

Stefan Collignon, Richard N. Cooper, Masahiro Kawai, Yongjun Zhang

Rebalancing the Global Economy

Four Perspectives on the Future of the International Monetary System

Europe in Dialogue 2010 | 01



Europe in Dialogue

The Europeans can be proud as they look back on fifty years of peaceful integration. Nowadays many people in the world see the European Union as a model of how states and their citizens can work together in peace and in freedom. However, this achievement does not automatically mean that the EU has the ability to deal with the problems of the future in a rapidly changing world. For this reason the European Union needs to keep developing its unity in diversity in a dynamic way, be it with regard to energy issues, the euro, climate change or new types of conflict. Self-assertion and solidarity are the fundamental concepts which will shape the forthcoming discourse.

“Europe in Dialogue” wishes to make a contribution to this open debate. The analyses in this series subject political concepts, processes and institutions to critical scrutiny and suggest ways of reforming internal and external European policymaking so that it is fit for the future. However, “Europe in Dialogue” is not merely trying to encourage an intra-European debate, and makes a point of including authors from non-EU states. Looking at an issue from a different angle or from a distance often helps to facilitate the crucial change of perspective which in turn makes it possible to continue to develop Europe in a meaningful way and to engage in a critical and yet courteous discourse with other civilizations and continents.

Rebalancing the Global Economy

*Stefan Collignon, Richard N. Cooper,
Masahiro Kawai, Yongjun Zhang*

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Talking About Global Disequilibria

Dear Reader,

You hold in your hands the second volume of the *Europe in Dialogue* series. *Europe in Dialogue* seeks to enliven the debate about the future of the European project and global challenges by providing a forum in which creative approaches can be heard.

In this volume, we contribute to the current debate about global imbalances and the question of how global actors in general—and the European Union in particular—should deal with the growing disequilibria among the major currencies. The idea for this publication emerged during a vigorous debate in spring of 2010 held between Stefan Collignon from the Sant’Anna School of Advanced Studies in Pisa and experts at the Bertelsmann Stiftung.

At this meeting, it quickly became clear that we share the same set of observations: The origins of the 2008 global financial crisis lie in insufficient banking regulations *as well as* an inflated U.S. asset market, which had been fueled by large inflows of private and public saving from Asia, particularly China. Economists had for some time been pointing to the unsustainability of these global disequilibria, in which primarily China and East Asia financed ballooning U.S. current account deficits and Europe stood by as a neutral bystander, maintaining a fairly balanced current account position.

Many observers have emphasized the fact that for several years East Asian and Chinese currencies have been pegged to the U.S. dollar at highly competitive exchange rate levels. Some consider this a manipulation strategy giving Asia unfair trade advantages. But the policy has harbored several advantages—and not only for Asia. Fixing exchange rates in emerging Asian economies has limited volatility and uncertainty for investors, thereby creating an environment conducive to international foreign direct investment. This has clearly benefited not only recipient countries, but also investors. However, the competitive advantage could not have been sustained without the region’s highly elastic labor supply, which in turn contributed to the “great moderation” of the last decade. Asia’s exchange rate policies are a significant factor in the region’s rapid economic development, which generates considerable demand for European exports.

At the same time, Asian currency pegs to the U.S. dollar have clearly contributed to U.S. deficits, kindling fears among some of a major depreciation of the U.S. dollar against major currencies, which would destabilize the global economy. As long as these pegs are maintained, dollar depreciation could result in an overvalued euro, which would prove detrimental to European growth and employment. The European Union, and the euro area in particular, play an important role in finding arrangements to overcome global imbalances.

There are many competing views about the threats posed by the imbalances and even more competing ideas about how to effectively address these imbalances through policy. Several policymakers, especially in the United States, have put pressure on Asian countries to appreciate their currencies. But Chinese authorities in particular have resisted these pressures, knowing that such action would halt the successful growth observed in China in the last decade. European policymakers must respect Chinese interests on this point, especially since rapid growth in China is good for Europe as well. The four authors contributing to the present publication are doubtful that an appreciation of the renminbi would help solve the global economy's current malaise. Given this state of affairs, what are the alternatives? Should we seek out a new form of policy cooperation? Should we engage in a concerted exchange rate management of Asian and European currencies together with the U.S. dollar?

There is astonishingly little consensus on the nature and consequences of the current disequilibria, and on the implications they have for policy. Aiming to facilitate constructive debate leading to feasible measures, we have set up a joint research project addressing the following key issues:

- What causes global imbalances?
- Are global imbalances driven by fundamentals like population growth, education, research and development, or by misconceived policies like loose monetary and fiscal policies?
- What is the role of exchange rate policies?
- What are the possible strategies in overcoming global imbalances?
- Is there a role for the euro and yen in global adjustment?
- Is the G20 the appropriate forum for coordinating international macroeconomic policies?

The authors brought together in this publication take a collective step toward constructive debate by offering their scholarly expertise from the perspective of

four different regions. **Stefan Collignon**, professor of political economy at the Sant'Anna School of Advanced Studies in Pisa, explores the role of Europe. The Harvard economist **Richard N. Cooper** sheds light on the U.S. position. **Masa-hiro Kawai**, dean of the Asian Development Bank Institution, illustrates the need to consider a wider Asian perspective. **Yongjun Zhang**, division chief at the China Center for International Economic Exchanges, offers a view from China. Given the complexity of the debate on trade and payment balances, we decided to include at the end of this volume an overview of the theoretical approaches to these questions by our colleague **Thieß Petersen**.

The contributors to this volume first introduced and discussed the ideas presented here in June 2010 at a conference in Pisa, which is a joint initiative of the Sant'Anna School of Advanced Studies in Pisa, the Euro-Asia Forum (which is organized by the Sant'Anna School of Advanced Studies and the WASEDA University in Tokyo) and the Bertelsmann Stiftung. Recognizing the need to share with a broader public the compelling analyses and recommendations offered by these scholars, we invited them to write contributions for the present publication. In the introduction, **Thieß Petersen** draws upon all four authors' discussions in suggesting a broad framework in addressing global disequilibria.

We extend our deepest appreciation to all the authors for their support with the project and contributions to this publication. We would also like to thank those individuals who helped make the project possible. Thanks go to **Jan Arpe**, whose tireless efforts as coordinator ensured a huge success in Pisa. Thanks go as well to **Bettina Neuhaus** and **Sabrina Patricelli** for their energetic efforts in managing operations. Finally, we thank **Barbara Serfozo** and **Sibylle Reiter** for their assistance in shepherding this publication into print.

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Introduction

Thieß Petersen

Since the late 1990s, large current account imbalances have mounted around the world. In the United States, current account deficits in the 2005–2008 period were between \$700 billion and \$800 billion, comprising 5 percent to 6 percent of the country's gross domestic product (GDP). In Spain and Portugal, deficits have ranged up to 10 percent of GDP for several years, and in Greece have reached as high as 10 percent to 15 percent of GDP. These deficit-running countries stand in counterpoint to countries with trade surpluses such as Germany, Japan and China. Since the mid-2000s, China has posted an annual current account surplus of 9 percent to 11 percent of its GDP. While the current economic crisis and the associated decline in international trade have somewhat reduced current account imbalances, global economic recovery is likely to see them rise once again.

Many economists and politicians around the world see the primary cause of these imbalances in an undervalued Chinese yuan. However, the authors of the present publication demonstrate that this single-cause analysis is insufficient to explain the complex origins of today's current account imbalances. Rather than simple explanations, the authors offer a sophisticated discussion of the causes, and of the challenges associated with these global imbalances.

Stefan Collignon points out that when examining global imbalances, we should not single out China but consider emerging Asia as a whole. He shows that current account surpluses in the region are a necessary condition of rapid catch-up growth and argues against eliminating them any time soon. Richard Cooper, in his contribution, explores the role played by capital movements in current account balances. He points to a key in factor in the U.S. current account deficit—the large net inflows of capital investment, which are directly related to the relative high yields available in the United States. Seen from a global perspective, he argues, the large U.S. current account deficit is understandable and, so long as Americans invest funds productively, can have a welfare-enhancing effect. Masahiro Kawai addresses the importance of savings and investment in current account balances. He locates the source of the U.S. deficit in high levels of U.S. consumption

(or low savings rate) and China's high savings rate, which translates into a trade surplus for the Asian country. In the fourth contribution, Yongjun Zhang takes a closer look at the consequences of the U.S. dollar serving as an international reserve currency. For emerging Asian economies, this has resulted in the need to build-up U.S. dollar reserves in order to support their own currency in the event of exchange rate volatility. As a result, these countries have sought to achieve trade surpluses. This state of affairs translates into a current account deficit for the United States, if it is to continue supplying the rest of the world with the necessary reserves. Zhang therefore identifies a key cause of global imbalances in the status of the U.S. dollar as an international currency. Finally, all four authors agree that global imbalances are not intrinsically negative and stress that positive effects may also be present.

Nevertheless, consistently high current account imbalances can become problematic over the medium and long term. This is particularly true for deficit-running countries (in which the value of exports is less than that of imports). In the labor market, trade deficits can lead to a rise in unemployment. Foreign debt leads to an accrual of interest and mounting repayment burdens, which means that even once the trade deficit is eliminated, the country must send a portion of its economic output overseas. This becomes a particular problem when trade deficits last for many years. In this circumstance, a continual rise in the level of outstanding foreign debt is seen. If at some point this accumulation of debt causes foreign creditors to lose confidence in a country's creditworthiness, overseas lenders grow increasingly less willing to finance the country's current account deficits through loans. Once this takes place, the deficit-running country must either sell portions of its gold and foreign exchange holdings—something which cannot continue indefinitely, given the finite nature of existing reserves—or must reduce its consumption of goods and services. This latter course means an abrupt curtailing of consumption, which can lead to societal unrest.

For countries with trade surpluses (in which the value of exports is higher than that of imports), global trade imbalances seem at first glance relatively unproblematic. Trade surpluses help lessen unemployment and the impact of its related social costs (e.g., depressed government revenues, high government welfare payments to the unemployed, growing social inequality, etc.). Trade surpluses allow a country to increase its stock of assets relative to the rest of the world. These assets can be used in times of crisis to enable the population to retain its previous high level of consumption. In addition, income flows associated with for-

foreign assets (i.e., interest, profits and dividends) increase the population's disposable income, and thus their long-term consumption opportunities. Particularly for an aging society, in which a decreasing number of workers will coexist with a growing number of pensioners and retirees, the acquisition of foreign assets represents an option by which living standards need not fall despite the aging of the population.

Nevertheless, global imbalances are not entirely risk-free, even for surplus-running countries. The labor market's strong dependence on exports can lead to a rapid decline in employment levels if global economic crisis triggers a collapse in international trade. The inflow of gold and foreign exchange holdings increases an economy's monetary base, which can have an inflationary effect. Overseas assets can lose their value if foreign claims become worthless through corporate or even state bankruptcies, for example, or if the foreign currency is sharply devalued. In this case, the surplus-running country would have exchanged its own goods for worthless debt claims, and thus ultimately wasted them.

Finally, the effects of current account imbalances can also have consequences for the broader world economy, affecting even those economies with well-balanced current accounts. In this context, the threat of rising protectionism must be noted. As the deficit-running countries feel rising social pressures associated with trade imbalances—a rise in unemployment and its social corollaries, rising foreign debt, falling credit ratings, restrictions on consumption in order to serve foreign debt—these countries may turn to protectionist measures as a response. One country's introduction of tariffs and other trade restrictions frequently leads its trading partners to enact corresponding tariff and non-tariff trade barriers. This can lead in turn to a worldwide surge in protectionism, in which the international division of labor and its associated welfare effects are substantially undermined.

Given these negative consequences of persistent current account imbalances, further increases in the global trade surpluses and deficits should at the least be slowed. At the center of any discussion on addressing these imbalances lie the U.S. trade deficit and the Chinese trade surplus.

A simple and popular proposal locates the main cause of global imbalances in the undervaluation of the Chinese currency, the yuan or renminbi, which is currently pegged to the dollar. The proposed solution is correspondingly simple: It calls for a revaluation of the yuan by abandoning the fixed exchange rate against the dollar. Because that would make Chinese products more expensive abroad—

above all in the United States—this would also reduce Chinese exports. In this way, China's trade surplus and the U.S. trade deficit would both fall. The burden of global readjustment would thus fall on China. If China gives up its yuan-dollar peg, and allows appreciation of its currency, the global imbalances will effectively resolve themselves.

Economic relationships are often distinguished by considerable complexity, however. This is particularly true in the area of international trade and payment balances. As noted above, a trade surplus is caused by more than simply the undervaluation of the home currency. Other conditions enabling an export surplus include cost advantages related to export-good production technologies, which in turn are not undermined by a compensatory rise in factor prices; as well as the presence of adequate restraint in demand for goods by domestic consumers and investors, which translates into a sufficiently high domestic savings rate. In addition, the country must be ready to extend credit to deficit-running countries (in which the value of exports is less than that of imports) in order to finance their current account deficits. Finally the surplus-running country must find a trading partner willing to import more than it exports, to borrow abroad and to bear the other above-noted negative consequences of running a trade deficit. Analogous conditions must be met for a country with a current account deficit.

The authors included in this publication take these complex interactions into account. They do not see the cause of global trade imbalances one-dimensionally in the undervaluation of China's currency. As a result, they warn that the world economy—above all the United States—should not expect too much from a revaluation of the yuan. Central to the U.S. trade deficit is not the undervalued yuan, but rather the low savings rate in the United States itself. Relative to U.S. output, Americans consume and invest too much, so that the deficiency in goods in services must be imported from abroad. A yuan revaluation would have little immediate effect on this underlying U.S. imbalance. Indeed, a revaluation of China's currency will do little to reduce the U.S. trade deficit, as long as the United States fails to reconcile its savings and investment levels, and to reduce its consumption. In addition, it is assumed that after a yuan revaluation, the United States would simply begin importing from other fast-developing Asian nations; in this case, the U.S. trade deficit would persist despite China's revaluation.

Furthermore, it is important to remember that China reinvests the income earned through its trade surpluses in global capital markets. China's provision of capital has the effect of lowering interest rates around the world. The United

States and Europe have benefited the most from these low interest rates, which have allowed higher rates of investment in these areas than would otherwise have been possible. This in turn has boosted employment, raised national income, and led to stronger economic growth. Considered from this perspective, the victims of China's trade surplus are in fact Chinese consumers, who have lived beneath their means, consuming less than they themselves produce.

A massive yuan revaluation would have the disadvantage of weakening China's export sector, and with it the country's broader process of economic growth. This undermining of growth would also affect the rest of the world—particularly the other emerging Asian economies, the United States and Europe—as China has increasingly become the engine of world economic growth. A decline in economic output and employment in China would reduce Chinese imports. As Chinese imports represent exports for other economies, a decrease in their amount would reduce export opportunities for the rest of the world. Production and employment levels would fall as a result. Thus, all other exporting countries also benefit from China's export-led growth.

Finally, it is useful to remember that the mirror image of the U.S. trade deficit, from the perspective of balance-of-payments mechanics, can be seen in the net inflow of capital to the United States. The high level of capital inflow to the American market results from the fact that there are more attractive investment opportunities in the United States than is the case in many other countries. From this perspective too, a yuan revaluation would change little. Revaluation would make production in China more expensive, and thus lower return on capital in China. Conversely, depreciation of the U.S. dollar would improve the international competitiveness of the American economy, thus also improving profits and capital yields. This would make investment in the United States even more attractive, which in turn could boost net capital flows into the United States, exacerbating the U.S. current account deficit.

Thus, since revaluation of the Chinese currency cannot be expected to play a large role in eliminating global trade imbalances, further economic policy measures are required. Indeed, the measures suggested by the authors here address the complex origins of these imbalances. First among these to be considered should be a strengthening of China's domestic demand, and a corresponding reduction in the Chinese savings rate. This would ensure that a larger portion of Chinese output remained in the domestic market, rather than being exported overseas. An increase in China's real wages, a necessary condition for growth in

domestic demand, is already under way. Rising wages mean that business profits fall, which leads to a decrease in firms' savings, and so to a further decline in China's overall savings rate. Additional structural reforms in China will also be helpful in reaching this goal, especially the eliminations of factor market distortions which have artificially depressed wage and capital costs, and a strengthening of the social welfare system.

In general, the reduction of the Chinese current account surplus should not be approached solely through a reduction in China's exports, because this—as stated above—would negatively impact China's economy. Spillover effects from a Chinese economic slowdown would ripple out to all other exporting nations, which could lead to a global economic downturn. It therefore makes more sense to reduce the U.S. trade deficit, while redirecting U.S. import demand toward Europe and Japan. Among other methods, this could be achieved by eliminating the yuan-dollar peg, and instead pegging the yuan to the euro. In this case, the institutionalization of monetary cooperation between Asia and Europe would be necessary.

When viewing trade surpluses in other emerging Asian economies, it is useful to remember the need for further construction of Asian infrastructure, which would create the conditions for sustainable growth. This type of infrastructure investment would employ goods and services in these countries, and thus reduce their exports, leading in turn to a decline in trade surpluses.

Finally, it must be remembered that some current account imbalances will essentially resolve themselves. Japan's trade surplus will decline as a result of its aging society, as the population will increasingly demand goods and services for its own use (especially in the form of services for the elderly and health care). The country's export surplus will correspondingly decline. In emerging Asian economies, strong economic growth will lead to a growth in real wages and a rise in living standards. This will redirect goods and services to these economies' domestic markets, thus lowering the countries' trade surpluses.

In sum, because of the negative consequences of persistent and climbing current account imbalances, a controlled reduction in these imbalances is imperative. To this end, it helps little to point solely at China, or to treat revaluation of the yuan as a global panacea for imbalances. Rather, it is necessary to view Asian economies as a totality, and to recognize the homegrown problems in deficit-running countries. In the United States, there is a need to raise the savings rate and reduce consumption levels. Japan should strengthen its domestic demand,

making larger investments in child and elder care, and in green technology, for example. In European surplus-running countries, a renunciation of export-led growth and an acceptance of higher levels of imports would be sensible. Deficit-running countries in Europe should improve their international competitiveness through methods such as innovation or a reduction in production costs.

It is in the American and European interest to support a lasting growth process in Asia, as higher incomes in Asia will lead to a growth in the region's imports, and thus help create jobs in the United States and Europe. Any strategy that places the burdens of adjustment wholly with the Chinese or other Asian economies runs the risk of triggering a global economic downturn. This outcome would benefit no one.

Rebalancing the Global Economy: A Case for International Monetary Cooperation

*Stefan Collignon*¹

Dealing with global imbalances requires that we discuss first the roles played in this situation by the United States, China and the rest of Asia. But it also requires that we consider the roles of Europe and Japan. This may seem at first glance surprising given that the euro area's current account is basically kept "in balance," while Asia generates huge surpluses which the United States then absorbs. Economists have been voicing concerns about the sustainability of these imbalances for some time, but the crisis they imagined was very different from those that transpired during 2007 and 2008. They expected a gradual loss of international confidence in the U.S. dollar, with a subsequent sudden reversal of capital flows that would result in a massive depreciation of the U.S. currency.² Instead, global imbalances fueled the American credit boom. When this bubble burst, the crash that followed took down the rest of the world. Contrary to expectations, the U.S. currency seemed to provide a safe haven during the uncertainties of the crisis, and the resulting capital flows into U.S. treasuries prompted an appreciation of the dollar. While the euro had appeared to be a viable alternative reserve asset, this investment option has vanished since the global financial crisis pushed Greece to the edge of bankruptcy. As a result, Europe may not be well situated in terms of telling the United States or Asia what to do. However, a basic tenet of the global balance sheet is that the sum of external balances in the world must equal zero. Global imbalances can therefore only be understood in terms of a global perspective. As the world's second largest currency, the euro plays a considerable role in this imbalance, as do the European policies influencing the currency.

Why should we care about global imbalances? Some economists have argued that global imbalances are not only sustainable, but that they have bene-

1 Professor at Sant'Anna School of Advanced Studies, Pisa and fellow of Global Governance Centre at LSE. I am grateful for research assistance from Centro Europa Ricerche (CER), Rome, notably Lory Barile and Alessandro Carettoni.

2 Obstfeld 2005; Lane and Milesi-Ferretti 2007; For a more nuanced view before the crisis see Eichengreen 2007, and for a synthetic view after the crisis Obstfeld and Rogoff 2009.

fits for the world.³ Yet the financial crisis that shook the world in 2008 would hardly have transpired without the presence of large macroeconomic imbalances in the global economy. The precise impact of these imbalances on the crisis is controversial, but there is little doubt that high savings and the accumulation of foreign exchange reserves by Asian central banks have fueled the domestic American credit boom, which has since collapsed. As history has shown us, the larger the bubble, the harder the fall. It is therefore irresponsible to ignore global imbalances. While it is true that U.S. current account deficits have narrowed in recent years, the system that generated these deficits remains unchanged. We need to understand why this is so and what can be done about it.

Ben Bernanke famously identified in 2005 a “global savings glut” that was keeping long-term interest rates down, fueling capital gains and allowing U.S. households to reduce their savings. He nonetheless failed to mention that this glut could lead to an unsustainable asset bubble. Most of the global savings glut originated in Asia, particularly China. Asian savings were lent to American consumers who then spent the money on cheap goods from Asia. Those who advance the global savings glut argument ignore the evidence confirming the existence of a symbiotic relationship between the U.S. economy and Asian economies. They tend instead to portray the United States as the victim of excessive capital inflows, which were pumped into the country because of the efficiency of American asset markets and the attractiveness of the U.S. dollar. According to this view, Asian savers who do not know what to do with their savings—other than to keep them in dollar assets—are the villains in the story. The resulting policy recommendation is simple: If excessive savings and current account surpluses have caused the crisis, Asia’s development model must change. The consensus among policymakers in Washington, Europe and major international organizations is that undervalued currencies should be allowed to appreciate, which would make exports to the United States more expensive and help balance current accounts. At the same time, Asian governments should focus on expanding domestic consumption.

I do not share the view that Asia’s current account surpluses constitute *per se* the problem and point instead toward the excessive U.S. dollar bias in Asian holdings of external claims. I argue that the current account surpluses witnessed

3 See Richard Cooper’s paper in this volume, or Dooley, Folkerts-Landau and Garber 2003; 2007. For a more nuanced view see Eichengreen 2007.

in emerging Asian economies are a necessary condition of rapid catch-up growth and should not be eliminated any time soon.⁴ But by placing their foreign exchange reserves nearly exclusively in U.S. dollar assets—and neglecting alternative assets like the euro and the yen—these economies have fueled an unsustainable rise in dollar-denominated asset prices. Investing their reserves primarily in U.S. dollars helps Asian central banks to maintain their peg to the U.S. dollar, a condition which has provided protection against uncertainty. Rebalancing the global economy therefore requires that we reconsider Asia's currency pegs. Indeed, stabilizing the global economy will require these export-focused economies to diversify their financial investments, with Europe and Japan playing a greater role in absorbing Asian surpluses.

In this paper, I will look first at the factors driving global imbalances, then analyze the transformation in the world economy that has contributed to this development and conclude by suggesting an economic strategy that offers a win-win solution for Asia, the United States and Europe.

Assessing global imbalances

Let us first clarify the notion of a global imbalance, which has three dimensions: current accounts, the capital balance and changes in reserve assets. The first, the current account deficit of a country, is the difference between domestic investment and savings. In a closed economy, investment is always equal to savings, because investment will generate income until savings match the initial investment. In an open economy, the difference between investment and domestic savings can be financed by borrowing savings from another country. Equilibrium in current accounts will only hold at the global level and this is why global balances sum up to zero. But given that savings are the excess of income over

- 4 Catch-up growth implies wealth creation by the rapid accumulation of capital, which consists of domestic investment and the accumulation of foreign assets. As I will argue, an undervalued currency creates the conditions that make locations attractive for private investment, and foreign reserve accumulation by central banks does the rest. If imports are part of consumed income, they reduce savings and therefore the accumulation of wealth. But if they are part of domestic investment, this must be qualified. Korea and Taiwan may provide examples in which export-led growth can undergo periods of current account deficits due to importing materials and capital goods.

consumption, and that a “country” is economically defined by its currency,⁵ a country can only borrow from another if the lender is able to sell goods and services to the borrower and is willing to hold the claim on the debtor in foreign currency.⁶ What one country borrows is necessarily the surplus of another. In other words, consumption in the United States can be “excessive” and domestic saving can be low, because Chinese products are cheap for consumers in the United States and U.S. financial markets are attractive for Chinese investors. The current account deficit therefore signifies an excess of spending over domestic production or a higher rate of investment than can be financed by domestic savings. It can also indicate that owners of wealth claims in surplus countries are willing to hold assets denominated in the currency of the deficit country. These are three aspects of the same phenomenon.

The second dimension, the capital balance, is directly linked to the third dimension, changes in reserve assets. Capital flows generated by the private sector are recorded in the capital balance; those that result from policy decisions are recorded as changes in foreign exchange reserves of a country’s central bank. If a country imports more than it exports, it needs foreign currency to pay for the imports. It can do this by borrowing and/or running down its foreign reserves. Conversely, an export surplus implies lending money to consumers abroad and/or the accumulation of foreign reserves by the central bank. If more capital flows into (or out of) a country than it wants to borrow (or lend), the central bank must buy up these foreign currencies (or sell them) and accumulate them in the form of foreign exchange reserves if it wants to keep exchange rates stable. Unless the net inflows of capital are bought by the central bank, the currency will appreciate. But drawing on reserves can compensate only temporarily for net

5 The only economically meaningful definition of a country is that it is a payment union where *no foreign reserves are needed for making payments*. The world of nations under the gold standard or dollarized economies are therefore not considered “economic countries,” because they cannot issue base money as the accepted reserve asset for the domestic payment system. However, the euro area may be considered a “country” in the economic sense, with individual member states being economic provinces. The reason for this being that euro area member states get money from the European Central Bank (ECB) and not by using foreign exchange reserves when they borrow from other member states. Germany’s or the Netherland’s current account surpluses are relevant internationally only insofar as they contribute to the overall reserve position of the euro area. I thank Richard Cooper for pushing me to clarify this point.

6 Strictly speaking, the current account balance includes the claims on returns from foreign investment. In Japan this is an important part of the current account surplus.

capital outflows, because authorities will eventually run out of reserves—which is exactly what happened to many Asian countries during the Asian crisis. There is therefore an asymmetry between strong and weak currencies. The central bank in an economy with a strong currency can always choose between accumulating foreign exchange reserves and letting the exchange rate appreciate. For weak currencies, the loss of reserves invariably results in an exchange rate depreciation.

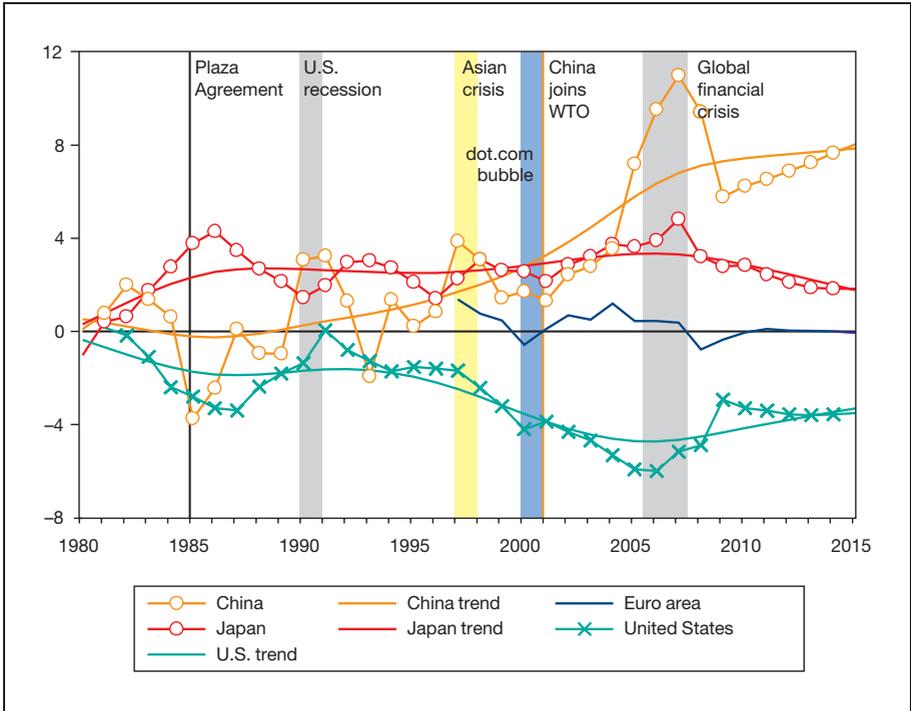
Because trade imbalances are always balanced by corresponding capital flows, the real economy and the financial sphere are simply mirror images of each other. If current account balances are financed by private capital flows and leave official reserves unchanged, we call this a *weak imbalance*. A stronger condition for global balance would imply stationary current accounts with zero mean for all regions and countries and a balanced capital account, so that the shares in global foreign exchange reserves do not indicate that structural change is underway.⁷ Weak imbalances can be sustainable for a significant period and can be justified by intertemporal trade. Strong imbalances are unsustainable.

The system remains stable as long as trade and financial strategies complement each other. The system will crash when inconsistencies in the portfolio preferences for goods and services and financial wealth emerge. Such a crash can take the form of a foreign exchange crisis, like that witnessed in Asia during the late 1990s, or it can distort asset prices, as was the case in the United States during the 2000s. In short, the flows recorded in the current account and the capital balance must be consistent with the portfolio preferences of private assets holders and public authorities if crises that subject exchange rates and/or asset prices to dramatic revaluation are to be avoided.

Having clarified the framework concepts, we now turn to the facts of global imbalances. We start by addressing current accounts. For over a decade, the United States has accumulated massive current account deficits while Asia has produced surpluses and the euro area has stayed roughly in balance (see Figure 1). China's economic success is based on the export-led development strategy which had proved highly successful in postwar Japan and in the emerging "Asian Tiger" economies during the 1980s and 1990s. In short, the United States bor-

7 I interpret the stochastic noise around the mean as manifestations of intertemporal trade. Unit root tests for the current account data in Figure 2 all reject the assumption of stationarity.

Figure 1: Current account balances as percentage of GDP



Note: Data for all figures in this chapter were obtained from Bloomberg.

rowed what Asia lent.⁸ Japan was the biggest lender until 1998, and Chinese current accounts remained structurally balanced in the 1980s—despite large fluctuations—moving into a permanent surplus only after China joined the WTO.

Global imbalances in the strong sense show up in the distribution of foreign exchange reserves and confirm the structural imbalance of the global economy. In the last decade, the total volume of reserves has more than doubled relative to world GDP, increasing from 5.7 percent in 1999 to 13 percent in 2009. Figure 3 provides a series of graphs showing the share of foreign exchange reserves held by some significant countries or groups of countries. The dominant feature

8 This pattern changed slightly during the George W. Bush presidency. The United States borrowed not only from Asia and increasingly from China, but also from Europe and the Middle East. This excess has since been corrected.

