

Harmonized Central Credit Responsibility Database (HCRC) - Data Manual

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Abstract: The Portuguese Central Credit Register (with the database prior to August 2018 known as the Old CRC) underwent a major revision in September, 2018 and was replaced by a new reporting system (known as the New CRC) which started to collect granular credit data at the instrument level, as framed by ECB's Regulation (EU) 2016/867 of 18 May 2016 and Banco de Portugal's Instruction No. 17/2018. This revision has important implications for researchers who are interested in analyzing Portuguese credit market covering the transition period. In particular, there are important series breaks that might affect researchers' analysis for several reasons. First of all, the New CRC reports information on a loan-by-loan basis while the Old CRC collects data on a exposure-by-exposure basis. Second, the New CRC starts to collect credit instruments that were not mandatory for the participating institutions to report under the framework of the Old CRC. Meanwhile, some information that was previously reported in the Old CRC is no longer available in the New CRC. Third, reporting thresholds for certain credit products, such as factoring products, have changed. The Harmonized Central Credit Responsibility Database (HCRC) aims to build compatible series between the Old CRC and the New CRC by selecting a set of most relevant variables and adopting necessary steps to harmonize the data. The database covers the period from 2009 to 2021 and consists of information aggregated at the firm and bank-firm level. Data constructed at exposure level mimicking the data structure of the Old CRC is only available to internal researchers upon request. Data is prepared at monthly frequency and is updated annually.

Keywords: Old CRC, New CRC, revision, loan-by-loan, exposure-by-exposure, harmonized data, firm level, bank-firm level.

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General Information

Database Designation in English: The Harmonized Central Credit Responsibility Database (HCRC)

Database Designation in Portuguese: Central de Responsabilidades de Crédito Harmonizada (HCRC)

Data Type: longitudinal data

Unit of Analysis: firm, firm-bank, exposure

Frequency: monthly

Start Date: January, 2009¹

¹As the data structure of the CRC before 2009 differs significant from that after 2009 (i.e., there are much less variables in the data before 2009), by default we only make available the period from 2009 onwards for the HCRC. The data before 2009 is however available upon request.

Most Recent Date: December, 2021

Reference date: month-end

Data Organization: data is organized in four datafiles: a cover sheet that contains firm generic information, the firm credit outstanding & bank relationship file, the bank-firm credit outstanding file, and the credit exposure file. All data files are available in Stata format.

Version of the Data: the data made available by BPLIM corresponds to a data freeze at a certain time of the year. Therefore, all files contain information as reported at the extraction date. The most recent update of the data occurred in June 2022.

Languages Available: variables labels are available in Portuguese and in English.²

Data Access: this data set is available to external researchers under certain conditions.³

Digital Object Identifier: 10.17900/HCRC.Jun2022.V1.

Geographical Coverage

The Harmonized Central Credit Responsibility Database (HCRC) covers all credit-granting institutions and all firms operating in mainland Portugal and autonomous regions - Azores and Madeira. Credit communicated by foreign central banks are excluded from the Harmonized Central Credit Responsibility Database (HCRC).

Population

The Harmonized Central Credit Responsibility Database (HCRC) reports information on the indebtedness of all borrowing firms, except for individual entrepreneurs and foreign firms operating in Portugal without a valid Portuguese Tax Identification Number. Private persons are also excluded from the database.

All credit obligations above the reporting threshold are included, regardless if the credit is in good standing or in situations of non-compliance.⁴

The entities participating in CRC include: banks, saving banks, mutual agricultural credit banks, financial credit institutions, leasing companies, factoring

²To see the labels in Portuguese type the following command line in Stata: “label language pt”.

³Conditions for data access for external researchers are detailed in the *Guide for Researchers Using Banco de Portugal Microdata Research Laboratory (BPLIM) Data*.

⁴The mandatory loan registration thresholds have changed over time. The current mandatory loan registration threshold in Portuguese credit register is 50 euros.

companies, securitization companies, mutual guarantee societies, and financial companies for credit acquisitions.

Some entities participating in CRC have experienced acquisitions and/or mergers, which may have induced credit flows from one institution to another. The list of participating entities have therefore changed over time.

It's worthwhile to note that the coverage of borrowers in HCRC changed over time due to the change in classifying individual entrepreneurs in January, 2009⁵ and the cessation of reporting different responsibility levels in the case of joint credit in September, 2018⁶.

Methodology

The Portuguese Credit Register has undergone several major revisions. Of particular relevance is the revision in 2009, framed by Decree-Law no. 204/2008, of October 14, as well as the most recent revision in September, 2018, framed by the Regulation (EU) 2016/867 of The European Central Bank of May 2016.

The 2009 revision streamlined the coding for a number of categorical variables and included data on maturity of loans, overdue loan class, collateral and special characteristics for the first time.

The recent revision in September 2018 operates within the AnaCredit statistical framework and defined the object, main concepts, scopes, credit operations to be included/excluded, and the types of information that needs to be reported.

Coding systems and reporting practices were significantly changed due to these revisions, resulting in noticeable series breaks that may affect researcher's analyses.

The main difference between the New CRC and the Old CRC is that the Old CRC reports information on a exposure-by-exposure basis with each exposure defined based on a set of predefined loan characteristics, while the New CRC reports information on a loan-by-loan basis.

Although, in general more granular information on credit is reported in the New CRC, some features that are initially present in the Old CRC stop to be reported, such as the separation of first and the rest of debtors in the case of joint credit.

