2024

WRDS Bank Regulatory Premium Manual

WHARTON RESEARCH DATA SERVICES

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Introduction

This manual is designed to provide a comprehensive understanding of the new WRDS Bank Regulatory Premium. It guides users in exploring the product's offerings and provides references to detailed manuals and definition files for the databases included in the product.

The manual begins with an overview of the new WRDS Bank Regulatory Premium, introducing the product and its purpose. It then explains the product's components, their organization, and methodology in the 'Product Description, Structure, and Methodology' section.

Next it provides information about the data tables included in the product to help users understanding about the database schema. It also explains how to use the tables. The manual then highlights the relationship between the Bank Regulatory and the WRDS Bank Regulatory Premium.

Towards the end, the manual offers guidance on how to cite the database in research. Lastly, additional information and resources related to the product are available in the Appendix.

1 Overview of the new WRDS Bank Regulatory Premium

The **WRDS Bank Regulatory Premium** is a comprehensive collection of financial, structural, and global entity data, supplemented with research tools specifically designed to enhance banking research. It offers a variety of data and analytics which are useful for users conducting in-depth banking research.

This suite is developed using data from Bank Regulatory by WRDS, along with other related data on global financial entities. As a standalone product for banking research, it provides a research-ready dataset of commercial bank regulatory financials. This includes various balance sheet, income statement, and other regulatory variables, complete bank trees from focal banks to their ultimate parents, and linking tables. The bank research dataset includes frequently used research variables found in academic papers in the banking area, covering from 1976. This feature allows users to conveniently use the data, bypassing complex and time-consuming data steps. The suite also offers yearly snapshots of bank trees and linking tables from banks to other public identifiers, further enhancing its value as a research tool.

Moreover, the suite's utility is expanded when used alongside Bank Regulatory by WRDS. One of the suite's core values is its ability to provide data that addresses the structural break in Bank Regulatory Data. The legacy Bank Regulatory Data has structural breaks twice in 2011 and 2021 due to the change in original data sources.[1] The structural breaks make inconsistent time series for many variables in call reports data, especially the ones classified as 'Derived' type in MDRM data dictionary and call reports data for foreign banks or Edge and Agreement corporations (FFIEC 002 and FR 2886b). These issues are addressed by offering exclusive access to FFIEC 002 and FR 2886b data, and a dataset of selected 'Derived Variables' for call reports data (including FFIEC 031, 041, and 051), which has been inaccessible to the public since 2011.

Like Bank Regulatory by WRDS, the suite covers banks subject to U.S. banking regulations, including domestic banks, U.S. multinational banks, international banks with U.S. branches, and Edge and agreement corporations. Specifically, it includes quarterly call reports data (FFIEC Forms 031, 041, 051, etc.) and data on foreign banks (FFIEC 002) and Edge corporations (FR 2886b) from 2021 to Q1 2023, obtained from the Federal Reserve Board of Governors via an FOIA request.

Furthermore, the suite includes entity attributes and relationship data for global entities that possess LEI numbers from 2012 onward. The Legal Entity Identifier (LEI) is a unique and

[1] See Section 1.2 of Bank Regulatory by WRDS Manual for further details

permanent 20-digit alphanumeric code assigned to legal entities participating in financial transactions.

The LEI system was developed and implemented following the 2008 financial crisis, as there was a recognized need among governments and financial regulators for a system to monitor financial transactions globally. Before the LEI, there was no standardized international public identifier system for entities. As of March 2024, the U.S. has over 280,000 entities with active LEIs, ranking it first in the number of entities with active LEIs worldwide.

It has been observed that major commercial databases have recently started to include LEI numbers in their products. To highlight the significance of the LEI system in terms of financial system monitoring and regulation, as well as its utility in linking bank data with other vendors' data that includes LEIs, the WRDS Bank Regulatory Premium incorporates entity attributes and parent-subsidiary relationship data sourced from the Global Legal Entity Identifier Foundation (GLEIF), along with LEI numbers.

2 Product Description, Offerings, and Methodology

WRDS Bank Regulatory Premium, which is constructed using both the new and legacy Bank Regulatory data by WRDS, along with other data sources, includes exclusive datasets enriched and created by WRDS.

Specifically, it provides additional call reports data that is only accessible through FOIA requests, pre-calculated timeseries of variables, and various linking facilities. Moreover, it also offers annual snapshots detailing the ultimate parent-subsidiary relationships of banks, linking tables bridging bank ID to Legal Entity Identifier (LEI), and LEI entity metadata & relationships data.

2.1 Data Offerings

2.1.1 WRDS Other Call Data - Foreign Call data (FFIEC 002 & FR 2886 b)

First, it contains call report data for foreign banks & Edge and Agreement Corps (FFIEC 002 and FR 2886b) from 2021 - 2023 Q1. They are available under the 'WRDS Other Call Data' section. This data was a part of non-CDR data provided by the Chicago Fed and it has not been publicly accessible since Q2 2021 after the Chicago Fed stopped providing the data.

To maintain the consistency between the legacy Bank Regulatory data and the new WRDS Bank Regulatory Premium, we obtain the data from the Federal Reserve by Freedom of Information Act (FOIA) request. The data before 2021 is available in the legacy Bank Regulatory.

2.1.2 WRDS Call Derived

For the purpose of data consistency, we have added a dataset of derived variables to the call reports data. The WRDS CALL DERIVED dataset contains 279 variables that should be calculated from reported variables.

As mentioned above, the derived variables are not available in the call reports data obtained from FFIEC, unlike the data obtained through the Chicago Fed. The creation of this dataset represents our effort to provide datasets consistent with the legacy data by replicating the derived variables that were previously included in the call reports data maintained by the Chicago Fed.

Therefore, the derivation is performed for derived variables in FFIEC 031, 041, 051, 002, and FR 2886b forms from 2001 using call reports data from FFIEC included in the Bank Regulatory Call Reports product. Note that the current offering is a subset of all derived variables, and the list of derived variables can be extended based on demand. For more detailed information about the methodology, please refer to Section 2.2 Methodology. For the detailed formula for each variable, please refer to the WRDS Bank Regulatory Premium Definitions file (link).

