



Rethinking Capitalism: sharing both risks and rewards

Mariana Mazzucato

Professor in the Economics of Innovation and Public Value, UCL
Director, **Institute for Innovation and Public Purpose**

<https://www.ucl.ac.uk/bartlett/public-purpose/>

www.marianamazzucato.com @MazzucatoM



Don't mess with Mariana, the world's scariest economist

Admired by Bill Gates, consulted by governments, Mariana Mazzucato is the expert others argue with at their peril. Helen Rubelowa meets her

Mariana Mazzucato is a name to strike fear in the heart of anyone slightly shaky in their grasp of the figures. You are nervous as usual, then what? In economics professor comes on to a panel debate and usually argues to the death with Evan Davis and any other hapless economist.

Britain does not build women like Mazzucato. She looks like Sandra Bernhard, with a fringe of Katharine Hepburn. Her American-accented voice is deep and loud, her speech rapid-fire. But her pugilistic streak probably comes from her Italian heritage. As soon as Mazzucato begins to rip pinstripe from pinstripe, social media lights up. It's a prize fight. In the red corner Mazzucato, scourge of austerity; in the blue corner esteemed policy wonks spluttering about tax cuts. "Mariana is killing again!" we say bloodthirstily. "Get popcorn!"

She is, in economics terms, a superstar. Her 2013 book, *The Entrepreneurial State*, heads the bedside tables of leaders around the world. Now aged 49, she is garlanded in prizes. Her thinking is an exciting new hybrid of left and right. In a nutshell, she believes the state should

become more like a venture capitalist, buying shares in the companies of the future. Think, as she says in her TED talk, of how the government-funded space race jump-started so much of what we know of today's technology. Or how the iPhone is but a baby-born of the innovations of multiple government-funded labs (the internet, GPS, touchscreens, Siri, microchips, etc). Every significant technological change of recent years, from medical breakthroughs to Google, she argues, traces its roots back to the state. Yet we still idolise the lone entrepreneurs and want the state to "get out of the way".

To spend time with Mazzucato is to be made to think differently. When I meet her she's in a friendly mood, but still I feel like she is slapping me awake rather forcefully. The *Financial Times* reported this of her smackdown of an anti-state business leaders' at an economic conference: "It was electrifying... if you appreciate intellectual

sparring, she has advised Jeremy Corbyn and Nicola Sturgeon, but also unions for a "regularly with both sides of government". She has a one day of time for Greg Clark, the business secretary, after he said we work together. "Bill Gates brought me out to Seattle to speak to him,"

Bill Gates brought me out to Seattle to speak to him



Mazzucato says to me in her London office. "Because he had my book and he was very interested in the implications of it for the green revolution. He and Mark Zuckerberg and others are trying to finance some green investments. Gates said: 'It's absolutely true the public led, we followed.' He completely got it — that it's not about public vs private, but when the public takes the lead and is ambitious, not just facilitating or being meek, it can push the frontier."

We meet at University College London (UCL). She was lured here from a prestigious professorship at the University of Sussex by the offer of setting up her own institute. She is now the founder and director of the UCL Institute for Innovation and Public Purpose, which will soon have a permanent home above the bright lights of Tottenham Court Road.

Transcribed, her speech stretches to pages before she pauses, leaping from her frustration that unions never push for technological change and "how defensive they are" to her vision for the BBC, the British Library, the Open University and the Government Digital Service (four of her favourite institutions) to work together "in really cool ways, revolutionising communities". She ends on why there are so few women in economics. "Arrogance" is at the root of it.

If you're an innovator you will make mistakes

Trusted Service Awards
festo

THE TIMES CURRENCY SERVICES

Sending money to family abroad?

Trust us to take care of your transfer.

- ✓ No transfer fees
- ✓ Lock in a rate for the future

0207 294 7971
timescurrencyservices.co.uk

International money transfer from The Times and The Sunday Times

WORLD FIRST

*For private clients

She is by birth Italian and spent her first five years in Rome. Her father is a nuclear fusion scientist (he's one of the best fusion guys — of course I say that, he's my dad!) and was headhunted by Princeton University in the US. She spent her girlhood running about the Princeton lawns barefoot, being "naughty"; the fictional character she most identifies with is the lateral thinker Pippi Longstocking. Her intellectual feistiness may come from spending her formative years in an Ivy League setting — her mother, also an academic, taught Italian to John Nash, the Nobel prize-winning mathematician. I tell her she has a fan base who love to see her duelling on TV. "Do I?" she says in alarm.

"Then, 'I think maybe I became I really care. And I think because I'm for the story. And I see so much timeliness in people when they're told these stories that I would argue are wrong economically. One I was on *Newswright* and I said to the guy from the Adam Smith Institute, 'Do you realise that Adam Smith would not agree with you?' Because what Adam Smith meant by free market was free

Mariana Mazzucato and, left, Bill Gates

from rent, not free from the state!" I enjoy dismantling the assumptions upon which arguments are made. "She does not do TV as much as she would like she sometimes prefers to put her children to bed. She has four, ranging in age from 11 to 17. "It wasn't on purpose," she says. "You have to be crazy to have four children. So we had two, a perfectly good family, and then the third child that was unexpected was twins. When we found out we almost had a heart attack, but actually it's been fantastic because it means it's impossible to take yourself too seriously. And one of the things that happens in academia is you definitely take yourself too seriously."

Her Italian husband, Carlo Cresto-Dina, is a film producer in Italy (goodbye, leaving her among the cardboard boxes read at Cannes in 2014). He is away for two or three days of the week, "the secret to a healthy marriage — no, I'm kidding". She feels fairly Italian and speaks only Italian to their children at their London home, but Mazzucato wasn't about to submit herself to the Italian working environment, where advancement is based on who "you're kissing up to".

from rent, not free from the state!" I enjoy dismantling the assumptions upon which arguments are made. "She does not do TV as much as she would like she sometimes prefers to put her children to bed. She has four, ranging in age from 11 to 17. "It wasn't on purpose," she says. "You have to be crazy to have four children. So we had two, a perfectly good family, and then the third child that was unexpected was twins. When we found out we almost had a heart attack, but actually it's been fantastic because it means it's impossible to take yourself too seriously. And one of the things that happens in academia is you definitely take yourself too seriously."

Her Italian husband, Carlo Cresto-Dina, is a film producer in Italy (goodbye, leaving her among the cardboard boxes read at Cannes in 2014). He is away for two or three days of the week, "the secret to a healthy marriage — no, I'm kidding". She feels fairly Italian and speaks only Italian to their children at their London home, but Mazzucato wasn't about to submit herself to the Italian working environment, where advancement is based on who "you're kissing up to".

from rent, not free from the state!" I enjoy dismantling the assumptions upon which arguments are made. "She does not do TV as much as she would like she sometimes prefers to put her children to bed. She has four, ranging in age from 11 to 17. "It wasn't on purpose," she says. "You have to be crazy to have four children. So we had two, a perfectly good family, and then the third child that was unexpected was twins. When we found out we almost had a heart attack, but actually it's been fantastic because it means it's impossible to take yourself too seriously. And one of the things that happens in academia is you definitely take yourself too seriously."

In fact, the often uses Italy in particular and Europe in general as examples of economic stagnation compared with America. When she travels the world, working with the European Union and China alike, she says the big question by policymakers is "Where are the Europeans? Googley?" They look to the growth of Silicon Valley and believe that it is the product of America's famously anti-big government approach. That we in Europe are smothered by the state government was the revolutionary. He book goes into great detail, listing all the ways in which American counterparts to fund entrepreneurs and so created the Silicon Valley miracle, right down to a \$200,000 loan to Apple before it went public. Her critics mock this line of thought, saying things such as "Steve Jobs even drove to work on government-funded roads". But few survive if they do so to her face. She finds even more galling the lengths to which some big companies go to avoid taxes.

"My hero is Warren Buffett, who is not a communist. He often says, 'Why do you keep reducing my tax?'" She could not disagree more. Her government is not the one that the venture capitalists, not just investing, but retaining shares in companies, she says they could fire up excitement in the two industries she predicts are ripe for innovation, the "green" of energy and elderly. She says that Gates told her, "I don't see the public leading today in green as it did in IT".

The state should be investing in green innovation, even at the risk of failing. They should adopt Jobs's mantra to business leaders to "stay foolish" and keep on taking risks. But what, I say, "stay foolish" is hardly an election slogan, is it? Aren't the public rightly resistant to wasting taxpayers' money on companies that fail?

"This issue of risks is one of the key things I want the institute to look at because I'm really worried when the public sector messes up. But if you're an innovator you will make mistakes." Mazzucato is a rare breed in economics: a woman at the top of the tree. While the UK has had two female prime ministers, we have never had a female chancellor. Why is it such a male-dominated discipline?

"She remembers as a young woman attending economics job fairs held in hotels where she was interviewed by countless men. 'Literally on the bed... it's kind of a funny scene.'"

