Climate change and the financial sector: measurement challenges

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Climate change and the financial sector

Climate change is increasingly relevant for the financial sector, and hence for central banks

- Growing source of risk for the financial sector
  - *Physical risks* - associated with abrupt or gradual changes in climate
  - *Transition risks* - risks and financial implications of the move to a low-carbon economy (government policy changes, taxation,..)
- Financial sector is increasingly encouraged to contribute to reducing climate change
  - Reducing the carbon footprint of their asset portfolios
  - Invest in green bonds or other instruments to make a positive impact

Demand for data and indicators on trends and risk exposure is growing fast

- at both the level of the individual institution as well as at more aggregated (sector, country) levels
- in order to support regular research, policy analysis and economic forecasting activities, for prudential stress testing, risk analysis and supervisory policy development

But: lack of high-quality, internationally comparable statistics and indicators

- challenges arise both in terms of availability, completeness, quality and accessibility of potential data sources, and in terms of methodology and indicator development

International initiatives – both policy oriented *and* statistical - have recently emerged to start addressing this lacuna

- NGFS 'Data Gaps Initiative'; IMF Dashboard; ECB-Eurostat CMFB Task Force; OECD; BIS; ECB Statistics Committee

This presentation

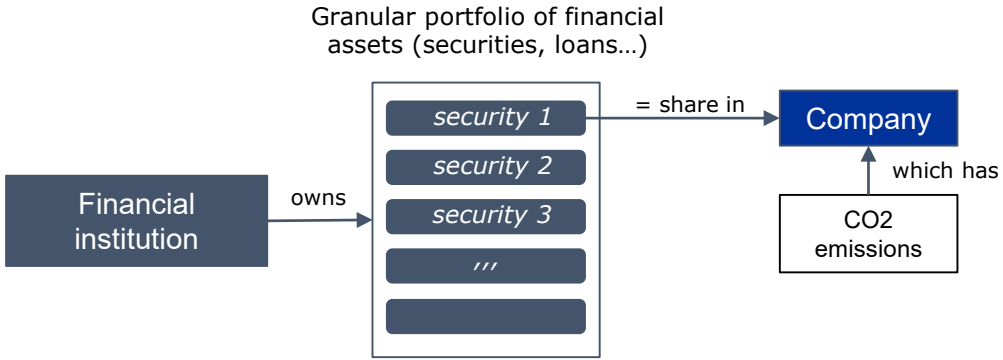
- Focus on results of the **ECB Statistics Committee Expert Group on Climate Change and Statistics** (as the first finished stocktaking report on data and measurement challenges related to climate change and the financial sector, in October 2020)
- Work involved
  - stocktaking survey among NCBs to systematically describe
    - existing and ongoing studies on climate change by European central banks, including topics addressed (>80 studies and academic work assessed);
    - variables and data sources used; including advantages and disadvantages, access modalities, feasibility of linking with ESCB granular data on loans and securities (>50 data sources ranging from very granular to very macro)
    - methodological challenges identified
  - survey of users' needs and priorities via the ECB Committee structure
  - international outreach: IMF STA, NGFS 'data gaps' workstream (IMF/ECB), EIOPA, EBA, CMFB, OECD
- Resulted in recommendations on an ECB STC workprogram on developing statistics and indicators related to climate change relevant for central bank activities (i.e., financial stability, monetary policy, supervision); the implementation of which will start shortly

Results (1): three sets of indicators as a central priority for users

indicators	analytical use
Exposure of financial institutions to climate-change related physical risks	• Financial stability analysis (stress testing, risk assessment at individual and sector level) • Analysis on the transmission of monetary policy, CB portfolio allocation and financing conditions
CO2 footprint of financial institutions	• Assessment of transition risks • Analysis of alignment of financial sector asset portfolios with international climate targets
Number and value of green financial instruments	• Role of sustainable finance for ECB monetary policy and macroeconomic analysis • Role of green loans in emissions reductions

These three enjoyed wide support by all users' groups among a very wide array of possible indicators (and are hence of a 'no regret' nature). They are also in line with mandate & expertise of ESCB statistical function.

