

Global Credit Data

by banks for banks

Updates from the GCD Methodology Committee & Insights into GCD Platforms



Stephan Jortzik, Chairman of the Methodology Committee

PAST

What have we achieved?

- ❑ Key methodology changes in the past
- ❑ Interactive Dashboard
- ❑ Public Dashboards
- ❑ Data Quality Achievements
- ❑ CCF Survey

PRESENT

What is going on right now?

- ❑ Projects with ECB, EBA
- ❑ Industry Collaboration: ICC, IACPM, IIF, AFME
- ❑ Representativeness, Compliance

FUTURE

What lies ahead?

- ❑ Data Quality - never out of fashion: Roll-out individual DQ and Benchmark Reports in December
- ❑ Strategic roadmap: Promote Data Usage
 - Easier submissions (Help from the Data Taskforce)
 - Give-and-get instead of give-to-get

AGENDA

Disclaimer: Any views expressed in this presentation are those of the presenter and do not necessarily represent the views of Global Credit Data or its members.

Unresolved LGD Methodology

<https://www.globalcreditdata.org/library/unresolved-defaults-lgd-study-2020>



Global Credit Data
by banks for banks

Observed Recovery Rates Dashboard Corporates
May 2022

Banks recover 76% from Corporate defaults

Key Findings

- When corporates default lenders eventually recover on average 76% of the amount lent.
- Recovery Rates were 8% lower in the last downturn compared to non downturn times.
- It takes between 1 and 2 years to recover the cash flows.

Seniority and Collateral
Seniority and collateral are observed as affecting recoveries. Secured recovery is higher than unsecured, particularly where a strong (primary) collateral is held.

Region
GCD data has its strongest database in Europe and North America, which register similar figures. Africa & Middle East shows relatively low recoveries. GCD members receive country level data for deeper analysis.

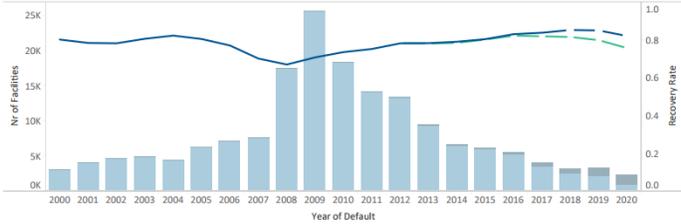
Industry
Granular industry groups are available to GCD member banks and are condensed here into key industry groupings. The differences are mainly explained by the availability of real estate collateral.

Recoveries and Losses in Crisis Times
Higher numbers of defaults and lower recoveries are observed during the financial crisis starting in 2008. The peak of defaults were in year 2009 which was the worst year of the crisis. As workouts take more than one year the 2008 defaults were being recovered in that worst year and hence show the lowest recovery. For recent years estimated recoveries for yet unresolved defaults have been included (green curve) providing first insights into the Covid-19 crisis impact.

Note on Terms Used (see Appendix for more details)
Observed Recovery Rate refers to the historically observed nominal average recovery cash flows divided by outstanding at default. In the time series graph below the blue line includes resolved defaults only. In the most recent years short workout periods with higher recovery are naturally overrepresented (resolution bias). The green line includes estimated recoveries for unresolved defaults and is therefore providing a more comprehensive picture of recent developments.

Time to Peak Recovery is calculated as the center point of recovered cash flow.
Primary Collateral is Cash, Marketable Securities, Ships, Airplanes, Real Estate and Other Objects. Secondary Collateral is all other collaterals.

	Nr of Facilities	Observed Recovery Rate	Time to Peak Recovery
Grand Total	164,126	76%	1.3
Secured	Primary	82%	1.4
	Secondary	73%	1.3
	Total	78%	1.3
Unsecured	Senior	74%	1.1
	Subordinated	59%	1.8
	Other	68%	1.9
	Total	72%	1.3
Africa & Middle East	4,398	67%	1.2
Asia & Oceania	8,491	80%	0.8
Europe	102,223	75%	1.4
Latin America	5,093	70%	1.5
North America	43,865	77%	1.2
Unknown	56	68%	1.4
Agriculture	6,120	83%	1.2
Communications	4,058	73%	1.4
Construction	16,376	75%	1.4
Hotels and Restaurants	6,221	74%	1.4
Manufacturing	32,401	78%	1.1
Mining	2,074	82%	1.0
Real Estate	14,640	82%	1.5
Social/Health Services	5,372	74%	1.7
Other Services	23,702	72%	1.3
Transportation	8,098	76%	1.1
Utilities	1,466	79%	1.2
Wholesale/Retail Trade	31,707	73%	1.2
Other	11,891	74%	2.0
Downturn 2007-2009	50,697	70%	1.6
Non Downturn	113,429	78%	1.2



■ Nr of unresolved Facilities ■ Nr of resolved Facilities ■ Recovery Rate (blue: resolved defaults, green: including also unresolved defaults)

Copyright 2022 The Global Credit Data Consortium all rights reserved

- ❑ Consensus Methodology for LGD calculation for unresolved defaults developed and approved by Methcom
- ❑ LGDs for unresolved defaults are calculated and part of the data return
- ❑ Monitoring and Backtesting Process established



More details today during break out session
Today at 1300

Methodology Changes

❑ **LGD**

- Added calculated LGD for unresolved and special Reference Data Set Filter for unresolved
- Changed Reference Data Set Filter to include SME with default amount >1,000EUR and include recent years
- LGD Calculation fix: when no recovery, charges, advances or costs transactions are recorded for the loan. Recovery rate will be 0 and LGD calculations will be 1.
- Documentation Updates: Source of Payment, Ship Use, Ship Size, Real Estate Type, Mapping GICS, Project Finance Technology, State of Completion
- Validation Rules: 6 VR's changed and 28 VR's are new under supervision of Committee

