

SUSTAINABILITY OF THE US EXTERNAL DEFICIT

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THE SUSTAINABILITY OF THE US EXTERNAL DEFICIT

IS THE US CURRENT ACCOUNT DEFICIT SUSTAINABLE?

RICHARD N. COOPER*

Many have argued that the clear answer to the title question is negative. The US current account deficit, around \$600 billion a year and over five percent of US gross domestic product (GDP), is without precedent in size, and indeed is so large that it dominates the world economy. Although it is not actually the case, every other country in the world could be experiencing a current account surplus, and many in fact are running surpluses.¹

Three meanings

Since some confusion surrounds what exactly people mean when they say the current account is unsustainable, it is useful to distinguish three different intended meanings: 1) The current high level of the deficit cannot continue indefinitely. 2) A deficit running at five percent of GDP, or higher, cannot continue indefinitely. 3) Recent trends in the current account deficit, which has gradually risen as a percentage of GDP, cannot continue indefinitely. The first statement is false; the third is true; and the second depends on some quantitative details.

It is easiest to deal with the third statement. The US current account deficit is a measure of the extent to which foreigners are buying claims on the US economy – stocks, bonds, operating businesses, real estate and the like – net of purchases by Americans of similar claims on the rest of the world. Although the US physical capital stock, as it is conventionally measured, has not been rising relative to GDP, total financial claims within the United States have been rising somewhat more rapidly than GDP as financial

markets have become more refined and discriminating among assets, and as assets get packaged in various ways to provide alternative packages of liquidity, risk, and return to both ultimate and intermediate purchasers (e.g. pension funds) of those packages. But presumably such financial claims cannot rise more rapidly than GDP indefinitely, and foreigners can never own more than 100 percent of such claims, so at some point the foreign acquisition of claims must slow down. QED.

But if this is what analysts mean when they say the US deficit is unsustainable, they should say that recent trends are unsustainable, not, as is usually said, that the deficit is unsustainable.

Consider by contrast the first claim above, that the large US deficit of, say, \$500 billion a year cannot last indefinitely. To examine this claim, suppose the US economy has a trend rate of growth in nominal GDP of five percent a year, about three plus percent in real terms and two percent inflation. On official data at the end of 2002, foreigners had total claims on the US economy of \$2.6 trillion, net of American claims on the rest of the world. Given this initial situation, what are the implications of our two assumptions of five percent growth in nominal US GDP and an indefinite current account deficit of \$0.5 trillion? The ratio of net external claims to US GDP – a ratio many economists look at in assessing sustainability – will rise for some years, but it will reach a peak of 46 percent in 16 years (up from 25 percent in 2002), and then will begin to fall indefinitely thereafter.

Foreigners will by then own more of the US capital stock – just under a fifth (net of US claims abroad) if all the ownership were direct. But as noted above, the United States has several layers of financial assets above the capital stock, financial assets which foreigners typically buy, by now over three times the capital stock and still growing, so foreigners would own under ten percent of US financial assets. The yield on these assets would represent claims on US output, reducing the income of Americans relative to what it would be if more of the claims were owned by Americans, but almost certainly leaving American



Recent trends
in the deficit are
unsustainable

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¹ A country's current account measures its exports of goods and services to the rest of the world, less imports of goods and services, plus net investment income and unilateral transfers, such as remittances.

incomes higher than they would have been had the rest of the world made fewer investments in the US economy (it depends on how much Americans would have invested on their own).

The deficit, while by assumption constant in dollar terms, will fall steadily as a share of (constantly growing) GDP, reaching 2.2 percent in 2018, the year in which the foreign claims/GDP ratio reaches its peak, and falling further thereafter. Does this trajectory look unsustainable? It may not come to pass, but it does not explode into unsustainability.

The current account deficit in 2004 rose above \$500 billion, indeed above \$600 billion, inflated in part by a sharp increase in oil prices which may recede in the next few years. The United States imports 12 million barrels of oil and oil products a day (600 mmt a year). An increase in oil prices of \$10 a barrel thus adds \$44 billion a year to the US import bill. But the logic above applies even if the US deficit were to stay constant at \$600 billion a year. Clearly this deficit is “sustainable,” although foreign earnings may be expected to rise with increasing ownership of US assets, so a constant current account deficit implies a declining trade deficit. Whether the deficit will in fact continue at this level remains to be seen. Whether it is desirable depends on what are the feasible alternatives, on which more will be said below.

The truth of the second statement depends on quantitative details. Consider, as above, that nominal US GDP grows indefinitely at five percent a year, and that the current account deficit is a constant *share* of five percent of GDP. Then net foreign claims on the United States will continue to grow indefinitely, eventually reaching the equivalent of US GDP. Thereafter both GDP and net foreign claims will continue to grow at five percent a year, and the ratio of foreign claims to GDP will remain constant at unity. While a large number (although exceeded today by the debt/GDP ratio of several dozen developing countries), it does not explode into unsustainability. If the average yield on the foreign claims equals five percent, however, trade in goods and services must be in balance to preserve the equilibrium. A yield lower than five percent would permit some continuing trade deficit.

If, however, nominal GDP grows at five percent and the current account deficit exceeds, say, ten percent of GDP, the pattern is not sustainable: foreign net

claims grow more rapidly than GDP, and this is a process that cannot go on indefinitely.

The discussion above has focused exclusively on the United States. But the US deficit is two-sided; it intimately involves the rest of the world. Do developments there compel a markedly different assessment? The world outside the United States generates some \$6 trillion in savings, growing from year to year. Most of this saving of course is invested at home. The US current account deficit implies, however, that the rest of the world is also investing its savings in the United States – around ten percent on a net basis, more if allowance is made for the fact that Americans are also investing some of their savings abroad.

The US economy accounts for over a quarter of the world economy in output (valued at market exchange rates, as it should be when cross-border investment is being considered) and about half of the world’s marketable financial assets. Furthermore, it provides higher real returns to capital than do Europe or Japan, and returns that are more reliable and secure than those offered by emerging markets. Property rights are well established and dispute settlement is impartial by comparison with many other countries. Markets are well developed and relatively liquid. Is it inconceivable, in today’s globalizing world, that savers around the world will want to put 10 to 15 percent of their savings, a share that would fall over time in the scenario of a constant deficit, into the United States?

The large and rapidly growing savings in China and India have hardly been tapped, being bottled up by the exchange controls both of those countries still maintain. Investment opportunities in the United States would be highly attractive to many newly rich Chinese and Indians. It is conceivable that the US deficit could even grow over time as investment opportunities are made available.

Is a continuing US deficit desirable?

Even if a continuing large US current account deficit is sustainable, is it desirable? In some abstract sense, it seems undesirable that Americans should be selling assets (as opposed to goods and services) to sustain their current private and public consumption. But we do not live in a world of abstraction. What are the feasible alternatives, and would the conse-

As long as the current account deficit as a **share** of GDP does not exceed the growth rate of GDP, it is sustainable

quences of serious actions to reduce the deficit be more desirable than its continuation?

One course of action widely recommended, to which I subscribe, is that the US government should take serious steps to reduce the federal budget deficit, likely to exceed \$400 billion in 2005 – not by proposing cuts in expenditures on public programs with wide public support, as President Bush did in early February, many of which are unlikely to pass muster with Congress, but by raising taxes to pay for the programs that the public wants and for the national security expenditures that the President wants. President Bush is unlikely to support serious tax increases, so this natural fiscal adjustment will unhappily have to wait for a few years. In any case, a sharp and significant increase in taxes would risk aborting the continuing recovery, so it should be firm but gradual. The assumption is that investment will not decline even as public and private consumption are restrained. This assumption may be warranted by the expected improvement in the US trade balance brought about by the dollar depreciation of 2002 to 2003 and by improved economic growth abroad compared with the early years of the decade.

The focus here has been on sustainability, not whether it will actually occur. Suppose private investors around the world choose not to invest \$500 to 600 billion in the US economy, even though heavy net private investment occurs. The dollar will depreciate. Indeed, this was the case in 2002 to 2003, not just against the euro and the yen, but also against the British pound, the Canadian dollar, and indeed many other currencies during 2004, such as the Korean won, the Thai baht, even the Indian rupee. Some adjustment from the very strong dollar of 2000 to 2001 was welcome, not least by US businesses, which felt the competitive pressure created by a strong dollar, both in the United States and in export markets. But extensive depreciation of the dollar was not welcome by countries that see their economic health closely tied to export performance, which is the case for many countries. Some economies – Malaysia,

Hong Kong – formally link their currencies to the dollar. Others, most notably China, do so in practice, at a rate of 8.28 rmb to the dollar since 1995. Still others allow some movement in the exchange rate, but resist too strong or too rapid an appreciation of their currencies by official intervention in the foreign exchange market. Indeed, this is the case for most countries. The European Central Bank on behalf of the 12 countries of euroland is the main exception.

The consequence of these exchange rate policies has been a huge accumulation of official foreign exchange reserves over the period 2003 to 2004: \$800 billion. Countries do not publish the currency composition of their reserves, but the IMF reports that as of the end of 2003 60 percent of total official reserves were in US dollars, and over 90 percent of the new purchases of foreign exchange during 2003 were in US dollars.

In effect, then, official foreign investment in the United States substitutes in part for private investment, since central banks typically buy US Treasury securities to compensate for the shortfall in (still extensive) private purchases of claims on the United States.

Why is this happening? The short answer is that countries do not want to lose export markets, especially to the United States, because of currency appreciation. But why not? Part of the answer lies in the disruption that large and unpredictable swings in exchange rates cause. Once established in a major market, firms prefer to protect their positions there rather than yield ground and then re-enter whenever currency values temporarily make the market unattractive or attractive. Large gyrations in currency values such as the world has experienced in the last decade between the yen and the dollar and between the euro and the dollar make business planning difficult.

But another part of the answer is the perception – certainly in emerging markets, but even in some mature economies such as Japan and Germany – that economic well-being depends particularly on exports, and if exports falter the economy will falter. This view, in turn, is based partly on habitual thinking formed in the past but carried into the present, but partly on a lack of adequate domestic demand to sustain economic growth. Contrary to the teaching of most economists these days, where output is con-

The building-up of foreign exchange reserves means high official foreign investment in the United States

Exchange rates, 2000–2004

End of Period	2000	2001	2002	2003	2004
Euro/\$	1.07	1.13	0.95	0.79	0.73
Yen/\$	115	132	120	107	104
Br.£/\$	0.67	0.69	0.62	0.56	0.52
Can.\$/\$	1.50	1.59	1.58	1.29	1.20

strained solely by capacity to produce, which in turn depends on the available labor force, capital stock, and production technology, this view involves the “Keynesian” recognition that in some, perhaps many, circumstances additional production can be brought forth by additional demand, not only in the short run but even in the long run as additions to capacity respond to the growth in demand. Export demand, which produces foreign exchange that can be translated into imports of modern investment goods, can call forth new investment and more productive employment of labor. Indeed, this perception provided the basis for a successful development strategy in Japan, South Korea, Thailand, and many other countries. Hence many countries are reluctant to have too strong a currency.

Even though the euro, pound, and yen have appreciated significantly against the dollar over the past three years, US import prices for manufactured goods have not risen correspondingly. For instance, prices of US imports of manufactures from the European Union rose only 11 percent over the period 2000 to 2004, despite a 46 percent appreciation of the euro and a 29 percent appreciation of the British pound against the US dollar over this period, plus some modest inflation in Europe. The US market is sufficiently important to many foreign suppliers that they squeeze their margins to retain sales rather than raise prices to cover the appreciation of their home currency against the dollar. This process of course cannot go on indefinitely, not least because US anti-dumping rules make failure to adjust prices after 60 days following a currency appreciation actionable if the price of sale in the US market is below the price in the market of the exporting country.

It should be noted in passing that a depreciation of the dollar attenuates the connection between the current account deficit and the net accumulation by foreigners of claims on the United States. This occurs because Americans have substantial claims (\$6.5 trillion at the end of 2002) on the rest of the world, and the dollar value of these claims rises with depreciation of the dollar, thus in part offsetting the net acquisition of foreign claims on the American economy arising from the current account deficit.

Finally, and perhaps most fundamentally, at present there seems to be an excess of private savings in many countries, both rich and emerging. That is, private savings exceed the effective domestic demand for investment. In continental Europe and Japan,

private savings continue to be high, in part because post-war baby-boomers are now in their peak earning and saving years and low birth rates mean spending on children is much reduced. Investment opportunities are relatively low, as the capital-labor ratio is already very high in industry, and new household formation is low, thanks to low birth rates over recent decades, so demand for housing is not what it would be if new households were growing at earlier rates.

In China, investment opportunities are many, and indeed the rate of investment has been extraordinarily high – too high in 2003 to 2004, according to China’s authorities. But the savings rate, remarkably, is even higher, and China’s nascent capital market does a poor job of allocating China’s high savings to its most productive investment opportunities. The main role of foreign capital in China is not so much to augment scarce capital resources as to surmount the imperfections in China’s financial system, as well as bringing foreign technical, managerial, and marketing skills.

The manifestations of these high net savings in many countries are large budget deficits and significant net foreign investment. That is, domestic savings, lacking attractive domestic investment opportunities, are invested in government securities or abroad. Budget deficits within Europe are constrained to three percent of GDP by the Stability Pact, and Japan’s deficit is widely considered to be unsustainably high. But if the savings are not to be placed, directly or indirectly, in government securities, and cannot in full be placed in domestic investment, where are they to go? Either they go abroad in the form of an export surplus, or they get dissipated by slack economic activity, even recession. If private parties prefer domestic instruments, out of familiarity or desire to avoid currency risk, and dollar depreciation would lower real returns to export-oriented domestic investment, the government can intermeddle by inhibiting currency depreciation and by, in effect, absorbing the currency risk by holding higher foreign exchange reserves. The practical alternative, it needs to be stressed, is sluggish growth at best or perhaps even recession.

The textbook resolution to the problem of “excess” savings is that real interest rates will fall and this will possibly reduce saving and certainly increase investment. Whatever its merits in other settings, this resolution is simply fanciful in slow-growing, aging soci-

Excess savings of many countries seek investment opportunities abroad

eties such as Japan and parts of Europe. Business will not invest in new capacity no matter how low the borrowing rate if it cannot sell the resulting product. Japan has experimented with exceptionally low interest rates during the past few years, both short-term and long-term, without stimulating significant domestic investment. Japan has found it expedient to intervene heavily in the foreign exchange market to prevent the yen from appreciating too far too rapidly. Low rates of new household formation hold down the demand for housing, the most sensitive component of demand to long-term interest rates. The equilibrating factor in the presence of excess saving is not lower interest rates, but government deficits and/or investment abroad leading to export surpluses – with Americans obliging by being willing to absorb the surpluses from the rest of the world in high consumption and in higher investment.

If Americans invest the funds they receive from abroad, and pay out less than they earn, everyone benefits, given the low returns in Europe and Japan. Obviously this does not work if instead Americans are providing government securities, financing the difference between what the government spends and what it receives in taxes, rather than building productive capacity for the future. Thus Americans should be concerned, not about borrowing from abroad, but about borrowing from abroad to finance large budget deficits rather than domestic investment. The budget presented by President Bush in February for the fiscal year 2006 slightly cuts nominal discretionary funding for health, education, and non-defense research and development, government consumption that arguably builds future capacity. Increases in salaries mean real cuts will be significant.

European and Japanese private saving will presumably fall over the next two decades, as those born after 1945 retire in increasing numbers and they are not replaced fully by people moving into the high saving ages. The United States will thus experience smaller inflows of funds, unless growing prosperity in China, India, and other emerging markets produces savings in excess of desired investments in those countries, and especially as such countries increasingly relax the controls on the outflow of resident capital and Chinese, Indians, and others find new and attractive investment opportunities in the United States.

In sum, the current level of the US current account deficit is not unsustainable, and indeed may continue

for a number of years. Surprisingly, that may even be desirable for the world economy, given the current level of excess savings in the world outside the United States and a few other countries, such as Australia and Britain. One can imagine a world economy with a more satisfactory configuration of saving and investment across countries, but we have no easy way to get there.



THE SUSTAINABILITY OF THE US EXTERNAL IMBALANCES

NOURIEL ROUBINI* AND
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The US trade deficit looks set to top \$700 billion in 2005. It has risen by about \$100 billion a year since 2002. This deficit is large absolutely, large relative to US GDP, large relative to the United States' small export base and large relative to the world's current account surplus. Trade deficits of this scale imply an even larger deficit in the broader measure of the United States' external balance, the current account¹ and a rapid increase in the United States' net external liabilities.

Large US trade and current account deficits reflect strong consumption and low savings in the United States. In the mid to late 1990s, a dramatic improvement in the government's fiscal position prevented a fall in the private savings rate from reducing overall national savings. The current account deficit in the late 1990s rose largely on the back of a surge in private investment. That changed radically in 2001. From 2001 to 2003, investment fell sharply. However, the deterioration in the US budget deficit over the same period reduced national savings. Mechanically, rising fiscal deficits and continued falls in personal savings overwhelmed the fall in investment, keeping the US current account deficit high. The permanent gap between government revenue and government spending created by the Bush Administration's tax cuts set the stage for the current account deficit to expand dramatically as investment recovered along with the US economy. The growing gap between stagnant or even falling US savings and rising US investment required that

the US borrow more and more of the rest of the world's savings.

Recent forecasts confirm that the fiscal deficit will not fall in 2005 or 2006. Private consumption growth has outpaced income growth for the past few years: US consumers increasingly borrow against rising asset values – recently housing – to support their current consumption. All evidence suggests that household savings will remain low, if not fall further. Consequently, barring a major change in policy, a slump in US growth or a sharp fall in the dollar, there is little prospect for the current account deficit to improve markedly in the near term. The US current account deficit is on track to exceed \$800 billion (6.5 percent of GDP) in 2005 and, absent some shift in the markets or policy, could easily reach 7 percent of GDP in 2006 and 8 percent of GDP in 2008.

The United States now imports significantly more than it exports (imports are a bit above 15 percent of GDP, exports are only 10 percent of GDP), so US exports have to grow about 50 percent faster than US imports just to keep the trade deficit constant. The math works against any quick reduction in the trade deficit. Moreover, the combination of a rising stock of external debt and rising US interest rates will soon force the United States to start making net interest payments to the rest of the world, and start to add in small, but still noticeable ways, to the overall US current account deficit. Looking ahead, the United States increasingly will need to borrow from the rest of the world to pay interest on its external debt, not just to import more than it exports.

Large ongoing deficits have to be financed by foreign direct investment, by net foreign purchases of US stocks, or by borrowing from abroad in the form of debt. The broadest measure of the amount the United States owes the rest of the world – the net international investment position or NIIP – has increased from 5 percent of GDP in 1997 (\$360 billion) to an expected 28 percent of GDP (\$3.3 trillion) by the end of 2004. At an estimated 280 percent

The large current account deficit reflects a savings shortage in the U.S.

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¹ The current account is the sum of the trade balance, the balance on labor income, the balance on international investment income and unilateral transfers (foreign aid and remittances).

of exports at the end of 2004, the US debt² to export ratio is in shooting range of troubled Latin economies like Brazil and Argentina.³ Barring major adjustments, net US external debt is on track to increase to about 50 percent of GDP and almost 500 percent of export revenues by 2008.

Rising US external debt implies, as Fed Chairman Greenspan emphasized in November, a rising concentration of US assets in foreign portfolios – something that cannot go on forever. Moreover, foreign investors are financing the U.S. on terms – in dollars, and at low interest rates – that offer little protection against the risk of further falls in the dollar. Yet it is hard to see how the US trade deficit can be brought down to levels consistent with long-run sustainability without further falls in the dollar. No country, not even the United States, can finance large external deficits on terms that imply that its creditors are running very substantial risks of large capital losses for an extended period of time.

Something will give. It is possible that the US consumer's propensity to spend gives way without any financial market shock, or the United States may decide to take preemptive steps to cut its fiscal deficit even in the absence of bond market pressure. But it is more likely that neither the US government nor the US consumer will cut back until market pressures force them to. If the Asian central banks now financing the US current account (and fiscal) deficit cut back the pace of their reserve accumulation,⁴ the dollar would slump and US interest rates would have to rise sharply to attract the external financing the

United States would still need from private investors. US investment would fall, US consumer spending would slump, freeing up more domestic savings to finance the US budget deficit. The US current account would improve, but the adjustment would occur in the worst way for the United States, via a sharp recession. Even if foreign central banks do not cut back on the pace of reserve accumulation, as the US current account deficit continues to grow, a higher share of the deficit will need to be financed by private investors. Eventually, private investors will demand higher rates to compensate for the risks intrinsic in lending to a country that already has substantial external debt and has a large, and expanding, current account deficit.

Three core points

To put it simply, even if the United States continues to be able to borrow on terms that other debtors could not imagine, the United States is on an unsustainable and dangerous path. We will make three core points.

- The amount of adjustment required over time to prevent the US debt to GDP ratio from rising indefinitely is significant. To keep the US external debt to GDP ratio from continuing to rise, the US trade and transfers deficit will need to be brought down from around 6 percent of US GDP (2005 estimate) to no more than 1 percent of GDP. Indeed, if the US adjusts gradually, US external debt would still rise to over 50 percent of GDP and the current account deficit would remain over 3 percent of GDP as a result of the net interest rate payments (and continued transfers) even after the trade deficit has been brought down to close to zero.
- The United States is not attracting significant amounts of equity financing, so its need to place debt abroad to finance its current account deficit is exceptionally large. In 2003 the United States “exported” \$700 billion of low yielding, dollar denominated debt to the rest of the world to finance both its current account deficit and US investment abroad. That rose to an astonishing \$900 billion in 2004. In both 2003 and 2004, however, the need for private investors outside of the U.S. to add to their portfolio of US debt was limited by the extraordinary scale of the build-up of central bank dollar reserves. In 2003, central banks added \$485 billion to their dollar reserves;

The U.S.' creditors are running substantial risks of large capital losses

² Formally, the net foreign liabilities of a country are the sum of the country's net debt and net equity liabilities. In this article, we use the term “US foreign debt” loosely to mean net US foreign liabilities. US holdings of foreign equities (including US direct investment) are only a bit larger than foreign holdings of US equities (and foreign direct investment in the U.S.), so the large negative net debt position of the U.S. accounts for the majority of overall US foreign liabilities.

³ Before its crisis, Argentina's debt to export ratio varied between 375 percent and 425 percent, depending on world commodity prices. Brazil's debt to export ratio reached 400 percent before the 2002 real depreciation, but it is now below 300 percent on the back of strong recent export growth.

