONAL RESERVES (IN BILLION US\$) SOURCE: IMF-IEO 2010



The debate over imbalances and reserves offers more nuances than the short description exhibited above. But it is clear that there is no consensus among economists or in the community of global macro decision-makers about the right size of reserves or what effects that big reserves have on international macro policy. Some of the urgency in the debate has abated in the past two years as the structural growth

in foreign exchange reserves has slowed down.

IS CHINA A CURRENCY MANIPULATOR?

Yet there is one part of the debate that refuses to go away – the charge that China is a “currency manipulator” and that it runs a foreign exchange reserve policy that destabilises the world economy. The U.S. Treasury has been close to naming China a currency manipulator but yet refrained from doing so. It keeps pushing China to allow a faster appreciation of the renminbi, but in recent years argued that the decline in China’s current account surplus, due to appreciation of China’s real effective exchange rate, has helped to reduce the U.S. current account deficit.

This position is, however, questioned by economists that consider China a currency manipulator and argues that it should merit action by U.S. authorities. Lately, it has been argued that the U.S. government should try to establish disciplines against currency manipulation in trade agreements such as the Trans-Pacific Partnership (TPP) that is currently negotiated. Peterson Institute’s Fred Bergsten, for example, takes the view that it is high time for the U.S. to finally implement a strong currency manipulation discipline in defence of the country’s exports and that a failure on this account could compel the U.S. to sink a TPP deal. Furthermore, it is said that such a policy would send a serious warning to present (especially Japan) and prospective (China) partners in trade negotiations that the U.S. is serious about taking away trade advantages generated by currency-manipulating policies.

To help U.S. authorities to pinpoint the villains, Bergsten draws on a model by Joseph Gagnon (2013) in which three measures are used to define a currency manipulator: a measure of foreign exchange reserves, including sovereign wealth funds, in excess of three months of imports; the purchase of significant additional amounts of official foreign assets (which would imply substantial intervention on the exchange rate); and, last but not least, excessive trade surpluses.

Excessive foreign reserves would trigger a string of penalties, including denied market access obtained via free-trade pacts, countervailing duties against exports subsidized by deliberate undervaluation, and sweeping import surcharges on the villains. With such penalties, Bergsten expects “objectionable currency practices by trade pact participants” to be deterred.

In addition, if a bilateral trade agreement embraces such disciplines it could also help to spawn better multilateral disciplines at the IMF and the World Trade Organisation.

Such proposals also form part of heavy trade lobbying in Washington, DC. It is a view championed by several companies and the automobile industry has especially embraced it, at least in trade agreements including Japan. The American Automobile Policy Council's (APPC) has put forward a proposal for a currency-manipulation clause in the TPP trade agreement and made its support for this trade initiative contingent on the adoption of such enforceable provisions. Previous versions of Congressional proposals on a trade promotion authority bill included some novel phrases on currency manipulation. Still, Congressman Sander Levin, ranking member of the U.S. House Ways and Means Committee, withheld his support of this bill, noting among his objections that it did not go far enough on currency intervention issues. In the recent TPA bill proposed by Senators Hatch and Wyder together with Representative Ryan there are no proposals to condition the approval of Free Trade Agreements on currency-reserves policy.

However, the "currency manipulation discipline" proposed in the debate, and the campaign for its implementation, can turn out to be a red herring³. Excessive foreign reserves are already a big concern to China's authorities, but for different reasons. Holding reserves come with opportunity costs – and big reserves inevitably mean big opportunity costs.

**EXCESSIVE FOREIGN EXCHANGES
RESERVES: FORGONE GROWTH AND
SYSTEMIC RISKS**

Excessive reserves imply denied welfare. According to calculations by Larry Summers,

the forgone growth for China because of its reserves amounted five years ago to almost 6% of GDP⁴. Yet what appears to have concerned China's authorities more in recent years is that its foreign reserves, mostly parked in sovereign debt securities of the developed world, are no longer harbored in safe haven after the 2008 global financial crisis. In the current unstable structure of international monetary policy these assets are exposed to a mix of systemic risks. At home, as Yu Qiao (2013) observes, "the balance sheet of the Chinese central bank is constantly being expanded with stockpiles of foreign reserves over the years, and this situation was severely worsened by the recent fiscal stimulus to counteract economic slowdowns. Consequently, domestic money supply is increasing to a dangerous level and inflationary pressure mounts".