❑ **PD**

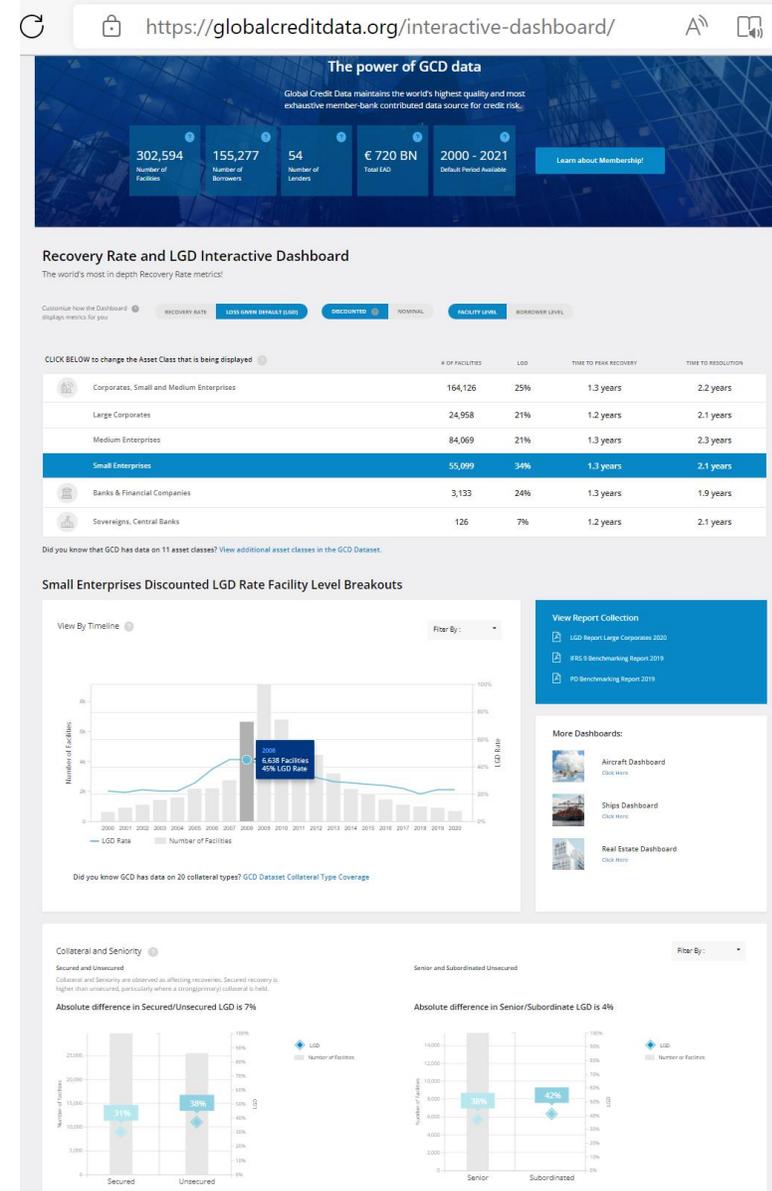
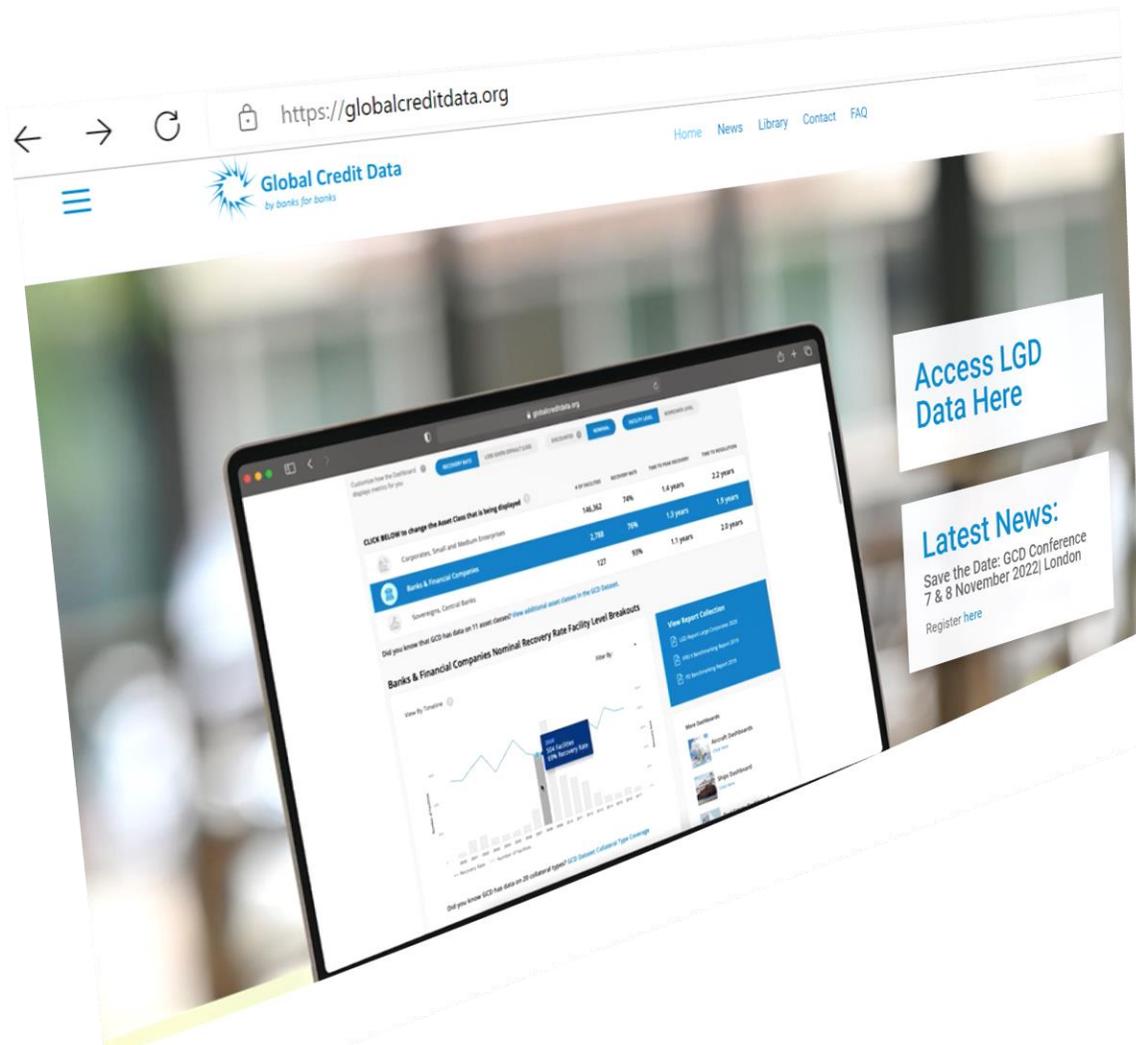
- Return of granular data, which is limited to FAC: Large Corporates and Banks for now. Data is returned at the obligor level.
- Backend: faster submission process for large data submission file and ZIP submissions
- Minor update: the clarification in selection of homeowner associations for Nordics banks; additional audit checks for sovereign obligors

