2015
ICC TRADE REGISTER REPORT

GLOBAL RISKS IN TRADE FINANCE

Regulatory updates ❯

Analysis of Short-term Trade Finance products ❯

Analysis of Medium to Long-term Export Finance products ❯

Evolution of the ICC Trade Register ❯

ICC INTERNATIONAL CHAMBER OF COMMERCE

The world business organization

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LIST OF ACRONYMS

AML	Anti-Money Laundering
AVC	Asset Value Correlation
BCBS	Basel Committee on Banking Supervision
BIS	Bank for International Settlements
bp(s)	Basis Point(s)
CAGR	Compound Annual Growth Rate
CCF	Credit Conversion Factor
CIS	Commonwealth of Independent States
CRR	Capital Requirements Regulation
EAD	Exposure At Default
EC	European Commission
ECA	Export Credit Agency
ECB	European Central Bank
EL	Expected Loss
FI	Financial Institution
GDP	Gross Domestic Product
ICC	International Chamber of Commerce
IMF	International Monetary Fund
KYC	Know Your Customer
KYCC	Know Your Customer's Customer
L/C(s)	Letter(s) of credit
LCR	Liquidity Coverage Ratio
LGD	Loss Given Default
MLT	Medium to Long-term
NSFR	Net Stable Funding Ratio
OECD	Organisation for Economic Co-operation and Development
PD	Probability of Default
PRA	Prudential Regulation Authority
RWA	Risk Weighted Assets
SME	Small and Medium-sized Enterprise
TF	Trade Finance
WTO	World Trade Organization

FOREWORD

The ICC Trade Register, and the resulting annual Report, remain the only comprehensive, authoritative and widely referenced source of default and credit risk data for Trade and Export Finance in the world today.

The Trade Register Report has underpinned effective advocacy efforts from the ICC Banking Commission and numerous industry and international association stakeholders and partners, and will continue to serve to advance dialogue and deliberations around the financing of international trade.

The current version of the Trade Register Report reflects significant improvements in project execution, data collection and analytical methodology, and represents an important step ahead in the ongoing evolution of the Project, strengthening the foundation upon which the Project scope and objectives will be extended over the coming years, while retaining focus on the critically important Basel-aligned analysis of credit risk in Short-term and Medium and Long-term Trade Finance.

The level of engagement of our Member Banks, as providers and owners of the project data and contributors of project funding, resourcing and support, cannot be overstated. Likewise, the continuing relevance and importance of this data, the related analytics and the resulting advocacy work is reinforced by the continuing requests for consultation by the Basel Committee. The Trade Register Report continues to be referenced by industry regulators and stakeholders in a variety of reports and at numerous leading events around the world and will, with the planned extensions of product coverage and scope of analysis, become increasingly important in its contributions to the shining of further light on the business of financing international commerce and global supply chains.

In addition to the enhancement in process and execution, we would be remiss in not acknowledging the invaluable contributions of our three new Senior Technical Advisors (TAs), Henri d'Ambrières of HDA Conseil in Paris, Krishnan Ramadurai of HSBC in London and Hugo Verschoren of ING Bank in Brussels. Our team of TAs have invested significant time and effort (Krishnan and Hugo with the support of their respective institutions) to greatly enhance the methodological strength of the Project and of the 2015 Report. We also take this opportunity to acknowledge the support and efforts of Oliver Wyman in advancing the evolution of the Project and this annual publication.

Following a decision last year to seek to provide value to our Member Banks, by keeping the report as a private document, we are now reverting to full publication of the analysis and findings, as it is clear that the value of the Project and of this Report is greatest when it enables industry dialogue and engagement: this at a time when trade continues to be central to economic value-creation and economic development round the globe.

As the 2015 ICC Trade Register Report is being finalised and prepared for publication, efforts are already underway to plan for new partnerships, extension of scope and enhancement of methodology in 2016. Relatedly, we will seek to devise a benchmarking and analytics database for Member Banks, and actively encourage involvement from new contributors to the Project for the coming year.

In the meantime, we hope the following pages will contribute to an enhanced appreciation for the risk characteristics of Trade Finance, continue to inform the development or refinement of appropriately balanced regulatory treatment of the industry, and perhaps help initiate constructive dialogue with potential investors looking at trade as an attractive asset class, and with other interested parties.

We welcome your comments, feedback and suggestions for enhancing the ICC Trade Register Report.

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

This report, produced by the ICC Banking Commission in collaboration with Oliver Wyman, presents a view of the risk profile of the Trade and Export Finance industry globally, with particular focus on credit-related default and loss experience.

The 2015 edition of the Report continues to address Short-term as well as Medium and Long-term Trade and Export Finance transactions. The underlying data set:

- Is contributed by 23 participating banks

- Includes over 13 million transactions from 2007 to 2014, following a rigorous data filtration and quality assurance process and adding 2 years of new data (2013 and 2014)

- Encompasses a total exposure of over US$7.4 trillion

This report is an update to previous years' reports on risk in Trade and Export Finance based on the rich data set provided by Member Banks through the ICC Trade Register (also referred to as "the Trade Register"). The Trade Register's main purpose is to serve as an authoritative, trusted source of credit-related risk data on Trade and Export Finance, and to underpin fact-based dialogue with industry stakeholders and regulatory authorities. The data and the analytical methodology continues to be aligned with global standards in risk measurement and risk management as defined by the Basel Committee.

For this year's report we have taken a significant step forward towards fully aligning our approach with the Basel methodology, while continuing to build out the underlying data base. Material progress in dataset size and quality as well as in analytical methodology has enabled robust, Basel-aligned analysis and representation of results across the following dimensions:

- Probability of Default (PD) on an obligor level has been reported and compared with transaction level default rates

- Loss Given Default (LGD) figures per product group have been calculated based on transaction level information

- Insight into Exposure at Default (EAD) has been increased through case study examples, such as a study showing product "lifecycle" data. This allows insight into process, recovery and payment activities in the life of a transaction. For EAD, the focus of the Trade Register will be to move to a fully statistically reliable data base in the process of a continuous build-out

For the purposes of calculating Expected Loss, EAD has been set at 100% for contingent Trade products like Letters of Credit, which is a very conservative treatment in the absence of statistically robust EAD data.

In addition to the methodological advances, there has been a significant increase in the data sample size for this year's report, driven by:

- Improved clarity and consistency in definitions of required data elements

- Repeat participants in the ICC Trade Register enhancing their data gathering capabilities for the required data format

- New participants contributing to the ICC Trade Register initiative

- Enhanced project execution relative to data filtration and data quality

As a result, the underlying data base, in particular for Short-term Trade Finance, has been expanded significantly and allows for analysis that is even more robust than in past years, as intended in an initiative that is designed to evolve iteratively each year. Dataset size and quality related to Export Finance (Medium and Long-term Trade Finance) remains high.

Over all, data quality in terms of completeness, alignment with the formats required to allow for Basel-compliant result calculations, consistency and fundamental accuracy has improved materially. Thus the number of data points which had to be excluded from the data base in the cleansing process has been reduced significantly from previous years.

Despite these improvements, there are challenges in the data set, in particular focused on historically consistent time series analyses or transaction lifecycle analysis for deriving EAD. However, with the continuing build-out of the data gathering capabilities at the participating banks and the clear development path devised by the ICC Trade Register Project, it will be a priority to address these gaps in the coming years and hence arrive at a fully Basel-aligned statistical representation of credit risk in Trade and Export Finance globally.

With the improved alignment with the methodology of the Basel Committee, the analysis continues to demonstrate the low risk profile of Short-term Trade Finance. Short-term products have the following risk characteristics:

- Low default rate across all products covered by the Trade Register – both at customer and transaction level. In fact, they only reach on average one fifth of comparable Moody's default rates, with the customer default rate being higher than the transaction default rates, hence strongly reinforcing the hypothesis that Trade Finance products have a relatively low likelihood of default

- Short maturity – most products have a shorter average tenor than 170 days, except for Performance Guarantees which have a longer tenor

- Event driven – the default event depends on the outcome of other preceding events – or the lack thereof – in the course of processing a Trade Finance transaction. In the context of L/Cs, one such event might be the presentation and acceptance of the shipping documents which will influence LGD; in the case of Guarantees it might be the non-performance or non-payment envisioned in the Guarantee itself

- Low overall transaction-level loss rate – taking into account the default rate, a very conservative assumption on EAD (100%) and LGD on every transaction, the average total customer level Expected Loss for Trade Finance products is less than one-tenth of the expected loss of the Moody's rated universe over the 2008–2014 period for LCs and Guarantees and approximately one fifth of the same for Loans for Import/Export

A similar conclusion can be drawn for Medium to Long-term (MLT) Trade Finance. MLT Trade Finance products in the Trade Register are currently defined as those with the backing of an Export Credit Agency (ECA) from a high-income OECD country. Thus, in the event of default, banks should receive recoveries from the ECA at the coverage percentage agreed, as well as potential recoveries from the borrower on the portion not covered by the ECA. As a result, the expectation is that losses will be low unless the ECA itself defaults, which is considered unlikely as the ECAs covered in the Trade Register are government-sponsored and usually have investment grade ratings. Hence:

- Whilst the default rate for MLT transactions is already relatively low (less than 50% of Moody's published corporate default rates), the ECA coverage further contributes to the overall low risk of these products

- This can be demonstrated for cases where the ECA recovery has been completed or the ECA has accelerated payment – then the majority of amounts falling due have been recovered

- For Basel LGD purposes recoveries need to be discounted and cost for recovery included, which leads to a LGD of approximately 5%

- Resulting overall is an Expected Loss (EL) of approximately 0.02%, which suggests, as with the Short-term results, the observed EL for MLT Trade Finance products to be much lower than the EL expected for "vanilla" corporate lending, reflecting the benefits of the ECA guarantee

The ICC Trade Register has made significant advancements over the past years. That said, it must be highlighted that the effort to drive further enhancements and to improve the methodology is continuing. This year, the ICC Trade Register project team has undertaken a review and revision of the strategic plan for the Register. The high-level objective continues to be enhancing and reinforcing the default data gathering process and related analytics which are at the core of the Register. The ICC Trade Register project team, in close consultation with our Member Banks, will concurrently seek ways to expand the scope of the Register in order to cover an even broader set of products, risk types and other characteristics of the Trade and Export Finance business going forward.