⁵The Portuguese Credit Register has undergone a major revision in 2009, framed by Decree-Law No. 204/2008 of October 14. In this revision, individual entrepreneurs were reassigned NIPC codes that either begin with 5 or 9 (consistent with a firm) or 1 or 2 (consistent with an individual). As a result, discontinuities in the coverage of firms of different types and a noticeable gap in firm exits and entries are observed.

⁶Despite that fact that the New CRC, launched in September 2018, reports more granular data on credit, it stops distinguishing different responsibility levels (i.e., first debtor and the rest of the debtors), which has much less impact on corporate financing than household financing.

Moreover, definitions and classifications of certain variables have also changed in the New CRC, such as financial products and collateral types.

To make the aggregated variables compatible over time, we have adopted necessary steps to harmonize the data. Mapping strategies of categorical variables and the construction method of the included variables are detailed in the *Description of Variables* section.

Despite the efforts of maintaining the greatest possible coherence over time, we shall still note some series breaks in the data caused by changes in reporting regulations and accounting procedures.

In particular, the New CRC has imposed stricter requirements for banks to report certain credit information. For example, in the Old CRC, revocable credit is not an obligatory reporting item and non-recourse factoring is only required to be reported if it is overdue for more than 90 days. This explains why increases in specific financial products (for instance, factoring products) and certain types of risk exposures (for instance, undrawn credit) are observed after September 2018.

It is also important to note that even small changes in reporting standards may require a infrastructural update on the part of the participating financial entities, possibly leading to a gradual implementation of the instruction, even though legally all the entities should implement the instructions at the same time. This may explain some anomalies observed surrounding the transition period (i.e., September and October, 2018). To address this concern, some corrections are made to the original data taking into account the modifications made by the participating institutions on certain credit characteristics such as instrument type and maturity when gradually complying with the instruction. Note that the corrections only concern the period 2009-2021.

Description of Files

The Harmonized Central Credit Responsibility Database (HCRC) is organized by information type in four datafiles: a cover sheet that contains firm-level generic information, the firm level credit outstanding & bank relationship file, the bank-firm level credit outstanding file, and the credit exposure file.

The data files are organized with the following nomenclature:

Cover Sheet (COVER): *HCRC_METH_FRM_MMMYY_COVER_version.dta*

where *METH* denotes the method used to prepare the data (“A” for Anonymized and “P” for Perturbed), *MMMY* denotes the extraction date (eg: JUN21), and *version* denotes the data version (eg: V01). Each row corresponds to a firm across a period.

Firm Credit Outstanding & Bank Relationship File (COBR):
HCRC_METH_fFRM_YYYY_MMMYY_COBR_version.dta

where *METH* denotes the method used to prepare the data (“A” for Anonymized, “P” for Perturbed, and “R” for randomized), *f* denotes the data frequency (M for monthly frequency), *YYYY* is the reporting year, *MMMY* denotes the extraction date (eg: JUN2022), *COBR* denotes credit outstanding & bank relationship, and *version* denotes the data version (eg: V01). Each row corresponds to a firm in a given month.

Bank-Firm Credit Outstanding File (CO): *HCRC_METH_fFRMBNK_YYYY_MMMYY_CO_*

where *METH* denotes the method used to prepare the data (“A” for Anonymized, “P” for Perturbed, and “R” for randomized), *f* denotes the data frequency (M for monthly frequency), *YYYY* is the reporting year, *MMMY* denotes the extraction date (eg: JUN2022), *CO* denotes credit outstanding, and *version* denotes the data version (eg: V01). Each row corresponds to a bank-firm pair in a given month.

Credit Exposure File (EXP): *HCRC_METH_fFRMEXP_YYYY_MMMYY_PROD_version.dta*

where *METH* denotes the method used to prepare the data (“A” for Anonymized, “P” for Perturbed, and “R” for randomized), *f* denotes the data frequency (M for monthly frequency), *YYYY* is the reporting year, *MMMY* denotes the extraction date (eg: JUN2022), *PROD* denotes the data product (“BAL” for general characteristics and “COLL” for collateral), and *version* denotes the data version (eg: V01). Each row corresponds to one exposure in a given month, with the exposure characterized according to a set of predefined variables (responsibility level, financial product, original maturity, residual maturity, and overdue class).

Note that the **Bank-Firm Credit Outstanding File (CO)** and the **Credit Exposure File (EXP)** are only available to internal researchers.

Whenever possible, labels and value labels are attributed to categorical variables. To preserve confidentiality, identification of firms, banks and credit exposures are anonymized through unique identifiers and the variable values are perturbed/randomized for external researchers. The anonymized firm identifier is denoted as *tina*, the anonymized bank identifier is denoted as *bina*, and the anonymized credit exposure identifier is denoted as *cina*.

Table 1 - Data Files

Type of information	Product	Linking Key
Cover Sheet (COVER)	Firm Generic Information	<i>tina</i>
Firm Credit Outstanding & Bank Relationship File (COBR)	Credit Outstanding and Bank Relationship	<i>tina</i>
Bank-Firm Credit Outstanding File (CO)	Credit Outstanding	<i>tina, bina</i>

Type of information	Product	Linking Key
Credit Exposure File (EXP)	General Characteristics (BAL)	<i>tina, bina, cina</i>
Credit Exposure File (EXP)	Collateral Type and Value (COL)	<i>cina</i>

The identifiers (*tina*, *bina*, and *cina*) identifiers allow the matching of different files, as illustrated in the above table.

Description of Variables

Below we provide a general description of the variables included in each data file as referred above. For a full account of all variable categories and changes over time see “Auxiliary Files” section.

