



HM Government

Life Science Competitiveness Indicators

March 2015

Preface

This report brings together in one place a set of competitiveness indicators covering a range of aspects of the life science environment in the UK and other countries. They are intended to give a broad understanding of the UK sector, and how it compares internationally.

The choice of these indicators was informed by Technical and Steering Groups made up of a range of life science sector stakeholders. These included representatives from trade associations, life science sector companies, research organisations, regulators and government bodies. Comparator countries have been selected on the basis of data availability, and advice from the Technical and Steering Groups as to the most appropriate comparators. In some instances where a comparison was considered desirable, it has not been possible as data for particular countries was not available or was not considered reliable.

There are a range of other UK specific data sources that were not used because internationally comparable data could not be identified. These limitations mean that, whilst this is the fullest picture we are currently able to provide, the set of indicators cannot be looked at in aggregate to provide an overall country ranking. Each indicator should be considered on its own merits and the caveats relating to data sources (which may be constantly updated) should be considered in each case. This report does not make any assessment of the relative importance of different factors for competitiveness, which is at least partly a subjective judgement.

For the most part, the data on which these indicators are based is drawn from already published data. Wherever possible a link is provided to the data, or to the publication from which the chart has been reproduced. In a few instances it has been necessary for data to be sourced commercially or obtained directly from the organisation holding it. In these cases the supplier is clearly credited against relevant charts. In cases where the data is from a proprietary source, we have not been able to reproduce the underlying data tables.

This is the first publication of these indicators. The intention is to further develop the indicator content and data sources for future publications.

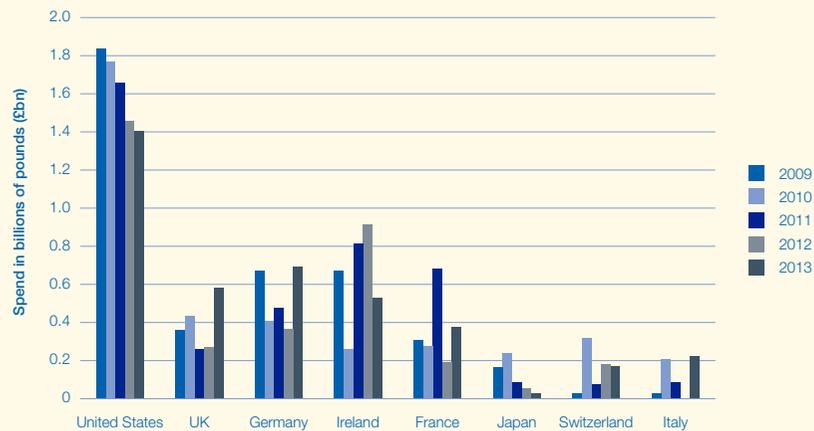
We would like to thank all those who have contributed to these indicators, or supplied data for this publication.

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Overview: Performance of UK Life Science Sector and Contribution to UK Economy

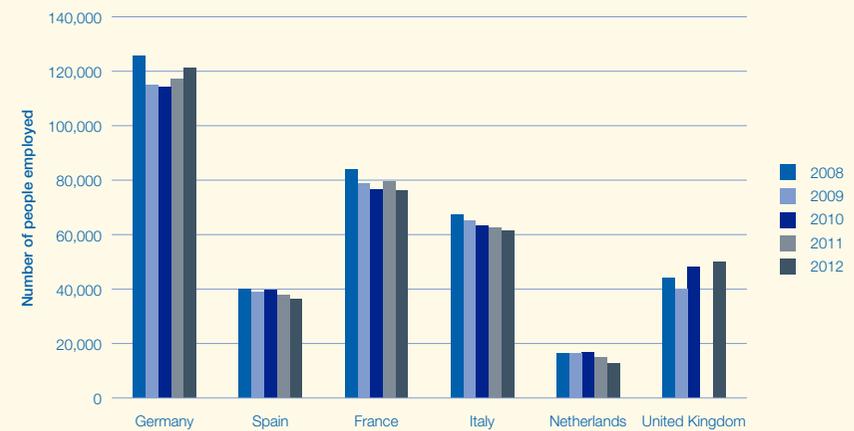
Chart 5B: Life sciences foreign direct investment – capital expenditure



Source: fDi Markets, from The Financial Times Ltd.

Notes: Values are for the year that projects were announced. Data is in current prices.

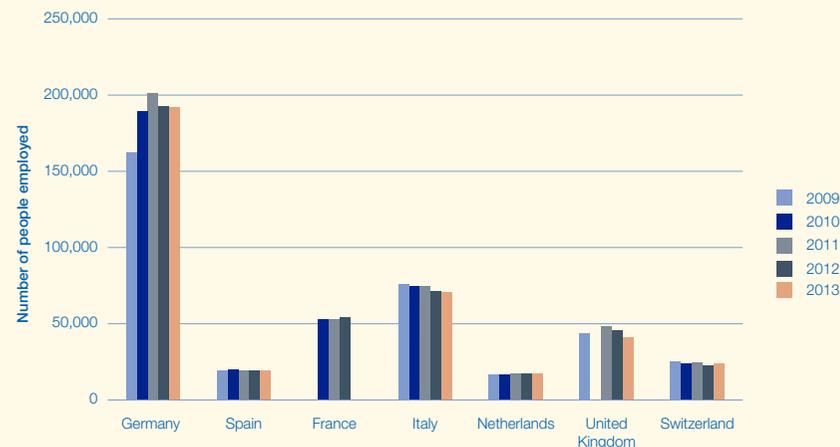
Chart 1A: Number of people employed in manufacture of basic pharmaceutical products and pharmaceutical preparations



Source: Eurostat – Data Explorer, Annual detailed enterprise statistics for industry, http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=sbs_na_ind_r2&lang=en

Notes: Selected Category in NACE_R2 "C21 Manufacture of basic pharmaceutical products and pharmaceutical preparations". Data not available for some countries in certain years.

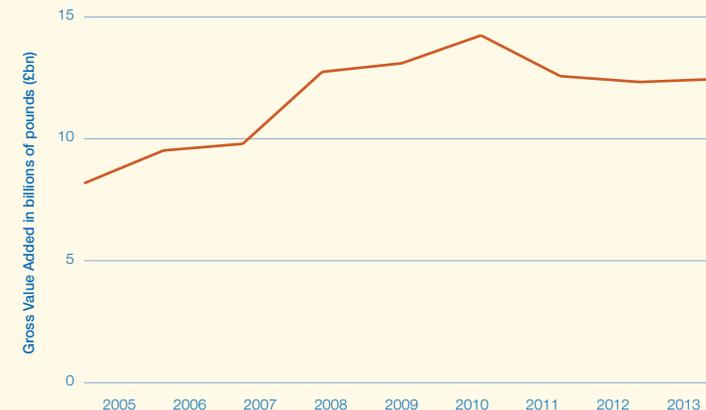
Chart 1B: Number of people employed in manufacture of medical technology products



Source: Eurostat – Data Explorer, Annual detailed enterprise statistics for industry, <http://ec.europa.eu/eurostat/data/database>

Notes: Categories in NACE_R2 "C266 Manufacture of irradiation, electromedical and electrotherapeutic equipment" plus "C325 Manufacture of medical and dental instruments and supplies". Data not available for some countries in certain years.

Chart 2B: Gross Value Added for pharmaceutical manufacturing in UK

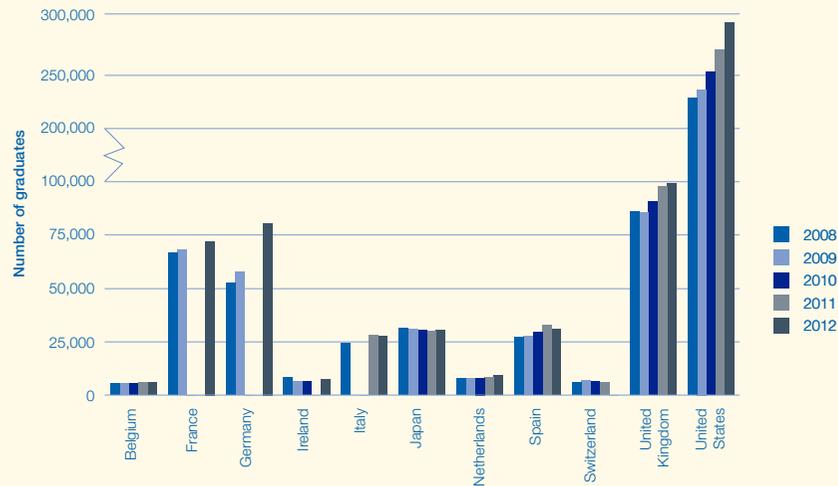


Source: UK data from ONS National Accounts, The Blue Book 2014 Edition dataset time series "KKF7: mGDP manufacture of basic pharmaceutical products and pharmaceutical preparations" <http://www.ons.gov.uk/ons/rel/naa1-rd/united-kingdom-national-accounts/the-blue-book--2014-edition/index.html>

Notes: UK data (Chart 2B) has been taken from a separate source from the comparator countries as it is not currently available broken down at this level through Eurostat. The medical technology sector is defined by two three-digit categories (C266 and C325) and National Accounts data is not available at this level. Data is in current prices.

Overview: Competitiveness of UK Life Science Environment

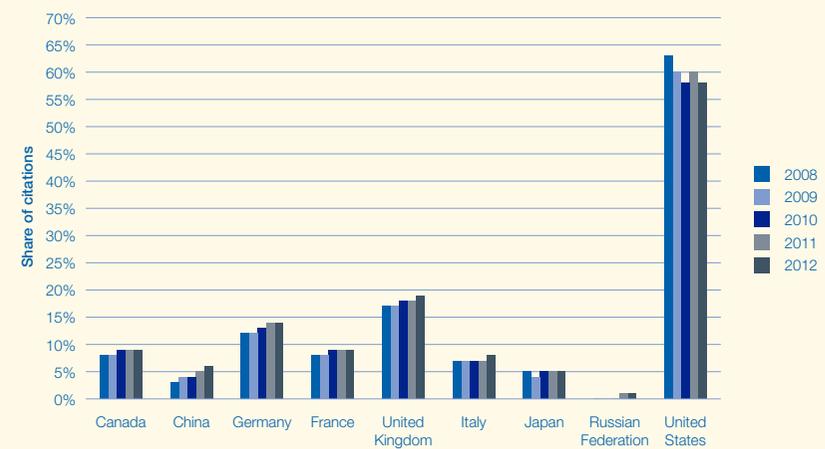
Chart 8: Number of science graduates



Source: United Nations Educational, Scientific and Cultural Organisation (UNESCO) http://data.uis.unesco.org/Index.aspx?DataSetCode=EDULIT_DS

Notes: Data not available for some countries in certain years.

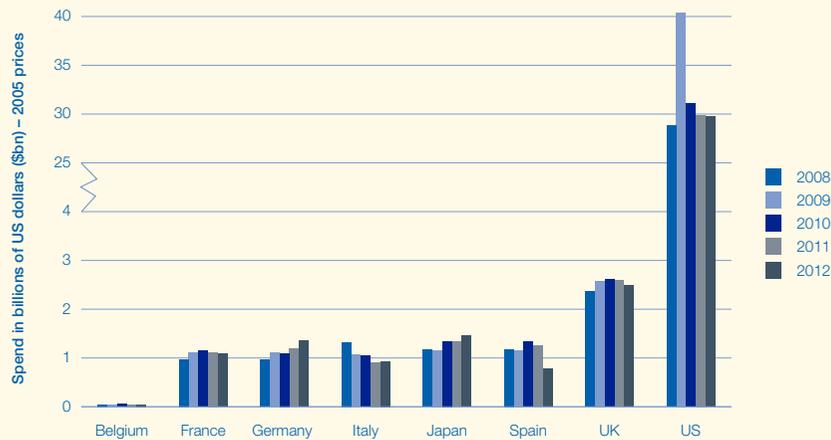
Chart 12B: Share of top 1% (most cited) life science citations



Source: International Comparative Performance of the UK Research Base – 2013 <https://www.gov.uk/government/publications/performance-of-the-uk-research-base-international-comparison-2013>

Notes: In cases of co-authorship, citations are allocated to all participating countries (so totals may be more than 100%).

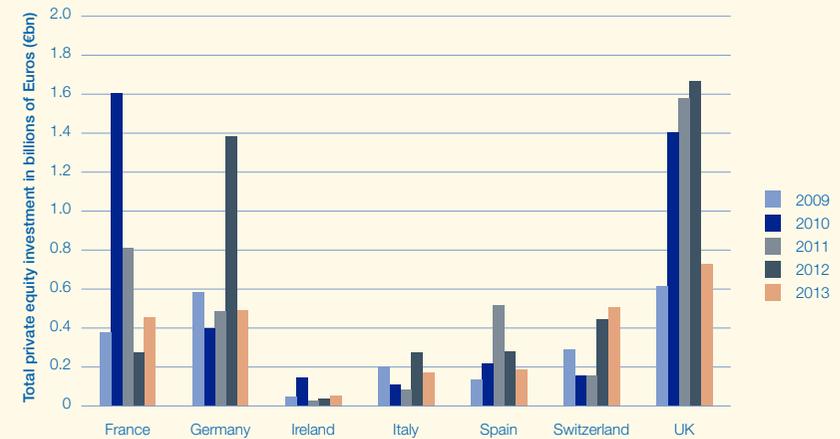
Chart 9: Government spend on health research and development



Source: OECD Research & Development statistics <http://stats.oecd.org/index.aspx?r=227797>

Notes: Government budget appropriations or outlays on R&D in Health.

