Motivations and strategies for a real revaluation of the Yuan

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Abstract: Most Western economists and policy makers agree that the Yuan is significantly undervalued and push the Chinese government for a large nominal revaluation of the Yuan. This paper, while surveying recent research on Chinese exchange rate policy, gives some new insights into this issue. Notably, this paper defends that China is not solely responsible for the Yuan's undervaluation, the Chinese central bank cannot optimally invest an increasing amount of foreign currency reserves, and the Yuan's nominal revaluation is not the only way to resolve the problem. After having analyzed the advantages and disadvantages of a nominal *versus* a real revaluation of the Yuan for the Chinese economy, I advocate and analyze, besides a modest nominal revaluation, a multitude of alternative policies to achieve a complete revaluation of the Yuan in real terms, which allows absorbing external disequilibrium while laying down the foundation for the long-term growth of the Chinese economy.

Keywords: Renminbi (RMB), revaluation of the Yuan, foreign exchange reserves, external disequilibrium, measures of macroeconomic adjustment.

JEL classification numbers: E2, E5, E6, F3.

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1. Introduction

Since its accession to the WTO in 2001, China is rapidly increasing its foreign exchange reserves and trade surplus. The current global financial and economic crisis triggered by the subprime crisis in the United States has induced important adjustments in inventory stocks of Western firms. This has only temporary negative effects on exports from China. The current crisis has also moderated the growth of consumption in developed countries and modified its composition in favor of cheaper goods from China. Chinese strong growth despite the global financial crisis and its large trade surplus vis-à-vis the United States have made passionate the U.S. debate about the political pressure to put on China to force it to quickly revalue by about 20% its currency, i.e. the Yuan (or Renminbi/RMB).

In an environment of sluggish economic recovery and high unemployment in the United-States, the question of exchange rate of the Yuan against the U.S. dollar is brought to the forefront because the depreciation of the dollar now seems to be the only policy option available to stimulate the U.S. economy. Other macroeconomic policies of the U.S. are subjected to probably insurmountable constraints, i.e., the solvency constraint on the bond financing of public expenditure and the zero lower bound on the nominal interest rate for the monetary policy. The gradual and predictable appreciation of the RMB against the dollar of 6 percent or more per year from July 2005, destined to placate the USA, was stopped in July 2008 because this one-way bet in the foreign exchanges markets not only attracted hot money inflows, in a context of low US interest rates since mid-2007, but inhibited private capital outflows from counterbalancing China's huge trade surplus. Because currency appreciations in surplus countries could be a policy tool in reducing imbalances (Ferguson and Schularick 2011), the Yuan is again under pressure for a new round of revaluations as China restores its strong growth in exports.

China-bashing has become a popular US media and political sport ever before the current

crisis despite the consensus view among economists according to which a RMB appreciation is not likely to fix the trade imbalance with China (Tatom, 2007). This is largely due to the belief of many Americans that China is responsible for the large US trade imbalance because China manipulates its currency to hold down the dollar prices of its goods, unfairly creating a trade advantage that has contributed to the loss of US businesses and jobs. In the media, other proposals being obscured, the revaluation of the Yuan is often presented as the only solution to solve the problems of U.S. trade deficits accompanied by the argument that maintaining a quasi-fixed parity between the Yuan and the U.S. dollar would prevent other countries with structural trade surpluses from revaluing their currencies to avoid becoming uncompetitive compared to China. Considering the effects of the Yuan undervaluation on the global imbalance, some economists, such as Nobel Prize earner Paul Krugman (2009), consider China's Yuan policy as the origin of the subprime crisis and label China as "mercantilist". This accusation is considered as very vituperative by McKinnon (2010), since the U.S. trade deficit is due to the low saving rate. Current loose monetary policy in the US has accentuated this problem. On the other hand, this could now result in higher domestic inflation within China and lead to the sort of real currency appreciation that China wants to avoid (Bergsten (2010) and Huang (2010)).

A large literature about China's exchange rate policy has been developed and mainly addresses four issues. The first is the undervaluation of the Yuan against the US dollar. Most researchers agree that the Yuan is undervalued given that China has a large and growing current account surplus. However, they disagree about the degree of undervaluation of the Yuan and the origins of the problem.[1] Some economists even contest that the Yuan is systematically undervalued. For example, Chu (2005), Cheung et al. (2007, 2010) and Wang et al. (2007) find that Yuan's undervaluation is not statistically significant and their empirical

[1] For an overview of the literature about the quantitative assessment of the undervaluation of the Yuan, see Das (2009). For other recent studies of the Yuan undervaluation, see for example, Peng et al. (2008), P.J. Wang (2010), Yizhong Wang (2010).

findings indicate that China's exchange rate policy may have played an insignificant role in its trade surpluses. Chen J. (2009) has shown that RMB was overvalued during the Asian financial crisis and during the period of 2001-2002, and undervalued to a mild extent only during the period from 2003 to 2005, with slight overvaluations appeared after the reform of exchange rate regime in 2005. Wen (2011) argues that China's large current account surpluses and massive foreign-reserve build-ups are not necessarily the intended outcome of any government policies or an undervalued Yuan. They are due to excessively high household saving rates induced by an inefficient financial system, characterized by large uninsured risks and severe borrowing constraints, and a rapid income growth. Thus, the value of the RMB may significantly depreciate, instead of appreciate, once China abandons the exchange rate peg and the massive amount of precautionary savings of Chinese households is unleashed toward international financial markets in search for better returns.