Figure 2a: Current accounts emerging Asia

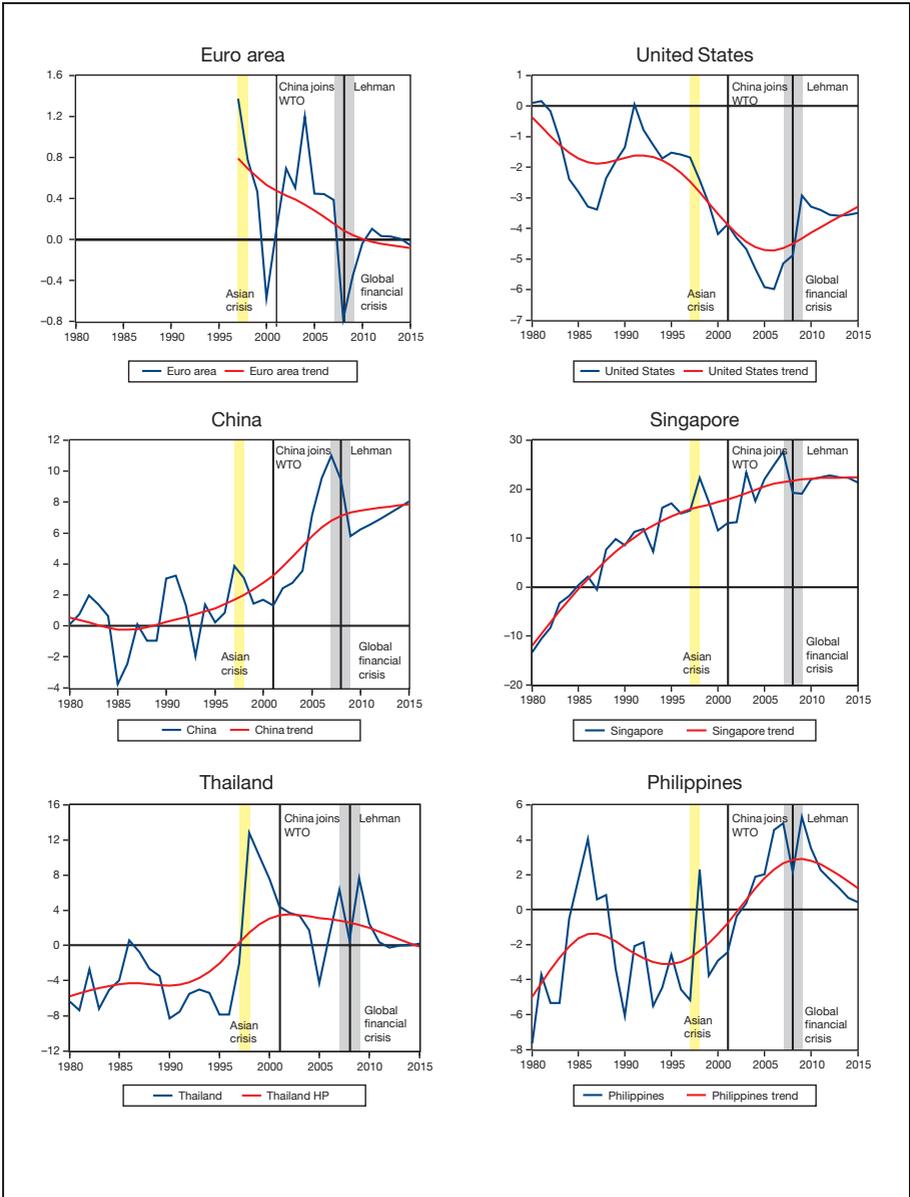
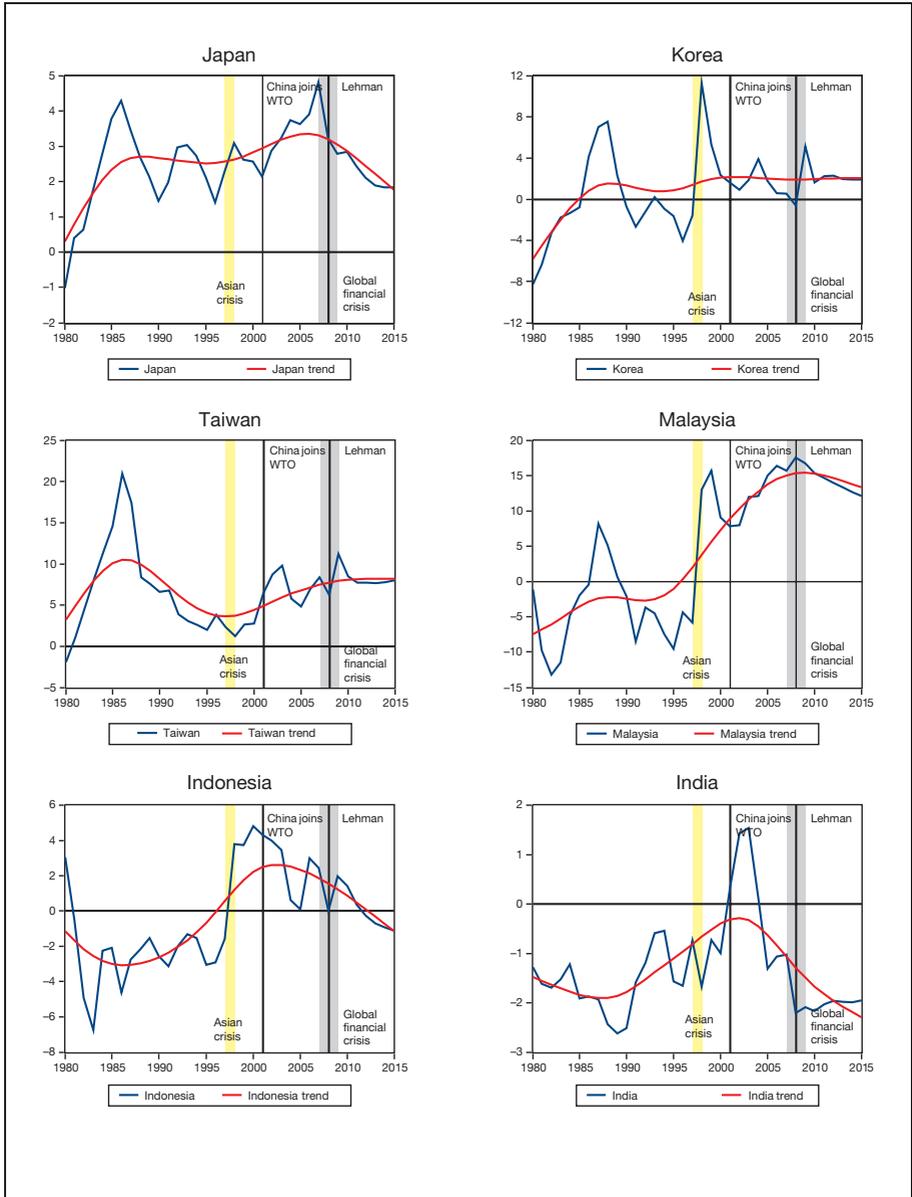


Figure 2b: Current accounts emerging Asia

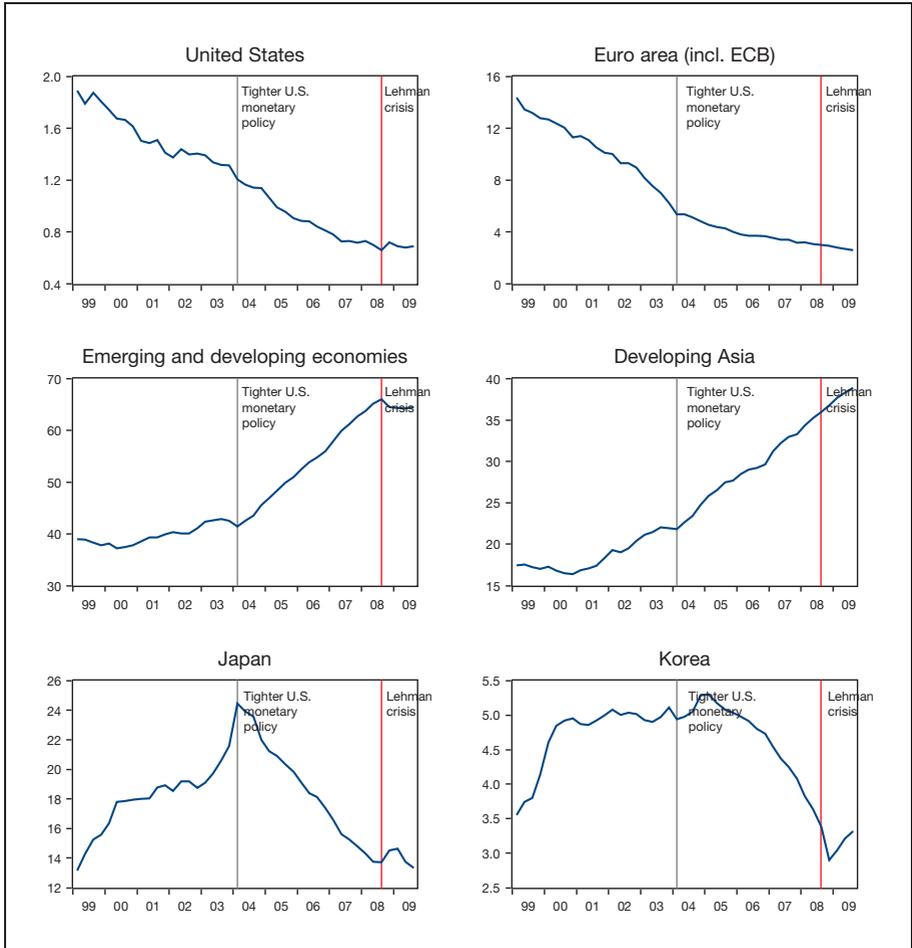


among them is the rise in the share held by emerging and developing countries and the relative fall in the share held by advanced economies.

The first quarter of 2004 marks a break in the trends of several countries. Advanced economies saw their share fall significantly, with Japan reducing it by 10 percentage points, Korea and the euro area losing about 2.5 percentage points each. By contrast, fuel exporting countries, Africa and developing countries generally accumulated reserves. This break coincides notably with the tightening period in U.S. monetary policy. From March 2004 to June 2006, the Federal Reserve increased short-term interest rates from 1.1 percent to 5.5 percent. It is possible that these higher returns attracted short-term investment from the central banks of developing countries, which was then transformed into longer maturities by U.S. banks. In turn, this development might have produced the Greenspan “conundrum,” whereby higher federal fund rates in the United States failed to raise long-term interest rates there. However, for our purposes, the most interesting observation is the fact that developing Asia, and especially China, continued to accumulate foreign exchange reserves faster than the rest of the world. This clearly indicates that Asian emerging economies are deliberately pursuing a strategy of undervaluing their exchange rates by accumulating foreign exchange reserves. As a result, this strategy is yielding global imbalances in the strong sense.

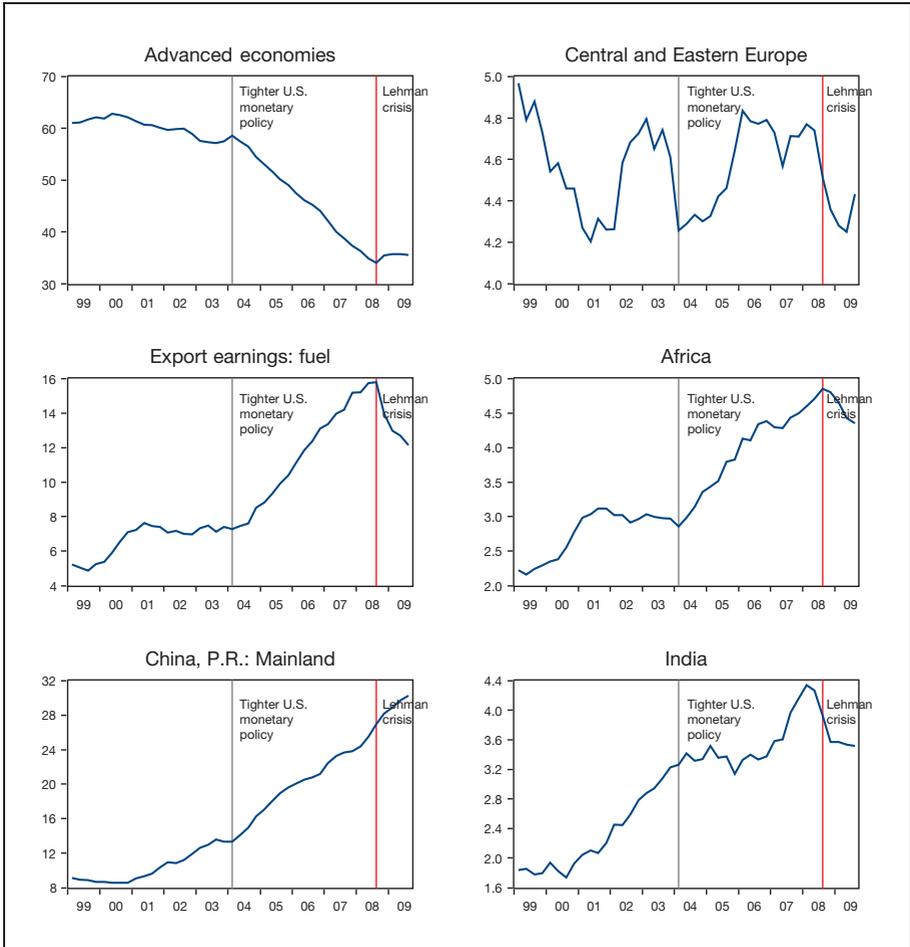
Developing Asia’s reserve accumulation might be considered proof of the “manipulation” of exchange rates. After all, economists have been arguing for years that the situation was unsustainable and would lead to a dramatic depreciation of the U.S. dollar. But this did not happen. According to neoclassical economists, lasting disequilibria are an abnormality. In other words, government intervention must have distorted the market mechanism and the imbalances must therefore be remedied by appreciating local currencies. From the neoclassical perspective, if currencies were allowed to float and markets worked perfectly, the world should achieve equilibrium rapidly. Yet the fact that this has not happened suggests that persistent distortions have their own logic. It is in fact possible that the set of distortions which reduce welfare in the short term is offset by another set of distortions which increase it in the long run, and that governments adopt development strategies for the long run (Eichengreen 2007, 30). The most important policy instrument involved in the creation of these distortions is the exchange rate, which sets the relative price of goods and services between economies. It thereby generates competitive advantages, and it determines opportunities for

Figure 3a: Share of foreign exchange reserves in world total



profit-making and incentives for the allocation of investment and wealth. We will now look at explanations of why emerging economies have implemented exchange rate policies that result in these persistent market distortions.

Figure 3b: Share of foreign exchange reserves in world total



1. *The undervaluation model*

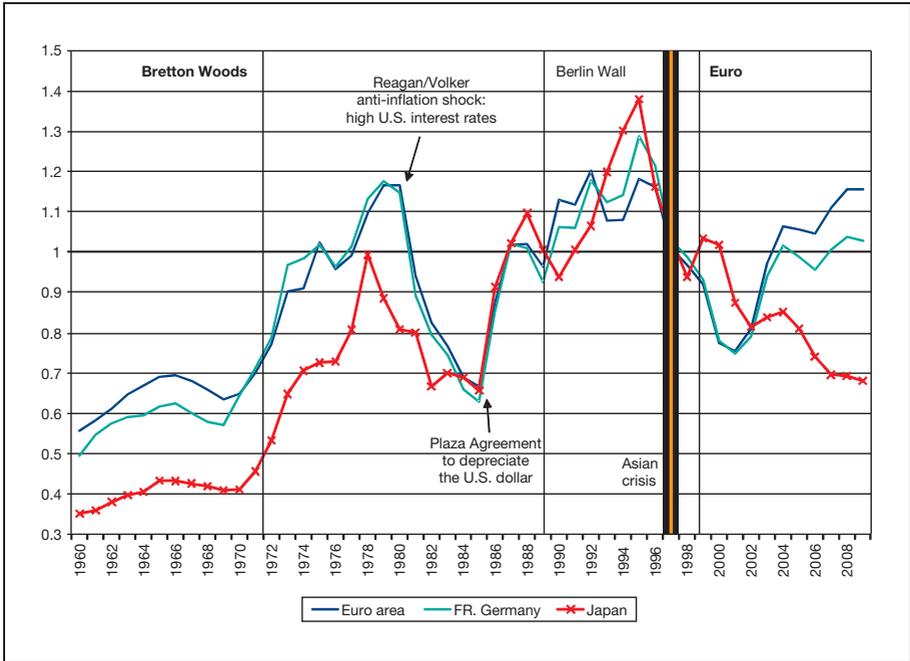
There are two models, both of which are based on exchange rates, which can explain sustained global imbalances. A popular explanation for the large current account surpluses by emerging Asian economies is that their governments undervalue the exchange rate in order to be competitive in world markets. As Rodrik (1986) remarked, “a policy which deliberately maintains the exchange rate

at a disequilibrium level can be welfare-increasing by promoting structural change.” The classic examples for a systematic undervaluation strategy that supports rapid catch-up growth were Japan and Western Europe under Bretton Woods. Figure 4 shows that under the fixed exchange rate regime of Bretton Woods, unit labor costs in Japan and Europe remained stable at 40 percent to 66 percent of the U.S. level, a strategy which facilitated economic miracles. After the Bretton Woods system collapsed and exchange rates became flexible, European and Japanese unit labor costs rose 20 percent above the U.S. level, and the miracles disappeared. Note that the Japanese yen has followed the U.S. dollar more closely since the early 2000s than it had in previous decades, although this did not reflect a deliberate pegging strategy in a strict sense, as will be shown below. As a consequence of the deflationary policies in Japan, unit labor costs have fallen significantly over the last decade, remaining at 30 percent below U.S. levels and nearly 50 percent below the euro level. If emerging Asia is following a development strategy of systematic currency undervaluation, it can draw upon some highly successful precedents. For the global economy, the problem is not so much that governments “manipulate” their currencies, but rather how they exit the undervaluation strategy when they have sufficiently advanced in their catching-up process.

In recent years, Dooley, Folkerts-Landau and Garber have argued that some essential features of the early Bretton Woods model are now reproduced by emerging Asia, especially in China (2003; 2007).⁹ According to this model of the international financial system, the world is divided into a core and a periphery. The core has efficient financial markets and a stable currency, the latter of which serves as the international reserve asset. The periphery, which starts out with low productivity levels and an underemployed labor force, seeks integration into the world market by export-led growth, because it generates employment and economies of scale. It also “develops” human capital through a process of learning-by-doing. However, the periphery does not have deep and fully developed financial markets and lacks the skills of investing local savings efficiently. Investors in the periphery therefore prefer to keep their financial wealth in the hard currency of the center and invite foreign investment to build up industry. Governments in the periphery assist this strategy by initially devaluing their currency,

9 For a critical review of this and the difference between the original Bretton Woods system and today’s pegged exchange rates, see Eichengreen 2007.

Figure 4: Unit labor costs relative to the United States



which compensates for low productivity and other inefficiencies, and then they resist its appreciation the by accumulating foreign exchange reserves. Because reserve accumulation could expand the central bank's balance sheet and the supply of base money, which in turn could have an inflationary effect, the monetary effects of reserve accumulation are sterilized. On the other hand, when central banks in the periphery buy government securities in the center, they generate seignorage gains for the center, and if the center does *not* sterilize the capital inflow and keeps interest rates low, growth is improved there, too.¹⁰

The Dooley, Folkerts-Landau and Garber model describes a transitory disequilibrium strategy (2007, 107), which has to meet a critical condition: Once the periphery has caught up with the center, the capital stock accumulated in periphery economies should be capable of producing goods that are internationally

10 The impact of monetary policy on long-term interest rates may not be instantaneous if foreign investors buy up securities, as Greenspan's famous "conundrum" has shown.

competitive, when domestic labor is paid real wages comparable to those prevailing in the developed world. If this constraint is met, currency undervaluation by the periphery can be beneficial for the global economy, even if it generates temporary, although persistent, imbalances.

2. The volatility model

An undervaluation strategy can take the form of fixed exchange rates if the government can control wages (as in China) or of crawling pegs that compensate for domestic inflation (as in the Philippines, India and Indonesia). However, the system needs the center's currency as the anchor for its undervaluation strategy. A successful exchange rate strategy must peg local currencies to a leading world currency, because doing so not only guarantees integration into a large and open market capable of absorbing imports from emerging competitive producers but also offers deep and efficient financial markets.

Pegging exchange rates serves two purposes: It fixes relative price levels between two economies and it minimizes the uncertainty caused by rapid exchange rate fluctuations. Competitive and undervalued exchange rates are only a necessary, not a sufficient, condition of rapid economic development. The profitable environment must be sustained. The more certain future returns are, the higher the rate of investment will be. By pegging to an anchor currency, governments reduce economic uncertainty in foreign transactions. This uncertainty, created by volatile exchange rates, works like a tax or tariff wedge between economies that requires higher returns on investment in order to attract capital into the domestic economy. This is true for foreign direct investment (FDI) and portfolio investment in emerging economies, but uncertainty also represents a barrier for foreign reserve management. If the exchange rate volatility between currencies is high, the return on financial assets held for reserve purposes must be higher in order to compensate for the higher risk. A country pegging to a key currency will therefore keep its foreign exchange reserves in that currency.

I have argued elsewhere that since the demise of Bretton Woods in the early 1970s, the desire to lower exchange rate volatility and increase investment and growth has brought about a bloc-floating system (Collignon 1999; 2003). In this system, local currencies have been pegged with fixed or crawling rates to an anchor currency. During the years in which the European Monetary System was in place, either the U.S. dollar or the deutschmark served as its anchor. Since the creation of the euro, a number of European countries within and outside the EU

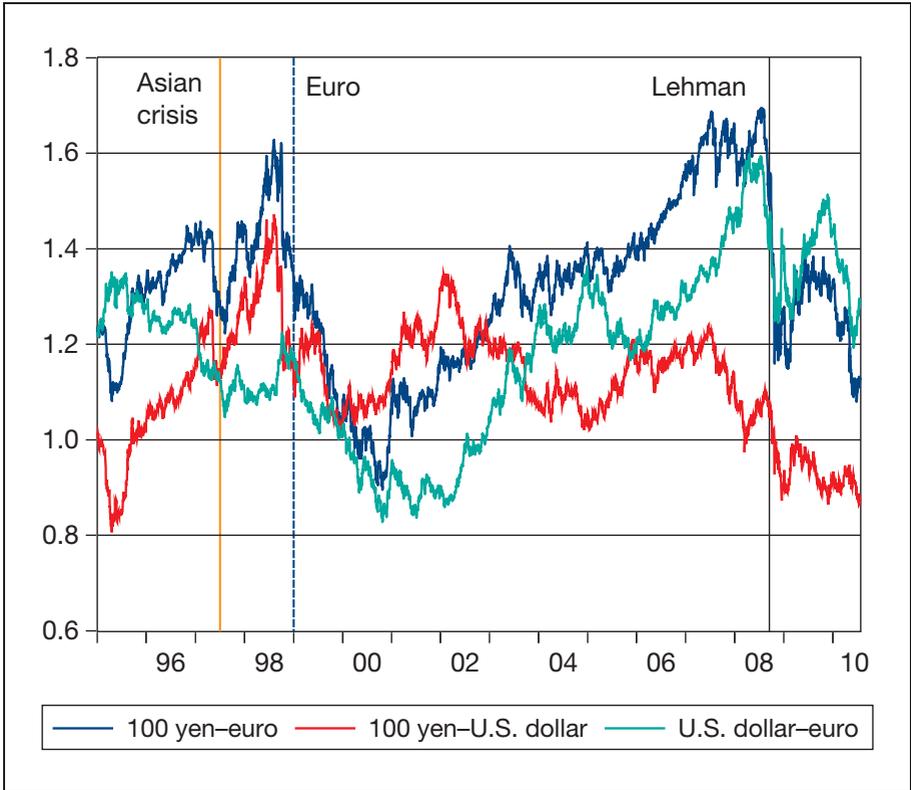
have reduced exchange rate volatility relative to the new currency, but most of Asia has remained on a dollar standard, even after the Asian crisis. Despite its strong relevance for FDI in Asia, the yen has never become an anchor currency for the region (Collignon 2006).

The upper panel in Figure 5 shows the daily exchange rates of the three freely floating exchange rates, the euro, dollar and yen. An upward movement represents depreciation relative to the euro and of the yen relative to U.S. dollar. We find long-term trends of euro-weakness from the mid-1990s to the early 2000s. After 2000, the euro tended to appreciate against the dollar until the global financial crisis hit in 2008. The euro has appreciated even more relative to the yen. This is because relative to the U.S. dollar, the yen first depreciated rapidly and then remained more stable than it had in previous periods. The overall picture of these key currencies is one of instability over the short and long run.¹¹ The lower panel shows the volatility trends, which were calculated by estimating a GARCH (1,1) model to determine the conditional variance in the daily exchange movements and then running these values through a HP filter. From 1995 until 2000 and again after 2006, exchange rate volatility between the U.S. dollar-euro rate was lower than either of the yen rates. Except for some short periods in 2002 and 2004-2005, the volatility of the yen-U.S. dollar was lower than the yen-euro. This indicates that Japanese exchange rate policies have sought greater stability with the dollar bloc than the euro bloc.

Figure 6 gives an overview of the exchange rates of Asian emerging economies relative to the U.S. dollar, the euro and the yen. Not all of them have totally fixed their exchange rates, as China and Malaysia have. However, most of them have kept exchange rates to the dollar more stable than to the euro or the yen (see Figure 6). As a consequence of the dollar's weakness relative to the euro and Japan's shadowing of the dollar, Europe's currency appreciated against all of Asia, including the yen. Because the yen has been less volatile relative to the U.S. dollar since the euro was created in 1990, other Asian currencies have also depreciated less against the yen. The broad picture shows nominal exchange rate stability relative to the U.S. dollar and an appreciating, volatile euro. Thus, the undervaluation of Asian currencies since the Asian crisis has been reinforced

11 Collignon (1996) presents a model where the volatility between key currencies has a tendency to increase with the size of the currency blocs. Collignon (2003) shows that the blocs are instable and collapse when the key currency appreciates too much.

Figure 5a: Key currency exchange rates

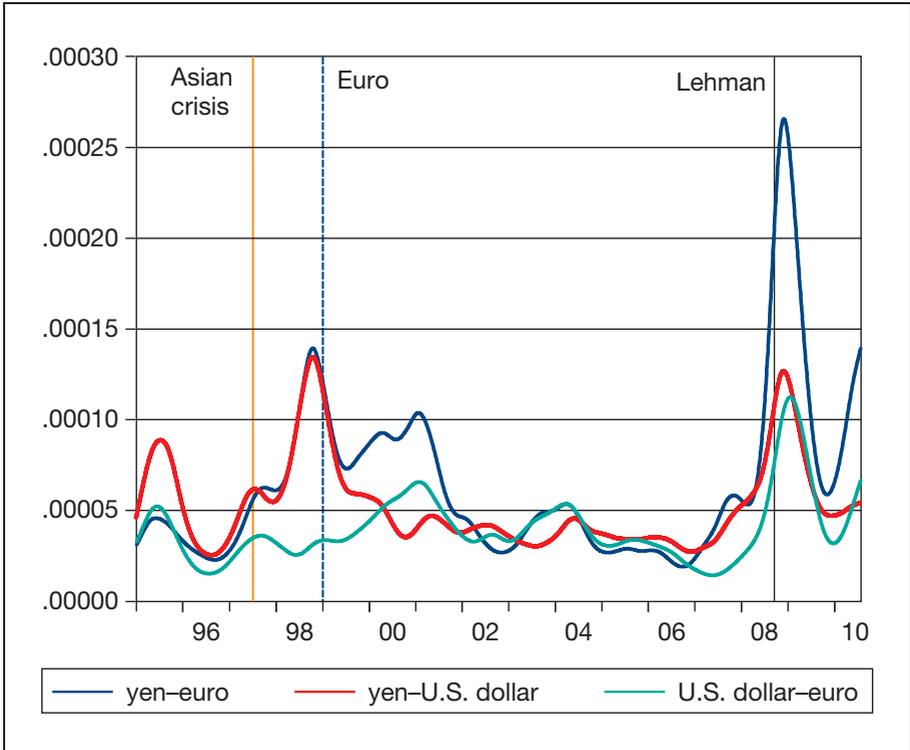


by dollar weakness, and the low volatility within the dollar bloc has supported Asian development but marginalized Europe.

Figure 7 presents formal indicators for daily exchange rate volatility in Asia. It appears that for most Asian economies, volatility was higher for the euro (blue) and the yen (red) than for the U.S. dollar (green). The Asian crisis in 1997 marked a period of significant devaluations and exchange rate volatility. However, since then all Asian currencies have returned to a stable U.S. dollar peg; the volatility was clearly lower for the dollar than for the euro or the yen.

A clear picture emerges: Asian currencies have pegged to the U.S. dollar at competitive rates, which have generated current account surpluses and attracted capital flows. In turn, this situation has been reinforced by the stable exchange

Figure 5b: Exchange rate volatility trends



rate environment. Governments have resisted the appreciation pressure resulting from capital inflows by accumulating reserves. This development model poses a problem for neoclassical economics: How was it possible that these distortions persisted for so long? The answer lies in the profound transformation of the global economy.

The transformation of the global economy

From a neoclassical point of view, the undervaluation of peripheral currencies is not sustainable, because undervaluation should lead to inflation, which will erode the competitive advantage. However, many Asian currencies have been able to

Figure 6a: Emerging economies

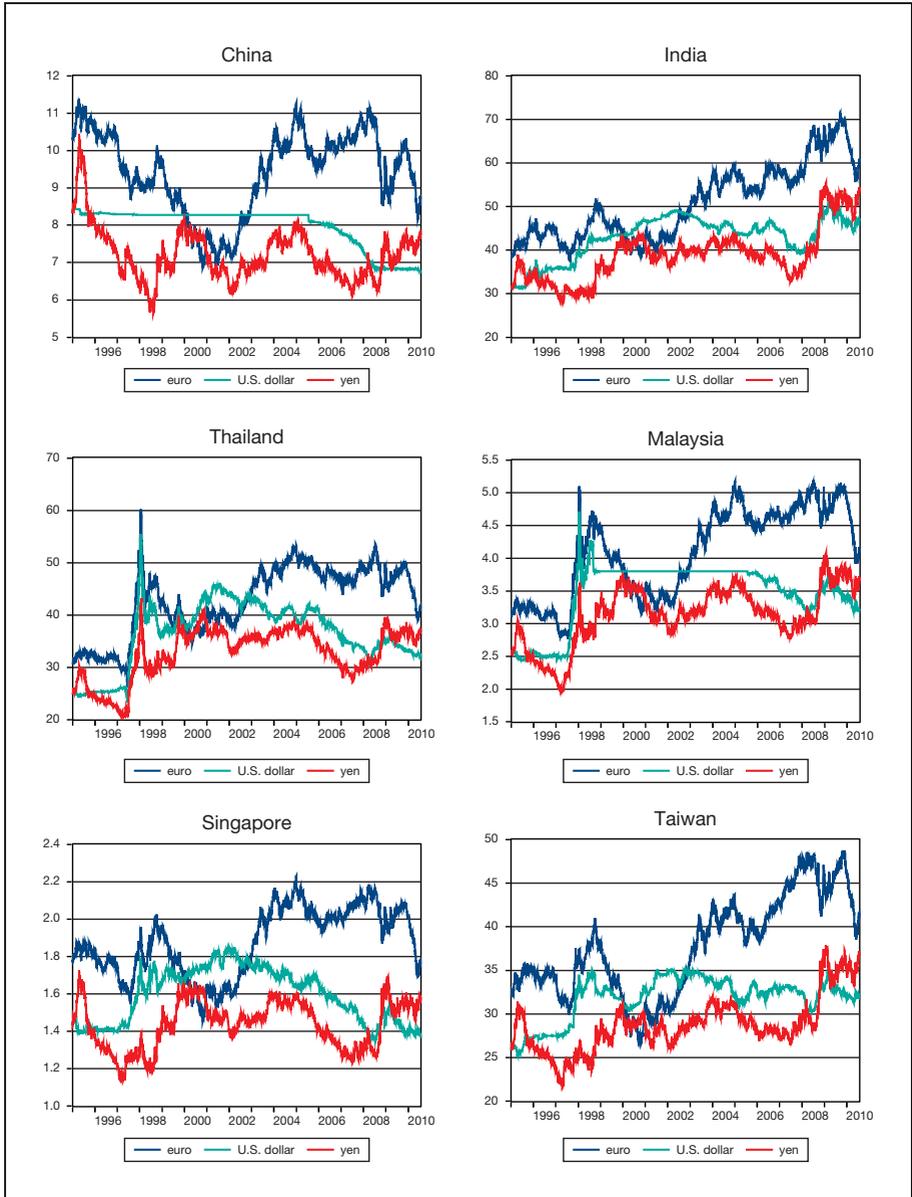
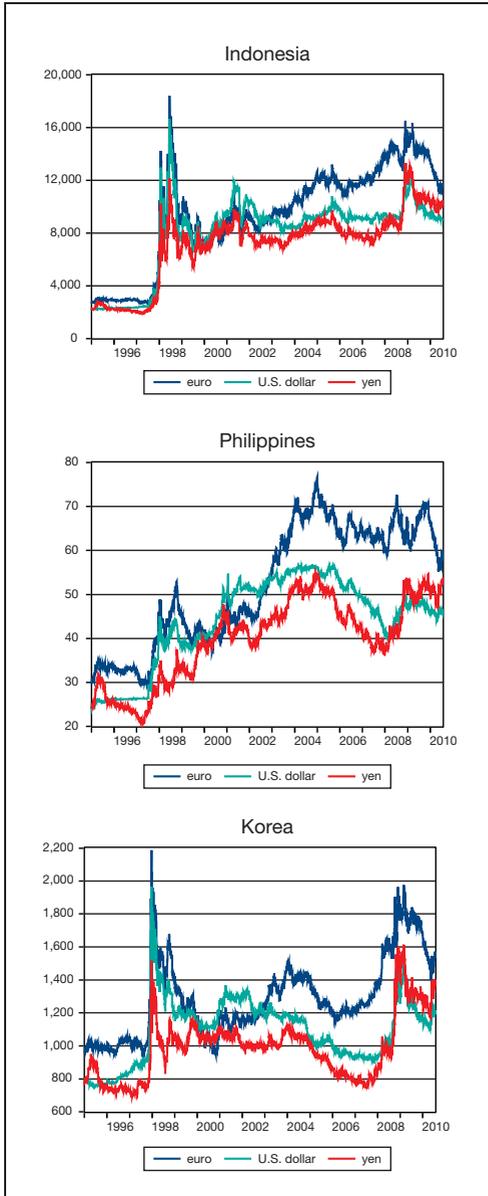


Figure 6b: Emerging economies



sterilize the inflationary effects of reserve accumulation. If the center economy were to also sterilize the loss of reserves, this would result in slow growth at home, which is essentially what happened under the gold standard. But in modern financial systems, where central banks target consumer price stability, it is possible for the periphery to accumulate reserves and the center to relax monetary policy as well. As long as inflation is kept at bay, the system of bloc floating has a win-win structure for the center and the periphery. Under these conditions, the undervaluation of a periphery currency can benefit the center, because imports from the periphery are cheap and competition restrains domestic inflation (Bean 2006; Borio and Filardo 2006; Tootell 1998). At the same time, undervaluation also carries costs for the center economy.

