



Using PACTA to align corporate loan portfolios with climate scenarios [Paris Agreement Capital Transition Assessment (PACTA) for Banks]

Dr. V.V.L.N. Sastry

Financial Economist , Jurist, & International Arbitrator

***M.E, M.B.A, FCMA (CIMA), CMA, CGMA, CPA, CACA,
MSc (Economic Policy).***

LL.B (India), LL.M (U.K), Ph. D (Law, USA).

Post Doctorate in Economics

Agenda

01

Case in point
PRACTA and PRACTA for Banks (Slides: 3 to 12)

02

PRACTA Methodology
(Slides: 13 to 18)

03

PRACTA Metrics
(Slides: 19-23)

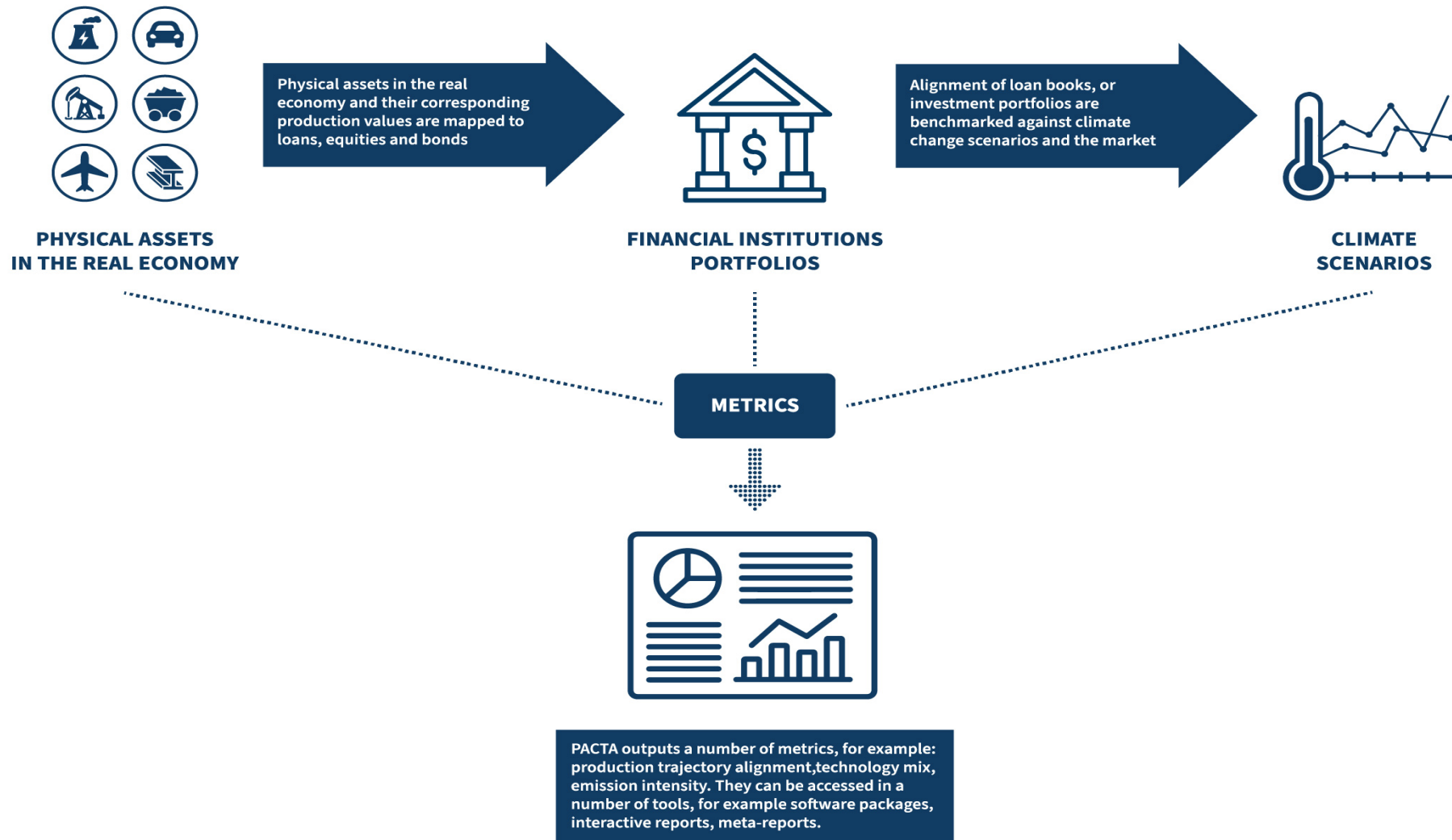
04

PRACTA Implementation (Slides: 24-28)

Case in point - What is PACTA?