⁴ In 2004, foreigners – mostly foreign central banks – bought the entire net increase in the Treasury stock associated with the US budget deficit. However, the precise impact of the loss of demand from Asian central banks on US long rates is a matter of dispute. It depends on how readily private foreign investors abroad would step in and make up the gap created by the end of official demand for US Treasuries, as well as the impact central bank intervention is having on a host of other macroeconomic variables – like inflation – that influence Treasury yields. If private and public demand were perfectly substitutable, the effect on US rates would be small. But if Asian central banks are purchasing large amounts of US assets exactly because their private sector is not willing to, US rates will have to go up by a significant amount. Some estimates of the narrow impact of central bank demand on the Treasury market are at only 50 basis points; Bill Gross and Stephen Roach have suggested an impact of over 100bps. In our view, it is not unrealistic to think that the overall impact on US interest rates might be closer to 200 bps.

in 2004, we estimate that central banks added at least \$465 billion to their dollar reserves. However, the rapid pace of dollar reserve accumulation of the past two years is unlikely to be sustained for the next two years, let alone longer.

- The prospects for orderly adjustment – one that does not require a sharp slowdown of US and global growth – increase if the adjustment starts soon, and if the adjustment process is supported by appropriate policies. For the past ten years, the world has grown on the back of strong US domestic demand, as falling US savings has allowed US spending to grow faster than US income, and US imports to grow much faster than US exports. That will have to change. The US needs gradually to shift the basis of its growth toward external demand, and the rest of the world needs gradually to shift the basis of its growth toward domestic demand. Reversing current patterns will not be easy. There is a strong case for global coordination during the adjustment process, despite its difficulties.

If foreign central banks fail to keep up the recent pace of dollar reserve accumulation, adjustment may be sudden and unstable

No doubt the dollar's position as the world's reserve currency and the depth of US financial markets creates an intrinsic source of demand for both dollars and dollar denominated assets. However, this could prove to be a mixed blessing. The dollar's privileged position could increase the risk that the world will finance large US trade deficits for too long, delaying the needed adjustment and making the eventual adjustment all the more difficult and unstable.

The scale of the needed adjustment

In recent years, the deterioration in the current account has largely been driven by the growing trade deficit. Looking forward, the trade deficit is set to continue to widen, barring a major shift in the composition of US growth, a sharp fall in oil prices⁵ or a significant further fall in the dollar. The dollar's depreciation against the euro since 2002 has not been matched by a comparable depreciation against many other US trade partners. Consequently, on a broad trade-weighted basis, the dollar is not that

weak: the real value of the dollar, now around 90 on the Federal Reserve's index, remains only just a bit below its 1990 to 2004 average (93.5). Since imports grew at an average rate of over 7 percent between 1990 and 2003, and exports at an average rate of 5.5 percent over the same period, we suspect that the dollar's current value is consistent with a continued, albeit more modest, increase in the US trade deficit.

However, even if the trade deficit stabilizes at some share of GDP, the deteriorating balance of investment income will lead the US current account deficit to expand. The impact of the deterioration in the United States overall external debt position has been masked recently by unusually low US interest rates: the fall in US interest rates reduced interest payments on existing US external debt by roughly \$130 billion between 2000 and 2004.⁶ As US "policy" interest rates head up and the US net external debt continues to grow, net income payments will soon turn negative.

Modest current account deficits can be sustained indefinitely. However, analysts who argue that a US current account deficit of 3 percent of GDP (Cooper 2004) is sustainable indefinitely miss two important points. First, the US current account deficit is nowhere near 3 percent of GDP right now, and is likely to get larger, not smaller, without significant adjustments. Second, as interest payments on the growing net external debt of the United States rise, a current account deficit of 3 percent of GDP will likely imply reducing the trade deficit to no more than 1 percent of GDP – a far cry from today's trade deficit of over 5 percent of GDP. Ongoing current account deficits are consistent with a stable external debt to GDP ratio; but large ongoing trade deficits are not.

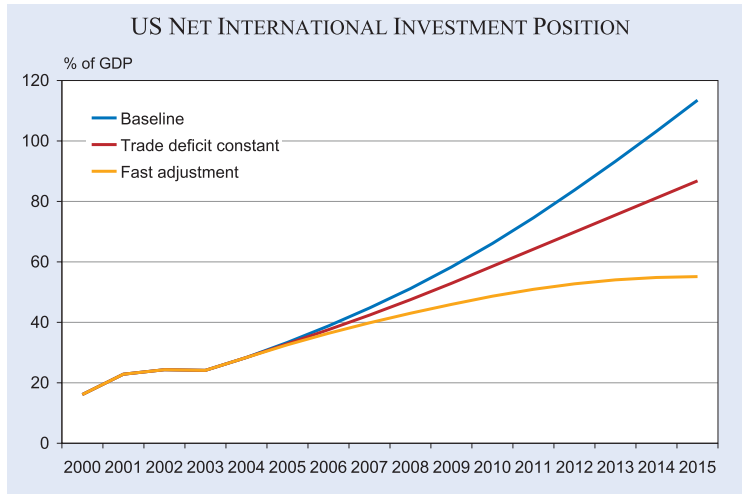
The United States does not need to stabilize its debt to GDP ratio at current levels. But it does need to reduce the rate at which its external debt to GDP ratio is growing, and eventually, stabilize its external debt to GDP ratio. Valuation gains on US investments in Europe as a result of the euro's rise in 2002 and 2003 kept the US external debt to GDP ratio from rising recently, but the scope for similar gains in

⁵ In 2004, the average price of sweet light crude was around \$41 a barrel. A \$5 increase in the average price of oil to \$46 a barrel would add roughly \$25 billion, or 0.2 percent of GDP, to the 2005 current account deficit. Conversely, if oil falls back to say \$36 a barrel, that will subtract 0.2 percent of GDP from the current account deficit. Every \$1 per barrel change in the price of oil directly adds/subtracts \$5 billion from the US trade deficit. The "general equilibrium" impact is harder to estimate: higher oil prices should increase US exports to oil exporting countries, but reduce US exports to oil importing countries. On balance, the overall impact on exports is probably modest.

⁶ The \$130 billion estimate comes from taking the estimated stock of US liabilities at the end of 2003 (\$10.52 trillion) and multiplying that stock by the difference between the 2000 rate of 3.61 percent and the 2003 rate of 2.40 percent. Returns on the United States' \$7.9 trillion in external assets also fell between 2000 and 2003, but not by as much. If returns on US assets and payments on US liabilities both went back to their 2000 levels, the net US interest bill would rise by about \$45 billion (0.4 percent of GDP).

the future is limited: most US external assets are in Europe – not Asia – so the prospective valuation gains from adjusting vis-à-vis Asian currencies are relatively limited. Valuation gains alone won't allow the US to sustain large ongoing trade deficits for long – particularly since the same process that gives rise to valuation gains for Americans with assets abroad also creates large losses for any foreign creditor who has lent to the United States in dollars.

Figure 2



Over time, the key variable that determines how quickly a country's external debt is rising is the trade and transfers balance. Both the real growth rate and the real interest rate also matter; strong real growth and low real interest rates have kept the US external debt to GDP ratio from increasing as fast as one would expect, given the size of the US trade and transfers deficit. This may not last forever: a large external debt stock typically leads to both higher interest rates and lower growth. But even if real interest rates on US debt remain low and US growth remains strong, the trade and transfers balance needs to fall from its current level of close to 6 percent of GDP to close to 1 percent of GDP to stabilize the US external debt to GDP ratio (a trade and transfers deficit of 1 percent of GDP implies that the trade deficit would need to be well below 0.5 percent of GDP).⁷

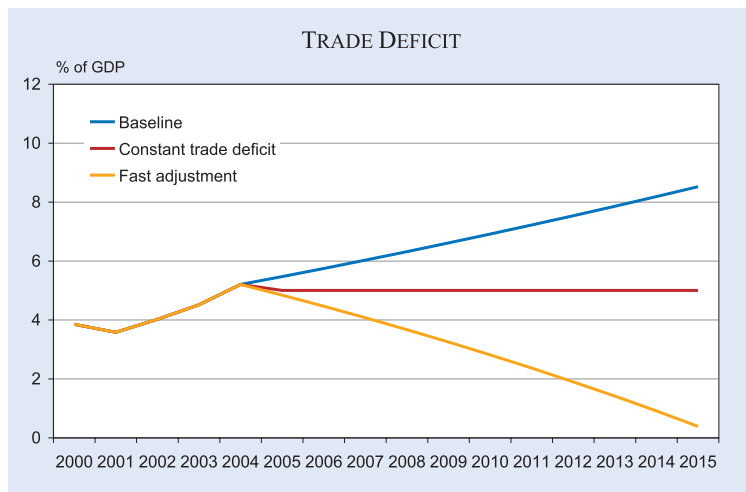
Consequently, the amount of adjustment required over time to limit the increase in the US net external

debt to GDP ratio is quite large. Over time, US imports either have to fall back to the level of US exports, or US exports have to rise to the level of US imports. The last thing the United States, or the world, should want is for the United States to be forced to make an adjustment of that magnitude suddenly. Sudden adjustment typically comes from a fall in imports, not an increase in exports – and likely implies a sharp global and US recession. Most policy makers should be able to agree that it is far better for the United States (and the rest of the world) if the adjustment needed to reduce the US trade deficit comes from rising US exports, not falling US imports.

The sustained adjustment that is needed will not happen on its own. The dollar needs to fall well below its long-term average to encourage a sustained expansion of US exports, and to make imports more expensive and thus encourage the substitution of US made products. The expenditure-switching induced by a change in the exchange rate, however, is unlikely to be enough to bring about the need-

The amount of adjustment needed to limit the increase in the external debt to GDP ratio is large

Figure 1



⁷ If the real interest rate is equal to the real growth rate, the trade and transfers deficit would need to be entirely eliminated. A 1 percent trade and transfers deficit (mostly from transfers) would be consistent with a stable debt to GDP ratio, assuming the US net external debt rises to around 50 percent of GDP, if the real growth rate exceeds the real interest rate on US external debt by 2 percent. The real interest rate here is defined at the net investment income payments the U.S. makes to the world, after being adjusted for inflation. Higher returns on US assets than those the U.S. pays on its liabilities effectively reduce the effective interest rate the U.S. pays on its net debt.

ed fall in the trade deficit on its own. The large gap between US imports and US exports suggests that some expenditure-reduction will be needed as well: no one should want US imports to fall absolutely, but the pace of US import growth does need to slow significantly for export growth to be able to generate a reduction in the trade deficit. The best way to bring about the needed expenditure reduction would be a sustained improvement in the US fiscal deficit. Otherwise, the needed improvement in the current account will all have to come from a rise in private savings (a fall in consumption) and a fall in private investment. US interest rates almost certainly need to rise as part of the adjustment process, but if the United States does not take steps to reduce its fiscal deficit, the needed increase in interest rates could be particularly brutal.

The scale of central bank financing

Rising US debt implies that foreigners are increasing their holdings of financial claims on the United States. Europe (as a region), East Asia (as a region) and the major oil exporters all run substantial current account surpluses. Since the US current account deficit is now about equal to the rest of the world's current account surplus (netting out intra-European deficits), all regions of the world have to lend, one way or another, their surpluses back to the United States for the global current account to balance.

The process of financing the United States, however, differs significantly from region to region. The major European currencies float freely against the dollar. The flow of financing from Europe to the United States comes overwhelmingly from private European investors. However, most Asian currencies do not float freely against the dollar: China, Malaysia, Hong Kong explicitly peg their currencies to the dollar, and other countries often intervene heavily to prevent their currencies from appreciating against the dollar (and the Chinese renminbi). The result: Asian central banks, not private investors, are financing much of the US current account deficit.

Official US data significantly understates US dependence on foreign central bank financing, as work by Higgins and Klitgaard (2004) of the New York Federal Reserve Bank has

demonstrated. The increase in dollar reserves reported by the Bank of International Settlements provides a better measure of total central bank financing than the official inflows reported in the US data. The BIS data show that growing dollar reserves provided around \$485 billion in reserve financing for the United States in 2003,⁸ and probably provided almost as much – \$465 billion – in 2004. This allowed the United States to finance enormous deficits without having to convince private investors abroad to dramatically increase their net claims on the United States. It also left the world's central banks with enormous exposure to the United States.

Not all reserves are invested in dollars, so global reserve accumulation exceeds the buildup of dollar reserves. The lion's share of reserve accumulation is taking place in Asia. In 2004 Asian central bank's added roughly \$535 billion to their reserves, other central banks are estimated to have added around \$165 billion to their reserves, a comparatively modest sum. Since Asian reserve accumulation far exceeded Asia's current account surplus,⁹ Asian central banks are doing much more than just lending their own current account surplus back to the United States. This is most obvious in China, since China's reserve accumulation of \$200 billion in 2004 far exceeds its estimated \$70 billion current account surplus. By using large-scale capital inflows to fuel the rapid buildup of its reserves, the People's Bank of China effectively intermediates global savings, not

The financing of the US deficit differs significantly between Europe (private investment) and Asia (central banks)

⁸ The BIS (2004) reported an increase of \$442 billion. This figure, however, needs to be adjusted to reflect the \$45 billion that the Chinese transferred from the People's Bank of China to two state owned banks.

⁹ East Asia runs a current account surplus with the rest of the world, as its large bilateral surplus with the US more than offsets deficits from commodity-exporters. Intra-regional trade in East Asia has been growing, but some of that growth stems indirectly from growing trade with the US, as many Asian economies are supplying components or capital goods to China.

The financing of the US current account deficit
\$ billion

	2000	2001	2002	2003	2004
Central bank financing – US data	43	28	114	249	355
Change in dollar reserves ^{a)}					
Reported by the BIS	51	83	185	486	465
Current account deficit	-413	-385	-474	-531	-666
Portfolio equity (net)	93	13	38	-63	-28
FDI (net)	162	25	-62	-134	-133
Total debt financing need	158	347	498	728	827

^{a)} \$45 billion in reserves transferred from the People's Bank of China to two state-owned Chinese banks have been added to the BIS estimates of 2003 dollar reserve accumulation.

Source: BIS (2004), BEA and author's own estimates.

just Chinese savings: it transforms the world's demand for Chinese assets into demand for US Treasuries, US agency bonds, and other US debt.

Dooley, Folkerts-Landau and Garber (2003, 2004 a,b) have labeled this system of reserve financing the "Revived Bretton Woods System" (also referred to as Bretton Woods 2). The system is stable only so long as the world's central banks continue to add to their dollar reserves at an extremely rapid pace, financing the United States in the process. However, the tensions created by this system are large: There is a real high risk that the system will crack in the next two years and near certainty that the system will crack over the next four years. The implied reserve accumulation required to sustain the system for four more years is simply too large.

- Unless recent patterns reverse, the annual US borrowing need will continue to substantially exceed the current account deficit. Foreign direct investment by US firms abroad recently has exceeded foreign direct investment in the United States and Americans bought more foreign stocks than foreigners bought American stocks in both 2003 and 2004. Consequently, the annual borrowing need of the United States was close to \$830 billion in 2004, as it needed to finance a net equity outflow of bit more than \$160 billion along with a roughly \$666 billion current account deficit. In 2005, the United States may need to raise that much abroad just to finance its current account deficit; if net equity flows into the United States do not resume, it will have to borrow even more. Ongoing current account deficits imply that US net external liabilities will more than double over the next four years, rising from \$3.3 trillion now to \$7.4 trillion at the end of 2008.
- Private investors are unlikely to be willing to finance a large fraction of the trend \$800 billion a year current account deficit at current low US interest rate. The United States' ability to finance deficits of such a scale therefore hinges on continued large-scale financing of the United States by Asian – and other – central banks. Yet the longer this financing continues, the bigger the risks to the balance sheets of the world's central banks. If current trends continue, Asian central bank reserves would have to rise from an estimated \$2.4 trillion now to \$5.2 trillion at the end of 2008 – an annual increase of more than \$500 billion a year. Chinese and Japanese reserves would need to double. Foreign holdings of

Treasuries would rise from roughly \$2 trillion to around \$4 trillion. This enormous increase in exposure would come even as the United States' external credit fundamentals were deteriorating, implying enormous financial risks to any creditors extending financing to the United States in dollars at low nominal (let alone real) interest rates.

- Those countries now providing the most financing to the United States are also most exposed to the risk of future capital losses, since in general, their currencies have fallen less against the dollar than the major European currencies since 2002. Consider the case of China. If nothing changes, its reserves are likely to increase by \$240 billion a year – as investors will continue to bet on the renminbi's future appreciation. Assuming that China adds \$200 billion a year to its dollar reserves, China's dollar reserves would rise from an estimated \$465 billion today to \$865 billion in 2006, and \$1265 billion in 2008. These are enormous sums for an economy with a dollar GDP of only \$1.6 trillion. Such reserve accumulation implies absolutely enormous losses on the central banks' balance sheet should the renminbi eventually rise as much against the dollar.
- The rapid pace of reserve accumulation also poses real domestic financial challenges for many Asian economies. Preventing such large increases in reserves from bringing about an increase in the money supply (sterilization) is difficult, particularly if a country's financial system is not highly developed. In China in particular, rapid reserve growth is fueling rapid monetary growth, contributing to inflationary pressures and helping to fuel an investment and real estate bubble. The administrative steps taken to limit inflationary pressures only add to the economy's existing distortions.

The case for starting to adjust now

Pulling off the adjustment needed to unwind the current US external deficit smoothly will be a major policy challenge, both for the United States and the world. It is far easier for the needed adjustment to happen smoothly if it starts sooner rather than later: the US external debt to GDP ratio will almost double over the medium term – peaking at over 50 percent of GDP – *even if* the US trade deficit started to shrink by about 0.5 percent of GDP annually.¹⁰ The United States will still need to attract substantial amounts of external financing even after it starts to adjust. If the

¹⁰ Since 2001, the US trade deficit has deteriorated at a similar pace. Such adjustment requires US exports to grow roughly twice as fast as US imports.

The Chinese central bank transforms world demand for Chinese assets into demand for US debt instruments

US current account keeps on rising until the external debt to GDP ratio reaches 40 or even 50 percent of GDP, the needed adjustment is likely to have to occur more rapidly, and cause greater disruption, than if the adjustment process started now.

Make no mistake: the large US current account deficit reflects macroeconomic policy choices, notably the large US fiscal deficit and East Asian governments' policies of reserve accumulation to support export-led growth, not just market forces. On their own, private capital flows would have financed a \$200 billion current account deficit in the United States in 2004 – not a \$650 billion US current account deficit. The needed adjustment in the US current account deficit will happen smoothly only if backed by supportive macroeconomic policies, and a degree of tacit coordination between the United States, Europe and the major Asian economies, especially China and Japan.

The broad outlines of the needed policy changes are by now well known.

- *Fiscal adjustment in the United States.* A low savings economy like the United States can only run large budget deficits without crowding out domestic investment by drawing on the world's savings. Recently, the United States has sacrificed exports (and jobs in export sectors of the economy) for cheap financing from East Asia (and jobs in interest sensitive sectors of the economy). If Asia reduced the pace of its reserve accumulation and the United States continued to run a large fiscal deficit, US interest rates would have to rise sharply, crowding out productive investment.
- *Exchange rate adjustment and policies that support demand growth in East Asia.* A US current account deficit of nearly 6 percent of GDP cannot be reduced if the fastest growing, most dynamic parts of the world economy continue to maintain exchange rates that suppress domestic consumption by keeping the domestic price of imports high. China in particular is now too big not to play a more constructive role in global economic management. Given its large stock of reserves, its rapidly expanding economy and its ability to attract over \$50 billion a year in foreign direct investment, there is no reason why China should not run a modest current account deficit.
- Europe – and in particular the ECB— needs to do more to stimulate European demand. However, Europe cannot bring about the needed global rebalancing alone: it simply is not poised for a

dramatic boom in consumption that would let Asia continue its export-led growth while the United States started its own process of export-led growth. Europe needs to do more, but even with policies directed at supporting domestic demand growth, the aging, already developed economies of Europe are unlikely to be able to contribute as much to global demand growth as younger, more dynamic economies elsewhere.

East Asian economies cannot painlessly extricate themselves from their enormous – and growing — financial bet on the US dollar. This should not give the United States much comfort, however. The United States cannot quickly extricate itself from its dependence on the cheap financing provided by Asian reserve accumulation any more easily. Those who argue that the system of Asian reserve financing is stable because Asian central banks cannot sell their existing stock of Treasuries without causing the market to move against them miss an important point. The Bretton Woods 2 regime would come to a rapid end if Asian central banks, in aggregate, just decided to stop adding to their dollar reserves at their current pace. The stability of the world economy hinges on the willingness of all parties to maintain what Larry Summers accurately called “the balance of financial terror” and double down their existing bets.¹¹

The United States and Asia face a troubling dilemma. Immediate adjustment to end US external deficits would be extremely costly. The boom in housing created by low interest rates and, for that matter, the surge in value of all financial assets linked to low interest rates, would come to an abrupt end without access to Asian financing. Yet, the longer adjustment is delayed, the more costly it will be. The continued transfer of resources out of the production of tradables that cheap financing from abroad implies bodes ill for the long-run health of the US economy. The United States is left trying to support an ever-increasing external debt load on the back of a shrinking tradables sector.¹² Asian central banks are left with an ever-increasing stash of low yielding Treasuries whose

¹¹ Summers (2004).

¹² Rogoff (2003) has emphasized that the external adjustment process is more difficult if a country “does not export.” Bringing about the adjustment required to close a 5 percent of GDP (or larger) trade deficit off a 10 percent of GDP export base could well require large moves in the exchange rate and other key economic variables. The currency appreciation associated with the end of Asian central bank intervention would lead, over time, to higher production and employment in the US export and tradables sectors. But since these sectors are small relative to the sectors that would be hurt by higher interest rates, the short-run impact on overall employment and output could well be negative.

Adjustment should start now and should be coordinated

value will drop the moment Asian central banks stop adding to their holdings of dollars.

The good news of our analysis is that it is possible to conceive of a scenario where the United States begins to adjust before its creditors force it to adjust, and Asian economies gradually reduce their dependence on export-led growth. Even in this scenario, the United States will still see its external debt to GDP and debt to exports ratios rise to levels that would be alarming for any country that is not a reserve currency country and is not able to borrow from abroad in its own currency. That is why the adjustment process needs to start now: it is far better for the US debt to GDP ratio to rise gradually to 50 percent of GDP and stabilize than for the US debt to GDP ratio to surge to 50 percent before triggering a crisis.

