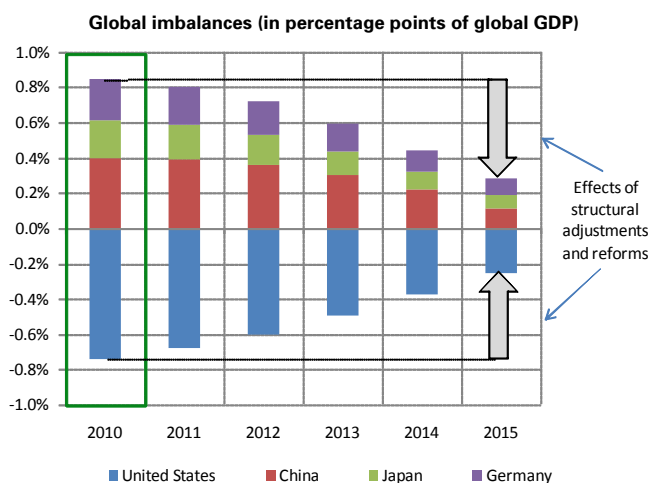


Toward a more balanced world growth: the possible contributions of the United States, China, Germany and Japan

This study was prepared under the authority of the Directorate General of the Treasury (DG Trésor) and does not necessarily reflect the position of the Ministry for the Economy, Finances and Industry.

- From a macroeconomic standpoint, the 2000s witnessed a significant rise in global imbalances. Between 1998 and 2007, the total of G20 current account deficits and surpluses rose by nearly two trillion dollars. These imbalances have contributed to the seriousness of the economic crisis.
- At the September 2009 Pittsburgh Summit, the G20 heads of state decided to create a "Framework for Strong, Sustainable and Balanced Growth" in order to coordinate reforms aimed at rebalancing world growth.
- We focus here on the three main current account surplus countries (China, Germany and Japan), and identify a handful of reforms that could foster a more balanced growth. These include greater social protection in China, as well as the development of financial markets, with an accompanying revaluation of the yuan at a pace comparable to that observed between 2005 and 2008; and increased competition in the service sector in Germany and Japan.
- A study based on an international macroeconomic model shows that these reforms, along with a slight structural rise in the US savings rate, would yield a significant reduction in current account imbalances, with the potential to halve them in 5 years (see chart below).
- Increased activity in countries that implement reforms to stimulate their domestic demand would more than offset the shortfall in global growth resulting from lower consumption in the United States; global economic activity would be 1% higher after 5 years, with a sizeable surge in global trade. These results point to the relevance and realistic nature of the G20's "Framework for Strong, Sustainable and Balanced Growth".
- This paper does not analyse the impact of fiscal consolidation measures in the advanced economies and of potential structural reforms in the current account deficit countries (in particular those aimed at improving financial regulation and stimulating competitiveness), even though they too are essential to achieving strong, sustainable and balanced growth.

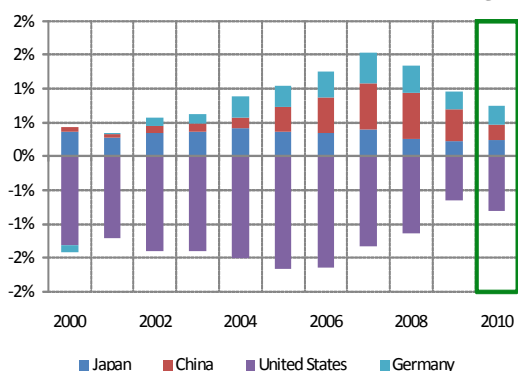
NB: The central scenario used between 2010 and 2015 corresponds to the maintenance of imbalances at their 2010 level. Arrows indicate the differences between cases with and without structural changes.



1. Persistent current account imbalances, which fuel instability in the global economy, are expected to widen again in the medium term

Considerable macroeconomic imbalances had already appeared prior to the onset of the economic crisis. America's current account deficit reached 6% of GDP in 2006, while the 2007 Chinese, German and Japanese surpluses peaked at 11%, 8% and 5% of GDP, respectively. Imbalances also arose within the euro zone, particularly in Spain (with a current account deficit of -10% of GDP in 2007) and Greece (-14% of GDP in 2007). More generally, the deficit countries were financed partly thanks to a savings glut in the surplus countries. Several factors accounted for the emergence of this savings surplus, including the nominal misalignment of the yuan combined with a tight lid on domestic consumption in China; weak household consumption in Germany¹; and Germany's and Japan's uncompetitive service sectors.

