Banking Regulation and Sustainable Finance

Jean-Charles Rochet (UZH, Unige and Swiss Finance Institute)

PREPARED FOR THE SWISSQUOTE CONFERENCE ON THE FUTURE OF BANKING, EPFL NOVEMBER 4TH 2016

Motivation

- The financial system has a major role to play in the necessary transition to a low carbon economy.
- Moreover, financial stability is likely to be impacted by this transition, in particular through the inevitable burst of the carbon bubble.
- I examine what role banking regulators can play in this transition.

Climate Change and Financial Stability

Financial Regulators are concerned about the impact of climate change on financial stability.

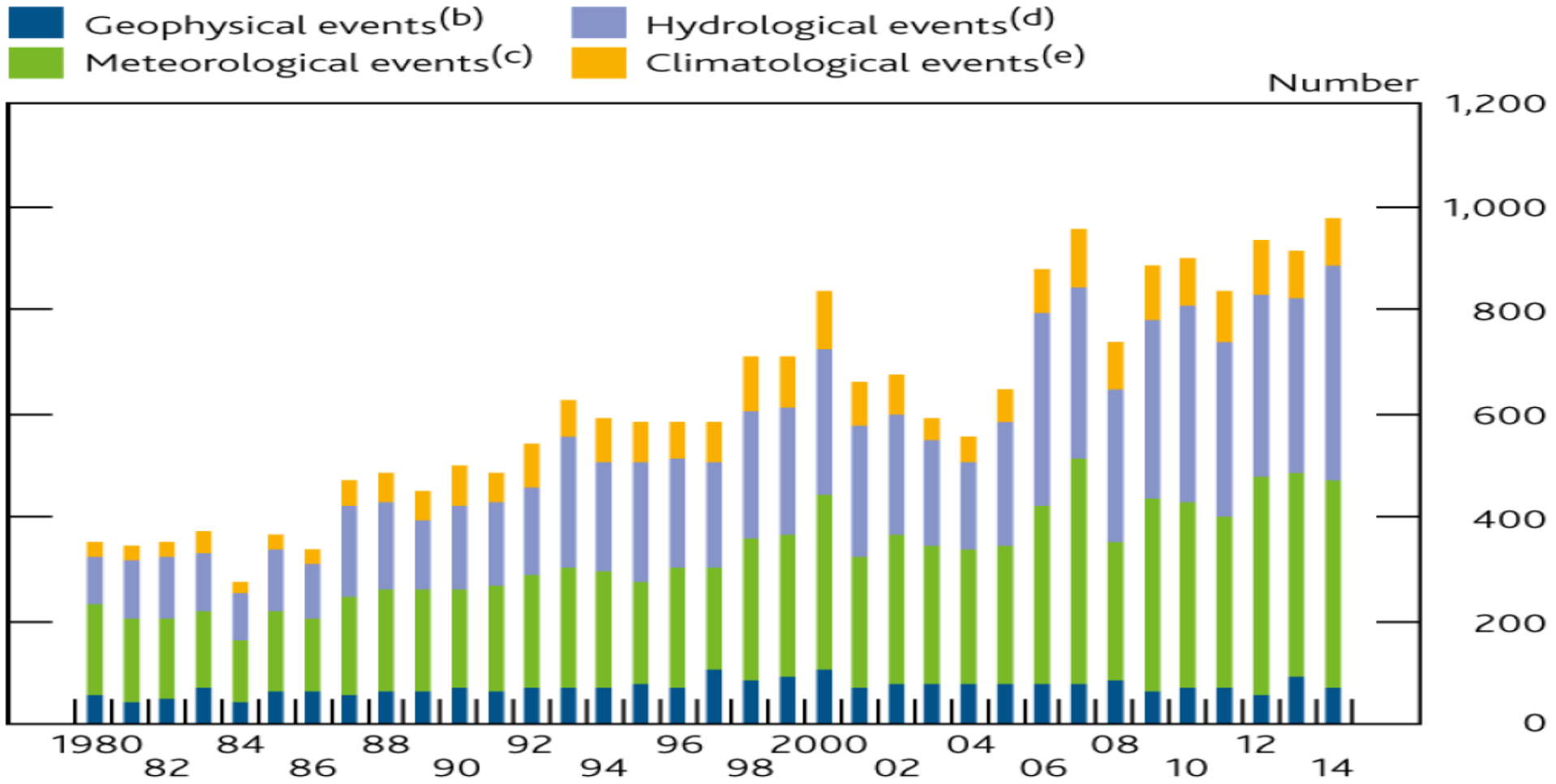
Roughly speaking, two different kinds of risks are associated with climate change:

- **Climate risks**, that derive from the impact of climate change on economic activities.

- **Transition risks,** that derive from political and regulatory uncertainty: when exactly and at what speed will politicians take effective action to curb CO2 equivalent emissions?