Conclusion

The policy mess created by large US fiscal deficits, meager private savings and resulting dependence on cheap external financing, Asia's equally ingrained dependence on the United States to help drive its own growth, and persistent weakness in European demand cannot be solved overnight. But policymakers in the United States, Europe and Asia need to recognize that letting the current disequilibrium continue poses unacceptable political and economic strains. No system that requires that key actors knowingly add to their future financial losses can be all that stable. In the short run, the needed adjustments will pose difficulties for all major parts of the current international monetary system. However, in the long term, the needed adjustments are in the interest of both the United States and its major creditors – including China. Producing only to export, and building up external assets that are never spent makes little sense. Greater reliance inside Asia on domestic demand and less reliance on foreign demand is consistent with an increase in Asians' real incomes and welfare, just as a rebalancing of US growth so that it is based more on net exports and less on consumption is necessary for the long-run health of the US economy.

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BREAKING UP IS HARD TO DO: GLOBAL CO-DEPENDENCY, COLLECTIVE ACTION, AND THE CHALLENGES OF GLOBAL ADJUSTMENT

CATHERINE L. MANN*

Global imbalances have continued, indeed deepened, far longer than both researchers and pundits would have thought. On the US side, the current account deficit at about \$666 billion (2004) and 6.1 percent of GDP falls outside the oft-quoted range of 4 to 5 percent after which, research on industrial countries suggests, economic forces tend to narrow the imbalance. There is somewhat less research on the persistence of global imbalances from the standpoint of the rest of the world, in part because individually most of those imbalances are not so notable. Clearly though, collectively growth in the rest of the world has come to be co-dependent on US demand patterns.

Which of the trajectories (international, domestic, and financial) will bite first?

Three frameworks for analysis

There are several frameworks to analyze these imbalances. The first framework analyzes the external imbalances from the standpoint of export and import flows. Second, underlying the external imbalances are internal imbalances in both countries and regions with respect to savings and investment, that is, domestic demand and production. Third, these real-side imbalances are reflected in the composition and distribution of financial portfolios of assets and supported through exchange rate regimes. Thus there are three frameworks in which to analyze global imbalances: the international framework (trade and current account imbalances); the domestic framework (savings vs. investment and domestic

demand vs. production); and the financial framework (investor choice over portfolios of assets).

Regardless of the exact point where economic forces push back hard, few suggest that the trajectories for the US imbalances (international, domestic, and financial) are sustainable, although which of the trajectories bites first is open to contention. And neither is the collective path for the rest-of-the-world. That no other country faces as significant a quantitative change to their trade balance as the United States should not imply ease of adjustment. In fact, just the opposite could be the case as each country, facing the policy choices and structural challenges to reorienting demand, production, and financing, could argue that someone else should 'go first'.

In fact, beginning in 2002, the dollar started to depreciate, most notably against the euro, in effect forcing the Euro-area countries to start the process of adjustment of global trade and domestic demand. However, for a second block of currencies in Asia, currency market forces are more muted. For them, a coordinated action to allow internal and external adjustment may be necessary to break-up the global co-dependency and return global growth to a more balanced footing.

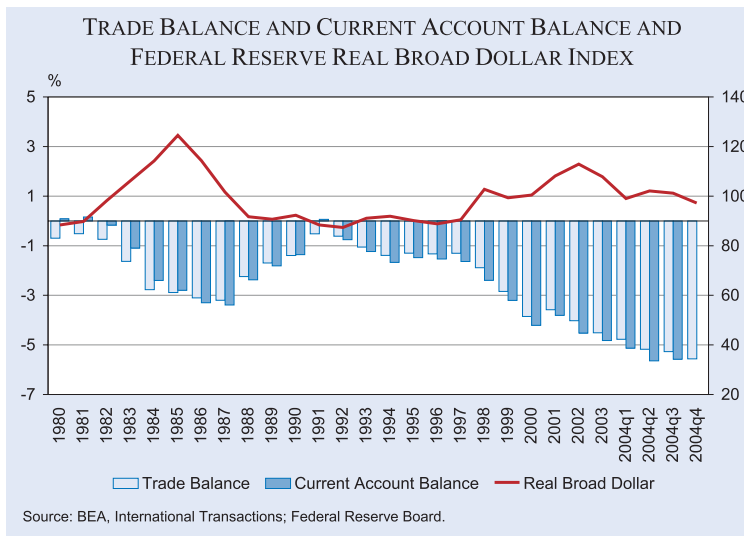
In sum, the collective co-dependency between the US and the rest-of-the world has enabled the international, domestic, and financial global imbalances to persist longer than they otherwise would have. Although the dollar began a generalized depreciation in 2002, suggestive that a break-up of the global co-dependents was underway, the distribution of the depreciation has been uneven in ways consistent with macroeconomic frameworks of analysis. Breaking-up is hard to do, particularly if that involves collective action on the part of some policy makers.

Global imbalance from the perspective of the international framework

The US current account is driven predominantly by trade in goods and services, which in turn is largely determined by US and foreign income growth, along

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Figure 1



with relative prices. With respect to growth differentials, movements in the US trade balance have been influenced largely by the degree to which the US and foreign economic cycles are out of sync. In the early 1980s, and again in the early 1990s, the US economy slipped into recession and imports slowed. During those cycles, world growth remained relatively robust, so US exports rose. The trade deficit narrowed from both the import and the export side.

During the mid-and late 1990s, the US current account widened as relatively anemic consumption and particularly investment growth in Japan, Europe and other markets around the world dampened demand for US exports while US consumption and investment grew at unprecedented rates and drew in imports. Since the 2001 downturn, US growth has rebounded more quickly than did growth in the rest of the world. Moreover, until several years ago, not only did growth differentials support a widening US external deficit, but also relative prices (as proxied by the real exchange value of the dollar) tended to augment the deficit by making imports cheaper and exports more expensive. Consequently, the US trade and current account deficits have widened into unprecedented territory, both in dollar terms and as a share of GDP (Fig. 1)

The macro picture of the US trade deficit masks important features of the disaggregated

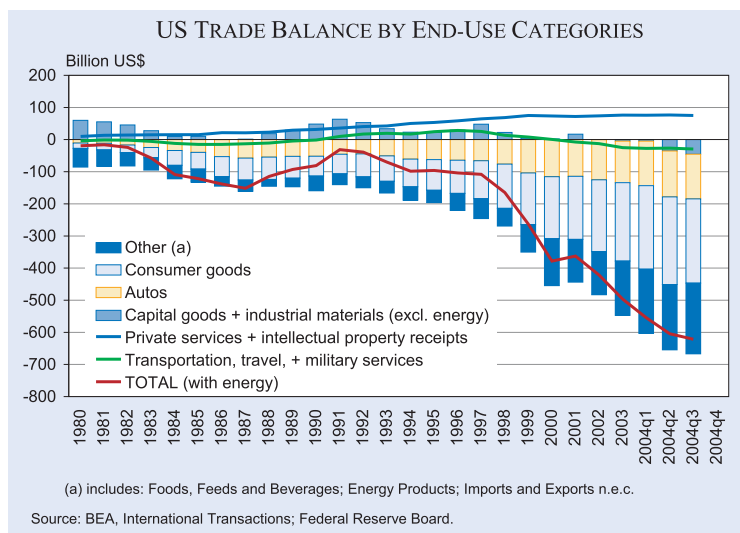
data, which may be particularly important for the advent and resolution of global co-dependency (Fig. 2). The largest category on both sides of the US trade equation is capital goods and industrial supplies and materials excluding energy, which accounted for 45 percent of exports and 32 percent of imports (2004). Up until 1997, net trade cycled through larger and smaller surpluses depending in large part on the US and global business cycles. Since about that time, however, the trade balance in this category has not recovered even as global growth

has revived. From a surplus of about \$50 billion in 1997, this balance is now in deficit to the tune of some \$50 billion. This change may reflect the initial and continued effects of the appreciation of the dollar. It may be due to relatively slow growth of investment in US exporters' markets abroad, which has been masked by more robust aggregated measures of economic activity such as GDP. Given the share of exports, tepid investment abroad would weigh more heavily on US exports of capital goods than on US trade overall. Or, there may have been a permanent change in the international supply chain for the production of capital goods, perhaps to center on China. Or, the fallout from the Asian financial crises may be persisting.

On the other hand, US 'other private services' such as education, finance, and business and professional

Capital goods and industrial materials is the largest category on both sides of the trade equation

Figure 2



services continue to reveal international competitiveness. The balance on trade in this category of trade (which now accounts for 6 percent of total imports and 13 percent of total exports) is positive and has continued to rise despite slow growth abroad. This is particularly impressive given that empirical analysis of the income elasticity of trade in services indicates that sluggish growth abroad disproportionately tends to hold down exports of these services.

Although capital goods and services may be the biggest categories of trade flows, the biggest component of the non-oil/non-agriculture trade deficit is in consumer goods, which account for 21 percent of imports and 8 percent of exports. When added to the net deficit in autos, nearly three-quarters of the increase in the non-oil/non-agriculture trade deficit since 1997 can be accounted for by these two categories of personal consumption expenditures. Moreover, only outright recession (in 1991 and 2001) stemmed the widening in these components of net trade. For some goods (such as apparel, shoes, and computer peripherals) a story of lost comparative advantage is plausible. But, for the full range of consumer and automotive products it does not seem to square with the historical comparative advantage in manufactured capital goods.

Overall, US trade evidences the empirical regularity that US imports grow relatively faster when US GDP grows as compared to how much US exports grow when foreign GDP grows. This empirical finding has several potential foundations ranging from the level of economic development in the United States vs. other countries, to love of variety of goods (including of imports from home by immigrants), to trade protection (particularly in services activities), to importance of scale in production. In addition, the very large structural imbalances in the consumer categories of trade may be a reflection of domestic

Current account balances as percentage of GDP, selected regions

	1980	1985	1990	1998	2003	2004	2005p
China	0.1	-3.7	3.1	3.3	3.2	2.4	2.8
Japan	-1	3.8	1.4	3	3.2	3.4	3.2
Asia/Pacific	-3	-0.4	-0.6	4.5	5	4.1	3.5
Western Europe	-1.3	0.6	-0.3	1.1	0.8	1.2	1.3
Australia	-2.7	-5.1	-5.2	-5	-5.9	-5.3	-4.9

Source: IMF WEO, September 2004.

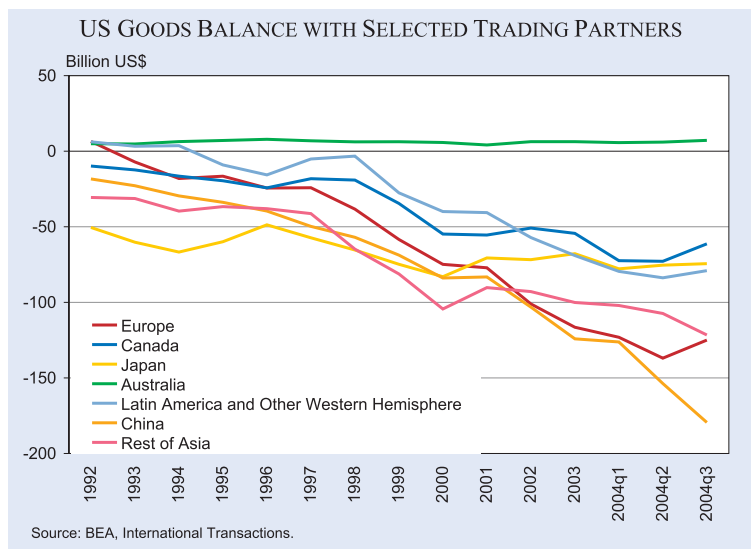
imbalance in the United States, to which we turn in the next section.

For the rest of the world, what does the international framework for analyzing global imbalances tell us? Considering a 25-year horizon, some regions and countries tend toward persistent current account surplus (Japan) and some tend toward deficit (Latin America and Caribbean and Australia and Canada). However, during the 1990s, almost all countries moved toward current account surplus, in some cases dramatically so (Latin American and Caribbean, non-Japan Asia/Pacific, Western Europe, and Canada). So, the widening of the US current account deficit has a counterpart in narrowing deficits and widening surpluses in other parts of the world (Table). These rising surpluses do not necessarily imply a co-dependency on the United States for growth.

However, when countries' global current accounts are examined more narrowly through the lens of bilateral trade with the United States, the dependency on US markets is dramatic. Over all countries and regions, there are large, and in most cases

Bilateral trade balances highlight the dependency on US markets

Figure 3



increasing, trade surpluses vis-à-vis the United States (Fig. 3). The widening US trade imbalance is not just due to imports from China or Japan, but is broad-based across all trading partners. Indeed, the worsening of the bilateral US trade balance vis-a-vis Western Europe is of about the same dollar magnitude as with China (1997 to 2004). (However, note the different behavior of the bilateral deficits for the recent quarters of 2004 – with Western Europe and Canada turning toward balance and Japan leveling off – an observation to which we will return.) Hence, even as the global current account imbalances of the rest-of-the-world are individually relatively small, and hence would not appear to warrant much policy attention, their dependence on the US market for the bulk of the positive improvement in their global current account is quite great and does warrant policy consideration.

An alternative presentation of trade data puts China at the center and shows that the region's growth success is still dependent on the US market. Figure 4 suggests that China is a value-added way-station for production ultimately destined for the United States and to a lesser extent Western Europe. To some degree the explosion in intra-regional trade in Asia is not from 'home grown'

Figure 4

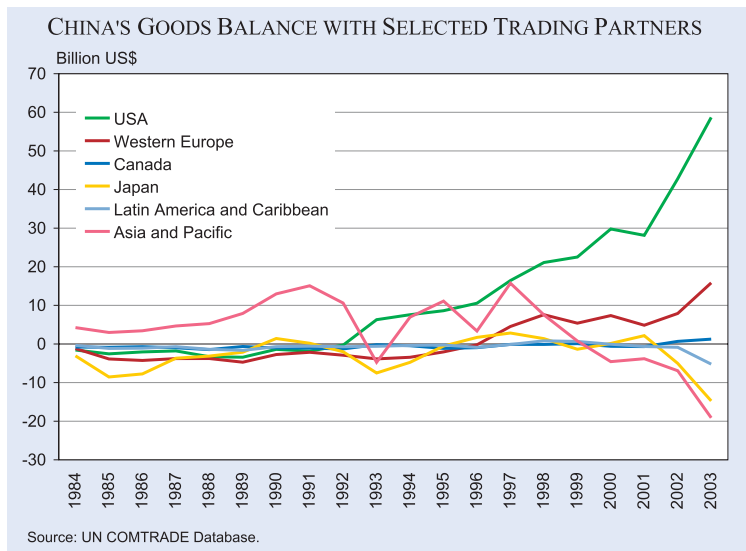
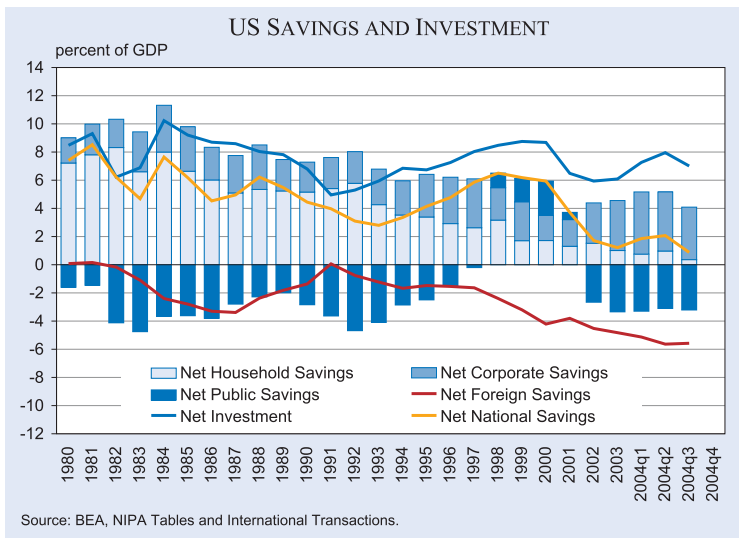


Figure 5



demand, but rather still depends ultimately on exporting to the US market.

Global imbalances from the perspective of the domestic framework

As is well known from national income and product accounting, an external deficit has as its counterpart an imbalance between savings and investment, or, equivalently, between production and domestic demand. How are the US current account deficit and the rest-of-world current account surpluses reflected in their domestic accounts?

For the United States, Figure 5 shows a decomposition of the national income and product accounts into the savings-investment balance, with the components of net national savings highlighted. During the 1990s, the narrowing of the fiscal budget, ultimately into surplus, helped finance the increase in investment of that period. In the last several years the fiscal position returned to deficit with about half to two-thirds of the increase in the deficit due to significant tax cuts to individuals. As investment rebounded, with insufficient national savings, net foreign savings (proxied by the current account) increased. The most notable structural feature of the national accounts is how private consumption in the

As domestic investment rebounded, with insufficient national savings, net foreign savings took up the slack

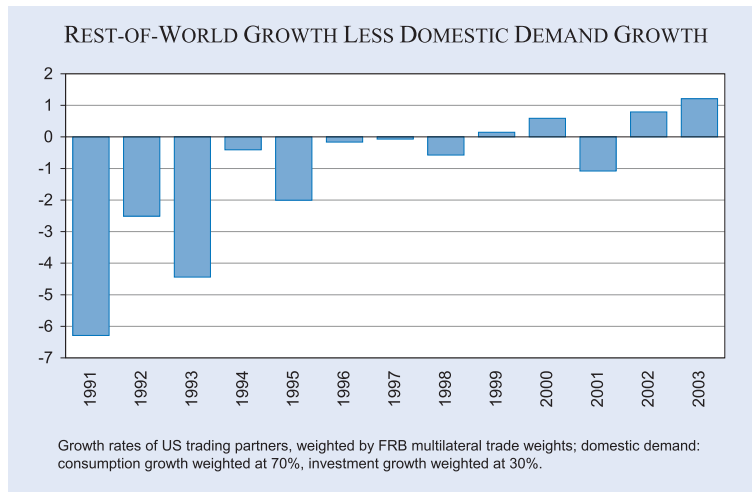
United States has been robust through periods of both fiscal surplus and fiscal deficit; net household savings has trended downward almost without pause.

Matching-up the domestic and international perspectives for the United States, the trending down of household savings in the domestic framework is reflected in a persistent widening of the deficits in the consumer goods and autos categories in the international framework. Policy choices and economic outcomes have augmented US consumption capability, at various times through equity wealth, housing wealth, and tax cuts.

For the rest of the world, the domestic framework for analyzing the global imbalance considers the difference between growth in domestic demand and growth in production. It is common to use growth in GDP as the measure of global economic activity; and this is correct when the objective is to measure global growth. However, when considering global imbalances between the U.S. and the rest of the world, it is important to net out the United States from the global growth equation. Moreover, to the extent that growth in GDP abroad is augmented by a positive net export position, as has already been observed in the systematic move toward current account surplus, growth in foreign GDP will tend to exceed growth in domestic demand. Finally, given the unbalanced composition of US trade, with exports of capital goods being five times more important than exports of consumer goods, considering the break-down of foreign domestic demand between consumption growth and investment growth may be an important link between the international framework and the domestic framework for analyzing global imbalances.

In fact, there was a systematic trend over the 1990s in the relationship between domestic demand growth and GDP growth for countries other than the United States (Fig. 6). Whereas in the early 1990s, non-US global GDP growth was less than non-US domestic demand growth, by the end of the 1990s and to 2003, foreign domestic demand growth fell short of foreign GDP growth by more than 1 percentage point. This unbroken trend narrowing of the

Figure 6



gap between non-US global production and non-US global domestic demand is the striking counterpart to the widening US current account deficit and helps explain the region-by-region net-export surpluses with the United States.

Global imbalances from the perspective of the financial market framework

The third perspective on global imbalances is international financial flows. By the nature of balance of payments accounting, a current account deficit implies net financial inflows from the rest of the world. For the United States, these financial inflows have changed in both magnitude and composition in recent years. Moreover, the extended period of US current account deficits (more than 25 years) implies a build-up of net financial obligations to the rest of the world whose composition and geographic concentration also have changed. The concentration and composition of financial portfolios in the United States and abroad may affect the pace and nature of the resolution of the global imbalances, particularly with regard to the need for coordinated or collective action by policymakers in Asia.

The US financial market offers a wide menu of assets: US Treasury securities, corporate stocks and bonds, direct ownership of a controlling interest in companies or real estate (foreign direct investment), even currency. The patterns and magnitudes of net purchases of these assets reflect broad trends in the financial marketplace. Foreign purchases of US assets regularly exceed the 'financing need' based on the US current account because US investors purchase assets from abroad. For example for 2004

The counterpart to the US current account deficit is the gap between foreign domestic demand growth and foreign GDP growth

(AR), the current account was \$666 billion but the financial inflow was \$1433 billion. Equity purchases were particularly notable during the stock-market boom years, and the share of US assets in equity portfolios abroad rose from 30 percent in 1993 to about 50 percent at the end of 2004 (Economist magazine 'Portfolio Poll'). Private and official purchases of US government securities resumed when the fiscal budget deficit reappeared and widened dramatically, thus creating renewed net supply of these assets. Indeed foreigners increased their share of US Treasury securities held by the public from 20 percent in 1990 to 30 percent in 2000 to about 55 percent in 2004.

Foreign official purchases of US Treasury securities have been particularly notable since 2002 when the dollar started to depreciate. Foreign official purchases during times of dollar depreciation are not new. Important foreign official purchases appeared in 1986 to 1989 and again in the mid 1990s, times when the dollar was experiencing depreciation pressures. However, official purchases accelerated during 2003 and 2004, and are unprecedented in terms of dollar value and as a share of total financial inflow. These foreign official purchases are concentrated by holder, with the share of Japanese official holdings in total estimated official holdings rising from 28 to 37 percent between 2000 and 2004 and the estimated share of holdings by China and Hong Kong, SAR rising from 16 to 20 percent of total estimated official holdings (Fig. 7).

For the United States, the accumulation of current account deficits yields an increase in the negative net international investment position, which totaled

\$2.4 trillion as of 2003 (direct investment at current cost). Gross assets (US-owned foreign assets) and liabilities (foreign-owned US assets) are, of course much larger at \$7.2 trillion and \$9.6 trillion respectively.

