Central Credit Responsibility Database - Exposure, Firm, and Bank-Firm Level - Data Manual

Extraction Date: June 2019

Manual Date: 11 January 2021

Abstract: The Central Credit Responsibility (CCR) database reports credit supply (that is, the outstanding of credit exposure defined according to a set of variables) by all credit-granting institutions in Portugal from 1999 onwards. Data is collected monthly with the objective of supporting participants in the risk assessment of the concession credit. The microdata available to internal researchers consists of data at credit exposure level as well as data aggregated at the firm and bank-firm level. The dataset is updated annually.

Keywords: credit exposure, firm level, bank-firm level, credit-granting institutions, bank-firm relationship, revisions.

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General Information

Data Type : Longitudinal Data

Unit of Analysis : Credit Exposure, Firm, Firm-Bank

Frequency : Monthly

Start Date : January, 1999

Most Recent Date : August, 2018

Reference Date : the last day of a month

Data Organization : data is organized in three datafiles: the credit exposure file (EXP), the bank-firm level credit outstanding file (CO). All files are in long format and are available in Stata format and the firm level credit outstanding & bank relationship file (COBR).

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 the information as reported in the extraction date. The most recent update of the data occurred in April 2019.

Languages Available : For the exposure level data, variables labels are available in Portuguese and in English. [1] For the firm and the bank-firm level data, variables labels are only available in English.

Data Access : These datasets, after anonymization, are available to internal researchers. External researchers can access the firm level credit outstanding & bank relationship file (COBR) under certain conditions.[2]

Digital Object Identifier: 10.17900/CRC.FRM.Jun2019.V1; 10.17900/CRC.FRMBNK.Jun2019.V1; 10.17900/CRC.EXP.Jun2019.V1.

Geographical Coverage

The Central Credit Responsibility (CCR) includes mainly firms operating in mainland Portugal and autonomous regions - Azores and Madeira.

Although credit information on the indebtedness of foreign firms are available in CCR, the obligation to provide credit information by financial institutions (Portuguese or foreign) on foreign firms has changed over time.

Following the Memorandum among the national central banks in the European Union[3], credit exposures (more than 25000 euros) of Portuguese collective persons obtained from financial institutions located in the subscribed countries also started to be reported in 2005. From 2006, loans granted to foreign firms in

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[1]To see the labels in English type the following command line in Stata: "label language en". If you use version 14 of Stata and choose to see the labels in Portuguese, you have to translate from extended ASCII to Unicode.

[2]Conditions for data access for external researchers are detailed in the disclosure control regulation.

[3]In addition to Portugal, the countries currently subscribed include Germany, Austria, Belgium, Spain, France, Italy, Czech Republic and Romania.

Portugal were requested to report according to the Instrução nº 7/2006. From 2009, credit extended to Portuguese firms by foreign branches of Portuguese banks is identifiable through the variable *paisbalcaoid*.[4]

Population

The Central Credit Responsibility (CCR) collects data on the indebtedness of borrowers (including collective persons, individual entrepreneurs and private persons) as reported by credit-granting institutions (institutions operating in Portugal or foreign branches of Portuguese banks).

All credit obligations above the reporting threshold are included, regardless if the credit is in good standing or in situations of non-compliance. The current mandatory loan registration threshold in Portuguese Credit Responsibility is 50 euros.[5] But firms have the discretion to file the credit below the thresholds.

The entities participating in CCR include: banks, saving banks, mutual agricultural credit banks, financial credit institutions, leasing companies, factoring companies, securitization companies, mutual guarantee societies, and financial companies for credit acquisitions.[6]

Although the information is collected at the credit exposure level (EXP), BPLIM also provides data aggregated at the firm (COBR) and bank-firm level (CO). Private persons, individual entrepreneurs, and guarantors are excluded from the COBR and CO files.

Comment : Some financial institutions in Portugal have experienced acquisitions and/or mergers, which induced credit flows from one institution to another. The list of participating entities have therefore changed over time. The current list can be found ***here***

Also note that the coverage of borrowers in CCR changed over time. Some individuals may be included in the firm version of the CCR because they were classified as entrepreneurs. Before 2009, these individuals are identifiable because they have the NIPC codes beginning with 8. After 2009, these individuals 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 can be observed in January, 2009.

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[4]CCR only includes foreign credits originated in the MOU countries (that is, Germany, Austria, Belgium, Spain, France, Italy, Czech Republic and Romania) since 2005. The reporting threshold (25000 euros) in this case is higher than that for firms resident in Portugal (50 euros since 2009). Please note that the COBR file (firm level data) and the CO file (bank-firm level data) do not include foreign firms.

[5]The mandatory loan registration thresholds have changed over time. It was 10 euros before 2009.

[6]A few institutions which do not grant credit but the Banco de Portugal sees as relevant are also included in the CCR (for example restructuring funds).

Methodology

The Central Credit Responsibility (CCR) plays a crucial role in monitoring and assessing credit risk at the institution and the economy levels. The participating entities are obliged to report to the Banco de Portugal their credit balances by the end of each month, thus reflecting the situation of the liabilities of their customers by that date. Banco de Portugal is responsible for centralizing and disseminating the credit information after quality control. The identification of the debtors is cross-checked with other sources, ensuring that the identification exists and is valid.[7] Besides, to ensure the accuracy of the credit reports, the reporting banks and financial companies are required to verify and correct erroneous reports as soon as possible.

The original dataset comprises the credit exposure data, characterized using a predefined set of contractual conditions. All credit obligations are included, regardless if the credit is in good standing or in situations of non-compliance, but only those with an amount equal to or greater than the reporting threshold must be notified. Although the Banco de Portugal collects information at the exposure level, data aggregated at the firm level and at the bank-firm level is also made available.

The CCR has undergone some major revisions. Due to these revisions, there are some series breaks that may affect analysis. Of particular relevance is the revision in 2009, framed by Decree-Law no. 204/2008, of October 14, which 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. To make the aggregated variables compatible over time, we have adopted necessary steps to harmonize the data. Available variables and their construction methods are detailed in the *Description of Variables* section.

Additional cleaning is conducted at BPLIM. In particular, the values that were reported in different scales and in other currencies were converted to euros. Therefore, regardless of the denominated currency, the value of the exposure is always expressed in euros. For confidentiality, firms are anonymized through unique identifiers.

Description of Files

Three data files are proposed: the credit exposure file (EXP), the bank-firm level credit outstanding file (CO) and the firm level credit outstanding & bank relationship file (COBR).

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[7]For instance, the file of the taxpayers' identification numbers (NIF) managed by the Tax and Customs Authority (TA) and the National File of Collective Persons (FNPC) managed by the Ministry of Justice) are cross checked.

CE
Exposure Level
Debtor identifier
Creditor identifier
Exposure identifier (*saldoid*)
Reporting date (*date*)
Type of credit (*tipo*)
Responsibility level (*nivelresponsabilidade*)
Credit situation (*situacaocredito*)
Overdue credit class (*classecreditovencido*)
Maturity (*prazooriginal; prazoresidual*)
Financial product (*produto*)
Collateral/guarantee (*tipogarantia; valorg*)
Special characteristics (*caracteristicas*)
Credit amount (*valor*)
Bank's branch country (*paisbalcaoid*)
Base currency (*moeda*)

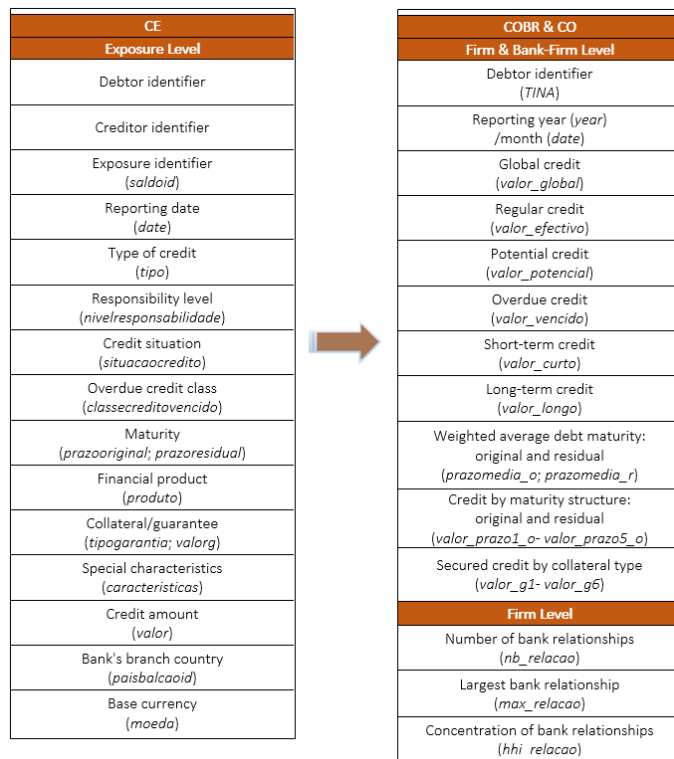| COBR & CO |
| --- |
| **Firm & Bank-Firm Level** |
| Debtor identifier (*TINA*) |
| Reporting year (*year*) /month (*date*) |
| Global credit (*valor_global*) |
| Regular credit (*valor_efectivo*) |
| Potential credit (*valor_potencial*) |
| Overdue credit (*valor_vencido*) |
| Short-term credit (*valor_curto*) |
| Long-term credit (*valor_longo*) |
| Weighted average debt maturity: original and residual (*prazomedia_o; prazomedia_r*) |
| Credit by maturity structure: original and residual (*valor_prazo1_o- valor_prazo5_o*) |
| Secured credit by collateral type (*valor_g1- valor_g6*) |
| **Firm Level** |
| Number of bank relationships (*nb_relacao*) |
| Largest bank relationship (*max_relacao*) |
| Concentration of bank relationships (*hhi_relacao*) |

Figure 1: **Figure 1**: Data map

The credit exposure file (EXP): Each row corresponds to one exposure in a given month, with the exposure characterized according to a predefined set of exposure-specific variables (credit situation, responsibility level, financial product, overdue class, original maturity, residual maturity, amount, and credit's base currency, etc.).

The bank-firm level credit outstanding file (CO): Each row corresponds to a bank-firm pair in a given month.

The firm level credit outstanding & bank relationship file (COBR): Each row corresponds to a firm in a given month.

Some variables are only calculated after 2009, for example, weighted average debt maturity (original and residual). Examples are illustrated in ***Appendix***.

A. The Credit Exposure File

Three data files are provided for credit exposure data: the general exposure characteristics file, the collateral information file, and the special characteristics file.

The general exposure characteristics files (excluding collateral information and special characteristics) are identified by the following nomenclature:

CRC_A_MFRMEXP_YYYY_MMMYY_BAL_V01.dta,

where *YYYY* is the reporting year; *MMMYY* is the extraction month.

Each credit exposure is denoted by the variable *cina*.

The collateral information files (only available from 2009) report the collateral type and the collateral value for secured credit. One can merge the collateral information file with the exposure characteristics file using the variable *cina*. One credit exposure may be associated with more than one collateral.

