Nanotechnology Funding: A Global Perspective

Tim Harper
Cientifica Ltd

cientifica

Cientifica

- Rational Market Research
- Corporate & Government Strategies
- Technology Commercialisation

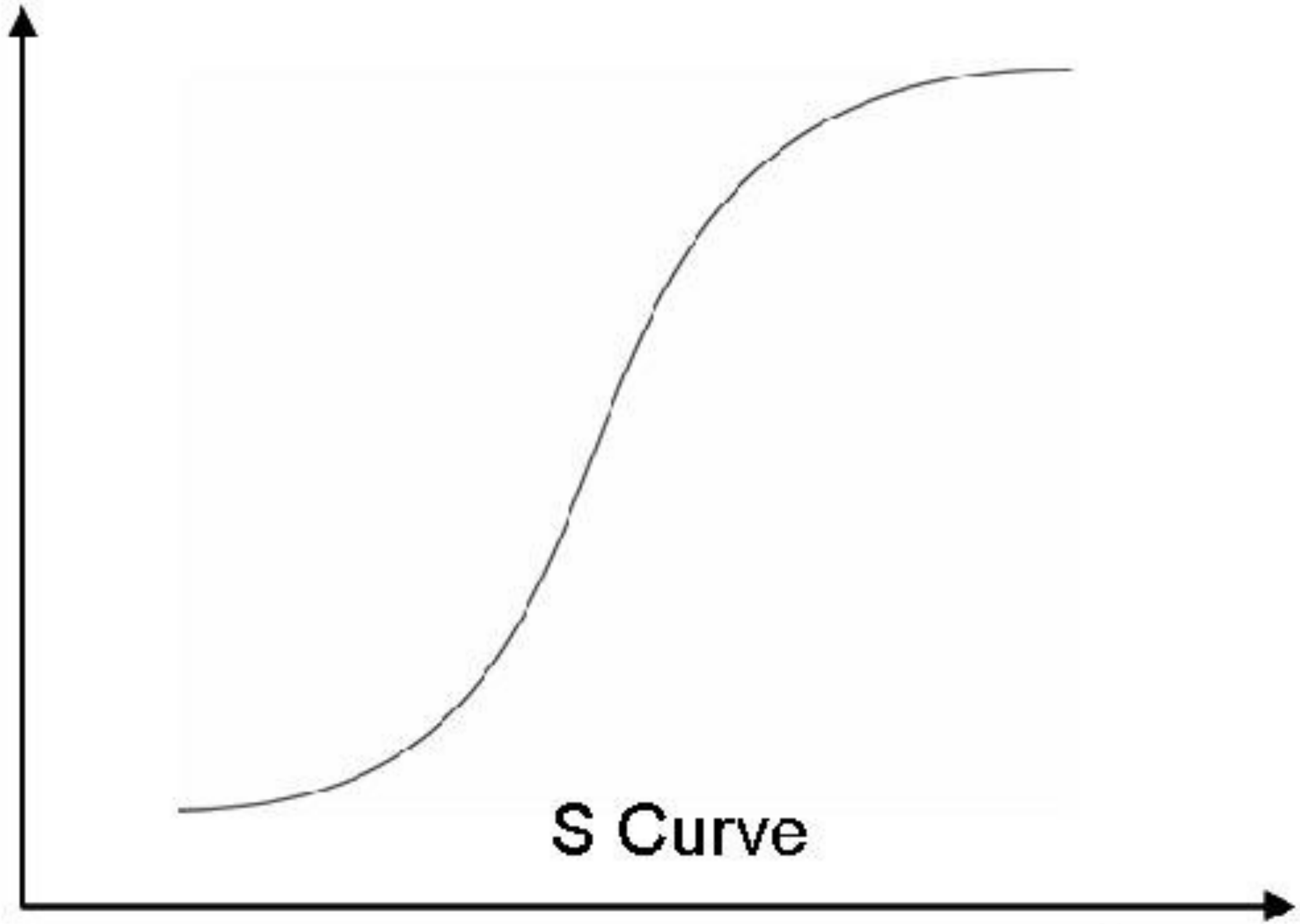
WORLD ECONOMIC FORUM

COMMITTED TO IMPROVING THE STATE OF THE WORLD

Cientifica Global Funding Report

- Performed every two years
- Looks at government and private funding
- Used by infrastructure providers to target emerging markets
- The most accurate funding picture available

