Sustainable Resource Use and the Role of the Financial System

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Paul Ekins
Professor of Resources and Environmental Policy
Director, UCL Institute for Sustainable Resources
Chair, UCL Green Economy Policy Commission
University College London

Berlin

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Principles of economic/financial sustainability

- Borrow systematically only to invest, not to consume
- Keep money sound: control inflation, public borrowing, trade deficits, indebtedness
- Establish transparent accounting systems that give realistic asset values
- Maintain or increase stocks of capital (manufactured, human, social, natural)
- As has become apparent every one of these principles has been spectacularly broken over the last few years, even in the financial sector and mainstream money economy
- What prospect then for broader sustainability, particularly environmental sustainability?
- We must start by getting right the basic conception of how wealth is created and how the human economy relates to the natural environment (not the subject of this presentation)
- We must ensure that environmental values are visible to the economy and financial system (information) and that they are appropriately valued (role for public policy)

The financial sector must support the creation of a green economy

Headline messages on the three pillars

- **Government should take a more proactive, strategic approach to driving green innovation.**
  - A green industrial strategy can help to strengthen countries' innovation systems and secure comparative advantage in key sectors and areas of technology that enhance resource productivity.
- **Government should adopt a clearer approach to prioritisation of key infrastructure projects, and ensure that infrastructure investments are compatible with long-term green economy objectives.**
  - Going beyond support for undifferentiated infrastructure, governments need to identify what green infrastructure investments are required and prioritise these accordingly in order to ensure policy clarity and credibility.
- **A new information infrastructure is required to facilitate the evolution of a greener economy.**
  - Current national accounting practices and corporate reporting rules were largely developed at a time when the economic and social importance of environment and resource issues was less well recognised than it is today. Governments should develop comprehensive natural capital and material flow accounts for the economy.

Core areas and recommendations (1)

- **Macro-economic strategy**:

  Headline conclusion: *core ingredients are environmental taxes, public investment and policy credibility*

  – Environmental taxation and fiscal reform, to reduce labour and capital taxes
  – Green stimulus spending for investment, not consumption
  – Credibility and direction: index-linked carbon bonds
  – Reform of accounting for capital and infrastructure spending in the national accounts

Core areas and recommendations (2)

- **Innovation**: direct innovation processes in the economy towards green innovation, or eco-innovation

  Headline conclusion: *government can and should play a more active role in driving eco-innovation through a new kind of industrial policy*

  - Greening the national innovation system ('horizontal'): embed incentives for green innovation across innovation system
  - Green industrial strategy ('vertical'), targeting core sectors and areas of green technology

Core areas and recommendations (3)

- **Infrastructure**:

  Headline conclusion: *appropriate infrastructure is crucially important in building green competitiveness and facilitating green consumption and behaviour change*

  - Prioritisation of infrastructure, need for choices (not all infrastructure is green, traffic light categorisation)
  - **Investment:** Establish new financial institutions: Green Investment Bank (specialist green investment); National Infrastructure Bank (wider infrastructure investment according to green criteria)
  - Right balance between central and local infrastructure and land-use planning

Core areas and recommendations (4)

- **Information**: make the physical/material and energetic basis of the economy as transparent as its monetary basis

  Headline conclusion: *a new knowledge infrastructure is required*
  - National accounts, natural capital accounting
  - Material flow analysis/mass balance to determine who owns what, and where (cf Biffaward programme)
  - Corporate reporting (for investors and consumers)
  - Consumer information and labelling, backed up by regulation
- Substantial changes towards a circular economy cannot be achieved without putting such a new knowledge infrastructure in place (e.g. extended producer responsibility, product passports leading to greater material recovery and recycling)

Core areas and recommendations (5)

- **Resource efficiency (RE):** *slow down/prevent the process whereby resources/materials become wastes that need to be managed*
- Negative cost opportunities for resource efficiency:
  - Globally USD 2.9 trillion in 2030 (70% at 10% internal rate of return) (McKinsey 2011)
  - EU net benefits of €603 billion (AMEC and BIO IS for European Commission 2013)
  - UK economy £23 billion (Oakdene Hollins 2011)
- European RE Roadmap: Recycling and efficiency targets
- European Resource Efficiency Platform (EREP) recommendations

