



# Thirty-sixth session of ECLAC

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*Horizons 2030: equality at the centre of sustainable development*

## Revitalizing the 'policy-setting agenda'

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# ECLAC H2030

## *Progressive Structural Change*

*“Shift towards production characteristics with 3 characteristics”*

- Schumpeterian efficiency
- Keynesian efficiency
- Environmental efficiency

(EC 2020: smart, inclusive and sustainable growth)

Biggest challenge: *what is State's role?*

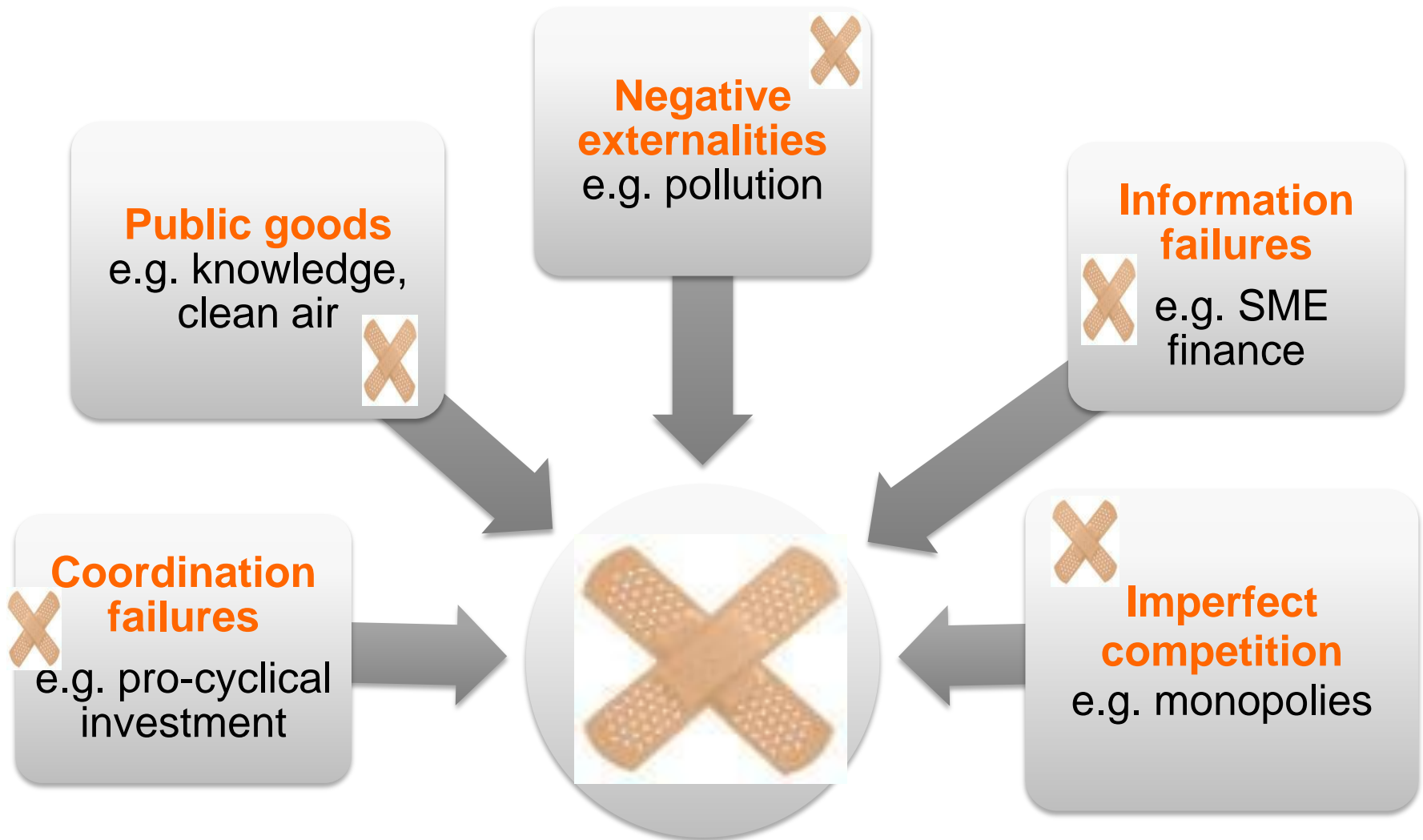
Set 'level' playing field then *get out of the way*

Solve market 'failures'

De-risk (and 'facilitate') private sector

Something ... more interesting?

# Policy as just 'fixing' markets?



# the assumption



private  
sector

vs.



public  
sector

# Really?



**"Governments** have always been **lousy at picking winners...** As the revolution rages, **governments should stick to the basics:** better schools for a skilled workforce, clear rules and a level playing field for enterprises of all kinds... **Leave the rest to the revolutionaries."**

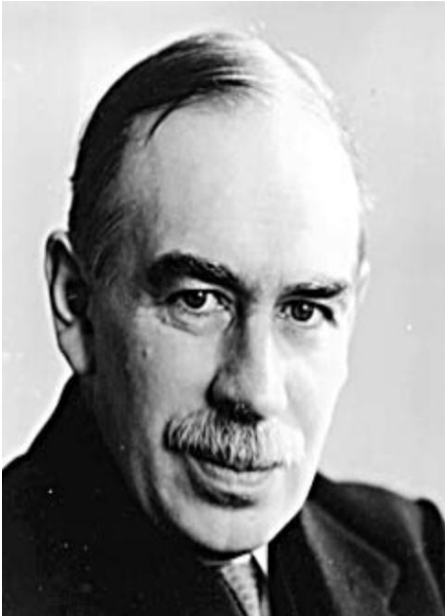
(‘The Third Industrial Revolution’, *The Economist*, April 21, 2012).

# Market shaping & creating



“The road to free markets was opened and kept open by an enormous increase in continuous, centrally organized and controlled interventionism... **Administrators had to be constantly on the watch to ensure the free working of the system.**”

**Karl Polanyi**, *The Great Transformation*, 1944



“The important thing for Government is not to do things which individuals are doing already, and to do them a little better or a little worse; but to **do those things which at present are not done at all.**”

**John M. Keynes**, *The End of Laissez Faire*, 1926



Source:  
<http://www.youtube.com/watch?v=x54bVudugg>  
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“A key element to get **an energy breakthrough** is more basic research. And that **requires the government to take the lead**. Only when that research is pointing towards a product **then we can expect the private sector to kick in.**” (Bill Gates, 2013, AEIC)

