

Implications of RMB Internationalization: the Korean experience*

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Abstract

Currency internationalization (CI) is either encouraged or permitted when (i) there's a certain depth of the financial markets, (ii) full capital account convertibility (CAC), (iii) regulatory reform and (iv) flexible exchange rates have been achieved. Current ongoing RMB internationalization does not follow a conventional process of "reform first, internationalization second," China is still in it's an early stage of capital account opening, a different pathway, which has been singled out as a potential risk. The recent turmoil in China's currency market has put the Chinese authority into the trilemma problem as it is not easy to find a way to achieve flexible exchange rates. Under such circumstances both RMB internationalization and market reform will not make progress. From a political economic point of view, what is even more important is the vulnerability of balance of payments as it may trigger a loss of confidence and make policy makers reluctant to push forward RMB internationalization. Internationalizing currency can be regarded as extending of liberalizing capital account, and when assessing the effect of CI, people recall the consequences of CAC. Consequently, the memory of a crisis is obliged to reconfigure CI; which is exactly what Korea experienced. After the Asian financial crisis the Korean government implemented extensive capital account liberalization and a market oriented economic system. The global financial crisis (GFC) hit the Korean economy and left collateral damage. Since GFC, the Korean won internationalization has been in stalemate. Instead, the Korean government introduced FX-related prudential measures, which definitely is not a long term solution.

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* Forthcoming to Global Asia.

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I. Introduction

Since the global financial crisis there have been signs that the international monetary system is evolving toward a greater role for emerging market currencies, reflecting both strong fundamentals in emerging market countries and an appetite for diversification among investors (Maziad et al., 2011).

However, the currencies of EMCs still play a limited role in international transactions, which is in itself a source of stress to the functioning of international monetary system. For example, the biggest global supply chain has been formed in the East Asia, but financing the supply chain is mostly supported by USD denominated assets and liabilities. This leads to unnecessarily high demand for USD comparing situations when currencies in this region are used internationally.

Currently, only a few emerging market currencies, led by the RMB, show potential for internationalization on a global scale, albeit many more could achieve some degree of international use. This process, however, will require more depth of financial markets and further progress to reform and capital account convertibility (CAC) along with other macroeconomic and structural policies.

Initially, currency internationalization (CI) was an unintentional byproduct due to the economic and financial development of a country. It is essentially an organic, evolutionary, and market-driven process. Economic fundamentals such as size of the economy and trade network, depth, and liquidity of the financial markets, as well as the stability of the currency are important determinants that support CI (Cohen, 2000). No single factor determines successful internationalization; rather, wide use of a currency outside the issuer's borders is due to the combination of economic size and centrality to global trade, as well as capital account openness and the depth of financial markets, which provide global investors with safe stores of value.¹

In response to this unintentional byproduct the governments of the countries encouraged, maintained neutral, or discouraged the use of their currencies internationally. The former case usually did not receive the public support. On the contrary, often economic players were indifferent or even opposed. For example, export firms feared that it would appreciate their currency.

Going further it is well known that the Deutsche Bundesbank and the Swiss National Bank, at times tried to discourage the international use of their currencies because greater international use would render the demand for money unstable and therefore complicate the implementation of their monetary policy.

More recently, however, late comers like Australia and New Zealand recognized the benefits of CI and intentionally supported internationalization of their currencies. At first, the Japanese government was passive but soon aggressively pursued CI. Singapore maintained a non-internationalization policy, but since 1998, restrictions have been progressively lifted. Most recently, the Chinese government has actively taken measure to implement RMB internationalization.

Why internationalization?

Not all countries have benefited from financial globalization. In theory, such benefits as consumption smoothing, efficient resource allocation and risk diversification should be enjoyed once a country is admitted to the financially globalized world. In reality, however, often emerging market countries suffer from the boom bust cycle generated by massive capital inflows followed by sudden stops and reversals. During the global financial

¹ According to Maziad et al (2011) RMB fully meets 'economic size, trade network, inevitability, and financial depth' criteria. It does not meet 'capital openness' criterion.

crisis (GFC) many emerging market countries suffered from collateral damage.² Korea is a good example. In spite of the fact that the Korean government carried out extensive capital account liberalization and market oriented economic system after the Asian financial crisis, the Korean economy was vulnerable to GFC.

As a matter of fact, those benefits are the privileges of countries having their currencies internationalized. As an example, suppose that a country has external assets of US\$100 and external debt of US\$200 both of which are denominated in USD. The country's currency is named peso and currently, US\$1=PS1. Net external debt of this country is US\$100=PS100. Suppose that peso devalues by 10% points against USD and US\$1=PS1.1. Then, since US\$100=PS110 instead of US\$100=PS100 net external debt has increased by PS10 or US\$9.1 in dollar terms.

Alternatively, suppose that the country has issued PS200, the same amount of debt denominated in its own currency peso. The devaluation increases external assets to PS110 and, consequently, net external debt *decreases* by PS10 (=PS100-PS90) or US\$9.1. Therefore, a valuation effect of exchange rate movements goes in the opposite direction.

This simple example illustrates what is implied by the original sin theory. When a country issues IOUs denominated in international currency, a negative shock that leads to depreciations of the country's exchange rate will exacerbate the balance sheet through the valuation effect. The debt repayment burden will increase and spread to other types of crises. Often in emerging market countries, a currency crisis instead of being contained develops into a banking crisis and/or sovereign default crisis. It is not surprising that the exchange rate movements in emerging countries are highly volatile and pro-cyclical (Kim, 2014a). The valuation effect plays a role as a catalyst.

One may wonder that hedging exchange risk through derivatives can control the valuation effect even though IOUs are issued in domestic currency. Indeed the risk may be controlled at the firm level but *not* at the country level. As Korea has experienced during GFC, the risk did not disappear but concentrated onto the central bank having foreign reserves. In this sense the central bank is an insurer of last resort: ultimately the central bank should insure the risks of currency and maturity mismatches borne by players in the domestic market.