❑ **Benchmarking**

- Continuously improving name matching process using AI techniques which provides support to banks to submit more names.
- Increase submission cycles to quarterly.
- Automation of Audit reports

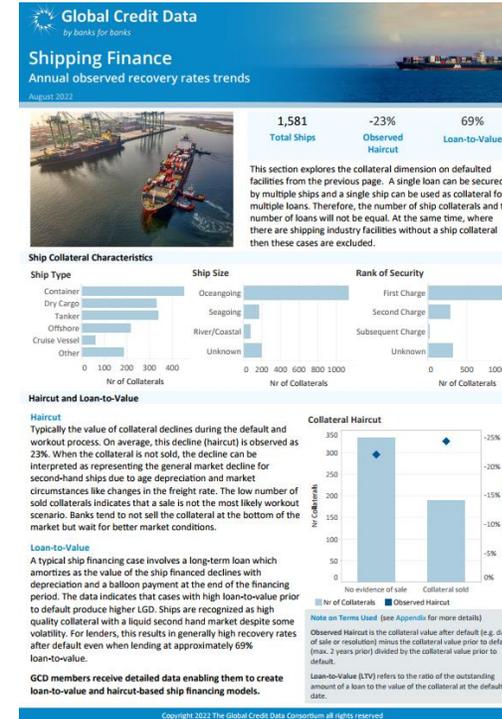
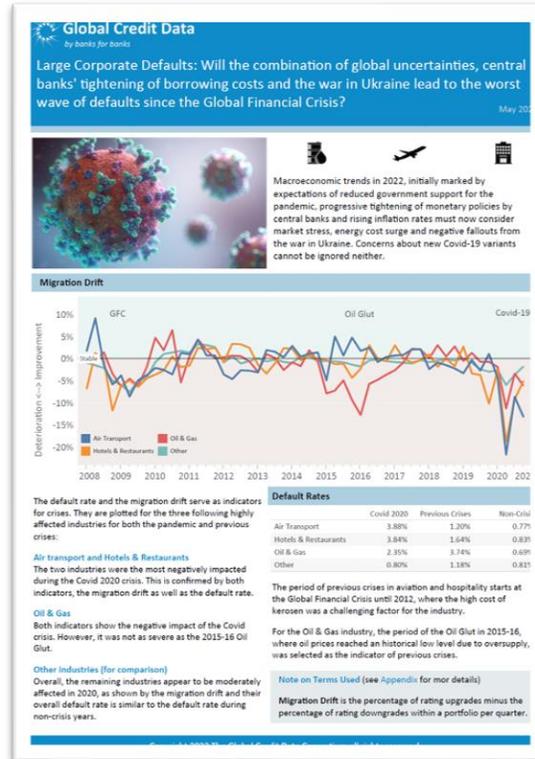
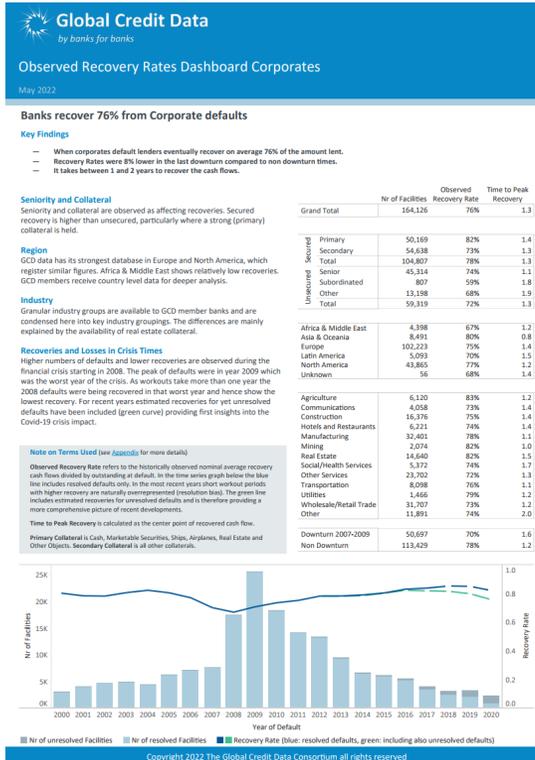
Online Data Visualization

<https://globalcreditdata.org/interactive-dashboard/>



8 annual Publications: RR & PD Dashboards

<https://globalcreditdata.org/analytics-and-products/>



- ❑ Corporates, SME, Banks and FinCo, Sovereigns
- ❑ CRE, Aircraft and Shipping Finance

 More details in today's breakout session

CCF Survey

11

Banks participated

15

Questions were answered

2022

Year the survey was conducted

□ Participating banks

- Received anonymized detailed answers
- Report on the results
- Met at a round table to discuss and exchange views

“

I believe this is the most comprehensive survey on Corporates AIRB CCF ever performed in the world.

”

- Survey participant

GCD Data Quality moving forward

Why	Established	Impact	New
<ul style="list-style-type: none"> • Need for compliance • Need for sharing • Reputational risk • Challenged by members 	<ul style="list-style-type: none"> + Data Quality Policy + Public Dashboard + Data Quality Assessment on Member data 	<ul style="list-style-type: none"> ❖ Visibility ❖ Legitimicy ❖ Communication – transparency ❖ Contributes to compliance 	<ul style="list-style-type: none"> + Enhanced member Data Quality dashboard

2023

GCD had **data quality** always as **top priority**, where in the recent years a new level of **transparency and communication** has been reached. It is an **impactful** investment which we will **continue to invest**.