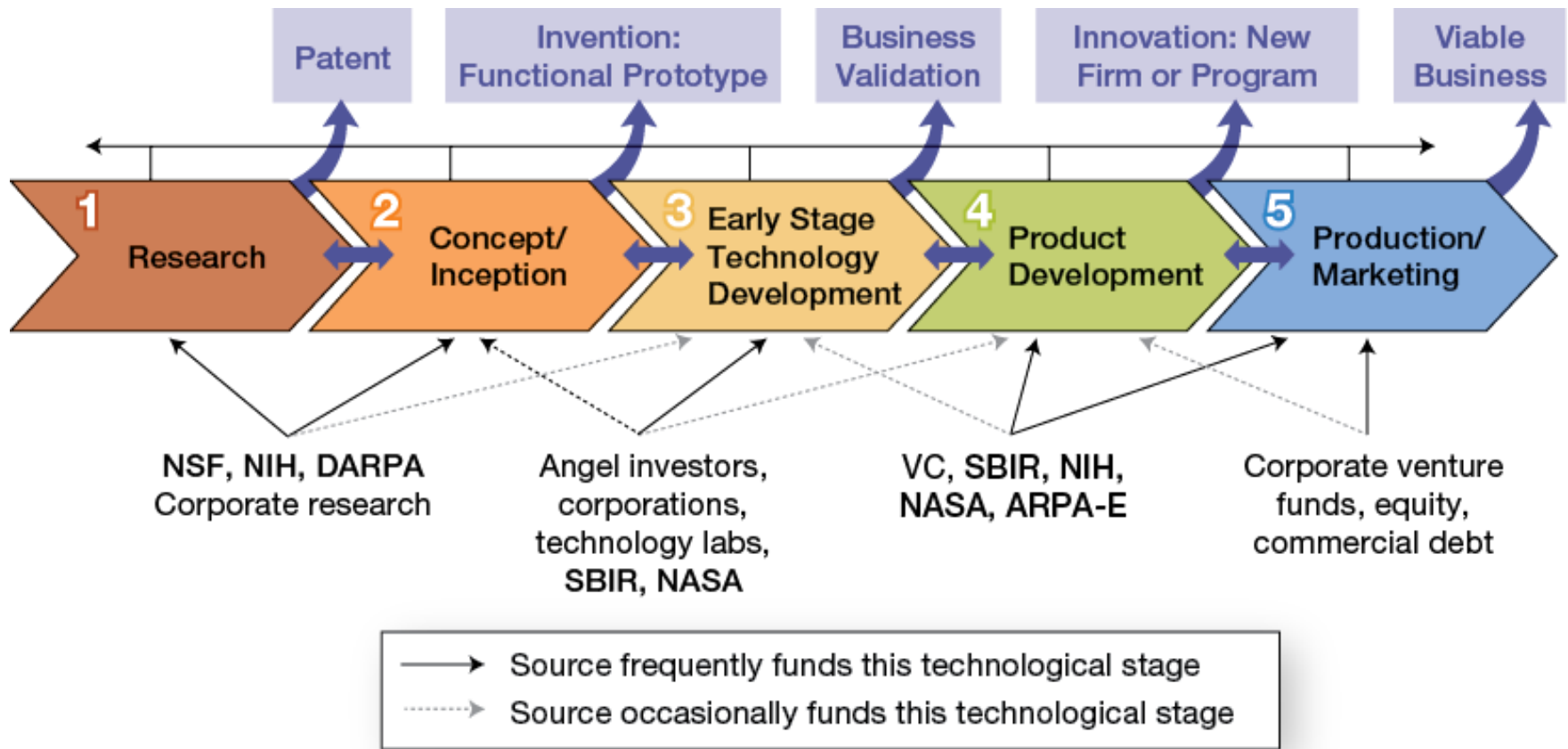
“Yes the government will be somewhat inept, but **the private sector is in general inept**. How many companies do venture capitalists invest in that go poorly? By far most of them.”  
(Bill Gates, *The Atlantic*, interview Nov. 2015)



# 1. Schumpeterian efficiency

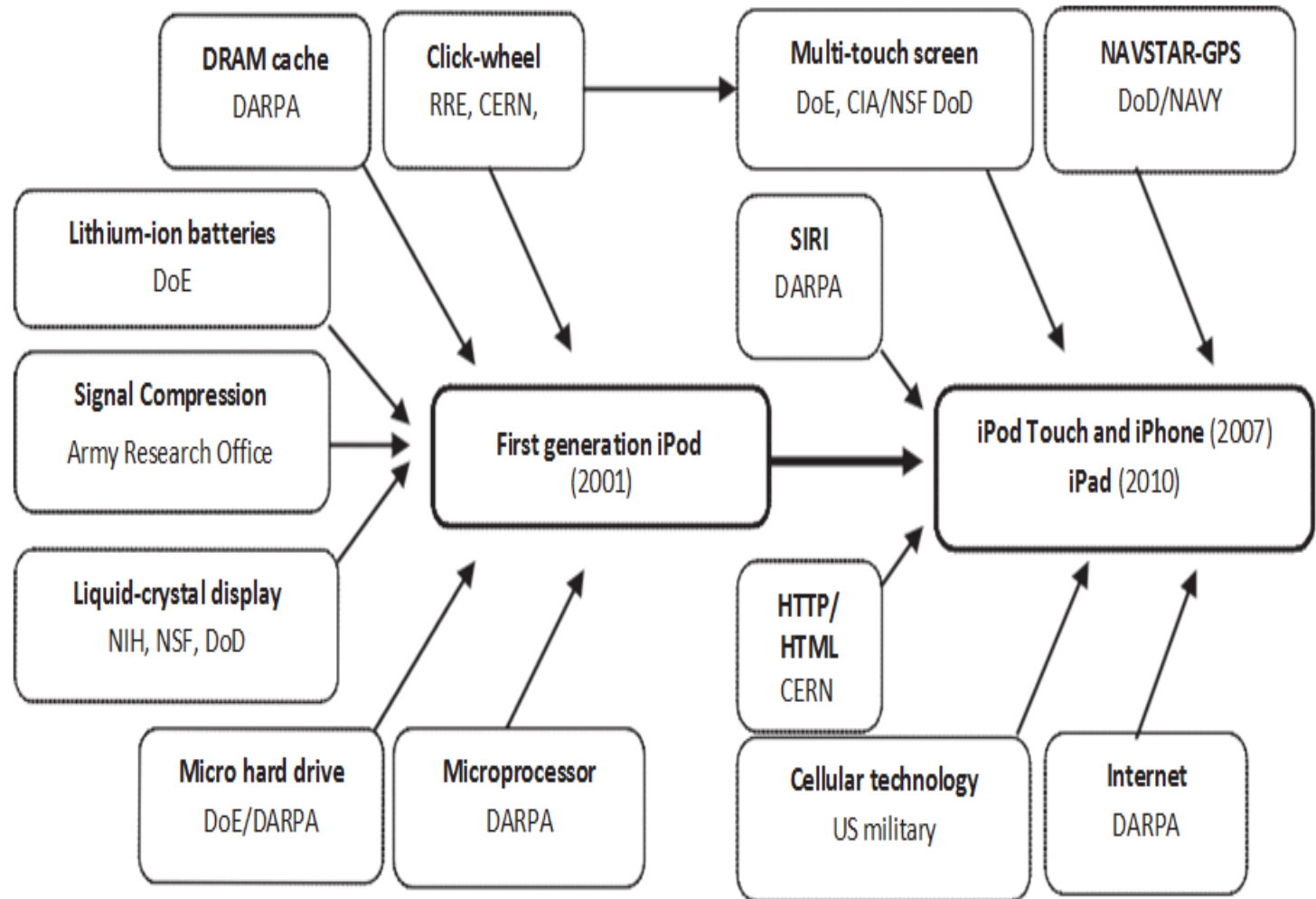
ECLAC H2030 “..identifies the potential of different types of production specialization to spread technological change and innovation to the whole production system.”