Consequently, in addition to the impossible trinity the central banks of emerging market countries face another policy constraint, managing mismatch risk. Often emerging market countries either curb FX borrowings or discourage the use of derivatives related to FX transactions. In this domain currency internationalization may not be welcomed. Offshore FX market such as market for NDF simply reflects domestic regulations.³

Here, when a country enables to issue IOUs denominated in its currency, the negative shock should reduce the debt burden and the valuation effect will contain the crisis.⁴ As Australia has successfully internationalized her currency, non-residents actively participate in both AUD and swap currency markets. Unlike Korea during GFC Munro and Wooldridge (2012) found:⁵

“... Australia and New Zealand stand out as countries with large outstanding amounts of swap-covered borrowing and large net external debts. Non-resident local currency bond issuance at end-2007 was 44% of GDP in New Zealand and 27% of GDP in Australia. Over 80% of foreign currency liabilities in Australia and New Zealand are hedged with financial derivatives into their own currency. The depreciation did not have adverse

² Fackler, M. (2008). Financial crisis spreads to emerging nations, *The New York Times*, October 23, http://www.nytimes.com/2008/10/24/business/worldbusiness/24won.html?_r=0

³ For example, Kim and Song (2010) demonstrated that Korea's foreign exchange liberalization has closed the gap between onshore and offshore FX market.

⁴ Unfortunately, the valuation effect works against the intention of the Bank of Japan's quantitative easing monetary policy. It is because Japan owns the largest net external assets in the world. The depreciation of Japanese yen leading to even larger net external assets strengthens the potential role of yen denominated assets as safe haven.

⁵ Similar statement is also found in Battellino and Plumb (2012).

valuation effects as debts are effectively denominated in local currency. In fact, valuation effects were positive...”

Partial currency internationalization vs. full currency internationalization

In partial currency internationalization (PCI) a domestic resident is able to issue and sell IOUs to foreign investors in the domestic currency, but this currency is not used between third parties. Full currency internationalization (FCI) enables international borrowing and lending denominated in a currency different from that used in the jurisdiction of either the borrower or the lender. Naturally, economies of scale in the use of an international currency, so-called network externalities should be much greater.

Risk management opportunities as a result of enabling to issue IOUs denominated in one’s own currency on the international market, among others, would be the most important benefit from CI. Lower transaction costs, funding costs and high liquidity resulting from a larger size of the market follow. A larger pool of investors should increase trading in the secondary market and make it highly liquid, thereby reduce the price impact of demand shocks.

However, the interest rates on country’s IOUs depend more on the international market, which makes domestic financial conditions more vulnerable to developments in the rest of the world. Here, whether CI has a positive or negative effect on the domestic economy is essentially the same as whether CAC has a positive or negative effect.

From capital account convertibility to currency internationalization

International use of a currency in merchandise trade and service, and in the denomination in IOU issuance presupposes the absence of significant controls on capital account transactions. Therefore, CAC is a precondition for CI, and consequently regulations on CAC must be important binding constraint to CI.

However, one should note that even partial CI requires a significant amount of CAC (Genberg, 2012). The issuance of one’s own currency denominated IOUs will shift the exchange rate risk to the foreign investor. Consequently, in order such IOU issues to take place on a significant scale a market for currency swap should exist for hedging the exchange risk. Otherwise, the scale and liquidity of the IOU issues will suffer from the constraints on CAC. Off-shore markets may develop and often thrive, but in most cases they are simply mirrors of domestic regulations.

Furthermore, it is highly unlikely that a currency subject to restrictions on foreign exchange transactions will be widely used, even for international trade in goods. This is because such trade accompanies considerable elements of a purely financial nature, such as trade financing and hedging of exchange risk. As long as these types of transactions are either costly or regulated, the currency is unlikely used. The Korean government liberalized won-denominated current account transactions in the 1990s, but the share of won has barely increased: in 2015 the shares of won settlement in import and export are 4.8% and 2.4% while they were 0.2% and 0.1% in 1992, respectively.⁶

As a matter of fact, since AFC Korea has shifted to a negative system that fully permits to engage in foreign exchange transactions in principle while being regulated on an exceptional basis, although the negative system

⁶ China has made a big success, however. Ito and Chinn (2013) predicted that the share of RMB invoicing for the PRC’s exports would rise to above 25% in 2015 and above 30% in 2018.

is only applicable to the banking sector. Also there remains a limit on non-resident's funding in Korean won.⁷

Order of currency internationalization: RMB internationalization

'Reform domestic financial system first, open capital account and internationalize currency next' is the standard procedure. This is how Australia, Japan and Singapore have promoted CI.⁸ Apparently as Eichengreen (2014) pointed out China have followed a different path, which raises a potential concern (e.g., Frankel, 2011; Aizenmen, 2015).

High yield of RMB assets has been a driving force of RMB internationalization, similar to what McCauley (2006) found in Australia. Essentially the process of RMB internationalization may be summarized as Chinese authority's regulation on the types and the size of foreign capital flows. Chinese government has pursued RMB internationalization via both private and public channels (see Appendix). On private channel the government designates qualified investors, deregulates or lifts capital controls. The government also creates special zones and enhances domestic and foreign financial linkages. Chinese government also separates onshore financial market from those special zones and screens types and controls the size of capital flows from offshore market into the special zones. Chinese government also promotes international use of RMB through bilateral swap agreements with foreign central banks. Such endeavor eventually will lead foreign investors to accumulate RMB assets abroad and it should also strengthen linkages between domestic and global financial markets.

Conditions for successful currency internationalization and case for policy intervention

According to the common sense view the successful CI requires the following conditions: well-functioning domestic financial market and an efficient legal framework for financial contract and its enforcement; stable and predictable macro and microeconomic policies; removal (not abolishment) of any restriction on CAC.

In addition, the advantage of high return with good quality credit is crucial. In early stage of AUD internationalization the issue yielded some 3 percentage points more than US dollar bonds but a full 1 percentage point less than did the Commonwealth of Australia's domestic five-year bond. Both foreign investors and domestic issuers benefited. Besides, withholding taxes on sovereign bonds onshore left offshore investors willing to accept lower yields from inferior credits marketed offshore (McCauley, 2006). Naturally, offshore AUD bonds market thrived.

Therefore, when CI has a positive impact on domestic financial stability, there is room for policy intervention. This intervention could take the form of such measures that would make it more attractive for domestic residents to issue domestic currency denominated debt abroad. Furthermore, decreasing cost of establishing an international market for such debt can even strengthen the case for the intervention to the extent that it helps to increase liquidity and reduce transaction costs.