The collateral information files are identified by the following nomenclature:

CRC_A_MFRMEXP_YYYY_MMMYY_COLL_V01.dta,

where *YYYY* is the reporting year; *MMMYY* is the extraction month.

The special characteristics files (only available from 2009) specify credit exposures with special characteristics and/or credit exposures extended according to special regimes, for instance, credit used in a securitization operation and credit for protecting permanent housing property (as framed by Decree-Law103/2009). One can merge the special characteristics file with the exposure characteristics file using the variable *cina*. One credit exposure may be associated with more than one special characteristics.

The special characteristics files are identified by the following nomenclature:

CRC_A_MFRMEXP_YYYY_MMMYY_SCHAR_V01.dta

where YYYY is the reporting year; MMMYY is the extraction month.

B. The Bank-Firm Credit Outstanding File

The bank-firm level data is organized in the credit outstanding (CO) file and has the following nomenclature:

CRC_A_MFRMBNK_YYYY_MMMYY_COBR_V01.dta

where YYYY is the reporting year; MMMYY is the extraction month.

Bank-firm relationship variables are not presented in this data file. The "*relationspell*" ado, provided at BPLIM, can be used to generate these variables.

C. The Credit Outstanding and Bank Relationship File

The firm level data is organized in the credit outstanding & bank relationship (COBR) file. Some variables are only calculated after 2009, for example, weighted average debt maturity (original and residual).

The data files have the following nomenclature:

CRC_A_MFRM_YYYY_MMMYY_COBR_V01.dta

where YYYY is the reporting year; MMMYY is the extraction month.

Monthly dataset is presented in files with the following nomenclature:

Description of Variables

A. Identifier

- `Debtor identifier`

Unique identifier that enables tracking debtors over time. *tina* is the anonymized tax identification number, available in all files. It should be noted that reporting to CCR 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, namely "Source Code".[8] Banco de Portugal controls the credibility of debtor identification in CCR by cross-checking other sources[9] to ensure that the identification exists and is valid.

Abbreviation	Definition
tina	Anonymized firm identifier

Availability: January, 1999-August, 2018

- `Creditor identifier`

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).

Abbreviation	Definition
bina	Anonymized bank identifier

Availability: January, 1999-August, 2018

- `Credit exposure identifier`

Identifier for each credit exposure.

cina is the anonymized credit identification number, only available in the credit exposure file (EXP). For the same credit exposure, the code changes on a monthly basis and therefore cannot be used to follow a credit through time. This variable is, however, useful to merge with auxiliary data files of collateral and special characteristics.

Abbreviation	Definition
cina	Anonymized credit identifier

Availability: January, 2009-August, 2018

- `Reference date`

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[8] The use of the Source Code allows compliance with the reporting of a firm/individual's liabilities resulting from all credit operations. However, the centralization and dissemination of centralized information for debtors reported with Source Code might be limited, since the same debtor will surely have a distinct code communicated by different institutions.

[9] For instance, the file of the taxpayers' identification numbers (NIF), managed by the Tax and Customs Authority (TA), and the National File of Collective Persons (FNPC), managed by the Ministry of Justice.

The reference month of the data

Abbreviation	Definition
date	Reference month of the data

Availability: January, 1999-August, 2018

B. Credit Exposure

- `Type of credit`

The type of credit, reported in CCR before 2009, characterizes general credit status. The classification has changed over time. The first classification regime includes only the codes 1-7, defining different types of financial instruments. To facilitate further assessment of credit risk in Portugal, new categories of "credit in litigation" (code 8) and "written-off credit" (code 9) were introduced in January, 1993, and "renegotiated credit" (code 10) in November, 2001. Later, following the Instrução nº 7/2006, additional types (codes 11-14) were incorporated in October, 2006, including guarantees, sureties, and credit communicated by foreign central banks.

Abbreviation	Definition
tipocredito	Type of credit

Availability: January, 1999-December, 2008

Classification	Definition
1	Commercial
2	Discount funding
3	Other short term funding
4	Medium and Long term funding
5	Other responsibilities
6	Off balance sheet liabilities (potential indebtedness)
7	Overdue Credit (non-performing loans)
8	Credit in litigation
9	Written-off credit
10	Renegotiated credit
11	Guarantees provided by participating entities to ensure the compliance of credit operations by other participating entities
12	Guarantees or sureties
13	Effective credit communicated by foreign banks
14	Potential credit communicated by foreign banks

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- `Responsibility level`

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

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.

The exposure of the guarantor is reported with characteristics similar to the secured exposure in all variables except for the followings: The identification of the party (debtor/guarantor); The responsibility level; The credit situation.

This variable is available from 1999 and has undergone a series of changes in classification, as framed by the Instrução nº 16/2001, the Instrução nº 7/2006, and the Instrução nº21/2008. To construct a harmonized series, one can use the ado file provided by BPLIM.

Abbreviation	Definition
nivelresponsabilidade	Responsibility level

Availability: January, 1999-August, 2018

Classification	Definition
from January, 1999 to October, 2001	
1	Individual credit
11	Individual credit - savings-emigrant - acquisition of buildings
12	Individual credit - savings-emigrant - other activities
13	Individual credit - savings-emigrant - buildings + other activities
2	Joint credit (credit more than one beneficiary) - 1ºdebtor
21	Joint credit 1ºdebtor. - saving-emigrant - acquisition buildings
22	Joint credit 1ºdebtor. - saving-emigrant - other activities
23	Joint credit 1ºdebtor. - saving-emigrant - buildings + other activities
3	Joint credit (credit more than one beneficiary) - remaining debtors
31	Joint credit- remaining debtors - saving-emigrant - acquisition buildings

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Classification	Definition
32	Joint credit - remaining debtors - saving-emigrant - other activities
33	Joint credit - remaining debtors - savings-emigrant - buildings+ other activities
from November, 2001 to September, 2006	
1	Individual credit
11	Individual credit - savings-emigrant - acquisition of buildings
12	Individual credit - savings-emigrant - other activities
13	Individual credit - savings-emigrant - buildings + other activities
14	Individual credit - credit due to operations of securitization
2	Joint credit (credit more than one beneficiary) - 1ºdebtor
21	Joint credit 1ºdebtor. - saving-emigrant - acquisition buildings
22	Joint credit 1ºdebtor. - saving-emigrant - other activities
23	Joint credit 1ºdebtor. - saving-emigrant - buildings + other activities
24	Joint credit 1ºdebtor. - credit due to operations of securitization
25	Joint credit 1ºdebtor. - mortgage-backed obligations or obligations in the public sector
3	Joint credit (credit more than one beneficiary) - remaining debtors
31	Joint credit- remaining debtors - saving-emigrant - acquisition buildings
32	Joint credit - remaining debtors - saving-emigrant - other activities
33	Joint credit - remaining debtors - savings-emigrant - buildings+ other activities
34	Joint credit - remaining debtors - credit due to operations of securitization
from October, 2006 to December, 2008	
1	Individual credit
11	Individual credit - savings-emigrant - acquisition of buildings
12	Individual credit - savings-emigrant - other activities

Classification	Definition
13	Individual credit - savings-emigrant - buildings + other activities
14	Individual credit - credit due to operations of securitization
15	Individual credit - mortgage-backed obligations or obligations in the public sector
2	Joint credit (credit more than one beneficiary) - 1ºdebtor
21	Joint credit 1ºdebtor. - saving-emigrant - acquisition buildings
22	Joint credit 1ºdebtor. - saving-emigrant - other activities
23	Joint credit 1ºdebtor. - saving-emigrant - buildings + other activities
24	Joint credit 1ºdebtor. - credit due to operations of securitization
25	Joint credit 1ºdebtor. - mortgage-backed obligations or obligations in the public sector
3	Joint credit (credit more than one beneficiary) - remaining debtors
31	Joint credit- remaining debtors - saving-emigrant - acquisition buildings
32	Joint credit - remaining debtors - saving-emigrant - other activities
33	Joint credit - remaining debtors - savings-emigrant - buildings+ other activities
34	Joint credit - remaining debtors - credit due to operations of securitization
35	Joint credit - remaining debtors – mortgage-backed obligations or obligations in the public sector
4	Joint credit – communicated via foreign channels
from 2009 onwards	
1	Individual credit
2	Joint credit – 1.º debtor
3	Joint credit – remaining debtors
4	Individual guarantor
5	Joint guarantor

- **Credit situation**

The credit situation characterizes the exposure as to its current status of usage and the degree of compliance with the payment of the credit. In the case of overdue or written off credit, this variable is used to identify the existence, validity, enforceability and enforcement of legal proceedings.

This variable is available from 2009 onwards and underwent a major change in classification in June, 2014, framed by the Instrução nº 17/2013. Specifically, "Overdue credit" (code 3) is thereafter separated into two distinct exposures, i.e., "overdue credit" (code 3) and "overdue credit in litigation" (code 6). "Written-off credit" (code 4) is separated into two distinct exposures, i.e., "written-off credit" (code 4) and "written-off credit in litigation" (code 7). The harmonization of this variable can be conducted using the ado file provided by BPLIM.

Comment : *Banco de Portugal* requires all credit-granting institutions to report to the CCR their irrevocable credit obligations. There is one important exception of an institution which stopped reporting revocable credit card obligations in May 2013, causing a break in the data.

Abbreviation	Definition
situacaocredito	Credit situation

Classification	Definition
1	Regular credit
2	Potential Credit
3	Overdue credit
4	Written-off credit
5	Renegotiated credit
6	Overdue credit in litigation
7	Written-off credit in litigation

Availability: January, 2009-August, 2018

- `Overdue credit class`

This variable is intended to indicate the time elapsed from the time that a credit enters into default, that is, when the credit situation is denoted as "overdue credit" or "overdue credit in litigation".

The credit overdue class list is the same as defined for the purposes of the banking chart of accounts (NCA and PCSB), with only the exception of the shortest duration classes "up to 3 months", which is further divided into three classes in the table adopted in CCR ("up to 1 month", "from 1 to 2 months" and "from 2 to 3 months"). In the case when loans are repaid in varying 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.

Abbreviation	Definition
classecreditovencido	Overdue credit class

Classification	Definition
1	Up to 1 month
2	From 1 to 2 months
3	From 2 to 3 months
4	From 3 to 6 months
5	From 6 to 9 months
6	From 9 to 12 months
7	From 12 to 15 months
8	From 15 to 18 months
9	From 18 to 24 months
10	From 24 to 30 months
11	From 30 to 36 months
12	From 36 to 48 months
13	From 48 to 60 months
14	More than 60 months

Availability: January, 2009-August, 2018

- Maturity

All credit exposures reported in the CCR after 2009 are classified based on their original maturity, established in contractual terms, as well as on their residual maturity, defined as the time interval between the reference date and the maturity date of the credit agreement. The original term of the credit characterizes the exposure in relation to the maturity that was contracted for the full repayment of the credit, while the residual term of the credit characterizes the exposure in relation to the maturity between the date to which the communication refers and the date contracted for the full amortization of the credit.

These two variables are defined in ranges, including a category "Undetermined" (code 1) which is used 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.

