



The Price of Doing Too Little Too Late

The impact of the carbon bubble
on the EU financial system

A study conducted by
Sustainable Finance Lab & Profundo



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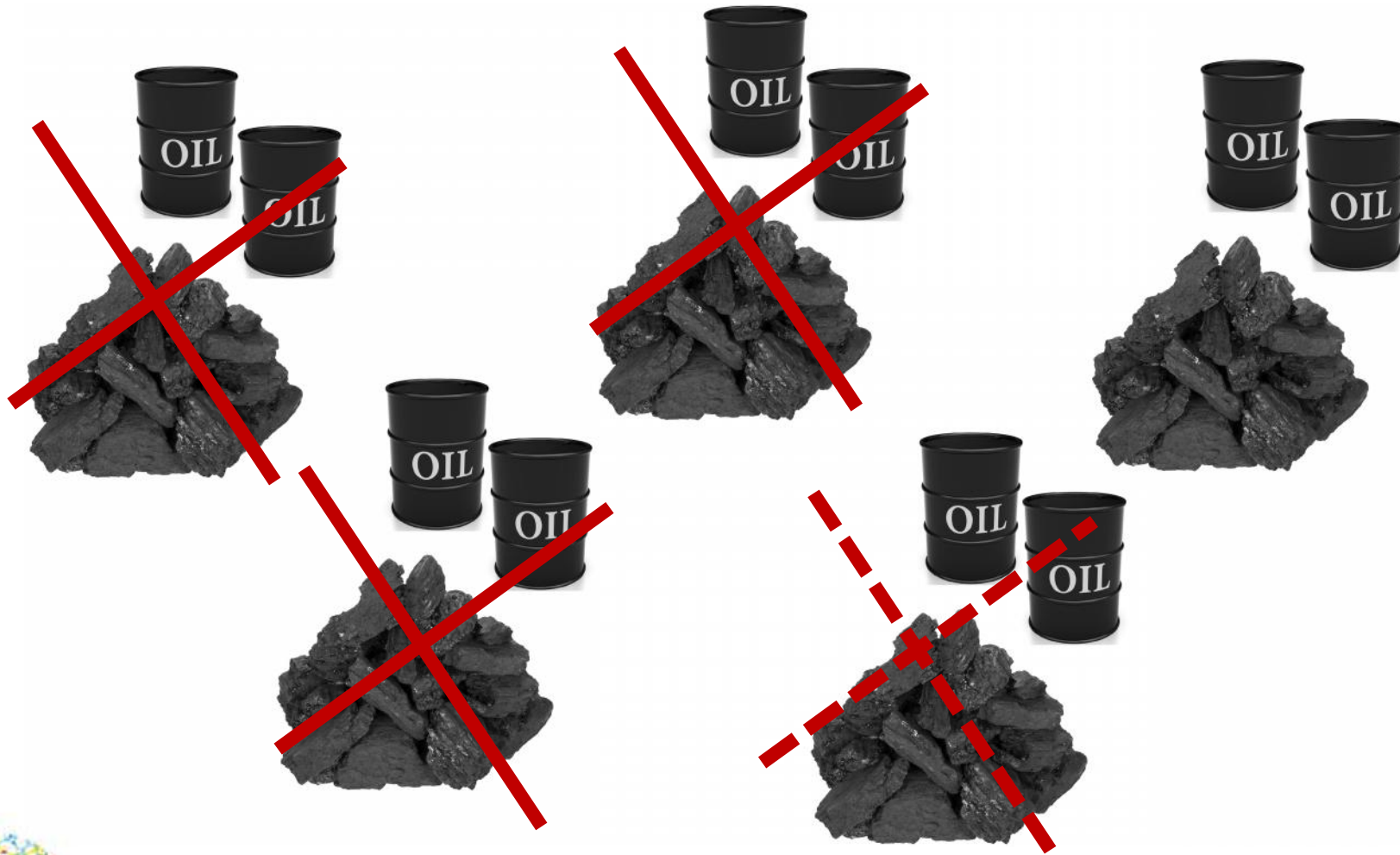


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Fossil fuel assets are overvalued





Financial institutions will suffer losses

Direct effects

- Energy commodities
- Market value of oil, gas and coal mining firms
- Credit risk of oil, gas and coal mining firms

Indirect effects

- Electricity producers, energy-intensive industries
- Other business sectors
- Governments of resource-rich countries