From a political economic point of view, what is even more important is whether a country of the currency has experienced a BOP crisis, which this paper highlights. As already mentioned, internationalizing currency can be regarded as extending of liberalizing capital account, and when assessing the effect of CI people recall the consequences of capital account opening. The fact that a country has suffered a BOP crisis may lead policy makers to lose confidence and they would be reluctant to push forward CI, which is exactly what Korea has experienced.

⁷ This limit may be practically elevated when won is used for financial transactions through settlement banks in China once won yuan exchange market launches in Shanghai in June 2016.

⁸ In a way Singapore may be exceptional, since MAS targets exchange rate.

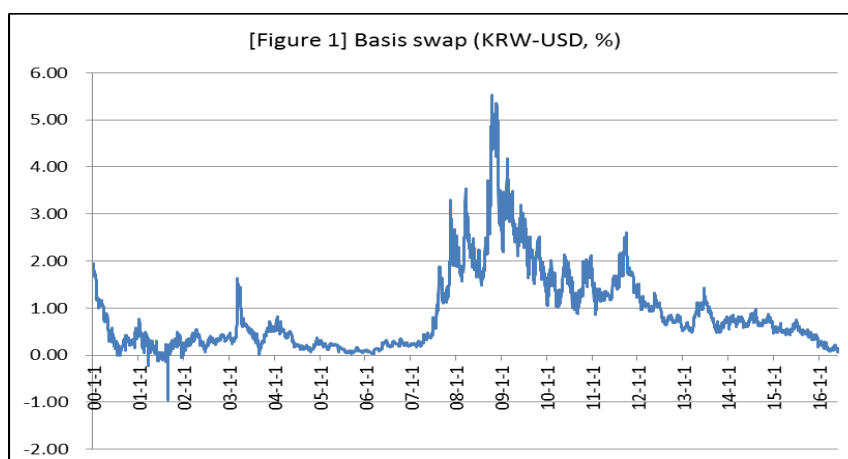
This observation is consistent with Singapore’s abandonment of a non-internationalization policy after the Asian financial crisis (AFC). The country’s non-internationalization policy turned out unlikely to be the dominant factor in overcoming the crisis. Rather than that its strong economic fundamentals, balance of payments surplus, and the prudential supervision of the financial system were important contributions (Chow, 2008). In short, Singapore successfully overcame the crisis and did not fall into déjà vu of a state of crisis. Therefore, *well managed* capital flows preserving the financial stability of a country are a precondition.

However, well managed capital flows are much easier said than done.⁹ Foreign reserves emerging market countries have amassed since AFC are important self-insurance but may not be enough. In the global economy where countries have a huge amount of external assets and liabilities, massive capital inflows followed by sudden stops and reversals could easily risk confidence in their currencies.

II. Korea’s capital account opening and the Global Financial Crisis

Post-Asian Financial Crisis Reform: Financial Globalization and Related Issues

Since AFC Korea has carried out full scale capital account liberalization and Korea’s financial markets have been deeply integrated to the global financial world. [Figure 1] shows daily basis swap rates with maturity of one year.¹⁰ Often gauging domestic FX liquidity conditions they are the potential arbitrage profit rates. During GFC the rates were highly volatile and significantly diverged from ‘zero,’ but eventually moved back towards ‘zero.’



Source: Bloomberg

Korea once incorporated into the periphery of the global financial world has been exposed to the potential capital inflow problem caused by highly volatile capital flows. Foreign reserves are the most important self-insurance against sudden stops. [Table 1] shows Korea’s external assets and debt in 2007 and 2016Q1. In both periods the country as a whole did not have the currency and maturity mismatches. However, the distribution of

⁹ Ostry et al. (2011) discuss the policy tool kit to manage the risks from capital inflow surges.

¹⁰ It is defined as interest swap rate minus currency swap rate.

external assets and debt is asymmetric. All sectors but the central bank had the currency mismatch: external debt was more than external assets. As a matter of fact, in 2007Q4 all private sectors from banks to corporates were even exposed to the maturity mismatches. In 2016Q1, however, the mismatches have been much improved, which needs explanation.

The table clearly demonstrates that the country unable to borrow in its own currency is forced to amass foreign reserves and insure risks of the currency and maturity mismatches borne by other sectors. Again as the Bank of Korea acts as an insurer of last resort.

[Table 1] External Assets and Debt (end of year, \$100million USD)

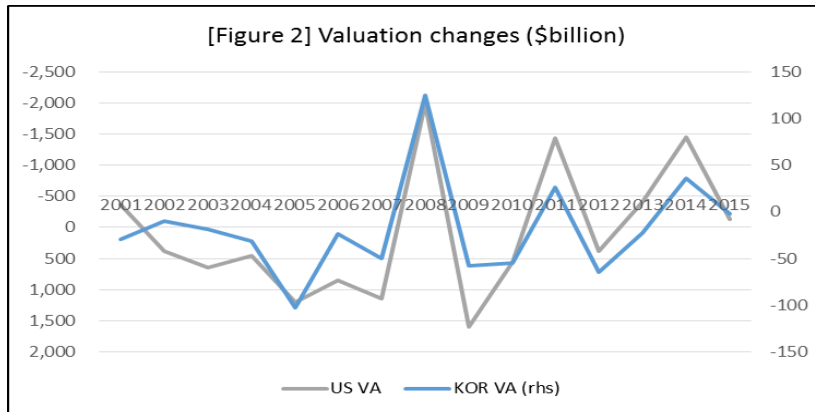
	2007 Q4		2016 Q1	
	Ext. assets	Ext. debt	Ext. assets	Ext. debt
Total	4,144.2	3,387.1	7,307.3	3,857.9
Short-term	3,275.9	1,659.4	5,206.0	1,027.9
Long-term	868.3	1,727.7	2,101.3	2,830.0
General government	207.2	367.2	209.9	667.7
Central bank	2,622.2	164.9	3,713.2	290.4
Short-term	2,622.2	95.6	3,713.2	119.3
Long-term	0.0	69.3	0.0	171.0
Deposit-taking FIs	734.5	1,923.6	1,754.7	1,708.5
Short-term	438.8	1,334.7	922.2	710.1
Long-term	295.7	588.9	832.5	998.4
Other Sectors	580.3	931.3	1,629.5	1,191.3
Short-term	209.6	229.1	502.1	172.9
Long-term	370.7	702.3	1,127.4	1,018.5

Source: The Bank of Korea

Korea's large shares of foreign reserves in external assets and securities in external liabilities have an important implication on the way the net external assets are correlated with mature countries.¹¹ Stylized facts say that given massive increase in gross capital flows the asset composition of the external balance sheet of countries is asymmetric: emerging countries short in risky assets and long in safe assets while mature countries tending to be opposite (Gourinchas and Rey, 2013).