By combining call reports data from the legacy and the new Bank Regulatory, the FOIA foreign call data, and WRDS Call Derived data, one can access call data with a consistent bank universe from 1976. As of April 2024, the FOIA foreign call data and WRDS Call Derived data are available up to Q1 2023, and they will be updated annually considering the time required to obtain the data through a FOIA request.

2.1.3 WRDS Bank Research Analytics

In addition, the new WRDS Bank Regulatory Premium now adds research analytics that facilitates more convenient banking research.

2.1.3.1 WRDS Call Research

First and foremost, the WRDS CALL Research dataset provides 365 pre-calculated research variables from 1976 to Q1 of 2023, along with their respective calculation formulas.

These variables have been selected and calculated based on academic papers, the Federal Reserve's MDRM data dictionary, and historical FFIEC forms and instructions. The dataset covers all banks included in any call data within the new Bank Regulatory and the legacy Bank Regulatory data, providing pre-calculated variables for balance sheets, income statements, risk capital, among other categories.

This table can be an additional tool to address the data inconsistency issues commonly found in bank call report data, similar to WRDS Call Derived dataset. With the WRDS Call Research table, users can bypass the complex steps in constructing variables of interest, which are further explained in the 2.2 Methodology section, thereby performing research more efficiently.

To illustrate the utility of this dataset, consider the 'Total Assets' account, which is readily available under the 'assets' variable for all banks in WRDS Call Research dataset, irrespective of the filing types or time periods. In contrast, in the raw data, one would need to extract such information from RCFD2170 for FFIEC 031, FFIEC 002, FR 2886b forms, and separately from RCON2170 for FFIEC 041, FFIEC 051, FFIEC 032 to 034, as well as other legacy filings used for domestic banks. Users must be knowledgeable about the various variables that represent the same concept for each form and keep track of all historical changes related to the concept and the corresponding variable or formula. Users can avoid such labor-intensive and time-consuming tasks by using WRDS Call Research dataset.

For a detailed explanation of the methodology, please refer to 2.2 Methodology section. For the detailed formulas and sources of each variable, consult the WRDS Call Research sheet in the WRDS Bank Regulatory Premium Definitions file (link). Additionally, we strongly recommend that you follow the citation guidelines when using the variables from the WRDS Call Research dataset.

2.1.3.2 WRDS Bank Structure Ultimate Parents

Next, WRDS Bank Regulatory Premium includes the WRDS Bank Structure Ultimate Parents table, which offers a pre-identified bank relationship tree from subsidiary banks to their ultimate parent as of December 31 for each year. This dataset is constructed using the new NIC Bank Structure data to facilitate the tracking of banks along their relationship trees up to the ultimate parent. The earliest available snapshot of relationships goes back to 1926.

The pre-identified ultimate parent and the complete tree from the focal bank to the ultimate parent are not directly accessible in the NIC Bank Structure data. As a result, this dataset is useful for users who need to track banks with complex corporate hierarchies, such as tiered bank holding companies.

For a detailed explanation of the methodology, please refer to the WRDS Bank Structure Ultimate Parents manual (link) and the WRDS Bank Ultimate Parents sheet in the WRDS Bank Regulatory Premium Definitions file (link).

2.1.3.3 Additional Linking Tables

In addition to the NY Fed Bank to CRSP linking table, WRDS Bank Regulatory Premium offers three additional linking tools that enable users to integrate the data with other third-party datasets:

- **Bank (ID RSSD) to LEI linking table**: This table establishes linkages from banks and institutions in the NIC universe to their Legal Entity Identifiers (LEI), with the effective date range of these connections. The linkages are formed in two ways: (1) Directly reported linkages in the NIC database and (2) Fuzzy name matching among entities within the same country, further refined by state, city, or postal code. This table was developed to address the issue of entities in NIC lacking LEI information, despite having valid LEI numbers. For the detailed methodology, please refer to Section 2.2 Methodology and Linking Tables in the WRDS Bank Regulatory Premium Definitions file (link).

- **LEI to ISIN Linking table**: This table provides linkages from LEIs to ISIN security numbers, based on the ISIN mapping file sourced from the Global Legal Entity Identifier Foundation (GLEIF). The original data, a collaborative effort between GLEIF and the Association of National Numbering Agencies (ANNA), assists in tracking securities and institutions globally. WRDS LEI to ISIN Linking table has all historical records of LEI to ISIN linkages from April 2019 to December 2023 with the effective date range, by utilizing all daily ISIN mapping files from GLEIF. By combining the Bank to LEI and LEI to ISIN linking tables, users can track newly issued securities of banks starting from April 2019. This table will be updated annually.

- **LEI to BIC Linking table**: This table creates linkages from LEIs to Business Identifier Codes (BIC), which are synonymous with Swift codes for entities connected to the Swift network. The table is derived from the BIC mapping file provided by GLEIF which is published monthly. We utilize all monthly files since February 2018 to compile a historical linking record. This table will also be updated on an annual basis.

2.1.3.4 LEI Entity and Relationships

As outlined in Section 1, the primary purpose of adopting the LEI system is to monitor financial transactions among entities worldwide. Consequently, the key data elements provided by GLEIF include entity attributes and their ownership structures.

LEI Entity Attributes have metadata of global entities with details of their LEI registration status. This coverage extends to any type of the entities that are involved in financial transactions, including both financial and non-financial institutions, such as banks, funds, credit unions, industrial companies, and governments.

In particular, it offers essential information, including the legal name, legal address, headquarters address, and LEI registration details. Additionally, it contains other valuable data, such as alternative names in various languages, entity status, and related legal events like mergers and acquisitions or dissolutions.

The original source data is the daily 'LEI concatenated file' sourced from GLEIF. This file aggregates all LEI attributes and relationship data reported by LEI managing entities globally. By leveraging all daily files, WRDS constructs a historical snapshot database of LEI Entity Attribute records. Each new daily concatenated file is compared with previous ones to eliminate duplicate records and retain new entries, thereby capturing all historical changes in names, addresses, LEI registration statuses, and more.