cientifica

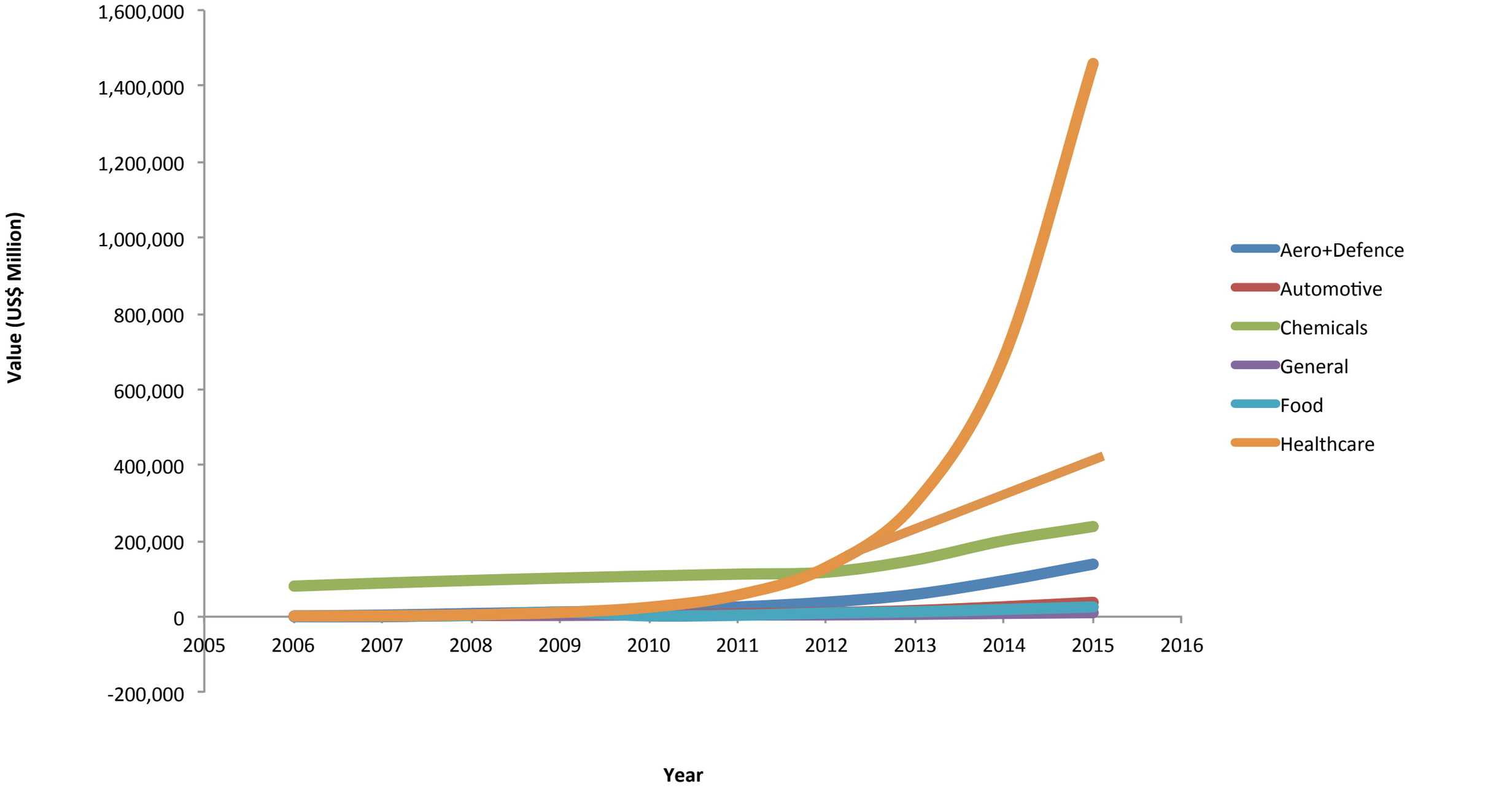

S Curve

$0.25 Trillion

- In the last 11 years, governments around the world have invested more than US$67.5 billion in nanotechnology funding.

- When corporate research and various other forms of private funding are taken into account, nearly a quarter of a trillion dollars will have been invested in nanotechnology by 2015.