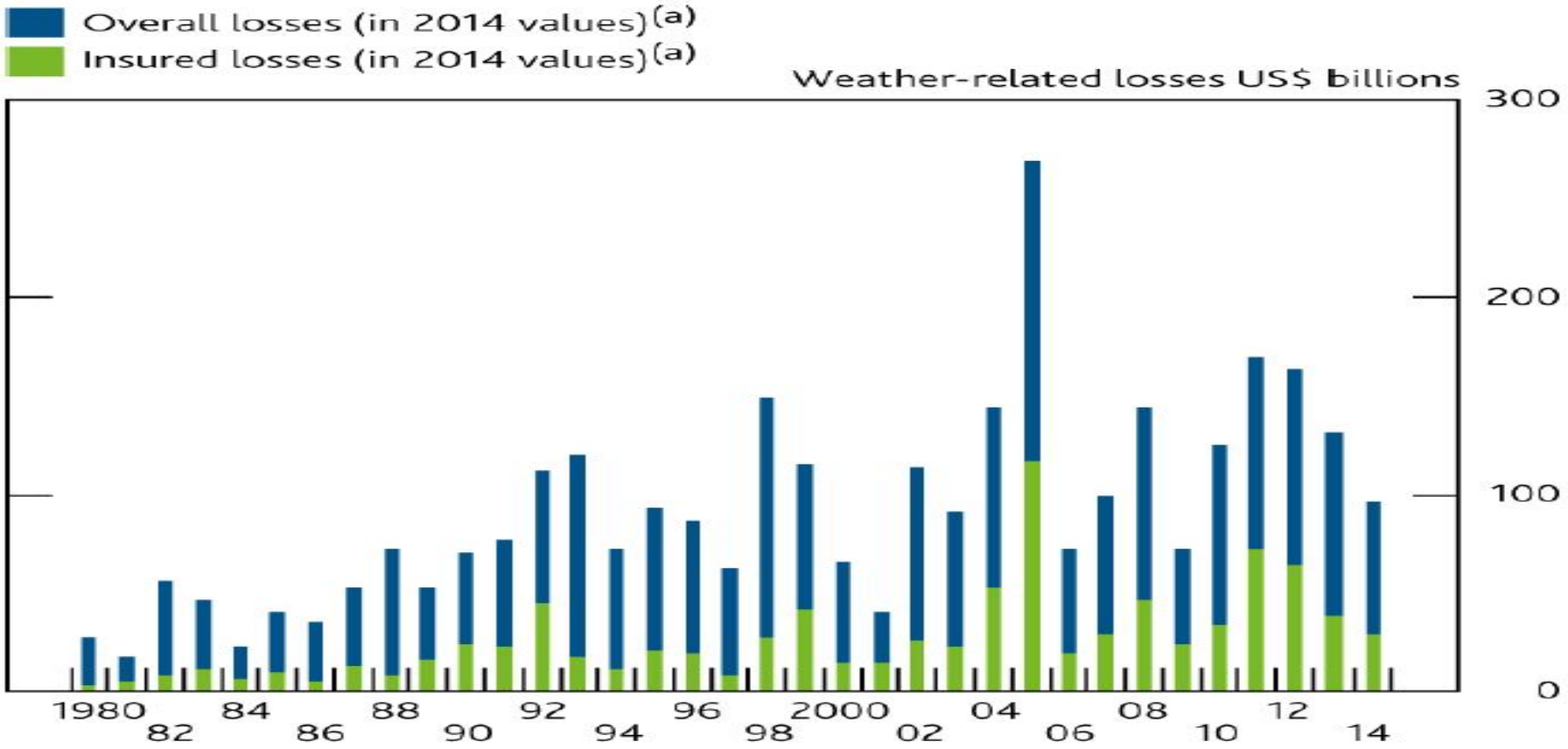
Both types of risks are likely to impact insurers, banks and pension funds.

Climate risk 1: number of weather related loss events worldwide (1980-2014)



Source: Munich RE (2015), reported by PRA (2015)

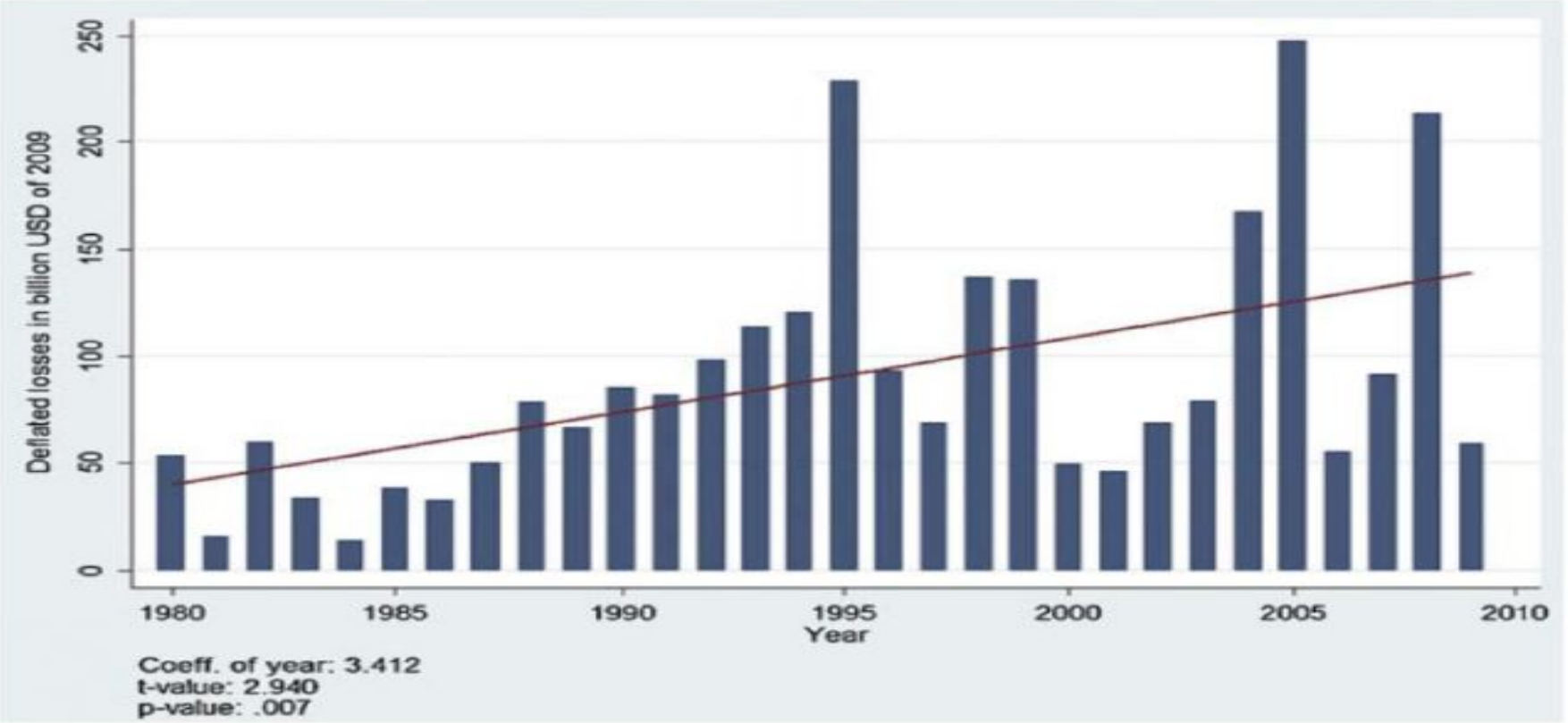
Climate risk 2: cost of weather related loss events worldwide (1980-2014)



