

## DATA SERVICE USER GUIDE

Effective January 2017

### Contact Us

For further information contact us at a location below:

#### Americas

+1.212.553.1653  
clientservices@moodys.com

#### EMEA

+44.20.7772.5454  
clientservices.emea@moodys.com

#### Asia-Pacific

+852.3551.3077  
mdyasiainfo@moodys.com

#### Japan

+81.3.5408.4100  
clientservices.japan@moodys.com

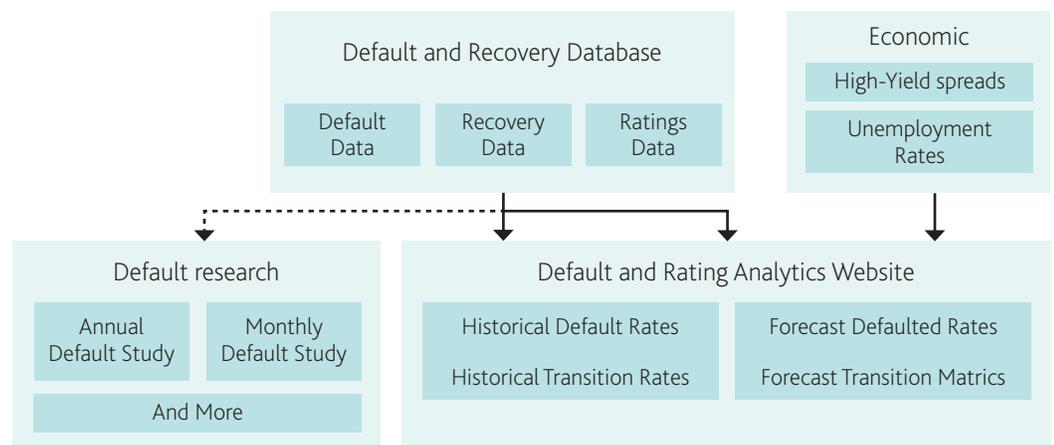
# January 2017 Default & Recovery Database (DRD) User Guide

Moody's Analytics Default & Recovery Database (DRD) has data for 500,000+ debts and 50,000+ global corporate and sovereign entities, including rating, default, and recovery history. Coverage includes (Moody's Investors Service) rated entities, rated defaulters, and unrated defaulters back to 1980 for EMEA, 1920 for the US, and the 1990s for Asia. Sector coverage includes corporates, sovereigns, sub-sovereigns (outside the US), financial institutions, insurance companies, and real estate investment trusts (REITs). Other broad industries such as project finance, structured finance, and municipals are not included.

The Moody's Investors Service rating agency, sister company of Moody's Analytics, uses the database's issuer, default, and recovery data as the starting point to produce default research that is heavily used by market participants globally.

The Default & Recovery Database is part of Moody's Analytics broader suite of default products. This database includes the Default & Ratings Analytics web tool to give users access to easy-to-use, customizable web-based tools to quickly calculate rating transition matrixes and default rates based on the DRD data.

This document will help you understand what is in the DRD and help you start using it to create your own analyses.



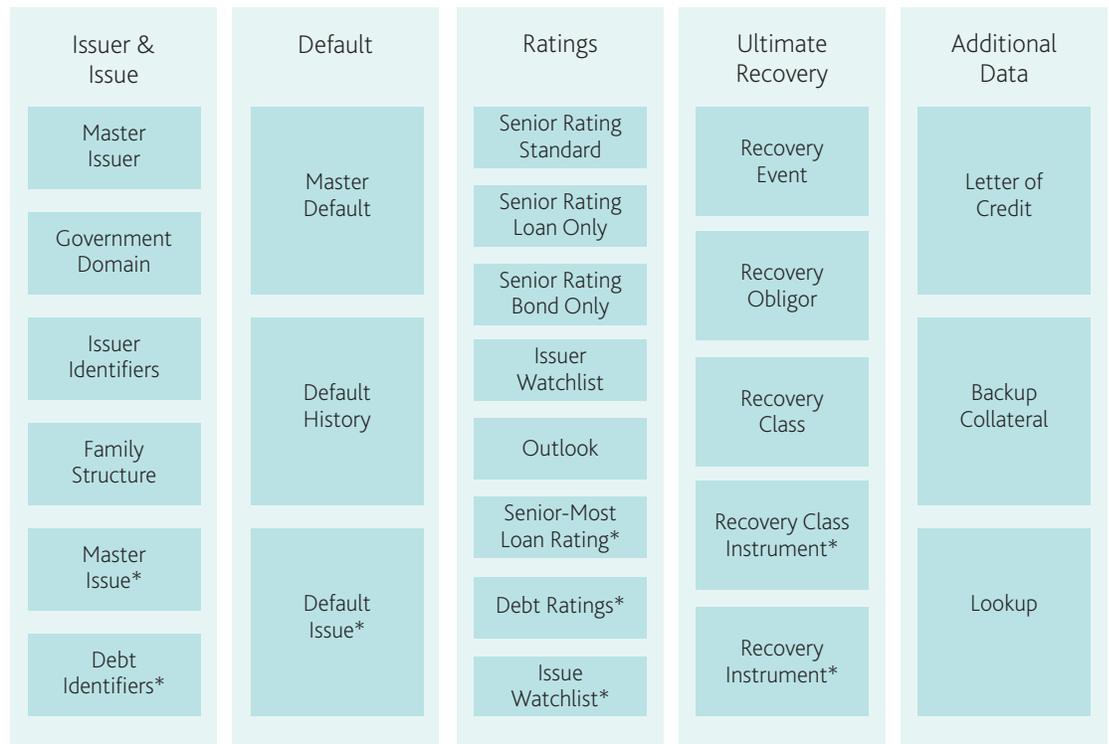
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## Introduction to the DRD

The DRD contains four main sets of data: Issuer/Issue, Default, Ratings, and Ultimate Recovery data. The data is organized into 26 tables that have primary keys built into them to enable users to build relationships between tables and perform complex queries. Universal identifiers facilitate the use of external data sources, and the **Lookup Table** holds definitions for any field ending with "\_cd". The DRD is available for download via "flat file" and Microsoft Access on [moodys.com/Pages/Default-and-Recovery-Analytics.com](http://moodys.com/Pages/Default-and-Recovery-Analytics.com) as well as via FTP.



\*Indicates issue-level data

The Issuer/Issue level information includes industry-, region-, and debt-specific facts such as maturity date, sale date, coupon rate, etc. External identifiers, such as CUSIPs and ISINs are included, allowing for connection to external databases.

The Default data includes details on global defaults, including the date of default and worldwide recovery prices (where available). This data is used as the basis for the Monthly Default Report and Annual Default Studies; however, these reports cannot be replicated, as they include non-public information. The DRD data is worldwide and includes 30-day trading prices post-default, which is the price the aforementioned studies use to calculate recovery rates.

The Ratings tables provide details on both issue-level and issuer-level ratings. The issuer-level rating is the Senior Unsecured or Equivalent Rating, which is what is used in our default research. These tables are the starting point for many of our published default rates and transition matrixes. [Please click here for a paper discussing the Senior Unsecured or Equivalent Rating.](#)

The Ultimate Recovery piece covers large public US corporate defaults and includes the final recovery based on what debt holders were actually repaid, available both nominally and discounted for lost interest. This

data is based on in-depth research conducted using bankruptcy filings, 10-K forms, 10-Q forms, and press releases.

The remaining tables provide additional reference information to help you understand the data in the other tables.

#### MASTER ISSUER & ISSUE DATA

The **Master Issuer Table** provides descriptive details on each issuer in the dataset, regardless of default status, and regardless if they were ever rated by Moody's Investors Service or not. It includes information on the company name, industry, and domicile. The **Master Issuer Number** is a unique identifier to the DRD; it is one of the primary ways you can link data between the various tables. The **Moody's Domain Number** provides a code that indicates the primary country where this entity conducts its business (as defined by Moody's Investor Services); this code can be translated by using the **Government Domain Table**. The **Master Issuer Table** also contains seven industry code types, including four codes determined by Moody's Investor Services. **Moody's Specific** is the most granular of these Moody's codes and is loosely based on the industries found on the top right of Moodys.com issuer pages. **Moody's Broad Codes** and **Moody's 35** are both mapped to these specific codes. **Moody's 11** is the least granular industry grouping and is based on **Moody's 35**. This table also includes **SIC Broad** and **SIC Specific Codes**, as well as **NAICs Codes**; these are useful, but coverage may be limited.

As a starting point, you may want to use **Moody's 35**, which are the codes most often used in our default research. [For a description of Moody's 35 codes, please click here.](#) Please note that not all issuers will have an industry code assigned, especially historically and for unrated names.

The **Master Issue Table** stores descriptive details of each debt issue in the dataset including **Debt Type**, **Coupon Rate**, and **Maturity**. Similar to the Master Issuer table, this table includes all issues regardless of default or Moody's Investors Service rating status. The **Master Issuer Number** allows you to link between the **Master Issuer** and the **Master Issue Table**. One of the key fields in this table is the **Debt Class Code**, used by Default Research Analysts to identify bonds versus loans based on the below mapping:

Debt Class Code	Translation	Type of Debt
BL	Bank Loan	Loan
BCF	Bank Credit Facility	Loan
SOVBL-FC	Sovereign Bank Loan, Foreign Currency	Loan
SOVBL-LC	Sovereign Bank Loan, Local Currency	Loan
LTPD	Long Term Public Debt	Bond
MUNI	Municipal Bonds	Bond
REG	Regular Bonds	Bond
SOVLTPD-FC	Sovereign Long Term Public Debt, Foreign Currency	Bond
SOVLTPD-LC	Sovereign Long Term Public Debt, Local Currency	Bond

**Example:** Let's look at Ford, whose Master Issuer number is 22555. If we filter by Ford in the Master Issuer table, we can see that Ford is in the Motor Vehicles industry, with a Domain Number of 145. If we look that number in the Government Domain table, we will see that is the United States.