Chart 1: Main current account imbalances (as a % of global GDP)²

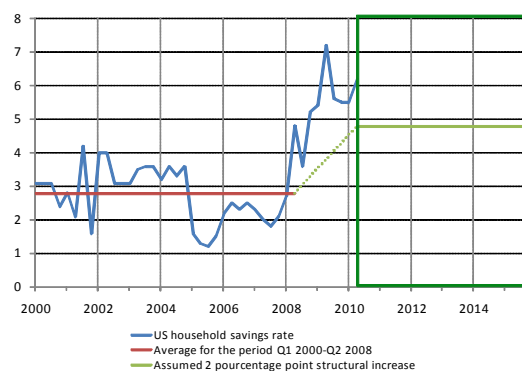


Sources: OECD, IMF, Datastream

While the specific characteristics of an economy may make it desirable to run a significant current account surplus or deficit (see Box 1), a current account that ceases to square with the economy's fundamentals nevertheless tends to reflect domestic imbalances, an unduly high-or unduly low-savings rate foremost among them. But in a globalised world economy, where trade and financial links have intensified to a huge extent in recent years, persistent imbalances in certain economies may become mutually self-sustaining, creating distortions weighing on the world economy as a whole (such as downward pressure on the interest rates of reserve currency economies, notably entailing a risk of brutal exchange rate adjustments). These imbalances could, in the presence of market imperfections (such as information asymmetries), contribute to the formation of asset bubbles in the deficit countries.

With the crisis, adjustments took place very suddenly and current account imbalances shrank considerably (see Chart 1). However, it is more or less commonly agreed that, in the absence of structural reforms or significant movements in nominal exchange rates, these imbalances are set to grow once again as we emerge from the crisis.

Chart 2: Household savings rates in the United States (as % of gross disposable income)



Source: DG Trésor

To reduce these imbalances and prevent them from recurring, those countries with excessive current account surpluses might wish to consider implementing reforms aimed at stimulating their domestic demand. In addition, countries with excessive deficits need to boost their savings and strengthen their export sector.

Such an adjustment is already partly underway in the United States, due to the need for households to clean up their balance sheets. The household savings rate, which had risen to 6.2% of gross disposable income in June 2010, after a low 1.2% in March 2005, is expected to remain durably higher than before the crisis (see Chart 2).

Here we consider a number of reforms that concern only a handful of surplus countries, i.e. China, Germany and Japan, and we measure their potential effects on the global economy and global imbalances. A boost to domestic demand in these countries would result in both stronger and better-balanced global growth.

The impact of fiscal consolidation measures on the advanced economies in the coming years, and of potential structural reforms on the current account deficit countries, though essential in order to reduce global imbalances and achieve strong, balanced and sustainable global growth (see Box 2), will be the subject of a forthcoming study.

- (1) Although part of the German current account surplus is justified by its demographic profile, the trade surpluses recorded between 2005 and 2008 were very likely excessive and no longer aligned with the country's economic fundamentals.
- (2) Global GDP forecasts for 2009 and 2010 are those published by the IMF. Forecasts for current account balances in dollars billion are those published by the OECD.

Box 1: Features specific to a given economy may make it desirable to run a significant current account surplus or deficit

An economy's current account balance corresponds to the sum of its balances of trade in goods and services (the trade balance), financial income (wages, dividends and interest received from abroad), and current transfers (donations, aid, etc.) vis-à-vis the rest of the world (the "external" aspect).

$$\text{Current account balance} = \text{trade balance} + \text{income balance} + \text{balance of current transfers}$$

The current account balance can also be expressed as the difference between domestic savings and investment (based on the identity between supply and demand for goods and services, and on the split of national income between savings and consumption).

$$\left. \begin{aligned} Y &= C + I + X - M \\ Y + RE &= S + C \end{aligned} \right\} BC = X - M + RE = S - I$$

where Y represents GDP, C consumption, I investment, X exports, M imports, and RE foreign income (the income balance and the balance of current transfers), and BC the current account balance.