"There are more women in other sciences and part of it is there's a lot of arrogance in economics," she says. "Whether it was the economists talking to the policymakers or to the average Joe on the street it's like, 'This is right and you don't understand, so you're just going to have to trust us.' This is going to sound a bit simplistic, but perhaps it's a bit more on the alpha male character spectrum. Maybe that's something, but also I'm sure there were certain types of prejudices, because it also is a question of role models — we know they matter."

They do and she does. I say goodbye, leaving her among the cardboard boxes ready to unpack for her institute, where she says, "I will fall to convey a fraction of the ideas she rattled out in my hour. If you were some kind of intellectual venture capitalist, or even someone betting on the outcome of a TV showdown, you would feel like investing big in Mazzucato."

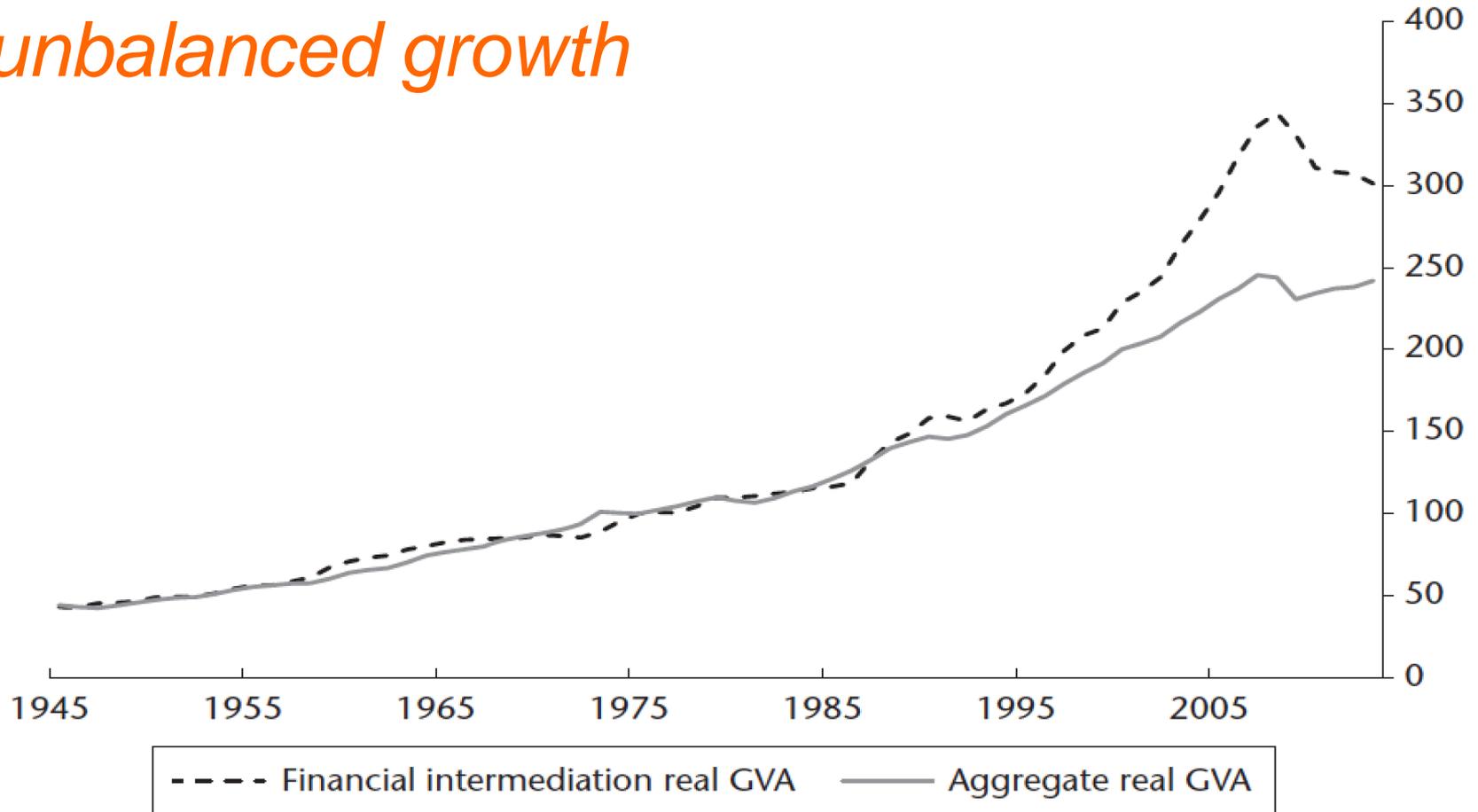
The ris By Hatti

With every chas a wardrobe, one of one now. I've or too softlines thin coats, bare beref, fancying Stevee in Rome. However, after freezing in my socks, I was for the up. It's ac It's all very v jumper," but if you need some plain navy cre answer, I can knit, the cold- going-out top and a bit of li just an outfit. Alessandro the way on fl version (\$375 features rail roaring being sequins. And number has a each arm and "Love" in the expensive at West End res and that levee come cheap. sold out (m

On a tight Answerp has featuring a s the words "I essent-ai Lapper's sli twinkling re (£225, net-a-mooz selection ca has several under £20 they are miss the j so my fl recommen is Mist Yeh knit with s bell sleeve misadventu It's not qui flashy as a bed at less might save from frost

Financialisation has led to *unbalanced growth*

Real GVA, 1975 = 100



And the real economy is sick too.

THE BIG IDEA PROFITS WITHOUT PROSPERITY

THE TOP 10 STOCK REPURCHASERS

2003-2012

Fortune 500 companies have spent **\$2.3 trillion** on **buybacks** from 2003-2012 (54% of their earnings), with another 37% on dividends.

(Lazonick, HBR 2014)

At most of the leading U.S. companies below, distributions to shareholders were well in excess of net income. These distributions came at great cost to innovation, employment, and—in cases such as oil refining and pharmaceuticals—customers who had to pay higher prices for products.

#1 EXXON MOBIL	#2 MICROSOFT	#3 IBM	#4 CISCO SYSTEMS	#5 PROCTER & GAMBLE
NET INCOME \$347B	NET INCOME \$148B	NET INCOME \$117B	NET INCOME \$64B	NET INCOME \$93B
REPURCHASES \$207B	REPURCHASES \$114B	REPURCHASES \$107B	REPURCHASES \$75B	REPURCHASES \$66B
DIVIDENDS \$80B	DIVIDENDS \$71B	DIVIDENDS \$23B	DIVIDENDS \$2B	DIVIDENDS \$42B
TOTAL \$287B 83% of NI	TOTAL \$185B 125% of NI	TOTAL \$130B 111% of NI	TOTAL \$77B 121% of NI	TOTAL \$108B 116% of NI
CEO PAY \$289M	CEO PAY \$12M	CEO PAY \$247M	CEO PAY \$297M	CEO PAY \$90M
% STOCK BASED 73%	% STOCK BASED 0%	% STOCK BASED 64%	% STOCK BASED 92%	% STOCK BASED 16%
\$211M	\$0*	\$158M	\$273M	\$14M
#6 HEWLETT-PACKARD	#7 WALMART	#8 INTEL	#9 PFIZER	#10 GENERAL ELECTRIC
NET INCOME \$41B	NET INCOME \$134B	NET INCOME \$79B	NET INCOME \$84B	NET INCOME \$165B
REPURCHASES \$64B	REPURCHASES \$62B	REPURCHASES \$60B	REPURCHASES \$59B	REPURCHASES \$45B
DIVIDENDS \$9B	DIVIDENDS \$35B	DIVIDENDS \$27B	DIVIDENDS \$63B	DIVIDENDS \$87B
TOTAL \$73B 177% of NI	TOTAL \$97B 73% of NI	TOTAL \$87B 109% of NI	TOTAL \$122B 146% of NI	TOTAL \$132B 81% of NI
CEO PAY \$210M	CEO PAY \$189M	CEO PAY \$127M	CEO PAY \$91M	CEO PAY \$126M
% STOCK BASED 37%	% STOCK BASED 62%	% STOCK BASED 62%	% STOCK BASED 25%	% STOCK BASED 25%
\$78M	\$117M	\$79M	\$23M	\$32M

Climate getting sicker & can't wait much longer

International Energy Agency estimates that an additional USD 1.1 trillion in low-carbon investments is needed every year on average until 2050, in the energy sector alone, to keep global temperature rise below 2 degrees Celsius.

This implies current investment IN GREEN ENERGY is only 20% of what it should be!

