Effects on the cross-border investment income balance: asset accumulation, portfolio shifts and changes in yields

The balance of cross-border investment income stood at €65 billion (or 2¼% of GDP) in 2014, making it the second-largest asset item in the German current account after the goods trade surplus. Just ten years ago, investment income and spending were roughly equal. Germany's investment income flows to and from the rest of the world result from the amount and composition of external assets and liabilities as well as the income yields paid on assets and liabilities. The growth in Germany's investment income surplus is primarily thought to be linked to the considerable rise in net external assets. However, an analysis that disaggregates asset classes additionally reveals many different effects which vary in strength across subperiods.

The starting point of the analysis is a breakdown of the change in the investment income balance into accumulation and yield effects. The accumulation effect measures the isolated influence of changes in net external assets (eg through net capital exports associated with current account surpluses, but also through valuation effects) on the investment income balance. Yield effects generally result from the interplay between the fluctuations in income yields on the asset and liability sides of the external assets account. From an analytical perspective, subdivision into a yield level effect and a differential effect is worthwhile. The yield level effect captures the effects of changes in the international yield level, reflecting the precise impact they have on the average rate of interest on German foreign investments. If the average rate of interest on liabilities to non-resident investors does not run parallel to this, this ultimately results in differential effects.

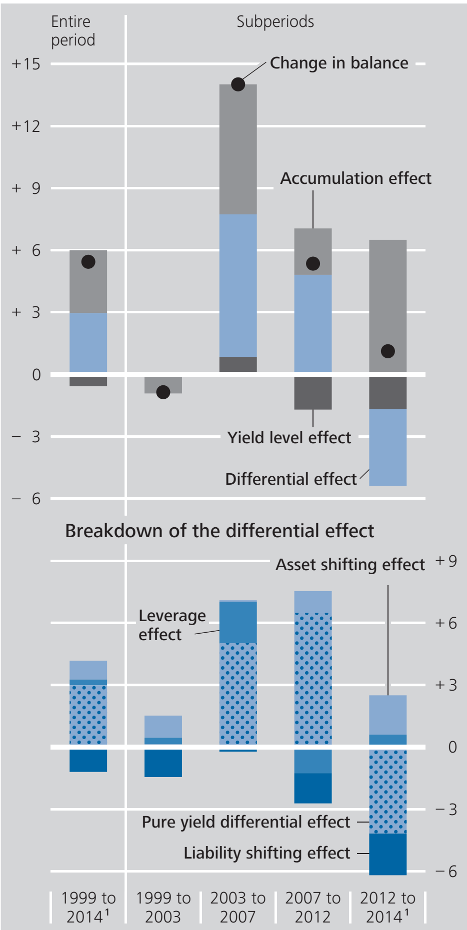
Furthermore, it must be noted that individual asset classes usually generate different yields. Portfolio shifts can therefore change the average yields on assets and liabilities. This phenomenon is accommodated through shift effects for both the yield level and differential effect. The latter does not, however, solely comprise the effects of changes in the yield differential in individual asset classes (pure yield differential effect). A contribution to the aggregated differential effect is also made when – against the background of a differing composition of external assets and liabilities – the yield levels of individual asset classes develop in different ways (leverage effect).

The breakdown of the change in the investment income balance into the effects described above is based on the income and spending flows as well as the asset and liability holdings of 11 yield-bearing asset classes in the German balance of payments and the international investment position.[1] For the entire period from 1999 to 2014,[2] the main finding is that, in mathematical

1 Specifically, the following asset classes are considered: 1) direct investment: a) equity capital, b) loans; 2) securities: a) equities, b) investment fund shares, c) short-term debt securities, d) long-term debt securities; 3) other investment: a) monetary financial institutions, b) enterprises and individuals, c) general government excluding the Bundesbank, d) Bundesbank excluding TARGET2, e) TARGET2. The remaining components of net external assets are not considered in this analysis, as they either do not generate any income as defined in the balance of payments statistics (financial derivatives and cash) or the relevant income data are not available over the entire analysis period (reserve assets). The breakdown in discrete time is implemented using the Shapley-Siegel index. See L Shapley (1953), A value for n-person games, in: H W Kuhn and A W Tucker (eds), Contributions to the Theory of Games, Vol 2, Princeton University, pp 307-317; and I H Siegel (1945), The generalized "ideal" index-number formula, Journal of the American Statistical Association, 40, pp 520-523.
2 For 2014, the period from 2013 Q4 to 2014 Q3 is used provisionally for the investment income, since information on amounts outstanding for the international investment position is currently available until 2014 Q3 only.