If the purpose of the undervaluation strategy is to integrate the underemployed labor force of the periphery into the global economy and thereby improve the efficiency of the labor force, this strategy will result in a fundamental restructuring of the center's labor force (Dooley, Folkerts-Landau and Garber 2007). Transforming the global

Figure 7a: Exchange rate volatility trends

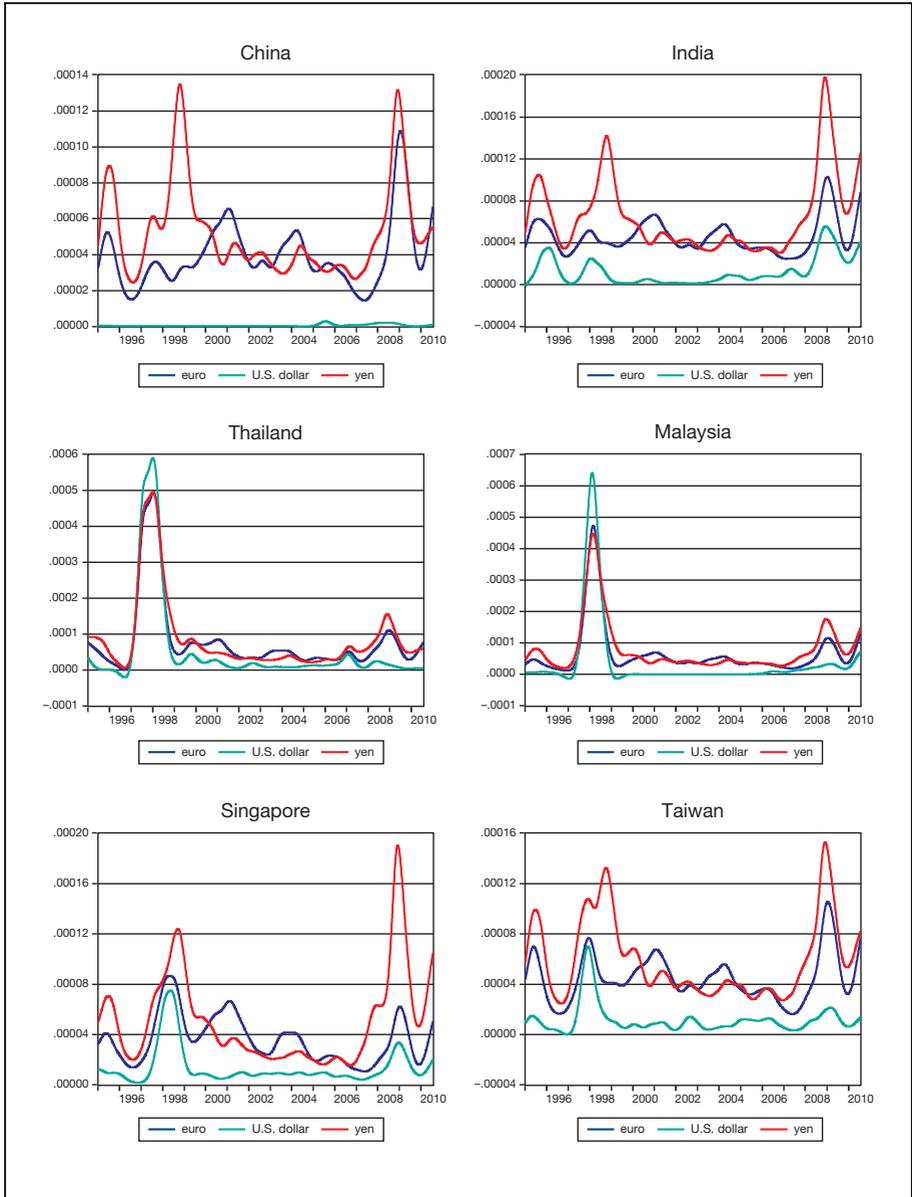
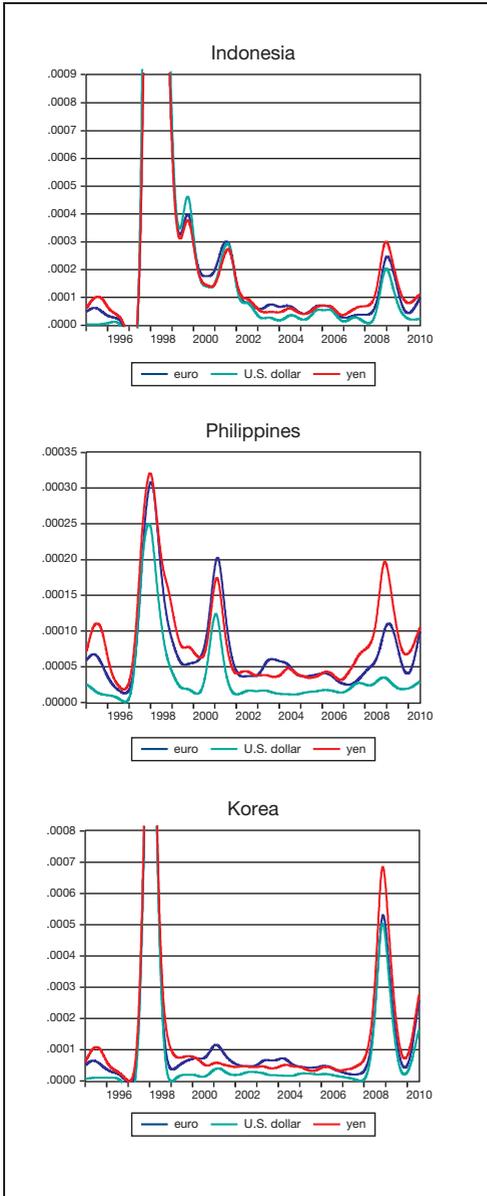


Figure 7b: Exchange rate volatility trends



economy certainly carries social costs, and these costs must be balanced by economic benefits, which stem from two sources. First, cheap imports increase real wages at the center as the purchasing power of nominal income increases. This is potentially good for social stability, provided the gains are fairly shared. It also increases profits in the economy of the center, and this is potentially good for investment, growth and employment. Second, because wages in the periphery are below the world equilibrium level and prices are competitive, inflation is contained to the center. This makes it possible to relax monetary policy and thereby stimulate growth. This was the magic potion used in propelling U.S. growth during the last decade. However, because consumer prices are kept down by cheap import competition, the excess liquidity will help accelerate asset price inflation.

Monetary policy in the United States prior to the global financial crisis clearly underestimated this risk, but the alternative strategy of sterilizing the capital inflows might have yielded even worse results, as it would have placed the entire burden of the globaliza-

tion process on the center economy. It was the symbiotic relationship between Asia and the United States that made the costs of globalization socially acceptable, but outside the dollar bloc the effects were less benign. Asia benefited from the euro's strength after 2000, but the social costs of restructuring the world economy were not compensated for by capital inflows comparable to those of the United States. Nevertheless, the euro area also benefited from cheap imports from Asia, which allowed the ECB to pursue a more accommodating monetary policy. This constituted an improvement over the previous deutschmark bloc, where the Bundesbank had to be excessively restrictive in order to generate the current account surpluses on which the anchor function of the deutschmark rested.¹² As a consequence, Europe's domestic dynamics have improved since the creation of the euro, but the social costs of globalization were higher in Europe than in the United States.

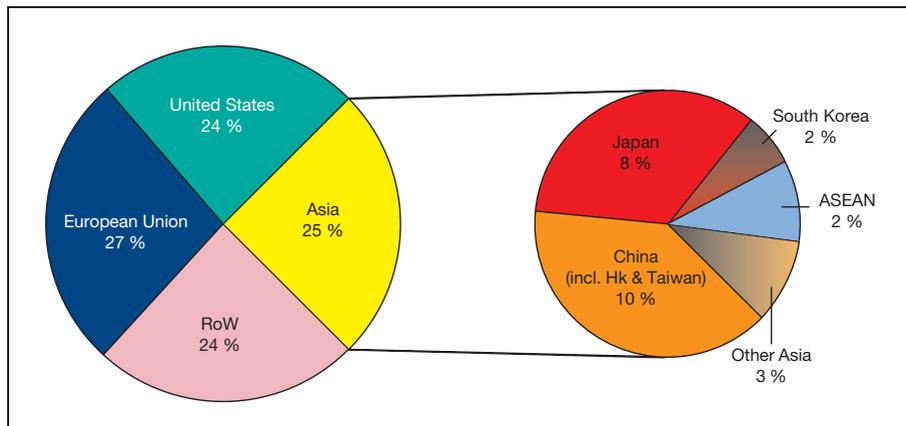
While it is true that all emerging economies in Asia pursued policies of exported growth, China's integration into the global economy represents most powerfully the transformation of the global economy. In 1980, China represented less than 1 percent of global GDP. In 2010, it accounted for 10 percent of global GDP, measured at market exchange rates. It currently has more than four times the economic power of ASEAN or India and twice that of Germany. As an economic region, Asia, along with Europe and the United States is now an equal partner in the world economy (see Figure 8).

There is nothing unique or exceptional about the rapid growth of the Chinese economy, which is simply following the well-established Asian model of high investment levels, a quasi unlimited supply of labor,¹³ and fixed undervalued exchange rates. The difference with China is one of size. Its current population of 1.3 billion accounts for more than 20 percent of the world's population. This is expected to peak at 1.5 billion by 2030 and then slowly decline. China's labor force of 812.7 million makes up a quarter of the world's total, and nearly four times that of the EU. In the 1990s, China's labor force grew by 10 million a year, but demographics have slowed this down to 6 million a year in the 2000s and this growth is expected to end by 2015. However, China's labor supply is even more strongly affected by the migration of an underemployed rural population, which is moving at the rate of 20 million each year to industrializing coastal cities and spe-

12 For a formal model of this, see Collignon 2003.

13 The benchmark model is Lewis, 1954.

Figure 8: Regional shares in world GDP (in billion \$, 2010)



cial economic zones. Over the last decade, China has been adding the size of the workforce of France or Italy to its labor supply every year.

The integration of China and its labor force into the world economy was only possible because the export-led growth strategy combined *competitive* and *stable* exchange rates with long-term wage stability. Fixing competitive cost levels through exchange rates was needed for rapid economic growth to take off. Without elastic labor supply, competitive wage costs would not be sustainable. And stability of exchange rates is necessary to ensure a framework of stable expectations and minimal uncertainty, without which investment would remain low. Dooley, Folkerts-Landau and Garber (2007) are right to emphasize the transitory character of this development strategy and that, considering Chinese labor market dynamics, it is likely to continue for another decade or two.¹⁴

The competitive currency peg also explains why savings rates are so high in China and why they are invested in the United States: Undervaluation generates high profits, and low volatility makes investment in the center safe. Chinese savings consist largely of retained profits, especially in the state-owned corporate

14 To be precise: given today's per capita annual income of \$6,200 in China and \$28,800 in the EU, and assuming China grows at an average rate of 7 percent and the European Union at 2.5 percent, it will take 35 years until per capita income in the two countries will be equal.

sector. In fact, Chinese households' savings are not particularly excessive.¹⁵ The household savings rate, as a percentage of GDP, fluctuates between 15 percent and 20 percent, while the overall gross savings rate is close to or above 50 percent. To a small extent, the difference is explained by government savings (5 %), but the largest part, with about half of the total, is attributed to corporate savings. This is not surprising, given that high profits imply low real wages. In-depth analysis shows that these savings come essentially from retained earnings which firms reinvest in fixed or financial assets, because the Chinese government does not have a well-defined dividend policy for state-owned companies (Anderson 2008). The competitive level of the yuan's exchange rate is a crucial driver for China's rapid economic growth,¹⁶ but it also generates excess savings, which until now have been placed largely in the United States.

This dual effect constrains Chinese policy options severely. A shift from exports to domestic consumption, which is recommended by those who think China should concentrate on its domestic market, or a less competitive exchange rate, which is the aim of Western pressures on Chinese authorities, would lower the rate of capital accumulation and economic growth. No wonder exchange rate policies are so controversial. While the United States and Europe push China to revalue its currency, Chinese authorities know that the appreciation could ruin the model on which their development depends.

At the same time, China's labor force has now effectively become part of the Western workforce through industries that export to the West. As Jagannathan et al. (2009) have noted, "the size of the increase in the developed world's labour supply is of a magnitude similar to the increase in the Western world's access to land and natural resources following the discovery of the Americas." This tectonic shift in the world economy has become possible because the ICT revolution has lowered the cost of communication without having to move people. As a result of these developments, global labor supply has become highly elastic, generating opportunities for some and painful losses for others. In one generation, China's growth has lifted 500 million people out of poverty as the poverty rate has declined from 64 percent at the beginning of reform to 10 percent in 2004. In

15 As Anderson (2008) shows, the widely believed argument that Chinese households save massively because reform policies have dismantled the old communist welfare system does not stand up to scrutiny.

16 There are two names for the Chinese currency, the casual yuan and the official Renminbi (RMB). We will stick here to yuan.

advanced industrial countries, however, China's absorption into the global workforce has contributed to regional and sectoral deindustrialization, higher unemployment and stagnant wages. Globalization, open markets and a highly elastic labor supply have brought the world greater wealth, but they have also made it more complex and harder to govern. Our task, since the global financial crisis, must be to rebalance the benefits and burdens of globalization between Asia, the United States and Europe.

1. Regional integration and Asia's fixed exchange rate regime

The Asian development model with fixed exchange rates has two further important and unintended consequences for the global economy. First, the common peg to the U.S. dollar has rendered exchange rates between East Asian currencies more stable. It has reduced uncertainty not only between Asia and America, but also within the East Asian region. It therefore supports regional integration within Asia. Europe has experienced something very similar under the Bretton Woods system, when fixed exchange rates to the U.S. dollar fostered economic integration within the European Economic Community. In fact, trade within Asia has already become more important for East Asia than trade with either the United States or Europe (see Table 1). More than a third of all trade conducted by Asia (i.e., ASEAN +4) is exchanged within the region. The region is also becoming increasingly interconnected by capital flows, with Japan as a major powerhouse of foreign direct investment in the region. Many European companies use Japan, Korea or Taiwan to access the Chinese low wage labor force indirectly. Regional integration is therefore increasingly driving economic growth in the region, and both depend on exchange stability in the region. Any policy proposal dealing with global imbalances must therefore look at emerging Asia as a whole and not only at China.

Second, the Asian choice of linking their currencies to the U.S. economy has far-reaching implications for Europe, too. Given that the dollar-euro exchange rate is highly volatile, Asian currencies move with the dollar against the euro. Exchange rates between Asia and Europe are therefore less predictable than they are with respect to the dollar. This heightened uncertainty drives a wedge between Europe and Asia; it deters trade and investment and isolates the two continents. Table 1 shows that the importance of the United States as an export market for Asia is still larger than that of the euro area. At the same time, Asia is more important for U.S. exports, while the United States and Asia are both rather

Table 1: Import and export shares (in percent) for Asian countries (2008)

Import and export shares for Asian countries (2008)										
	Export destination									
Exporter	China	Japan	Korea	India	ASEAN	ASEAN+4	USA	EU12	RoW	World
China		8.1	5.2	2.2	6.7	22.2	17.7	14.7	45.4	100.0
Japan	16.0		7.6	1.0	12.2	36.8	17.8	10.3	35.2	100.0
Korea	21.7	6.7		2.1	9.7	40.1	11.0	8.5	40.3	100.0
India	5.6	2.0	2.1		9.5	19.1	11.8	16.2	52.9	100.0
ASEAN	12.4	10.3	4.1	2.8	22.9	52.6	10.9	8.8	27.7	100.0
USA	5.5	5.1	2.7	1.4	5.0	19.7		15.5	64.8	100.0
ASEAN+4	9.1	6.5	4.7	2.0	12.2	34.5		15.5	64.8	100.0
EU12	2.5	1.3	0.7	0.7	1.6	6.8	6.5	63.9	26.7	100.0
	Import source									
Importer	China	Japan	Korea	India	ASEAN	ASEAN+4	USA	EU12	RoW	World
China			9.9	1.8	9.9	34.9	7.2	9.6	48.3	100.0
Japan	18.8		3.9	0.7	12.2	35.5	10.4	7.3	46.8	100.0
Korea	17.7	14.0		1.5	8.5	41.7	8.9	7.5	42.0	100.0
India	10.1	2.5	2.6		7.9	23.1	7.8	10.4	58.7	100.0
ASEAN	11.3	11.3	4.8	2.0	21.6	51.1	7.7	8.1	33.1	100.0
ASEAN+4	10.0	9.0	5.5	1.4	12.9	38.7	8.3	8.6	44.4	100.0
USA	16.5	6.6	2.3	1.2	4.5	31.2		13.1	55.8	100.0
EU12	4.8	1.8	0.8	0.7	1.8	10.0	4.6	60.6	24.8	100.0

unimportant for Europe. By contrast, imports from the United States and EU-12 into Asia are more balanced, a situation which in part reflects the different quality of European exports to Asia. Thus, the American current account deficit mirrors its strong net imports coming from Asia (31 %) and its much weaker export share to Asia (19.7 %). Furthermore, the exchange rate stability within the dollar zone privileges trans-pacific financial flows, so that Asian surpluses finance U.S. deficits. Because the higher exchange rate volatility acts like a tariff or tax wedge, the trade volume between Europe and Asia is lower and financial flows do not stimulate European growth and demand for Asian imports. The symbiotic rela-

tionship between Asia and America is therefore determined by the exchange rate regime, and at the same time, it structures trade flows.

These two tendencies, namely regional integration in East Asia and the exclusion of Europe, make the correction of global imbalances difficult as long as the dollar remains the privileged reference currency for Asia. To sustain its development model, Asia needs to generate current account surpluses to keep high profits and accelerated capital accumulation going. If the dollar remains the reference currency, the United States will have to continue to buy cheap goods from Asia. Yet if the American external balance is to come closer to equilibrium and the U.S. dollar cannot be adjusted vis à vis Asia, the United States will be forced to generate trade surpluses with Europe and the rest of the world, and this is only possible if the dollar depreciates considerably against the euro and/or if European consumption and growth improve substantially. However, European consumption is unlikely to accelerate significantly, as long as financial flows from Asia essentially finance American consumption and are deterred from European financial markets by high volatility. The world is therefore caught in a dilemma. If the “old world” in the West imposes an appreciation on China, the “new world” in Asia would lose momentum and could disintegrate; but if the present system does not change, imbalances will continue and Europe could disintegrate under the pressure of global adjustment. We will now consider an alternative solution.

Opportunities for monetary cooperation between Europe and Asia.

1. China bashing

Fuzzy thinking has led European policymakers to follow Americans in pressuring China to revalue. In November 2009, President Obama went to China and asked for a revaluation of the Chinese currency. President Hu Jintao refused. Two weeks later, the European trio of José Barroso, Jean-Claude Juncker and Jean-Claude Trichet also went to Beijing with the same request and got the same response. Since then, Chinese authorities have made some moderate concessions (see Figures 6 and 7) without endangering the foundations of their development model.

Because European and American policymakers share the view that China manipulates its currency to gain unfair trade advantages, they have joined efforts in pressuring China into the appreciation of the yuan. They should think again.

Complaints about China's exchange rate regime are nothing but a latent form of protectionism. Firms denounce unfair competition, because they wish to keep cheap imports out of the European market; trade unions lament the loss of jobs in certain sectors, but rarely talk about the potential for job creation in others. They seem to ignore the fact that cheap consumer imports increase the purchasing power of wages. This is not to say that unfair trade practices are justifiable. Insisting on strict social standards should be part of Europe's leadership in the global economy, as this would help emerging economies to improve their own standards of living. Yet unless Europeans (and Americans) understand that Chinese authorities have good reasons for keeping their exchange rates fixed at competitive levels and deal with it intelligently, the dialogue with China will go nowhere and global imbalances will persist. Asia is the EU's most important growth market, and sustained and rapid economic growth in China serves Europe's interest. A reform of the international exchange regime must respect China's strategic objectives as well as those of Europe, Japan and the United States.

A different strategy is needed. We need a win-win strategy in which the United States switches demand from foreign to domestic production in order to reduce the unemployment levels that have grown since the global financial crisis, lowers its current account deficit and restores trust and confidence in American leadership. Asia must continue to generate export surpluses, which are the foundation for their catching-up process targeting higher living standards. As mentioned beforehand, it will take several decades for this process to be completed. For Europeans, it is crucial that global adjustments do not take place at their expense. These are the objectives. And they assign a role to exchange rate policies.

2. A Euro-Asian cooperation proposal

In the benign macroeconomic environment of the euro's first decade, European policymakers have concentrated on their domestic agenda of price stability, fiscal consolidation and structural reforms. National governments have been more concerned with protecting narrow domestic advantages than with improving opportunities for the European economy as a whole. The Lisbon Treaty offers now a new perspective. It explicitly calls for policies that "encourage the integration of all countries into the world economy" (art. 21), an aim one should keep in mind when dealing with Asia. It will be the task of the President of the European

Council and the High Representative for Foreign Affairs in the European Commission to translate this objective into a coherent strategy that takes into account the euro as the second world reserve currency. Here is a five-point plan of what they could do.

1. The first objective must be to open up the symbiotic relationship between the United States and Asia. While Asia is to remain a net exporter for years to come, America cannot remain the consumer of last resort in the world. The European Union must therefore take up some, but not all, of the global demand for products from Asia. The same is true for Japan, which has persistently absorbed less than it has produced at home. With this in mind, the three main players could agree on a target for each of their economies to run a current account deficit of 1 percent of GDP. This would reduce absorption from the United States relative to 2009 by \$226 billion, but improve demand from the euro area by \$40 billion and from Japan by \$147 billion. The overall impact for the rest of the world would be negative and the major burden of adjustment would be on Japan. A fairer deal would therefore set a deficit of 1.5 percent for the euro area. These targets would redistribute the U.S. deficit, but they would hardly generate additional demand for Asian products. This must come from growth in the three advanced industrial economies and from the rest of the world.
2. The redistribution of current account deficits requires a change in relative prices (i.e., in exchange rates), and also domestic policies that stimulate demand in Europe and Japan. The dollar must depreciate relative to Asian currencies; the euro and yen need to appreciate. However, as we have discussed, exchange rate stability (i.e., low volatility), can support the redirection of trade and investment by reducing uncertainty. Such a growth-supporting framework is especially warranted, if Europe is to accept an appreciation relative to Asian currencies. Several options may be considered. First, East Asian countries may simply re-peg from the dollar to the euro. This would generate monetary stability between Asia and Europe and give the U.S. economy the necessary flexibility to adjust its current account deficit. However, if the Japanese yen remained freely floating, this measure could disturb investment flows between East Asia and Japan and affect growth negatively. Therefore, Japan must be part of the new monetary arrangement. A second option consists in pegging East Asian currencies, including the Chinese yuan, to a basket that contains large portions of Japanese yen and euros. At the same time,

the Bank of Japan and the European Central Bank would establish close cooperation with the purpose of minimizing volatility between their two currencies. This stabilizes the conditions for Japanese FDI into East Asia and the trade relations with Europe. The Japanese and European economy together represent a viable and attractive alternative to the Asian-U.S. symbiosis. These measures would not restore global balances in the strong sense, but they would narrow the size of imbalances.

3. Monetary authorities in East Asian countries will gradually increase reserve holdings in euro and yen. Thus, in the interest of expert-led catch-up growth in Asia, global imbalances in the weak sense would also be maintained for a limited and transitory but significant period of time. Although there is no *logical* link between pegging and reserve holdings (Obstfeld and Rogoff 2009), the *practical* reasons for doing so are strong, because liquidity requirements for market interventions will increase demand for holding anchor currencies. To see this, imagine a speculative attack against a country which has pegged against the euro but keeps foreign exchange reserves in dollars. If the dollar is weak at this very moment, the mobilization of reserves to defend the euro peg would be more costly. Prudent reserve management therefore requires keeping reserves in the pegged currency. Over time, pegging to a basket of euro and yen could lead to a more balanced system of reserve currencies that offers diversification benefits on a global scale.
4. Strategic pegging to a basket should not be confused with choosing the best reserve currency. The dominance of the U.S. dollar as the internationally accepted reserve asset has contributed to the global financial crisis, because excess liquidity in the United States has inflated asset prices and pulled down the rest of the world into the resulting abyss.¹⁷ The Triffin Dilemma has described the contradiction between a reserve currency country's national interests and international obligations. For this reason, Keynes had proposed at Bretton Woods the creation of an international or supra-sovereign reserve asset. The political balance of power at the time prevented this plan from being realized, but it remains an intellectually sound idea. The global financial crisis may have ushered in conditions more conducive to reforming the global

17 A similar liquidity spill by the United States in the 1960s contributed to the collapse of the Bretton Woods system and the "Great Inflation." The increased elasticity of labor supply brought about excess liquidity which caused the asset inflation seen in the 2000s—not consumer price inflation.

reserve regime. However, there is no point of swapping the Triffin Dilemma from the dollar to the euro. The way ahead lies in an international reserve currency. The euro-yen basket could contribute to this development. An idea suggested by the Chinese central bank governor Zhou Xiaohuan (2009) is of interest in this context. He has suggested promoting actively the use of special drawing rights (SDR) in international trade, commodities pricing, investment and corporate book-keeping. This could be useful in creating more balanced reserve management. Nevertheless, using SDRs today as the reference for exchange pegging is not recommendable. The composition of SDRs, even if expanded as proposed by Zhou, does not allow the pursuit of a competitive exchange rate strategy, which has underlain China's success.¹⁸ However, as the catch-up growth process advances in China and Asia, and the U.S. economy adjusts to internal balance, the basket should be gradually broadened to include other currencies (including the U.S. dollar), until it effectively coincides with a reformed version of SDRs.

5. Finally, monetary cooperation between Europe and Asia must find an institutional foundation. Organizing monetary cooperation with Asia goes beyond purely bilateral or regional relations. The strategic interests of Europe, Asia, the United States and the rest of the world are also affected. These policy decisions must therefore be debated in the G20. However, the G20 is a large and already fairly bureaucratic institution in which practical decision-making is tedious, as attempts to achieve financial regulation demonstrate. One could therefore imagine a lead group comprised of euro area, Japan, China and the United States—a G4 within the G20—that would assume a pilot function for working out details of the reform. On the other hand, the practical and more bilateral issues for monetary cooperation between Europe and East Asia, including China and Japan, find an appropriate forum in the Asia-Europe Meeting (ASEM). Coordination between Asian central banks and the ECB would also have to be strengthened.

18 For the underlying theoretical argument about why basket pegs are suboptimal compared to straight pegs to large currencies, see Collignon 1999.

Conclusion: Whose interest is it, anyhow?

This paper has argued that global imbalances exist and that they are a double edged sword. They have enabled the integration of China and Asia into the world economy through rapid export-led growth, but they have also fueled the asset bubble, which, when it burst, put the world into its deepest recession for over 70 years. However, if carefully handled, even a double-edged sword can be put to beneficial use. Indeed, Asia's catch-up process must not be prematurely interrupted and Asia's economic regional integration must continue. A modest form of global imbalances would serve this purpose, provided the burden of adjustment and the absorption of Chinese surpluses are more equally shared between the United States, Japan and Europe. For this purpose, I have proposed that Asia switches temporarily from a single U.S. dollar peg to a basket peg of euro and yen, and that the euro area and Japan cooperate in reducing their bilateral exchange rate volatility until the U.S. economy has adjusted to a more sustainable domestic equilibrium.

It may appear that the reform proposal advanced in this paper would benefit only Asia, which will speed ahead with accelerated growth while Europe lags behind, afraid of its own weaknesses, "disloyal" competition and "social dumping." Such a conclusion would be false. First of all, exports depend not only on relative prices but also on demand from importing economies. Table 2 shows the results of estimating the elasticities of imports from Europe into China as a function of relative prices and Chinese growth; it also measures trade in the opposite direction. These estimates indicate that trade with China responds significantly more strongly to changes in economic growth than to changes in the nominal exchange rate. A 10 percent increase in China's growth rate (approximately equivalent to a 1 percentage point increase in GDP) would raise bilateral exports by 28.8 percent, while a 10 percent appreciation of the euro against the yuan lowers exports by 6.7 percent. The effect of domestic demand in the euro area on imports from China is even stronger. Therefore, if Europe and the United States pressured China to change the exchange regime in ways that affect economic growth in China negatively, Europe would suffer more than it would gain. It is in Europe's interest to create jobs at home by supporting China and Asia in pursuing their dynamic growth.