Research approach

Exposures to high-carbon assets

Pension funds

- 23 large funds, from 8 EU countries
- >€ 1,200 billion assets (24% of EU total)

Banks

- 20 largest banks, from 8 EU countries
- >€ 22,000 billion assets (62% of EU total)

Insurance companies

- Aggregated data





Research approach

Pension funds

Banks

Insurers

Exposures to high-carbon assets **>€ 1,000 bn**

Data sources

Asset distribution

Commodities

Equity portfolios

Syndicated corporate loans

Corporate bond portfolios

Annual reports

Annual reports

Financial database

Financial database

Estimate (index)

Exposures at 31 Dec 2012



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Research approach

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Exposures to high-carbon assets **>€ 1,000 bn**



Potential shocks

Low-carbon Breakthrough

Commodities	-50%
Equities	-60%
Bonds	-30%
Term & project loans	-30%
Credit facilities	-20%



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Potential shocks

Commodities

Securities

Loans



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Potential shocks

Commodities

Securities

Loans



Estimated losses

% assets

% capital



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Research approach

Pension funds

Banks

Insurers

Banks

- *Shareholders (profit, capital buffer)*
- *Firms (credit rationing, deleveraging)*
- *Government (public support)*

Pension funds

- *Reserves (capital buffer)*
- *Other investors (de-risking)*
- *Participants (lower pensions, higher premiums)*

Propagation of shocks



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Exposures to high-carbon assets **>€ 1,000 bn**



Potential shocks

Commodities

Securities

Loans



Estimated losses

% assets

% capital



Propagation of shocks

Investors

Firms

Households



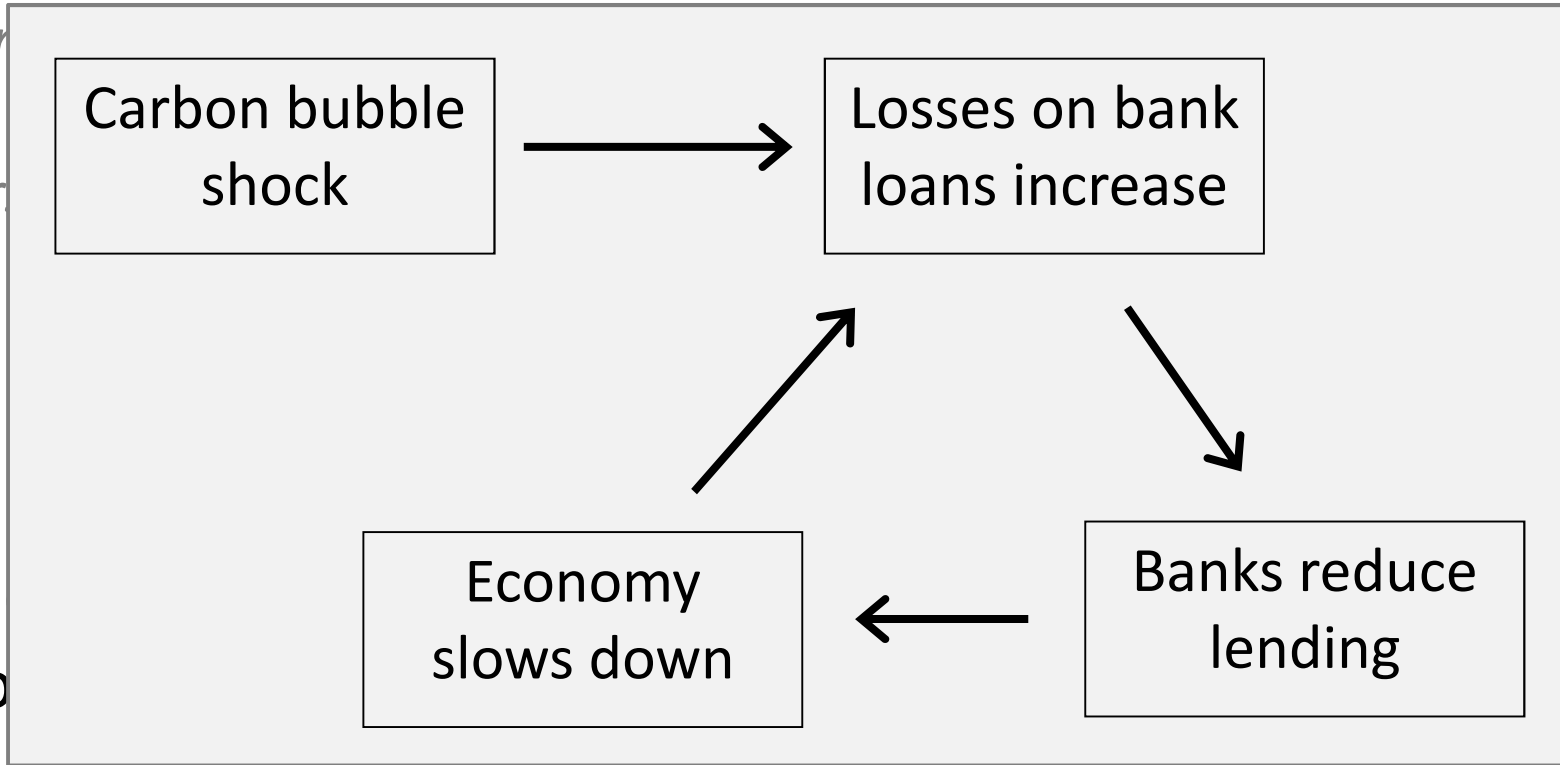
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Research approach

