

***CHINA'S GROWING TRADE SURPLUS: CAUSES, CONSEQUENCES
AND POLICY IMPLICATIONS***

Tony Makin
Professor of Economics
Griffith Business School
Griffith University
Gold Coast PMB 50
Queensland 9726
Australia

t.makin@griffith.edu.au

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Tony Makin, [BA, BEcon(Hons)*_Old*, MEc, PhD ANU] is Professor of Economics at Griffith University and member of the Griffith Asia Institute. In 2003-2004 he was International Consultant Economist at the International Monetary Fund, Singapore Training Institute, is a member of AUSPECC, an APEC related body, and has previously served in the federal departments of Finance, Foreign Affairs and Trade, The Treasury and Prime Minister and Cabinet. He has published in numerous academic journals and is author of *Global Finance and the Macroeconomy*, Palgrave Macmillan (published in Chinese by Peking University Press in 2005), and *International Macroeconomics*, Pearson.

CHINA'S GROWING TRADE SURPLUS: CAUSES, CONSEQUENCES AND POLICY IMPLICATIONS

Abstract

A pegged exchange rate regime has been pivotal to China's export-led development strategy. However, its huge trade surpluses and massive build up of international reserves have been matched by large deficits for major trading partners, creating acute policy concerns abroad, especially in the United States. This paper provides a straightforward conceptual framework for interpreting the effect of China's exchange rate policy on its own trade balance and that of trading partners in the context of discrepant economic growth rates. It shows how pegging the exchange rate when output is outstripping expenditure induces China's trade surpluses and counterpart deficits for its trading partners. An important corollary is that given its heavily regulated capital account, China's persistently large surpluses imply a significantly undervalued yuan, which should gradually become more flexible.

JEL: F32, F33, F43

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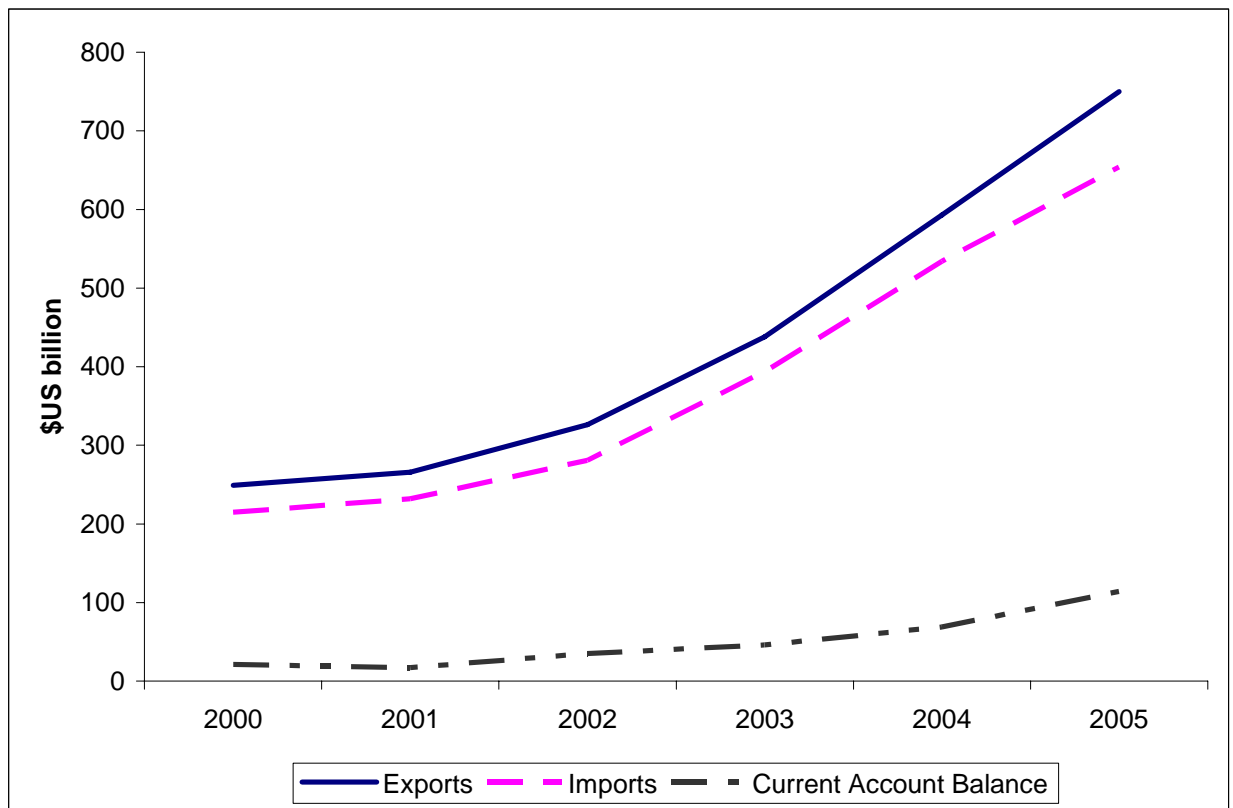
1. Introduction

A distinguishing feature of China's economic ascendancy over the past quarter century has been that in the main its aggregate output has outpaced its domestic expenditure. This has been reflected in saving exceeding investment and in exports exceeding imports. Evidently, export-led growth has been crucial to China's development strategy and a tightly managed exchange rate system has been the central economic policy instrument used for this purpose.