Nanotechnology Market Evolution 2006-15



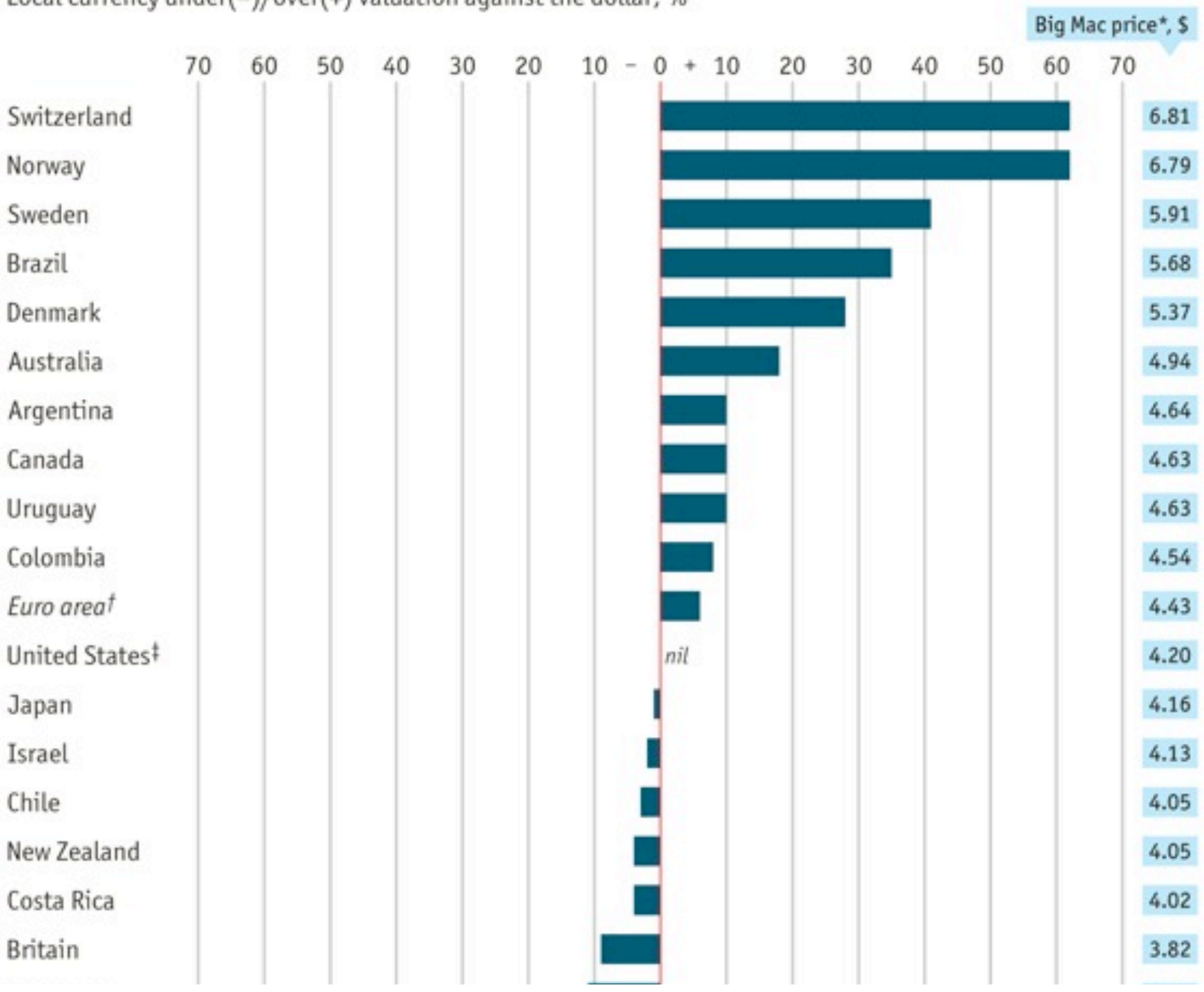
Apples & Oranges?