*Pension
Banks
Insurers*

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lo*



Propagation of shocks

*Investors
Firms
Households*



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Exposures to high-carbon assets **>€ 1,000 bn**



Potential shocks

Commodities

Securities

Loans



Estimated losses

% assets

% capital



Propagation of shocks

Investors

Firms

Households

Feedback
loops

Economy

Markets



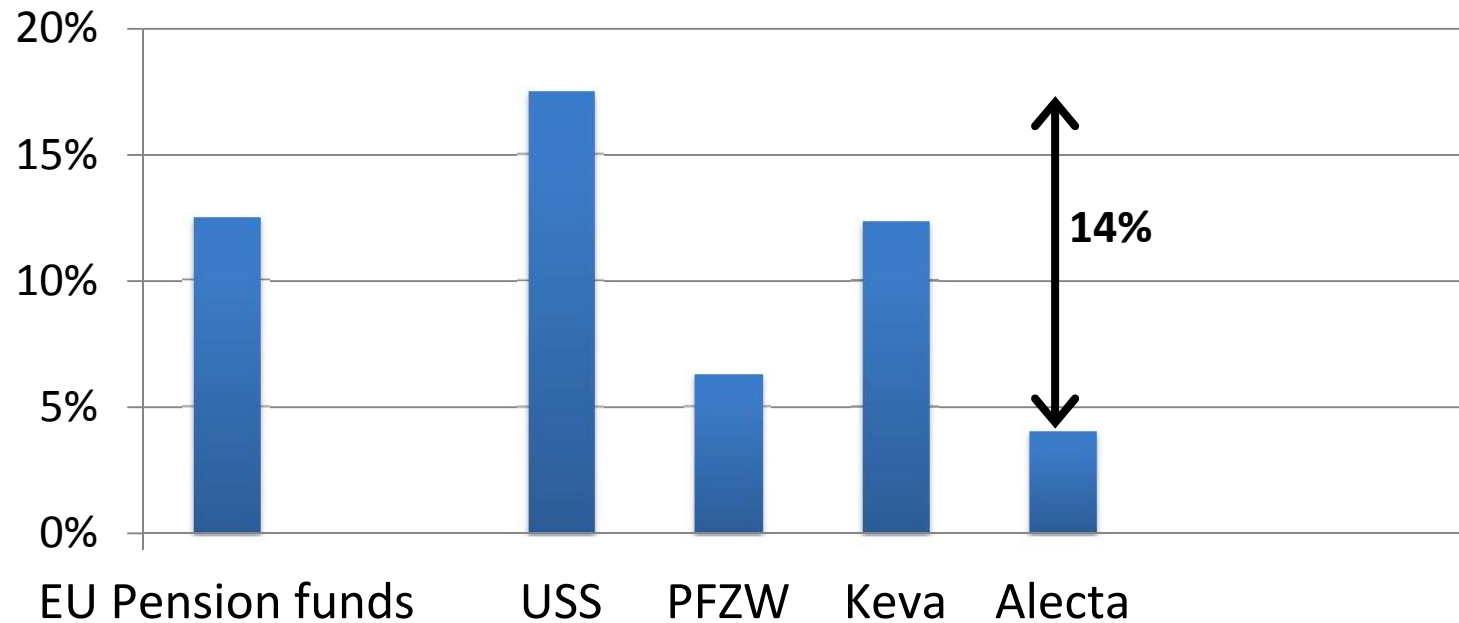
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Large differences in high-carbon assets