A. Cover Sheet

A1. Identifiers

Firm identifier (*tina*) - Unique firm identifier that enables tracking firms over time. *tina* is the anonymized tax identification number, available in all files.

Reference dates of the data (*mindate* and *maxdate*) - Date range of the data

A2. Firm Generic Information

Table 2 - Firm Generic Information in the Cover Sheet (**COVER**)⁷

Variable Name	Variable Description	Measure	Available Period
<i>natjur</i>	Firm’s legal form	Categorical	January 2009 - December 2021
<i>si</i>	Institutional sector (SEC 95)	Categorical	January 2009 - December 2021

⁷The criteria to define firm’s main sector of activity is the gross value added at factor cost. When it is not possible to use this information to define the main sector of activity, firms are requested to use turnover or the number of people permanently employed by the firm. From 2006 to 2008, firms reported the code of “The Portuguese Classification of Economic Activities - Revision 2.1” (CAE Rev. 2.1) at the highest level of disaggregation. Since 2009, firms report their main activity according to the “The Portuguese Classification of Economic Activities - Revision 3” (CAE Rev. 3). The Statistics Department of Banco de Portugal provides the information on the main sector of activity according to both classifications CAE Rev2.1 and CAE Rev3 whenever possible and the classifications are harmonized over time. The source of this information is the CAE registered in the “Central Registry of Companies” for each company. Whenever the correspondence is not unique, the match between codes CAE Rev. 2.1 and CAE Rev. 3 is implemented based on the highest frequency of the matches.

Variable Name	Variable Description	Measure	Available Period
<i>si_final</i>	Institutional sector (SEC 2010)	Categorical	January 2009 - December 2021
<i>cae21</i>	Firm's main sector of activity: Portuguese classification of Economic activities (version 2.1)	Categorical	January 2009 - December 2021
<i>cae3</i>	Firm's main sector of activity: Portuguese classification of Economic activities (version 3)	Categorical	January 2009 - December 2021
<i>district</i>	Firm's geographical location: District	Categorical	January 2009 - December 2021
<i>municipality</i>	Firm's geographical location: Municipality	Categorical	January 2009 - December 2021
<i>actecon</i>	Indicator of economic activities	Categorical	January 2009 - December 2021
<i>sitemp</i>	Firm status	Categorical	January 2009 - December 2021

B. The Credit Exposure File ⁸

B1. Identifiers

Firm identifier (*tina*) - Unique firm identifier that enables tracking firms over time. *tina* is the anonymized tax identification number, available in all files.

Bank identifier (*bina*) - Unique identifier that enables tracking creditors over time. *bina* is the anonymized bank identification number, available in the bank-firm credit outstanding file (CO) and the credit exposure file (EXP).

Credit exposure identifier (*cina*) - Identifier for each credit exposure.⁹ *cina* is the anonymized credit exposure identification number, only available in the credit exposure file (EXP). The credit exposure identifier changes on a monthly basis, therefore cannot be used to follow a credit over time. This variable is, however, useful to merge the auxiliary data file of collateral (COL) with the exposure characteristics and credit amount (BAL) file.

Reference month of the data (*date*) - Reference month of the data

⁸The Credit Exposure File is only available to internal researchers.

⁹Credit exposure identifiers (*cina*) are only available after 2009.

It should be noted that reporting to the Portuguese Central Credit Register does not depend on the nationality of the debtors but their country of residence. In situations where a debtor is not resident in Portugal and does not have a tax number assigned in Portugal, the debtor is reported through a unique code generated by the participating institution itself. These firms are excluded from the Harmonized Central Credit Responsibility Database (HCRC).

B2. General Characteristics

Table 3 - Exposure Characteristics and Credit Amount Variables in the Credit Exposure File (**EXP**)

Variable Name	Variable Description	Measure	Available Period
<i>nivelresponsabilidade</i>	Responsibility level	Categorical	January 2009 - December 2021
<i>produto</i>	Financial product	Categorical	January 2009 - December 2021
<i>classecreditovencido</i>	Overdue credit class	Categorical	January 2009 - December 2021
<i>prazooriginal</i>	Original maturity	Categorical	January 2009 - December 2021
<i>prazoresidual</i>	Residual maturity	Categorical	January 2009 - December 2021
<i>prazocurto_o</i>	Short original maturity	Indicator	January 2009 - December 2021
<i>prazocurto_r</i>	Short residual maturity	Indicator	January 2009 - December 2021
<i>tipogarantia</i>	Type of collateral	Categorical	January 2009 - December 2021
<i>valorg</i>	Amount of collateral	Amount	January 2009 - December 2021
<i>valor_reg</i>	Regular credit	Amount	January 2009 - December 2021
<i>valor_vencido</i>	Overdue credit	Amount	January 2009 - December 2021
<i>valor_abatu</i>	Written-off credit	Amount	January 2009 - December 2021

Responsibility level (*nivelresponsabilidade*)

The responsibility level characterizes the type of participation that the client has in a credit operation, allowing to distinguish between borrowers and sureties/guarantors.

The credit exposures for a debtor and its sureties/guarantor are communicated

with identical characteristics, except for the variables associated with the level of responsibility and identification of the debtor. This variable underwent a major revision in 2009, which included guarantors for the first time.

Note that joint credit is no longer identifiable in the New CRC. To make the series compatible, we have assigned the same responsibility level (denoted by 2) to all debtors associated with the same joint credit contract in the Harmonized Central Credit Responsibility Database (HCRC). We should note that this is a compromise due to data availability, which may generate increase in credit for some borrowers. However, the impact should be minor for firms as joint credits are less common in firms than households.