For short-term trade finance, the analysis of the data in the Trade Register shows:

FIGURE 1:
Analysis of short-term trade finance data in the Trade Register

Product	Transaction default rate	Exposure weighted default rate	Obligor default rate	Moody's rating for comparable default rate
Export L/C	0.01%	0.02%	0.04%	Aaa - Aa
Import L/C	0.08%	0.07%	0.29%	Baa
Performance Guarantees	0.17%	0.11%	0.43%	Baa - Ba
Loans for Import / Export	0.22%	0.17%	0.72%	Ba

FIGURE 2:
Expected Loss calculation by product, 2008–2014

	Customer default rate	EAD	LGD	Customer EL	Transactional EL	Exposure-weighted EL
Export L/C	0.04%	100%	42%	0.02%	0.00%	0.01%
Import L/C	0.29%	100%	29%	0.09%	0.02%	0.02%
Performance Guarantees	0.43%	8%	54%	0.02%	0.01%	0.01%
Loans for Import/Export	0.72%	100%	38%	0.27%	0.08%	0.06%

Note: LGD at 9% discount rate and 2% costs. Transactional EL and Exposure weighted EL are based on the Transaction and exposure weighted transaction default rates respectively. The exposure weighted LGD is used for all EL metrics

For MLT Trade Finance transactions, the analysis of the data in the Trade Register shows:

FIGURE 3:
Analysis of medium and long-term ECA-backed transactions

Asset category	Transaction default rate	Exposure weighted default rate	Obligor default rate
Corporate	0.68%	0.39%	0.89%
FI	1.43%	1.28%	1.42%
Sovereign	0.15%	0.08%	0.28%
Specialised	0.49%	0.23%	0.48%
Total	**0.71%**	**0.37%**	**0.88%**

FIGURE 4:
Recoveries and estimated LGD

	ECA Recoveries	Customer Recoveries	Total Recoveries	Loss Rate	Discounting[32]	Costs	LGD
Observed	96.7%	0.8%	97.5%	2.5%	1.3%	1%	4.9%
Expected	94.4%	1.4%	95.8%	4.2%	0%	1%	5.2%
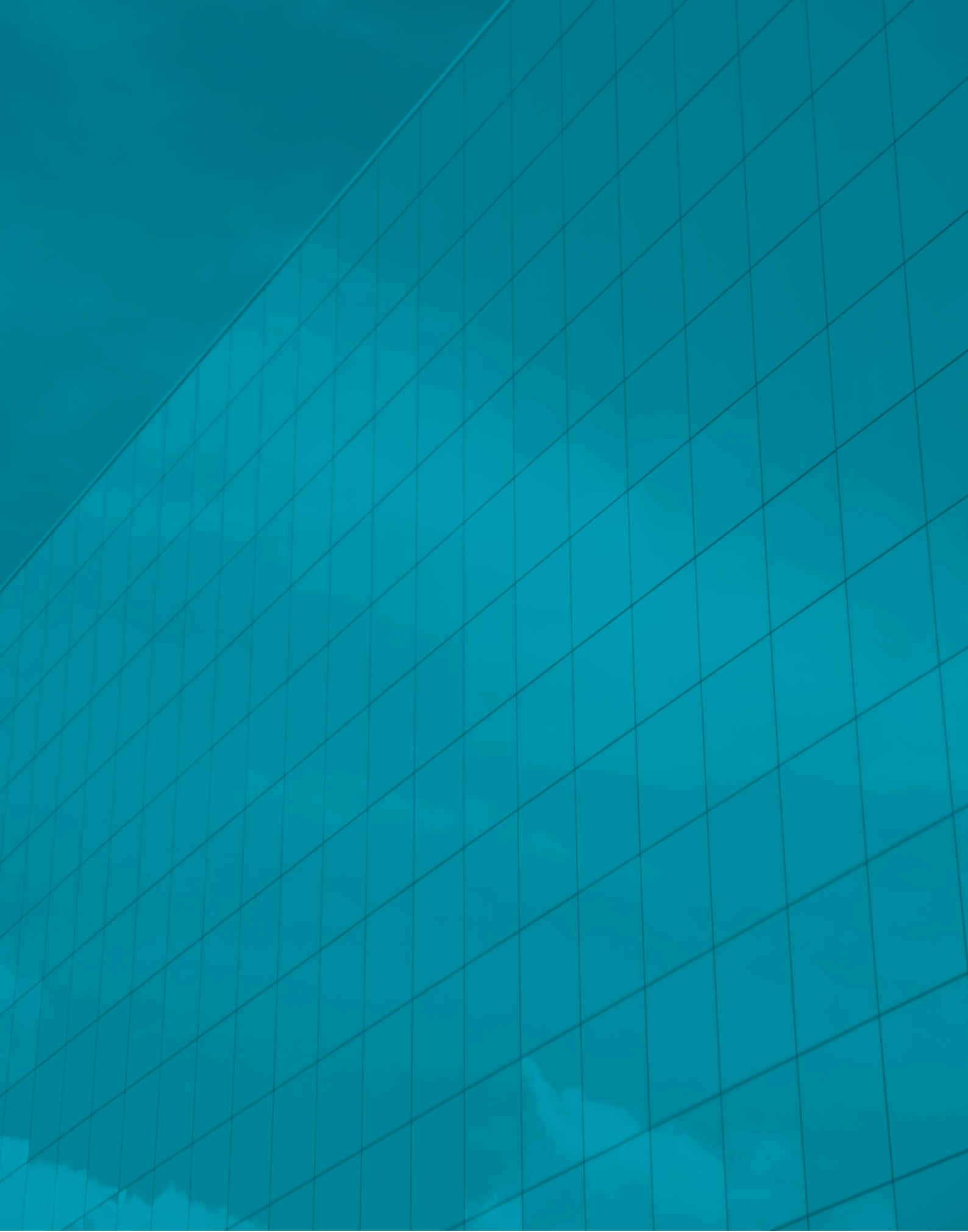
THE FULL REPORT

1. INTRODUCTION

1.1 Introduction to the report

This report presents a global view of the credit risk profiles of Trade and Export Finance transactions as gathered in the ICC Trade Register. The ICC Trade Register – initially conceived and funded by the Asian Development Bank (ADB) – was established in 2009 by the ICC Banking Commission in order to provide a data repository to regulators, policy makers and the industry that demonstrates the low-risk nature of the transactions that enable global trade and the trillions in economic value that flow from these commercial activities. The report analysing the results of the data register was produced by the International Chamber of Commerce Banking Commission in collaboration with Oliver Wyman, based on data owned and contributed by Member Banks, and on analytical methods agreed between Oliver Wyman, Member Bank specialists and the Banking Commission Project Team and Senior Technical Advisors. The 2015 edition of the report continues to support core findings from past years, consistently supporting industry assertions about the low-risk nature of trade and export finance.

Over time, the Trade Register project has evolved to align the overall methodology and definitions to be increasingly consistent with the Basel framework. In 2013, a significant step forward was made in this evolution with implications on the underlying data sets collected for the purpose of the analysis. As a result, the format of the report has varied over time, but the objectives of the Trade Register project as a whole remain consistent:

- To provide an objective and transparent view of the risk profile and characteristics of Trade and Export Finance (Short, Medium and Long-term) using a rich base of industry data, with the intention of contributing to informed policy and regulatory decisions relative to Trade and Export Finance

- To progress the understanding of Trade and Export Finance, its importance to global trade and the highly effective global risk mitigation capability to a broad audience of interested parties

- To promote understanding of the international regulations affecting bank capital requirements for Trade and Export Finance, and their history and objectives, in order to create a uniform global view of this industry as part of the ICC Banking Commission's commitment to effective and collaborative advocacy

The analysis and findings of this report are based upon a representative set of both Short and Medium to Long-term Trade and Export Finance transactions globally, contributed by 23 Trade and Export Finance banks (reflecting more than 13 million transactions totalling an exposure in excess of US$7.4 trillion).

