



BANK FOR INTERNATIONAL SETTLEMENTS

BIS Working Papers

No 223

What explains the US net income balance?

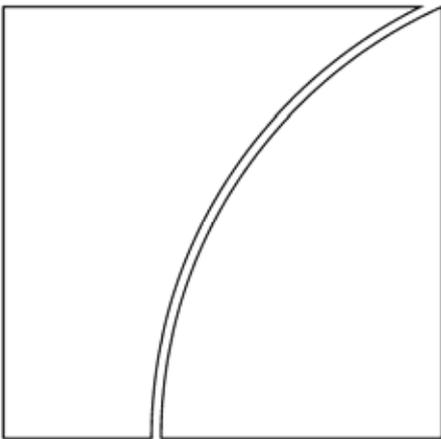
by Alexandra Heath

Monetary and Economic Department

January 2007

JEL Classification Numbers: F32 F41

Keywords: Net income balance, dark matter, income yields, foreign direct investment



BIS Working Papers are written by members of the Monetary and Economic Department of the Bank for International Settlements, and from time to time by other economists, and are published by the Bank. The views expressed in them are those of their authors and not necessarily the views of the BIS.

Copies of publications are available from:

Bank for International Settlements
Press & Communications
CH-4002 Basel, Switzerland

E-mail: publications@bis.org

Fax: +41 61 280 9100 and +41 61 280 8100

This publication is available on the BIS website (www.bis.org).

© *Bank for International Settlements 2006. All rights reserved. Limited extracts may be reproduced or translated provided the source is stated.*

ISSN 1020-0959 (print)

ISSN 1682-7678 (online)

Abstract

Despite a significant deterioration in the US net foreign asset position, there has not been a corresponding deterioration in the net income balance. In fact, there has generally been a net income surplus. Two factors have been particularly important for the positive net income balance over the past 15 years or so. The first is that the United States has a positive net external equity balance and a negative net external debt balance. This contributes to a net income surplus because the income yield on equity has been higher than the income yield on debt.

The second factor is that the United States earns a persistently higher income yield on its foreign direct investment (FDI) assets than foreigners earn on their direct investments in the United States. This paper summarises the evidence from firm-level studies and time-series data for the United States, as well as cross-country comparisons, to weigh up alternative explanations for this outcome. The evidence presented suggests that differences in income yields on FDI are not explained by the presence of large stocks of unmeasured assets. Moreover, they do not appear to be related to different characteristics of the investment such as industry composition or riskiness. There is some evidence that differences in the average maturity of investment have had some effect on yield differentials, especially in the 1980s. There are also incentives to minimise taxes that are consistent with the relatively low income yields earned on FDI in the United States, but no firm evidence that this is an important explanation.

Contents

1.	Introduction.....	1
2.	The stylised facts of the US external position	2
3.	Dark matter.....	5
4.	Compositional differences	7
	4.1 Relative risk – country and industry composition.....	7
	4.2 Relative maturity	8
5.	Structural explanations for the low income yield on FDI in the United States	9
	5.1 Tax incentives.....	10
6.	Sustainability of the US external position	11
	Appendix 1 Deriving market-value estimates for FDI	13
	Appendix 2 Tax system effects on reported income composition.....	15
	References	17

1. Introduction¹

There has been much debate about the sustainability of the US current account deficit and the associated accumulation of net foreign liabilities. While other countries have larger current account deficits as a share of their GDP, in absolute terms the United States dominates the global current account deficit. The offsetting current account surplus is largely accounted for by emerging Asia, oil-exporting countries and Japan. Given the extent of trade and financial linkages across countries, even economies such as the euro area, which have a roughly balanced external position, are likely to be affected by any adjustment towards a more sustainable path of net foreign assets elsewhere (Lane and Milesi-Ferretti, 2006c).

Despite a significant deterioration in the US net foreign asset position, there has not been a corresponding deterioration in the net income balance. In fact, there has generally been a net income surplus. This can be regarded as positive for the sustainability of the US external position insofar as the capacity of the net income balance to partially offset the trade deficit in the past indicates similar outcomes going forward. A somewhat stronger argument is that the net income surplus indicates that there is a significant stock of unmeasured assets, and that the “true” state of the US net foreign asset position is far more benign than suggested by the official measures. This argument, sometimes referred to as the “dark matter hypothesis”, suggests that the US net external position will continue to be sustainable and the net income balance will continue to be positive if these unmeasured assets retain their value and income generation capacity (Hausmann and Sturzenegger, 2005). Indeed, the dark matter interpretation of the data suggests that a painful adjustment involving a substantial exchange rate depreciation and a significant slowdown in US growth is not imminent or inevitable, as argued by many others (Obstfeld and Rogoff, 2005; Blanchard et al, 2005).

This paper summarises the evidence from firm-level studies and time-series data for the United States, as well as cross-country comparisons, to weigh up alternative explanations for the ability of the United States to maintain a relatively stable, and generally positive, net income balance despite the deterioration of the net foreign asset position. Particular attention is paid to measurement issues where they have a bearing on the interpretation of the available evidence.

Two factors have been particularly important for the positive net income balance over the past 15 years or so. The first is that the United States has a positive net external equity balance and a negative net external debt balance. This contributes to a net income surplus because the income yield on equity has been higher than the income yield on debt. The second factor that has consistently benefited the US net income balance is a persistent income yield differential on foreign direct investment (FDI): over the past decade, US residents have earned over 4 percentage points more, on average, on their direct investment abroad than foreigners have earned in the United States. The evidence presented in this paper suggests that differences in income yields on FDI do not appear to be explained by the presence of large stocks of unmeasured assets. Moreover, they do not appear to be related to different characteristics of the investment such as industry composition or riskiness. There is some evidence that differences in the average maturity of investment have had some effect on yield differentials, especially in the 1980s. There are also incentives to minimise taxes that are consistent with the relatively low income yields earned on FDI in the United States, but no firm evidence that this is an important explanation.

¹ I would like to thank Claudio Borio, Dietrich Domanski, Andy Filardo, Gabriele Galati and Toshi Sekine for comments that have contributed greatly to the final paper. I would also like to thank for San Sau Fung for excellent and tireless research assistance. The views expressed in this paper are mine, and do not necessarily represent those of the Bank for International Settlements.

The final section of the paper summarises what the net income balance can say about the sustainability of the US external position and assesses its importance relative to other factors. In recent quarters, the income yield on debt has increased with the global tightening of monetary policy, so the difference in composition between assets and liabilities is less positive for the net income balance than it has been. Combined with the ongoing accumulation of debt liabilities, this has increased income payments on net debt to the point where they exceed income receipts on net equity. Overall, while the United States continues to benefit from a persistent income yield advantage on FDI, it is difficult to explain and therefore it is difficult to confidently extrapolate for the purposes of thinking about the net income balance and sustainability going forward. It is also worth noting that these factors are of second-order importance compared with valuation effects.