This variable is available from 2009 onwards but has undergone a major change in classification in December, 2013, framed by the Instrução nº 17/2013. For example, the maturity class "1 to 5 years" (code 5) is only valid between January, 2009 and November, 2013. From December 2013, this category is replaced by the maturity class codes 51-54. The same applies to the maturity class "5 to 10 years" (code 6 replaced by codes 61-65), and the maturity class "10 to 20 years" (code 7 replaced by codes 71 and 72). The harmonization of this variable can be conducted using the ado file provided by BPLIM.

Abbreviation	Definition
prazooriginal	Original maturity
prazoresidual	Residual maturity

Abbreviation	Definition

Availability: January, 2009-August, 2018

Classification	Definition
before December, 2013	
1	Undefined
2	Up to 90 days
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	Over 30 years
from December, 2013 onwards	
1	Undefined
2	Up to 90 days
3	From 90 days to 180 days
4	From 180 days to 1 year
51	From 1 to 2 years
52	From 2 to 3 years
53	From 3 to 4 years
54	From 4 to 5 years
61	From 5 to 6 years
62	From 6 to 7 years
63	From 7 to 8 years
64	From 8 to 9 years
65	From 9 to 10 years
71	From 10 to 15 years
72	From 15 to 20 years
8	From 20 to 25 years
9	From 25 to 30 years
10	Over 30 years

- `Financial product`

The financial product characterizes the types of credit and/or purpose of the credit. In order to facilitate the classification of credit exposures, the nomenclature used 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, based on businesses funding as well as on

individual financing. 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. Debtors characterized as individual entrepreneurs may also have credits of typical financial product as companies do.

Abbreviation	Definition
produto	Financial product

Availability: January, 2009-August, 2018

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

- Collateral

As long as the collateral/guarantee exists, it is mandatory to communicate to CCR its existence together with the credit exposure that it ensures. The collateral/guarantee is reported to CCR on a monthly basis, regardless of whether its value changes or not. The collateral amounts relating to a credit are aggregated by type of collateral using the same criteria as to the credit exposure.

This variable is available from 2009 onwards and it has undergone a major change in classification in June, 2014, as framed by the Instrução nº 17/2013. For example, the collateral "Real Collateral Mortgage" (code 1) is only valid in the reporting period between January 2009 and May 2014. From June 2014, it is replaced by the categories "Real Collateral Mortgage - Real Estate" (code

11) and "Real Collateral Mortgage – Other" (code 12). The same applies to the categories "Financial Collateral" (code 3) which was replaced by the codes 31-39, and "Personal Guarantee - granted by the State or financial institution" (code 5) which was replaced by the Codes 51 to 53. The harmonization of this variable before and after the affecting month can be realized by using the ado file provided by BPLIM.

Abbreviation	Definition
tipogarantia	Type of collateral
valorg	Amount of collateral

Availability: January, 2009-August, 2018

Classification	Definition
before June, 2014	
1	Real collateral mortgage
2	Real collateral - not mortgaged
3	Financial collateral
4	Personal guarantee - Provided by firm or individual
5	Personal guarantee - Granted by the state or financial institution
6	Other guarantees
from Jun, 2014 onwards	
11	Real collateral mortgage - housing
12	Real collateral mortgage - others
2	Real collateral - not mortgaged
31	Financial collateral - deposits
32	Financial collateral – Portuguese public debt
33	Financial collateral – Public debt of non-residents and multinational organizations
34	Financial collateral – Debt of other entities
35	Financial collateral – Stocks and other participations in listed companies
36	Financial collateral – Stocks and other participations in unlisted companies
39	Financial collateral – Other instruments
4	Personal guarantee - Provided by firm or individual
51	Personal guarantee – Granted by the Portuguese State
52	Personal guarantee – Granted by other governments or by multinational organizations
53	Personal guarantee – Granted by financial institutions
6	Other guarantees

Classification	Definition

- `Special characteristics`

This variable characterizes special regimes to which a credit exposure belongs for the purpose of performing supervision, financial system stability or monetary policy analyses. New classifications are introduced over time. For instance, the Decree-Law No. 103/2009, of 12 May, led to the creation of a special and temporary credit line, provided by the State, for the protection of permanent residence in cases that at least one of the debtors is unemployed (code 10). Credit delivered as collateral for Eurosystem credit operations (code 11) and credit with an IEB Code (code 12) are introduced according to the Instrução N.º 7/2012. In additions, the codes 13 to 15 are included as framed by the Instrução 18/2012, the Instrução 16/2004, the Decree law 227/2012 and the Law 58/2012.

Abbreviation	Definition
caracteristicas	Special characteristics

Availability: January, 2009-August, 2018

Classification	Definition
1	Credit conceded in a recognized securitization operation with the intervention of a resident financial vehicle
2	Credit conceded in a recognized securitization operation with the intervention of a nonresident financial vehicle
3	Credit conceded in an unrecognized securitization operation with the intervention of a resident financial vehicle
4	Credit conceded in an unrecognized securitization operation with the intervention of a nonresident financial vehicle
5	Syndicated loan
6	Mortgage-backed loan
7	Public loan
8	Credit associated with emigrant´s savings accounts for purchasing buildings
9	Credit associated with emigrant´s savings accounts for other purposes
10	Credit for protecting permanent housing property (**Decree-Law103/2009**)

Classification	Definition
11	Loan extended as collateral for credit operations in Eurosystem (**Instruction N.º 7/2012**)
12	Loan featured with identification code (IEB) (**Instruction N.º 7/2012**)
13	Credit restructured for customers in financial difficulties (**Instruction 18/2012**)
14	Credit at risk (**Instruction 16/2004**)
15	Credit in an out-of-course renegotiation procedure (PERSI) (**Decree-Law No. 227/2012**) or in a Special Regime (**Law 58/2012**)

- `Credit amount`

This variable identifies the total amount outstanding of a credit. Loans of the same debtor and creditor with identical characteristics are aggregated into a single exposure. Given different credit situations, it is possible for a credit exposure to be divided into more than one exposures in some situations. Note that regardless of the credit denominated currency, the value of the exposure must always be expressed in euro units.

Abbreviation	Definition
valor	Credit amount

Availability: January, 1999-August, 2018

- `Bank's branch country`

This variable indicates the country of the branch in which a credit was granted. Note that credit granted by foreign branches of Portuguese banks is only reported consistently post-2009.

Abbreviation	Definition
paisbalcaoid	Bank's branch country

Availability: January, 2009-August, 2018

Country Code	Country Name
ABW	Aruba
AFG	Afghanistan
AGO	Angola
AIA	Anguilla
ALA	Aland Islands

Country Code	Country Name
ALB	Albania
AND	Andorra
ANT	Netherlands Antilles
ARE	United Arab Emirates
ARG	Argentina
ARM	Armenia
ASM	American Samoa
ATA	Antarctica
ATF	South territories of France
ATG	Antigua and Barbuda
AUS	Australia
AUT	Austria
AZE	Azerbaijan
BDI	Burundi
BEL	Belgium
BEN	Benin
BFA	Burkina Faso
BGD	Bangladesh
BGR	Bulgaria
BHR	Bahrain
BHS	Bahamas
BIH	Bosnia Herzegovina
BLM	St. Bartholomew
BLR	Belarus
BLZ	Belize
BMU	Bermuda
BOL	Bolivia
BRA	Brazil
BRB	Barbados
BRN	Brunei
BTN	Bhutan
BVT	Bouvet Island (Norway Territory)
BWA	Botswana
CAF	Central African Republic
CAN	Canada
CCK	Cocos
CHE	Switzerland
CHL	Chile
CHN	China
CIV	Costa do Marfim
CMR	Cameroon
COD	Democratic Republic of Congo (former Zaire)
COG	Congo
COK	Cook Islands

Country Code	Country Name
COL	Colombia
COM	Comoros
CPV	Cape Verde
CRI	Costa Rica
CUB	Cuba
CUW	Curacao
CXR	Christmas island
CYM	Cayman Islands
CYP	Cyprus
CZE	Czech republic
DEU	Germany
DJI	Djibouti
DMA	dominica
DNK	Denmark
DOM	Dominican Republic
DZA	Algeria
ECU	Ecuador
EGY	Egypt
ERI	Eritrea
ESH	Western Sahara (former Spanish Sahara)
ESP	Spain
EST	Estonia
ETH	Ethiopia
FIN	Finland
FJI	Fiji
FLK	Falkland Islands (Malvinas)
FRA	France
FRO	Faroes Islands
FSM	Micronesia
GAB	Gabon
GBR	Great Britain (United Kingdom, UK)
GEO	Georgia
GGY	Guernsey
GHA	Ghana
GIB	Gibraltar
GIN	Guinea
GLP	Guadeloupe
GMB	Gambia
GNB	Guinea Bissau
GNQ	Equatorial Guinea
GRC	Greece
GRD	Grenade
GRL	Greenland
GTM	Guatemala

Country Code	Country Name
GUF	French Guiana
GUM	Guam (US Territory)
GUY	Guiana
HKG	Hong Kong
HMD	Heard and McDonald Islands (territory of Australia)
HND	Honduras
HRV	Croatia (Hrvatska)
HTI	Haiti
HUN	Hungary
IDN	Indonesia
IMN	Isle of Man
IND	India
IOT	Territory British Indian Ocean
IRL	Ireland
IRN	Will
IRQ	Iraq
ISL	Iceland
ISR	Israel
ITA	Italy
JAM	Jamaica
JEY	jersey
JOR	Jordan
JPN	Japan
KAZ	Kazakhstan
KEN	Kenya
KGZ	Kyrgyzstan
KHM	Cambodia
KIR	Kiribati
KNA	Saint Kitts and Nevis
KOR	South Korea
KWT	Kuwait
LAO	Laos
LBN	Lebanon
LBR	Liberia
LBY	Libya
LCA	Saint Lucia
LIE	Liechtenstein
LKA	Sri Lanka
LSO	Lesotho
LTU	Lithuania
LUX	Luxembourg
LVA	Latvia
MAC	Macao
MAF	St. Martin

Country Code	Country Name
MAR	Morocco
MCO	Monaco
MDA	Moldova
MDG	Madagascar
MDV	Maldives
MEX	Mexico
MHL	Marshall Islands
MKD	Macedonia (Republic Yugoslav)
MLI	Mali
MLT	Malta
MMR	Myanmar (former Burma)
MNE	Montenegro
MNG	Mongolia
MNP	Northern Mariana Islands
MOZ	Mozambique
MRT	Mauritania
MSR	montserrat
MTQ	Martinique
MUS	Mauritius
MWI	Malawi
MYS	Malaysia
MYT	Mayotte
NAM	Namibia
NCL	New Caledonia
NER	Niger
NFK	Norfolk Islands
NGA	Nigeria
NIC	Nicaragua
NIU	Niue
NLD	Netherlands
NOR	Norway
NPL	Nepal
NRU	Nauru
NZL	New Zealand
OMN	Oman
PAK	Pakistan
PAN	Panama
PCN	Pitcairn island
PER	Peru
PHL	Philippines
PLW	Palau
PNG	Papua New Guinea
POL	Poland
PRI	Puerto Rico