1.2 Scope and limitations of the Project

Given the complexity of gathering representative data across a multitude of banks internationally, the Trade Register and this report are currently focused on the following key products and risks, although the intention is to evolve the scope over time:

Product scope: The product scope for Short-term products includes:

- Issued Import Letters of Credit (for simplicity referred to as Import L/Cs throughout this report)

- Confirmed Export Letters of Credit (referred to as Export L/Cs)

- Loans for Import and Export

- Performance Guarantees and Standby Letters of Credit (referred to as Performance Guarantees)

The product scope of Medium to Long-term Trade Finance products is limited to products where an OECD Export Credit Agency has provided a state-backed guarantee or insurance to the trade finance bank

Risk scope: The risk scope is currently restricted to credit risk

As the ICC Trade Register is evolving, in terms of participating banks and methodological alignment with Basel, there are some limitations of which readers should be aware:

- **Data quality and completeness:** Both the data collection process and the underlying data set gathered for the purpose of the trade register are highly complex in nature. In some cases, submitted data does not meet the required data quality standards in terms of accuracy or completeness. As such, great care is taken through the data validation and filtering process to ensure that the application of consistent definitions across banks and that the data set used for the purpose of our analysis is of high integrity and robustness.

- **Comparability of results:** The methodological enhancements in 2013, as well as the addition of new participants to the Trade Register, impact the comparability of this report's results with previous editions. Recognising the limitations that participants face in collecting the data and the variability across banks, the ICC Trade Register project team has sought to use as much as possible the data contributed to the Trade Register. In some cases this means that the underlying data sample across presented analyses may differ.

As the Trade Register continues to evolve, achieving the highest possible degree of year over year comparability is a key priority and the iterative nature of the data collection efforts and overall approach is a testament to this. However, when analysing the findings of this report and in particular when comparing results over time and across analyses, the reader should remain conscious of the evolving nature of the project, the data and the analytical methodology used each year.

The following two sections contain a more detailed elaboration on the in-scope products and risk types as well as the considerations around data availability and comparability of results.

2. IN-SCOPE PRODUCTS AND RISK TYPES

This report is based on data gathered as part of the long-term ICC Trade Register project. Whilst there is a clear development path in terms of expanding the Trade Register, the scope of the register has been limited consciously in order to:

• Allow for methodological consistency on a sub-set of Trade and Export Finance products, which ensures that the appropriate level of granularity and methodological consistency can be achieved;

• Standardise results across banks, fundamentally enabling an industry-wide consistent data set and representative conclusions over time;

• Keep the data gathering process manageable for the banks participating in the Trade Register;

• It is the objective of the ICC Trade Register Project to expand the product and risk scope step by step in close consultation with Member Banks and on the basis of evolving market needs and expectations.

2.1 In-scope "Short-term" Trade Finance products

For the purpose of the ICC Trade Register and the analyses in this report, "Short-term" Trade Finance products are defined as instruments facilitating trade transactions with a maturity of typically less than one year and with a clear link to a specific trade transaction. However, it should be noted that, particularly in the context of Standby Letters of Credit and Guarantees, these can have maturities in excess of one year. As noted above, participating banks are requested to submit data for four separate product categories. A more detailed definition of these product categories is included in Figure 1 and further detail on product descriptions and their use in Trade Finance is included in the Appendix.

While the project aims to present a representative sample of products for Trade Finance it currently only covers some of the main, traditional Trade Finance products. There are a number of products within the Trade Finance universe that are not considered in the data collection including but not limited to receivables finance and various forms of supply chain finance arrangements. Certain specialised categories of trade-related financing, such as commodity finance, are also not specifically included in the data collection exercise.

In scope products	Definition
Issued import L/Cs (For simplicity referred to as Import L/Cs throughout this report)	Documentary Letter of Credit issued by the participating bank, covering the movement of goods or services
Confirmed Export L/Cs (Export L/Cs)	Documentary Letter of Credits confirmed by the participating bank but issued by another bank also including "silent confirmations" Consequently, it should be noted that the vast majority of exposures in this product category constitute bank risk
Loans for Import/Export	All loans classified as "trade" including but not limited to clean import loans, pre-export finance and post-import finance Participating banks are asked to report Loans for Import and Loans for Export separately; additionally, a breakdown of loans where the counterparty is a bank and loans where the counterparty is a corporate is also requested
Performance Guarantees and Performance Standby Letters of Credit (Performance Guarantees)	Guarantee instruments issued by the participating banks, representing an irrevocable undertaking to make payment in the event the customer fails to perform a non-financial contractual obligation Note – only includes performance instruments as distinguished from financial guarantee instruments (as determined by the nature of the contractual obligation that would trigger a payment under the guarantee)

2.2 In-scope "Medium to Long-term" Trade Finance products

For the purpose of this report, Medium to Long-term (MLT) Trade Finance products purely focus on transactions where the trade is:

- A loan backed by an official Export Credit Agency, ECA, representing the full faith and credit of their respective government

- The ECA is based in a high-income OECD member country

- The protection purchased from the ECA covers commercial risk or political risk (or both of these dimensions)

Consequently, the characteristics of the ECA-backed Medium to Long-term Trade Finance transactions in the Trade Register differ from those of the "Short-term" Trade Register in terms of design, timeframe and risk profile. The key structural differences include:

- Maturity: while Short-term products (except for Stand-by LCs and Guarantees, as noted earlier) have maturities in terms of months, the majority of the MLT ECA-backed products in the Trade Register have a maturity of multiple years, ranging up to 15 years

- ECA coverage: ECAs offer protection against non-payment by the buyer/importer to the bank extending credit. The ECA cover is backed by the full faith and credit of the ECA's government and is most commonly provided in two forms:

  - Guarantee – Typically involves 100% protection for covered risks in the case of default

  - Insurance – The protection provided to the lender is usually less than 100% (i.e. the lender remains exposed to the residual risk) due to the coverage being conditional on a number of obligations, as well as a waiting period and other features that align the pay-out structure with the original repayment schedule

  Under both forms of cover, the type of risk protection can vary. For example, ECAs nearly always cover the political risk in a high proportion (in the range of 90 to 100%) and also cover commercial risks (in the same or a slightly lower proportion than political risks). Commercial risk typically involves buyer/corporate credit risk, but can also be bank risk in instances where a bank acts on behalf of a corporate customer or guarantees the obligations of a customer or borrows in foreign currencies before relending in local currencies to a client. The percentage taken into account for a comprehensive cover is the minimum percentage covered under political risk and commercial risk. It should be noted that there are additional technical differences between insurance and guarantees which may impact the level of coverage and the mechanisms to trigger and collect a claim. Moreover, ECA cover does not exclusively apply to Medium and Long-term transactions but is also obtained for Short-term transactions in some cases.

  The protection provided by an ECA not only extends to principal payments, but also to interest payments due under the transaction. The ECA will often make these repayments in line with the original amortisation profile of the transaction.[2]

- Idiosyncratic risk: ECA-backed Medium to Long-term transactions are typically managed on an individual basis rather than on a portfolio basis (as with Short-term products) given the characteristics of these products

For the purpose of this report, MLT transactions are split into four specific asset categories to allow for analyses of the exposures to each of these categories, as listed in Figure 2.

FIGURE 6:
Definition of MLT asset categories

Sovereign

This category covers all exposure to counterparties treated as sovereigns under the standardised Basel approach. This predominantly includes sovereigns and their central banks. However, certain Public Sector Entities (PSEs), e.g. regional governments and local authorities identified as sovereigns in the standardised Basel approach are also included in this category.

Financial institutions

Banks and non-bank financial institutions including leasing companies.

Corporate

In general, a corporate exposure is defined as a debt obligation of a corporation, partnership or proprietorship. This excludes "Sovereigns", "Financial Institutions" and "Specialised" as separately defined. Contrary to "Specialised", the source of repayment of the loan is based primarily on the ongoing operations of the borrower, rather than the cash flow from a project or property.

Specialised

- The economic purpose of the loan is to acquire or finance an asset

- The cash flow generated by the collateral is the loan's sole or almost exclusive source of repayment

- The subject loan represents a significant liability in the borrower's capital structure

- The primary determinant of credit risk is the variability of the cash flow generated by the collateral rather than the independent capacity of a broader commercial enterprise

Examples include: Project Finance, Income producing real estate, Object Finance (e.g. ships, aircraft, and satellites), Commodities Finance.

Source: ICC Trade Register, broadly aligned to BCBS asset class definitions

2.3 In-scope risk types

The Trade Register was set up with the primary goal of correctly representing the frequency and magnitude of risk that banks face due to credit exposure. As a result, the risk scope is currently restricted to credit risk. The focus on credit risk is driven primarily by the fact that it is the largest contributor to reported losses by banks across all portfolios in the context of "business as usual" activities, including Trade Finance. It is acknowledged that losses stemming from operational and reputational risks and fraudulent transactions though infrequent in nature can have a significant impact on loss numbers reported. The figure overleaf provides an overview of additional risks that banks may be exposed to in conducting Trade and Export Finance related activities.

Banks and other participants in Trade Finance activities actively look to mitigate all of these risks by putting in place robust processes, checks and balances and appropriate structures. Furthermore, the risks are controlled and monitored as part of regulatory requirements and in many cases will have capital set aside by banks to help further mitigate the risk.