In the Master Issue Table, we can look up 22555 under the Master Issuer Number field. We can see all the debt that Ford has issued, including information about the maturity, coupon rate, etc.

MAST_ISSR							
MAST_ISSR_	ISSUER_NAM	MDY_DOMN	MOODYS_11	MOODYS_35	MDY_IND_BI	MDY_SPEC_I	S
22555	Ford Motor Company	145	Capital Industr	Automotive	INDUSTRIAL	AUTOMOTIVE:	
0		0					

GOVT_DOMAIN							
MDY_DOMN	DOMN_TYP	DOMN_ABBI	DOMN_NAM	CURRENCY	REGN_CD	Click to Add	
145	CTY	USA	UNITED STATES	33	AMR		
0							

MAST_ISSU							
MAST_ISSU_	MAST_ISSR_	DEBT_CLASS	COUP_RATE	MATR_DATE	DEBT_SENR_	SALE_DATET	
1551	22555	REG	7.875	10/15/1996	SU	10/9/1991	
4657	22555	PD			NA		
5953	22555	REG	10.5	8/1/1993	SU	7/9/1985	
6969	22555	REG	7.125	11/15/2025	SU	11/9/1995	

### DEFAULT DATA

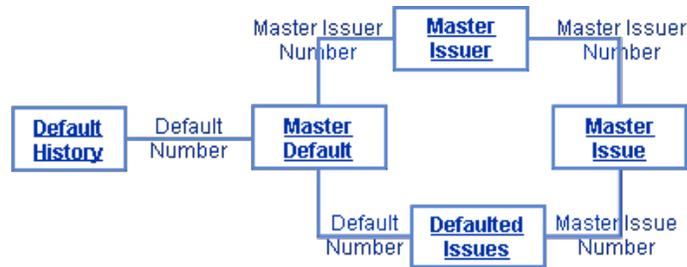
There are three key Default tables – the **Master Default**, the **Default History**, and the **Default Issue Tables**. Defaults are entered into the database and classified based on Moody's Investor Service definition of default. Moody's definition of default is applicable only to debt or debt-like obligations (e.g., swap agreements). Moody's Analytics does not track technical defaults in this database.

Four events constitute a debt default under Moody's Investor Service definition:

- A missed or delayed disbursement of a contractually-obligated interest or principal payment (excluding missed payments cured within a contractually allowed grace period), as defined in credit agreements **and indentures**.
- A bankruptcy filing or legal receivership by the debt issuer or obligor that will likely cause a miss or delay in future contractually-obligated debt service payments.
- A distressed exchange whereby 1) an obligor offers creditors a new or restructured debt, or a new package of securities, cash, or assets that amount to a diminished financial obligation relative to the original obligation, and 2) the exchange has the effect of allowing the obligor to avoid a bankruptcy or payment default in the future.
- A change in the payment terms of a credit agreement or indenture imposed by the sovereign that results in a diminished financial obligation, such as a forced currency re-denomination (imposed by the debtor himself or his sovereign) or a forced change in some other aspect of the original promise, such as indexation or maturity.

Please note that this definition is subject to revision by Moody's Investor Services without notice. [Please click here for a white paper on our definitions including our definition default.](#)

The four main default tables can be linked to each other and to the **Master Issuer** and **Master Issue Tables** using the unique identifiers discussed above: the **Master Issuer Number**, the **Master Issue Number**, and the **Default Number**. Please see the following graphic to visualize these connections.



The **Master Default Table** stores details of each issuer's *periods* of default (not every instance of a default event). A period of default could include multiple default events; for example, an issuer may miss several bond payments on different dates in a month; these are separate default events, but constitute only one period of default. This period would only appear once in the **Master Default Table**. For a history of individual credit events during a period of default, please see the **Default History Table**.

In addition, the **Master Default Table** includes major milestones, including the initial default event, bankruptcy, and resolution date, if any. The **Master Issuer Number** again appears in this table, as it is an issuer-level set of data. The **Default Number** is introduced in this table; this field is a unique identifier for each default period recorded by Moody's Investor Service. Please note that if a company recovers from a default (per Moody's definition) and then reenters default at a later period, both will be listed in this table but under different **Default Numbers**. The **Default Type Code** will provide a brief description of the default, such as "Missed Interest Payment," "Chapter 11," or "Distressed Exchange." The **Rating Agency Default Date** is the date on which Moody's Investors Service considers this issuer to have entered default. It is possible for defaults and resolutions to occur on the same day; this is quite common for distressed exchanges. The resolution date can also be blank. We can use both the **Master Issuer Number** and the **Default Number** to map to other tables in the DRD.

The **Blurb** will provide a write-up of the default situation, where available. This can be useful to understand the details around specific defaults. The **Obligor Bankruptcy Date** and **Obligor ID** tie back to the **Ultimate Recovery Tables** covered later in this document.

The **Default Issue Table** provides information on all known outstanding debt issues for each issuer at the initial time of default for each **Default Number**. This table does not have information on the type of default; it simply provides details on the issues, both defaulted and non-defaulted, that were outstanding at the time of default. Just as a company can appear twice in the **Master Default Table** if it recovers from a default (per Moody's definition) and then reenters default at a later period, so can that issuer's debt appear twice under different **Default Numbers**. If a debt is involved in two defaults simultaneously, e.g., for both an issuer and a guarantor, this will trigger a flag of "1" found in the **Duplicate Debt** column. Please remove debts with a flag of "1" for you analysis, unless you have a specific reason not to do so.

The **Default Price** column contains the trading price of defaulted issue expressed as a percentage of par. For distressed exchanges, this is the price on the day of the exchange. For all others, this is the price 30 days post-default (or if unavailable, between 20 and 40 days post-default). However, these instruments can often be quite illiquid and may not have prices available. Blank prices should not be considered zeroes. Moody's Investor Services sources this data externally and makes no adjustments. This is the column used to calculate the recovery rates in the majority of our default research.

This piece of recovery data is separate from the ultimate recovery data housed in the **Recovery Tables** of the database. Please see the section entitled “Ultimate Recovery” for more information.

Issues that actually defaulted will show their specific date of default in the **Default Issue Date** field. If there is no date in that field, then that specific issue did not default during that period.

**Example:** Let’s return to the example of Ford as shown in the screenshot below. If we look in the Master Default Table and search for 22555 in the Master Issuer number, we will get a single period of default starting in April 2009 with a default number of 44495. Following that Default Number of 44495, we can see in the Default History Table that there were several incidents surrounding the main distressed exchange including announcements. Looking at this Default Number in the Default Issue Table, we can see all of the issues that were outstanding as of the Rating Agency Default **Datetime** field. Based on the fact that the Default Issue Date is populated for these debts, we can see that these all defaulted, and their associated default prices.

MAST_DFLT						
DEF_NUM	MAST_ISSR_N	RATING_AGENCY_DEF_DATETIME	DEF_TYP_CD	BANKRUPTC	BANKRUPT	
44495	22555	4/6/2009	Distressed exchange			
0	0					

DFLT_HIST					
DEF_HIST_N	DEF_NUM	DEF_DATETIME	RATING_AGI	SHORT_EVENT_DESC	Click to Add
58124	44495	4/6/2009	4/6/2009	Distressed exchange	
58125	44495	3/4/2009	3/4/2009	Exchange offer announced	
58126	44495	3/23/2009	3/23/2009	Exchange offer update	
58134	44495	3/27/2009	3/27/2009	Distressed exchange of its l	
0	0				

DFLT_ISSU							
MAST_ISSU	DEF_NUM	DEF_AMNT	EXCH_RATE	DEF_PRICE	DEF_ISSU_D	DEF_DEBT_S	IS
6969	44495	86.35	1	33	4/6/2009	Senior Unsecur	0
29450	44495	103.49	1	33.5	4/6/2009	Senior Unsecur	0
69181	44495	39.78	1	32	4/6/2009	Senior Unsecur	0
77233	44495	171.2	1	33	4/6/2009	Senior Unsecur	0
124758	44495	56.63	1	33	4/6/2009	Senior Unsecur	0
140320	44495	2200	1		4/6/2009	Senior Secured	0
160179	44495	92.09	1	34	4/6/2009	Senior Unsecur	0
161152	44495	231.92	1	33.25	4/6/2009	Senior Unsecur	0
165614	44495	6.97	1	26	4/6/2009	Senior Unsecur	0
214304	44495	87.75	1	7.05	4/6/2009	Preferred Stock	0

As described above, the **Default History Table** provides details about each default event during a given period of default. Each default event is assigned a **Default History Number** and can be grouped using the **Default Numbers** discussed above. The **DEF\_NUM** field includes a short description of the defaults (if available) and dates associated with it. This table can be useful in understanding the details around specific defaults, but please be aware that most calculations are based on default periods and not default events.

### RATINGS DATA

Most rating data in the DRD is contained in the tables that begin with “**SENR\_RATG\_**”, with individual debt ratings found in the **Debt Rating Table**. All ratings in the top three **Senior Ratings Tables** are Senior Unsecured or Equivalent ratings, which identifies the senior unsecured risk for an issuer based on the underlying debt structure. This is the rating used in the majority of our default research. For additional information on this issuer rating, [please refer to the Senior Unsecured or Equivalent methodology located at this link](#). In addition to the Issuer-level ratings, debt-level ratings are available in the **Senior Rating Loan Table**, **Senior-Most Table** and the **Debt Rating table**.