Yet...exciting context to *rethink*

- Rebalancing economies
- Directed growth
 - **Smart** growth (better innovation)
 - **Sustainable** growth (more green)
 - **Inclusive** growth (less inequality)
- Sustainable Development Goals
- Industrial policies to rebalance economy



Economics and policy
for Sustainable and
Inclusive Growth

RETHINKING CAPITALISM

Edited by
MICHAEL JACOBS and
MARIANA MAZZUCATO

WILEY Blackwell

- 1 Rethinking capitalism: an introduction**
Michael Jacobs and Mariana Mazzucato
- 2 The failure of austerity: rethinking fiscal policy**
Stephanie Kelton
- 3 The theory of money and macroeconomic policy**
Randall Wray and Yeva Nersisyan
- 4 The costs of short-termism**
Andrew Haldane
- 5 Innovative enterprise and the theory of the firm**
William Lazonick
- 6 Innovation, the state and patient capital**
Mariana Mazzucato
- 7 Investment-led growth: a solution to the EU crisis**
Stephany Griffith-Jones and Giovanni Cozzi
- 8 Inequality and economic growth**
Joseph Stiglitz
- 9 Paradoxes of privatisation & public-service outsourcing**
Colin Crouch
- 10 Innovation and the economics of climate change**
Dimitri Zenghelis
- 11 Capitalism, technology and a green golden age**
Carlota Perez

But...very boring view of State

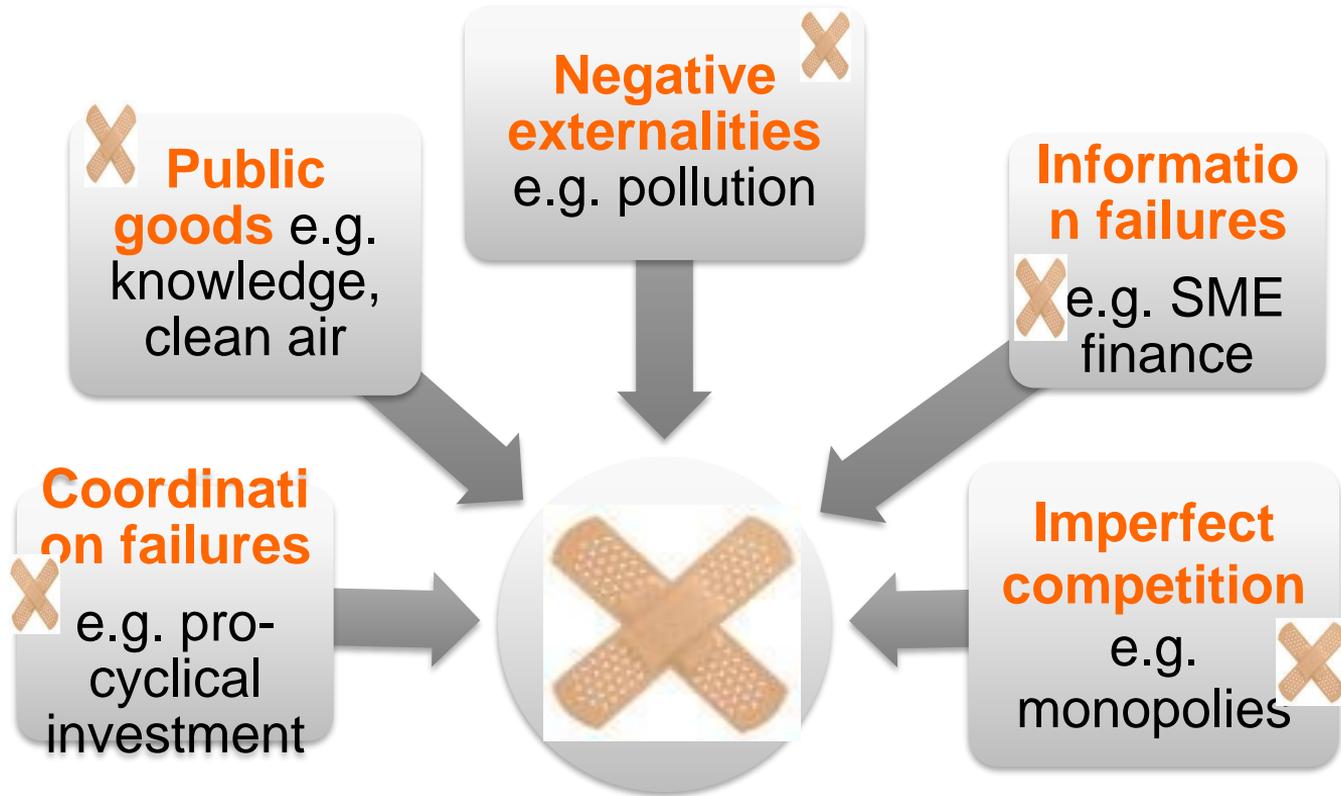
Set rules of the game and 'level' the playing field

De-risk, enable, incentivise, 'facilitate' private sector

Solve market and system 'failures'

or....something more interesting?

Fixing failures

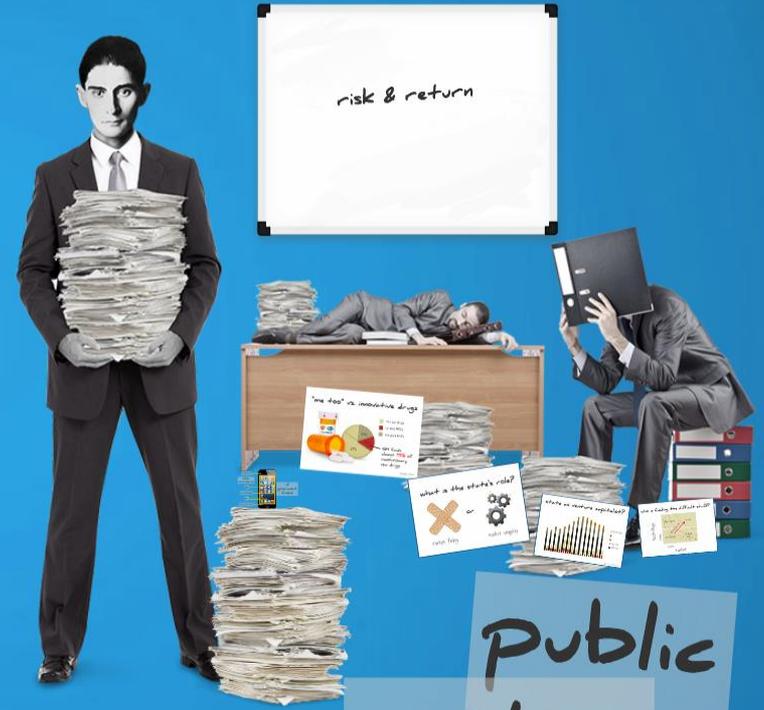


the assumption



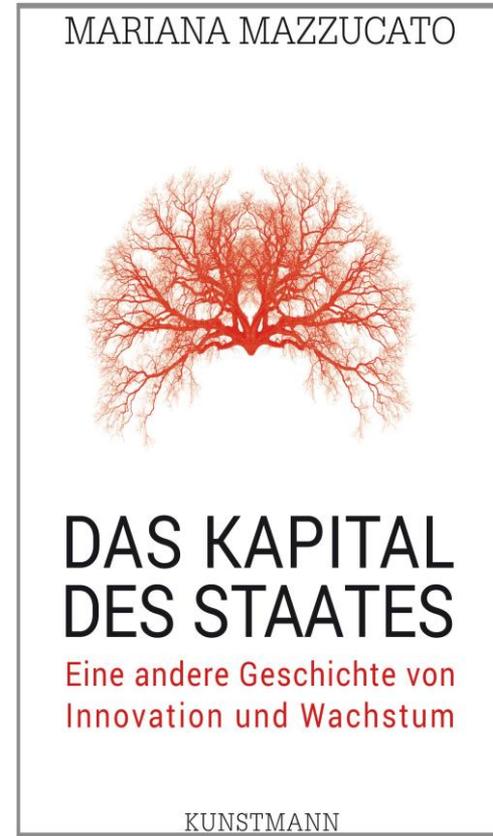
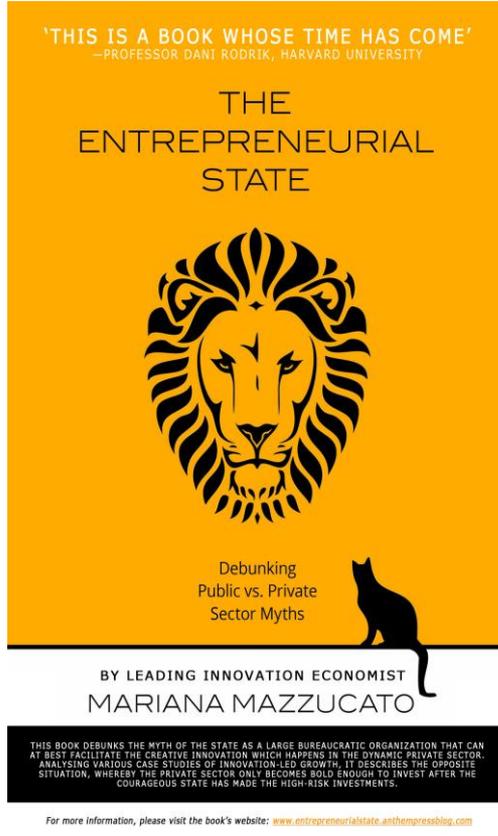
private sector

where are the european goals?
vs.



public sector

investor of first resort



markets are built.

markets are designed.

markets are outcomes..

boring theory of state leads to markets with:

- less innovation
- more rent-seeking
- more hoarding & financialisation
- more inequality

ROAR

ROUTES & DIRECTIONS. How to use policy to set direction of change and enable bottom up experimentation?

