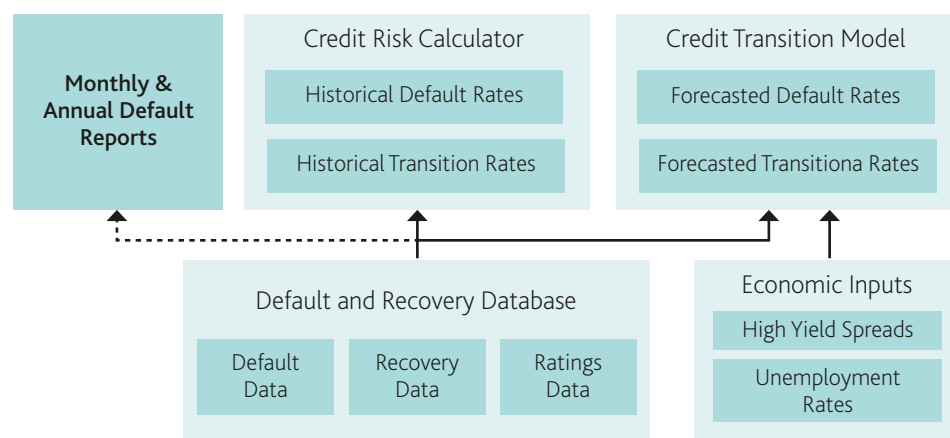


Moody's Analytics Default & Recovery Database (DRD): Frequently Asked Questions and Reference Guide

Moody's Default & Recovery Database (DRD) includes ratings, defaults, and recovery data for 550,000 debts and 60,000 global sovereign and corporate entities. Coverage includes (Moody's Investors Service) rated entities, rated defaulters, and unrated defaulters back to 1980 for EMEA, 1920 for the US, and the 1990's for Asia. Sector coverage includes Corporates, Sovereigns, Sub-Sovereigns (outside of the US), Financial Institutions, Insurance companies, and REITs. Other broad industries such as Project Finance, Structured Finance, and Municipals are not included.

Moody's Investors Service (MIS, aka the rating agency) use DRD's issuer, default, and recovery data as the starting point to produce default research that is heavily read by market participants globally.

The Default & Recovery Database is part of Moody's Analytics broader Default Suite of products. The Credit Transition Model and Credit Risk Calculator give users access to easy to use, web-based tools to quickly calculate customized rating transition matrices and default rates based on the DRD data.



What is in the DRD?

All data is derived from Moody's own proprietary database of issuer, default, and recovery information. Moody's analysts use this data as a starting point to produce the Annual Default Study, read by more than 40,000 market participants globally. Clients frequently use this data to conduct credit research as well as build and update credit risk models - particularly those focused on ratings movements, probability of default, and loss given default.

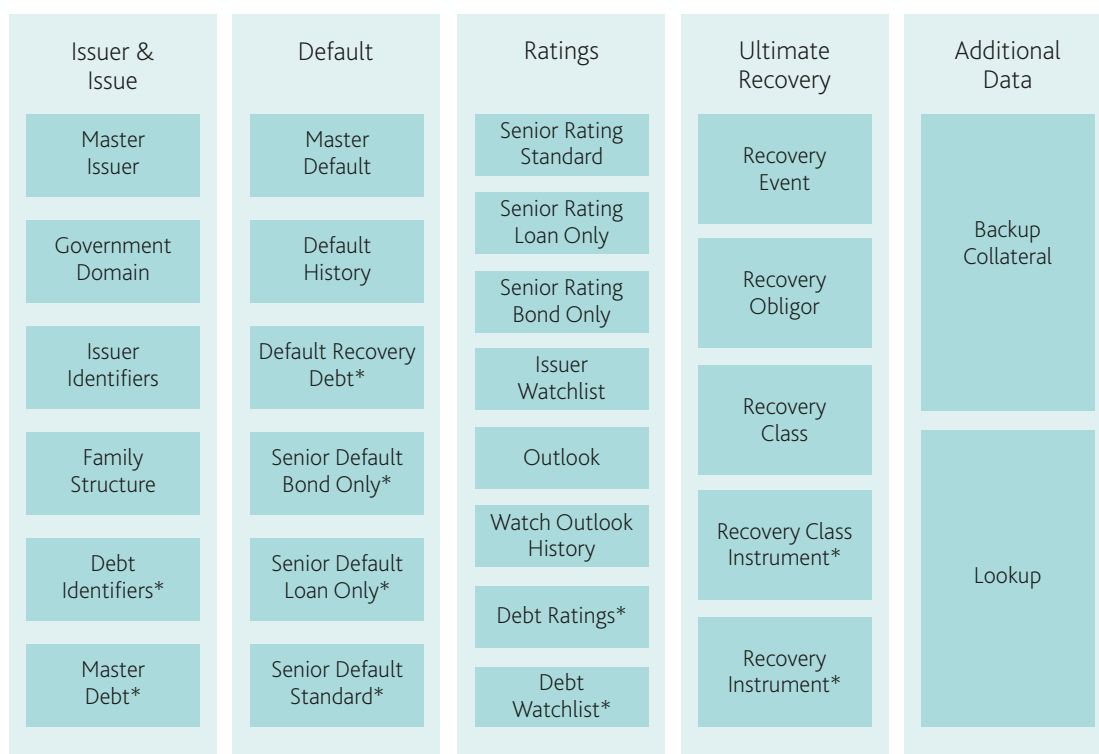
Moody's has a team of professionals dedicated to making sure that our ratings process applies consistent standards to the ever-advancing market. Each month, this team researches the financial markets, publications, and publically filed documents to identify any defaults that have occurred over the previous 30 days 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 information about historical defaults and will add this to the database, resulting in historical changes.