Chart 7A: Private equity investment – total investment



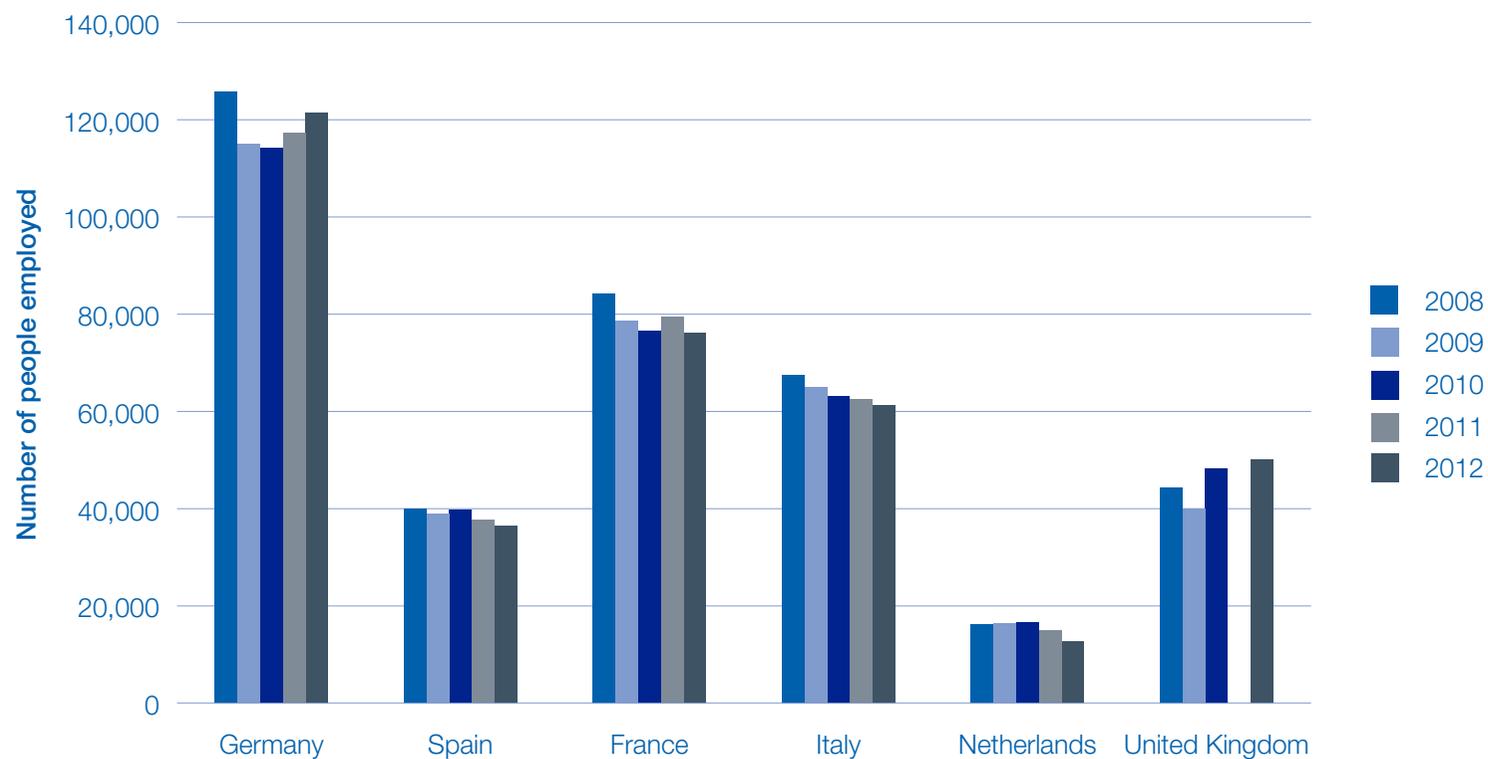
Source: European Private Equity & Venture Capital Association (EVCA) <http://www.evca.eu/research/activity-data/annual-activity-statistics/>

Notes: Data is based on country of portfolio company. Data is in current prices.

Indicators for UK industry

Chart 1A:

Number of people employed in manufacture of basic pharmaceutical products and pharmaceutical preparations

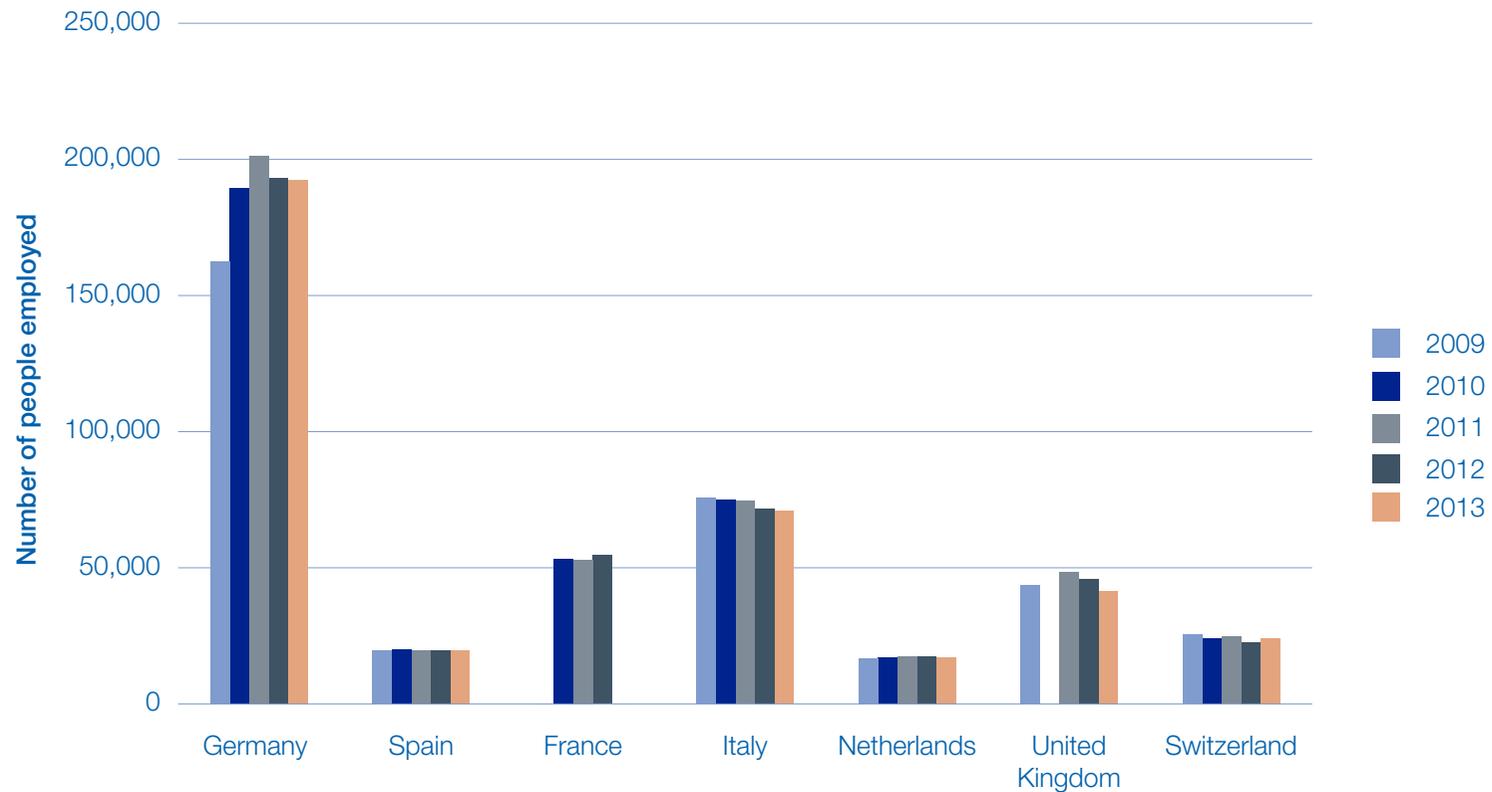


Source: Eurostat – Data Explorer, Annual detailed enterprise statistics for industry, http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=sbs_na_ind_r2&lang=en

Notes: Selected Category in NACE_R2 “C21 Manufacture of basic pharmaceutical products and pharmaceutical preparations”. Data not available for some countries in certain years.

Chart 1B:

Number of people employed in manufacture of medical technology products

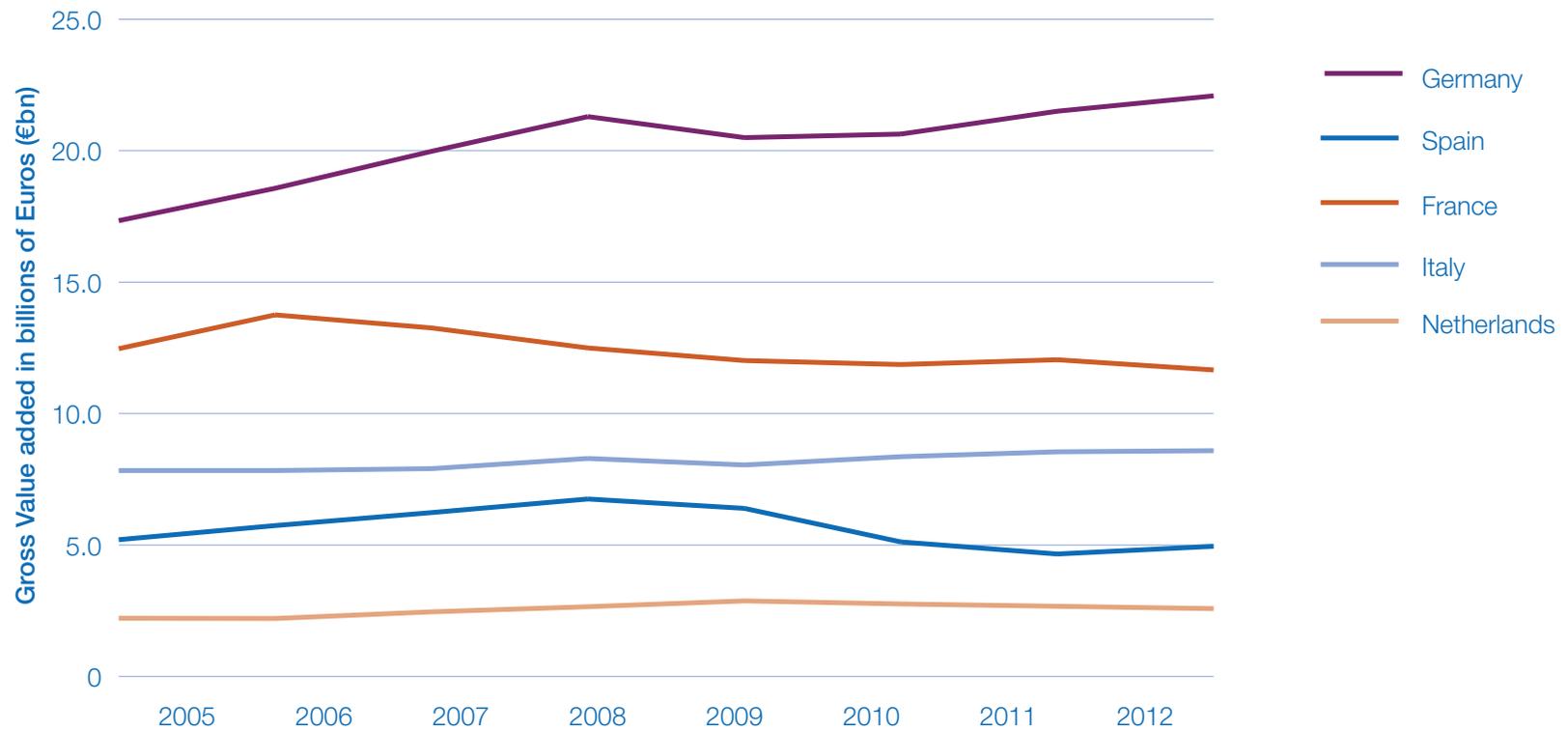


Source: Eurostat – Data Explorer, Annual detailed enterprise statistics for industry, <http://ec.europa.eu/eurostat/data/database>

Notes: Categories in NACE_ R2 “C266 Manufacture of irradiation, electromedical and electrotherapeutic equipment” plus “C325 Manufacture of medical and dental instruments and supplies”. Data not available for some countries in certain years.