In order to state an opinion on the equilibrium level of a current account, we need to consider a series of characteristics of the economy in question, to be able to assess the legitimacy of the gap between savings and investment. Three situations may arise, notably:

- A particular demographic dynamic: because individuals' saving behaviour generally depends on their age, the demographic structure of an economy can be a key factor in explaining financial flows with the rest of the world; consequently, a country with a high proportion of individuals aged 35-65, most of whom are saving for retirement, is more likely to run a current account surplus, without this necessarily signalling an imbalance.^a
- A wealth of natural resources: raw materials exporting countries need to save part of what they earn from the sale of their natural resources to enable future generations to benefit from them also, as well as to insure against future shocks, and in anticipation of the depletion of reserves. Ultimately, and legitimately, this produces a slightly positive current account balance.
- Economic catch-up: certain emerging countries in their economic catch-up phase need external financing for their development, attracting capital from the developed countries by offering higher average yields; in that case, it is not abnormal for them to run a negative current account balance.

- a. See for example Goldman Sachs, "Current accounts and demographics: the road ahead", *Global Economics Paper*, 12 August 2010.

Box 2: Structural reforms in deficit countries and ambitious fiscal consolidation strategies will also be necessary in order to achieve the goals set at Pittsburgh

The reforms needed in order to achieve strong, balanced and sustainable growth are by no means confined to those identified and assessed here, which apply solely to the major countries with current account surpluses.

The fiscal consolidation strategies embarked on by many countries, France notably, will promote better-balanced and more sustainable growth. In the short run, any rise in public savings (a drop in the fiscal deficit) that is not fully offset by a fall in private savings will reduce the current account deficit. In the medium run, fiscal consolidation avoids a fall in potential growth. The challenge is to avert a possible rise in interest rates as a result of public debt levels so high they cause market concern. It would penalise medium-term growth potential via a durable rise in the cost of capital. In ageing countries, in this context, pensions reform, in particular by raising the retirement age, would offer the twin benefits of ensuring the pension system's sustainability while preserving growth potential.

Structural reforms in the advanced deficit countries (particularly the United States, the UK and certain Southern European countries) also can contribute to better-balanced global growth while remedying their specific internal imbalances.^a

- The economic situation permitting, these countries ought to give priority to fiscal consolidation, which, through higher national savings, would help to reduce their current account deficit.
- Countries that have experienced a property bubble and a credit glut could restrict leveraged borrowing strategies and boost household savings through improved regulation of the financial system and tax reforms to encourage savings, in particular by rescinding measures that encourage indebtedness.^b
- Finally, Southern European countries needing to stimulate their competitiveness could enact reforms aimed first at boosting productive efficiency, and second at containing the rise in the cost of labour. On the one hand, productivity gains in export sectors could be accelerated by means of short-term reforms aimed at increasing competition, and in the long run by measures promoting education and research. Also, rising labour costs could be held in check by reducing the indexation of wages against prices, and by limiting rises in the minimum wage and wages in the public sector.

- a. See "Prospects for growth and imbalances beyond the short term" (OECD, May 2010) and "Current imbalances in southern euro area" (IMF, July 2010).

- b. E.g. the tax deductibility of mortgage interest payments in the United States and Spain.

2. To limit global macroeconomic and financial risks in future, the main surplus countries should implement structural reforms to boost their domestic demand

2.1 In China, a boost to domestic demand could come from reforms to social protection, the financial sector and corporate governance, and could be stimulated by a rise in the yuan

2.1.1 Improving welfare systems and better access to credit would help to reduce Chinese households' precautionary savings

The Chinese national savings rate in 2008 was more than 50% of GDP, one of the highest in the world. The breakdown of total savings shows that household savings represented around 27% of disposable income in 2008³ (see Chart 3),

which is more than 10 percentage points higher than at the beginning of the 1990s.

One of the main factors accounting for this rise in China's household savings rate is the lack of a mutualized social security system⁴. Reforming the financing of healthcare, pensions and education would help to reduce households' precautionary savings.

As it happens, China enjoys considerable room for manoeuvre on the tax front in order to finance the social security system. The State has captured a rising share of GDP

(3) Eswar Prasad, "Rebalancing growth in Asia", *NBER Working Paper*, July 2009.