Risk type	Description	Exposure point
Credit risk	Risk that an obligor/ counterparty will default on a debt by failing to make the required payments	All outstanding transactions
Operational risk	Risk of loss from inadequate or failed processes, people or systems errors Operational risks also include fraud risk, i.e. the risk that payment will be made with falsified claims or documents, or concerns a fake or falsified transaction	Day to day handling of customer orders and documents (document handling and checking)
Legal, Regulatory and Compliance-related Risks	Risk of litigations and subsequent costs	Ongoing operations – in particular the creation and checking of documents and decisions to write new business (e.g. violating regulatory KYC or AML requirements)
Liquidity and refinancing risks	Risk of not being able to meet short-term financial demands Risk of not being able to raise long-term funds to match long-term loans	When claims are made on outstanding contracts Refinancing of long-term loans
Reputational risk	Risk to the reputation of the bank (and hence its valuation)	Decisions to write new business (e.g. violating KYC or AML requirements)

3. METHODOLOGICAL APPROACH AND DATA AVAILABILITY

Several methodological decisions have been made while constructing the Trade Register and as noted above, methodological enhancements have been made over time. An appreciation for methodological issues and considerations will assist in interpreting the analysis and conclusions presented in this Report.

3.1 Methodological decisions

An important methodological imperative to date has been to align the analysis and calculations to a Basel-compliant view as the Basel regulations provide a uniform methodology with which to assess and manage (credit) risk.

There has been a multi-year effort, which is still ongoing, to align the data structure of the Trade Register, the methodology on a more detailed level and the calculations for the analytical results to a Basel-compliant view. Specific explanations on methodology and calculations are mentioned in the relevant sections prior to results and a full discussion on MLT calculations is shown in Appendix D.[3] Last year significant improvements were made in data collection and methodology that allowed greater alignment to the Basel approach, in particular:

- Probability of Default (PD) is reported at an obligor level and compared with transaction level default rates

- Loss Given Default (LGD) figures are calculated per product group based on transactional data

- There is increased insight into Exposure at Default (EAD), albeit there remains further work to be done in order to derive robust results for all products

- Reported Expected Loss figures produced are consistent with the underlying Basel methodology for the calculation of EL across various asset classes (i.e. Sovereign/Bank/Corporates)

3.2 Data availability

The data collection under the revised methodology is now in its second year (covering three years of data from 2012–2014) and significant improvements have been realised:

- Significantly larger data set from more banks than ever with more data points across years

- More complete data set across particularly the granular data categories such as geographical breakdowns

- Enhanced consistency of data items across submitted data sets and between contributing Member Banks

- Established data gathering and data processing across many participating banks, including all year-on-year improvements in systems, data extraction and cleansing

Despite recent improvements there are several difficulties in the data gathering process that should be considered when reviewing the results:

- Data definitions and terminology may vary between Member Banks, requiring a significant verification and validation effort to assure maximum accuracy and consistency of data elements

- Data sourcing, collection and submission may involve multiple systems within a single financial institution, and may require manual intervention. This can introduce error into the dataset

- Data is not always accessible/available at the desired level of detail and granularity, such that some observations can only be presented in aggregated form, rendering some comparisons difficult

One specific area where the number of observations is considerably smaller than for other analyses is the recovery rate/LGD analysis. Not only is this the result of the low number of defaults, but it is also due to the fact that many banks on default of an obligor, aggregate exposures and recovery data at either a customer or facility level and are not able to break these down into transaction/product level information, which would be required to estimate recoveries and losses.

To account for these challenges and to ensure data quality, consistency and comparability, an iterative three-step data cleansing process has been used to compile the final data-set:

1. Critical evaluation of data quality, identifying outliers, likely data errors and any other issues per each bank's submission

2. Iteration of observed questions and challenges with submitting bank

3. Filtering of unresolved issues or likely erroneous data points, including omission of certain years, products and banks where necessary (in collaboration with the submitting banks)

This process has resulted in a robust dataset on the basis of which solid conclusions can be drawn. The foregoing process has resulted in a smaller number and proportion of excluded data, and thus a larger qualified, quality-controlled data set than was previously available to the Project.

3.2.1 Quality and quantity of submitted data

As the Trade Register evolves, so too does banks' ability to submit accurate, granular data. The 2014 data set shows a significant step forward both in terms of quality and quantity over the datasets used in previous editions of this report.

For the Short term Trade Register, 85% of the transactions now included in the Trade Register have successfully passed the data filtering process, resulting in a stable data set of 13.4 million transactions. This compares to 4.6 million transactions post-filter in previous years' analyses and hence demonstrates the significant improvement in breadth and depth of the Trade Register and the related strength of the 2015 Report. However, it also means that aggregated results are more heavily influenced by more recent years.

For MLT, the filtering process also excludes approximately 15% of available transactions. This results in 33,800 transactions available for analysis, which is an increase over previous year's data set by almost 60%.

As noted above, due to the complexity of data access in complex global Financial Services firms and resultant limitations to data availability, not all participants are able to complete the data collection templates in full. Therefore, in some cases different subsets of the data have been used for different analyses. This is to include as many observations as possible and therefore arrive at the best possible representation of the in-scope Trade Finance universe.

Figures 4 and 5 show the number of transactions and participants whose data could be included in the main analyses presented in the subsequent sections. It should be noted that this is not a comprehensive overview of all aspects of the analysis contained in this report. Additional commentary on data quality and completeness related to specific analyses is included in relevant result sections and in the Appendix.

3.2.2 Future developments of the Trade Register

The 2015 Trade Register has made significant advances from the Trade Register that underpinned previous reports. However, there is a desire to continue to improve and enhance the methodology as well as the data set. In 2015 the ICC undertook a strategic review to outline the direction in which the Trade Register will continue to evolve. The key outcome of the review was that the Trade Register must expand in product coverage and in its treatment of risk beyond the current focus on credit-related risk analysis.

FIGURE 8:
Quantity of data used in Short-term analysis

	# Participants	# Transactions	Exposure ($ BN)
Submitted data	20	15,900,000	N/A
Data used for default rate calculations	17	13,400,000	6,840.7
Data used for recovery rate analysis	10	2,200	1.4

FIGURE 9:
Quantity of data used in MLT analysis

	# Banks	# Transaction	Exposure ($ BN)
Submitted data	17	40,000	N/A
Data used for default rate	17	33,900	544.3
Data used for recovery rates	10	198	1.3

In the near term, the Trade Register is likely to remain the only source of industry wide data on credit risks in Trade and Export Finance. Specific near term priorities include enhancing the data set underlying the LGD and EAD analysis. Possible future extensions that are under consideration include:

- Broadening the product scope to also include Supply Chain Finance (acknowledging that definitions of Supply Chain Finance and related techniques are currently under development)

- Broadening the scope of the MLT Trade Register to also include non-OECD based ECA transactions

- Broadening the risk scope to also include Operational risk

- Strengthening collaboration with other industry bodies to develop and maintain a unified source of global industry data, analysis and advocacy

The priority in which these scope extensions occur will be determined in close consultation with Member Banks and in light of market requirements and expectations relative to data, analysis and advocacy around the financing of international trade.

4. REGULATION

One of the aims of the Trade Register is to provide an objective and transparent view of the risk profile and characteristics of Trade Finance, with the intention of contributing to informed policy and regulatory decision making relating to Trade and Export Finance. By providing this understanding and an evidence base, the ICC Banking Commission aims to contribute to the achievement of a balanced, risk-aligned regulatory treatment of Trade Finance activity.

The main regulations that affect Trade Finance are the Basel Accords on capital adequacy, liquidity and leverage, as well as regulations relating to AML/KYC/KYCC and sanctions. These were covered in detail in the 2013 report[4] and an overview of key updates to the regulation was provided in the 2014 summary report[4]. As a result this report only gives a brief overview of the Basel requirements and updates over its lifespan as well as providing some perspectives on some of the most important regulatory themes currently: the new standardised approach proposals and treatment of Credit Conversion Factors (CCFs).

4.1 Overview of Basel II requirements

The Basel accords are a set of internationally agreed capital standards that aim to assess the amount of capital banks need to hold to remain solvent. For credit risk this means that banks should hold capital against on balance sheet exposures (e.g. term loans) and off balance sheet exposures (such as revolving facilities and contingent products such as L/Cs).

For banks or portfolios which are not complex and not internally diversified, the Basel accords prescribes a standardised approach to determining capital requirements. This approach defines the capital requirements based on broad customer/product categories and does not reflect banks' own assessments of the risk.

For banks or portfolios that meet minimum data submission thresholds (and with more advanced risk measurement and management capabilities), the Basel accord allows banks to use an "Internal Ratings Based" approach to determine the capital requirements. Under this approach the amount of capital banks have to hold against these exposures is a function of:

- The customer default risk within 12 months (Probability of Default or PD), with riskier customers having higher probability of defaults (PDs)

- EAD is the nominal exposure at default plus the undrawn amount of a trade facility multiplied by a conversion factor where the conversion factor is an estimate of the likelihood of an undrawn trade facility being drawn down. This would be applicable to both funded and unfunded trade facilities and products. However, the conversion factor is often referred to as the credit conversion factor (CCF) which under the standardised and IRB-Foundation approach is an estimate of the exposure or on balance sheet exposures of L/C and Guarantees. Note therefore that the use of the terminology CCF denotes a dual use one as an estimate of the likelihood of undrawn trade facilities being drawn down and the other as an estimate of the exposure or on balance sheet exposure of L/Cs and Guarantees

- The Loss Given Default (or LGD) which will reflect customer and exposure characteristics such as the existence of collateral and the seniority of a bank's claim

- The tenor or maturity of the product (with products with longer tenor requiring more capital to be held)

- The customer segment (known as the asset class[5]) which is intended to reflect the sensitivity of customer default rates to the economic cycle

These characteristics are combined through a prescribed formula to determine the Risk Weighted Asset (RWA) of each exposure, which in turn generates a minimum capital requirement for each exposure. These are then aggregated to calculate the total capital that needs to be held by a bank.