Classification	Definition
1	Debtor: Individual
2	Debtor: Joint
3	Guarantor: Individual
4	Guarantor: Joint

Financial product (*produto*)

The financial product characterizes the types of credit. In order to facilitate the classification of credit exposures, the nomenclature used here is close to that adopted in the chart of accounts in accordance with the NCA. The classification covers 15 different categories covering the most representative types of credit. Some of the financial products are geared to individual financing while others are mainly for businesses and other legal persons. For instance, products such as “current account (credit lines)”, “factoring”, “real estate leasing” and “financing to the corporate activity or equivalent” are more geared to finance activities of firms or other legal persons.

In some cases, Firm may also have credits of typical financial products in household financing but for commercial purposes (such as overdrafts and commercial mortgage loans).

This variable is only available from 2009 onwards.

Classification	Definition
1	Discount and other credits secured by effects
2	Current account (credit lines)
3	Overdrafts on deposit accounts
4	Recourse factoring
5	None-recourse factoring
6	Real estate leasing
7	Non-real estate leasing
8	Financing to the corporate activity or equivalent
9	Credit card

Classification	Definition
10	Mortgage credit
11	Consumer credit
12	Automobile credit
13	Other credit
14	Bank Guarantees from other participating institutions
15	Other bank guarantees

The New CRC provides more granular information on the type of financial products. To obtain a consistent classification system with CRC, we have performed the following mapping strategy.

Table 4 - Mapping Strategy for Financial Product

CRC		AnaCredit			
Financial product (<i>producto</i>)	Instrument Type (<i>tpInst</i>)	Recourse Indicator (<i>recurso</i>)	Financing Purpose (<i>finalidade</i>)	Code	Designation
Code	Designation	Code	Designation	Code	Designation
1	Discount and other credits secured by effects	24	Discount and other credits secured by effects		
2	Current account	14	Renewable credit, except for overdrafts and credit card		
2	Current account	15	Renewable credit - bank checking account		

CRC		AnaCredit	
2	Current account	16	Revolving credit - credit line
3	Overdrafts on deposit accounts	4	Credit overrunning
3	Overdrafts on deposit accounts	5	Overdraft facilities
3	Overdrafts on deposit accounts	6	Overdraft facilities - with domiciling wages, repayment term greater than one month
3	Overdrafts on deposit accounts	7	Overdraft facilities - without domiciling wages, repayment term greater than one month

CRC		AnaCredit		
3	Overdrafts on deposit accounts	8	Overdraft facilities - with domiciliating wages, repayment term equal to or less than one month	
3	Overdrafts on deposit accounts	9	Overdraft facilities - without domiciliating wages, and repayment term equal to or less than one month	
4	Recourse factoring	19	Factoring 2	Recourse
5	None-recourse factoring	19	Factoring 1	Non-Recourse
4	Recourse factoring	20	Confirming	Recourse

CRC		AnaCredit		
5	None-recourse factoring	20	Confirming	Non-Recourse
4	Recourse factoring	21	Other commercial accounts receivable	2 Recourse
5	None-recourse factoring	21	Other commercial accounts receivable	1 Non-Recourse
6	Real estate leasing	22	Real estate financial lease	
7	Non-real estate leasing	23	Non-real estate financial lease	
8	Financing to the corporate activity or equivalent	17	Non-renewable credit	
8	Financing to the corporate activity or equivalent	31	Financing to the corporate activity or equivalent	
9	Credit card	10	Credit card	

CRC		AnaCredit			
9	Credit card	11	Credit card - with free-float period		
9	Credit card	12	Credit card - without free-float period		
9	Credit card	13	Credit card - deferred debit card		
10	Mortgage credit	25	Mortgage credit		
11	Consumer credit	27	Personal credit	6	Personal credit - Home purpose
11	Consumer credit	27	Personal credit	7	Personal credit - Education purpose
11	Consumer credit	27	Personal credit	8	Personal credit - Health purpose
11	Consumer credit	27	Personal credit	9	Personal credit - Renewable energy projects
11	Consumer credit	27	Personal credit	36	Other purposes

CRC		AnaCredit			
11	Consumer credit	27	Personal credit	98	No specific purpose
12	Automobile credit	28	Automobile credit (excluding finance leases)		
13	Other credit	32	Other credit		
14	Bank Guarantees from other participating institutions	29	Bank Guarantees from other participating institutions		
15	Other bank guarantees	30	Other bank guarantees		
16	Other credit not reported in CRC	3	Deposits - except reverse repurchase agreements		
16	Other credit not reported in CRC	18	Reverse repurchase agreements		
16	Other credit not reported in CRC	26	Multi-purpose/option credit (crédito conexo)		
16	Other credit not reported in CRC	34	Shareholders loans		

Note that the above mapping applies the “approximation rule” aiming to alleviate discontinuities in the time series. It is however not unequivocal and does not completely eliminate the discontinuities in 2018. We also made some revisions in the mapping strategy accounting for bank-by-bank reporting differences, especially for the instrument type “16 Revolving credit - credit line.”

The types of instrument that were not reported in the Old CRC (i.e., deposits - except for reverse repurchase agreements, reverse repurchase agreements, multi-purpose/option credit, and shareholders loans) are excluded in the Bank-Firm Credit Outstanding File (CO) and the Firm Credit Outstanding & Bank Relationship File (COBR).