This paper is presented as follows. In Section 2, the factors underlying the positive net income balance are highlighted, and some international comparisons are made. In Sections 3, 4 and 5, the apparent yield advantage earned by US residents on their direct investments abroad over what foreigners earn in the United States is explored further. In Section 3 the argument that the net income surplus derives from income earned on unmeasured intangible assets is examined. In Section 4 the evidence for whether differences in yields reflect different characteristics of the stocks of FDI assets and liabilities such as riskiness, industry and maturity is assessed. In Section 5, we examine whether there is any evidence that more behavioural factors, such as incentives to minimise tax, have contributed to measured income yield differentials on FDI. In Section 6 the contribution of the net income balance to the sustainability of the US external balance is assessed and compared to the contribution of other factors, such as valuation effects.

2. The stylised facts of the US external position

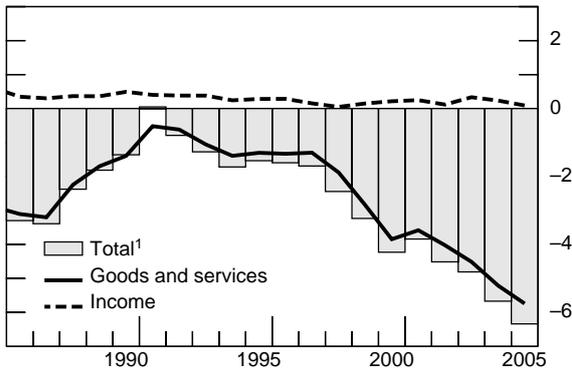
The US current account deficit deteriorated from 1.4% of GDP in the early 1990s to 6.5% of GDP in 2006. In turn, ongoing current account deficits have led to the steady deterioration in the net foreign asset position, which raises questions about sustainability (Graph 1, right-hand panel). At the same time, the US net income balance has generally been steady and positive (Graph 1, left-hand panel). This can be viewed as a positive for sustainability because it (partially) offsets the trade deficit. More recently, it has been argued that the net income surplus indicates that there are stocks of unmeasured assets, which would be an even stronger positive signal for sustainability (Hausmann and Sturzenegger, 2005).

A decomposition of the net income balance highlights two factors that have been particularly important for the positive net income balance in the past. The first is that the US is short net debt assets and long net equity assets. Until recently, the higher income yield on net equity has been sufficient to offset payments on lower-yielding net debt despite the accumulation of portfolio debt obligations (Graph 1, right-hand panel). Between 2000 and 2005 around half of the increase in portfolio debt liabilities can be attributed to an increase in holdings of US securities other than US Treasury securities by the private sector, and a little over one third of the increase can be attributed to an increase in official holdings of US government securities.

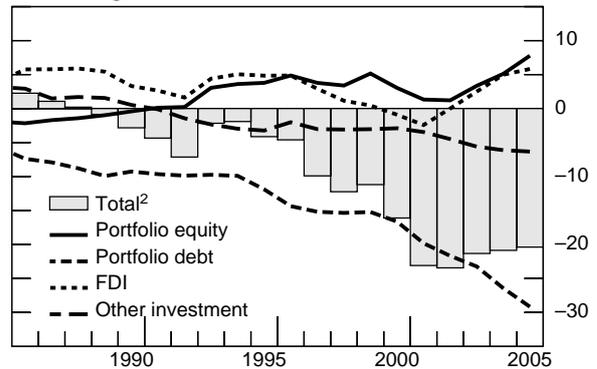
Graph 1
US current account balances and net foreign assets

As a percentage of GDP

Current account balances



Net foreign assets



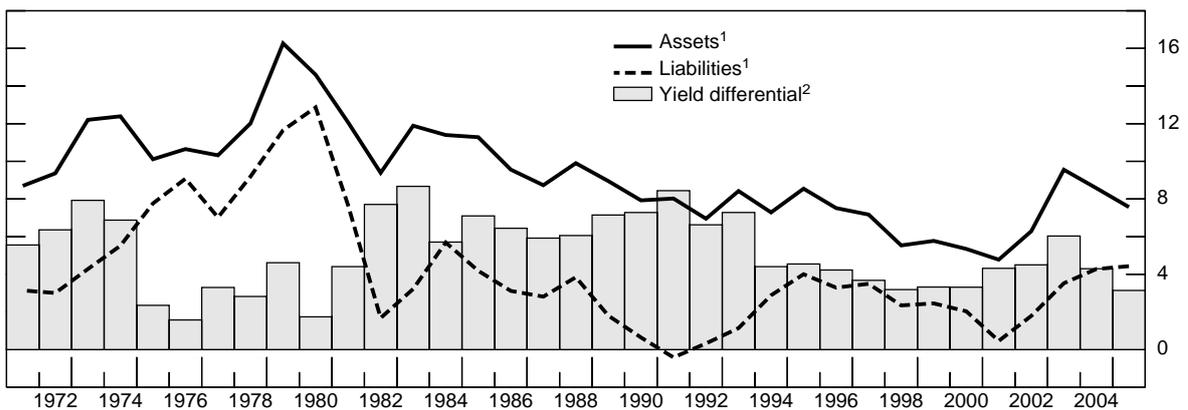
¹ Also includes current transfers. ² Also includes reserve assets.

Source: National data.

However, there is a point where the stock of net debt liabilities is sufficiently large relative to the stock of net equity assets that the associated income payments cannot be offset, despite a difference in yields. Recent data show that the United States has had a net income deficit for the past four quarters, suggesting that this turning point has been reached. In addition to the accumulation of net debt liabilities, income yields on portfolio debt and other investment have increased with rising interest rates, narrowing the difference between the yields on net debt and net equity.

The second factor underlying the net income surplus in the United States has been a large and persistent yield differential between US direct investment abroad and FDI in the United States: the income yield on US-owned direct investment abroad has been around 5 percentage points higher on average than the income yield on FDI in the United States since the 1970s (Graph 2). The yield differentials between assets and liabilities for portfolio equity and debt are typically quite small (Table 1).

Graph 2
Income yields of US direct investment assets and liabilities



¹ In per cent. ² In percentage points.

Sources: Lane and Milesi-Ferretti (2006b); IMF; national data; author's calculations.