- Measure the alignment of financial portfolios with climate scenarios, PACTA quickens the shift to net zero in the financial industry.
- Initially, 2° Investing Initiative (2DII) created PACTA with support from the United Nations Principles for Responsible Investment. The PACTA stewardship was handed by 2DII to RMI, formerly known as Rocky Mountain Institute, in June 2022.
- Under the direction of RMI, PACTA will continue to be an independent, free, open-source approach and tool that offers forward-looking, scientific scenario analysis to the financial and supervisory community, assisting users in making financing decisions that are in line with climate change. RMI intends to allocate resources towards enhancing PACTA's usability and relevance in daily investment decision-making and reporting obligations.
- The PACTA study evaluates the actions that financial institutions should take in relation to enterprises operating in climate-relevant industries in order to reduce the rate of increase in global temperatures. It utilizes a proactive, dynamic approach that is predicated on the five-year production plans of the companies that a portfolio firms itself with.
- As different sectors require different actions to accomplish the goals of the Paris Agreement, the technique measures alignment per sector or per technology. Certain industries must change (like the power industry), while others must phase out (like the fossil fuel industry). Some industries must move more swiftly than others.

What is PACTA?



An open-source, free software program called the Paris Agreement Capital Transition Assessment (PACTA) allows users to assess how well financial portfolios correspond with various climate scenarios and to examine individual enterprises.

What is Paris alignment of finance?

- The term "Paris alignment" describes how money flows from the public and private sectors align with the goals of the Paris Climate Agreement.
- The Paris Agreement's Article 2.1c describes this alignment as ensuring that financial flows follow a course that leads to reduced greenhouse gas emissions and development that is resilient to climate change. This kind of alignment will support the increase in financial flows required to fortify the international response to the threat posed by climate change.
- Driving systemic change might be taken into consideration at the strategic level first. In light of this, we must inquire as to whether the public and commercial sectors are making the necessary efforts to guarantee that financial decisions take climate change into account and are consistent with the goals of the Paris Agreement.
- If not, what steps are need to take next?

Industries Accounting for 75% of Emissions Are Covered by PACTA

- Currently, PACTA covers climate-relevant industries: power, coal mining, car manufacturing, cement, steel, coal, and aviation. These industries together are responsible for over 75% of greenhouse gas emissions worldwide.
- In addition to central banks, over 1,500 financial institutions globally have utilized PACTA to evaluate the regulated firms they oversee, such as the European Insurance and Occupational Pensions Authority (EIOPA), the California Department of Insurance, the Bank of England, and others.
- PACTA is used to test over 600 portfolios per month on average.
- A critical feature of PACTA is that it relies on physical, asset-based company data as the core analytical concept, which provides granular, regional, sector-specific, forward-looking production pathways that can be compared with various scenarios.
- This core alignment functionality is complemented by a stress-testing module for investors that measures various climate scenarios' influence on asset prices.

PACTA and its versions

Different Versions of PACTA

PACTA for Banks



Corporate loans

- Road-tested with 18 major banks
- Downloaded by over 70
- Desktop software



PACTA for Investors



Shares



Corporate Bonds



Funds

- Over 3000 FIs have uploaded portfolios
- Online tool – Interactive reports



PACTA COP (coordinated projects)



Corporate loans



Shares



Corporate Bonds



Funds

- Meta analysis at the country level
- Implemented with 2DII/RMI



PACTA uses

What can PACTA be used for?

PACTA can be used to help inform:

- Risk Management
- Climate related decision making and strategy
- Target setting
- Identifying and engaging with clients
- Disclosure and reporting

*“Given the importance of forward-looking assessments of **climate-related risk** the Task Force on Climate Related Financial Disclosures (TCFD) believes that **scenario analysis** is an important and useful tool for an organization to use...”*

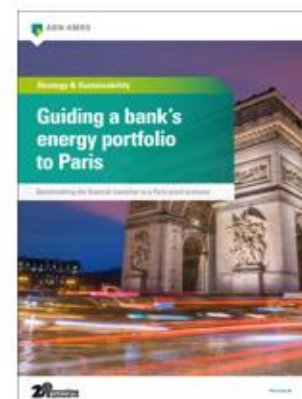
TCFD, The Use of Scenario Analysis in disclosure of Climate-related Risks and Opportunities

Examples:

ING Terra Report



ABN-Amro Report



Standard Chartered TCFD Report



THE PROCESS OF ACHIEVING PARIS ALIGNMENT CONSIST OF DIFFERENT PHASES

THE PROCESS OF ACHIEVING
PARIS ALIGNMENT CONSIST OF
DIFFERENT PHASES



Paris Alignment for Private Financial Institutions: Commitments and Methodologies

Financial institutions have **collectively stepped up** to advance on aligning their portfolios with the zero-carbon transition.

Although commitments are a fundamental step towards decarbonizing portfolios and balance sheets, their **operationalization** remains challenging.

PACTA for Banks

- Financial organizations who want to know how well or poorly their assets match different climate scenarios can benefit greatly from using climate scenario analysis. Financial institutions can utilize this data to better focus their investments in accordance with climate scenarios, make judgments about setting targets for climate change, and learn more about how to interact with their clients regarding their individual climate activities. For climate-related disclosures, such as those advised by the Financial Stability Board's Taskforce on Climate-related Financial Disclosures, climate scenario analysis can also be applied.
- This is a tool that investors have had exclusive access to for their bond and stock portfolios for far too long. However, a deeper involvement of the banking sector in these initiatives is vital to meet the targets set forth in the Paris Agreement. Ultimately, banks are essential to the fight against climate change because of the loans they make and the interactions they have with customers. In an effort to expand its flagship methodology into the corporate loan market, PACTA has worked.
- With the introduction of new data gathering methods, more complex and detailed data, and text-matching software, foundation for banks has been set to be able to evaluate corporate lending practices in a meaningful way in relation to climate scenarios.