Chart 2A:

Gross Value Added for pharmaceutical manufacturing
in European competitor countries

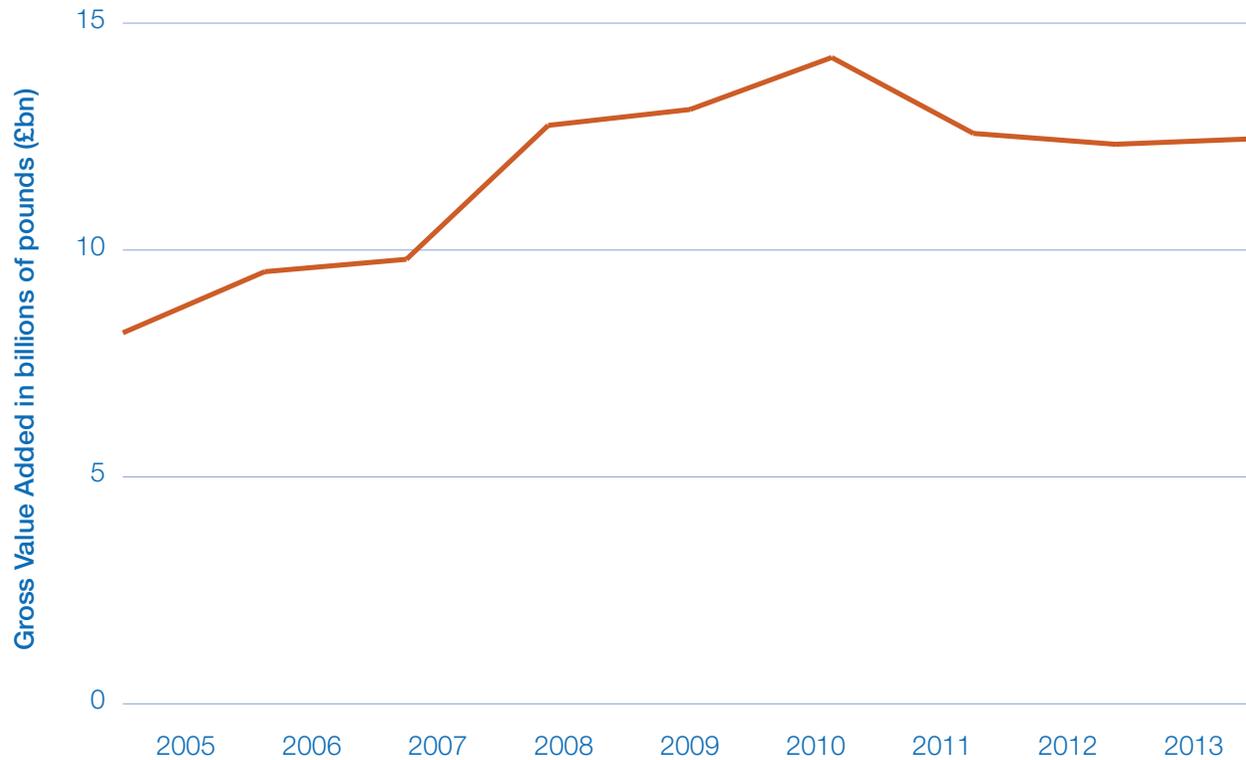


Source: Comparator countries' data from Eurostat National Accounts data
<http://ec.europa.eu/eurostat/web/national-accounts/data/database>

Notes: UK data (Chart 2B) has been taken from a separate source from the comparator countries as it is not currently available broken down at this level through Eurostat. The medical technology sector is defined by two three-digit categories (C266 and C325) and National Accounts data is not available at that level. Data is in current prices.

Chart 2B:

Gross Value Added for pharmaceutical manufacturing in UK

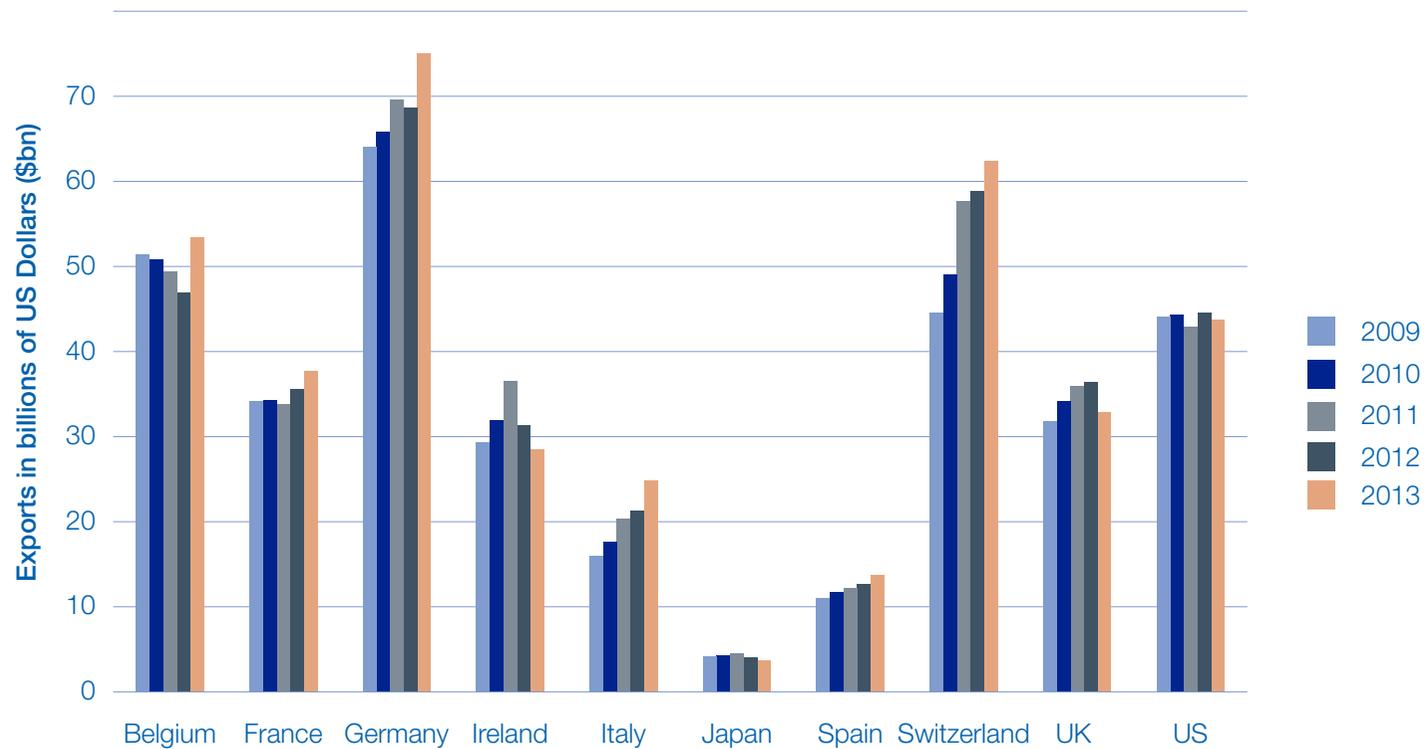


Source: UK data from ONS National Accounts, The Blue Book 2014 Edition dataset time series “KKF7: mGDP manufacture of basic pharmaceutical products and pharmaceutical preparations”

<http://www.ons.gov.uk/ons/rel/naa1-rd/united-kingdom-national-accounts/the-blue-book--2014-edition/index.html>

Notes: UK data (Chart 2B) has been taken from a separate source from the comparator countries as it is not currently available broken down at this level through Eurostat. The medical technology sector is defined by two three-digit categories (C266 and C325) and National Accounts data is not available at this level. Data is in current prices.

Chart 3A:
Exports of pharmaceutical products

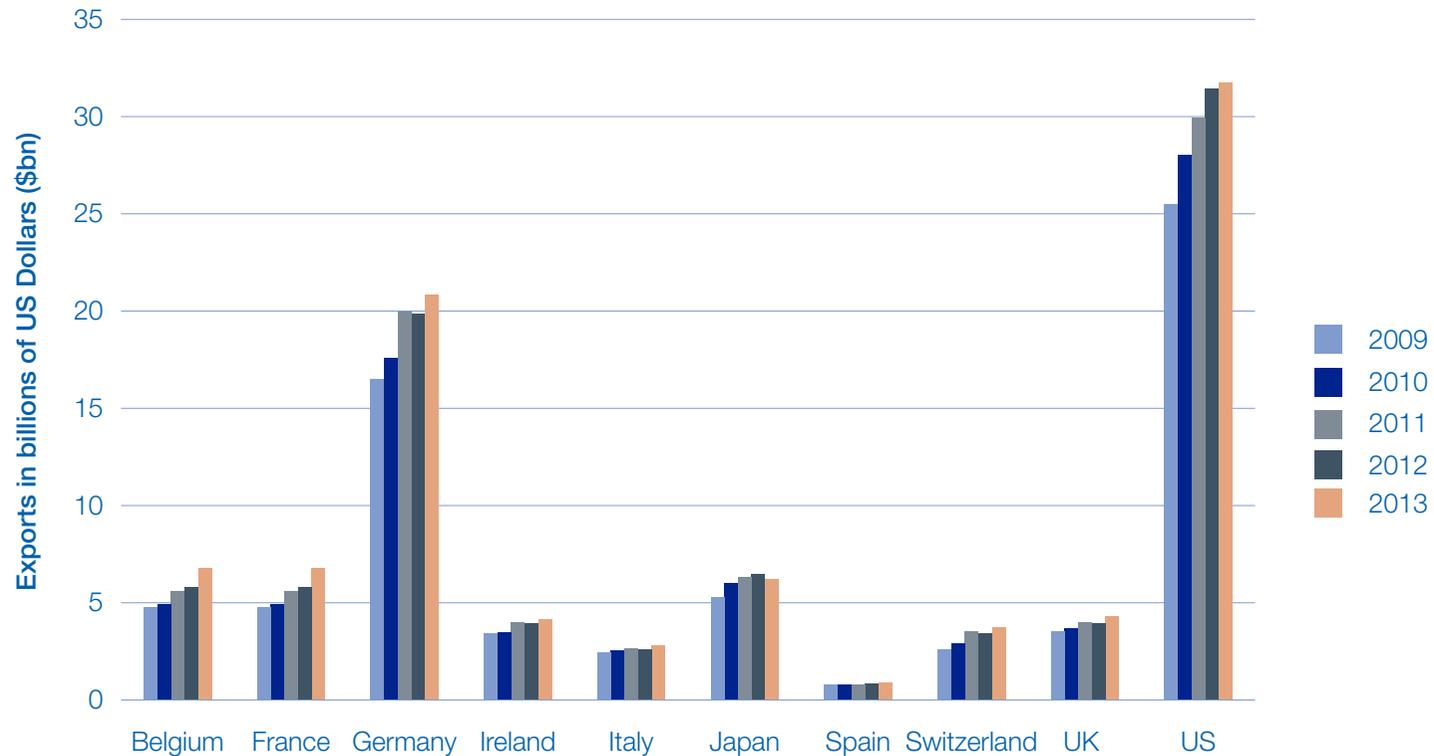


Source: UNCTAD STAT Data Center

http://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx?sCS_ChosenLang=en

Notes: Categories used are [541] Medicinal and pharmaceutical products excluding 542, and [542] Medicaments including veterinary medicaments. Data is in current prices.

Chart 3B:
Exports of medical technology products

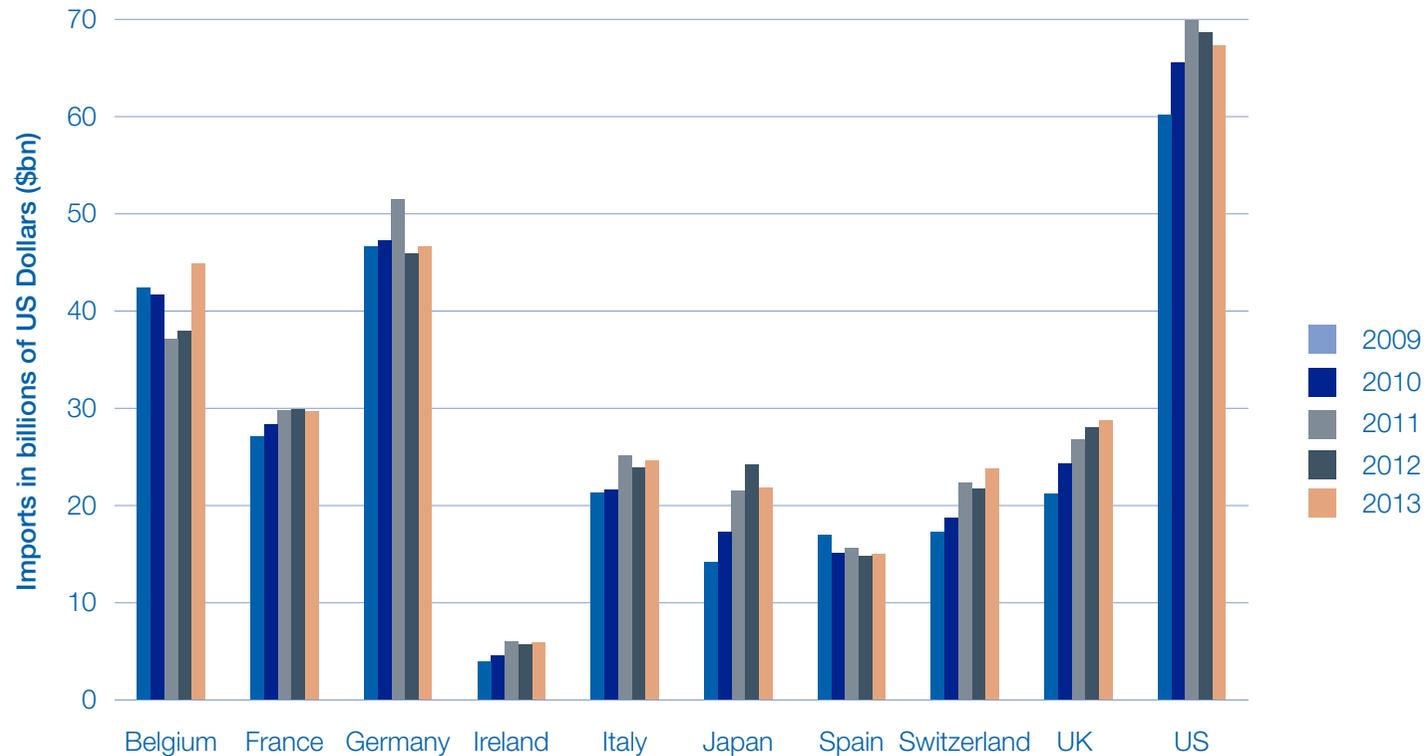


Source: UNCTAD STAT Data Center

http://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx?sCS_ChosenLang=en

Notes: Categories used are [774] Electro-diagnostic apparatus for medical science etc. and [872] Instruments and appliances, n.e.s, for medical, etc. Data in current prices.