A combination of huge trade surpluses, managed exchange rate and highly regulated capital inflows and outflows has prompted assertions that China's development strategy is best termed 'neo-Mercantilist' (Wolf 2005) insofar as large trade surpluses are seen as an appropriate end-goal of economic policy. At the same time, large trade deficits experienced by China's major trading partners have been a source of major policy concern in those countries.

Indeed, the most fractious issue in China's international economic relations in recent years has been its bilateral trade imbalances, especially with the United States and increasingly with Europe. China's trade surplus reached over a \$US100 billion in 2005 matched by counterpart trade deficits in many of its trading partners. The US imbalance with China is of such concern that US lawmakers have proposed levying punitive new tariffs against imports from China as a means of reducing the US deficit. Meanwhile, the Bank for International Settlements (2005) also declared that the US trade deficit could pose a serious longer term problem for the global economy.

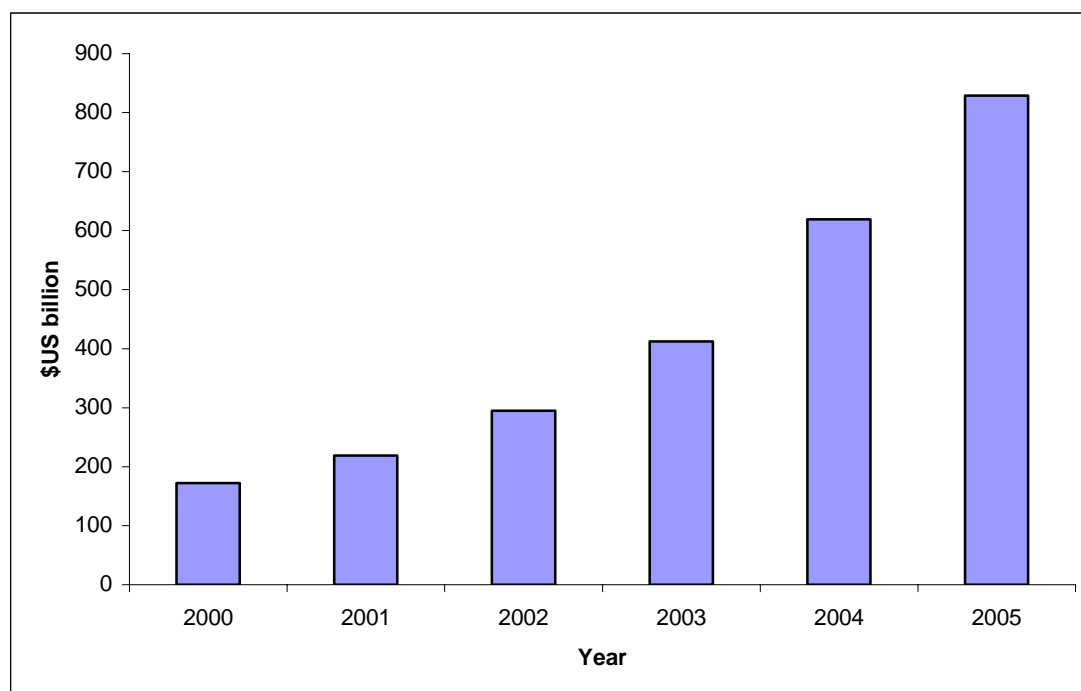
China's current account surplus essentially reflects its trade surplus and has grown markedly since China became a member of the World Trade Organization (WTO) in 2001 (see Chart 1). From a trade perspective has been perceived as an industry competitiveness problem. There has been considerably less analysis of the impact of China's exchange rate policy on its trade surplus and on the trade deficits of its major partners.



Source: Based on data in IMF (2005a)

Chart 1 - China's Exports, Imports and Current Account Surplus

After a lengthy period of pegging against the \$US, China's exchange rate system changed in July 2005. It presently involves tightly managing the yuan against a basket of currencies in which the US dollar is thought to predominate. As a result of its persistent trade surpluses and capital inflow, vast foreign exchange reserves totaling over \$US860 billion have accumulated, a significant portion of which are US dollar securities (see Chart 2). In view of the extensive capital controls in place, capital inflows over recent decades have been mostly in the form of foreign direct investment. Recorded non-official capital outflows have been insignificant.



Source: Based on data in IMF (2005a)