PACTA for Banks

- Banks can assess how well their corporate lending portfolios correspond with climate scenarios by using PACTA for Banks, which covers a number of important climate-relevant industries and technological advancements.
- By giving banks information about how the capital stock and spending plans of their corporate clients align with the climate, it offers a significant advancement in climate scenario analysis for financing.
- Created as a public utility, PACTA for Banks is provided without charge to a variety of stakeholders in the banking, academic, and non-profit sectors.
- The toolset has been put to the test over the past two years by 17 of the top global institutions in Europe, North America, and South America.
- It was also created with cooperation from NGOs and industry experts, and it has been evaluated by more than a dozen academic institutions.

PACTA at a glance

Measures a portfolio's climate alignment

It assesses the alignment of a financial portfolio with any climate scenario, revealing where the portfolio stands between business-as-usual (BAU) and Paris-aligned <2°C scenarios

Uses granular physical asset-level data

It provides a precise, technology-focused insight into the current and future activities of companies, mapped over a five-year time horizon

Enables steering and comparison between peers

It informs the design of portfolio-steering strategies to reach 2°C alignment, the identification of best and worst in class companies, and the benchmarking of a portfolio against the market

Allows the use of any climate scenarios

The methodology is adaptable to any climate scenario (IEA, IPCC, NDC, etc) that models the evolution of the economy (specifying by sector and technology) under a decarbonization pathway

Covers key climate-critical sectors

It tackles key climate-critical sectors: Fossil Fuels, Power, Automotive, Cement, Steel, Shipping (forthcoming) and Aviation (forthcoming) which together account for over 75% of global CO₂ emissions

Forward-looking

It tracks the forward-looking alignment of the economic activities financed by the portfolio and uses long-term macroeconomic decarbonization scenarios

Allocates necessary collective greening efforts

It translates <2°C scenarios into portfolio specific targets by allocating the macroeconomic trends prescribed by climate scenarios to the companies and assets in the portfolio, based on market share

Sector-specific approach

It provides specific metrics and targets for each type of economic activity in different sectors – as opposed to an aggregated portfolio-level target

PACTA methodology

PACTA for Banks Methodology

- The PACTA for Banks Methodology allows users to perform climate scenario analysis on corporate lending portfolios. It consists of three core components: physical asset-level data, financial exposures, and climate scenarios. The PACTA methodology relies on an assessment of physical assets (such as steel or power plants) linked to financial assets (such as loans, bonds, and shares) and the alignment of these assets with climate scenarios.
- While a specific set of scenario input and asset-based company level data is provided, the methodology used to calculate the metrics is stand-alone. Any climate change scenario or asset-based company data (ABCD) set could be used to implement the methodology, provided that the ABCD and scenarios use the indicators on which the methodology is built.
- The methodology the underlying rationale in more detail describes the output metrics and discusses the required inputs. Additionally, it details the scope of the methodology. Finally, it discusses different options for allocating the macro carbon budgets from sectoral pathways (scenarios) to micro-economic actors (portfolios/clients) and for allocating the physical asset-based company data to financial instruments such as loans.
- It also provides the mathematical formulas used to calculate the metrics.
- It concludes with a breakdown of the sectors covered, including sector overviews, the metrics used, and data inputted.

PACTA Methodology

- At a glance

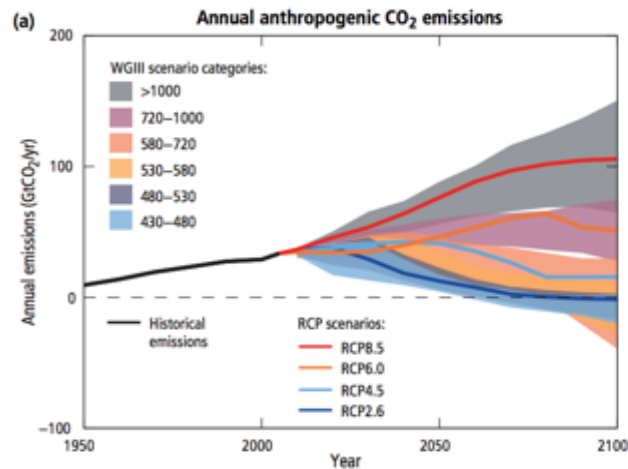
Financial Institutions portfolio

Alignment of loan books, or investment portfolios are benchmarked against climate change scenarios and the market

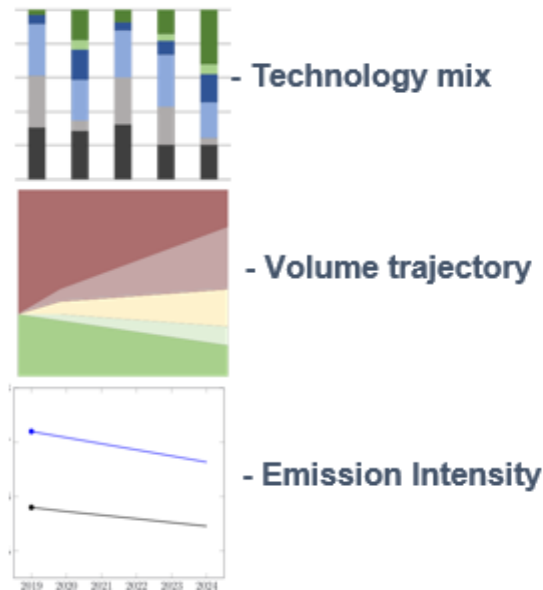
Loans, equities and bonds are mapped to physical assets in the real economy and their corresponding production values