Thus, the data is not only instrumental in obtaining information about an LEI entity but also serves as a valuable resource for other tasks, such as historical entity matching.

LEI Relationships data delivers insights into corporate hierarchy and ownership structures. It delineates both immediate and ultimate parent-subsidiary relationships among entities with LEIs. Furthermore, it includes the ownership percentage and relationship qualifiers based on accounting standards. The LEI Relationships data is particularly valuable as it is a rare public source of corporate hierarchy information for entities across the globe.

Similar to the attributes data, the original source is the daily 'Relationship concatenated file' from GLEIF. WRDS generates a historical snapshot of relationship records by comparing each new daily file with all preceding ones to keep any changes in relationship structures and supplementary information.

For both LEI Entity Attributes and LEI Relationships, the earliest recorded data goes back to May 4, 2017, when the initial concatenated files were uploaded. However, the database's coverage extends to 2012 based on initial registration date, following the inception of the LEI system.

2.2 Methodology

In this section, the methodology employed for the datasets created by WRDS is explained. For methodologies for other datasets not described herein, refer to Appendix B. Dataset-specific Manuals, where links to the methodologies and definitions are provided.

2.2.1 WRDS Call Derived

The WRDS Call Derived dataset contains 279 replicated variables categorized as 'D' type[2] within the MDRM dictionary. Previous sections and Section 1.2 in Bank Regulatory by WRDS Manual have noted that derived variables were included in the Chicago Fed's commercial bank data, thus remaining accessible until 2011 for FFIEC forms 031, 041, 051, and other older call report forms, and until 2021 for FFIEC 002 and FR 2886b within the legacy Bank Regulatory data. However, these variables are not present in the current FFIEC version call report data, which primarily provides reported variables ('F' type). Consequently, WRDS replicates a subset of the derived variables for call data post-2001 to ensure continuity between the legacy and new data sets.

Typically, the derivation formula is found in the Description column of the MDRM dictionary. However, the formula is often outdated or only relevant to certain filings. When the formula is not directly obtainable from the MDRM dictionary, it is estimated using historical FFIEC forms and instructions.

It is crucial to recognize that the formula is tailored for each filing form to mirror distinct reporting requirements, resulting in the utilization of different variable sets for calculations. For instance, item code 1606 is a derived variable for FFIEC 031, whereas it is a reported variable for FFIEC 041 and FFIEC 051. Therefore, the derivation is exclusively applied to FFIEC 031. Such variations across filing forms requires the identification of a specific derivation formula for each form rather than a universal formula applicable to all filing types and all periods.

Following the initial calculation of selected derived variables for each form from 2001, the subsequent step involves replacing missing RCFD, RCFA, and RCFW variables with corresponding RCON, RCOA, and RCOW variables having identical item codes. In the legacy Chicago Fed data, RCFD variables are present even for banks solely operating domestic offices (041 and 051 filers). In principle, RCFD variables should be all missing for Form 041 and 051 filers since the RCFD mnemonic denotes variables that aggregate figures from both

[2] In Fed's MDRM Dictionary, there are six data types. 'F' is for financial variables directly reported in the filings while 'D' is for derived variables that are calculated by using 'F' type variables. For other data types, refer to Fed MDRM dictionary web page: https://www.federalreserve.gov/apps/mdrm/download_mdrm.htm

foreign and domestic offices. Nevertheless, the legacy data typically supplied non-missing RCFD variables for domestic banks by replacing missing RCFD variables with available RCON variables sharing the same item code.

Exceptions occur when RCON is substituted with RCFD due to specific reporting mandates, such as RCON1754 in FFIEC 031 Schedule RC-H. As of June 2018, the entire schedule became applicable only to banks with foreign offices, leading some 031 filers without foreign offices to stop reporting RCON1754. However, these instances are replaced with RCFD1754, which is reported by all 031 filers, given that RCON1754 and RCFD1754 are equivalent for banks lacking foreign offices.

The comprehensive formula for each variable and form is accessible in the WRDS Bank Regulatory Premium Definitions file (link).

The current version of the WRDS Call Derived dataset prioritizes variables for which a formula is available in the MDRM dictionary or can be reasonably inferred using historical filing forms and instructions. It also emphasizes variables essential for computing WRDS Call Research variables. As previously mentioned, this list may expand in future updates based on user demand.

To verify precision, replicated variables undergo comparison with the legacy call data from 2001 to 2010 when derived variables are non-missing, and with the 2021–2022 call data acquired via FOIA request. A discrepancy margin of up to 2% is generally permissible between the replicated and reference data, accounting for the possibility of banks restating call report data after the initial filing. In instances of greater discrepancy, only variables with clearly identifiable reasons for the difference are retained; otherwise, such variables are excluded from the final version of the WRDS Call Derived dataset.

In the future, we can extend the list of variables according to your needs. For inquiries about specific derived variables that are not currently included in the WRDS Call Derived dataset, please reach out to WRDS Support.

2.2.2 WRDS Call Research

The WRDS Research table provides 365 pre-calculated variables from 1976 to March 2023, designed to help efficient research involving Bank call reports data. These pre-calculated research variables include balance sheet items such as total assets, year-to-date and quarterly interest income and expenses, uninsured deposit amounts, risk capital amounts and ratios, and others. Additionally, it includes the effective Federal Funds Rate for each quarter, alongside the average interest rate per deposit type, which is calculated by dividing the interest expense by the deposit amount.

The selection of variables is guided by academic literature, the major variable list from the Chicago Fed, historical FFIEC Forms, and the MDRM dictionary. The most extensively cited academic paper and dataset are those of Drechsler, Savov, and Schnabl (2017 QJE) and Philipp Schnabl's code, which contribute to 216 out of the 365 variables. Further references include works by Balla, Mazur, Prescott, and Walter (JBF 2019), Acharya, Chauhan, Rajan, and Steffen (NBER WP 2024). The variables are also chosen in accordance with the Chicago Fed's guidelines for creating a consistent time series. Moreover, historical FFIEC Forms and Instructions are actively used in the construction and verification of formulas. Detailed source information for each variable is accessible in the WRDS Bank Regulatory Premium Definitions file (link).