The second issue hotly debated is about the rhythm of the Yuan revaluation. The status quo is defended mainly on the ground that currency appreciation would aggravate unemployment and financial fragility of Chinese banking system (Liu (2004) and Mundell (2004)). In contrast, Tung and Baker (2004) discard the destabilizing effect of a one step maxi revaluation for Chinese export and financial sectors, and argue that a significant revaluation of the RMB would provide an immediate boost to Chinese per capita incomes in U.S. dollar terms, providing more purchasing power to Chinese consumers, including rural consumers. Voon et al. (2006) show that China's export sector may not necessarily lose from the Central Government's decision to revalue its RMB against the US dollar because the negative impact of the RER appreciation on Chinese exports may be diluted by the positive impacts attributing to a reduction in the RER misalignment. Yizhong Wang (2010) suggests that the appreciation range of bilateral exchange rate of RMB against USD from 2008 to 2010 may be set between 6% and 10%. In the case where the nominal revaluation of the Yuan is not undertaken or

partial or the transition to the flexible exchange rate regime is gradual, macroeconomic policies and regulations and economic reforms must be skillfully implemented to ensure the external and internal equilibrium (Liu (2004), Dai (2006), Woo (2006), Hong et al. (2008) Eichengreen and Hatase (2007), and N'Diaye (2010)).

The third issue concerns the effect of capital account convertibility on exchange rate and monetary policies. Capital account convertibility remains a long-term goal of China even though the literature about capital liberalization is confronted to an erosion of consensus on its benefits. In a context of increasingly porous capital account, several proposals, from a step revaluation of the RMB, implementing a currency basket, widening the trading band to the adoption of managed but freer float in the medium to long term, are advanced to mitigate increasing external imbalance and the resulting distortions (Roberts and Tyers (2003), Tung and Baker (2004), Goldstein (2004), Frankel (2004), and Eichengreen (2005)). Obstfeld (2007) proposes a feasible and attractive exit strategy from the essentially fixed RMB exchange rate as a two-stage approach, which consists to establish a limited trading band for the RMB relative to a basket of major trading partner currencies, with the band being widened over time with the ultimate goal of a floating exchange rate coupled with an inflation targeting regime. In the short run, China can postpone measures of financial account liberalization. For proponents of a flexible exchange rate regime, alternative solutions risk inviting more, not less, hot money inflows into China, thus exacerbating the very macro imbalances that a flexible exchange rate is supposed to solve (Tung and Baker (2004)). For McKinnon and Schnabl (2009), economists mistakenly attribute the surpluses to an undervalued RMB. The build-up of foreign currency claims (largely US dollars) within domestic financial institutions can be explained by the fact China's large saving (trade) surplus results in a currency mismatch because it is an immature creditor that cannot lend in its own currency. Therefore, floating the RMB is neither feasible nor desirable, and a higher RMB would not reduce

China's trade surplus. Laurenceson and Tang (2007) find that China's capital account is already quite open, thus implying a trade-off which presently exists between exchange rate stability on the one hand and monetary independence on the other. According to Yongzhong Wang (2010), increasing mobility of capital flows and decreasing effectiveness of sterilizations might undercut China's ability to maintain monetary autonomy and domestic currency stability simultaneously. To solve this trilemma smoothly, Chinese monetary authority should continue to relax the management of the exchange rate, and take further steps towards deregulation of capital outflows. With the increases of international real demand and international price index, a more flexible RMB exchange rate regime could improve the social welfare (Yao (2008)). Furthermore, fast Yuan exchange rate adjustment policies are better than price policies, and adjustment under capital flow is better than adjustment under capital control (Huang (2010)). Liu and Fan (2010) find that if the Chinese central bank aims to stabilize the price level, the optimal choice would be a certain type of intermediate regime, i.e. a more flexible one than the current regime.

The international role of the Yuan constitutes the fourth issue that is recently raised. China has undertaken a gradual but deep process of reform of its financial system and exchange rate regime while avoiding large speculative inflows and uncontrolled real appreciation through non-monetary anti-inflationary policies, low interest rates and capital account controls. This process will lead the Yuan to become an international currency. For Flassbeck and La Marca (2009), these policies remain of crucial importance during this process and they should be supported by internationally coordinated policies and cooperative monetary schemes to reduce global imbalances and destabilizing cross-currency speculation. Schnabl (2011) argues that distortions originating in real exchange rate stabilization constitute a risk for global growth perspectives and recommends, to prevent further economic and financial turmoil, policy coordination between China and the US. Chen et al. (2009) have found that the RMB

has already become a significant force impacting the exchange rates of the Asian currencies and the liberalization of the restrictions on Yuan convertibility will positively affect the evolution of the international role of the RMB. Park (2010) emphasizes the importance of the denomination of financial assets as a long-term determinant of an international currency and suggests that China needs to liberalize and open its financial system and make the RMB fully convertible. It also needs to adopt a more flexible exchange rate system to speed up its currency internationalization by following a regional approach. For Oksanen (2010), China's currency reform could induce a reduction of its USD-dominated assets, triggering a further depreciation of the USD. The potentially costly consequences call for new rules for the world financial architecture. China's expansion will inevitably lead to a diminishing international role for the USD. However, Lardy and Douglass (2011) have found that China does not yet meet any of the major preconditions necessary for convertibility needed for playing the role of international currency, i.e. a strong domestic banking system, relatively developed domestic financial markets, and an equilibrium exchange rate.