Table 1
US external assets and liabilities, 2005

In per cent

		Direct investment	Portfolio equity¹	Portfolio debt	Other investment²
Assets ³	Share of total	32.6	25.4	9.9	30.2
	Income yield	8.3	2.6	4.2	2.2
	Ratio to GDP	28.1	21.9	8.5	26.0
Liabilities	Share of total	21.6	17.0	33.1	28.3
	Income yield	4.2	2.0	4.3	1.7
	Ratio to GDP	23.1	18.1	35.4	30.3
Net assets ³	Share of total	23.9	17.9	-128.9	-20.6
	Income yield	4.1	0.6	-0.1	0.5
	Ratio to GDP	5.0	3.7	-26.9	-4.3

¹ Portfolio equity is distinguished from foreign direct investment by the fact that the owner holds less than 10% of the equity. ² Includes loans, currency and deposits, trade credit and other accounts receivable and payable. ³ Also includes reserve assets; therefore, shares of the total will not sum to 100.

Sources: IMF; author's calculations.

The fact that there is an income yield differential on FDI has been known, and puzzling, for some time. Firm-level studies have highlighted that foreigners earn less on their direct investments in the United States than their domestic competitors, suggesting that the differential is at least partly due to the poor performance of foreigners in the United States (Mataloni, 2000). Yields earned on direct investment assets and liabilities across countries, adjusted to ensure comparability as discussed in detail in Appendix 1, support the view that foreigners earn low yields in the United States, but that US investors also earn higher-than-average yields on their direct investment assets abroad (Table 2). This evidence does not explain the income yield differential as much as suggest where the puzzle lies. Sections 3 to 5 consider the plausibility of several explanations with a view to assessing the likelihood that this positive effect will continue going forward.

Table 2
Income yields on foreign direct investment, 2000-05

In per cent

	Assets	Liabilities	Difference
United States	7.0	2.8	4.3
United Kingdom	4.2	3.1	1.0
Netherlands	3.7	2.7	1.0
France	1.5	0.5	1.0
Switzerland	6.3	6.2	0.1
Sweden	6.0	6.1	-0.1
Germany	1.6	2.4	-0.5
Italy	2.1	3.6	-1.5
Australia	5.3	7.5	-2.1
Canada	2.7	4.8	-2.2
Japan	5.6	8.1	-2.5

Where market value data for the stock of foreign direct investment, the denominator of the yield calculation, are not available, estimates based on the method outlined in Appendix 1 are used.

Sources: IMF; national data; author's calculations.

3. Dark matter

One argument for optimism regarding the sustainability of the US external position is that a net income surplus indicates that the net international investment position is actually more positive than it is estimated to be because the United States has significant stocks of unmeasured intangible assets generating income inflows. This argument, known as the dark matter hypothesis was proposed by Hausmann and Sturzenegger (2005) and rests on assumptions that all assets should generate the same income yield, and that income flows are better measured than either the stocks of assets and liabilities or the transaction flows that create these stocks. With these two assumptions, the authors capitalise net income flows using a constant income yield assumption to back out the “true” level of net foreign assets. The difference between this measure of net foreign assets and the official estimates is labelled dark matter.

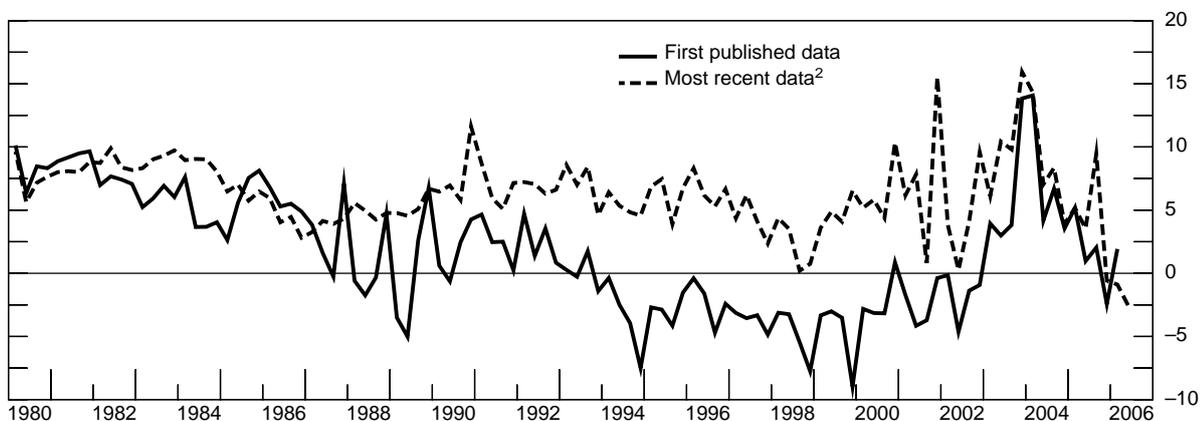
Using this method, Hausmann and Sturzenegger estimate that the United States has significant stocks of unmeasured net foreign assets. For 2005, these calculations suggest that dark matter was worth around \$2.5 trillion. The presence of dark matter implies that income yield differentials calculated using official data will be overestimated. On this basis, Table 1 suggests that the largest source of dark matter is net foreign direct investment assets. In this case, dark matter could be interpreted as stocks of intangible assets that represent the present discounted value of US intellectual property and “know-how” that is “released” by US direct investment abroad.

The Hausmann and Sturzenegger analysis highlights the importance of measurement issues for interpreting official data. However, there are several reasons to view this analysis, and its implications for the sustainability of the US external position, with some caution. First, the analysis assumes that income flows are better measured than either stock data or the

transactions that result in the accumulation of these stocks. There are estimation issues associated with correctly measuring the values of assets and liabilities, and measuring stocks of FDI can be particularly problematic, as discussed in Appendix 1. It is also true that there are problems in accurately measuring intangible trade, such as transfers of royalties and trademarks (Lipse, 2006; Kozlow, 2006).

However, there are also problems with measuring income flows. Indeed, in the United States, income flows for portfolio debt and portfolio equity are derived from information about these stocks and independently measured yields, which suggests that measurement problems for the stocks translate directly into measurement problems for income. One indicator of the magnitude of the measurement problems with income is the extent to which the net income balance is revised (Graph 3). For most of the 1990s, the revisions between the number first published and the most recent estimate have been large enough to turn a net income deficit into a net income surplus.

Graph 3
Balance of US investment income¹
 In billions of US dollars



¹ Excluding compensation of employees. ² Second quarter of 2006.
 Source: Bureau of Economic Analysis, US Department of Commerce.