The table below outlines the categories of ratings available in the database. This database does not contain the bank financial strength ratings.

Table	Rating Type
Senior Rating Standard	Issuer-level rating. This is the Senior Unsecured or Equivalent, based on the full debt structure of the company. This table is the most frequently used table.
Senior Rating Loan Only	Issuer-level rating. This is the Senior Unsecured or Equivalent, based on only the loans outstanding within the debt structure of the company.
Senior Rating Bond Only	Issuer-level rating. This is the Senior Unsecured or Equivalent, based on only the bonds outstanding within the debt structure of the company.
Senior Rating Loan Senior-Most	Loan-level rating. This is the rating of the most senior loan for this issuer and is issue-level.
Debt Ratings	Issue-level rating. This contains long-term and short-term rating types.

In order to qualify for a Senior Unsecured Rating, the issuer needs to have certain meta characteristics and eligible rated debt history. These characteristics will rarely change (e.g., industry or type of company), but when they do, the issuer may no longer qualify for this type of rating at all. In these situations, the rating history will appear or disappear, from month to month, as the underlying data is updated. However, these changes do not materially impact the default, transition, or recovery calculations described in Moody's Investor Service Default Research studies.

**Example:** If there is a given entity classified as a finance company (with qualifying debt), it will have a Senior Unsecured or Equivalent Rating. However, if that company acquires several other companies and moves operations and assets out, it may be re-categorized as a holding company. Holding companies do not qualify for Senior Unsecured Ratings (subject to change without notice). In this case, that same entity would no longer qualify for a Senior Unsecured or Equivalent rating and would be removed entirely, including its history. This entity would then no longer be included in our default research, default rates, rating transitions, or Default & Recovery Database rating history.

Because the **Rating Standard**, **Loan Only**, and **Bond Only** tables are issuer-level tables, they are organized around the Master Issuer Number. You can see the start/expiration of the rating using the **Rating Date Time** and the **Rating Expiration Date**. If you search for a specific issuer, each rating change will be included as a separate row within the database, as you can see from Ford's rating history below.

SENR_RATG_STANDARD							
MAST_ISSR	RATG_DATE	EST_SENR_R	RATG_EXPIR	F	TERM_DATE	CENSOR	
22555	7/6/1961	Aaa	11/1/1976	0	4/6/2009	0	
22555	11/1/1976	Aaa	3/19/1980	0	4/6/2009	0	
22555	3/19/1980	Aa	3/30/1981	0	4/6/2009	0	
22555	3/30/1981	A	3/22/1982	0	4/6/2009	0	
22555	3/22/1982	Baa	4/26/1982	0	4/6/2009	0	
22555	4/26/1982	Baa2	11/9/1983	0	4/6/2009	0	
22555	11/9/1983	A3	12/17/1984	0	4/6/2009	0	
22555	12/17/1984	A1	4/1/1985	0	4/6/2009	0	
22555	4/1/1985	A1	4/1/1987	0	4/6/2009	0	
22555	4/1/1987	A1	5/5/1987	0	4/6/2009	0	
22555	5/5/1987	Aa2	1/15/1990	0	4/6/2009	0	
22555	1/15/1990	Aa2	10/24/1990	0	4/6/2009	0	
22555	10/24/1990	Aa3	2/11/1991	0	4/6/2009	0	
22555	2/11/1991	A2	7/15/1994	0	4/6/2009	0	
22555	7/15/1994	A2	3/10/1995	0	4/6/2009	0	
22555	3/10/1995	A1	4/14/2000	0	4/6/2009	0	
22555	4/14/2000	A2	10/18/2001	0	4/6/2009	0	
22555	10/18/2001	A3	1/16/2002	0	4/6/2009	0	
22555	1/16/2002	Baa1	5/12/2005	0	4/6/2009	0	
22555	5/12/2005	Baa3	8/24/2005	0	4/6/2009	0	
22555	8/24/2005	Ba1	1/11/2006	0	4/6/2009	0	
22555	1/11/2006	Ba3	4/1/2006	0	4/6/2009	0	
22555	4/1/2006	Ba3	7/14/2006	0	4/6/2009	0	
22555	7/14/2006	B2	9/19/2006	0	4/6/2009	0	
22555	9/19/2006	B3	11/27/2006	0	4/6/2009	0	
22555	11/27/2006	Caa1	11/7/2008	0	4/6/2009	0	
22555	11/7/2008	Caa2	12/22/2008	0	4/6/2009	0	
22555	12/22/2008	Ca	9/3/2009	0	4/6/2009	0	
22555	9/3/2009	Caa2	11/2/2009	1	4/6/2009	0	

It is possible that you will see what appear to be “duplicate” records; these are not confirmation of ratings, but instead should be ignored. In the above example, the first two lines could be read as “Ford was rated AAA from 7/6/1961 to 3/19/1980.”

There is a **Master Issuer Number** in this table which is the reference debt for that issuer’s Senior Unsecured or Equivalent Rating. We recommend against using this field in the **Senior Rating Standard Table**, as this information is not useful outside of Moody’s Analytics Default Research.

In addition to details about the issuer’s rating, these tables include information about when and if the issuer defaulted, allowing you to see what the rating changes were leading up to, during, and after default. Please note that issuers will not have a “D” or “Default” rating in the **Senior Ratings Table**. Instead, an issuer may maintain a rating while being in a period of default (usually Caa-C). Moody’s Investor Service will track defaults for a minimum of a year after withdrawal. In the Moody’s Investor Search Default Research methodology, a company that withdraws first and then subsequently defaults within a given cohort period will be counted as a default only in both transitions and default rates.

Defaults are denoted in the **Censor** and **Term Date** fields, but these fields do not correspond well with the rating movements and their dates. When **Censor** is 0, this indicates a company did in fact default, and the corresponding Term Date will indicate when. Again, this data does not align with the rating dates earlier in the table.

Status	Censor Flag	Term Date Meaning
Default	0	Date of Default.
Not Currently in a Period of Default	1	Last update of this company [This does NOT indicate Recovery Date]. Often aligns with date of withdrawal, or the last date the database was updated.

In the previous screenshot, Ford has a **Censor** flag of "0" (indicating default), which starts in the first row, during Ford's Aaa rating. However, this does not mean that Ford defaulted during its Aaa period. Instead, we must refer to the corresponding term date of April 9, 2009, which is the actual default date. Using the first few columns to find Ford's rating in early 2009, we can see that Ford was rated Ca at the time of default.

**Outlook** contains the issuer Outlooks historically. The Outlook, Censor and Term Data tables can all be joined to the **Master Issuer Table** using the **Master Issuer Number**. **Issuer Watchlist** contains the issuer-level watchlist information. The **Watch and Outlook History Table** is a compendium of these two tables. Joining these tables to the tables containing ratings may be tricky, since the dates do not necessarily align with rating actions.

#### ULTIMATE RECOVERY DATA

The five tables beginning with "Recovery" house ultimate recovery information. This data is a subset of the rest of the database and contains fully resolved large US defaults since 1989. There are a few instances in the database of defaulted companies that were technically private but were public filers (e.g., they disclosed their financials prior to and during the bankruptcy process). These five tables are a complete self-contained database, so some of these tables may have similar functions to other tables in the database. Included companies may be based outside of the United States but can only be included if they defaulted in the US (i.e., filed for bankruptcy in the US court system).

**Recovery Obligor** lists the issuers included in this data subset. **Recovery Event** shows the default periods associated with the obligor list. The latter table houses issuer event-level final recovery in the **Family Recovery** field. This is the dollar-weighted final recovery, discounted for lost interest, based on what was actually paid back to debt holders.

Please note that although many of these issuers/defaults can be found in the **Master Issuer/Master Default Tables** (by joining on the **Master Issuer/Master Default Numbers**), these recovery tables only refer to the largest of defaults, whereas the default tables are organized around the initial default. Therefore, these datasets may not align well.

There are also trading prices post-initial default in the **Default Issue Table**, which are used in the recovery calculations published in the Monthly/Annual Default Reports. For a paper analyzing the differences between the **Family Recovery** (in the **Recovery Event Table**) and the **Default Price** (from the **Default Issue Table**) please [click here](#).

Instrument-level final recovery is found in the **Recovery Instrument Table**, where you can also find the **Effective Interest Rate** of the debt as of the **Last Cash Paid**. Later in the table are a set of three fields all pertaining to how much money was recovered: **Nominal Settlement**, **Nominal Trading Price**, and **Nominal Liquidity**. These are three different sources: what the settlement was, what was recovered based on liquidation, and the trading price in the open market, respectively. This table also includes collateral types, which is defined using information from indentures/credit agreements/10-K and 10-Q forms or bankruptcy documents.

Each of these nominal fields has a sister discount field. These "Discount" fields contain the same data except discounted on a dollar basis for lost interest from the date of repayment back to **Last Cash Paid** using the **Effective Interest Rate**. We recommend selecting the type of recovery (for either Nominal or Discounted) based on the recommendation made in the **Discount Recommended** field.

The last column of the table identifies the **Type** of instrument (e.g., Revolver, Senior Unsecured Bond, or Term Loan).

#### OTHER TABLES

The remaining tables provide additional reference information to help you understand the data in the other tables or provide additional information about the issuers. The **Lookup Table** can translate codes in the database to text from fields ending with "\_cd." **Family Structure** tracks the corporate structure (i.e., parent and subsidiary relationships) from 2011. Please contact [DefaultResearch@moodys.com](mailto:DefaultResearch@moodys.com) if you have additional questions about the other tables included in the Default & Recovery Database.

#### How is the data updated?

Moody's Investors Service has a team of professionals dedicated to analyzing ratings data and understanding associated trends. This Default & Ratings Analytics (DRA) team produces much of the data in the DRD and uses the data to create the Monthly Default Report and the Annual Default Study – some of the most widely read documents published by Moody's Investors Service.