Showcasing strong processes and full transparency that leads to superior Data Quality

Since 2004, GCD has continuously reinforced a framework that is used to measure and monitor Data Quality (DQ). The objective is to achieve high DQ and compliance for the GCD pooled data, as required by global regulations (BCBS 239, ECB Guide to internal models, Fed SR1107).

Data Quality Dimensions (BCBS 239 Compliant)

Timeliness	<1 YR.	▶	More than half of data received by GCD is published within one year from the closure of the workout.*
Stability	94%	◀	...of the data remains identical at each update (measured on 10 main LGD drivers). The current trend reflects mild impact of some banks portfolios evolution.
Correctness	99%	▶	...of the data is passing the latest validation rules. (1% legacy data only comply to former validation rules)
Completeness	93%	▶	...of values for mandatory data fields are populated.^
Optional Completeness	48%	▶	...of values for <u>optional</u> data fields are populated.

Freshness of 2022 Data

- Total members active in the LGD Pool: 52 ▶
- Fully refreshed submissions performed: 37 ▲
- Partially refreshed submissions performed: 15

Substandard data submission not accepted for 2 out of 52 banks.

A full submission concerns a submission of all historical defaults from a member in all Facility Asset Classes a member is contributing to. A partially refreshed submission is when a bank only updates the loans that evolved between two data-collection cycles (e.g. only new defaulted loans are added to the data history). The numbers reflect the refresh of default data over the last three years.

All dimensions are controlled via **450+** quality checks.

* 75% of all closed workouts are received and published within 2 years. ** The YOY trend for the metric. ^ 7% of values for mandatory fields are populated with an escape clause.

Data Quality Metrics Show Continuous Improvement

GCD monitors global DQ variations by calculating a synthetic LGD distribution indicator based on the Inverted Coefficient of Variation. The metrics (averages and standard deviations) in the chart are calculated at loan level. The data for each submission semester is cumulative.

The chart clearly shows three distinct phases. There is strong volatility of the DQ indicator during the first years of GCD concepts/process alignment between contributing banks up until 2011, followed by the DQ stabilizing at its first plateau through 2016. Finally, the DQ moves into a third period with reinforced DQ management requirements. This shows a new higher, yet still stable, plateau.



GCD's high data quality is the result of a long term investment.

Datapool Volumetrics

Global Credit Data has built up the world's largest non-retail bank loan loss database with over 300,000 defaulted facility observations, totalling over €700 billion in all non-retail Basel asset classes. The LGD/EAD platform, the largest of GCD's databases, was created in 2005 and has grown rapidly ever since. It now gathers detailed information on tens of thousands of defaulted counter parties, particularly data on cash flows and collateral.

LGD 2022 Datapool Overview by Facility Asset Class

Facility Asset Class	Number of Defaults	Number of Loans	Exposure [in mn EUR]
Small/Medium Enterprises (SME)	104,697	206,737	€128,157
Large Corporates	21,802	48,571	€343,374
Banks & Financial Companies	3,169	5,711	€93,134
Ship Finance	885	1,587	€17,600
Aircraft Finance	364	850	€6,185
Real Estate Finance	16,907	26,786	€80,723
Project Finance	578	1,205	€17,692
Commodities Finance	449	849	€9,156
Sovereigns, Central Banks	142	267	€12,341
Public Services	231	360	€2,502
Private Banking	6,053	9,671	€9,992
	155,277	302,594	€720,856

All metrics in this dashboard are based on results of the H2 2021 LGD data submission cycle.

GCD data is used in regulatory discussions

2022 Projects

- ❑ By regulators themselves
 - ECB Research Project “Sensitivity of the Loss-given-default to macroeconomic conditions”
(publication pending)
 - EBA Report to the European commission (mandate through Article 501a (5) of CRR2) on the application of the infrastructure supporting factor *(publication November 2022)*

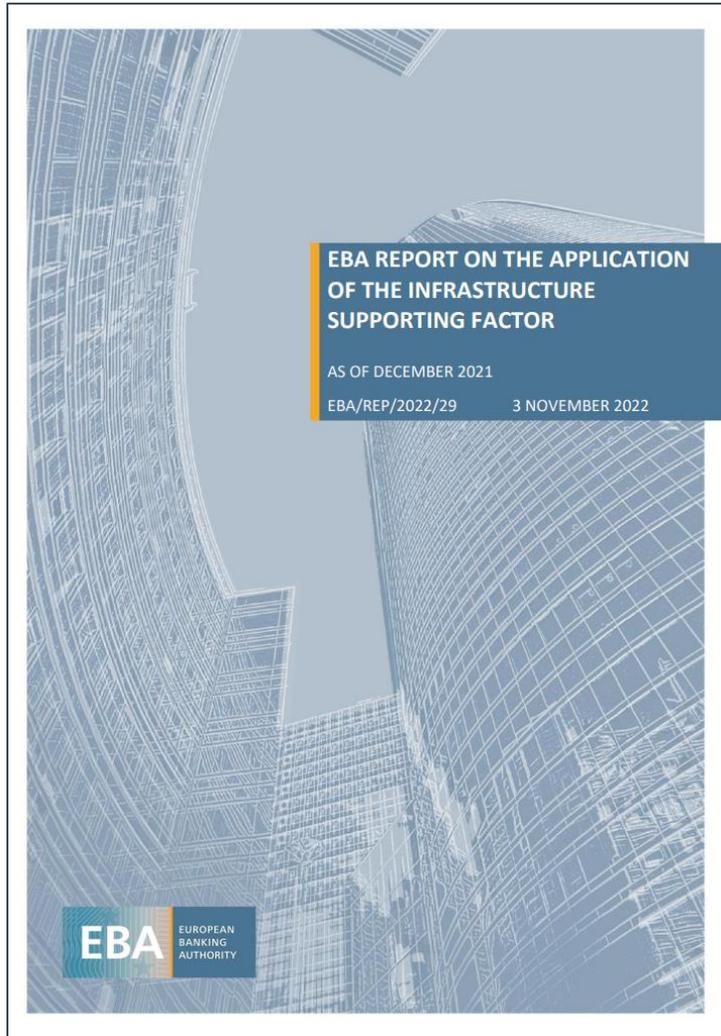
- ❑ By industry
 - European Banks: Specialised Lending **Project Finance** Analyze historical losses and proxy LGD calibration for usage in regulatory discussions concerning 25% LGD floor
 - ICC Trade Finance Performance Guarantees
 - IIF Performance and Financial Guarantees