[Figure 2] shows that Korea and U.S.'s valuation changes contributing to changes in net external assets during 2001-2015. The valuation change measures any change in the valuation of net external assets caused by exchange rate movements, change in market prices of assets, *etc.* The figure suggests that the valuation changes of the two countries are *strongly negatively* correlated. This strong negative correlation comes from the stylized facts described above. When the global market is in recession U.S. plays the role of a global insurer (Gourinchas et al., 2011). Otherwise, she plays as a venture capitalist to the world and enjoys excess returns (Gourinchas and Rey, 2005). The strong negative correlation is an undeniable evidence that in the global financial world Korea is at the antipode of U.S.

¹¹ Foreign reserves comprise the largest share in external assets although its share has decreased to 32.4% in 2015 from 57.5% in 2001. The share of securities in external liabilities in 2015 is 58.7%. It was 45.0% in 2001.



Source: The Bank of Korea, U.S. Bureau of Economic Analysis

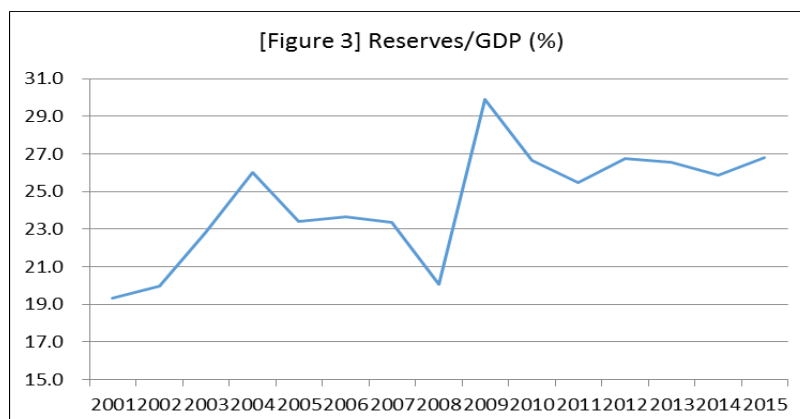
High correlations of the valuation changes are responsible for high correlations of changes in net external assets. [Table 2] reports the correlation coefficients among changes in valuation, net external assets and net import of assets, that is, the financial account in BOP of the two countries. During the sample period the valuation change is a dominant factor to determine the change in net external assets in both countries.

[Table 2] Changes in Net External Assets and Correlations: Korea and U.S.

	KOR Δ NEA ¹⁾	US FA	US VA
KOR FA ²⁾	0.5266	0.6939	-0.1891
KOR VA ³⁾	0.8410	-0.0706	-0.8543
US Δ NEA	-0.7747	0.0863	0.9854

1) Change in net external asset; 2) Net import of assets; 3) Valuation effects

The optimal level of foreign reserves has been an issue. Except for turbulent GFC period the ratio of foreign reserves to GDP tend to increase ([Figure 3]). This suggests that when reserves are measured by consumption smoothing one would say that there is absolutely no shortage of foreign reserves.

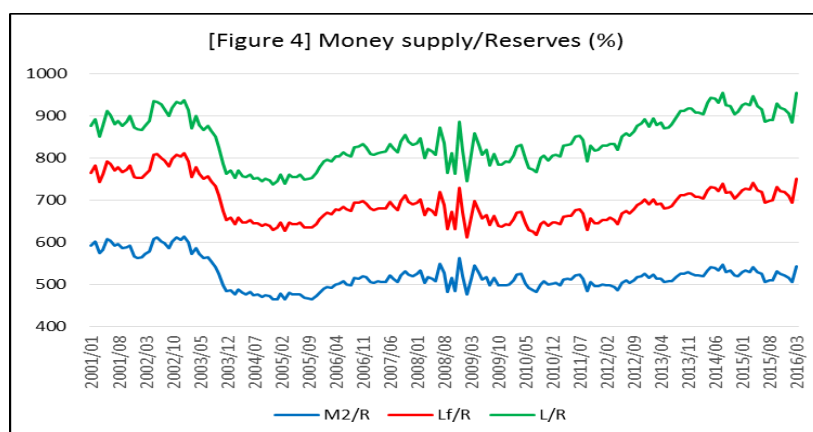


Source: The Bank of Korea

On the contrary, however, when foreign reserves are measured in terms of monetary aggregates it is a different story ([Figure 4]). Since GFC the ratios of monetary aggregates to reserves tend to increase, which raises the

potential risk of a double drain: capital flight driven by both foreign and domestic residents. As financial depth increases, the central bank should concern more about an internal-external drain and should have held more reserves.¹² Therefore, it may be difficult to deny such a claim that foreign reserves are still insufficient.

Moreover, it is possible that there exists two-way causality between foreign reserves and short term external debt. If this is the case, then in times of crisis foreign reserves are useful buffer against practical hazard but *not* moral hazard. Indeed, empirical evidence suggests that the causality can be two way.¹³



Source: The Bank of Korea

Global Financial Crisis and Macro-Prudential Policy Implementation

The global financial crisis hit Korea once praised as a role model of market oriented reforms. Korea suffered from the classic capital inflows problem. [Table 3] is FX flow of funds in various years and months. The table is constructed based on BOP statistics. The lower part of the table shows the source of FX funds, that is, FX inflows via such channels as borrowings, sales of securities, FDI and the current account. The upper part indicates how the funds flowed in are used. It shows how much of the FX funds remained in domestic country in the form of external credit and the rest recycled as overseas investment to the rest of the world.