Climate Change Scenarios



Metrics



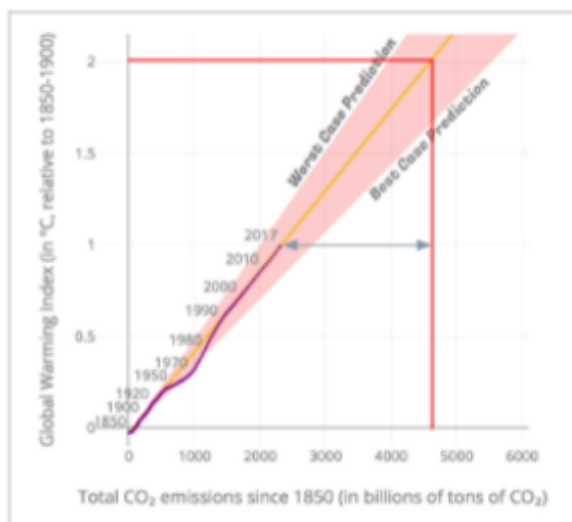
Physical Assets in the Real Economy



PACTA Methodology

- Introduction to Climate Change Scenarios

Carbon Budget



- CO₂ correlates with temperature
- Set a temperature goal (e.g. 2° C)
- Define remaining carbon budget

Society and the economy

- Population Growth
- Economic Growth
- Political considerations
- Demographics
- Etc..

- Considering all these factors
- How to we keep within the carbon budget?

Sectors



- High emissions sectors
- Calculate sectoral decarbonisation pathways

PACTA Methodology

- Introduction to Climate Change Scenarios

Year = 2020

Temp = 1 ° C (above
pre-industrial levels)



10 GW

Year = 2050

Temp = 2 ° C (above
pre-industrial levels)



7 GW



5 GW

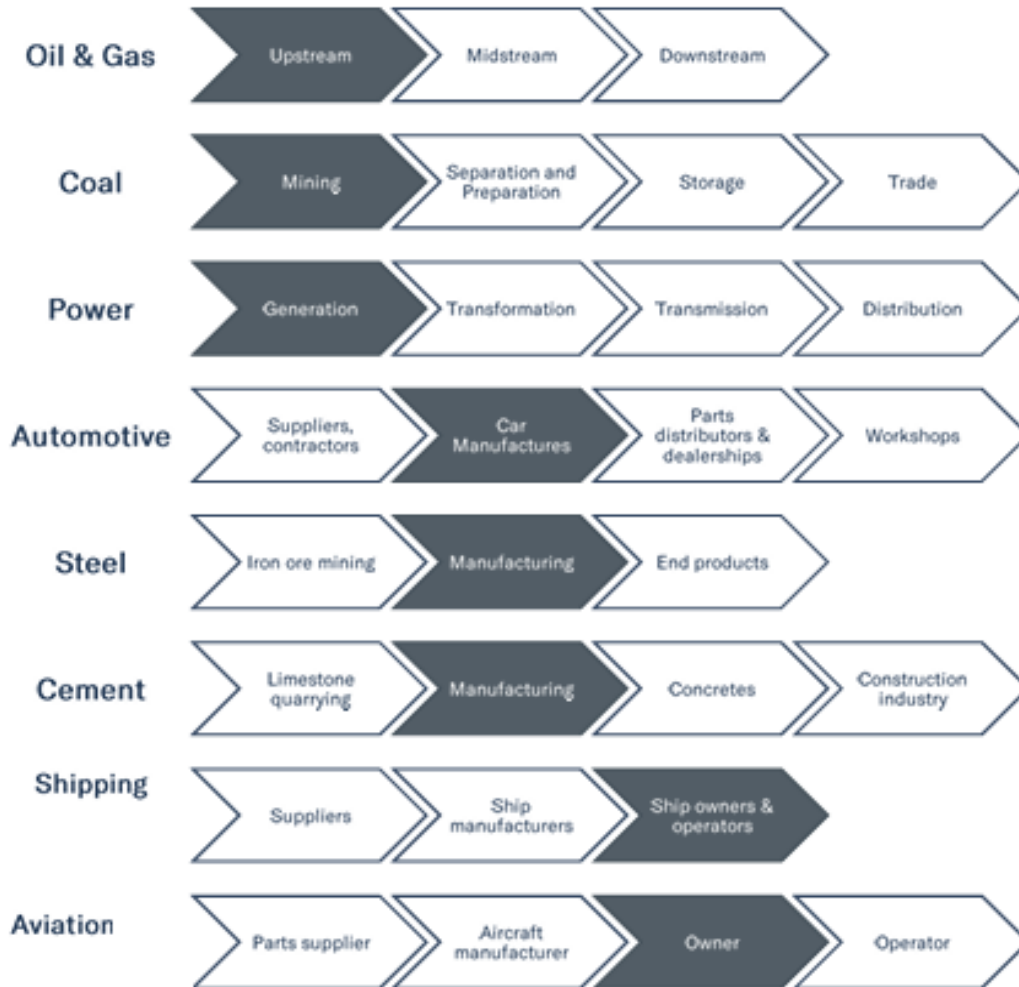
Scenarios Used

- Depends per sector and asset type

- IEA WEO – CPS, STEPS, SDS
- IEA ETP – RTS, 2DS, B2DS
- IEA NZ
- JRC GECO
- ISF NZ (NZAOA)

