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STRENGTHS AND WEAKNESSES OF NATIONAL RESEARCH AND INNOVATION SYSTEMS – COMPARING GERMANY AND JAPAN

DEUTSCHES INSTITUT FÜR JAPANSTUDIEN
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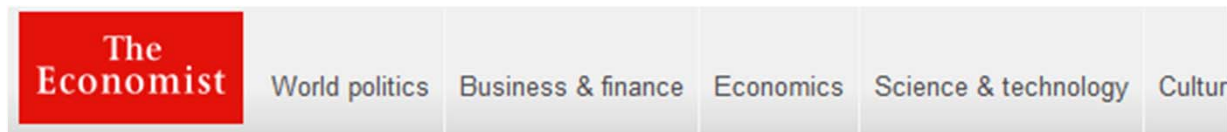
AGENDA

- 1 Overall Challenges and Strategy
- 2 Excellence in Public Research
- 3 Technology and Knowledge Transfer
- 4 Business Innovation
- 5 Innovative Entrepreneurship
- 6 Governance
- 7 Conclusions and Priorities for 2020

1 OVERALL CHALLENGES AND STRATEGY

From “sick man of the euro“ ...

1999



The sick man of the euro

The biggest economy in the euro area, Germany's, is in a bad way. And its ills are a main cause of the euro's own weakness

Jun 3rd 1999 | FRANKFURT | From the print edition

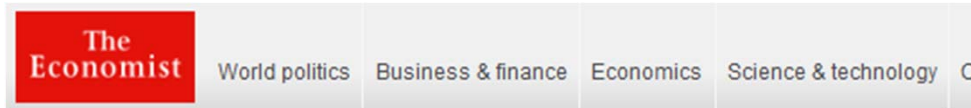


THE social-market economy devised in Germany after the second world war, with its careful blend of market capitalism, strong labour protection and a generous welfare state, served the country well for several decades. But it is now coming under pressure as never before. As economic growth stalls yet again, the country is being branded the sick man (or even the Japan) of Europe. This is inevitably casting a cloud over Europe's single currency, the euro, for Germany accounts for a full third of the euro countries' output. When Germany sneezes, its neighbours feel a chill—and nervous markets are likely to sell the euro. Thus the biggest economic problem for Europe today is how to revive the German economy.

1 OVERALL CHALLENGES AND STRATEGY

... to “reluctant hegemon“?