[Table 3] FX Flow of Funds: Korea (\$100million USD)

Use of FX funds	2007	2008	2009	2010-14	2015
I. Changes in Ext. Assets	395.9	-572.0	634.6	3,114.4	628.3
1. Reserves	151.3	-564.5	686.7	882.9	120.5
2. Bonds	38.9	-163.6	-35.0	525.1	252.3
3. Other assets than bonds	205.7	156.0	-17.0	1,706.4	255.5
II. DI (Equity)	184.7	175.5	148.7	923.9	164.7
III. Overseas Equity Inv.	525.6	-71.2	21.0	462.8	170.9
IV. Capital Account (-)	-0.1	-0.3	0.7	2.5	0.6
V. Financial derivatives (-)	-54.4	143.7	30.9	-106.6	25.3

¹² Obstfeld et al. (2010)

¹³ Based on 46 emerging market countries (short term debt of the banking sector in 22 countries) and 2000-2007 annual data, Kim (2011) demonstrated that after controlling other macro variables foreign reserve accumulation does not necessarily mitigate the risk of maturity mismatch while it may provoke pro-cyclicality of capital inflows.

VI. Error and Omission (-)	-56.9	98.1	63.6	-49.2	-37.4
Total	994.7	-226.3	899.5	4,347.9	952.6
Source of FX funds	2007	2008	2009	2010-14	2015
I. Changes in Ext. Debts	1,153.2	63.2	301.1	1,137.9	-130.4
1. Borrowing	576.3	-11.9	50.7	371.4	-77.4
2. Bonds	576.9	75.1	250.4	766.4	-53.0
II. FDI (Equity)	6.8	12.8	15.1	126.9	43.2
III. Foreign Equity Inv.	-283.2	-334.1	247.4	444.5	-19.9
IV. Current Account	117.9	31.9	335.9	2,638.6	1,059.6
Total	994.7	-226.3	899.5	4,347.9	952.6

Source: Author's computation from BOP statistics, the Bank of Korea

According to the table in 2007, the pre-crisis year, \$99.47bn flowed into Korea and \$115.32bn was funded by debt: \$57.63bn borrowed and \$57.69bn sales of bonds. Foreign investors sold stocks worth of \$28.32bn. Of \$99.47bn \$39.59bn remained as external assets and of \$39.53bn \$15.13bn as reserves. The rest recycled as overseas equity investment (\$52.56bn) and direct investment (\$18.47bn).

In 2008, however, \$22.63bn left the country. Foreign investors sold stocks of \$33.41bn and the banking sector suffered from de-leverage of \$26.11bn. In response to the net outflows foreign authority sold \$56.45bn of reserves. Deleverage (\$7.12bn) by domestic stock investors also occurred. Huge depreciation of KRW led Korean economy sharply to turn into downturn.¹⁴

As already discussed Korean economy as a whole did not have currency and maturity mismatches and has never missed current account surplus since AFC. However, Korea was hit severely and it was the banking sector on which deleverage concentrated. As Obstfeld (2012) has correctly observed, it is gross exposures that carry the risks of financial instability regardless of whether the country has a current account deficit, or is a net international debtor. Furthermore, the balance sheet mismatches of leveraged entities provide the most direct indicators of potential instability.

In a sense the crisis was a winner's curse. There had been an unprecedented export boom and in order to hedge exchange risk many export firms, especially Korea's shipbuilding industry, sold their dollar denominated revenues forward to banks. The banks unable to find counter party borrowed FX funds and neutralized their position. As a result foreign debt accumulated fast. As [Table 2] demonstrates overseas equity investment *de facto* were leveraged abroad. They were also hedged, and therefore contributed debt accumulation even greater.

After GFC the Korean government introduced FX-related prudential measures such as ceilings on FX derivatives positions of banks and imposing bank levy on short term FX borrowing.¹⁵ Comparing external assets and debt table in 2007 and 2014 in [Table 1] one can clearly recognize that these measures have significantly improved the balance sheet mismatches of the private sector. The FX FoF table in post GFC years also supports the result.

However, those measures are not long term solution. One should note that if KRW were sufficiently internationalized, then the FX risk of exporting firms would have disappeared through currency swap market and then the risk would not have had to be shifted to the foreign authorities holding foreign reserves.¹⁶ Then as Munro and Wooldridge (2012) stated Korea would not have suffered from the negative valuation effect of the

¹⁴ Kim (2014b) discussed in detail.

¹⁵ Recently, these regulations on capital inflows have been eased in response to Fed's interest rate normalization policy. Instead, the minimum FX liquidity coverage ratio (LCR) for banks will increase to 60 percent in 2017, 70 percent in 2018, and 80 percent in 2019 from current 50 percent.

¹⁶ In the end of 2007 Australia foreign reserves were only US\$26.9bn while Korea had US\$262.2bn.

exchange rate depreciation.¹⁷

III. RMB Internationalization

Capital account opening and RMB Internationalization

As noted before China is still an early stage of capital account opening (see Appendix for the short history of RMB internationalization). A good example is the way China's net external assets are correlated. Comparable to [Table 2] [Table 4] records correlation coefficients computed from IIP and BOP data during 2005-2015. Unlike Korea the movements of net external wealth depend on the financial account more than the valuation changes.

Furthermore, the valuation changes of the two countries are not highly correlated. It is because unlike Korea the share of foreign equity investment in external liabilities is much lower than FDI while foreign reserves are the most important external asset.¹⁸ When foreign equity investment is increasing, however, a strong correlation should emerge.

[Table 4] Changes in Net External Assets and Correlations: China¹⁾ and U.S.