Chart 4A:
Imports of pharmaceutical products

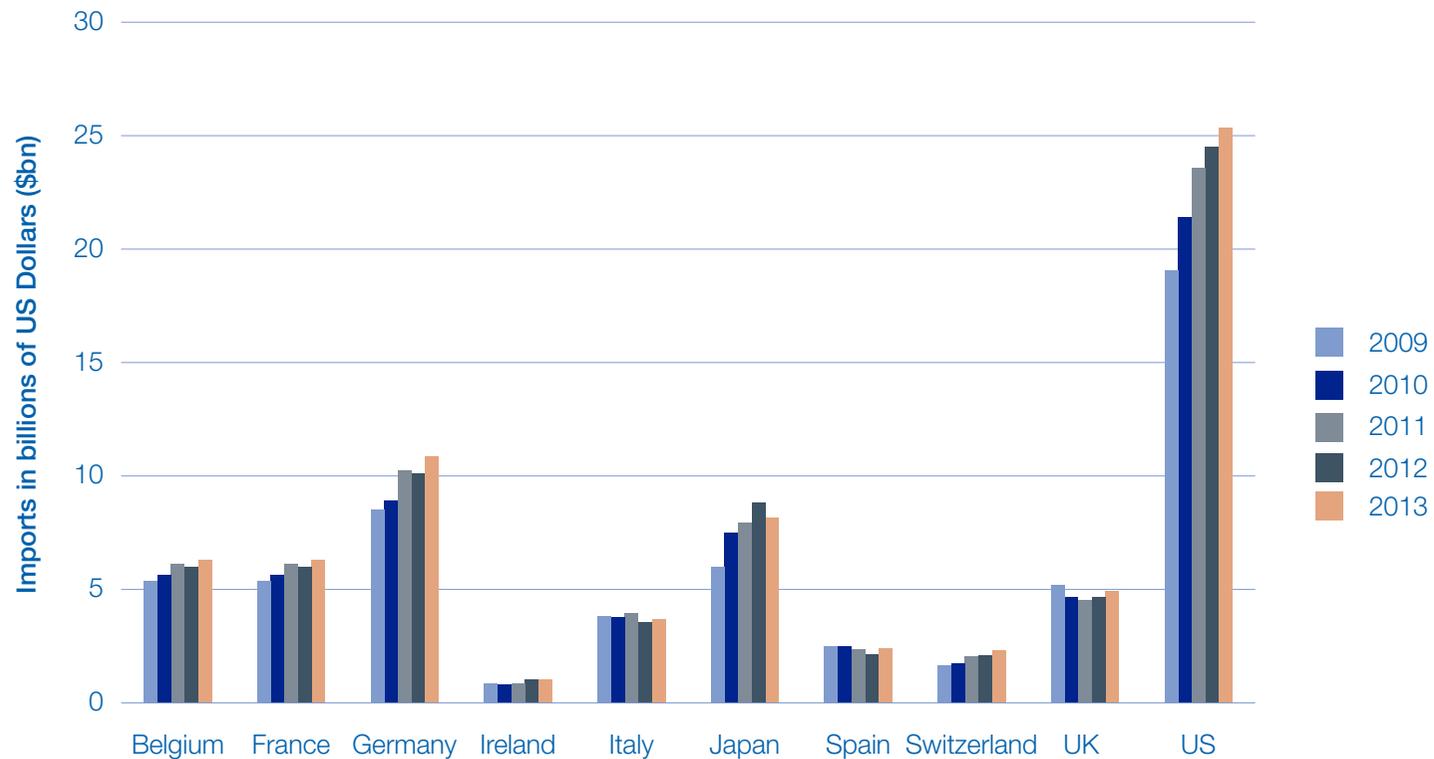


Source: UNCTAD STAT Data Center

http://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx?sCS_ChosenLang=en

Notes: Categories used are [541] Medicinal and pharmaceutical products excluding 542, and [542] Medicaments including veterinary medicaments. Data is in current prices.

Chart 4B:
Imports of medical technology products



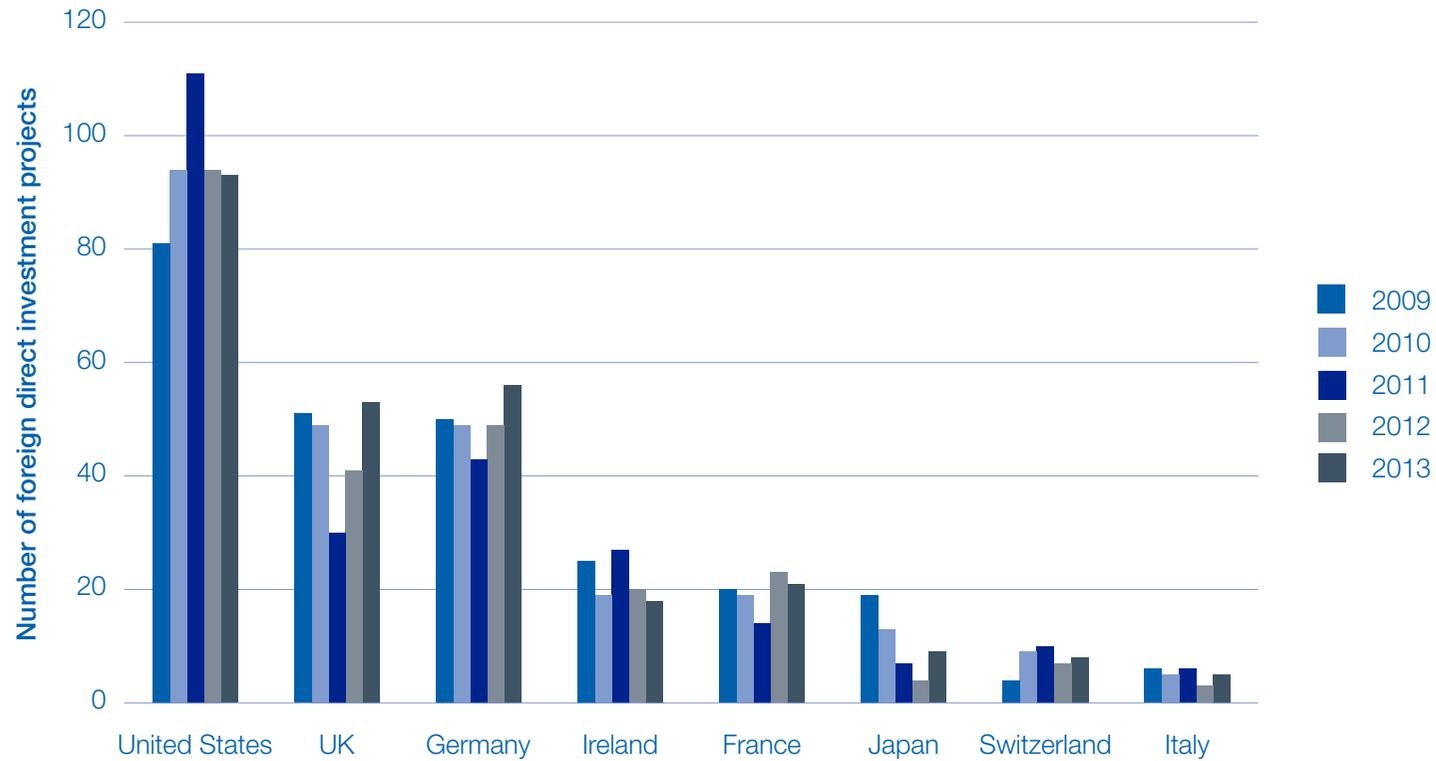
Source: UNCTAD STAT Data Center

http://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx?sCS_ChosenLang=en

Notes: Categories used are [774] Electro-diagnostic apparatus for medical science etc., and [872] Instruments and appliances, n.e.s, for medical, etc. Data is in current prices.

Chart 5A:

Life sciences foreign direct investment projects

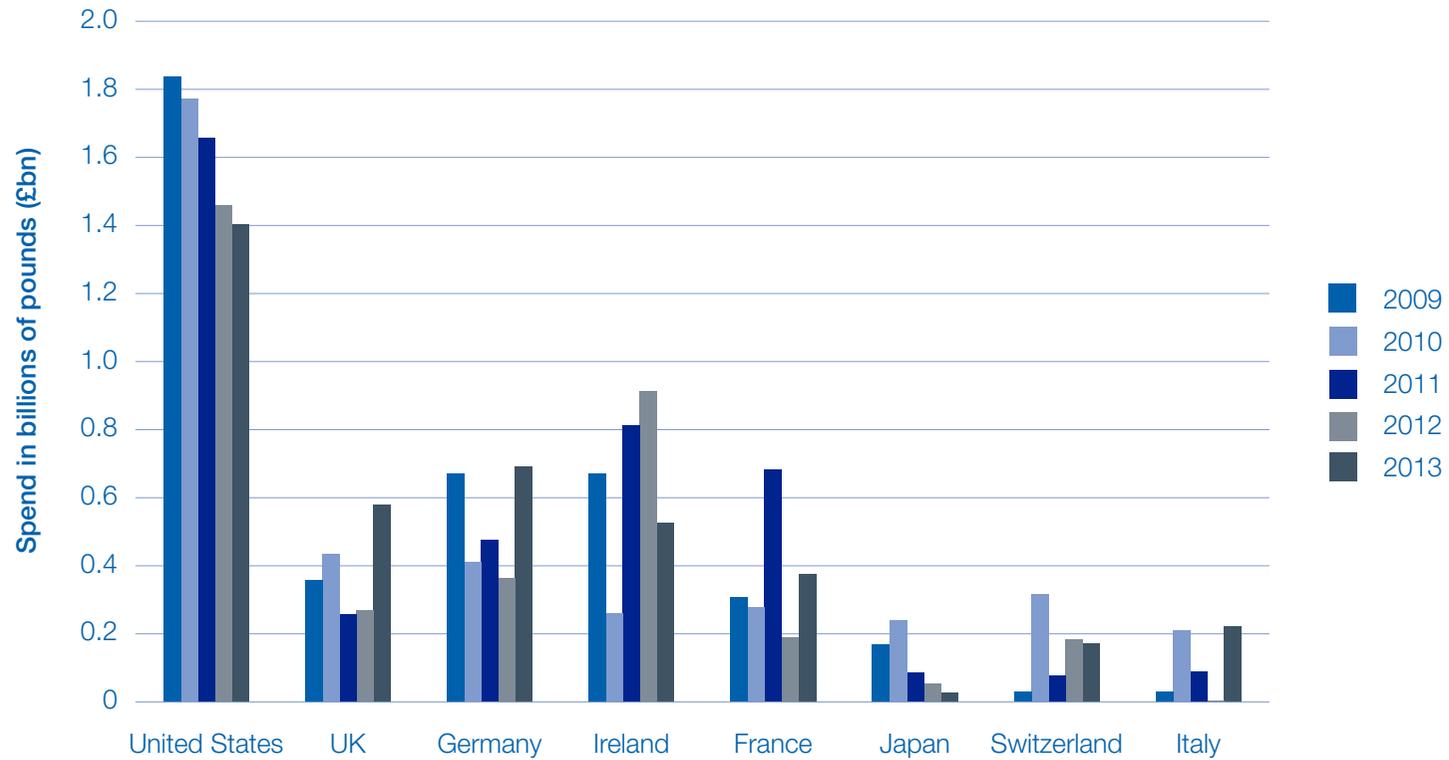


Source: fDi Markets, from The Financial Times Ltd.

Notes: Numbers are for the year that projects were announced.

Chart 5B:

Life sciences foreign direct investment – capital expenditure

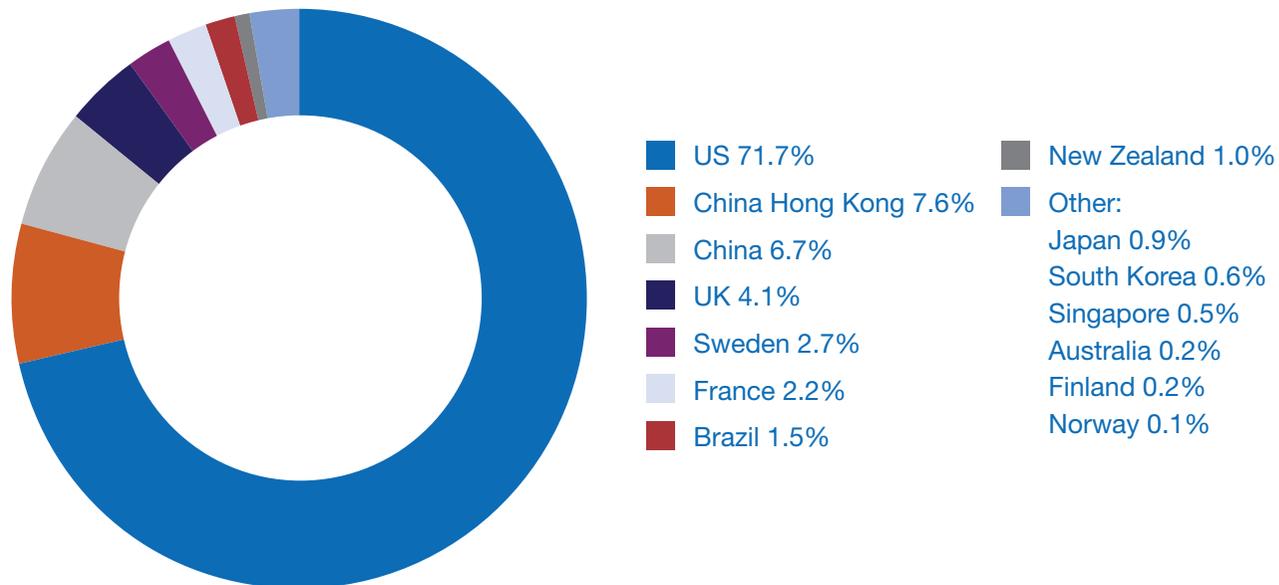


Source: fDI Markets, from The Financial Times Ltd

Notes: Values are for the year that projects were announced. Data is in current prices.