# Visible hand of the State across innovation chain



...and dynamic links between supply and **DEMAND**

# Revolutionary behind smart phones?



**NASA's mission** is to *“Drive advances in science, technology, aeronautics, and space exploration to enhance knowledge, education, innovation, economic vitality, and stewardship of Earth.”* NASA 2014 Strategic Plan

*“Creating breakthrough technologies for national security is the mission of the Defense Advanced Research Projects Agency (**DARPA**).”*

*“The **ARPA-E mission** is to catalyze the development of transformational, high-impact energy technologies.”*

*“**NIH's mission** is to seek fundamental knowledge about the nature and behavior of living systems and the *application* of that knowledge to enhance health, lengthen life, and reduce illness and disability.”*

*“The mission of the **KfW Group** is to support change and encourage *forward-looking ideas* – in Germany, Europe and throughout the world.”*

*“The mission of **BNDES** is to foster sustainable and competitive development in Brazil, generating employment while reducing social and regional inequalities.”*

*“The mission of the **BBC** is to be the most creative organization in the world”*

# Hirschman's *Hiding Hand*

“generous tricks, silver linings and felicitous, surprising escapes from disaster”

“Only efficient entrepreneurial engagement by public institutions can deliver what is needed.” **ECLAC H2030**

*“The design of a good policy is, to a considerable extent, the design of an **organizational structure capable of learning** and of adjusting behavior in response to what is learned”*

**Dick Nelson and Sydney Winter, 1982**

*We measure success by **how many risks we have been willing to take** (with inevitable failures) and whether the successes actually matter. **Cheryl Martin**, ex-Director ARPA-E, 2014*



## 2. Keynesian efficiency

*ECLAC H2030 “Lack of global coordination has inflicted a recessionary bias on the whole system: in order to break through this impasse and promote growth, a global Keynesian policy will be needed...”*

*“Weak aggregate demand coexists with an excess of liquidity.”*

*“Weak investment hurts capacity building”*

# Demand vs Supply

**Macro:** Low investment even with 0 interest rate. Stagnant real wages dampen demand.

**Micro:** Finance is constrained more by demand than by supply (not enough gazelles—why?).

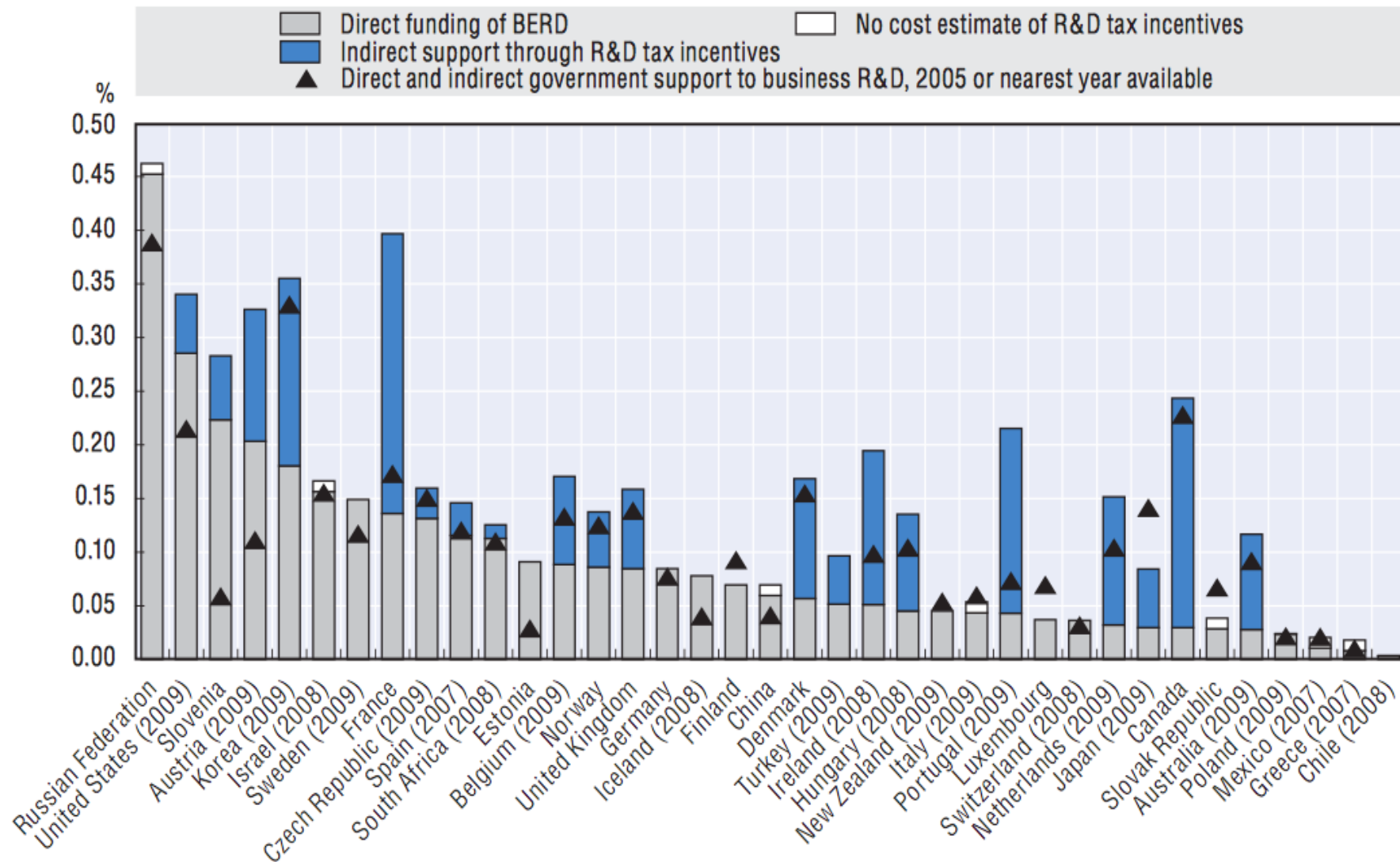
➤ **What really drives investment?** Expectations about future opportunities. Where are they?

Businessmen have a different set of delusions from politicians, and need, therefore, different handling. They are, however, much milder than politicians, at the same time allured and terrified by the glare of publicity, easily persuaded to be 'patriots', perplexed, bemused, indeed terrified, yet only too anxious to take a cheerful view, vain perhaps but very unsure of themselves, pathetically responsive to a kind word. You could do anything you liked with them, if you would treat them (even the big ones), **not as wolves or tigers, but as domestic animals** by nature, even though they have been badly brought up and not trained as you would wish....