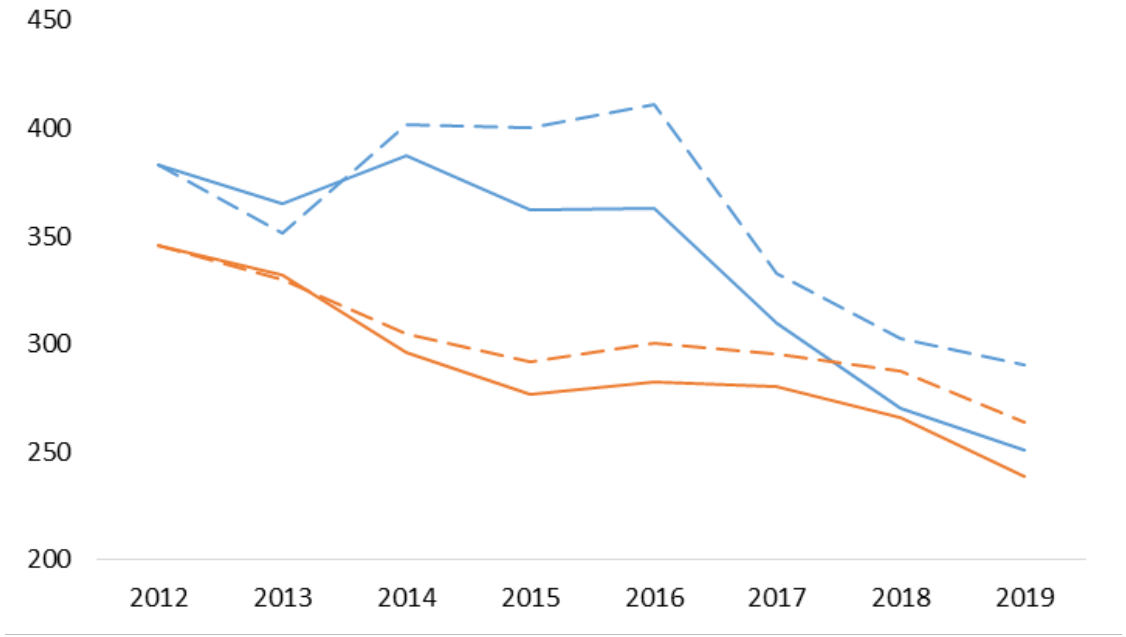
Example: CO2 footprint indicators



- CO2 footprint of financial institution = *F*(portfolio; companies in portfolio; CO2 emissions of companies)
- Data challenges: information on CO2 emissions (scope 1, 2, 3) is incomplete, only from commercial sources and may not be accurate
- Methodological challenges:
  - Weighting schemes (shares in portfolio; weighting of emissions (by value added, sales, output…);
  - Price vs volume changes
  - Exchange rates, inflation
  - Decomposition into 'portfolio composition' (exclusion) effects and 'underlying' CO2 reduction

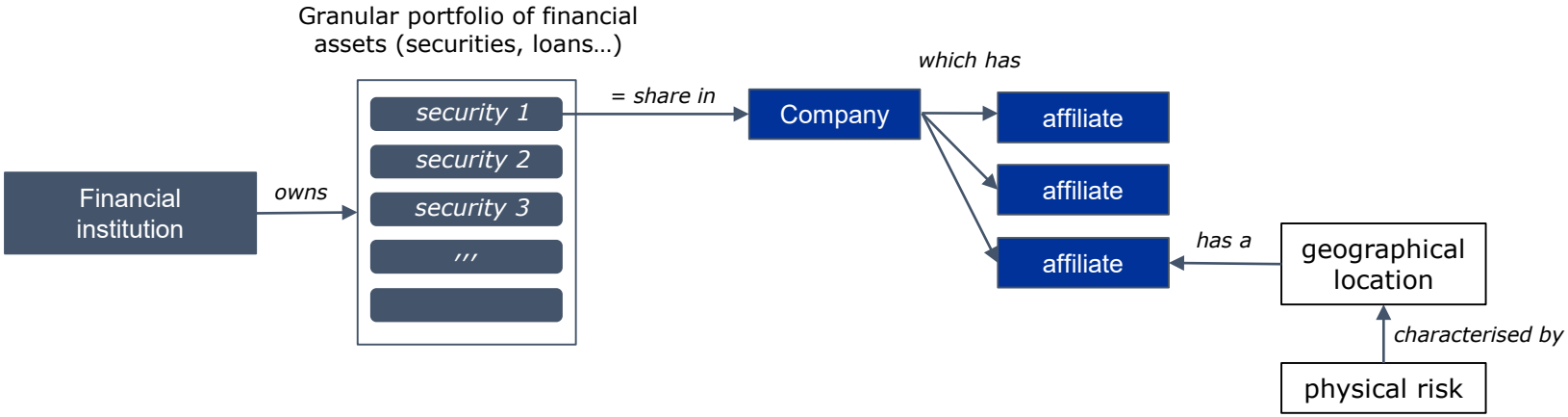
Illustration:

WACI of the listed securities portfolio of Dutch Pensionfunds and Insurance companies – with and without correction for inflation and exchange rates



WACI is Weighted Average Carbon Intensity, (tons of CO2-equivalent emissions per mln € sales)

Example: physical risk indicators



- Physical risk of financial institution = *F*(portfolio; companies; affiliates; physical risk of affiliate locations)
- Data challenges: location of affiliates (and ideally the activities in that location)
- Methodological challenges:
  - Weighting schemes (shares in portfolio; share of affiliates in company);
  - Price vs volume changes
  - Exchange rates, inflation

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Results (1): three sets of indicators as a central priority for users

indicators	Data sources
Exposure of financial institutions to climate-change related physical risks	• Granular information on portfolios of financial institutions (AnaCredit, SHS/CSDB) • Physical location of the assets from a (partial) global business register (Riad, OECD Adima, LEI, commercial sources, possibly EGR going forward) • Physical risk associated with locations (e.g. EC JRC Risk Data Hub, World Resources Institute, commercial sources) • SEEA as source for estimates where granular information is not available
CO2 footprint of financial institutions	• Granular information on portfolios of financial institutions (AnaCredit, SHS/CSDB) • CO2 emissions scope 1-2-3 (mainly commercial sources, but also data from European ETS, and going forward, NFRD). Emissions from buildings. • SEEA as source for estimates where granular information is not available
Number and value of green financial instruments	• Granular information on portfolios of financial institutions (AnaCredit, SHS/CSDB) • A 'green' classification of instruments (Commercial sources; EU Taxonomy on green activities could result in first reports by end 2022).

Implications for SEEA

Aspects of SEEA that are of particular use for developing (estimates for) these indicators

- Indicators on the energy use, efficiency, and emissions of the non-financial corporations sector at a detailed ISIC/NACE level
- Indicators on the energy use and efficiency of residential and commercial real estate (real estate energy labels, e.g. to support analysis or mortgage portfolio's)
- Overall: enhanced timeliness (and ideally also frequency)

Additional information – beyond these three top indicators – was also requested by ECB users on

- Information on Emission Trading System (ETS) auctions, and their effect on emissions
- Statistics on government finance that separately identify climate-related investment and expenditures, and green budgeting

Jointly follow and incorporate the enhanced non-financial reporting by NFCs

- Enhanced scope of application of the revised EU Non-Financial Reporting Directive, the creation of a public register
- IFRS Foundation – the accounting standards setting body – global standards for sustainability reporting

Thank you

For more info please contact
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Background: way forward for ECB EG on CCS

A phased approach to indicator development, considering the urgency and the practical barriers

Phase 1. development of first experimental indicators

- using easily accessible (open source) data of (perhaps) not always the desired quality
- Complement missing data with transparent estimates (SEEA based where possible)
- Start with SHS/CSDB, including loan-books (AnaCredit) at a later stage.
- coordinating activities nationally (e.g. agreeing on joint activities and sharing code and results), before considering a shared IT infrastructure

Phase 2. enhanced indicators and robustness checks

- using complementary and (potentially) superior data sources that are more difficult to access
- experimenting with different methodological specifications of the indicators

Phase 3. development of dissemination strategy for experimental indicators

- Externally at the aggregate level and via enriched granular datasets for ESCB users

Phase 4. plan for further consolidation into the regular work of the STC, building on

- building on the lessons learned, including on IT requirements
- progress made in related areas such as the planned intensification of the collaboration between RIAD and the EGR, the NFRD and EU Taxonomy.