Pension funds

High-carbon equities / Total equities



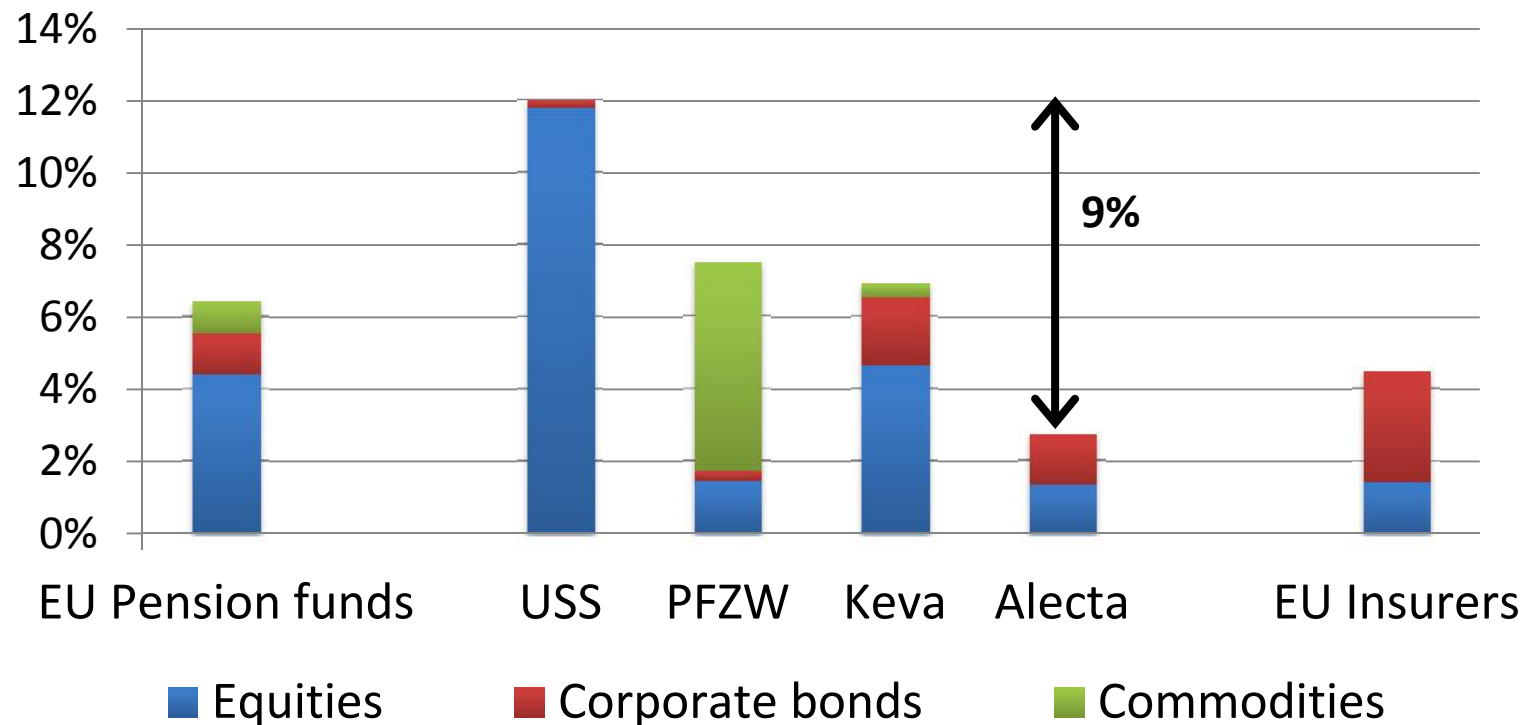
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Large differences in high-carbon assets