Country Code	Country Name
PRK	North Korea
PRT	Portugal
PRY	Paraguay
PSE	Occupied Palestinian Territories
PYF	French Polynesian
QAT	Qatar
REU	Reunion island
ROU	Romania
RUS	Russian Federation
RWA	Rwanda
SAU	Saudi Arabia
SDN	Sudan
SEN	Senegal
SGP	Singapore
SGS	South Georgia and the South Sandwich Islands
SHN	Saint Helen
SJM	Svalbard and Jan Mayen Islands
SLB	Solomon Islands
SLE	Sierra Leone
SLV	El Salvador
SMR	San Marino
SOM	Somalia
SPM	St. Pierre and Miquelon
SRB	Serbia
STP	Sao Tome and Principe
SUR	Suriname
SVK	Slovakia
SVN	Slovenia
SWE	Sweden
SWZ	Swaziland
SYC	Seychelles
SYR	Syria
TCA	Turks and Caicos Islands
TCD	Chad
TGO	Togo
THA	Thailand
TJK	Tajikistan
TKL	Tokelau Islands
TKM	Turkmenistan
TLS	East Timor (former East Timor)
TON	Tonga
TTO	Trinidad and Tobago
TUN	Tunisia
TUR	Turkey

Country Code	Country Name
TUV	Tuvalu
TWN	Taiwan
TZA	Tanzania
UGA	Uganda
UKR	Ukraine
UMI	US Outlying Islands
URY	Uruguay
USA	U.S
UZB	Uzbekistan
VAT	Vatican
VCT	Saint Vincent and the Grenadines
VEN	Venezuela
VGB	Virgin Islands (England)
VIR	Virgin Islands (United States)
VNM	Vietnam
VUT	Vanuatu
WLF	Wallis and Futuna Islands
WSM	Western Samoa
YEM	Yemen
ZAF	South Africa
ZMB	Zambia
ZWE	Zimbabwe

- Base currency

After 2009, information on whether the credit was granted in a different currency is provided. This variable is denoted using 3-digit ISO currency code (ISO 4217). But the value of the credit (*valor*) is always reported in euros.

Abbreviation	Definition
moeda	Base currency

Availability: January, 2009-August, 2018

Currency Code	Currency Name
AED	UAE Dirham
ALL	Lek
AMD	Armenian Dram
ANG	Netherlands Antillean Guilder
AOA	Kwanza
ARS	Argentine Peso
AUD	Australian Dollar

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Currency Code	Currency Name
AWG	Aruban Florin
AZN	Azerbaijan Manat
BAM	Convertible Mark
BBD	Barbados Dollar
BDT	Taka
BGN	Bulgarian Lev
BHD	Bahraini Dinar
BIF	Burundi Franc
BMD	Bermudian Dollar
BND	Brunei Dollar
BOB	Boliviano
BOV	Mvdol
BRL	Brazilian Real
BSD	Bahamian Dollar
BTN	Ngultrum
BWP	Pula
BYN	Belarusian Ruble
BZD	Belize Dollar
CAD	Canadian Dollar
CDF	Congolese Franc
CHE	WIR Euro
CHF	Swiss Franc
CHW	WIR Franc
CLF	Unidad de Fomento
CLP	Chilean Peso
CNY	Yuan Renminbi
COP	Colombian Peso
COU	Unidad de Valor Real
CRC	Costa Rican Colon
CUC	Peso Convertible
CUP	Cuban Peso
CVE	Cabo Verde Escudo
CZK	Czech Koruna
DJF	Djibouti Franc
DKK	Danish Krone
DOP	Dominican Peso
DZD	Algerian Dinar
EGP	Egyptian Pound
ERN	Nakfa
ETB	Ethiopian Birr
EUR	Euro
FJD	Fiji Dollar
FKP	Falkland Islands Pound
GBP	Pound Sterling

Currency Code	Currency Name
GEL	Lari
GHS	Ghana Cedi
GIP	Gibraltar Pound
GMD	Dalasi
GNF	Guinean Franc
GTQ	Quetzal
GYD	Guyana Dollar
HKD	Hong Kong Dollar
HNL	Lempira
HRK	Kuna
HTG	Gourde
HUF	Forint
IDR	Rupiah
ILS	New Israeli Sheqel
INR	Indian Rupee
IQD	Iraqi Dinar
IRR	Iranian Rial
ISK	Iceland Krona
JMD	Jamaican Dollar
JOD	Jordanian Dinar
JPY	Yen
KES	Kenyan Shilling
KGS	Som
KHR	Riel
KMF	Comorian Franc
KPW	North Korean Won
KRW	Won
KWD	Kuwaiti Dinar
KYD	Cayman Islands Dollar
KZT	Tenge
LAK	Lao Kip
LBP	Lebanese Pound
LKR	Sri Lanka Rupee
LRD	Liberian Dollar
LSL	Loti
LYD	Libyan Dinar
MAD	Moroccan Dirham
MDL	Moldovan Leu
MGA	Malagasy Ariary
MKD	Denar
MMK	Kyat
MNT	Tugrik
MOP	Pataca
MRU	Ouguiya

Currency Code	Currency Name
MUR	Mauritius Rupee
MVR	Rufiyaa
MWK	Malawi Kwacha
MXN	Mexican Peso
MXV	Mexican Unidad de Inversion (UDI)
MYR	Malaysian Ringgit
MZN	Mozambique Metical
NAD	Namibia Dollar
NGN	Naira
NIO	Cordoba Oro
NOK	Norwegian Krone
NPR	Nepalese Rupee
NZD	New Zealand Dollar
OMR	Rial Omani
PAB	Balboa
PEN	Sol
PGK	Kina
PHP	Philippine Peso
PKR	Pakistan Rupee
PLN	Zloty
PYG	Guarani
QAR	Qatari Rial
RON	Romanian Leu
RSD	Serbian Dinar
RUB	Russian Ruble
RWF	Rwanda Franc
SAR	Saudi Riyal
SBD	Solomon Islands Dollar
SCR	Seychelles Rupee
SDG	Sudanese Pound
SEK	Swedish Krona
SGD	Singapore Dollar
SHP	Saint Helena Pound
SLL	Leone
SOS	Somali Shilling
SRD	Surinam Dollar
SSP	South Sudanese Pound
STN	Dobra
SVC	El Salvador Colon
SYP	Syrian Pound
SZL	Lilangeni
THB	Baht
TJS	Somoni
TMT	Turkmenistan New Manat

Currency Code	Currency Name
TND	Tunisian Dinar
TOP	Pa'anga
TRY	Turkish Lira
TTD	Trinidad and Tobago Dollar
TWD	New Taiwan Dollar
TZS	Tanzanian Shilling
UAH	Hryvnia
UGX	Uganda Shilling
USD	US Dollar
UYU	Peso Uruguayo
UYW	Unidad Previsional
UZS	Uzbekistan Sum
VES	Bolívar Soberano
VND	Dong
VUV	Vatu
WST	Tala
XAF	CFA Franc BEAC
XCD	East Caribbean Dollar
XOF	CFA Franc BCEAO
XPF	CFP Franc
XSU	Sucre
XUA	ADB Unit of Account
YER	Yemeni Rial
ZAR	Rand
ZMW	Zambian Kwacha
ZWL	Zimbabwe Dollar

C. Credit Outstanding

The variables related to credit outstanding are calculated based on the credit exposure data at both the firm level and the bank-firm level. These variables characterize the amount outstanding according to a variety of dimensions as discussed below.

- `Global Credit`

Global credit is the sum of regular credit and potential credit, representing the total available credit that a firm accesses.

Abbreviation	Definition
valor_global	Total available credit that a firm can accesses

Availability: January, 1999-August, 2018

- `Effective Credit`

Effective credit is credit effectively used in a regular or overdue situation, including overdue credit (i.e., payment delays as defined in the respective contract).

Abbreviation	Definition
valor_efectivo	Credit that a firm used effectively

Availability: January, 1999-August, 2018

Examples of effective credit
Loans for the acquisition of financial instruments (shares, bonds, etc.)
Discount and other credits secured by effects
Overdrafts on bank accounts
Leasing and factoring
Used amounts of credit cards

- `Potential Credit`

Potential credit represents irrevocable commitments of the participating entities.

Abbreviation	Definition
valor_potencial	Credit that a firm can access because of irrevocable commitments of the participating entities

Availability: January, 1999-August, 2018

Examples of potential credit
Unused amounts of credit cards
Lines of credit
Guarantees provided by participating entities
Guarantees and guarantees given in favor of the participating entities
Any other credit facilities likely to be converted into effective debts

Banco de Portugal requires all credit-granting institutions to report to the CCR their outstanding loan exposure by instrument of all irrevocable credit obligations. There is one important exception of an institution which stopped reporting revocable credit card obligations in May 2013, causing a break in the data.

- `Overdue Credit`

All outstanding credit exposures recorded as non-performing (including overdue, written off, renegotiated credit, overdue credit in litigation, and written off credit in litigation) are aggregated to calculate overdue credits. It includes principal, interest and related fees.

For written-off credits, participating entities also have the discrepancy to file the written-off credit in court and classify the credit as "written-off credit in litigation". Similarly, the classification occurs from the initialization of the legal proceedings until the final decision.

Abbreviation	Definition
valor_vencido	Non-performing credit of a firm

Availability: January, 1999-August, 2018

Overdue Credit Type	
Overdue Credit	Credit exposure that remains unpaid past the due maturity date.
Written-off Credit	Credit exposure that has become seriously delinquent and the creditor has given up on being paid.
Renegotiated Credit	Credit exposure that is overdue and has been renegotiated without additional collateral.
Overdue Credit in Litigation	Overdue credit that is filed in court. The classification starts from the initialization of the legal proceedings and ends after the final decision.
Written-Off Credit in Litigation	Written-off credit that is filed in court. Similarly, the classification should occur since the initialization of the legal proceedings until the final decision.

- Short-term Credit

Short-term credit is calculated using two different definitions.

In the first place, short-term credit is defined based on the term-to-maturity as agreed in the credit contract, denoted by *valor_curto_o*. Specifically, short-term credit has an original maturity of equal to or less than one year. Before 2009, the CCR dataset did not streamline credit exposure based on the maturity structure. Therefore, 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.

In the second place, short-term credit is defined based on residual maturity – the remaining time until the expiration or the repayment of the instrument, denoted by *valor_curto_r*. Specifically, it is credit with a residual maturity of equal to

or less than one year. This variable is only available from 2009.

Note that potential credit is excluded for both calculations.

Abbreviation	Definition
valor_curto_o	Credit with an original maturity of less than or equal to 1 year
valor_curto_r	Credit with a residual maturity of less than or equal to 1 year

Availability: January, 1999-August, 2018 for *valor_curto_o*; January, 2009-August, 2018 for *valor_curto_r*

- Long-term Credit

Similar to short-term credit, long-term credit is defined based on original and residual maturities.

More precisely, long-term credit is credit with an original or residual maturity of more than one year, denoted by *valor_longo_o* and *valor_longo_r*, respectively.

Long-term credit defined on an original maturity basis (*valor_longo_o*) for the data before 2009 is the aggregation of total credit excluding commercial credit, discount funding, and other short-term funding.

Note that potential credit is excluded for both calculations.