Another reason to view the analysis of Hausmann and Sturzenegger analysis with some caution is that the results are not robust to small variations in the methodology. In particular, Higgins et al (2005) show that if the Hausmann and Sturzenegger methodology is applied to the gross stocks of assets and liabilities separately, rather than to the net asset position, it appears that the official estimates for both gross assets and liabilities are over- rather than underestimated. This result suggests that the Hausmann and Sturzenegger result arises because the stock of liabilities is overestimated by more than the stock of assets, rather than the stock of assets being underestimated, and that their interpretation is not consistent with this more disaggregated analysis.

In addition, the Hausmann and Sturzenegger interpretation suggests that the yield on US FDI abroad should be high. However, as discussed above, the puzzle to be explained is more that foreigners earn low returns on their direct investment in the United States, rather than that US investors are making unusually high returns abroad. This suggests that the income yield differential on FDI is not the result of dark matter.

In summary, there are questions about whether the underlying assumptions of the Hausmann and Sturzenegger analysis are appropriate and the extent to which their interpretation of the analysis fits the stylised facts. The assumption that capitalised income flows provide a better estimate of stocks than the official measure can be questioned, in part, because it is not clear that income is better measured than trade flows and stocks of assets and liabilities. The interpretation of the analysis is not consistent with the results obtained

from applying the same method to gross rather than net asset positions, or with the fact that the yield differential is, at least in part, due to low returns on foreigners' direct investment in the United States rather than high returns on US FDI abroad.

4. Compositional differences

Another possible explanation for the yield differential on FDI, which has the potential to explain why yields on US direct investment assets are high as well as why yields on FDI in the United States are relatively low, is that there are differences in the composition of the stocks of foreign direct investment. Two dimensions have been considered in the literature (Hung and Mascaro, 2004; Higgins et al 2005): US firms invest in riskier assets than firms investing in the US and therefore require a higher compensating yield; and US direct investment abroad is more mature than FDI in the United States, and therefore yields on US direct investment abroad are less affected by investments at the low-yielding set-up stage of a new investment. The evidence for each of these possibilities is summarised below.

4.1 *Relative risk – country and industry composition*

One dimension along which some studies have compared the risk characteristics of US direct investment abroad with FDI in the United States is country risk. In general, these studies have used sovereign credit risk as a proxy measure for the risks associated with investing in a particular country. Given that the United States has the highest possible sovereign risk rating, it is almost definitional that a weighted average of sovereign risk ratings for US direct investment abroad will be lower. Using a weighted average of sovereign risk, where weights are defined by the share of FDI, Hung and Mascaro (2004) estimate that US direct investment abroad should be rated as BBB⁺. This implies a risk compensating premium of less than 140 basis points on average between 1999 and 2003, or around one third of the average yield differential measured using data from the balance of payments.

This evidence would be more convincing if there were also a relationship between bilateral yield gaps on direct investment and differences in sovereign ratings. Higgins et al (2005) show that the yield gap is pervasive across countries, and Hung and Mascaro (2004) present evidence that the gap is not clearly related to differences in country sovereign risk. These results are consistent with the fact that a high proportion of FDI flows in and out of the United States have counterparty countries that are not obviously more risky. Over 50% of US direct investment abroad is in Europe, with a further 15% going to Australia, Canada and Japan. In the reverse direction, over 70% of FDI in the United States comes from Europe. Without more disaggregated data, it is difficult to make the case that the US yield differential is related to US FDI abroad being invested in riskier countries than the United States.

Another possibility is that direct investments in different industries earn different income yields, and so differences in the industry composition between the stocks of foreign direct investment assets and liabilities may account for the yield gap. As with the evidence for differences in the sovereign risk, it is difficult to make a strong case for an industry composition effect using aggregate data. Hung and Mascaro (2004) find that there is no significant difference between industry-weighted average risk for US direct investment abroad and FDI in the United States. Consistent with this, Higgins et al (2005) show that the industry composition of FDI assets and liabilities is roughly similar, and that the yield gap exists across industries.

Firm-level studies using US data suggest that there is some limited role for industry factors to explain the gap between the return on assets for foreign-owned firms and their domestic counterparts. Using firm-level data on non-financial firms, Mataloni (2000) finds that a little over 10% of the gap can be explained by differences in industry composition. In addition, he finds that there is a relationship between the yield gap and the market share of the foreign-

owned firms, suggesting that the gap between the yield on external assets and liabilities might be explained by the ability of US firms to obtain higher market shares than foreign-owned firms in the United States. However, in total, there is limited evidence that industry composition is a significant explainer of the aggregate yield gap.

4.2 Relative maturity

A stylised fact in the finance literature is that new investments generally earn low returns initially and that returns improve over time. New investments may earn lower returns because it is necessary to service debt that was used to make the initial purchase, it takes time to absorb set-up costs or, in the case of a new investment in an existing firm, it takes time to work through adjustment costs. Mataloni (2000) uses firm-level data to show that the gap between the return on assets for non-financial foreign-owned firms and their domestic counterparts diminishes as the foreign investment ages, consistent with this stylised fact.

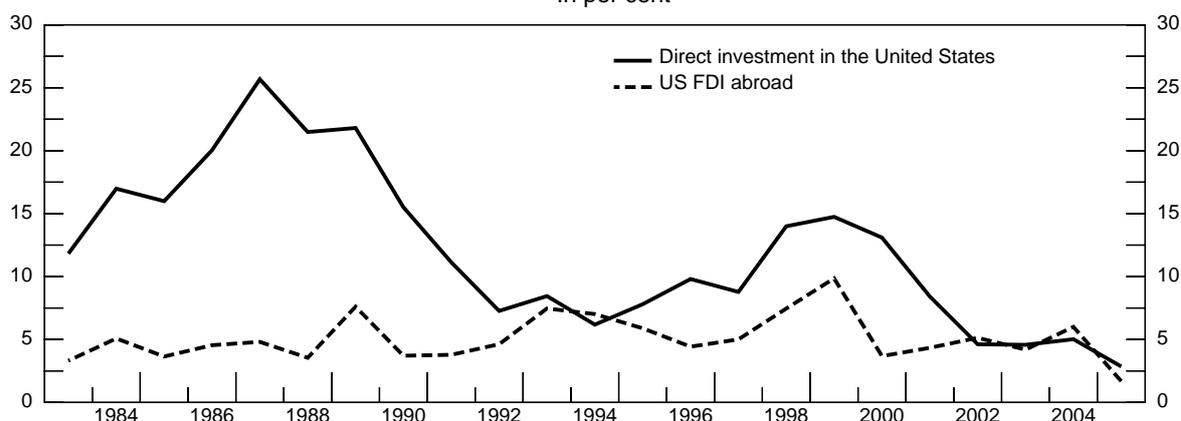
If the stock of US direct investment abroad is relatively mature, this pattern of yields increasing with age may help to explain the yield gap. A significant proportion of US investment abroad was established before the 1980s, whereas there was relatively little FDI in the United States before this (Landefeld et al, 1992). This difference in maturity helps to account for the gap between historic cost and market valued stocks being bigger for US direct investment abroad than for FDI in the United States over the 1980s. In addition, Laster and McCauley (1994) report Internal Revenue Service data, which show that in 1988 the median year of incorporation for US-owned firms abroad was in the early 1960s, whereas in 1990, the median age for foreign-owned firms in the US was in the late 1970s.