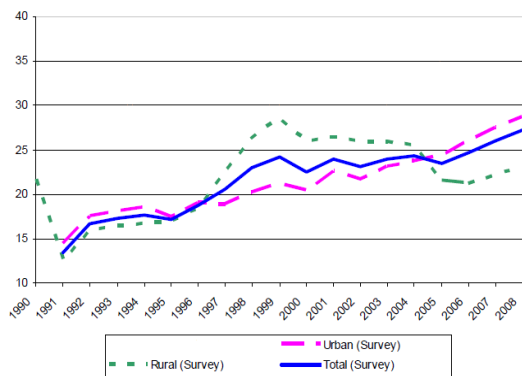
(4) From an accounting point of view, direct financing of social protection by households is equivalent to financing it through redistribution (i.e. through taxation). However, because of the considerable risks households face under the current system, aggregate savings are higher than the taxes that would be needed to finance a mutualised social protection system.

since 2000⁵, contributing significantly to the rise in national savings between 2005 and 2007.

Beyond reforming the social security system, the developing and freeing up of the financial markets could also help push down the household savings rate, for a number of reasons:

- i. In the absence of a sufficiently developed banking system, households may find they have limited room for manoeuvre, being unable to borrow on the back of hoped-for future earnings. This obliges them to save in order to buy property, for instance, out of their own funds.
- ii. Similarly, the lack of insurance products allowing people to insure against certain risks in return for a premium obliges households to build up large precautionary savings.

Chart 3: Household savings rate trends in China



Source: Prasad(2009)

2.1.2 Reforming corporate governance and liberalising the financial markets would reduce Chinese corporate savings and boost household incomes

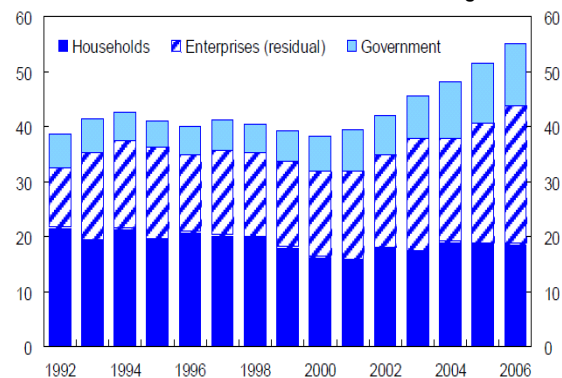
The Chinese corporate savings rate has risen sharply in recent years (+9 percentage points of GDP between 2000 and 2006, see Chart 4); two measures in particular would help reverse this trend:

- i. As in the case of households, the developing of the financial markets would supply an alternative to internal funding for corporate investment, particularly for SMEs, and would limit their need to accumulate savings before investing correspondingly.
- ii. Reforming the rules on corporate governance so as to align managers' interests with those of shareholders would help to boost dividends paid to households⁶ (profits appear for the time being to be either retained by the corporations or paid to the State).

The question then is whether these revenues would be saved or consumed (i.e. whether the household savings rate would rise when that of the corporate sector declines). When households have access to credit, their consumption is generally not dependent on financial revenues⁷. But in emerging Asia, and a fortiori in China, households have little access to

the financial markets. An IMF study shows that the marginal propensity to consume following a rise in income from personal assets is far higher in emerging Asia than in non-Asia emerging countries⁸. Therefore it appears that paying dividends to shareholders would support household consumption.

Chart 4: Breakdown of national savings in China



Source: « Regional Economic Outlook : Asia and Pacific », FMI, October 2009

2.1.3 Appreciation of the yuan would effectively support structural reforms to boost domestic demand

A rise in the yuan would push down the price of imports and stimulate domestic demand by boosting Chinese purchasing power. In particular, it would ease the gradual transition of the Chinese economy to a more balanced model, by putting a brake on exports in volume terms and by speeding up imports. Finally, it would help attenuate the inflationary pressures that would result from structural reforms aimed at rebalancing the Chinese growth model in the direction of domestic demand.

2.2 In Germany and Japan, deregulation of the service sector could boost domestic demand

2.2.1 Over the past decade, growth in Germany and Japan has been driven by the export sector, in association with weak domestic demand and a fairly sluggish service sector

The vigour of Germany's and Japan's export sectors (respectively 40% and 18% of GDP in 2007), combined with relatively weak domestic demand, has resulted in hefty current account surpluses in both economies during the past decade (see Chart 5). The German and Japanese current account surpluses thus rose by 10 and 3 percentage points respectively between 2001 and 2007, rising respectively to 8% and 5% of GDP.