Overdue credit class (*classecreditovencido*)

The overdue credit class indicates the time elapsed from the moment that a credit enters into default.

The credit overdue class list is the same as defined for the purposes of the banking chart of accounts (NCA and PCSB), with the only exception of the shortest duration classes “up to 3 months”, which is further divided into three classes in the table adopted in CRC (“up to 30 days”, “from 31 days to 61 days” and “from 62 days to 91 days”). In the case when loans are repaid in various installments, the total overdue amount of unpaid installments is communicated in a single overdue credit exposure, classified in overdue credit class corresponding to the installments with longer overdue time.

This variable is only available from 2009 onwards.

Maturity (*prazooriginal* and *prazo residual*)

All credit exposures reported in the Old CRC after 2009 are classified based on their original maturity, established in contractual terms (i.e., original maturity), as well as on their residual maturity, defined as the time interval between the reference date and the maturity date of the credit agreement.

These two variables are defined in ranges, including a category “Undetermined” (code 1) to characterize credit exposures which by their nature do not have a contractually defined maturity or for which it is not possible to determine a due date.

Instead of reporting the categorization of the maturity variables, the New CRC reports the due date on which a borrower must pay back a loan in full.

To harmonize the maturity variables overtime, we calculate the term-to-maturity of an instrument based on its maturity date, then project it onto the coding system of the Old CRC, as illustrated below.

Classification	Definition
1	Undefined
2	Up to 90 days

Classification	Definition
3	From 90 days to 180 days
4	From 180 days to 1 year
5	From 1 to 5 years
6	From 5 to 10 years
7	From 10 to 20 years
8	From 20 to 25 years
9	From 25 to 30 years
10	More than 30 years

We take into account the following rules which were observed in the Old CRC.

- The category “Undefined” is applied to overdrafts and credit cards which by nature do not have a contractually defined maturity.
- Original maturity of the same credit should always be equal to or greater than the residual maturity.
- Residual maturity for overdue credit is assigned the category “Undefined”.
- We align the reporting practices for the maturity structure of current accounts over time bank-by-bank.

There is one bank that has always assigned “Undefined” to the maturity of its current account products in the Old CRC. To achieve better harmonization, we assign “Undefined” to the maturity of the bank’s current account products in the New CRC as well.

Short maturity (*prazocurto_o* and *prazocurto_r*)

Short maturity is an indicator defined based on either the term-to-maturity as agreed in the credit contract, denoted by *prazocurto_o*, or the residual maturity – the remaining time until the expiration or the repayment of the instrument, denoted by *prazocurto_r*.

prazocurto_o takes the value of 1 if a credit exposure has an original maturity of equal to or less than one year. For the data before 2009, the short-term credit is defined as the aggregation of commercial credit, discount funding, and other short-term funding, which are short-term funding by their nature.

prazocurto_r takes the value of 1 if a credit exposure has a residual maturity of equal to or less than one year. This variable is only available from 2009 onwards.

Classification	Definition
0	Original/Residual maturity more than one year
1	Original/Residual maturity equal to or less than one year

Credit amount (*valor_reg*, *valor_pot*, *valor_vencido*, and *valor_abatv*)

The credit amount variables identify the total amount outstanding of a credit exposure in different credit situations. Loans of the same debtor and creditor with identical characteristics are aggregated into a single exposure.

Given different credit situations¹⁰, we have constructed credit amount variables as regular credit (*valor_reg*), Overdue credit (*valor_vencido*), and Written-off credit (*valor_abatv*).

Given large breaks in the time series, potential credit (*valor_pot*) is not included in the datasets but are available upon request.¹¹

Note that regardless of the denominated currency, the credit amount variables are always expressed in euro units.

Type of collateral (*tipogarantia*)

As long as collateral/guarantee exists, it is mandatory for participating institutions to communicate to CRC its existence together with the credit exposure that it ensures.

The New CRC provides more granular information on the type of collaterals than the Old CRC. To harmonize the variable overtime, we adopt the following coding system and mapping strategy in Table 5.

Classification	Definition
1	Real collateral mortgage
2	Real collateral - not mortgaged
3	Financial collateral
4	Personal guarantee
5	Other guarantees

Table 5 - Mapping Strategy for Type of Collateral

¹⁰Regular credit (*valor_reg*) represents the total amount of credit in good standing. All outstanding credit recorded as non-performing (including overdue, renegotiated credit, and overdue credit in litigation) are aggregated to calculate overdue credit (*valor_vencido*). Written-off credit (*valor_abatv*) records credit that became so seriously delinquent that the creditor has given up on being paid. It also includes written-off credit filed in court.

¹¹Potential credit (*valor_pot*) represents the revocable and irrevocable commitments of the participating entities. Examples of potential credit include unused amounts of credit cards/credit lines, and bank guarantees.