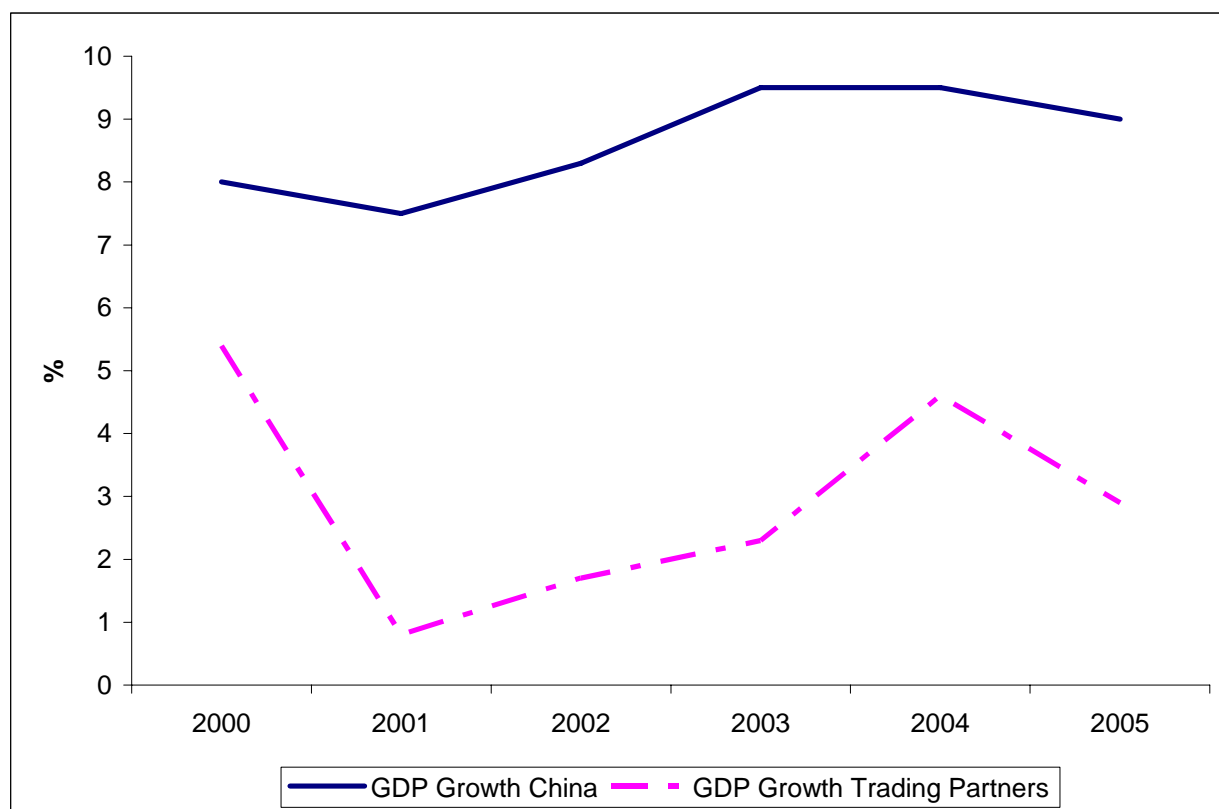
Chart 2 - Gross International Reserves

The main aim of this paper is to provide a straightforward conceptual framework for interpreting the effect of China's exchange rate policy on its trade imbalance with specific reference to links between exports, imports and the central bank's foreign exchange market intervention. In preview, this straightforward framework shows how China's policy of pegging the exchange rate is not only causing its large trade surplus, but also the trade deficits of its trading partners, including the United States. An important corollary is that China's persistently large external surplus implies its exchange rate is significantly undervalued.

The remainder of the paper is structured as follows. Section 2 provides macroeconomic background as context for China's trade surplus. Section 3 develops the alternative flow model of trade imbalances and the exchange rate that combines exports, imports and monetary flows. Section 4 addresses the wider implications of this undervaluation and argues that China should adopt a more flexible exchange rate regime.

2. Underlying Determinants of China's External Surplus

China's emergence as an economic powerhouse stems from a quarter century of economic growth at 8-9 per cent, a significantly faster rate of growth than its trading partners (see Chart 3 based on IMF 2005a data).



Source: Based on data in IMF (2005a)

Chart 3 - Economic Growth of China and Its Trading Partners

This outstanding performance has made it the world's fourth largest economy after the United States, Japan and Germany. On a purchasing power parity adjusted basis, it is either the second or third largest, depending on the purchasing power parity measure used for comparison (see Herd and Dougherty 2005). It is presently the third largest exporter after the United States and Germany, having experienced average annual export growth of 13 per cent since 1980, well above its output growth.

China is a highly open economy relative to most advanced economies in the world. As a proportion of GDP, its total exports plus imports of goods and services are around seventy five per cent, well above comparable ratios for the United States, Japan and Germany. China's share of world exports has grown from just over one per cent to nearly seven per cent over this time and it will be the world's largest exporter by 2010 should, on present trends, exports reach ten per cent of world exports.

Numerous economic policy reforms have directly contributed to the high rates of output and export growth. At the international level, the most important spur has been liberalisation of trade barriers and integration with global merchandise markets. Although China acceded to the WTO in 2001, it had previously benefited from export growth at higher rates than experienced by Japan and South Korea during their take-off phases in the 1950's, 1960's and 1970's. Foreign direct investment has greatly facilitated export growth with multinational firms such as Motorola, Toshiba, Nokia and LG contributing significantly to China's export volumes (Hale 2006).

Other factors supporting China's economic growth have been its high saving rate, influenced by the contraction of social welfare previously extended by the state sector, high public infrastructure spending, enhanced labour mobility and an improved investment climate for the private sector, assisted by corruption restraint. An expanding capital stock attributable to high domestic saving and investment rates has also been combined with an urban workforce that has flourished as restrictions limiting migration from rural to urban areas have been eased over the past decade.

Overall productivity growth, the fundamental driver of economic growth, has averaged over 3 per cent, due partly to the decline in the share of state-owned enterprises from around 80 per cent in 1978 to 20 per cent (OECD 2005). The workforce is better educated than in earlier decades and an entrepreneurial class has emerged to start new ventures and energise privatised and substantially reformed state-owned enterprises.