Financing Sustainable Resource Use

With thanks for slides to Dr Massimiliano Mazzanti, University of Ferrara

- There is a significant gap between current investments and what is needed to meet EU energy and climate policy targets at 2020
- The financial crisis has impaired governments in financing the transition to the green economy
- UNEP (2013): private capital sources are expected to supply 80% of the amount required for the transition to the GE
- **Eco-innovation requires 'patient' capital: investments are long-term and risky**

CECILIA 2050
OPTIMAL EU CLIMATE POLICY

Barriers

- Most significant **barriers** to financing the Green Economy are:

  - ✓ fiscal strains over government deficits and debts;
  - ✓ deleveraging by banks (Basel III regulations);
  - ✓ not coherent risk-return profile;
  - ✓ lack of specialist teams in clean technology investments with experience, knowledge and data;
  - ✓ political risks/regulatory instability.

Potential investors

- **Institutional investors** – such as insurance companies and pension funds – represent suitable providers of 'patient' capital.
- **Pension funds**: 30 trillion US$ of AuM (Towerswatson, 2013)
- **Insurance companies**: 25 trillion US$ of AuM (ThecityUK, 2013)
- European pension funds and insurance companies together hold an estimated total of €13.8tn of assets, equating to more than 100% of EU GDP (EC, 2013).
- No shortage of finance – challenge is to persuade it to flow towards sustainable resource use

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OPTIMAL EU CLIMATE POLICY

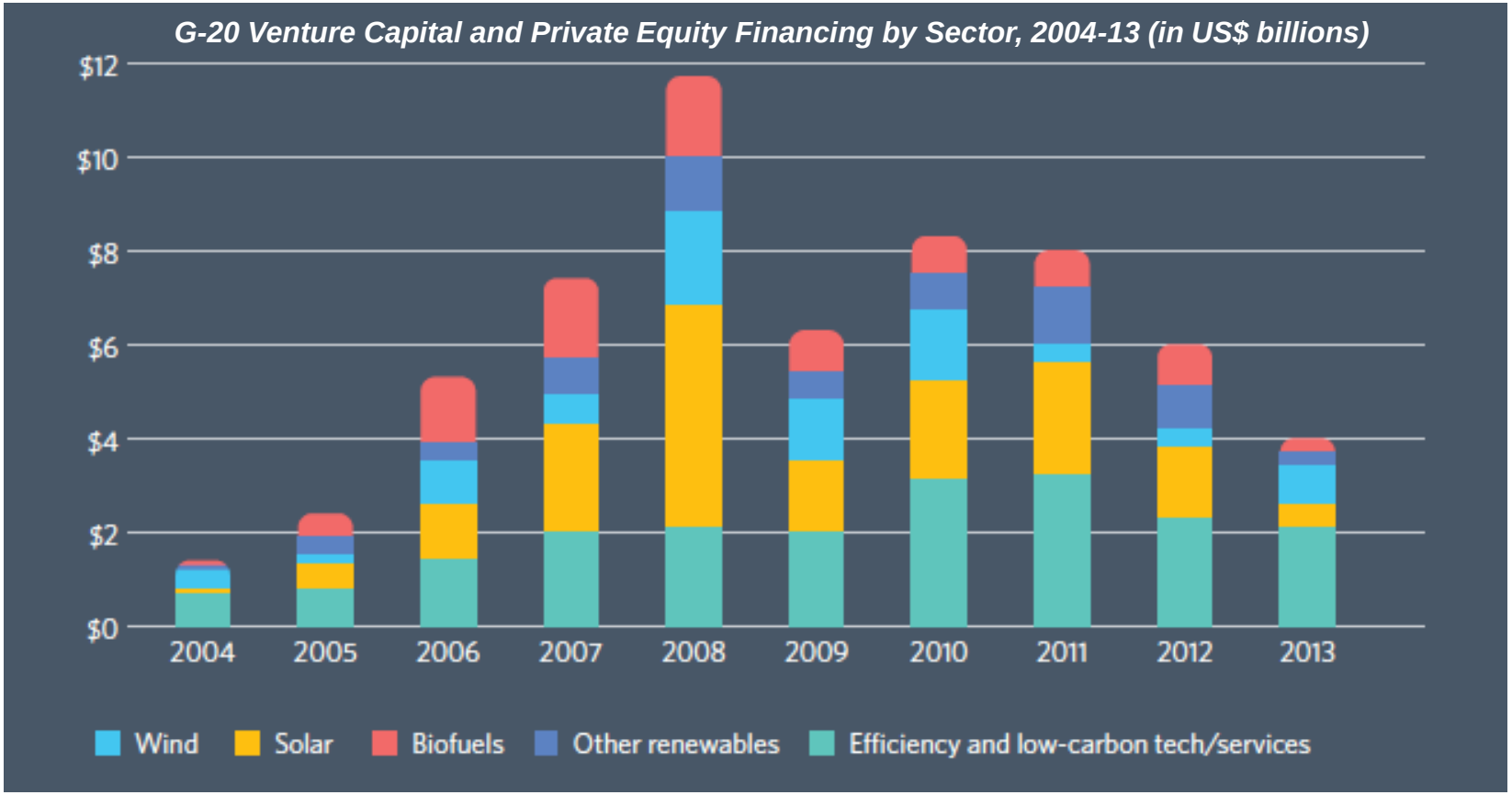
Major initiatives by institutional investors in the field of climate change