Over the 1980s, there were significant inflows of FDI into the United States that, in addition to increasing the stock of foreign direct investment liabilities, would have reduced the average maturity of FDI in the United States (Graph 4).² Several authors attribute at least some of the one percentage point increase in the yield differential between the 1970s and the 1980s (Graph 2) to the change in the relative maturity of the different stocks (Landefeld et al, 1992; Grubert et al, 1993; Laster and McCauley, 1994). Landefeld et al (1992) note that the maturity effect was reinforced over this period by the fact that a non-trivial portion of FDI in the United States was invested in firms that were already earning below-average returns. To the extent that the willingness of foreign firms to purchase less profitable firms was affected by temporary factors such as the depreciation of the US dollar in the second half of the 1980s, the widening of the yield differential was expected to dissipate over time.

In the 1990s, there was another increase in the size of FDI inflows into the United States relative to the market value of FDI already present. However, the increase was relatively small and there was no corresponding widening of income yields. Since 2002, the rate of inflow into FDI in the United States has been roughly equal to the rate of inflow into US FDI abroad, but there has not been any significant convergence of yields in recent years.

² Although the average age of the stock depends on the rate at which existing FDI is removed as well as the rate at which new additions are made, changes in average age are likely to be dominated by changes in new additions because this is a far larger and more volatile flow.

Graph 4
Inflow rates¹
In per cent



¹ Inflow divided by the stock at the end of the previous year.

Source: Bureau of Economic Analysis, US Department of Commerce.

In summary, there does appear to be a relationship between the average maturity of direct investment, assuming that this is inversely related to the rate at which new capital is added to the stocks, and movements in yields on FDI over the 1980s. However, since the early 1990s there is no obvious relationship between changes in the relative maturity of FDI in the United States and US direct investment abroad and changes in yield differentials. Using aggregate data it is also difficult to find a convincing relationship between yield differentials and differences in the composition of FDI assets and liabilities, although there is some evidence from firm-level studies that industry composition may have some, second-order effect.

5. Structural explanations for the low income yield on FDI in the United States

The literature that examined the 1980s episode also highlighted some more structural explanations for why FDI in the United States might persistently earn lower yields than US direct investment abroad. The first is that foreign firms are not necessarily motivated by the profitability of their FDI per se, but by their overall profitability. For example, they might be using FDI to gain access to new markets or to circumvent trade barriers. The second is that differences in tax rates provide incentives to shift income from US affiliates to the foreign parent to minimise the income reported in the United States.³

Using FDI to gain market share appears to have been a particularly relevant factor for explaining the lower-than average income yields on FDI in the United States by Japanese firms. More specifically, anecdotal evidence suggests that Japanese investment in production facilities in the United States in the 1980s was seen as a way of circumventing actual (and potential) restrictions on vehicle imports to the United States (Landefeld et al 1992). In addition, manufacturers could avoid anti-dumping duties on final goods by exporting parts for assembly in the United States. This is supported by results of a survey on the outlook for Japanese foreign direct investment in 1994 that indicated coping with trade regulations by the host country such as voluntary export restraints and dumping tariffs was

³ The literature on the effect of taxation on different aspects of FDI is extensive and has been surveyed recently by de Mooij and Ederveen (2005) and Hines (1999).

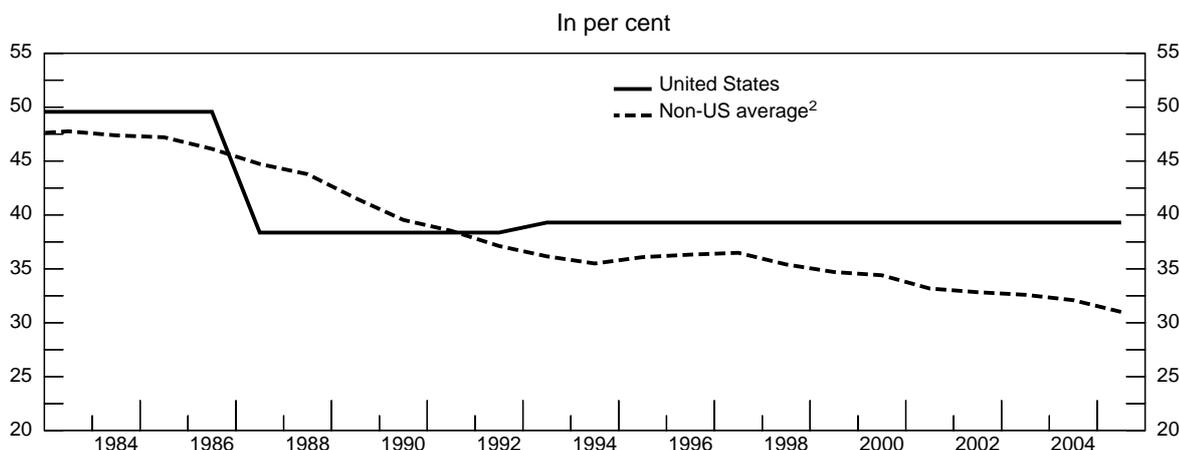
an important reason for Japanese firms to strengthen and expand overseas businesses through FDI (Kozu et al, 2002). The appreciation of the yen relative to the US dollar also increased the attractiveness of such investments (Kozu et al, 2002). More recently, responding to market expansion, building flexible parts supply systems for leading customers and developing products suited to local markets have been more important factors behind Japanese FDI in North America.

5.1 Tax incentives

The second structural explanation put forward to explain the fact that income yields on FDI in the United States are low is that differences in taxation provide foreign firms with incentives to minimise the income reported by their US affiliates. At the aggregate level, US corporate tax rates do seem to offer such incentives. While the average statutory corporate tax rate across industrialised countries has been falling steadily since the middle of the 1980s, the US corporate tax rate has been roughly constant (Graph 5). Indeed, the United States has the highest corporate tax rate in the OECD, with the exception of Japan, and this has been recognised as a potential problem by US policymakers (Economic Report of the President, 2006).