Each month, the DRA team uses financial news sources, trade publications, publicly filed documents, and Moody's Rating Analysts' insights to identify any defaults that have occurred and add them to the database. Where available, recovery pricing is sourced from external vendors and added to the database. Occasionally the researchers will identify new historical defaults or new information about historical defaults and will add this to the database, resulting in historical changes.

As described above, to enable researchers to compare issuers who may have different rating types, the Senior Rating Algorithm or Equivalent algorithm (SRA) is used to notch different Moody's Investors Service-assigned ratings up or down to create a comparable rating for every issuer. Because the algorithm constantly takes updated ratings into account, it is possible that individual issuer ratings change month-to-month and the notching changes accordingly. Because the entire history is recalculated based on these new notches, this can impact both the most recent rating as well as the history. However, these changes do not materially impact the default, transition, or recovery calculations described in Moody's Investor Service default research studies. For additional information on this algorithm, please refer to the Senior Unsecured or Equivalent algorithm methodology located [here](#).

For issuer information, the primary source is the official registered debt documentation, whether included within an offering Memorandum, Term Sheet, Base Prospectus, or Pricing Support. This information is collected by the Moody's Investor Service rating organization from commercially available data, or directly from Electronic Data Gathering, Analysis and Retrieval (EDGAR) system. Third-party sources are utilized as a resource, as well, for both data entry and data updates. Occasionally, the researcher will have more detailed or up-to-date knowledge on a default and will add this to the database. A separate, internal verifier reviews these entries and makes updates.

As mentioned above, the DRD data is collected by a dedicated team of specialists within Moody's Investors Service and supplemented by third-party data. This data is used extensively within Moody's Investors Service

for high-profile, recurring research studies as well as ad hoc studies. As a result, the data is continually scrutinized. The team reviews the data for overlapping defaults or unauthorized default reentry, scan for any debts with default dates before issuer defaults, and checks for duplicates. In addition to this, a manual review of the data is performed before it is finalized.

Controls are in place to minimize the potential for incorrect data or violations of business rules in the DRD. Every month, a series of automated and manual validation checks are performed in our monthly data refresh process against the constraints defined within the Technical Specifications available [here](#).

1. We make sure each new default event has been confirmed by the DRD Team
2. We validate any new defaulters with the DRD Team
3. We confirm that the rating tables are updated every month (up to the most recent business day)
4. We validate any new or removed issuers in the rating tables
5. We ensure that there are no instances of duplicate Master Keys throughout the database
6. We update the taxonomy for Industries/Countries, as needed
7. We make sure every Issuer in default has at least one defaulted issue (i.e., has an issue with a default issue date).
8. We ensure that there are no sales dates that occur after the maturity date for a security
9. We ensure that the Rating Outlook dates do not overlap

A second manual review of the data is performed by a separate team prior to the data being processed and posted as part of the monthly refresh.

Please note that due to the size of the database and the historical nature of the data, corrections are occasionally made to the data on an ongoing basis. Accordingly, new validation checks are also added to prevent similar issues from occurring in the future. Please note that because the database covers approximately 100 years of market history, there may be occurrences of blank fields where the data is not available.

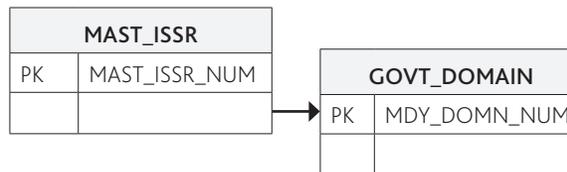
## APPENDIX I: Coverage Analyses

In this section of the user guide, we will provide guidance on how to use the database to analyze coverage across geography and market segments within the DRD. Please note that industry analysis is based on Moody's 11 and 35; these are the market segments used in the Monthly Default Report. Moody's 11 provides the highest level of industry classification, while Moody's 35 provides more granular industry classification. Please click [here](#) for a description of the Moody's 35 Industry Codes.

### ISSUER COVERAGE

#### By Geography

Required Tables: **Govt\_Domain**, **Mast\_Issr**



- » Join the **Government Domain Table (GOVT\_DOMAIN)** to the **Master Issuer Table (MAST\_ISSR)** using the **Moody's Domain Number (MDY\_DOMN\_NUM)**
- » To organize the data by country, use the **Domain Name (DOMN\_NAM)** and count the number of **Moody's Issuer Numbers (MAST\_ISSR\_NUM)**
- » To organize the data by region, use the **Region Code (REGN\_CD)** and count the number of **Moody's Issuer Numbers (MAST\_ISSR\_NUM)**

*Country Access Query:*

```
SELECT GOVT_DOMAIN.DOMN_NAM, Count (MAST_ISSR.MAST_ISSR_NUM) AS CountOfMAST_ISSR_NUM
FROM GOVT_DOMAIN INNER JOIN MAST_ISSR ON GOVT_DOMAIN.MDY_DOMN_NUM = MAST_ISSR.MDY_
DOMN_NUM
GROUP BY GOVT_DOMAIN.DOMN_NAM
ORDER BY Count (MAST_ISSR.MAST_ISSR_NUM) DESC;
```

*Region Access Query:*

```
SELECT GOVT_DOMAIN.REGN_CD, Count (MAST_ISSR.MAST_ISSR_NUM) AS CountOfMAST_ISSR_NUM
FROM GOVT_DOMAIN INNER JOIN MAST_ISSR ON GOVT_DOMAIN.MDY_DOMN_NUM = MAST_ISSR.MDY_
DOMN_NUM
GROUP BY GOVT_DOMAIN.REGN_CD
ORDER BY Count (MAST_ISSR.MAST_ISSR_NUM) DESC;
```

#### By Industry

Required Table: **Master Issuer**

MAST_ISSR	
PK	MAST_ISSR_NUM

- » Within the **Master Issuer (MAST\_ISSR)** Table select Moody's 35 (**MOODYS\_35\_CODE**), which is the industry segmentation that Moody's uses in the Default Research, reporting and **Master Issuer Number (MAST\_ISSR\_NUM)** fields

- » To create counts by Moody's 11 rather than Moody's 35, change **Specific Industry Classification (MOODYS\_35\_CODE)** to **Broad Industry Classification (MOODYS\_11\_CODE)**

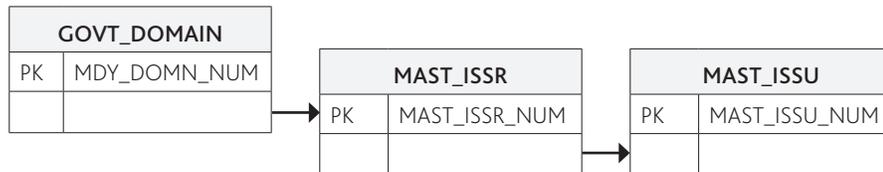
Access Query (for Moody's 35):

```
SELECT MAST_ISSR.MOODYS_35_CODE, Count(MAST_ISSR.MAST_ISSR_NUM) AS CountOfMAST_ISSR_NUM
FROM MAST_ISSR
GROUP BY MAST_ISSR.MOODYS_35_CODE;
```

## ISSUE COVERAGE

### By Geography

Required Tables: Govt\_Domain, Mast\_Issr, Mast\_Issu



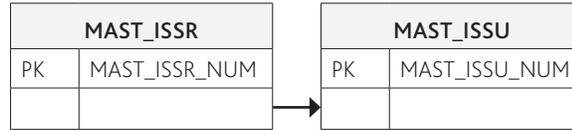
- » Join the **Government Domain Table (GOVT\_DOMAIN)** to the **Master Issuer Table (MAST\_ISSR)** using the **Moody's Domain Number (MDY\_DOMN\_NUM)**
- » Join the **Master Issuer Table (MAST\_ISSR)** Table to the **Master Issue Table (MAST\_ISSU)** using the **Master Issuer Number (MAST\_ISSR\_NUM)**
- » To organize data by region, use **Moody's Issue Number (MAST\_ISSU\_NUM)** and **Region Code (REGN\_CD)**
- » To organize data by country, use **Domain Name (DOMN\_NAM)**, **Moody's Issue Number (MAST\_ISSU\_NUM)** and **Region Code (REGN\_CD)**

Region Access Query:

```
SELECT GOVT_DOMAIN.DOMN_NAM, Count(MAST_ISSU.MAST_ISSU_NUM) AS CountOfMAST_ISSU_NUM
FROM GOVT_DOMAIN INNER JOIN (MAST_ISSR INNER JOIN MAST_ISSU ON MAST_ISSR.MAST_ISSR_NUM = MAST_ISSU.MAST_ISSR_NUM) ON GOVT_DOMAIN.MDY_DOMN_NUM = MAST_ISSR.MDY_DOMN_NUM
GROUP BY GOVT_DOMAIN.REGN_CD, GOVT_DOMAIN.DOMN_NAM
HAVING (((GOVT_DOMAIN.REGN_CD)="AMR"))
ORDER BY Count(MAST_ISSU.MAST_ISSU_NUM) DESC;
```

Country Access Query:

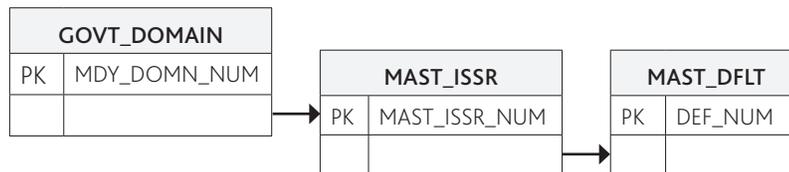
```
SELECT GOVT_DOMAIN.REGN_CD, Count(MAST_ISSU.MAST_ISSU_NUM) AS CountOfMAST_ISSU_NUM
FROM GOVT_DOMAIN INNER JOIN (MAST_ISSR INNER JOIN MAST_ISSU ON MAST_ISSR.MAST_ISSR_NUM = MAST_ISSU.MAST_ISSR_NUM) ON GOVT_DOMAIN.MDY_DOMN_NUM = MAST_ISSR.MDY_DOMN_NUM
GROUP BY GOVT_DOMAIN.REGN_CD
ORDER BY Count(MAST_ISSU.MAST_ISSU_NUM) DESC;
```

*By Industry*Required Tables: **Master Issuer, Master Issue**

- » Within the **Issuer Master (MAST\_ISSR)** and **Issue Master (MAST\_ISSU)** Table select **Specific Industry Classification (MOODYS\_35\_CODE)** field on **Issuer Master (MAST\_ISSR)** table and Issue Master (MAST\_ISSU\_NUM) field on Issue Master (MAST\_ISSU) table.
- » To create counts by Moody's 11 rather than Moody's 35, change **Specific Industry Classification (MOODYS\_35\_CODE)** to **Specific Industry Classification (MOODYS\_11\_CODE)** on the **Issuer Master (MAST\_ISSR)** Table.