CRC		AnaCredit		
Type of collateral (<i>tipogaranantia</i>)		Type of collateral (<i>tpProt</i>)		Mortgage number (<i>hierqProt</i>)
Code	Designation	Code	Designation	Code
1	Real collateral mortgage	15	Residential commercial property	> 0
1	Real collateral mortgage	16	Residential commercial property - meets the CRC criterion	> 0
1	Real collateral mortgage	17	Residential commercial property - does not meet the CRC criterion	> 0
1	Real collateral mortgage	18	Retail commercial property	> 0
1	Real collateral mortgage	19	Retail commercial property - meets the CRC criterion	> 0
1	Real collateral mortgage	20	Retail commercial property - does not meet the CRC criterion	> 0

CRC		AnaCredit		
1	Real collateral mortgage	21	Commercial property offices	> 0
1	Real collateral mortgage	22	Commercial property offices - meets the CRC criterion	> 0
1	Real collateral mortgage	23	Commercial property offices - does not meet the CRC criterion	> 0
1	Real collateral mortgage	24	Industrial commercial property	> 0
1	Real collateral mortgage	25	Industrial commercial property - meets the CRC criterion	> 0
1	Real collateral mortgage	26	Industrial commercial property - does not meet the CRC criterion	> 0
1	Real collateral mortgage	27	Other commercial property	> 0

CRC		AnaCredit		
1	Real collateral mortgage	28	Other commercial property - meets the CRC criterion	> 0
1	Real collateral mortgage	29	Other commercial property - does not meet the CRC criterion	> 0
1	Real collateral mortgage	30	Property under construction for commercial purposes	> 0
1	Real collateral mortgage	31	Property under construction for commercial purposes - meets the CRC criterion	> 0
1	Real collateral mortgage	32	Property under construction for commercial purposes - meets the CRC criterion	> 0

CRC		AnaCredit		
1	Real collateral mortgage	33	Residential properties - completed	> 0
1	Real collateral mortgage	34	Residential properties - under construction	> 0
1	Real collateral mortgage	35	Residential properties - land	> 0
1	Real collateral mortgage	36	Other properties	> 0
1	Real collateral mortgage	37	Other collateral of real nature	> 0
2	Real collateral - not mortgaged	15	Residential commercial property	0 or missing
2	Real collateral - not mortgaged	16	Residential commercial property - meets the CRC criterion	0 or missing
2	Real collateral - not mortgaged	17	Residential commercial property - does not meet the CRC criterion	0 or missing
2	Real collateral - not mortgaged	18	Retail commercial property	0 or missing

CRC		AnaCredit		
2	Real collateral - not mortgaged	19	Retail commercial property - meets the CRC criterion	0 or missing
2	Real collateral - not mortgaged	20	Retail commercial property - does not meet the CRC criterion	0 or missing
2	Real collateral - not mortgaged	21	Commercial property offices	0 or missing
2	Real collateral - not mortgaged	22	Commercial property offices - meets the CRC criterion	0 or missing
2	Real collateral - not mortgaged	23	Commercial property offices - does not meet the CRC criterion	0 or missing
2	Real collateral - not mortgaged	24	Industrial commercial property	0 or missing
2	Real collateral - not mortgaged	25	Industrial commercial property - meets the CRC criterion	0 or missing

CRC		AnaCredit		
2	Real collateral - not mortgaged	26	Industrial commercial property - does not meet the CRC criterion	0 or missing
2	Real collateral - not mortgaged	27	Other commercial property	0 or missing
2	Real collateral - not mortgaged	28	Other commercial property - meets the CRC criterion	0 or missing
2	Real collateral - not mortgaged	29	Other commercial property - does not meet the CRC criterion	0 or missing
2	Real collateral - not mortgaged	30	Property under construction for commercial purposes	0 or missing
2	Real collateral - not mortgaged	31	Property under construction for commercial purposes - meets the CRC criterion	0 or missing

CRC		AnaCredit		
2	Real collateral - not mortgaged	32	Property under construction for commercial purposes - meets the CRC criterion	0 or missing
2	Real collateral - not mortgaged	33	Residential properties - completed	0 or missing
2	Real collateral - not mortgaged	34	Residential properties - under construction	0 or missing
2	Real collateral - not mortgaged	35	Residential properties - land	0 or missing
2	Real collateral - not mortgaged	36	Other properties	0 or missing
2	Real collateral - not mortgaged	37	Other collateral of real nature	0 or missing
3	Real collateral mortgage	4	Gold	
3	Financial collateral	5	Cash and deposits or equivalent	
3	Financial collateral	6	Publicly-quoted debt securities	
3	Financial collateral	7	Non-quoted debt securities	

CRC		AnaCredit	
3	Financial collateral	8	Loans
3	Financial collateral	9	Shares and other equity - quoted
3	Financial collateral	10	Shares and other equity - non-quoted
3	Financial collateral	11	Credit derivatives
3	Financial collateral	12	Financial guarantees other than credit derivatives
3	Financial collateral	13	Commercials receivable
3	Financial collateral	14	Pledge of life insurance
4	Personal guarantee	3	Guarantors/sureties
5	Other guarantees	38	Other guarantees

The New CRC reports the number of mortgages (*hierqProt*) that are involved in collateralization if a credit contract is mortgage-backed. With this variable, we are able to distinguish mortgaged and non-mortgaged real collaterals.

Amount of collateral (*valorg*)

The collateral amounts relating to a credit are expressed in euros and aggregated by type of collateral using the same criteria as to the credit exposure.

However, it is important to note that the amount of collateral were capped at the loan amount in the Old CRC and not all banks followed the same practice. Researchers should be fully aware of the limitation in conducting their research using this variable.

C. The Bank-Firm Credit Outstanding File¹²

C1. Identifiers

Firm identifier (*tina*) - Unique firm identifier that enables tracking firms over time. *tina* is the anonymized tax identification number, available in all files.

Bank identifier (*bina*) - Unique identifier that enables tracking creditors over time. *bina* is the anonymized bank identification number, available in the credit exposure file (EXP) and the bank-firm level credit outstanding file (CO).