Abbreviation	Definition
valor_longo_o	Credit with an original maturity of more than 1 year
valor_longo_r	Credit with a residual maturity of more than 1 year

Availability: January, 1999-August, 2018 for *valor_longo_o*; January, 2009-August, 2018 for *valor_longo_r*

- Weighted average debt maturity

To provide an overall picture of a firm's rollover risk, we compute the weighted average debt maturity. These variables are only available after 2009.

Abbreviation	Definition
prazomedia_o	The weighted average original debt maturity
prazomedia_r	The weighted average residual debt maturity

Availability: January, 2009-August, 2018

All credit exposures reported in the CCR after 2009 are classified based on their original maturity, established in contractual terms, and residual maturity, defined as the time interval between the reference date and the maturity date of the credit agreement. In other words, the original term of the credit characterizes the exposure in relation to the maturity that was contracted for the full repayment of the credit, while the residual term of the credit characterizes the exposure in relation to the maturity between the date to which the communication refers and the date contracted for the full amortization of the credit.

These two variables are defined in ranges, including a category "Undetermined" (code 1) which is used 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. In addition, the reporting of debt maturity has undergone a major change in classification in December, 2013. For example, the maturity class "1 to 5 years" (code 5) is only valid between January, 2009 and November, 2013. From December 2013, this category is replaced by the maturity class codes 51-54. The same applies to the maturity class "5 to 10 years" (code 6 replaced by codes 61-65), and the maturity class "10 to 20 years" (code 7 replaced by codes 71 and 72).

Due to these specificities, we adopt the following procedure.

Firstly, we harmonize the debt maturity information after December, 2013 using the classification of September, 2009 as the latter is less disaggregated than the former.

Secondly, we assign the midpoint maturity for each maturity classification (0.5 years for maturity less than or equal to 1 year; 3 years for maturity more than 1 year and less than or equal to 5 years; 7.5 years for maturity more than 5 year and less than or equal to 10 years; 15 years for maturity more than 10 year and less than or equal to 20 years; 22.5 years for maturity more than 20 year and less than or equal to 25 years; 27.5 years for maturity more than 25 year and less than or equal to 30 years). We assign an average value of 40 years for credit maturing in more than 30 years.

Thirdly, we calculated the average debt maturity, weighted by the credit outstanding with the corresponding maturity.

Lastly, we reassign a maturity class to the calculated weighted average maturity value:

Maturity Class	Definition
1	Credit with a calculated weighted average maturity of less than or equal to 1 year
2	Credit with a calculated weighted average maturity of more than 1 year and less than or equal to 5 years

Maturity Class	Definition
3	Credit with a calculated weighted average maturity of more than 5 years and less than or equal to 10 year
4	Credit with a calculated weighted average maturity of more than 10 years and less than or equal to 20 year
5	Credit with a calculated weighted average maturity of more than 20 year

- **Credit by maturity structure**

For the data after 2009, we breakdown the amount of credit using various maturity classifications, as illustrated below.

Abbreviation	Definition
valor_prazo1_o	Credit with an original maturity of less than or equal to 1 year
valor_prazo2_o	Credit with an Original maturity of more than 1 year and less than or equal to 5 years
valor_prazo3_o	Credit with an Original maturity of more than 5 years and less than or equal to 10 year
valor_prazo4_o	Credit with an Original maturity of more than 10 years and less than or equal to 20 year
valor_prazo5_o	Credit with an Original maturity of more than 20 year

Availability: January, 2009-August, 2018

Abbreviation	Definition
valor_prazo1_r	Credit with a residual maturity of less than or equal to 1 year
valor_prazo2_r	Credit with a residual maturity of more than 1 year and less than or equal to 5 years
valor_prazo3_r	Credit with a residual maturity of more than 5 years and less than or equal to 10 year
valor_prazo4_r	Credit with a residual maturity of more than 10 years and less than or equal to 20 year
valor_prazo5_r	Credit with a residual maturity of more than 20 year

Availability: January, 2009-August, 2018

- `Secured credit by collateral type`

For the data after 2009, we calculate the amount of secured credit broken down by collateral type.

Abbreviation	Collateral Type
valor_g1	Credit secured by real collateral mortgaged
valor_g2	Credit secured by real collateral not mortgaged
valor_g3	Credit secured by financial collateral
valor_g4	Credit secured by personal guarantee provided by firm or individual
valor_g5	Credit secured by personal guarantee granted by the state or financial institution
valor_g6	Credit secured by other guarantees

Availability: January, 2009-August, 2018

Comment : To guarantee the accuracy of the credit reports, the reporting institutions are required to verify and correct erroneous reports as soon as possible. Although the quality of the information reported in CCR and the coverage of credit exposures have increased over time, CCR still has some limitations due to some specificities. For example, credit transfer can occur between group firms. Although this does not influence group level analysis, it can lead to abnormal changes at the level of individual firms.

D. Bank Relationship

Data types related to bank relationships are constructed at the firm level. To obtain an extended set of relationship variables at the bank-firm level , one can use the "relationspell" ado provided by BPLIM.

We measure bank relationships in three dimensions: number of bank relationships, largest relationship, and the concentration of bank relationship. We consider that a firm maintains a relationship with a bank using all available credit (including unused credit).

- `Number of bank relationships`

This variable measures the size 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 is able to borrow in a specific month. It means that unused credit is also taken into account in the calculation of bank relationships.

- `Largest bank relationship`

This variable features the borrowing 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.

- `Concentration of bank relationships`

The concentration of bank relationship is calculated using the Herfindahl–Hirschman Index as the sum of the squares of the bank lending share for a firm.

Abbreviation	Definition
nb_relacao	The number of active bank relationships of a firm
max_relacao	The largest bank relationship (in percentage term) of a firm
hhi_relacao	The concentration of a firm's bank relationships

Basic Descriptive Statistics

Table 1- Number of firms over the data period (year-end) in the COBR and the CO and COBR files.

```
global path1 "Z:/data/Products/CRC/2018_04/CRC_Annual/Output/Data/Firms/"
global path2 "Z:/data/Products/CRC/2017_04/CRC_Annual/Output/Data/Firms/"
global path3 "Z:/data/Products/CRC/2019_04/CRC_Annual/Output/Data/Firms/"

quietly use "${path3}/2018/External/CRC_A_MFRM_2018_APR19_COBR_V01.dta", clear
quietly append using "${path1}/2017/External/CRC_A_MFRM_2017_APR18_COBR_V01.dta"
quietly keep if (year(dofm(date))<2018 & month(dofm(date))==12) | (year(dofm(date))==201

quietly forval i =1999/2016 {
  quietly append using "${path2}/`i'/External/CRC_A_MFRM_`i'_APR17_COBR_V01.dta"
}
quietly keep if (year(dofm(date))<2018 & month(dofm(date))==12) | (year(dofm(date))==201
quietly gen Year= year(dofm(date))
table Year, contents(freq) center
```

Table 2- Number of firms over the data period (year-end) in the EXP files

```
global path1 "Z:/data/Products/CRC/2018_04/CRC_Annual/Output/Data/Firms/"
global path2 "Z:/data/Products/CRC/2017_04/CRC_Annual/Output/Data/Firms/"
global path3 "Z:/data/Products/CRC/2019_04/CRC_Annual/Output/Data/Firms/"

quietly use "${path3}/2018/CRC_A_MFRMEXP_2018_APR19_BAL_V01.dta", clear
```

```
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 append using "${path1}/2017/CRC_A_MFRMEXP_2017_APR18_BAL_V01.dta"
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 keep if (year(dofm(date))<2018 & month(dofm(date))==12) | (year(dofm(date))==201

quietly forval i =1999/2016 {
  quietly append using "${path2}/`i'/CRC_A_MFRMEXP_`i'_APR17_BAL_V01.dta"
  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 keep if (year(dofm(date))<2018 & month(dofm(date))==12) | (year(dofm(date))==201
quietly gen Year= year(dofm(date))
table Year, contents(freq) center
```

Comment : the data before 2002 does not contain all the firms and is not
quality controlled.

Building Compatible Series Using Credit Exposure Data

For those who are interested in building consistent time series using the exposure
level data, there are a few caveats that are important to keep in mind.

A. Relevant filters

- In order not to duplicate credits, unless the analysis of interest is in
  guarantees and joint responsibilities, aggregate series should only include
  nivelresponsabilidade 1 and 2.

- The variable *si* and *si_final* classifies firms according to institutional sector
  at the moment of the data. As some firms may have changed from one
  sector to the other, in order to implement a consistent sample selection
  (such as non-financial firms), it is usually recommendable to keep the most
  recent classification only or only firms that never switched sectors.

- It is only possible to create a consistent series for credit granted domestically, regardless of the firm's country of origin (which is only identifiable after 2009). Therefore, when creating aggregate series, only loans with *paisbalcaoid* equal to "PRT" should be included.

B. Compatibility issues

Definitions of the variables in CCR changed over time. To build compatible time series, it is important to harmonize the data.[10]

B.1. Credit situation

The variable of credit situation is not available before 2009. To construct the time series for "credit situation" before 2009, one will need to use the following correspondence table between the variable "type of credit" (*tipo*) and the variable "credit situation" (*situacaocredito*).

Table 3 - Correspondence table between "type of credit" (before 2009) and "credit situation" (2009 onwards)

	January, 1999-December, 2008		January, 2009-present
Code	Type of Credit	Code	Credit Situation
1	Commercial	1	Regular
2	Discount funding	1	Regular
3	Other short term funding	1	Regular
4	Medium and Long term Funding	1	Regular
5	Other responsibilities	1	Regular
6	Off balance sheet liabilities (potential indebtedness)	2	Potential
7	Overdue Credit (non-performing loans)	3	Overdue
8	Credit in litigation	6	Overdue in litigation
9	Written-off credit	4	Written-off credit
10	Renegotiated credit	5	Renegotiated credit
11	Guarantees	2	Potential
12	Guarantees or sureties	2	Potential
13	Effective credit communicated by foreign banks	1	Regular
14	Potential credit communicated by foreign banks	2	Potential

Some reporting specificities also need to be noted in order to construct compatible series of credit.

- Credit exposures may have different states regarding their credit situation. A special caveat needs to be noted for "potential credit" (code 2), which is credit granted but not yet used, corresponding to lines of credit, or other irrevocable commitments by the credit institution. The credit exposures

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[10]One can fulfill this step using an ado file available at BPLIM.

of guarantors and guarantors are also characterized using this code, except in cases where they are in default.

- The classification of overdue credits has implications for other characteristics of the exposure, because (1) credit in this situation is required to identify the overdue credit class and (2) the residual maturity should always be classified as "undetermined". In the case that guarantors are required to replace the debtors in the payment of credit, the participating entity informs the credit situation and set a deadline for the payment of the claim. If payment is not made within the deadline, the institution will report a situation of in-default, i.e. the credit exposure associated with that guarantee is no longer reported in situation "potential credit" (code 2) but is now reported as "overdue credit" (code 3).

- Renegotiated credit was classified as overdue at some point in the past and, at the discretion of the reporting bank, classified as renegotiated. This renegotiation may correspond to changes in loan characteristics (in particular maturity extension and interest payment reduction), but does not imply involvement of the firm. If these loans are paid regularly, they are then reclassified as regular credit after 6-12 months (depending on the bank). To identify restructured loans, it is preferable to use the special characteristic (*caracteristicas*).