To ensure an extensive time series, the selected variables are constructed using both new and legacy data.

Data type	Period	Source
FFIEC 031, 032, 033, 034, and other old call reports	1976 – Dec 2000	Legacy Data
FFIEC 031, 041, and 051	Mar 2001 – Mar 2023	New Bank Regulatory
FFIEC 002, FR 2886b	1976 – Dec 2020	Legacy Data
	Mac 2021 – Mar 2023	New WRDS Bank Regulatory Premium

The initial step involves creating the *WRDS Call Derived* dataset as described above, since many research variables require derived variables (MDRM 'D' type) in their calculations. Once the derived variables are computed, any missing RCFD, RCFA, and RCFW variables are substituted with the corresponding non-missing RCON, RCOA, and RCOW variables. This data preparation step allows for the application of master formulas to research variables across all FFIEC Call Report forms.

After the *WRDS Call Derived* dataset is constructed, it is possible to compile a comprehensive panel data set of all call reports from 1976 to Q1 2023. This is achieved by stacking the data from before and after 2001 for US banks, and from before and after 2021 for foreign banks and Edge corps.

Next, the selected research variables are calculated using the master formula. For instance, total assets can be straightforwardly determined using 'RCFD2170', irrespective of the filing type, because any missing RCFD 2170 data is now replaced with RCON2170 during the data preparation phase.

It is important to note that the master formulas for each research variable are verified and updated in accordance with the MDRM dictionary and FFIEC filing forms to accurately reflect the regulatory changes in filing requirements over time. For example, the 'Tier 1 Capital Ratio' was reported under 'RCFD7206' and 'RCON7206' prior to 2015. However, following the adoption of the advanced approach[3] in 2013, it has been reported under 'RCFA7206' and 'RCOA7206'. Therefore, verifying and updating the research variable formulas by consulting the MDRM dictionary and FFIEC forms is essential to maintain a consistent time series.

The detailed formula for each variable is provided in the *WRDS Call Research* sheet within the WRDS Bank Regulatory Premium Definitions file (link). While the master formula is generally applicable regardless of the filing type, there are exceptions that require filing-specific formulas. These specifics, including both the master and filing-specific formulas, are available in the variable definition sheet.

2.2.3 Bank to LEI Linking Table

The Bank to LEI linking table contains two types of matches: reported and matched. Reported matches consist of ID RSSD (RSSD9001) – LEI pairs that are included in the NIC Bank Attribute database for both active and inactive institutions. Matched linkages, on the other hand, are established through a combination of entity name and location matching.

For each country, institutions headquartered therein are selected from both the NIC Bank Attributes data of active and closed entities and the LEI Attributes database. Subsequently, fuzzy name matching is conducted using both the original and cleaned names[4] to generate name similarity scores. Matches with similarity scores below 70% are discarded to ensure the quality of the name matching process. The remaining matches are then categorized into one of 6 distinct match_types, determined by the name similarity score and the matches of geographical locations.

Match_Type	Condition
1	Either from NIC or 100% similarity score in name and country, state, city, zip code match
2	Name similarity score from>=80% and country, state, city, zip match

[3] For further details about Advanced Approach Institutions: https://www.federalreserve.gov/supervisionreg/basel/advanced-approaches-capital-framework-implementation.htm

[4] Cleaned names excludes typical company prefixes or suffixes. Any accented alphabet is converted to plain alphabet for clean name.

3	Name similarity score>=80% and country, state, city match, zip code does not match
4	Name similarity score>=70% and country, state, city, zip code match
5	Name similarity score >= 70% and country, state, city match, zip code does not match
6	Name similarity score=>70% and country, state match

Lastly, the link date range is established by selecting the earlier date between the record start date in the NIC database and the initial LEI registration date, and the later date between the record end date in the NIC database and that in the LEI database.

3 Tables

3.1 WRDS Bank Structure Ultimate Parents

- Table name: WRDS_STRUCT_REL_ULTIMATE (web query link)

This table delineates the ultimate parents and the corporate hierarchy to which the focal institution belongs. With this resource, one can seamlessly navigate through the corporate structure, all the way up to the ultimate parent.

The table provides snapshots of these relationships as of December 31st for each respective year of the relationship. It should be noted that, due to the methodology of capturing relationships on December 31st annually, some relationships that lasted less than a year may not be included in this dataset.

The dataset's primary keys are listed below. This table can be cross-referenced with other banking tables using the 'focal' bank ID and the 'reln_year'.

Primary Key	Type	Description
reln_year	num	The year of the relationship, the relationship is captured at the end of each calendar year
focal	num	Bank Id of the child (id_rssd or rssd9001)
immediate_parent	num	Bank Id of the immediate parent (id_rssd or rssd9001)
ultimate_parent	num	Bank Id of the ultimate parent (id_rssd, rssd9001)
tree	char	List banks in the full tree, comma delimited

For more comprehensive information regarding the methodology, refer to the WRDS Bank Ultimate Parent manual (link).

3.2 Bank Linking Tables

There are three additional linking tables under Bank Linking Tables section. Below are the tables.

Table name	Web Query	Description
IDRSSD_to_LEI	Yes (link)	WRDS Linking table between Bank ID (ID_RSSD / RSSD9001) to LEI
ISIN_to_LEI	Yes (link)	Linking table between ISIN to LEI from April 2019 (GLEIF data)
BIC_to_LEI	Yes (link)	Linking table between BIC (Swift Code) to LEI from January 2018 (GLEIF data)

All linking tables are equipped with a date range indicating the effectiveness of the links. The primary keys for each table are displayed below.