Secondly, the industrial issue will change across the world in any case, and if managed properly, this development can augment welfare on a global scale. For

Table 2: Import and export elasticities for China and Europe

Import and Export Elasticities for China and Europe				
	Imports		Exports	
	Coeff	t-Stat	Coeff	t-Stat
c	0.079	1.476	0.061	0.693
trend	-0.001	-0.500	-0.005	-4.202
GDP growth E	6.604	12.172		
GDP growth China			2.885	-5.380
Yuan/euro	0.649	5.683	-0.676	-5.380
R-squared	0.800		0.514	
Adjusted R-squared	0.774		0.455	
S.E. of regression	0.077		0.088	
Sum squared resid	0.228		0.316	
Log likelihood	53.327		50.868	

decades, Europeans have claimed that they wish to see poorer countries develop; they must not turn against those who succeed in their efforts to develop, now that it is happening. At the same time, the distribution of welfare gains clearly matter. Europeans, too, will benefit from more efficiently allocating resources, and wage earners would see their purchasing power improved. This provides little or no consolation for those who lose their jobs. Supporting Asia's development is defensible in political terms only, if it would generate more and better jobs that can compensate for previously lost jobs. Yet this is exactly what our reform proposal aims to achieve. Job creation depends on economic growth.¹⁹ The question is whether a *moderate* appreciation in the euro's real exchange would on balance destroy more jobs than economic growth from more trade with Asia could generate. Any alternative exchange rate regime, whether it leaves the present system unchanged or appreciates the yuan or moves to a free floating exchange rate, is likely to harm Europe more, either through excessive euro strength or a slow-down of growth in Asia. The social and political conse-

19 New jobs are created when GDP growth exceeds the increases of labor productivity (see Collignon 2003).

quences for Europe could be dramatic. Unless Europe engages in a positive and respectful dialogue with emerging Asia and Japan, economic and political tensions in the world will increase. It is therefore in Europe's interest to play a cooperative game with China, Japan, East Asia and the United States.

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How Serious Are Global Imbalances?

Richard N. Cooper

Bank of England Governor Mervyn King stated in spring 2009 that “global imbalances” were the main cause of the financial crisis of 2008, and suggested that until the world seriously addresses them we remain vulnerable to further crises. In some sense he must have been correct, since the acute crisis of the fall of 2008 could not have occurred without a powerful latent instability in the financial system that both induced and was triggered by the flow of events, especially the collapse of the large investment bank Lehman Brothers, a company based in the United States but global in its operations. Unfortunately King did not specify exactly what he meant by “global imbalances,” but in conventional usage this term refers to the large current account deficits (in trade plus net overseas investment income) of the United States, Britain, Spain and several other countries, matched (except for sometimes-substantial measurement errors) by trade and net investment-income surpluses by China, Germany, Japan, the oil exporting countries and others. This is a plausible interpretation of King’s statement; however, this essay will argue that while these imbalances were indeed implicated in the financial crisis, insofar as they acted to lower long-term interest rates, their contribution was minor compared with many other factors, and King was thus incorrect. Correct prescription (normally) requires correct diagnosis.

This essay will briefly address the sources of the financial crisis, and the role of global imbalances (meaning current account imbalances) in bringing it about. It then addresses the sources of these imbalances, arguing that they do not necessarily reflect disequilibria in the world economy, and the possible need and desirability of taking serious action to correct them, arguing that the proposed medicine may be worse than the “disease.” Then follows a section on the role of exchange rates in the contemporary world economy, and a section on appropriate adjustments in fiscal policy in the major countries during the coming years. A final section draws conclusions for global macroeconomic policy.

Sources of the financial crisis

The financial crisis of 2007–2008 basically reflected a failure of the financial system as a whole. One can imagine (contrary to fact) that every participant within this complex, global system was behaving “rationally,” that is, looking after his/her own narrow interests within the existing legal and regulatory framework, and that the regulators were all doing their jobs responsibly from their individual perspectives, and that the system would nonetheless have failed. Of course, in reality there were knowing miscreants and regulators who were not performing well, indeed who objected to some of the regulations they were enjoined to enforce; but these people did not cause the system to collapse. Nor was the crisis simply bad luck, the type of adverse external event (such as an earthquake or a sun-induced power outage) that can sometimes bring down a system lacking robust safeguards against such shocks. Rather, it was the internal dynamics of the system itself that brought on the state of collapse.

Any system of financial regulation, by placing limits on the behavior of the regulated institutions (such as deposit-taking banks) ipso facto creates financial incentives to arbitrage around the regulations. Astute lawyers will seek and generally find novel arrangements that formally conform to the regulations but engage in activities that the regulations were designed to discourage. Over time, new institutional arrangements will be found that bypass the regulatory obstacles imposed on the banks, to stay with that example. Initially, this arbitrage will be small and nonthreatening to the system as a whole, even to the regulated institutions; but unless checked it will build over time to a point at which it becomes quantitatively important, a threat to the regulated institutions and even a threat to the entire system. The regulated institutions will plead for relief from the regulations, permitting them to participate to some extent in the arbitrage. Astute and prescient regulators will extend the regulations to cover these innovative activities before they reach this point. But it takes enormous political courage to stop the party just when everything seems to be going well. The mood of euphoria is hard to resist. Thus, periodic financial crises are an inevitable characteristic of a dynamic, ever-changing innovative economy.

Many features of the U.S. financial system played a role in bringing about the crisis, but most are ultimately linked to the high financial rewards associated with transactions and with short-term performance. Investment bankers, their lawyers and law firms, rating agencies, accountants insisting on pro-cyclical accounting

rules, hedge funds, mutual funds—all played their roles. Each pursued its narrow interests within the existing legal and regulatory framework, taking for granted the continued smooth functioning of that system. None paid attention to the system as a whole, or concretely to the degree of leverage and the mismatch of maturities encouraged by the system, evident in practices such as the financing of bond purchases or mortgage portfolios with short-term funds—a tactic that presumed the mortgages could quickly and smoothly be packaged into marketable bonds, and that the bonds would remain liquid through well-functioning secondary markets.

The development of a global capital market, in which excess savings in one part of the world could be readily invested elsewhere in the world, had the effect of lowering long-term interest rates throughout the world. This simultaneously lowered the cost of long-term borrowing, especially of 30-year mortgages offered to home buyers, and encouraged financial entities accustomed to higher returns to seek to expand yields in other ways, both through greater leverage and through taking on more risk. Lower borrowing costs in turn increased the demand for housing in the United States (and many other countries, such as Britain, Spain and Ireland), which raised the prices of existing properties and stimulated new home construction, which by mid-decade had reached levels (over 2 million new homes per year in the United States) well in excess of what was justified by new household formation and normal geographic mobility. Ever-rising home prices led to a reduction in mortgage underwriting standards, as collateral combined with continually rising prices could justify larger loans with less income security. Securitization of mortgages increased access to funds for home purchases, by seeming to make mortgages liquid and by drawing in pools of capital that were not historically invested in mortgages.

All of this can be seen in the United States. Interest rates on 30-year mortgages declined from over 8 percent in 2000 to under 6 percent by 2003, resulting in a drop in monthly payments of more than 25 percent. The average price of existing homes rose steadily by more than 48 percent from 2000 to 2005. New single-family home construction starts rose from 1.6 million in 2000 to over 2 million in 2005 (only to fall below 600,000 by 2009). More and more people were able to get mortgage loans, resulting in a rise in the home-ownership rate from 67 percent of families in 2000 to over 69 percent of families by 2005. The resulting subprime mortgages were packaged into mortgage-backed securities (MBSs), which along with other forms of credit were repackaged into collateralized debt

obligations (CDOs), some of which were further repackaged into CDO-squared instruments.

Ultimately, housing prices stopped rising, and short-term interest rates rose on adjustable rate mortgages. Some homeowners were unable to make their payments or refinance their mortgages, some securities lost their luster, valuation became difficult, secondary markets ceased to function smoothly, short-term lenders developed doubts about the viability of their borrowers and ceased to roll over debt, many otherwise liquid securities became highly illiquid, and their owners became questionable as counterparties in what would otherwise be normal transactions. Parts of the financial market froze up.

None of this had anything to do with global imbalances, beyond the imbalances' role in lowering long-term interest rates—a condition which, by the way, many economists over the years have considered highly desirable, on the grounds that this would stimulate productive investment and thus economic growth (see Tobin 1964). Many analysts forecast that global imbalances would lead to a financial crisis (see Bergsten and Williamson 2004; Cline 2005). We indeed had a crisis, but it was not the crisis they foresaw, which would have entailed a massive outflow of foreign funds from the United States—or, more mildly, a significant cessation of inflows—followed by a sharp depreciation of the dollar and a sharp increase in U.S. interest rates to try to stem the outflow and stabilize the dollar. In the crisis witnessed, interest rates declined to unprecedented lows and the dollar appreciated during the most acute phase.

Some have blamed the Federal Reserve for holding the federal funds rate too low following the high-tech bust of 2001–2002. That criticism may have some merit, but it cannot provide a principal explanation for the subsequent financial crisis. The Fed began to raise rates in July 2004 (stock prices—represented by the Dow Jones and S&P indexes—reached their nadir in February of 2004). But long-term rates did not respond to the rise in short-term rates—what Fed Chairman Alan Greenspan dubbed at the time a “conundrum,” although it should not have been a surprise to anyone aware of the increasing globalization of capital markets (Greenspan 2010).

It is true, as many have since complained, that U.S. policy has encouraged home ownership by Americans through a variety of mechanisms, notably including the ability to deduct mortgage interest payments from taxable income, as well as public support for the mortgage market through several government-chartered institutions. But these policies had been around for decades without

causing a financial crisis; they were part of the U.S. financial system, but not a new part.

As home prices began their persistent rise, and as mortgage underwriting standards began to deteriorate, the Federal Reserve could have intervened to the extent of requiring all member banks to insist on minimum down payments for home purchases, perhaps of 15 percent or 20 percent (as China did in 2007 when it wanted to dampen its own housing boom). But such an action would have stimulated arbitrage by encouraging financial institutions other than banks to originate mortgages, although this process would have taken time and some dampening of home construction might have been achieved. Moreover, this path of course would have provoked a huge political outcry from Congress, Republicans as well as Democrats.

I note therefore that periodic financial crises are actually necessary in order to focus policy and especially political attention on the need to adapt and extend financial regulation to cover the quantitatively significant arbitrage around the regulations that have occurred since the last significant revision. Indeed, the United States has had a financial crisis roughly every decade. Tweaking the regulations is sometimes not enough to forestall instability, and radical change is impossible in boom times in view of the many vested interests that develop during the boom. In this sense, the crisis of 2008 was necessary (Swagel 2009), but unfortunately did huge damage to the real economy, worldwide. The policy challenge of the future is to recognize and act on financial crises early enough to forestall serious recession.

Can we live with continuing global imbalances?

Note that the major countries' current account deficits and surpluses in 2009 had declined significantly from their highs of mid-decade. The U.S. trade deficit, for instance, dropped by more than half, from \$803 billion in 2006 to \$378 billion in 2009. This was mainly due to the decline in imports associated with the recession (including the process of running down stocks), and with lower prices for imported oil, especially as compared with early 2008. Similarly, the deficits of Britain and Spain were down sharply, as were the surpluses of China, Germany, Japan, Russia and Saudi Arabia. But IMF projections show the surpluses growing with economic recovery, although not always back to the heights of mid-decade, with the

notable exception of China (see Table 1). Germany is a part of the euro zone. To the extent the focus of analysis is on exchange rates, it should be consolidated with the rest of the euro zone, which had a current account surplus of \$148 billion in 2006 and \$158 billion expected for 2011. However, Germany's institutional setup, household behavior, and fiscal and tax policies differ from those in most other euro zone countries, so it generates large net savings, as do the Netherlands and Switzerland (the latter of which is not in the euro zone). For an analysis of current account imbalances, the difference between domestic investment and national savings, it is appropriate to focus on Germany, the Netherlands and Switzerland individually, rather than bury these differences in a larger aggregate.

Before we judge the future prospects of these imbalances, we need to understand them. They did not emerge suddenly, but rather gradually over time, and they must reflect systematic developments in the world economy. Such imbalances, such as the American deficit or China's surplus, are often analyzed in isolation, with a focus on possible domestic causal factors. But such analysis can never be complete, nor can a major imbalance be corrected by working on a single country's domestic factors alone, since they reflect interactions among countries in a complex, interdependent world economy. The American deficit can only decline, for instance, if the surpluses of other countries decline correspondingly, or deficits elsewhere increase.

Can a U.S. current account deficit in excess of \$500 billion a year, over 3 percent of GDP, be sustained? The answer from a technical economic point of view (as distinguished from psychological or political perspectives, which are not addressed here) is an unambiguous affirmative. Some argue that it is large without precedent, and even briefly reached into the "danger range" associated with developing countries that have in the past run into payments crises. Some argue that it cannot be sustained either because foreigners will cease to be willing to invest enough in the United States, or because the United States will run out of assets attractive to foreigners, or both. Some concede that it might be sustainable at a high level, but that it is on a trend that cannot be sustained. Some judge it to be undesirable, not least on the grounds that it permits higher current consumption but bequeaths higher liabilities to future generations. Whether it is desirable or not depends, of course, on the feasible alternatives, not on abstract considerations.

I will try to address quantitatively two questions: whether foreign saving will be adequate to finance a continuing and even rising U.S. deficit, and whether

U.S. financial claims will be sufficient to satisfy potential foreign demand for them. I will also address foreign motivation to invest in the United States.

The U.S. current account deficit (which equals net foreign investment in the United States) of 6 percent of GDP in 2006 was certainly unprecedentedly large. But in fact this was smaller than the deficit that would have resulted if world financial markets were fully globalized. By full globalization of financial markets we might mean that savers around the world allocate their savings according to the relative sizes of national economies, without any bias toward domestic investments. Such a “gravity model” for world financial flows is of course a vast simplification, but it is a useful starting point.

The U.S. share of the world economy (calculated at market exchange rates, which are relevant for this calculation) was 30 percent in 2000, rising slightly in 2001–2002, then declining to 27.5 percent in 2006. With no home bias, the rest of the world would have invested these shares of its savings in the United States. Americans, by the same token, would have invested 70 percent of their savings in the rest of the world in 2000, a percentage that would have risen 2.5 points by 2006. Applying these percentages to actual savings (from the national accounts) in the rest of the world and in the United States would have resulted in net foreign investment of \$480 billion in the United States in 2000, compared with an actual flow of \$417 billion, rising to \$1.2 trillion in 2006, compared with an actual flow of \$0.8 trillion. This figure could be expected to rise over time until the slow decline in the United States’ share of gross world product fully offset the rise in foreign saving; or, alternately, until U.S. saving rose sufficiently sharply to overcome the annual increases in foreign saving.

This calculation takes gross saving as given and ignores actual investment opportunities, including yield, risk and liquidity. In this respect, it is similar to the gravity models of trade, which focus on economic size and distance and ignore the structure of comparative costs, hence the incentives to trade. I now turn to incentives.

Demography and the savings-investment balance

Current account surpluses imply an excess of national saving over domestic investment. Why do these occur, especially in view of the budget deficits run by many countries that absorb much of the excess private saving? A significant rise

in oil prices after 2002 increased the government revenue of oil-exporting countries in the first instance, producing budgetary surpluses there. Much of this saving will be transitory as revenues enter the income stream, raising private incomes and import demand, or as oil prices ultimately fall. But a number of oil-exporting countries have now emulated Kuwait and Norway in setting aside a portion of their large oil earnings, investing them in the rest of the world for the sake of future generations. As a result, significant savings from these countries may endure for many years.

There are many reasons for high saving, related inter alia to uncertainty and even insecurity about the future, imperfect arrangements for consumer credit for large purchases, management incentives for retaining rather than distributing corporate earnings, memories of past periods of adversity, and so on. But one factor that has received too little attention is the dramatic demographic transformation that many countries are going through. Much has been written about the aging of societies, with appropriate focus on unfunded pension and medical care commitments by governments. However, aging is occurring for two quite different and mostly unrelated reasons: increasing longevity, which in the United States has risen on average by 8.2 years over the past half century, and by an extraordinary 30 years in Japan; and declining natality.

The increasing longevity, without a corresponding increase in working age, may be expected to increase household savings for retirement, but also precautionary savings, since lives are not only longer but also uncertain in their length. The standard model of lifecycle savings behavior, in which dissaving occurs in older years, typically assumes a known or expected time of death. In reality, there is much uncertainty, and thanks to steadily advancing medical technology, perhaps even increasing uncertainty about the time of death. *Ceteris paribus*, this should increase saving, even beyond retirement, especially in a context of growing uncertainty about the financial viability of many public pension schemes. Americans have been made aware of the future problems of U.S. social security; but public pension schemes in many other countries are in much worse shape.

The aging of society through reduced natality has perhaps an even greater influence on the national saving-investment balance, however, by reducing investment. Low natality implies, over time, declining numbers of young adults, hence fewer new households, hence lower demand for schools and housing and all the appurtenances associated with housing, such as appliances and furniture. Less new capital is also required to equip new members of the labor force with

the average productive capital stock. In addition, young adults these days are on average the most highly educated and the most flexible members of the labor force, geographically and occupationally. A decline in their numbers will thus have a negative impact, *ceteris paribus*, on productivity growth in an era of continuous advances in technology and changes in the composition of demand.

Saving rates have dropped in Japan, even if less than lifecycle devotees expected, but investment has dropped even more. By 2011, most of Japan's current account surplus is expected to consist of net earnings on that country's extensive foreign investments, with minimal contribution from a trade surplus. That is what one would expect at some point in an aging society.

Private saving in Germany has risen, mostly absorbed by a four-percentage-point increase in public deficits between 2000 and 2005, but investment has fallen sharply. The trade surplus is expected to rise in the future. A roughly similar pattern is occurring in the newly rich Asian economies. In contrast, investment rose in developing Asia, exceeding 37 percent of GDP by 2005; but saving rose even more in these rapidly growing economies.

Population projections in these countries, and others, are striking. Most rich countries, along with China, now have a net reproduction ratio below unity; that is, populations are not reproducing themselves. The average number of children per woman of child-bearing age is 1.4 in Germany and Japan, and 1.0 in Hong Kong and Singapore (a rate of 2.1 children is required to sustain a population in the long run). The total populations of Germany and Japan have already peaked, despite increasing longevity. The number of young adults has been declining for some time, and will continue.

Among the rich countries, the United States stands out as a strong exception: While birth rates have declined, they remain above two children per woman, and the U.S. population is augmented by over a million immigrants a year, who in general are young and well-integrated over time into the U.S. labor force. The U.S. Census Bureau projects populations of young adults (ages 15–29) for the world's largest economies plus four newly rich Asian economies, whose current account surpluses together (when Germany is augmented by its two close economic neighbors, Netherlands and Switzerland) in 2006 equaled 90 percent of the U.S. deficit. (The surpluses of oil exporters equaled an additional 46 percent of the U.S. deficit. The U.S. deficit in turn equaled 70 percent of total world deficits.) Over the next 20 years, the number of young adults will decline by roughly 1 percent a year in China, Germany, Japan and the four newly rich economies. In

sharp contrast, the number of young adults in the United States is expected to rise by 7 percent over the next two decades, and the actual increase will probably be even greater because of conservative assumptions regarding immigration.

China of course is in different circumstances from Germany, Japan and other rich countries. The rural population, while down 25 percentage points as a share of the total population over the past three decades, remains large, so much further rural-urban migration can be expected. The rapid growth of the urban labor force can be expected to continue, and along with it demand for housing, schools and productive capital stock. Moreover, the incomes of Chinese citizens have grown rapidly, triggering a consequential housing boom as people not only change location but also upgrade the amount and quality of their living space. China's investment rates are high. But with per capita incomes growing at over 7 percent a year, in the presence of desires for lumpy expenditures and a poor capital market, Chinese savings rates have increased even as consumption has grown rapidly. Moreover, many Chinese state-owned enterprises (SOEs) have been modernized and downsized, improving their earnings, while others enjoy quasi-monopoly profits. Until 2008, SOEs in China did not have to pay dividends to their government owners, allowing recorded corporate savings to increase along with earnings.

Why invest in the United States?

Given that a number of the largest and richest countries have excess savings, as well as some poor countries such as China, why do these savings go heavily to the United States? After all, under simple neoclassical assumptions, excess national savings should flow to regions of the world where return to capital is highest, and those in turn are assumed to be regions with a low ratio of capital to other factors of production, most notably labor but also including arable land and specific natural resources.

This widely accepted proposition is at a high level of generalization. Discerning investors do not invest on the basis of the high levels of generalization that economists are comfortable with, and indeed even seem to prefer. Details are all-important. It is increasingly common to see references to "risk-adjusted" yield differentials rather than merely to yield differentials, a critical qualification. Security of investment is important, often trumping high yields, especially those inves-

ting for retirement. Recent experiences in Argentina, Bolivia, Russia and Venezuela have reminded everyone that private investment is not always secure, especially if it is foreign private investment. In addition, yield is often low in the most capital-poor countries, due to strong complementarities between invested capital and the institutional setting, interpreted broadly to include public infrastructure and an educated, or at least a disciplined and functionally literate, labor force.

Despite these qualifications, much private foreign capital has gone into developing countries in recent years, totaling over \$500 billion (net) in 2005, mostly into East Asia and Central Europe, and over \$700 billion in 2006. But this compares with \$1 trillion in foreign private funds invested in the United States in 2005, and nearly \$1.6 trillion in 2006.

There are several reasons for foreign funds to target the capital-rich United States as a locus for investment. First is simply the size of the U.S. economy, discussed above. Property rights are secure in the United States, and dispute settlement is relatively speedy and impartial. The United States continues to be a dynamic economy despite its wealth, partly on the demographic grounds noted above, but also because it is highly innovative and relatively more flexible than other mature economies (and than many immature ones). Its financial markets are even larger relative to the rest of the world than is its GDP, accounting for over 40 percent of the world's securities (stocks and bonds), and probably more than half of marketable securities if allowance is made for the non-availability of many shares of companies in other countries (e.g., because they are in government hands).

Because of the United States' size and institutional arrangements, many marketable securities are much more liquid in this market than is true in other financial markets, increasing their attractiveness to passive investors; and the market offers a wide diversity of financial assets in terms of risk characteristics. Finally, in the mid-2000s, yields on U.S. debt instruments were higher than those in many other rich countries, notably Japan and continental Europe. Yields were still higher in Britain and Australia, which share some of the other characteristics of the United States. It is perhaps not a coincidence that net foreign investment has also been high into those countries, meaning that they have run substantial current account deficits relative to GDP. Canada, which might be thought to be in a similar situation, in contrast ran current account surpluses mid-decade; perhaps its trade is so heavily concentrated on the United States that running a trade def-

icit would be very demanding. Yields on Canadian bonds, unusually, were lower than those on U.S. bonds. However, Canada moved into deficit in 2009 and is expected to remain there in the near future.

Foreign investment in the United States is overwhelmingly denominated in U.S. dollars; indeed, it simply represents purchases of U.S. domestic instruments by people or institutions that happen to be located abroad. Most of them therefore run an exchange risk measured in their home currencies. Does not this risk overwhelm the yield differentials? Apparently not. One possible explanation is that foreign investors may not be conscious of the exchange risk they are running. This seems extremely unlikely, given that most of the investors are sophisticated financial institutions, and some economists have been unsparing in pointing out the exchange risks, with more than adequate publicity.

Foreign investors must find the characteristics of their investments sufficiently attractive to overcome the exchange risks. Or they may discount the exchange risk. One possible reason is they believe there is little reason to expect movements in exchange rates large enough to overcome the yield differentials, possibly because they implicitly accept the structural reasons developed here for believing large current account deficits are in fact sustainable. Or they may believe large currency appreciations would be sufficiently damaging to other economies so as to elicit countervailing actions by monetary authorities in these countries, so that exchange rate movements among major currencies will be bounded by future central bank action.

Much has been made of the fact that some of the financing of the U.S. deficit has come from central bank purchases of dollar-denominated assets. Arguably, in some of these cases central banks are simply acting as financial intermediaries on behalf of their aging publics, who either choose not to or are not permitted to invest directly abroad. But suffice it to say here that the inflow of funds to the United States is overwhelmingly private in origin (if not always in beneficial ownership), with private sources accounting for five-sixths of the totals in 2005 and 2006.

How long can the U.S. provide assets for purchase?

What about investment possibilities in the United States? Will foreigners soon acquire so many U.S. assets that their availability will be exhausted? Not anytime soon. It is useful to look at the relationship of U.S. external indebtedness to the availability of U.S. assets.

At the end of 2009, the net international investment position (NIIP) of the United States was $-\$3.1$ trillion, or 20 percent of U.S. GDP. The current account deficit was around 3 percent of GDP. What implications can we draw from this starting point for the future of the U.S. international position?

Several points need to be made about the U.S. NIIP. First, it reflects the difference between much larger foreign claims on the United States and U.S. claims on the rest of the world. The average yield on U.S. claims significantly exceeds the average yield on foreign claims. While the NIIP turned negative in 1987, U.S. net earnings on foreign investment were still positive in 2007, 20 years later, and again in 2008 and 2009.

Second, to move from accumulated current account positions to the net international investment position requires adjustment for non-transactional valuation changes both for foreign claims on the United States and for U.S. claims on the rest of the world. These have strongly favored the United States. Thus, over the period 1990–2005, the cumulative U.S. current account deficit was $\$5.8$ trillion, while the increase in the net debtor position of the United States was $\$1.3$ trillion, less than a quarter of the total deficit. The main reason for this difference is the rise in market value of existing claims. In other words, the “total return” on U.S. investments abroad, and on foreign investments in the United States, exceeds the earnings on those investments recorded in the balance of payments. Thus if total returns are counted, the United States on average runs an even larger surplus on investment earnings than that reported in the balance of payments accounts, despite a significantly negative NIIP. The main reason for this is that equity investment, both direct investment and portfolio equity, make up a substantially larger share of U.S. claims on the rest of the world (61 %) than is true for foreign investments in the United States (35 %). Americans act as risk-taking intermediaries in the world economy, selling fixed-interest claims and investing in equity; they thus earn an equity premium in the world economy.

In addition, changes in exchange rates affect valuations when converted into U.S. dollars, in which the U.S. NIIP is reckoned. Most U.S. assets abroad are

denominated in other currencies, whereas most foreign claims on the United States are denominated in dollars. When the dollar depreciates against other currencies, the value of U.S. claims rises relative to foreign claims, while the reverse is true for an appreciation of the dollar.

These combined valuation effects can be substantial. Thus, in 2005, the U.S. current account deficit was \$729 billion, but the NIIP actually increased by \$200, a reversal that also occurred in 1999. Remarkably, the ratio of NIIP to GDP declined from over 23 percent in 2001 to 20 percent in 2009, despite large and growing current account deficits during this period. Depreciation of the dollar against currencies in which Americans held assets accounted for less than 10 percent of the total valuation effect.

Third, NIIP/GDP is far below where it would be in a “no home bias” world, in which foreigners would hold nearly 30 percent of their assets in the United States, two and a half times the ratio they currently hold. On these grounds, the ratio could still rise significantly.

How much of the United States do foreigners own? Here it is necessary to look at gross foreign investment in the United States, before netting it against American investment abroad. Total foreign claims (net claims for banks) on the United States at end-2009 were \$17.7 trillion, 125 percent of GDP during that year, and roughly the same percentage of the nation’s private non-residential fixed capital stock. The share of foreign ownership has increased steadily for the past two decades. But foreigners do not generally buy capital stock, and their share is not rising nearly as rapidly as one might suppose based on the dollar values alone.

A remarkable feature of the U.S. economy is that the total value of financial assets has risen significantly more rapidly than has the size of the underlying economy. The Federal Reserve estimates total financial assets in the U.S. economy at the end of 2006 to have been \$129 trillion (this figure is of course sensitive to the system of classification used in the flow of funds accounts, and does not include derivatives), which is 9.7 times 2006 GDP. Total financial assets were only 4.8 times GDP in 1965, 40 years earlier. Put another way, while nominal GDP grew by 7.4 percent a year between 1965 and 2006, total financial assets grew by 9.2 percent a year.

This phenomenon reflects among other things innovations by the financial sector, which has devised financial instruments to appeal to a wider variety of circumstances and tastes. This articulation of financial assets appeals to many for-

eigners as well as to Americans, and foreigners invest in a wide array of financial instruments. Of course, not all these assets turn out to be sound, as we learned during the financial crisis. So while gross foreign investment in the United States exceeded GDP in magnitude, it amounted to only 11 percent of total financial assets in the United States.

Total financial assets include claims by one sector on another. We can say that fundamentally the U.S. economy is “owned” by households in the United States, plus nonprofit organizations (e.g., churches, foundations, universities, and so on), plus foreigners. The share of foreign ownership grew from 7 percent in 1980 to 17 percent in 2000, and again to 23 percent in 2006. This ownership represents claims on future output of the U.S. economy. It remains well below the level of foreign ownership that would apply in a “no home bias” world. It also remains well below levels of foreign ownership (relative to GDP) that have been reached in many other countries, including Australia, Britain, France, Germany, Italy and Spain. Thus, while the foreign-owned share of U.S. financial assets cannot grow without limit, it can grow for many years before straining the American capacity to provide financial assets.

Viewed in the context of globalization and demographic change in other rich countries, the large U.S. current account deficit is both comprehensible and welfare-enhancing from a global point of view, so long as Americans invest the funds productively. Prospective retirees around the world are making investments that are profitable and secure. If this is so, strong governmental efforts to reduce the deficit significantly may be deeply misguided at best, and run a serious risk of precipitating the financial crisis and/or economic recession that this goal’s proponents hope to forestall, as fiscal contraction in the United States fails to be matched by fiscal expansion elsewhere, and as speculative capital moves heavily into currencies expected to be revalued against the U.S. dollar.

Not so long ago, it was argued that as a rich country, the United States should be running a current account surplus, not a deficit. More recently it has been suggested (e.g., by Cline) that for reasons of sustainability, the deficit needs to be reduced to no more than around 3 percent of GDP. Reduction of the deficit by three percentage points of GDP would require that U.S. expenditure drop, relative to output, by three percentage points of U.S. GDP, roughly 1 percent of GDP in the rest of the world combined. Foreign surpluses, taken together, would have to decline by 3 percent of U.S. GDP, implying a rise in demand relative to output by that amount elsewhere in the world. Of course, by 2009 the U.S. current account

deficit did drop to 3 percent of U.S. GDP, and even slightly below; but demand in the rest of the world did not come close to compensating for that decline, and the result was the Great Recession, the first decline in world output since the 1930s.

It is also usually said that to bring about the required substitutions in product demand, the U.S. dollar must depreciate, probably significantly, perhaps by 30 percent on a trade-weighted basis (Obstfeld and Rogoff 2005; Cline 2005). Thus, the additional demand in the rest of the world must be domestic demand. For export-oriented economies such as Japan, Germany and China, currency appreciation is likely to discourage, not encourage, productive investment. The additional demand would therefore have to come from domestic consumers or governments. Many governments have been concerned about excessive government deficits in recent years, and are engaged in “fiscal consolidation” aimed at reducing their deficits. This was especially true even before the crisis for Japan and Germany, two countries with large current account surpluses. What will induce aging consumers to spend more? Easier monetary policy, which in Euro-land is beyond the control of national governments, would in a world of high capital mobility tend to weaken currencies, not strengthen them. The prescription must include more stimulative fiscal policy combined with tighter monetary policy, and currency appreciation. Europe’s medium-term policy focus has on the contrary been on fiscal consolidation plus measures to improve productivity and output, resulting (as explicitly desired) in greater international competitiveness, not greater domestic demand.

China, which controls its exchange rate, could decide to revalue its currency, as many have urged. But even if China were to eliminate its current account surplus, only a fraction would accrue to the United States as U.S. imports from China switched to other low-income countries. That would still leave a current account deficit in excess of the targeted level. Moreover, what would an appreciation large enough to eliminate China’s surplus do to China’s economy, where processing exports have led China’s growth? Exports have not been China’s only source of growth in demand. Public and private investment has boomed, and Chinese consumption grew in excess of 8 percent a year during 1989–2005, the highest such growth in the world. But exports have been the driving sector. It is not in the world’s interest for the Chinese economy to falter.