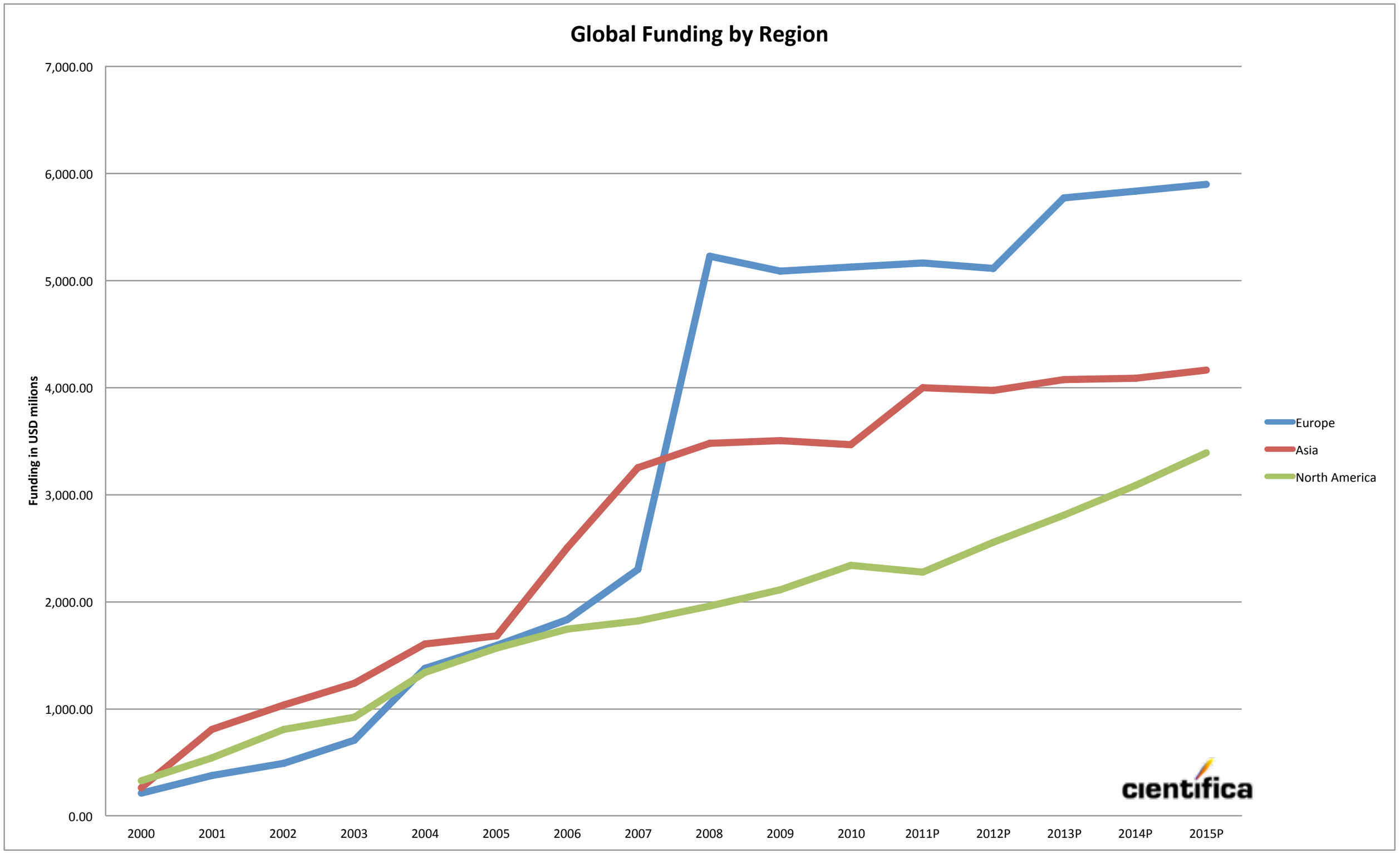
- China will spend US$2.25 billion in nanotechnology research while the US will spend US$2.18 billion.

- In real dollar terms, adjusted for currency exchange rates, China is only spending about US$1.3 billion to the US's $2.18 billion.