Within the DRD is a piece dedicated specifically to Ultimate Recovery, containing data on how much was repaid to debt holders for large, US corporate defaults, starting in 1988. This targeted portion helps investors estimate loss given default based on the capital and debt structure of a given issuer. This portion is useful for sophisticated clients who would like to take advantage of Moody's unique wealth of data to validate and develop their own LGD models.

The DRD database is available for download via Text files and Microsoft Access on www.moody.com, as well as via FTP. Please refer to the Moody's Analytics Default & Recovery User Guide for more details.

The Data Model

The DRD data is comprised of 27 tables housing all of Moody's debt, issuer, default, and recovery information. Primary keys enable users to build relationships between tables and perform complex queries. Universal identifiers included in many tables facilitate the use of external data sources, making DRD a truly versatile resource.



*Indicates issue-level data

Frequently Asked Questions

1. How does the database define "default"?

Moody's definition of default is applicable only to debt or debt-like obligations (e.g., swap agreements). We do not track technical defaults in this database. Four events constitute a debt default under Moody's 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 [click here](#) for additional details on "Definition of Default".

2. Do changes in rating methodology affect how defaults are counted?

Rating methodology changes do not affect how defaults are counted. In the case of a methodology change, only the rating may change, and the original default will still be considered as it was earlier.

3. What is a soft default?

A soft default, such as a dividend omission, is a default that Moody's does not consider severe enough to meet the official definition of default. These are tracked in the Master Default table, but are not used in the Senior Rating tables nor in our research.

4. Why do my results not match the Monthly Default Report or the Annual Default Study?

You will not be able to replicate the exhibits exactly, as the researchers have access to non-public information that is not included in the database. We recommend instead that you compare your own analysis against the Default Rates or Rating Transitions in the Credit Risk Calculator. You can follow their general methodology by using Moody's 11 industries except "Sovereign & Public Finance", and (in the Default Rate Chart only) adjust your Withdrawal Adjustment settings to "Monthly".

CORPORATE DEFAULT DATA

5. Why are there blank Default Issue dates in the Default Recovery Debt table?

This table captures all of the debt outstanding at the time of the issuer's first default, regardless of whether that particular issue defaulted or not. If the Def_debt_Datetime is blank, this indicates that the debt itself did not default, although it was outstanding at the time of the issuer default.

6. Where are "Recovery Prices" located?

Trading prices can be found in the "Default Price" column in the "Dflt_Rcvry_Debt" table. To get a complete list of all the fields and tables please refer to the technical specifications here. This data is global. Please note, however, that Moody's sources recovery data from vendors and it may not always be available for every issuer. The default price may change because we get this data from external vendors, and sometimes our relationships with vendors change, limiting our data coverage in certain areas.

There is also ultimate recovery data found in the tables starting with "Recovery_". These are US focused only.