4.2 From Basel II to Basel III: Impact of the Trade Register and the Banking Commission Report

In response to the financial crisis which began in 2007–2008, the Basel II rules were overhauled with new requirements added around:

- Liquidity risk – Basel III introduced two new measures to help address one of the causes of bank failures during the crisis which was a lack of liquidity. Thus the Liquidity Coverage Ratio was introduced to enhance the level of liquid assets which banks hold, whilst the Net Stable Funding Ratio was announced to better align the maturities of assets and liabilities across bank portfolios, reducing overall mismatches and thereby reducing risk

- Leverage – as a backstop to banks holding "low" levels of capital due to low RWAs, a leverage ratio was incorporated, requiring banks to hold capital equal to 3% of the exposure (whether off or on balance sheet)

- Increased capital quality and levels of capital – the "quality" of capital which needs to be held by banks was also enhanced to require the use of more loss-absorbing capital and at the same time many regulators increased the minimum amount of capital required as a proportion of the banks' RWAs

Following concerns raised at the G20 meeting in 2010 about the potential impacts of Basel III on the financing of international trade, regulators met with the World Bank, the World Trade Organization and the ICC to discuss the characteristics of Trade Finance. Data from the Trade Register was used to help inform the discussions, following which updates were made to the proposed capital rules for Trade Finance in October 2011:

- **Waiving of the one-year maturity floor**: Under Basel II, a maturity floor of one year was set for the calculation of RWAs under the Advanced Internal Ratings Based approach. A one year maturity floor would require banks to hold capital longer than the average tenor of a short term trade finance transaction, determined through the Trade Register data to be approximately 125 days for issued and confirmed L/Cs. The Basel Committee decided to waive the one-year maturity floor for both issued and confirmed Trade Finance instruments[6] with a

FIGURE 10:
Overview of regulatory changes affecting Trade Finance and ICC advocacy

Waiving of one year maturity floor and sovereign floor (Oct 2011)
- No maturity floor for RWA calculations for self-liquidating Trade Finance instruments with maturity of less than one year
- Claims on an unrated bank can receive a risk weight below that applied to claims on its sovereign of incorporation

BIS regulators, The World Bank, WTO and ICC discuss Trade Finance regulation (Feb and July 2011)
- Trade Register data used to inform conclusions

LCR inflow assumptions changed from 50% to 100% in the EU (Jan 2013)

BCBS consultation on revisions to the "Standardisation Approach for the credit risk" (Dec 2014)

| 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |

Basel 3 issued (Jan 2009)
- NSFR and LCR introduced
- Leverage introduced
- AVC increased
- Capital as % RWA increased
- Capital quality increased

G20 raises concerns on B3 impact (Nov 2010)

Reduction of Credit Conversion Factor (CCF) for Leverage Ratio (Jan 2014)

ICC Banking Commission submits response to BCBS's consultation request (Jun 2015)

☐ Regulatory changes affecting Trade Finance

☐ ICC advocacy

Source: BCBS, ICC Banking Commission

maturity of less than a year, and gave national regulators the discretion to waive the floor for other Trade Finance instruments. It is estimated that this would reduce the capital charge on a Trade Finance facility to a BBB rated obligor from 2.9% to 2.6%[7]. A number of regulators, including those in the EU, the US and Hong Kong have subsequently extended the waiver to cover all Trade Finance transactions.

- **Waiving of the sovereign floor**: Basel II stipulated that claims on an unrated bank could not receive a risk weight below that applied to claims on its sovereign of incorporation (i.e. the country in which the bank is based).[8] This requirement was waived for Trade Finance instruments.

Since these changes in 2011, consultations between regulators and key industry players (including but not limited to the ICC) have resulted in additional adjustments to regulations for Trade Finance exposures:

- **Inflow assumptions changed from 50 to 100%**: The liquidity coverage ratio (LCR) in Basel III requires banks to assume that in any given month 50% of all inflows will be drawn down, however for Trade Finance facilities the Capital Requirements Regulation (CRR) allows banks to assume zero draw down of inflows. Note this is not applicable outside the EU.

- **Reduction of Credit Conversion Factor (CCF) for the Leverage Ratio**: The initial definition of the Leverage Ratio in Basel III set a uniform 100% CCF for all off balance sheet exposures. In January 2014, the Basel Committee decided that short-term trade Letters of Credit and Guarantees would receive the risk based CCF of 20% and 50% respectively (based on Standardised CCFs). The industry argued that Trade merited a different treatment due to the transaction specific short-term nature of trade products and its low default rates as evidenced by the Trade Register. To take 100% of the nominal exposure for trade products would be punitive as the leverage ratio is more of a backstop to the capital calculations. It was also argued that imposing a 100% nominal value could also result in Trade Facilities being withdrawn and would be detrimental to economic growth.

4.3 Beyond Basel III

In December 2014 the Basel Committee on Banking Supervision published a consultation paper on "Revisions to the Standardised Approach for Credit Risk"[9] and an associated paper titled "Capital floors: the design of a framework based on Standardised Approaches"[10]. The Standardised Approach proposals seek to strengthen the existing regulatory capital standards in several ways. A summary of these recommendations, as noted by the Bank for International Settlements, are:

- Reduce reliance on external credit ratings

- Enhance granularity and risk sensitivity

- Updated risk weight calibrations, which for purposes of this consultation are indicative risk weights and will be further informed by the results of a quantitative impact study

- More comparability with the internal ratings-based (IRB) approach with respect to the definition and treatment of similar exposures

- Better clarity on the application of the standards

As part of these changes, there are clear impacts on Trade Finance for both banks applying the Standardised approach and for banks applying the IRB approach (as the capital floors proposals would floor capital requirements based on the new Standardised approach). As such, the Project submitted a formal response to the proposals on the revisions to the Standardised Approach. The recommendations put forward by the ICC on behalf of the Project were in summary[11]:

- Differentiated treatment for claims on banks less than 90 days old and rolled over

- Differentiated treatment for Trade Finance exposures to corporate counterparties

- CCF for Commitments be revised to 20% or 50% based on exposure/product, in lieu of 75%

- The application of 0% CCF for certain types of Trade Finance commitments

- Recalibration of CCF from 50 to 20% for certain types of trade-related guarantee exposures

- Continued use of external ratings for emerging market multilateral development banks (MDBs) when they are not highly rated or qualifying MDBs

- That consideration be given to the introduction of a new sub-clause aimed at providing greater clarity and guidance around the application of CCF to off balance sheet items

- A redrafting of clauses to ensure consistency in the application of CCF to Letters of Credit (L/C)

- That the Basel Committee provides specific guidance relative to appropriate/best practices in the reporting of CCF, specifically around aggregation of sub-limits covering multiple products and the risk weighting assigned in the context of such structures

- Specific or lower risk weights for Commodity Trade Finance when supported by strong structures and liquid collateral

- Clarify the use of insurance contracts issued by ECAs and other insurance companies when they satisfy the eligibility requirements set out under the collateral mitigation framework

In addition to this summary, the Trade Register project submitted a more complete response on an item by item basis. It is not currently known what role these recommendations will play in the final version of the regulation. However, the Trade Register may again prove to be invaluable in informing further analysis and advocacy in this area, and continuing consultations by the Basel Committee reinforce the ongoing relevance and importance of the work of the ICC Banking Commission and our partners and Member Banks in the context of the Trade Register Project.

5. ANALYSIS OF SHORT-TERM TRADE FINANCE PRODUCTS

5.1 Risk characteristics of Short-term Trade Finance products

As noted in previous sections, this report examines the credit-related risks to the defined universe of Short-term Trade Finance products. Based on the results, the following risk characteristics can be observed:

- Low default rate across all products – both at customer and transaction level, and also when weighted by exposure

- Short effective maturity – most products have a shorter maturity than 180 days, except for Guarantees which have a longer maturity

- Event driven – default events are contingent upon the outcomes of other events that occur over the course of the transactions' lifecycle. For example, in the case of L/Cs, the high rates of presentation of non-compliant documentation by exporters can significantly reduce the number/proportion of transactions under which payment is made, and therefore, under which default may arise

- Low economic loss rate on defaulted transactions – where a default occurs, material levels of recovery are observed

- Low overall transaction-level loss rate – taking into account the default rate, exposure at default and loss given default on every transaction

- Trade finance allows for very effective mitigation of country and political risks. Furthermore, trade obligations are generally viewed as high-priority and are often settled before other obligations in times of crisis

Practitioner's perspectives on defaults

It is important to consider the nature of Trade Finance products vis-à-vis other banking products such as bilateral loans and overdraft lines. If an Import Trade Finance customer is in default, by definition all the Import LCs issued and still valid are in default. However, some will never be paid (no documents presented since the seller elects not to ship goods to a party in default, or discrepant documents presented and refused). This means that whilst these transactions are classified as defaulted, they will not represent any loss to the bank. This demonstrates some of the differences between a practitioner's perspective on (transaction level) defaults, and a strict Basel-compliant obligor default definition. Additionally, only considering the L/C transactions where the customer is unable to pay, and for which the Issuing Bank incurs a loss, would lead to LGD being overestimated.