- In case of having renegotiated the terms of credit payment in regular situation, the respective exposures continue to be reported as "regular credit" (code 1) instead of "renegotiated credit" (code 5). The same rule applies to the renegotiation of credit payment leading to a new contract or major changes, for example, addition of new collaterals. Another aspect to be noted regarding the communication of credits in this situation refers to other actors other than the debtor, for example, guarantors. When the debtor's credit exposure is classified as renegotiated loans (in credit institution), the exposure relative to the responsibilities of the guarantor, which was classified as overdue loans, will be re-classified as a potential credit (code 2). In the case of joint credits, the rules for the debtors of individual loans applies to all debtors involved.

- The criteria for classifying credit as written-off is left to the discretion of the reporting institutions, so that while some banks may report written-off credit for a few months and then remove it from the CCR, others have a policy of never removing it. The values in written-off and renegotiated credit often correspond to overdue interest payments and not overdue installments or principal reductions. There are a few institutions, such as restructuring funds, which purchase non-performing loans and then revise the report to the CCR. When they do so, a number of characteristics may change, in particular the overdue amount may seem to go up due to the addition of the accumulated overdue interest payments which are not routinely reported to the CCR.

- For the classification of "overdue credit in litigation", the following aspects must be noted:

- The initiation of the action corresponds to the date on which the institution filed the action in court, or the date of notification of the institution in the case of the action being filed by third parties;

- The closure of the proceeding is considered as the date when major legal sequence is offered, and can be considered as a reference to the date of the transition to the final juridical decision;

- All overdue loans whose existence, validity or enforceability is subject to the jurisdiction of the courts should be considered as in litigation;

- In the cases when a third party triggers a juridical process and the credit exposure is found overdue, this should be reported as overdue loans in litigation;

- In an insolvency proceedings - a universal implementation process that may call the credit feasibility into question, an overdue exposure of a debtor in insolvency proceedings should be classified as overdue credit in litigation;

- For an overdue credit in litigation for which there is still a part in good standing, this part should be reported as "1 - regular credit", while the overdue part should be reported as "6 - overdue loans in litigation".

- For written-off credits, the following aspects must be noted:

- The initiation of the action corresponds to the date on which the institution placed the action in court, or the date of notification of the institution in the case of the action being filed by third parties;

- The closure of the proceeding is considered as the date when major legal sequence is offered, and can be considered as a reference to the date of the transition to the final juridical decision;

- All overdue loans whose existence, validity or enforceability is subject to the jurisdiction of the courts should be considered as in litigation

- In the cases where a third party triggers a juridical process and the credit exposure is found written off, this should be reported as written-off loans in litigation;

- In an insolvency proceedings - a universal implementation process that may call the credit feasibility into question, a written-off exposure of a debtor in insolvency proceedings should be classified as written-off credit in litigation;

- The classification in question does not provide any detail as to the characteristics of litigation in progress.

B.2. Debt maturity

Concerning the characterization of the contractual and residual maturity, some rules must be noted, in particular:

1. The original maturity is usually equal to or greater than the residual maturity, with only the exception of renegotiated credits (for example, the maturity is extended);

2. The category "Undetermined" (code 001) is only used when the original maturity is unknown or is not contractually agreed (for example, credit lines). An "Undetermined" original maturity also implies an "Undetermined" residual maturity;

3. The credits in overdue or written off situations, including those in litigation are always assigned an "Undetermined' residual maturity, regardless of the original maturity.

Some financial products, by their nature, may not have a defined maturity date contract, such as "current account (credit lines)" (code 2), "overdrafts on deposit accounts" (code 3) and credit card (code 9). In this situation, the variables "original maturity" and "residual maturity" shall be communicated with the code 1 (Undetermined).

B.3. Exposure Restructuring

It is possible that in some cases, the same credit is divided into more than one exposure. Please see the following examples:

- Considering a line of credit or credit card for which part of the exposure is effectively used at the end of the month. The information communicated to the CCR is in two exposures: one in the amount corresponding to the portion used, classified as "regular credit", and the other in the amount corresponding to the unused portion, classified as "potential credit", given that it corresponds to the institution's credit commitment;

- Considering a fully utilized credit with a periodic amortization schedule, with some installments overdue and the remaining part regular. It is necessary to communicate to the CCR two exposures: one in the amount corresponding to the overdue part for accounting purposes, and the other corresponding to the remaining part, classified as "regular credit";

- Considering an overdue credit in which there was some room for a renegotiation between the lending institution and the borrower for the payment terms of the overdue part. It is necessary to communicate to CCR two exposures: one in the amount corresponding to the regular

part, classified as "regular credit", and the other corresponding to the renegotiated part, classified as "renegotiated credit". While the agreed payment terms are respected and the overdue part have not been written down, the communication of the outstanding exposure to the CCR follows this rule.

B.4. Special characteristics

Each credit exposure may be associated with more than one special characteristics. However, by its nature, the coexistence of certain special features are not allowed on the same exposure credit. For instance, a credit used in a securitization operation (codes 1 to 4) cannot be used as collateral in the issuance of mortgage covered bonds or public sector bonds (code 6 or 7); a credit used as collateral in the issuance of mortgage covered bonds (code 6) cannot be used simultaneously as collateral of public sector bond (code 7); a credit used in a securitization operation (codes 1 to 4) or as collateral of mortgage covered bonds or as collateral of public sector bonds (code 6 or 7) cannot be delivered as collateral for Eurosystem credit operations (code 11); an integrated credit in PERSI or Special Regime (code 15) cannot be delivered as collateral for Eurosystem credit operations (code 11).

B.5. Guarantor

Credit liabilities guaranteed by surety or guarantor are identified by collateral classification - *tipoidentificacao* as "personal guarantees" (codes 4 to 53). However, this classification is not sufficient for identifying the respective guarantors and sureties. The responsibilities assumed by guarantors and sureties are also reported in separate registers, with the identical characteristics except for the following variables:

- Level of responsibility, which has the code "4" or "5", depending on whether the guarantor / surety is individual or conjoint;

- Credit situation, which will have the code "2" (potential credit), except as described in 2.3;

- Value, which should correspond to the amount that the guarantor/surety is contractually obligated to secure and can be different from the original exposure.

It is important to note that a guarantee or surety is never communicated without the associated credit exposure being also reported. When there is more than one entity to provide guarantees or sureties to the same credit, the exposures of credit liabilities associated with all guarantors and sureties are communicated to the CCR. In cases when a borrower fails to meet its payment obligations and there is a guarantor (surety or guarantor) associated with that contract, the credit institution will notify the guarantor of the situation and set a deadline for it to proceed to payments due by the debtor. This may result in the following situations:

(1) The guarantor fully liquidates the loan , thereby stop-

ping any report to the CCR regarding the loan in question (on behalf of the borrower, and on behalf of guarantor/surety);

(2)The guarantor fully liquidates the overdue part of the loan . In this situation, CCR only ceases to report the exposure in default. The outstanding exposure continues to be reported on behalf of the borrower as "regular credit" and the exposure associated with the guarantor/surety will be reported as "potential credit"; iii.

(3)The guarantor pays the loan installments regularly, instead of the debtor . In this situation, reporting on the guarantor/surety remains regarding the characterization of credit liabilities, that is, the *level of responsibility* equal to "4"/"5" but the *credit situation* will be equal to "1". However, if the underlying "financial product" requires the communication of "monthly installment", this credit exposure should continue to be reported on behalf of the debtor and on behalf of the guarantor. This situation must ensure that the guarantor/surety respects the established amortization plan. So the report for the debtor will be: "*Responsibility Level*" = 1 (if it is an individual credit) and "Credit Situation" = 1 (if it is an regular credit). [11]

If the guarantor/surety fails to fulfill its obligations after notification by the credit institution and after a reasonable period for the regularization of non-compliance, the report concerning the guarantor would be: "Responsibility level" = 4 or 5 and "Credit Situation" = 3 (overdue loans). Regarding the borrower, the report will continue to be: "Responsibility level" = 1 (if it is an individual credit) and "Credit Situation" = 3 (overdue loans). Note that the existence of such periods for the guarantor before passing to report the situation of overdue credit is ensured by the participating institutions.

The situation exemplified above has two variants: the case when the credit was written off and the case when there is renegotiation of credit after default. Regarding the variable "credit situation", the credit claims with personal guarantees or guarantees can be schematized as follows, considering the two types of actors (debtor and guarantor /surety):

Table 4 - Credit claims with personal guarantees or guarantees

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[11]This classification of credit situation is based on the principle that overdue credit should not be reported to the CCR if not, for accounting purposes, classified as such. Although in this situation the borrower is not fulfilling its obligations, someone is fulfilling for him due to contractual conditions of the loan. As a result, the credit is not classified as overdue.

Credit situation	Credit situation	Observations
Exposure in debtor's name	**Exposure in guarantor's name**	
1 - Regular Credit	2 - Potential Credit	There is no default.
1 - Regular Credit	2 - Potential Credit	There has been default of the debtor, and the guarantor paid the benefits due. The debtor assumed the payment of future installments, with no renegotiation of credit.
1 - Regular Credit	1 - Regular Credit	There has been default of the debtor, and the guarantor paid the overdue installments and also assumed the payment of future installments, with no renegotiation of credit.

Credit situation	Credit situation	Observations
3 - Overdue Credit	2 - Potential Credit	Default of the debtor but the guarantor has not been notified of the breach or the guarantor has been notified of the breach and its obligation to settle but the deadline for the settlement is not exhausted.
3 - Overdue Credit	3 - Overdue Credit	The guarantor has been notified of the default and did not pay any debt portion within the set deadline.
4 – Written-off credit	4 – Written-off credit	Identical to the previous case but the debt has already been written off.
5 – Renegotiated credit	2 - Potential Credit	Renegotiated debt, after the default of the debtor, and the agreed terms are being met.

It is important to note that regarding the reporting of responsibilities of guarantors and sureties, the variable "responsibility level" will always be coded as "4" (surety or guarantor - individual) or "5" (guarantor or guarantor - joint), regardless whether the guarantor has to ensure the total or partial repayment of

the secured loan.

B.6. Collateral

Each credit exposure may be associated with more than one type of collateral and the value of the collateral corresponds to the value of each type of collateral associated with the credit exposure. The valuation of collateral depends on the type of collateral.

Regarding the real collateral, financial collateral, or other collateral (codes 1- 39 and 6), the value of the collateral corresponds to the fair value of the underlying asset (registered accounting value) and can therefore be distinguished from credit amount. In the case of a mortgage real collateral, its value will be limited by the mortgage amount and may be less than the outstanding credit amount.

In the case of personal guarantees (codes 4 - 53), since these correspond to a commitment to pay debt by third parties in the event of default by the debtors, the collateral value should be updated as a function of the outstanding value of the credit. The collateral can be higher than the value of the outstanding credit if the guarantee is also associated with the overdue interest and related expenses or with potential credit.

In the case of financial leasing, the value of the associated collateral (non-mortgage real collateral) is assessed by the financial institution.