Source: European Environment Agency 2014 Resource-Efficient Green Economy and EU Policies

Group	*Type of Investors*	*Size of Assets*	*Objectives*
IIGCC	70+ European institutional investors, including major pension funds	EUR 6tn	Catalyse greater investment in low carbon economy
Investor Network on Climate Risk (managed by Ceres)	90+ USA institutions	USD 10bn	Identify opportunities and risks in climate change, tackle the policy and governance issues that impede investor progress towards more sustainable capital markets
Investor Group on Climate Change	Australian and New Zealand investors	AUS 600bn	Raise awareness, encourage best practice in terms of analysis and provide information relating to climate change
P8	World's leading pension funds	USD 3tn	Create viable investment vehicles to combat climate change and promote sustainable development
Long-term Investors Group	Mainly public sector financing institutions	USD 3tn	Indentify long-term investment fund and vehicles

Venture Capital and Private Equity

- Venture capital and private equity account for 2 percent of overall clean energy investment
- **Venture capital financing in 2013 declined by one-third, to $4 billion.**
- Energy efficient/low-carbon technologies were the leading beneficiary of venture capital investment, attracting $2.1 billion. Solar energy attracted $500 million.

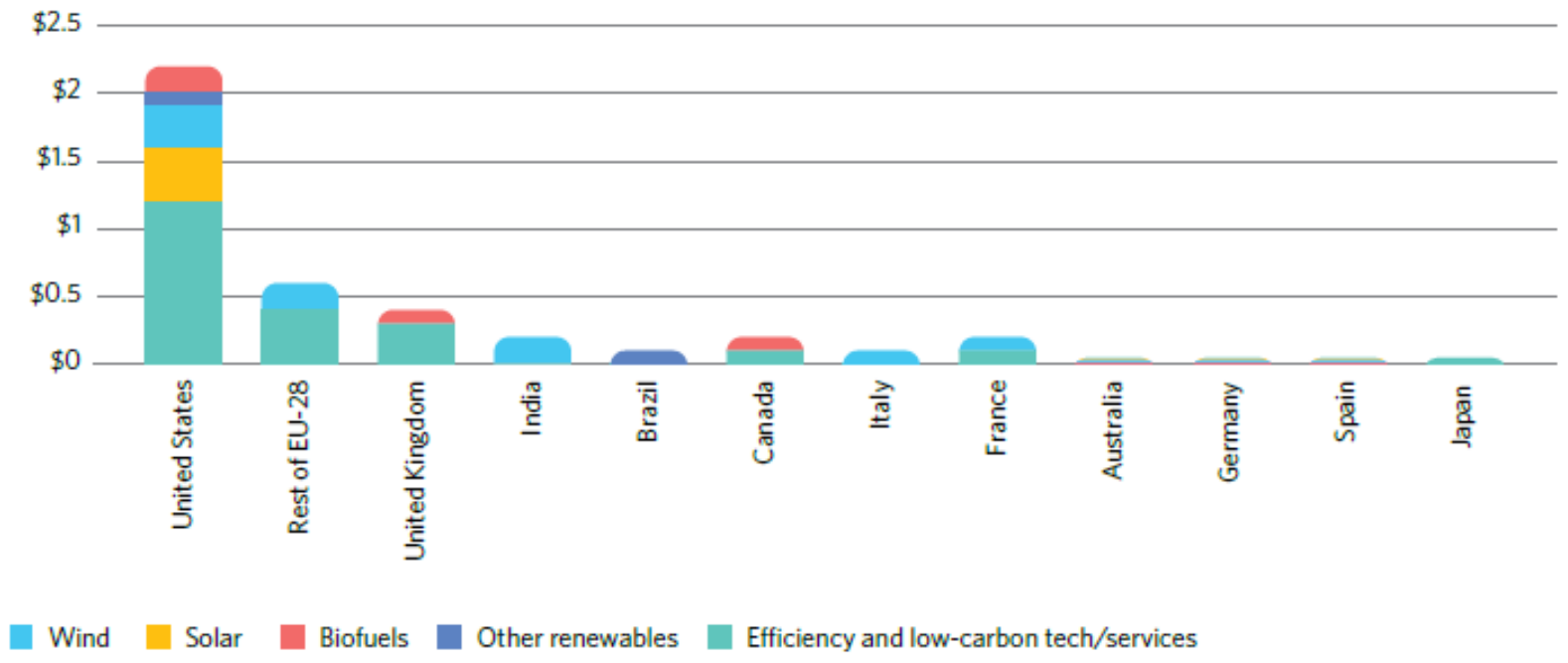


***Source**: Bloomberg New Energy Finance, 2014; The Pew CharitableTrust, 2014*

Venture Capital and Private Equity

- **USA is the leader** in venture capital and private equity financing, accounting for $2.2 billion in 2013 followed by UK.

Venture Capital and Private Equity Financing by Country and Sector, 2013 (in US$ billions)