Access Query (by Moodys' 35):

```
SELECT MAST_ISSR.MOODYS_35_CODE, Count(MAST_ISSU.MAST_ISSU_NUM) AS CountOfMAST_ISSU_NUM
FROM MAST_ISSR INNER JOIN MAST_ISSU ON MAST_ISSR.MAST_ISSR_NUM = MAST_ISSU.MAST_ISSR_NUM
GROUP BY MAST_ISSR.MOODYS_35_CODE
ORDER BY Count(MAST_ISSU.MAST_ISSU_NUM) DESC;
```

**DEFAULT COVERAGE***By Geography*Required Tables: **Govt\_Domain, Mast\_Issr, Mast\_DFLT**

- » Join the **Government Table (GOVT\_DOMAIN)** to the **Master Issuer Table (MAST\_ISSR)** Table using the **Moody's Domain Number (MDY\_DOMN\_NUM)**
- » Join the **Master Issuer Table (MAST\_ISSR)** to the **Master Default Table (MAST\_DFLT)** using the **Master Issuer Number (MAST\_ISSR\_NUM)**
- » To organize by country, select **Domain Name (DOMN\_NAM)** and count number of **Default Number (DEF\_NUM)**
- » To organize by region, select **Region Code (REGN\_CD)** and count number of **Default Number (DEF\_NUM)**

Access Query:

```
SELECT GOVT_DOMAIN.DOMN_NAM, Count(MAST_DFLT.DEF_NUM) AS CountOfDEF_NUM
FROM GOVT_DOMAIN INNER JOIN (MAST_ISSR INNER JOIN MAST_DFLT ON MAST_ISSR.MAST_ISSR_NUM =
MAST_DFLT.MAST_ISSR_NUM) ON GOVT_DOMAIN.MDY_DOMN_NUM = MAST_ISSR.MDY_DOMN_NUM
GROUP BY GOVT_DOMAIN.DOMN_NAM
ORDER BY Count(MAST_DFLT.DEF_NUM) DESC;
```

Access Query (for Region):

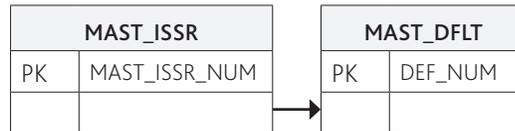
```
SELECT GOVT_DOMAIN.DOMN_NAM, Count(MAST_DFLT.DEF_NUM) AS CountOfDEF_NUM
FROM (GOVT_DOMAIN INNER JOIN MAST_ISSR ON GOVT_DOMAIN.MDY_DOMN_NUM = MAST_ISSR.MDY_
DOMN_NUM) INNER JOIN MAST_DFLT ON MAST_ISSR.MAST_ISSR_NUM = MAST_DFLT.MAST_ISSR_NUM
```

```
GROUP BY GOVT_DOMAIN.DOMN_NAM, GOVT_DOMAIN.REGN_CD
HAVING (((GOVT_DOMAIN.REGN_CD)="EUR"))
ORDER BY Count(MAST_DFLT.DEF_NUM) DESC;
```

To change the region in this query replace EUR with ASA, AMR, ME AFR, or UNK.

### By Industry

Required Tables: **Master Issuer, Master Defaults**



- » Join the **Master Issuer Table (MAST\_ISSR)** with the **Master Default Table (MAST\_DFLT)** using the **Master Issuer Number (MAST\_ISSR\_NUM)** field. Thereafter, select **Specific Industry Classification (MOODYS\_35\_CODE)** field on **Issuer Master (MAST\_ISSR)** table and **Issue Master (MAST\_ISSU\_NUM)** field on **Issue Master (MAST\_ISSU)** table.
- » To create counts by Moody's 11 rather than Moody's 35, change **Specific Industry Classification (MOODYS\_35\_CODE)** to **Specific Industry Classification (MOODYS\_11\_CODE)** on the **Issuer Master (MAST\_ISSR)** Table.

Access Query (for Moody's 35):

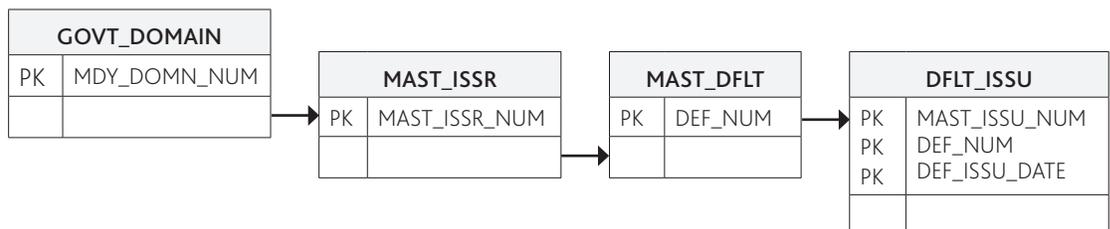
```
SELECT MAST_ISSR.MOODYS_35_CODE, Count(MAST_DFLT.MAST_ISSR_NUM) AS CountOfMAST_ISSR_NUM
FROM MAST_ISSR INNER JOIN MAST_DFLT ON MAST_ISSR.MAST_ISSR_NUM = MAST_DFLT.MAST_ISSR_NUM
GROUP BY MAST_ISSR.MOODYS_35_CODE;
```

To create counts by Moody's 11 rather than Moody's 35, change **Specific Industry Classification (MOODYS\_35\_CODE)** to **Specific Industry Classification (MOODYS\_11\_CODE)**.

## RECOVERY PRICE COVERAGE

### By Domain

Required Tables: **Govt\_Domain, Mast\_Issr, Mast\_DFLT, DFLT\_ISSU**



- » Join the **Government Domain Table (GOVT\_DOMAIN)** to the **Master Issuer Table (MAST\_ISSR)** using **MDY\_DOMN\_NUM**
- » Join the **Master Issuer Table (MAST\_ISSR)** to the **Master Default Table (MAST\_DFLT)** using **MAST\_ISSR\_NUM**
- » Join the **Master Default Table (MAST\_DFLT)** to the **Default Issue Table (DFLT\_ISSU)** Table using **Default Number**
- » Filter out blanks in the Default Issue Date field in the Default Issue Table to remove any issues that did not default
- » Only allow "0" in the Duplicate Debt Flag field in the Default Issue Table to remove duplicate debts

- » To summarize by country, group by the **Domain Name (DOMN\_NAM)** and count the number of **Default Price (DEF\_PRICE)**
- » To summarize by region, group by **Region Code (REGN\_CD)** and count the number of **Default Price (DEF\_PRICE)**

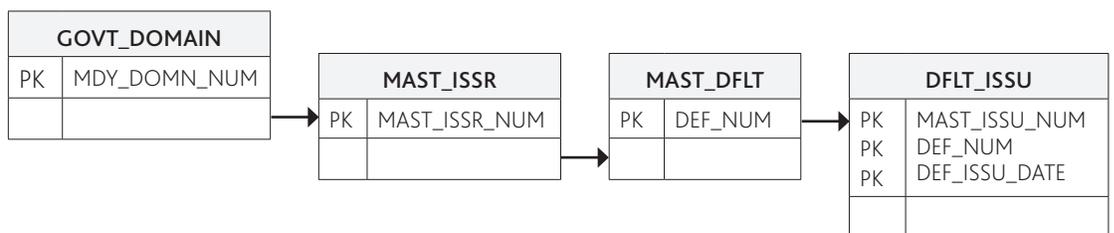
Access Query:

```
SELECT GOVT_DOMAIN.DOMN_NAM, Count(DFLT_ISSU.DEF_PRICE) AS CountOfDEF_PRICE
FROM (GOVT_DOMAIN INNER JOIN (MAST_ISSR INNER JOIN MAST_DFLT ON MAST_ISSR.MAST_ISSR_NUM
= MAST_DFLT.MAST_ISSR_NUM) ON GOVT_DOMAIN.MDY_DOMN_NUM = MAST_ISSR.MDY_DOMN_NUM)
INNER JOIN DFLT_ISSU ON MAST_DFLT.DEF_NUM = DFLT_ISSU.DEF_NUM
GROUP BY GOVT_DOMAIN.DOMN_NAM, GOVT_DOMAIN.REGN_CD
HAVING (((GOVT_DOMAIN.REGN_CD)="EUR"))
ORDER BY Count(DFLT_ISSU.DEF_PRICE) DESC
```

To change the region, specify the region codes: ASA, AMR, ME, AFR, UNK;

#### By Industry

Required Tables: **Govt\_Domain**, **Master\_Issr**, **Master\_DFLT**, **DFLT\_ISSU**



- » Join the **Government Domain Table (GOVT\_DOMAIN)** with the **Master Issuer Table (MAST\_ISSR)** using **MDY\_DOMN\_NUM**
- » Join the **Master Issuer Table (MAST\_ISSR)** to the **Master Default Table (MAST\_DFLT)** using **MAST\_ISSR\_NUM**
- » Join the **Master Default Table (MAST\_DFLT)** to the **Default Issue Table (DFLT\_ISSU)** Table using **Default Number**
- » Thereafter, select **Specific Industry Classification (MOODYS\_35\_CODE)** field on **Issuer Master (MAST\_ISSR)** table, select **Default Price (DEF\_PRICE)** field on **Default Issue Table (DFLT\_ISSU)** and select **Domain Name (DOMN\_NAM)** field on **Government Domain (GOVT\_DOMAIN)** table.
- » To create counts by Moody's 11 rather than Moody's 35, change **Specific Industry Classification (MOODYS\_35\_CODE)** to **Specific Industry Classification (MOODYS\_11\_CODE)** on the **Issuer Master (MAST\_ISSR)** Table.