Primary Key	Type	Description	Applicable tables
ID_RSSD	numeric	- A unique and permanent Bank ID	IDRSSD_to_LEI
LEI	text	- Legal Entity Identifier (LEI) assigned to an entity involving in financial transactions	IDRSSD_to_LEI
Link_bdate	date	- Link start date, earlier of the Date_start in NIC Bank Attributes or Initial Registration date from LEI Main	IDRSSD_to_LEI
Link_edate	date	- Link end date, later of Date_end in NIC Bank Attributes or rec_edate from LEI Main	IDRSSD_to_LEI

Primary Key	Type	Description	Applicable tables
ISIN	text	- A unique and permanent Bank ID	ISIN_to_LEI
LEI	text	- Legal Entity Identifier (LEI) assigned to an entity involving in financial transactions	ISIN_to_LEI

Rec_bdate	date	- Link start date (the first date when the linkage record is available)	ISIN_to_LEI
Rec_edate	date	- Link end date (the last date when the linkage record is still effective)	ISIN_to_LEI

Primary Key	Type	Description	Applicable tables
BIC	text	- Business Identification Code, for most banks, equivalent to SWIFT code	BIC_to_LEI
LEI	text	- Legal Entity Identifier (LEI) assigned to an entity involving in financial transactions	BIC_to_LEI
Rec_bdate	date	- Link start date (the first date when the linkage record is available)	BIC_to_LEI
Rec_edate	date	- Link end date (the last date when the linkage record is still effective)	BIC_to_LEI

3.3 WRDS Other (Foreign) Call Data

The WRDS Other Call Data includes FFIEC 002 and FR 2886b filings data, which was obtained via a FOIA request. The dataset spans from 2021 to Q1 of 2023, and data preceding 2021 is available in the legacy Bank Regulatory database.

Similar to the call data in the Bank Regulatory by WRDS, this data is segmented into five parts based on the variable mnemonic prefixed with 'WRDS_CALL_FRGN'. All tables can be accessed through both web query and the WRDS cloud.

Note that certain columns in WRDS Other Call Data could only have missing values, as like the original source data. Despite these missing values, we have chosen to retain the columns to preserve the original data structure from Federal Reserve. Especially, columns that have non-missing values in the legacy data remain in the tables for data consistency.

Table name	Web query	Description
WRDS_CALL_FRGN_RCFD	Yes (link)	Variables with RCFD mnemonic
WRDS_CALL_FRGN_RCFN	Yes (link)	Variables with RCFN mnemonic

WRDS_CALL_FRGN_RCON	Yes (link)	Variables with RCON mnemonic
WRDS_CALL_FRGN_RIAD	Yes (link)	Variables with RIAD mnemonic
WRDS_CALL_FRGN_TEXT	Yes (link)	Variables with TEXT mnemonic

Displayed below are the primary keys for the respective tables. By utilizing these primary keys, the tables mentioned above can be merged into a single table.

Primary Keys	Type	Description
RSSD9001	Numeric	- A unique and permanent Bank ID, it is also named 'ID_RSSD' in other databases
RSSD9999	Date	- Filing period date variable in YYYYMMDD format
D_DT	Date	- Filing period date in MM/DD/YYYY format
RCON9804	Numeric	- Filing type code, 20 for FFIEC 002, 30 for FR 2886b

3.4 WRDS Research Data

There are two datasets available under WRDS Research Data as shown below:

Table Name	Web Query	Description
WRDS_CALL_RESEARCH	Yes (link)	365 pre-calculated variables useful for banking research ranging from total assets, risk capital ratio, to effective fed funds rate from 1976 – Q1 2023
WRDS_CALL_DERIVED	Yes (link)	279 variables derived from reported variables in FFIEC 031, 041, 051, 002, and FR 2886b since 2001

The primary keys of both tables are listed in the table below:

Primary Key	Type	Description
RSSD9001	Numeric	- A unique and permanent Bank ID, it is also named 'ID_RSSD' in other databases
Date	Date	- Filing period date variable - 8 – digit numbers representing quarter-end date
RCON9804	Numeric	Filing type code - 20 for FFIEC 002

		- 30 for FR 2886b - 51 for FFIEC 031, 52 for FFIEC 032, 53 for FFIEC 033, 54 for FFIEC 034 - 41 for FFIEC 041 - 59 for FFIEC 051 - Other codes (Appendix A2)

By using the primary keys, one can link WRDS Research Datasets with other datasets sharing the same set of primary keys within the new WRDS Bank Regulatory Premium. For the definitions and formula for each variable, refer to WRDS Bank Regulatory Premium Definitions file (link). For methodology, refer to 2.2 Methodology section.

3.5 LEI Entity and Relationships

In the LEI Entity and Relationships section, nine tables present information on LEI entities and their parent-subsidiary relationships. Of these nine tables, two principal tables are accessible through both web query and the WRDS cloud, while the remaining tables can only be accessed via the WRDS cloud.

The tables are listed below:

Table name	Web query	Description
LEI_Main	Yes (link)	A collection of historical snapshots of LEI Entity Attributes such as legal name, legal address, headquarter address, LEI status, etc.
LEI_OtherEntNames	No, only WRDS Cloud	Alternative names of LEI entities in various language
LEI_OtherAddresses	No, only WRDS Cloud	Alternative addresses of LEI entities in various language
LEI_LegalEvents	No, only WRDS Cloud	Legal events of LEI entities such as M&A, dissolution, etc.
LEI_SuccessorEntity	No, only WRDS Cloud	LEI or name of the successor entity (due to various reason such M&A)
Rel_Main	Yes (link)	A collection of historical snapshots of Parent – subsidiary relationships between LEI entities
Rel_Periods	No, only WRDS Cloud	Relationship period information, integrated in Rel_Main for relationship period

Rel_Qualifiers	No, only WRDS Cloud	Information about what accounting standard defines the relationship – ex) GAAP
Rel_Quantifiers	No, only WRDS Cloud	Ownership amount information for relationships

LEI_Main table contains all historical records of an LEI entity with effective date range. The table is designed to keep all the historical changes regarding the entity attributes available in the dataset, ranging from legal name to LEI renew date. Each entry in the table is distinguished by its attribute variables and is uniquely identifiable by a lei_record_id. To accommodate users seeking only the most current header information, a 'most_recent' indicator has been incorporated, enabling them to easily isolate the latest updated information for each LEI.