Breakdown of the change in the German investment income balance

€ billion, average annual amounts



1 Final figures for the international investment position as at 2014 Q3.
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terms, the accumulation of net external assets accounted for just over half of the improvement in the investment income balance. The rest was attributable to yield effects.[3] The swing in the yield differential in favour of German foreign assets had a strong positive impact. Although the decline in the general yield level counteracted the improvement in the investment income balance, the effect of this was relatively minor over the entire period.

In the period between 1999 and 2014, four periods that each display characteristic trends can be identified. The first subperiod (1999 to 2003) covers the final phase and bursting of the dotcom bubble, which resulted in a significant decline in cross-border direct investment, in particular. The global economic slowdown after the turn of the millennium led to persistent economic stagnation in Germany given the structural weaknesses at the time. The second subperiod (2003 to 2007) was – in a global sense – dominated by a fairly strong upturn. During this time, structural reforms were implemented in Germany, culminating in more employment-intensive growth. In addition, domestic enterprises' activities abroad increased considerably in this period. The effects of the financial crisis on the investment income balance are related, on the one hand, to the pronounced cyclical volatility between 2008 and 2010 and, on the other hand, to international investors' changed investment behaviour owing to new assessments of risk/return profiles. The European sovereign debt crisis escalated until mid-2012, after which tensions eased. Against this backdrop, the phase from 2007 to 2012 is separated from the

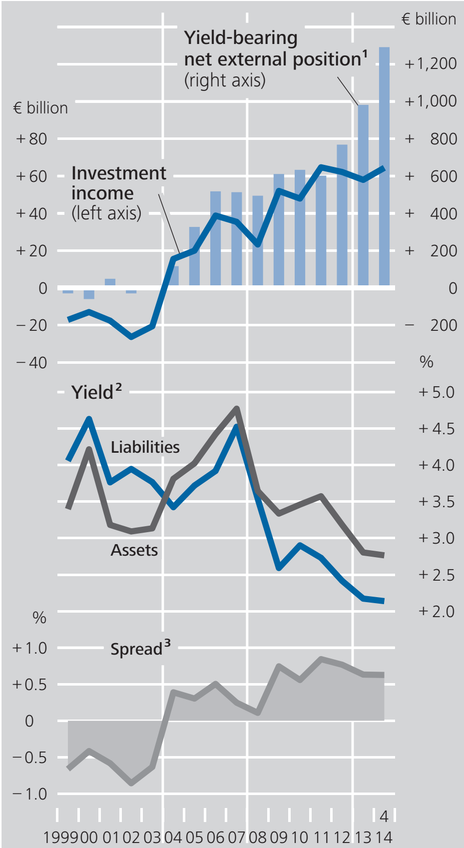
3 In the yield calculation undertaken here, investment income is based on average annual amounts outstanding (ie the arithmetical mean of the outstanding value at the end of the reporting year and at the end of the previous year). The amounts outstanding are valued at the market prices and exchange rates at the end of the reporting period, meaning that changes in amounts outstanding essentially also incorporate valuation effects. The influence of exchange rate fluctuations is likely to be of minor significance for the yield calculation, since income payments are normally made in the currency in which the investment is denominated, and are posted to the investment income balance sheet during the year on an accrual basis. Theoretically speaking, the yield calculation remains undistorted by market price effects under the assumption that market valuations of the investments match expected future income. Since this cannot be assumed in every case and for all periods, investment income flows are based on amounts outstanding adjusted for market price effects in an alternative calculation which, however, only extends back to 2005 for reasons of data availability. In qualitative terms, this procedure does not change the plus or minus sign or the relative significance of the accumulation and yield effects. In quantitative terms, the accumulation effect would have to be somewhat greater and the differential effect slightly smaller in the period from 2007 to 2012.

subsequent years. This delineation also appears necessary from a statistical perspective because the figures for 2013 and 2014 still contain a comparatively high proportion of estimates.

The investment income balance sheet recorded an average annual deficit of €19 billion between 1999 and 2003. This deficit arose because, on average, a higher yield was paid on liabilities to non-residents than German investors received for their practically equivalent holdings of foreign assets. The relatively minor change in the investment income balance of -€3½ billion was almost exclusively attributable to a slightly negative accumulation effect. Yield changes had no notable effect on the balance.

Between 2003 and 2007, German investment income rose on balance by a significant €56 billion to +€35½ billion in 2007. The accumulation effect as well as both yield effects made a positive contribution to this. The biggest contribution, of +€27½ billion, was provided by the improvement in the yield differential. A crucial factor here was that the profitability of both direct investment and of investment fund shares and long-term loans held by German investors improved distinctly compared with those of non-residents in Germany. Also of significance was the fact that the yield level for asset classes in which the German economy as a whole had entered into a net creditor position (such as equity capital for direct investment) tended to rise more sharply than others (+€8 billion). As the climbing German current account surpluses since 2002 were also reflected in constantly growing net external assets (a rise of €502 billion between 2003 and 2007), the accumulation effect played a significant role in the increase in German investment income, adding €25 billion. The slightly higher yield level was of little consequence compared with the other determining factors, contributing +€3½ billion.