Of essential importance, exchange rate management has enabled China's export-led growth strategy by minimizing exchange rate uncertainty for the tradable sector. Parenthetically, the tradable sector is disproportionately large compared to advanced economies and to other emerging countries such as Brazil at similar stages of development due to relatively slow growth of services industries which have been officially discouraged.

With the above macroeconomic background, it is now possible to interpret the inter-relationship between China's growth performance, expanding trade surplus and exchange rate and monetary policies. As shown shortly, exchange rate management by the central bank, the People's Bank of China (PBC), also directly affects the trade balances of its significantly slower growing trading partners.

3. A Balance of Payments Framework

In flow terms, the balance of payments records the supply and demand of an economy's currency, with the nominal exchange rate ensuring equality between the trade balance and monetary flows, both official and private. An economy with a trade deficit (surplus) has an excess demand (supply) for foreign currency satisfied by an excess supply (demand) of foreign currency, provided through matching capital inflows (outflows). Hence, both trade and monetary flows need to be taken into account when modelling exchange rate management. Yet this is usually not acknowledged in many exchange rate models, such as asset market approaches based on stock adjustment of financial portfolios (see Branson 1983 and exchange rate surveys by Isard 1995 and Sarno and Taylor 2002).

In what follows, macroeconomic variables for trading partners corresponding to the same variables for China are denoted with an asterisk. The effective exchange rate of the yuan is the inverse of trading partners' effective rate against the yuan, that is $E = 1/e$, so that an appreciation of the yuan is a depreciation of trading partner currencies, in practice with a heavy weight given to the US dollar.

At this stage, we abstract from capital flows arising from foreign direct investment

(FDI) and assume that China's existing and recently strengthened capital controls effectively limit other inflows and outflows from China. Hence, the initial focus is on the primary determinants of trade flows.

The export functions of China and its main trading partners can be specified as

$$X = f(e; L^+, K^+, A^+) \quad (1a)$$

$$X^* = g(\bar{E}; L^{*+}, K^{*+}, A^{*+}) \quad (1b)$$

where L and K are respectively the size of the labour force and capital stock and A is multifactor productivity. Nominal exchange rate depreciation, for given cost levels and factor inputs, improves competitiveness, increases foreign demand and encourages greater short run production and exports.

Hence, an upward sloping export schedule for China can be drawn in exchange rate-foreign currency space as shown in the left panel of Figure 1. Given the inverse relationship between movements in these exchange rates, the downward sloping export schedule of China's main trading partners is drawn in the right panel. Variables in this panel can alternatively be read as the upside down, reverse image of corresponding left panel variables. Increases in the labour force, capital stock and multifactor productivity, shift respective export schedules rightward.

The Chinese and trading partners' import functions are:

$$M = f(e; \bar{P}^*/P, \varepsilon(i^-, \phi^+, G^+)) \quad (2a)$$

$$M^* = g(\bar{E}; P^*/P, \varepsilon^*(i^{*-}, \phi^{*+}, G^{*+})) \quad (2b)$$

Other things the same, a stronger exchange rate lowers the domestic currency price of imports, increasing import demand. Hence, a downward sloping import schedule M for China can be drawn in exchange rate-foreign currency space as shown in the left panel of Figure 1. Given the inverse relationship between movements in the two exchange rates, the import schedule for trading partners is drawn sloping upward in exchange rate-foreign currency space in the right panel of Figure 1. A negative sign above any shift variable implies a leftward movement of the schedule following an increase in that variable, whereas a positive sign implies a rightward shift.