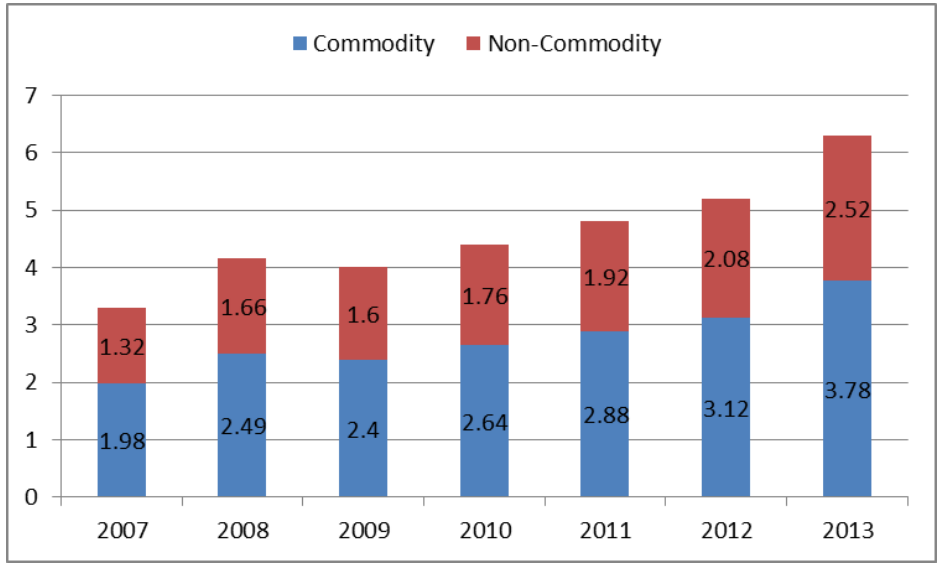


***Source**: Bloomberg New Energy Finance, 2014; The Pew CharitableTrust, 2014*

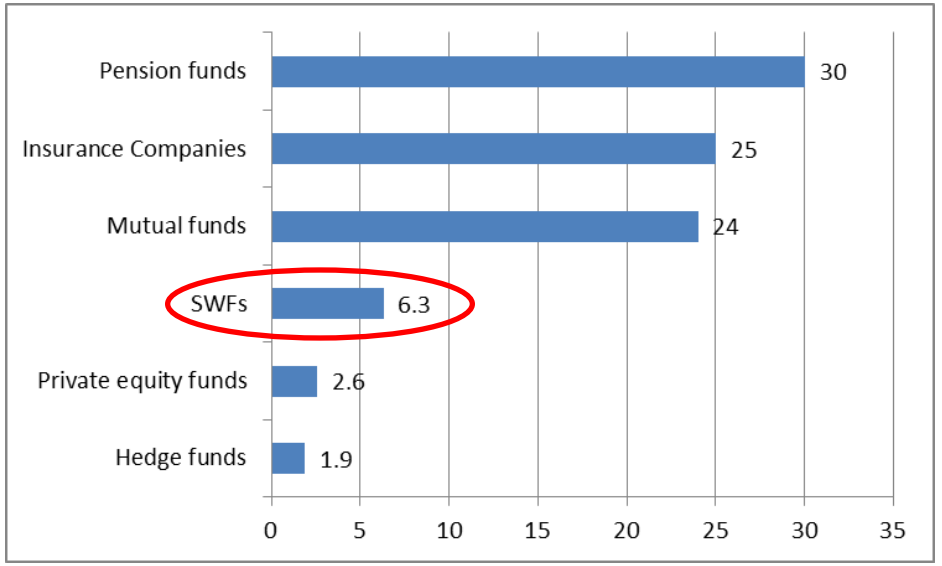
Sovereign Wealth Funds (SWFs)

- **SWFs are ideally placed to invest in green projects (long time span and absence of liquidity constraints).**
- **It is possible to pinpoint 69 SWFs in the world at the end of 2013, with estimated AuM of $6.3 trillion.**
- The Norwegian SWF is expected to raise its share of investments in the Green Economy to 1% and then to 5%. In broader terms, it invested 3.6% of its portfolio in environmentally friendly companies in 2013.

SWFs' assets growth, 2007-2013, (US$ tn)



SWFs' size compared to other investors, 2013, (US$ tn)



Countercyclical role, mitigating the short-termism of private actors

Multilateral banks: the European Investment Bank (EIB)

EIB

- The **EIB** is among the largest financiers of projects on climate change in the world:
  - over **EUR 13bn in 2012**,
  - **EUR 19 billion in 2013**.

- EIB's 2013 to 2015 Corporate Operational Plan sets an annual target of **over 25%** of finance directed to climate action