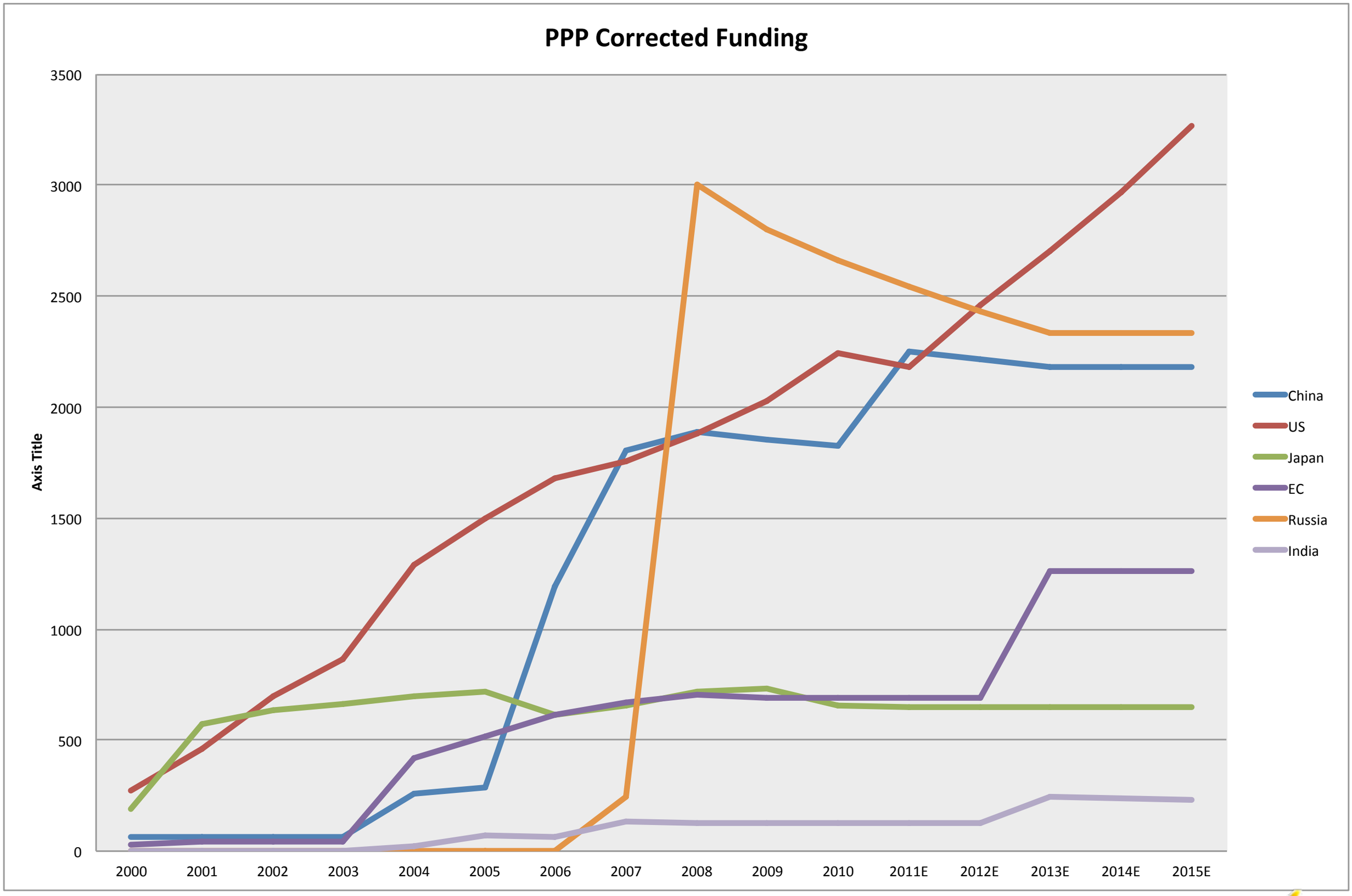
The Big Mac index

Local currency under(–)/over(+) valuation against the dollar, %



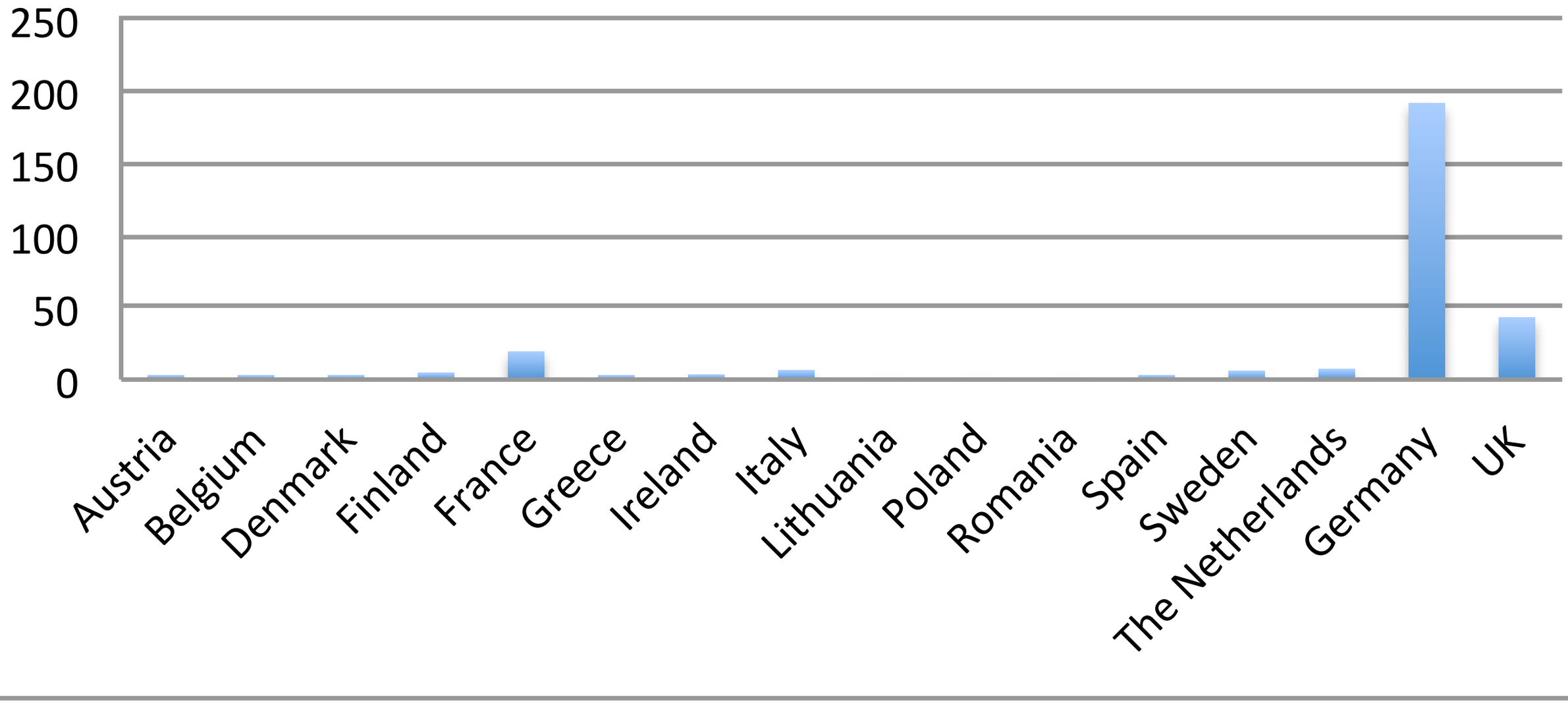

Global Funding by Region
Funding in USD milions
7,000.00
6,000.00
5,000.00
4,000.00
3,000.00
2,000.00
1,000.00
0.00
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011P
2012P
2013P
2014P
2015P
Europe
Asia
North America
cientifica