ORGANIZATIONS. How to build explorative public sector organizations that learn-by-doing, and welcome trial and error?

ASSESSMENT. How to evaluate public sector market creating investments (pushing market frontiers beyond 'crowding in')?

RISKS AND REWARDS. How to form new deals between the public and private sectors, socializing both risks and rewards?

ROUTES & DIRECTIONS. How to use policy to set direction of change and enable bottom up experimentation?

ORGANIZATIONS. How to build explorative public sector organizations that learn and welcome trial and error?

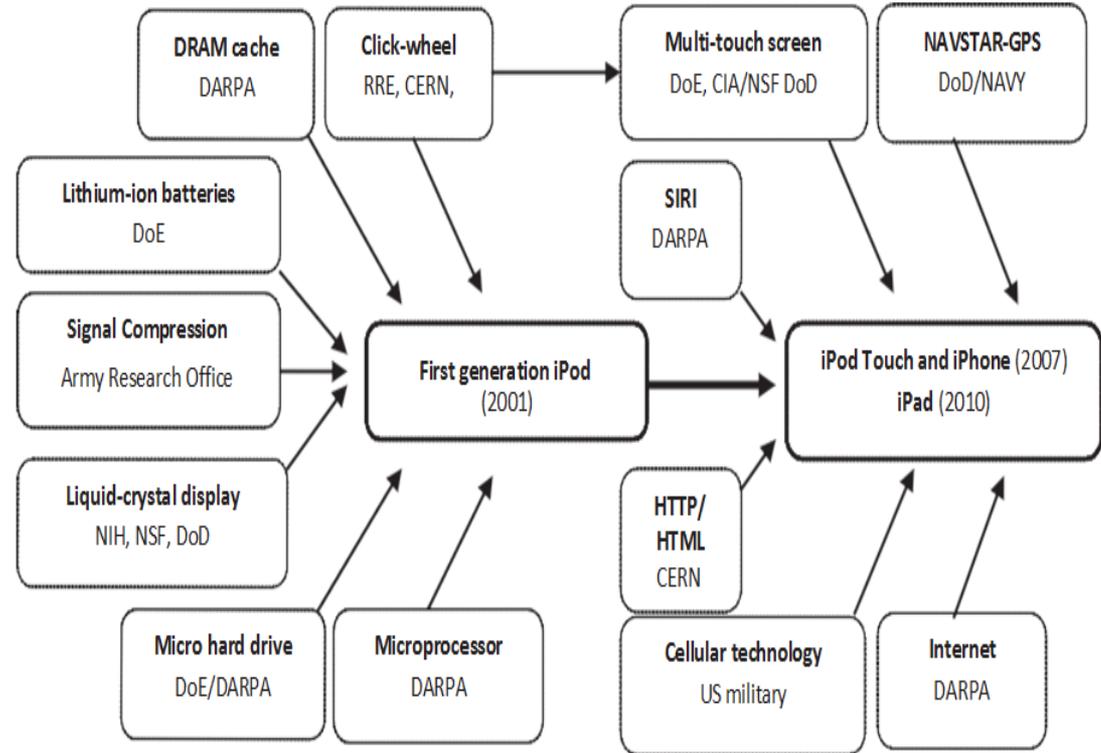
ASSESSMENT. How to evaluate public sector market creating investments (pushing market frontiers beyond 'crowding in')?

RISKS AND REWARDS. How to form new deals between the public and private sectors, socializing both risks and rewards?

market failure policies don't explain GPTs

- 'mass production' system
- aviation technologies
- space technologies
- IT
- internet
- nuclear power
- nanotechnology
- green technology

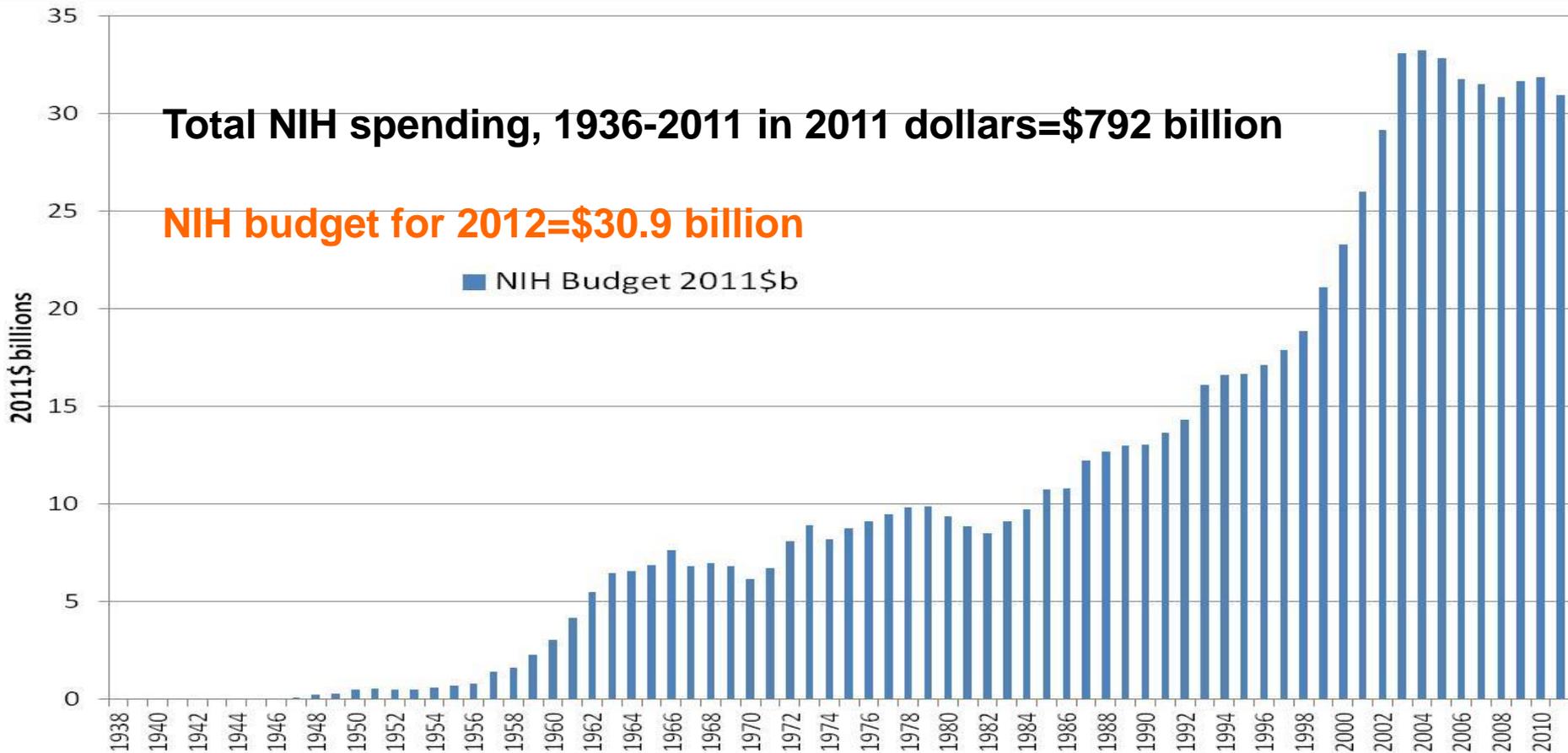
what makes the iPhone so 'smart'?