The story is similar for effective average corporate tax rates, which use actual taxes paid as inputs, rather than statutory rates, and therefore will capture the effects of other features of tax systems such as tax deductibility of interest payments and changes in the tax base (Devereaux et al, 2002). On a bilateral basis, differences in corporate tax rates can be very large and are widely recognised as one of the factors underlying the rapid increase in FDI inflows to countries such as Ireland. Even in 1991, OECD data reported by Landefeld et al (1992) show that the effective tax rates on income from investment in US affiliates was higher than those on domestic investments for 10 of the top 11 countries investing in the United States.

Graph 5
Corporate tax rates¹



¹ Statutory tax rates. ² Average of Australia, Austria, Belgium, Canada, Finland, France, Germany, Greece, Ireland, Italy, Japan, the Netherlands, Norway, Poland, Spain, Sweden, Switzerland and the United Kingdom.

Sources: Devereux et al (2002); Institute for Fiscal Studies.

Foreign-owned firms in the United States can act on these tax incentives using intra-firm transfer pricing. For example, the parent firm can transfer income from an affiliate in a high-tax country by underpaying for output from the affiliate or overcharging the affiliate for inputs. Although systematic use of transfer pricing would result in an understated net income balance and a low income yield on FDI assets for the parent firm's country of residence, there would be an offsetting overstatement in the trade balance with no net effect on the current account.

Direct evidence of income shifting within established parent-affiliate relationships is difficult to come by, partly because the use of intra-firm transfer pricing to minimise tax is illegal. Several micro-level studies have found evidence that is consistent with transfer pricing behaviour. Swenson (2001) finds evidence that following tax changes, product-level prices for US imports changed in ways that are consistent with income shifting. There is also evidence that foreign-owned firms in the United States report lower profitability the higher US corporate taxes are relative to those of the parent firm's home country, consistent with the hypothesis that differences in taxes lead to income shifting (Grubert and Mutti, 1991; Hines and Rice, 1994). Further evidence suggests that intra-firm transfers of intangible items such as royalties, whose prices are more easily over- or understated and are therefore more likely to be used for income shifting, are higher when the tax incentives to shift income are higher (Foley et al, 2006; Swenson, 2001).

As well as affecting the level of income reported, differences in tax systems can also have a significant impact on the composition of income. Although this does not affect the net income balance, it can affect the interpretation and comparability of net income data. In particular, microeconomic evidence suggests that differences in the characteristics of tax systems can affect whether affiliate income is retained or distributed (Foley et al, 2006; Hines, 1999). At the aggregate level, a significant proportion of income recorded for US direct investment abroad is in the form of reinvested earnings, whereas this source of income only makes a modest contribution to the earnings of FDI in the United States: excluding reinvested earnings reduces the US yield advantage on FDI. The implications of this measurement issue for the interpretation of the net income balance and the comparability of income yields across asset classes and countries are discussed in more detail in Appendix 2.

In summary, US tax rates provide incentives to minimise income reported in the United States, and this is consistent with the relatively low income yields observed for FDI. Although there is no definitive evidence that firms systematically acting on these incentives, there is micro-level evidence that is consistent with these activities taking place.

6. Sustainability of the US external position

The fact that the US net income balance has remained in surplus on average despite the deterioration of the trade balance and the net foreign asset position has been put forward as a reason to view the sustainability of the US external position optimistically. However, as interest rates have increased, the advantage derived from differences in income yields between debt and equity has been decreasing. Indeed, combined with ongoing accumulation of debt liabilities, this has driven the switch from surplus to deficit of the US net income balance in the recent quarters. This development suggests that the US external balance is less sustainable than it has been.

Another factor that has benefited the US net income balance is that US direct investment abroad earns a higher income yield than FDI in the United States. The stability of the income yield differential on FDI could be used to argue that there is no reason not to expect this to continue to advantage the US external position going forward. The evidence available does not provide strong support for any of the alternative explanations, and without a clearer understanding of the causes, it is difficult to confidently extrapolate the positive effects of this yield differential forward. The dark matter hypothesis, which makes a strong case for optimism about the sustainability of the US external position from positive net income balances, does not fit the stylised facts well.

While these conclusions are not overly positive about the sustainability of the US external balance, it is also important to note that the role of the net income balance is of second order importance for the evolution of the US external position relative to other factors such as valuation effects. Since the net international investment position has been published for the

United States, valuation effects have been positive on average, which means that the net foreign asset position has deteriorated by less than the cumulated current account balance would suggest. Indeed, over the past three years, the valuation effects have been sufficiently large to almost offset the additions from current account transactions, with the result that the net foreign asset position has remained roughly stable as a proportion of GDP (Graph 1).

Of particular relevance are valuation effects arising from exchange rate movements, which arise from the mismatch in the currency composition of gross assets and liabilities: most liabilities are denominated in US dollars, whereas two thirds of external assets are denominated in foreign currency (Tille, 2005). This implies that a depreciation in the US dollar, particularly against the euro, the pound, and the Canadian dollar, which together account for over half of foreign currency denominated assets, creates a positive valuation effect because the value of foreign-currency assets increases, whereas the value of liabilities remains unchanged. Thus, valuation effects from exchange rate movements have typically acted as a stabilising force on the net foreign asset position (Gourinchas and Rey, 2005; Lane and Milesi-Ferretti, 2006a). This effect has been amplified over time as gross asset and liability positions have increased (Lane and Milesi-Ferretti, 2006b).

Although the valuation effects from exchange rate movements generally stabilise the net foreign asset position, this will only have one-off effects on the net foreign asset position. As a result, the positive effects of a depreciation of the US dollar on the net foreign asset position will only delay rather than remove the need for adjustment in items such as the trade balance to achieve sustainability in the external position in the longer term. This point is illustrated by the scenario analysis presented in the most recent BIS Annual Report (BIS, 2006).