cientifica


PPP Corrected Funding
3500
3000
2500
2000
1500
1000
500
0
Axis Title
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011E
2012E
2013E
2014E
2015E
China
US
Japan
EC
Russia
India

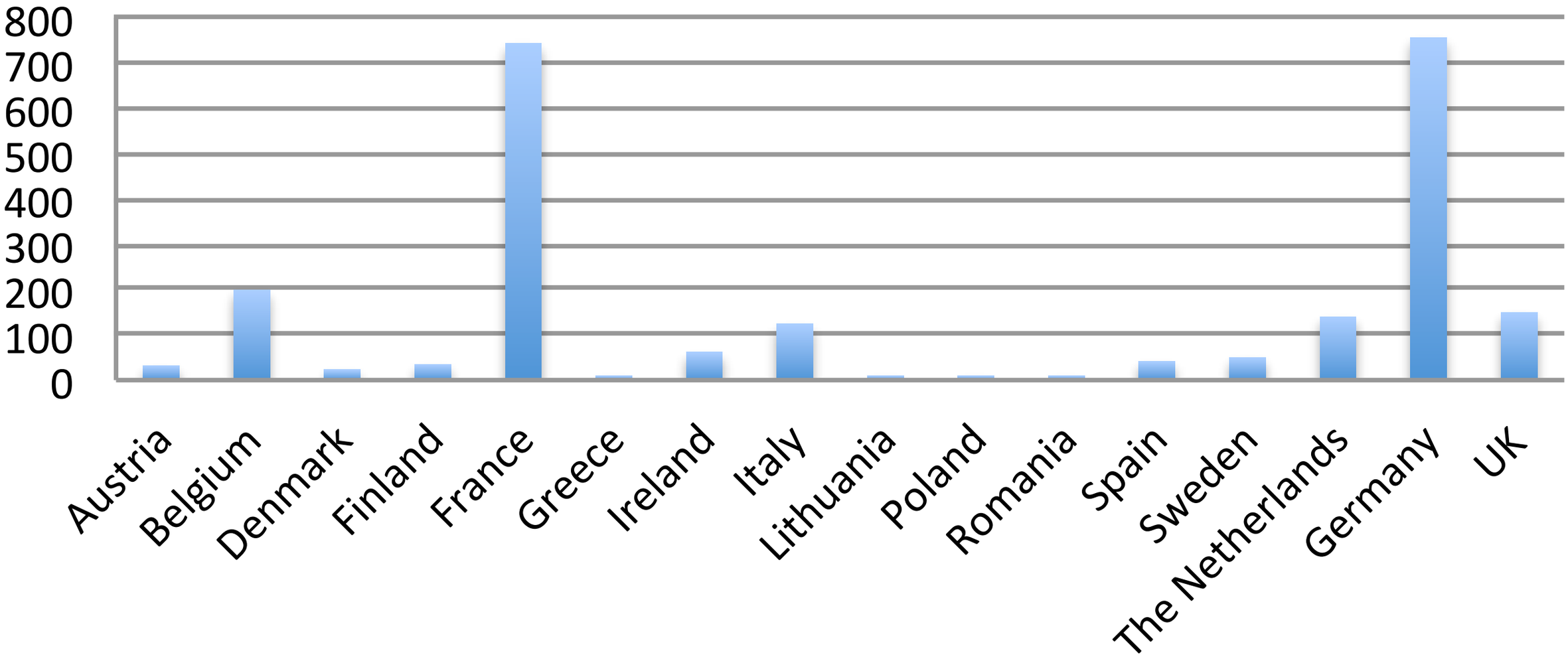
cientifica

EU National Nanotech Funding 2001 (M€)



cientifica

EU National Nanotech Funding 2011 (M€)



cientifica

Moving from Nanotech to Advanced Manufacturing

- EHS has always been a key topic
- European funding is shifting from nanoscience to applications
- “nano” funding is increasingly hidden inside application focussed programs

cientifica

How Effective Is The Funding?

