

Financing research and innovation³⁹⁴

C 4

Public financing of research and development (R&D) in the private sector can take place via either direct R&D funding (project funding) or indirect R&D funding (in particular tax-based R&D funding). Figure C 4-1 shows direct and indirect R&D funding as a percentage of gross domestic product in selected countries. The instrument of tax incentives for R&D activities is available to businesses in most of the countries listed; however, up to now Germany has not made use of this funding option.

Financing constitutes a major challenge for many innovative companies – not only in the start-up phase, but also during the growth phase.³⁹⁵ Young, innovative enterprises can often only establish themselves successfully on the market if private investors provide venture capital during the start-up and growth phases.

Figure C 4-2 provides an overview of venture-capital investment as a percentage of national gross domestic products in selected European countries. The data used for the comparison come from Invest Europe, formerly the European Private Equity and Venture Capital Association (EVCA); they offer good international comparability due to the harmonized collection and processing system used.³⁹⁶ Germany ranks about mid-table here in the European comparison. The highest levels of venture-capital investment in 2016 were recorded in Finland and Sweden. In Germany, venture-capital investment as a percentage of gross domestic product rose only slightly in 2016 compared to the previous year.

Since the Invest Europe data only include venture-capital investment companies that are organized in the association, there is a risk of underestimating volumes.³⁹⁷ Therefore, for the first time, data from transactional databases are used for the analysis of venture-capital investment in Germany in addition to the Invest Europe data.³⁹⁸ They have the advantage that the individual transaction is the observation unit; this increases the likelihood that co-investments by atypical market participants³⁹⁹ and non-European investors are also included.

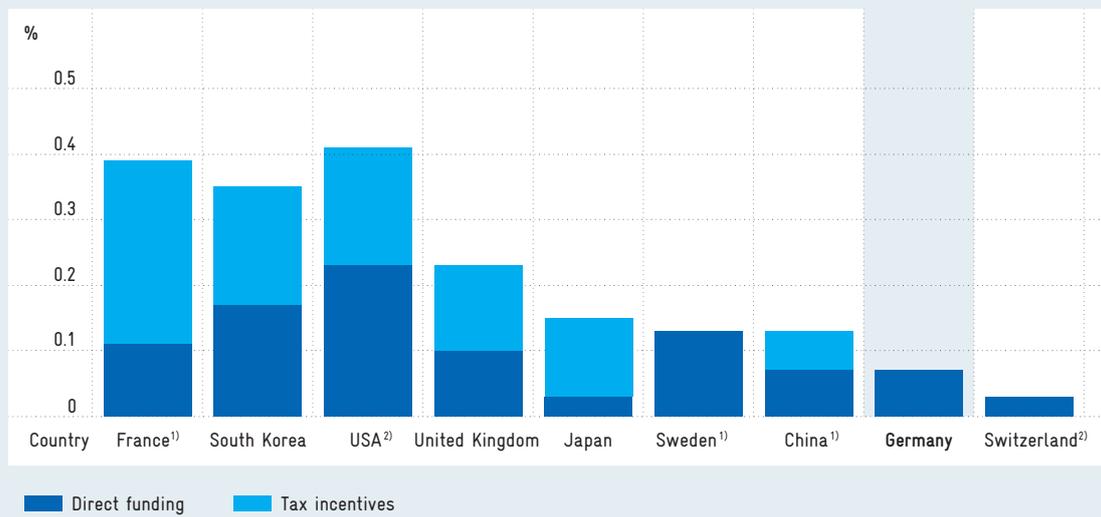
Figure C 4-3 provides an overview of the development of venture-capital investment in Germany. Analysis of the Invest Europe data reveals a slight increase in venture-capital investment compared to the previous year. When the transaction data are included in the observation of venture-capital investment, a significant increase can be observed in the period 2007–2016. Using this data leads to a significant change in the structure of venture-capital investment. However, such a change would probably also be found for other countries. The extended data base does not, therefore, allow conclusions to be drawn on whether Germany's weak position by international comparison as regards the availability of venture capital might have improved relative to other countries in the meantime.

Fig. C 4-1

Download
data

R&D spending in business sector directly and indirectly funded by the public sector in 2015 as a percentage of national GDP

The public funding of private-sector R&D is divided into direct R&D funding (project funding) and indirect R&D funding (through tax incentives).



