Foreign direct investment and domestic investment

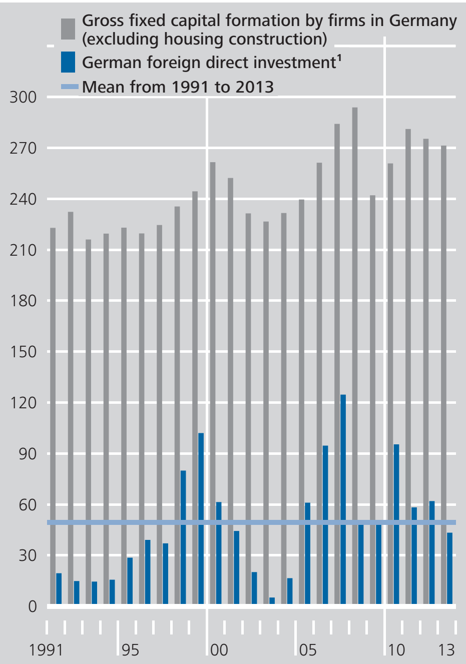
In the public debate, the relatively moderate level of investment in Germany is often linked with reports of German manufacturers' expanding output abroad. It is suggested, for example, that Germany's outbound foreign direct investment (FDI) means that German firms invest less in the domestic economy as this is rendered superfluous by the acquisition or expansion of foreign production capacity. In actual fact, however, the presumed substitutional relationship between corporate investment in Germany and German FDI cannot be empirically confirmed at the macroeconomic level.

Descriptive analysis

The data on German outbound FDI show no significant expansion in the recent past. Over the past two decades, the statistics on German FDI recorded an annual mean value of just under €50 billion. In 2012, Germany's FDI was just above and in 2013 just below the long-run average. These data provide no confirmation for a supposed increased investment shift to export markets at the current time. Nor do the data indicate any substitution effect between foreign and domestic investment. A comparison with the investment behaviour of firms in Germany suggests, rather, a co-movement between German foreign investment and investment in Germany driven by cyclical factors (see chart). This applies equally to gross fixed capital formation in the total economy and to business investment,[1] which is a more appropriate yardstick in this context.

Foreign direct investment and domestic investment

€ billion



1 Net capital exports: +.
Deutsche Bundesbank

Empirical analysis for Germany

A long-run complementary relationship between German outbound FDI and business investment in Germany was established in a study published back in 2006.[2] An updated estimation for the period from 1971 to 2013 confirms those previous findings.[3] In line with the 2006 study and with earlier analyses,[4] investment amounts were again normed to gross domestic product (GDP). Moreover, as in 2006, the measure chosen was direct investment in the form of equity stakes owing to the better comparability it affords with the gross fixed capital formation concept.[5]

1 Private non-residential investment.
2 See Deutsche Bundesbank, Direct investment and domestic investment, Monthly Report, September 2006, p 50.
3 A dummy was used to take account of the extraordinary period from 2008 (financial crisis).
4 See, for example, M S Feldstein (1995), The Effects of Outbound Foreign Direct Investment on the Domestic Capital Stock, in M S Feldstein, J. R. Hines and R. G. Hubbard (eds), The Effects of Taxation on Multinational Corporations, University of Chicago Press, pp 43-66.
5 A positive sign is used for net capital exports, contrary to the balance of payments notation.

For the analysis the equation

$$\beta_1 \frac{BI}{GDP} + \beta_2 \frac{FDI_{IN}}{GDP} + \beta_3 \frac{FDI_{OUT}}{GDP} + c = \varepsilon$$

has been estimated as a vector error correction model (VECM).[6] BI stands for business investment in Germany, FDI_{IN} for inbound FDI and FDI_{OUT} for outbound FDI (in each case in the form of equity stakes); c is a constant and ε the error term. The complementary relationship between German firms' domestic investment and outbound FDI is determined by the negative sign of β_3 (see table). Using causality tests,[7] it can additionally be shown that outbound FDI influences domestic investment. The figures indicate that, at least in the long run, German outbound FDI goes hand in hand with higher domestic investment. Increased foreign investment by German enterprises evidently leads to a rise in domestic investment needs.

Foreign direct investment and domestic business investment

Annual data, 1971-2013, t-values in brackets

Variable	Cointegration vector	Error correction equation	Loading coefficient
$\frac{BI}{GDP}$	$\beta_1 = 1.00$[1]	$\Delta\frac{BI}{GDP}$	– 0.41 (– 3.60)
$\frac{FDI_{IN}}{GDP}$	$\beta_2 = 1.64$ (5.28)	$\Delta\frac{FDI_{IN}}{GDP}$	– 0.50 (– 2.96)
$\frac{FDI_{OUT}}{GDP}$	$\beta_3 = -$ 1.28 (– 4.34)	$\Delta\frac{FDI_{OUT}}{GDP}$	0.00[1] –
c	– 0.12 (– 47.70)		

1 Restricted.
Deutsche Bundesbank

G20 states

In order to give the study a broader base, the G20 countries[8] were analysed from 1993 to 2012 with a view to determining to what extent domestic gross fixed capital formation is dependent on inbound or outbound FDI (in relation to GDP).[9] In addition, the countries' economic growth and output gap – as indicators of the cyclical development and economic situation – and the level of and change in price competitiveness[10] were included as further explanatory variables. Overall, the estimation (as a country panel with fixed effects and robust standard errors) indicates that outbound FDI generally has a positive, and in any case non-negative, impact on the development of domestic gross fixed capital formation. The results suggest that domestic investment is mainly driven by cyclical factors.

Conclusion

A relationship between outbound FDI and domestic investment can be confirmed empirically; however, it is not the frequently presumed negative, substitutional relationship but, rather, a positive, complementary one. However, caution is called for when performing and, in particular, interpreting such studies as, on the one hand, the investment definitions follow different methodological concepts and, on the other, the FDI data are unable to fully capture firms' foreign activity owing to the requisite statistical definitions. These include the reporting exemptions, but also the widespread phenomenon of production by foreign contracting parties or licencees, which – without a corresponding equity stake – is by definition not classified as FDI.[11]

6 The variables are integrated of order 1. A Johansen cointegration test suggests one cointegration relationship.
7 An LR test shows that the loading coefficient for outbound FDI can be restricted to 0. That is an indication of weak exogeneity. At the same time, the coefficients of the lags of $\Delta\ BI/GDP$ are not significant, which is a sign of strong exogeneity.
8 Excluding the European Union.
9 Norming to GDP mainly serves to facilitate comparability (scaling) of the values across the various countries.
10 Compared with 56 trading partners based on consumer prices.
11 Detailed information and methodological notes on FDI statistics are available on the Bundesbank's website at http://www.bundesbank.de/Navigation/EN/Statistics/External_sector/Direct_investments/direct_investments.html.