Source: ESRB Report (2016)

Climate risk 3

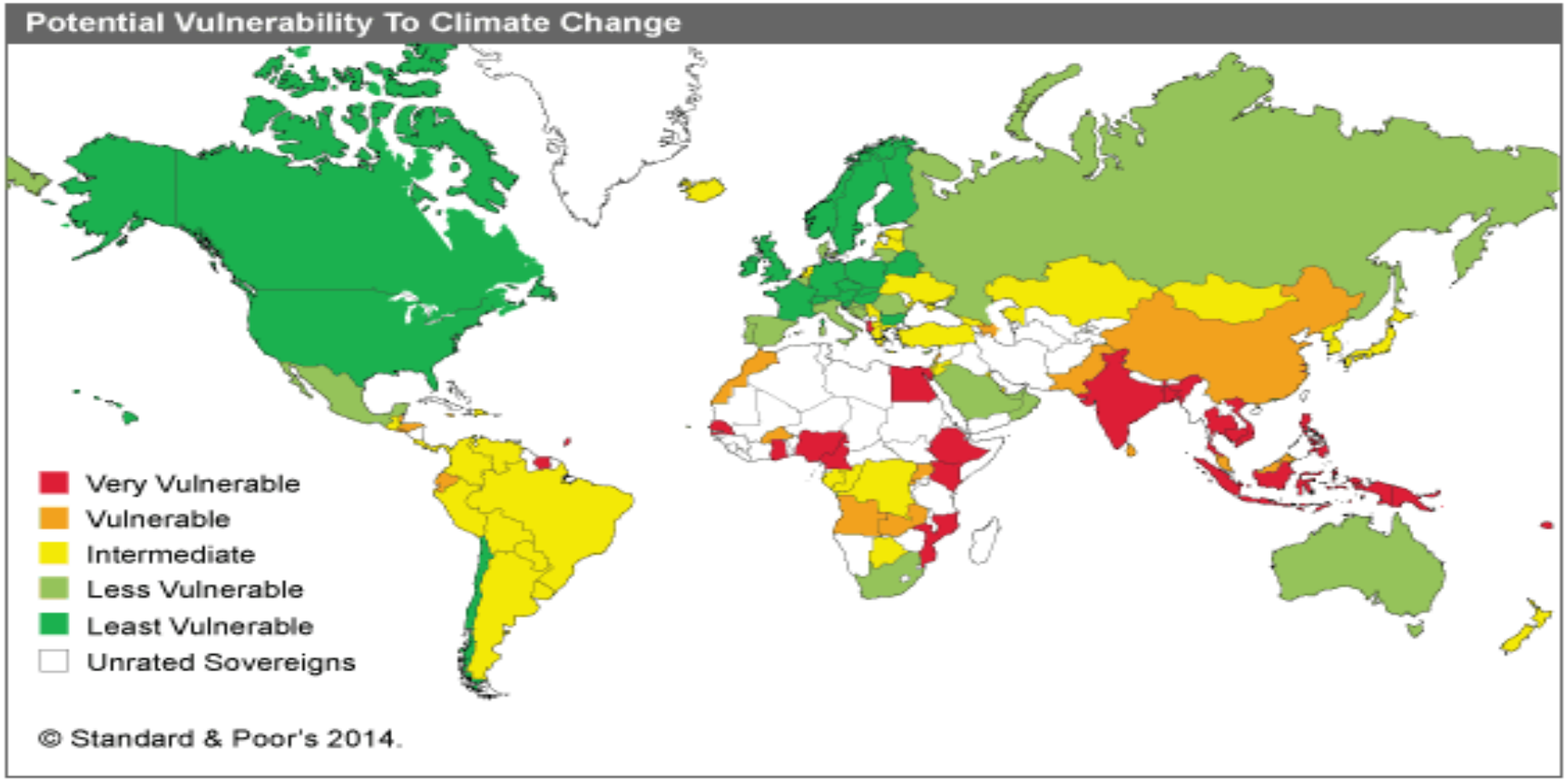
Global annual insured losses (in real terms) from extreme weather events (1980-2009)



Source: Bowen and Dietz (2016)