Special cases

- When the same asset is used as a collateral to more than one loan

In the case where the same asset or good is used as collateral for more than one loan which has different characteristics, i.e., they are reported to the CCR in more than one exposure of responsibilities, the guarantee amount shall be distributed proportionally by the different exposures, according to the outstanding amounts of each one.

- When a loan is guaranteed by more than one asset

In the case where a loan is secured by more than one asset (e.g., debt securities, stocks, deposits, ...), communication of this exposure to the CCR shall include the characterization of different types of collaterals and the corresponding values, using the valuation rules mentioned above. In this situation, the sum of the collateral values attached to the loan may be different (lower or higher) from the credit value.

- When a guaranteed loan has an overdue part and a due part

For collateralized loans for which one part is overdue and the other part due, two separate exposures are communicated to the CCR. If possible, the collateral value is also distributed by the two components

in order to fully cover the value of the overdue part, and the remaining affecting the due part.

B.7. Additional concerns

Also, as CCR only obliges the reporting of the full position of each debtor, it is sometimes difficult to unambiguously identify each individual credit exposure for the same debtor. This restriction has repercussions in the process of modifying or correcting the reported credit exposures. For example, one may observe a split in credit exposure from a month to another, which can happen when a bank restructure the loan, e.g., one part of the loan becomes overdue.

Comment : The inclusion of some variable categories does not always corresponds to the effective dates as defined in legislations. For instance, for the variable "type", the classification "10" comprises overdue credit that has been renegotiated, which was requested to report from July, 2001. Yet, the series appeared already in January, 2001, although it was only with one exposure. Loans that were extended as collateral for credit operations in Euro system and loans featured with IEB identification code were started to be reported in September, 2010 and in April, 2011, respectively. But it was only until November, 2012 that these two credit exposures were systematically reported.

Legislation

Variable definitions changed over time. Some variables, for instance, credit situation (*situacaocredito*), maturity (*prazooriginal* and *prazoresidual*), and collateral type (*tipogarantia*) have undergone major changes in classification, as framed by *Banco de Portugal*'s instructions. It is important to note that even small changes 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. Below is a list of relevant legislations:

- **Decree-Law no. 47909/1967**, September 7 and **Decree-Law no. 48731/1968**, December 4 - established the service of centralizing and disseminating credit risk information and defines its purpose and operation, given the need of credit and other financial institutions to properly assess the risks of their operations.

- **Carta Circular no 29/96/DOC**, September 18 – eliminated credit classes associated with *empréstimos de poupança-crédito*, which are now classified as *empréstimos de poupança-emigrante* (the conversion of savings-credit loans into savings-immigrant loans).

- **Decree-Law no. 5/1998**, January 31 – amended the Organic Law of *Banco de Portugal*, with a view to its integration into the European System of Central Banks.

- **Decree-Law no. 67/1998**, October 27 – transposed the Directive 95/46/CE of the European Parliament and the Directive of the Council in 24-10-1995 on the protection of individuals in processing and circulating data.

- **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 CCR to its current format (as in *Caderno* da CCR) 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

- **Memorandum of Understanding on the exchange of information among national central credit registers** - included credit exposures obtained from financial institutions located in the other EU countries (greater than or equal to 25000 euros). In 2003, the Banco de Portugal signed the "Memorandum of Understanding on the exchange of information among national central credit registers for the purpose of passing it on to the reporting Institutions"- MoU for the purpose of exchanging information between Central Credit Registers managed by National central banks of other member states of the European Union. Following the availability of this agreement, since 2005, credit exposures of collective residents in Portugal obtained from financial institutions located in the subscribed countries are included. Currently, in addition to Portugal, the countries subscribed include Germany, Austria, Belgium, Spain, France, Italy, Czech Republic and Romania. As the disclosure *timing* of other countries' CCRs in general does not coincide with the dissemination of information by the Portuguese CCR, it is normal to have a non-lower than one-month reporting lag between the reference date of the internal credit information and the reference date of the external credit included in the same regular dissemination file.

Citation of This Dataset

Banco de Portugal Microdata Research Laboratory (BPLIM) (2019): Central Credit Responsibility Database - Firm Level Data. Extraction: June 2019. Version: V1. BANCO DE PORTUGAL. Dataset. https://doi.org/10.17900/CRC.FRM.Jun2019.V1

Banco de Portugal Microdata Research Laboratory (BPLIM) (2019): Central Credit Responsibility Database - Bank-Firm Level Data. Extraction: June 2019. Version: V1. BANCO DE PORTUGAL. Dataset. https://doi.org/10.17900/CRC.FRMBNK.Jun2019.V1

Banco de Portugal Microdata Research Laboratory (BPLIM) (2019): Central Credit Responsibility Database - Exposure Level Data. Extraction: June 2019. Version: V1. BANCO DE PORTUGAL. Dataset. https://doi.org/10.17900/CRC.EXP.Jun2019.V1

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:

Table 5- Auxiliary Files

For a description of each variable in the CO and COBR files (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_ccr_bal	stat_ccr_bal	cdbk_ccr_bal	dscr_ccr_bal
Credit Exposure File (EXP): Collateral	var_ccr_coll	stat_ccr_coll	cdbk_ccr_coll	dscr_ccr_coll
Credit Exposure File (EXP): Special Characteristics	var_ccr_schar	NA	cdbk_ccr_schar	dscr_ccr_schar
Firm Level Credit Outstanding & Bank Relationship file (COBR)	var_ccr_cobr	stat_ccr_cobr	cdbk_ccr_cobr	dscr_ccr_cobr
Bank-Firm Level Credit Outstanding File (CO)	var_ccr_co	stat_ccr_co	cdbk_ccr_co	dscr_ccr_co

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

Useful Links

CCR home page

Statistical Bulletin

Useful Ado Files

We provide a handful of ado files written by BPLIM staff for researchers to implement certain calculations and variable arrangements.

A. Harmonization of Variables Over Time

`Description`

The CCR has undergone some major revisions. `harmonize` is a Stata user-written command to help harmonize variables and make them compatible over time.

`Syntax`

`harmonize variable`

where `variable` is a variable to be harmonized. The harmonized variable generated by this ado is denoted as "_variable_h"

B. Aggregation

`Description`

`aggregate` is a Stata user-written command to help compute aggregates of credit and bank relationship at different frequencies (yearly and quarterly) using various methods (period-end or period average). By default, the ado should only be applied to the original CCR datasets prepared by BPLIM.

`Syntax`

`aggregate panelvar timevar, [options]`

where `panelvar` is a unit identifier for the panel and `timevar` identifies the time variable.

`General Options`

YEAR: aggregation by year.

QUARTER: aggregation by quarter.

AVG: period average.

END: period end.

NOCHECK: ignore the difference between the current dataset and the original dataset prepared by BPLIM.

C. Construction of Firm Default Profile

`Description`

`default` is a Stata user-written command to help calculate default events using information from the CCR datasets.

`Syntax`

`default panelvar timevar overduevar benchmarkvar, [options]`

where `panelvar` is a unit identifier for the panel, `timevar` identifies the time variable, `overduevar` identifies the variable of total overdue credit and `benchmarkvar` identifies the benchmark variable with which one can calculate the overdue intensity.

`General Options`

THRESHOLD: a pre-determined threshold of overdue credit ratio, 0.025 by default.

RUNS: a sequence/run of consecutive threshold hits for the same individual, 3 by default.

IGNOREGAP: allow gaps in the data when counting runs.

`Generated Variables`

Firm default variables are constructed based on the default definition of Antunes, Gonçalves and Prego (2016). By default, we flag out firm-month observations when more than 2.5% percent of total credit is reported overdue and define default event if a firm is flagged up for at least three consecutive months. For example, if a firm has overdue credit that amounts to more than 2.5% of its total credit in January and February, 2015 but later paid off the overdue credit in March, 2015, the firm will not be considered as in default in January and February, 2015. Researchers can also choose to apply an alternative threshold for the overdue credit ratio or/and an alternative duration of overdue status.

The variables generated include:

- Overdue credit flag (*_flag*). This is an indicator for the existence of overdue credit. It takes the follow values:

---
0 - no credit is past due at the time
1 - overdue credit is present but below the threshold
2 - overdue credit is above the threshold

- Default event (*_default*). The default event occurs when a firm has credit overdue above the threshold for a run of defined consecutive months (three months by default).

- First default event (*_fdefault*).The first default event occurs (flagged out with the value of 1) when a firm has credit overdue above the threshold for a run of defined consecutive months for the first time.

D. Construction of Bank-Firm Relationship Spells

`Description`

`relationspell` is a Stata user-written command to help construct bank-firm relationship variables which reflect the start, discontinuity, and continuity of relationship between a firm and a bank.

`Syntax`

`relationspell panelvar1 panelvar2 timevar, [options]`

where `panelvar1` and `panelvar2` are identifiers for a firm and its bank, `timevar` identifies the time variable,

`General Options`

STARTYR: start year.

FINYEAR: end year.

FREQUENCY: data frequency with the options of daily, monthly and annual (1, 2, and 3, respectively). The default option is monthly.

GAPS: max gaps allowed in a relationship, 0 by default.

`Generated Variables`

The variables generated include:

- Relationship ID (*_relation*)

Relationship identification number.

- Validity of a relationship (*_relation_valid*)

The status of a relationship spell. 0 denotes that the relationship is discontinued for the given period and 1 denotes that the relationship is active.

- Relation spell (*_spell*)

Relationship spell is an ordered variable for the relationship sequence between a firm and a bank.

- Start of a relationship spell (*_mindate_spell*)

The start of a relationship spell

- End of a relationship spell (*_maxdate_spell*)

The end of a relationship spell

- Length of a relationship spell (*len_spell*)

The length of a relationship spell

- Start of relationship (*_mindate*)

The start of a bank-firm relationship

- End of relationship (*_maxdate*)

The end of a bank-firm relationship

- Length of relationship (*_len_all*)

The length of a bank-firm relationship

- Length of active relationship (*_len_act*)

The length of active relationship

- Length of inactive relationship (*_len_inact*)

The length of inactive relationship

Frequently Asked Questions

The most frequently asked questions can be found here. If you have a question that is not covered in this manual, please send an email to bplim@bportugal.pt.