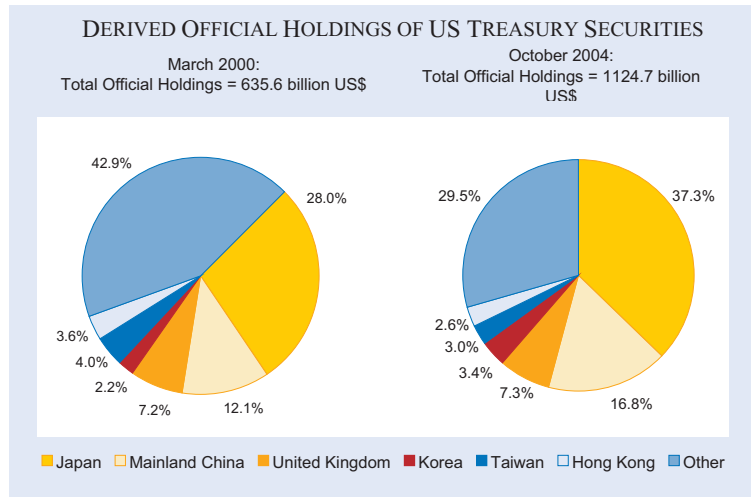
US obligations have several unique features. First, US international borrowing is mostly in dollar denominated financial instruments, so a dollar depreciation reduces the value of the debt. Second, earnings on US direct investments abroad regularly have exceeded the returns that foreigners get on their direct investments in the US. Hence the United States continues to receive net interest receipts (running at about \$25 billion for 2004) despite having a negative net investment position. On the other hand, 65 percent of the financial assets held by foreigners are interest-bearing instruments (including US Treasury securities) whereas only 45 percent of financial assets held by US investors abroad bear interest. This imbalance in financial holdings may increase the exposure of the United States to rising interest rates.

Medium-term concerns: Interest rate and exchange rate vulnerability

The previous sections have outlined the nature of global macroeconomic imbalances. This section focuses on potential vulnerabilities that might result from these imbalances, in particular, to interest rate and exchange rate changes. I will take as given that there are upward pressures on global interest rates and depreciation pressures facing the dollar. These are not incontrovertible, but seem a plausible direction to proceed.

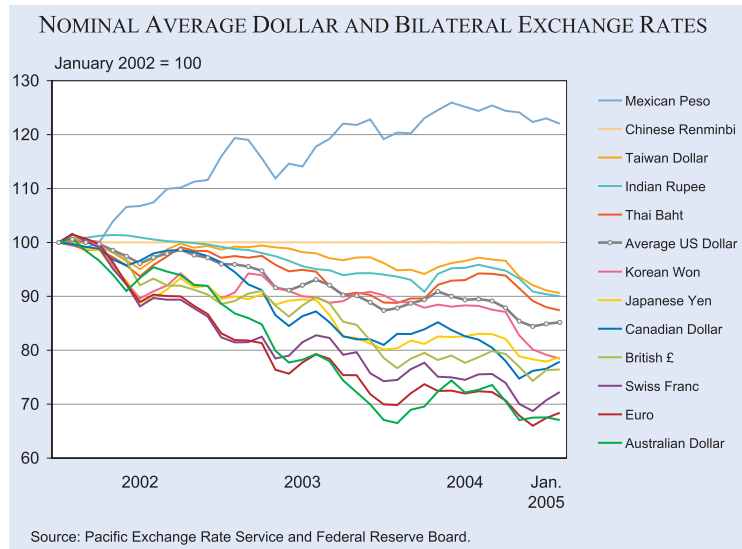
The foreign share of US treasury securities has increased to over 50 percent

Figure 7



The US imbalances to current account, domestic accounts, and financial account suggest two opposing vulnerabilities to rising interest rates and a depreciating dollar. On the one hand, the US negative net international investment position (and its decomposition into interest-bearing and non-interest bearing components) points to an increased vulnerability to rising interest rates. Higher interest rates should add net interest payments to the trade deficit and widen the current account deficit (even though the interest component is posi-

Figure 8



tive now). But, since most US obligations are dollar-denominated, a depreciation of the dollar will reduce the principal value of the obligations. Without a doubt, all else unchanged, financial payments associated with higher interest rates would raise the fiscal deficit (and reduce national savings). On the other hand, higher interest rates and a depreciated dollar are likely to reduce the magnitude of the trade deficit by slowing domestic demand and switching expenditure towards home goods and services and by increasing demand for exports. On balance, the United States faces a variety of adjustment challenges, but they do not go all in the same direction.

For the rest of the world, what kind of vulnerabilities do other countries face from a depreciating dollar? In general, the countries that have purchased US assets are likely to see a capital loss on those assets, both on account of currency valuation and on account of lower prices on assets with fixed interest coupons. At the same time, countries may see a reduction in exports to the United States, as well as have the opportunity to buy cheaper imports, associated with the switch from export-oriented GDP growth to domestic-demand-based GDP growth. So, for the countries in surplus and with large holdings of US assets, the adjustment is (even in the case of lower import prices) all one-way.

Over the last two years, some countries have started to absorb some of these changes – breaking up the co-dependency – and others have not. As noted already in the discussion of the financial accounts, some countries have built-up their holdings of US Treasury securities to a far greater degree than oth-

ers. These foreign official purchases of US assets are reflected in different rates of appreciation of individual currencies against the dollar (Fig. 7) and in differential responses in the trade accounts (Fig. 3). Currencies that are traded through liquid private markets (such as the Canadian dollar, British pound, Swiss franc, Australian dollar, and euro) have appreciated some 20 percent (Canada and Japan) to 35 percent (euroland) against the dollar since the beginning of 2002 (when the dollar started a generalized depreciation). For currencies that are not traded

widely or in liquid markets (such as the Taiwan dollar, Thai baht, and of course the Chinese renminbi), official intervention can play an important role in affecting currency price and their appreciation has been less or none (China).

Based on the movements in current account balances, in net exports to the United States, in purchases of US Treasury securities, and in arrested depreciation against the US dollar, it would seem that some countries have, if anything, moved toward increasing their vulnerability to changes in global interest rates and the exchange value of the dollar. The rationale for this strategy could be an 'insurance policy' should private markets turn against them again (as they did in the Asian financial crises). More generally, the policy choice to limit current appreciation supports the current economic structure and sources of growth (that is, exports relative to domestic demand).

Presumably, these policymakers are doing the calculus to compare the value of economic gains today against the present-discounted-value of (1) future losses on the dollar-denominated asset portfolio should the domestic currency appreciate against the dollar *plus* (2) the presumably rising costs of making real-side adjustments in the source of economic activity from exports to domestic demand. Given Their policy strategy, it seems that for them, global co-dependency continues to make economic sense. In addition, to the extent that the currencies in the region are bound together by production strategies cemented through direct investment they face a collective action problem. If one country unilaterally

For the U.S., the adjustment challenges do not all go in the same direction, for the rest of the world, the vulnerabilities are rising

breaks out of the currency trend, it bears the brunt of adjustment in the region.

With the US current account deficit beyond all historical precedent and with the build-up of US assets in the portfolios of private and official actors, the dollar should be under significant depreciation pressure and indeed it has depreciated from its trade-weighted 2002 peak. However, dollar adjustment alone is unlikely to close the US side of the global imbalance due to the size of the initial imbalance as well as to the lop-sided role of consumption. On the other side, some policymakers abroad, for their own structural reasons to depend on exports to grow, have inhibited an appreciation of their currencies against the dollar, even as others have absorbed substantial currency change. Overall, US adjustment is stymied and, potentially worse, rest-of-world imbalances may be concentrated in regions and official holdings in Asia where there has been the tendency to limit both exchange rate change and structural reorienting of demand. Coordinating a collective move there could aid global internal, external, and financial adjustment.

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UNEQUAL SPENDING, AGGREGATE DEMAND AND INTERNATIONAL FINANCIAL STABILITY

H. PETER GRAY*

Since 1945, the US dollar has been the key or reserve-currency of the international financial system. The chronic and ongoing series of large US current-account deficits from 1983 through 2004 (with a negligible exception in 1991) has now placed the US dollar in a vulnerable position. The cumulative deficits at annual rates of over \$0.5 trillion in 2003 and 2004 threaten the currency's ability to maintain the confidence that is necessary for it to continue as the reserve-currency. Easily-encashable dollar-denominated assets owned by private non-residents comprise Treasury debt, corporate stocks and bonds, and currency. These assets have increased from just under \$2.25 trillion in 1997 to over \$4 trillion at the end of 2003 (not including the liabilities of banks and other financial intermediaries to private non-residents). At the same time, the net international investment position of the United States¹ has worsened to approximately minus \$2.5 trillion. Continuing large current account deficits by the United States will increase its net indebtedness. It will ultimately cause private owners of dollar-denominated securities, non-residents and residents alike, to anticipate still further losses as the dollar continues to weaken in foreign-exchange markets and/or as interest rates rise to attract or retain foreign financial capital. The process is likely to become self-reinforcing as both components of the values of the securities to foreign residents, the domestic price in dollars and the dollar's rate of exchange against the home currency, will decline. In this way, net sales will reinforce pessimistic expectations and encourage further sales. US residents, who are pessimistic

about the dollar, will also have their expectations strengthened and will be tempted to take positions in securities denominated in foreign currencies to safeguard their individual wealth.

If the US current account deficit could be eliminated smoothly without financial crisis, the policy concerns would be the severity of the costs of adjustment placed on the US economy and its residents, and the costs of losses to non-resident owners of dollar-denominated financial assets. Most important, however, would be the repercussions of those events on the prosperity of the global economy. If the relevant markets become disorderly, the same areas of concerns exist but the accompanying degree of dislocation will be greater. The size of the US current deficits (of over \$600 billion in 2004) and the neglect of the deficits by official Washington suggest that a smooth adjustment is improbable and, in the absence of a miracle of global co-operation, serious stress in financial markets is unavoidable. The severity of any such crisis cannot be known *ex ante* but the possibility of substantial sales by US residents to acquire assets denominated in other currencies makes the potential crisis very severe indeed.

Section 1 of this paper examines the recent history that has led to the existing state of affairs. It identifies the macrofinancial linkages that exist² and reports on the package of measures that must be invoked by the US authorities if the deficits are to be seriously reduced. An assessment of the difficulties that must be faced in maintaining the level of global aggregate demand needed for a prosperous world economy follows in Section 2. Section 3 will show that major financial instability is quite feasible. The conclusion will draw the arguments together and will assess the inevitable need for the problem to be quickly, co-operatively and creatively addressed if major disruptions are to be avoided.

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¹ This number can be thought of as the balancing item in a country's international balance sheet.

² The term "macrofinancial" was coined in Gray (2004) to recognize the inseparability of the real and the financial sectors of an economy. Contagion between the two sectors is the inevitable aftermath of major stress. Too often, one of the two component sectors is excluded from analysis. Obstfeld and Rogoff (2004) is an example of such an approach, though the authors do refer to the possibility of instability in the financial sector as a limitation of their formal model.

More important than the costs of adjustment for the US economy are the repercussions on the prosperity of the world economy

The implications of current account deficits

A nation's deficit on current account is the first measure of the change in its net international investment position. The deficit represents collective dissaving (or overspending) by residents of one country with non-residents in the rest of the world. To measure the exact change in the net investment position, the current balance must be amended to include the effects of changes in the value of assets owned abroad by residents and at home by non-residents in the reporting currency. In this way, a weakening of a nation's currency is likely to generate an increase in the value of foreign assets and to ease the ongoing rate of decline in the net international investment position. The current deficits of the United States have grown steadily, but not monotonically, from \$82 billion in 1993 to something in excess of \$600 billion in 2004.³ The current surge began in 1998 when the annual deficit increased to \$204 billion from \$127 billion in 1997.

To reduce such a leakage of national wealth, the deficit country must sell more exports and spend less on imports of goods and services. For this to happen, the price-competitiveness of the deficit country must be improved by a weakening of its currency after adjustment for any induced price-level effects and/or the rate of total expenditure must be reduced. The higher costs of imports of intermediate goods must be passed through to domestic users and to export prices. Equally, the higher costs of imports must not be absorbed by foreign suppliers seeking to maintain their market in the deficit country. Put simply, the so-called real rate of exchange must be reduced by the depreciation of the deficit country's currency. There exist other means of improving the price-competitiveness of an economy and these can involve the whole panoply of measures that constitute commercial policy. These measures are, largely, inefficient ways to remedy chronic deficits and are not considered in this paper.

If the deficit country has a high rate of capacity utilization, its total use of resources including imports (its absorption) must also be reduced in order to create available capacity for more exports and import substitutes (Alexander 1952). Modern economic thinking suggests that a reduction in resource use

will not be generated by an adverse shift in the net barter terms of trade when the deficit amounts to 40 percent of US current credits as in 2003. Contractionary macrofinancial policies must be instituted by the deficit country's economic authorities. These measures will inevitably reduce the (rate of growth of) deficit of the central government and the real incomes of households. Elected politicians will be loath to take such measures if it is believed that they can be postponed (until after the next election). The need for contractionary measures is also due to the fact that many households will possess enough assets so that they will not be forced by less favorable terms of trade to reduce their rates of expenditure.

A kind explanation of how the United States allowed itself to get into this predicament is that it was conscientiously fulfilling the duties of the key- or reserve-currency country. In addition to providing a reliable repository for foreign reserves, one of the responsibilities of the key- or reserve-currency country is to add to global aggregate demand when necessary. If the reserve-currency country is to allow other nations to acquire international reserves without diminishing the level of global aggregate demand, it must run a current deficit equal to reserve acquisition. (This is the fatal flaw in an international financial architecture that relies on a national currency for its reserve currency.) A less benevolent explanation would attribute the size of recent deficits to the increase in US spending in the last four years. The deficit of the federal government has reached record amounts and saving by households has fallen from 3.73 percent of personal income in 1998 to 2.06 percent in 2002.⁴ Present conditions imply that the Bush administration has refused to recognize the possibility of the dollar being vulnerable even when, as in 2003, the country had to borrow to cover forty percent of its current purchases from abroad. This insensitivity may follow from the dollar having been the global key-currency for almost sixty years or by having Washington optimistically link super-power status with the impossibility of insolvency. Peterson (2004, p. xxii) reports that the Vice President in the Bush administrations was heard to announce that Reagan proved that deficits don't matter. A third possible explanation links the large inflows of portfolio capital to the increase in the strength of the dollar in the 1990s.

Politicians will postpone contractionary adjustment measures as long as possible, relying on the dollar's continued role as reserve currency

³ Complete data for 2004 were not available when this paper was written: the number used is the sum of the reported current deficits for the first three quarters of 2004 and for the fourth quarter of 2003.

⁴ The usual means of computing saving rates is from disposable (after-tax) income. These calculations use personal income to allow for the effects of the Bush tax-cut to be included.

The current deficit has not become smaller as the inflation-adjusted dollar has weakened sharply. It is difficult to attribute a responsibility for the large increases in terms of the size of the deficit in the last three years to portfolio inflows when the dollar has weakened in terms of the major European countries and by about 20 percent since 2002 on a broader, trade-weighted basis.

Any disturbance that impinges on the US financial system is likely to be magnified by the interdependence of the foreign exchange market and the markets for easily encashable assets. Non-residents own over \$500 billion of Treasury securities so that there exists a potentially close relationship between concerns about the vulnerability of US debt (because of the total outstanding debt) and the confidence of non-residents. A loss of confidence by residents in Treasury debt could quickly expand to the foreign-exchange market as non-resident owners unload Treasury securities. Similarly, the so-called real and the financial sectors are interdependent and a shock that exerts its major effect on one of those sectors will also indirectly generate a shock in the other. Put simply, net sales of dollar-denominated securities will increase the cost of capital in the financial sector. Stress in the financial sector will force increases in interest rates and slow economic performance even while foreign investors question a policy of leaving assets in dollar-denominated equities. These interdependencies and the failures of policymakers to fully comprehend the importance of sustained imbalances in the international financial system suggest that the simple interpretation of a self-correcting system of international markets for goods and for assets needs major qualification.⁵

The argument to this point suggests that official holdings of dollar-denominated assets will not be sold and transferred into different currencies. This imputed tolerance on the part of national economic authorities derives from their recognition that the elimination of the dollar as the global key-currency is likely to have severe adverse repercussions on the performance of their own economies. While the

⁵ *The Economist*, (13th November 2004, p. 84) refers to the possibility that non-resident investors in dollar-denominated securities will lose money on these investments as, potentially, "the biggest 'default' in history." This language suggests that the US Government has perpetrated present conditions by design. The series of current deficits has gone on for far longer than it should have, but *caveat emptor* applies to purchases of securities as well as to purchases of eggs and melons. The appeal by Chancellor Schroeder in July 2003, for a weaker euro could be seen as a tacit approval of an even larger US deficit.

economy of the debtor/deficit nation will suffer most, the inevitable reallocation of resources caused by a major realignment of exchange rates will adversely affect all of the major nations in the short and medium term. National economic authorities have, therefore, a vested interest in avoiding a financial crisis.

Global aggregate demand

National aggregate demand is recognized as an important component of modern economic policy since it directly affects the rates of employment and capacity utilization. In addition to domestic policies of changing the size of fiscal deficits and monetary policy, an important source of national aggregate demand can be a country's surplus on current account. Some nations rely heavily on this component. The fact that the world is a closed economic system and that global exports (international credits) must equal global imports (debits) is not as well recognized as a policy constraint. The nations of the world cannot, as an aggregate, run a current surplus, and imbalances merely redistribute aggregate demand among nations. This constraint has serious implications for the present conditions. The United States has been providing aggregate demand to the other countries in the global economy by running annual current deficits in excess of half a trillion dollars a year for the past two years and an average deficit of \$400 billion for the three years 2000 to 2002. When the United States is forced by the vulnerability of its dollar to reduce its current deficits severely (and even to run current surpluses), some other countries in the global economy will have to find alternative sources of aggregate demand. These will not be easily generated unless some chronically-surplus countries, which have been storing up reserves, are willing and able to reduce their own net international investment positions by running current deficits.

The United States will, to the degree that its policies of depreciation of the dollar and expenditure-reducing macrofinancial policies are successful in reducing its current deficit, enjoy an increase in demand for exported goods and services and for erstwhile imports of competitive goods. Other countries face excess capacity in export industries and the need to reallocate resources from these industries to produce goods for domestic markets. The reallocation of resources among different sec-

This interdependence of the real and the financial sectors implies that a shock to one will also generate a shock in the other

tors of an economy is a slow and painful process. The larger the reallocation, the greater are the social costs likely to be and the smaller will be the arc elasticities of supply. The United States, as the severely deficit country, will face the largest absolute need to readjust the mix of output and to reduce absorption.

Member countries of the euro bloc face a particular problem which will require flexibility and statesmanship on the part of the governments of the members of the bloc. The ability of the euro area as an entity to generate aggregate demand is constrained by The Stability and Growth Pact (Rehman, 1997, pp. 424–9). The Pact was originally designed to prohibit the creation of severe stresses on the new unified currency by the existence of different rates of inflation in member countries. A maximum permitted ratio of federal deficit to gross domestic product was set at three percent: excesses were to be punished by fines. Currently, three large economies in the euro area are seen to be operating beyond the prescribed limits for domestic reasons. While these countries will not be able, legitimately, to generate more aggregate demand through fiscal policy, the constraint is not absolute. Additionally, other member nations could exercise their unused fiscal latitude, much of their increase in demand should spread throughout the euro area to the benefit of the three nations which are running excessive deficits.⁶

The likelihood of financial crisis

Mainstream economic analysis does not easily confront the possibility of discontinuities that are substantial enough to warrant the word “crisis”. However, the possibility of the dollar having to face a critical range of instability in the foreign exchange market is very real. The way in which this will happen will become more easily apparent if one regards the key-currency country as a bank with a large volume of liabilities that can be easily and quickly withdrawn. There is no formula to judge the adequacy of the foreign exchange reserves of the key-currency country in the same way that various formulae have been concocted for commercial banks. However, the

principle is the same. The greater the volume of liquid liabilities and the more depositors are able to share information, the greater is the probability of a run on the bank. Paul Volcker, Alan Greenspan’s predecessor as chairman of the Board of Governors of the US Federal Reserve System, has been quoted as saying that there is “a 75 percent chance of a currency crisis in the United States within five years” (*The Economist*, 13th November, 2004, p. 84). For financial instability to be avoided, it is necessary for the United States to maintain the confidence in dollar-denominated securities of both non-resident and resident asset-holders. This requires that the economic authorities adopt the classic but politically unpopular measures of reducing the outstanding deficit on current account and, perhaps even more painful, the related fiscal deficit of the federal government. The record of the first George W. Bush administration does not inspire optimism either in the recognition of the problem or in its willingness to reduce absorption.

There exist, in addition, two potentially serious developments in the last twenty years capable of aggravating the volatility of funds when a crisis in foreign-exchange markets is anticipated. The first derives from the existence of hedge funds. The economics profession has no clear idea of how hedge funds will exploit disorderly markets or of how they can be constrained. This problem is not one of morality since hedge funds can be expected to do, much more quickly and more efficiently, exactly what private citizens will do when they reduce the proportion of dollar-denominated assets in their portfolios. The second development, which has implications for the capacity for disorder in foreign exchange markets, is equally unknown. It derives from the large numbers of affiliates of multinational corporations, which currently exist. The tangible assets of multinationals are difficult and costly to sell and are, therefore, not included in the value of easily encashable claims. Working capital must, however, be included. All multinational firms and most affiliates have departments which control working capital so that its costs are minimized. The goals of individual affiliates and parent corporations may not be identical but departments of working capital management are ideally placed and trained to focus on the cost of capital and to be aware of developments in foreign exchange markets. Indications of a potentially large disturbance in foreign-exchange markets could generate defensive, destabilizing measures.

To avoid a currency crisis in the U.S., confidence in dollar-denominated securities must be maintained

⁶ Strangely, the limits were originally defined quite precisely with no institution being given contracyclical discretion so that the maximum ratio of fiscal deficit to GDP could be increased for all members simultaneously if global conditions warranted. This omission is probably an indication of the difficulties of negotiating the Treaty of Maastricht.

Conclusion

The argument of this paper is based on the presumption that, sooner or later, the growing net indebtedness of the US economy to residents of other countries will trigger a severe currency crisis. The remedy for the crisis will be for the United States to apply measures to reduce its current deficit to tolerable amounts and, ultimately, to generate a surplus. This process will create substantial adjustment costs in nearly all nations involved in the global economy as resources are transferred among sectors. These costs will be most burdensome in the deficit country, which must reduce its standard of living by roughly the ratio of its excess spending to its income (the ratio of the deficit to gross domestic product).