5.2 Default rates

5.2.1 Definition

The definition of default sometimes varies between practitioners' interpretations and what is required for regulatory purposes. Under Basel II[12], if a Trade Finance customer is in default on any of its products with a bank, then all of their transactions should be considered to be in default (obligor default perspective). In contrast, practitioners sometimes only take the product that a customer has defaulted on to be in default (transaction default perspective).

As mentioned above, this year banks were requested to provide information on how many customers had a Trade Finance product extant at the point that they entered Basel default. Therefore, it is possible to calculate a Basel-aligned customer default rate. There are, however, two major points worth considering when reviewing the default analysis results:

- If there were no Trade Finance products or outstanding Trade limits extant at the specific time of the customer default, it would not have registered as a default in the data

- Customer defaults are recorded on a transaction level and therefore if a customer has multiple types of products or does business in multiple geographies then their default will show in multiple sections of the analysis. As a result of this, the default rates are not additive across different products or geographies. This may lead to a double counting of defaults at the obligor level, however, the overall analysis of the data indicates low default rates in absolute terms

❯ **CASE STUDY 1**
DEFAULTING COUNTERPARTY

Contributed by Unicredit Bank AG

UniCredit Bank AG had been supporting a European car manufacturer with the exports to its main importer in Iceland for more than 10 years when the Global Financial Crisis forced the three largest Icelandic corporate banks into default. The crisis affected the entire Icelandic economy, which subsequently went into recession. Consequently, car sales declined and the car importer experienced payment problems.

Iceland's imports of motor vehicles

Source: UNCTAD and WTO; Note: Motor vehicles for the transport of persons
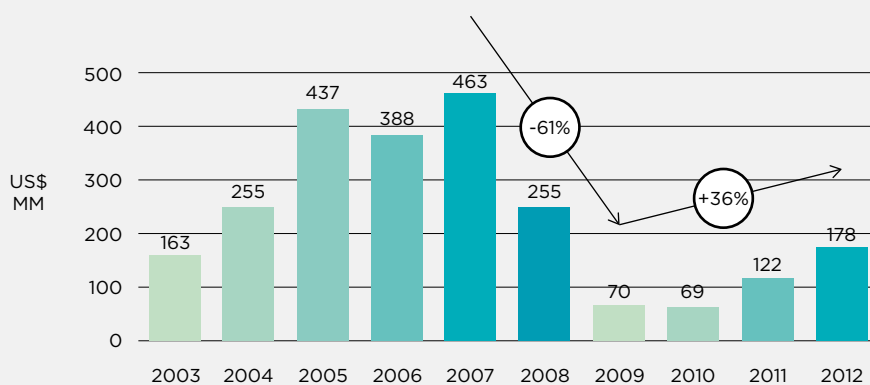
The client had opted for a Guarantee model to secure payments for its exports to Iceland. This Guarantee had been provided by UniCredit Bank AG against a counter Guarantee of an Icelandic Bank. As such, the default risk of the Icelandic car importer was with the Icelandic Bank.

Overview of Guarantee arrangement
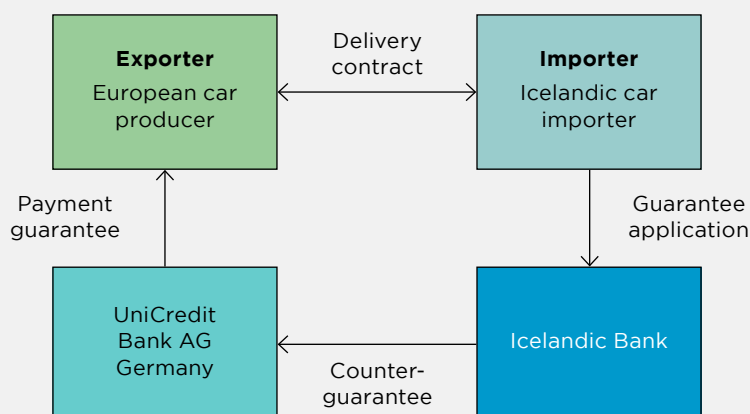
The original Guarantee amount was several million EUR. However, as the financial crises unfolded, car exports fell considerably prior to the default of the Icelandic Bank. Thus, when the Bank went into receivership, the exports covered by the Guarantee amounted to EUR 1.3 million with a remaining tenor of two months.

As this occurred, UniCredit Bank AG were in close contact with the exporter who was considering its options: on the one hand, a claim would have to be made within the validity of the Guarantee; on the other hand, maintaining the relationship with the importer was an important consideration given the potential for future business opportunities.

In the meantime, UniCredit Bank AG contacted the Icelandic Bank to understand the status of the counter Guarantee. An Emergency Law had been passed on 6 October 2008, under which all domestic assets of the Bank were to go into a new publicly owned legal entity, while any foreign assets of the Bank would go into receivership and liquidation. UniCredit Bank AG was informed by the Bank as follows:

> "The obligations of Icelandic Bank under the Guarantee you refer to in your e-mail here below have been taken over by New Icelandic Bank in accordance with the Decision of the Icelandic Financial Supervisory Authority (FME) on the disposal of assets and liabilities of Icelandic Bank."

It became evident that the counter Guarantee, despite being cross-border in nature, was considered to be domestic business as it concerned the operative business of an Icelandic company.

Shortly after the initial communication, further correspondence was received stating:

> "We have been informed by the applicant of the Guarantee, our client, that a demand will be made under the Guarantee unless an extension is made."

All parties subsequently agreed to an extension of three months for a reduced amount of EUR 1.3 million. This provided the business partners additional time for negotiation, but safeguarded the exporter's option to draw under the Guarantee. For UniCredit Bank AG the reduction meant that losses would be limited to the current outstanding amounts of the exporter.

Since the payment problems of the importer persisted, the client subsequently made a claim under the Guarantee within the extended period. UniCredit Bank AG in turn asked for payment under the counter Guarantee from New Icelandic Bank and received payment within one week of making the demand.

Product	Total # obligors	Total # defaulted obligors	Obligor default rate	Moody's rating for comparable default rate[15]
1. Export L/C	92,881	36	0.04%	Aaa–Aa
2. Import L/C	113,026	333	0.29%	Baa
3. Performance Guarantees	181,626	773	0.43%	Baa–Ba
4. Loans for Import/Export	145,021	1,050	0.72%	Ba

5.2.2 Analysis

5.2.2.1 Customer default rate

Customer default rates are calculated across the entire sample and are not weighted by the size of the exposure of participant banks. The calculation formula is:

$$\text{Customer default rate} = \frac{\text{Total number of customer defaults}}{\text{Total number of customers}}$$

To align with the Basel methodology these calculations are done on a 12-month outcome window, i.e. it measures if the customer has defaulted at any point during a one-year period.

When reviewing the default data the absolute numbers of defaulted obligors may be perceived as surprisingly high. However, it needs to be considered that the defaulted obligors are the same across the full set of banks participating in the Trade Register, hence an individual obligor in default having transactions outstanding with 3 banks in the Trade Register would be counted as 3 obligors in the data set. Similarly the total number of obligors is the result of adding the total number of obligors of all issuing/participating banks, hence the total population and the defaulted population are comparable.

The results reiterate the generally low risk nature of Trade Finance products, and in particular traditional Documentary Trade Finance products like Letters of Credit. The highest default rates were observed for Loans for Import/Export, which is not surprising, as this product category more closely resembles traditional bilateral bank lending. Comparing these default rates with Moody's corporate default rates over the same time period allows for a representation of default rates in a widely known framework. Whilst Export L/Cs compare to somewhere between a Aaa and Aa Moody's rating, even the relatively higher default rates of Performance Guarantees or Loans for Import/Export can be represented by a Baa and Ba Moody's rating, respectively, and compare very favourably with the Moody's rating of an average corporate credit portfolio covering all rating classes of ~2.1%[16].

Total customers and default rate by Loan sub-product[20], 2008–2014

Product	Customers	Customer defaults	Customer default rate	Moody's rating with same default rate[17]
Loans for Import/Export (bank and corporate risk)	145,021	1,050	0.72%	Ba
Loans for Import (bank and corporate risk)	53,661	527	0.98%	Ba–B
Loans for Export (bank and corporate risk)	57,470	417	0.73%	Ba
Loans for Import/Export – bank risk	36,144	53	0.15%	A
Loans for Import/Export – corporate risk	108,877	997	0.92%	Ba–B

Note: The results in the figure above are approximate given likely classification issues at the sub-product level within the database. Please refer to the text for further detail.