Exchange rate policy and practice

Fifty years ago, currency exchange rates were fixed (with allowance for a small variation) against one another under the Bretton Woods system. This feature of the international monetary system broke down in 1973, and since then exchange rates among the major currencies have largely been determined by market forces, with considerable variation over time. Many developing countries have continued to fix their currencies against some major currency, and even when allowed to float these have typically remained heavily managed through market intervention by local monetary authorities. This system has now persisted for nearly 40 years, with the important exception of Europe. Floating rates among European currencies greatly complicated the operation of Europe's common agricultural policy in the 1970s, and was seen to be an inhibition to establishing a truly single market. Thus, the European Monetary System, which restored fixity among participating European currencies, was established in 1979, and 20 years later a common currency, the euro, was inaugurated among 11 European countries, later joined by five others.

What role do floating exchange rates play in the world economy? In economies where domestic prices are not completely flexible (which includes all real economies), floating exchange rates serve as a useful shock absorber to help cushion the impact of real shocks, foreign or domestic in origin, on the domestic economy. If world prices of a major export decline, for instance, the exporting country's currency can depreciate, thus cushioning the export's domestic price impact, encouraging other products to be exported and discouraging imports which can no longer be so easily afforded.

But floating exchange rates, which have been volatile, can also be a major source of disturbance (Collignon 2002). They make difficult the calculation of which products will be profitable to export and to import, since profitability is strongly influenced by the prevailing exchange rate. The volatility of exchange rates reflects mainly the volatility of capital movements, which have become much freer over the last 40 years. Capital movements in turn are influenced by prospective movements in exchange rates, which influence rates of return, and perhaps also by recent movements in exchange rates, as rebalancing of portfolios take place. Thus floating exchange rates, not surprisingly, have both advantages and disadvantages, and under prevailing International Monetary Fund rules each country can select the exchange rate regime that it believes best suits its interests.

Persistent inflows or outflows of financial capital of course influence the average exchange rate of a country's currency. Thus, a persistent inflow will lead to appreciation of a country's currency (relative to what it would otherwise be), producing in time a trade deficit. That is how the real transfer of resources associated with the capital inflow is accomplished. In a small country (where world prices in foreign currency are beyond that country's influence), a capital inflow will lead to a rise in the prices of nontradable goods, such as housing, relative to tradable goods, which by definition can be imported or exported. While analysis is more complicated for a large country, such as China or the United States, persistent capital flows will also generally influence not only their nominal exchange rate, but also their real exchange rate.

The focus of international discussion in recent years has been on the exchange rate of China's currency, the yuan (or renminbi). Starting in the mid-1990s, China, which maintains controls on both inward and outward movements of capital, fixed its exchange rate at 8.28 yuan per U.S. dollar. This policy was relaxed in July 2005, and the yuan was allowed to appreciate gradually over three years before being fixed again in mid-2008 at 6.8 yuan per dollar. Throughout this period, China ran a surplus in its current account (trade in goods and services, plus net investment income) which was modest and variable in the early years, but rose sharply in the period 2005 to 2008 before dropping in 2009. It is expected to rise again sharply by 2011. As a result of this surplus plus net capital inflows, China's foreign exchange reserves have risen dramatically, from \$166 billion in 2000 to \$2.4 trillion at the end of 2009. Many economists, and lately the U.S. and other governments, have argued that China's surplus is too large, and that to correct it China should let its currency appreciate much more sharply.

Why should the rest of the world object to China's policy, which entails the export of China's excess saving to the rest of the world? Objections in 2009–2010 can properly point to the fact that there is deficient demand in the world as a whole, and that China is protecting its employment at the expense of employment in other countries. But the objections started well before the recession of 2008–2009, when this argument did not apply.

China has become a large economy, and its behavior now has broad influence around the world. There are gainers and losers from China's exchange rate policy. The main loser is the Chinese public: Roughly 6 percent of GDP (higher in some years) has been placed in low-yield foreign investments abroad, whereas in principle they could have been directed into even higher domestic investment or

(through the government budget) into public spending that would increase the well-being of Chinese citizens, such as more extensive and more secure health care. Allowing the yuan to appreciate would lower the domestic prices of imported goods, and encourage more private consumption through that channel.

But the Chinese leaders are not incompetent or ignorant. They evidently have made the judgment that encouraging the movement of peasants into more productive manufacturing activities will, through higher growth, benefit Chinese citizens much more substantially over time than would a once-off increase in standards of living through cheaper imports—and not incidentally, will provide more support and legitimacy to rule by the Communist Party. This is true despite the challenges created for managing monetary policy in a booming economy, of which they are well aware.

What other losers might there be? Perhaps manufacturing sectors in low-income countries such as Vietnam and Bangladesh, or even middle-income countries such as Mexico. Brazil allegedly complained about China's exchange rate policy at the 2010 G20 meeting in Toronto. These countries have it in their power to overcome any such disadvantage by depreciating their own currencies relative to the yuan, thus lowering their labor costs measured in dollars, albeit at some cost to their standards of living in terms of imported goods. It would be easier for them if China appreciated the yuan. The rich countries of North America and Europe are net beneficiaries of Chinese policies, both through lower prices for labor-intensive goods and through lower long-term interest rates. Few industries in those countries operate in direct competition with China's exports, although that may change over time as China's production moves into more technologically advanced products, as Japan, Korea and Taiwan did earlier. As China follows this path, the wages of its skilled workers will rise. Wages of the country's unskilled workers may also rise, as rural to urban mobility declines and as China permits more aggressive bargaining by workers. China may also resume its policy of gradual currency appreciation; it took a modest step in that direction in spring 2010.

We can engage in a thought experiment: Consolidate the economies of China and the United States (but without allowing labor to move between them). Using IMF projections, they would run a small combined current account deficit in 2010, near balance. China provides goods to the United States and invests in U.S. securities. The exchange rate between the yuan and the dollar is fixed. How does that hurt Americans? True, the Chinese investment in U.S. securities, mainly

treasuries, is largely made by the Chinese government. But one could imagine China removing its capital export controls currently affecting citizens. With their high savings rates, and with financial investment opportunities limited today to savings accounts in Chinese banks or a highly speculative stock market, many Chinese would undoubtedly welcome the opportunity to invest directly in U.S. financial assets (though it would of course take some time to develop the institutional support and information channels necessary to support such investment). Thus, as long as the United States maintains high employment, this looks like a mutually beneficial arrangement. Furthermore, it is not in the interests of Americans to have a major disruption of the Chinese economy, such as a large-step appreciation of the yuan might bring. As productivity rises in China, there will be some real currency appreciation, whether through rising wages or through nominal appreciation of the currency or both.

Another thought experiment is useful: Suppose the euro had not existed during the financial crisis of 2008 and the subsequent recession. Would Europe have found it easier or more difficult to weather these events? Any answer is necessarily conjectural, but I suggest it would have created another financial crisis within Europe. The differential impact on members of the European Union would have ruptured the European Monetary System, as it did in 1992. In the event, the British pound and the Swedish kroner both depreciated against the euro by about 10 percent between 2008 and 2009, even as the euro depreciated against the U.S. dollar. The Swiss franc, in contrast, appreciated against the euro, inducing the Swiss National Bank to intervene substantially in the foreign exchange market to prevent even further appreciation during the first half of 2010. (Switzerland is not a member of the European Union, but enjoys essentially free trade in manufactured goods with the European Union and is closely tied to EU economies, especially Germany.)

Of course, Europe had its own financial crisis in 2010 anyway, originating in Greece. Greece's problems would have been eased by the possibility of depreciating its currency against other European currencies, as Italy and Spain did in 1992. But under those circumstances, the pressures for fiscal consolidation and structural reform would also have been reduced. Membership in the euro area provided a higher degree of discipline for Greece. It remains to be seen how temporary the pain that Greek citizens are being put through will be, and whether they will be better off in the long run.

Fiscal policy

The financial and economic crisis greatly increased public spending and raised public debt for three different reasons: revenues fell (and some expenditures automatically rose) when economic activity slowed or declined; many governments deliberately introduced fiscal stimulus programs—increased expenditures and/or tax reductions—to increase aggregate demand; and at least some countries, including America and Britain, provided substantial fiscal support to troubled financial institutions, to help stabilize financial markets. As a result, public debt by 2015 will everywhere be much higher than it was in 2005. In some cases, most conspicuously Greece, this prospect has raised questions about whether governments will be able to sustain such levels of debt without recourse to financing by central banks, with this tactic's potential for increasing inflation. Several governments have already found they have to pay higher interest rates when selling additional bonds, despite the prevalence during 2010 of low interest rates.

It has been argued by some, therefore, that governments need to act firmly to reduce their budget deficits and their dependence on new debt. Others worry that steps to reduce these deficits in the circumstances of 2010 would run the risk of aborting a discernable but fragile economic recovery, and that a double-dip recession would counterproductively lead to lower rather than higher revenues. Such a possibility is not merely theoretical. It occurred in Japan in 1997, when the government, worried about its large budget deficit, unwisely and counterproductively raised sales taxes and aborted a nascent recovery.

The different judgments on requirements for fiscal policy in the immediate future emerged at a G7 meeting in Toronto in spring 2010, with Europeans espousing the need for fiscal consolidation and the Americans and Japanese expressing concerns about maintaining economic recovery.

This is above all a question of magnitudes and of timing. Continuing recovery from the deep slump of 2009 is highly desirable. But so is reducing the growth in public indebtedness. Indeed, the latter became urgent and the dominant consideration for Greece in 2010, where new debt flotation (including that required to replace maturing bonds) became so difficult that a large package of financial support had to be put together by the International Monetary Fund and the European Union, conditional on firm expenditure reduction and structural reforms by Greece. But it had not yet become urgent for the major countries. The challenge

to policy is to transition smoothly from budgetary stimulus to budgetary consolidation, without aborting the recovery, while making clear that such a transition is ultimately necessary. The rhetoric from governments, playing to different domestic constituencies, may differ from the reality, as some emphasize the second part of this proposition and others the first part.

Table 2 presents estimates by the IMF in its World Economic Outlook of April 2010 for the “structural deficits” of the major rich economies for 2010, along with an estimate of the extent to which aggregate output fell below the productive capacity of each country, both relative to potential GDP. A structural deficit is one which would be present if the country were operating at full capacity, rather than being in an economic slump, as all were in 2009–2010. (The IMF warns of the inexactitude of such estimates, which should be taken as indicative rather than precise.) On these estimates, the shortfall was greatest in Japan, and least in the United States. The IMF then assumes that full recovery takes place in all these countries by 2015, in the sense that by that time they will be producing at or close to their potential. The third column of Table 2 presents the budget deficits that would obtain on this assumption in 2015, and the fourth column the ratio of government debt (net of holdings by governmental institutions) to GDP at the end of that year. Under these assumptions, all G7 countries except Canada would still be running budget deficits, albeit much reduced in the cases of Britain, Germany and the United States.

Governments spend on infrastructure and other capital as well as on current operations and making transfers to firms and individuals. To the extent that such expenditures raise incomes in the future, budget deficits at full capacity may be justifiable. But in general, deficits under such circumstances are undesirable. Indeed, when the economy is fully employed it is often desirable for the government to be running surpluses to extinguish some of the outstanding public debt, thus reducing future requirements for servicing that debt; deficits, on the contrary, lead to increases in outstanding debt. Moreover, since economic slumps are likely to recur from time to time, it is desirable for governments to be comfortably able to run deficits during such periods to help stabilize aggregate demand, production and employment. The larger the outstanding public debt, the less room for maneuver governments will have, as Greece discovered in 2010 when it was required to contract government expenditures even in the midst of a slump. The IMF analysis would lead one to conclude that all major countries (except perhaps China, whose central government deficit was mainly associated with financing big infrastructure

projects) should engage in fiscal consolidation during the coming five years; given the lags, planning for such should start in the near future.

However, the IMF assumes that economic potential is reached by 2015. Implicitly, this also assumes that private demand picks up as government demand, as reflected in the various stimulus programs, declines. Suppose that does not happen. (The American modeling and forecasting firm Global Insight, for instance, projects that U.S. unemployment will still be 6.8 percent in 2015, well above the roughly 5 percent that is widely thought to represent full potential of the U.S. economy.) Suppose, in other words, that with government budgets in balance there will be inadequate demand to assure full employment. Such a concern was prevalent in the United States after World War II. “Secular stagnation” was feared, although in fact it did not materialize. Economists teach that this should not happen, that the long-term interest rate will adjust to assure that all the private savings that firms and households wish to undertake will lead, via the interest rate, to equivalent investment. This proposition, however, is an article of faith rather than an empirical truth. The world had a period of low long-term interest rates during the past decade. We saw that it did indeed stimulate housing investment in many countries (although not in Germany or Japan), but it did not otherwise stimulate private investment. On the contrary, the share of investment in GDP declined during this period in many countries, including in Japan and Germany, and indeed, the corporate sector in many countries became net savers in the years before the 2008 financial crisis, rather than the net investors they had traditionally been. Those observations are not consistent with mainstream economic doctrine.

The possible inadequacy of aggregate demand at the global level is aggravated to the extent that some countries seek export surpluses to compensate for inadequate domestic demand. This observation applies especially to China, Germany and Japan, but also to a host of smaller countries such as the Netherlands, Switzerland, Singapore, Taiwan, Malaysia and others, along with several oil-exporting countries. Such a strategy assumes that demand exceeds output elsewhere in the world. This demand role was played in mid-decade by Central Europe, Spain, Australia, Britain, and above all the United States. It produced much criticism of these “global imbalances,” but no country was willing to take the action necessary to reduce or eliminate them, and it is something that—contrary to the usual assumption—countries in deficit cannot successfully do alone without triggering a world slump. Moreover, for the reasons discussed in the sec-

ond section above, there are valid reasons in a globalized world for large current account imbalances. In any event, the recession significantly reduced the imbalances, as foreign trade fell dramatically (2009 saw the first decline in world trade since the end of World War II, by 23 percent in value and 12 percent in volume). But the imbalances remained large by historical standards, and are forecast to rise with recovery.

There are many unmet needs in poor countries around the world, and it has been suggested that well-targeted investments in Africa would have high rates of return associated with increased GDP (see Sachs 2008; but cf. Easterly 2006). But prospective pensioners in rich countries do not want to invest their savings where returns are risky or, worse, where their investments could be effectively confiscated. As noted above, much private capital flowed to poor countries in mid-decade, and now shows signs of resuming, but this mainly targets emerging markets rather than the poorest countries.

That leaves the task to governments. Official foreign assistance grew rapidly during the past decade, now exceeding \$100 billion a year, but these days it is often in the form of grants or very-low-interest loans, which aggravate budgetary deficits and the outstanding debt problems of the donor countries. A potential solution is for donor governments to offer guarantees to borrowing by the World Bank and the several regional development banks, which in turn would invest these funds in worthwhile projects in poor countries. If the projects are well chosen, and the economies reasonably well managed, the debts acquired by poor countries will be repaid and the guarantees never invoked. But demand will have been created. Thus, lending by international financial institutions (IFIs) should be viewed partly in the context of global aggregate demand, and adjusted accordingly. High-quality securities issued by the World Bank and other IFIs would satisfy the savings requirements of future pensioners.

Suggestions for policy

It is time to pull together suggestions for policy that come out of the foregoing analysis. First, public debt is rising at a great rate in many countries. It is not too early to think about fiscal consolidation, and to take cautious steps to achieve it, but not so vigorously as to abort the fragile recovery of the world economy. The exact pace will vary from country to country, but given the high degree of eco-

conomic interdependence among countries these days, serious action in one country can have profound impacts on its trading partners; a certain degree of collaboration will thus be necessary to avoid a major downturn.

Second, the rich countries can expand their guarantees to the international financial institutions, as has recently been agreed for the World Bank, to put them in a position to expand their lending significantly, especially if the global economic situation as well as the borrowing countries could benefit from it.

Third, the world should begin regular and significant allocations of special drawing rights from the IMF. This would supply reserves to those developing countries which have been running current account surpluses in order to build precautionary reserves against contingencies suggested by the financial crises of the 1990s and more recent events. Allocation of SDRs would supply these nations with reserves, while permitting them to use their saving for domestic investment rather than net foreign investment taking place mainly in safe but low-yield dollar- and euro-denominated assets. Recipient countries' increases in domestic investment would also add to aggregate world demand, at least insofar as the leading central banks (mainly the Federal Reserve and the European Central Bank) determined these effects were not inflationary within their respective areas of operation (see Cooper 2010 for further discussion).

Fourth, and finally, a negative injunction: Governments and international financial institutions should not worry as much as they have (rhetorically) about global imbalances. In a world with a global capital market, current account imbalances are bound to be larger than they have been historically. This reflects a global allocation of world saving and diversification of world investment that, on balance, enhances welfare. Prospective pensioners want to save, and they want their investments to yield more than they can typically get by investment at home, where yields may be low because of the aging of society. In short, the flows of capital which generate the current account imbalances may be desirable, reflecting intertemporal trade, implying that the imbalances do not reflect disequilibria. This may even be true when capital flows are official rather than private. Japanese households are notoriously cautious in their savings behavior (and they are provided tax advantages for investing in the postal savings system); but yields on domestic investments are very low, failing to satisfy the country's need for investments yielding future income in tradable goods as the country ages.

A serious attempt to reduce global imbalances is likely to prolong the world economic slump, or even produce a new one, as the contraction in demand in

countries trying to correct their deficits, especially the United States, is not matched by a corresponding expansion in demand elsewhere.

This discussion deliberately adopts a global perspective. Of course, individual (small) countries may find themselves in a position in which their current account deficits become unsustainable, because for whatever reason they cease to attract the capital inflows necessary to finance it.

Table 1: Current account imbalances (in billion \$)

	2002	2006	2011 ¹
United States	-459	-803	-524
China	35	253	391
Japan	113	170	131
Germany ²	67	273	248
NIAE ³	56	90	128
Russia	29	94	80

Source: IMF, World Economic Outlook, April 2010, Tables A10, B14-15.

Table 2: Output gap, budget deficits and debt (percentage of GDP)

	Output gap	Budget position		Net public debt
	2010	2010	2015	2015
United States	-2.0	-9.2	-6.6	85
Japan	-5.7	-7.5	-7.2	154
Germany	-3.5	-3.8	-1.7	75
France	-3.1	-4.6	-4.3	85
Italy	-3.3	-3.5	-4.6	122
United Kingdom	-5.0	-7.6	-3.8	84
Canada	-3.6	-3.0	0.0	30

Source: IMF, World Economic Outlook, April 2010, Table A8

- 1 IMF projection
- 2 Excluding unilateral transfers
- 3 Newly Industrialized Asian Economies: South Korea, Taiwan, Hong Kong, Singapore

If the world at large continues to fret about “global imbalances,” it needs to start to think seriously about how best to restrict international movements of capital—essentially how best to “deglobalize” the world capital market—since the freedom of capital movements, combined with dramatic demographic changes taking place around the world, necessarily entails large global imbalances.

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Global Rebalancing: An Asian Perspective

*Masahiro Kawai*¹

Introduction

While the need to correct the global payments imbalance has been a key international policy issue since the first half of the 2000s, the reasons for its importance have changed in the wake of the global financial crisis.

In the pre-crisis period, there was a consensus among economists that the global imbalance was a major source of potential global financial instability. They argued that the large and persistent U.S. current account deficits, if left unaddressed, would eventually force a disorderly unwinding of the imbalance, which would result in a loss of confidence in the United States' ability to repay external debt. This in turn would lead to the dollar's collapse, rising U.S. interest rates, plunging U.S. stock prices, and ultimately a deep recession in the United States and global economy. Accordingly, the largest deficit country (i.e., the United States) and surplus countries, particularly those in Asia, were encouraged to reduce their imbalances. China was singled out as the country that should make the foremost effort, partly because of its persistent accumulation of foreign exchange reserves.

The global financial crisis that started in the summer of 2007 and culminated in the fall of 2008 following the Lehman Brothers collapse did not take the form that had been feared, as there was no capital flight from the United States and the value of the dollar remained quite strong. While some argue that the pre-crisis global imbalance was a major cause of the global financial crisis, I do not share this view. But in the post-crisis era, efforts should be made to reduce the global imbalance, as the achievement of a sustained global economic recovery poses a major policy challenge for the global community. Given that advanced economies

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are likely to remain weak or even stagnant for years to come, sustained global economic recovery will require emerging economies, particularly those in Asia, to undergo sustained growth. For Asian economies, stimulating regional and domestic demand is an important priority, as it is unlikely that the United States and Europe will continue to provide the kind of growth stimulus they did in the pre-crisis period.

The question is: What should Asia, particularly China, do to rebalance growth? I argue in this paper that a nominal appreciation of the Chinese yuan is unlikely to be effective in reducing China's trade surplus, unless accompanied by policies addressing the savings and investment imbalance. I further argue that a host of domestic structural reforms would be needed for this purpose.

This paper is organized as follows: In section 2, I review the development of the global imbalance and examine the possible causal link between the global imbalance and the global financial crisis. In section 3, I consider policies that could reduce China's current account surpluses. In section 4, I take up Japan's current account surplus issue and explore the country's policy challenges. In section 5, I discuss the importance of regional policy cooperation in Asia, as this could help Asia achieve a rebalancing of growth.

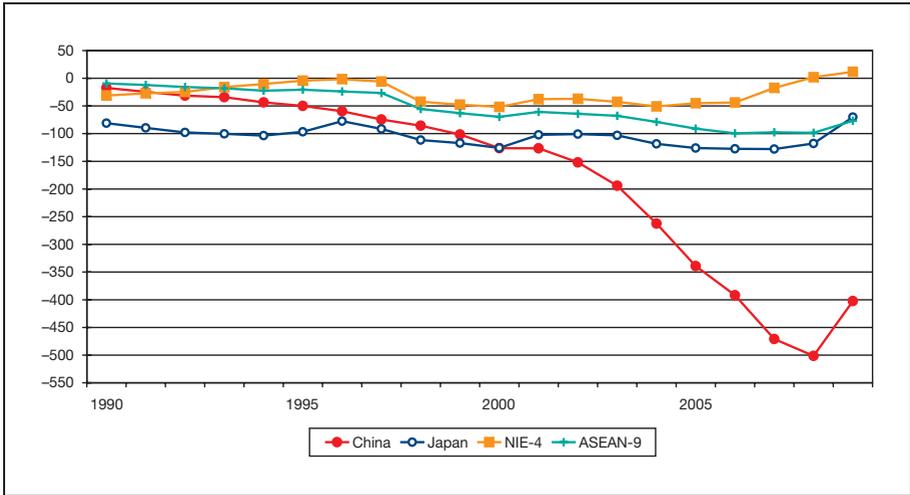
The global imbalance and financial crisis

1. The global payments imbalance

The United States has maintained the world's largest current account deficits for some time, while East Asian economies (Japan, China, the Asian newly industrialized economies, and some Association of Southeast Asian Nations [ASEAN] member countries) have shown large current account surpluses.² In addition, many emerging Asian economies have rapidly accumulated foreign exchange

2 By the mid-2000s, the global payments imbalance was recognized as a major risk to the global economy (see, for example, Blanchard, Giavazzi and Sa 2005; Rajan 2006). The consensus was that the global imbalance was unsustainable in the long-run and if left unaddressed could result in an abrupt and disorderly adjustment of the U.S. dollar. This would be accompanied by a sharp increase in long-term interest rates and sharp declines in stock prices and real estate prices, in turn prompting a severe recession in the United States. These developments would have serious negative effects on the global economy, including many East Asian economies. Both deficit and surplus countries should therefore share the responsibility in ensuring an orderly resolution of this global imbalance. Of course, it was not a collapse of the dollar, but a global financial crisis with roots in the U.S. subprime crisis that unleashed the chaos.

Figure 1: The trade balance of the United States and European Union against Asia (in billion \$)



Note: NIE-4 includes Hong Kong, Korea, Singapore and Taipei, China. ASEAN-9 includes all ASEAN countries except for Singapore

Source: International Monetary Fund, Direction of Trade Statistics, CD-ROM.

reserves. Although the imbalances between the United States and East Asia have begun to shrink as a result of the crisis, it is not clear whether this shrinkage will continue over the long run. In addition, the surpluses of oil-producing countries are likely to rebound once the global economy recovers, as the demand for and price of petroleum will once again begin to rise.

Figure 1 shows that China has become the largest trade surplus country for the United States and the European Union (EU) combined. This is because imports from China into the United States and the European Union have expanded rapidly since 2003, while imports from other Asian economies have not, and U.S. and European exports to China have not risen apace with their imports from China. The growth of U.S. and European trade deficits against China has been associated with the expansion of the global economy in general, and in particular of the U.S. economy since its recovery from the information technology bubble in the early 2000s. These trade deficits with China fell in 2009, but the level of deficit remains high.

However, China's role in U.S. and EU imports should not be deemed solely a result of China's own performance. As relatively advanced East Asian economies (such as Japan, Korea, and Taipei,China)³ are using China as a platform for exporting to the United States and Europe, China's trade surplus with the United States and the EU is also East Asia's collective export behavior. China is at the end of Asia's production and supply chains. It imports capital goods, parts and components, and high-value-added industrial materials from other Asian economies and assembles these to produce finished products, exporting the bulk of them to U.S. and European markets.

2. The imbalance and the crisis: A causal link?

There is debate as to whether the pre-crisis imbalance was a cause of the global financial crisis. Broadly speaking, three factors have been identified as contributors to the crisis: (i) excessively easy monetary policy in countries such as the United States; (ii) regulatory failures, both at the microprudential and macroprudential levels; and (iii) a buildup of the global payments imbalance. The first and second factors, identified by the IMF (2009), emphasize that, in the pre-crisis period, the crisis-origin countries made policy mistakes, in a monetary and/or regulatory policy area.

The third factor is associated with the argument that the global imbalance fostered international capital flows from the surplus countries to deficit countries, which depressed global long-term interest rates, which in turn led to the development of asset price bubbles around the world, most notably in the U.S. and some European housing markets. This reflected the "global savings glut," which was identified by then-Federal Reserve Board Governor Ben Bernanke (2005) as a potential explanation for the "conundrum" previously described by former Fed Chairman Alan Greenspan (2005)—the apparent decoupling of short-term and long-term U.S. interest rates during the period 2002–2005. As East Asian economies provided large amounts of savings for the global capital markets, this view suggests that Asians were at least partially responsible for creating asset price bubbles in the United States, as well as in some European countries where the crisis erupted later.

I believe the validity of this third factor to be very weak. First, the pre-crisis global current account deficit was concentrated in the United States, while, if one

3 Taipei,China is the official ADBI title for Taiwan.

were to regard the euro zone as a single economic unit, there were several surplus countries both in East Asia and among oil producing countries. Given that the United States had a long history of deficits, not all of which were attributable to Asia, it is unlikely that the Asian surpluses served as the catalyst for the crisis in the several years leading up to the collapse. Second, the financial crisis was concentrated in the United States and some European countries, and not all countries with current account deficits experienced asset price bubbles or crises. For example, Australia managed its economy very well through monetary policy when there was an incipient housing price bubble. Canada did not have a large deficit but essentially managed to avoid a financial crisis through strong financial sector regulation and supervision.

It is true that East Asians provided large amounts of savings to the global economy, particularly to the United States through their purchases of U.S. dollar assets for reserve accumulation. But when global financial conditions are changing, it is the responsibility of an individual country's policymakers to maintain that country's macroeconomic and financial stability. Clearly, the United States and some European countries made policy mistakes by allowing housing price bubbles to develop and excessive risk-taking by many financial institutions to go unchecked.

3. Impact on Asia

The global financial crisis did not originate in Asia, and, indeed, the direct damage to the financial sector in Asia was much less than in Europe and the United States. Nevertheless, Asian economies were hit hard by the sharp drop in demand in the advanced Western economies. Most economies in the region showed double-digit declines in exports and industrial production. Taipei, China saw the biggest fall in exports—both December 2008 and January 2009 figures were down more than 40 percent from the previous year—while large export declines were seen in Japan, Korea, Singapore, Indonesia, Thailand, Malaysia and Hong Kong as well. In many cases, the declines were greater than those seen during the bursting of the information technology bubble in 2000–2001. Even countries that fared relatively better experienced large export declines, including China and India.

Along with the drop in exports, industrial production fell in year-on-year terms in almost all Asian economies, with the notable exception of China. Especially large declines were observed, again, in Taipei, China, Japan, Malaysia, Korea and

Singapore. As a result, growth in gross domestic product (GDP) dropped sharply across the region. All major economies in the region—except China, India and Indonesia—showed negative year-on-year growth in 2009.

The substantial negative impact on the Asian economies was attributable in large part to their strong dependence on the U.S. and European demand during the pre-crisis period. In the pre-crisis period, the global economy grew rapidly, and Asian exports to the United States and to European economies rose at a fast pace. Even though intraregional trade between Asian countries was rising as a share of Asia’s total trade, a substantial portion of this intraregional trade was in parts and components, largely from supplier economies such as Japan, Korea and Taipei, China to assembly countries such as China, which in turn exported the final products to the United States or Europe.

Figure 2 shows that, in the pre-crisis period, about two-thirds of Asian trade was composed of finished-product exports to outside the region. Only one-third of Asian trade was within Asia. Thus, Asian trade was heavily dependent on extraregional demand. As long as extraregional demand was strong, Asian countries could continue to export and grow. However, this pattern came to an abrupt halt during the crisis.

Figure 2: Final demand composition of Asia’s exports, 2006

Asia’s total exports = 100 %					
Inside Asia = 51.8 %			Outside Asia = 48.2 %		
<i>of which to</i>			<i>of which to</i>		
Final demand 16.5 %	Production 35.3 %		Final demand 23.2 %	Production 25.0 %	
+	<i>of which to</i>		+	<i>of which to</i>	
	Final demand inside Asia 15.1 %	Final demand outside Asia 20.2 %		Final demand inside Asia 0.9 %	Final demand outside Asia 24.1 %
16.0 %			44.3 %		
=			=		
Total final demand inside Asia 32.5 %			Total final demand outside Asia 67.5 %		

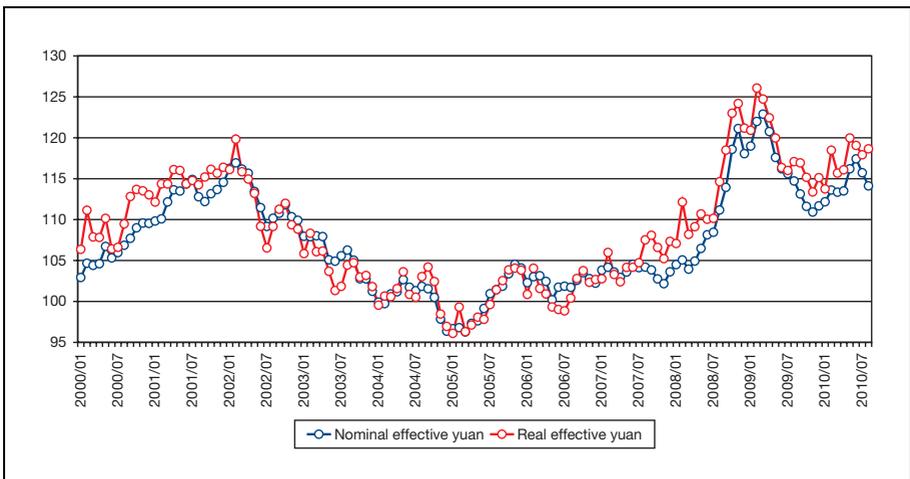
Source: Asian Development Bank.