If the corrective measures can begin to be applied before the global economy confronts crisis, the adjustment process will be less severe. There is, however, little cause for optimism. Both the annual deficit of the federal government and US current deficit are at record levels and the record of the recently re-elected President is that his administration will not heed macro-financial constraints before it is forced to. The major problem is not confined to the United States. Peterson (2004, p. 36) quotes Lady Thatcher to the effect that heads of government are not willing to impose unpopular fiscal/monetary constraints on their domestic economies when the needed adjustment can be postponed to a later generation of office-holders. The unanswered and unanswerable question is whether the inevitable recession will be sufficiently deep for the global economy to lapse from the generally satisfactory record of achievement of more than fifty years' duration.

Policymakers, who will be required to handle this problem when it comes to a head, must recognize that the existing sources of stress resemble those that existed in the 1920s and 1930s with all of the hardships and dislocation that they brought. World War I destroyed the régime that existed up to 1914 (Gray 2004, pp. 16–24). The reign of sterling as the key-currency was destroyed when the British economy tried to return to the gold standard at the pre-war exchange rate of one pound sterling worth almost \$5 (4.86). This decision neglected the much greater wartime inflation in the United Kingdom than in the United States, the sale of overseas assets by the United Kingdom and the user cost on the British stock of productive capital during the war. The mon-

etary commitment required high rates of interest in the United Kingdom which handicapped the regeneration of that country's productive sector. During this time, the United States retreated into isolationism and the global economy foundered with no key-currency to lead it. The key-currency of the past sixty years is now on the point of exhausting its capacity to inspire the necessary degree of confidence.

The world must learn from history and recognize the stress placed on key-currency nations. The modern world has created two and worn them both out. Policies were not all-wise in either the United Kingdom at the end of WW I or in the United States in recent years. The record does suggest that any architecture that uses as the global reserve-currency, a currency which also serves as a national or a bloc currency, has only finite capability. When the nations of the world decide to or are forced to confront the exhaustion of the dollar, it seems that *Proposals for an International Clearing Union* (1943),⁷ which divorces the role of key-currency from a national currency, must be required reading.

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⁷ Because of J. M. Keynes's major role in its formulation, this was commonly called "The Keynes plan" (Grubel 1984, p. 12).

Chances are poor that the U.S., the key-currency country, will adopt corrective measures in time to avoid a severe currency crisis

DEBATING THE EU SERVICES DIRECTIVE

PRO: OPENING THE SERVICES MARKET – STANDING STILL IS NOT AN OPTION

CHARLIE MCCREEVY*

The EU Treaties – the Union’s basic law – promise the free movement of goods, people, capital and services, the ‘four freedoms’. These underpin the internal market and are the bedrock on which the work of the European Union rests.

The free movement of goods generally works well. If I manufacture anything from a needle to an anchor in one Member State, it is taken for granted that I should be able to offer it for sale in another one.

The same has not applied in the case of services. Despite the promise of the Treaties, serious obstacles and barriers remain. These continue to frustrate the efforts of those who wish to engage in legitimate cross-border trade.

Europeans, rightly, do not expect people to go through life without a safety net. We respect the dignity of work and demand standards in the workplace. We work for social inclusion and environmental protection. But our population is aging and the economic challenge from other parts of the world is growing. If we are to sustain our way of life we must act now.

Europe faces serious problems. While some Member States are doing well, others, among them some of the largest economies in the Union, are not attaining sustainable levels of growth. Our inability to get our economies moving and to create jobs is posing a serious challenge to the sustainability of Europe’s social model.

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Services make up 70% of the Union’s GDP. Almost all new jobs created in recent years have come from this sector. Given the sluggish nature of the European economy and the dynamic potential of services, you don’t need a higher degree in economics to put the two together. To galvanise Europe’s economy, you need to do something about services.

That is where the Services Directive comes in. Controversy has come to surround this subject. Assertions of social and environmental dumping and a race to the bottom are fairly typical examples of the criticism it has faced. In a democracy, open debate is vital. I am disappointed, however, that debate in this area has been so ill-informed.

It has particularly saddened me that some of the criticism of the proposal on social grounds frequently heard in older Member States has been motivated by a wish to prevent workers and businesses in the newer Member States from enjoying the full benefits the Union offers. That these arguments are advanced in countries that have gained so much from the Union, is profoundly depressing.

We should call a spade a spade. When some people speak about the Services Directive introducing ‘social dumping’ – a phrase I particularly dislike – they mean that it will be made easier for businesses and workers from one Member State, including new ones, to offer services in another. And, frankly, they don’t want the competition and they don’t care if it will result in greater choice and lower prices for consumers.

So, let’s get some facts straight. What does the Services proposal set out to do?

- Make it easier for people to set up businesses, cut unnecessary red tape. In some Member States it takes over a year to set up a company. In others, an economic case has to be presented to justify the opening of a new shop. Such unnecessary controls need to be done away with. Encouraging entrepreneurship, not killing it, is what is needed.



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- Strengthen cooperation between Member States so that cross-border provision of services can operate.
- Ensure that workers sent from one Member State to another are governed by the social legislation in the host Member State. This includes minimum wage levels which must be respected.
- Ensure that customers have proper information on the quality of services and the companies providing them, and legal redress if things go wrong.

What does it not do?

- It does not make it any easier, or harder, for workers to move from one Member State to another. It changes nothing in this regard.
- For example, it does not allow workers from lower wage countries to move to higher wage countries undercutting wage rates. Social legislation including minimum wage rates of the place of employment continue to apply.
- It does not prejudice or compromise the responsibilities of Member States in relation to services of general economic interest.

I have made it clear that I am open to accepting improvements to the text and will accept changes to address genuine concerns. If others regard it as helpful, it can be made crystal clear that workers' rights must be protected and that certain sensitive sectors will not fall within its scope.

But I do not think this is the real issue. It is more fundamental. I respect the views of people on the left and on the right. But no matter where you stand on the particular problem regarding the European economy, you have to conclude that standing still is not an option.

We have to find the balance that takes into account the concerns of those in employment today and the interests of the millions who will be coming on the job market in the years ahead. If we do not have a vibrant economy, there will not be enough jobs, no decent standard of living or social inclusion to defend.

I want to move this debate forward. I would like to build a consensual approach. Change needs a consensus. I will not be dogmatic in my approach and I ask the same from others. But there is a crucial challenge to boost growth in the EU. Avoiding difficult choices is not an option.



CONTRA: GREENS ASK FOR ALTERNATIVE APPROACH TO THE LIBERALIZATION OF SERVICES IN THE EU

HEIDE RÜHLE*

While the Greens strongly support the Lisbon strategy's principal aim of job creation and innovation, we oppose the Commission's proposal for a Directive on services in the internal market. It is not without reason that this proposal is criticized and disputed throughout Europe. While in general we are in favour of more freedom of service provision, social, environmental and quality standards must not be put at stake.

The Directive may lead to social and environmental dumping. The Directive establishes the country-of-origin principle as a general rule for the free movement of services. According to this idea, service providers would not be subject to the laws and regulations of the country where the activity is taking place but rather to those of the country where they have their *siège social*. When former Internal Market Commissioner Bolkestein drafted his Services Directive he may have only had the EU15 in mind. In a Union of 25, however, existing economic and social disparities are likely to create a race to the bottom in standards. Even though there is a series of derogations, without prior harmonisation service providers will tend to establish themselves in those Member States with the lowest standards. With this type of legislation the European Union would renounce harmonisation

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as a central characteristic of its internal market. Especially SMEs from those countries providing high standards may be subject to even double discrimination, as they might neither be competitive on their home markets, nor have any chance on foreign markets. The Commission's proposal would probably favour the development of large transnational consortiums of service providers and jeopardise small local providers. The proposal will also lead to more bureaucracy as national administrations and judiciary systems will have to be aware of 25 different national systems in 20 different languages.

We believe, that the Directive's scope is much too wide as it includes services of general (economic) interest. Many services of general (economic) interest such as healthcare, culture, audiovisual services, social services or education services would be covered by the Directive as long as they involve at least partial economic remuneration. At the same time, in spite of strong demands from the European Parliament, there is no parallel proposal for a Directive on services of general interest. We fear, that the services (including healthcare) that are to fall under the Directive would jeopardise Member States' ability to organise adequate service provision.

There are better ways to achieve the Commission's relevant objectives. We propose an alternative approach concerning a limited number of commercial services. This alternative approach should be consistent with the objective of Community harmonisation and be based on the following principles:

- A limited scope with a positive list of sectors which should be covered, i.e. economic activities of self-employed persons (article 47 EC) which do not involve any mission of general interest.
- Concerning the issue of free movement of services: applying the host country principle instead of the country of origin principle as long as there is no full and upward harmonisation regarding the access to and the exercise of a service activity, in particular in terms of behaviour of the provider, quality or content of the service, advertising, contracts and the provider's liability.
- Concerning the issue of freedom of establishment: setting up an open coordination method, instead of a legislative approach, in order to com-

pare Member States' requirements and authorisation schemes.

- Creating one-stop shops and other administrative instruments in order to facilitate access of service providers to relevant information and improve administrative cooperation between Member States.

If there is an open debate on the issues of greatest concern, a consensus will be found that will serve consumers and providers.

THE EUROPEAN COMMISSION'S PROPOSALS FOR CORPORATE TAX HARMONIZATION

CHARLES E. MCLURE, JR.*

Introduction

When a group of affiliated corporations operates in multiple jurisdictions that impose income taxes, it must divide its taxable income among the jurisdictions. The Member States of the European Union (EU) currently employ separate accounting to determine the income of each member of corporate groups and “source rules” to attribute that income to the Member States where the income is deemed to originate. Separate accounting relies on arm’s length prices – prices that would prevail in transactions with unrelated parties – to value transactions between members of the group. But using separate accounting and the arm’s length standard (hereinafter SA/ALS) is complex and impedes the creation of a single market. The European Commission (“the Commission”) recently proposed that EU Member States consider shifting to formula apportionment (FA) to divide the consolidated group income of EU corporations. (Commission of the European Communities, 2001, 2002; Diemer and Neale, 2004). While shifting from SA/ALS to FA is desirable, it faces formidable political obstacles, because the adoption of income tax measures requires *unanimity*.¹

This article describes and appraises the Commission’s proposals. It first describes salient features and problems of the current system and the four alternatives tabled by the Commission. It then discusses the two proposals thought to be politically viable, under the simplifying assumption that all Member States and all eligible corporate groups opt to participate. Some strengths and weaknesses of the US and Canadian FA systems are noted, primarily in footnotes.² The fifth section considers the implications of making participation optional, and the sixth

deals with taxation of international income flows. The concluding section summarizes benefits and costs of shifting to FA and reemphasizes the political obstacles to harmonization.

Separate Accounting and the Commission’s Proposals

The current system

EU Member States generally apply the system outlined in the OECD Model Tax Treaty to income flows within the EU, as well as to flows to and from non-EU countries. They generally tax the net business income (income after deduction of expenses) of permanent establishments deemed to originate within their jurisdiction. Gross payments of interest, dividends, and royalties are subject to withholding taxes, which are often reduced by treaty, sometimes to zero. It is thus necessary to distinguish between types of income and apply “sourcing” rules to determine where each is deemed to originate. Member States use SA/ALS to determine the amount of business income to tax. Some exempt foreign-source business income. Others tax the worldwide income of resident corporations, but allow a credit for taxes paid to source countries.

Problems of SA/ALS

The economic integration of the EU and the growing number of cross-border transactions between affiliated corporations will make the continued use of SA/ALS increasingly problematic:³

- Compliance with 25 national tax systems is complex and costly;
- Distinguishing between types of income and determining the geographic source of each is complicated;
- Arm’s length transfer prices may not exist for the most important transactions, those involving intangible assets; there may be no transactions with third parties and information on similar transactions by competitors is generally unavailable;
- There are both incentives and opportunities to manipulate transfer prices, including terms of financial transactions, to shift income to low-tax jurisdictions;
- Because operations in various Member States are economically interdependent, a

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¹ Also, under the principle of *subsidiarity*, the Community acts outside its areas of exclusive power only if an objective cannot be sufficiently achieved by actions of the individual Member States and is thus better achieved by the Community. Setting income tax rates is the exclusive prerogative of Member States.

² For more complete discussions of US experience and its relevance for the EU, see Weiner (1996) and (2001); McLure and Weiner (2000); and Hellerstein and McLure (2004a) and (2004b).

³ See Commission of the European Communities (2002, p. 739); UNICE (2000); and Klemm (2001).

- scientifically defensible division of income may not exist;
- When Member States do not agree on a corporation's transfer prices, double taxation may result;
- The European Court of Justice (ECJ) may find that some rules (e.g., thin capitalization rules) contravene the EU Treaty;
- The inability to offset losses in one Member State against profits in another discourages cross-border expansion;
- SA/ALS can distort choices of organizational form (e.g., operation via a subsidiary or a branch) or impede cross-border reorganizations;

A simple example illustrates some of these problems. Suppose that a corporate group headquartered in Luxembourg uses legally separate affiliates chartered in the Member States indicated to engage in the following closely integrated activities: research in Germany, financing in the UK, production in Ireland, and sales in France and Belgium. Under current practice each Member State would employ SA/ALS, based on relevant domestic law, to determine the income of the entity subject to its jurisdiction. It would be necessary to determine the nature of various income flows and the proper transfer prices for headquarters activities, financing, research, and final products. Transfer prices may be manipulated to shift income to Ireland, which has the lowest tax rate; arm's length prices may not exist for the fruits of research; and Member States may not agree on particular transfer prices. Also, losses in one Member State may not offset income in another.

FA recognizes the inherent difficulty of using SA/ALS in an integrated market to determine the "true" source of income (the entity or the geographic area) and uses a formula to divide income among the jurisdictions where the corporate group operates. An FA system must address four issues – the definition of apportionable income, the definition of the consolidated group, the apportionment formula, and tax administration.

The Commission's four alternatives

These two proposals involve loss of sovereignty over tax policy that would probably be unacceptable to some Member States⁴ and are generally not considered further:

⁴ The Commission's proposals represent a remarkable turn of events. During the 1980s some EU members (especially the Netherlands and the UK) opposed US state application of FA to the worldwide activities of unitary corporate groups. Moreover, less than 10 years ago the Ruding Committee rejected a shift to FA. (Commission of the European Communities, 1992).

- *European Union Company Income Tax* (EUCIT). Revenues would accrue to the EU, not to Member States.
- *Harmonized European Tax System* (HETS). Except for rates, corporate income taxes of all Member States would be totally harmonized; all would use the same definition of apportionable income, the same definition of the consolidated group, and the same apportionment formula.

The two proposals that may be politically viable share these characteristics: voluntary participation by both Member States and corporate groups (to get around the unanimity rule);⁵ a single apportionment formula; tax administration by the Member State where the group parent is headquartered (the "Home State," generally the place of effective management under existing rules); and application of domestic tax systems in Member States that do not participate, for corporate groups that do not participate, and for purely domestic corporations (those operating in only one Member State).

- *Common Consolidated Base Taxation* (CCBT). Participating Member States would agree on the definition of apportionable income, the definition of groups, and cross-border offsetting of losses.
- *Home State Taxation* (HST). A participating group would calculate apportionable income under the rules of the Home State (provided it participates), including those for consolidation and cross-border offsetting of losses. Under the principle of "mutual recognition," participating Member States would only recognize the legitimacy of tax rules of other Member States that do not deviate too much from accepted norms.

For convenience, the last three schemes are called "harmonization". Business groups see Member State control of tax rates, plus the elective nature of CCBT or HST as crucial to healthy tax competition. (Commission of the European Communities, 2002, pp. 464, 467; UNICE, 2000, 2002.) The Commission

⁵ Under the Treaty of Nice, as few as eight Member States can engage in "enhanced cooperation." The Commission believes that this vehicle could be used to implement either CCBT or HST. The principles of subsidiarity, unanimity in tax matters, and enhanced cooperation would be maintained (although modified slightly) under the new constitution.

An evolutionary approach in which individual Member States replace SA/ALS with their version of consolidation and FA, with a common methodology developing over time, seems doomed to failure. It would create chaos during the transition, which might never end. Also, the ECJ is unlikely to tolerate the inherent distortions of competition. Finally, any Member State shifting unilaterally to FA would need to renegotiate its bilateral tax treaties with other Member States, a process of mind-boggling time, effort, and complexity.

has recently come down squarely in favor of CCBT over HST as a “systematic long-term ‘tax solution’ for the Internal Market.” (Commission of the European Communities, 2004b) Adoption of HST or CCBT need not be the final step in harmonization. HST might lead to CCBT. If CCBT were to become compulsory for all taxpayers and all Member States, the result would be HETS, which most impartial observers agree is preferable to either HST or CCBT.

HETS would greatly alleviate the problems with SA/ALS identified above, if not eliminate them, for transactions within the EU:

- Transfer pricing problems would be vastly reduced;⁶
- Cross-border loss-offsets would occur automatically for groups;
- There would be no need to distinguish between types of income, transactions between members of a consolidated group would have no tax consequences;
- Organizational form would have no effect on tax liabilities of consolidated groups; and
- Both over-taxation and under-taxation would be reduced, the latter because of reduced opportunities to shift income to low-tax Member states.⁷

CCBT would resolve most of these problems, as would HST to a lesser degree, but only to the extent that Member States and corporations participate. Although there could still be as many as 26 tax systems under CCBT (25 under HST),⁸ any participating corporate group would confront only one of these, plus those of nonparticipating Member States. Tax administrations would need to enforce only one tax system under HST or two under CCBT (the common and domestic systems), but under HST they might need to be familiar with others. Application of parallel systems to cross-border and purely domestic firms under CCBT and differences in definitions of income and consolidated groups under HST could interfere with cross-border investment.

⁶ As explained below, if value added were used to apportion income, transfer pricing could still be a problem.

⁷ Income could be shifted to affiliates in low-tax countries outside the EU or (in the case of CCBT or HST) non-participating Member States. Simplification would free tax administrators to concentrate on remaining problem areas.

⁸ These are counts of very different things. Under CCBT a single system would be applied to all participating corporate groups operating in participating Member States. Under HST participating Member States would apply their domestic tax systems to participating corporate groups subject to their jurisdiction.

Consider the implications of CCBT and HST for the “Luxembourg” group described earlier, assuming that the group and all six Member States participate. The group’s income would be consolidated and apportioned among the Member States where the group operates using a common formula; SA/ALS would be used only to divide income between EU and non-EU countries and between participating and non-participating Member States.⁹ Under CCBT the tax base and consolidation rules would also be uniform. Under HST, these would be determined by Luxembourg.

Key Issues for Common Consolidated Base Taxation (CCBT)

CCBT would require common definitions of taxable and apportionable income, consolidated groups, and apportionment formulas, plus cooperation in tax administration.¹⁰ The discussions of apportionment formulas and tax administration are equally applicable to HST, but the tax base and rules for consolidation would be governed by the domestic law of Home States. Subsequent sections consider the effects of non-participation by Member States and corporations – assumed away for present purposes – and the taxation of international flows of income and related treaty issues.

The definition of income

Current differences in the definition of taxable income (involving, *inter alia*, depreciation allowances, capital gains and losses, intangibles, overhead costs, and entertainment) make agreement on a common definition of apportionable income difficult and helps explain support for HST, which requires only enough similarity for mutual recognition. Contrary to the situation with free trade or the value added tax (VAT), there is no objectively supportable definition of income for tax purposes; rather this is largely a matter of political philosophy and consensus. No higher-level EU government provides a definition of income, as in the US and Canada. Further, until recently, each Member State set its own accounting

⁹ Whether income from unrelated activities should be subject to consolidation and apportionment cannot be considered here. The American states distinguish between business income, which is apportionable, and non-business income, which is attributed to a particular state or states. See Hellerstein and McLure (2004a) and (2004b). The EU is unlikely to draw such a distinction, which the Commission does not mention.

¹⁰ US experience provides little guidance in most of these areas. “Don’t do what we do” is its pervasive message of Hellerstein and McLure (2004a). Canada provides a better model, except for its failure to consolidate groups.

standards, and the degree of conformity of taxable income to income reported on financial statements differs between Member States.

Two recent developments may spur harmonization. First is the creation of European Companies (or *Societas Europaea*, hereinafter SEs), for without harmonization becoming an SE may hold little attraction.¹¹ Second, beginning in 2005, companies listed on EU stock exchanges must utilize International Accounting Standards for financial accounting. This requirement should facilitate a common definition of income for tax purposes. Yet financial accounting and tax accounting serve different purposes, and participating Member States still need to agree on a common pattern of conformity. See Commission of the European Communities (2002, pp. 494–95), (2003a), (2003b), and (2003c), European Federation of Accountants (2002), Diemer and Neale (2004), and Selbach (2003).

The definition of the consolidated group

It is assumed that FA would be applied to the *consolidated* income of participating corporate groups, using apportionment factors of the entire group. Without consolidation, harmonization would not solve problems of non-neutrality toward organizational structure, cross-border loss offsets, transfer pricing, and income shifting.¹²

Consolidation of US federal tax returns of domestic corporate affiliates depends solely on common ownership. By comparison, under US constitutional jurisprudence states can require “combination” of activities of commonly owned corporations only if they constitute a “unitary business,” the existence of which may be indicated by (as described by court cases) mutual “contribution and dependency” among group members, “functional integration, centralized management, and economies of scale,” or a “flow of value” between affiliates that SA/ALS may not capture.

Both legal (ownership) and economic (unitary) definitions of the consolidated group have advantages and disadvantages. The economic approach is conceptually appealing, but relies on subjective judg-

ments based on complex factual analysis. The ownership approach is simpler, but can be manipulated and can give anomalous results, as when a single formula is employed to apportion income of commonly owned but quite different businesses. Hellerstein and McLure (2004a, pp. 203–206), lean toward an ownership-based EU test.

The apportionment formula

The choice, definition, and weighting of factors in the apportionment formula poses conceptual and theoretical problems and could have important revenue implications for Member states.¹³ Apportionment formulas in the US employ weighted averages of the ratios of in-state to total payroll, property and sales. These “factors” were traditionally weighted equally, but a decided shift toward assigning greater weight to sales has occurred, and some states now use only sales to apportion income, to improve their investment climate. All Canadian provinces consider only payroll and sales, weighted equally. Following Lodin and Gammie (2001, pp. 47–50), the Commission raised the possibility of basing apportionment on value added at origin.¹⁴ (See Commission of the European Communities, 2002b, p. 414).