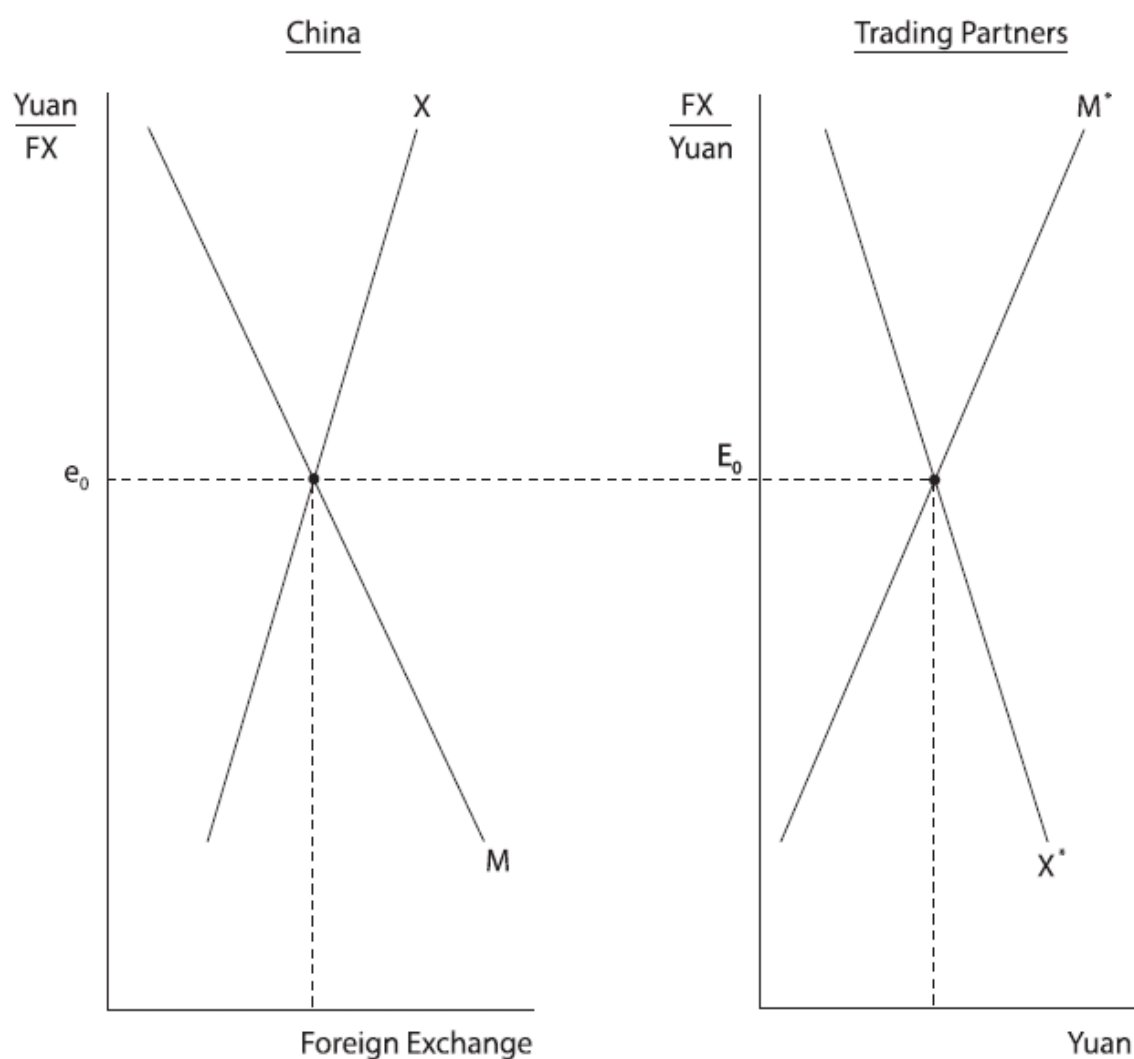


Figure 1 - Exchange Rates and Trade Flows for China and Its Trading Partners

Changes in the ratio of an index of the prices of Chinese tradable goods relative to a counterpart tradable goods price index for trading partners, as well as in autonomous aggregate expenditure (itself a function of domestic interest rates, wealth, ϕ , and government spending, G) also shift the import schedules.

The weaker the exchange rate, the higher the excess supply of goods and services, and hence the greater each economy's net supply of foreign currency from international trade. In the absence of capital flows, trade accounts are balanced and the nominal exchange rate is in equilibrium where exports equal imports at e_0, E_0 .

4. Trade Surpluses, Deficits and Exchange Rate Management

Having established these foundations, it is possible to show how higher export oriented growth determines the trade imbalance between China and its trading partners. First, in view of stronger output growth in China relative to expenditure,

exports increase relatively faster than imports, as reflected in a rightward shift of the X schedule in the left panel of Figure 2.

The growth in production in China due to utilization of high saving and the mobilisation of relatively cheap labour at a rate in excess of the expansion of domestic demand also implies that the prices of China's tradable goods fall relative to tradable goods prices abroad. The relative price fall shifts the M^* schedule in the right panel of Figure 2 out. Hence, excess production in China is absorbed through excess demand in its trading partners via a change in relative prices. Other things the same, the higher export volume from China that is equal to the higher import volume for its trading partners would appreciate the nominal value of the yuan from e_0 to e_1 and depreciate the currencies of trading partners on an effective basis from E_0 to E_1 .