7. Why is the Default Debt Datetime blank when there's a value shown in Default Price?

This price was the price available 30 days after the issuer defaulted, even though this issue itself did not default. There are about 100 such instances in the DRD. These prices would NOT be included in our recovery rate calculations, since these issues are not defaulted.

8. Do blank prices in the Default Recovery Debt table indicate a 0% recovery?

No; it simply means these prices are not available, e.g. this issue was too illiquid to be trading between 20-40 days after the issuer defaulted.

9. Why are there blank values for the Loan Price and Loan Default Datetime fields in the Dflt_Rcvry_Debt table?

Moody's is contractually obligated to not redistribute loan data from certain data providers.

10. Why are there Default Prices higher than 100%?

These are the actual prices on the open market, expressed as a percentage of par. None of these prices are adjusted in any way by Moody's. If the value is over 100, this likely means that the market is predicting a greater than 100% return on this bond, in spite of the default. This can occasionally happen in distressed exchanges or in buy out situations.

11. How do I calculate recovery rates using the default side of the database?

Calculate issuer-weighted recovery rates by first calculating the issuer recovery, then averaging by date (Date = Rating Agency Default Date in the Master Default table). Issuer recovery is calculated by first averaging all prices of a given seniority, then averaging the seniorities.

Please refer to the [user guide](#) for more guidance on how to calculate recovery rates in DRD 2.0 Access database.

12. How to differentiate bonds from loans?

DEBT_CLASS_CD codes from "MAST_DEBT" table can be used to identify bonds and loans:

- » BL— Loan
- » BCF — Bank Credit Facility (Loan)
- » LTPD — Bond
- » Muni — Municipal bonds

- » SOVBL-FC — Sovereign loan, foreign currency
- » SOVBL-LC — Sovereign loan, local currency
- » SOVLTPD-FC — Sovereign bond, foreign currency
- » SOVLTPD-LC — Sovereign bond, local currency
- » SOVST-LC stands for sovereign short term debt, local currency. Not used.

13. Is there a way to filter for preferred stock issuers in the DRD?

Preferred stock issuers are available using the filter "PFS" in the "debt_class_cd" column in the Mast_Debt table, and then join it to the Mast_Dflt and Dflt_Rcvry_Debt tables in order to find default and recovery information respectively for Preferred Stock issues.

14. Why are there more records in the Backed Collateral table in DRD 2.0?

The Back_Collt table has now been merged with the Letter of Credit (LOCS) table, and the latter has been deprecated to remove redundancy. Some field values have been modified to improve analysis capabilities, e.g Guarantor_Mast_Issr_Num.

15. Is there also data for unrated issuers?

Yes, default and recovery data is available for unrated issuers. In fact approximately 70% of the defaulted issuer population is not rated by Moody's Investors Service.

16. Why are there no identifiers for Bloomberg IDs in the Issuer Id table?

Bloomberg IDs have been replaced with ETK IDs which are identifiers for tickers. There is no change in actual identifier data; the code has just been renamed for clarity.

17. Why are there no fields in the Senior Rating tables for Censor, Term datetime, Rev etc? Why are there fewer columns now?

The new format of the Senior Rating tables is a result of our new Senior Rating Algorithm (SRA) implementation. This new methodology will bring in a change in the way ratings and defaults are calculated in DRD. Censor and Term Datetime columns have been removed in order to segregate default data in another set of tables within the database. Columns that were not used frequently and had redundant information have been removed to give better clarity to the Senior Rating tables.

18. Where can I see rated default information now?

There are now three new default tables in the DRD: Senior Default Standard, Senior Default Bond Only, and Senior Default Loan Only. These tables have information on when a company went into default and when it came out of the period of default. For loan only and bond only defaulters, please refer to the Dflt_Loan_Only and Dflt_Bond_Only tables.

19. What is the “cohort re-entry” date in the Senior Default tables?

The cohort re-entry date is the date at which an obligor is eligible for inclusion in cohort creation after it defaulted. It is the date at which it is no longer considered “in default”.

20. What are the most important tables in the DRD?

The most important tables for default and ratings data are the following:

- » Mast_Dflt
- » Mast_Issr
- » Dflt_Rcvry_Debt
- » Senr_ratg_standard
- » Dflt_Hist
- » Mast_Debt
- » Debt_ratg

21. Which field should I use to determine seniority?

For defaulted issues, Moody's recommends using the Default Seniority (Def_Debt_Senr) field in the Dflt_Rcvry_Debt table. Otherwise, use the Seniority field in the Mast_Debt table.