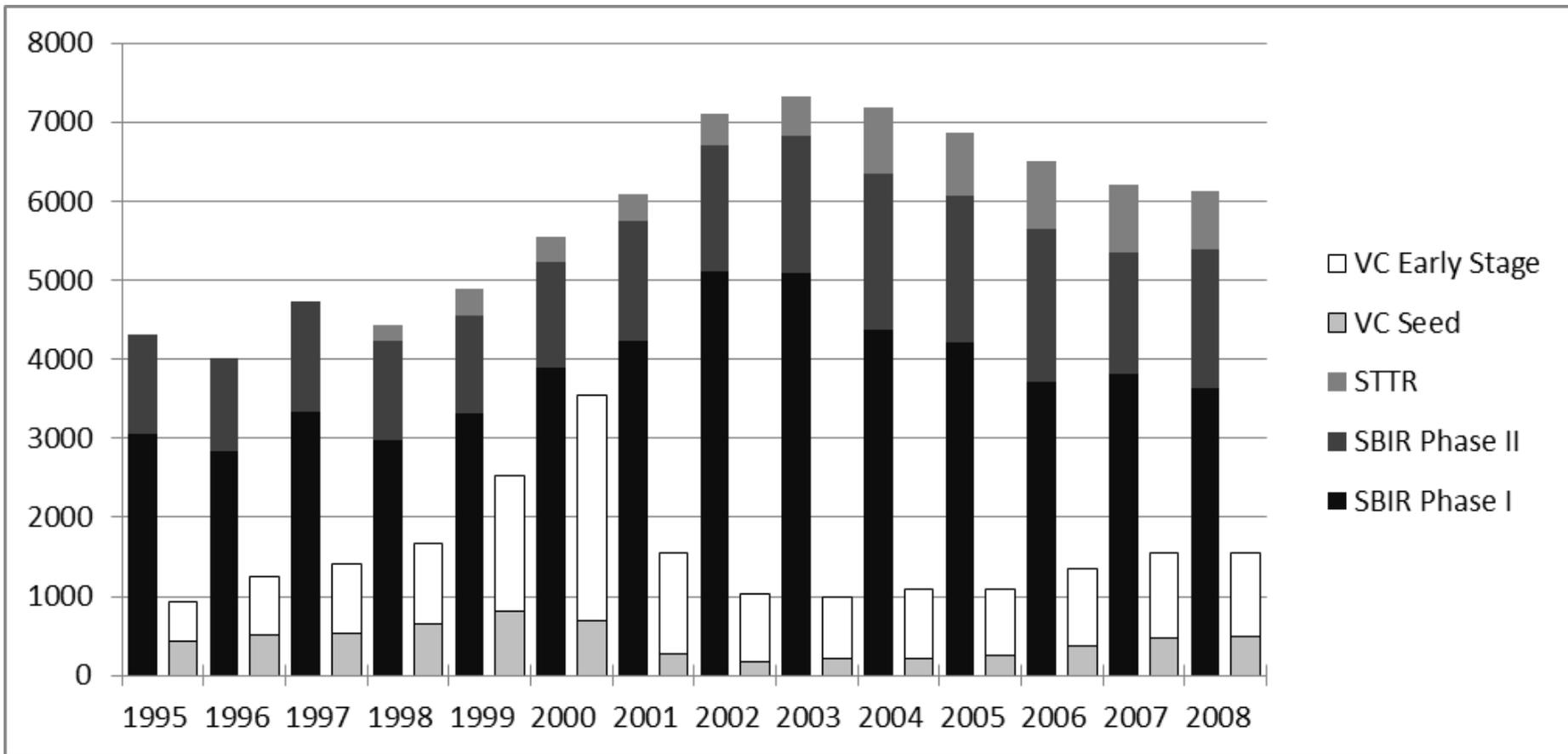
National Institutes of Health budgets 1936-2011

Total NIH spending, 1936-2011 in 2011 dollars=\$792 billion

NIH budget for 2012=\$30.9 billion



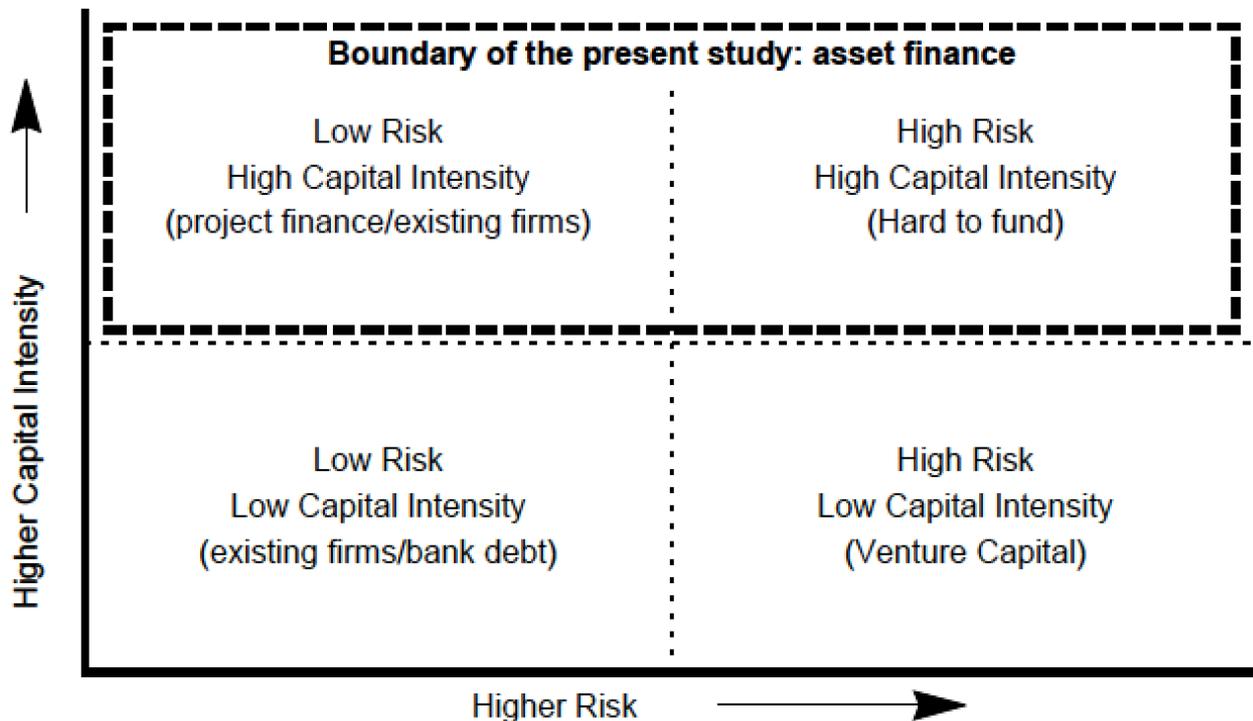
Private and Public (SBIR) Venture Capital



Source: Block and Keller, 2012

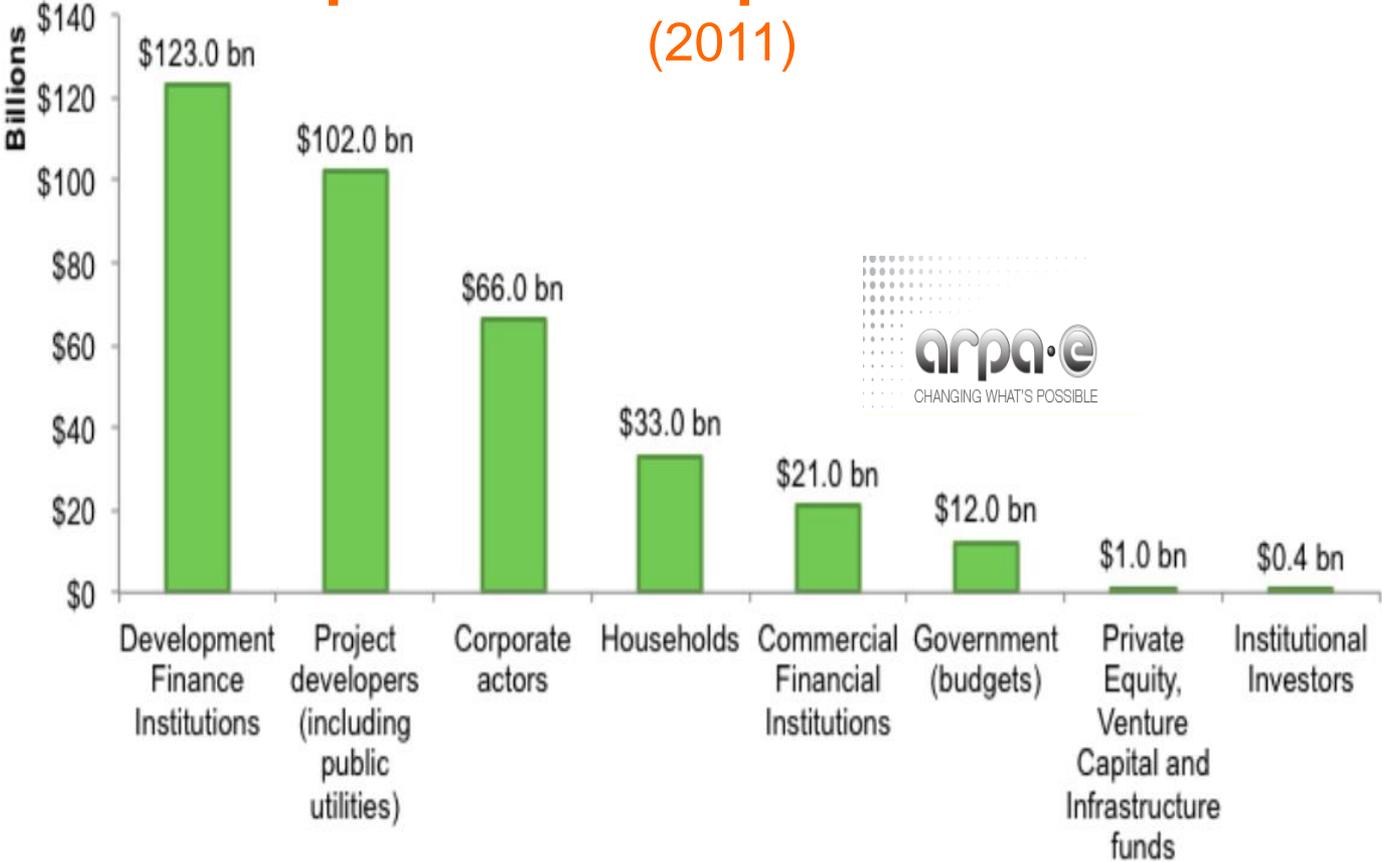
Green tech: state leads government follows