To merge 'LEI' tables, one should utilize these primary keys:

Primary Key	**Type**	**Description**
lei_record_id	numeric	- A unique and permanent id assigned to a LEI record. If any attribute changes, new lei_record_id is assigned even for the same LEI entity
LEI	text	- Legal Entity Identifier, 20-digit alphanumeric code assigned to an entity, permanent and unique
Rec_bdate	Date	- The first date when the record is effective - Dataset-specific
Rec_edate	date	- The last date when the record is effective - Dataset-specific

To precisely match records, one can utilize the 'lei_record_id' to link LEI tables and restore the original record before it was structured into multiple tables. Merging by LEI and record date range is also feasible, as some tables may not contain all 'lei_record_id' entries found in the LEI_Main table. Note that some 'lei_record_id' entries were removed during the deduplication process applied to each LEI table.

The Rel_Main table is constructed similarly and maintains all historical changes in the relationship attributes between two LEI entities. It includes parent-subsidiary relationships of LEI entities dating back to 2012. Each unique record is identified by an 'rr_record_id', which is a numeric ID assigned to a relationship record. Any change in an attribute within the Rel_Main table results in the addition of a new record with a new 'rr_record_id'.

Rel_Main incorporates variables from other relationship tables, such as 'relationship period' and 'relationship quantifier amount (ownership)'. For those requiring additional information from other tables, Rel_Main can be linked with other Relationships tables using 'rr_record_id'.

While 'rr_record_id' is the common primary key within Relationships data, there are other important variables that can be utilized in conjunction with 'rr_record_id'. These additional primary key variables are detailed in the table provided below, alongside 'rr_record_id'.

Primary Key	**Type**	**Description**	**Applicable Table**
rr_record_id	numeric	- A unique and permanent id assigned to a relationship record. If any attribute changes, new rr_record_id is assigned even for the same relationship - Not compatible with lei_record_id	Rel_Main Rel_Periods Rel_Qualifiers Rel_Quantifiers
StartNode_NodeId	text	- Subsidiary ID, mostly LEI	Rel_Main
EndNode_NodeId	text	- Parent ID, mostly LEI	Rel_Main
Rp_row_id	numeric	- A numeric row number assigned to a relationship period record within the given rr_record_id	Rel_Periods
Rqt_row_id	numeric	- A numeric row number assigned to a relationship quantifier record within the given rr_record_id	Rel_Quantifiers
Rql_row_id	numeric	- A numeric row number assigned to a relationship qaulifier record within the given rr_record_id	Rel_Qualifiers
Rec_bdate	date	- The first date when the record is effective	Rel_Main
Rec_edate	date	- The last date when the record is effective	Rel_Main

Please note that 'rec_bdate' and 'rec_edate' denote the effective period of a relationship record. To reference the actual start and end dates of a relationship, one should use 'RelStartDTIME' and 'RelEndDTIME'. However, unlike 'rec_bdate' and 'rec_edate', 'RelStartDTIME' and 'RelEndDTIME' should not be considered as primary keys, as they may contain missing values and are not unique for each 'rr_record_id'.

Lastly, merging tables in LEI Attributes and tables in Relationships should be done based on LEI and rec_bdate and rec_edate.

For a more comprehensive understanding of the variables available in LEI Entity Attributes and Relationships, refer to the WRDS Bank Regulatory Premium Definitions file (link).

4 Relationship with the Bank Regulatory by WRDS

4.1 Summary

Below is the summarization of the coverage information of Bank Regulatory by WRDS and WRDS Bank Regulatory Premium. The first table lists available data types and relevant information for each type of data. In the table, a Data Source marked with an asterisk (*) indicates that the data is included in the WRDS Bank Regulatory Premium. All else are included in Bank Regulatory by WRDS (legacy and new).

Data Type	WRDS Version	Data Source	Coverage	Call Forms	Derived Variables
US Bank Call Data	Legacy	Chicago Fed	Mar 1976 - Dec 2010 (permanently stopped)	FFIEC 031, 032, 033, 034, 041, 051, and other legacy forms	Yes
		FFIEC	Mar 2011 – Jun 2021	FFIEC 031, 041, 051	Majority missing
	New	FFIEC	Mar 2001 - Now	FFIEC 031, 041, 051	Majority missing
		WRDS Call Derived*	Mar 2001 - Now	FFIEC 031, 041, 051	279 derived variables (replicated and extended by WRDS)
	Legacy	Chicago Fed	Dec 1978 – Jun 2021	FFIEC 002, FR 2886b	Yes

Foreign Bank & Edge Corp Call Data			(permanently stopped)		
	New	WRDS Other (Foreign) Call **(FOIA** request)*	Mar 2021 – Mar 2023	FFIEC 002, FR 2886b	Yes
Bank Holding Company Financials	Legacy	Chicago Fed	Jun 1986 – Jun 2021 (permanently stopped)	FR Y-9C, FR Y-9LP, FR Y-9SP	Yes
		NIC	Sep 2021 – Dec 2021 (WRDS update stopped)	FR Y-9C, FR Y-9LP, FR Y-9SP	Yes
	New	NIC	Mar 2021 – Sep 2023	FR Y-9C, FR Y-9LP, FR Y-9SP	Yes
Bank Attributes & Structure Data	Legacy	Chicago Fed	Mar 2011 – Jun 2021	Bank Attributes & Structure Data merged provided with Foreign Call (002 & 2886b)	N/A
	New	NIC	Beginning – Dec 2023	More detailed Bank Attributes & historical relationships data	N/A

Newly added data that is only available in the WRDS Bank Regulatory Premium is summarized in the table below:

Data Product Name	Coverage	Description
WRDS Call Research	Mar 1976 – Mar 2023	365 Pre-calculated variables for research (B/S vars, I/S vars, risk asset vars, etc.)