Chart 6A:

Share of global life science Initial Public Offerings (IPOs) – 2014

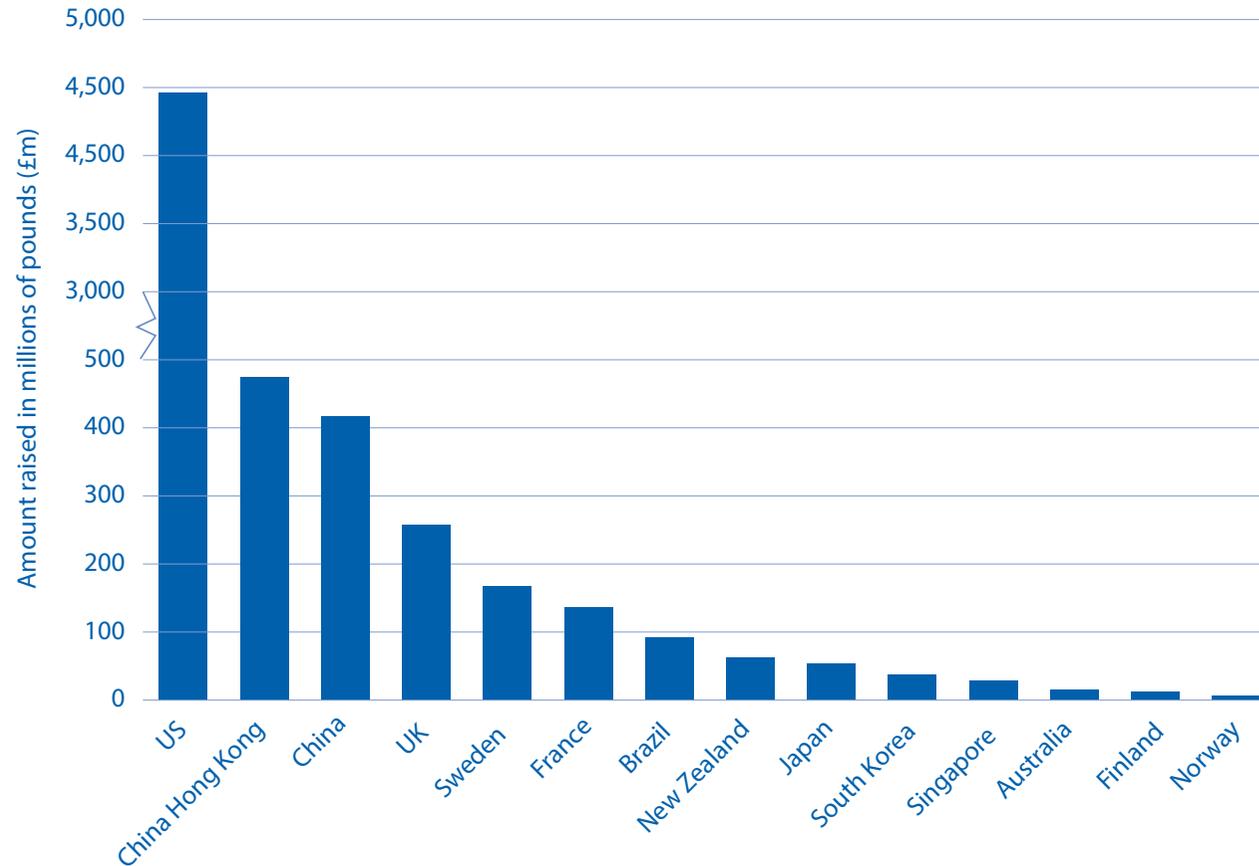


Source: S&P Capital IQ

Notes: Numbers refer to the country in which the IPO was launched, not the domicile of the IPO Company.

Chart 6B:

Initial Public Offerings (IPOs) in life sciences – amount raised in 2014 (where known)

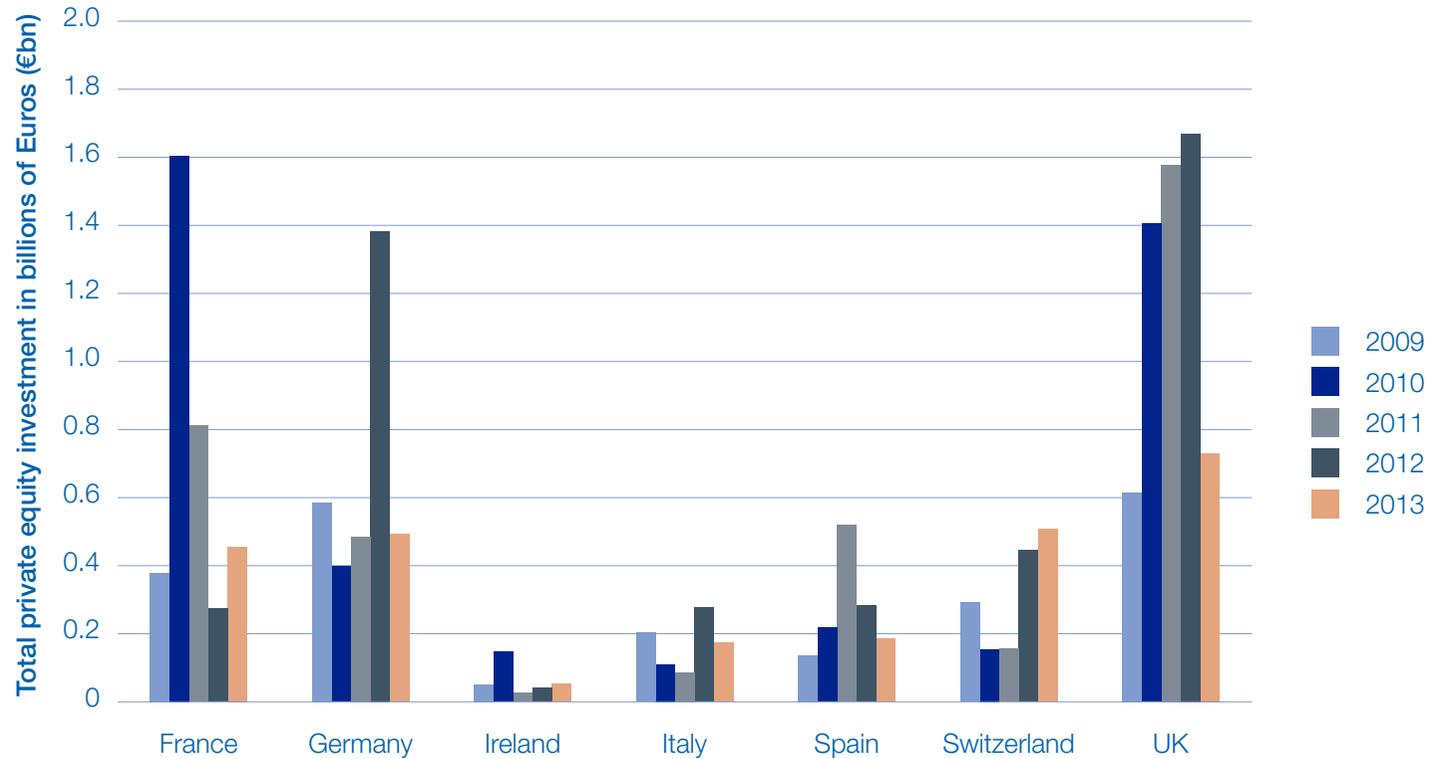


Source: S&P Capital IQ

Notes: Values refer to the country in which the IPO was launched, not the domicile of the IPO Company.

Chart 7A:

Private equity investment – total investment

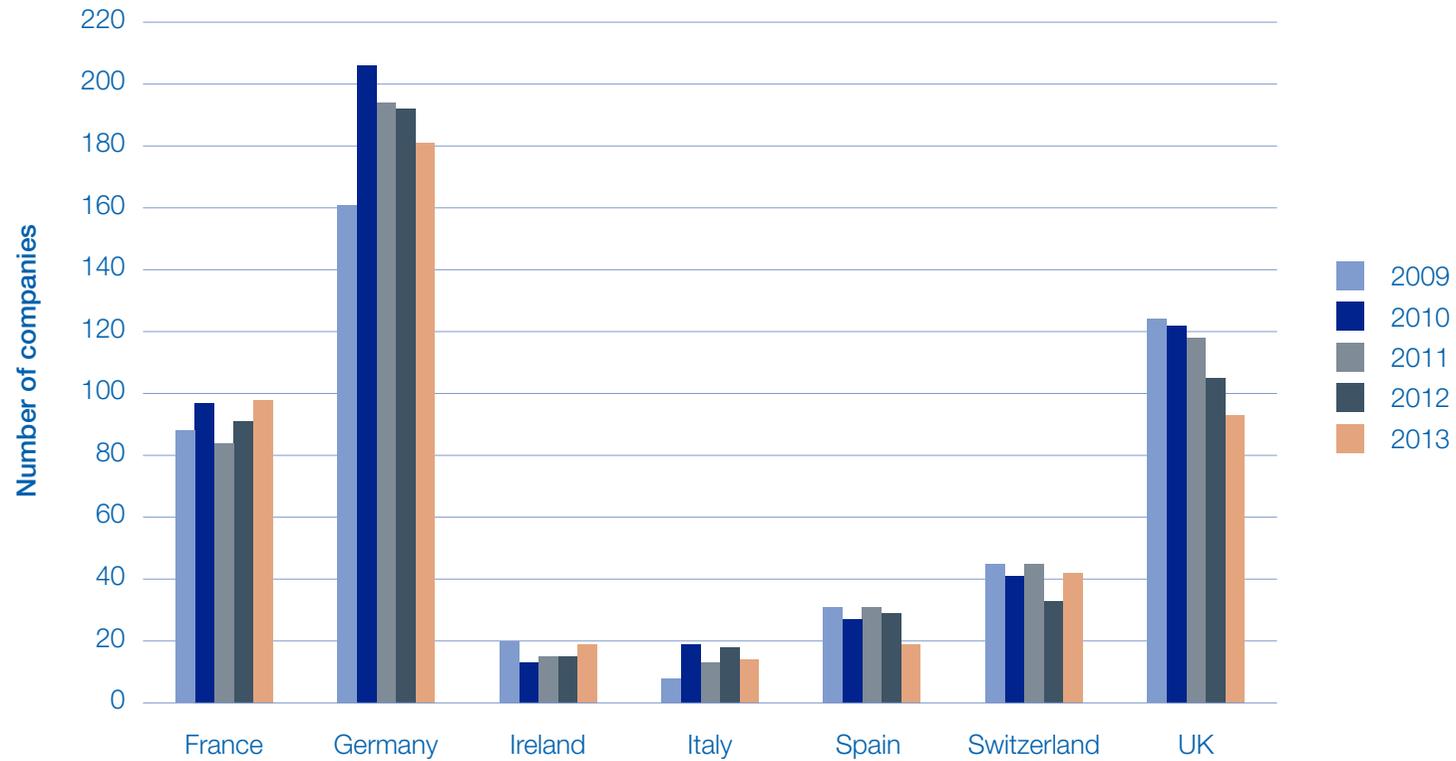


Source: European Private Equity & Venture Capital Association (EVCA)
<http://www.evca.eu/research/activity-data/annual-activity-statistics/>

Notes: Data is based on country of portfolio company. Data is in current prices.