But the impact of climate change on economic activities will not be uniform

Emerging countries are more exposed

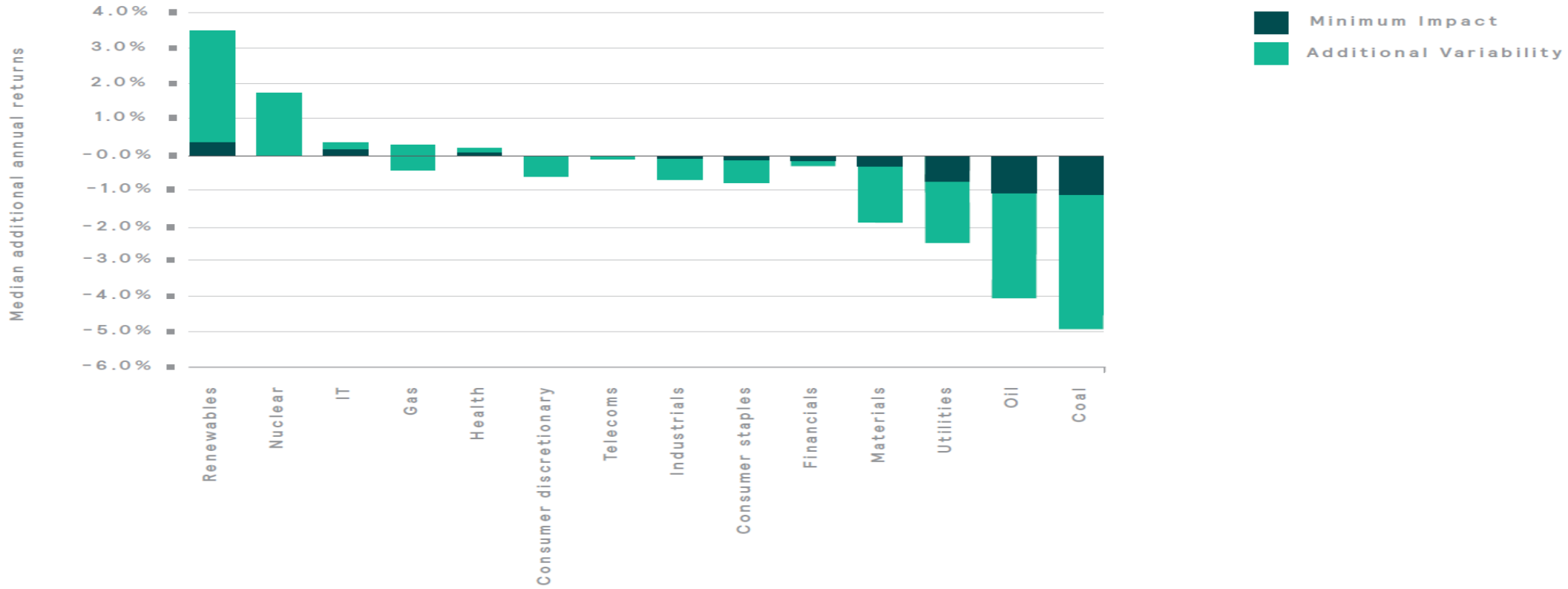


Source: Kraemer and Negrila (2014)

There will be winners and losers

In a recent study, the consulting firm Mercer has tried to evaluate the climate impact on different sectors over the next 35 years

Figure 2: Climate Impact on Returns by Industry Sector (35 Years)

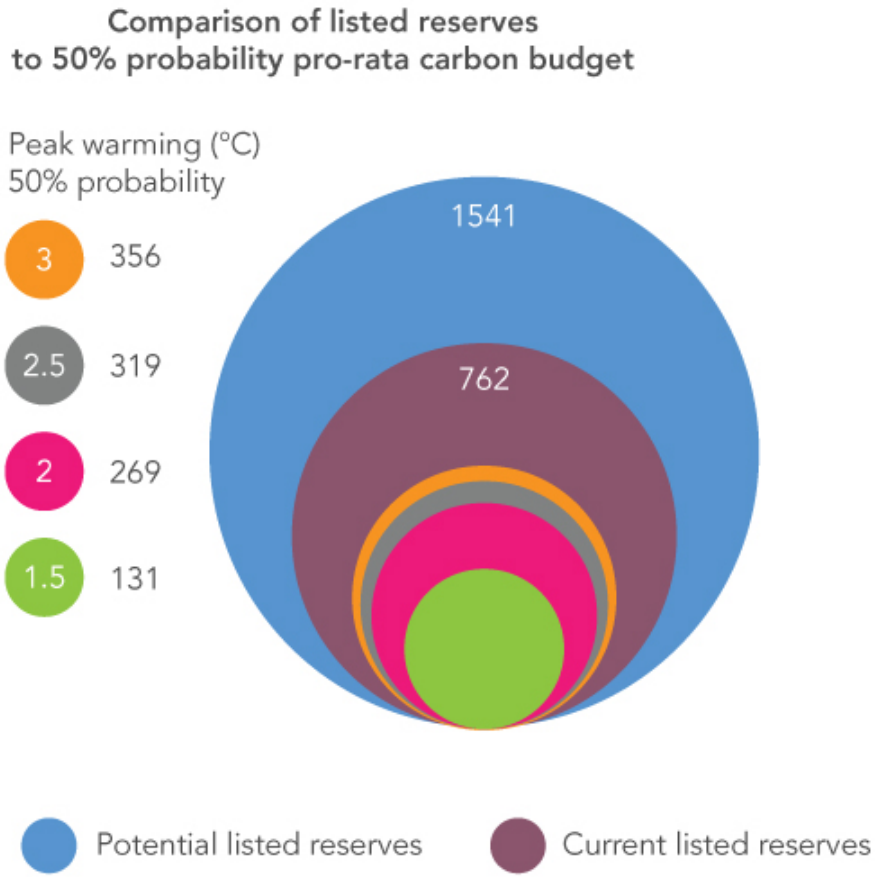


Source: Mercer

Transition Risks

- Most governments seem to be (at last) ready to limit the consequences of climate change.
- There is a commitment to cap GHG emissions to stay within the 2°C rise in global surface temperature.
- This implies that 60 to 80% of current carbon reserves have become stranded assets (as estimated by Carbon Tracker Initiative).
- But there is a lot of political uncertainty: when will governments really act?
- Markets have not yet incorporated the necessity to reduce carbon emissions into the pricing of carbon- related assets: there is a carbon bubble, that will burst one day or another.
- The burst of this carbon bubble could have huge consequences on financial stability.