2013



Germany and Europe
The reluctant hegemon

If Europe’s economies are to recover, Germany must start to lead

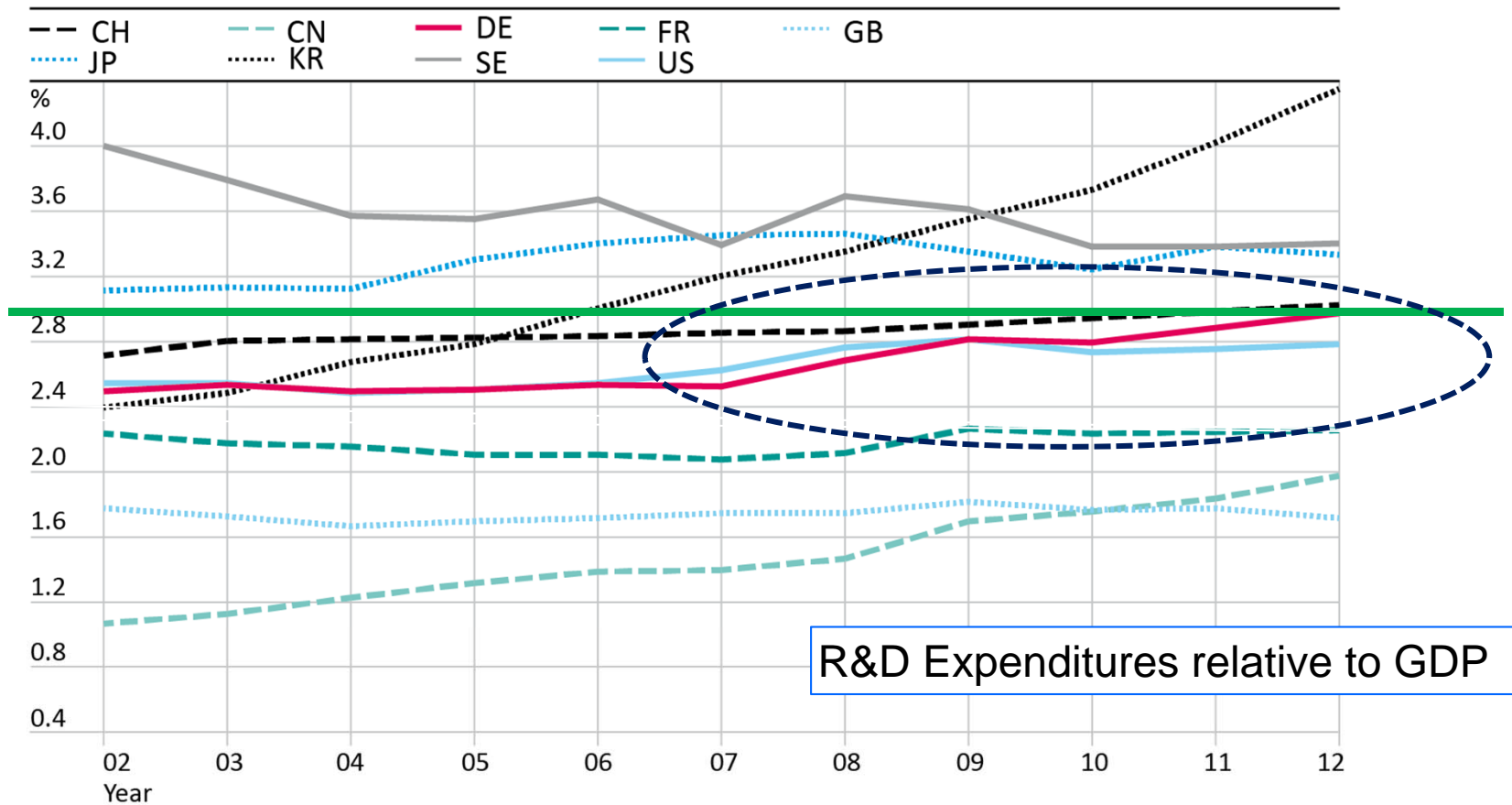
Jun 15th 2013 | From the print edition



IN JUNE 1963 John Kennedy brought hope to a divided city at the frontline of the cold war with the words “Ich bin ein Berliner”. When Barack Obama visits Berlin next week, half a century later, he will find it a very different place. United, strong and rich, Germany is Europe’s hegemonic power.

1 OVERALL CHALLENGES AND STRATEGY

Germany has increased its R&D intensity and has reached the 3% target ...