Chart 7B:

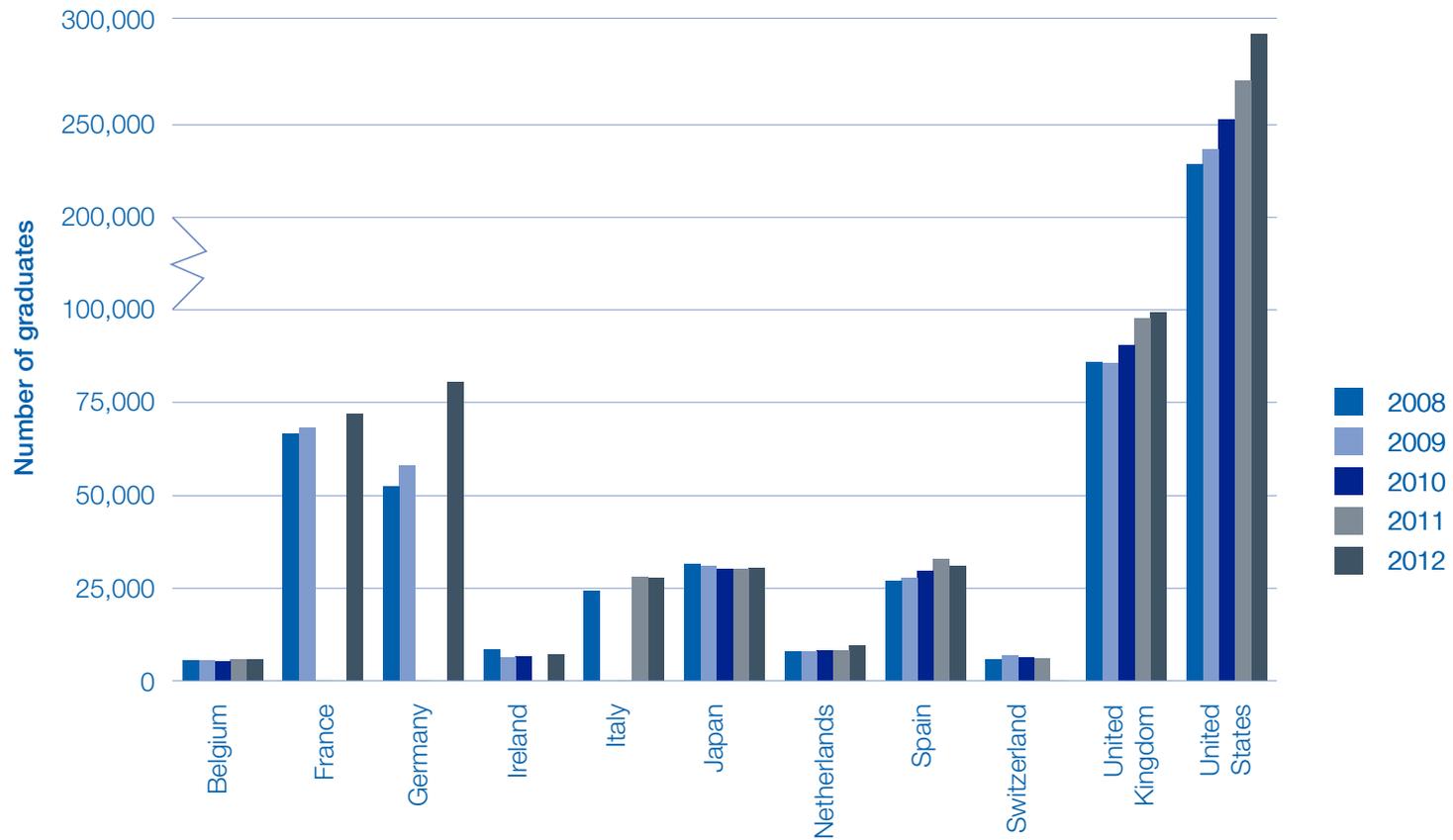
Number of companies receiving private equity investment



Source: European Private Equity & Venture Capital Association (EVCA)
<http://www.evca.eu/research/activity-data/annual-activity-statistics/>

Notes: Data is based on country of portfolio company.

Chart 8:
Number of science graduates



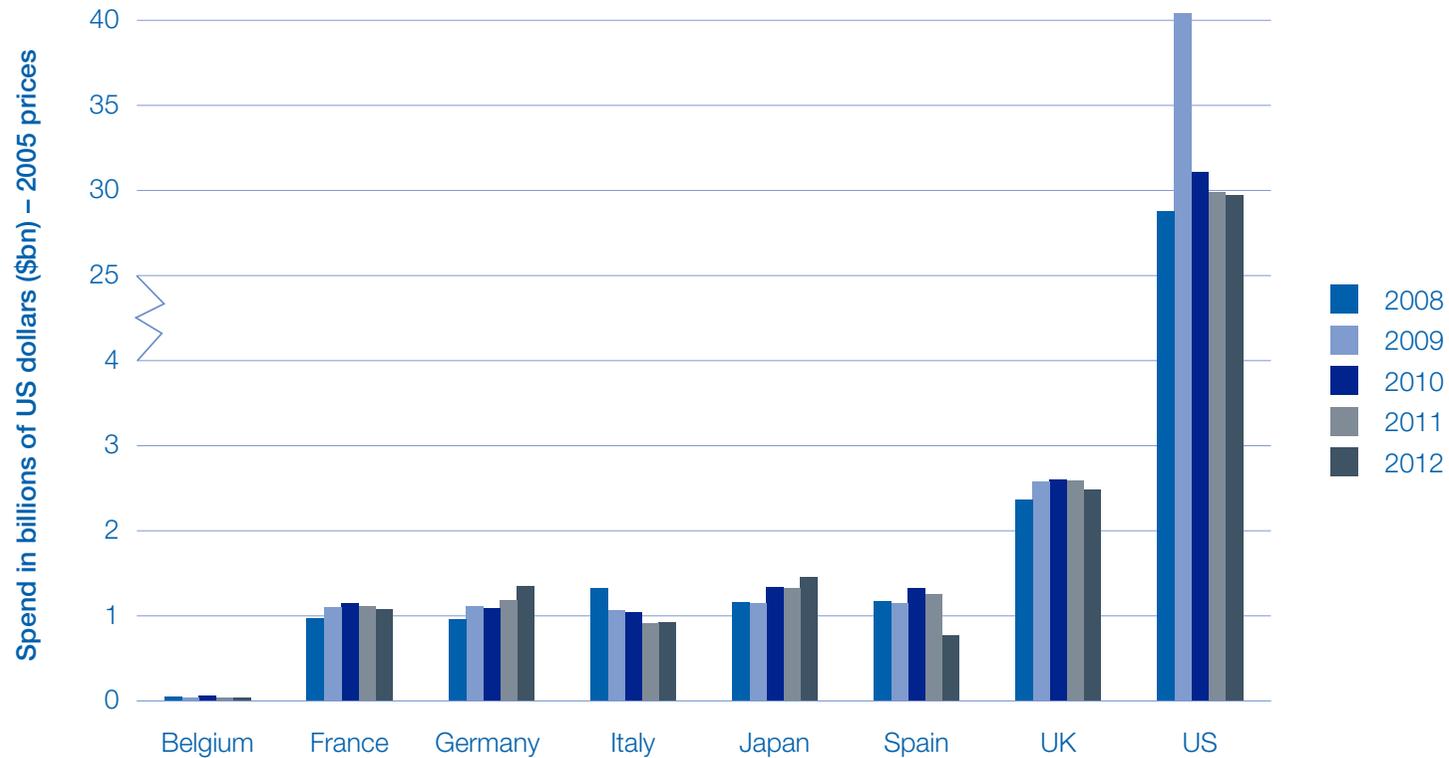
Source: United Nations Educational, Scientific and Cultural Organisation (UNESCO)
http://data.uis.unesco.org/Index.aspx?DataSetCode=EDULIT_DS

Notes: Data not available for some countries in certain years.

Research and Development Indicators

Chart 9:

Government spend on health research and development

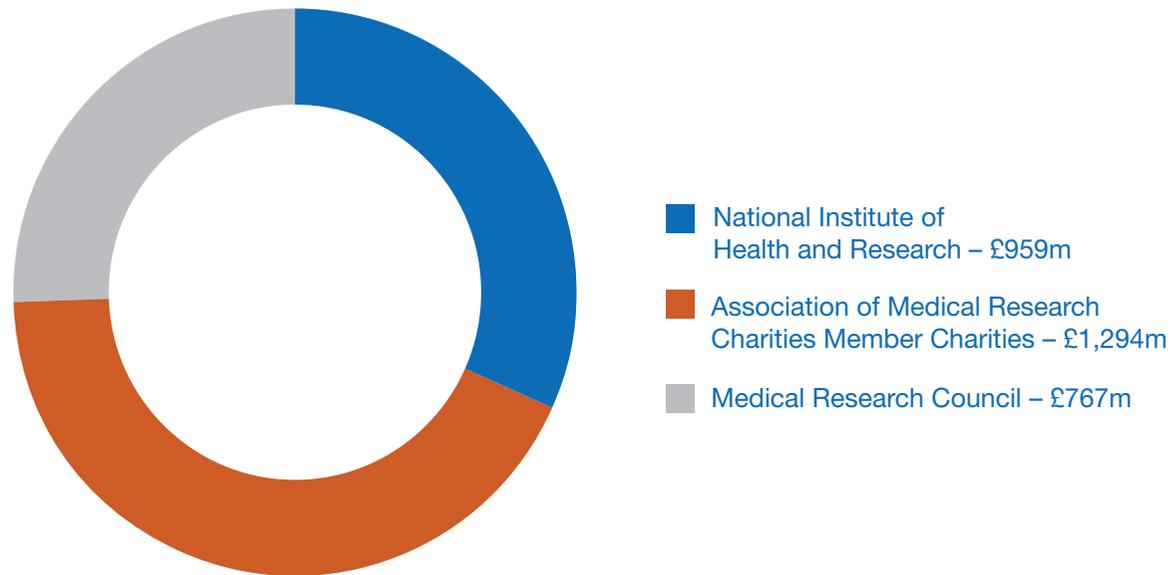


Source: OECD Research & Development statistics
<http://stats.oecd.org/index.aspx?r=227797>

Notes: Government budget appropriations or outlays on R&D in Health.

Chart 10:

2013 non-industry spend on research and development

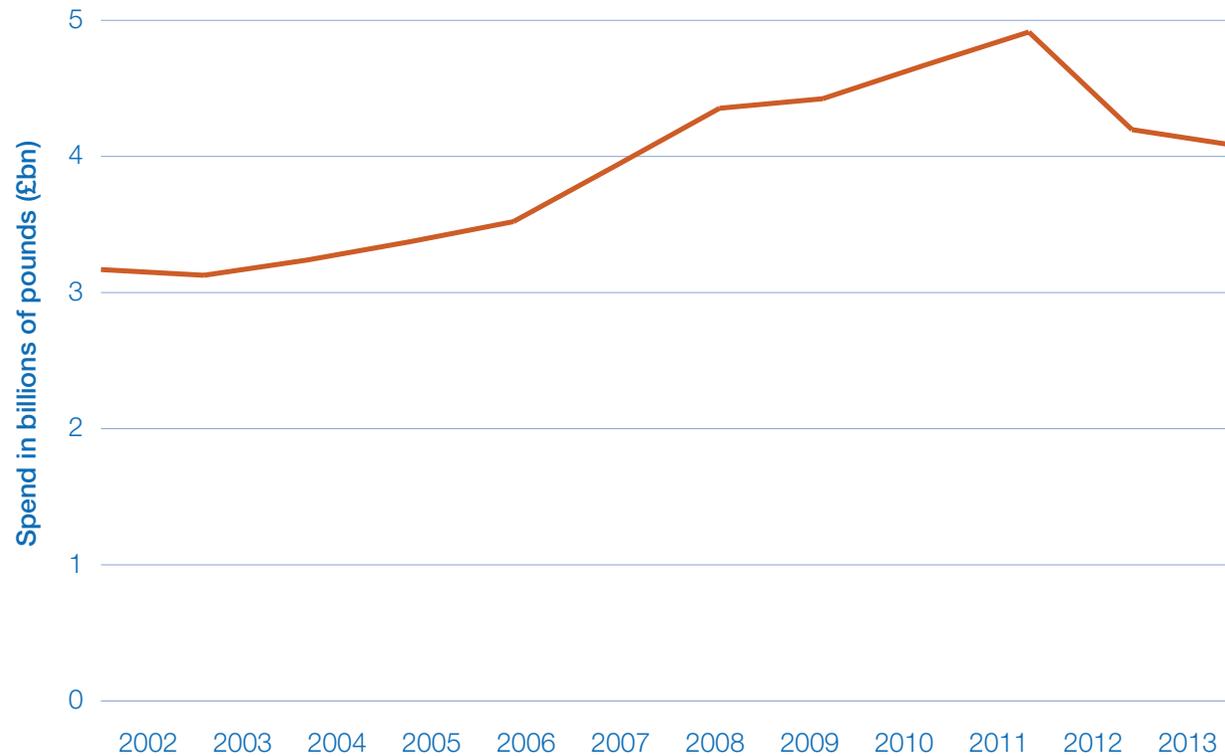


Source: Association of Medical Research Charities
http://www.amrc.org.uk/sites/default/files/doc_lib/AMRC-annual-review-2013-14.pdf

Notes: Expenditure by Medical Research Council and National Institute of Health Research will also be captured by Indicator 9.