	CN ΔNEA	US FA	US VA
CN FA	0.5794	-0.5233	-0.0948
CN VA	0.3611	-0.5004	0.4917
US ΔNEA	0.2465	0.1185	0.9851

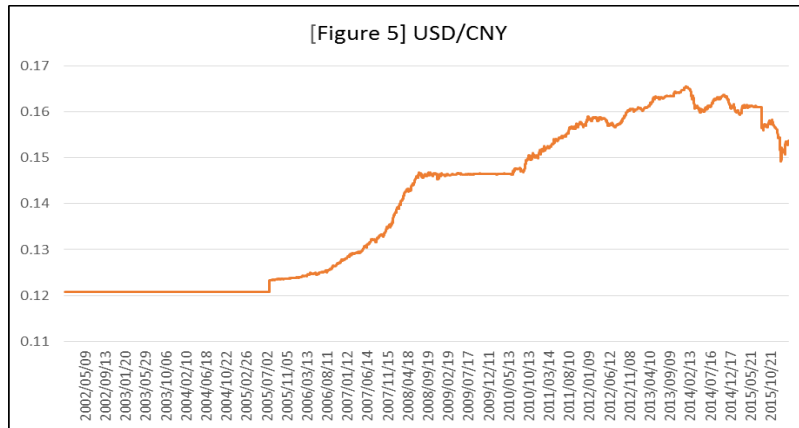
1) Sample period: 2005-2015

Macroeconomic imbalance, impossible trinity and vulnerability of capital flows

In July 2005 China ended fixed exchange rate regime and allowed Yuan exchange rate to float in a narrow margin. Since then there had been upward pressure on Yuan exchange rate. Once the exchange rate hit its peak in February 2014, however, there has been downward pressure ([Figure 6]).

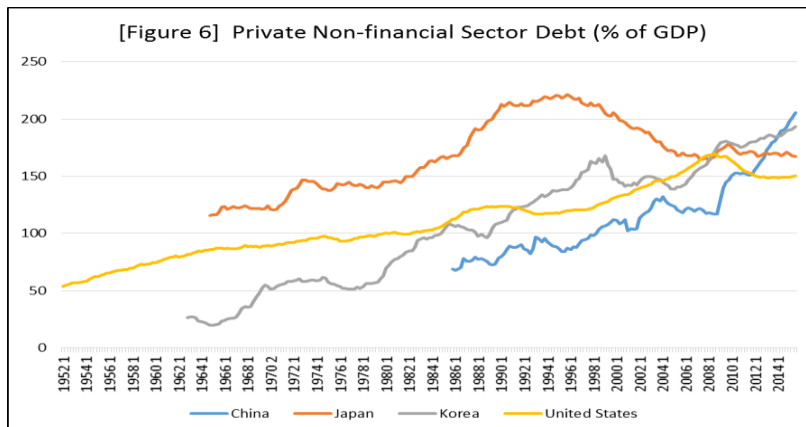
¹⁷ In 2009 Korea's annual economic growth slipped to 0.71% but Australia grew by 1.82% not much different from the growth trend.

¹⁸ As of Jun 30, 2015 foreign reserves are 58.6% of external assets, and FDI and foreign equity investment are 56.9% and 13.5% of external liabilities, respectively. However, the share of FDI in Korea is only 18.6% in 2015.

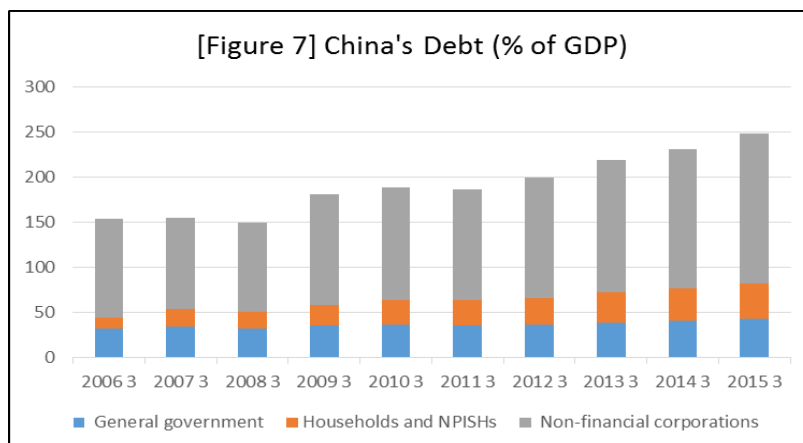


Source: The People's Bank of China

Behind this observation lies macroeconomic imbalance. While China's economy is set to slow in the years to come, debt has been accumulated very fast during a short amount of time. [Figure 6] shows the trend of the percentage ratio of private non-financial sector debt to GDP of China, Korea, Japan and U.S. and [Figure 7] demonstrates China's debt to GDP and its components including government. By any standard the level of China's debt is excessive.



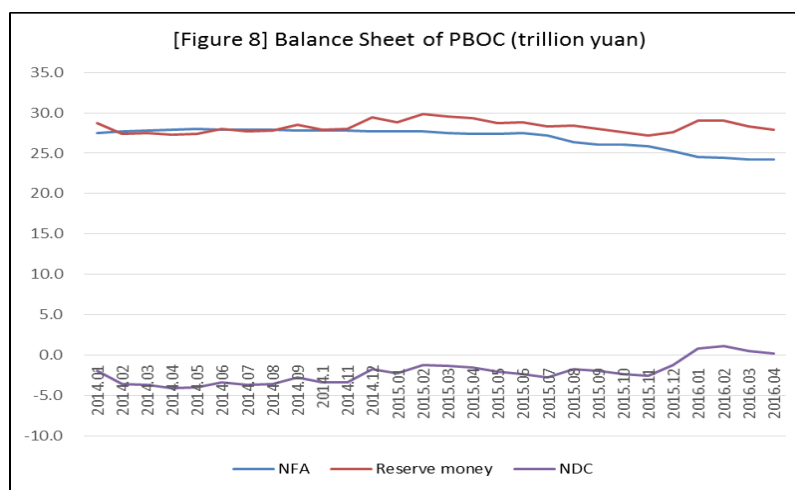
Source: Bank for International Settlements



Source: Bank for International Settlements

As macroeconomic imbalance mounted up a downward pressure on Yuan exchange rate was built and PBC's devaluing Yuan Dollar exchange rate accelerated such pressure.¹⁹ The pressure is reflected in the loss of foreign reserves and the balance sheet of PBC. [Figure 8] shows that PBC not only sterilized the loss but injected liquidity when the financial market jittered. Considering offsetting capital outflows the sterilized intervention must have led to even greater loss of reserves.