As opposed to this, the service sectors of both countries have languished recent years. In the case of Germany, value added in market services⁹ grew by only 2.2% over the period 2000-2007, compared with an average of 3.1% in the OECD. This may be down to the effects of a distribution of corporate R&D

(5) The breakdown of households' gross disposable income, taken from Chinese Flow of Funds tables, reveals the rise in taxes and social charges since 2000.

(6) However, the effect of this would be limited by the fact that a significant proportion of large corporations are publicly owned (see for example: "China's savings rate and its long-term outlook", *Global Economics Paper no. 191*, Goldman Sachs), and the Chinese States redistribution policy is pretty focused on the industrial sector.

(7) IMF "Regional economic outlook: Asia and Pacific", October 2009.

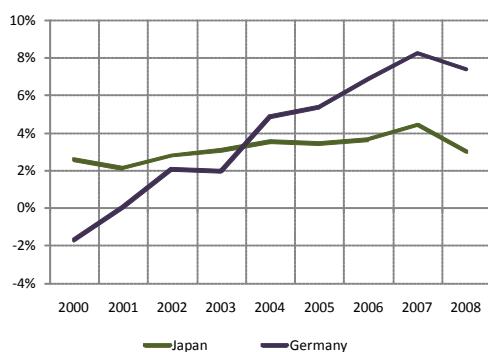
(8) *Ibid.* It will be noted that implementation of both these two reforms would have a smaller impact than the sum of their respective effects (increasing household access to credit - "market liberalization" reform -, would probably diminish the impact of a rise in dividends paid to households).

(9) Wholesale and retail trade; restaurants and hotels; transport, storage and communications; and finance, insurance, property and services to professionals.

spending heavily skewed in favour of the manufacturing sector: services accounted for only 10% of these expenditures in 2006, versus an average of 25% for the OECD countries¹⁰. In Japan, meanwhile, there was no significant acceleration in labour productivity in services between

2002 and 2004, whereas it rose very sharply in the manufacturing sector¹¹, and hourly productivity in the service sector is still distinctly below that of the United States (29% lower in 2007¹²).

Chart 5: Current account trends in Japan and Germany



Source: Datastream

2.2.2 The under-development of the Japanese and German service sectors is largely due to lack of competition

One sign of the market strength of companies in the service sector is the mark-up they charge between their sale prices and production costs. This is around 60 and 50% respectively for Germany and Japan, versus a little over 40% in France and 30% in the United Kingdom.

An analysis of reforms capable of boosting competition in these countries' service sectors lies outside the scope of this study, although it is worth mentioning certain areas for reform here:

This type of reform would help to redirect the German and Japanese economies toward domestic demand via three channels, namely:

- i. Reducing the price of services would stimulate households' purchasing power¹³.
- ii. Increasing the degree of competition would stimulate innovation and boost labour productivity, creating the possibility for pay increases for employees in this sector.
- iii. Diversifying the sources of growth would reduce the uncertainty surrounding national income, and could limit households' precautionary savings¹⁴, thereby stimulating consumption and imports.

3. Simulation of all the structural changes envisaged in the countries with major current account imbalances indicates that these could spur stronger, better-balanced global growth in the medium term

3.1 Simulations are based on a quantification of the effects of the reforms identified above

The effects on global imbalances and economic activity of the adjustments and structural reforms described above are studied by means of the NiGEM macroeconomic model. The simulations, based on constant fiscal policies, utilise the following estimates (Table 2).

Allowance is made in the first place for a structural rise in the household savings rate in the United States due to their need to clean up their balance sheets. This increase does not factor in the possible effects of US fiscal consolidation on their saving behaviour.

Here we conservatively assume an increase in the savings rate of 2 percentage points of gross disposable income relative to the average observed between 2000 and 2008, considering that part of the rise in the savings rate observed during the crisis-it increased from an average of 2% between 2005 and 2008 to 6.2% in June 2010 (Chart 2)-may be short-lived only.

As for China, three structural reforms (social security, corporate governance, and developing the financial markets) have been identified and could have a substantial impact on the national savings rate (Table 1). The OECD has estimated that an increase in healthcare spending in China amounting to half what the industrialised countries spend (i.e. from 5 to 10 percentage points of GDP, approximately)

would push down the household savings rate by 4 percentage points of GDP¹⁵. Further, the IMF estimates the fall in the Asian corporate savings rate resulting from the adoption of better rules of governance at 2.4 percentage points of GDP, and at 5 percentage points of GDP the decline resulting from a liberalization of the financial markets equivalent the situation in the developed countries¹⁶.