ECB

- ❑ **Research question:** How does the recovery rate in each jurisdiction vary with *country* level macro variables?
- ❑ **How did the collaboration work?** ECB posed the question, selected model approach and macroeconomic drivers. GCD executives performed analytics and made suggestions. Methcom approved. ECB writes research paper (finalisation expected end 2022)
- ❑ **Which portfolios were analysed?**
 - ❑ Large Corporates - Unsecured Europe
 - ❑ Large Corporates - Real Estate secured loans Europe
- ❑ **Which model approach was chosen?**
 - ❑ OLS models - incrementally increase predictors
 - ❑ Generalised linear mixed models - distribution: binomial, linking function: logit
- ❑ **Outcome**
 - ❑ Unsecured: no significance
 - ❑ Secured: weak significance ($R^2 \sim 6\%$)



More details today right after this presentation



- ❑ EBA Mandate: EBA shall report to the European commission (mandate through Article 501a (5) of CRR2) on trends and conditions in markets for **infrastructure and project finance** lending
- ❑ **How did the collaboration work?** EBA included qualitative and quantitative analytics on data collected by EBA directly and complemented this by incorporating also Default Rates from GCD
- ❑ **Which portfolios were analysed?** Project Finance Europe, Default Rates and LGD



More details later today

Project Finance: Historical losses & risk profile



GCD Specialized Lending Roundtable

Project Finance

The aim of this study is to analyze realized historical Loss Given Default (LGD)¹ and proxy LGD calibration specific to the Project Finance asset class.

Key Findings

Data from 12 major leading banks on the Project Finance market in Europe confirm low loss levels. Almost half (43%) of defaulted Project Finance exposures conclude their recovery process in total cure. With a median of historical LGD at 10% the complete distribution of historical LGD is suggesting a proxy LGD calibration at 20%.

This signals that the 25% floor on all project finance LGDs proposed by the Basel Committee can be considered conservative.

Worldwide Project Finance Data

In GCD LGD platform there are globally 454 defaults (Basel definition), provided by 30 leading banks, for which recoveries have been realized after default (ultimate realized observed loss [Basel]). The analyses in Table 1 offer an overall insight into the GCD LGD data for Project Finance Asset class on a global level².

Table 1 GCD Global Overview on Project Finance Asset Class

	Nr. Borrowers	Nr. Loans	Cure Rate	Time To Resolution (average days)	Exposure at default (€M)	Exposure at default (median)	Observed Historical LGD	Observed Historical LGD (median)	Observed Historical LGD (75 Percentile)
Europe	280	552	43%	875	€25.643M	€23M	23%	10%	35%
Rest of the world	174	304	47%	639	€10.898M	€24M	31%	13%	56%
Total	454	856	45%	759	€36.542M	€23M	26%	11%	41%

¹ LGD does not include add-ons or m.o.c for data limitations or DT calibration

² Outcomes can vary with the structure of underlying sample: to structure a representative sample, a complete calibration exercise would need to define the target scope of application, analyzing the possible impact of data limitations.

- Beginning of 2022, 5 European member banks asked GCD to perform dedicated analyses on Specialized Lending portfolios.
- The roundtable worked on defining the Reference Data Set, the segments and the methodological approach.
- **Key finding:** Data from 12 major leading banks on the Project Finance market in Europe confirm low loss levels. Almost half (43%) of defaulted Project Finance exposures conclude their recovery process in total cure. With a median of historical LGD at 10% the complete distribution of historical LGD is suggesting a proxy LGD calibration at 20%. This signals that the 25% floor on all project finance LGDs proposed by the Basel Committee can be considered conservative.



More details in today's breakout session

ICC Performance Guarantees

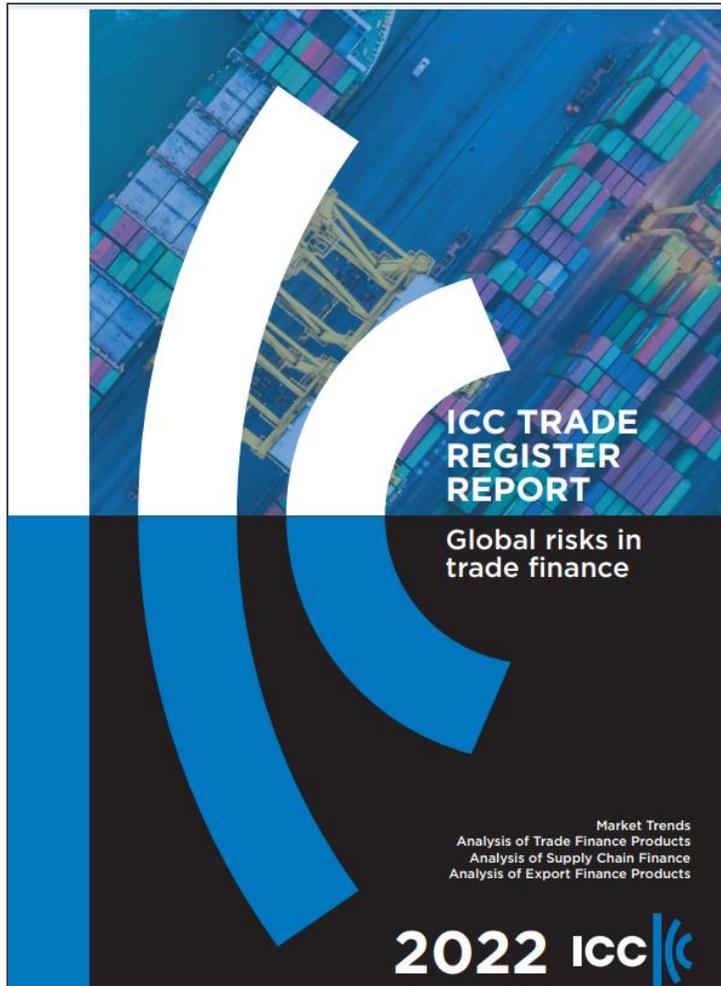


- ❑ In 2019 ICC published a paper on Trade Finance products using ICC data collected by GCD
- ❑ In January 2022 ICC asked GCD to refresh the results with the most updated ICC data (2021 data)
- ❑ Methodology and RDS have been discussed and agreed with ICC representatives.
- ❑ Results have been refreshed using ICC performing and defaulted data. Same methodology have been applied to GCD defaulted data, focusing on Drawing rate on Issued amount for Performance Guarantees facilities