Appendix 1 Deriving market-value estimates for FDI

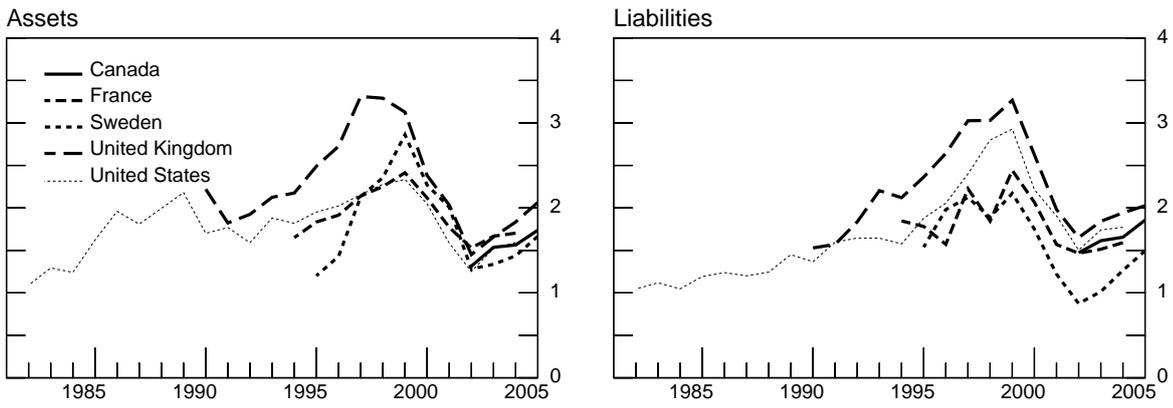
Before comparing income yields across countries, it is necessary to ensure that the measurement of income and stock data is consistent. In particular, the value of FDI stocks, used as the denominator of the yield calculation, is not measured consistently across countries. Some countries measure FDI stocks at market value as recommended by the Balance of Payments Manual, 5th Edition (BPM5; IMF 1993). Other countries report FDI stocks at historic cost, or book value. If no adjustment is made, this will create an upward bias in yield calculations because historic cost is typically lower than market value.

Obtaining a market valuation of FDI can be problematic because, by their nature, these assets are neither homogenous nor necessarily frequently traded. A number of countries do, however, publish data on the stocks of FDI at market value. In some cases, such as Australia and Japan, businesses responding to the relevant survey are asked to provide their own estimates of market valuation (Australian Bureau of Statistics, 2003; Bank of Japan, 2006). When the investment is listed on a stock exchange, its valuation can be based on recent share transactions. Otherwise an indirect method, such as net asset value, which is likely to be revalued regularly under the relevant accounting standards, may be used. One implication of this collection method is that there are no direct estimates of FDI at book value.

For other countries, such as the United States, book-value data are collected and market values are estimated by applying a scaling factor based on the ratio of market value to book value for the stock market of the relevant destination country. If these stock markets are sufficiently deep and liquid, this exercise can be done at a finer level of disaggregation eg by industry. A similar exercise has recently been undertaken for the United Kingdom in Nickell (2006). Statistics Canada has also recently started to use stock market scaling factors to estimate FDI stocks at market value, but currently uses Canadian stock price data for both assets and liabilities. Sweden's market value data are calculated using the price to earnings ratio for the relevant stock markets (Blomberg and Östberg, 1999).

It is possible to use the ratio of market to book value, for cases where both estimates exist, to obtain a proxy scaling factor to apply to FDI stocks that are only available at book value. It is clear that these ratios are strongly correlated with each other and with movements in international stock markets, which is a direct consequence of the estimation method (Graph A1). Over the past five years, the range of estimates has been relatively narrow, partly because the numbers for the United Kingdom, which look unusually large in the second half of the 1990s, have moved closer into line with other estimates. Using a simple average, this exercise suggests that it is reasonable to use a scaling factor of 1¼ for book-valued estimates of FDI assets and liabilities to obtain market-valued estimates in 2005. The yields presented in Table 2 for the Netherlands, Switzerland, Germany and Italy have been corrected for the fact that only book-value estimates of FDI stocks are available using this scaling factor.

Graph A1
Ratios of market to book value of FDI stocks



Source: National data.

Appendix 2 Tax system effects on reported income composition

Microeconomic evidence suggests that differences in the characteristics of tax systems in different countries can affect whether income is retained or distributed (Foley et al, 2006; Hines, 1999). As highlighted recently by Gros (2006), a significant proportion of income recorded for US direct investment abroad at the aggregate level is in the form of reinvested earnings, whereas this source of income only makes a modest contribution to the earnings of FDI in the United States. Excluding reinvested earnings reduces the US yield advantage on FDI by around 3 percentage points to 1.2 percentage points over the period 2000 to 2005 (Table A1). This is consistent with the incentives to retain or distribute earnings that are set up by relatively high US corporate tax rates and the design of the US tax system.

Table A1

Income yields on foreign direct investment excluding reinvested earnings, 2000-05

In per cent

	Assets		Liabilities		Difference
	FDI	Portfolio equity	FDI	Portfolio equity	FDI
United States	3.3	2.3	2.1	1.6	1.2
Netherlands	3.3	1.4	2.1	2.5	1.2
Italy	1.3	2.2	0.1	6.6	1.2
France	1.2	na	0.6	na	0.6
Switzerland	5.1	2.3	4.6	1.9	0.4
United Kingdom	1.8	2.7	2.1	2.6	-0.3
Germany	2.4	2.8	3.1	2.7	-0.7
Sweden	4.0	2.0	5.0	2.3	-1.0
Canada	1.1	1.6	2.6	1.4	-1.5
Australia	1.6	1.4	3.6	2.5	-2.1
Japan	3.7	4.1	6.1	0.8	-2.4

Note: Where market value data for the stock of foreign direct investment, the denominator of the yield calculation, are not available, estimates based on the method outlined in Appendix 1 are used.

Sources: IMF; national data; author's calculations.

In particular, all income earned by US firms, whether on US territory or otherwise, is subject to US taxation although credits can be obtained for taxes paid to foreign governments and taxes on retained earnings can be deferred until they are repatriated. This sets up an incentive for affiliates in lower-tax countries to retain rather than distribute their earnings to US-based parents, thus avoiding US tax. In addition, the tax deductibility of interest payments increases the incentive to fund additional investment in an affiliate firm in a high-tax jurisdiction through lending from the parent firm, rather than using additional equity or retained earnings. This reduces incentives for affiliates in the United States to retain rather than distribute their earnings. The response of foreign affiliates of US firms to temporarily lower US corporate tax rates, such as those resulting from the recent Homeland Investment Act, suggests that these tax incentives can be significant.

Given that income on FDI includes retained and distributed earnings, this tax effect influences the composition rather than the level of income reported, and should have no effect on the net income balance. However, following BPM5, income for all other asset classes, in particular portfolio equity, only includes distributed earnings. Indeed income yields for FDI based on distributed income are more comparable to the income yields on portfolio equity, to which they are most closely related conceptually once retained earnings are excluded (Table A1). This suggests that some caution needs to be exercised when using income flows from different asset classes in the same analytical framework. In addition, to the extent that there are differences in the measurement of reinvested earnings across countries, income yields for FDI excluding reinvested earnings may be more comparable.