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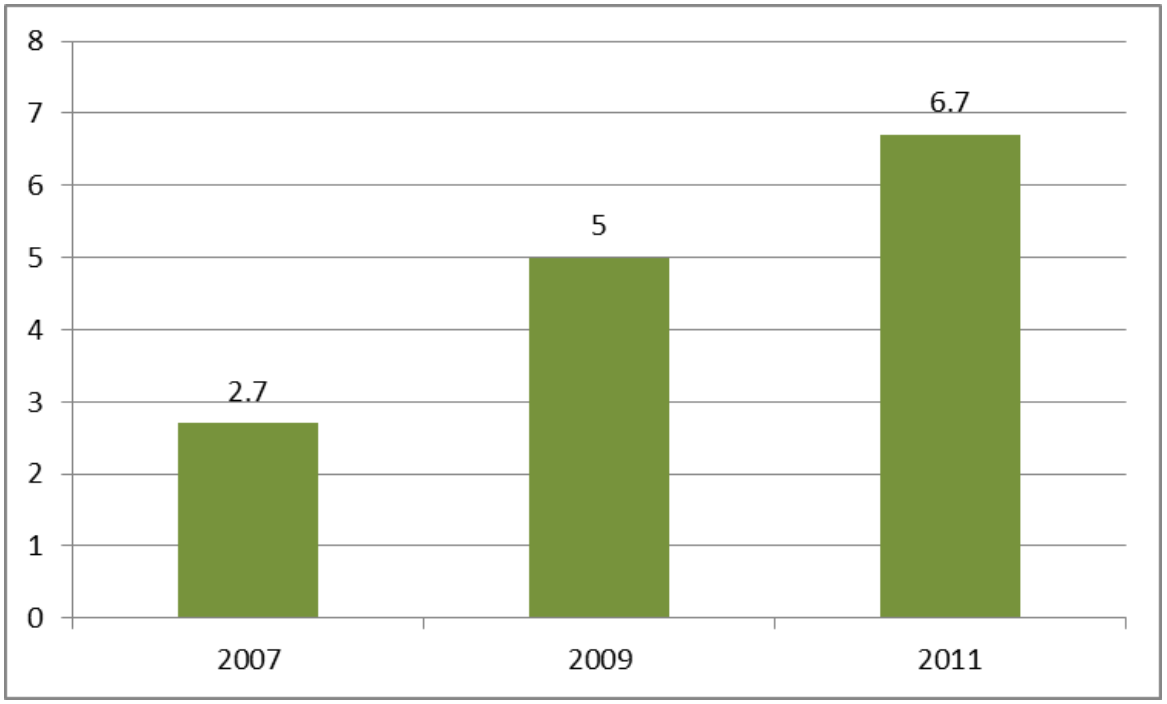
Socially Responsible Investments (SRI)

- SRIs are financial assets selected by fund managers according to **criteria related to the social and environmental attributes of the investment** (definition uncertain, broad concept).
- Between 2009 and 2011, capital invested in SRIs grew by 34%, 87% between 2007 and 2009.