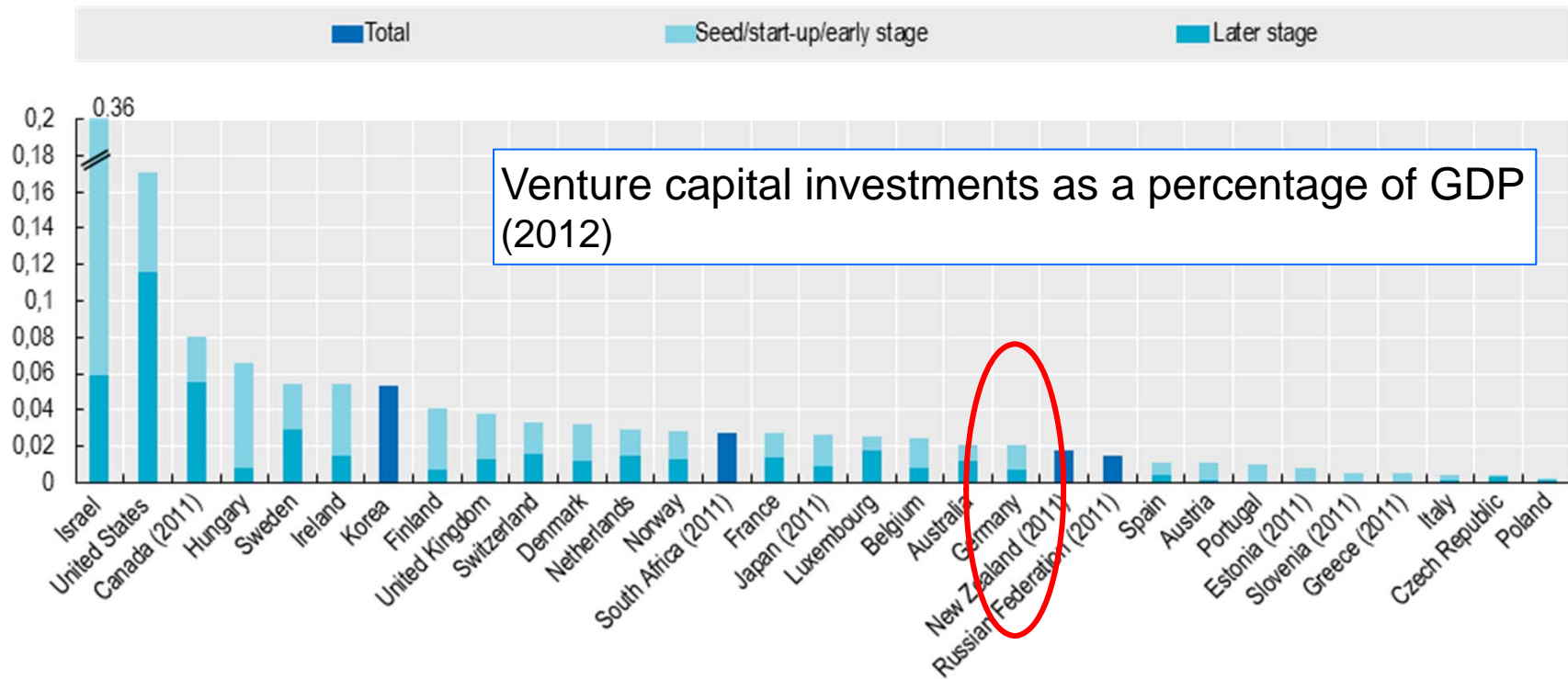


R&D Expenditures relative to GDP

Source: OECD, SV Wissenschaftsstatistik.
 Calculations and estimates by NIW. In: Schasse et al. (2014).

1 OVERALL CHALLENGES AND STRATEGY

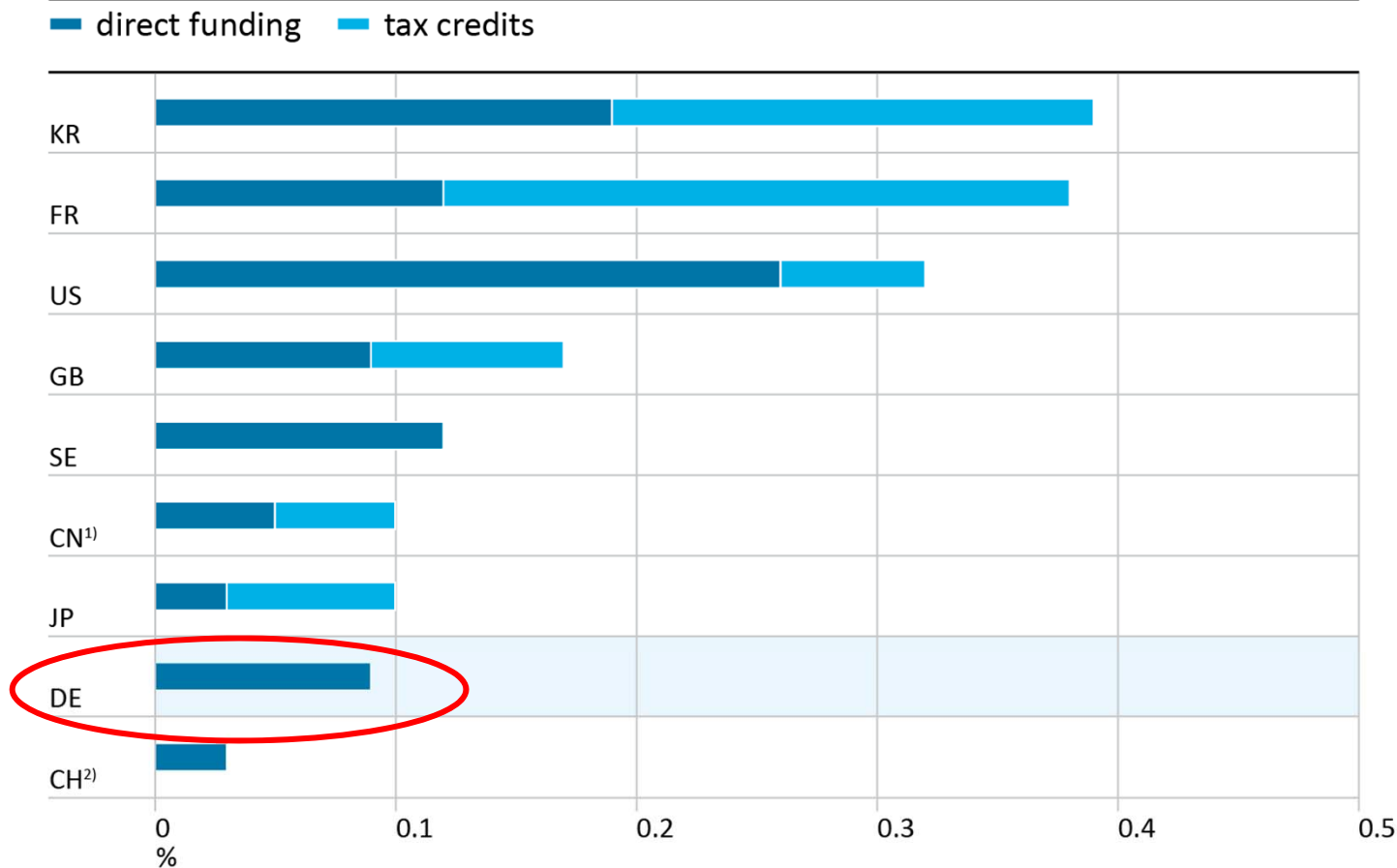
→ ... but investment in entrepreneurial innovation is still lagging behind. A very similar assessment pertains to Japan.