The Yuan revaluation is an endless debate if only partial adjustments are undertaken and an imperfectly flexible exchange rate regime is adopted because the Chinese economy tends to gain in competitiveness over time due to very low wages in dollar terms and rapid progress in labor productivity. This paper, while surveying recent research on Chinese exchange rate policy, contributes to the literature by defending among others that China is not solely responsible for the undervaluation of the Yuan, the Chinese central bank cannot optimally invest an increasing amount of foreign currency reserves, and a rapid Yuan nominal revaluation is not the only way to resolve the problem. After having argued for a revaluation of the Yuan and a more flexible exchange rate regime, I will analyze the drawbacks of a too rapid nominal revaluation of the Yuan urged by Western governments and the effectiveness of alternative solutions to be adopted to absorb China's trade imbalances while laying down the

foundation for the future growth of the Chinese economy.

The remainder of the paper is organized as follows. The next section analyzes the factors at the origin of the undervaluation of the Yuan. Section 3 provides the arguments for a revaluation of the Yuan. Section 4 analyses the costs and advantages of a rapid nominal revaluation. Alternatives measures destined to achieve a real revaluation of the Yuan are discussed in section 5. Section 6 concludes.

2. The factors leading to the undervaluation of the Yuan

In order to modernize its economy, China has opened its economy to international trade and foreign direct investment (FDI) in the early 1980s. At this time, China was an insignificant player in international goods and financial markets. Until the late 1980s, the average Chinese wage was only about ten U.S. dollars per month against about a hundred and fifty to two hundreds U.S. dollars at present. Despite a very low labor cost, China had often significant trade deficits until the mid-1990s. This was translated into an exchange rate on the parallel market which was quite higher than the official one, implying the need of a large devaluation of the Yuan against the U.S. dollar, especially after the large increases in the price level recorded in the late 1980s and early 1990s triggered by the price liberalization. A nominal devaluation was carried out in August 1994. From 1995 to 2005, China adopted a monetary regime of exchange rate targeting by fixing its exchange rate at 8.28 Yuan/USD as a nominal anchor against high inflation. This anchor has allowed China to successfully slow down its inflation rate to the American level.

During the Asian crisis in 1997, some Western economists and international speculators considered that the Yuan is overvalued and predicted thus its large devaluation in a context where China's competing countries have sharply devalued their currencies. China stood firm

in maintaining the Yuan's fixed exchange rate with the U.S. dollar to help stabilize the South-east Asian economies by avoiding a competitive devaluation, thus saving its neighbors from an even more catastrophic financial and economic downturn. Although the regime is named a managed float, China has essentially operated its system as a *de facto* peg to US dollar between August 1994 and July 2005.[2]

The issue of undervaluation of the Yuan has emerged after the accession of China to the WTO at the end of 2001. Several endogenous and exogenous factors have contributed to the undervaluation of the Yuan. One of them is psychological and corresponds to the behavior that a person adopts after a traumatism. After its economic liberalization, China, as other emerging countries of Asia and Latin America, was facing a period of dollar shortage which has embedded in the minds of Chinese people and policy makers the idea that the dollars were assets better than the gold because they earn annual interests and thus they must at all costs be accumulated to avoid the financial turmoil that other countries have experienced.[3]

The period of dollar shortage ended with the implementation of extremely loose monetary policy in the United States, which took the form of very low interest rate during prolonged periods, following the burst in the year 2000 of the Internet bubble that threatens U.S. growth. The easier access to cheap credit by businesses and households in the United-States has resulted into an exceptional growth in the global supply of dollars. The supplementary dollars detained by foreign central banks returned to the U.S. financial markets with the effects of bringing down the median and long term interest rates, favoring further the credit activities. This policy especially stimulated the U.S. household consumption through the virtual wealth effect associated with a huge rise in property prices. In 2007, the trade deficit of the United States represented about 6% of U.S. GDP, indicating that there is a large excess of money supply and a lack of domestic savings.

[2] For a review of Chinese exchange rate policy, see also Phylaktis and Girardin (2001), Lin and Schramm (2003), Huang and Wang (2004) and Goldstein and Lardy (2009).
[3] This is also one of the assumptions that Corden (2009) adopts to explain Chinese current account surplus.

Curious things can happen in a world with a dominant issuer of international currency. One of them is that this extraordinary increase in the quantity of dollars did not translate into higher inflation neither in the United-Sates nor in the rest of the world, invalidating hence the prediction of monetarists. A possible and plausible explanation is that central banks in emerging market economies, which have suffered a shortage of dollars in previous periods, are only too happy to conserve these dollars as foreign exchange reserves and use them to buy U.S. Treasuries and/or other assets denominated in dollars. This has led some economists to devise a theory of global saving glut (Bernanke 2005), which in fact obscures a very lax conduct of monetary policy in the United States. It is challenged by Taylor (2009), showing that saving in the rest of the world has decreased over the period in question. Similarly, the attitude of Chinese savers has not changed after the burst of the Internet bubble.