Conceptual/theoretical issues. If formula apportionment is intended to attribute corporate income to jurisdictions where it arises, capital is the most logical apportionment factor. In this view, including either sales or payroll in an apportionment formula has little economic rationale; including sales may reflect a political compromise that allocates more income to “market” jurisdictions. This reasoning suggests that basing apportionment on value added is not a good idea, since labor payments account for the majority of value added. Apportionment based on value added at origin, minus labor costs, has theoretical appeal, as this adjustment would isolate capital’s contribution to value added.

Apportionment based on value added. Because all EU Member States impose VATs, those participating in CCBT (or HST) could relatively easily base

¹¹ See Lannoo and Levin (2002). Without harmonized taxation, an SE will be governed by the tax law and treaties of the Member State where it is chartered.

¹² Some activities might be exempted from this treatment, either because the standard apportionment formula does not produce satisfactory results (e.g., transportation, professional athletics, and finance and insurance) or because the activities are accorded special treatment under the national laws of Member States (e.g., insurance, shipping, airlines, and oil and gas).

¹³ On conceptual and theoretical problems, see Klemm (2001) and McLure (2002). On practical problems with the way factors are defined in the United States, see Hellerstein and McLure (2004a) and (2004b).

¹⁴ Apportionment is commonly based on “micro” factors that reflect the taxpayer’s circumstances. An alternative floated by the Commission, using “macro” factors could have anomalous effects and should not be considered seriously. If, for example, apportionment were based on industry averages, there could be both a “toll charge” for expansion into high-tax Member States and opportunities for abuse by taxpayers. A formula based on macro factors might reasonably be used to apportion revenues, as under the EUCIT. See McLure (2004b).

apportionment on value added.¹⁵ Whereas VATs in the EU are destination-based, keying apportionment to an origin-based measure of value added would be more appropriate, as the Commission indicated. The inclusion of exports and exclusion of imports from the measure of value added would make apportionment vulnerable to manipulation of transfer prices, though less so than the measurement of income under SA/ALS. Hellerstein and McLure (2004a) suggest that this may be the Achilles' heel of this idea. Subtracting labor costs would magnify the problem.

Administration of CCBT

No central EU tax administration exists, and none is envisaged. Rather, tax authorities of the Home State would administer CCBT on behalf of all participating Member States, calculating the apportionment factors for each participating Member State, as well as apportionable income.

Corporations with non-EU parents pose intriguing problems. Activities of first-tier sister subsidiaries of non-EU parents (and their lower-level subsidiaries) should be consolidated, to achieve the benefits of harmonization. There are several ways to deal with a corporate group not headquartered in the EU. The multinational could interpose an additional EU corporate layer between the non-EU parent and the EU subsidiaries. But the foreign multinational might simply be allowed to elect the Member State where the group is deemed to be headquartered. Such an election could offer tax planning opportunities, especially under the HST.

Some Home States would use lax tax administration to attract headquarters operations, undermining revenues of other Member States. Moreover, Home States with relatively small fractions of the economic activities used to apportion income of particular corporations may not want to devote administrative resources to audits benefiting primarily other Member States.

Other participating Member States might thus reserve the right to challenge the Home State's determination and division of the tax base.¹⁶ This would entail expense for taxpayers and tax authori-

ties and the risk that different participating Member States might treat a given group differently. Mutual Agreement Procedures in bilateral tax treaties and the EU Arbitration Convention should significantly restrain these tendencies, since, unlike the situation under SA/ALS, the CCBT would provide a single legal benchmark. Even so, effective administration would require unparalleled trust and exchange of information among tax administrations. This is a tall order for, as Schön (2002, p. 284) notes, "There is not ... a long-standing and broadly based cooperation between the tax administrations of the Member States involved, including regular international tax audits."

One also wonders whether Member States would be willing to trust their fiscal destiny to the courts of the Home State. A super-national system of tax courts would help assure uniform application of CCBT.

Home State Taxation (HST)

The HST system would have a uniform apportionment formula, but would rely on the definitions of income and consolidated groups and the tax administration of the Home State. Its main attraction is the ease and speed of implementation.¹⁷ HST would be problematical, in part because HST is intended to implement taxation *at source*, but is based on the *residence* of the corporate parent. The following discussion ignores issues created by the optional nature of HST.

A Hybrid of Capital Importing and Exporting Neutrality

Capital export neutrality (CEN) occurs when taxation is the same for all taxpayers resident in a given jurisdiction. By comparison, under capital import neutrality (CIN) taxation is the same for all income derived from a particular source jurisdiction. HST is a strange hybrid of CEN and CIN. Apportioned income is taxed at the tax rate of the source jurisdiction, as under CIN. But income to be apportioned is defined by the Home State, as under CEN. It is thus inevitable that neither CEN nor CIN can generally be fully achieved. Particularly worrisome, taxpayers operating in a given Member State, but headquartered in different Home States, would pay tax based

¹⁵ It would be necessary for entities that are exempt under the VAT to calculate value added; in some cases (e.g., financial institutions and insurance) this would be difficult. See also Hellerstein and McLure (2004a).

¹⁶ Member States cannot rely on the tax administration of a higher-level government, as in the US and Canada.

¹⁷ Also, HST is sometimes advocated to ease the compliance burden on small and medium-sized enterprises, without jeopardizing large amounts of revenues. See Commission of the European Communities (2003c) and references provided there and (2004a) and (2004b).

on different definitions of apportionable income (albeit at the same rate). Mutual recognition is the sole guarantor of a relatively level playing field in any source jurisdiction.

Inherent in HST is the risk that Member States may use generous tax laws, as well as lax tax administration, to lure headquarters activities. Schön (2002, p. 285) raises the possibility that tax subsidies offered by Home States would be “exported” to other participating Member States where subsidiaries operate, creating revenue losses there. Moreover, groups headquartered in Home States not offering similar tax subsidies, including purely domestic corporations of the source jurisdiction, would experience a competitive disadvantage. Again, mutual recognition is the sole guarantor of a relatively level playing field.

The authors of the HST proposal argue, “The HST technique ... is not aimed at obtaining more tax neutrality in the sense of export or import neutrality. Instead its aim is to achieve more tax neutrality for enterprises with cross-border activities ... and to remove the extra costs caused by the company tax obstacles to cross-border activities...” (Lodin and Gammie, 2001, p. 20) But perhaps capital import neutrality cannot be dismissed so easily. The ECJ may not condone the differential taxation of groups headquartered in different Member States inherent in HST, given recent rulings against discrimination in the treatment of resident and non-resident companies.

Cross-border loss offsets and consolidation

Existing provisions for cross-border loss-offset are far from uniform and, on the whole, not very generous. Unless deductions are allowed for virtually all losses incurred in other participating Member States, a primary objective of harmonization would not be met.¹⁸

Administration of HST

A corporate group opting for HST would need to know only the tax rules of its Home State. This could

produce substantial simplification. It would, however, need to know enough about the tax rules of all participating Member States to decide whether to opt for HST and where to establish headquarters operations (or whether to change Home States).

It is much more difficult to assure that tax administration does not depart from the norm required for mutual recognition than to assure that statutes and regulations meet a similar standard. This problem seems substantially greater than its counterpart under CCBT. Mutual Agreement Procedures and the EU Arbitration Convention would provide less comfort, since there would be no external legal benchmark for performance of the Home State tax authorities.

The courts of the Home State would presumably pass judgment on decisions made by the tax authorities of their jurisdiction, even when the bulk of economic activity occurred elsewhere. This is not likely to go down easily with the tax authorities of other participating Member States. Yet the institution of a supra-national tax court seems unlikely, as such a court would need to rule on application of 25 Home State tax systems.

The mechanics of mutual recognition

The mechanics of mutual recognition need to be spelled out more clearly, as mutual recognition is the only safeguard against the export of tax subsidies and the use of generous definitions of the tax base and lax administration to compete for the headquarters of corporate groups. Is mutual recognition a one-time thing? Could it be revoked, once granted? Could lax administration of seemingly satisfactory statutes precipitate revocation? Would groups headquartered in a Member State losing mutual recognition no longer be eligible to participate, at least until reorganized with a parent in another participating Member State? Would the “nuclear option” – kicking a Member State out of the HST club, ever be exercised? If not, what protection against unfair competition would remain?

Summary assessment of HST

HST is an innovative but an unusual solution to a vexing problem. It has no counterpart in the US and Canada. Its principal advantage is speed of introduction. There seems to be a presumption that, over time, the tax bases of participating Member States would converge, tempered by recognition that adop-

¹⁸ The Commission offers the example of a parent located in a participating Member State that does not allow consolidation and two subsidiaries located in another participating Member State that does. If the group participated in HST it would lose the ability to net the profits and losses of the subsidiaries, and transfer pricing problems would not be eliminated. Commission of the European Communities (2002, p. 477).

The voluntary nature of HST complicates matters further. Suppose a parent in participating Home State A sells a subsidiary in participating Member State B. If the purchaser is headquartered in Member State A, the subsidiary's tax rules would not change. If the purchaser were part of a group headquartered in Member State B or in another participating Member State, the tax rules of the Member State of residence of the new parent would apply. If the purchaser were part of a group headquartered in a non-participating Member State or outside the EU, the tax rules of Member State B would be relevant.

tion of HST might impede further harmonization.¹⁹ HST is thus seen as a “pragmatic response,” a “workable solution,” and a “‘halfway’ house, balancing the needs and concerns of business and governments and permitting those Member States which already have reasonably similar tax systems to provide a joint solution for business.” (Commission of the European Communities, 2002, p. 467) Schön (2002, p. 285) warns, however, “Although the simplicity and elegance of HST cannot be denied, the influence it will have on the competitive situation of domestic and international business and the Member States should make us think twice about its advisability.”

Economic and Revenue Effects of Optional Features

Though perhaps crucial for political reasons, optional participation has undesirable economic ramifications, as well as reducing tax revenues unless tax rates are increased, on average.

Economic effects

The table below shows the effects of Member State and corporate decisions on participation in CCBT or HST. The table examines a corporate group consisting of three corporations, each of which operates in only one of three Member States. The situation is identical under CCBT and HST, except for obvious differences (shown by indicating in parentheses where “HST” would be substituted for “CCBT”). The top line shows current tax treatment for all corporations operating in the EU; SA/ALS is used to determine the income of the legal entities operating

in each Member State, based on relevant domestic tax law. Under HETS, all groups would be subject to the same definition of income, consolidation rules, and apportionment formula, as in the bottom left-hand corner of the table below.

The bottom line shows the situation for a corporate group that participates in CCBT (HST), when Member States A and B participate, but (C) does not. First, Member States A and B use SA/ALS and the CCBT definition of income (Home State definition) to isolate income earned within their joint boundaries (hereafter AB income), and Member State C employs the same methodology, but its definition of income, to determine the income of the corporation located there. Second, the participating Member States apportion consolidated AB income, using a common formula. The domestic definition of income (which in A and B might match the CCBT definition) is used for purely domestic firms in each Member State.

Three decisions determine how income of a particular corporation is defined and divided among Member States: whether the corporate group participates in CCBT (HST); whether the Member State where the corporation operates participates; and, if either the Member State or the corporate group does not participate in CCBT, the domestic definition of income (the choice of Home State). Thus:

- If both the Member State and the group participate, FA is used to apportion consolidated AB income, as defined under CCBT (Home State) rules;
- If either a Member State or the group does not participate, SA/ALS and the domestic definition of income determines taxable income, as for purely domestic corporations;

¹⁹ See Commission of the European Communities (2002, p. 471), (2003c). Schön (2002, p. 284) notes, “In Europe, however, we are used to the fact that transitional regimes have an inclination to linger around for decades.”

Effects of Member State and group participation in CCBT (HST) on methods of determining source of income (Three affiliates operating in three Member States)

Group participation	Participation in CCBT (HST) by Member States		
	Member State A: Yes	Member State B: Yes	Member State C: No
No	Income of entity in A is determined by SA/ALS, based on definition of income in A	Income of entity in B is determined by SA/ALS, based on definition of income in B	Income of entity in C is determined by SA/ALS, based on definition of income in C
Yes	Total income of group earned in Member States A and B, determined under CCBT (HST) definition of income (and isolated from income of entity in C by SA/ALS), is apportioned by common formula		Income of entity in C is determined by SA/ALS, based on definition of income in C

- Under HST, one of 25 Home State tax regimes would determine how much income each participating Member State would tax.

These decisions create differences in tax treatment of corporate groups operating in various Member States that could violate non-discrimination clauses of both the EU Treaty and bilateral treaties between participating and non-participating Member States. Westberg (2002, p. 328) contends that the ECJ may take a dim view of the discrimination that HST could create, for example, when parents in non-participating Member States have subsidiaries in a participating Member State. This criticism would apply equally to CCBT, if domestic law differed from CCBT. Domestic law could be aligned with CCBT, but not HST. On this important topic, see also Schön (2002, pp. 280–81). Also, Schön (2002, p. 286) raises the possibility that discrimination may be challenged under domestic constitutions of Member States.

Revenue effects

The parallel operation of two tax systems in a given country (25 under HST) is also problematic because, on average and all things equal, it would reduce revenues. Taxpayers can be expected to choose the tax law (domestic or other) that produces the lowest liability, and opportunities for tax arbitrage may exist.

International/Treaty Considerations

Harmonization of corporate taxes also raises knotty issues of relations with third (non-EU) countries.²⁰ Some would occur because some Member States currently exempt foreign source income, while others tax worldwide income, but allow foreign tax credits (FTCs) for source country taxes. A simple example based on the HST, taken from Lodin and Gammie (2001, p. 55), illustrates the problem.

Suppose that a second-tier subsidiary T in a non-EU country pays a dividend subject to a 10 percent withholding tax to its parent S, a Swedish subsidiary of a British parent B. Under current Swedish law and a bilateral treaty between Sweden and the non-EU country, the dividend might be exempt in Sweden.

²⁰ This discussion relies heavily on Lodin and Gammie (2001, pp. 53–58 and especially pp. 77–104, which was prepared by the Research Department of the International Bureau for Fiscal Documentation). See also Westberg (2002) and Weiner (2003).

There would be no credit for the withholding tax; no British tax consequences, and no international double taxation.

Under HST, British law would prevail; thus the dividend, grossed up for both the withholding tax and underlying income tax on T, would be included in consolidated income of the S/B group and FTC would be allowed for both non-EU taxes. But no British FTC would be allowed for tax on the portion of the dividend attributed to Sweden; Sweden would not allow a credit, since it employs an exemption system. Thus international double taxation would occur.

If the dividend were paid instead to a British subsidiary of a Swedish parent, international double taxation would be avoided under current law via the British system of worldwide taxation and FTCs. Under the HST, Swedish law would prevail and the dividend would be exempt from both Swedish and British tax. The British treaty with the non-EU country might arguably obligate the UK to allow the FTC, producing international undertaxation.

Treaty provisions for exemption and for worldwide taxation with FTCs probably also cannot comfortably coexist under CCBT (or HETS). (Taxing foreign-source dividends would create problems similar to those in the example with the British parent; exemption would create problems like those with the Swedish parent.) Hellerstein and McLure (2004a) argue for the conceptually correct solution, omitting foreign-source dividends and income of foreign PEs from the apportionable tax base, at least until existing treaties can be renegotiated or replaced by a consistent EU treaty with non-EU countries.

Concluding remarks

The case for harmonization is overwhelming. The benefits of simplification, for both taxpayers and tax administrators, are not easily overstated. Both overtaxation and under-taxation would be reduced. These benefits would be greater, the more Member States participate.

Harmonization also involves costs. Transition would be costly for both corporations and governments. The timing of the choice to participate would allow

corporations to moderate these. The taxation of international income flows would probably become less clear, at least for a while. Finally, harmonization could change the distribution of the tax base among participating Member States. It is difficult to generalize on the effects on tax revenues and tax liabilities of participating corporations.

The political obstacles to harmonization are daunting, especially because of the unanimity requirement. The confluence of three developments may, however, eventually break the political logjam. First, Member States' tax bases and treatment of groups may converge over time, facilitating adoption of common policies. Second, economic integration will accentuate problems inherent in SA/ALS. Third, and perhaps most important, ECJ decisions may make the present system increasingly untenable. One cannot predict whether and when the logjam will break, or what the result will be.

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BUSINESS REGULATION IN INTERNATIONAL COMPARISON – AGGREGATING WORLD BANK “DOING BUSINESS” DATA

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Sound business regulations are essential for a dynamic development of the private sector. This applies to developed as well as to developing countries where a lack of regulation or enforcement and high administrative or transaction costs often contribute to weak growth performance (Matthes 2004, 78). The World Bank (2003; 2004) has filled a gap with regard to data on various aspects of business regulation in international comparison. The “Doing Business” online database comprises 145 countries and covers 23 indicators belonging to seven indicator groups (Table 1).

The World Bank (2004) provides a summary indicator for only the top 20 countries based on an ordinal scaling method. As a more comprehensive aggregate comparison is not available so far, this article embarks on this venture. Two basic problems have to be solved:

1. The different indicators have to be made comparable by unitary scaling.
2. The distributions of the values of the 23 indicators differ greatly – with some indicators displaying a fairly even and others a highly uneven distribution with extreme values. The aggregation method should not be overly influenced by extreme values, however. More generally, the method should not lead to a unitary scaling that is theoretically implausible.

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This article, which is based on Matthes and Schröder (2004), presents a new continuous scaling method (based on a logistic function) which solves these problems to a larger extent than several other commonly used methods. This is important as rankings seem to have gained in popularity recently.

Results

Before the properties of these different methods are discussed, the results of the new method are presented. Table 2 displays an ordinal ranking of the top 30 countries. It is based on the resulting values of the employed method with regard to the 23 individual indicators. The arithmetic mean is used to aggregate these indicators into group averages and the values of the seven indicator groups into the overall value. This aggregation scheme has also been employed by the World Bank (2004). Thus, the very important issue of weighting different indicators when aggregate

Table 1
Business regulation indicators of the World Bank

1	Starting a business ¹⁾ – Number of procedures – Average time spent during each procedure ²⁾ – Official cost of each procedure ³⁾ – Paid-in minimum capital ³⁾
2	Hiring and firing workers – Rigidity of employment index (average of sub-indices for difficulty of hiring, rigidity of hours, difficulty of firing) – Cost of firing indicator (weeks of weekly wages)
3	Registering property – Number of procedures – Time ²⁾ – Official costs (as a percentage of the property value)
4	Getting credit – Cost to create and register collateral ³⁾ – Index of legal rights of borrowers and lenders – Index of credit information availability – Coverage of public registries ⁴⁾ – Coverage of private bureaus ⁴⁾
5	Protecting investors (disclosure of ownership index)
6	Enforcing contracts – Number of procedures – Time ²⁾ – Official costs (as a percentage of the debt value)
7	Closing a business – Time (in years) – Cost (as a percentage of the estate) – Recovery rate (cents on the dollar)
¹⁾ Data relevant for companies with limited liability. – ²⁾ In calendar days. – ³⁾ As a percentage of income per capita. – ⁴⁾ Number of individuals and/or firms that have a record in the registry/bureau, scaled to the adult population size.	

Source: World Bank, 2004.

Table 2

Business regulations in international comparison
 – Top 30 countries on the basis of a continuous scaling method
 with a logistic function (c = endogenous) –

Rank	Country	Indicator group ¹⁾						
		1	2	3	4	5	6	7
1	New Zealand	3	2	1	5	25	4	16
2	Singapore	8	1	6	15	25	8	1
3	USA	4	4	9	7	1	12	26
4	Canada	1	15	21	12	1	31	6
5	UK	10	20	12	2	1	23	11
6	Norway	14	23	2	19	25	1	3
7	Hong Kong	5	5	18	8	6	15	15
8	Australia	2	17	23	11	6	6	14
9	Japan	64	22	31	18	6	5	4
10	Sweden	11	53	3	40	6	18	19
11	Netherlands	31	45	27	6	25	14	8
12	Finland	6	54	13	37	25	29	2
13	Switzerland	18	13	11	28	25	10	49
14	Ireland	13	61	69	13	6	27	10
15	Lithuania	37	60	4	51	6	11	20
16	Belgium	17	14	103	17	45	16	7
17	Denmark	9	32	29	66	25	2	32
18	Puerto Rico	12	9	–	20	–	74	35
19	Austria	44	78	19	24	6	34	27
20	Taiwan	84	113	22	10	6	19	5
21	Latvia	30	77	73	38	25	21	9
22	Spain	70	118	35	27	1	22	13
23	South Korea	94	93	50	29	6	13	12
24	Germany	50	111	30	4	25	25	22
25	Botswana	82	18	48	16	25	39	44
26	Chile	26	46	25	14	6	40	120
27	Tunisia	73	71	56	76	6	3	23
28	Malaysia	36	49	63	1	25	53	60
29	Thailand	25	72	14	36	6	47	80
30	Armenia	29	33	10	94	63	32	25

¹⁾ Data relevant for companies with limited liability.

Source: World Bank, 2004; Institut der deutschen Wirtschaft Köln.

gating a ranking is not touched upon by this study. Columns one and two present the overall ranking, columns three to nine the ranking regarding the seven indicator groups.

As the differences in resulting values between countries in the overall ranking are, for the most part, not very large, a more qualitative interpretation of the ranking order is appropriate: Anglo-Saxon countries, and the Asian city states rank highest. Among the continental EU-15 countries, Sweden, the Netherlands, and Finland hold the highest positions, followed by Belgium, Denmark and Austria, and then by Spain and Germany. The other larger continental European countries – France (34) and Italy (35) – are ranked much lower. The other southern European countries display even greater weaknesses in business regulation, so Portugal (43) and

Greece (77). It is striking that quite a few developing countries are ranking among the top 30.

Generally, no country holds the top position in more than one of the seven categories. However, the top scorers in each group also rank in the top positions in the overall ranking – with the exception of Malaysia. Most EU-15 countries rank at worst in category two (Hiring and firing workers). This is particularly true of the larger and the southern European countries. A rather low position is also held with regard to category one (Starting a business) by Germany (50), Spain (70), Portugal (83) and Greece 107.

Methodological analysis

The results of the chosen method can be compared to a ranking obtained by using two other commonly employed scaling methods: ordinal scaling (OS) and proportional continuous scaling on a scale from 0 to 100 (PCS). Both methods are described in more detail below.