What would happen if PBC fully floated Yuan exchange rate? Such an exit to free floating might risk free fall of the Yuan rate (Eichengreen et al, 1998). The free fall of the exchange rate should have brought the negative valuation effect on the balance sheet of indebted financial institutions and corporations, and might have put Chinese economy into deep recession.²⁰



Note: Author's computation from data provided by The People's Bank of China

China's FX FoF in [Table 4] is constructed based on the BOP statistics. Comparing Korea in [Table 3] capital inflows are much less volatile. It is because FDI is known to be much more stable source of funding than equity investment. Furthermore, until 2014 most of FX funds flowed in remained as external assets rather than recycled as direct investment, overseas equity investment, *etc.* GFC did not affect China at all. Current account and FDI have been main channels for inflows of FX funds. The growth of external assets has overwhelmed that of external debt.²¹

Recently, however, the pattern of capital flows has changed. Starting 2014Q3 foreign loans were withdrawn rather than rolled over and reserves started to deplete. In 2015 deleverage accelerated. In the same year \$235.7bn flowed in while current account was \$330.6bn implying that foreign investors pulled \$94.9bn. In order to stabilize FX market PBC spent \$342.9bn, which covered capital outflows and error and omission.

¹⁹ RMB based overnight Hong Kong interbank offer rate, or CNH Hibor reached a record high of over 66 per cent in January 2016 as PBC was believed to soak up liquidity in the interbank market in an effort to make it very costly for speculators to short.

²⁰ As of end-2015 foreign currency denominated debt estimated \$1.28tn, 60% of total external debt including offshore borrowing (Chinn, 2016).

²¹ In 2015 the net external assets have increased to \$16bn from \$2.8bn in 2004. They were peaked at \$20bn in 2013.

[Table 4] FX Flow of Funds: China (\$100million USD)

Use of FX funds	2008	2009	2010-14	2015
I. Changes in Ext. Assets	5,701.1	3,591.1	24,666.1	-1,392.2
1. Reserves	4,795.4	4,003.4	15,052.5	-3,429.4
2. Bonds	-273.8	-381.2	147.2	335.3
3. Other assets than bonds	1,179.5	-31.2	9,466.3	1,701.9
II. DI (Equity)	363.7	285.9	4,232.2	1,451.9
III. Overseas Equity Inv.	21.8	406.5	92.3	396.8
IV. Capital Account (-)	-30.5	-39.4	-173.7	-3.2
V. Financial derivatives (-)	0.0	0.0	0.0	20.9
VI. Error and Omission (-)	-188.4	413.8	3,249.6	1,882.4
Total	5,867.7	4,657.9	32,066.5	2,356.6
Source of FX funds	2008	2009	2010-14	2015
I. Changes in Ext. Debts	136.5	664.6	8,734.5	-3,295.3
1. Borrowing	124.6	659.6	7,738.0	-3,213.1
2. Bonds	11.9	5.0	996.5	-82.3
II. FDI (Equity)	1,440.9	1,269.6	11,671.9	2,196.3
III. Foreign Equity Inv.	84.6	291.2	1,510.8	149.6
IV. Current Account	4,205.7	2,432.6	10,149.4	3,306.0
Total	5,867.7	4,657.9	32,066.5	2,356.6

Source: Author's computation from BOP statistics, State Administration of Foreign Exchange

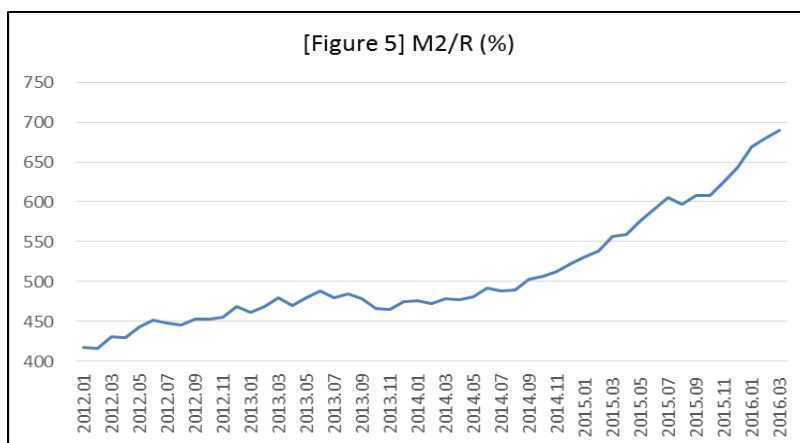
A sudden stop has landed in China as Korea has experienced during GFC. Behind this observation the private sectors such as other depository corporations and other sector heavily depend on short term debt ([Table 5]). As of 2015Q1 their short term external debt peaked at 82.8% of total external debt. They may be exposed to the risk of currency and maturity mismatches.

[Table 5] China's Gross External Debt (\$100million USD)		
	2015Q1	2015Q3
General Government	1,125	1,048
Short-term	0	0
Long-term	1,125	1,048
Central Bank	355	409
Short-term	82	116
Long-term	273	293
Other Depository Corporations	8,177	7,035
Short-term	7,123	5,901
Long-term	1,054	1,134
Other Sectors	5,033	4,754
Short-term	3,809	3,459
Long-term	1,124	1,295
Direct Investment: Intercompany Lending	2,042	2,052
Total	16,732	15,298

Source: State Administration of Foreign Exchange

Behind the vulnerability of BOP the ratio of M2 to reserves has sharply increased, which may exacerbate risk of double drain ([Figure 5]). Even though China has amassed foreign reserves they may not be enough.

Considering that the ratios of M1 to reserves are stable the liquidity generated by the shadow banking system must be an important component of M2.²²



Source: The People's Bank of China

Issues

What Korea has experienced can be a useful lesson for China. Given China's strong international investment position, the pattern of capital flows and the present path of current account the possibility that China would suffer from the capital inflows problem would be low. Nonetheless, a huge loss of foreign reserves during such a short amount of time indicates that China is not immune to a balance sheet crisis as suggested by Obstfeld (2012). The balance sheet mismatches of leverage entities among 'depository corporations and other sectors' should be carefully monitored and managed. The vulnerability should be contained. Otherwise, the confidence in RMB internationalization might be hampered.²³ As discussed Korea provides one such example.