Reducing China's current account surplus

1. Can yuan appreciation reduce China's trade surplus?

China adopted a *de facto* crawling peg regime in July 2005, and allowed gradual appreciation of the yuan against the U.S. dollar until July 2008. After suspending this policy of gradual appreciation for more than two years, China began to allow slightly greater exchange rate flexibility in June 2010. During the period between July 2005 and July 2008, the yuan appreciated by 27 percent in nominal effective terms and 24 percent in real effective terms (Figure 3). While it is true that the yuan depreciated in 2009, its recent level is still more than 15 percent higher than the 2005 average value. In contrast, the U.S. dollar continued to fall in both nominal and real effective terms from early 2002 until mid-2008. Although the dollar did temporarily appreciate from the second half of 2008 until early 2009, it subsequently began to depreciate again. This trend toward depreciation in the dollar's real effective value should assist the United States in gaining international price competitiveness.

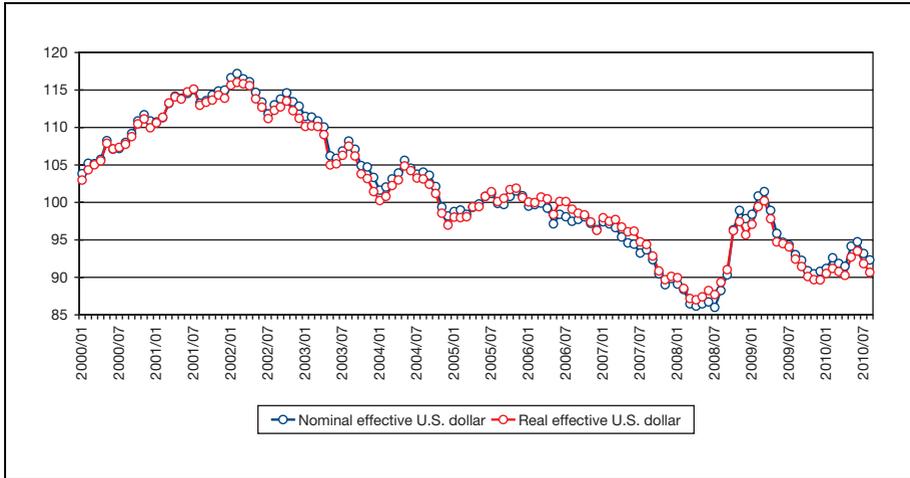
Figure 3a: Nominal and real effective exchange rates of the yuan (2005 = 100)



Note: Real effective exchange rates are consumer price index (CPI)-based, broad indices with 2005 = 100.

Source: Bank of International Settlements.

Figure 3b: Nominal and real effective exchange rates of the U.S. dollar (2005 = 100)



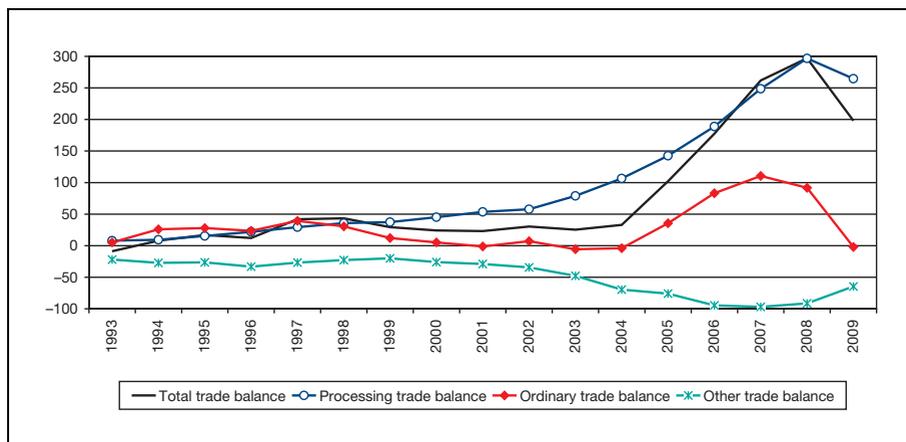
Note: Real effective exchange rates are consumer price index (CPI)-based, broad indices with 2005 = 100.

Source: Bank of International Settlements.

While exchange rate changes are critical in adjusting the trade account (Obstfeld and Rogoff 2005), they are unlikely to be the primary factor in correcting either China’s trade balance or the global imbalance. Essentially, without fundamental changes in savings and investment behavior, exchange rate changes would have a very limited impact on the trade balance. In fact, China’s current account surplus continued to expand during the period 2005–2008, despite the yuan’s real effective appreciation.

China’s large trade surplus primarily reflects the “processing trade” surplus, while the “ordinary trade” surplus is much smaller and is offset by other types of trade (Figure 4). Processing trade is trade in which manufacturers import relatively sophisticated parts, components and other inputs duty free for the sole purpose of exporting, while ordinary trade refers to usual export and import activities without such duty-free arrangements. Appreciation of the Chinese yuan can have only limited impact on the “processing trade” balance, as it would lead both to lower costs for imported inputs and lower prices for exported products—both in yuan terms—and, thus, does not substantially squeeze profit margins for manufacturers engaged in the processing trade. However, if there is a large local

Figure 4: China's trade balance by characteristics (in billion \$)



Source: China Customs Statistics.

value-added component (e.g., wages and values of locally produced inputs) in the production process, yuan appreciation could have some impact on the processing trade balance. Yuan appreciation may have a more pronounced impact on ordinary trade, but its relative share of this surplus is small relative to China's overall trade surplus. Even if a yuan appreciation could reduce the ordinary trade surplus, it would be unlikely to reduce the United States deficit significantly, unless the underlying savings-investment imbalance changes in the United States. Indeed, several experts around the world—including many in the United States—criticize calls for the yuan's appreciation (see Thoma 2006; Cheung, Chinn and Fujii 2009; and McKinnon 2010)

Thorbecke and Smith (2010) and Thorbecke (2010) show that adjustment in the yuan's value alone would have very limited impact on China's trade surplus, but that an across-the-board appreciation by East Asian currencies could have a more substantial impact.⁴ This is because China is a key part of the East Asian production network, importing significant amounts of parts and components pro-

4 Xing (2010) provides another reason why yuan appreciation may not have strong impacts on the trade balance. He finds that the pass-through impact of yuan appreciation on the U.S. import prices is low and concludes that a moderate appreciation of the yuan would have very limited impact on China's exports and would not bring substantial changes to its trade surplus with either the United States or the rest of the world.

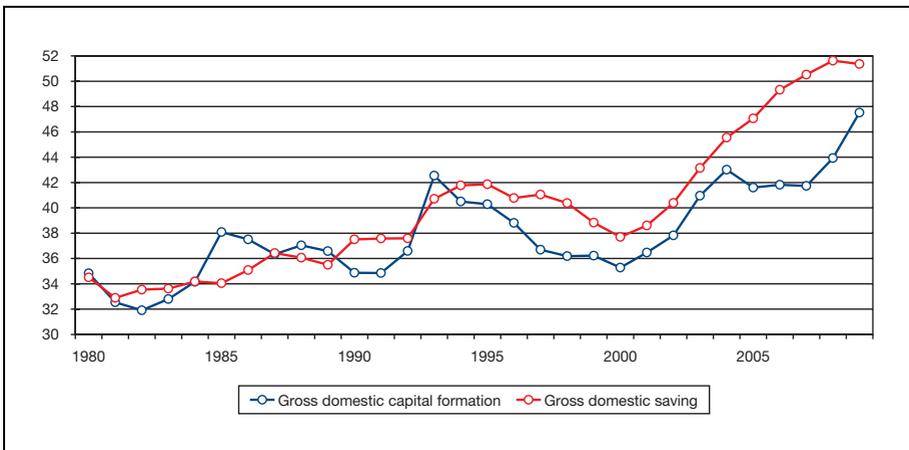
duced in Japan, Korea, Taipei, China and other East Asian supply-chain economies, and exporting finished products to the rest of the world—including the United States and Europe. As a result, exchange rate appreciations on the part of the yuan and other supply-chain currencies would reduce China’s trade surplus more significantly than would simply unilateral appreciation by the yuan.

2. *Savings and investment in China*

Exchange rate changes have a facilitating role in current account adjustment. But to address the imbalance issue, it is necessary to change structural factors that affect a country’s underlying savings and investment behavior, and to consider macroeconomic and structural policies aimed at reducing any domestic savings-investment imbalance. In the case of China, one has to take a closer look at domestic structural factors that have contributed to a widening of the savings-investment imbalance.

As Figure 5 shows, China’s investment-to-GDP ratio was high in 2009, at around 48 percent, while the savings-to-GDP ratio was even higher at close to 52 percent. Clearly, the source of the imbalance was the high savings rate rather than any lack of investment. In fact, the investment rate has been sufficiently—or perhaps excessively—high. So the major focus should be on how savings could be reduced and consumption raised as a percentage of GDP.

Figure 5: China’s savings and investment (percentage of GDP)

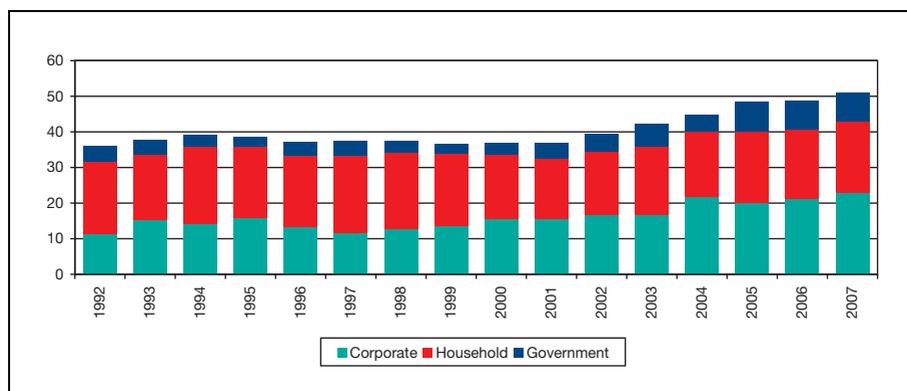


Source: International Monetary Fund, International Financial Statistics, CD-ROM.

Figure 6 shows the composition of savings by sector. There is a clear upward trend in China's corporate saving; it rose from 17 percent of national disposable income (NDI) in 2002 to 23 percent in 2007. On the other hand, the household savings ratio has remained relatively constant at around 20 percent of NDI for many years, but this implies that household savings as a share of household disposable income has risen over time as household income has fallen as a share of national income. Finally, the government savings ratio as a percentage of NDI has only increased modestly since 2003.

A significant part of the high corporate savings rate can be explained by structural factors; while the product markets have been liberalized over time, the factor markets—including those for labor, resources (such as energy), land and credit—have remained highly distorted, making factor prices low. For instance, biased corporate governance, low labor standards, and the underdevelopment of the social protection system have reduced labor's share in total factor income in favor of profits. The cost of capital is low because of the interest subsidy given by the state-owned commercial banks, particularly to state-owned enterprises (SOEs). In addition, the high margins between the loan rates and deposit rates have guaranteed large profits on the part of banks, particularly state-owned commercial banks. The rental price of land is also set low, often at virtually zero; energy prices are kept at low levels; and environmental standards are very lax.

Figure 6: Composition of savings by sector in China
(percentage of national disposable income)



Source: Zhou (2009).

Huang and Tao (2010) have estimated the “producer subsidy equivalent” due to factor market distortions to be about 10 percent of GDP. Thus, the wide gap between product prices (which are determined through market forces) and factor prices (which are set at artificially low levels) has made Chinese producers very competitive internationally and has enabled them to accumulate large amounts of retained earnings or corporate savings.

3. Structural reforms as a solution

What should be done to reduce this corporate saving? Given that about one-half of the corporate saving comes from SOEs, the Chinese government should increase the dividend payments made to the state by SOEs and use the resulting revenues for social spending, including outlays for education, health, housing, and the pension system, among other programs. The increases in dividend payments and social spending will reduce corporate savings and raise government spending levels, thereby contributing to a reduction in the national savings-investment surplus. More fundamentally, overall structural reforms aimed at reducing domestic factor-price distortions, primarily through further liberalization of factor markets, will be necessary for a healthier and more balanced development by the corporate sector and the entire Chinese economy. If corporate savings are reduced and social spending is increased by 5 percent to 10 percent of GDP as a result of these measures, there will be a substantial downward correction in the current account surplus.

Thus, as can be seen, the artificially low yuan exchange rate is only one problem. That is, yuan appreciation—even when combined with appreciations by other supply-chain currencies—cannot solve China’s overall current account surplus problem on a sustained basis unless policymakers address the country’s fundamental structural problem. To address China’s current account surplus and the global imbalance, domestic structural reforms—in labor markets, financial markets, resource markets, corporate governance and social-sector protection—must be given utmost attention rather than focusing solely on raising the value of the yuan. Indeed, over the past year or so, such a change may have already taken place, as evidenced by a decline in the current account surplus.

What facilitates current account adjustment is the real exchange rate. China can choose to allow real yuan appreciation through nominal appreciation or through price inflation. The recent rise in nominal wages, close to 20 percent

year-over-year in major cities, is a welcome trend, in that it raises workers' nominal income and stimulates household consumption. But wage increases will eventually be passed on in the form of price increases unless labor productivity grows at least as rapidly as nominal wages. If consumer price index (CPI) inflation rises to an alarming level, social tension could mount. By allowing nominal yuan appreciation, Chinese policymakers can contain CPI inflation and other risks.

This issue is related to the fact that China maintains both a current account surplus and a capital account surplus, and that this combination leads to massive accumulation of foreign exchange reserves. Even if China could successfully reduce its current account surplus, reserves could continue to grow because of capital inflows, which in turn could create domestic macroeconomic and financial risks such as price inflation and asset price bubbles. Chinese policymakers therefore need to halt reserve accumulation either through nominal currency appreciation or by reducing net capital inflows. The latter could be achieved by substantially liberalizing capital outflows, which might offset large inward capital flows in the form of foreign direct investment (FDI).

Japan's role in global rebalancing

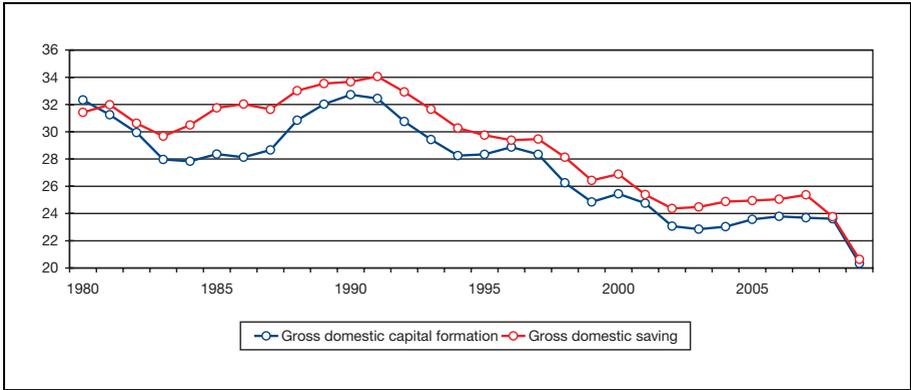
Although Japan has continued to run current account surpluses for decades, its most pressing policy issue today is not a rebalancing of its current account, but rather the need to create foundations for sustained economic growth. Indeed, Japan's economic growth has been stagnant for 20 years, with an average growth rate of just 0.9 percent between 1990 and 2009. Japan has not been able to recover fully from its post-bubble stagnation, and also faces the problems of an aging, shrinking population and expanding fiscal debt.

1. Japan's current account surplus

Figure 7 shows that Japan's savings and investment rates as shares of GDP have been declining over time, although savings have been persistently higher than investment. The aging demographics suggest that household savings will continue to decline, and the stagnant economy will continue to depress investment unless strong economic growth is restored.

In addition, the composition of Japan's current account (Figure 8) shows that the trade balance (sum of goods and services trade balances) has fallen to near

Figure 7: Japan's savings and investment (percentage of GDP)

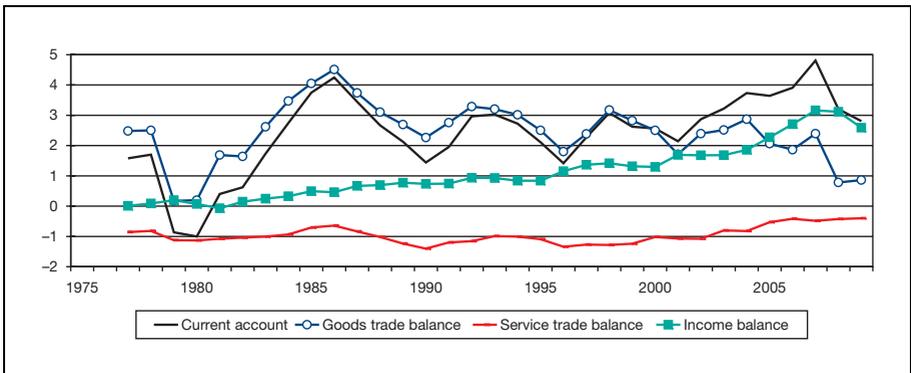


Source: IMF, International Financial Statistics, CD-ROM.

zero, and that the primary contributor to its current account surplus is the income account surplus, which currently stands at 3 percent of GDP. Over time, we can expect the trade balance to turn into a deficit even though Japan may maintain an overall current account surplus for some time. In essence, Japan's current account surplus is not due to a trade surplus; in this sense the need for rebalancing in Japan is quite different from that in China.

Essentially, Japan needs to restore sustained growth and reinvigorate demand. Lacking economic growth, fiscal sustainability may not be restored. Japan's growth

Figure 8: Japan's current account, 1975–2009 (percentage of GDP)



Source: Ministry of Finance, Japan, website.

strategy should address the aging issue and focus on integration with dynamic emerging economies (Kawai and Takagi 2010).

2. Supply-side policies

First and foremost, Japan must improve the productivity of the non-tradable service sector, which accounts for over 70 percent of its economic output. Productivity in the service sector in Japan is known to be low, compared both with that of other advanced countries and with the domestic manufacturing sector. Although slow productivity growth in the service sector is a global phenomenon, and is not specific to Japan, there is much Japan could do to increase productivity in certain segments of this sector and benefit from the subsequent growth. Improving the delivery of health care is one particularly high priority in the country's aging society, especially given the fact that this is a sector whose productivity has lagged significantly behind other parts of Japan's service sector. To improve productivity in health care—including nursing and old-age care and other subsectors important to a relatively older population—government regulations should be eased substantially, allowing flexible labor practices, promoting competition, and facilitating the entry of high productivity firms and the exit of low productivity firms. Education is another high-priority area, as it also helps raise the quality of human capital.

Other areas of focus should be green industries that utilize Japan's advanced technology for energy efficiency, renewable energy sources and environmental improvement technologies. There is a growing global demand for such products and services, through which Japan's comparative advantage can be fully exploited.

The next area to reform is immigration policy. Although the economy has been stagnant in recent years, labor shortages in some sectors—especially nursing and old-age care—are acute. Responding to industry pressure, recent free-trade agreements with Indonesia and the Philippines include a provision to allow a limited number of workers to come to Japan to serve in these sectors. In order to expand the “silver” service sector, it is important to increase the number of foreign workers allowed to work in Japan.

3. Demand-side policies

Private consumption has been stagnant in Japan because the labor income share of national income has declined as the corporate sector has claimed a bigger share, and the uncertainty facing the household sector has likely reduced the

propensity to consume. One way to increase labor income would be to provide better child-care support, enabling mothers of young children to participate more freely in the labor force. Japan's labor force participation by women in general is low, but the number of women who are employed as regular (as opposed to part-time or irregular) workers is astonishingly small. Statistics Bureau data show that in 2008, only 46 percent (or about 10 million) of employed women worked as regular workers (compared with 80 % of men). As the population ages, moreover, it will also be important to increase the supply of old-age nursing care, so that more workers—particularly women—can be freed from the daily duties of caring for their aging parents. Another way to increase labor income would be to encourage old workers to postpone retirement.

Japan ranks low (20th) among the OECD member countries in terms of social spending as a share of GDP. Government spending on family support is even more miniscule. In this context, recent cuts in health care and other social benefits have not been helpful in encouraging household consumption. Though the government now appears to have little fiscal space to expand social spending, revenues need to be raised in order to rebuild social safety nets and restore health to the public pension system, both critical factors if households' propensity to consume is to be increased.

4. Integrating with emerging Asia

An important part of Japan's growth strategy should be to integrate itself with emerging Asia more closely, so the country can enjoy the fruits of the region's economic dynamism.

Emerging Asia is witnessing a rise in the middle class—a group totaling 880 million people in 2008—which is the source of dynamic growth. Establishing closer economic relationships with emerging Asian economies such as China, India and the ASEAN group is critical for Japan. For this purpose, Japan needs to work with China and Korea to establish a trilateral free-trade and investment agreement, and then connect it with the Japan-ASEAN economic partnership agreement (EPA) in order to form an Asia-wide comprehensive economic partnership agreement. ASEAN plays a key role in this integration process through its pursuit of an ASEAN Economic Community (AEC) by 2015. To aid this purpose, Japan needs to support the growth of emerging Asia through various cooperative efforts, which include narrowing the development gap within ASEAN, transferring technology needed for Asia's green growth, strengthening infrastructure connec-

tivity. At the same time, it needs to further liberalize its agricultural sector in order to be able to forge EPAs with Asian neighbors, and open up its labor market to receive greater numbers of nursing and caretaking workers from emerging Asia.

Regional policy cooperation

From an Asia-wide perspective, regional policy cooperation will be quite important in rebalancing growth, as it has the potential to increase Asian demand significantly, even to the point of leading global economic growth (Kawai and Lee 2010).

1. Regional market integration

The creation of an Asia-wide free-trade and investment area would contribute to the goal of rebalancing growth. This initiative would expand markets for Asian firms and consumers, and would create greater trade and investment opportunities within the region. Consolidating the existing Asian “noodle bowl”—an array of overlapping bilateral and plurilateral free-trade agreements (FTA) in the region—into a single agreement is a high priority. If this were accomplished, Asian business firms would benefit substantially from newfound access to larger, integrated markets.

Several free-trade proposals have been made, including the prospect of an East Asia Free Trade Area (EAFTA) among the ASEAN+3 countries (i.e., the 10 ASEAN member countries plus China, Japan and Korea), and a Comprehensive Economic Partnership in East Asia (CEPEA) among the ASEAN+6 countries (i.e., ASEAN+3 as well as Australia, India and New Zealand). To realize such market integration—whether through an EAFTA or a CEPEA—it will be essential to forge a China-Japan-Korea FTA, as this is the region’s missing link. Kawai and Wignaraja (2010) show that creating such a region-wide trade arrangement would increase world and regional income substantially relative to today’s patchy, fragmented trade arrangements.

Deepening and integrating financial markets further would also help support the region’s long-term growth, and would contribute to growth rebalancing. A high degree of integration among Asian financial markets could help recycle Asia’s large savings into regional investment, particularly infrastructure investment. Further development of Asian bond markets—through the Asian Bond

Markets Initiative and Asian Bond Funds—will be the key to accelerating long-term investment financed by domestic currencies. The recent decision by ASEAN+3 finance ministers to establish a credit guarantee and investment facility (CGIF) will be useful in providing credit guarantees for the issuance of local-currency corporate bonds.⁵

2. *Infrastructure development*

The development of national and cross-border infrastructure remains one of the biggest challenges for many emerging and developing economies in Asia. Rapid growth in recent years has put severe pressure on the existing infrastructure, particularly in the areas of transportation, energy and communications. The inadequacies of Asia's infrastructure networks create bottlenecks for trade, growth and economic integration, and represent a threat to competitiveness. Infrastructure development requires a “software” component—policies, regulations, rules and procedures—to allow the “hardware” component work. In many cases, public-private partnerships are essential to attract private-sector funding and management know-how, while mitigating the associated risks. Cross-border infrastructure investment—including the Greater Mekong Subregion (GMS) program—represents the most challenging area because of the involvement of multiple stakeholders.

A 2009 study by the Asian Development Bank (ADB) and its institute (ADB), entitled *Infrastructure for a Seamless Asia*, recommends the creation of a Pan-Asian Infrastructure Forum and an Asian Investment Infrastructure Fund as mechanisms through which infrastructure projects in the region could be prioritized and funded. Those emerging Asian economies in need of infrastructure investment should improve their investment climates in order to attract investment. Efforts need to be made to make transportation and energy investments more environmentally friendly, with a particular focus on mitigating their impacts on climate change.

5 The CGIF will be created as a trust fund of the ADB with a total capital of \$700 million, of which contributions from Japan will be \$200 million, China \$200 million, Korea \$100 million, ASEAN \$70 million and the ADB \$130 million. Credit guarantee risks are therefore shared by ASEAN+3 countries and the ADB.

3. Low-carbon green growth

Asia's strong economic growth over the past two decades has significantly compounded environmental pressures, stretching the environmental carrying capacity of many emerging Asian countries. Curbing carbon emissions and protecting the environment is now an economic imperative for Asia. Low-carbon green growth should be part of a new developmental paradigm for Asia, under which GDP would continue to grow while emissions are reduced, environmental quality is improved and new employment opportunities are generated on a large scale.

To cut emissions, Asian countries can either drastically reduce fossil fuel use or strictly limit energy demand through conservation. Tapping the potential for energy efficiency gains also holds considerable promise for Asia, as this can reduce demand for fossil fuels. Accelerating energy efficiency measures will not only benefit business, but will also increase energy security at the national level. Through corrective policy measures and actions promoting energy efficiency, it will be possible to achieve a meaningful and effective near-term goal of reducing carbon emissions, creating momentum for green growth.

According to the United Nations Environment Programme (UNEP 2009), renewable energy generates more jobs than employment in fossil fuels. Globally projected investments of \$630 billion by 2030 would translate into at least 20 million additional jobs in the renewable energy sectors. From this, we can roughly estimate that Asia would account for a 30 percent to 40 percent share in the global green-job market. A promising means of generating employment opportunities will be through the emergence of firms providing energy-efficient solutions. The growth of energy service activities— notable in China, India, Malaysia, the Philippines and Thailand— can be a catalyst for economic opportunities in the competitive energy markets. The same applies for other green industries and services.

Given the growing scarcity of energy and natural resources, energy efficiency will become increasingly important in the production of all industrial goods and services. Asia's future competitiveness at the international level will not just be on the basis of novelty, price, quality or design, but also on the standard of eco-efficiency. As a result, the future performance of Asian industry will to a large extent depend on its ability to integrate the guiding principles of energy efficiency and environmental protection into all sectors and markets. Japan, Korea and Singapore can provide a complementary role for emerging Asia through the transfer of technology, best practices and effective business models.

4. Financial cooperation

The creation of a body providing regional economic surveillance and the formation of a regional reserve pool—through the ASEAN+3 finance ministers' Chiang Mai Initiative (CMI)—represents a potentially powerful mechanism complementing the global role of the International Monetary Fund (IMF). The recent launch of the CMI Multilateralization (CMIM) agreement, with \$120 billion in resources and an agreement to set up a surveillance unit called the ASEAN+3 Macroeconomic Research Office (AMRO), are positive steps toward regional currency and financial stability. Once the AMRO acquires the capacity to conduct effective regional monitoring and to formulate independent conditionality programs associated with crisis lending, the CMIM could be delinked from IMF programs, paving the way for the creation of an Asian monetary fund (AMF).

An AMF could be said to be created in *de facto* terms if the following challenges were met: (i) AMRO surveillance and conditionality formulation capacity were viewed as fully credible; (ii) the size of the facility were expanded, (iii) the facility were fully delinked from IMF programs, and (iv) the facility included not only a crisis-lending mandate but also a precautionary component, such as the IMF's Flexible Credit Line. Such an AMF will be essential in supporting Asia's rebalancing process, as economies in the region would accept smaller current account surpluses—and lower levels of foreign exchange reserves—if an AMF could mitigate financial turbulence and act as a regional lender of last resort. Middle- and low-income ASEAN members, which cannot easily obtain currency swap agreements with the U.S. Federal Reserve, would be the largest beneficiaries of a strong CMIM or an AMF.

Asian economies should also consider setting up an Asian Financial Stability Dialogue—an Asian version of the Financial Stability Board—in order to strengthen cross-border financial supervision and regulation at the regional level. This would help ensure Asia's financial stability by identifying signs of systemic risk, and enable collective action to address them. This forum—ideally created in a way that includes finance ministries, central banks, and financial sector regulators and supervisors—could also serve to promote longer-term financial market development and integration, establish standards for governance and transparency, and improve investor confidence.

5. *Exchange rate policy coordination*

Finally, considering the rising degree of economic interdependence among Asian economies, exchange rate policy coordination is increasingly important. An internally integrated region must pay attention to the maintenance of reasonable intra-regional exchange rate stability. In this context, the region faces a serious policy challenge as it recovers from the impact of the global financial crisis. Once recovery takes hold and monetary policy tightening takes place, one can expect the resumption of large capital inflows to the region. To manage such capital inflows and maintain macroeconomic and financial-sector stability, it will be important to allow sufficient exchange rate flexibility.

A policy of coordinated exchange rate management will be required in order to promote exchange rate flexibility against the U.S. dollar—and possibly the euro—while at the same time avoiding intraregional currency misalignments. The resulting collective currency movement would reduce individual economies' adjustment costs (Kawai 2008). To facilitate such coordination, it would also be useful to introduce an Asian currency unit index as a monitoring device.

Collective currency appreciation can support growth and the rebalancing process, provided key structural reforms are undertaken. Essentially, a collective currency appreciation versus the U.S. dollar would be effective in maintaining relative currency stability within the region, promoting financial and macroeconomic stability, and facilitating growth rebalancing, all while minimizing the loss of price competitiveness for each economy.

Conclusions

Given that the United States and Europe are not likely to be engines of global growth in the near future, Asian economies should create their own growth engines. This is the only way Asia will be able to maintain sustainable growth in the era following the global financial crisis, and will also contribute to the growth of the global economy by absorbing more exports from the rest of the world. To achieve this, Asia needs to transform itself into a large consumer market while maintaining its competitiveness as the world's factory. At the same time, it must rebalance sources of growth away from extraregional demand represented by the United States and the EU, and toward regional demand. Asian firms can target the rising middle-class in emerging Asia—China, India, and the ASEAN countries—which will ultimately

become an important source of consumption demand. China's role will be critical in Asia's rebalancing of growth, as it maintains the world's largest trade surplus. Its current account rebalancing will require structural reforms in labor markets, financial markets, corporate governance and social sector protection policies.

Japan's challenge is focused less on reducing current account surpluses than on revitalizing its economy in the context of changing demographics (i.e., an aging population and low fertility rates), persistent deflation and mounting public debt. Japan needs a sustainable growth strategy that would implement both supply-side and demand-side reforms and open its economy while linking it with dynamic emerging Asia.

Closer regional policy coordination is essential for Asia as a whole as a means of creating regional demand. This must include the creation of a large, integrated market in Asia to stimulate regional demand; the stimulation of infrastructure investment in countries where such investment is most needed; promotion of services and green industries which have less immediate relevance in terms of exports to the United States and Europe; provision of regional financial safeguards through CMIM and a future Asian monetary fund; and collective exchange rate appreciation. On the last point, focusing on the yuan exchange rate alone is not the right approach if the goal is to induce a rebalancing of China's trade. A joint Asian exchange rate management policy is critical for this purpose, and will be even more important to the broader preservation of macroeconomic and financial system stability.

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Global Economic Imbalance, the Financial Crisis and International Monetary System Reform

Yongjun Zhang

The 2008 financial crisis had tremendous impact across the globe: The world economy contracted for the first time since World War II, while major developed countries experienced the longest-lasting recession in the post-war period (Yahoo 2010; BCDC 2010). Since the crisis, governments and experts around the world have sought to analyze its origins, focusing particularly on three major questions: Was global economic imbalance the primary reason for the crisis? What are the main deficiencies of the international monetary system? In what ways can reform be conducted? Research into these issues will be significant in seeking a way to prevent such a crisis from taking place again.