WRDS Ultimate Parents	Beginning – Dec 2023	Pre-identified bank trees and ultimate parents (yearly snapshots)
LEI Attributes	2012 – 2023	Historical snapshots of Entity attributes (names, addresses, legal events, etc.) of global entities with LEI identifiers, CRSP's DSENAMES style data
LEI Relationships	2012 – 2023	Historical snapshots of parent-subsidiary relationships of global entities with LEI
NY Fed Bank to CRSP Linking	Mar 1986 – Sep 2023	Bank Id to CRSP Permco linking table maintained by NY Fed
WRDS LEI to Bank Linking	2012 – Dec 2023	Bank Id to LEI linking table, reinforced by WRDS name and address matching algorithm (30% from Fed, 70% matched by WRDS)
LEI to BIC Linking	Jan 2018 – Dec 2023	LEI to BIC code linking table from GLEIF
LEI to ISIN Linking	Apr 2019 – Dec 2023	LEI to ISIN linking table (GLEIF and ISIN are the source)

To summarize, the new data available in WRDS Bank Regulatory Premium includes datasets and analytics that can be helpful for researchers, such as WRDS Ultimate Relationships, Linking Tables, and WRDS Bank Research datasets. In addition, the new suite addresses data inconsistency issues in the Bank Regulatory data by providing derived variables, FOIA data, and research variables. Furthermore, it offers wider coverage of global entities by sourcing international financial regulation data from GLEIF, which includes entity attributes and relationships of LEI entities.

5 Citation Guidelines

For **WRDS Research** Data,

- We suggest making a reference to the **WRDS Bank Regulatory Premium** for **WRDS Call Derived** and **WRDS Call Research** datasets.
- In addition, we suggest making references to the source papers for research variables you use from **WRDS Call Research** dataset. Source paper information per research

variable is available in WRDS Bank Regulatory Premium Definitions file (link). The academic papers referenced in constructing WRDS Call Research are also listed below:

- Drechsler, Itamar, Alexei Savov, and Philipp Schnabl, 2017, The Deposits Channel of Monetary Policy, Quarterly Journal of Economics, Volume 132, Issue 4, November 2017, Pages 1819–1876
- Balla, Eliana, Laurel C. Mazur, Edward Simpson Prescott, John R. Walter, A comparison of community bank failures and FDIC losses in the 1986–92 and 2007–13 banking crises, Journal of Banking & Finance, Volume 106, 2019, Pages 1-15
- Acharya, Viral V, Rahul S. Chauhan, Raghuram Rajan, and Sascha Steffen, 2023, Liquidity Dependence and the Waxing and Waning of Central Bank Balance Sheets, NBER Working Papers 31050, National Bureau of Economic Research, Inc.

Reference

Acharya, Viral V, Rahul S. Chauhan, Raghuram Rajan, and Sascha Steffen, 2023, Liquidity Dependence and the Waxing and Waning of Central Bank Balance Sheets, NBER Working Papers 31050, National Bureau of Economic Research, Inc.

Balla, Eliana, Laurel C. Mazur, Edward Simpson Prescott, John R. Walter, A comparison of community bank failures and FDIC losses in the 1986–92 and 2007–13 banking crises, Journal of Banking & Finance, Volume 106, 2019, Pages 1-15

Drechsler, Itamar, Alexei Savov, and Philipp Schnabl, 2017, The Deposits Channel of Monetary Policy, Quarterly Journal of Economics, Volume 132, Issue 4, November 2017, Pages 1819–1876

Schnabl, Philipp, https://pages.stern.nyu.edu/~pschnabl/data/data_callreport.htm, November 2020 version, latest access date: 3/19/2024

CRSP-FRB linking, https://www.newyorkfed.org/research/banking_research/crsp-frb, Federal Bank of New York, 2023-Q3, latest access date: 3/19/2024

FFIEC Reporting Forms, https://www.ffiec.gov/ffiec_report_forms.htm, FFIEC, latest access date: 4/30/2024

GLEIF, https://www.gleif.org/en, latest access date: 3/19/2024

LEI FAQ, https://www.financialresearch.gov/data/legal-entity-identifier/faqs/#:~:text=The%20financial%20industry's%20adoption%20of,threats%20to%20the%20financial%20system, Office of Financial Research, latest access date: 4/29/2024

MDRM Dictionary CSV file, https://www.federalreserve.gov/apps/mdrm/ , latest download date: 1/1/2024

Notes on Forming Consistent Time Series, https://www.chicagofed.org/-/media/others/banking/financial-institution-reports/notes-on-forming-consistent-time-series-pdf.pdf, Federal Reserve Bank of Chicago, latest access date: 1/1/2024

Commercial Bank Data by Chicago Fed, https://www.chicagofed.org/banking/financial-institution-reports/commercial-bank-data, latest access date 4/30/2024

Edge Act and Agreement Corporations in International Banking and Finance, https://www.newyorkfed.org/medialibrary/media/research/monthly_review/1964_pdf/05_3_64.pdf, Federal Reserve Bank of New York, latest access date 4/30/2024

Appendix A1. Changes in Form-Filing Requirements

Notable historical changes in reporting regulations are summarized in the tables below for each call report forms.

1. FFIEC 031 – Quarterly Call Report

Start date	**Criteria for Reporting Eligibility**
March 31, 2020	i. Banks with branches and consolidated subsidiaries in US territories and possessions, Edge or Agreement subsidiaries, foreign branches, consolidated foreign subsidiaries, or International Banking Facilities, ii. Banks with domestic offices only and total consolidated assets of $100 billion or more iii. Banks that are advanced approaches institutions for regulatory capital purposes
June 30, 2018	i. Banks with branches and consolidated subsidiaries in US territories and possessions, Edge or Agreement subsidiaries, foreign branches, consolidated foreign subsidiaries, or International Banking Facilities, ii. Banks with domestic offices only and total consolidated assets of $100 billion or more
March 31, 1999	i. Banks with branches and consolidated subsidiaries in US territories and possessions, Edge or Agreement subsidiaries, foreign branches, consolidated foreign subsidiaries, or International Banking Facilities