Evolution of SRI investments, 2007-2011 (US$ tn)



***Source**: Eurosif, 2012*

Socially responsible investments in Europe, 2011, (in €Mn)

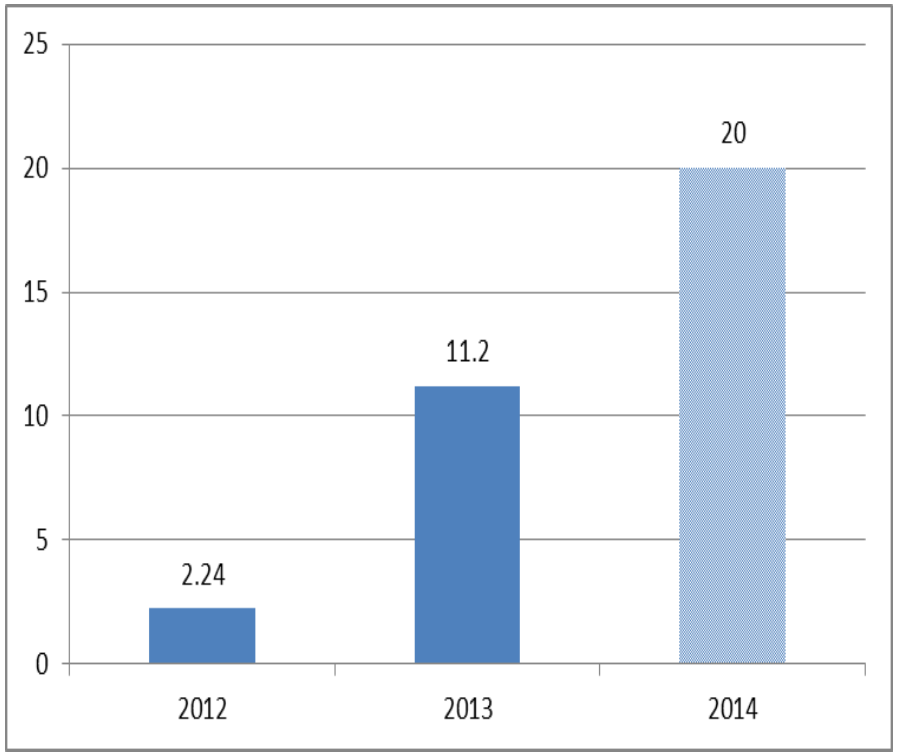
Country	Tot SRI investment strategies
Austria	8,251
Belgium	96,905
Denmark	244,227
Finland	107,600
France	1,884,000
Germany	621,020
Italy	447,592
Netherlands	666,248
Norway	574,100
Poland	1,174
Spain	57,091
Sweden	378,300
Switzerland	441,637
UK	1,235,201
Europe	**6,763,347**