The resulting values for each of the 23 indicators are aggregated as described above so that the respective overall value is again the basis for the overall ranking. Generally, the top positions of the Anglo-Saxon countries, some Asian as well as Scandinavian countries are revealed by all three methods, which thus obviously presents a rather robust finding. However, when looking at individual countries among the top 30, larger differences in positions are possible. This does not apply to Germany whose rank does not change significantly (OS: 25; PCS: 26). However, Spain's position changes by six ranks up and down and Armenia's by nine positions up (OS) and ten positions down (PCS). On average, compared to OS, the differences are 1.7 positions and 3.3 positions compared to PCS. When regarding the whole range of 145 countries, these differences become even greater: 5.2 positions compared to OS and 8.1 positions compared to PCS.

The maximum difference is 21 positions in case of OS and 48 positions in case of PCS.

These divergences necessitate taking a closer look at the properties of different scaling methods with regard to the above-mentioned problems of grossly divergent distributions of indicator values in general and the existence of extreme values in particular as present in the World Bank data. A simplified but relatively realistic example is chosen to make the basic problems and insights more evident. Table 3 presents six countries (A–F) and two indicators – growth with a fairly even distribution of indicator values and inflation with a rather uneven distribution featuring an extremely high value for country D and relatively low and similar values for the other countries. Both indicators are to be aggregated with the same weight by an arithmetic average.

Intuitive ranking

With regard to growth, two country groups can be discerned: (A, B, C) and (D, E, F). Both groups differ from each other but hardly within each group. Referring to inflation, the within-differences in both groups are relatively larger than with regard to growth, not only in the second group (D, E, F) but also in the first group, if an inflation rate of 2 percent (C) is regarded as a very good value, but one of 6 percent is already considered relatively high. On this basis, a clear ranking can be obtained. C is better than B, B is better than A; F is better than E and E is better than D. If the country with the worst performance of the first group (A) is compared to the country with the best performance in the second group (F), the inflation differences are much smaller than the growth differences. Thus, a rather clear intuitive ranking is obtained (Table 2: 1. Basic data and intuitive ranking). The following section analyses whether different commonly used scaling methods are able to reproduce the intuitive ranking.

Ordinal scaling method

For each indicator an ordinal rank (1 to 6) is assigned to each country (Table 3: 2. Ordinal scaling method). The ordinal numbers can be added or averaged to obtain the aggregate values as a basis for the overall ranking. This method does not rely on all available information, as the extent of the differences between indicator values is not considered. As the large differences regarding inflation are neglected, it is not surprising that this method fails to reproduce the intuitive ranking.

Score classes method

Alternatively, points can be assigned to indicator values dependent on pre-defined score classes of indicator values. For example inflation rates between 3 and 6 percent are assigned 4 points, inflation rates between 6 and 12 percent 3 points. These points (or scores) can be added. This method is used in the *Index of Economic Freedom* (Heritage Foundation 2003), in the publication *Freedom in the World* (Freedom House 2004) and – partly – in the publication *Economic Freedom of the World* (Fraser Institute 2004) and the *Global Competitiveness Report* (WEF 2003). In Table 3: 3a (Score classes method – version 1), the score classes of the Heritage Foundation (1 to 5 points) are used in reverse order for the inflation category. Lacking an example, the score classes of the growth indicator have been chosen by the authors. As a result, version 1 nearly reproduces the intuitive ranking – with the exception of countries A and B, both being ranked in the first position.

In principle, this method offers the advantage that the score classes can be adapted to a theoretically founded interpretation of the respective indicator. However, if such a theoretical basis is lacking, the definition of the score classes becomes arbitrary. This can be of considerable relevance as the differences between score values can be large in comparison to the differences in indicator values. Version 2 (Table 3: 3b) presents an example. Here, the score classes of the growth indicator are only slightly shifted upwards by one percentage point. As a consequence, countries A (and D) are assigned a higher value than countries B and C (E and F), although their growth performance is only marginally better. This results in country A being ranked together with country C in the first position which is in contrast to the intuitive ranking. This problem could in principle be mitigated by choosing more and smaller score classes. However, regarding the World Bank data, the problem of a lacking theoretical foundation for defining the score classes is still relevant.

Proportional continuous scaling methods

The distortion caused by discrete borders and unwarranted large score changes is avoided when using proportional continuous scaling methods which are based on a linear interpolation. These transform the underlying indicator values into a continuous scale which is uniform for each indicator and which retains the relative distances between the original values. Values for each indicator (I) are

Table 3

Illustrative example

1. Basic data and intuitive ranking					4. Proportional continuous scaling methods a) Version 1: scale 0–100				
Country	Growth ¹⁾	Inflation ¹⁾		Ranking	Country	Growth	Inflation	Sum	Ranking
A	5.1	6.0		3	A	100.0	95.9	195.9	1
B	5.0	4.0		2	B	95.7	98.0	193.6	2
C	4.9	2.0		1	C	91.3	100.0	191.3	3
D	3.2	100.0		6	D	17.4	0.0	17.4	6
E	3.0	10.0		5	E	8.7	91.8	100.5	4
F	2.8	5.0		4	F	0.0	96.9	96.9	5
2. Ordinal Scaling Method					b) Version 2: standardised distribution ⁶⁾				
Country	Growth	Inflation	Sum	Ranking	Country	Growth	Inflation	Sum	Ranking
A	1	4	5	3	A	1.0	0.39	1.39	1
B	2	2	4	1	B	0.9	0.44	1.35	2
C	3	1	4	1	C	0.8	0.50	1.31	3
D	4	6	10	5	D	-0.7	-2.04	-2.76	6
E	5	5	10	5	E	-0.9	0.29	-0.62	4
F	6	3	9	4	F	-1.1	0.42	-0.67	5
3. Score classes method a) Version 1					5. Continuous scale based on a logistic function a) c = endogenous, with median of 50 ⁷⁾				
Country	Growth ²⁾	Inflation ³⁾	Sum	Ranking	Country	Growth	Inflation	Sum	Ranking
A	4	4	8	2	A	63	49	111	3
B	4	4	8	2	B	62	54	115	2
C	4	5	9	1	C	60	59	119	1
D	3	1	4	6	D	40	0	40	6
E	3	3	6	5	E	37	39	76	5
F	3	4	7	4	F	35	51	86	4
b) Version 2					b) c = 10 for inflation ⁸⁾				
Country	Growth ⁴⁾	Inflation ⁵⁾	Sum	Ranking	Country	Growth	Inflation	Sum	Ranking
A	4	4	8	1	A	74	43	106	3
B	3	4	7	3	B	72	70	132	2
C	3	5	8	1	C	70	88	148	1
D	3	1	4	6	D	30	0	40	6
E	2	3	5	5	E	26	7	44	5
F	2	4	6	4	F	22	57	92	4

¹⁾ Average change of real GDP and consumer prices per year in percent (timer period can be for example a decade). – ²⁾ Score classes: up to 0 pc: 1 point, up to 2 pc: 2 points, up to 4 pc: 3 points, up to 6 pc: 4 points, more than 6 pc: 5 points. – ³⁾ Score classes: up to 3 pc: 5 points, up to 6 pc: 4 points, up to 12 pc: 3 points, up to 20 pc: 2 points, more than 20 pc: 1 point. – ⁴⁾ Score classes: up to 1 pc: 1 point, up to 3 pc: 2 points, up to 5 pc: 3 points, up to 7 pc: 4 points, more than 7 pc: 5 points. – ⁵⁾ Score classes: as in version 1 (see footnote 3). – ⁶⁾ Distribution with mean = 0 and standard deviation = 1. – ⁷⁾ Growth: c = 0.5; Inflation: c = 1.8. – ⁸⁾ Growth: c = 0.5 (endogenous); Inflation: c = 10 (by discretion).

Source: Institut der deutschen Wirtschaft Köln.

transformed into standardised values (X) by the following equation with the constants a and b

$$X = (I - a) / b$$

Table 4 depicts two basic versions of this method. Version 1 results in a uniform scale ranging from I_{min} to I_{max} (e. g. 0 to 100) which is used, for example, in part by WEF (2003) and the Fraser Institute (2004). Version 2

Table 4 Proportional continuous scaling methods – two examples¹⁾

	a		b
Theoretical direction	Higher value is better	Lower value is better	
Version 1: Max-min-scale (I _{min} and I _{max} optional)	I – I _{min}	I _{max} – I	I _{max} – I _{min}
Version 2: Standardised distribution (mean(X) = 0, SD(X) = 1)	I – mean(I)	– (I – mean(I))	SD(I) ²⁾

¹⁾ I = indicator value; Basic equation X = (I – a)/b. – ²⁾ SD = standard deviation.

Source: Institut der deutschen Wirtschaft Köln.

transforms the original indicator values into a standardised distribution with a mean of 0 and a standard deviation of 1 (e.g. Schweikert 2002). IMD (2004) uses a combination of version 2 and version 1.

A major disadvantage of this method is relevant in the case of the World Bank data. When relatively even and uneven distributions with extreme indicator values are prevalent at the same time, the linear interpolation treats both kinds of distributions quite differently which can be counter-intuitive. This is caused by the denominator b . In case of extreme I -values, b obtains a high value which results in small X -values for the non-extreme I -values and which compresses potentially relevant differences between the latter. In the case of a more even distribution, this distortion is not prevalent so that the comparison between X -values of indicators with uneven distributions and even distributions can be seriously distorted. This effect is more extreme in version 1, as $b (= I_{\min} - I_{\max})$ is more influenced by extreme values than in version 2 ($b = SD(I)$).

However, both versions – when applied to the illustrative example (Table 2: 4a, 4b) – lead to counter-intuitive results as they unduly compress the rather important differences between the low-inflation values.

These problems could be mitigated by completely neglecting extreme values or by assigning to them a (positive or negative) standard deviation of 2 or 3. However, both attempts would – to a different degree – involve rather arbitrary and discretionary intervention.

Continuous scaling method based on a logistic function

The question thus arises whether a scaling method can be found that mitigates the effects of uneven distributions (with extreme values) but which also avoids the disadvantages of the ordinal scaling and score class methods. Taking up a proposal by Hafemann and Suntum (2004), a logistic function is employed for this purpose. However, another form of a logistic function and a less com-

plicated scaling method are proposed. Several steps are involved:

1. The indicator values are transformed by means of a proportional continuous scaling method into a standardised distribution with median = 0 and an average absolute deviation from the median (AAD) of 1.

$$Z = (I - \text{MED}(I)) / \text{AAD}(I)$$

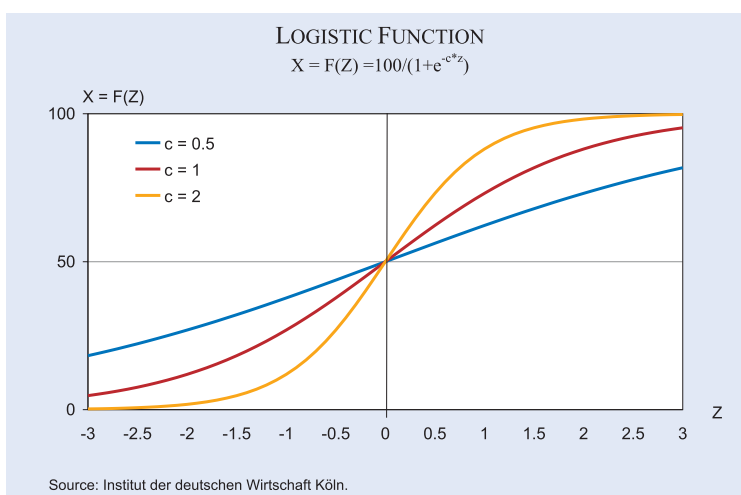
By using the median (instead of the mean), more transformed Z -values lie relatively close to zero (the transformed median). This is important as the differences between values with a greater distance to zero will be compressed by the logistic function which is usually not warranted.

2. The standardised Z -values are multiplied by -1 if lower I -values are assessed to be better than higher I -values on theoretical grounds.
3. The following logistic function – with a constant c that can be freely chosen – is employed for a second transformation step:

$$X = F(Z) = 100 / (1 + e^{-c*Z})$$

with $F(0) = 50$; $F(-\infty) = 0$; $F(\infty) = 100$

The figure below depicts the logistic function for three different values of c (0.5; 1; 2). In each case the standardised Z -values, which are centred around zero, are transformed into X -values, which are centred around the X -median of 50 and which approximate 0 for low Z -values and 100 for high Z -values. Thus, extreme indicator values are forced into the given range of 0 to 100 without the need to do this by discretion. Moreover, differences between values (of I and Z) at the margins are generally compressed relative to differences between values around the median.



For higher values of c , the degree of this different treatment increases. Moreover, high values for c extend the differences between Z -values around the median (which are compressed relative to differences of I -values due to the first transformation step), thus compensating for this portrayed potential disadvantage of a proportional continuous scaling method.

Choice of constant c

The choice of c should lead to a scaling method that satisfies the following plausible considerations:

- The results of the scaling method should not depend on whether the original indicator values are multiplied by a constant.
- An absolute difference of the same size between two indicator values should – a priori – be evaluated as less (more) important when the average value level of the indicator is high (low). The intuitive consideration underlying this suggestion can be demonstrated by means of an example: let a first indicator be characterised by the values 2, 4, 6, 8, a median of 5 and an average absolute deviation from the median (AAD) of 2 and let a second indicator have the values 47, 49, 51, 53, a median of 50 and the same AAD. The value 8 of the first indicator and the value 53 of the second indicator have the same absolute deviation from the median. However, in the first case the relative distance is much greater so that the value 8 should be evaluated as relatively better than the value 53. This is, for example, not the case with the two versions of the proportional continuous scale as transformed values would be identical for both indicators.
- Identical absolute differences in indicator values should be valued more (less) when the dispersion of the indicator values is small (large). If, for example, the values of a first indicator are 49.2, 49.9, 50.1, 51, the median is 50 and the AAD is 0.5. A second indicator with the values 31, 49, 51 and 69 has the same median of 50 but an AAD of 10. The indicator value of 51, which in both cases has the same deviation from the median, should be valued higher in the first than in the second case. This is also achieved by the proportional continuous scaling method.

Both conditions are satisfied, if c obeys the following equation (Matthes and Schröder 2004):

$$4. \quad c = (\text{AAD}(I) / |\text{MED}(I)|)^{1/2}$$

Thus, c obtains a specific value for each indicator. In case extreme indicator values exist, the differences between the non-extreme Z -values (which by and large should lie around the median) are compressed by the first transformation. By using the logistic function with a relatively high value of c in the second transformation, these compressed differences are extended again. In the case of a relatively even distribution, c will be relatively small so that a relatively large spectrum around the median is transformed roughly proportionally.

If this method is used in the illustrative example (Table 2: 5a) the results of the intuitive ranking are reproduced. This is achieved mainly by assigning greater differences between the relatively lower inflation values than in the proportional continuous scaling methods.

Advantages of the proposed method and qualifications

Summing up, this method has several advantages:

- It uses a continuous scale.
- It satisfies several intuitively plausible conditions for scaling methods.
- It is able to mitigate the effects of extreme values on other indicator values and thus enhances the comparability of indicators with an even and with an uneven distribution,
- The choice of the median (instead of the mean) as a benchmark for other indicator values renders this method relatively independent of extreme values, as the median is much more stable than the mean with regard to extreme values.
- By using specific values of c for each indicator – which results in relatively low values for c in case of a fairly even distribution – this method can, in principle, also be used if only indicators with an even distribution are prevalent.

Several caveats have to be raised, however:

- In cases of very extreme values, the proposed method does not guarantee a correct outcome. Referring to the illustrative example (Table 2: 5a), the suggested method would still reproduce the intuitive result if the inflation value for country D were 1,000. However, if this value were 2,000, the intuitive result would not be reproduced, as the second transformation by the logistic function can

no longer “correct” for the distortions of the first transformation.

- Mitigating the effects of extreme values on potentially important differences of non-extreme values comes at a cost. By forcing the extreme values into the given scale of 0 to 100, the extreme value is evaluated as relatively better (or worse in case a high value is better) than warranted. Thus, potentially important differences between the extreme values and the other values are reduced. However, this trade-off cannot be solved satisfactorily. Generally, it seems better to misjudge relatively few indicators at the margin of the distribution.
- The above-mentioned intuitively plausible considerations have been deduced for absolute indicators and might not be applicable to the same degree to each and every indicator. This could, for example, be relevant for rates of change and mainly for index values – the inflation rates in the illustrative example could also be expressed as index values (e.g. 102 instead of 2 percent). In this case, as in other individual cases, it might be theoretically deduced that small relative differences between indicator values are important. This could be applicable to the second example in the intuitive consideration 2. While in this case the proposed method results in a rather narrow value-spectrum, an adequate choice of c is possible so that a theoretically founded evaluation is possible.

The advantage of the proposed method lies in its adaptability. In contrast, the proportional continuous scaling method is not adaptable. It might produce a better result in the special case mentioned here, but does not fulfil the intuitive consideration which should be a general starting point. However, these qualifications show that it is necessary – as far as it is possible – to examine the resulting evaluation of a given scaling method by means of theoretical deliberations. This unveils a trade-off between the objective of obtaining a highly plausible evaluation and the objective of not interfering arbitrarily with the evaluation. This trade-off has to be tackled case-by-case.

The illustrative example highlights the underlying problem. Here, the resulting evaluation is rather plausible for growth but could be more theoretically plausible for inflation. It can be argued that the inflation rate of 2 percent of country C should obtain a better X-value than 59. If $c=10$ is chosen for the inflation indicator, country C obtains the more plausible X-value of 88 (see Table 2: 5b).

The World Bank data feature absolute indicators for which – lacking a thorough theoretical foundation that suggests otherwise – the intuitive considerations should be relevant. Thus, the proposed method seems justified.

- The method is not warranted in case an indicator is characterised by a distribution with many values at both margins and a median in the centre of the distribution. In this case the potentially important differences between the values at the margins are compressed unwarrantedly. A possible solution could be to split the distribution in two groups. However, this problem does not seem relevant in the case of the World Bank data.
- A basic question arises as to whether the implicit utility function underlying the logistic function is suitable for the respective indicator. It is implicitly assumed that positive or negative deviations from the median have the same relevance and that for larger deviations a further increase in the deviation becomes less and less important.

The basic problem becomes particularly relevant if it can be theoretically shown that indicators should be evaluated by a non-monotonic utility function. This can be illustrated, for example, in the case of inflation where very high inflation rates as well as negative inflation rates (deflation) have to be considered problematic. However, the proportional continuous scaling method cannot solve the problem either. In contrast, the ordinal scaling method and the score class method could in principle solve this problem. In the case of the illustrative example, the inflation values were chosen so that a monotonic evaluation was possible. In case of the World Bank data this problem is not relevant.

- The proposed method cannot be applied if the median obtains a value of zero (as a division by zero is not possible) or a value very close to zero, as in this case c becomes unwarrantedly large. Hence, indicators with positive and negative values which thus extend across zero can pose problems. A pragmatic solution could be to set $c=1$. This has been done in two cases of the 23 indicators of the World Bank where the median of the indicator values is zero.

Summing up, the proposed method represents an improvement in several dimensions in comparison to other commonly used methods. Nevertheless, potential problems remain. Thus, the results should – if possible – always be examined to see whether they represent a theoretically plausible evaluation.

Moreover, sensitivity test should be performed with different methods as done in the first part of this article, which showed, for example, that the Anglo-Saxon countries are at the top of the ranking regardless of the method chosen. Due to the remaining problems, the position of a country should be judged rather broadly by looking at whether it is ranked at the top, in the twenties or thirties rather than by looking at its exact position.

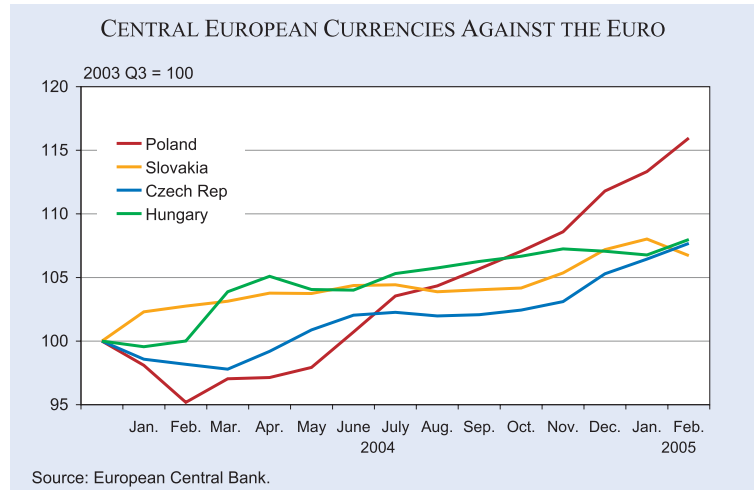
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STRONGER THAN THE EURO

The central banks of central Europe have been busy. As their currencies have appreciated against the euro, they have had to intervene frantically in a bid to keep the currencies down. Yet, the Slovak koruna has risen by 7 percent against the euro since early 2004, the Czech koruna closer to 8 percent, and the Polish zloty has gained even 16 percent. The Hungarian forint, which moves in a band either side of a central rate against the euro, was close to its upper limit. So central banks have had to ease monetary policy, cutting interest rates, but hardly stemming their currencies' rise.

The major reason for the currencies' strength is a flood of short-term capital inflows, attracted partly by the promise of convergence with the euro zone, but also by higher interest rates than, for example, in euroland, where real interest rates have been negative for the first time in 20 years. In Hungary, despite recent cuts totalling 4.25 points, short-term rates are still 8.25 percent. And bond yields are high enough to pull in funds borrowed cheaply elsewhere. Poland is more attractive still, lacking Hungary's large current account deficit.



While rising exchange rates have helped the central European countries to curb inflation, even allowing for easier monetary policy, they are poison for exports, especially for exports to the euro area, the countries' main market. Central bankers are also wary of cutting interest rates at a time when economic growth is buoyant and when governments are failing to reduce their fiscal deficits, which are at least a point or two above the 3 percent Maastricht limit.

What is the risk of exchange rates plummeting again? If interest rates decline further, they will reach a level at which investors could rush out as fast as they rushed in.

H.C.S.

POOR TRANSPPOSITION SCORES

EU Member States persistently fail to transpose Internal Market rules. The transposition deficit¹ has even significantly worsened and now stands at 3.6 percent. This is a long way from the 1.5 percent interim target set by successive European Councils.

In November 2004, the transposition deficit for the EU-15 countries was 2.9 percent, a significant rise from the 2.2 percent registered in June 2004. The increase to 3.6 percent is due to enlargement, although the new Member States have made great notification efforts.