Source: Entrepreneurship at a Glance 2013 (OECD 2013)

1 OVERALL CHALLENGES AND STRATEGY

The share of the business sector's R&D expenditure directly and indirectly funded by the public sector is relatively low.



¹⁾2009; ²⁾2008

Source: own depiction based on OECD Science, Technology and Industry Scoreboard 2013.

2 EXCELLENCE IN PUBLIC RESEARCH

... real progress achieved, but now to be continued in a systematic manner – fiscal pressures ahead

Background and Status Quo

- demise of German universities and research institutions in the Nazi and post-WWII era
- dismantling of academic structures and meritocratic spirit in the 1968 student revolt
- Supreme Court: “illegitimate quality competition”
- spots of excellence in non-university research institutions and some universities
- “brain drain”
- 2006: Federalism Reform – culmination of financial problems at universities

Policy Measures

- reversal of policies in 2005: “Exzellenzinitiative” with strong competitive elements, selection of „Eliteuniversitäten“
- some success in raising visibility of leading institutions
- 5% annual funding increases for non-university institutions („Pakte“)
- current measures to run out in 2015/16/17
- fiscal problems for Länder clearly visible (Schuldenbremse)
- changes to Art. 91b GG proposed
- follow-up on „Exzellenzinitiative“ unclear
- discussions on breadth vs. focus of support for university research

3 TECHNOLOGY AND KNOWLEDGE TRANSFER

... in parts excellent (engineering, Fraunhofer) – in parts much to be improved ... cultural issues

Background and Status Quo

- transfer in classical engineering fields and chemistry excellent, with little friction.
- Fraunhofer Institutes as an acknowledged partner for large firms and (some) SMEs
- 2002 – a.k.o. Bayh-Dole Act with mixed outcomes to date
- Patent management at universities initially relegated to state-level patent monetization agencies
- at large universities increasingly internalized
- „transfer culture“ not yet established - backlash
- discussions on the role of humanities and social sciences

Policy Measures

- „Forschungsprämie“ – set up to incentivize collaboration between universities and industry- FAILED
- „Forschungscampus“ – long-term strategic collaborations between industry and academia, collocation – strong demand
- „Validierungsforschung“ – support for feasibility studies and prototyping to foster investment-readiness

4 BUSINESS INNOVATION

... strong positions in automotive, chemicals, engineering ... weak performance in ICT, pharma and life sciences