More details in today's breakout session

ICC Trade Register Report



- ❑ GCD handles the ICC data collection of trade finance credit data and developed their data visualization online tool
- ❑ In this years **ICC Trade Register Report** the ICC leverages GCD's larger and more granular data pool, providing data all the way back to 2000 that reinforces the performance of trade and export finance assets through both the global financial crisis (GFC) and COVID-19 pandemic. In addition, for the first time, this has enabled the Trade Register to report on the LGD and EL characteristics of supply chain finance.



More details in today's breakout session

<https://iccwbo.org/publication/icc-trade-register-report/>

Copyright Global Credit Data 2022

UK Conference | 2022

Representativeness



Framework / „cooking recipe“

- ❑ A document describing the steps a member bank should do when assessing the question if GCD data is representative for their target portfolio and purpose of usage
- ❑ The following questions will be answered
 - What does representativeness mean?
 - When is representativeness required?
 - What are the regulatory requirements? (Focus on EU and US)
 - Which elements must be included?
 - Which quantitative and qualitative analysis must be included?
 - How can you come to a final answer if data is useful for your purpose?
 - How can you overcome issues (MoC)



Examples Specialized Lendings, Large corporates, etc.

- ❑ Proof-of-Concept document of the framework applied to some facility asset classes
- ❑ Definition/ derivation of suitable RDS
- ❑ Qualitative and quantitative analyses structured along regulatory dimensions
 - the scope of application
 - the definition of default
 - the distribution of the relevant risk characteristics
 - lending standards and recovery policies
 - the current and foreseeable economic or market conditions

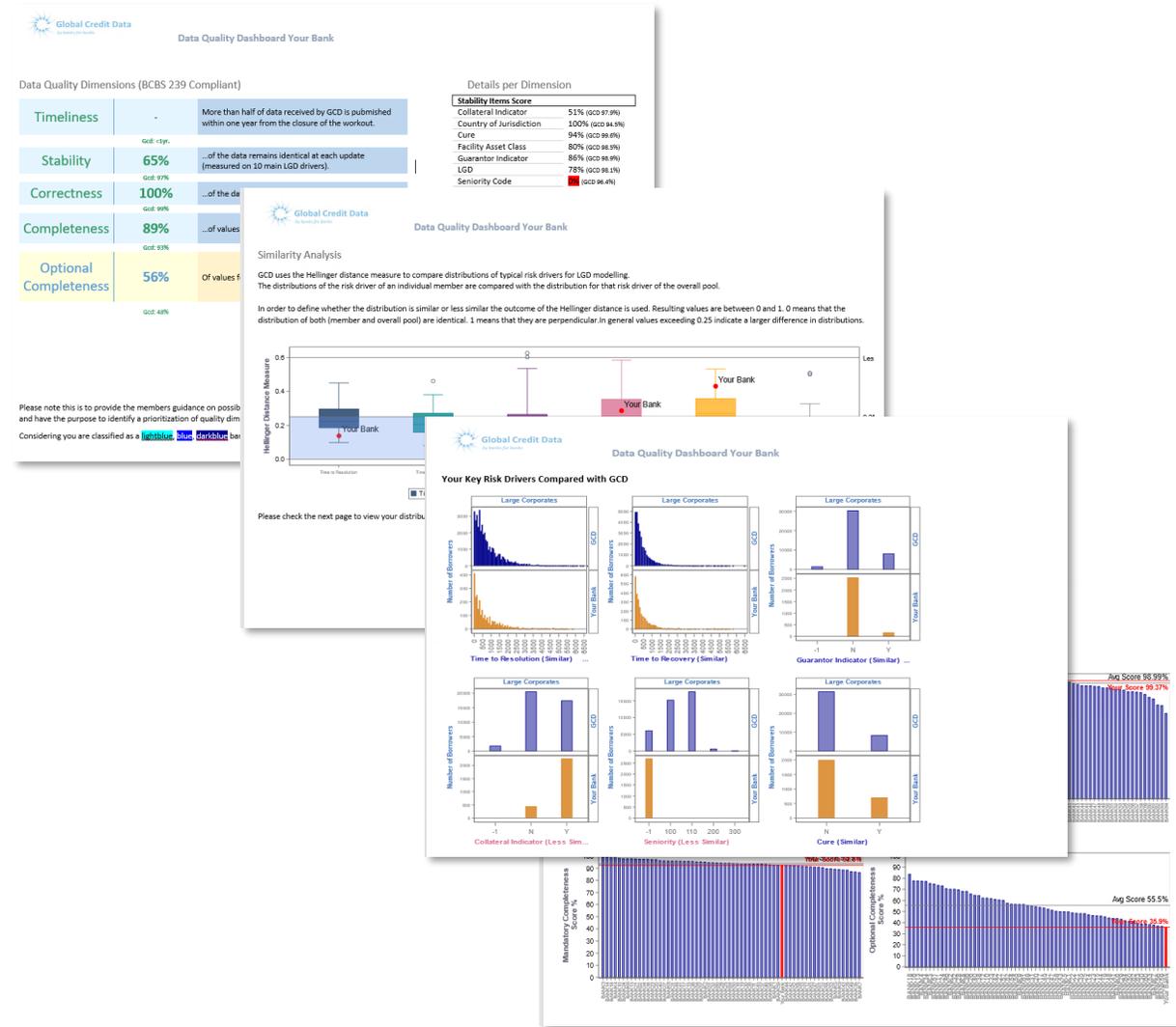


Roles with GCD and members

- ❑ GCD:
 - Providing / maintaining framework
 - Guidance to members
 - Running a pilot with selected members
 - Conducting analyses on pool level
 - ...
- ❑ Members:
 - Applying framework
 - Conducting analyses on application portfolio
 - Providing feedback to GCD
 - ...