The massive inflow of liquidity in emerging market economies, particularly in China, has led to more productive investment of national and multinational companies to meet additional needs of U.S. consumers. These investments, often with technological components, have increased the labor productivity in these countries. China has furthermore received a significant boost to its exports by joining the WTO, prompting many multinational companies to invest in China. Thus, the increase in labor productivity was particularly rapid in China. In contrast, Chinese wage growth was at a slower pace. This was translated into a very moderate price increase, thus inducing a real devaluation of the Yuan against the currencies of industrialized countries, such as U.S. dollar, yen and euro.

In the mid-2000s, the Chinese government was under intense pressures from the United States, Japan and the European Union to correct the undervaluation of the Yuan and to introduce a more flexible exchange rate regime. At this time, the undervaluation of the Yuan was estimated to be between 18 to 60 percent against US dollar (Zhang and Pan (2004), Coudert and Couharde (2007)). Under the threat of the United-States to increase tariffs on

Chinese exports to the U.S. market, a nominal revaluation of the Yuan by about 22% against the U.S. dollar is undertaken since the summer of 2005, while shifting from the dollar peg to a peg to a basket of currencies, with a fluctuation range of ±0.3 percent per day.[4] The People's bank (Central bank) of China has kept the Yuan at about 6.8 per U.S. dollar since July 2008, as part of stimulus measures to help China weather the global recession. Despite previous nominal revaluations, the Yuan remains undervalued because of the dynamic effect of misalignment between rising wages and prices and rising labor productivity in China. Due to this dynamic effect, the previous 22% revaluation of the Yuan has no significant negative effect on the US imports from China even though several empirical studies show the importance of the Yuan revaluation for the reduction of US trade deficits (Yu (2010), and Thorbecke and Smith (2010)).

Despite a series of revaluations started in July 2005, hot money has been sporadically sneaking into China in anticipation of further revaluations of the RMB, leading to the instability of a pegged exchange rate regime (Ma and Sun (2007)). According to McKinnon and Schnabl (2009), and Mckinnon et al. (2010), the gradual RMB appreciation initiated in July 2005 and ended in July 2008 created a one-way-bet that disordered China's financial markets. This one-way bet in the foreign exchanges markets not only attracted hot money inflows but inhibited private capital outflows from counterbalancing financing China's huge trade surplus, leading to an undue build-up of official exchange reserves and erosion of monetary control. This reinforced the pressure for a revaluation of the Yuan. Such a one-way-bet could be partially responsible for a breakdown of the forward exchange market in 2007-2008 so that exporters could no longer get trade credit - probably worsening the severe slump in Chinese exports in a context of global financial crisis. This explains why the People's Bank

[4] Frankel (2009) finds that by mid-2007, the RMB basket had switched a substantial part of the dollar's weight onto the euro and hence the appreciation of the RMB against the dollar during this period was due to the appreciation of the euro against the dollar, not to any upward trend in the RMB relative to its basket. For a retrospect of the Chinese exchange rate regime after reform during the period from 2005 to 2010, see Sun (2010).

of China then stopped RMB appreciation against the dollar. For Liu and Zhang (2009), China has been under threat of an appreciation currency crisis since 2008, and therefore, China should adopt a more flexible exchange rate regime to prevent a potential crisis.

3. The arguments for a revaluation of the Yuan

China is now again under pressure from Western countries to quickly revalue its currency and then to adopt a more market-oriented exchange rate policy. The revaluation of the Yuan, which satisfies the policy makers in Western countries, could also be in the interest of China.

Without a revaluation of the Yuan, given the nature of industrial and macroeconomic policies pursued by China and its Western trading partners, China will continue to increase its foreign exchange reserves, consisting mainly of assets denominated in U.S. dollar and, for a good part, assets in euro. Strong growth in China will attract foreign capital composed principally of FDI but also of portfolio investment. The later enters the Chinese market through windows opened by Chinese regulatory authorities or through channels that bypass the state control. The moderate increase in wages relative to productivity growth keeps the labor very cheap compared to that in Western countries where ordinary workers earn ten to twenty times higher. In the long term, Chinese workers are likely to be trained to perform as productively as their foreign homologues. Hence, competitiveness will play in favor of China over a long period. Therefore, as long as the cumulative adjustment of wages is smaller than the cumulative increase in productivity, China will continue to experience a trade surplus with real exchange rate depreciating over time.

Oberpriller et al. (2008) argue that the real exchange rate is not the appropriate measure for a currency undervaluation, but it is the continuous, one-directional and accelerating accumulation of foreign exchange reserves. For these authors, a revaluation of the Yuan is

necessary, inevitable and desirable just as much as it happened to be with the Deutschmark in 1969. It would not damage Chinese development. China needs a Yuan appreciation mainly in its own interest to assure domestic financial market stability, and to avoid an overheating of its economy and a soaring inflation. Furthermore, international experiences show that real appreciation has a powerful effect in boosting job creation in the service sector and hence the real appreciation of the Chinese Yuan would contribute to restructuring the Chinese economy towards a domestic demand-based growth track (Xu (2009)).