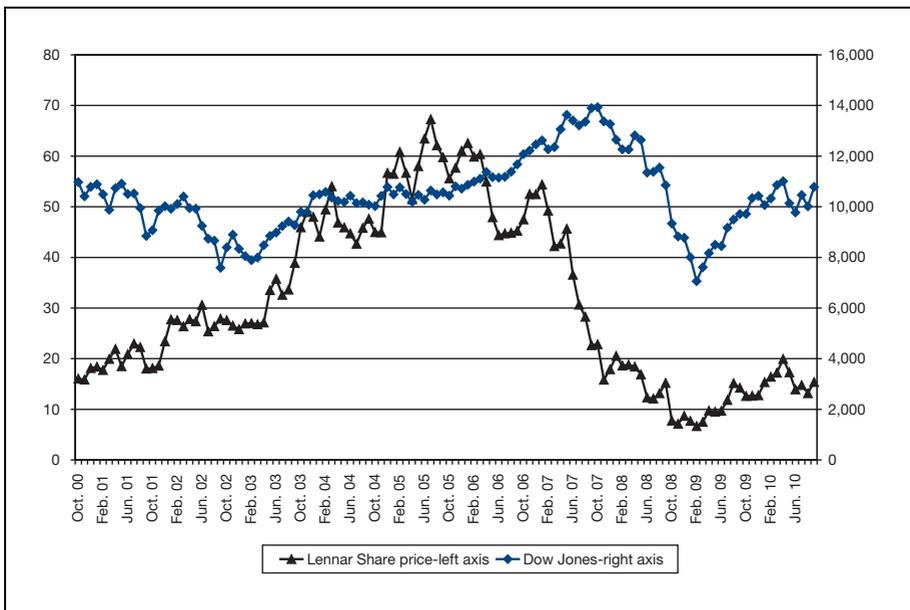
Collapse of the U.S. housing bubble as the direct cause of the crisis

The crisis was directly triggered by massive amounts of defaults in the U.S. subprime mortgage market. However, excess supply in regional housing markets represents the real structural problem behind this event. The widespread issuance of subprime mortgage contracts revealed the fact that the purchase of a house was beyond the means of many U.S. families, given their income and credit status. Despite this fact, many banks loosened mortgage criteria in order to promote housing sales. Before the crisis, excess supply in the U.S. housing market became a salient issue. According to statistics from the U.S. Census Bureau, during the period from 2002 to 2006, when issuance of subprime mortgages grew rapidly, the ratio of house ownership by residents in the United States increased as well. However, this period also witnessed a remarkable increase in housing vacancies, from 14.5 million vacant homes at the end of 2002 to 16.7 million vacant homes at the end of 2006, an increase of 15 percent. This increase in housing vacancies varies significantly among different regions. During the same period, the volume of vacant homes in the western region increased by

29 percent, much faster than in other regions. Therefore, excess supply in some U.S. regions is an important cause of the subprime mortgage crisis.¹

Once U.S. financial institutions began sensing the presence of excess supply in the U.S. housing market, the first impact was felt in the securities market. For example, the share price of Lennar—the largest U.S. real estate company—more than tripled from the end of November 2001 (the trough of the business cycle as confirmed by NBER) to its peak in July 2005, outperforming the market as represented by the 8 percent increase in the Dow Jones index in that period. However, Lennar’s share price began to fall in mid-2005 and dropped dramatically in the first half of 2006 as housing prices continued to climb. From July 2005 to February 2009, Lennar’s share price dropped by 90 percent, a much greater decline than the Dow Jones index’s 33.6 percent fall in the same period (Yahoo Finance 2010).

Figure 1: Price comparison between Lennar Share and Dow Jones Industrial Average



1 The calculation is based on data from the Bureau of Census of the U.S. Department of Commerce. The Bureau of Census divides the U.S. territory into four regions when conducting housing surveys, i.e. the Northeast, the Midwest, the South and the West.

However, financial institutions were much more deeply affected by the decline in housing prices due to excess supply. The S&P Case-Shiller Home Price Indices, which reflect housing prices in 20 major U.S. cities, decreased by about 20 percent from their peak in June 2006 to August 2008, before the collapse of Lehman Brothers. Using for the sake of calculation the assumption that an average U.S. house costs \$300,000, the overall value of vacant houses alone fell by \$1 trillion from the end of June 2006 to August 2008. If newly built vacant houses were to be included in this calculation, the losses attributable to the housing price decline would be even worse.

In June 2006, housing prices stopped their continuous upward trend and started instead to fall, leading to an increase in mortgage defaults. As a result, the share of non-performing loans held by certain financial institutions issuing collateral mortgages rose. The negative impacts quickly spread to financial institutions involved in mortgage-related securities products, gradually enlarging the credit default risk caused by excess supply in regional housing markets. As the funding mechanisms utilized by certain financial institutions weakened or collapsed, the risk was deepened and expanded. Ultimately, the global financial crisis was the result.

The initial influence of the subprime crisis was insufficient in itself to cause an economic recession. However, the subprime crisis' tremendous negative impact on the financial system did in fact lead to global recession. The following statistics highlight the relationship between the subprime crisis and the economic downturn. According to the NBER Business Cycle Dating Committee, the peak in economic activity was in December 2007, after which the economy started to shrink (BCDC 2010). According to the U.S. Bureau of Economic Analysis, GDP in the first quarter of 2008 dropped 0.8 percent compared to the previous quarter. According to data released by the Federal Reserve Board, the credit situation faced by U.S. financial institutions worsened noticeably after the final 10-day period of December 2007. Reserve levels in deposit-taking financial institutions fell sharply. After January 2008, reserves in depository institutions were largely borrowed from institutions such the Federal Reserve. The reserve balance in depository institutions turned negative, illustrating that many financial institutions were in a dangerous situation (U.S. Federal Reserve 2010).

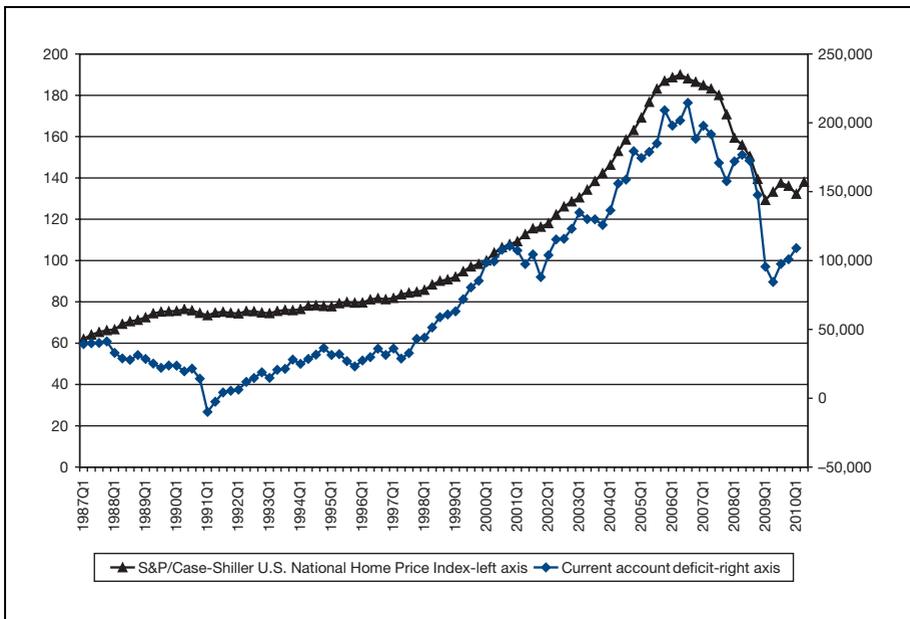
Given the above, we can conclude that the global financial crisis was triggered by the huge losses in the U.S. subprime mortgage market, which was directly related to the formation and bursting of the U.S. real estate bubble.

The failure of balancing mechanisms as a key source of the financial crisis

The real estate bubble was formed in a context of global economic imbalance, and U.S. housing price trends follow that of the U.S. current account balance (see Figure 2). Thus, efforts to link the global economic imbalance and the real estate bubble, with its subsequent financial crisis, should not come as a surprise. Some analysts have even regarded the crisis and global economic imbalance as two sides of the same coin (Bini Smaghi 2008). Therefore, the relationship between the financial crisis and global economic imbalance must be the subject of research.

1. *Global economic imbalances alone cannot explain fluctuations in housing prices*
 In 2005, Ben Bernanke, the current chairman of the U.S. Federal Reserve, drew a link between the rise in the U.S. current account deficit and the outflow of savings from emerging economies (Bernanke 2005). He argued that the outflow of savings from emerging economies expanded the scope of U.S. foreign loans, and

Figure 2: U.S. house price and current account balance (in \$)

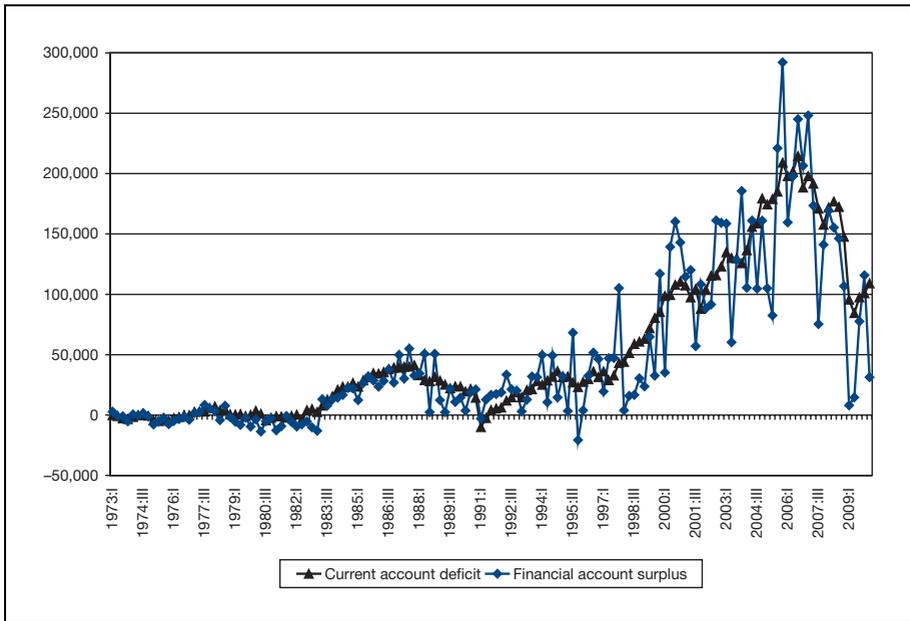


increased the U.S. current account deficit. Alan Greenspan, the former Federal Reserve chairman, believed that the U.S. current account deficit was offset by a large capital inflow (Greenspan 2005). This capital inflow acted to lower short-term interest rates in the United States, and led to the continuous rise in asset prices. Maurice Obstfeld and Kenneth Rogoff (2009) further verified the inverse relationship between the level of current account balance as a percentage of GDP and the growth rate in real estate prices. The above-cited literature seemingly proves the causality relationship between current account deficits and the rise in real estate price. However, the empirical analysis conducted in the literature, especially as illustrated in the relevant graphs, suggests that, at least in the countries selected by Maurice Obstfeld and Kenneth Rogoff, current account deficits and real estate prices are in fact only weakly correlated.

In fact, this logical analysis and subsequent conclusion cannot explain the following phenomena: 1) the rise in real estate prices, even to the point of a housing bubble, which has taken place in countries where trade surpluses were rising as a percentage of GDP, such as Japan and China; and 2) the fact that real estate prices did not rise in countries such as Germany, which showed a long-term current account surplus. Even in the United States, the current account deficit as a percentage of GDP continuously contracted between 1987 and 1990. According to the model outlined by Maurice Obstfeld and Kenneth Rogoff, U.S. real estate prices should have fallen. However, from 1987 to the middle of 1990, house prices continued to rise. Only a slight drop occurred between the second half of 1990 and the first quarter of 1991. Afterward, house prices continued their rise. Therefore, the argument that current account imbalances were the real cause of housing price increases, and as a result the crisis itself, still needs to be verified. Moreover, the above viewpoints are biased, as they focus on the influence of capital inflows on U.S. real estate prices, but ignore the benefits of capital inflows in helping the United States maintain its balance of international payments, and in particular the inflows' role in stabilizing U.S. capital markets.

Not all economists have regarded the global economic imbalance as the major cause of the financial crisis. Richard Cooper (2005) argued that the U.S. current account deficit was not a serious problem as long as U.S. assets were still attractive to foreign investors, because current account deficits could be offset by capital inflows. As long as that remained the case, financial and economic stability could be maintained even given the presence of the U.S. current account deficit (Cooper 2005). Ricardo J. Caballero, Emmanuel Farhi and Pierre-Olivier

Figure 3: Variation in the U.S. current account and financial account balances (in million \$, quarters seasonally adjusted)



Gourinchas (2006) created an equilibrium model which concluded that the United States could attract capital inflows sufficient to avoid significant economic fluctuations as long as: 1) the United States and the United Kingdom maintained faster growth rates than those of the euro zone and Japan; 2) other countries, especially emerging economies, continued growing rapidly; and 3) the United States maintained its relative lead in terms of financial instrument innovation (Caballero et al 2006). Richard Cooper (2010) also pointed out that, according to the current relative share of each country in the world economy, the amount of capital inflow that the United States could attract was in fact larger than the actual amount seen. From that perspective, the economic imbalance was acceptable and thus not the primary cause of the financial crisis.

2. The mismatch between capital and trade flows as a determining factor

In today's parlance, global economic imbalance usually refers to the current account imbalance maintained by the United States, the largest economy in the

world. However, by attracting capital inflow to realize a capital account surplus, the United States has been able to maintain balance between goods (services) and capital flow. Factors influencing the flows of goods and services are different from those influencing capital flows. Any given factor will provoke a different response from trade flows and capital flows, both in terms of time and degree. Therefore, the balance between trade and capital flows will be inevitably be broken in certain periods. When the imbalance is large, the global economy as a whole will be affected. In severe situations, it will lead to financial crisis. Following the collapse of the Bretton Woods system, financial crises in Mexico, Southeast Asia and other regions have all been closely related to current account deficits, capital inflow declines and even net capital outflow.

Since the United States' adoption of a floating exchange rate, each U.S. economic downturn has been more or less related to a decrease in capital inflows and a subsequent failure to offset the current account deficit. For example, before the economic recession in the third quarter of 1990, U.S. capital inflow failed to offset the current account deficit for six consecutive quarters. In the recent global financial crisis, the rises and declines in housing price both before and after the crisis were closely related to international capital inflows. After the second quarter of 2007, international capital inflows failed to offset the U.S. current account deficit until the third quarter of 2009. During this period, U.S. house prices dropped sharply. This situation seemingly supports Richard Cooper's opinion (Cooper 2005).

Even during the recent financial crisis, the U.S. economy was affected by the decrease in the volume of capital inflows. The scale of corporate bond issuance and stock financing was reduced, which adversely affected corporate investment. This was one of the most important factors in the significant decrease in private investment in the United States during the crisis. The average monthly volume of new securities issued by American corporations, with maturity of longer than one year, totaled \$218.28 billion in 2006, \$199.08 billion in 2007, and was \$122.06 billion in the first half of 2008, representing a 38.7 percent decrease over that in 2007. This monthly financing volume then slipped sharply in the second half of 2008. In July and August 2008, the figure dropped to \$48.09 billion and \$42.7 billion respectively, a more than 50 percent decline over the average monthly volume in the first half of the year. This variation in corporate financing shifted in sync with the changes in capital inflow. In the second quarter of 2008, corporate financial constraints not only affected industrial investment in areas

such as real estate, but also influenced corporate equipment investment. Corporate equipment investment had shown positive growth before the crisis, but declined sharply beginning in the third quarter of 2008. In addition, private investment also declined sharply. Negative influence on economic growth was substantial, leading the U.S. economy into a significant recession (U.S. Federal Reserve 2010).

This look at trade and capital balances can explain more than simply variations in asset prices. Examining both allows us to show that variations in the scale of capital and trade flows, as well as simple mismatches, were important contributors to the onset of crisis. Combining the scale of variations and imbalances in the flows themselves allows us to predict trends in the U.S. economy and asset prices more accurately. After the U.S. adoption of the floating exchange rate in 1973, there were several instances in which the capital inflow could not offset the current account deficit, but in which asset prices nevertheless rose, as was the case from the third quarter of 2004 to the second quarter of 2005. Because the U.S. economy remained in a period of strong growth, asset prices climbed despite the lack of balance. The absolute volumes of capital and trade flows both expanded substantially during this period, but their sizes as a proportion of GDP actually went down.

As contrast, international capital flow could not offset the U.S. current account deficit from the second quarter of 2007 to the third quarter of 2009. During this time, capital and trade flows both contracted in absolute size. Capital flow as a percentage of GDP demonstrated an upward trend before the second quarter of 2007, and topped at 36.8 percent in the quarter. In the third quarter of 2007, the percentage dropped dramatically to 13.3 percent. In the following two quarters, the percentage rebounded. However, in the second quarter of 2008, capital inflows fell sharply, from 17.4 percent of GDP in the first quarter of 2008 to 4.4 percent in the second quarter that year. This percentage remained at a relatively lower level until the second quarter of 2009, during which period U.S. housing prices dropped substantially.²

Given the above analysis, to avoid large asset price fluctuations and economic recession, global economic imbalance should be managed from the beginning. Vast but disorderly capital flow should also be avoided, as it can lead

2 Calculation based on the data of the Bureau of Economic Analysis of U.S. Department of Commerce.

to substantial capital flows in and out of certain countries or regions in a short period of time.

The U.S. dollar's role as an international reserve currency: the origin of global economic imbalances

Global economic imbalance is mainly reflected in the perpetual U.S. current account deficit, and a corresponding surplus in other countries and regions. The origin of the U.S. current account deficit can be found in the U.S. dollar's role as an international currency.

1. The U.S. dollar's international monetary status creates a persistent deficit in the U.S. current account

Derived from the Bretton Woods system, the current international monetary system formed gradually after Bretton Woods' collapse. The basic framework is characterized by the U.S. dollar as the most important international reserve currency. The dollar plays a leading role in trade pricing and settlement. Other currencies from other countries or regions float against or peg to the dollar. Correspondingly, the United States enjoys incomparable privilege in the IMF and the World Bank.

Under the current international monetary system, American enterprises and residents can pay in their own currency when importing goods from or investing in other countries. However, other countries must acquire dollar-denominated assets by exporting goods, receiving investment or obtaining loans. This allows them to import goods or repay their debts. Therefore, to ensure a supply of dollars, it is necessary for the United States to remain continuously in a state of trade deficit. In terms of balance of payment mechanisms, the country issuing the main international currency can supply the world with liquidity only if this country runs a trade deficit.³ Only thus can the dollar fully play its role in trade pricing and settlement, and act as reserve currency in international trade. Indeed, given the dollar's role as the main international reserve currency, other countries

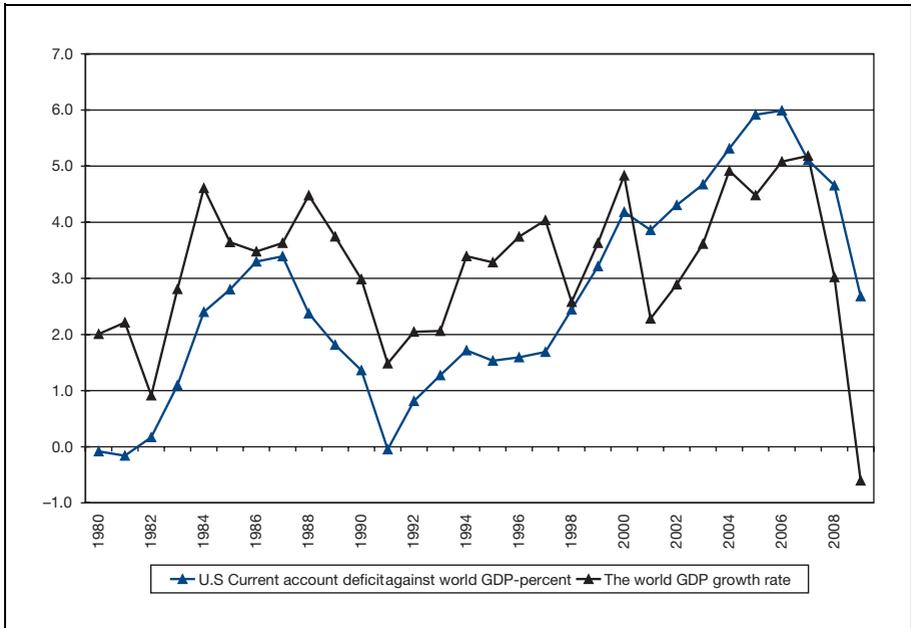
3 The fact that the U.S. dollar plays a dual role as a national and an international currency leads to the "Triffin Dilemma," in which a country issuing the international currency cannot provide sufficient liquidity for the global economy without eroding the value of its own currency (Triffin 1960; Campanella 2009).

are willing to purchase dollar assets, such as bonds issued by the U.S. government. The United States can thus attract a large amount of capital inflow.

The U.S. dollar is the most important international reserve currency. As the growth of a country's currency supply has a large impact on its GDP growth, the supply of dollars has significant influence on world economic growth. Because dollar supply is closely related to the U.S. current account deficit, we can analyze the relationship between the U.S. current account deficit (as a percentage of world GDP) and the growth of world GDP, finding that the two variables are highly positively correlated (Li 2009). This shows the role of the U.S. current account deficit in influencing international currency supply and the growth of the world economy, as illustrated in Figure 4.

Within the framework of the balance of payment mechanism, the status of the U.S. dollar as the key international reserve currency insures that the U.S. is inevitably a major debtor nation in terms of the global economic imbalance. Patterns

Figure 4: The relationship between the U.S. current account deficit as a percentage of world GDP and world GDP growth



of world economic development have demonstrated this point. The U.S. current account in the 1980s corresponded with a trade surplus in Japan and other countries. In the new century, it corresponds with surplus in China and other countries. Overall, the United States has remained on the side of deficit.

2. International reserve proportions show the relationship between the dollar's international status and the U.S. current account deficit

Variations in the share of international reserves held in dollars also demonstrate that the U.S. current account deficit is linked to the dollar's status as primary international reserve currency. According to a report from the Bank for International Settlements (BIS), the share of dollars in official international reserves was about 65 percent in 1985, but dropped to less than 50 percent in 1990. Accordingly, the situation of the U.S. current account improved notably, as the current account deficit as a share of U.S. GDP was as high as about 3 percent in the period of 1985–1987, and even reached a tiny surplus in 1990. Then, amid the recovery of the dollar's share as a proportion of international reserves, U.S. current account deficits as a percentage of GDP rose again to a higher level (Wooldridge 2006).

Some scholars disagree with the above opinion. Edwin M. Truman believes that from the launch of the euro in 1999 to the first quarter of 2010, the aggregate current accounts of the euro zone, Japan and Switzerland remained in surplus. However, the amount of euro, Japanese yen and Swiss franc used as foreign reserves has increased by the equivalent of \$1.7 trillion. This demonstrates that currency outflow does not necessarily lead to current account deficit (Truman 2010). As to this point, we note that investment outflow is one important medium for capital outflow. Trade surpluses in these countries or economic regions are maintained in two ways, either through an increase in their foreign reserves, or an increase in overseas investment. This investment moves the country's home currency outside its borders, where it takes on the role of foreign exchange for other countries. Some of this foreign exchange is used as foreign reserves. Take Japan as an example. From 1998 to 2008, Japan accumulated a trade surplus of \$148.4 billion (nb: Data on Japan's international payment balances from 2009 to the first quarter of 2010 is presently unavailable). In the same period, Japan's foreign reserves increased by \$71.0 billion. The country's capital and finance account balance was \$79.6 billion. In the capital and finance account, the volume of out-bound foreign investments increased by \$52.8 billion, while securities invest-

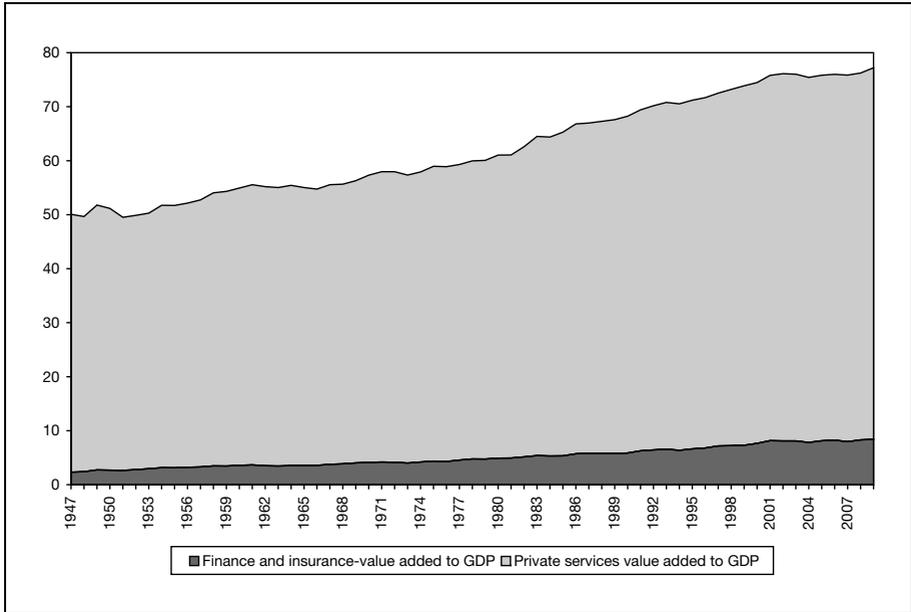
ments increased by \$100.7 billion. Because Japan's foreign securities investment activity is focused mainly on the United States, while foreign direct investment goes primarily to developing countries, the increased volume in outbound direct investment closely matched the increased volume of Japanese yen held in other nations' foreign reserves stocks—about \$51.9 billion. This shows that outbound foreign investment is the primary channel for Japanese yen outflows. It also shows that trade surpluses do not preclude an outflow of domestic currency. Because the shares of the euro, the yen and the Swiss franc in foreign exchange reserves are much smaller than that of the dollar, representing only a very small proportion of their respective countries' GDPs, these economies can supply currency to other countries only by means of overseas investment, as was the case for the United States and the dollar in the 1960s. However, if these currencies were to take on the prominence of the dollar as components of international reserves, their respective home economies would also fall into current account deficits.

3. Large-scale capital markets and accelerating globalization are required to compensate for trade deficits with capital inflow

The United States supplies dollars to other countries as a result of its trade deficits, and attracts surplus capital inflow from other countries. This establishes a fragile balance, keeping the international payments imbalance within a certain range. To maintain this fragile balance, the United States has to maintain a large-scale capital market. Only through the presence of this large-scale capital market can capital inflows be attracted to the United States in sufficient quantities. In addition, only through this large-scale capital market can the United States conduct outward investment that yields capital gains at a rate beyond the average rate of return, enabling it to maintain this international payments imbalance while running large deficits.

The development of the U.S. financial sector has basically taken place in accordance with the above analysis. While the Bretton Woods System was operative, from 1947 to 1973, the total value added by the U.S. financial sector as a share of U.S. GDP rose from 2.4 percent to 4.0 percent, an increase of just 1.6 percentage points in 26 years. But between 1973 and 2006, respectively the years when the floating exchange rate regime was put into effect and when the subprime crisis broke out, this share rose from 4.2 percent to 8.3 percent, an increase of 4.1 percent in 33 years—a remarkable growth rate (BEA 2010).

Figure 5: Value added in the U.S. financial sector as a percentage of U.S. GDP



The operation of the U.S. capital market requires the presence of corresponding capital markets in other countries, as well as a global capital market, through which capital can continuously flow into the United States. However, currency supply is also needed for trade in the global capital market. This means that both the goods trade and trade in the capital market demand currency, thus increasing the overall demand for U.S. dollars and requiring substantial dollar outflows. This translates into yet more pressure on the U.S. current account deficit.

The above conclusion is similar to the research results obtained by some scholars. Enrique G. Mendoza, Vincenzo Quadrini and Jose-Victor Rios-Rull (2007) found that the global economic imbalance was closely related to variances in financial system development among various countries. Countries with advanced financial markets were able to accumulate foreign borrowing during the process of global financial integration. The U.S. financial market is the most developed in the world. Since the mid-1980s, the United States has experienced a dramatic increase in gross foreign borrowing. This period also witnessed substantial, relatively fast international capital market liberalization and global finan-

cial integration. The outstanding value of international bonds issued by countries around the world increased by 18.9 times between 1989 and March of 2010, during which the outstanding value of domestic bonds increased by just 3.6 times. This figure reveals the increasing level of internationalization. Meanwhile, the U.S. and European bond markets were obviously growing more open to the rest of the world, given the remarkable rise in the share of purchases represented by overseas investors (BIS 2010).

4. The globalization of capital markets has increased volatility in global balances

Current account liberalization introduces much uncertainty and instability. The uncertainty and instability of capital markets make it difficult for a country to formulate macroeconomic policy, increasing the possibility of macroeconomic policy slippage and crisis. Although the governments of various countries have been aware of the influence of asset price fluctuations on the macro economy, and have been exploring ways to take asset prices into account when setting monetary policy, no optimal solution has yet been found (Greenspan 2008). The probability of financial crisis has proved lower under more stable environments, such as the international economy when the Bretton Woods system was still functioning well, or in certain national economies with regulated capital accounts. This demonstrates the influence of capital inflows in triggering financial crisis. Under the current system, a small open economy is more vulnerable to international capital flows. Experiences of international organizations in providing financial crisis relief suggest that each country requires a relatively larger store of foreign reserve than would be the case under a closed system. In addition, regional financial cooperation is needed to cope with dramatic shifts in international capital flows. This creates more demand for the international reserve currency on the part of currency users, thus increasing demand for dollars and exerting yet more pressure on the U.S. current account.

Factors accounting for U.S.-Asian trade imbalances

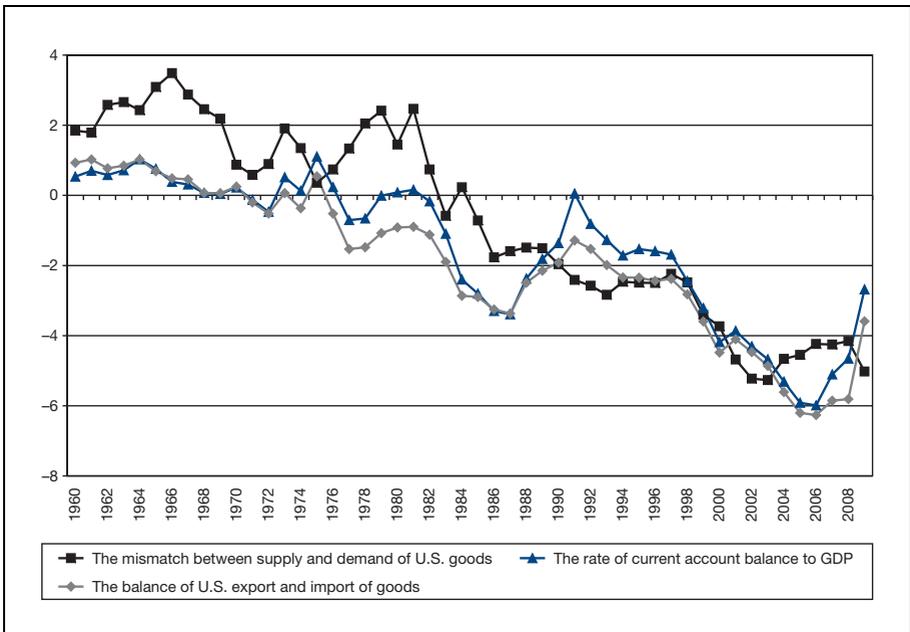
Since the mid-1990s, and in particular since beginning of the new century, U.S. trade deficits have to a large extent corresponded to trade surpluses in East Asia. The reasons for the rapid growth in East Asian trade surpluses can be summarized as follows.