Reserves versus carbon budgets for different global warming scenarios

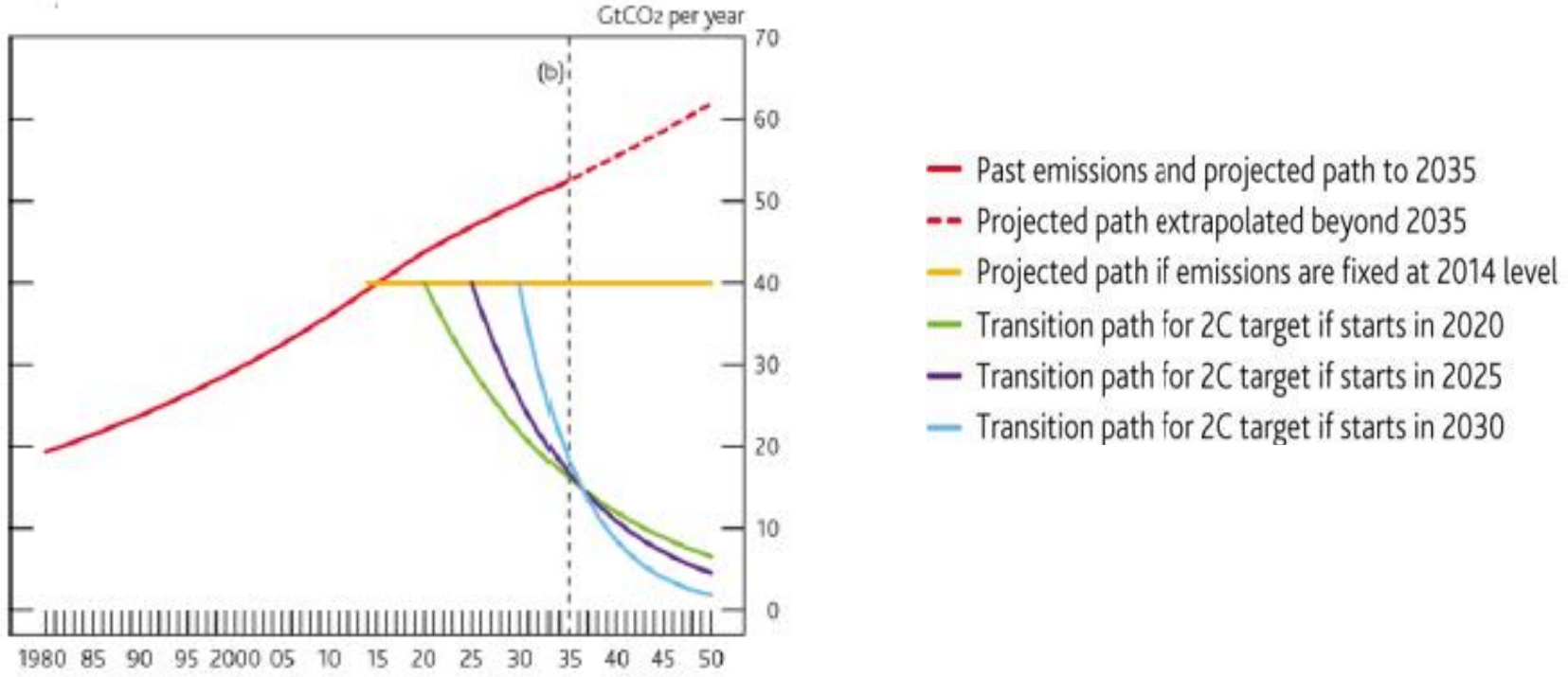


Source: Carbon Tracker/GRI (2013)

Transition Risks (2)

These are the risks related to the uncertain timing of transition and to the mispricing of carbon assets (carbon bubble)

Possible trajectories of carbon emissions, modelled on basis of using global '2°C carbon budget' by 2100 (>66% of less than 2°C, emissions shown until 2050)



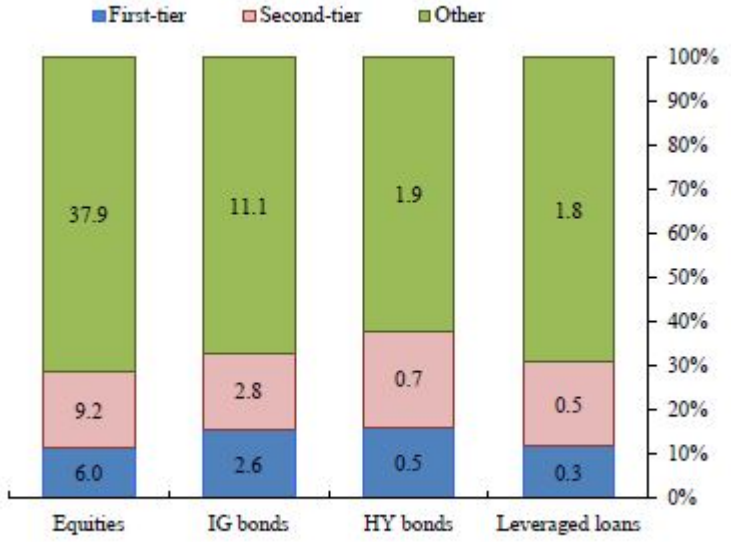
Source: ESRB Report (2016)