In most advanced economies, however, inflationary pressures are subdued⁵ and prices are in some countries falling despite seven years of rapid expansion of central banks' balance sheets. The prevailing view is that, with inflation on downward trend, the interest rates largely reflect a fall in the equilibrium or 'natural' interest rates. However, as argued by the IMF (2014) and others, central banks should not get complacent about the risks involved in the extraordinary monetary expansion. As Borio (2015) argues, this view neglects the role of monetary and financial factors behind the trend decline in real rates: "After all, interest rates are not determined by some invisible natural force, they are set by central banks of developed economies".

By the same token, the ECB's Benoît Cœuré remarks that a "central bank which promises to maintain interest rates low for a prolonged period entails some risks" (2014). And India's top central banker, Raghuram Rajan (2014), argues that "the belief that interest

³ Ed Dolan (2013), among others, has made the correct observation that, while helpful to some interests in China, the accumulation of reserves and an undervalued currency harm other interests, in particular industries that rely on imported inputs, both high-tech components and raw materials, and middle-class consumers of imported goods. As Dolan writes: "China's currency manipulation has not been highly effective, nor, at the present exchange rate, does it demonstrably do great harm to the United States". ⁴ This figure is from Steil (2010). ⁵ The Cleveland Federal Reserve (2014), *Estimates of Inflation Expectations* (December 17, 2014), assesses actual inflation at about 1.7 per cent, below the Fed 2 per cent target, and expected inflationary expectations to go south. Yet inflationary risks are still persistent: "Inflation expectations matter because they, more than current inflation, determine prices. That's why even if actual inflation doesn't materialize, the wide range of expectations still matters. When evaluating the costs of the Fed's quantitative easing program, the relevant question is not whether it sparked inflation. It's whether it increased inflation risk." Inflationary risks result in a drag on creditors, and the process of hedging future risks, or uncertainty, is highly expensive in terms of missed decisional capabilities. ⁶ In other words, a higher propensity to save in emerging economies, together with investors' growing preference for safe assets, has increased the supply of savings worldwide, even as weak growth prospects and heightened uncertainty in advanced economies have depressed investment demand.

rates will stay low for long periods might lead banks to make excessive liquidity promises and increase the future need for low rates, and thus sow the seeds of future crises”.

Others have also weighed in. Both the BIS (2014) and the IMF (2014) have argued that current ultra-expansionary policies are building into the financial system large risks in the form of mispricing of assets and risk, without affecting real-sector expenditure to the extent desired. Rajan (2011, 2015) argues that pledging to keep interest rates to stay low for long periods might lead banks to make excessive liquidity guarantees and increase the future need for low rates. In other words, it sows the seeds of future crises, creating a feedback reinforcing the instability of the financial sector.

In sum, ultra-expansionary policies create powerful incentive distortions whose consequences are typically understood only after a crisis. Yu Qiao and Xue Lan (2013) warn that these policies tend to reinforce the moral hazard that created the crisis in the first place, and that they are currently reproducing the distortions that characterized the era leading up to the 2008 crisis. Such warnings have not passed unnoticed in Beijing. Chinese authorities are increasingly alarmed about systemic financial risks abroad and how a crisis could erode the value of China’s reserves.

REDEPLOYING FOREIGN RESERVES

As Stephen Roach (2014b) warns: “In these days of froth, and of the persistent extraordinary policy accommodation in a financial system flooded with liquidity, central banking seems having lost its way. Trapped in a post-crisis quagmire of zero interest rates and swollen balance sheets, the world’s major central banks do not have an effective strategy for regaining control over financial markets or the real economies that they are supposed to manage. Policy levers – both benchmark interest rates and central banks’ balance sheets – remain at their emergency settings, even though the emergency ended long ago”.