Chart 11:

Pharmaceutical industry spend on research and development in the UK



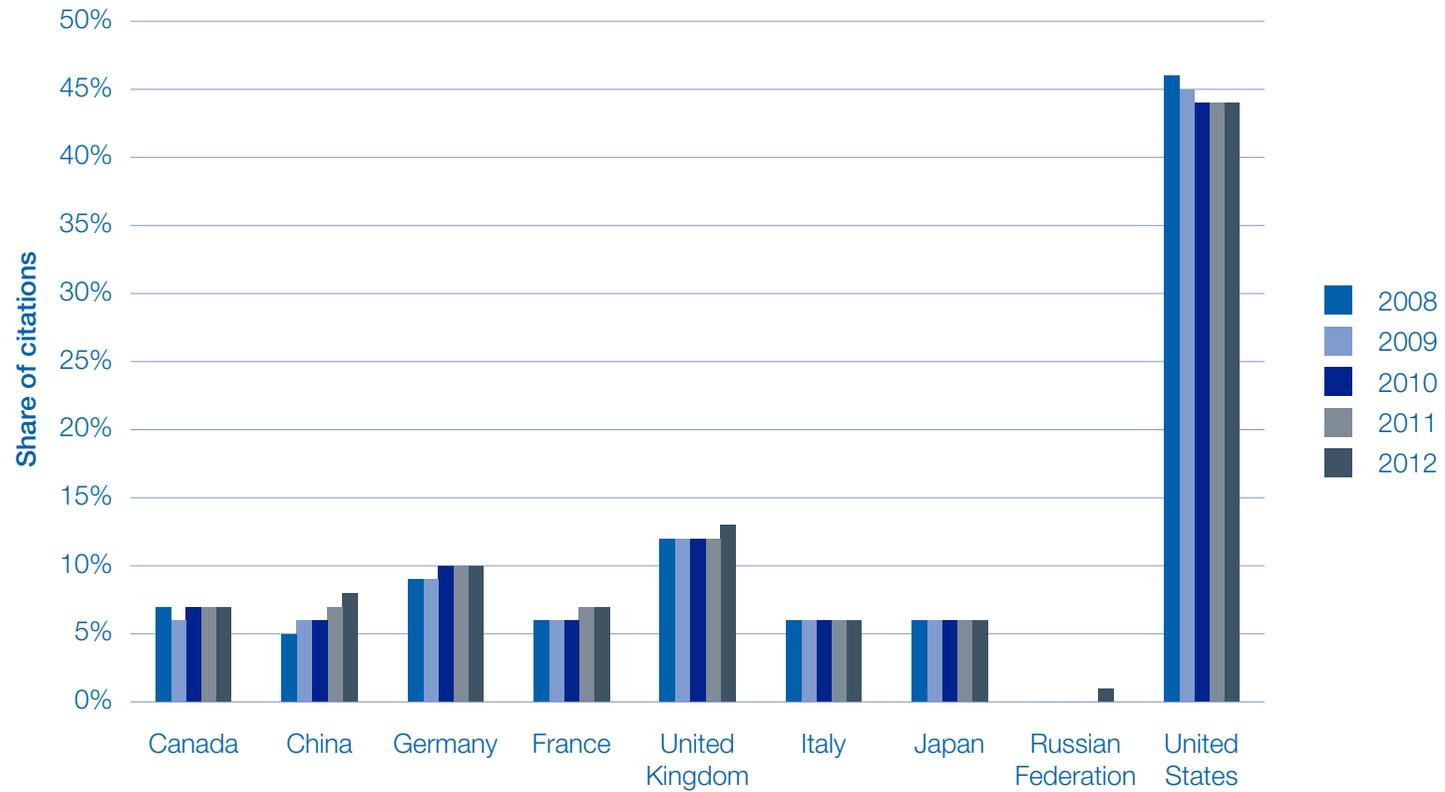
Source: ONS BERD survey 2013

<http://www.ons.gov.uk/ons/rel/rdit1/bus-ent-res-and-dev/2013/stb-berd-2013.html>

Notes: Data is not available for medical technology industry spend. Data is in current prices.

Chart 12A:

Share of life science academic citations

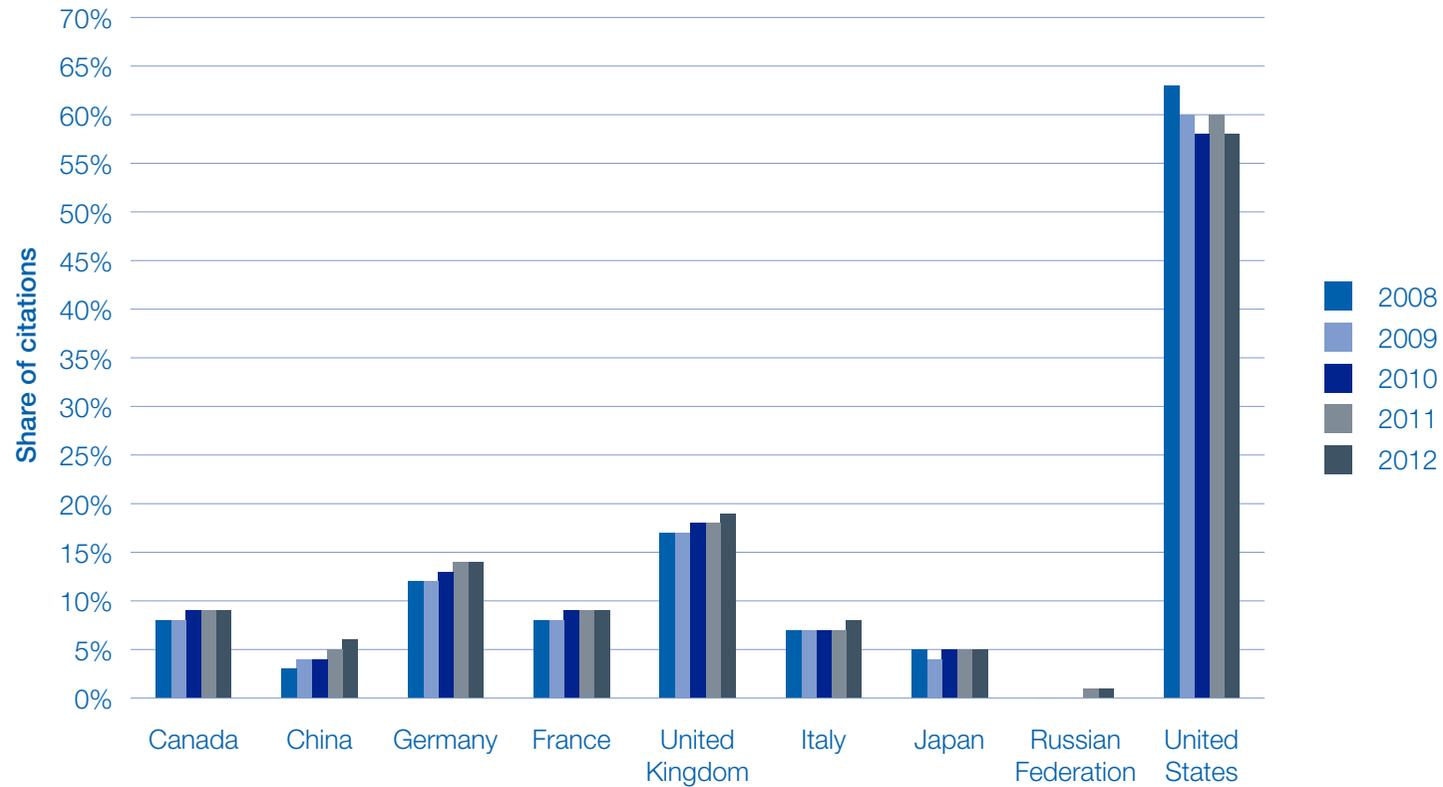


Source: International Comparative Performance of the UK Research Base –2013

<https://www.gov.uk/government/publications/performance-of-the-uk-research-base-international-comparison-2013>

Chart 12B:

Share of top 1% (most cited) life science citations



Source: International Comparative Performance of the UK Research Base – 2013

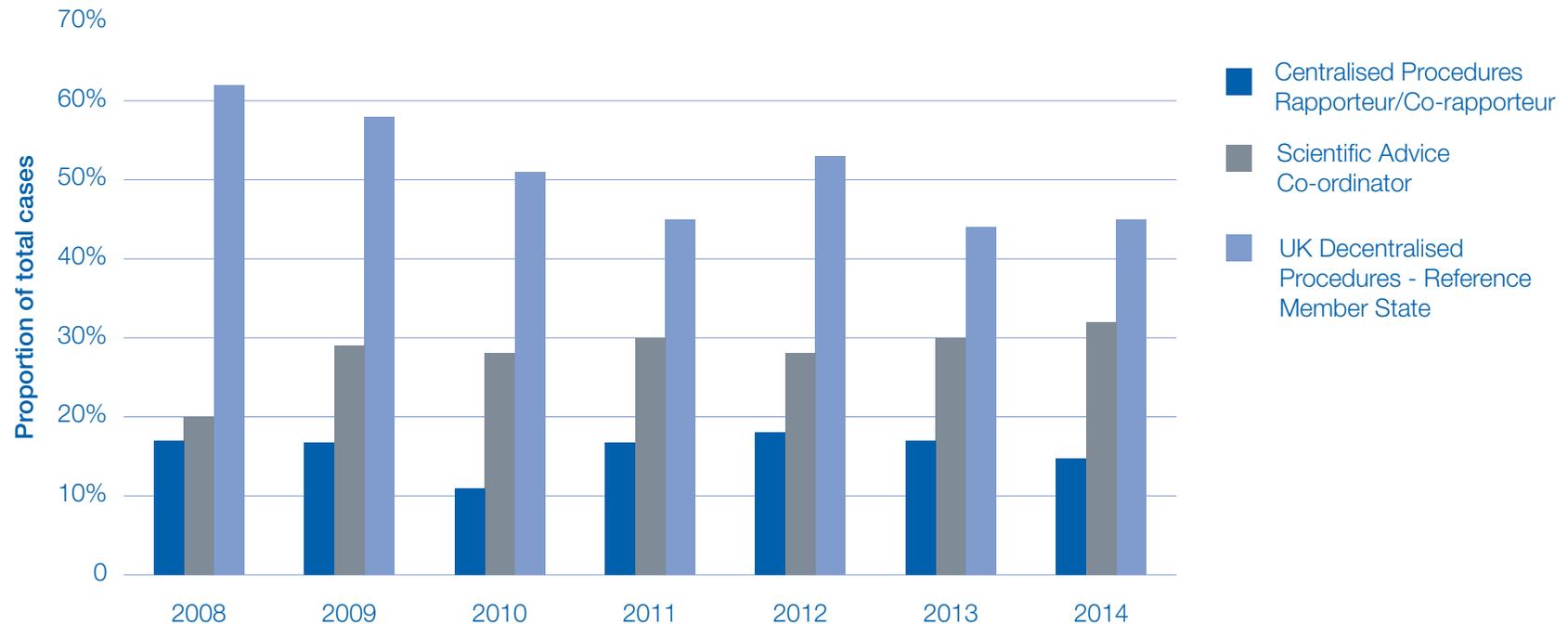
<https://www.gov.uk/government/publications/performance-of-the-uk-research-base-international-comparison-2013>

Notes: In cases of co-authorship, citations are allocated to all participating countries (so totals may be more than 100%).

Regulatory Indicator

Chart 13:

Instances where MHRA is in lead role in EU regulatory procedure



Source: Medicines and Healthcare Products Regulatory Agency

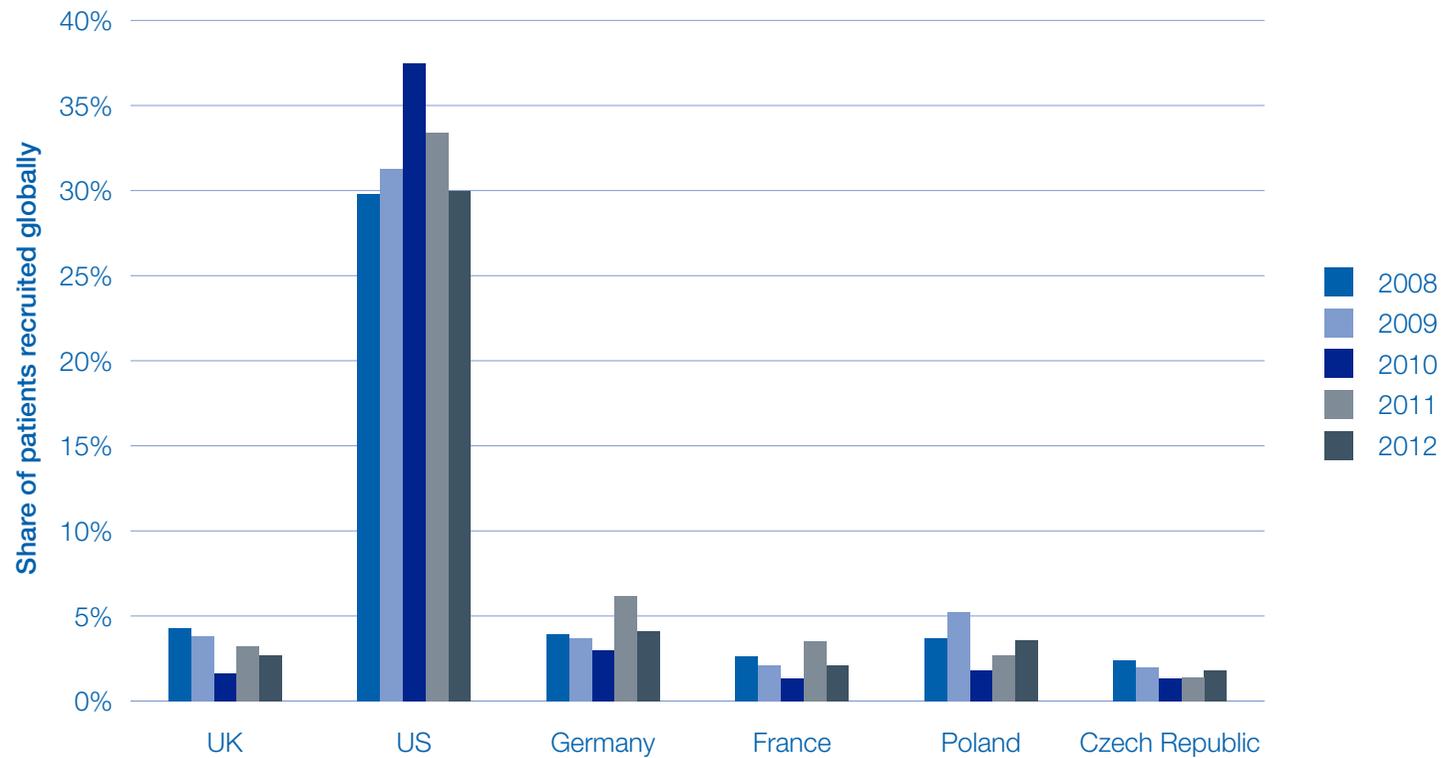
Notes: The chart illustrates the proportion of work the UK has undertaken in three key areas of European regulatory activity. As the work of the Medicines and Healthcare Products Regulatory Agency (MHRA) within the areas covered by these indicators is collaborative, no direct comparison with the other 27 Member States is made and the UK's position in the leading role is shown as a percentage of all work undertaken.