Access Query (for Moody's 35):

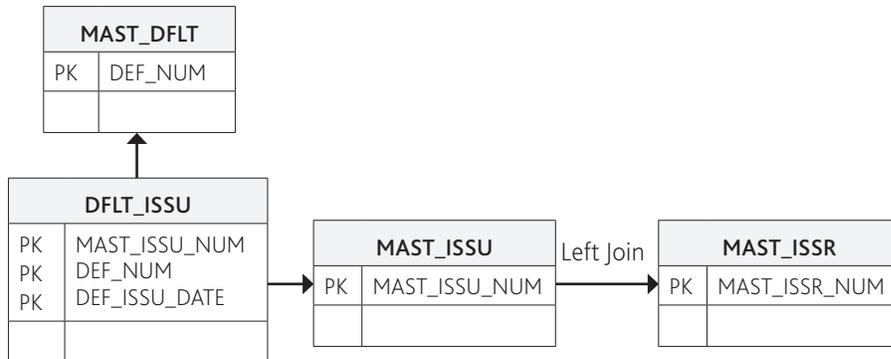
```
SELECT Count(DFLT_ISSU.DEF_PRICE) AS CountOfDEF_PRICE, MAST_ISSR.MOODYS_35_CODE, GOVT_
DOMAIN.DOMN_NAM
FROM ((GOVT_DOMAIN INNER JOIN MAST_ISSR ON GOVT_DOMAIN.MDY_DOMN_NUM = MAST_ISSR.MDY_
DOMN_NUM) INNER JOIN MAST_DFLT ON MAST_ISSR.MAST_ISSR_NUM = MAST_DFLT.MAST_ISSR_NUM)
INNER JOIN DFLT_ISSU ON MAST_DFLT.DEF_NUM = DFLT_ISSU.DEF_NUM
GROUP BY MAST_ISSR.MOODYS_35_CODE, GOVT_DOMAIN.DOMN_NAM
ORDER BY Count(DFLT_ISSU.DEF_PRICE) DESC;
```

## APPENDIX II: Recovery Rates for Loans and Bonds

Corporate Bond and Loan Recoveries provide historical annual average recovery rates of senior secured, unsecured, and subordinated bonds and loans. The underlying data uses the 30-day trading price (trading price of defaulted debt) expressed as a percentage of par. Calculations at the issue level help with historical annual recovery rates for bonds and loans.

This analysis looks at bonds and loans independently before computing the average recovery ratings for senior secured, unsecured, and subordinated debts.

Required Tables: **Default Issuer, Master Issue, Master Issuer & Mast Default**



Note: Mast\_Issu must be "left joined" to Mast\_Issr

- » Join the **Default Issue Table (DFLT\_ISSU)** to the **Master Issue Table (MAST\_ISSU)** using *MAST\_ISSU\_NUM*
- » Join the **Default Issue Table (DFLT\_ISSU)** to the **Master Default Table (MAST\_DFLT)** using *DEF\_NUM*
- » Join the **Master Issue Table (MAST\_ISSU)** to the **Master Issuer Table (MAST\_ISSR)** using the *MAST\_ISSR\_NUM*

The below rules should be applied before calculating recovery rates for **bonds and loans**:

- » Exclude "Sub-Sovereign," "Sovereign," "Structured Finance," and "Municipal" within the **MDY\_IND\_BRD\_CD** field in the **Master Issuer Table (MAST\_ISSR)**
- » Exclude "Grace Period Defaults and Cross Default" within the **DEF\_TYP\_CD** field in the **Master Default Table (MAST\_DFLT)**.
- » Exclude 'Equipment Trust', 'Senior Secured: Third Lien', 'IRB', 'Jr. Equip. Trust' in the **DEF\_DEBT\_SENR** field in the **Default Issue Table (DFLT\_ISSU)**.
- » Set IS\_DUP\_DEBT <> '1' on **DFLT\_ISSU Table** to remove duplicated debts.
- » Include "CLN," "CON," "EET," "EETC," "EQT," "FMB," "IRB," "REG," "SLB," "SPN," and "LTPD" in the **DEBT\_CLASS\_CD** field in the **DFLT\_ISSU Table**. For additional details, please see the [Appendix III: Debt Class Code Descriptions](#).
- » Include "BL" and "BCF" within the **DEBT\_CLASS\_CD** field in the **DFLT\_ISSU Table**. For additional details, please see the [Appendix III: Debt Class Code Descriptions](#).

Calculations:

- » Group by **YEAR(DEF\_ISSU\_DATE)**, **DEF\_DEBT\_SENR** and **DEF\_NUM**, and average all **DEF\_PRICE**. This will yield the average recovery rate per year by seniority per default event.

- » Group results again by YEAR(DEF\_ISSU\_DATE) and DEF\_DEBT\_SENR, and average all DEF\_PRICES. Double averaging will skew the results since there are some default events with many debts with the same default date.

Note: Loan prices are missing for some debts due to the proprietary nature of some of our recovery price sources. As a result, recovery rates may not exactly match the Monthly Default Report.

#### RECOVERY RATE ACCESS QUERY

**Step 1 : Run the below query and save as "Debt seniorities".**

```
SELECT DFLT_ISSU.DEF_NUM, GOVT_DOMAIN.REGN_CD, IIF([DFLT_ISSU].[DEF_DEBT_SENR]="Senior Secured","Senior Secured:First Lien",[DFLT_ISSU].[DEF_DEBT_SENR]) AS Debt_Seniority, Year([DEF_ISSU_DATE]) AS YEAR_ISSU_DATE, Avg(DFLT_ISSU.DEF_PRICE) AS AvgOfDEF_PRICE

FROM MAST_DFLT INNER JOIN ((GOVT_DOMAIN RIGHT JOIN MAST_ISSR ON GOVT_DOMAIN.MDY_DOMN_NUM = MAST_ISSR.MDY_DOMN_NUM) INNER JOIN (MAST_ISSU INNER JOIN DFLT_ISSU ON MAST_ISSU.MAST_ISSU_NUM = DFLT_ISSU.MAST_ISSU_NUM) ON MAST_ISSR.MAST_ISSR_NUM = MAST_ISSU.MAST_ISSR_NUM) ON (MAST_DFLT.DEF_NUM = DFLT_ISSU.DEF_NUM) AND (MAST_DFLT.MAST_ISSR_NUM = MAST_ISSR.MAST_ISSR_NUM)

WHERE (((MAST_DFLT.DEF_TYP_CD) Not In ("grace period default","cross default")) AND ((DFLT_ISSU.DEF_ISSU_DATE) Is Not Null) AND ((MAST_ISSR.MDY_IND_BRD_CD) Not In ("MUNICIPAL","SOVEREIGN","STRUCTURED FINANCE","SUB-SOVEREIGN")) AND ((DFLT_ISSU.IS_DUP_DEBT)<>"1") AND ((MAST_ISSU.DEBT_CLASS_CD) In ("CLN","CON","EET","EQT","FMB","IRB","REG","SLB","SPN","LTPD")) AND ((DFLT_ISSU.DEF_DEBT_SENR) Is Not Null And (DFLT_ISSU.DEF_DEBT_SENR) Not In ("Equipment Trust","Senior Secured:Third Lien","IRB","Jr. Equip. Trust")) AND ((DFLT_ISSU.DEF_PRICE) Is Not Null))

GROUP BY DFLT_ISSU.DEF_NUM, GOVT_DOMAIN.REGN_CD, IIF([DFLT_ISSU].[DEF_DEBT_SENR]="Senior Secured","Senior Secured:First Lien",[DFLT_ISSU].[DEF_DEBT_SENR]), Year([DEF_ISSU_DATE]);
```

**Step 2 : Run the below query against the above "Debt seniorities" query:**

```
SELECT [Debt seniorities].YEAR_ISSU_DATE, [Debt seniorities].Debt_Seniority, [Debt seniorities].REGN_CD, Avg([Debt seniorities].AvgOfDEF_PRICE) AS AvgOfAvgOfDEF_PRICE, Count([Debt seniorities].DEF_NUM) AS CountOfDEF_NUM

FROM [Debt seniorities]

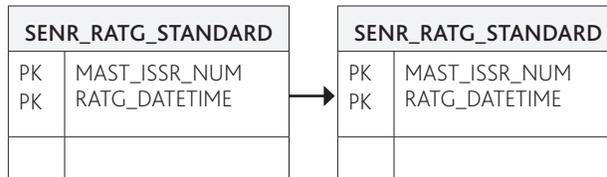
GROUP BY [Debt seniorities].YEAR_ISSU_DATE, [Debt seniorities].Debt_Seniority, [Debt seniorities].REGN_CD

ORDER BY [Debt seniorities].YEAR_ISSU_DATE, [Debt seniorities].Debt_Seniority, [Debt seniorities].REGN_CD;
```

#### APPENDIX III: Rating Transition Matrix

Rating Transition Matrixes show rating movements for groups of issuers sorted by their starting rating and revealing if they upgraded, downgraded, remained at the same rating, defaulted, or withdrew during a cohort period. The left column of this query will show the starting rating, the top row shows the ending rating, and the contents of the table count the issuers that fit those two categories.