Data Quality: Scoring on **Each Member'** submissions

- ❑ Only available for **members** of GCD per December 2022
- ❑ **updated** 6 months
- ❑ contains **score per DQ dimension** and **details**
- ❑ comparing individual **score to the peers**
- ❑ **To have discussion**



Data Quality: Next Steps



Policy

Extend to PD platform



Governance

Improve with members
Policy review yearly



Monitoring

Connect the data quality
scores with audit points

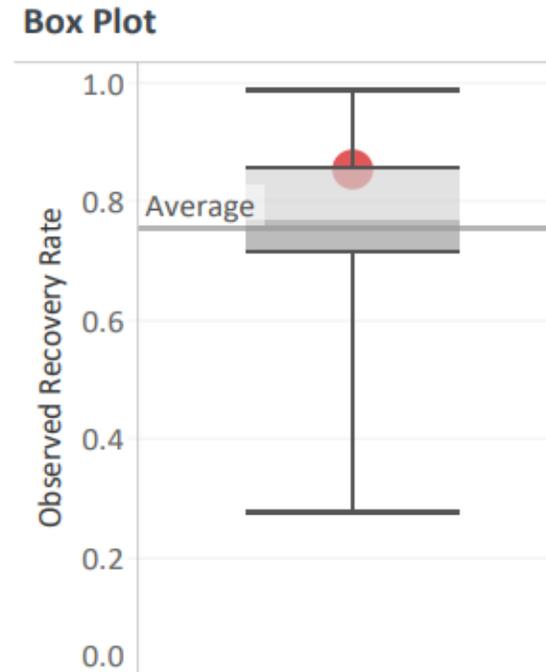
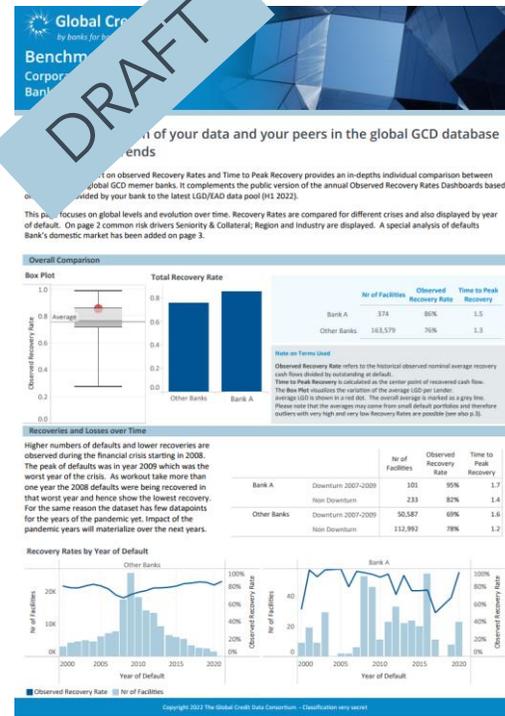
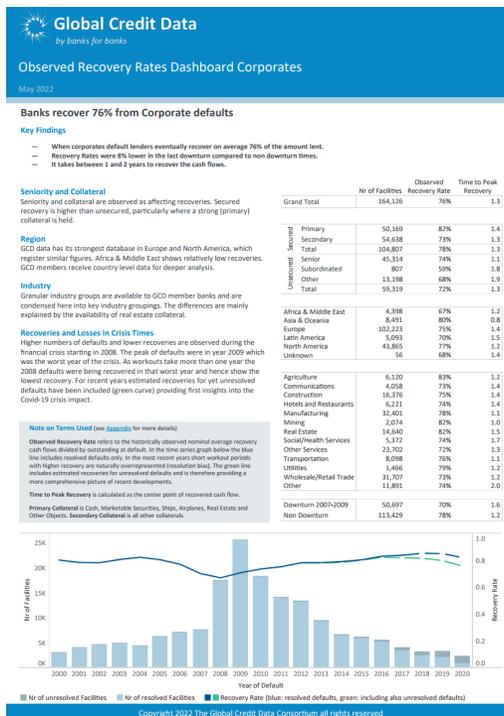


Data input

Continuous improvements on data
quality management and data
model (Sales, Collateral)

Benchmark Reports

- Based on the public Dashboards we plan to offer bank individual Benchmark reports that compare your bank's data to the rest of the pool
- These Benchmark Reports can be customized very easily based on your needs (Define segment and filtering aligned with internal use).



How to read the Box Plot

The Benchmark Box Plots are based on individual banks averages. These can only be produced by GCD centrally as they rely on splitting the data by member bank ID's which are always kept secret. DNB Bank can use these graphs to view the diversity of individual bank data which comprise these averages. This way you cannot only benchmark yourself against the overall average but get a better insight into where your bank stands compared to your peers individually. Bank's average LGD is shown in a red dot. The overall average is marked as a grey line.

Please note that the averages may come from small default portfolios and therefore outliers with very high and very low Recovery Rates are possible.

Strategic Roadmap

Next step: Benchmark LGD Modeling Methodology?