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Appendix

Appendix 1-Typical credit exposure reported in CCR

Anonymized Tax Identifier Number	Bank ID	Report month	Exposure ID	Responsibility Level	Production	Credit Situation	Overdue Class	Original Maturity	Residual Maturity	Amount	Currency
tina	*bina*	*date*	*cina*	*nivelresponsabilidade*	*produto*	*situacao credito*	*classe credito vencido*	*maturidade origical*	*residual*		*moeda*
5×××1	×××××	Jan 2014	1××××	1×××2×	1		1	1	3589806	EUR
5×××1	×××××	Jan 2014	1××××	1×××2×	2		1	1	10194	EUR
5×××1	×××××	Jan 2014	1××××	1×××8×	1		6	5	1500000	EUR
5×××1	×××××	Jan 2014	1××××	1×××9×	2		1	1	103970	EUR
5×××1	×××××	Jan 2014	1××××	1×××9×	1		1	1	2508	EUR
5×××2	×××××	Jan 2014	1××××	2×××1×	1		4	3	96000	EUR
5×××2	×××××	Jan 2014	1××××	1×××8×	1		5	5	224985	EUR
5×××3	×××××	Jan 2014	1××××	1×××3×	3	2	1	1	1550000	EUR
5×××3	×××××	Jan 2014	1××××	1×××15×	2		6	5	567743	EUR

Anonymized Tax Identifier Number	Bank ID	Reporting month	Exposure ID	Responsibility Level	Production	Credit Situation	Overdue Class	Original Maturity	Residual Maturity	Amount	Currency
5××××	4××××	Jan 2014	1××××	1××××	2×	1		1	1	2428572	EUR
5××××	4××××	Jan 2014	1××××	1××××	3×	1		1	1	1071	EUR
5××××	4××××	Jan 2014	1××××	1××××	15×	2		6	5	398392	EUR
5××××	4××××	Jan 2014	1××××	1××××	15×	2		6	5	3500	EUR

Appendix 2-monthly credit outstanding at firm level (before 2009)

Anonymized Tax Identifier Number	Reporting month	Total available credit	Effective credit	Potential Credit	Overdue credit	Short-term credit	Long-term credit	# Bank relationships	Concentration of bank relationships	Largest bank relationships
tina	date	valor_global	valor_efectivo	valor_potencial	credito_vencido	credito_curto	credito_longo	no_relacao	ahi_relacao	max_relacao
5××××	Jan 2007	3249930	438770	28111600		290740	148030	6	0.38	0.56
5××××	Feb 2007	3228210	417140	28110700		218570	198570	6	0.38	0.56
5××××	Mar 2007	3509090	362440	31466500		179070	183370	6	0.41	0.60
5××××	Apr 2007	3436860	290640	31462200		112010	178630	6	0.42	0.61
5××××	May 2007	3388810	248950	31398600		72260	176690	6	0.43	0.62
5××××	Jun 2007	3485310	638800	28465100		475960	162840	6	0.42	0.60
5××××	Jul 2007	3731840	223730	35081100		65680	158050	6	0.39	0.56
5××××	Aug 2007	3724530	208810	35157200		52710	156100	6	0.39	0.57

Appendix 2 *continued* – monthly credit outstanding at firm level (after 2009)

Anonymized Tax Identifier Number	Reporting month	Total available credit	Weighted average original maturity	Weighted average residual maturity	Credit with an original/residual maturity of less than or equal to 1 year	Credit with a original/residual maturity of (1, 5] years	Credit with a original/residual maturity of (5, 10] years	Credit with a original/residual maturity of (10, 20] years	Credit with a original/residual maturity of more than 20 years
tina	*date*	*valor_global* ..	*prazom...*	*prazome...*	*valor_prazo1_o* *valor_prazo1_r*	*prazo1_o* *prazo2_r*	*valor2_o* *prazo3_r*	*prazo3_o* *valor4_r*	*prazo4_o prazo5_o* *prazo4_r prazo5_r*
5×××× Jan ×× 2014		129849	4	4	2621	23702	29209	0	74317
5×××× Feb ×× 2014		129963	4	4	2621	23702	29259	0	74381
5×××× Mar ×× 2014		130077	4	4	2621	23702	29308	0	74446
5×××× Apr ×× 2014		130188	4	4	2621	23702	29356	0	74509
5×××× May ×× 2014		130298	4	3	2621	23702	29402	0	74573
5×××× Jun ×× 2014		130402	4	3	2621	23702	29446	0	74633
5×××× Jul ×× 2014		130507	4	3	2621	23702	29490	0	74694
5×××× Aug ×× 2014		125990	4	3	2621	19083	29532	0	74754

Appendix 2 *continued* – yearly credit outstanding at firm level (before 2009)

Anonymized Tax Identifier Number	Reporting year	Total available credit (year end)	Effective Credit (year end)	Potential Credit (year end)	Overdue Credit (year end)	Short-term Credit (year end)	Long-term Credit (year end)	# Bank relationships (year end)	Concentration of bank relationships (year end)	Largest bank relationships (year end)
tina	year	valor_global	valor_efectivo	valor_potencia	valor_vencido	valor_curto	prazo_longo	n_relacao	hhi_relacao	max_relacao
5××××2006×1		25144	24000	1144	0	24000	0	1	1	1
5××××2006×2		16076304	10530647	5545657	0	7800167	2730480	6	0.31	0.46
5××××2006×3		279840	269934	9906	0	240400	29534	4	0.28	0.30
5××××2006×4		31036	28790	2246	3426	24232	4558	1	1	1

Appendix 2 *continued* – yearly credit outstanding at firm level (after 2009)

Anonymized Tax Identifier Number	Reporting year	Total available Credit (year end)	......	Weighted average original maturity (year end)	Weighted average residual maturity (year end)	Credit with a maturity of less than or equal to 1 year (year end)	Credit with a maturity of (1, 5] years (year end)	Credit with a maturity of (5, 10] years (year end)	Credit with a maturity of (10, 20] years (year end)	Credit with a maturity of more than 20 years (year end)
tina	year	valor_global	..	prazo_medio_o	prazo_medio_r	valor_prazo1_o	valor_prazo2_o	valor_prazo3_o	valor_prazo4_o	valor_prazo5_o
						valor_prazo1_r	valor_prazo2_r	valor_prazo3_r	valor_prazo4_r	valor_prazo5_r
5××××2013×1		56452	......	1	1	50341	3611	0	0	0
5××××2013×2		37080	......	4	3	0	10177	9144	0	17759
5××××2013×3		1300	......	1	1	942	0	0	0	0
5××××2013×4		60968	......	4	4	155	0	11250	0	46313

Appendix 3 - month credit outstanding at bank-firm level (before 2009)

Anonymized Tax Identifier Number	Bank ID	Reporting month	Total available credit	Effective credit	Potential Credit	Overdue credit	Short-term credit	Long-term credit	Share of a bank relationship	Indicator for the largest bank relationship
tina	bina	date	valor_global	valor_efetivo	potencial	valor_em_atraso	curto	longo	share_o	max_relacao
5×××××	1×××××	Mar 2007	850	850	0	0	850	0	0.53	1
5×××××	1×××××	May 2007	850	850	0	0	850	0	0.53	1
5×××××	1×××××	Jul 2007	850	850	0	0	850	0	0.53	1
5×××××	2×××××	Jan 2007	740	0	740	0	0	0	1	1
5×××××	2×××××	Feb 2007	740	0	740	0	0	0	1	1
5×××××	2×××××	Mar 2007	740	0	740	0	0	0	0.47	0
5×××××	2×××××	Apr 2007	740	0	740	0	0	0	1	1
5×××××	2×××××	May 2007	740	0	740	0	0	0	0.47	0
5×××××	2×××××	Jun 2007	740	0	740	0	0	0	1	1
5×××××	2×××××	Jul 2007	740	0	740	0	0	0	0.47	0
5×××××	2×××××	Aug 2007	740	0	740	0	0	0	1	1
5×××××	2×××××	Sep 2007	740	0	740	0	0	0	1	1
5×××××	2×××××	Oct 2007	748	0	748	0	0	0	1	1
5×××××	2×××××	Nov 2007	748	0	748	0	0	0	1	1
5×××××	2×××××	Dec 2007	748	0	748	0	0	0	1	1

Appendix 3 *continued* – month credit outstanding at bank-firm level (after 2009)

Anonymized Tax Identifier Number	Bank ID	Reporting month	Total available credit...	Weighted average original maturity	Weighted average residual maturity	Short-term credit	Long-term credit	Credit with a maturity of less than or equal to 1 year	Credit with a maturity of (1, 5] years	Credit with a maturity of (5, 10] years	Credit with a maturity of (10, 20] years	Credit with a maturity of more than 20 years
tina	*bina*	*date*	*valor_global*	*prazom*	*media*	*medior_r valor_*	*cubo_o cubo_*	*logo_o dologo*	*prazo1_o prazo1_r*	*prazo2_o prazo2_r*	*prazo3_o prazo3_r*	*prazo4_o prazo4_r prazo5_o prazo5_r*
5×××1××××		Mar 2010	1096	2	1	0	346	0	346	0	0	0
5×××1××××		Apr 2010	1064	2	1	0	314	0	314	0	0	0
5×××2××××		Jan 2010	27526	2	2	16683	10843	16683	739	10104	0	0
5×××2××××		Feb 2010	25950	2	2	15199	10751	15199	693	10058	0	0
5×××2××××		Mar 2010	25792	2	2	15133	10659	15133	648	10011	0	0
5×××2××××		Apr 2010	24869	2	2	14304	10565	14304	602	9963	0	0
5×××2××××		May 2010	25896	2	2	15425	10471	15425	556	9915	0	0
5×××2××××		Jun 2010	24198	2	2	13822	10376	13822	510	9866	0	0
5×××2××××		Jul 2010	24042	2	2	13760	10282	13760	465	9817	0	0
5×××2××××		Aug 2010	25947	2	2	15760	10187	15760	419	9768	0	0
5×××2××××		Sep 2010	26025	2	2	15935	10090	15935	372	9718	0	0
5×××2××××		Oct 2010	26223	2	2	16230	9993	16230	326	9667	0	0
5×××2××××		Nov 2010	26320	2	2	16424	9896	16424	280	9616	0	0
5×××2××××		Dec 2010	25801	2	2	16003	9798	16003	234	9564	0	0

Appendix 4 – The construction of weighted average debt maturity

Original and residual maturity in CCR are defined in ranges, including a category "Undetermined" (code 1) which is used 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. In addition, the reporting of debt maturity has undergone a major change in classification in December, 2013. For example, the maturity class "1 to 5 years" (code 5) is only valid between January, 2009 and November, 2013. From December 2013, this category is replaced by the maturity class codes 51-54. The same applies to the maturity class "5 to 10 years" (code 6 replaced by codes 61-65), and the maturity class "10 to 20 years" (code 7 replaced by codes 71 and 72).

Due to these specificities, we adopt the following procedure.

Firstly, we harmonize the debt maturity information after December, 2013 using the classification of September, 2009 as the latter is less disaggregated than the former.

Secondly, we assign the midpoint maturity for each maturity classification (0.5 years for maturity less than or equal to 1 year; 3 years for more than 1 year and less than or equal to 5 years; 7.5 years for more than 5 year and less than or equal to 10 years; 15 years for more than 10 year and less than or equal to 20 years; 22.5 years for more than 20 year and less than or equal to 25 years; 27.5 years for more than 25 year and less than or equal to 30 years). We assign an average value of 40 years for credit maturing in more than 30 years.

Thirdly, we calculated the average debt maturity, weighted by the credit outstanding with the corresponding maturity.

Lastly, we reassign a maturity class to the calculated weighted average maturity value:

- Class 1 credit with a maturity of less than or equal to 1 year;

- Class 2 credit with a maturity of more than 1 year and less than or equal to 5 years;

- Class 3 credit with a maturity of more than 5 years and less than or equal to 10 year;

- Class 4 credit with a maturity of more than 10 years and less than or equal to 20 year;

- Class 5 credit with a maturity of more than 20 year.