The accumulation of foreign exchange reserves through the inflow of capital and the trade surplus was originally intended to stabilize the nominal exchange rate. Beyond a certain level, the utility of this accumulation becomes negative. Indeed, the continuous accumulation of foreign currencies implies that the Chinese currency is undervalued in real terms. This means that the assets bought with foreign exchange reserves earn a real rate of return less than the rate of real appreciation of domestic currency in the future, and they will only allow buying back a quantity of goods smaller than that sold initially to accumulate these reserves.

China's actual reserves have far exceeded its normal demand. The objective of China is to maintain an optimal level of foreign exchange reserves. Four main policy options are available for China to achieve its target: spending and investing foreign exchange reserves, gradual liberalization of the capital account, diversification of foreign exchange reserves through appropriate management of portfolios while avoiding unnecessary risks, and a switch in holders of foreign exchange reserves (Zheng and Yi (2007)).

Given the importance of Chinese foreign exchange reserves and their expected growth in the coming years in the absence of a return of the real exchange rate of the Yuan to its equilibrium level, it is unlikely that the Chinese central bank and sovereign fund managers find enough investment opportunities to maintain or increase the value of foreign exchange reserves in terms of purchasing power. There are a number of reasons for this.

First, most Western countries have little chance of running budget surpluses to pay interests and principal on the debt when it reaches a non-sustainable level. Many of these countries are likely to see their debt reaching such a level because the welfare of present generations is privileged over that of future ones which are not represented in the political election because of the quasi-absence of generational altruism in the public sphere. The public debt will eventually be financed by money creation, as it is currently happening in the United States and the United Kingdom under the quantitative easing policy.

Second, Anglo-Saxon hedge funds and speculators are much quicker to react to this new context by heavily speculating on commodity markets to protect against an inflation of prices expressed in U.S. dollar, in euro or in pounds sterling. If they have learned that Chinese and/or other countries' sovereign funds also intend to massively enter these markets, they will bring commodity prices to levels such that the actual entry of the Chinese sovereign funds in these markets is not without significant risk in the short and medium term.

Third, investment in real assets in industrialized countries is often blocked for political and/or regulatory reasons. The proposition by Chen Q. (2009) urging Chinese central bank to invest its foreign exchange reserves in major US banks is probably unrealizable as shown by the unsuccessful takeover of Conoco Phillips by China National Offshore Oil, which is stymied by the U.S. Congress believing that the deal presented national security issues. On the other hand, assets in countries richly endowed with raw materials but poorly developed are subject to political struggles between different countries with vested interests and others who want to enter these markets. It is unlikely that China could invest there a significant portion of its foreign exchange reserves even if it consents to be accused of practicing so-called neo-colonialism. China must therefore not be overambitious in its foreign investments. On the contrary, China should focus more on its domestic market. In effect, many international

investors plan to invest in China, implying that China is the best place to invest Chinese savings. Why then should the Chinese government look elsewhere?

To avoid a more massive loss of value of its growing foreign exchange reserves, China must now undertake a revaluation of its currency. Due to the fact that Chinese labor productivity continues to grow faster, the problem of undervaluation will worsen in the future if the necessary adjustments are not conducted quickly enough. Indeed, the longer the Chinese government waits to make the adjustment, the more the final adjustment will be painful and difficult to conduct. Major financial and economic crises may result for Chinese and World economies while the final outcome will not be controlled by policy makers but imposed by financial markets. The shock of adjustment may then become too large to be absorbed while maintaining economic, social and political stability in China, and it could also have significant negative effects on other countries. This inevitable revaluation, if it is quickly carried out, improves the welfare of the Chinese people not only in the long term but also in the short term. To accomplish this revaluation, Chinese policymakers should think in terms of real revaluation of the Yuan. This avoids a focus on nominal revaluation demanded by Western media and politicians as well as international speculators, while permitting a different political and economic outlook.

For this, Chinese policymakers, who doubt a lot, must break completely and rapidly with the illusion that it is good to increase the large digital number registered in the central computer of the Fed (or other central bank and financial institution) without the latter even having to run the printing press. A better alternative would be to buy goods in China with these dollars and sell them to poor Chinese households which are granted bank loans denominated in dollars specifically destined to buy these goods. Since they are unable to repay these loans, the latter could be conceived as perpetual debt.

For ordinary workers, the accumulation of foreign reserves constitutes a significant cost in terms of welfare because they are paid a wage much lower than they deserve. The competitive advantages gained by the undervaluation of the Yuan do not necessarily allow China to acquire strategic positions in high tech industries because low wages encourage firms to utilize low-skilled employees and to not invest in technological innovations. Growth gained through lower costs could later be swept by the inevitable revaluation of the Yuan vis-à-vis other currencies. In the opposite, a moderate but steady increase in real labor costs will push firms to do research in order to invent new products, new production processes and new distribution techniques, thereby inducing endogenous and therefore more sustainable growth.

Politically, the Chinese resistance to a revaluation of the Yuan is not tenable because China seems, with large trade surpluses, to be the country that benefits most from monetary and fiscal stimulus by industrialized countries. Many of them are unhappy with the fact that they benefit little, or with a delay, of the strong growth in China. The countries that benefit most are these selling raw materials, intermediate inputs and machineries that China needs for its growth.[5] Although the Yuan's undervaluation is partly due to loose monetary policies in developed countries, China cannot escape the obligation of adjustment although traditionally the needed adjustment is imposed on deficit countries. Time has changed since deficit countries are no longer emerging market economies but called the U.S., which is a leading global economic, political and military power.