Reference month of the data (*date*) - Reference month of the data

C2. Credit Outstanding

Table 6 - Credit Outstanding Variables in the Bank-Firm Credit Outstanding File (CO)

Variable Name	Variable Description	Measure	Available Period
<i>valor_reg</i>	Regular credit	Amount	January 2009 - December 2021
<i>valor_vencido</i>	Overdue credit	Amount	January 2009 - December 2021
<i>valor_abatv</i>	Written-off credit	Amount	January 2009 - December 2021
<i>valor_reg_sto</i>	Regular credit: short original maturity	Amount	January 2009 - December 2021
<i>valor_reg_str</i>	Regular credit: short residual maturity	Amount	January 2009 - December 2021
<i>valor_reg_secured</i>	Secured regular credit	Amount	January 2009 - December 2021
<i>valor_vencido_secured</i>	Secured overdue credit	Amount	January 2009 - December 2021
<i>valor_abatv_secured</i>	Secured written-off credit	Amount	January 2009 - December 2021

Credit Outstanding Variables in the Bank-Firm Credit Outstanding File (CO) are aggregated from the Credit Exposure File (EXP) at the bank-firm level.

valor_reg_sto calculates the total amount of credit with an original maturity of equal to or less than one year for the data after January, 2009. For the data before 2009, *valor_reg_sto* calculates the total amount of commercial credit, discount funding, and other short-term funding.

valor_reg_str calculates the total amount of credit with a residual maturity of equal to or less than one year.

¹²The Bank-Firm Credit Outstanding File is only available to internal researchers.

valor_reg_secured, *valor_pot_secured*, *valor_vencido_secured*, and *valor_abatv_secured* calculate the total amount of credit with at least one type of collateral as illustrated in **Table 5**.

Guarantors and financial products that are not available in the Old CRC (code 16 in **Table 4**) are excluded from the Bank-Firm Credit Outstanding File (**CO**).

D. The Firm Credit Outstanding and Bank Relationship File

D1. Identifiers

Firm identifier (*tina*) - Unique firm identifier that enables tracking firms over time. *tina* is the anonymized tax identification number, available in all files.

Reference month of the data (*date*) - Reference month of the data

D2. Credit Outstanding and Bank Relationships

Table 7 - Credit Outstanding and Bank Relationship Variables in the Firm Credit Outstanding & Bank Relationship File (**COBR**)

Variable Name	Variable Description	Measure	Available Period
<i>valor_reg</i>	Regular credit	Amount	January 2009 - December 2021
<i>valor_vencido</i>	Overdue credit	Amount	January 2009 - December 2021
<i>valor_abatv</i>	Written-off credit	Amount	January 2009 - December 2021
<i>nb_relacao</i>	Number of bank relationships	number	January 2009 - December 2021
<i>max_relacao</i>	Largest bank relationship in share	share	January 2009 - December 2021
<i>hhi_relacao</i>	Concentration of bank relationships	index	January 2009 - December 2021
<i>valor_reg_sto</i>	Regular credit: short original maturity	Amount	January 2009 - December 2021
<i>valor_reg_str</i>	Regular credit: short residual maturity	Amount	January 2009 - December 2021
<i>valor_reg_secured</i>	Secured regular credit	Amount	January 2009 - December 2021
<i>valor_vencido_secured</i>	Secured overdue credit	Amount	January 2009 - December 2021
<i>valor_abatv_secured</i>	Secured written-off credit	Amount	January 2009 - December 2021

Credit Outstanding Variables in the Firm Credit Outstanding and Bank Relationship File (**COBR**) are aggregated from the Credit Exposure File (**EXP**) at the firm level. Guarantors and financial products that are not available in the Old CRC (code 16 in **Table 4**) are also excluded.

valor_reg_sto, *valor_reg_str*, *valor_reg_secured*, *valor_pot_secured*, *valor_vencido_secured*, and *valor_abatv_secured* are defined in the same way as in the Bank-Firm Credit Outstanding File (**CO**).

nb_relacao measures the number of a firm's bank relationships. Precisely, we calculate the number of active bank relationships, i.e., the number of banks from whom a firm borrows in a specific month. Unused credit is also taken into account in the calculation of bank relationships.

max_relacao features the borrowing share from a firm's major bank. It is measured as the percentage of a firm's available credit from the major bank to the firm's total available credit.

hhi_relacao captures the concentration of bank relationship. It is calculated using the Herfindahl–Hirschman Index as the sum of the squares of bank's lending share to a firm.

Basic Descriptive Statistics

Table 8- Number of firms over the data period (as of December) in the HCRC Database

```
global path "Z:/data/Products/HCRC/2022_06/HCRC_Annual/Output/Data/Firms/"

quietly use "${path}/2009/External/HCRC_A_MFRM_2009_JUN22_COBR_V01.dta", clear
quietly keep if month(dofm(date))==12
quietly keep tina date
quietly bysort tina date: gen dup=cond(_N==1,0,_n)
quietly keep if dup==0 | dup==1
quietly drop dup

quietly forval i =2010/2021 {
    quietly append using "${path}/`i'/External/HCRC_A_MFRM_`i'_JUN22_COBR_V01.dta"
    quietly keep if month(dofm(date))==12
    quietly keep tina date
    quietly bysort tina date: gen dup=cond(_N==1,0,_n)
    quietly keep if dup==0 | dup==1
    quietly drop dup
}
quietly gen Year= year(dofm(date))
table Year, contents(freq) center
```

Table 9- Number of bank-firm relationships over the data period (as of December) in the HCRC Database