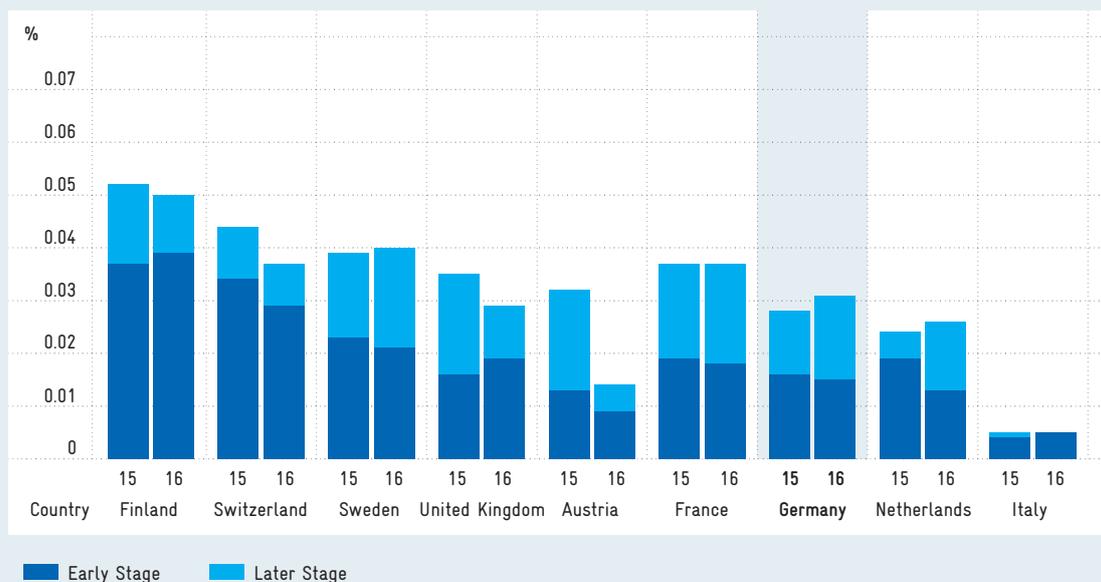
¹⁾ 2014. ²⁾ 2013.
Source: OECD (2017).

Fig. C 4-2

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data

Venture-capital investment as a percentage of national GDP in 2015 and 2016

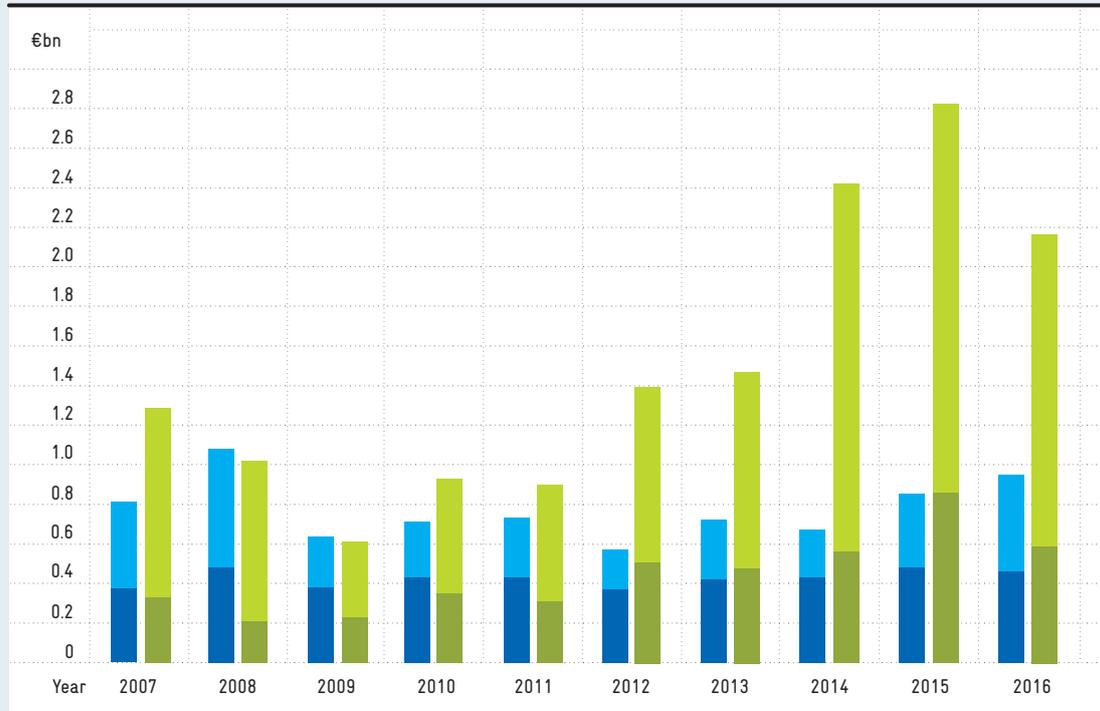
Venture capital is defined here as temporary equity investments in young, innovative, non-listed companies.



Investments are broken down according to the portfolio companies' head offices.
Early stage comprises the seed phase and the start-up phase.
Source: Invest Europe (2017), Eurostat. Calculations by ZEW in Bersch et al. (2018).

Development of venture-capital investment in Germany 2007–2016 in €bn

Venture capital is defined here as temporary equity investments in young, innovative, non-listed companies.



Data from association: ■ Early Stage ■ Later Stage
 Transaction data: ■ Early Stage ■ Later Stage

Investments are broken down according to the portfolio companies' head offices. Early stage comprises the seed phase and the start-up phase.

Source of association data: Invest Europe (2017). Calculations by ZEW in Bersch et al. (2018).

Source of transaction data: Bureau van Dijk, Majunke (2017). Calculations by ZEW in Bersch et al. (2018).

Fig. C 4-3

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