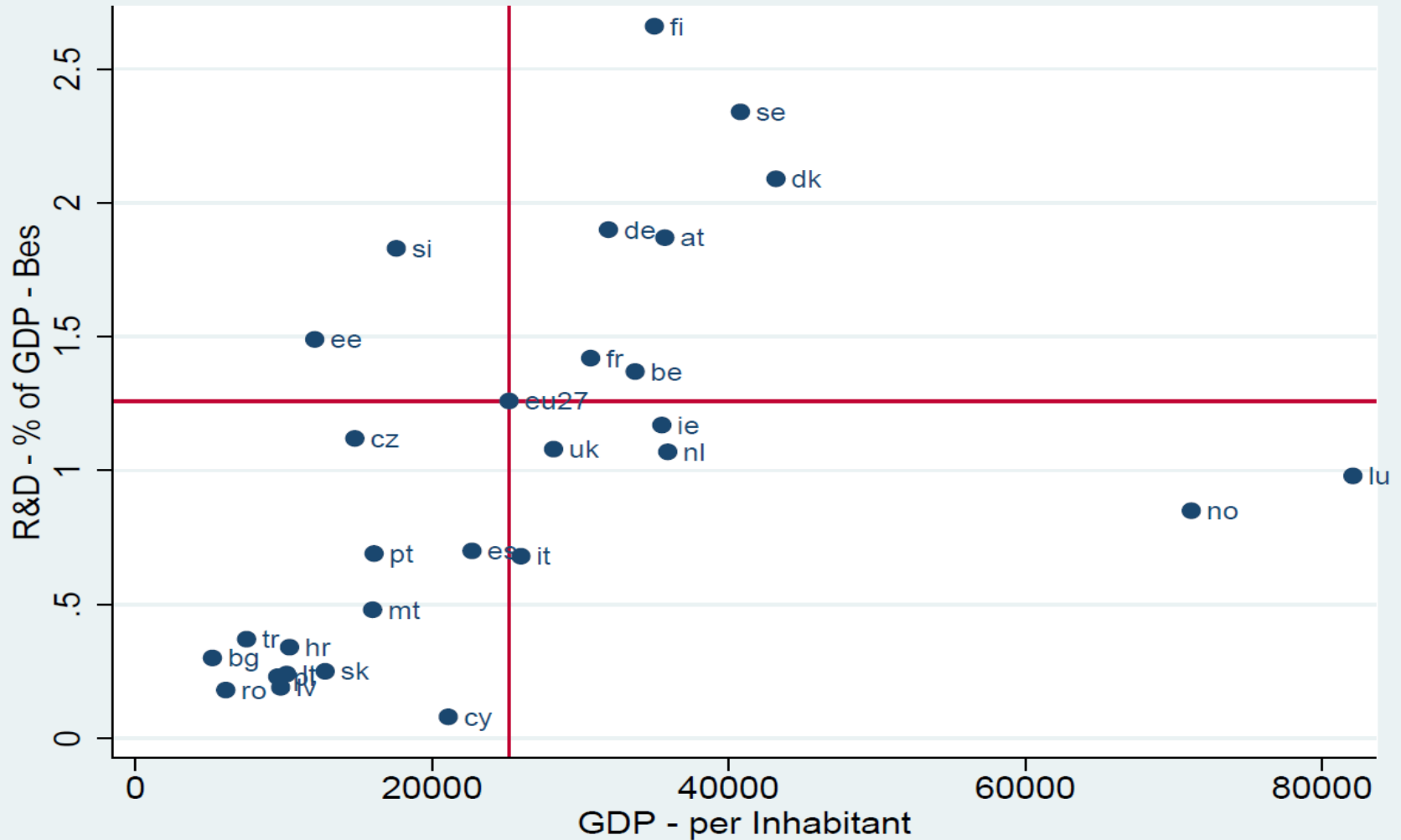
**John M. Keynes's letter to Franklin D. Roosevelt, 1938**

# Direct government funding of business R&D and tax incentives for R&D, 2010

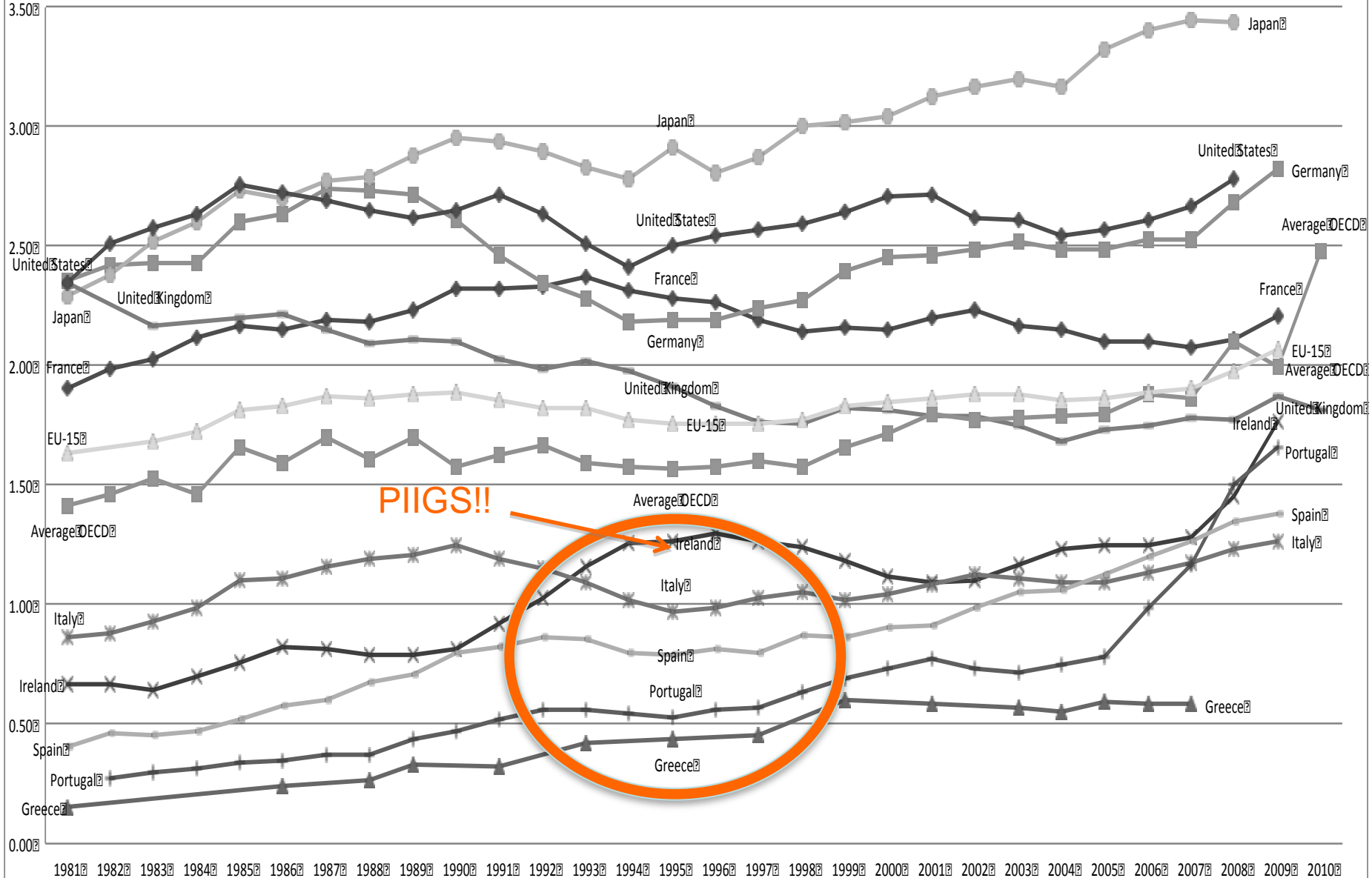
As a percentage of GDP



# Business R&D spending (BERD)



# GERD as a percentage of GDP



# The German lessons for Greece!

- Middle sized firms (small is NOT beautiful)
- Patient long-term finance (e.g. KfW)
- Strong well funded science-industry links (e.g. Fraunhofer) – & not just pushing on a string.
- High R&D/GDP
- ‘Mission oriented’ R&D (e.g. *Energiewende*)