Figure 4: Risk-capital intensity classification of RE finance



green tech public & private investments

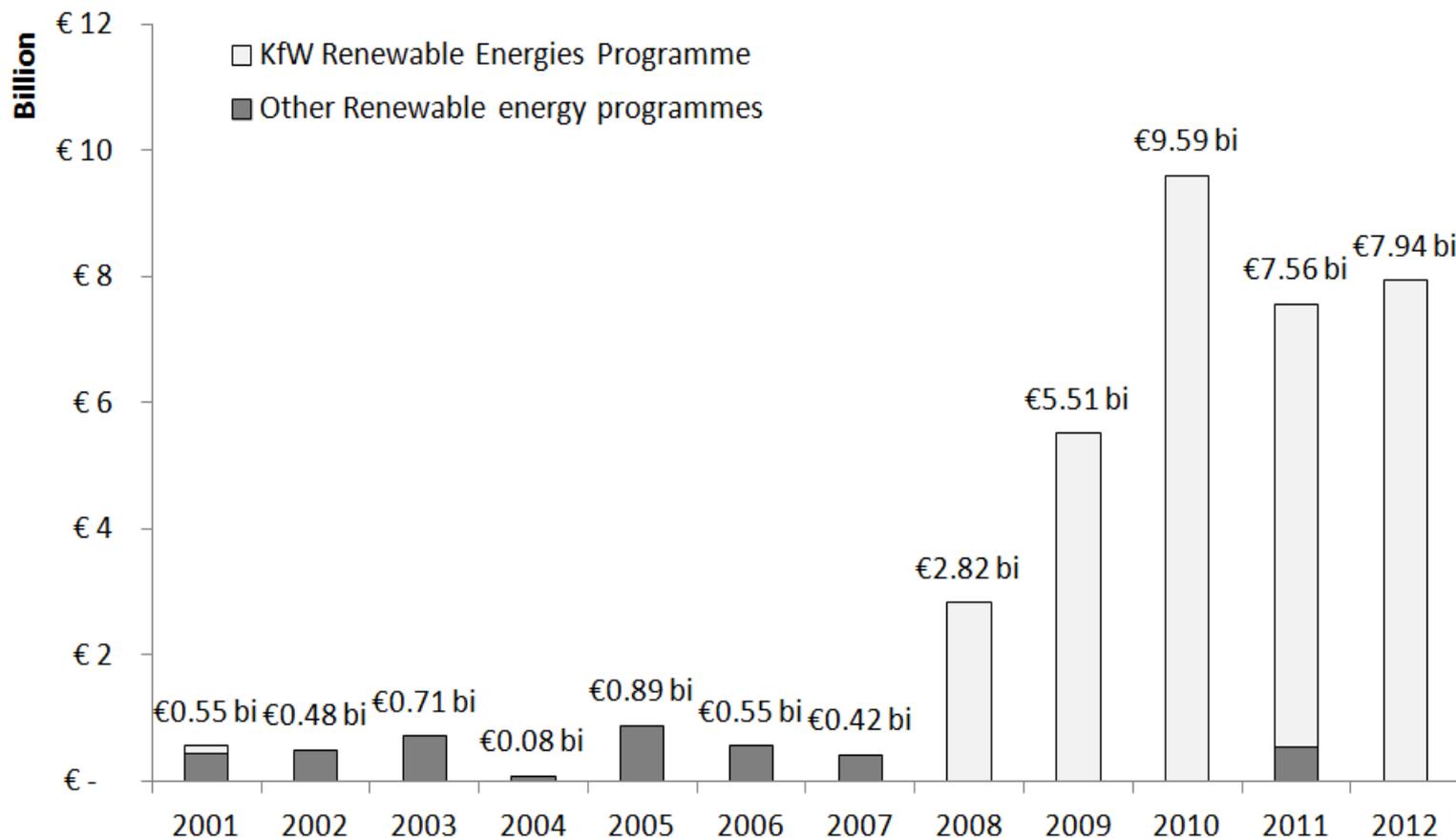
(2011)



Source: 2011 Climate Finance Initiative

KfW funding for industrial environmental and climate protection projects in Germany

2001-2012



China Development Bank

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)**,

ROUTES & DIRECTIONS. How to use policy as to set direction of change and enable bottom up experimentation?

ORGANIZATIONS. How to build explorative public sector organizations that learn and welcome trial and error?

ASSESSMENT. How to evaluate public sector market creating investments (pushing market frontiers beyond 'crowding in')?

RISKS AND REWARDS. How to form new deals between the public and private sectors, socializing both risks and rewards?

creating missions not fixing markets

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).*”

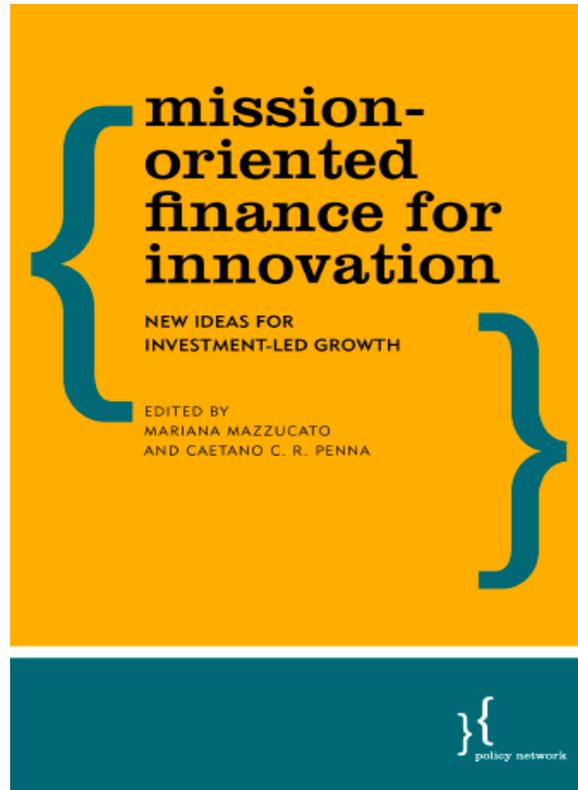
“The **ARPA-E mission** is to *catalyze* the development of transformational, high-impact energy technologies.”

“**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.”

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





UCL Institute for
Innovation and
Public Purpose



UCL

ROUTES & DIRECTIONS. How to use policy to set direction of change and enable bottom up experimentation?

ORGANIZATIONS. How to build explorative public sector organizations that learn-by-doing, and welcome trial and error?

ASSESSMENT. How to evaluate public sector market creating investments (pushing market frontiers beyond 'crowding in')?

RISKS AND **R**EWARDS. How to form new deals between the public and private sectors, socializing both risks and rewards.

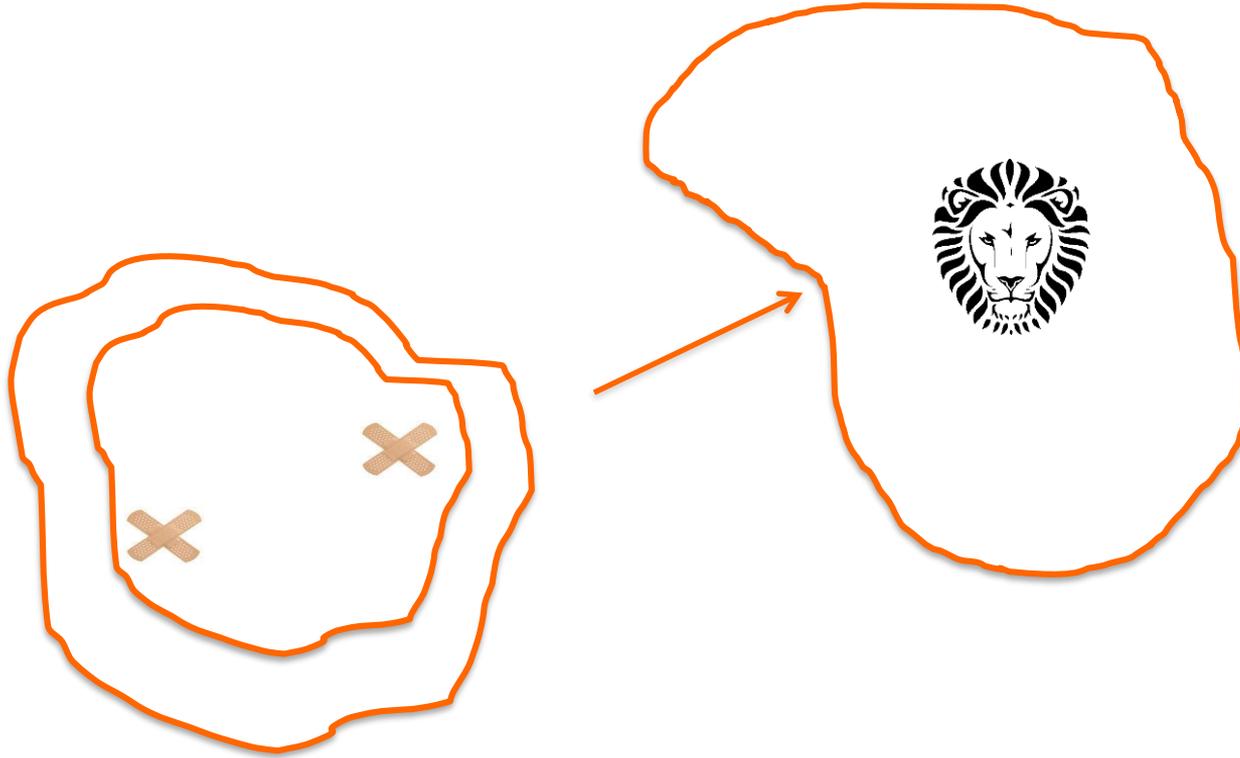
creating animal spirits



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 private letter to **Franklin D. Roosevelt**, 1938