Pension funds & Insurers

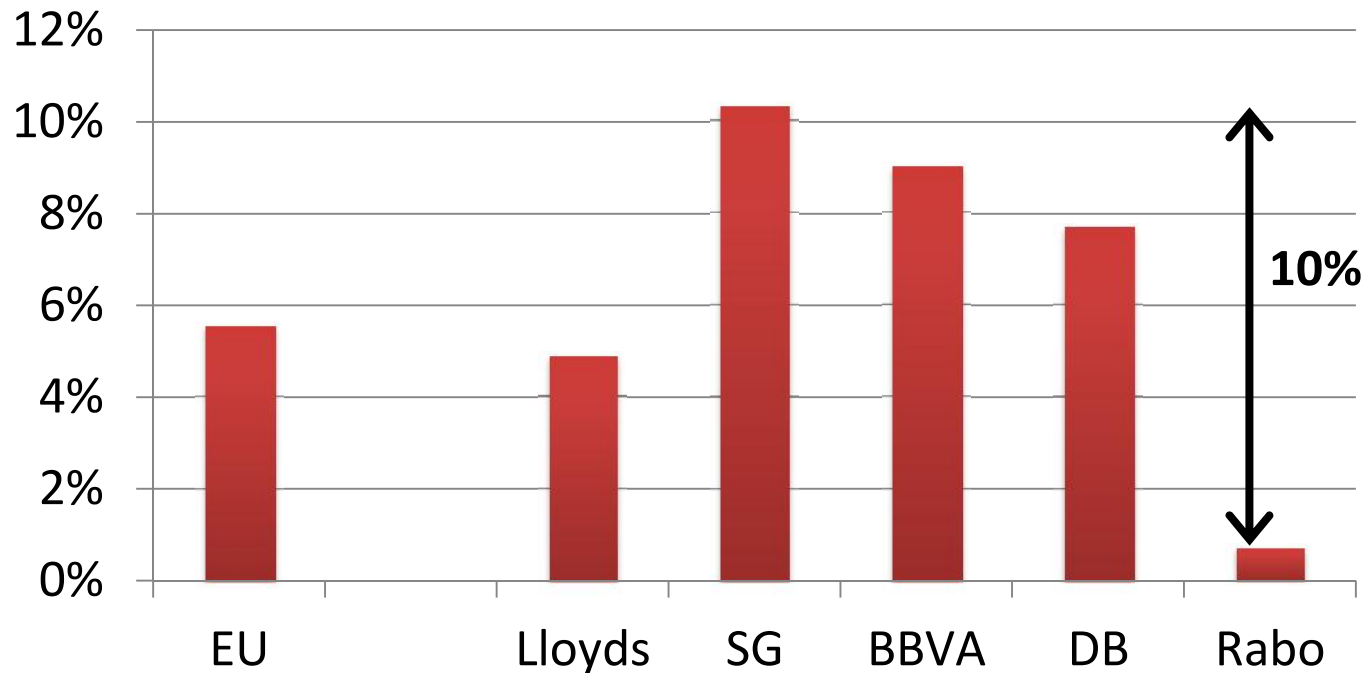
High-carbon assets / Total assets



Large differences in high-carbon assets

Banks

High-carbon syndicated loans / Total corporate loans



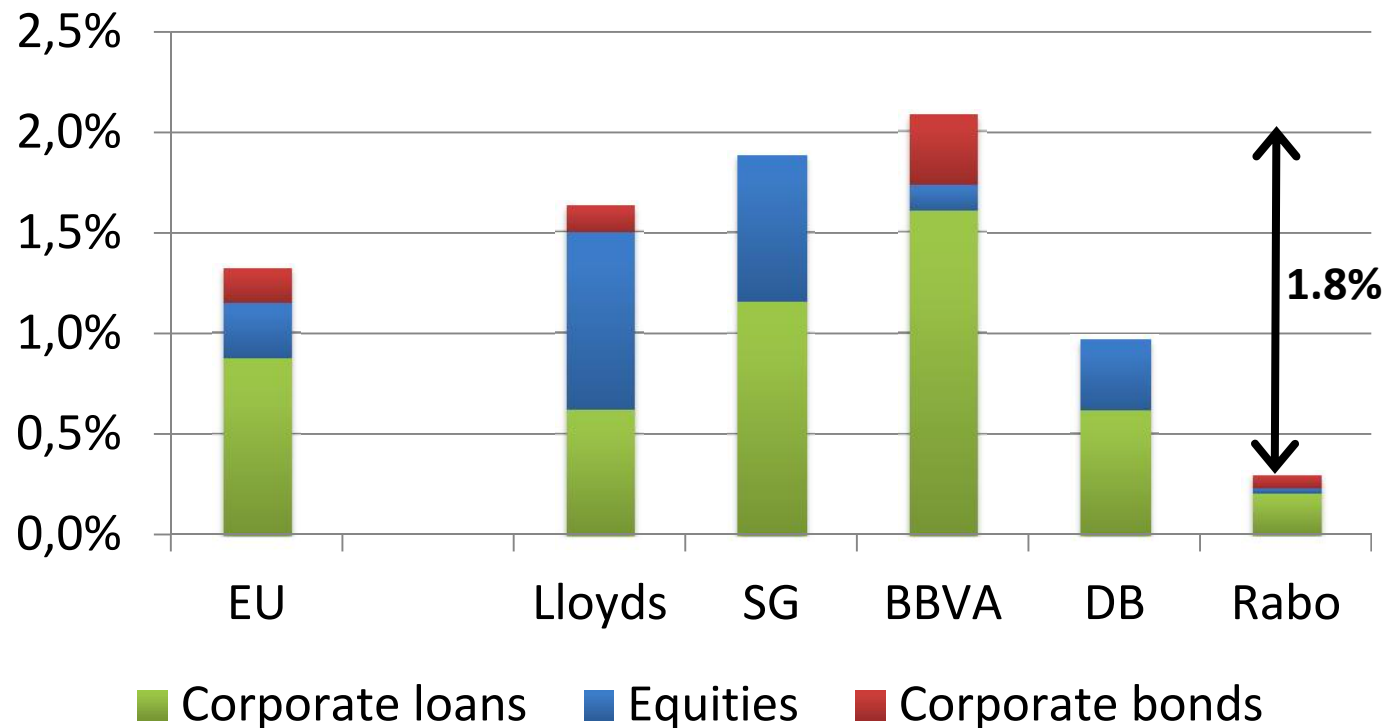
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Large differences in high-carbon assets