It is still tricky to quantify precisely the cumulative impact of these structural reforms in China. For example, a reform that would reduce companies' savings rate could have no impact on the household savings rate. Which is why, although the sum total effects of the different reforms on China's national savings rate could produce a decline of up to 11 ½ percentage points of GDP (Table 1), we prefer to opt for a fall of 10 percentage points, directly affecting domestic demand progressively over 5 years.

Table 1: Quantifying the impact of structural reforms in China

Reforms in China	Fall in savings rate, in percentage points of GDP
Healthcare spending	-4
Corporate governance	-2.4
Financial markets liberalization	-5
Total	-11.4

Source: Datastream

(10) OECD, Economic survey - Germany, 2010.

(11) Service sector productivity gains amounted to 2.3 % over the period 2002-2004, versus 1.9 % for the period 1982-2002 (compared with 7.5 and 1.9% in the manufacturing sector).

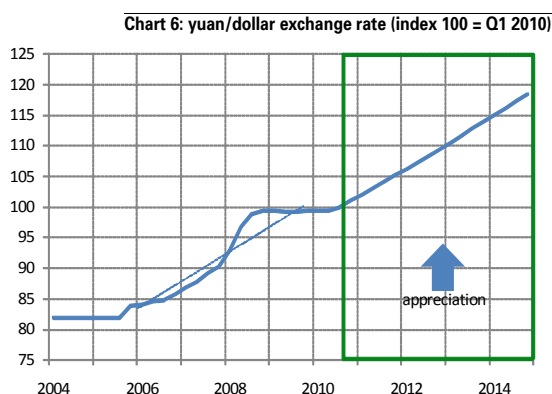
(12) OECD, "Overcoming the global crisis: the need for a new growth model", Economic survey - Japan, September 2009.

(13) Greater competition in services would push down prices, and hence the cost of living for households.

(14) IMF, "Germany - Staff report for the 2010 Article IV Consultation", March 2010.

(15) OECD, "Prospects for growth and imbalances beyond the short term", May 2010.

(16) IMF, "Regional economic outlook: Asia and Pacific", October 2009.



Source: Datastream

This stimulus to domestic would in addition be effectively backed up by an appreciation of the yuan. China embarked on a modification of its currency system at the end of June 2010, which led to an appreciation of the yuan vis-à-vis the dollar, but the scale and pace of this appreciation remain unclear as yet. We assume a yuan/dollar appreciation at a slightly slower pace than the one that occurred at the time of

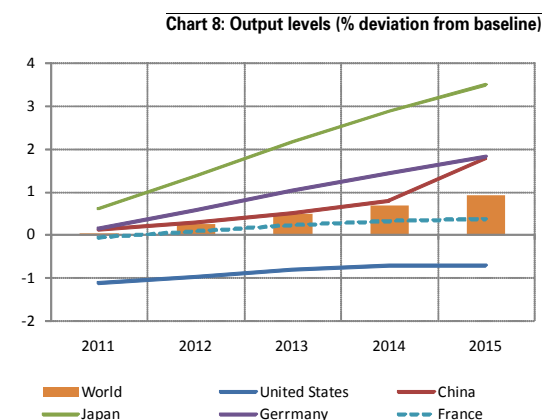
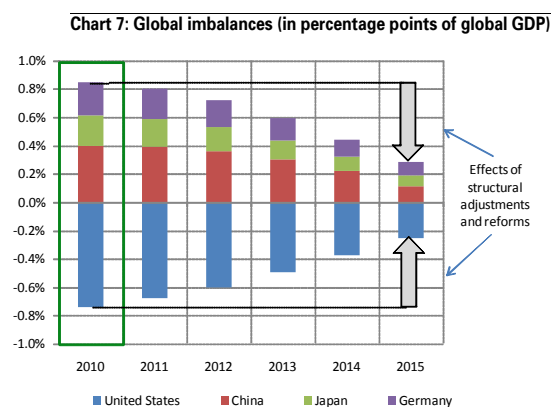
the crawling peg in 2005-2008-putting the appreciation at 20% over 4 years (see Chart 7). The appreciation is assumed to occur exclusively via a shift in the China's central bank's exchange rate policy.