Assets exposed to transition risks

The UK Prudential Authority classifies companies exposed to transition risks as

- **First-tier**: companies that may be impacted directly by regulatory limits on their ability to produce or use fossil fuels.
- **Second-tier**: companies that are energy-intensive may be affected indirectly via potential changes in energy costs during the transitional phase

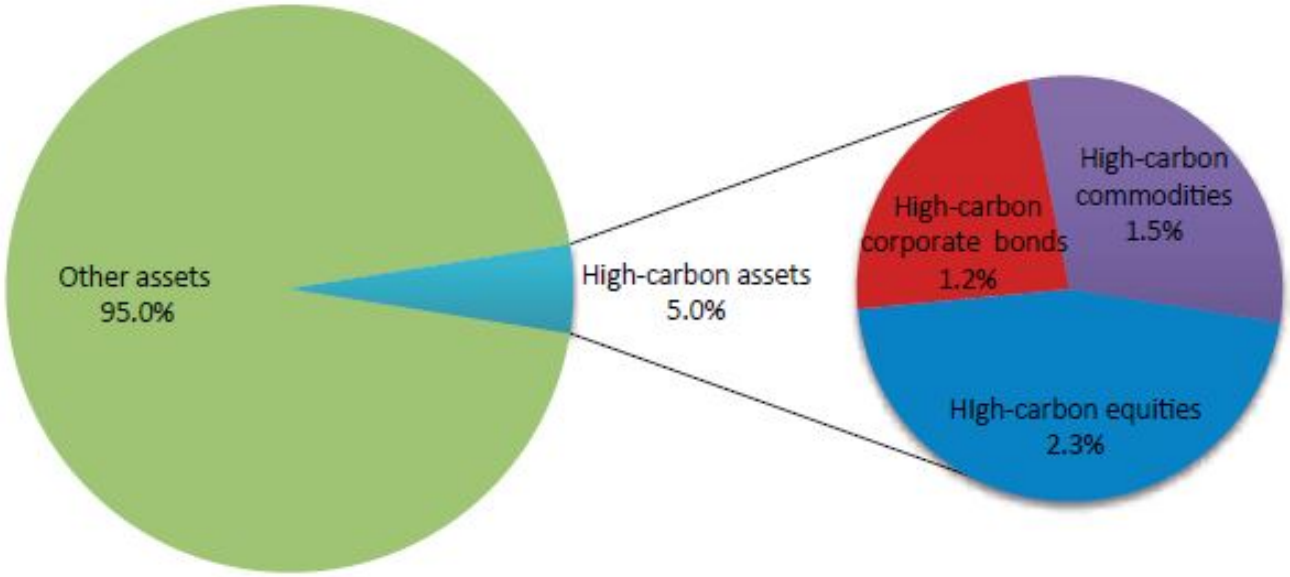
➢The first and second-tier companies account for around a third of global equity and fixed-income assets:



Source: Prudential Regulation Authority (2015)

However the carbon-exposure of EU pension funds seems moderate

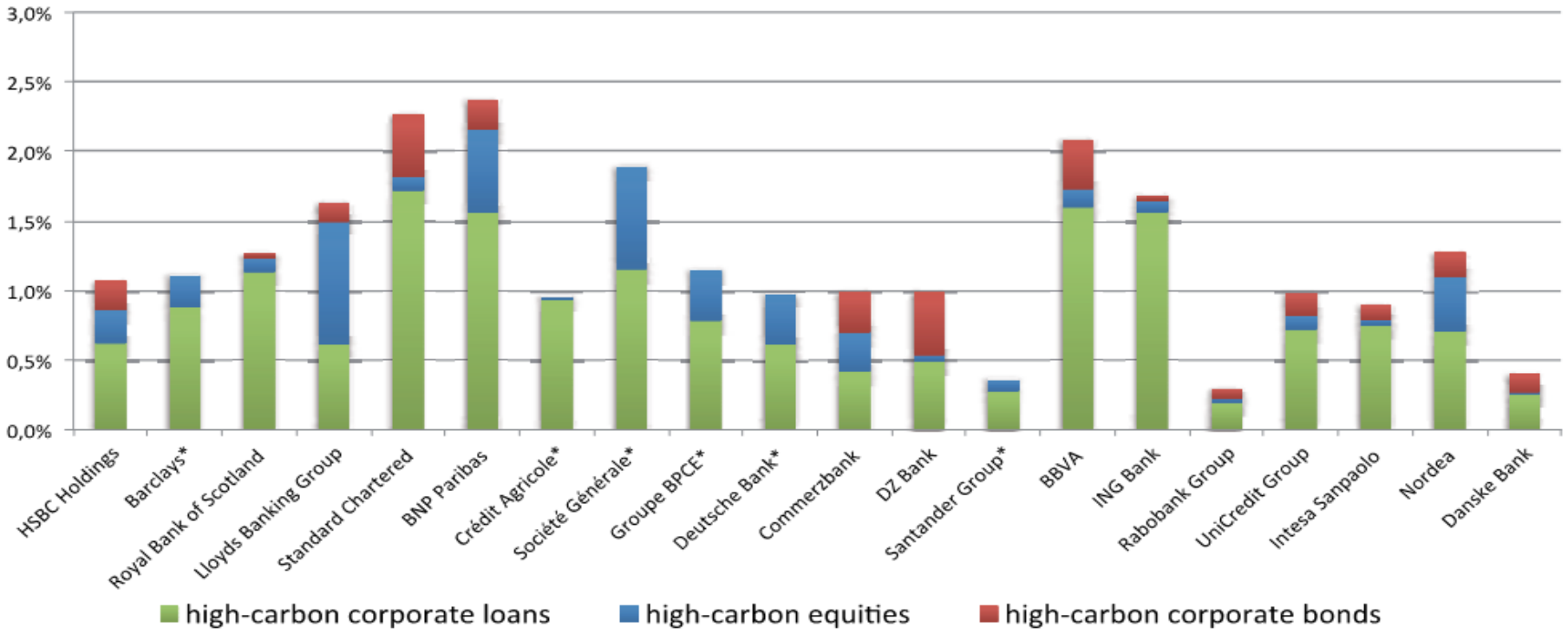
Estimated share of high-carbon assets in sample of EU pension funds