22. Which table should I use to see senior most debt ratings?

The seniority of the debt can be found in the Mast_debt table, and this can be linked to the Debt_Ratg table to determine the senior most debt ratings. The Senr_Rtg_Loan_Srmst table has been deprecated in the new version of DRD to minimize redundancy and increase data robustness.

23. Can I calculate dollar volume of default?

The dollar volume of default can be calculated by using the “Default Amount” in the “Default Recovery Debt” table.

24. How do I calculate the dollar-weighted default rate using DRD?

Unfortunately, the dollar-weighted default rate cannot be calculated using the DRD since we do not have the total volume of debt outstanding (the denominator in such a calculation). We only have the amount of debt at the time of issuance, not total bond volume outstanding day to day. Historically, the Moody's Default Studies have used the Barclays Total Bond Index as a proxy.

25. How is the dollar-weighted default rate in the MDR/ADS calculated?

In writing these reports, the Default Research analysts have historically used the Barclays Total Bond Index as their denominator, which is not available in the DRD.

26. Why does the Default Rate/Transition Rate calculation change month over month?

This is completely normal, as the ratings and default history in the DRD (and therefore the historical web portal) change each time the database is refreshed. Ratings are calculated based on an algorithm outlined here.

27. Why has the rating history in the DRD changed?

Rating history changes are possible for an issuer because of changing situations (e.g. industries changing, getting a new ultimate parent, etc) that will newly qualify/disqualify an issuer from getting a historical rating.

The rating history changes are also a result of the implementation of the new Senior Ratings Algorithm, which is a more accurate way of calculating ratings in DRD. Please refer to the new SRA paper here .

28. Why are there duplicate ratings for the same date in the debt rating table?

These refer to different types of ratings on the same debt (e.g. shadow ratings, long term, and short term).

The differences are available to the rating agency, but not flagged/available to MA. You may note each rating type will have a unique rating.

29. If there are duplicate ratings for the same date in the debt rating table, which one should I use?

Since we are unable to distinguish between rating types based on the data included in DRD, we recommend selecting the lowest rating. Where the ratings are the same, select the rating with the earliest start date. Where the start dates are the same, select the first.

30. Does the database include asset size or information on revenue for the issuer?

Unfortunately, this data is not part of the database.

31. What is the scope of the database (e.g., which issuers are included in the database)?

The database includes information on every issuer where the Default Research analyst was able to find evidence of an actual default. This includes both the Moody's rated and unrated universe. It is not a representative sample, but rather the full population that Moody's is aware of each month. It is possible that there are additional defaults in the market that Moody's has not been able to confirm.

32. Which industry codes should I use?

We recommend the Moody's 11 and 35 codes used in the Monthly Default Report, which is authored by the Credit Strategy and Standards group. Please click here for a description of the Moody's 35 industry codes. For the most granular industry classification, we recommend the Moody's Specific industry codes.

ULTIMATE RECOVERY ("RECOVERY_" TABLES)

33. How does the default type categorization in the Ultimate Recovery ("RECOVERY_" Tables) data fit into Moody's definition of default?

The Ultimate Recovery data provides additional granularity by categorizing defaults by default type. The categorizations used are listed below with definitions:

- » Bankruptcy: Company filed for Chapter 11 or Chapter 7 in US Bankruptcy Court.
- » Distressed Exchange: Company exchanges all or parts of securities for new securities of inferior value.
- » Default and Cure: Company defaults on debt then cures the default outside of the 30 day grace period.
- » Other Restructuring: Any other non-Bankruptcy restructuring with a loss.

34. What determines which defaulted obligors are in the Ultimate Recovery section ("RECOVERY_" Tables) of the DRD database? Why has Moody's chosen these criteria?

The defaulted obligors are US commercial and industrial companies with over \$50,000,000 in total debt at the time of default. Moody's feels that this sample focuses on the institutions that are of greatest relevance to our customers while offering the most robust set of recovery data commercially available. Moody's has opted to exclude Financial Institutions as they are highly regulated, making their recoveries somewhat inconsistent and inappropriate for developing an LGD framework. Relative to non-Financial Institutions, there are very few Financial Institution' defaults.