Covers a range of climate
ambition: Net zero, 1.5°C,
2°C (Paris), BaU

PACTA Methodology - Sectors and metrics



Technology/Fuel Mix

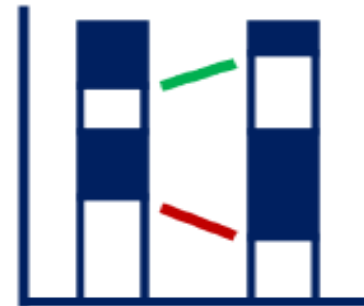


Figure 1. Simplified representation of a technology/fuel mix metric. The left column shows current technology/fuel mix and the right column shows the target for the same technology/fuel mix. The green dash suggests low carbon technologies/fuels must increase and the red that high carbon technologies/fuels should decrease.

Production Volume Trajectory



Figure 2. Simplified representation of a production volume trajectory metric. The blue line shows the production volume trajectory of a portfolio and/or client for any given technology/fuel in a sector and the green line denotes its alignment target. Hence the red area highlights the misalignment.

Emission intensity

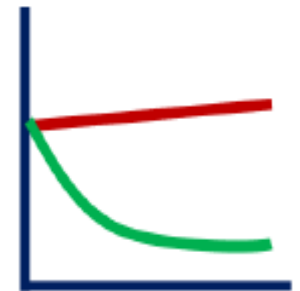


Figure 3. Simplified representation of the emission intensity metric. The red line represents the emission intensity trajectory of any given portfolio and the green line represents target emission intensity for that sector.

PACTA metrics

What do the metrics show?

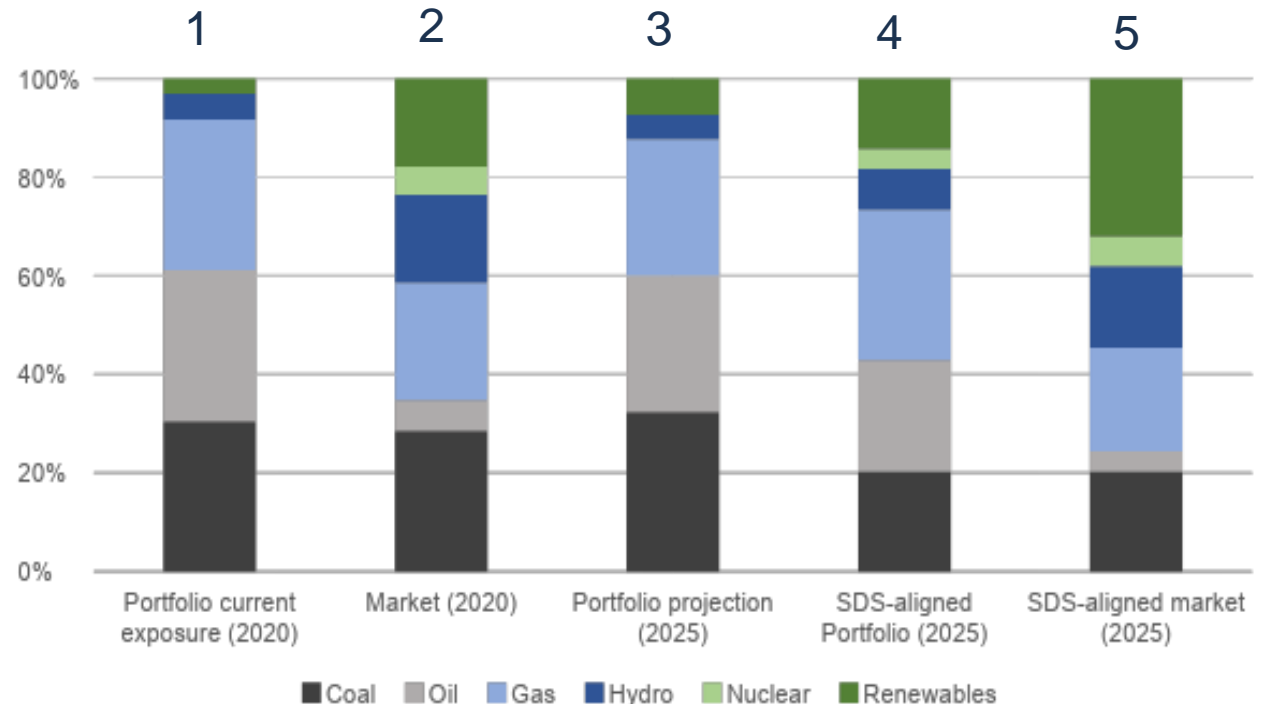
Metrics

- Technology / Fuel Mix

- Approximates the portfolio's relative exposure to the economic activities that are most impacted by the transition to a low-carbon economy
- It is a function of how the portfolio is allocated across counterparties, and how dispersed these companies' activities are across technologies