One point worth noting is the fact that given the relatively low number of customer defaults (in particular for some of the products such as L/Cs), small changes in the number of defaults can appear as significant fluctuations when comparing default rates. In this respect, when interpreting the results it is worth reviewing total numbers in parallel to default rates.

As noted in Section 2.1 banks were requested to separately report Loans as Loans for Export and Loans for Import and furthermore also differentiate these between corporate or bank risk. However, due to limitations to data and systems, for the purpose of this exercise, not all banks are able to accurately classify their loan exposures into the categories prescribed by the data collection templates. As a result, it cannot be ruled out that certain classification errors are present across the sub-products reported in the Loans category, in particular with regards to the loan purpose (import vs. export). Therefore, the overall results for Loans for Import and Export are reported in one single loan category.

The results at the sub-product level can show interesting outcomes that are still directionally correct. However, they need to be interpreted with caution. It should also be understood that the underlying sample set will vary across the sub-product categories, and in some cases a comparably smaller sample size forms the basis of the analysis (for example, as can be seen below, the total number of obligors for Loans for Import and Loans for Export do not add up to the total number of obligors in the database).

As can be seen, Loans for Import appear to have somewhat higher default rates than Loans for Export. This could intuitively be explained by the fact that the financing of imports is focussed on purchases and typically will involve a conversion cycle to finished goods. Financing activity on the export side on the other hand is often concerned with either finished goods or receivables. Moreover, based on the data included in this sample, default rates for corporate risk are also higher than the default rates for bank risk.

Product	Total # transactions	Total # defaulted transactions	Default rate
1. Export L/C	1,847,734	121	0.01%
2. Import L/C	3,164,200	2,509	0.08%
3. Performance Guarantees	1,615,351	2,736	0.17%
4. Loans for Import/Export	6,816,742	15,176	0.22%

5.2.2.2 Transaction default rate

Similar to the customer default rate, the transaction default rate is calculated across the entire sample as:

$$\text{Transaction default rate} = \frac{\text{Total number of transactions defaulted}}{\text{Total number of transactions in the sample}}$$

It is worth noting that for this analysis:

- The current analysis does not annualise the results to account for the short-term nature of the products, i.e. the results below represent the average default rate over the life of the transaction but not a year

- Where transaction default data was provided but customer default data was not, the respective transactions have been excluded to ensure a consistent and therefore comparable sample across customer and transaction default rates

As per the customer default rates, the transaction default rates confirm the low default risk nature of Short-term Trade Finance products. This view is similar to the practitioner's view of Trade Finance. There are several hypotheses why transaction default rates are lower than the reported customer default rates:

- Short-term Trade Finance products have a short contractual maturity (<1 year except Guarantees) and therefore it is expected that a certain percentage of transactions expires before a customer defaults. In situations where a customer used multiple Trade Finance products some may have matured before the customer defaulted and therefore would not be included in the transaction defaults but would be in the customer defaults

- The transaction default rates are weighted towards larger customers who engage in more transactions. The size of these companies makes them less likely to default (as compared to smaller companies in general) and therefore the transaction default rates are expected to be lower

- A bank may decide not to extend their terms with counterparties they view as likely to default and therefore, given the short contractual maturity, may be able to limit its exposure as well as the number of outstanding transactions to counterparties who are likely to default

FIGURE 15:
Exposure-weighted transaction default rate by product, 2008–2014

Product	Total exposure ($ MM)	Total defaulted exposure ($ MM)	Exposure weighted default rate	Transaction default rate
1. Export L/C	988,434	235	0.02%	0.01%
2. Import L/C	1,656,528	1,210	0.07%	0.08%
3. Performance Guarantees	1,023,561	1,154	0.11%	0.17%
4. Loans for Import/Export	3,154,407	5,323	0.17%	0.22%

These hypotheses are backed up by anecdotal evidence based on the experiences of the submitting banks. However, the data granularity in the Trade Register is currently not sufficient to test these. It is expected that as the data within the Trade Register continues to grow in the coming years it will be possible to determine the validity and implications of each of these hypotheses.

5.2.2.3 Exposure weighted transaction default rate

The exposure weighted transaction default rate is a measure of the volume of exposure of transactions that have defaulted. Similar to the transaction and customer default calculation, the exposure weighted transaction default is calculated based on the restricted sample as:

$$Exposure\ weighted\ transaction\ default\ rate = \frac{Total\ exposure\ from\ defaulted\ transaction}{Total\ exposure}$$

Figure 11 shows the exposure weighted transaction default rates alongside the transaction default rates in order to allow making conclusions around whether larger or smaller transactions are more likely to default. The key hypothesis is that on average larger transactions are less likely to default as the banks are likely to only grant larger exposures to clients they view as lower risk. Additionally, clients engaging in larger Trade Finance activities are likely to be larger companies with multiple years of trading, and by definition are therefore less likely to default. The results broadly support this hypothesis, albeit the observed differences are relatively small in some product categories, notably Import L/C, and do not apply to the Export L/C category.

5.2.2.4 Evolution of default rates

The results above aggregate data across banks, regions and periods. A review of the changes observed in default rates over time can be instructive, despite limitations in available data across all years, a small number of contributing banks on this dimension and resultant confidentiality concerns. Several conclusions can be reached despite the foregoing limitations. However, looking at the 4 banks that have

consistently reported default rate data for all the years from 2008 to 2014, the following conclusions can be drawn:

- Short-term Trade Finance products fared well in the recession with an average increase in default rates of approximately 30 bps (un-weighted average across all banks and all products) from 2008 to 2009 compared to Moody's Baa corporate default rate which increased by 80% (with the overall Moody's rated universe default rates tripling between 2008 and 2009)

- Through the period, relative risk characteristics of the products remained broadly similar with Export L/Cs remaining the lowest risk product

- Through the period, the correlation of Trade Finance defaults to the state of the economy appears to be less than that of Moody's Baa corporate default rate, i.e. the fluctuations in line with the overall economy's development seem smaller for Trade Finance than for the overall corporate universe. This is an indication of the generally countercyclical nature of Trade Finance, although for a full analysis more variables would need to be considered (e.g. volumes, margins, etc.)

As the Trade Register now has more banks participating and many have set up automated systems to extract the required data year after year, it is expected that the sample set will remain considerably more stable going forward. However, the backward-looking data is unlikely to improve and therefore a full picture of defaults through the last recession is unlikely to be provided in future reports.

5.2.2.5 Variation in default rates by bank

While the aggregated results give a good overview of the risk associated with Short-term Trade Finance products, it is important to note that banks' risk profiles differ due to the nature of their geographic coverage, client franchise, trade corridor focus and their risk appetite, i.e. the level of risk they choose to take. When interpreting the risk associated with portfolios it is important to consider where in this risk spectrum a portfolio exists. Figure 12 shows the different experiences banks have with their portfolios.

The chart shows the distribution of the sample banks' default rates for each product. The black line indicates the minimum and maximum values across the range of banks' submissions. The blue bar indicates the interquartile range, which is the distance between the first and the third quartile (25th and 75th percentile).

The Median is indicated by the orange bar and the average is noted in Figure 12. For example, for Performance Guarantees, the minimum and maximum values range from 0% to 2.55%. The first quartile starts at 0% and the third quartile starts at 0.41% and therefore the interquartile range is 0.41%. The median (or second quartile) is 0.06% and the average is 0.43%. In this case, the maximum value is due to one small portfolio with comparably high default rates.

FIGURE 16:
Variance of customer default rates across banks by product, 2008–2014

| | Max/Min | ■ Median | ■ Interquartile Range (difference between 1st and 3rd quartile) |

| Overall defult rate | 0.04% | 0.29% | 0.43% | 0.72% |

Annotations on chart:
- Small portfolio with higher than average default rates
- Very low median across products illustrates skew in customer default rates towards few, large banks

Chart categories: Export L/C, Import L/C, Performance Guarantees, Loans for Import/Export

Moreover, from this distribution we can infer that the average default rate is driven by a number of participants with very large portfolios (for example, the mean is higher than both the median and the third quartile). In fact, for some of these participants their data is being included for the first time in the 2013/2014 analysis, which also explains the increase in default rates seen in previous reports.

Across all products most banks experience very few defaults as all the first quartile observations are at 0% and the medians are all close to 0%. Whilst the variance is comparably low for Import and Export L/Cs, it is higher for Performance Guarantees and Loans. For Loans, the median default rate is only 0.10%, indicating that more than half of the banks in the sample are experiencing very low default rates. However, the larger interquartile range and the average value being higher than the third quartile observation indicates that the samples includes a number of large players with comparably high default rates.

Overall these variances illustrate that the risks associated with Trade Finance vary by bank. It is few banks within the data set that drive the - overall very low – default rates. Most of these institutions are large, sophisticated trade finance banks and as such the observed default rates are a good reflection of the average default rate banks can expect when pursuing Trade Finance. However, the average and median results need to be treated carefully when attempting to infer conclusions for individual banks.

5.2.2.6 Regional default rates

One driver for the variance in default rates across banks is the geographic coverage of their franchise, meaning the locations in which the banks have a presence and/or are willing to do business. Figure 13 (overleaf) shows the regional breakdown of customer defaults for the in-scope products.