As Chinese economy becomes important, delayed adjustments of the Yuan exchange rate will become even more costly. In the short run, I advocate an adjustment of the Yuan exchange rate to reduce the discrepancy between the current exchange rate and its equilibrium level, with the objective of establishing in the medium and long run a flexible exchange regime for the Yuan.

[5] Cova et al. (2010) show that China's 2009-2010 fiscal stimulus package, by inducing a higher Chinese aggregate demand, stimulates higher (gross and net) imports from other regions, in particular from Japan and the rest of the world, and, only to a lesser extent, from the United States and the euro area.

4. The advantages and disadvantages of a rapid nominal revaluation

A rapid nominal revaluation of the Yuan is the easiest measure to implement to meet the demand of the governments of foreign countries experiencing large trade deficits, which are relieved of the necessary adjustments to balance their current accounts. Despite this advantage of easiness, putting all weights of adjustment of the real exchange rate on the nominal exchange rate may generate significant negative effects not desired by the Chinese government. According to Kappler et al. (2011), while the domestic economy seems to pick up some of the external slack due to a large exchange-rate revaluation, leaving overall growth relatively unaffected, the prospect of sharp decelerations in export growth will remain a concern for policymakers and warrants careful attention especially in the context of developing countries.

In effect, the cumulative effects of larger increases in labor productivity and relatively moderate increases in wages and prices make that the necessary adjustments to return to equilibrium are very important in the short term, despite the Yuan is already revalued against the U.S. dollar by more than 25% since 2005.

However, a real revaluation of the Yuan is indispensable. But its implementation must not take the form of a large nominal revaluation of the Yuan against other currencies. In the event of a large revaluation of the Yuan, market operators (including international speculators) holding assets in Yuan and waiting for this perspective realize very huge capital gains. In contrast, such a measure leads to very high adjustment costs for businesses which are not prepared for this eventuality. Hundreds of thousands of businesses could go bankrupt and dismiss tens of millions of workers, creating thus a social and political unrest in China.

Moreover, the Chinese central bank must undergo a significant depreciation of U.S. dollar denominated assets. However, the depreciation of assets denominated in dollars should not be

considered as an important factor that prevents the revaluation of the Yuan. In effect, the more China runs current account surpluses and accumulates foreign exchange reserves denominated in dollars, the greater is the risk of losing big in the future because, given the difficulty of raising taxes and reducing public expenditures, the only policy option available to the United-States for it to stay solvent is to create more dollars to repay an increasing public debt if surplus countries do not adjust quickly their exchange rates and/or economic policies.

5. Alternatives to a nominal revaluation

Defending that a nominal appreciation of the RMB should be eschewed because of China's existing trade structure, financial fragility and macroeconomic imbalance, Liu (2004) advocates that the Yuan's valuation issue can be effectively dealt with using structural and macroeconomic measures such as reducing distortionary export subsidies and gradually removing excessive fiscal incentives granted to FDI-founded firms, reflation through expansionary fiscal policy with a focus on rural infrastructure investment accommodated by supportive monetary policy. In an open economy model, considering that the People's Bank of China mimics the regime of inflation targeting, Dai (2006) has examined the dynamic implications of higher inflation and output-gap targets as well as some of the alternative measures proposed by Liu (2004). These measures are not adopted with enough stances by the Chinese government and they must be given full consideration in the new international context. Woo (2006) has shown that the post-1978 marketization of the economy has interacted with the continued state ownership to create an inflationary 'liquidity tango' between the state-owned enterprises (SOEs) and the state-owned banks. Whenever the hard budget constraint is imposed on the SOEs, China's dysfunctional financial system would impart a deflationary bias to the economy and render China a capital exporting country by

constraining the growth of aggregate demand to be less than that of aggregate supply. Thus, trade surpluses are better handled by the establishment of an efficient financial intermediation mechanism than by an appreciation of the Yuan. Hong et al. (2008) suggest using a package of policies to stimulate Chinese domestic consumption, including, besides a progressive appreciation of the RMB, higher expenditures on education, health care, social safety nets and poverty reduction, income policies to reduce inequality and to increase wage income, and reforms of the financial system to improve financial efficiency and to mitigate financial constraints. By implementing such policies, China's external surplus could be narrowed and its domestic imbalances improved, and the excessively high savings rate lowered, contributing hence to an orderly global rebalancing.

Eichengreen and Hatase (2007), exploring the experiences of Japan's exit from its currency peg in 1971, suggest that a rapidly-growing, export-oriented economy such as China can exit a peg for a managed float despite the presence of capital controls and the absence of sophisticated foreign currency forward markets.[6] They emphasize the importance of exiting while global conditions are favorable and point to the importance of using fiscal policy to support domestic demand as the rise in the real exchange rate slows the growth of net exports and investment. N'Diaye (2010) suggests that, with the benefit of analyzing the Japanese experience and, given the important differences between the two economies, China should be able to successfully rebalance its growth pattern while avoiding the downsides encountered by Japan. However, the success depends on a range of reforms, destined to level the playing field between the tradable and the non-tradable sector, to further open up the economy to foreign competition, to develop financial markets, and to increase government spending on health and education, as well as on macroeconomic policies balancing the need to support domestic demand with the risks of fueling imbalances in asset markets and creating financial fragility in

[6] In contrast, Danne and Schnabl (2008) argue that, since repeated attempts to soften the appreciation pressure by interest rate cuts have led Japan into the liquidity trap, the economic policy conclusion for China is to keep the exchange rate pegged (to the dollar).

the balance sheets of banks, households, and corporate sectors. To avoid the risk of financial crisis, the government will need to ensure that the financial system is well regulated and supervised.