Power Sector Fuel Mix – a comparison of the portfolio to a market benchmark and the SDS scenario



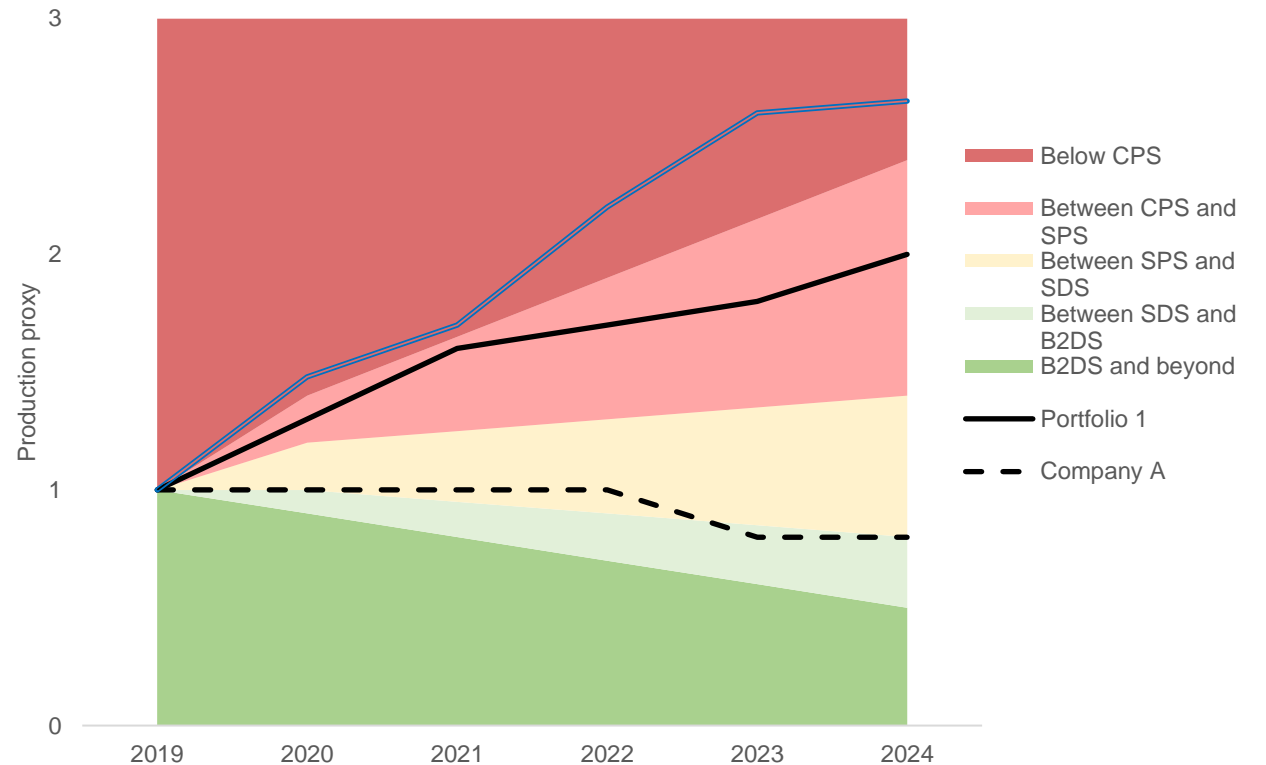
Metrics

- Production Volume Trajectory

- Compares the **portfolio's volume production trend** against the trends set as targets from **climate scenarios**
- It is also **benchmarked** against the **trend in the industry** as a whole
- Company-level results can be given



Trajectory of the portfolio volume proxy compared to market and scenario trajectories (coal-fired power generation – installed capacity)