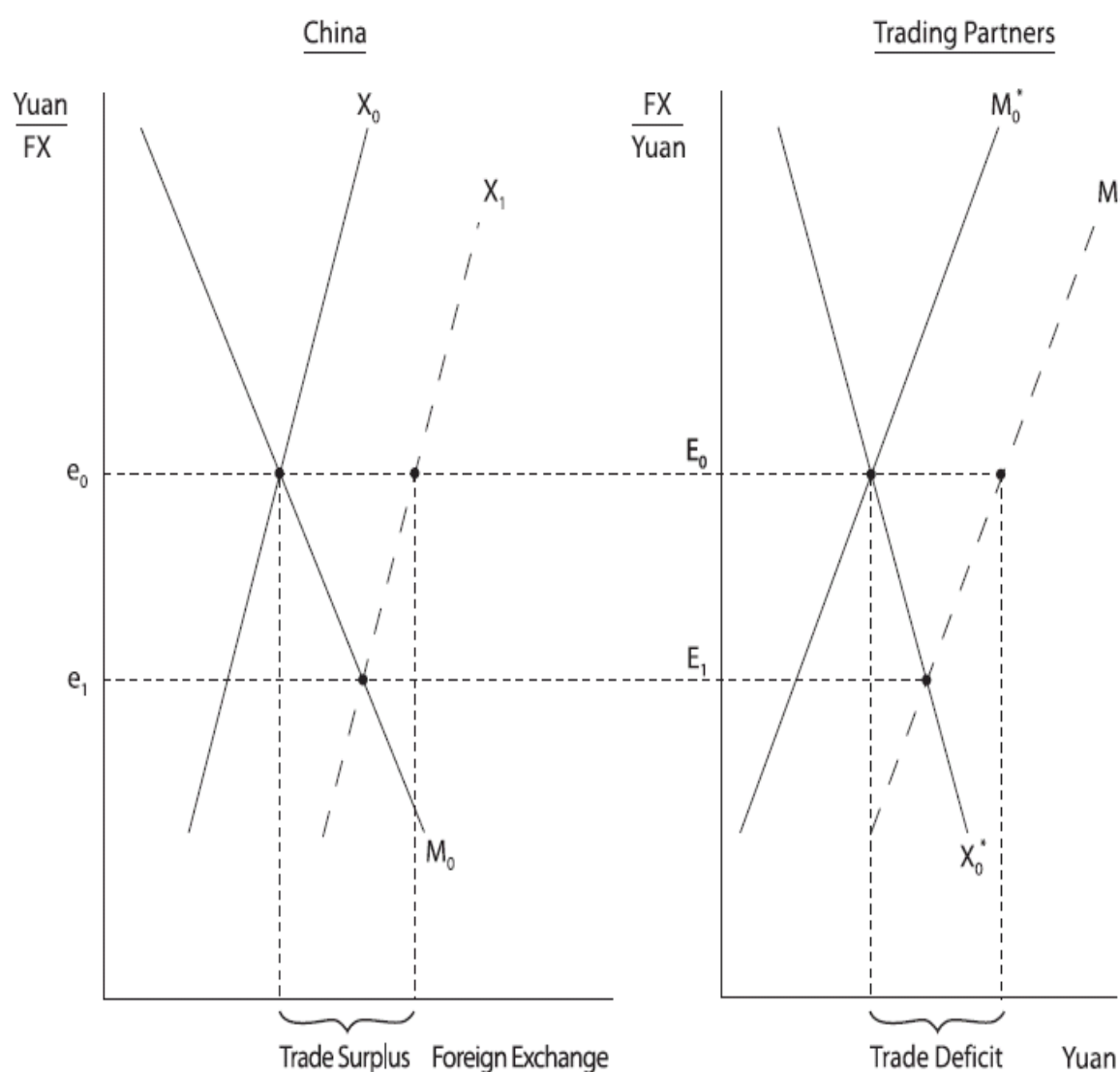


Figure 2 – The Trade Balance Effects of a Pegged Yuan

The framework therefore shows how, if free to move, the nominal exchange rate would strengthen to ensure balanced trade accounts for China and its trading partners. Under the pegged arrangements however, China's trade surplus expands and is matched by growth in the consolidated deficit of its trading partners. Consequently, the trade deficits of individual trading partners are effectively determined exogenously because of the pegged exchange rate system administered by the PBC. In this way, the trade imbalance is indeed made in China. The corollary is that the larger is China's external surplus, the more undervalued is the yuan.

Additionally, Figure 2 can illustrate the effects of a fiscal expansion in the US and Europe or in other trading partners that increases aggregate spending and increases import demand. Bond-financed fiscal expansion from a point of initial trade balance increases expenditure relative to production and shifts out the M^* schedule in the right panel of Figure 2, widening the trade deficit, other things equal.

With China's output growing faster than spending, the increased import demand from trading partners is satisfied by higher exports from China. Again however, if the yuan was free to move against the exchange rates of trading partners, including against the US dollar, it would appreciate and they would depreciate in nominal terms. Such exchange rate adjustment would automatically ensure the trade accounts of the two regions remained in balance. Yet, China's tightly managed exchange rate policy prevents this.

Pegging the yuan maximizes China's exports as it prevents any loss of competitiveness stemming from nominal appreciation. To achieve this, the central bank purchases foreign currency and invests it in foreign currency denominated securities, mainly G7 treasury bonds held as international reserves. While the purchase of foreign currency reduces foreign money supplies, the acquisition of foreign currency denominated bonds leaves foreign money supplies unchanged. Consequently, capital inflow from China to purchase foreign securities satisfies the excess foreign demand for yuan arising from imports exceeding exports.

Meanwhile, by pegging the yuan to prevent losses in competitiveness China's exports and short run output are higher than if the PBC had allowed the nominal effective exchange rate to strengthen. Hence, exchange rate management becomes a crucial instrument for achieving higher short run growth. At the same time, with less imports of foreign consumer goods and services than otherwise, China's living standards, as measured by absolute consumption levels, are lower than they could be. Meanwhile the reverse is true in trading partners. Short run output and presumably employment in the tradable sector is lower and household consumption higher.

5. Exchange Rate Management and Monetary Policy

To prevent yuan appreciation in the face of a growing trade surplus and capital inflow, the PBC has intervened massively in foreign exchange markets, buying foreign currency and selling yuan. This intervention has sustained higher exports, lower imports and higher trade surpluses than otherwise. Foreign exchange market intervention of course has direct monetary consequences and the PBC has also had to neutralize the monetary effects of capital inflows, mainly in the form of FDI given the

restrictive nature of China's capital controls.