Source: Bowen and Dietz (2016)

The carbon-exposure of European banks seems also moderate

Combined exposure of large banks to high-carbon assets as share of total assets, end-2012

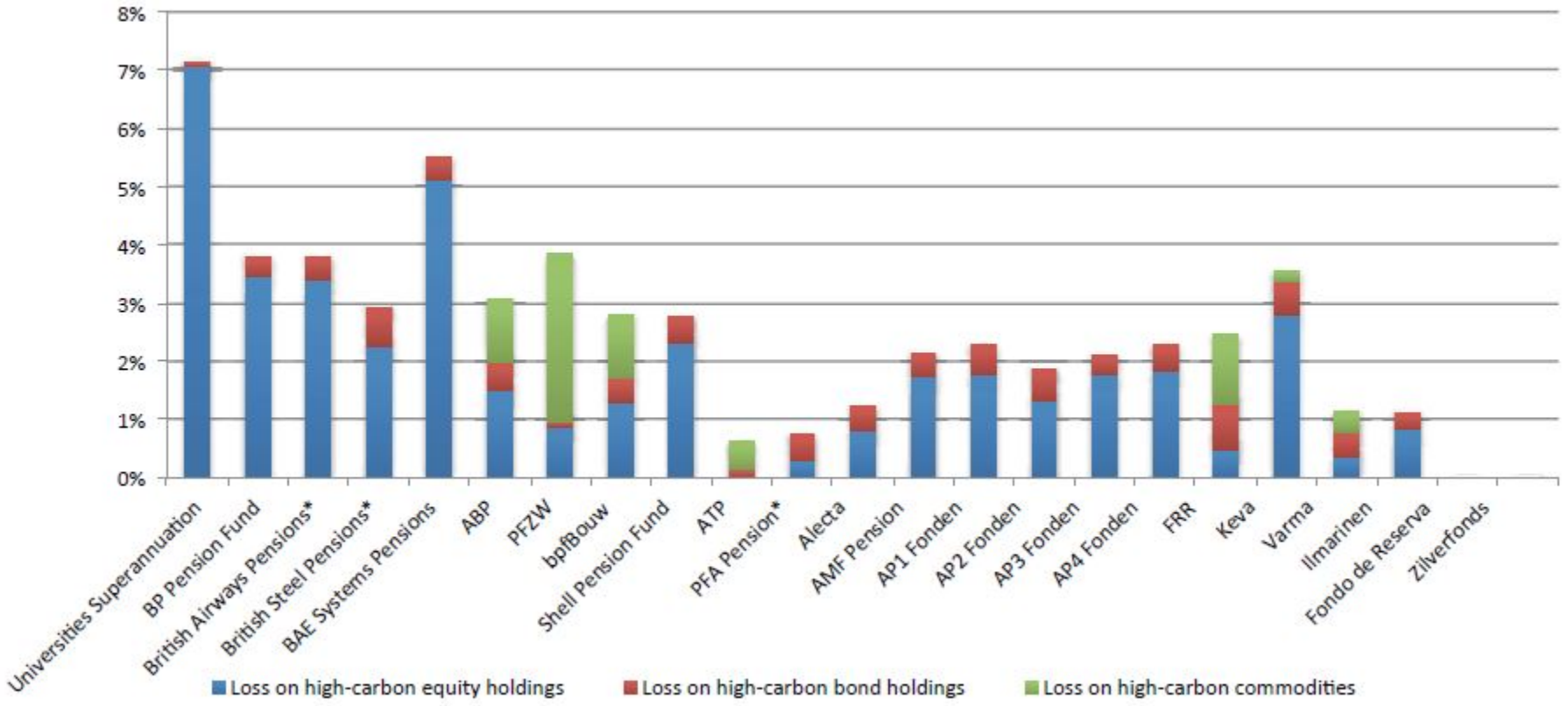


** = Excluding corporate bonds due to lack of available data*

Source: Weyzig et al. (2014)