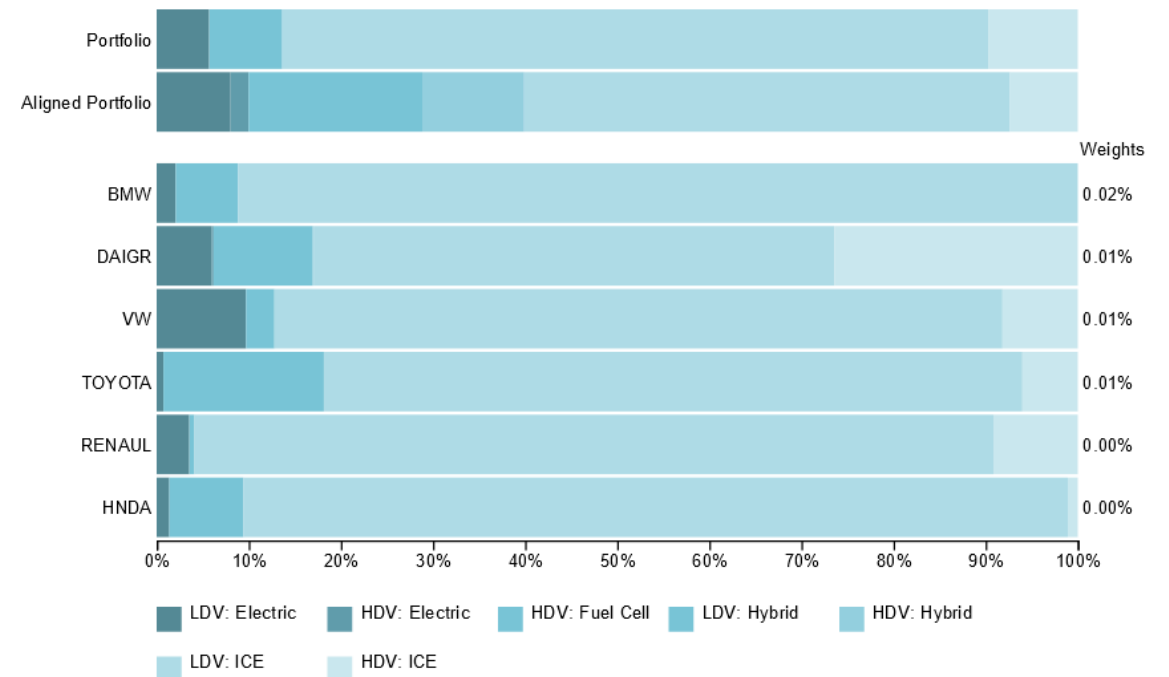
Metrics

- Company Level results

- Approximates **relative exposures by portfolio company to high emissions technologies**
- The companies are those in which **positions or bonds are held** or that have **corporate loans**
- Company performance is also **benchmarked against the trend in the industry as a whole**



Corporate Bonds : Future technology mix for the largest holdings (by portfolio weight) as % of sector for **Automotive** sector.



Metrics

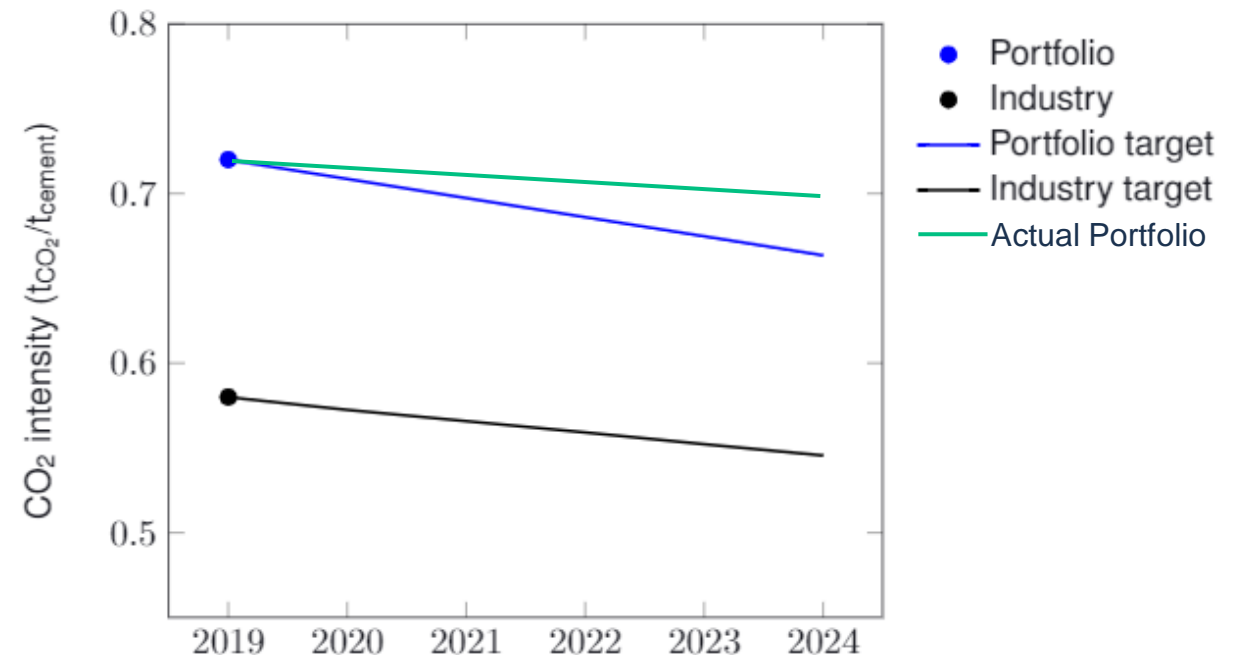
- Company level results

- Targets set using the SBTI's Sectoral Decarbonization Approach (SDA)
- Absolute carbon budgets are set for each sector (taken from climate scenarios). These are then converted to intensity targets per year for the market (black line)
- The portfolio's loan weighted average emission intensity is calculated at present - then, a yearly target is set. (blue line)
- The green line represents the portfolio's projected intensity
- This is a convergence approach. So, all portfolios' targets will equal the market's target (scenario) at the end point of the scenario

Sectors:



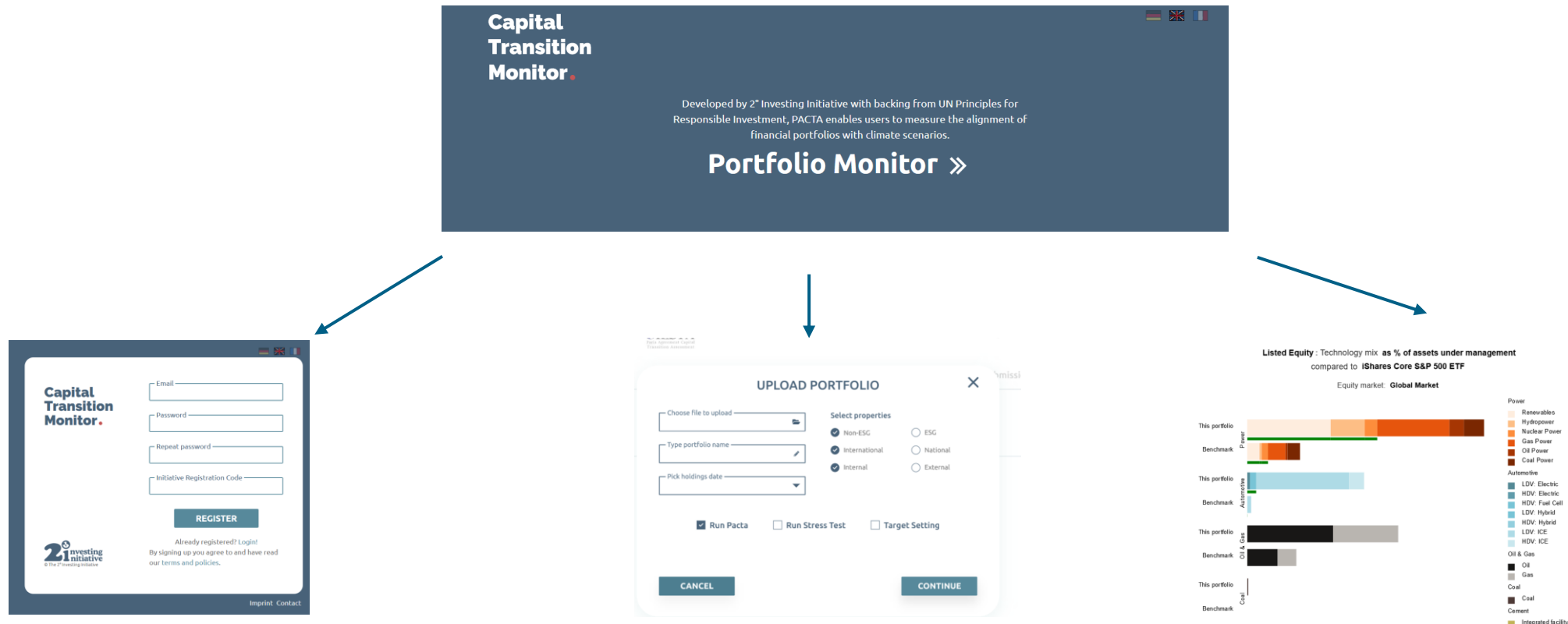
Cement CO₂ intensity metric – The portfolio's projected intensity is compared to its target and the markets target



PACTA Implementation

How do I do it?

Investor Implementation (Equities and Corporate Bonds) - Transition monitor platform



- Registration, data-upload and reports are facilitated on an online platform developed by 2DII **Transition Monitor Platform**

PACTA Software

Any user can execute the PACTA analysis on their business lending portfolio using the PACTA for Banks Software. It is open-source and free (per the MIT license). R programming knowledge at a minimum is needed.

Three R-written software packages make up PACTA for Banks, and each has an installation and usage guide available.

r2dii.data

Datasets to Align Financial Markets with Climate Goals This package provides mock inputs for the PACTA analysis. It contains mock datasets that a bank can use either to practice using r2dii packages, or as templates to structure their own data as inputs to packages.

r2dii.match

Tools to Match Financial Portfolios with Climate Data This package matches data from financial portfolios to asset-level data from market-intelligence databases (e.g. power plant capacities) Guidance on how to use the package can be found under the Get Started tab.

r2dii.analysis

Tools to Calculate Climate Targets for Financial Portfolios This package helps you to assess if a financial portfolio aligns with climate goals based on climate scenarios. The functions here can be used to generate the three metrics described in the PACTA for Banks Methodology. Guidance on how to use the package can be found under the Get Started tab.

r2dii.plot

Tools to Visualize Climate Alignment Targets for Financial Portfolios This package allows you to visualize the results outputted from the r2dii.analysis package. This allows a user to see their climate scenario alignment in graphical form. Guidance on how to use the package can be found under the Get Started tab.

Banks Implementation (Corporate loans) - Desktop Software

- PACTA for Banks is **free** and **open-source**
- The methodology is **data**, **software** and **scenario-agnostic**
- Free data, software, and preformatted scenarios are accessible at <http://www.transitionmonitor.com/>

Methodology / Supporting Documents



PACTA for Banks Methodology Document

Climate scenario analysis for corporate lending portfolios

Date: 18 September 2020
Version: 1.1.0*



[Link](#)

Software



[Link](#)

Free Data Set



[Asset Resolution website](#)

Training Materials

Practical User Guide

Part 1:
Planning your Resources

Date: 16/09/2020
Version: 1



[Link](#)



Thank you

Thanks to your commitment and great interest to listen to this presentation.

We look forward to working together.

Dr.V.V.L.N.Sastry. Sastry

drsastry12@gmail.com