2. FFIEC 041 – Quarterly Call Report

Start date	**Criteria for Reporting Eligibility**
September 30, 2019	i. Banks with domestic offices only and total consolidated assets of less than $100 billion

	iv. If total assets less than $5 Billion, may choose Form 051
June 30, 2018	i. Banks with domestic offices only and total consolidated assets of less than $100 billion ii. If total assets less than $1 Billion, may choose Form 051
March 31, 2017	i. Banks with domestic offices only ii. If total assets less than $1 Billion, may choose Form 051
March 31, 2001	ii. Banks with domestic offices only

3. FFIEC 051 – Quarterly Call Report

Start Date	**Criteria for Reporting Eligibility**
Sep 30, 2019	Banks with domestic offices only and total consolidated assets of less than $5 billion
March 31, 2017	Banks with domestic offices only and total consolidated assets less than $1 billion

4. Other forms
    a. FFIEC 032: domestic banks with assets= >$300 million (before 2001), retired in 2001 with adoption of FFIEC 041
    b. FFIEC 033: domestic banks with assets =>$100 million (before 2001), retired in 2001 with adoption of FFIEC 041
    c. FFIEC 034: domestic banks with assets <$100 million (before 2001), retired in 2001 with adoption of FFIEC 041
    d. FFIEC 002: Every U.S. branch and agency of a foreign bank as defined in IBA, foreign countries also include Puerto Rico, and other US territories.
    e. FR 2886b: Edge and agreement corporations

5. Y-9C – Quarterly Consolidated financial statements for Holding Companies (BHCs[5], SLHCs[6], IHCs[7], SHCs[8])

Start date	**Criteria for Reporting Eligibility**

[5] Bank Holding Companies
[6] Savings and Loan Holding Companies
[7] U.S. Intermediate Holding Companies
[8] Securities Holding Companies

September 30, 2018	Unless otherwise noted, **top tier**[9] Holding Companies with consolidated assets >= $ 3 bil,
March 31, 2015	Unless otherwise noted, **top tier** Holding Companies with consolidated assets >= $1 bil
March 31, 2006	Unless otherwise noted, **top tier** Holding Companies with consolidated assets >= $500 mil
Before 2006	Unless otherwise noted, **top tier** Holding Companies with consolidated assets >= $150 mil

6. Y-9SP – Semiannual Parent company only financial statements for small Holding Companies

Start date	**Criteria for Reporting Eligibility**
September 30, 2018	Unless otherwise noted, Holding Companies with consolidated assets < $ 3 bil
March 31, 2015	Unless otherwise noted, Holding Companies with consolidated assets < $1 bil
March 31, 2006	Unless otherwise noted, Holding Companies with consolidated assets < $500 mil
Before 2006	Unless otherwise noted, Holding Companies with consolidated assets < $150 mil

7. Y-9LP – Quarterly Parent company only financial statements for large Holding Companies

Start date	**Criteria for Reporting Eligibility**
September 30, 2018	Unless otherwise noted, Holding Companies with consolidated assets >= $ 3 bil
March 31, 2015	Unless otherwise noted, Holding Companies with consolidated assets >= $1 bil
March 31, 2006	Unless otherwise noted, Holding Companies with consolidated assets >= $500 mil
Before 2006	Unless otherwise noted, Holding Companies with consolidated assets >= $150 mil

[9] Tier is determined based on the position within its corporate hierarchy.

Appendix A2. Filing type code lookup table

Filing Name	RCON9804	RSSDFinInstFilingType
No report	0	
Mutual Savings Bank (discontinued 12/31/88)	1	
Short Form Reporter	2	
Long Form Reporter	3	
Long Form Reporter with LBS (discontinued 12/31/83)	4	
Domestic & Foreign Reporter (discontinued 12/31/83)	5	
Domestic & Foreign Reporter with LBS (assets less than $300m - national banks only) (discontinued 12/31/83)	6	
Domestic & Foreign Reporter with LBS (assets greater than $300m) (discontinued 12/31/83)	7	
Large Bank Supplement only (discontinued 12/31/83)	8	
Domestic & Foreign Report only (without LBS) (discontinued 12/31/83)	9	
Abbreviated Income Report (discontinued 12/31/83)	10	
Consolidated Report of Income (discontinued 12/31/83)	11	
Domestic Report of Condition (discontinued 12/31/83)	12	
Consolidated Report of Income (discontinued 12/31/82)	13	
Consolidated Report of Condition for a Bank and Its Domestic and Foreign Subsidiaries (discontinued 12/31/83)	14	
International Banking Act Call Reporter (RCON only) (FFIEC 002)	20	
Edge Act and Agreement Corporations (FR 2886b)	30	
New York Investment Companies (FR 2886a)	40	
FFIEC 041 Reporter (effective 3/31/01)	41	041
FFIEC 030 Reporter	50	
FFIEC 031 Reporter	51	031
FFIEC 032 Reporter (effective 3/31/84, discontinued after 12/31/00)	52	
FFIEC 033 Reporter (effective 3/31/84, discontinued after 12/31/00)	53	
FFIEC 034 Reporter (effective 3/31/84, discontinued after 12/31/00)	54	

FFIEC 016 Report (effective 3/31/86 only) for the FFIEC 034 Reporter	56	
FFIEC 017 Report (effective 3/31/86 only) for the FFIEC 031-33 Reporters	57	
FFIEC 018 Report (effective 3/31/86 only) for Insured Saving Banks	58	
FFIEC 051 Report (effective 3/31/17)	59	051
FR Y-9C	90	
Report not filed	99	

Appendix B. Dataset-Specific Manuals

WRDS Website Links to the dataset-specific manuals

Manual	**Data**	**Link**	**Subscription**
MDRM by Federal Reserve	Bank Regulatory Call Reports and BHCK	Click	Complimentary with WRDS platform
NIC Bank Structure	Bank Regulatory Bank Structure	Click	Complimentary with WRDS platform
NY Fed CRSP Linking Methodology	Bank Regulatory CRSP Linking table	Click	Complimentary with WRDS platform
WRDS Bank Regulatory Premium Definitions	All WRDS Bank Regulatory Premium data	Click	A separate subscription required
WRDS Bank Ultimate Parents Methodology	WRDS Bank Structure Ultimate Parents	Click	A separate subscription required