Background and Status Quo

- R&D/GDP declined in the late 1980s and was in a slump after reunification, moderate increases starting in mid 1990s
- labor market reforms under Schröder – the “sick man of the euro” recuperates
- increase in R&D/GDP by 0.4% from 2007 to 2011
- fueled by strong demand for German investment and consumer goods in BRIC countries
- high share of output in manufacturing , by now with strong service components
- role of vocational training
- failure to build a position in “new technologies”

Policy Measures

- Shift to mission-oriented R&I policies
- HighTech Strategy (see governance)
- increasing confidence during the 2008/09 crisis – hubris?
- catch-up needs turned into technology programs (electric vehicles)
- low share of industry R&D financed by government
- R&D tax credit agreed upon (in 2009 coalition contract), but not enacted
- “Industrie 4.0”

5 INNOVATIVE ENTREPRENEURSHIP

... the Achilles heel of the German Innovation System

Background and Status Quo

- post-WWII entrepreneurship boom, and a declining appetite for it thereafter
- low entrepreneurial activity shown in almost all comparative studies
- paucity of capital, experienced founders, exit channels
- few globally successful startups (the SAP problem)
- some improvements in the late 1990s, undone by the dot-com crash
- long-term policy initiatives started after 2005 in response (Gründerland Deutschland)

Policy Measures

- EXIST – bundle of policies in support of entrepreneurship at research institutions
- founder stipends, technology validation grants, support for entrepreneurship centers
- improvements clearly visible in culture
- framework conditions for VC and business angels continues to be non-competitive
- several measures pending after (non-productive) EU intervention
- without/despite political support: the Berlin miracle

6 GOVERNANCE

... lately more trust in coordination, but incumbents still dominate the agenda

Background and Status Quo

- post-WWII origins of R&I policy: nuclear energy
- power struggles over shape of policies and ministries: research, technology, education
- largely oriented towards correction of market failures
- evolution of a differentiated subsidy system
- stable relationships between public and private funding of R&D (1:2)
- experience of R&I policy-makers shaped by failures and successes
- strong dislike of interventionist „industrial policy“

Policy Measures

- HighTech Strategie 2020
- definition of societal demands in five areas: climate & energy, health & nutrition, mobility, security, communication
- selected forward-looking projects, e.g. secure identities or CO2-neutral, energy-efficient and climate-adapted cities
- creation of new bodies for coordination: “Forschungsunion“ with all major actors of the innovation system being aboard
- perpetuation of interests?
- strong top-level interest in innovation (the physicist)
- new advisory bodies (EFI)

7 CONCLUSIONS AND PRIORITIES FOR 2020

→ Many examples of successful government action

- Mission-orientation of research and innovation policies
- Coordination among major players in the innovation system
- Vastly improved public funding of R&I
- Quality competition among universities
- New initiatives for public-private partnerships
- Strategic programmes in important industrial areas

7 CONCLUSIONS AND PRIORITIES FOR 2020

→ Little success (so far) in other areas

- Introduction of R&D tax credits delayed or derailed
- Conditions for entrepreneurship and venture capital lagging behind
- Continuing weaknesses in ICT and life sciences
- Educational system still not excellent
- Problems with Federalism
- Too much Germany, too little Europe

7 CONCLUSIONS AND PRIORITIES FOR 2020

- Set ambitious targets for R&D and education budgets for 2020 – 3.5% of GDP for R&D
- Rethink federalism again – allow federal government to contribute to institutional financing of universities and schools
- Create a level playing field for non-university research organizations - harmonize financing contributions of Bund and Länder
- Create more flexibility for universities (Wissenschaftsfreiheitsgesetz)
- Develop new concepts for financing of excellent universities and PROs – current frameworks expire in 2017/2020
- Introduce R&D tax credits to support research in industry

7 CONCLUSIONS AND PRIORITIES FOR 2020

- Improve boundary conditions for venture capital and entrepreneurship
- Continue work on European intellectual property systems
- Continue and refine the German Hightech Strategy 2020
- Improve coordination of climate, energy and innovation policies
- Systematically evaluate all R&I policy instruments
- Facilitate immigration of highly-qualified foreigners
- Better utilize the potential of women in science, innovation, and industry
- Improve EU innovation policies to tackle the productivity gap among European countries

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THANK YOU FOR YOUR ATTENTION

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www.e-fi.de in German and English language.**