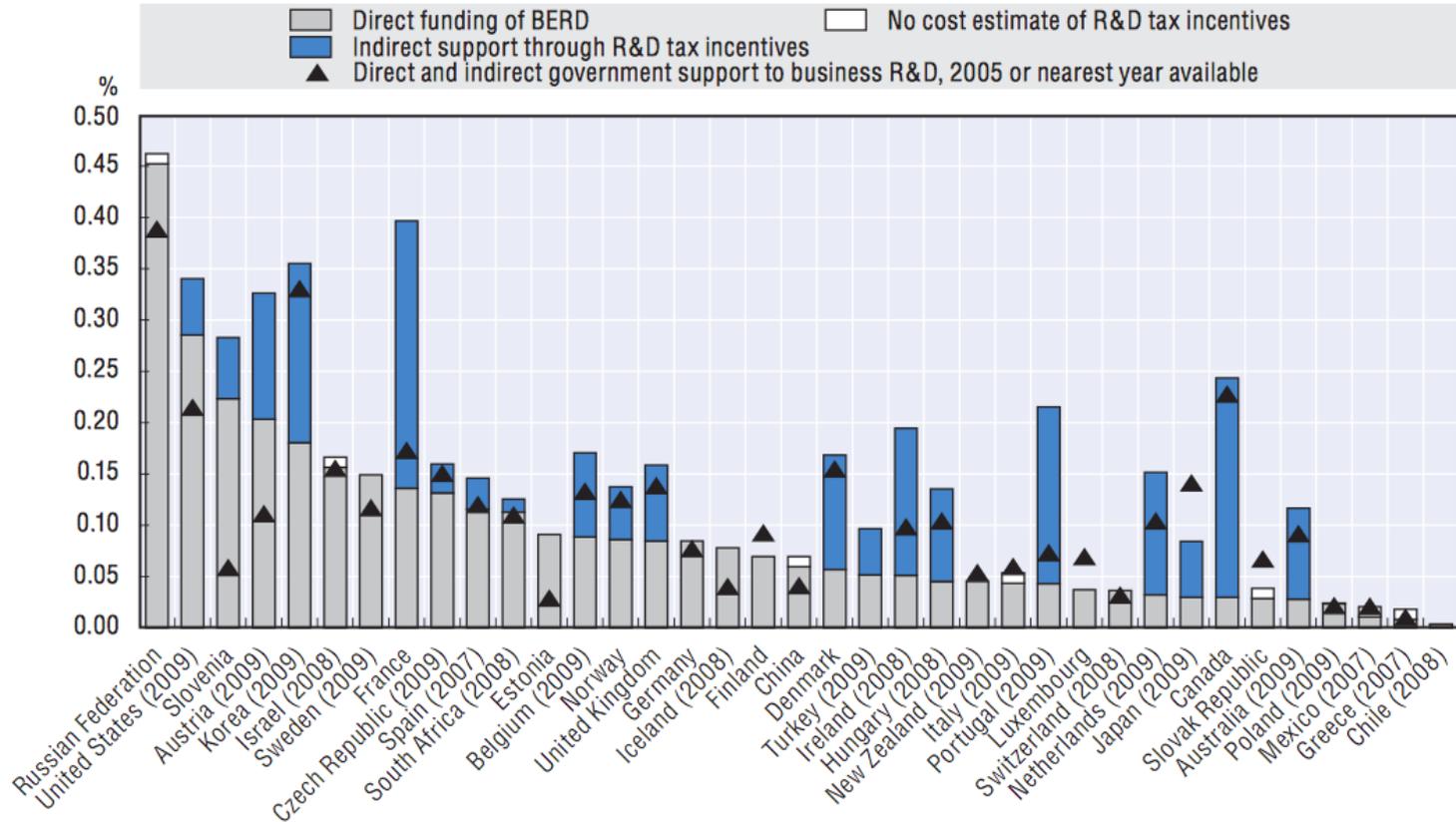
Measuring the *dynamising in process*



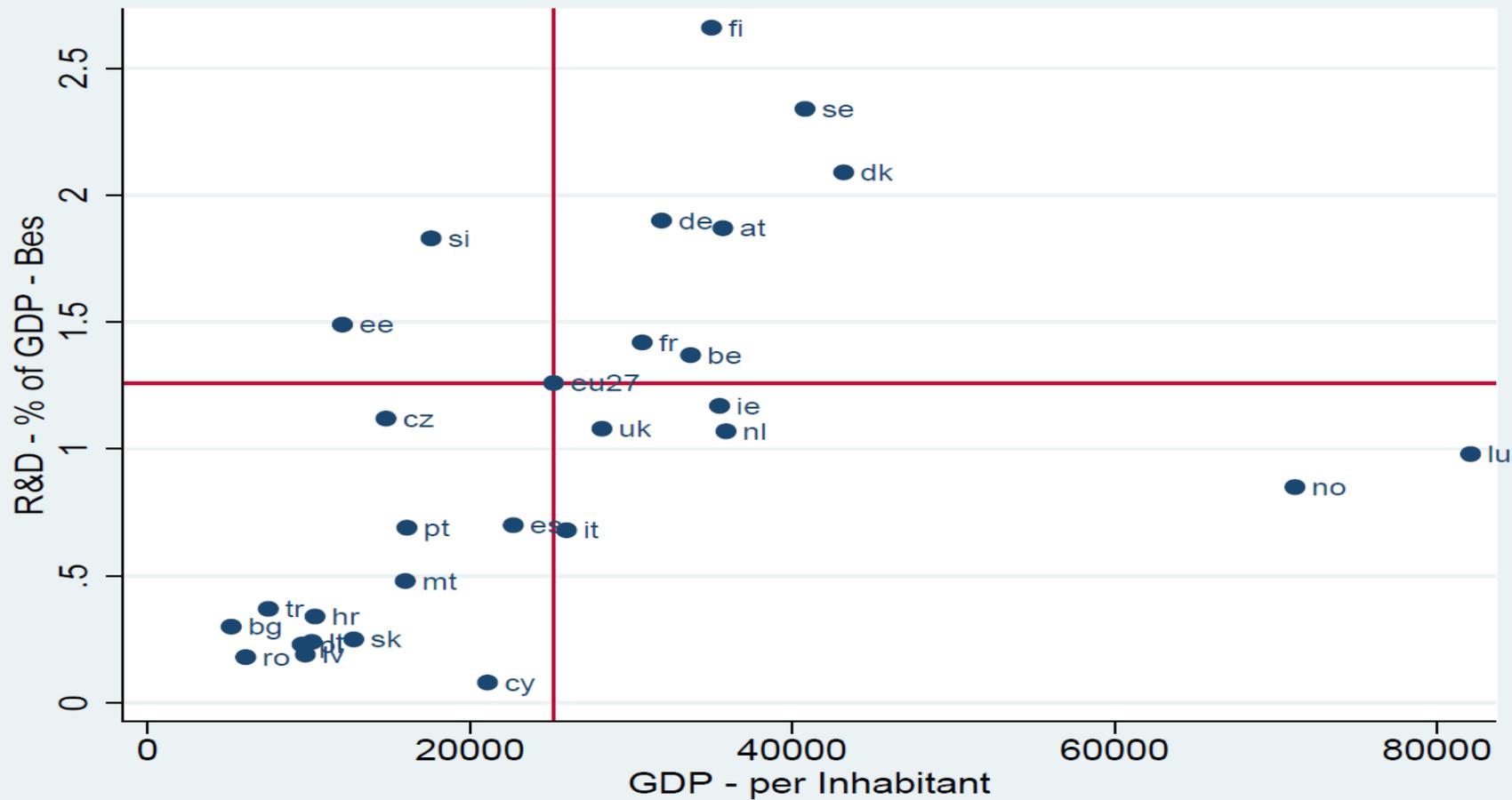
- **BBC** Charter Review: why not soap operas?
- Do **public banks** crowd out private ones?
- **Health**: why many drugs and so little life-style?

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

As a percentage of GDP



Business R&D spending (BERD)



From public goods to public values?