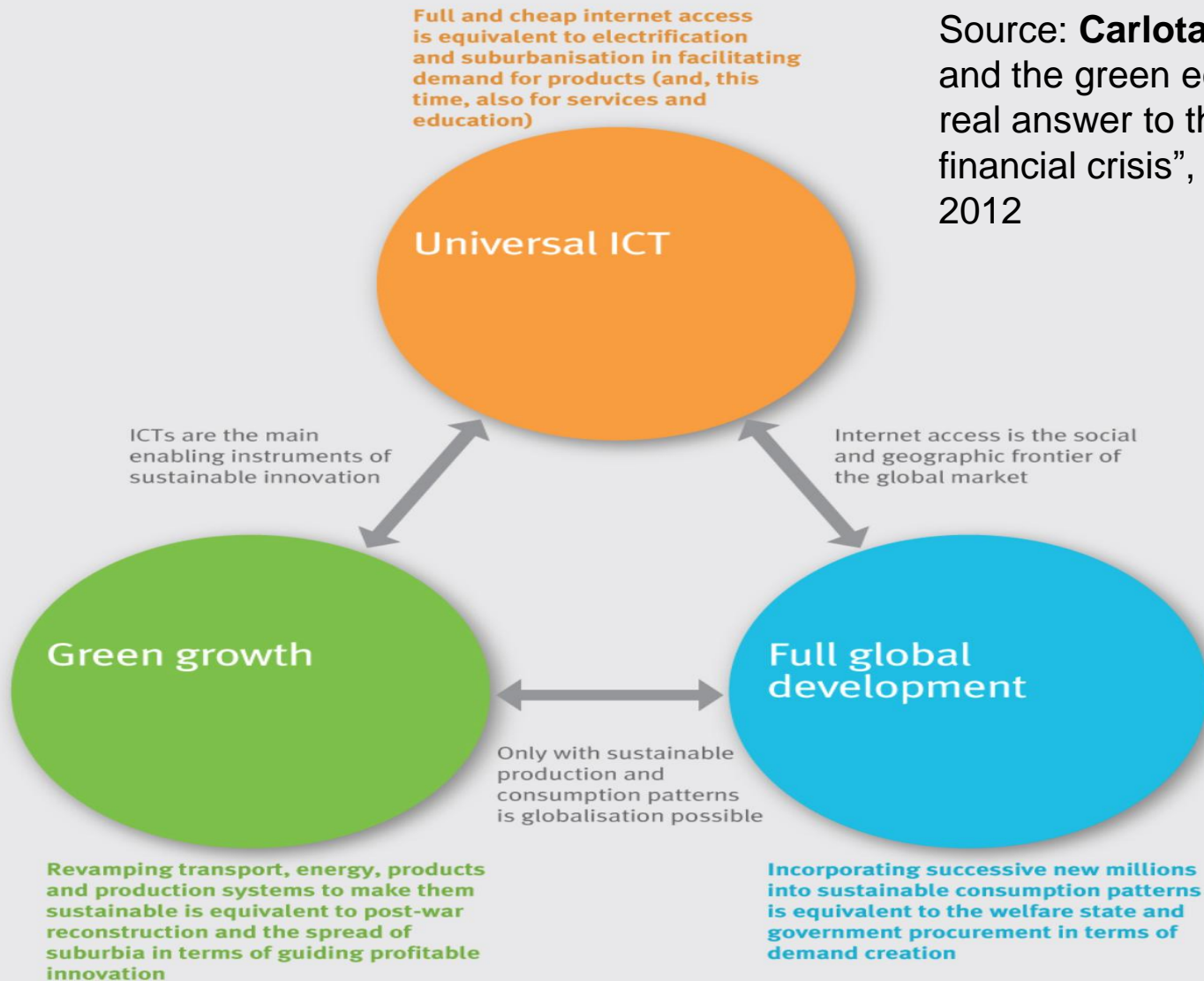
### 3. Environmental efficiency

*ECLAC H2030 “promoting environmental protection, and decoupling economic growth from carbon emissions”*

- Problem is not type of finance but its quality.