In the case of a nominal revaluation, the price to pay seems to be a lower growth or even a severe financial and monetary crisis. Thus, the main concern of the Chinese government is to revalue the Yuan without causing an increase in unemployment and weakening too much the growth. This implies that it prefers a rather slow nominal revaluation of the Yuan. This will result in a continuous worsening of the external imbalance if other measures are not simultaneously implemented.

The objectives set recently by the Chinese government show that China will abandon the development strategy that relies heavily on exports and adopt an alternative strategy of growth based on domestic demand. Such a change in strategy, if properly and promptly implemented, can gradually reduce Chinese trade surplus.

In the perspective of a growth strategy focused more on the domestic market, a significant number of measures could be implemented to make effective the real revaluation of the Yuan, thereby reducing the overall adjustment costs because each policy instrument is used with less intensity and therefore does not induce systemic risk for the Chinese economy. These measures consist to change the composition of supply and demand in China. More precisely, they aim to increase the supply and demand oriented to the domestic market and lay the foundation of endogenous growth for years to come.

One most advocated measure is to promote higher wages based on increased productivity of employees who have sacrificed during several decades for China's development and *de facto* mainly in favor of foreign capital and Western consumers. Such an increase in wages does not necessarily affect growth because foreign firms will still be incited to stay in China for production destined to export if the growth of wage does not exceed that of productivity.

In addition, a higher purchasing power will encourage foreign firms to produce in China to satisfy a stronger local demand. The pressure of rising wages will likely eliminate some firms which create little added value but will encourage others to innovate and to migrate to product segments with higher added value. This process will not easily jumpstart if wages remain very low and it is likely to break down in the event of a large and abrupt revaluation of the Yuan because too many firms will go bankrupt at the same time.

Some measures could be put in place to reassure Chinese consumers, to encourage them to spend more or to stimulate their consumption needs. Without going as far as to build a system of social security including pensions and healthcare which generates chronic deficits as in some Western countries, a reform which gives a real support in terms of social security to a larger part of the population allows to reduce the need of precautionary savings. Previous reforms in the education sector have significantly increased education costs for Chinese households. More financial support for households with low incomes appears to make sense, because it allows these households to forego less to finance their children's education and encourages the young to follow a fairly extensive training, which is good for the long term growth.

An important measure to be adopted concerns a hot topic recently discussed in China, namely the end of the one-child policy for urban dwellers. A quick end to this policy or its replacement with a limit of two children will be beneficial for the growth both in the short and long term. The one-child policy has helped accelerate the Chinese growth from 1980's by generating more savings. Now, keeping the one-child policy for urban dwellers will not allow effectively renewing the population of qualified professionals working in cities, and this may slow Chinese growth in the long term. In addition, it makes little sense today as China became a net exporter of capital. It creates problems linked to an aging population including the funding of retirement, not to mention the difficulties faced by every young couple who must

take care of four aging parents. This concern will significantly increase household savings and therefore reduce the current consumption. A rapid reform can increase immediate consumption due to the purchases of goods and services needed to raise more children. This policy change helps alleviate future problems of an aging population including pension financing and shortage of young workers. Moreover, given that cities are better endowed with educational facilities, children born in urban areas benefit from better educational conditions than those born in the countryside.

Public expenditures destined to improve supply conditions in the long term should be implemented. They will also have the positive effect on aggregate demand in the short term and hence increase the growth immediately. An important measure is to modernize agriculture in order to cope with the very strong inflationary pressure actually observed in Chinese food prices and with the likely shortage of agricultural products in the decades to come, by providing more investment subventions and loans to farmers, by developing farmer training centers, by establishing public food research centers and/or by subsidizing private research. The management of food prices is very important to the extent that the increase in food prices (which are like commodity prices) tends to be much exaggerated than that in the general price level, while the latter must increase quicker than in the United States to achieve the adjustment of the real exchange rate between the Yuan and the dollar. By adversely and more heavily affecting households with low incomes, the real revaluation of the Yuan, based in part on higher inflation due to rising wages and public spending, could fail due to social instability.

Infrastructure policy can be designed to stimulate the growth when it slows. The Chinese government can use it as it likes to modulate the growth. There is a considerable number of projects (airports, ports, high speed railways, subways, bridges, highways etc.) to put in place, of which some are to be destined to less developed areas and medium and small cities.

Meanwhile, China should moderate the real estate development, which is actually subject to a speculative fever, to avoid the type of risks experienced by Spain whose growth and public finance long depended on this sector are currently facing an unprecedented crisis. Whatever is the exchange rate policy adopted, the consequences could be dramatic if the bubbles become too important and then burst.[7]

Additional funds to improve higher and professional education, to develop basic research and to stimulate research and development of public and private enterprises can be mobilized. They help build the foundations of a knowledge economy and enable China to narrow the technology gap with industrialized countries.