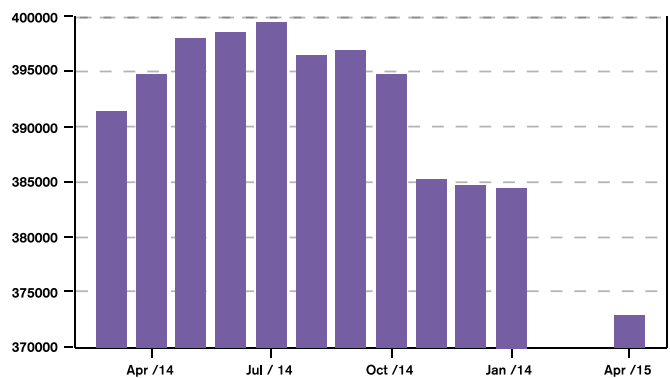
These developments, reinforced by trends of emerging “currency wars”, have ended up diluting international reserves. As for China, the real value of the foreign reserves is pro-

jected to shrink in the next few years by about one third when measured against a composite commodities index ⁷. Consequently, China needs to defend its riches and take measure to that end.

This is easier said than done. While foreign reserves are liquid assets, China’s foreign reserves are locked in the U.S. Treasury bonds and the European sovereign debts. Selling large amount of them would drop their value sharply and erode the market. This is the so-called “too-big-to-exit” problem. Therefore, diversifying a sensible part of excess foreign reserves is the only realistic option.

The first way to reduce the huge pile of foreign exchange reserves is obviously stop buying them. And, for a variety of reasons, China is obviously slowing down its reserve accumulation (Figure 2).

FIGURE 2.
CHINA FOREIGN EXCHANGE RESERVES 2014, 2015
(SOURCE: TRADINGECONOMICS AND PBOC).



A second way to protect the value of its reserve is legalistic. While there may be no reason to worry about a default by the U.S. government, Barry Eichengreen (2014) argues that “China, as a creditor nation, has responsibilities on putting its savings safe, and especially has an interest in a stable international debt regime, under which governments pay when they can and restructure in an orderly and predictable way when they can’t”.

In fact, what makes a debt resolution process difficult is the absence of a supranational Sovereign Debt Restructuring Mechanism, with the power to enforce lending contracts and oversee restructuring negotiations.

⁷ See Yu (2013).

Ideally, such a mechanism could be put in the International Monetary Fund, an idea that economists like Anne Krueger have advanced in the past. Yet, the U.S. and other countries are unlikely to agree transiting more power to the Fund. China too has little interest for such an approach given its weak representation in the IMF.

Hence, argue observers like Eichengreen, the only option left is a reinforcement of bond covenants and contracts. As Eichengreen asserts “international bonds should include ‘collective action clauses’ which specify that the terms accepted by a qualified majority of bondholders will apply also to any dissenting minority. All bonds should also include ‘aggregation clauses’ where the qualified majority is of all bondholders, not just investors in a single issue, to prevent vulture funds from assembling blocking positions”. In the end, Eichengreen’s recommendation for China is to announce “that, henceforth, it will buy only bonds including such provisions” (2014).

A MARKET-DRIVEN APPROACH

A third approach would be to change the nature of the reserve holdings, turning them away from holdings of sovereign paper into real capital that can be measured, allocated and protected in better ways. China’s State Administration of Foreign Exchange (SAFE), an arm of the PBoC, is a conservative investor but has accelerated its diversification in order to get a better return. In a way, it seems as if SAFE recently has started like a Sovereign Wealth Fund (SWF) rather than a conventionally reserves fund manager⁸.

Yet a bolder approach is needed if the ambition is to protect its accumulated reserves. For that purpose, a significant portion of the nationalized external savings should be decentralized and move into a private institutional structure. Excess forex reserves should move away from the territories of monetary authority dominance. In fact, the current rigid mandates of reserve assets, enforced by governmental agencies, should be replaced by a return-driven allocation policy effected by

commercial entities. For this to happen, there would have to be a transition of the assets into other structures than those controlled immediately by the Chinese state.

In such a way, resources of sovereign debt securities could be diversified in a way that would not prompt political responses abroad. Such diversification would include shifting the sovereign assets into equity claims against private corporations in commercial industries. For this purpose, a dedicated agency – taking lessons from the CIC (Wei-Yu, 2010) or the concepts guiding Debt-Equity-Swap (DES) facilities (Yu Qiao, 2013) – would have to be created in order to manage the transition and the improvements in investment strategies.