35. Which Moody's industry classification is used in the Ultimate Recovery tables ("RECOVERY_" Tables)?

It uses a division of 20 industry groupings, including aircraft & aerospace, automotive, chemicals, construction, consumer products, defense, distribution, energy, environment, healthcare, leisure & entertainment, manufacturing, media, metals & mining, natural products, packaging, services, technology, telecommunications, and transportation.

36. If the RECOVERY_ tables only use US data, is the US data representative of other countries? Do you have any research on this topic?

Moody's intends to use the US recovery data to inform its loss given default assessments of firms domiciled in the EMEA region in markets with developed legal systems. For more information on this topic please refer to "Probability of Default Ratings and Loss Given Default Assessments for Corporate Obligors in Europe, Middle East and Africa: Recommended Framework, November 2006".

37. How are the 3 methods of recovery pricing in the RECOVERY_ tables different? Which one is most accurate?

Moody's preferred method, which varies for each default, is the one we consider to be the most representative of the actual recovery. The most common preferred method is the settlement method. All methodologies (if available) are displayed in their respective columns.

- » The Settlement Method — the value of the settlement instruments is taken at or close to emergence.
- » The Liquidity Method — the value of the settlement instruments is taken at the time of a liquidity event, such as the maturity of the instrument, the call of the instrument, or a subsequent default event.

-
- » The Trading Price Method — the value is based on the trading price of the defaulted instrument taken at or post-emergence.

38. How does Moody's choose the "Recovery Method Recommended?"

Moody's analysts rely on their years of experience to select the recovery method that appears to be the best valuation for a given default. Subscribers of the Default & Recovery Database are welcome to speak to our analysts to get details on why they made specific decisions. The database also contains a variety of comment fields that include analyst notes explaining the logic behind the choice of preferred method.

39. What are credit class and credit class descriptions? How are these details important?

The standard groupings for credit class have largely been set by the US Bankruptcy Court. The credit classes in the Default & Recovery Database are directly based on these groupings, as assigned by the court and listed in bankruptcy documents. The description is the title listed for each class. In the cases of distressed exchanges and other types of restructurings, debt is classified in a fashion consistent with that of the bankruptcy court by a Moody's analyst. The credit class is important because debt is grouped into buckets based on these classes and the settlement is derived from these buckets.

40. How do you determine instrument ranking in the RECOVERY INSTRUMENT table?

After reading through SEC documents such as 10-K's, 10 Q's, indentures, and credit agreements, the instruments in each event are ranked in relation to each other based on the structure prior to default, taking into consideration collateral and instrument type, and Moody's proprietary LGD models created for each rated debt issuer.

41. How are the recovery prices calculated in cases of distressed exchanges in the RECOVERY_INSTRUMENT table?

We calculate distressed exchanges by using the same methods as in a bankruptcy. In cases where some of the instruments are exchanged, the non-defaulted instruments are labeled as "did not default" and imply a nominal and discounted recovery value of 100%.

42. How do you calculate the discount rate in the RECOVERY_INSTRUMENT table?

All methodologies are discounted back to the last time interest was paid using each instruments pre-petition rate. The starting point for the discounting varies based on the method.

- » Trading Price Method: the date of the first available trading price at or following emergence from default.
- » Settlement Method: the first point in time when each settlement instrument can be priced
- » Liquidity Method: the date of the liquidity event

43. Are the expenses, fees, etc, that must be included for Basel calculations taken into account during discounting in the in the "RECOVERY_" tables?

While Basel calculations require the addition of costs and fees to discounting, the actual amounts are left to the discretion of each institution. Therefore, we do not estimate costs or fees.

ULTIMATE RECOVERY TABLES V. DEFAULT ISSUE TABLE

44. How does the recovery information in the "RECOVERY_" tables compare with that in the Default Recovery Debt table? Under what circumstances is each useful?

The Ultimate Recovery Database offers three recovery methods: the settlement method, the liquidity method, and the trading price method (see below for definitions). These methods are ideal for assessing the potential loss given default of a particular issuer, region, or segment.