Key indicators for the German investment income balance



1 Direct investment, securities and other investment excluding cash, financial derivatives and reserve assets. **2** Yield corresponding to the ratio of investment income to the annual average international investment position. **3** Yield on assets less yield on liabilities. **4** Final figures for international investment position as at 2014 Q3.

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German net investment income again increased clearly between 2007 and 2012, rising by €26½ billion to +€62 billion in 2012 despite a temporary slump in 2008. To some extent, there were countervailing contributions from accumulation and yield effects. The accumulation effect made a distinctly positive contribution of +€11 billion. In spite of the larger current account surpluses as against the 2003 to 2007 period, this contribution was no longer as high, since Germany's net external assets did not grow to the same extent as the cumulative financial account balances between 2007 and 2012 owing to valuation effects, other adjustments and changes to statistical conventions.[4] The yield level effect continued to have a clear braking effect on the increase in investment income, reducing the figure by €8½ billion, as the international interest rate level declined considerably following the expansionary monetary policy measures implemented in response to the global recession. A crucial factor here was that all asset classes, but particularly other investment by monetary financial institutions (MFIs), generated distinctly lower income than before.

By contrast, the differential effect boosted Germany's investment income balance after the onset of the crisis (+€24 billion), primarily on account of safe haven flows as part of investors' altered risk perception. The largest item originates from the price effect of safe haven flows, which were expressed in the increase in the pure yield differential (+€32½ billion). This was chiefly attributable to yield changes in the bond market, in which the effective interest rate decreased from 3¾% to 2¼% on the liability side between 2007 and 2012, while the reduction on the asset side was significantly smaller, going from 4¾% down to 4¼%. The yield differential was adversely affected, however, because the interest rate on German net creditor positions, such as other investment by MFIs and investment fund shares, was lower than in the previous period (-€6½ billion).

The significant portfolio shifts after the onset of the crisis had no negative influence on the investment income balance. On the asset side, the items that primarily gained in importance were TARGET2 claims, other investment by public sector entities excluding the Bundesbank, long-term debt securities and direct investment, especially at the expense of other investment by MFIs and of equities. One reason for this can be found in a structural shift away from bank financing resulting, amongst other things, from new capital requirements under Basel III. First and foremost, however, institutional mechanisms within the euro area and the process of combating the crisis ensured that the private sector's share in external assets shifted in favour of public sector entities – particularly the Bundesbank's TARGET2 claims. However, the effect on the total balance of the rise in TARGET2 claims was more than offset in mathematical terms by the reduction in low-interest-bearing asset classes, such as other investment by MFIs, in favour of more profitable ones, such as direct investment and long-term loans.[5]

From 2012 to 2014, the German investment income balance improved only slightly, by €2 billion, according to current figures. Against the background of the German net external position recording clear increases (+€523 billion) owing to valuation effects amongst other factors, the accumulation effect was again considerable in this period (+€13 billion). However, dampening effects were felt from the continued drop in the yield level (-€3½ billion) and the deterioration in the yield differential (-€7½ billion). The latter was primarily attributable to a partial reversal of the crisis-related develop-

4 See also Deutsche Bundesbank, Discrepancy between changes in foreign assets and the cumulative financial account balance: unsuitable indicator of wealth losses, Monthly Report, May 2014, pp 48-50.
5 In the first step, TARGET2 claims are remunerated at the Eurosystem reference rate and generate investment income as defined in the balance of payments, which is recognised as Bundesbank income. This aspect is considered exclusively in this calculation. Since TARGET2 balances even out across all euro-area countries, they do not ultimately generate any monetary income for the Eurosystem as a whole and hence also for the Bundesbank. All of the Eurosystem's monetary income is netted and allocated at the end of the year only. The compensatory amount is recorded in secondary income for statistical purposes.

ment in the bond markets, which was reflected in a negative pure yield differential effect (-€8½ billion). By contrast, the effects of portfolio shifts from assets (+€4 billion) and liabilities (-€4 billion) towards equities and, on the asset side, towards long-term debt securities as well offset each other in terms of the investment income balance.

To explain the increase in the investment income surplus in the past ten years, it is not enough to look solely at the accumulation process for net external assets. The improvement in the yield differential between external assets and liabilities – especially with regard to equity capital for direct investment and long-term debt securities – had the effect of additionally boosting the surplus, at least until 2012. The shifts within German external assets and liabilities after the onset of the financial and sovereign debt crisis offset each other for the most part in terms of their overall effect on the investment income balance. Given the size of Germany's net external assets, cross-border investment income streams can be expected, on balance, to continue making clearly positive contributions to the current account in the coming years.