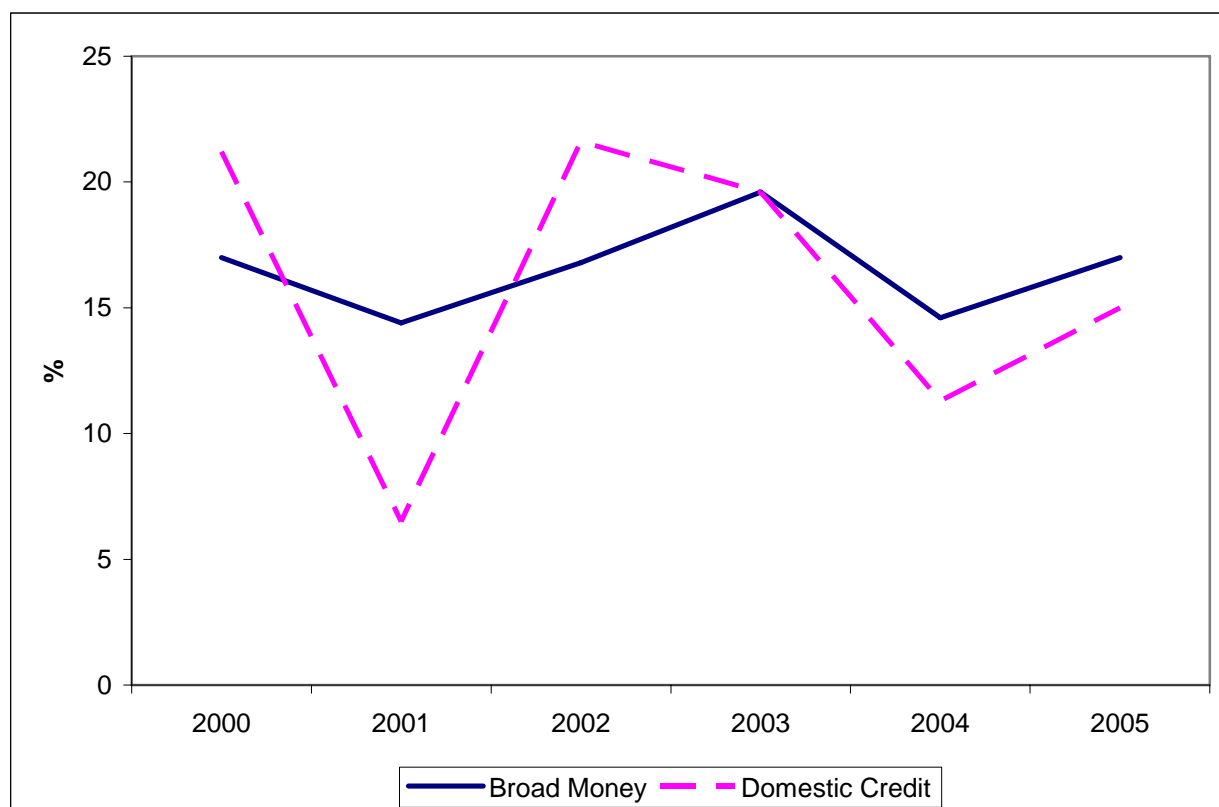
Specifically, central bank purchases of US dollars to fix the value of the yuan will increase China's money supply in the first instance, other things equal. The expansion of the domestic money supply and credit raises expenditure and imports. In theory, if the intervention is not sterilized this should bring about an automatic correction of the excess of exports over imports and eventually restore external balance.

In practice however, the following factors explain why this automatic adjustment mechanism becomes inoperative. First, the PBC sterilises foreign exchange rate intervention by issuing local currency denominated debt instruments to offset the liquidity effects of its intervention. This dampens inflationary pressures and domestic expenditure growth and puts upward pressure on domestic interest rates. The extensive exchange controls that restrict financial inflows also has been critical to the success of sterilization because, without a highly regulated capital account, additional financial inflows would require that much extra sterilised intervention.

Second, money supply growth stemming from intervention that remains unsterilised is less inflationary under conditions of very rapid output growth. This is because strong economic growth raises real domestic money demand and, as standard monetary theory suggests, an expanding money supply will not generate inflationary pressure if it simply accommodates real money demand that is rising at the same rate. By the same token, deflationary pressures build if money demand growth outstrips money supply growth.

China has therefore been able to accommodate high money and credit growth (see Chart 4) because real money demand has been expanding simultaneously with income. Indeed, the relatively low inflation rate in recent years largely reflects the difference between money growth and output growth.

Third, automatic monetary correction is less likely to operate the more the central bank directly controls credit made available by the banking sector and the less market-oriented is the economy's financial system. China's banking system remains quite vulnerable despite ongoing reform and limited foreign investment in the sector, as many banks over a lengthy period were not lending on a commercial basis.



Source: Based on data in IMF (2005a)