Note that the data before 2002 does not contain all the firms and is not quality controlled.

```

global path "Z:/data/Products/HCRC/2022_06/HCRC_Annual/Output/Data/Firms/"

quietly use "${path}/2009/Auxiliar/HCRC_A_MFRMBNK_2009_JUN22_CO_V01.dta", clear
quietly keep if month(dofm(date))==12
quietly keep tina bina date
quietly bysort tina bina date: gen dup=cond(_N==1,0,_n)
quietly keep if dup==0 | dup==1
quietly drop dup

quietly forval i =2010/2021 {
    quietly append using "${path}/`i'/Auxiliar/HCRC_A_MFRMBNK_`i'_JUN22_CO_V01.dta"
    quietly keep if month(dofm(date))==12
    quietly keep tina bina date
    quietly bysort tina bina date: gen dup=cond(_N==1,0,_n)
    quietly keep if dup==0 | dup==1
    quietly drop dup
}
quietly gen Year= year(dofm(date))
table Year, contents(freq) center

```

Auxiliary Files

For a description of each variable in each dataset (name, unit of measurement, data and storage type, format, year of first and last observation), an account of the changes occurred over time, summary statistics for each dataset and a codebook for each dataset, please check the following auxiliary files:

Data File	Description of Variables	Summary Statistics	Codebook	Dataset description
Credit Exposure File (EXP): General	var_hcrc_bal	stat_hcrc_bal	cdbk_hcrc_bal	dscr_hcrc_bal
Credit Exposure File (EXP): Collateral	var_hcrc_coll	stat_hcrc_coll	cdbk_hcrc_coll	dscr_hcrc_coll

Data File	Description of Variables	Summary Statistics	Codebook	Dataset description
Firm Level Credit Outstanding & Bank Relationship file (COBR)	var_herc_cobr	stat_herc_cobr	cdbk_herc_cobr	dscr_herc_cobr
Bank-Firm Level Credit Outstanding File (CO)	var_herc_co	stat_herc_co	cdbk_herc_co	dscr_herc_co

The Summary Statistics, Codebook and Dataset Description files are available on BPLIM's servers.

Legislation

Below we list a list of relevant legislations:

- **Instrução no. 16/2001** – reviewed the separation of potential from actual amounts of credit.
- **Instrução no. 11/2002** – establishment of a 90 day period to register a credit exposure (*sem direito de regresso*) or overdue credit (*com direito de regresso*) after invoices are due; revocable commitments (code 921) are no longer reported as a credit of type 6 (off balance sheet commitments); factoring credit more than 90 days overdue reported as type 7 (non-performing credit) or 8 (credit in litigation). Participating entities are encouraged to provide relevant information for credit risk assessment. In addition, renegotiated credits are requested to be reported since July, 2001.
- **Instrução no. 15/2002** – made procedural changes to access and occasional communication requested by the Banco de Portugal (no analysis impact).
- **Decree-Law no. 53/2004**, March 18 – integrated the information on court decisions regarding insolvency proceedings of collective or individual people, provided by the Ministry of Justice, following the approval of the CIRE - Insolvency Code.
- **Instrução no. 7/2006** – created new types of credit for the variable type (codes 11-14) which include guarantees, sureties, and credit communicated by foreign central banks.

- **Instrução no. 21/2008** – changed the CRC to its format up to August, 2018 (as in *Caderno da CRC*) and defined the scope, reporting deadline, and stress the important of reporting the types of information. Some codes were significantly changed.
- **Instrução no. 7/2009** – included credit reports from the State to protect unemployed individuals’ real estate ownership and created a special classification for these credits. This revised version contains more loan-level variables. Another important consequence of the revision was the incorporation of loans to Portuguese firms granted by foreign branches of Portuguese banks.
- **Instrução no. 18/2010** – imposed mandatory reporting of credit less than 90 days overdue (*crédito sem recurso*) if used in guarantee pools in Eurosystem operations; excluded shareholder’s advances (*suprimentos*) from financial institutions; imposed mandatory reporting of securitized debt issued for a certain debtor (even if the financial institution does not have ownership) and exclusion of securitized debt in the exposure sheet of the institution.
- **Instrução no. 17/2013** – separated overdue and written-off credit in litigation – codes 6 and 7; added new maturity categories and new collateral classifications.
- **Regulation (EU) 2016/867 of The European Central Bank** – provided guidance to report granular credit and credit risk data in a consistent and effective way across the members of the euro area.
- **Instrução no. 17/2018** – set out the Portuguese AnaCredit statistical framework and defined the object, main concepts, reporting obligations concerning the communication scope, credit operations to be included and excluded, and the types of information that needs to be reported.

References

Below is a list of main references:

1. Banco de Portugal (2003). Central de Responsabilidades de Crédito. Cadernos do Banco de Portugal. Lisboa.
2. Banco de Portugal (2010). Central de Responsabilidades de Crédito. Cadernos do Banco de Portugal. Lisboa.
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4. Banco de Portugal (2014). Central de Responsabilidades de Crédito. **Manual de Procedimentos Instrução no. 21/2008**. Lisboa.

5. Banco de Portugal (2015). Central de Responsabilidades de Crédito. Cadernos do Banco de Portugal. Lisboa.
6. João Cadete de Matos (2015). The Portuguese Central Credit Register: a powerful multipurpose tool, relevant for many central bank functions. IFC workshop on “Combining micro and macro statistical data for financial stability analysis”. Bank for International Settlements.
7. Banco de Portugal (2015). **AnaCredit Technical and Operational Support Guide**. Lisboa.

Useful Links

CRC home page

Statistical Bulletin

ECB Guidelines on AnaCredit

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