A pure DES model, as designed by Tsinghua’s Yu Qiao, introduces important innovations into the debate. According to Yu, the DES is conceptually a special instrument of asset conversion that changes debt into equity claims in the process of a liability restructuring. It follows a three step-process. First, the Chinese central bank moves the U.S. Treasury bonds to other investment entities. Second, investors swap the Treasury bonds to equity shares or equivalent claims in the private sector, or commit them in greenfield projects in foreign countries. Third, the bond-receivers take the U.S. Treasury bonds as collateral to obtain bank credits or issue asset-backed securities for liquidities.

Such an *ex-ante* DES facility rests on accessibility to a variety of market-oriented and professional investment platforms. This is needed to set up new private investment companies with joint-share ownership structures, sound corporate governance structure, and adaptability to external environments. Together with the new investment institution, Yu (2013) recommends that China’s state investment monopolies like the SAFE and the CIC should be reshaped in order to improve their performance.

This is a bold idea – and it is easy to see what challenges that face it. Obviously, the prime one is that China’s government would have to let go of the control of the parts of the reserves that are transformed. Yet it has one

⁸ SAFE has been facing strong competition from China Investment Corporation (CIC), a SWF, which has led to significant pressures on the management of SAFE to increase its return.

core strength: it gives an opportunity for the Chinese government to diversify its reserves faster and do it in a way that it can control. It also makes another thing clear: for China to improve the protection of its riches, it need to reform its financial sector by providing better structures of competition and allow for greater market access.

The last point is becoming urgent. In the last months, the PBoC has been busy on the liberalization front. In December 2014, the PBOC published the Deposit Insurance Scheme (DIS), due to take effect this year, and has allowed 20 percent upward floating of the benchmark deposit rate. In principle, these measures (if they are implemented) would lead to higher interest rates on deposits and higher lending rates on firms, which is necessary in China's depressed savings market. As private firms would still be profitable despite somewhat higher rates, state firms will likely dry up a bit financially as resources will most likely flow to the private sector⁹. Beijing seems still to be backing the idea of letting interest rates float more freely, and if its support continues banks would be forced to compete and thus allocate credit more efficiently.

However, such support may be a foregone conclusion. China's administration seems to be acting more as a stabilizer than a front-runner in the implementation of financial reforms¹⁰. Timely reforms of the capital market, including facilitating market access for private banks and administrative approval process, should however be a priority for the central government. It is critical for the health of its economy that market forces play a greater role in allocating the country's large financial resources. In a recent paper, Yu-Fu Chen (2015) calculates that with financial market reforms in place, capital and labour should become more efficiently allocated across firms and industries, with the private sector expected to deliver sizeable rates of economic growth, something that would succumb to the inefficient state sector and compensate for declining exports.

The point in this Policy Brief is that such reforms are necessary for China to move into a policy that would allow it to better control

and protect its foreign reserves. In its current form, China will be exposed to broader financial risks without the capacity to accelerate a process of diversification. State and private money also hang together. With its reserves and the large pool of domestic savings, China is the world's largest capital-surplus economy. It is up to China's leadership to set the institutional conditions for the return on the capital it exports abroad. In the current form, China's strategy of exporting capital is not just subject to risk, but it needs to up that game in order to improve the financial returns it can get under its own self-imposed restrictions.

CONCLUDING COMMENTS

A recent poll, commented in *The Globalist* (2014), suggest that Americans consider China their "nemesis" as they see China's growing economic power as a "critical threat" to America's "vital interests". As the process around the China-led Asian Infrastructure Investment Bank has unfolded there has been evidence to suggest that such views are also supported in high places. U.S.-China relations are clearly showing signs of stress.

However, China's huge amount of dollar reserves and its role as the largest U.S. creditor, are a distraction, also for the U.S. As Stephen Roach (2014a) warns, "what rather should worry the U.S. administration is that China's determination to re-balance the country's economy into more of domestic-led growth can be far more complicated for the U.S. and the world economy than expected as there will be far less capital available for government bonds".

That sounds a warning for America, that the country is likely to feel some pressure when China shifts from a saving-surplus model to a saving-absorption policy. As the U.S. Fed winds down its QE programme, the U.S. government has an interest to decelerate rather than exacerbate frictions in relations to its foreign creditors.