The Default Recovery Debt table provides a fourth way of viewing recovery in the form of 30 day post-default trading prices. Recovery calculated utilizing these prices is particularly relevant for a company that needs to offload an investment prior to its ultimate work out, as the 30-day pricing is typically discounted to reflect the uncertainty surrounding settlement. This is the price used in our Annual Default Study and Monthly Default Reports.

The recovery information in both tables is suitable for broad risk management purposes. For more information on the difference between 30-day recovery prices and ultimate recovery prices please see: Trading Prices as Predictors of Ultimate Corporate Recovery Rates.

45. How does the universe of names covered in the "RECOVERY_" tables differ from those covered by the Default Recovery Debt table?

The Ultimate Recovery data in the "RECOVERY_" tables includes mainly rated companies but may also cover some unrated names. It also focuses exclusively on US corporate companies that have entered and emerged from bankruptcy from 1988-present with a debt value of \$50m or greater.

The Default Recovery Debt table covers rated entities globally across the credit spectrum from 1920-present, and includes all industries included in the DRD.

46. Can I easily connect the data in the "RECOVERY_" tables to the rest of the database?

Yes, however the two types of data do not align perfectly, as the default tables are concerned with the first default and the "RECOVERY_" tables are only concerned with large defaults. The default tables have over 7,000 defaults, where the "RECOVERY_" tables only have 1,000.

The "RECOVERY_" tables contains a variety of keys that can be used to connect to the default tables, including the Master Issuer Number, Master Debt Number, and Default Number.

47. What documents are referenced when compiling the data in the "RECOVERY_" tables? Can I have access to bankruptcy documents?

SEC filings, news, and bankruptcy documents were used to compile this database. Moody's does not currently provide access to bankruptcy documents.

48. What is the Family Recovery in the "RECOVERY EVENT" table?

Family recovery is a simple dollar-weighted average of the recovery rates of the debt instruments in the pre-petition capital structure of the company, discounted for lost interest.

LOGISTICS

49. I see two links for the DRD database on the Default & Ratings Analytics page - which one should I use?

The two links on the Default and Ratings Analytics page are the previous DRD version and the newly formed DRD 2.0 version of the database.

Both of these databases are downloadable for use. Both of these versions will be available on the website for a period of 6 months to ease the process of migration - please see the technical documentation available on the Default and Ratings Analytics page for DRD 2.0 to familiarize yourself with the new schema and structural changes.

50. How can I connect the DRD to other databases?

This exercise can be done with our external identifiers available for issuer-level IDs (e.g. the 6-digit base CUSIP or the ticker), which can be found in the ISSR_IDS table, and for debt-level IDs (e.g. CUSIPs, ISINs, Common Codes, SEDOLs, etc), which can be found in the DEBT_IDS table.

51. Whom should I contact if the DRD is not updated on the website?

Please contact the Client Service Desk at DefaultResearch@moodys.com.

52. How frequently do we update data in the DRD?

Data in the DRD is updated every month, around the 7th business day.

53. What formats is the database available in ?

The DRD is available via download on the website in Text and Microsoft Access formats. Additionally, you can access the data via FTP. There is no difference in the data between these versions of the DRD. Please contact the Client Service Desk at DefaultResearch@moodys.com if you have any questions about downloading this data.

54. How can I enable Default Reports alerts on MDC?

The My Alerts section on Moodys.com is where you can manage Default alerts.

1. Login into Moodys.com
2. Click My Alerts
3. Select Custom Alerts Tab then Create New Alert
4. Within Available Sections expand Research Type
5. Select from Default & Ratings Analytics

About Moody's Analytics

Moody's Analytics, a unit of Moody's Corporation, helps capital markets and credit risk management professionals worldwide respond to an evolving marketplace with confidence. The company offers unique tools and best practices for measuring and managing risk through expertise and experience in credit analysis, economic research and financial risk management. By offering leading-edge software and advisory services, as well as the proprietary credit research produced by Moody's Investors Service, Moody's Analytics integrates and customizes its offerings to address specific business challenges.

CONTACT US

Visit us at moodyanalytics.com or contact us at a location below:

AMERICAS

+1.212.553.1653
clientservices@moody.com

EMEA

+44.20.7772.5454
clientservices.emea@moody.com

ASIA (EXCLUDING JAPAN)

+852.3551.3077
clientservices.asia@moody.com

JAPAN

+81.3.5408.4100
clientservices.japan@moody.com

© 2018 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.