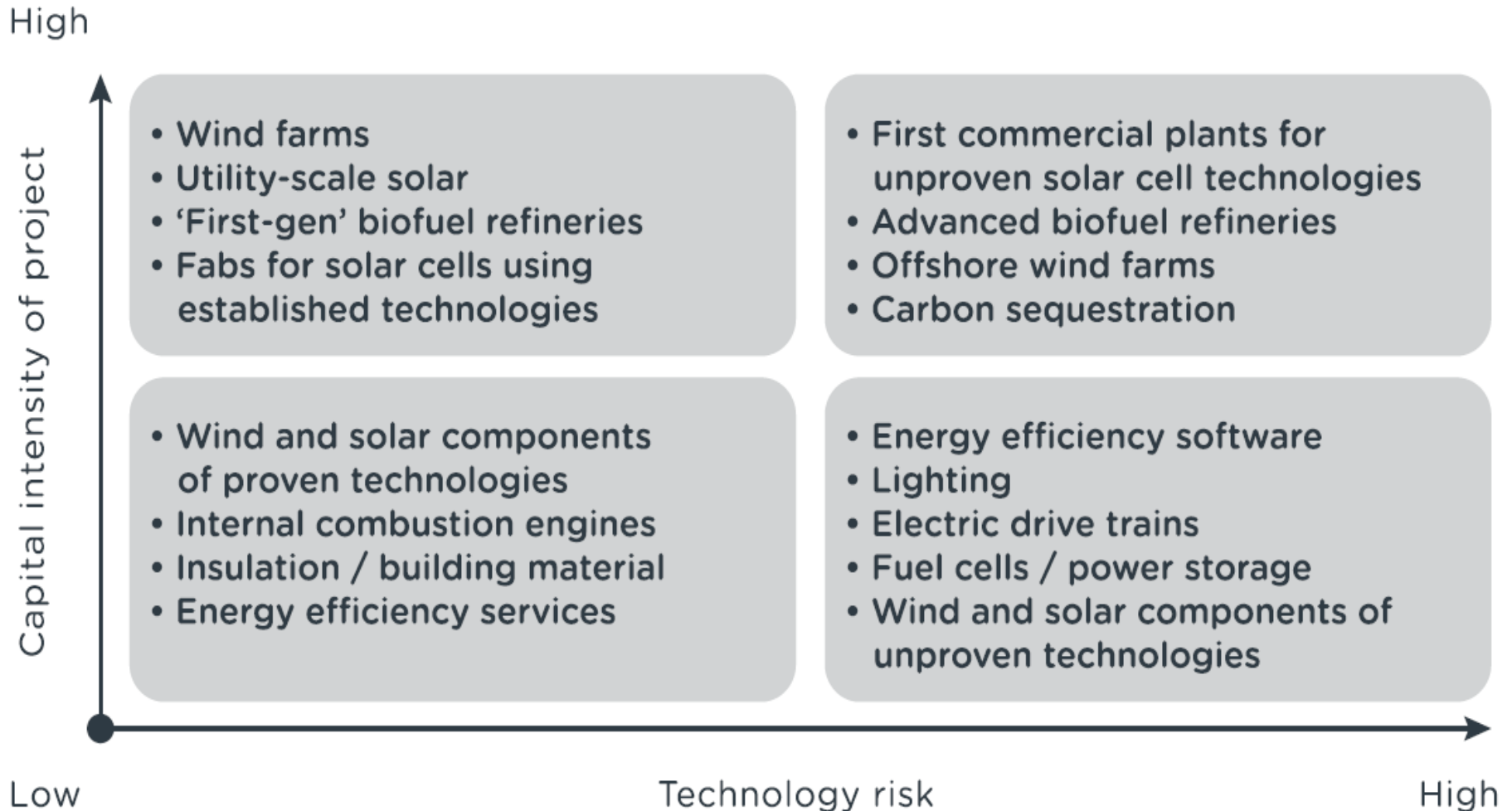
# Tilting the playing field via Demand

## The potential for a new global positive sum game

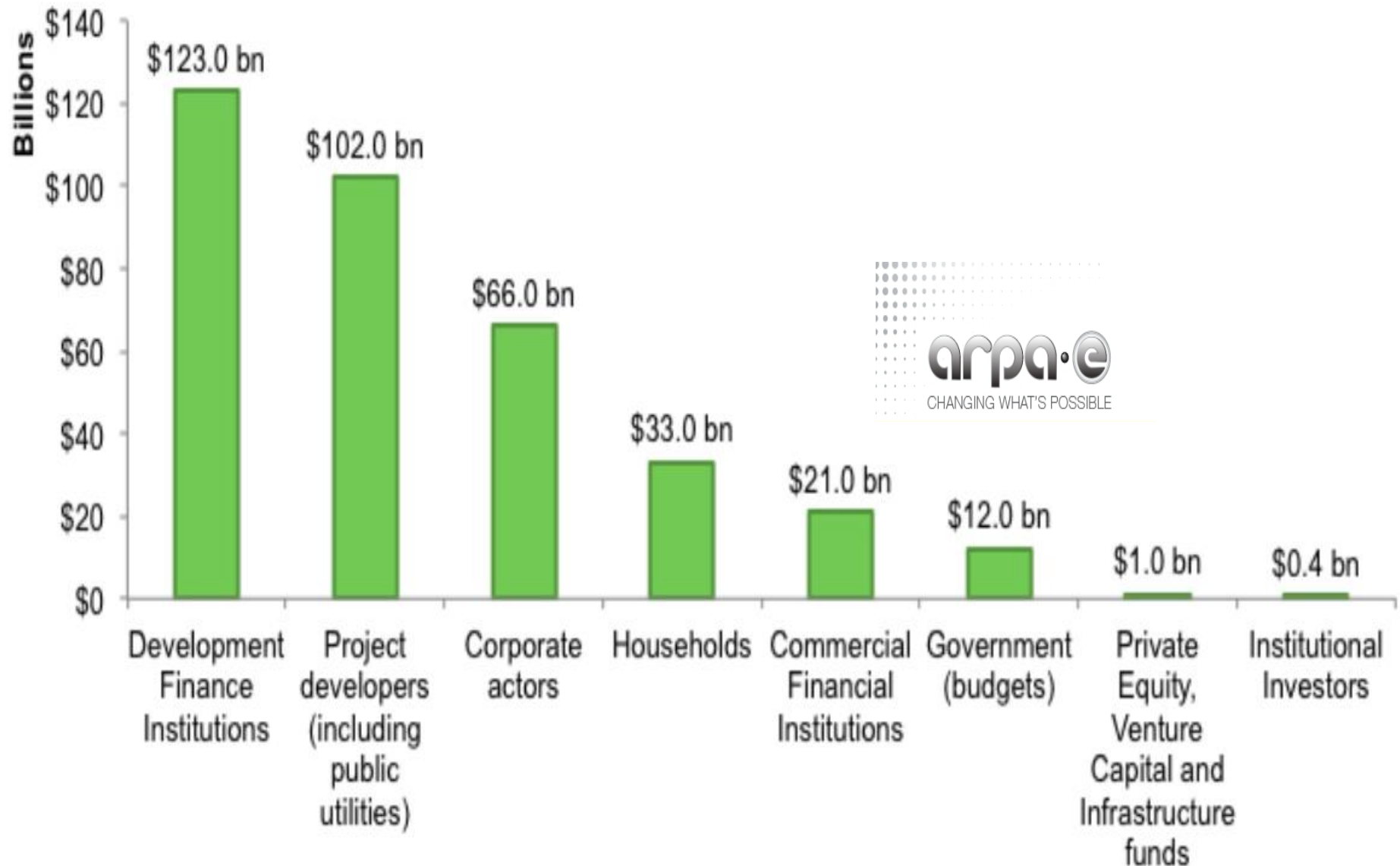


# Technology risk in clean tech

*(venture capital will ride the wave, who will kick/push?)*

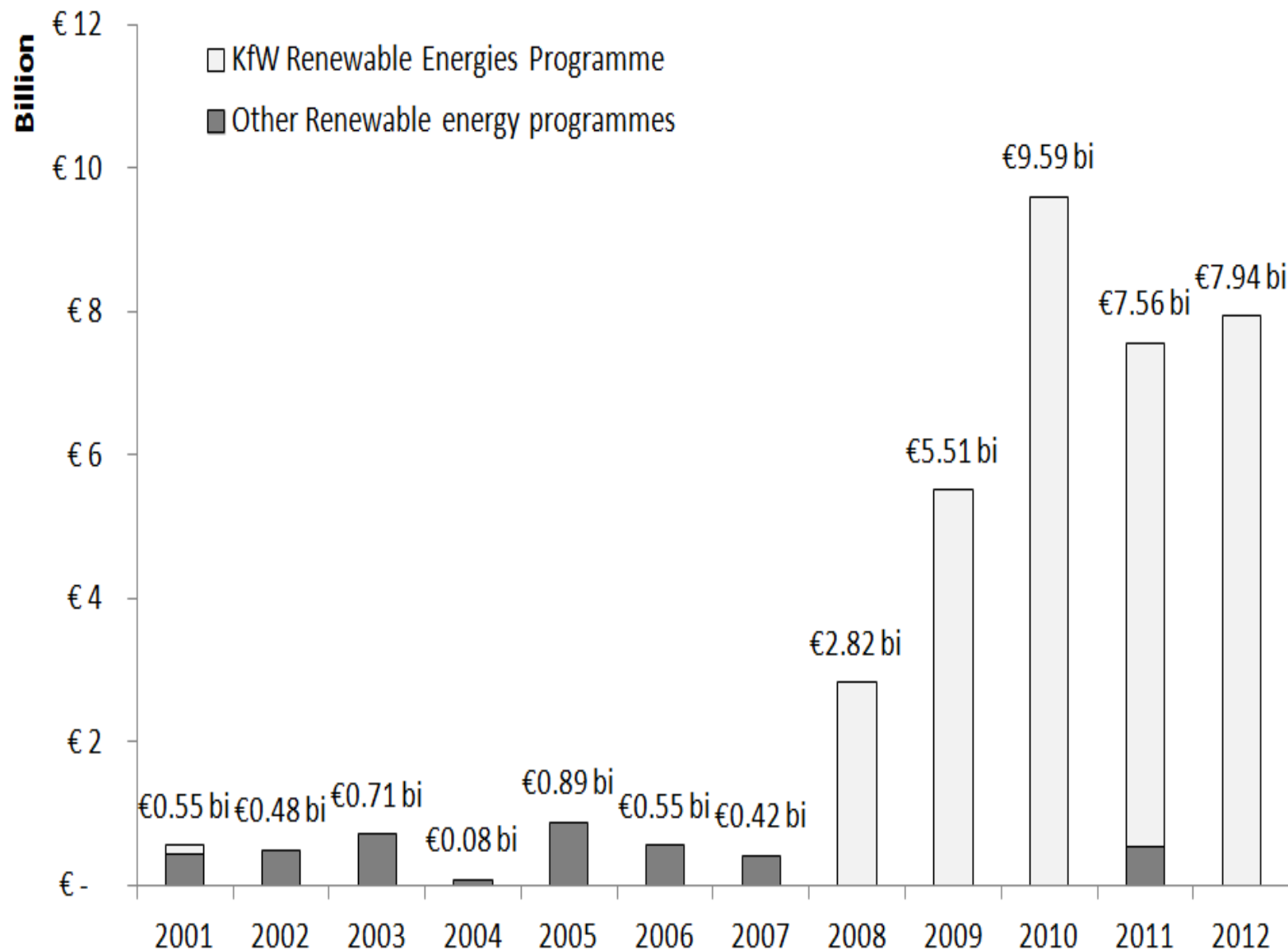


# Green tech public & private investments (2011)



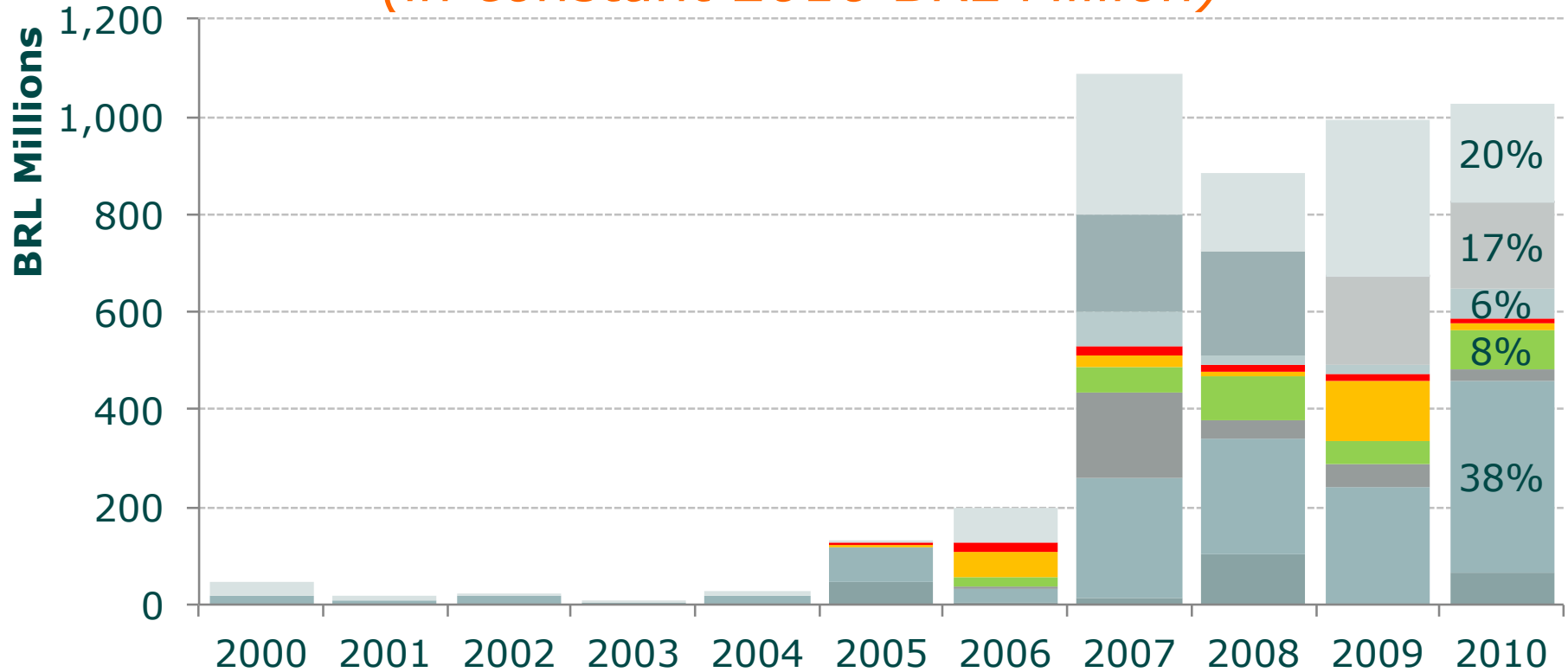
Source: Climate Finance Initiative

# KfW funding for industrial environmental and climate protection projects in Germany 2001-2012



# BNDES' disbursements for innovation by programme

(in constant 2010 BRL Million)



- BNDESPAR
- PROSOFT Enterprise
- Productive Innovation
- FUNTEC
- PROFARMA Innovation
- PROSOFT Commercialization
- Technological Innovation
- PROSOFT Trade
- Innovative Capital
- BNDES Card
- Variable Income Funds

# China Development Bank

China's 2020 goal of producing 20% energy from renewables.

5 year plan includes \$1.7 trillion dollars in 5 new (green) sectors.

CDB founded **CDB Capital**, a 'public equity' fund with **\$US 5.76 bn to finance innovative start-ups** from the energy and telecom sectors.

*Yingli Green Energy* received **\$1.7 bn** from 2008 through 2012 with a **\$5.3 bn line of credit** opened for it. **LDK Solar (\$9.1 bn)**; **Sinovel Wind (\$6.5 bn)**; **Suntech Power (\$7.6 bn)**; and Trina Solar (**\$4.6 bn**),

Patient committed finance has “allowed Chinese companies to further ramp up production and drive down costs” of renewable energy technologies

# Evolving role of state investment banks

1. Countercyclical lending to offset the 'credit crunch' during economic recessions → **countercyclical role**
2. funding for long-term projects, industrialization and capital development of the economy → **capital development role**
3. targeting investments in high-risk R&D, innovative start ups, and lengthy innovations, areas that private capital has proved to be too short-termist and risk-averse to venture into → **venture capitalist role**
4. Promotion of investments that help address complex societal problems such as climate change → **mission oriented role**