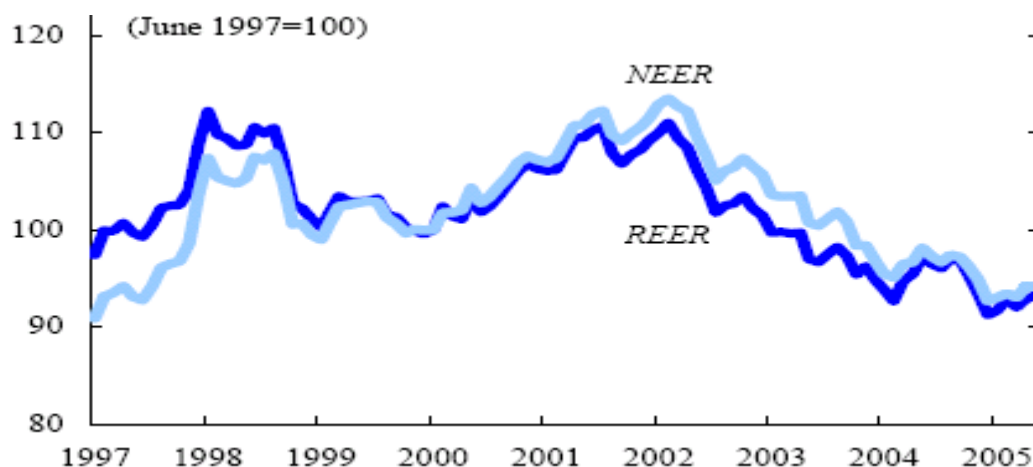
Chart 4 - Money and Credit Growth

This has left a legacy of non-performing loans, estimated at between \$US200-300 billion (Hale 2006). However, banking reform is progressing along with rising foreign investment in that sector. Taken together, these factors appear to have so far muted the inflationary impact of pegging the yuan allowing China's output to continue outpacing expenditure.

6. Should the Yuan Be More Flexible?

This paper has proposed a simple framework for analysing trade balances and monetary flows. It has modelled the exchange rate implications of rapid output growth in China matched by strong import growth in its trading partners. These developments imply that the yuan exchange rate has been significantly undervalued since China became a member of the WTO and has contributed directly to the size of trade deficits in its trading partners.

This exchange rate focus contrasts with the view that the external imbalance is best interpreted as a result of relative national saving and investment patterns (IMF 2005b) without reference to exchange rate management. It is also at odds with the standpoint of the Chinese authorities and the perspective of some economists, including Eichengreen and Masson (2004), that yuan undervaluation has not been substantial.



Source: IMF (2005a)

Chart 5 - Nominal and Real Effective Exchange Rates

Although it is difficult to empirically estimate an equilibrium exchange rate for an emerging economy undergoing great structural change, it is evident from Chart 5 that since joining the WTO in 2001, the nominal and real effective exchange rates of the yuan have reached very low levels.

The above framework clearly shows that with a more flexible exchange rate regime any tendency for China to record trade surpluses naturally leads to yuan appreciation against the currencies of its trading partners and that pegging the exchange rate determines the actual size of the surplus eventually recorded. This tendency obviously becomes more pronounced once capital inflows including FDI are taken into account. Accordingly, continued strengthening of the external accounts attributable to a fixed exchange rate system will amplify the degree of undervaluation of the yuan.

From China's perspective, numerous economic benefits arise from retaining a pegged exchange rate. First, this policy allows export growth to be faster than otherwise because an undervalued exchange rate boosts the competitiveness of both its export and import competing industries, including the large and politically sensitive agricultural sector. Yet, it also implies that exporters abroad sell less than otherwise which compromises trading partners' growth. In this way, China's exchange rate policy acts as a form of industry protection, known in the literature as "exchange rate protectionism" (See Corden 1982 and Schwartz 2005)

Second, the PBC's high levels of international reserves provide a large stock of funds with which to defend the yuan in the event of a crisis like the Asian currency and financial crisis of 1997-98. Relatedly, the peg of the yuan provides a measure of stability for China's weak banking and financial system and means Chinese enterprises can avoid managing their own currency risk. Dealing with currency risk would require a stronger banking system, broader and deeper financial markets and more instruments than presently exist.

Offsetting the benefits to China of pegging the currency however, there are numerous macroeconomic risks. First, although most foreign exchange market intervention undertaken to peg the yuan is sterilized, there are limits to the use of sterilization.

Neutralizing the monetary impact of intervention by issuing debt instruments will continue to put upward pressure on domestic interest rates which could exacerbate the non-performing loans problem overhanging the domestic banking system.

Second, interest earned on an ever-escalating stock of foreign reserves in the form of G7 securities could fall short of the interest the central bank has to pay residents on bills issued to sterilize its foreign exchange market intervention. A growing fiscal cost would then arise from the sterilization process and the international interest differential, along with expectations of an inevitable yuan revaluation, would induce non-official capital inflow, notwithstanding the capital controls in place.

Higher money growth resulting from foreign exchange market intervention that is not sterilized and not matched by sufficient money demand growth eventually fuels inflation. Higher domestic inflation raises the relative price of domestic goods to foreign goods increasing imports and pushes up domestic costs of production curbing exports. Increased imports and reduced exports then reduce trade imbalances. However, automatically restoring external balance via higher inflation would take some time and be disorderly because it would create investment uncertainty and put further strain on China's fragile banking system.

China's persistently sturdy economic growth and huge stock of reserves suggest that it is timely to introduce greater exchange rate flexibility at the present juncture. A more flexible exchange rate would strengthen the overall effectiveness of macroeconomic management by allowing greater independence for monetary policy. In addition, a more flexible exchange rate would better insulate China's economy from external shocks, such as further sharp rises in oil and other commodity import prices. It would also dampen protectionist pressures that have been building in its trading partners.

Yet, a gradual approach to adopting a fully flexible or free floating exchange rate is advisable in view of the vulnerability of the banking sector and the underdeveloped nature of the foreign exchange market and instruments for managing currency risk. The next step toward a more flexible regime would be the announcement by the PBC of a significantly wider band in which the daily value of the yuan could be set.

A new nominal anchor for monetary policy would have to replace the nominal exchange rate. Money supply and credit growth targets could serve this purpose at the outset with progression to an inflation targeting regime of the kind adopted in many other countries in the region that have experienced exchange rate regime change in the past decade, such as Indonesia, the Philippines and Thailand.

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