Banks

High-carbon assets / Total assets





Low-carbon Breakthrough → Wake up call

Scenario

- Quick and definite transition to low-carbon economy

Consequences

- Sudden loss on high-carbon assets
- Estimated total losses for EU banks, pension funds and insurance companies **€350-400 billion**
- This is unlikely to trigger harmful feedback loops



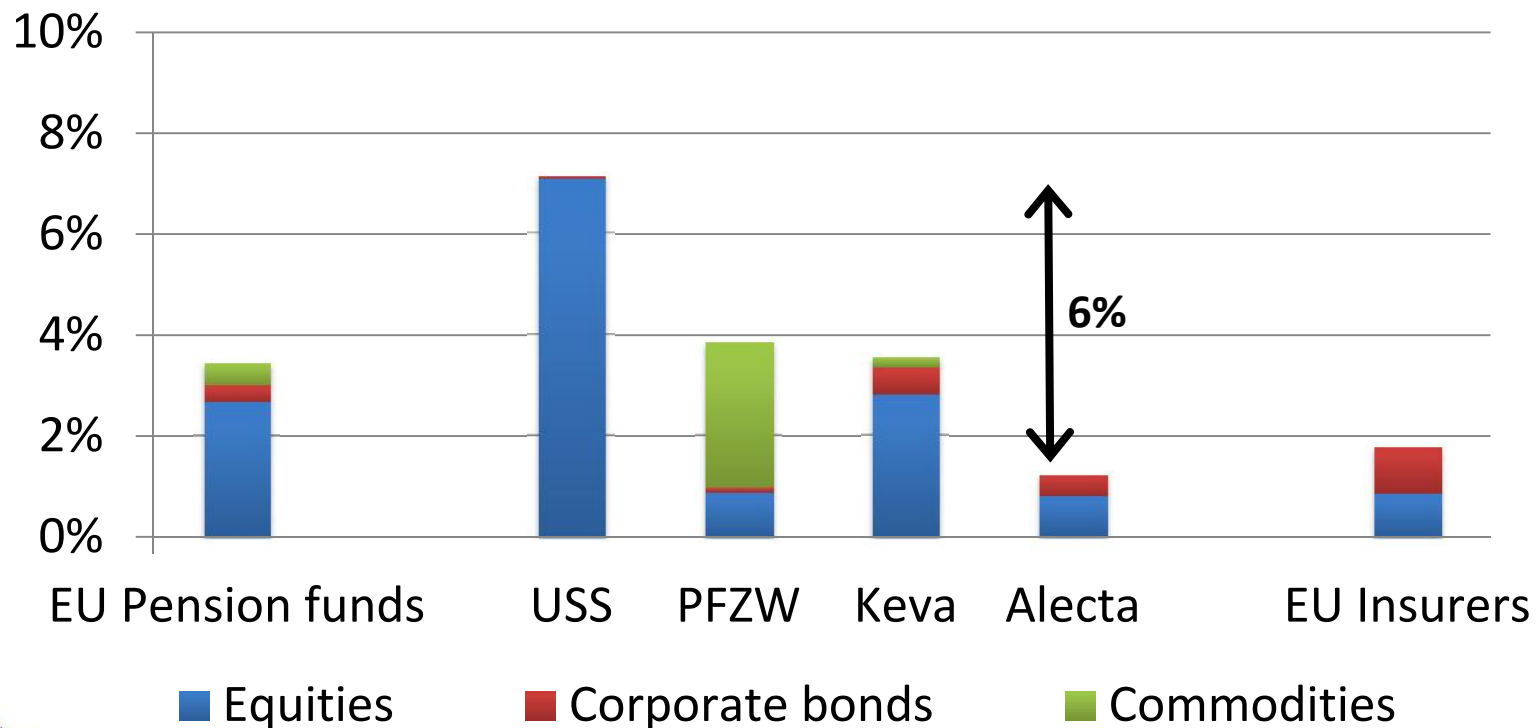
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Low-carbon Breakthrough → Wake up call