China is indeed attempting to rebalance its economy. While there are substantial challenges – and the speed of the reforms (or the

⁹ Lardy (2014), ¹⁰ Forchielli (2014).

lack of it) prompts warnings about the determination of Beijing to effect reforms – the direction of economic policy has grown clearer in the past years. Ideally, sooner rather than later it should free up restrictions on the flow of money in and out of the country. Its long period of accumulating foreign-exchange reserves will also move towards an end. Li Jie, head of the foreign-exchange reserve research office at the Central University of Finance and Economics in Beijing, argues that the consequence would be that Chinese authorities may attach growing importance to the U.S. Treasury bonds already held by China: “You value your assets when assets aren’t growing. For the past years, China has been talking about boosting the return of foreign exchange reserves. As the reserve size peaks, however, China is likely to shift focus to liquidity”¹¹.

¹¹ Bloomberg (2015)

BIBLIOGRAPHY

- Borio Claudio and Piti Disyatat (2009) Unconventional monetary policies: an appraisal. BIS Working Paper N. 292.
- Borio Claudio and Piti Disyatat (2014) Low interest rates and secular stagnation: Is debt a missing link? Voxeu.
- Borio Claudio (2014) Macroprudential frameworks: (too) great expectations? Contribution to 25th Anniversary Edition of Central Banking Journal.
- Benoît Cœuré (2014) ECB: Life below zero: learning about negative interest rates. ECB Frankfurt am Main, 9 September.
- Bergsten, C. Fred, Joseph E. Gagnon (2012) Currency manipulation, the US economy, and the global economic order. Policy Brief 12-25. Peterson Institute for International Economics
- Bergsten Fred (2013) Our Chance to slash the high costs of currency manipulation. Financial Times 18 December.
- Bloomberg (2013) PBOC says no longer in China's interest to increase reserves. Bloomberg News Nov 21.
- Bloomberg (2015) \$4 Trillion peak for China's stockpile of foreign currency may free PBOC's hands. January 12.
- Cleveland Fed (2014) News Release, 17 December.
- China Daily USA (2014) Long-awaited deposit insurance harbinger for further reforms. December 2.
- Dolan Ed. (2013) Who Are the biggest trans-pacific currency manipulators? How great is the threat? EconoMonitor
- Eichengreen Barry (2014) The Responsibility of a Creditor Nation. Caixin, 8 July.
- Forchielli Alberto (2014) China: Finance Without Banks? Osservatorio Asia March 6th.
- Gagnon, E. Joseph (2012) Combating Widespread Currency Manipulation. Policy Brief 12. Peterson Institute for International Economics.
- IMF (2011) "Assessing Reserve Adequacy," SM/11/31, February International Monetary Fund. Washington DC.
- IMF (2014) Global Financial Stability Report. Chapter 3.
- IMF - Independent Evaluation Office (2012) International Reserves. IMF Concerns and Country Perspectives. IMF Publications Washington DC.
- Roach Stephen (2014a) Unbalanced. The Co-Dependency of America and China. Yale University Press.
- Roach Stephen (2014) What's at Stake in This Round of S&ED Talks. Caixin, July 9
- Salidjanova Nargiza (2014) China's Foreign Exchange Reserves and Holdings of U.S. Securities. USCC Economic Issue Brief No. 2, March 21.
- Steil Benn (2010) Dollar Reserves Cost Japan and China. Financial News 26 July.
- Xi, Sun (2014) We are not enemies. The Globalist, July 9.
- Yukon Huang (2014) China's rebalancing requires more investment of the right kind. 23 January.
- Yu Qiao (2013) Relocating China's Foreign Reserves. Brookings 21 November.
- Yu Qiao and Xue Lan (2013) Handcuff central banks, save the market economy. G-20 and central banks in a new world of unconventional monetary policy. Brookings.
- Yu Wei-Yu (2010) Management of China foreign exchange reserves: a case study on the State Administration of Foreign Exchange (SAFE). ECB, Economic Papers 412, July 2010.
- Xi Junyang (2015) \$4 Trillion Peak in China's FX Hoard Frees PBOC's Hands: Economy Bloomberg January 12 2015.
- Yu-Fu Chen, Michael Funke, Kunyu Tao (2015) Financial Market Reform. A New Driver for China's economic growth? BOFIT Discussion Papers 5. February.