Estimated losses of pension funds

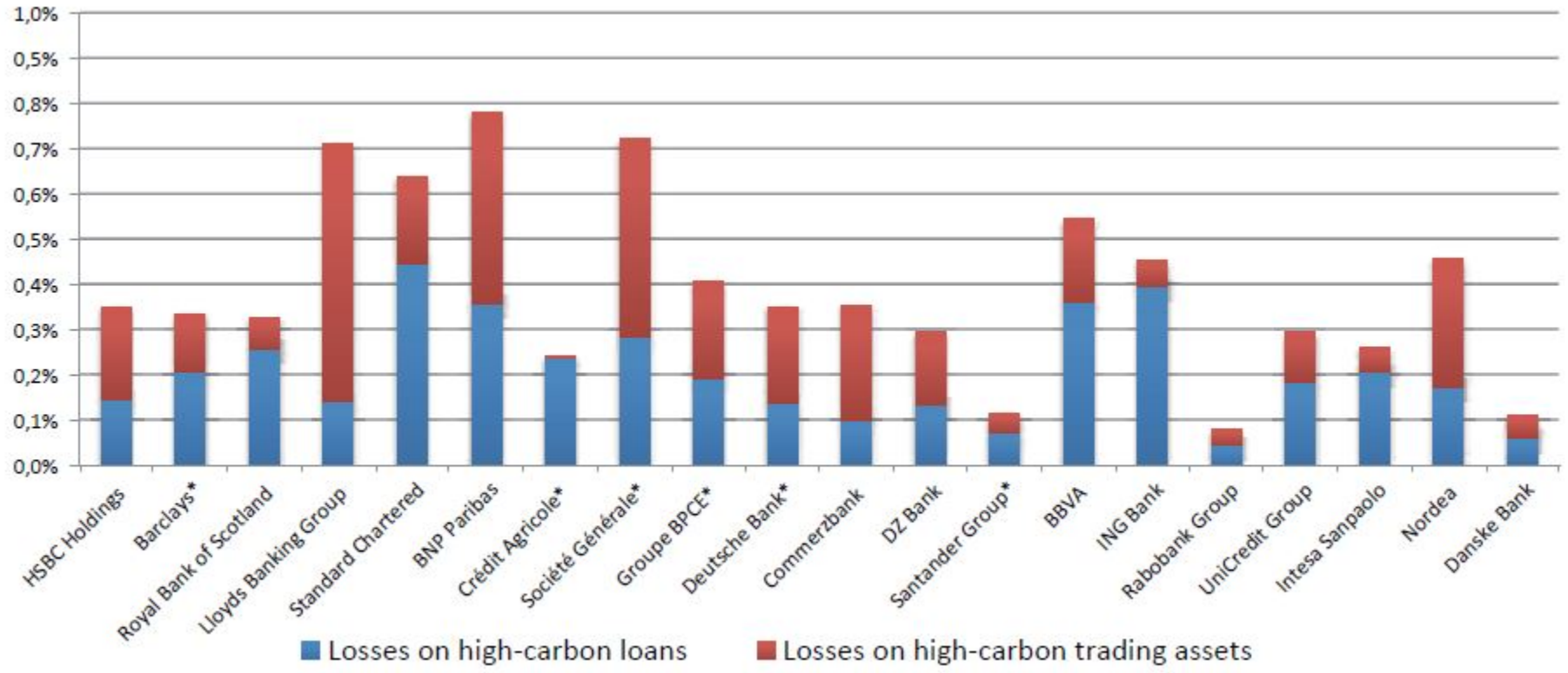
Estimated losses of a **carbon bubble shock** (quick and large fall in the value of fossil fuels) in % of total assets.



Source: Weyzig et al. (2014)

Estimated losses of banks

Estimated losses due to a **carbon bubble shock** (quick and large fall in the value of fossil fuels) in % of total assets.



Source: Weyzig et al. (2014)

Potential for another systemic crisis?

- Thus the losses of banks and pension funds following the burst of the carbon bubble seem modest.
- However we have to remember that the Global Financial Crisis of 2008-09 was triggered by losses in the small Subprime Mortgage Market.
- Many countries, including some oil producers, are heavily indebted.
- Moreover, many regions (including the EU and the UK) are struggling with financial and political problems.

Analogy between the carbon bubble and previous bubbles

Criteria	Housing	Shipping	Dotcom	Carbon
1. Long-lived	✓	✓	✗	✓
2. Capital intensive	✓	✓	✓	✓
3. Economic share	✓	✗	✓	✓
4. Debt-financed	✓	✓	✗	✓
Crisis prone	Yes	No	No	Yes

Source: Schoenmaker et al. (2015)

Implications for banking regulation

- The Global Financial Crisis of 2007-09 has prompted extensive reforms of banking regulation: Basel III, Dodd Frank.
- There is now a consensus that banks, especially large ones, exert externalities on the real economy.
- Macro-prudential regulation has been introduced, in order to protect the stability of the financial system as a whole and to limit the negative externalities it exerts on the real economy.

Implications for banking regulation(2)

- It seems clear that climate change is a much bigger challenge than financial stability
- The question is: should banking regulation be further reformed to take it into account?
- Or should governments take their responsibilities?
- After all, banking regulation is not there to solve all the problems of the world.

Consensus on reforms that are needed to make finance sustainable

- Low carbon technologies must be encouraged, both by public subsidies and support of final investors.
- There is a need to develop green financial markets and instruments.
- However this is only possible if measurement and standards for Carbon Disclosure are improved.
- Similarly banking regulators need to develop a well established methodology for Carbon Stress Tests.

The question is: should they go further?

The Tragedy of the Commons

- The Tragedy of the Commons is a well known expression in Economics, referring to the free rider problem.
- Markets do not provide enough of public goods (and provide too much of public bads such as pollution) because economic agents do not internalize the externalities (good or bad) they impose on others.

Traditional solutions involve:

- public regulation,
- taxes and subsidies, or
- introduction of tradable property rights (such as Carbon Emission Rights) on externality generating activities.

The Tragedy of the Horizon

- Climate change has a specific aspect that makes it different from standard externality problems.
- It poses a much bigger challenge, because it will mainly impact future generations.
- In an eloquent speech at Lloyd's of London (9 September 2015) Mark Carney, the Governor of the Bank of England and the Chairman of the Financial Stability Board, coined the expression "the Tragedy of the Horizon".
- The horizon of climate change far exceeds that of business managers, financial markets, politicians and even regulators.
- There is no way to trade with future generations (missing markets).
- More importantly, future generations are not represented in the political process.

Conclusion

Let me conclude by a note of pessimism.

- The tragedy of the horizon combines a market failure and a political failure.
- Banking regulation is already very complex and cannot solve all the problems of the world.
- The best that can be hoped is that managers, investors and become fully aware of the issues at stake.
- Banking and financial regulators have a crucial role to play in developing standards and well accepted measures of carbon impact of investments and assets.
- However this will probably be not sufficient to solve the challenges related to climate change.