1. Complementary economic structures and trade imbalances

As detailed above, the persistence of vast U.S. current account deficits can be related to the status of the dollar as the primary international reserve currency, as this enables American citizens to consume by borrowing. Therefore, the value of imported goods in the United States exceeds that of exported goods.

Most import demands in the United States are met by the East Asian economies. This is due to complementarities in the supply-and-demand structures of these two regions. Since the mid-1980s, the value of commodities consumed by the U.S. private sector has always been higher than that of commodities produced, with the share of consumption as a percentage of GDP larger than that of commodity production. Thus, this gap must be offset by imports. The trend in the difference between commodity consumption and production has largely accorded with trends in the U.S. current account deficit, both measured as a proportion of

Figure 6: The mismatch between supply and demand of U.S. commodities and the U.S. current account balance (as a share of GDP)



GDP. This difference has even more closely matched the trend of net difference between the value of U.S. merchandise exports and imports, again as a share of GDP. Supply-and-demand structures of certain European countries are similar to that of the United States.

Meanwhile, the economies of various nations and regions in Asia have moved into a stage of fast development. As their production capacities and the international competitiveness of their products have improved, they have won access to U.S. and European markets. Since industrial output in countries such as China, Indonesia and Malaysia exceeds domestic consumption demands, the supply-and-demand structures of these economies complement the inverse structures of the U.S. and European markets.

2. The underdevelopment of East Asian financial markets pushes foreign exchange reserves into the U.S. capital market

East Asian economies (particularly China) with large labor forces have accumulated large volumes of foreign exchange reserves through the processing trade. These foreign exchange reserves naturally require appropriate investment channels. But there is a huge gap between East Asia and the U.S. and some European countries in terms of capital market development. East Asia domestic markets have not provided appropriate investment instruments for foreign exchange, while the United States and European countries offer sophisticated capital markets as investment destinations. According to BIS data, \$25.57 trillion in international bonds were outstanding around the globe by mid-2010. The EU-27 countries had issued 57.2 percent of this total, while the 16 euro zone countries alone accounted for 41.1 percent; American institutions accounted for 24.2 percent, while Asian countries accounted for just 1.7 percent. By the end of March 2010, of \$65.55 trillion in outstanding domestic bonds issued around the globe, American institutions accounted for 38.7 percent, and the EU-27 countries for 22.8 percent, of which the 16 euro zone countries accounted for 17.4 percent. By contrast, domestic bond issuance by Asian countries accounted for 26.7 percent of the total, with Japan alone accounting for 17.9 percent, the largest portion in Asia. We should note that although European domestic bond markets are open to the rest of the world, European bonds are still mostly traded in European countries, and in Japan, the largest bond market in Asia, the bond trade is still restricted within its territory. East Asia's surplus trade balance with the United States renders the dollar's share in foreign exchange reserves proportionately

high. In view of the above facts, the East Asian economies have to choose U.S. bonds as their primary investment target.⁴

This creates a circulation of trade and investment flows between the United States and East Asia, in which American consumers import goods from East Asia, while East Asian economies purchase U.S. bonds. The scale of this exchange has grown over time, which means the U.S. trade deficit with East Asia is growing as well.

Regulating current account imbalances through short-term exchange rate shifts aggravates economic fluctuations

1. The trade balance's response to exchange rate changes is slower than that of capital flows, aggravating imbalances in the short term

Under the current international monetary system, exchange rate variations between different currencies are used as an important method in adjusting trade flows and current account balances. However, there are inherent problems with this mechanism. The time lag between the shift in exchange rates and the desired adjustment in trade balances is relatively long, while the lag between currency re- or devaluation and capital flow response is relatively short. Therefore, adjustment of current account imbalances through a change in exchange rates, particularly by a change in valuation against a key currency, usually has a negative effect on international payments imbalances in the short run. This is because capital flows respond more quickly than current accounts to the change.

As an example, from the first quarter to the third quarter of 2007, the Nominal Broad Dollar Index (U.S. dollar nominal effective exchange rate released by the U.S. Federal reserve) dropped from 107.28 to 102.87. However, the U.S. current account deficit fell relatively slightly, from \$197.84 billion to \$170.94 billion, or from a GDP share of 5.74 percent to 4.83 percent. However, during the same period, the net inflow in the U.S. financial account dropped from \$248.176 billion in the first quarter to \$173.465 billion in the second quarter, and to just \$75.364 billion in the third quarter. Capital inflows fell by \$172.8 billion, a much larger drop than was seen in the trade account. The U.S. balance of international payments

4 Calculation based on the data of the Bureau of Economic Analysis of U.S. Department of Commerce.

deficit increased sharply. As a share of U.S. GDP, capital inflow to the United States dropped from 7.2 percent to 2.1 percent, a decrease of 5.1 percentage points. Such huge variation in the volume of capital flows had substantial impact on the U.S. economy. This is related to the dollar's depreciation against the euro, the yen and other major currencies, and is also related to the decrease in U.S. housing prices starting in the middle of 2006, as well as to growing capital market risk.⁵

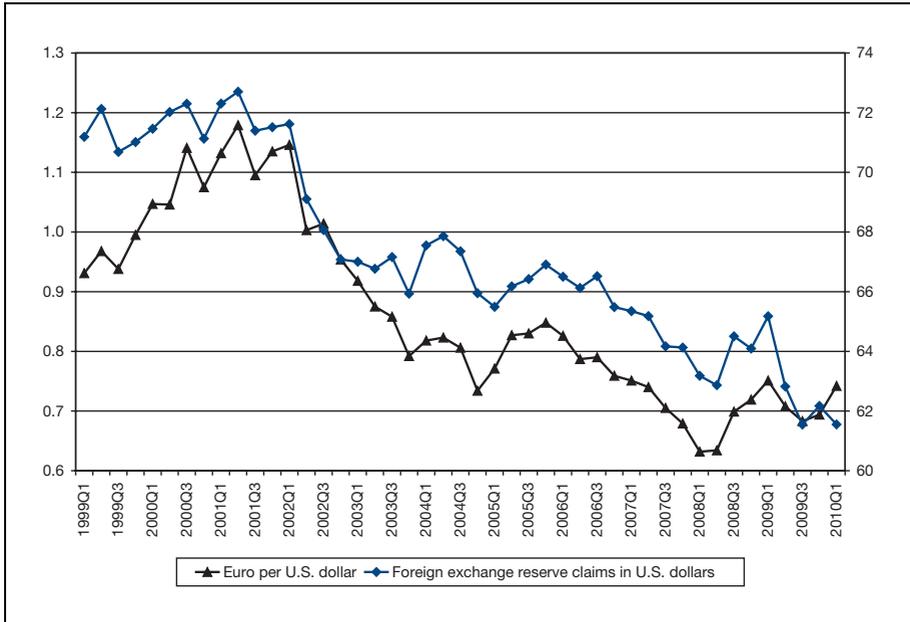
The relatively short lag between exchange rate variations and responses in capital flows can also be confirmed by the relationship between fluctuations in foreign exchange reserves and currency variations against the dollar. According to the IMF, the dollar's share in international currency reserves is normally around 60 percent. However, in the third quarter of 2007, because of the dollar's depreciation against major currencies such as the euro, the British pound and the Japanese yen, the dollar's percentage share in newly increased foreign reserves dropped to less than 40 percent, lower than the euro's relative share (COFER 2010).

As the dollar fluctuates against the euro, the dollar's share in various countries' foreign exchange reserves is adjusted quickly. When the dollar appreciates, the dollar's share rises, while the euro's share decreases. Correspondingly, when the dollar depreciates, the dollar's share in international reserves decreases, while the euro's share rises (as illustrated in Figure 7). Using quarterly data, we can examine the time difference correlation indices between the dollar's share in foreign reserves and the dollar-euro exchange rate; here, we find that the dollar-euro rate moves in sync with the dollar's share in foreign reserves. The shares of the British pound and the Japanese yen in foreign exchange reserves are also strongly positively related to movements in their respective exchange rates against the dollar.

After the adoption of floating exchange rates, international capital flows became much more unstable, and the frequency of financial crises has become even higher. According to historical statistics, the frequency of financial crises increased sharply after the beginning of the floating exchange rate regime. Statistics show us that during the 26 years of the fixed exchange regime, from 1945 to 1971, there were 38 financial crises, while during the 24 years of the floating

5 Calculation based on the data of the Bureau of Economic Analysis of U.S. Department of Commerce.

Figure 7: The relationship between the dollar's share in foreign exchange reserves and variation in the dollar-euro exchange rate



exchange rate regime from 1973 to 1997, there were 139 financial crises. The global economic growth rate decreased as well, from an average of 4.9 percent per year between 1945 and 1973 to an average of 3.0 percent per year after 1973 (Xiang 2010).

2. A substantial renminbi revaluation would increase the risk of global economic fluctuations

Following the onset of the financial crisis, the U.S. government has repeatedly pushed the Chinese government to allow appreciation of the renminbi, with the goal of reducing the U.S. trade deficit with China. In my opinion, renminbi appreciation will not be an effective way to fulfill this U.S. goal. In fact, the renminbi's nominal value against the dollar rose 21.5 percent between July 2005 and July 2008, while the real exchange rate rose 12.6 percent.⁶ But in fact the United

6 The People's Bank of China, BIS effective exchange rate, 201008.

States' trade deficit rose steadily during this period, rather than falling. This cannot be explained simply by appealing to variations in the exchange rate, even if the time lag between exchange rate fluctuations and their reflection in the trade balance is taken into account.

By contrast, following the financial crisis, the renminbi-dollar rate remained relatively stable from July 2008 to June 2010. But declining U.S. domestic demand, combined with continued growth in China's domestic demand (in turn stimulated by domestic macroeconomic policies), has resulted in a significantly lower U.S. trade deficit with China. The above comparison indicates that the Sino-U.S. trade balance is primarily influenced by domestic demand and macroeconomic policies in the two countries, rather than the renminbi-dollar exchange rate. Indeed, exchange rate changes cannot immediately influence the Sino-U.S. trade balance. In the current global economic context, letting the renminbi appreciate by 20 percent, as requested by the United States, would increase the risk of world economic fluctuation and ultimately have a negative impact on the U.S. economy (Bergsten 2010).

Long-term goals and realistic options for international monetary system reform

According to the above analysis, as long as the dollar's role as primary international reserve currency is unchanged, the conflict between its role as domestic currency and international reserve currency will remain. As the development of the global economy proceeds, and volumes of trade and investment increase, the demand for dollars for transaction and reserve purposes will also rise. As a result, the outflow of dollars through the current account deficit will increase, and trade imbalances will be inevitably worsened. In earlier years, when the American economy played a dominant role in the global economy, the pressure on the United States was relatively lower. However, American growth has been slower than that of the global economy in recent years, and America's relative economic power has declined; this has put the dollar under much greater pressure as the primary international reserve currency. The U.S. current account deficit as a proportion of GDP will continue to increase under this situation. Offsetting current account deficits by means of capital inflows will push the ratio of U.S. capital market transactions to commodity transactions even higher. Once this chain sup-

porting the global economy is broken, a financial crisis will break out, as this significant imbalance proves unsustainable. Therefore, international monetary system reform is a necessary, fundamental approach to addressing global economic imbalance.

1. The ideal reform target: establishing a super-sovereign currency

Based on the above analysis, the long-term goal of international monetary reform is to establish a super-sovereign currency. Xiaochuan Zhou, the governor of the People's Bank of China, has noted that an ideal objective of international monetary reform would be the creation of just such an international reserve currency, which would not be associated with any single sovereign country, and would be able to remain stable for long periods of time. This would help avoid the deficiencies inherent in sovereign credit currencies. Zhou also indicated that special drawing rights (SDRs) have the characteristics of and potential for being a super-sovereign reserve currency, an idea which should be promoted further (Zhou 2009).

In my opinion, SDRs do have the advantages noted above. Promoting SDRs in this context would be useful in exploring the establishment of a super-sovereign currency. Under current global economic conditions, it would be feasible to expand the range of SDR application and utilize the functions of SDR in the context of pricing and trade settlement. In improving today's methods of issuing and establishing the value of SDRs, the currencies of emerging economies, including China, should be incorporated within the basket of reference currencies. In addition, the weighting of the component currencies comprising SDRs should be established with reference to the influence of the various economies involved.

2. Realistic reform choice: establish a multicurrency international monetary system

Judging from current conditions, it is not the right time to establish a super-sovereign currency today. A more realistic choice is to establish an international monetary system based on multiple currencies, giving transaction and pricing functions to various currencies in various regions, thus easing pressure on the dollar and mitigating the degree of global economic imbalance.

Today, Europe has already established a regional super-sovereign currency in the form of the euro, which has taken over some role as international reserve currency. However, in Asia—especially in East Asia, which shows the world's most rapid economic and trade growth—regional monetary cooperation is less devel-

oped, although some progress has been made. Moreover, the East Asian trade surplus with the United States is the largest such imbalance in the world, while the U.S. trade deficit with East Asian nations accounts for a large portion of the total adverse U.S. balance. The foreign exchange reserves held by East Asian countries represent a large proportion of global foreign exchange reserves. If a regional currency is established in East Asia that is able to fill the functions of pricing and settlement in the region, a great deal of trade within the region need no longer be settled in dollars, and East Asian economies could reduce their dollar reserve holdings. In this way, pressure on the dollar could be reduced, and the degree of global economic imbalance mitigated.

Moreover, the creation of a regional Asian currency able to serve the functions of valuation and settlement in trade will significantly promote intraregional trade development. This would relieve regional dependence on U.S. and European markets, as well as the trade imbalance with the United States. Let us compare the situation in Europe with those in Asia. According to 2008 WTO data, trade between European countries accounted for 72.8 percent of the region's total volume of foreign trade in 2008, while for Asia in the same period, the corresponding figure was 50.1 percent. Therefore, if intraregional trade volume can be increased in Asia, the region's dependence on the U.S. and European markets as well as the trade imbalance with the United States could be reduced.

To be sure, the process of diversifying reliance on international currencies will require a substantial amount of time, during which international coordination and cooperation will be needed to keep the diversification process proceeding at a proper pace. From a historical perspective, we can see that during the 1970s and 1980s, when the diversification of international currencies developed quickly, there were economic downturns in the United States. The growth rate of the world economy was also affected.

3. The renminbi qualifies as a regional currency in East Asia

Judging from current local economic conditions, it can be concluded that the renminbi has met the basic qualifications for becoming a regional currency. The Chinese economy shows great potential for long-term growth, and the renminbi has the potential for appreciation. The Chinese economy is influential in East Asia. For example, in the two most recent financial crises, it played a critical role in maintaining the stability of the regional Asian economy. At present, volumes of trade between China and other countries and regions in East Asia is large, the

transaction costs will be retrenched with the renminbi playing a pricing and settlement role. Moreover, China shows trade deficits with major trading partners in East Asia, with the renminbi serving as a channel of outflow. Of course, there is still much work to do before the renminbi becomes a true regional currency in East Asia. The renminbi is still not used for capital account transactions, and the Chinese capital market is not yet developed enough to qualify the renminbi as a regional international currency. Some other economic conditions also remain unmet. However, it is time to direct efforts toward that target.

In conclusion, international monetary system reform represents a fundamental means for the prevention of an international financial crisis. Certainly, in seeking to prevent crisis, we should also reinforce international financial regulation so as to ensure stable capital flows, and guard against highly risky investment activities by financial institutions in order to remove as far as possible any peril hidden in the international monetary system.

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Appendix: Balancing Mechanisms in Trade and Payments Balances

Thieß Petersen

The following remarks describe some basic macroeconomic relationships between a country's net economic output, consumption and saving behavior, exports and imports, and the associated payment flows. In addition, several key mechanisms for achieving current account balance are outlined.

Basic macroeconomic relationships

The sum of the goods and services produced by an economy in the course of a year (Y) can either be consumed by private households (C), used for the expansion of productive infrastructure—thus, for investment purposes (I), used by the government (G), or exported overseas (EX). Domestic consumption options are expanded through the import of goods and services from abroad (IM). The following relationships are thus valid:

$$(1) Y + IM = C + I + G + EX \text{ or alternatively } Y - (C + I + G) = (EX - IM)$$

The components C , I and G represent domestic consumption. Thus, the following relationships hold by definition:

$$(2a) Y > (C + I + G) \Rightarrow (EX - IM) > 0$$

$$(2b) Y < (C + I + G) \Rightarrow (EX - IM) < 0$$

In case (2a), the national economy does not consume all goods and services produced domestically. This society lives within its means. Goods that are not consumed are exported abroad. The economy exports more goods and services than it imports, thus showing a trade surplus. Case (2b) appears to be analogous. Here, the economy consumes more goods and services than are domestically produced. This society lives beyond its means, and shows a trade deficit.

Equation (1) can now be expanded to include government revenues (T). To this end, we deduct government revenues from each side of equation (1).

$$(3) Y - T = C + I + G - T + (EX - IM)$$

The quantity $(Y - T)$ represents the economy's disposable income. The portion of this income that is not devoted to consumption expenditure comprises national savings (S). In economic terms—both from a micro- and macroeconomic perspective—savings represent a renunciation of consumption.

$$(4) S = Y - T - C$$

Combining equation (4) and equation (3) yields the following relationship:

$$(5) S = I + (G - T) + (EX - IM)$$

The expression $(G - T)$ describes the balance between government expenditures and revenue. If $(G - T)$ is positive, the state spends more than it takes in, thus it has a deficit. This is the case today in virtually all national economies. Throughout the following discussion, we will therefore assume that conditions of federal budget deficit hold in the economy under consideration. A society's total savings—thus, the total amount of forgone consumption—can be applied domestically toward two ends: the financing of investment, or financing of the government's deficit. If goods and services remain even after investment and government deficit expenditures are made, these can be exported overseas. For equation (5), the following relationships are thus true by definition:

$$(5a) S > I + (G - T) \Rightarrow (EX - IM) > 0$$

$$(5b) S < I + (G - T) \Rightarrow (EX - IM) < 0$$

In case (5a), the quantity of available savings is greater than what is required for investment and to finance government deficits. The society can thus dispose of a portion of its economic output abroad, meaning that it exports more goods than it imports. Again, such a society lives within its means, because more investment or a higher government deficit could be supported with the quantity of savings available. In case (5b), the economy saves too little. Its savings are insufficient to

completely finance domestic investments and the state's budget deficit. This economy thus consumes more goods and services through private consumption, investment and government spending than it has itself produced. The deficiency in resources is made up from abroad.

When an economy generates a trade surplus, it pays out less money in foreign trade than it takes in. The economy's total income is thus not wholly expended, and the overall level of saving is positive. Conversely, a country with a trade deficit must finance this somehow. A country that imports more goods and services than it exports must either secure foreign credit (borrowing) or finance its consumption through the sale of assets (i.e., gold, foreign exchange or stakes in the country's productive capital in the form of shares or direct investment).

A country that maintains an export surplus thus accumulates assets (ΔNFI) relative to the outside world. This can take the form of financial instruments (ΔF) such as shares in companies, debt claims, government bonds or corporate bonds or other such assets, or of currency reserves (ΔR), specifically gold and foreign exchange. Since all foreign assets are denominated in the currencies of their respective foreign nations, their value must be derived by conversion into the holder's home currency, using the exchange rate (e). Conversely, a condition of trade deficit means that a country's total stock of domestically held assets falls—either directly, because financial instruments or currency reserves are sold, or indirectly, because the country's foreign debt rises, and net worth (assets minus liabilities) shrinks.

$$(6) (EX - IM) = \Delta NFI = e \cdot (\Delta F + \Delta R)$$

Finally, trade surpluses and trade deficits also have an effect on the labor market. A country with an export surplus produces more goods and services than it consumes. If the economy produced only those things that it itself required, this would be associated with a relatively lower utilization rate of production factors, including labor. The export surplus therefore has a positive effect on the overall employment level. In the case of an import surplus, however, the employment level is correspondingly lower, which can lead to unemployment. In this sense, a country with a trade surplus exports its unemployment to the country with a trade deficit.

Rebalancing the balance of payments

The previously described relationships are reflected in a country's balance of payments. The balance of payments reflects all economic transactions that take place within a given year between foreign and domestic economic entities. The credit side contains activities for which the home country stands in receipt of payment: thus, the export of goods and services (EX); capital inflows, such as the sale of shares or securities to foreign entities, or the assumption of foreign debt (K^{IM}); and the sale of gold and foreign currency held by central banks, which means official reserve transactions that reduce the quantity of official gold and currency reserves (RT^{De}). The debit side records activities which lead to outgoing payments: the import of goods and services (IM); capital outflows, such as the purchase of foreign shares or securities, or foreign lending (K^{EX}); or the purchase of gold and foreign currency held by foreign central banks, through official reserve transactions that increase the amount of gold and foreign exchange reserves held domestically (RT^{In}). The basic structure of an economy's balance of payments is described in Table 1.

Table 1: Balance of payments structure

Incoming payments (Credit side)	Outgoing payments (Debit side)	
EX	IM	} Trade or current account
K^{IM}	K^{EX}	} Financial account
RT^{De}	RT^{In}	} Reserve account

All transactions are recorded twice in the balance of payments. The export of goods against the grant of a credit is recorded as an export of goods on the credit side, and as an export of capital on the debit side. Aside from statistically unclassifiable transactions, the balance of payments is by definition always balanced.

$$(7) EX + K^{IM} + RT^{De} = IM + K^{EX} + RT^{In}$$

The transformation of equation (7) provides the definitional relationships between the trade or current account balance ($EX - IM$), the financial account balance

$(K^{EX} - K^{IM})$, and the gold and foreign exchange balance $(RT^{De} - RT^{In})$, the reserve account balance, for short. Assuming a reserve account balance of zero, a trade surplus $(EX > IM)$ corresponds to a net outflow of capital $(K^{EX} > K^{IM})$.

$$(8) (EX - IM) = (K^{EX} - K^{IM}) + (RT^{In} - RT^{De})$$

The following macroeconomic relationships can thus be established as an interim conclusion:

- Short-term real economy: A country with a trade or current-account surplus is living within its means. It does not consume all the goods and services domestically produced. The surplus goods and services are disposed of abroad.
- Effect on employment: A country with a trade or current account surplus has a higher employment level than it would without this surplus. The country can reduce its unemployment by means of this trade surplus.
- Financial aspects: A country with a trade or current account surplus accumulates more savings than are necessary to finance domestic investment and its own government deficit. The surplus savings are utilized abroad, in order to finance foreign consumption that extends beyond the foreign nation's own productive capacities, thus leading to an import surplus in that country. This represents a net capital export for the home country.
- Assets: A country with a trade or current account surplus generates more incoming payments than outgoing payments through its foreign trade. This leads to an accumulation of assets relative to external nations. This asset growth is reflected in an increase in the quantity of outstanding claims (loans to foreign companies or countries), in rising gold and foreign exchange reserves, or in a growth of corporate investment abroad (direct investment or share purchases). These asset holdings result in income, such as dividends or the accrual of interest.
- Long-term real economy: Limiting consumption in the present gives a country with a trade or current account surplus claims on consumer goods from abroad. If the surplus-running country seeks to redeem its financial holdings at some point in the future, it receives overseas goods and services in exchange. Because the nation running a present-day trade surplus is living within its means today, it has the option to live beyond its means at some point in the future.

For a country that runs a trade deficit (exporting less than it imports), the opposite is true: The country is living beyond its means in the present day, a condition financed by overseas entities (net capital inflow). The deficit-running country must either borrow abroad or transfer domestic assets (e.g., gold, foreign exchange, corporate equity) to foreign countries. At some point in the future, the deficit-running country must once again export more than it imports, in order to reduce its debt. Living beyond one's means today is thus enabled only by living within one's means in the future.

Index of abbreviations

Y	=	Gross domestic product (i.e., value of all domestically produced goods and services)
C	=	Consumption by private households (i.e., domestic and foreign goods)
I	=	An economy's total private and public investment
G	=	Government expenditure
T	=	Government revenue (e.g., taxes, social security contributions, fees, customs duties, etc.)
EX	=	Export of goods and services abroad
IM	=	Imports of goods and services from abroad
S	=	Total savings, public and private
NFI	=	Domestic asset position, relative to foreign entities
F	=	Financial instruments (e.g., securities, government bonds, corporate bonds, receivables, etc.)
R	=	Currency reserves (i.e., central bank's gold and foreign exchange holdings)
K^{IM}	=	Capital inflows (e.g., sale of shares and securities to foreign entities, or overseas borrowing)
K^{EX}	=	Capital outflows (e.g., purchase of foreign entities' shares and securities, or the extension of foreign loans)
RT^{in}	=	Increase in the central bank's gold and currency reserves, resulting from the purchase of gold and foreign currency held by foreign central banks (official reserve transactions)
RT^{De}	=	Reduction in the central bank's gold and currency reserves, resulting from the sale of gold and foreign currency from the central bank's own stores (official reserve transactions)
e	=	Exchange rate (e.g., price of a foreign currency unit in euros)

Current account imbalances and adjustment mechanisms

Balance in the current account under a floating exchange rate comes primarily through a change in the exchange rate. If a country is running a current account surplus, it means there is high demand for the currency of that country, because exports ultimately must always be paid for in the currency of the country doing the exporting. The producers of export goods must pay their employees' wages, their taxes and other fees, and for most of their intermediate products in their domestic currency. The trade surplus thus causes an appreciation of the domestic currency. This increases the cost of exported goods, leading to a decline in exports. Correspondingly, products produced overseas become cheaper in the home country, resulting in an increase in imports. Both developments tend toward a re-establishment of balance between exports and imports.

If a current account deficit leads to a currency devaluation, with the aim of improving the country's export prospects, the country's demand for imports will decline due to the increased cost of foreign goods. The trade deficit will also fall, thanks to the increasing level of exports and correspondingly decreasing imports. However, currency devaluation by a deficit-running country may complicate its foreign debt positions, particularly if its debt is denominated in its own currency. From the perspective of creditor nations, a devaluation reduces the value of claims against the deficit-running nation. Loans are thus granted only with higher interest rates attached, in order to compensate for the potential loss in asset value associated with devaluation. Alternatively, the country running the trade deficit can borrow in the currency of the creditor countries. However, this would intensify the effects of the deficit-running country's devaluation. This devaluation has as its counterpart an appreciation in the currencies of the creditor countries. From the perspective of the deficit-running country, this increases the amount of its foreign debt, and thus also the amount it must repay in the future. The opportunity cost of foreign debt rises in this way, making overseas borrowing increasingly less attractive, and undermining the ability to finance the trade deficit.

Under fixed exchange rates—or in a monetary union with a single currency, such as the euro—a balanced current account is also to be theoretically expected. Balance comes in this case primarily through price changes. In a surplus country ($EX - IM > 0$), this tends to come in the form of rising prices, which increase the cost of exports. These price increases result from the high demand for the surplus-running country's goods. In addition, strong demand for exports

means a correspondingly strong demand for factors of production, leading to a rise in wages and interest costs. Finally, the inflow of currency increases the money supply, which has inflationary tendencies, thus producing a general rise in prices. This increase in prices results in a decline in demand for the exported goods. At the same time, domestic consumers will be attracted to the comparatively less expensive goods from foreign markets, causing imports to rise. In a country running a trade deficit ($EX - IM < 0$), the opposite development in prices takes place, so that demand for exports increases and demand for imports decreases.

Aside from these two key adjustment mechanisms, there are interdependencies that promote a balanced current account through the financial account. As shown in equation (8), a current account surplus is associated with a net outflow of capital. In the deficit-running country, the increase in the supply of capital tends to reduce interest rates and investment yields. In the surplus-running country, the outflow of capital causes a reduction in the capital supply, which tends to raise interest rates and yields. Thus, it becomes increasingly less attractive for owners of capital in the surplus-running country to utilize their money to finance the foreign country's trade deficit. This is especially true if the deficit-running country's rising foreign debt levels result in a lower credit rating. Without access to foreign credit, it becomes increasingly difficult for the deficit-running country to finance its import surplus. The deficit-running country must therefore offer to pay higher interest rates in order to obtain the necessary loans. But this makes "living beyond one's means" even more expensive, and decreases the tendency to run trade deficits.

However, if an automatic balancing of exports and imports is theoretically expected under flexible and fixed exchange rates alike, the question is how the reality of persistent current account surpluses and deficits comes about.

The causes of persistent current account imbalances

For this analysis, we must start by examining the determinants of international trade. In principle, countries export those goods in which they have a comparative advantage in production technology, equipment, or location, which gives them a pricing advantage. Such price advantages result if a country has a technological lead that leads to relatively higher productivity; if a particular factor of

production is relatively abundant, rendering this factor comparatively inexpensive; or if demand for a particular commodity in the country is low, driving down the price of the good from the demand side.

If we combine these fundamental drivers behind international trade with the macroeconomic relationships outlined above, we can identify the following reasons for current account imbalances. A country shows an export surplus if:

- it has advantages in production technology and thus price advantages in certain goods, which make exports possible;
- this advantage in productivity is not compensated for by increases in factor prices; thus, wage restraint must be maintained, and the pace of wage increases must lag behind that of productivity growth;
- domestic demand for the exported goods remains low enough to avoid demand-driven price increases (i.e., reductions or limitations in domestic consumption, and the associated volume of domestic savings, must be sufficiently large);
- the country has an adequate supply of production inputs to produce the export surplus (i.e., production capacity must be large enough);
- the country is prepared to offer deficit-running countries sufficient credit to finance their current account deficits; and
- the country finds a trading partner willing to import more than it exports, to borrow abroad and to take on the other negative consequences of an import surplus noted above.

A current account surplus becomes possible only if all these conditions are met. This current account surplus can persist if the above-noted balancing mechanisms cannot come into effective play.

In this context, it is useful to recall the definitional link between current account and financial account balance, as contained in equation (8) above. In terms of balance mechanics, a current account surplus ($EX > IM$) corresponds to net capital outflows ($K^{EX} > K^{IM}$). However, this definitional relationship says nothing about causality. It is therefore unclear whether, for example, a current account surplus caused a net export of capital, or whether the opposite holds true, and a net export of capital was the cause of a current account surplus. The current account balancing mechanisms outlined above implicitly assume that conditions in the current account are driving the financial account position. If, in the case of a current account surplus, a revaluation of the domestic currency

increases the cost of exports and thus reduces their total amount, and correspondingly reduces the cost and increases the amount of imports, current account balance can result. The financial account follows this development, and thus comes also into balance.

It is also conceivable that conditions in the financial account are the cause of the current account position. This causal connection can be illustrated by a national economy in which attractive domestic investment opportunities are too few, and for which investment yields are higher abroad than at home. Domestic capital is thus exported abroad, leading to a net outflow of capital ($K^{EX} > K^{IM}$). The outflow of capital leads to a drop in domestic investment, which limits economic growth. Low levels of investment result in too few jobs being created in the surplus-running country. Flagging economic growth leads to an increase in unemployment, which weakens purchasing power and domestic demand. In addition, anxiety about job losses triggers a rise in the “panic savings” rate, which further weakens consumption in the capital-exporting country. Declining domestic demand means a rise in overall savings (see equation (4)), which equation (5) shows leads to an export surplus ($EX > IM$). If, in this economic situation, the domestic currency appreciates and the net level of capital export remains unchanged, the trade surplus will also remain. In this case, revaluation of the currency will not lead to current account balance.

Moreover, this situation could also lead to depreciation of the domestic currency. This would result from capital flows: If a country is a net capital exporter, thus creating demand for corporate stock, securities or other assets in an overseas market, this increases demand for the foreign currency. Simultaneously, demand for the country’s domestic currency in foreign exchange markets declines. Both developments have a depreciatory effect on the domestic currency. This depreciation reduces the cost of domestic products on world markets, thus increasing exports. The domestic export surplus grows, which means the change in the exchange rate once again fails to lead to current account balance.

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