Finally, in the case of Germany and Japan, and given the level of mark-ups in their service sectors (see Chart 6), these could fall by around 10 percentage points. This increase in competition would have an expansionary effect on these economies, according to the French Treasury's DSGE Omega 3 model¹⁷. This effect flows from the fall in the price of services, which would boost demand for them. With firms in this sector producing more, investment and demand for labour would rise, pulling up real wages with them. Ultimately, consumption would rise by 4% and investment by 7%¹⁸.

All of the simulated structural changes therefore bear on American consumption (-2%), on China's domestic demand and exchange rate (+10% and +20% respectively), and on German and Japanese consumption and investment (+4% and +7% respectively in each country). It is assumed that these reforms are phased-in over 5 years, with the exception of the change in US consumption, which is assumed to take place directly and permanently (Table 2)¹⁹.

Table 2: Structural reforms: a summary

Country	Structural changes	Effect	Shock profile
United States	Household debt reduction	-2% consumption	Direct and permanent
China	Healthcare Corporate governance Market liberalization Appreciation of the yuan	+ 10 percentage points domestic demand + 20% gradually	Phased in over 5 years
Germany, Japan	10 percentage-point decline in mark-ups in the service sector	+ 4% consumption + 7% investment	Phased in over 5 years



N.B.: In the central scenario used between 2010 and 2015 imbalances remain unchanged relative to their position in 2010. Arrows therefore indicate the difference between cases with and without structural changes.

(17) Omega 3 is a dynamic and stochastic general equilibrium model. For a presentation of the model see "Divergences de productivité en union monétaire - Présentation du modèle Omega 3" (Productivity divergences in a currency union- Presentation of the Omega 3 model, *Document de travail de la DG Trésor* (DG Trésor working paper) no. 2007/08.

(18) This simulation does not take into account the effect of greater competition on innovation.

(19) In addition, is assumed that economic agents see these structural changes as credible only as and when they are phased in.

3.2 Toward more balance global growth, with a halving of global imbalances

Looking 5 years ahead, the imbalances—calculated as the sum of the absolute values of the US, Chinese, German and Japanese current account balances—would be reduced from 1.6% of global GDP in 2010 to 0.7% in 2015 (see Charts 8 and 10)²⁰.

In the United States, the current account deficit would be reduced by around 1 percentage point of GDP, half of this due to the rise in the US household savings rate, which would lower imports, and half of it due to spillover effects of the reforms in other countries, where rising domestic demand would benefit American exports.

In Germany and Japan, current account surpluses would decline by 1.5 percentage point of GDP, chiefly due to domestic reforms in these countries, whose positive impact on domestic demand would also be reflected in the level of imports.

China, which has the largest current account surplus of the three surplus countries considered here, would see its current account decrease by 6 percentage points of GDP. Two effects can be distinguished here:

- i. On the one hand, while the appreciation of the yuan would reduce import prices and raise the price of exports, domestic demand for imports would increase and foreign demand for exports decline, ultimately leading to a *deterioration* in the current account balance. However, this effect could be attenuated if Chinese exporters opted to reduce their mark-ups, and consequently their price in yuan, in order to offset the appreciation of their currency vis-à-vis the dollar and so hold onto their share of foreign markets. This possibility is taken into account via alternative simulations, without undermining the observation that the Chinese current account balance would fall sharply, however, (see Box 3).
- ii. Meanwhile, structural reforms to stimulate domestic demand would also considerably reduce the Chinese

current account balance. As with Germany and Japan, the proportion of imports, relative to exports, would rise in this scenario, without exports necessarily falling.

These reductions in current account imbalances would be accompanied by adjustments in the effective real exchange rates (−3% in the United States, +6% in China, +3% and Japan, and relative stability in the euro zone). These real exchange rate variations would notably take place via an appreciation in the nominal exchange rate versus the dollar, of around 20% for the yuan, 7% for the yen, and 1.5% for the euro.

3.3 Toward stronger global growth: global GDP would rise by 0.9 percentage point and global trade would grow by 2%

After five years, global activity would be 0.9 percentage point higher at that date (see Chart 9). The negative effect resulting from lower American consumption (−0.1 percentage point) would be more than offset by the largely positive effect of reforms in China, Germany and Japan (+1.1 percentage point overall).