***Source**: Eurosif, 2012*

Green Bonds

- Green bonds are intended for financing **environmentally friendly projects**
- Issuance in 2013 surpassed **$11 billion** and is expected to reach **$20 bn** in 2014
- They could account for **10% to 15% of global bond issuance** within 5 to 7 years.
- Main **issues** to be addressed:
  - liquidity
  - certification costs

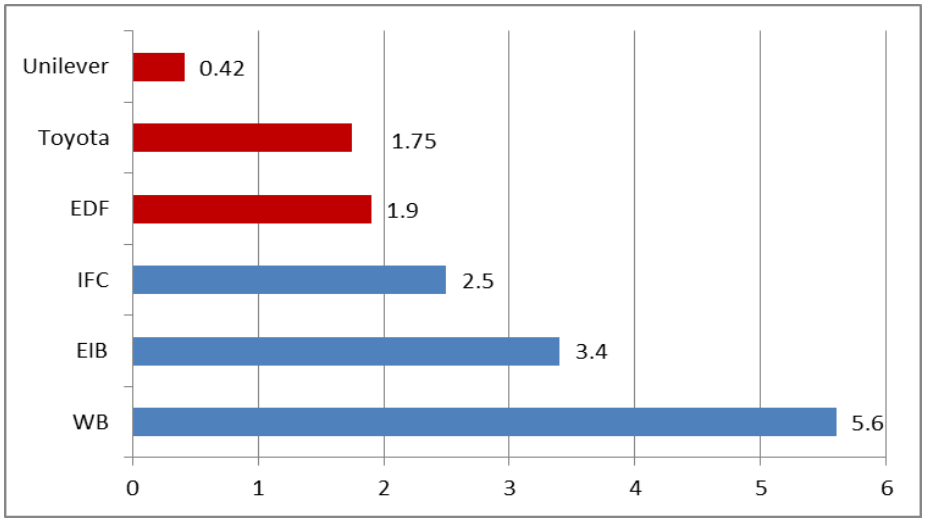
Green Bonds issuance (US$ bn)



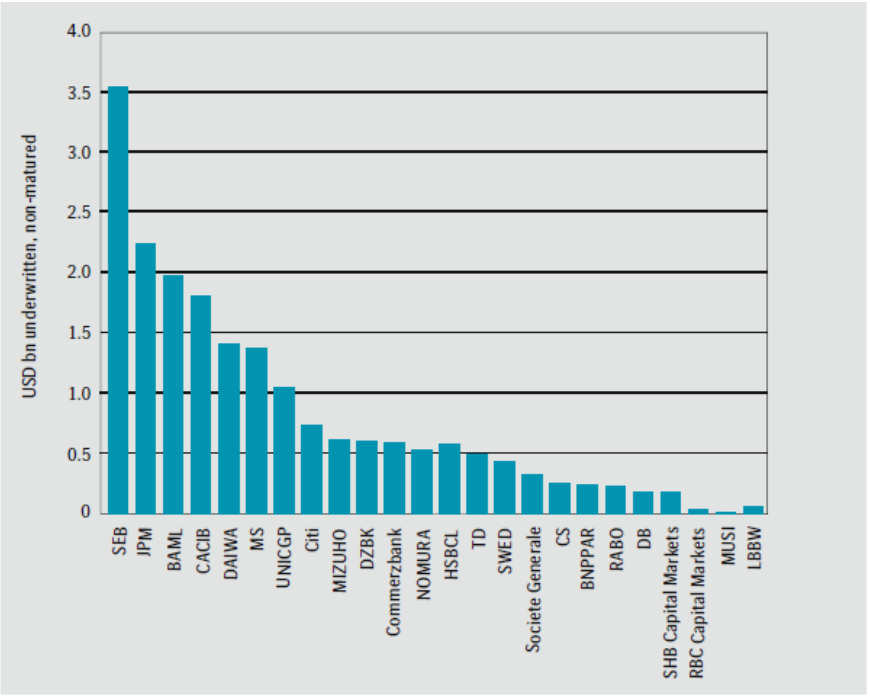
***Source**: Dealogic; World Bank.*

Green Bonds

Green Bonds main issuers (US$ bn)