- Need to look at overall global competitiveness, quality of institutions, capacity for innovation and levels of company spending on R&D

- Creates a measure of the economic impact of emerging technologies, and the efficiency and likelihood of translating technology funding into the economy.

cientifica

Factors Considered

- Quality of Scientific Institutions
- Capacity for Innovation
- Global Competitiveness
- Company Spending on R&D
- Quality of Maths & Science Education
- Govt Procurement of Advanced Tech Products

cientifica

EmTech Exploitation Factor

Germany	5.72
Japan	5.6
United States	5.52
UK	5.15
Taiwan	5.03
South Korea	4.69
EU	4.43
China	4.37
India	4.06
Russia	3.72

Fine in Theory, But...

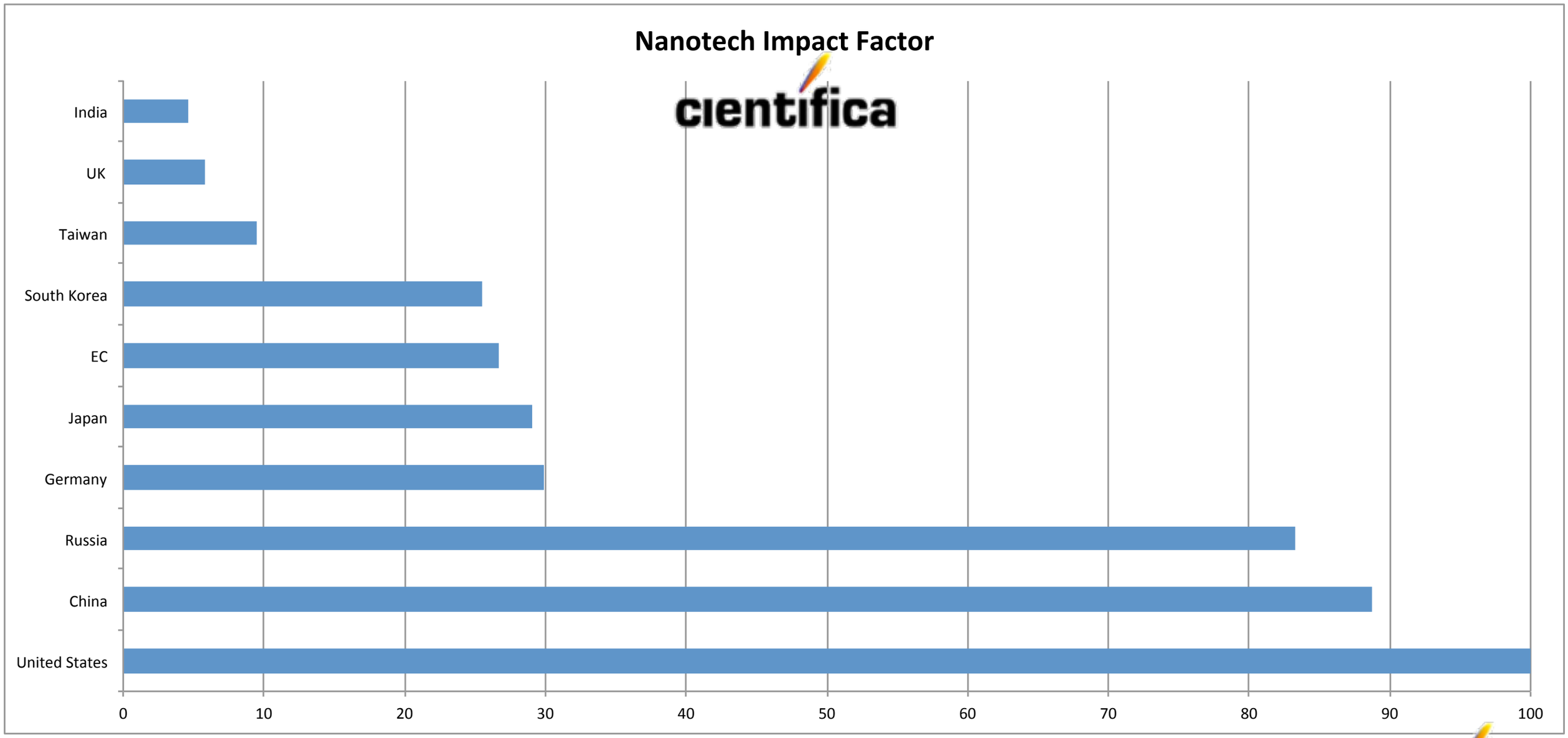
Once we factor in real funding levels the picture changes dramatically...

cientifica

Nanotech Impact Factor

United States	120.41
China	98.18
Russia	98.18
Germany	94.7
Japan	37.78
EU	36.37
South Korea	30.52
Taiwan	28.32
UK	10.59
India	7.1

Economic Impact of Nanotech



cientifica

Contrasting Initiatives


奈米國家型科技人才培育計畫
Nanotechnology Human Resource Development Program


تحلیل ارزیابی رشته ها
صفحه ۲۰ از ۲۳


nano&me
Nanotechnology in our lives
WHAT IS NANO?
NANO PRODUCTS
NANO SAFETY
SOCIAL & ETHICAL
REGULATION
THE NANO DEBATE
NANO NEWS
WE NEED YOUR VIEWS CLICK HERE
HOSPITAL
THIS IS YOUR WEBSITE SO TELL US WHAT YOU WANT HERE!
Click on the things in the picture to find out about nano in our lives.

