

Practical User Guide

Part 2: Prerequisites and Preparing your Loan Book

Date: 15/09/2020

Version: 1

Contents



| | |
|-----------------------------|---|
| Introduction | 3 |
| Prerequisites..... | 3 |
| Loan Book Preparation | 5 |
| Funding Information | 8 |

Disclaimer

PACTA is offered as an open-source, free-of-charge, public good. The training materials and supporting documentations should enable banks to run PACTA independently. Please note that 2DII is a research institute and not a commercial service provider. We work with limited resources, and as such it may take some time for us to respond to inquiries regarding PACTA for Banks. We hope you understand.

Introduction

This document covers the prerequisites that are needed to run the PACTA analysis on a corporate loan book. It covers the software and computational requirements, as well prerequisites for the loan book inputs and formatting.

This document is intended as a practical user guide. Step by step instructions are given where possible. Please note that the exact process may vary from bank to bank and the names of certain variables will be unique to each bank. Here, a description of the required variable is given, as opposed to the actual name as it may appear in the bank's data base.

Prerequisites

Hardware Requirments

A bank's computer must fulfill the following minimum requirements to be able to run the analysis. This is due to the size of the data sets and the computational power requires to run the analysis.

Operating system: Linux, Mac, Unix or Windows. Must be 64-bit

RAM: 8 GB or more

Hard Drive Space: 5 GB or more

Software Requirements

PACTA analysis is performed through a series of R packages. R is a programing language in which the code is written. To use R, it is easiest to use an Integrated Development Environment (IDE) in this case RStudio. All the R packages are downloadable through CRAN (The comprehensive R Archive Network), all are free and open source. It is necessary for the person performing the analysis to have basic coding skills.

Check out this useful guide to installing and using R: <https://happygitwithr.com/install-r-rstudio.html>

Programming language

R – version must be 3.5 or higher (it is best practice to download the most recent version of R).

This can be downloaded for Windows from <https://cran.rstudio.com/bin/windows/base/>

In most cases, this will be downloadable from the bank's internal software repository server. In cases where R is not approved by the bank's internal IT department, then you will need to submit an application to get R installed on the machine being used for this piece of work.

Integrated Development Environment

Rstudio – This can be downloaded at <https://rstudio.com/products/rstudio/download/>

Again, in most cases this will be downloadable directly from the bank's internal system, but in cases where it is not, you may have to get it approved and installed as above.

R Packages

Once you have installed R and RStudio, you will have to install a series of packages to allow the analysis to be run.

All of these packages are accessible through the Comprehensive R Archive Network (CRAN). If you are installing them directly, then you can do so by using the `install.packages()` function directly in the console of your R studio window. This will be covered in the next part of the user guide, but for now it is important that you make sure all the packages listed below can be accessed on the machine being used for this piece of work. You will most likely have to follow the same process as above.

(All of these 2DII packages are available through CRAN)

r2dii.data - [r2dii.data website](#)
installation and user guide [r2dii.data/installation](#)

r2dii.match - [r2dii.match website](#)
installation and user guide [r2dii.match/installation](#)

r2dii.analysis - [r2dii.analysis website](#)
installation and user guide [r2dii.analysis/installation](#)

Tidyverse – This is recommended but not essential. [tidyverse](#)

Loan Book Preparation

Gathering the Required Inputs

In order to run PACTA, a series of inputs are needed from the bank's side (the names of which may vary from bank to bank). The following table sets out the data that needs to be sourced ahead of running the analysis. The next section will deal with how it must be formatted.

This data should be collected for the entire loan book. Note that PACTA can only analyze climate relevant sectors. However, it is important to gather information on the entire loan book for two reasons. 1) This will be useful when calculating coverage stats (i.e. how much of the loanbook was analysed) and 2) it is possible that a loan's sector classification may have been logged incorrectly. PACTA uses its own sector classification, so at this stage collect as much data as possible as it can always be cut down later.

As a rule of thumb, gather the maximum amount of information at the highest level of granularity possible. It can always be cut back later.

See the essential column in the table below for what is 'essential' and what is 'good to have'.

Processing the Loan Book

Now that we have gathered the data, we need to get it into a format that will be recognized by the 2DII R packages.

We have provided an Excel template for this [here](#).

A description of the variables can be found below and at the following links:

[data dictionary](#)

[Accessible through r2dii.data::data_dictionary](#)

[loanbook_demo](#)

[Accessible through r2dii.data::loanbook_demo](#)

Please ensure the loan book is saved as a **csv file** (this is how it is read into R). Please note that a csv file will only save the first tab of an excel spreadsheet. So, ensure that you do not have any valuable information in additional tabs when you save as .csv as this will be lost.

| Input | Essential? | Description | Types | 2DII name | Uses | Comments |
|--------------|--|--|---------------------|------------------------------|---|--|
| Company Name | Yes Direct loan taker is essential. Ultimate and Intermediate parents are good to have but not essential | The name of the company that the bank has a credit line with. The most granular level possible should be used. The parent company of the direct loan taker should also be recorded and any intermediary parents. | Direct loan taker | name_direct_loantaker | The name is used in matching to the asset level data base | You can have as many intermediate parents as you like. Matching will be performed at the direct loan taker level but where this is not possible it will defer up the ownership tree. Note that when pulling names from the banks internal system, it is important to check the encoding. If possible, set encoding to be in English this prevents special characters appearing in the company name which can delay the matching process. |
| | | | Intermediate parent | name_intermediate_parent_(i) | | |
| | | | Ultimate parent | name_ultimate_parent | | |
| Identifiers | No | These are identification codes | LEI | Lei_direct_loantaker | Use in matching process (optional) | It is useful to provide as many as possible. It is highly unlikely that you will have LEIs for every loan but where you do have them it is useful to provide them. ISINs cannot be used to match loans at this stage however it may be useful to gather then to help mapping internally. |
| | | | ISIN | Isin_direct_loantaker | | |

| | | | | | | |
|-----------------------------|---|--|---------------------------------|---|---|--|
| Sector Classification codes | Yes At least one. If you don't have one of these classification systems, then a new bridge will have to be made. Provide what you have. | These are codes that identify the business sector that a company operates in | NACE NAICE ISIC | nace_classification naics_classification isic_classification | This help identify which loan fits into which of the sectors covered by PACTA | Provide the most granular level possible In cases where alternative sector classification codes are used then a bridge (mapping exercise) will have to be made between the PACTA sectors and the classification system used |
| Financial Variable | Yes It is essential to have at least one | This is the loan | Outstanding Credit Limit | Loan_size_outstanding (loan_size_outstanding_currency) Loan_size_credit_limit (loan_size_credit_limit_outstanding) | This forms the basis of the weighting as part of the analysis | Outstanding is the amount of a loan drawn Credit limit is the amount committed The names of these variables will change from bank to bank. |
| Project finance | No | This flags whether or not the loan is a project finance loan | | Flag_project_finace_loan | Not currently used | This column is not currently used but It is still useful to record to help contextualize and interpret the results later |

Funding Information

This project is part of the International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supports this initiative on the basis of a decision adopted by the German Bundestag. This project has as well received funding from the European Union LIFE program.

Supported by:



Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

based on a decision of the German Bundestag



The views expressed in this report are the sole responsibility of the authors and do not necessarily reflect the views of the funders.