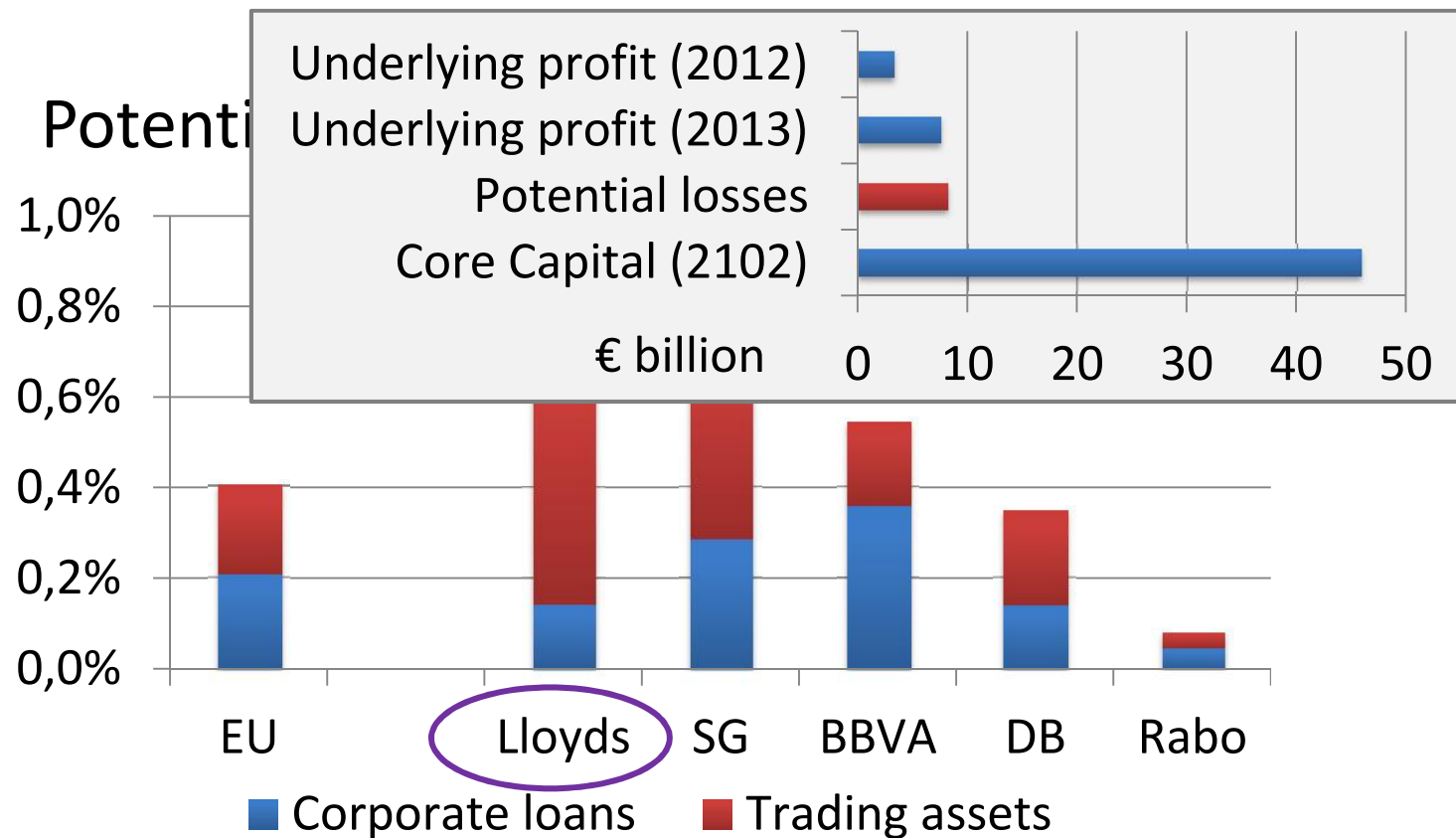
Pension funds & Insurers

Potential high-carbon losses / Total assets



Low-carbon Breakthrough → Wake up call

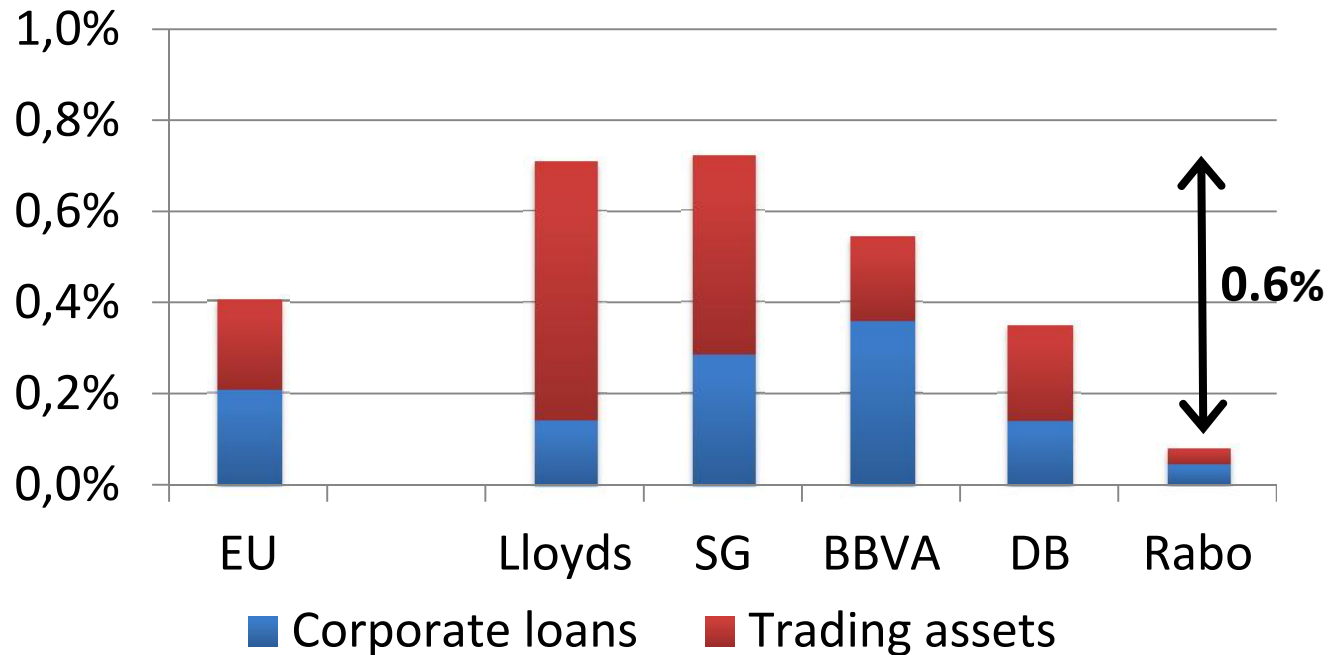
Banks



Low-carbon Breakthrough → Wake up call

Banks

Potential high-carbon losses / Total assets





Uncertain Transition → Larger losses

Scenario

- Emissions remain eventually within carbon budget
- Transition path is initially slow and uncertain

Consequences

- Ongoing capital expenditures € 500 billion/year
- Increasing stranded assets and losses
- Uncertainty about valuation of assets



Carbon Renaissance → Most harmful

Scenario

- Strongly increasing demand for fossil fuels
- Ineffective climate policies

Consequences

- Uncontrollable climate change (more floods, draughts, extreme storms, etc.)
- Serious harm to global economy
- Larger losses on broad range of assets



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Recommendations for the EU

- Adopt clear and effective long-term **climate and energy policies**
- Encourage **supervisory assessments** of all large financial institutions
- **Address weaknesses** in individual institutions (risk management, fiduciary duty) and national financial sectors (macroprudential measures)
- Promote active **long-term investment** strategies
- Adopt specific **reporting requirements**