While the yield differential for the United States falls more than for any other country in the sample when reinvested earnings are excluded, the United States still has the largest differential (Table A1). In absolute terms, the yield on US direct investment abroad is still higher than average, but is more comparable to yields in other countries than in Table 2. The yield on FDI in the US is still relatively low.

The yield advantage for the United Kingdom and Sweden also fall significantly when reinvested earnings are excluded. In contrast, Italy actually gains a yield advantage when this calculation is done because most of the income paid on Italian FDI liabilities is apparently in the form of reinvested earnings. For several other countries, reinvested earnings make important, but roughly offsetting contributions to income yields on FDI assets and liabilities. Reinvested earnings account for over three percentage points of the income yield on Australian FDI assets and liabilities, which may partly be explained by measurement problems arising because firms may be including capital gains when they report reinvested earnings (Australian Bureau of Statistics, 2003). A measurement issue may also be present for Japan where reinvested earnings contribute 2 percentage points to both FDI assets and liabilities and a similar reporting method is used. Overall, a comparison with yields on portfolio equity suggests that these numbers are reasonable.

In summary, there are significant differences in the composition of outflows and inflows of income on FDI that are consistent with differences in tax systems. In particular, reinvested earnings are significantly more important for income receipts on US direct investment abroad, and this difference explains three quarters of the yield differential. Although this is an observation about the composition rather than the total level of income reported on FDI, and therefore should not affect the net income balance, it highlights the importance of thinking carefully about measurement issues when comparing income yields across asset classes and across countries.

References

- Australian Bureau of Statistics (2003): "Information paper: foreign direct investment data collection: overcoming hurdles and obstacles in FDI measurement and collection", ABS Cat. No. 5370.0.55.001.
- Bank for International Settlements (2006): 76th Annual Report, Chapter V, pp 94-97.
- Bank of Japan (2006): "Balance of payments monthly", International Department Bank of Japan, April 2006 no 477.
- Blanchard, O, F Giavazzi and F Sa (2005): "The US current account and the dollar", *NBER Working Paper* no 11137.
- Blomberg, G and J Östberg (1999): "Market valuations of external position – a new picture of Sweden's international dependence", *Sveriges Riksbank Quarterly Review* 2/1999.
- de Mooij, R A and S Ederveen (2005): "Explaining the variation in empirical estimates of tax elasticities of foreign direct investment", *Tinbergen Institute Discussion Paper* 2005-108/3.
- Devereaux, M P, R Griffith and A Klemm (2002): "Corporate income tax reforms and international tax competition", *Economic Policy* 35, 451-95.
- Economic Report of the President (2006): United States Government Printing Office, Washington, February 2006.
- Foley, C F, J C Hartzell, S Titman and G Twite (2006): "Why do firms hold so much cash? A tax-based explanation", *NBER Working Paper* no 12649.
- Gourinchas, P O and H Rey (2005): "From world banker to world venture capitalist: US external adjustment and the exorbitant privilege", *NBER Working Paper* no 11563, August.
- Gros, D (2006): "Foreign investment in the US (II): being taken to the cleaners?", *Centre for European Policy Studies Working Document*, no 243/April 2006.
- Grubert, H and J Mutti (1991): "Taxes, tariffs and transfer pricing in multinational corporate decision making", *Review of Economics and Statistics* 73(2), May 1991, pp 285-93.
- Grubert, H, T Goodspeed and D Swenson (1993): "Explaining the low taxable income of foreign-controlled companies in the United States", in *Studies in International Taxation*, edited by A Giovanni, G Hubbard and J Slemrod, University of Chicago Press, Chicago, pp 237-75.
- Hausmann R, and F Sturzenegger (2005): "Global imbalances or bad accounting? The missing dark matter in the wealth of nations", *Centre for International Development at Harvard University Working Paper* no 124.
- Higgins, M, T Klitgaard and C Tille (2005): "The income implications of rising U.S. international liabilities", *Federal Reserve Bank of New York Current Issues in Economics and Finance*, volume 11(12), December 2005.
- Hines, J Jr (1999): "Lessons from behavioural responses to international taxation", *National Tax Journal* 52(2), June 1999, pp 305-22.
- Hines, J Jr and E M Rice (1994): "Fiscal paradise: foreign tax havens and American business", *Quarterly Journal of Economics* 109(1), February 1994, pp 149-82.
- Hung, J H and A Mascaro (2004): "Return on cross-border investment: why does U.S. investment abroad do better?", *Congressional Budget Office Technical Paper Series* 2004-17.
- IMF (1993): Balance of Payments Manual 5th Edition.
- Kozlow, R (2006): "Statistical issues related to global economic imbalances: perspectives on 'dark matter'", paper prepared on behalf of the US Bureau of Economic Analysis for the

Nineteenth Meeting of the IMF Committee on Balance of Payments Statistics, Frankfurt, 23-26 October 2006.

Kozu, T, K Nakayama, A Minishima and Y Saita (2002): "Changes in Japan's import and export structures", *Bank of Japan Monthly Bulletin*, May 2002.

Landefeld, J S, A M Lawson and D B Weinberg (1992): "Rates of return on direct investment", *Survey of Current Business*, August 1992, pp 79-86.

Lane, P R and G M Milesi-Ferretti (2006a): "A global perspective on external positions", in *G7 current account imbalances: sustainability and adjustment*, edited by R Clarida, University of Chicago Press, Chicago, *forthcoming*.

Lane, P R and G M Milesi-Ferretti (2006b): "The external wealth of nations mark II: revised and extended estimates of foreign assets and liabilities, 1970-2004", *IMF Working Paper* no 06/69.

Lane, P R and G M Milesi-Ferretti (2006c): "Europe and global imbalances", *Economic Policy*, *forthcoming*.

Laster, D S and R N McCauley (1994): "Making sense of the profits of foreign firms in the United States", *Federal Reserve Bank of New York Quarterly Review*, Summer-Fall, pp 44-75.

Lipsev, R E (2006): "Measuring international trade in services", *NBER Working Paper Series*, no 12271, May.

Mataloni, R J Jr (2000): "An examination of the low return of foreign-owned U.S. companies", *Survey of Current Business*, March 2000, pp 55-73.

Nickell, S (2006): "The UK current account deficit and all that", speech on 25 April, Bank of England.

Obstfeld, M and K Rogoff (2005): "Global current account imbalances and exchange rate adjustments", *Brookings Papers on Economic Activity* 1, pp 67-123.

Swenson, D (2001): "Tax reforms and evidence of transfer pricing", *National Tax Journal* 54(1), March 2001, pp 7-26.

Tille, C (2005): "Financial integration and the wealth effect of exchange rate fluctuations", *Federal Reserve Bank of New York Staff Report* no 226, October 2005