The three surplus countries would be the first beneficiaries of the reforms looked at here, in terms of economic activity (see Charts 9 and 11). In China, rising domestic demand would largely contribute to the total growth of almost 2% in activity. In Japan and Germany, national income would grow by 4 and 2% respectively, a fifth of this increase being attributable to the rise in Chinese imports.

These reforms would have a positive impact on France too: the negative impact due to lower American consumption (−0.4 percentage point of GDP) would be more than offset by the effects of the other reforms (+0.6 percentage point), which would provide a 2.5% stimulus to French exports.

International trade too would benefit, fuelled by the growth in global activity: the increase would work out to 2%, half of it due to increased Chinese demand.

Chart 9: Current account balances by country 5 years out, divergence from central account

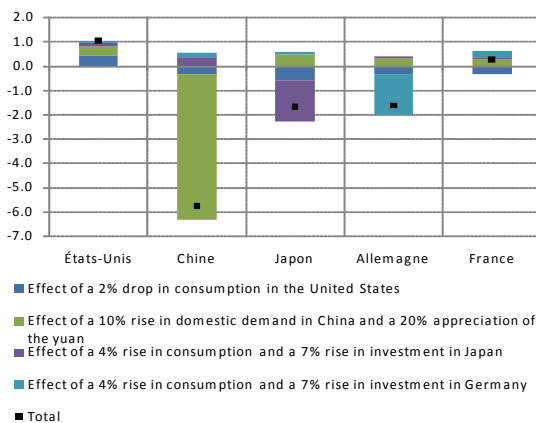
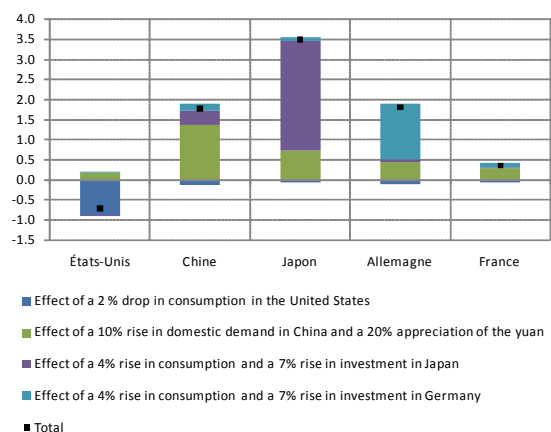


Chart 10: GDP by country 5 years out, divergence from central account



(20) The central scenario is that of constant current account balances in percentage points of global GDP.

Box 3: Appreciation of the yuan, exporters' behaviour regarding mark-ups, and current account balance

We can distinguish two effects of a nominal appreciation of a currency on the trade balance. Initially, a nominal appreciation raises the price of exports and lowers the cost of imports: the trade balance improves (the price effect). Subsequently, this price variation entails an adjustment in volumes: exports fall and imports rise, pushing down the trade balance (the volume effect). This lag in the adjustment of volumes relative to prices is commonly called the "J curve".

To remain competitive relative to their international competitors, exporters in an economy whose currency appreciates may choose to compensate more or less vigorously for dearer foreign currency sale prices by cutting their national currency prices. This behaviour regarding mark-ups is more or less likely to occur depending on the intensity of competition between exporters in the economy in question: the fiercer the competition, the thinner the mark-ups and the less likely are we to see a compensation for a currency appreciation at the level of prices in the domestic currency. The simulations presented here, established with the aid of the NiGEM model, assume by default that these marginal behaviours are limited, in the case of China. Estimates available in the economic literature also suggest that the effect of behaviour concerning mark-ups is non-existent or weak.

To test the robustness of the findings, a variant of the nominal appreciation of the yuan has been studied. Here, in each period Chinese exporters pass on a quarter of the rise in their dollar prices relative to their international competitors in their national currency prices (reflecting a high mark-up effect in comparison with estimates in the economic literature). In this variant, the reduction in the current account balance brought about by the appreciation of the yuan is attenuated by around 20%, but it remains substantial.

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Publisher:

Ministère de l'Économie,
des Finances et de l'Industrie

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English translation:

Centre de traduction des
ministères économique
et financier

Layout:

Maryse DOS SANTOS
ISSN 1777-8050

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