Why Does The UK Underperform?

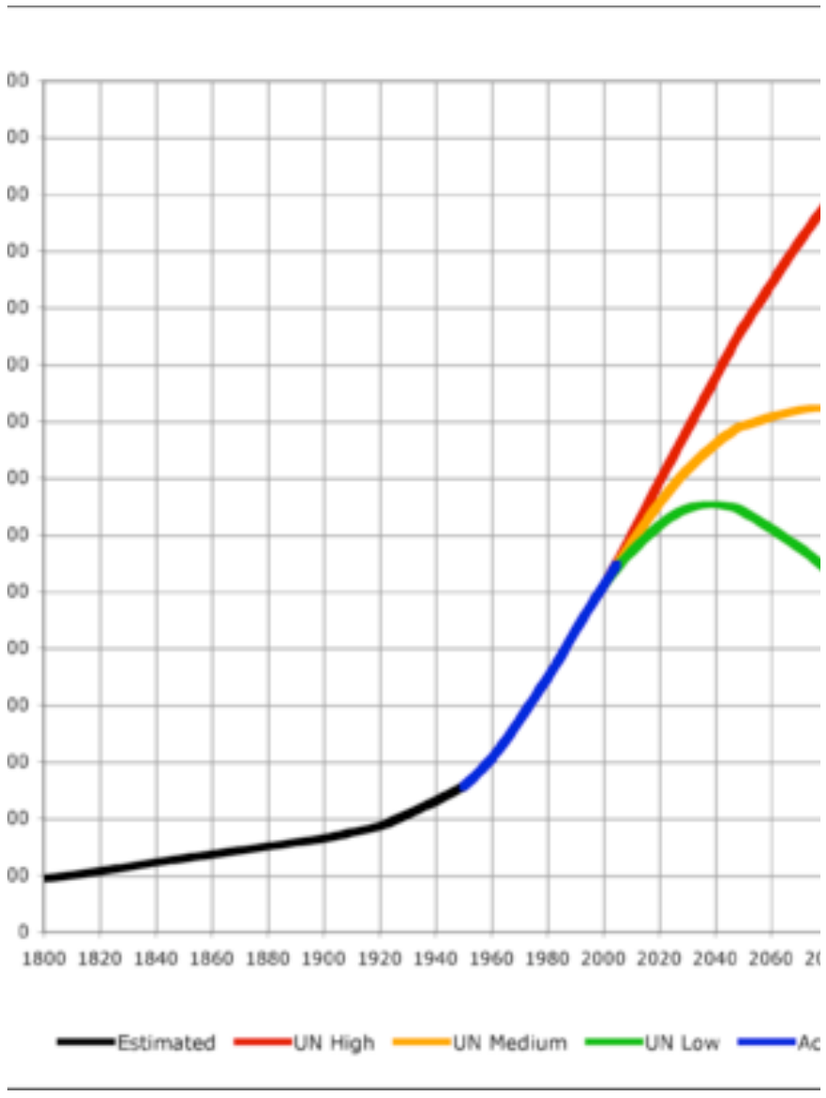
- No clear strategy from outset
- Government terrified by EHS
- No strategic plan ever references the one before!
- Disconnect between academic research and industry

cientifica

Future Funding

Sustained technology innovation is the only way that the world has supported six billion people and will continue to sustain 9 billion people by 2050.

WEF Global Agenda Council on Emerging Technologies



The Policy Problem

- Most global organisations were conceived in the pre-television age

- Technology is still associated with risk rather than solutions

- Is the agenda for nanotechnology, synthetic biology, GMO's etc driven by science or Twitter?

Technology as Social Insurance

The social insurance concept captures the idea of minimizing future liabilities from either evolving or catastrophic events by ensuring the means to manage these events through proactive investment.

Rethinking Funding

- VC industry under serves science based companies

- Need to create incentives for longer term investment

Lessons from 10 years and $67 Billion

- Effectiveness of funding programs varies widely
- Little chance of continuation after funding finishes
- Many dysfunctional and poorly thought out initiatives
- Triple helix of government, industry & academia needed for success

cientifica

Finally

Nanotechnologies and biosciences will be as important to the 21st Century as oil, polymers and semiconductors were to the 20th Century

We have the tools, lets use them wisely