Top Green Bonds underwriters, 2008 – 2013 (US$ bn)



- Most of the issuance up to now concerned **supranational organizations** (WB, EIB).
- **US Government agencies** issued different types of bonds which can be considered green.
- In 2013 and 2014, many **corporate issuers** joined the group.
- On the **demand side**: pension funds and asset managers.

***Source**: Dealogic; Climate Bond Initiative.*

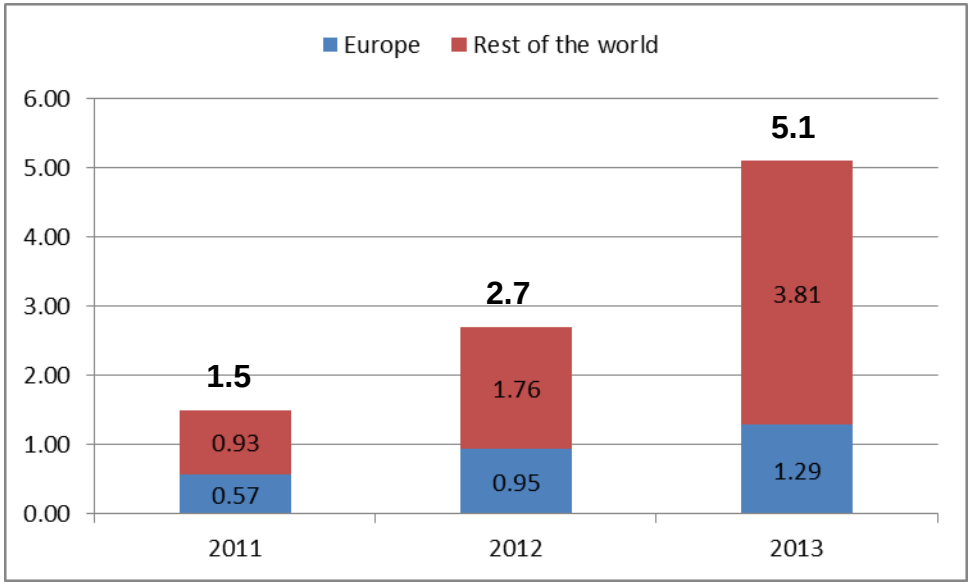
Crowdfunding

- **Crowdfunding** connects directly (through the internet) those who can lend/invest money with those who need financing for a specific project.

- Crowdfunding can be used through different models of financing:
  - ✓ donations;
  - ✓ rewards-based;
  - ✓ pre-sales;
  - ✓ **crowd lending;**
  - ✓ **crowd investing.**

- An **adequate policy framework is needed** to address the following issues:
  - ✓ **Misleading** advertising;
  - ✓ payments treatment;
  - ✓ **risk of fraud.**

Crowdfunding in Europe and rest of the world, 2011-2013, $bn



- **Example**: German start-up, E-volo, raised €1.2 million in a reward-based crowdfunding campaign for the development of an environment-friendly and emission-free helicopter.

***Source**: European Commission, 2014; Massolution, 2013*

Conclusions

- There is no shortage of finance to move towards a Green Economy and enable sustainable resource management
- Government has a number of crucial roles to stimulate the transition:
  - Policy consistency and credibility as to the direction of travel
  - Ensuring adequate information provision about the material and energy basis of the economy (national accounts, corporate reporting, consumer information)
  - Internalising environmental values in prices (environmental tax reform)
  - Leveraging private investment through targeted public investment (Green Investment Banks)
  - Ensuring the stability, accountability and transparency of the financial sector
- Given the right signals the financial sector will innovate and develop appropriate financial vehicles

Thank you

p.ekins@ucl.ac.uk

www.bartlett.ucl.ac.uk/sustainable