Collaboration with Regulators and Industry

GCD Reports and Dashboards

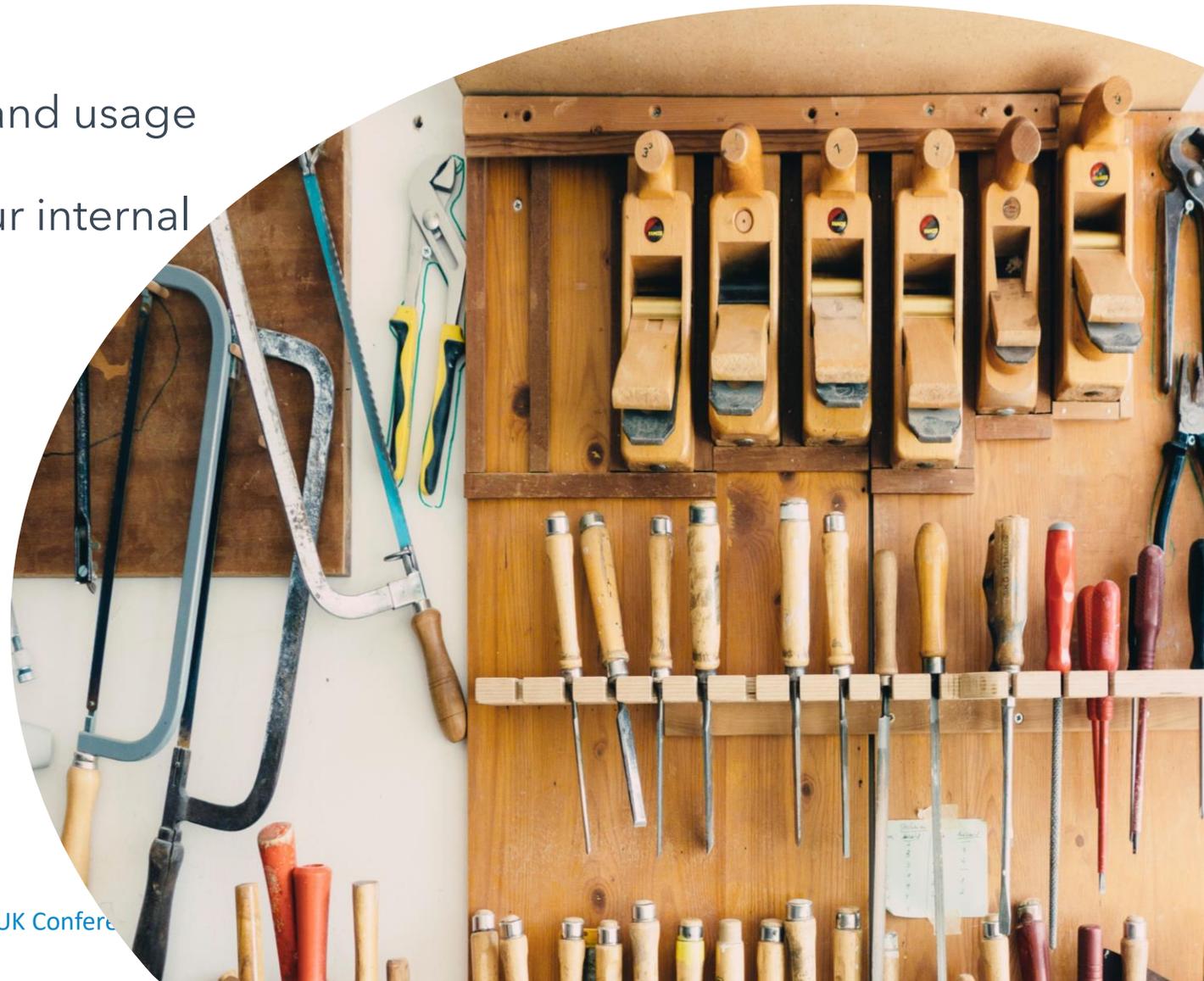
Data Task Force for easier submissions

Promote Data Usage

Do you need help in getting started?

GCD Executives work together with you

- ❑ Strong Support for data preparation and usage
- ❑ Get resources to analyze/improve your internal GCD data workflow (Data TF)
- ❑ Get customized benchmark reports



Benefit from data access before delivering data

Give-and-get instead of give-to-get

□ **Background:**

- In practice, the “Give to Get” principle that applies to GCD member banks requires some adaptation under specific circumstances when a member bank is asking to receive data from GCD before it can contribute data to GCD.
- There are new member banks momentarily not able to submit data to GCD because they decided to become member while they just initiated their data collection process; there are also existing member banks pausing their data submissions to GCD from time to time for practical reasons (internal reorganisation, evolution of data strategy). Such members may need to benefit from a GCD data return before they would be able to deliver data.

□ **Key Principles:**

- Based on the approval of the GCD board of directors from March, 27th 2019: the special data return can be granted subject to the acceptance by the member bank of a *Memorandum of Understanding for Special Data Return* (MOU) which should include following elements:
 - Evidences of portfolio and defaults
 - Project plan for data submission to GCD
 - Evidences that the member can deliver data to GCD

APPENDIX

Members of the Methcom

- ❑ Stephan Jortzik, ANZ (chair)
- ❑ Michael Jacobs, PNC (co-chair)
- ❑ Clemens Mesterom, NIBC
- ❑ David MacArthur, RBC
- ❑ Haibo Huang, Morgan Stanley
- ❑ Maximillian Schwarz, Deutsche Bank
- ❑ Michael Eichhorn, KfW Bankengruppe
- ❑ Michel van Beest, ABN Amro
- ❑ Patrik Gunnarsson, SEB
- ❑ Pubudu Premawardena, Scotiabank
- ❑ Rohan Surana, Credit Suisse
- ❑ Stuart Neilson, Citibank
- ❑ Xingzhang Zhu, Capital One

Summary Data platform participation

Member participation LGD platform as of H1/2022

1. Type of GCD submission support

	#Banks
No (former member bank)	21
No (Bank has currently no interest)	1
Onboarding (new members)	3
Regular submission support	38
Re-Onboarding submission support	9
Total	72

2. When has the last submission be done

	#Banks
Before 2014	2
H1 2016	1
H1 2016	2
H1 2019	3
H2 2019	4
H1 2021	3
H2 2021	9
H1 2022	23
Total	47

3. Full submission requirement fulfilled by H1/2022

	#Banks
For some asset classes	6
NO	7
YES	34
Total	47

Member participation PD platform as of H1/2022

	#Banks
Only old data collection	1
Aggregated	4
Unaggregated	23
Total	30

Member participation Benchmarking platform as of H1/2022

	#Runs	#Banks
Clusters	1	8
Benchmarking Name	1	13

LGD / EAD platform:

- 47 active members (9 require re-onboarding), plus 3 onboarding
- Full resubmission requirement* mostly fulfilled (big data quality improvement!), but some banks still outstanding

PD platform:

- 30 active participants
- 23 banks submit unaggregated data, 2 more than previous year, confirming the increasing interest from banks.

Benchmarking platform:

- 17 distinct banks participating, 2 runs in half year.

* Banks are required to deliver every 3 years all of their data and fulfill the latest data quality requirements