

Package ‘r2dii.analysis’

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Title Measure Climate Scenario Alignment of Corporate Loans

Version 0.5.3

Description These tools help you to assess if a corporate lending portfolio aligns with climate goals. They summarize key climate indicators attributed to the portfolio (e.g. production, emission factors), and calculate alignment targets based on climate scenarios. They implement in R the last step of the free software 'PACTA' (Paris Agreement Capital Transition Assessment; [<https://www.transitionmonitor.com/>](https://www.transitionmonitor.com/)). Financial institutions use 'PACTA' to study how their capital allocation decisions align with climate change mitigation goals.

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URL <https://rmi-pacta.github.io/r2dii.analysis/>,
<https://github.com/RMI-PACTA/r2dii.analysis>

BugReports <https://github.com/RMI-PACTA/r2dii.analysis/issues>

Depends R (>= 3.5)

Imports dplyr (>= 0.8.5), glue, lifecycle, magrittr, r2dii.data (>= 0.4.0), rlang (>= 0.1.2), tidyr, tidyselect, zoo

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data_dictionary	<i>Data Dictionary</i>
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Description

A table of column names and descriptions of data frames used or exported by the functions in this package.

Usage

```
data_dictionary
```

Format

```
data_dictionary:
dataset Name of the dataset
column Name of the column
typeof Type of the column
definition Definition of the column
```

Examples

```
data_dictionary
```

target_market_share *Add targets for production, using the market share approach*

Description

This function calculates the portfolio-level production targets, as calculated using the market share approach applied to each relevant climate production forecast.

Usage

```
target_market_share(
  data,
  abcd,
  scenario,
  region_isos = r2dii.data::region_isos,
  use_credit_limit = FALSE,
  by_company = FALSE,
  weight_production = TRUE,
  increasing_or_decreasing = r2dii.data::increasing_or_decreasing
)
```

Arguments

data	A "data.frame" like the output of <code>r2dii.match::prioritize</code> .
abcd	An asset level data frame like <code>r2dii.data::abcd_demo</code> .
scenario	A scenario data frame like <code>r2dii.data::scenario_demo_2020</code> .
region_isos	A data frame like <code>r2dii.data::region_isos</code> (default).
use_credit_limit	Logical vector of length 1. FALSE defaults to using the column <code>loan_size_outstanding</code> . Set to TRUE to use the column <code>loan_size_credit_limit</code> instead.
by_company	Logical vector of length 1. FALSE defaults to outputting <code>production_value</code> at the portfolio-level. Set to TRUE to output <code>production_value</code> at the company-level.
weight_production	Logical vector of length 1. TRUE defaults to outputting production, weighted by relative loan-size. Set to FALSE to output the unweighted production values.
increasing_or_decreasing	A data frame like <code>r2dii.data::increasing_or_decreasing</code> .

Value

A tibble including the summarized columns `metric`, `production`, `technology_share`, `percentage_of_initial_production` and `scope`. If `by_company = TRUE`, the output will also have the column `name_abcd`.

Handling grouped data

This function ignores existing groups and outputs ungrouped data.

See Also

Other functions to calculate scenario targets: [target_sda\(\)](#)

Examples

```
library(r2dii.data)
library(r2dii.match)

loanbook <- head(loanbook_demo, 100)
abcd <- head(abcd_demo, 100)

matched <- loanbook %>%
  match_name(abcd) %>%
  prioritize()

# Calculate targets at portfolio level
matched %>%
  target_market_share(
    abcd = abcd,
    scenario = scenario_demo_2020,
    region_isos = region_isos_demo
  )

# Calculate targets at company level
matched %>%
  target_market_share(
    abcd = abcd,
    scenario = scenario_demo_2020,
    region_isos = region_isos_demo,
    by_company = TRUE
  )

matched %>%
  target_market_share(
    abcd = abcd,
    scenario = scenario_demo_2020,
    region_isos = region_isos_demo,
    # Calculate unweighted targets
    weight_production = FALSE
  )
```

target_sda

Add targets for CO₂ emissions per unit production at the portfolio level, using the SDA approach

Description

This function calculates targets of CO_2 emissions per unit production at the portfolio-level, otherwise referred to as "emissions factors". It uses the [sectoral-decarbonization approach \(SDA\)](#) to calculate these targets.

Usage

```
target_sda(  
  data,  
  abcd,  
  co2_intensity_scenario,  
  use_credit_limit = FALSE,  
  by_company = FALSE,  
  region_isos = r2dii.data::region_isos  
)
```

Arguments

data	A dataframe like the output of <code>r2dii.match::prioritize()</code> .
abcd	An asset-level data frame like <code>r2dii.data::abcd_demo</code> .
co2_intensity_scenario	A scenario data frame like <code>r2dii.data::co2_intensity_scenario_demo</code> .
use_credit_limit	Logical vector of length 1. FALSE defaults to using the column <code>loan_size_outstanding</code> . Set to TRUE to instead use the column <code>loan_size_credit_limit</code> .
by_company	Logical vector of length 1. FALSE defaults to outputting <code>weighted_production_value</code> at the portfolio-level. Set to TRUE to output <code>weighted_production_value</code> at the company-level.
region_isos	A data frame like <code>r2dii.data::region_isos</code> (default).

Value

A tibble including the summarized columns `emission_factor_metric` and `emission_factor_value`. If `by_company = TRUE`, the output will also have the column `name_abcd`.

Handling grouped data

This function ignores existing groups and outputs ungrouped data.

See Also

Other functions to calculate scenario targets: [target_market_share\(\)](#)

Examples

```
library(r2dii.match)  
library(r2dii.data)
```

```
loanbook <- head(loanbook_demo, 150)
abcd <- head(abcd_demo, 100)

matched <- loanbook %>%
  match_name(abcd) %>%
  prioritize()

# Calculate targets at portfolio level
matched %>%
  target_sda(
    abcd = abcd,
    co2_intensity_scenario = co2_intensity_scenario_demo,
    region_isos = region_isos_demo
  )

# Calculate targets at company level
matched %>%
  target_sda(
    abcd = abcd,
    co2_intensity_scenario = co2_intensity_scenario_demo,
    region_isos = region_isos_demo,
    by_company = TRUE
  )
```

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