Required Tables: SENR\_RATG\_STANDARD & SENR\_RATG\_STANDARD



- » Join the **SENIOR RATING STANDARD (SENR\_RATG\_STANDARD)** to another copy of the **SENIOR RATING STANDARD (SENR\_RATG\_STANDARD\_1)** using *MAST\_ISSR\_NUM*

The below steps should be followed to accurately calculate rating transitions:

- » Determine your cohort start and end dates. For example, a 2015 transition matrix start date will be January 1, 2015, and the end date will be December 31, 2015.
- » Identify a set of issuers with a rating outstanding at the start date (i.e., Jan. 1, 2015) using the Senior Rating Standard Table **SENIOR RATING STANDARD (SENR\_RATG\_STANDARD)**.

Tip: Defining this group requires identifying issuers whose rating start date is before our cohort start date (i.e., Rating Date Time <= Jan 1, 2015) and the rating end date is after the cohort start date (i.e., Rating Expire Date Time > Jan 1, 2015).

Note: Groups of issuers (the cohort) cannot contain issuers that are already withdrawn (Cenor = 1 and Term Date >= Cohort Start Date and <= Cohort End Date) nor that are already in a period of default (Term Date >= cohort start date).

- » Identify the ending rating for this group of issuers by using another copy of the **Senior Rating Standard Table (Senior Rating Standard 1)**, then removing defaulters (defaults are always counted first) by finding Censors of 0, where Term Date is between the cohort start and end dates.

Secondly, identify withdrawn companies by finding Censors of 1 where Term Date is between the start and end dates.

Tip: Remember each entity can only be counted once; defaults are always counted first, and withdrawals are always second, regardless of ending rating status.

Lastly, sort the remaining companies by their rating as of the end date of the cohort (i.e., December 31, 2015) after defaults and withdrawals are accounted for.

Note: Rating movements in between the start and end dates are not captured, but defaults and withdrawals are captured.

- » Group the ratings into letter buckets, or sort by rating rank instead of alphabetically. Tip: This extra steps can make the results easier to interpret.

### Transition Matrix Access Query for 2015

```

TRANSFORM Count(SENR_RATG_STANDARD.MAST_ISSR_NUM) AS CountOfMAST_ISSR_NUM

SELECT IIf([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT ] Like "AAA*","AAA",IIf([SENR_RATG_
STANDARD].[EST_SENR_RTG_TXT ] Like "AA*","AA",IIf([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT
] Like "A*","A",IIf([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT ] Like "Baa*","Baa",IIf([SENR_RATG_
STANDARD].[EST_SENR_RTG_TXT ] Like "Ba*","Ba",IIf([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT ] Like
"B*","B",IIf([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT ] Like "Caa*","Caa",[SENR_RATG_STANDARD].
[EST_SENR_RTG_TXT ])))))) AS Rating

FROM (SENR_RATG_STANDARD INNER JOIN SENR_RATG_STANDARD AS SENR_RATG_STANDARD_1 ON

```

```
SENR_RATG_STANDARD.MAST_ISSR_NUM = SENR_RATG_STANDARD_1.MAST_ISSR_NUM) INNER JOIN
MAST_ISSR ON SENR_RATG_STANDARD_1.MAST_ISSR_NUM = MAST_ISSR.MAST_ISSR_NUM
```

```
WHERE (((Iif([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT ] Like "AAA*","AAA",Iif([SENR_RATG_
STANDARD].[EST_SENR_RTG_TXT ] Like "AA*","AA",Iif([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT
] Like "A*","A",Iif([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT ] Like "Baa*","Baa",Iif([SENR_RATG_
STANDARD].[EST_SENR_RTG_TXT ] Like "Ba*","Ba",Iif([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT
] Like "B*","B",Iif([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT ] Like "Caa*","Caa",[SENR_RATG_
STANDARD].[EST_SENR_RTG_TXT ]))))))<>"WR") AND (((SENR_RATG_STANDARD).[TERM_
DATETIME]-#1/1/2015#)>=0) AND ((SENR_RATG_STANDARD.RATG_DATETIME)<=#1/1/2015#) AND
((SENR_RATG_STANDARD.RATG_EXPIRE_DATETIME)>#1/1/2015# Or (SENR_RATG_STANDARD.RATG_
EXPIRE_DATETIME) Is Null) AND ((SENR_RATG_STANDARD_1.RATG_DATETIME)<=#12/31/2015#) AND
((SENR_RATG_STANDARD_1.RATG_EXPIRE_DATETIME)>#12/31/2015# Or (SENR_RATG_STANDARD_1.
RATG_EXPIRE_DATETIME) Is Null)) OR (((Iif([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT ] Like
"AAA*","AAA",Iif([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT ] Like "AA*","AA",Iif([SENR_RATG_
STANDARD].[EST_SENR_RTG_TXT ] Like "A*","A",Iif([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT
] Like "Baa*","Baa",Iif([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT ] Like "Ba*","Ba",Iif([SENR_
RATG_STANDARD].[EST_SENR_RTG_TXT ] Like "B*","B",Iif([SENR_RATG_STANDARD].[EST_SENR_
RTG_TXT ] Like "Caa*","Caa",[SENR_RATG_STANDARD].[EST_SENR_RTG_TXT ]))))))<>"WR") AND
(((SENR_RATG_STANDARD).[TERM_DATETIME]-#1/1/2015#)>=0) AND ((SENR_RATG_STANDARD.
RATG_DATETIME)<=#1/1/2015#) AND ((SENR_RATG_STANDARD.RATG_EXPIRE_DATETIME)>#1/1/2015#
Or (SENR_RATG_STANDARD.RATG_EXPIRE_DATETIME) Is Null) AND ((SENR_RATG_STANDARD_1.RATG_
DATETIME)<=#12/31/2015#) AND ((SENR_RATG_STANDARD_1.RATG_EXPIRE_DATETIME)>#12/31/2015#
Or (SENR_RATG_STANDARD_1.RATG_EXPIRE_DATETIME) Is Null))
```

```
GROUP BY Iif([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT ] Like "AAA*","AAA",Iif([SENR_RATG_
STANDARD].[EST_SENR_RTG_TXT ] Like "AA*","AA",Iif([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT
] Like "A*","A",Iif([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT ] Like "Baa*","Baa",Iif([SENR_RATG_
STANDARD].[EST_SENR_RTG_TXT ] Like "Ba*","Ba",Iif([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT ] Like
"B*","B",Iif([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT ] Like "Caa*","Caa",[SENR_RATG_STANDARD].
[EST_SENR_RTG_TXT ]))))))
```

```
ORDER BY Iif([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT ] Like "AAA*","AAA",Iif([SENR_RATG_
STANDARD].[EST_SENR_RTG_TXT ] Like "AA*","AA",Iif([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT
] Like "A*","A",Iif([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT ] Like "Baa*","Baa",Iif([SENR_RATG_
STANDARD].[EST_SENR_RTG_TXT ] Like "Ba*","Ba",Iif([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT ] Like
"B*","B",Iif([SENR_RATG_STANDARD].[EST_SENR_RTG_TXT ] Like "Caa*","Caa",[SENR_RATG_STANDARD].
[EST_SENR_RTG_TXT ]))))))
```

```
PIVOT Iif([SENR_RATG_STANDARD].[CENSOR]=0 And [SENR_RATG_STANDARD].[TERM_DATETIME]<=Dat
eAdd("yyyy",1,#1/1/2015#)-1,"D",Iif([SENR_RATG_STANDARD].[CENSOR]=1 And [SENR_RATG_STANDARD].
[TERM_DATETIME]<>[SENR_RATG_STANDARD_1].[TERM_DATETIME],"WR",Iif([SENR_RATG_STANDARD_1].
[EST_SENR_RTG_TXT ] Like "AAA*","AAA",Iif([SENR_RATG_STANDARD_1].[EST_SENR_RTG_TXT]
Like "AA*","AA",Iif([SENR_RATG_STANDARD_1].[EST_SENR_RTG_TXT] Like "A*","A",Iif([SENR_RATG_
STANDARD_1].[EST_SENR_RTG_TXT] Like "Baa*","Baa",Iif([SENR_RATG_STANDARD_1].[EST_SENR_RTG_
TXT] Like "Ba*","Ba",Iif([SENR_RATG_STANDARD_1].[EST_SENR_RTG_TXT] Like "B*","B",Iif([SENR_RATG_
STANDARD_1].[EST_SENR_RTG_TXT] Like "Caa*","Caa",[SENR_RATG_STANDARD_1].[EST_SENR_RTG_TXT
]))))))));
```

## APPENDIX IV: Debt Class Codes Descriptions

Debt Class Code	Debt Class	Description
CON	Convertible/Exchange/Debenture	A bond that can be exchanged into equity of the company.
CP	Commercial Paper	A short-term obligation that is issued usually for financing/liquidity purposes.
EQT	Equipment Trust	A debt obligation that is backed by a physical asset/equipment, such as an airplane used as collateral.
FMB	First Mortgage Bond	A debt obligation that is backed by an underlying mortgage.
IRB	Industrial Revenue Bond	A debt obligation that will be repaid using revenue from a particular project that it funded.
PAS	Pass-Through Certificate	A debt backed by an underlying pool of asset that "pass" through money as it is generated to pay off the debt.
PFS/PRF	Preferred Stock	A piece of equity that usually pays a dividend and is higher than common stock.
REG	Regular Bond	A regular bond with no special features or hybrid characteristics.
SLB	Secured Lease Obligation Bond	A debt obligation that is backed by an underlying lease.
SPN	Surplus Notes	Subordinated bonds that are issued by an insurance company.