Here's related to currency internationalization but easily neglected issue: the impact of recent RMB devaluation. Firms with foreign debt are subject to a negative valuation effect of the devaluation, which should exacerbate their balance sheet since their debt effectively has increased. One may argue that these firms should have hedged. In fact, high transaction costs of hedging are blamed:

"... these firms, massive issuers of U.S. and Hong Kong dollar debt in recent years as the yuan rose, say the costs of hedging their exposure to overseas currencies isn't worth it. The yuan is down 2.9% since Beijing's move to devalue it in early August, ... In contrast, hedging, based on the interest charged on cross-currency swaps, could cost as much as 3.7% of the U.S. dollar debt that is being hedged..." Law and Fung, WSJ (2015)

Reflecting on what happened in Korea it wouldn't have made much difference even if those firms had hedged. The risk won't disappear unless a country's currency is significantly internationalized. It only shifts onto the central bank, who acts as an insurer of last resort.

Given current level of capital account convertibility foreign reserves are not expected to effectively perform a function as self-insurance. What China needs is to contain the balance sheet risk of leveraged institutions. Such

²² Since October 2011, M2 has included deposits of Housing Provident Fund Management Center and deposits of non-depository financial institutions in depository financial institutions.

²³ In fact, the possibility has been already recognized. For instance, the Economist (2015, October 3) wrote, "...Fear of instability limits how far even the reformers are willing to go. China's repressed financial system leaks and strains in many places, but the government does not want to swap this for one that gets battered as waves of foreign capital from global markets wash in and out..."

rational behavior as hedging exchange risk and borrowing creates negative externalities at the national economy level. Recently, similar to what the Korean government did the Chinese government has implemented macro prudential management of cross border financing.

However, the policy should not bring complacency. It is inefficiency caused by regulations on foreign exchange transactions that brings FX prudence. It is the second best policy when the currency of a country is not internationalized.

Furthermore, the Chinese government should concern the loss of confidence that has been the driving force of RMB internationalization. As discussed the confidence depends on whether a country has experienced a BOP crisis. The crisis would lead policy makers to lose confidence, which makes it very difficult to push forward currency internationalization.

IV. Final Remarks

Until now the Chinese government has achieved tremendous success. The process of RMB internationalization can be summarized by high yield on RMB assets and Chinese authority's control over types and the amounts of capital inflows. The initiative proceeds by two hands. On the one hand, the Chinese government have designated qualified investors, created offshore financial centers and special zones in China. On the other hand, PBC has made bilateral swap agreements and encouraged banks and corporates of the countries that signed the agreement to use RMB obtained through swaps.²⁴ This process enables foreign residents to accumulate RMB assets abroad and will eventually lead to strong linkage between domestic and global financial markets. More recently, China has launched a cross-border renminbi payments system, a big step toward RMB internationalization. RMB has been included in the basket of currencies which make up the IMF's Special Drawing Right, or SDR. China has issued its first RMB sovereign debt in London.

However, China is still at an early stage of capital account opening. Current ongoing RMB internationalization does not go after a conventional process of 'reform first, internationalization second' which countries previously internationalized have followed. In those countries currency internationalization has been either encouraged or permitted once certain depth of the financial markets, full capital account convertibility, regulatory reform and flexible exchange rates have been achieved. However, China is following a different pathway, which has been pointed out as a potential risk.

Maintaining sound international investment position and current account balance are preconditions for successful RMB internationalization. Yet China still needs a far-reaching financial reform and market driven monetary policy. Most of all, preserving financial stability and confidence rebuilding are essential.

²⁴ As of May 2015 PBC signed swap agreements with 32 central banks.

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Appendix: Short history of RMB internationalization

- 2002 (Nov.), allowed QFII to access A-shares.
- 2003, designated BOCHK as RMB clearing and settlement bank.
- 2004, allowed RMB deposits in Hong Kong. By the end of 2004 RMB deposits totaled ¥1003.6bn accounting for 12.5% of total deposits in HK banking system but fell to ¥759.4bn in March 2016.
- 2005 (July), ended fixed exchange rate regime and allowed RMB exchange rate to float in a narrow margin.
- 2006 (Apr.), announced QDII scheme allowing Chinese residents to entrust Chinese commercial banks to invest in financial products overseas, initially limited to fixed-income and money market products.
- 2007 (Jul.), opened the offshore RMB bonds (dim sum bond) market.
- 2008 (Dec.), the first bilateral swap agreement signed with S. Korea. Entered into more than 30 BSAs with total value of ¥2.9tr (US\$468bn).
- 2009 (July), launched a pilot program that allowed RMB settlement of cross border trade.
- 2010 (Oct.), allowed offshore entities to open Non Resident RMB bank settlement accounts (NRAs) with onshore banks.
- 2011 (Dec.), announced offshore QFII – RQFII - to invest in domestic securities market. From March 2013 the scheme widened to include international banks and asset managers and by the end of 2015 total approved quotas reached ¥257.6bn (with quota ceiling 1,210bn).
- 2013 (Sep.), launched Shanghai Free Trade Zone. Three new FTZs in Guangdong, Tianjin, and Fujian launched in April 2015.
- 2013 (Dec.), overtook the euro to become the second most-used currency in global trade finance after the US dollar, according to SWIFT.
- 2014 (Apr.), announced Shanghai-Hong Kong Stock Connect, which allows two-way cross-market stock investment by qualified domestic and HK investors.
- 2015 (May). Launched bank deposit insurance system.
- 2015 (Jul.), opened up the interbank bond market to foreign central banks, sovereign wealth funds and international financial institutions.
- 2015 (Aug.), changed the reference pricing mechanism for the onshore CNY dollar exchange rate more subject to market forces. PBC sets the opening price for trading on the Shanghai CFETS each morning. RMB trading in other time zones need not necessarily be the same.
- 2015 (Oct.), launched the China International Payments System (CIPS).
- 2015 (Oct.), removed deposit interest rate ceiling.
- 2015 (Nov.), RMB included in SDR basket with third largest weight of 10.92%.
- 2015 (Dec.), launched a new trade-weighted Yuan exchange rate index.
- 2016 (Feb.), lifted the barrier into interbank bond market.
- 2016 (May), implemented macro prudential management of cross border financing from free trade zone to nationwide.
- 2016 (May), issued its first RMB sovereign debt in London.