Public values are those providing normative consensus about (1) the rights, benefits, and prerogatives to which citizens should (and should not) be entitled; (2) the obligations of citizens to society, the state, and one another; (3) and the principles on which governments and policies should be based” (Barry Bozeman, 2007, 13).

From new public management’s **fear of government failure**, to enabling experimentation and capturing its effects.



ROUTES & DIRECTIONS. How to use policy to set the direction of change and enable bottom up experimentation?

ORGANIZATIONS. How to build explorative public sector organizations that learn-by-doing, and welcome trial and error?

ASSESSMENT. How to evaluate public sector market creating investments (pushing market frontiers beyond 'crowding in')?

RISKS AND **R**EWARDS. How to form new deals between the public and private sectors, socializing both risks and rewards?

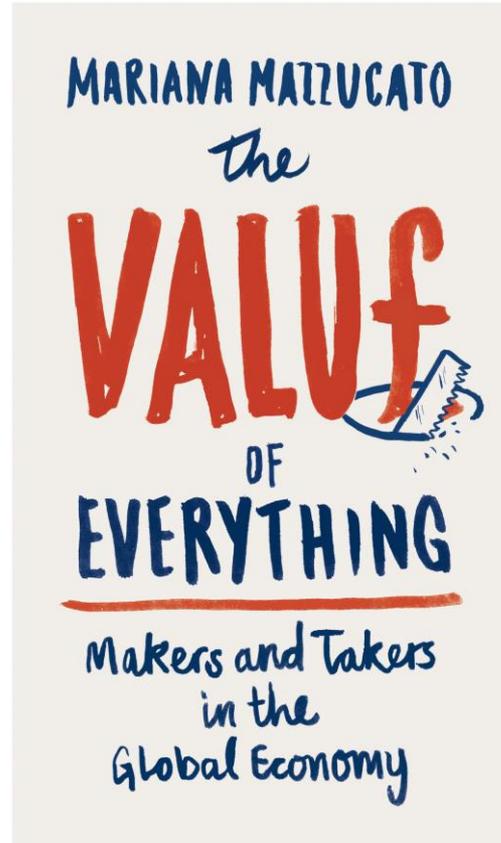


Collective value creation

“Success is a product of having been born in this country, a place where education and research are subsidized, where there is an orderly market, where the private sector reaps enormous benefits from public investment.” **Bill Gates**

“Society is responsible for a very significant percentage of what I've earned.” **Warren Buffett**

value extraction vs. value creation



forthcoming: April 2018

INCOME INEQUALITY IN THE UNITED STATES, 1910-2010



Source: 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?

And the real economy not much better!

THE BIG IDEA PROFITS WITHOUT PROSPERITY

THE TOP 10 STOCK REPURCHASERS

2003-2012

Fortune 500 companies have spent **\$2.3 trillion** on **buybacks** from 2003-2012 (54% of their earnings), with another 37% on dividends.

(Lazonick, HBR 2014)

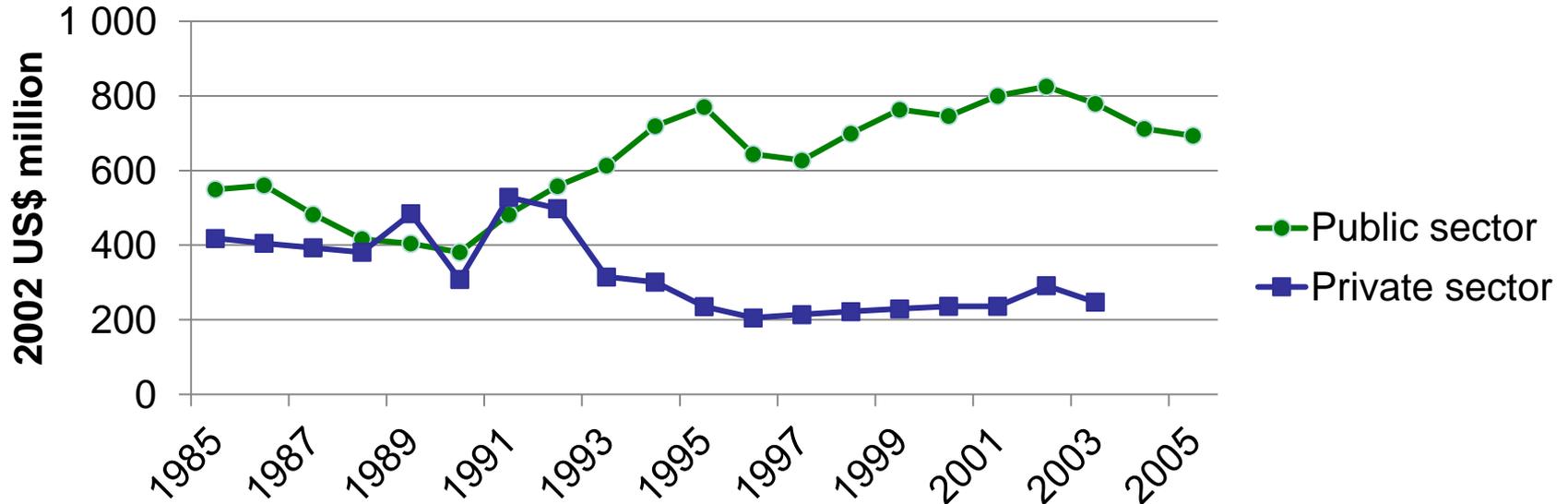
At most of the leading U.S. companies below, distributions to shareholders were well in excess of net income. These distributions came at great cost to innovation, employment, and—in cases such as oil refining and pharmaceuticals—customers who had to pay higher prices for products.

#1 EXXON MOBIL	#2 MICROSOFT	#3 IBM	#4 CISCO SYSTEMS	#5 PROCTER & GAMBLE
NET INCOME \$347B	NET INCOME \$148B	NET INCOME \$117B	NET INCOME \$64B	NET INCOME \$93B
REPURCHASES \$207B	REPURCHASES \$114B	REPURCHASES \$107B	REPURCHASES \$75B	REPURCHASES \$66B
DIVIDENDS \$80B	DIVIDENDS \$71B	DIVIDENDS \$23B	DIVIDENDS \$2B	DIVIDENDS \$42B
TOTAL \$287B 83% of NI	TOTAL \$185B 125% of NI	TOTAL \$130B 111% of NI	TOTAL \$77B 121% of NI	TOTAL \$108B 116% of NI
CEO PAY \$289M	CEO PAY \$12M	CEO PAY \$247M	CEO PAY \$297M	CEO PAY \$90M
% STOCK BASED 73%	% STOCK BASED 0%	% STOCK BASED 64%	% STOCK BASED 92%	% STOCK BASED 16%
\$211M	\$0*	\$158M	\$273M	\$14M
#6 HEWLETT-PACKARD	#7 WALMART	#8 INTEL	#9 PFIZER	#10 GENERAL ELECTRIC
NET INCOME \$41B	NET INCOME \$134B	NET INCOME \$79B	NET INCOME \$84B	NET INCOME \$165B
REPURCHASES \$64B	REPURCHASES \$62B	REPURCHASES \$60B	REPURCHASES \$59B	REPURCHASES \$45B
DIVIDENDS \$9B	DIVIDENDS \$35B	DIVIDENDS \$27B	DIVIDENDS \$63B	DIVIDENDS \$87B
TOTAL \$73B 177% of NI	TOTAL \$97B 73% of NI	TOTAL \$87B 109% of NI	TOTAL \$122B 146% of NI	TOTAL \$132B 81% of NI
CEO PAY \$210M	CEO PAY \$189M	CEO PAY \$127M	CEO PAY \$91M	CEO PAY \$126M
% STOCK BASED 37%	% STOCK BASED 62%	% STOCK BASED 62%	% STOCK BASED 25%	% STOCK BASED 25%
\$78M	\$117M	\$79M	\$23M	\$32M

Where are energy's 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

*“I expect to see the State...taking an ever greater responsibility for directly organizing investment’ and ‘I conceive, therefore, that a somewhat comprehensive **socialization of investment** will prove the only means of securing an approximation to full employment”*

JM Keynes, 1936

Better 'deal' between public & private

- reinvesting profits (and limiting share buybacks)
- retaining golden share of IPR
- capping prices (Bayh Dole act allows it)
- negotiating conditions (generics)
- income contingent loans
- retain some equity (Tesla & Solyndra lesson)
- % payback into an 'innovation fund'
- State investment banks

(discussed in Mazzucato, 2015; 2016)

Think Again!



private
sector

vs.



public
sector

The Entrepreneurial State: (2013) M. Mazzucato

Financing renewable energy: who is financing what and why it matters (2017), *Technological Forecasting and Social Change*, M. Mazzucato and G. Semieniuk

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

Beyond market failures: the market creating and shaping roles of state investment banks (2016), *Journal of Economic Policy Reform*, M. Mazzucato and C. Penna

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.

Mission Oriented Innovation Policy, www.thersa.org/mission-oriented-innovation-policy, IIPP-RSA working paper M. Mazzucato