## APPENDIX V: Debt Class Codes via Text

FIELD_CD	FIELD_TXT
CLN	Collateralized Note
CON	Conv./Exch. Bond/Debenture
EET	Enhanced Equipment Trust
EETC	Enhanced Equipment Trust Certificate
EQT	Equipment Trust
FMB	First Mortgage Bonds
IRB	Revenue Bonds
LTPD	Long-Term Public Debt (bonds)
REG	Regular Bond/Debenture
SLB	Sec. Lease Obligation Bond
SPN	Surplus Notes
BL	Bank Loan
BCF	Bank Credit Facility

## Glossary

This table outlines the descriptions of some DRD terms used in this user guide. Precise definitions have been included for related terms and concepts or data points to help users better understand and implement the data points in their research. Please see the [Moody's Analytics Technical Specifications](#) for more details.

Terms	Definitions 2.0
<b>Issuer</b>	A legal entity that issues debt, such as a government or company, listed in the Master Issuer table.
<b>Issue</b>	A debt, such as a bond or a loan; details listed in the Master Issue table.
<b>Rating</b>	For the purposes of this database, there are two types of Moody's Investors Service ratings: debt-specific and issuer-specific senior unsecured. For details on the issuer rating, please <a href="#">click here</a> .
<b>Ultimate Recovery</b>	The amount, expressed as a percentage, of what was actually (ultimately) paid back to debt holders, available both nominally and discounted for lost interest. This data, contained in the tables beginning with "Recovery_," is a subset of the rest of the database, and these tables house information on US large public defaulters with \$50 million or more in debt outstanding at the time of default.
<b>Master Issuer Table</b>	Stores descriptive details of each issuer in the data set.
<b>Master Issuer Number</b>	Number representing the unique identifier for each issuer in the database.
<b>Moody's Domain Number</b>	Primary country where this entity conducts its business, as defined by Moody's Investor Service. This number can be translated into region/country in the Government Domain table.
<b>Government Domain Table</b>	Location mapping which corresponds to the Moody's Domain Number in the Master Issuer table.
<b>Moody's Specific</b>	Sub-categories corresponding to Moody's Broad Industries (MDY_IND_BRD_CD) that are more narrowly defined.
<b>Moody's Broad Codes</b>	Categorizes issuer into one of the general business sectors (banking, industrial, sovereign, etc.). Corresponds with MDY_SPEC_IND_CD.
<b>Moody's 35</b>	35 Moody's-defined specific industry categories which correspond with Moody's 11. Used by the Annual Default Report Recommended.
<b>SIC Broad</b>	Broad (2-digit) SIC code. Found in the Master Issuer table.
<b>SIC Specific</b>	Specific (4-digit) SIC code. Found in the Master Issuer table.
<b>NAICs Codes</b>	3-digit industry code corresponding to the North American Industry.
<b>Debt Type</b>	Description of the debt obligation in the Master Issue table Classification System. Found in the Master Issuer table.
<b>Coupon Rate</b>	Interest rate percentage on the obligation, found in the Master Issue table.
<b>Maturity</b>	Date on which the obligation becomes due, found in the Master Issue table.
<b>Master Default Table</b>	Stores details of each issuer's period of default event and analyst summary where available. If a company recovers per Moody's Investors Service definition, then defaults again, both will be listed in this table. For more details on the individual default events in the default period, please use the Default History table.

Terms	Definitions 2.0
Default History Table	Short text descriptions of defaults and associated dates. Each default instance is explained and dated, including multiple credit events considered to be a part of the same default period.
Default Issue Table	Defaulted issuer table has information on all known outstanding debt. Non-defaulted issuers will be listed without a Defaulted Issue Date.
Indentures	An indenture agreement is the formal contract between a bond issuer and the bondholders. It sets forth the details of all the terms and conditions of the bonds, such as the exact day of maturity, the timing of the interest payments and how they are calculated, and the details of any special features.
Default Number	Unique identifier for each default period recorded by Moody's Investor Service.
Default Type Code	Brief description of the default period, such as "Missed interest payment," "Chapter 11," or "Distressed exchange." Found in the Master Default table.
Rating Agency Default Date	Initial date this issuer went into default as determined by Moody's Investors Service.
Blurb	Moody's Investors Service Analyst-written description of the default events, if available.
Obligor Bankruptcy Date	Date the company filed for bankruptcy, if any during this default period. This field is a part of the Ultimate Recovery portion of the DRD.
Obligor ID	Unique identifier for each obligor in the "Recovery_" tables.
Is Duplicate Debt	A "1" indicates this issue is listed again in this table under another DEF_NUM in the Default Issue table. This may occur when both an obligor and a guarantor are simultaneously in financial distress. Only one issue listing will have a flag.
Default Price	Trading price of defaulted debt, expressed as a percentage of par, as of the Default Date for distressed exchanges, or 30 days after default, or between 20 and 40 days after default for all other types of default.
Recovery Tables	A set of tables housing all of Moody's Ultimate Recovery Data. This data includes large public defaulters.
Default Issue Date	Date this issue went into default, which may differ from the issuer. If blank, this issue was outstanding at the time of default but did not itself default.
Default History Table	Short text descriptions of individual default and dates associated. Each default instance is explained and dated, including multiple credit events considered to be a part of the same default period.
Default History Number	Unique identifier for each credit event. There can be more than one credit event (DEF_HIST_NUM) per default period (DEF_NUM).
Debt Rating Table	Stores rating histories of Moody's Investors Service-rated debts, organized by Moody's Debt Number.
Senior Ratings Table	Stores the "senior rating" history for issuers of long-term debt using the senior rating algorithm. Please click <a href="#">here</a> for a paper on the senior rating algorithm.
Senior Rating Loan Senior most	An issue-specific table which shows the rating for the company's senior-most loan.
Loan Only	Stores the issuer's rating based only on the issuer's outstanding loans.

Terms	Definitions 2.0
Bond Only	Stores the issuer's rating based only on the issuer's outstanding bonds.
Rating Date Time	Effective date of the Moody's rating, found in EST_SENR_RTG_TXT.
Rating Expiration Date	The date on which the issuer's rating is no longer valid, because of either a rating change or a withdrawal.
Censor	0 = default; 1 = non-default. When "0," this indicates a period of default starting as of the Term Date. When "1," this indicates the entity is not in a state of default, last verified on the corresponding Term Date.
Term Date	When censor is "0," this is the date the company went into default. When censor is "1," this indicates the last update date of the senior rating.
Outlook	Stores current and historical Moody's Investors Service rating outlook, which is an opinion regarding the likely direction of a rating.
Issuer Watchlist	Stores information about Issuers' status on Moody's Watchlist, where available.
Watch and Outlook History table	Stores outlook and watchlist current and historical data on a single scale, ideal for using this data for modeling purposes.
Recovery Obligor	Stores information on individual obligors; similar to MAST_ISSR, but specific to ultimate recovery calculations.
Recovery Event Table	Stores details of the credit events associated with each issuer, associated dates, and outcomes. Pairs with the other "Recovery_" tables.
Family Recovery	Family Recovery is a simple dollar-weighted average of the recovery rates of the debt instruments in the prepetition capital structure of the company, discounted for lost interest.
Recovery Instrument Table	Stores information on individual debt issues including collateral, maturity and issue date, debt amount, etc. Pairs with the other "Recovery_" tables.
Effective Interest Rate	The sum of the interest rate index, taken at last date of cash paid, and the spread over the index (INTEREST_BASE_RATE), or the fixed rate of the instrument.
Last Cash Paid	The last date prior to default that principal or interest was paid on this instrument. For discount instruments, this date is set at the date of instrument default.
Nominal Settlement	The sum value of the settlement instruments received for each defaulted instrument, taken at or close to emergence, divided by the total principal defaulted amount of the class, reflected as a percentage of the principal amount at default.
Nominal Trading Price	The average trading price at emergence of all instruments in the class, expressed as a percentage of par.
Nominal Liquidity	The sum value of the settlement instruments received for defaulted instrument, using the value at the time of the liquidity event for each instrument, such as the maturity of the instrument, the call of the instrument, or a subsequent default, divided by the total principal amount of the class, reflected as a percentage of the principal amount at default.

<b>Terms</b>	<b>Definitions 2.0</b>
<b>Discount Recommended</b>	The discounted recovery rate recommended by Moody's Investors Service, based on internal research standards. This rate is based on the liquidity, settlement, or trading price method for recovery.
<b>Type of Instrument</b>	Instrument type classification (e.g., Term Loan, Senior Secured Bonds).
<b>Lookup Table</b>	Stores expansions of certain abbreviated codes used in other tables.
<b>Family Structure</b>	Stores information about the family structure for each issuer in the data since late 2010.
<b>Specific Industry Classification</b>	Subcategories corresponding to Moody's Broad Industries (MDY_IND_BRD_CD) that are more narrowly defined.
<b>Broad Industry Classification</b>	Categorizes issuer into one of the general business sectors (banking, industrial, sovereign, etc.). Corresponds with MDY_SPEC_IND_CD.
<b>Region Code</b>	Region in which a particular domain is located, e.g., EUR for Europe.
<b>Domain Name</b>	Name of the country.

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