Member States' failure is not only a breach of their legal obligations, it also deprives businesses and citizens of their rights and undermines the day-to-day working of the Internal Market.

Of the countries in the First Division, Lithuania (1.0 percent) and Spain (1.3 percent) are the only Member States to have met the 1.5 percent interim target. Germany has made major strides in reducing its transposition deficit, but (at 2.5 percent) has still 40 directives to transpose.

The transposition deficit in the Second Division is more than double the 1.5 percent interim target.

Figure 1

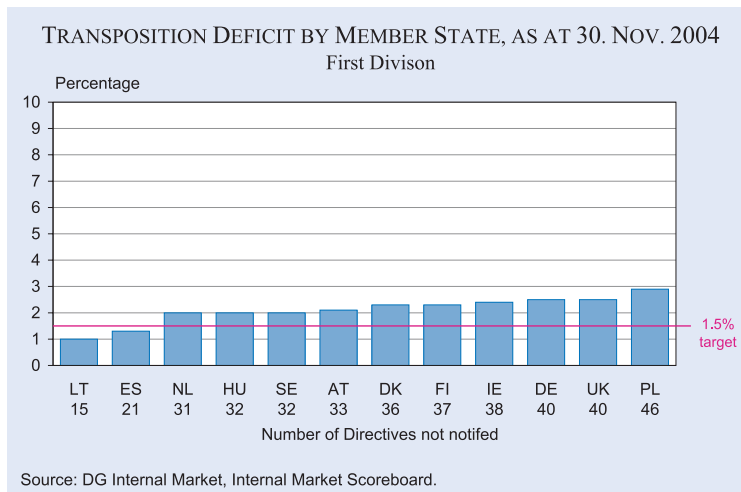
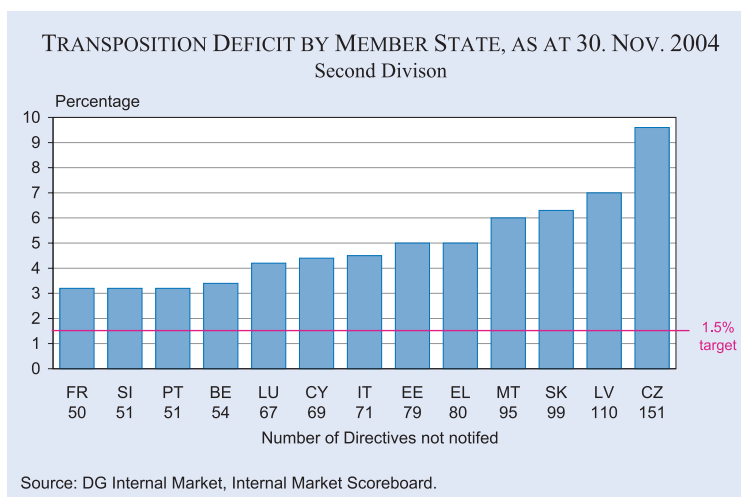


Figure 2

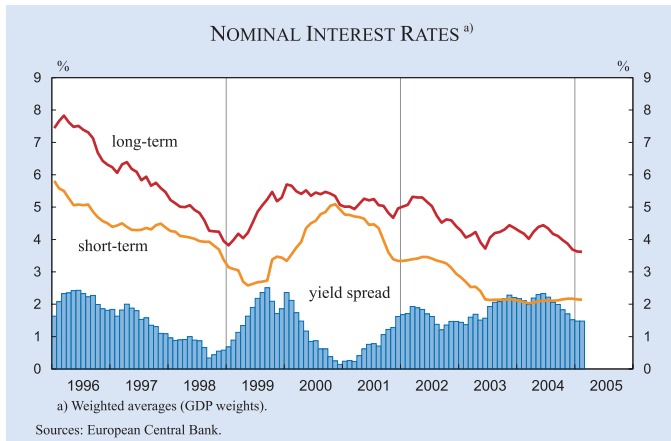


Bottom of the league is the Czech Republic (9.5 percent) which still has to transpose more than 150 directives. The efforts of France seem to bear fruit (3.2 percent). Luxembourg, Italy and Greece have deficits that are only topped by some central European countries.

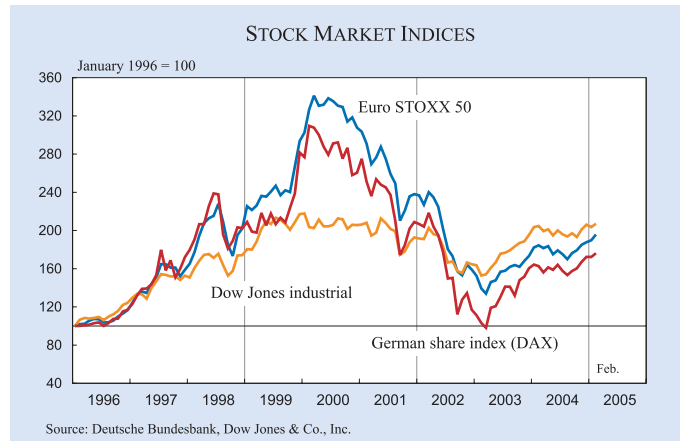
H.C.S.

¹ The transposition deficit shows the percentage of Internal Market directives not yet communicated as having been fully transposed, in relation to the total number of Internal Market directives which should have been transposed by the deadline.

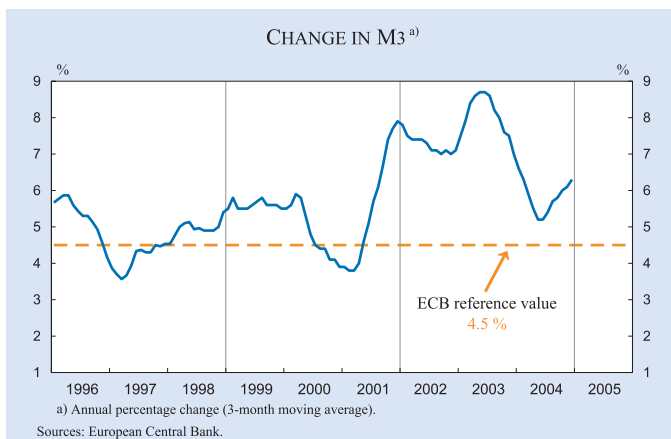
FINANCIAL CONDITIONS IN THE EURO AREA



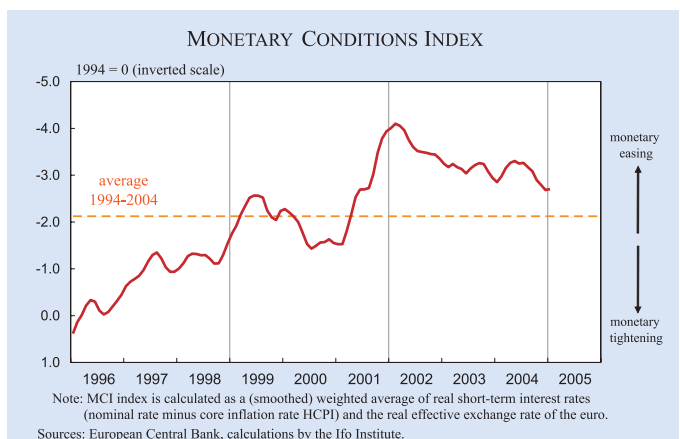
The European Central Bank has left its key interest rates unchanged, which is reflected in the 3-month money market rate that has averaged 2.16 percent since last October. Bond yields have continued to decline and averaged 3.62 percent in February 2005. The yield spread consequently shrank to 1.4 percent.



All three indices continued their rise that had been briefly interrupted last summer. The Euro STOXX broke through the 3,000 mark, the Dow Jones Industrial is trying to reach 11,000, and the German DAX is safely in 4,000 plus territory.

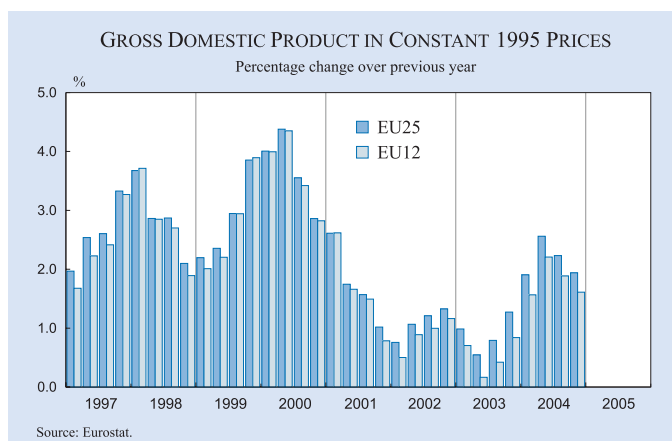


The faster M3 growth observed in the second half of 2004 continued at the turn of the year. In January 2005, the annual growth rate of M3 increased further to 6.6 percent, from 6.0 percent in the fourth quarter of 2004 and 5.6 percent in the third quarter. The three-month moving average of annual M3 growth rates over the period from November 2004 to January 2005 rose to 6.3 percent from 6.1 percent in the previous three-month period.

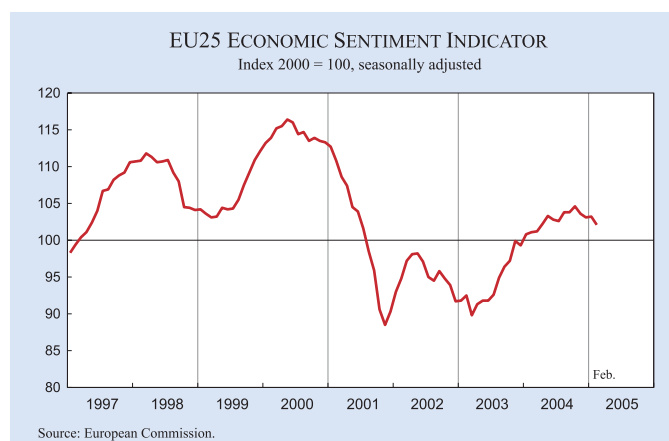


Between December 2004 and January 2005, the monetary conditions index rose marginally, following a declining trend (tighter monetary conditions) since May 2004. Real short-term interest rates rose in January, whereas the real exchange rate declined.

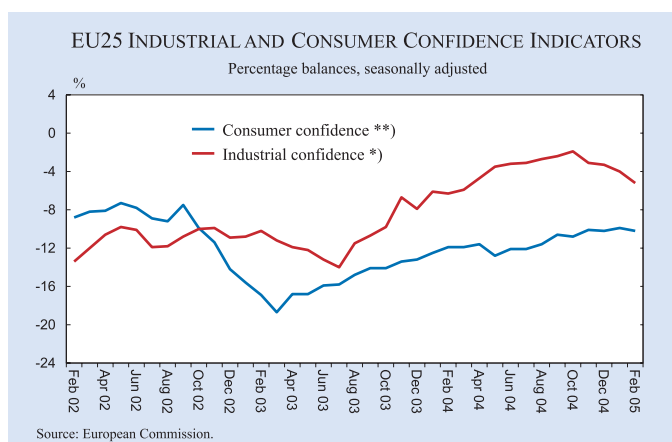
EU SURVEY RESULTS



In the last quarter of 2004, the growth rate of real gross domestic product in EU12 declined from 1.9 percent to 1.6 percent and in EU25 it declined from 2.2 to 1.9 percent, both in a year-over-year comparison. Compared to the third quarter of 2004, euro-zone GDP grew by 0.2 percent and EU25 GDP by 0.3 percent, according to first estimates by Eurostat.



In February, the EU Economic Sentiment Indicator continued the downward trend that had started in November 2004. Whereas consumer confidence remained stable, industrial confidence registered a strong deterioration, followed by the services and the retail sectors. At the country level, Poland and the UK registered a strong improvement in sentiment, while other large Member Countries like Germany, Spain and Italy showed a sharp decline.

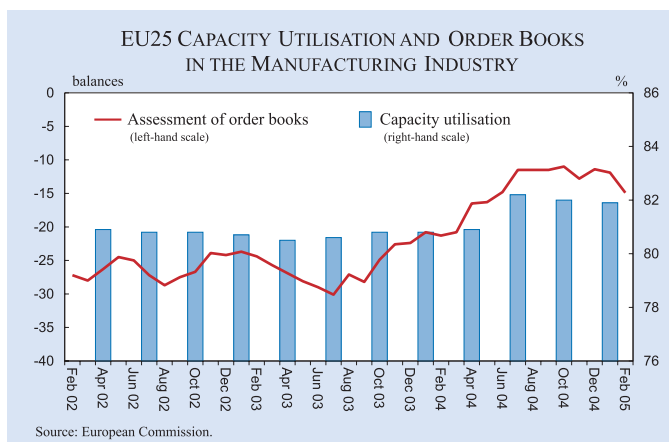


* The industrial confidence indicator is an average of responses (balances) to the questions on production expectations, order-books and stocks (the latter with inverted sign).

** New consumer confidence indicators, calculated as an arithmetic average of the following questions: financial and general economic situation (over the next 12 months), unemployment expectations (over the next 12 months) and savings (over the next 12 months). Seasonally adjusted data.

Industrial confidence declined by 1 point in the EU. Although the sentiment indicator is still above its long-term average, a continuous decline since last November is cause for concern.

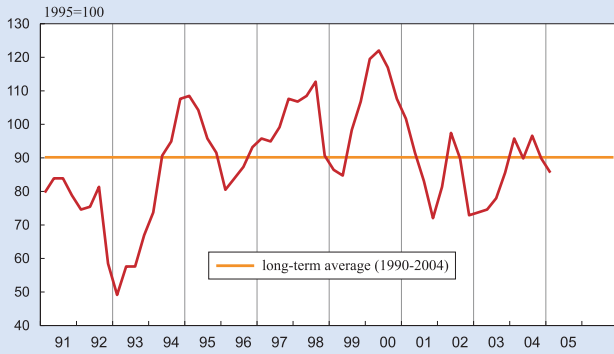
Consumer confidence continued to be stable. For the fourth month in a row, consumer confidence in the EU stands at a level of -10. Underlying this stable development are unchanged expectations regarding consumers' own financial situation, but slightly lower expectations regarding their savings and the general economic situation.



The decline in EU industrial confidence was caused by a much more negative assessment of order books, which fell by 3 points. Capacity utilisation in the first quarter of 2005 declined only marginally from the fourth quarter of 2004 and still stands a full percentage point above that of a year ago.

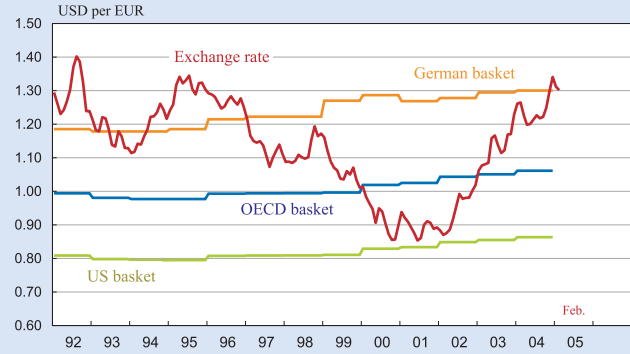
EURO AREA INDICATORS

Ifo ECONOMIC CLIMATE FOR THE EURO AREA



The Ifo World Economic Survey for the euro area showed a further deterioration of the economic climate in the first quarter of 2005. At 85.6, it declined below the long-term average of 90.2 from its most recent peak of 95.8. Whereas expectations for the next six months remained stable at a satisfactory level, assessments of the current economic situation declined. Thus indications are that the recovery of the euro area is faltering.

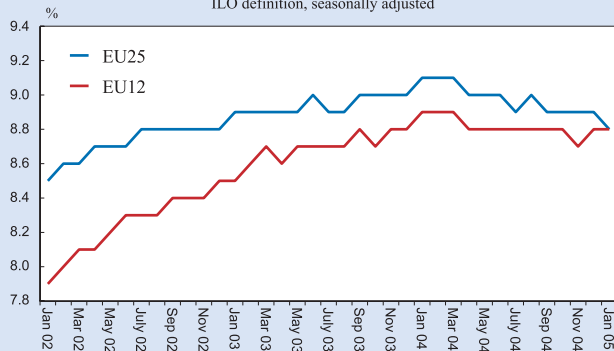
EXCHANGE RATE OF THE EURO AND PPPs



In February, the average exchange rate of the euro declined marginally to \$1.30 from \$1.31. It thus stood 2.9% above its year-earlier level. The euro just hovers at its purchasing power parity with the dollar, based on the German goods basket.

UNEMPLOYMENT RATE

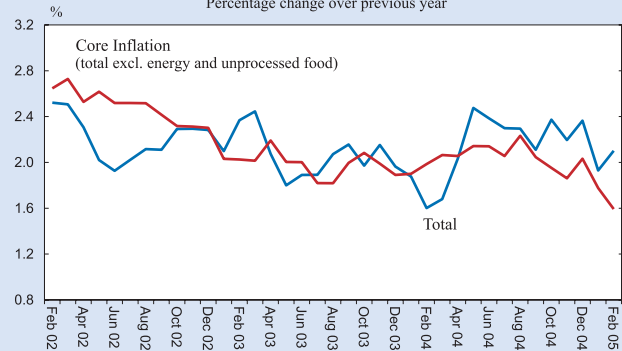
ILO definition, seasonally adjusted



Euro-area unemployment (seasonally adjusted) stood at 8.8 percent in January 2005, unchanged from December 2004. It was 8.9 percent in January 2004. In January 2005 the lowest rates were registered in Ireland (4.3 percent), Luxembourg (4.4 percent), Austria (4.5 percent), the UK (4.6 percent in November 2004), and the Netherlands (4.7 percent in December 2004). Unemployment rates were highest in Poland (18.2 percent), Slovakia (16.5 percent), Greece (10.5 percent in June 2004) and Spain (10.3 percent).

INFLATION RATE (HICP)

Percentage change over previous year



The annual inflation rate in the euro-zone rose from 1.9 percent in January 2005 to 2.1 percent in February. It had been 1.6 percent in February 2004. The lowest inflation rates were registered in Finland (0.0 percent) Denmark (1.0 percent), Sweden (1.2 percent) and the Czech Republic (1.4 percent), the highest in Latvia (7 percent), Estonia (4.6 percent), Poland (3.5 percent) and Hungary (3.4 percent). Core inflation (excluding energy and unprocessed foods) was not only lower, but also showed a steep decline in January.



DAVID BRADFORD MEMORIAL CONFERENCE ON THE DESIGN OF CLIMATE POLICY

22 - 23 July 2005, San Servolo, Venice, Italy

The **Sixth CESifo Venice Summer Institute**, to be held at its traditional venue of San Servolo, a tiny island just off San Marco in the bay of Venice, will include this year a special conference dedicated to the memory of the late **David Bradford**, a great economist and one of the leading lights in Public Finance. Bradford was acting head of the Ifo Scientific Council, and he often took part in CESifo Venice Summer Institute conferences.

David Bradford showed great interest in the economics of environmental and climate policy, the subject of this memorial conference. He was to have delivered one of the keynote speeches and present a paper on the subject. The paper will be now presented on his behalf by Henry Tulkens. CESifo decided to dedicate this conference to David Bradford as one of the various activities planned to pay tribute to this great economist and friend.

Hans-Werner Sinn, President of the Ifo Institute for Economic Research and CESifo

The Memorial Conference will address the economic and political considerations that should influence the design of climate policy. For further details regarding possible topics for discussion, please check the CESifo Venice Summer Institute official page at:

<http://www.cesifo.de/venice>

Both theoretical and empirical contributions are welcome. The conference will include invited as well as contributed papers. Keynote lectures will be given by **Roger Guesnerie** (Collège de France), **William Pizer** (Resources for the Future) and **Henry Tulkens** (Université catholique de Louvain).

A selection of the conference papers will be published in a conference volume by **MIT Press**, following a refereeing process. It is understood that all submissions to the conference imply submission to this publication. The conference will be jointly organized by Henry Tulkens and Roger Guesnerie. Papers should be submitted to:

Professor Henry Tulkens

CORE - Université catholique de Louvain,
Voie du roman pays
B 1348 Louvain-la-Neuve, Belgium
tulkens@core.ucl.ac.be
Phone +3210474321 Fax: +3210474301

Submission of papers by e-mail (in pdf format) is welcome. The **deadline for submission is 25 April 2005**. Authors of submitted papers will be informed of the acceptance decision by 10 May 2005. CESifo will provide accommodation and will reimburse economy travel costs for all participants with accepted papers or other active roles in the conference. Other CESifo network members and doctoral students of VIU partner Universities are invited to participate, but are expected to provide their own funding for travel and accommodation.



Venice Summer Institute 2005

In co-operation with



Foto © J. Saravella, CESifo GmbH

From 18 July to 23 July 2005

CESifo will host its sixth Summer Institute in Venice, Italy, bringing together international economists working on economic policy topics for workshops, panel meetings and discussions. The conference venue is San Servolo, an island just off San Marco in the bay of Venice. This year a special conference will be dedicated to the memory of David Bradford, a great economist and one of the luminaries of public finance. He showed great interest in the economics of environmental and climate policy, the subject of this special conference.

The following workshops and conferences are scheduled:

ECONOMICS AND PSYCHOLOGY (18-19 JULY)

KEYNOTE SPEAKERS: COLIN CAMERER, SIMON GÄCHTER, BRUNO S. FREY AND ALOIS STUTZER

RECENT DEVELOPMENTS IN INTERNATIONAL TRADE:

GLOBALISATION AND THE MULTINATIONAL ENTERPRISE (18-19 JULY)

KEYNOTE SPEAKERS: ALAN DEARDORFF, PETER NEARY, JIM MARKUSEN AND JOSEPH FRANCOIS

POLITICAL ECONOMY AND DEVELOPMENT (20-21 JULY)

KEYNOTE SPEAKERS: TIMOTHY BESLEY, WILLIAM EASTERLY AND MICHAEL KREMER

GLOBAL ECONOMIC NEGOTIATIONS (20-21 JULY)

KEYNOTE SPEAKERS: JOHN WHALLEY AND DAVID GREENAWAY

HEALTH ECONOMICS (22-23 JULY)

KEYNOTE SPEAKERS: PAUL GERTLER AND PIERRE-YVES GOEFFARD

DAVID BRADFORD MEMORIAL CONFERENCE ON THE DESIGN OF CLIMATE POLICY (22-23 JULY)

KEYNOTE SPEAKERS: ROGER GUESNERIE, WILLIAM PIZER AND HENRY TULKENS

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