## 4. *Inclusive* growth

ECLAC H2030

*“Demand will not grow if inequality is not reduced.”*

## INCOME INEQUALITY IN THE UNITED STATES, 1910-2010



Piketty, 2013

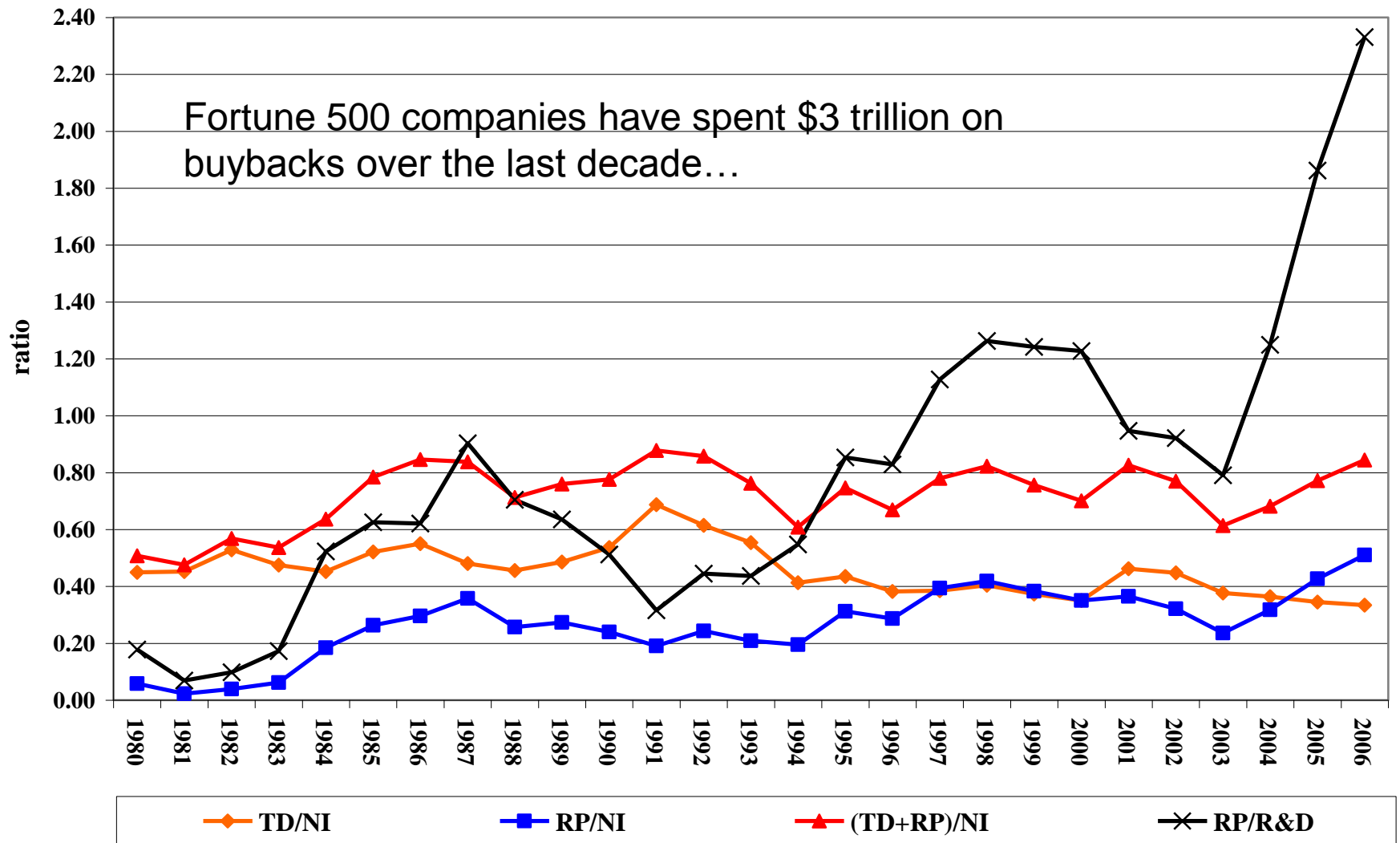
# Warren Buffet

“I have worked with investors for 60 years and I have yet to see anyone — not even when capital gains rates were 39.9 percent in 1976-77 — shy away from a sensible investment because of the tax rate on the potential gain. People invest to make money, and potential taxes have never scared them off. And to those who argue that higher rates hurt job creation, I would note that a net of nearly 40 million jobs were added between 1980 and 2000. You know what’s happened since then: lower tax rates and far lower job creation.”

And....why did capital gains fall in 1976?

# Repurchases, dividends, net income, R&D 1980-2006

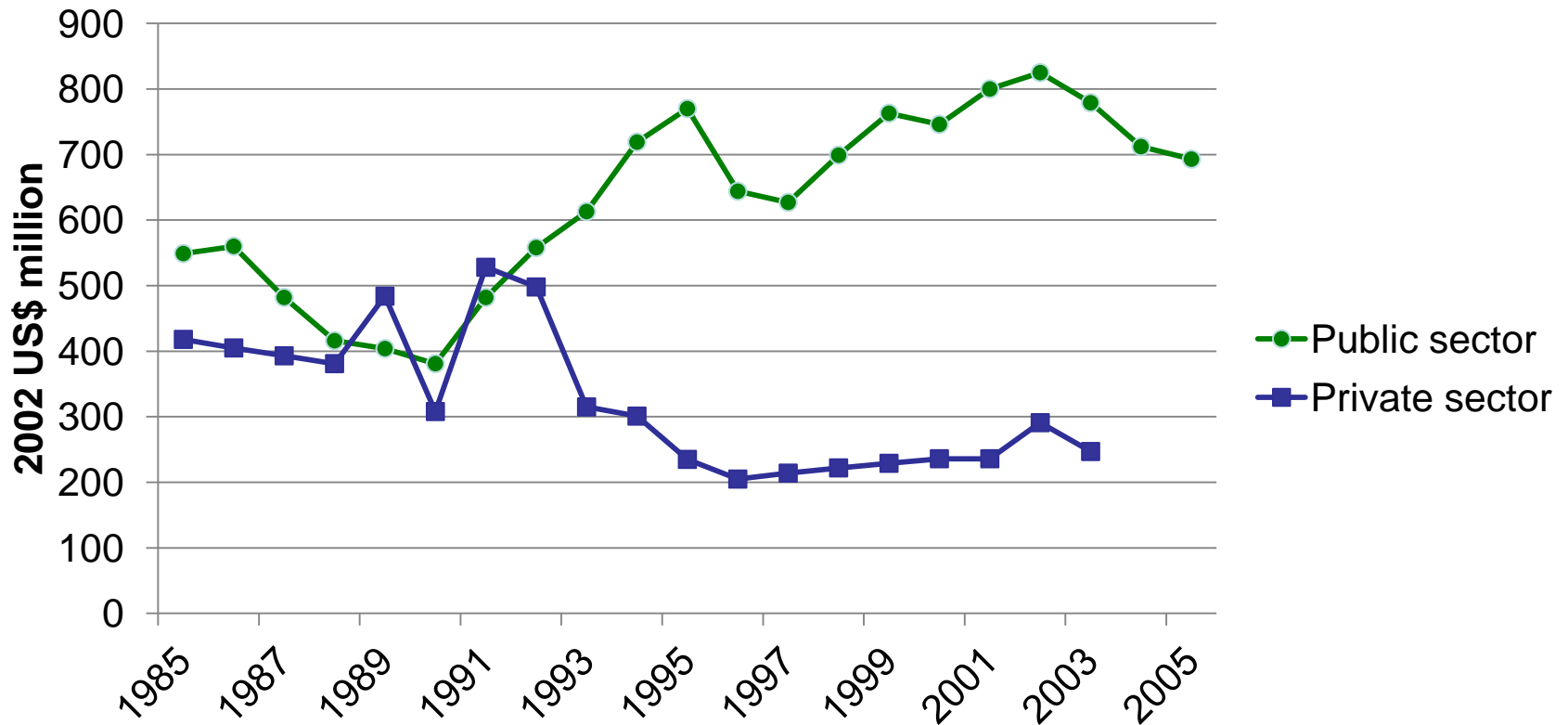
(293 corporations in the S&P500 in October 2007 in operation in 1980)



Source: Lazonick & Mazzucato, 2013; Lazonick, 2014

# Where are energy's Xerox Parcs & Bell Labs?

**Renewable energy R&D investments in the U.S.**  
*in million 2002 dollars*



Source: Nemet and Kammen (2007), "U.S. energy research and development: Declining investment, increasing need, and the feasibility of expansion", *Energy Policy*, 35 (1), 746-755



# Public-private 'deal' on opportunity creation

- recognition of *collective* wealth creation process
- reinvestment of profits (limiting buybacks/hoarding)
- public golden share of IPR
- prices reflecting tax payer input (Bayh Dole allows it)
- negotiating what is produced (e.g. generics)
- income contingent loans
- strategic use of public equity (e.g. Tesla vs Solyndra)
- % payback into an 'innovation fund'

# think again!



private  
sector

vs.



public  
sector

# References

*The Entrepreneurial State: debunking private vs. public sector myths* (2013) Anthem Press: London, UK, M. Mazzucato.

*From Market Fixing to Market-Creating: A new framework for innovation policy* (2016) *Industry and Innovation*, Vol. 23 (2), M. Mazzucato.

*The risk-reward nexus in the innovation-inequality relationship: Who takes the risks? Who gets the rewards?* (2013), *Industrial and Corporate Change*, 22:4:1093-1128, W. Lazonick & M. Mazzucato.

*Beyond market failures: "The market creating and shaping roles of state investment banks* (2014), SPRU Working Paper Series, wp 21, M. Mazzucato & C. Penna

*Accounting for productive investment and value creation* (2014), *Industrial and Corporate Change*, M. Mazzucato & A. Shipman

*Innovation policy: smart and inclusive?* (2015), in *New Perspectives on Industrial Policy for a Modern Britain*. D. Bailey, K. Cowling and P.R. Tomlinson (eds.) Oxford University Press: Oxford, M. Mazzucato.

*Innovation as Growth Policy* (2015), in *The Triple Challenge: Europe in a New Age*. J. Fagerberg, S. Laestadius, and B. Martin (eds.) Oxford University Press: Oxford, M. Mazzucato & C. Perez.