These different measures generate additional public expenditures, which could be partly financed by the purchase of government bonds by the People's Bank of China. With the aim to adjust the real value of the Yuan, Chinese central bank should not set a too low inflation target. It must accept a temporary higher price increase to avoid the accumulation of inflationary pressures, induced by American or European quantitative and credit easing policies to result in a stronger pressure for revaluating the nominal value of the Yuan. Without a higher inflation in China and without a nominal revaluation of the Yuan, the Fed, faced with the zero lower bound on the nominal funds rate, could find it less easy to fight the deflation pressures in the United States and to make its monetary policy more effective.

Other policy measures can be taken to curb exports, encourage imports, and slow the flows of foreign investment in order to reduce the accumulation of foreign exchange reserves. It is suitable for this purpose to reduce tax rebates for exports, to cut tariffs on imports, to decrease the benefits given to foreign companies (while treating them equally with national

[7] Ueda (2010) has compared Japan's bubble, America's bubble and China's bubble in property prices. He finds that the role played by extremely easy monetary policy for generating bubble-like asset price behaviours in the three cases. The experiences of Japan and China are quite similar in that the authorities of both countries were seriously concerned with possible deflationary effects of exchange rate appreciation on the economy. Japan let the exchange rate appreciate, while China has resisted a large scale intervention. It is shown, however, that the behaviour of real exchange rates has not been that different.

businesses) localizing production for export in China, to heavily tax capital gains realized by foreign corporations and financial institutions and to restrict the movement of short-term capital. Also, it is necessary to reduce the incentive for local officials to attract foreign investors by not linking political promotion to the amount of FDI attracted and by prohibiting them from granting preferential terms to foreign firms. Enhanced environmental requirements could also be implemented to reduce the transfer of too polluting production lines in China.

These various measures, by increasing domestic demand, wages and inflation, and by reducing net exports and net inflows of capital, should gradually induce the real revaluation of the Yuan, thereby reducing China's external imbalance.

In the event of the adoption of floating exchange rate regime for the Yuan, it should be put in place until these measures have induced enough trade deficits to absorb the major part of accumulated foreign exchange reserves. The transition to this regime must be sufficiently long and be announced clearly in advance in order to allow Chinese financial institutions and non-financial firms to prepare for its arrival so that they are not defenseless against foreign financial institutions and international speculators, who know much better in taking advantage of fluctuating exchange rates.

To absorb abundant domestic savings, the government should strive to create more savings vehicles for domestic residents by increasing the quantity of assets of good quality in the Chinese financial market through, for example, partial privatization of public enterprises at reasonable prices, debt emissions by firms and creation of venture capital funds. Once the flexible exchange rate is adopted, the authority should relax its control on the foreign exchange settlement system, allow the private sector to hold a certain amount of foreign currencies, and encourage foreign assets to be denominated in RMB to solve structural problems, including entity and currency mismatch (Zheng and Yi (2007), Zhu (2010)).

In the perspective of a real revaluation of the Yuan through measures which stimulate Chinese demand and supply oriented to domestic market, China could negotiate in return for less loose monetary and fiscal policies in the United-Sates. In effect, if China could be accused of manipulating the exchange rate, the U.S. should be accused of manipulating its currency to maximize seigniorage revenues.[8] Indeed, the United-States enjoy unprecedented seigniorage revenues thanks to the accumulation of dollars by Asian central banks and countries exporting raw materials. A further acceleration of U.S. monetary creation could completely change the behavior of the central banks holding assets denominated in U.S. dollars. An argument that could convince American policymakers is that excessively exploring this source of income, permitted by the status of international currency gained by their currency after the Second World War, will eventually lead to its disappearance or dry-up. In this case, the optimism of Cooper (2009) about the long lasting role of the US dollar as dominant international currency could not be maintained for a long time.

6. Conclusions

The revaluation of the Yuan fuels the debate in China and abroad in a context where some countries are likely to initiate a "war of currencies", in which each participating country tries to devalue its own currency to boost national growth to the detriment of other countries. In this paper, I have argued that the loose monetary policy of the Fed is also an important determinant of the undervaluation of the Yuan and China cannot efficiently invest its increasingly large amount of foreign exchange reserves. The continuation of the current situation will make unavoidable future adjustments more damaging for Chinese and World economies. It is argued that the revaluation of the Chinese currency, if it is well managed, will

[8] See Frenkel and Wei (2007) on the issue of manipulation of the exchange rate of the Yuan.

be good for China in terms of social welfare and economic growth in the short as well as long run. However, an abrupt change in nominal exchange rates between the Yuan and other currencies (dollar, euro and yen, etc.) is not justified due to the fact that its negative externalities are too important in the short run. The Chinese government should rather seek a real revaluation of the Yuan fast enough to prevent China from building up an increasingly large amount of foreign exchange reserves composed mostly of assets denominated in the U.S. dollar. The accumulation of foreign exchange reserves, originally intended to ensure the stability of nominal exchange rate, is not anymore beneficial because it becomes very excessive and hence leads to an important loss of Chinese social welfare. Policy measures, such as higher wages, changes in fiscal and regulatory rules to reduce net exports and net inflows of capital, more public expenditures on infrastructure, additional funds for national education as well as technological research and development, reform of the social security system, and abandonment of the one-child policy, could help minimize the adjustment costs related to a real revaluation of the Yuan while stimulating future growth.

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