Each new medicinal product seeking approval in Europe through the Centralised Procedure has a Rapporteur and a co-Rapporteur appointed by the European Medicines Agency (EMA) to lead the assessment process. The Decentralised Procedure requires the applicant company to select a Reference Member State (RMS) to lead the assessment of the medicine during the procedure.

Clinical Research Indicators

Chart 14:

Share of patients recruited to global studies (all trial phases)

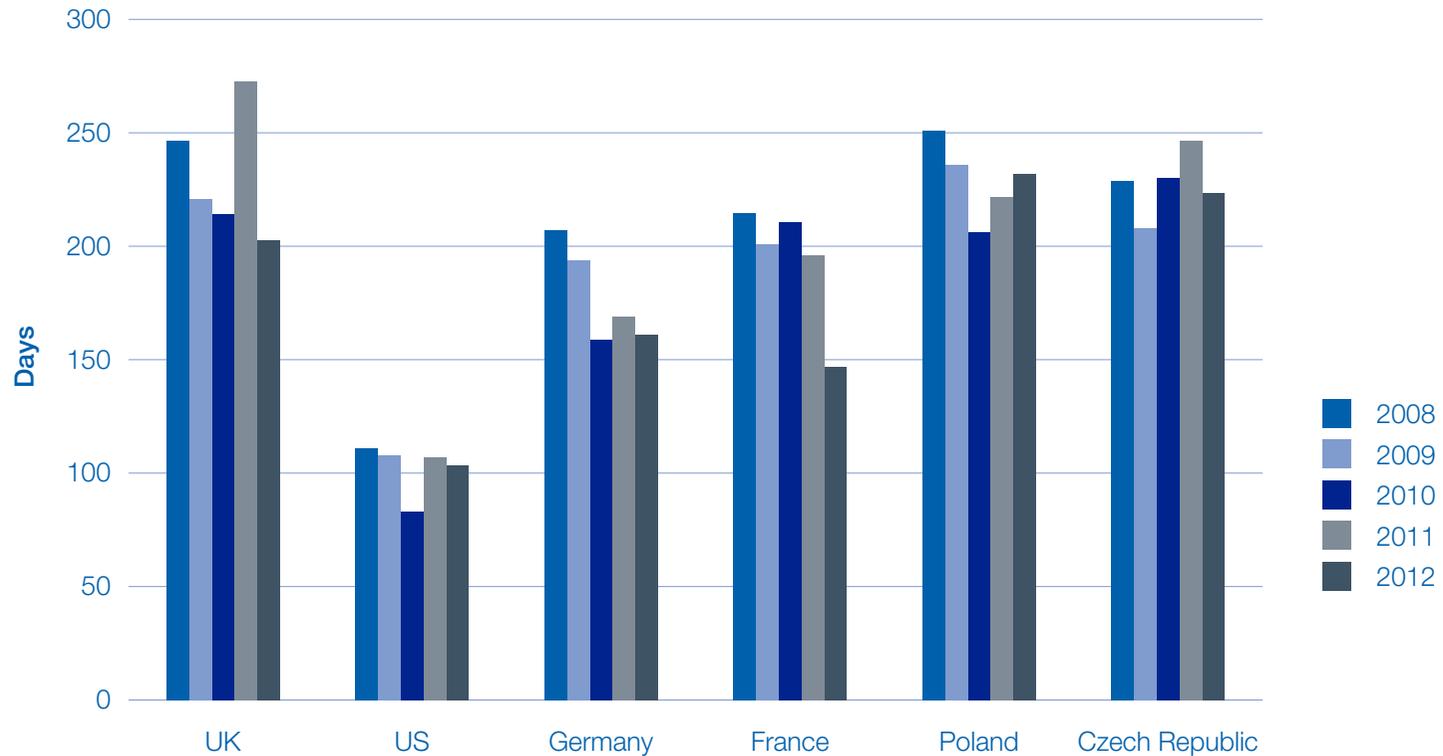


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Chart 15:

Time from core package received to first patient enrolled in country (all trial phases)



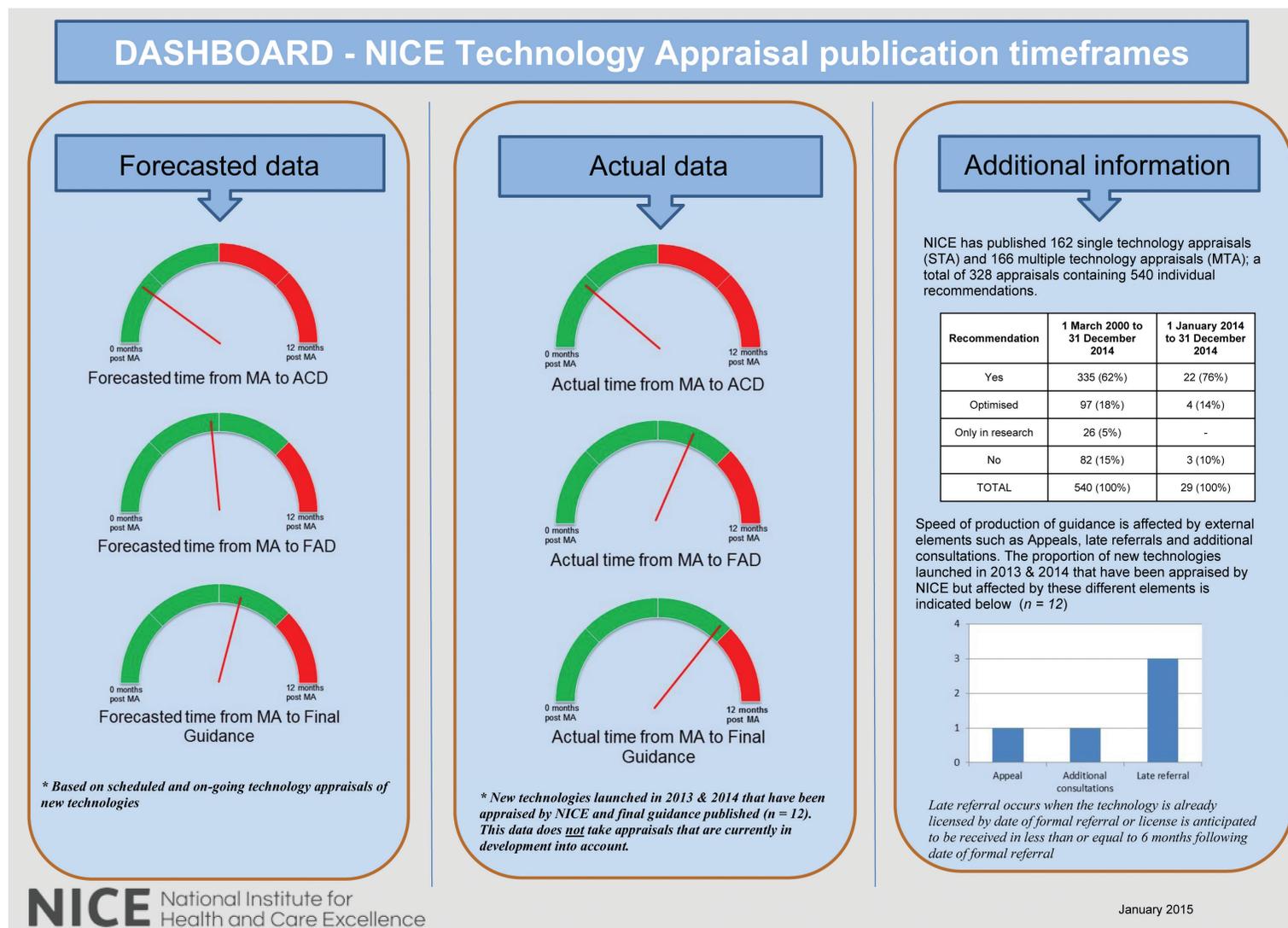
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Demand-side Indicators

Chart 16

Dashboard of NICE Technology Appraisal publication timeframes



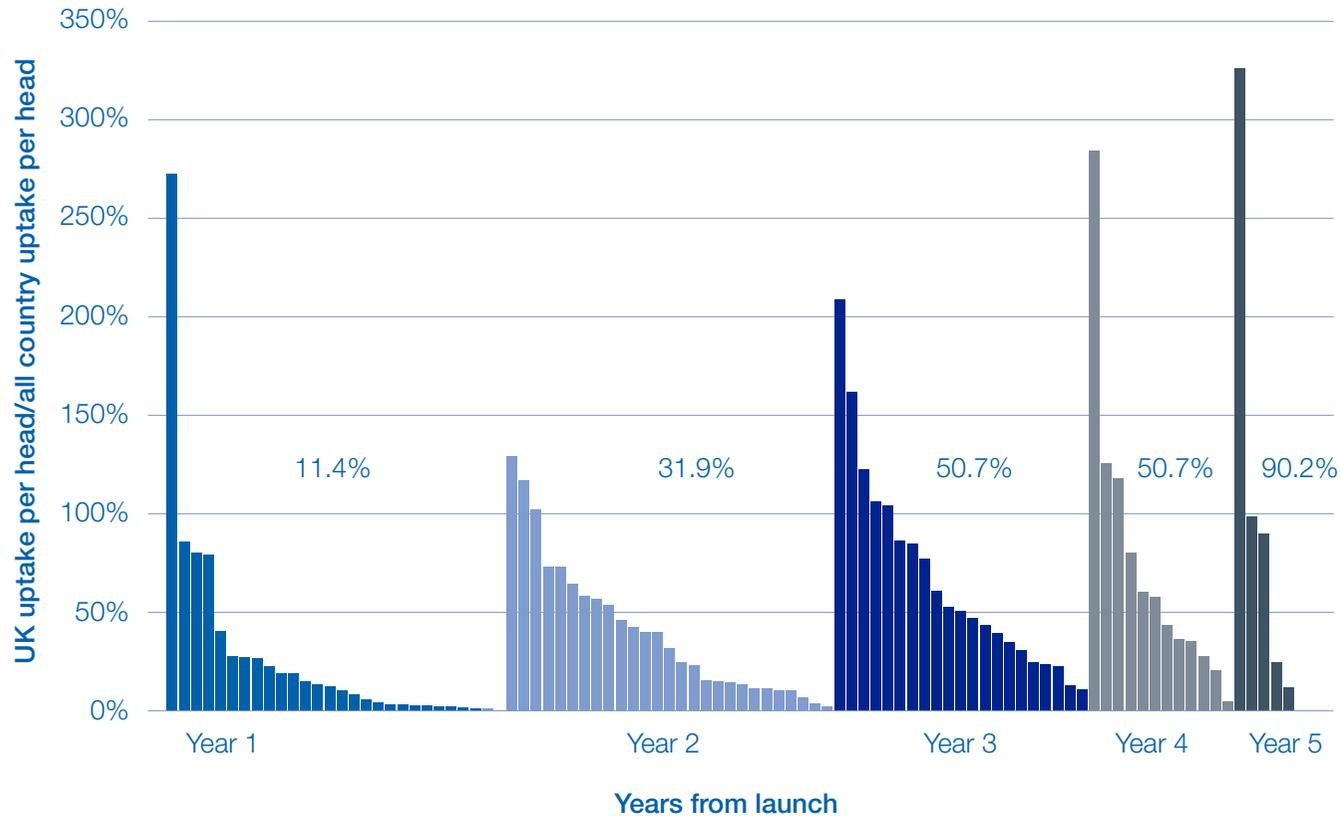
Notes:

MA: Marketing Authorisation
 ACD: Appraisal Consultation Document
 FAD: Final Appraisal Determination
 Dials address forecast and actual timeframes for different stages of the NICE Technology Appraisal process. Full details of the process, including descriptions of the separate stages can be found on the NICE website (<http://www.nice.org.uk/About/What-we-do/Our-Programmes/NICE-guidance/NICE-technology-appraisal-guidance>). Red and Green zones on dials relate to whether milestones have been attained within existing targets for NICE performance.

Source: National Institute for Health and Care Excellence – Technology Appraisal Programme

Chart 17

Uptake of new medicines



Notes: The chart shows the per capita uptake of twenty-eight new medicines launched in the UK between 2007 to 2012 and approved (recommended or restricted) by NICE, compared to the average in a group of comparator countries (Australia, Austria, Belgium, Canada, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, New Zealand, Spain, Sweden, Switzerland, and USA). The vertical lines represent uptake of the medicines in their 1st, 2nd etc. years after launch. Thus medicines launched in 2012 will only appear in the 'Year 1 from launch' group, those launched in 2011 will appear in both the 'Year 1 from launch' and 'Year 2 from launch' groups and so on. The medicines launched in 2007 will appear in all five year groups.

The percentage number reported in each year is the median rate of uptake in the UK relative to the international average in that year; in other words half of the medicines have a higher UK relative rate of use, and half have a lower UK relative rate of use. A value below 100% means that the UK per capita consumption of the new medicine(s) is below the international average. For example, medicines in their 3rd year after launch (and subsequently approved by NICE) were used in the UK at a level which was on average 50.7% of the average usage in the comparator countries. Caution is required in the 5th year after launch as the median rate of uptake reported (90.2%) is based on only five data points (medicines) and is therefore highly sensitive to the choice of medicines included.

Source: IMS Health, courtesy of the Office of Health Economics