Customer default rates across regions and products, 2008–2014

Export L/Cs, 2008-2014

Customers (000's)	11	45	7	14

Import L/Cs, 2008-2014

Customers (000's)	15	53	12	10
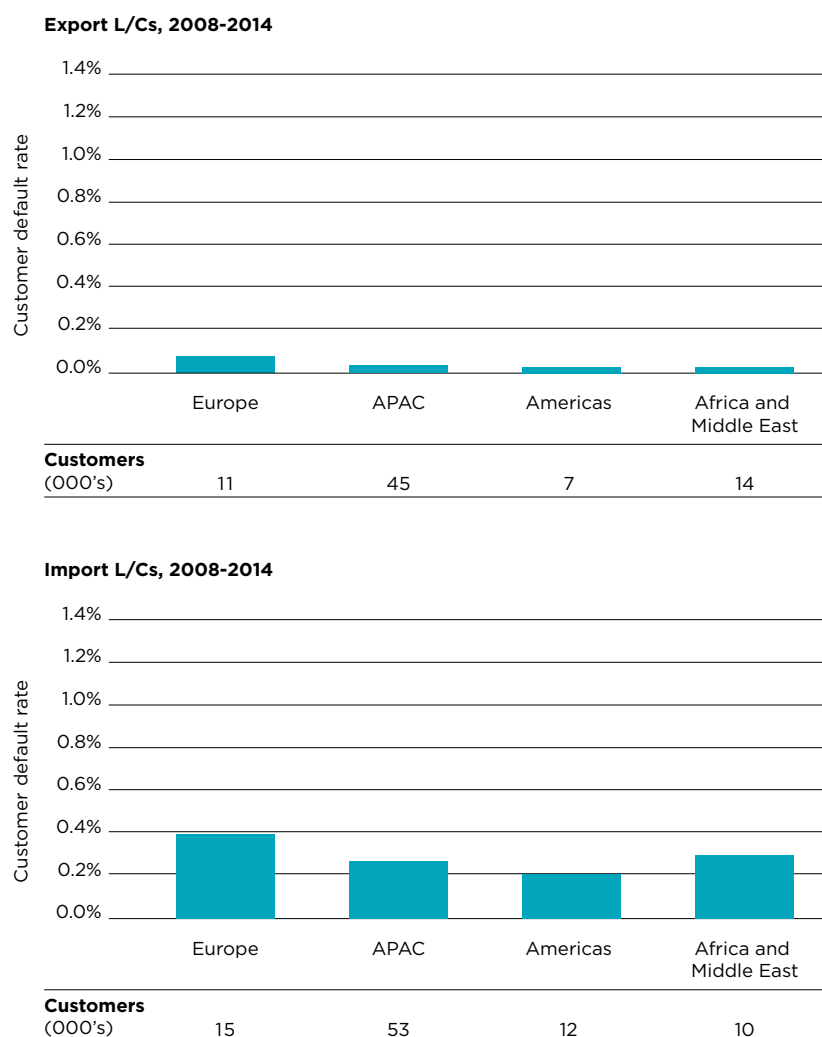
As can be seen, there is some regional variation in customer default rates. For L/Cs, the regional variation is less pronounced. However, particularly for Loans for Import/Export, default rates vary quite substantially (from 0.6% in Europe to 1.4% in Americas). Within Americas, default rates in Central and South America are substantially higher than in North America. Similarly, default rates in Africa are higher than in the Middle East. Banks' exposure to some of these regions naturally leads to portfolios with higher risk.

It should be reiterated at this point that the analysis presented here is based on a customer level default definition. This means that if a customer defaults on a given transaction, all transactions of that customer will be classified as in default.

Performance Guarantees, 2008-2014

Customers (000's)	Europe	APAC	Americas	Africa and Middle East
	62	45	31	26

Loans, 2008-2014

Customers (000's)	Europe	APAC	Americas	Africa and Middle East
	12	93	10	13
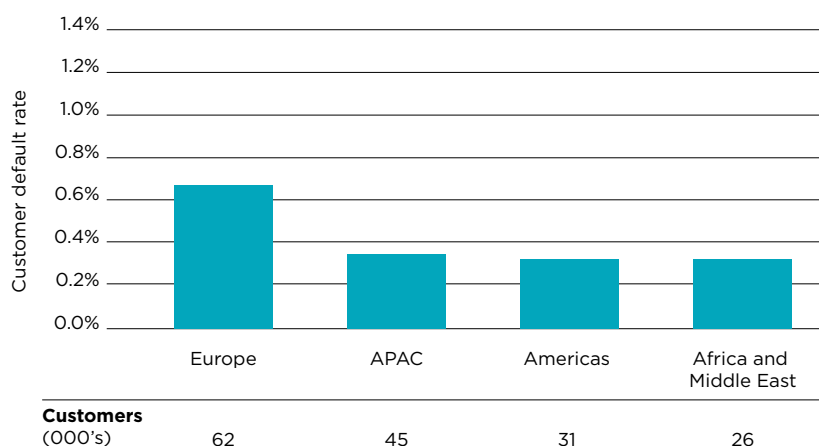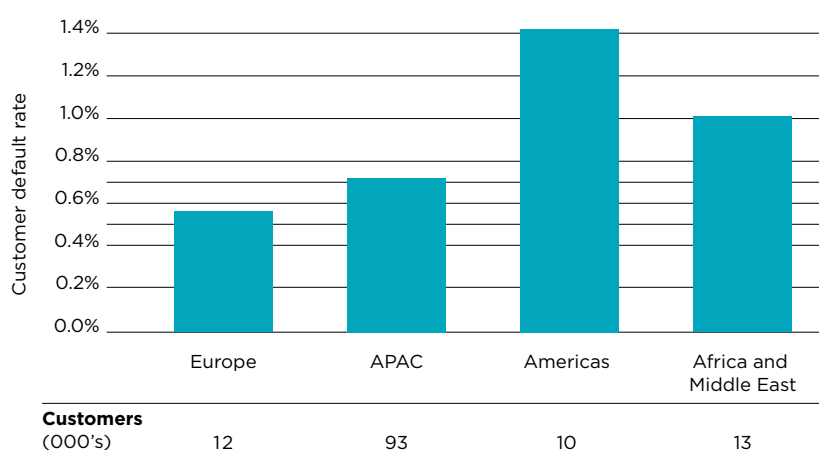
For example, consider a scenario where a customer that has a clean import loan and is the applicant of a performance guarantee defaults on the loan. Even if a claim is never raised against the guarantee, the customer will be considered to have defaulted on the guarantee. This is likely to be a key reason for the comparably higher default rate for guarantees in Europe.

Furthermore, as noted earlier when reviewing overall obligor numbers, individual obligors might appear multiple times in the data set as they have banking relationships with multiple banks participating in the Trade Register. It should also be noted that the total sample underlying the regional default rate analysis is smaller than that of the sample used to derive the overall customer default rates published in this report. This is due to the fact that not all participants have been able to report results at the country level.

5.3 Maturity

5.3.1 Overview

Short-term Trade Finance products by definition have short contractual maturities and are often issued on a transaction basis, i.e. they do not have any form of revolving facility. This impacts a bank's risk in the following ways:

- Trade Finance exposure to clients can often mature prior to customer default within a year

- Banks can react to deterioration in credit quality of counterparties by ceasing to underwrite business and hence limiting exposure to defaulting counterparties

- It is easier to assess the risk of short term products than longer term ones as near term events tend to be more predictable

5.3.2 Methodological and data improvements

The improvement to the data collection procedures for the 2013 and 2014 data required banks to submit data for average contractual maturity[18] for each product type. The average contractual maturity is calculated as a transaction weighted average of all the maturities in the sample:

$$\text{Average contractual maturity} = \frac{\text{Average maturity} \mid \text{Number of transactions}}{\text{Number of transactions in the sample)}}$$

Despite these improvements, it is important to note that some participants have been unable to submit maturity data for specific transactions as their systems for some geographies are not able to produce a reliable data set for the purpose of this exercise.

As a result of this, some transactions must be excluded in order to produce the results and therefore it is important to note that the underlying sample for the maturity calculations is different than the one for the default rate analysis. Additionally, where banks were unable to submit the required parameters for the default calculations but have valid maturity values, these have been included in this analysis.

Finally, it is worth noting that while the contractual maturity is informative, it does not necessarily accurately reflect the total time a transaction is outstanding. As a matter of fact, many contracts are repaid before reaching the contractual maturity date.

5.3.3 Results

The average contractual maturity for the Short-term Trade Finance products ranges from 120–170 days, although some transactions have significantly longer maturities. The variation of maturities is significant, with banks apparently writing very different types of business. These differences in maturity can affect the risk profile of a portfolio as a low maturity reduces risk for the reason discussed above and therefore, care should be taken to understand the maturity when determining the risk associated with a portfolio.

Product	Weighted average contractual maturity (days)	Min	Max
1. Export L/C	128	52	335
2. Import L/C	123	31	162
3. Performance Guarantees	611	27	1,155
4. Loans for Import/Export	166	52	417

The one product category which structurally does have a longer maturity is Guarantees where products are written for up to two years on average. The reason for this is that Performance Guarantees are frequently used for longer-term projects or longer-term contractual obligations such as infrastructure projects, which typically extend over several years. At first glance this provides a contradiction to the short-term character of the products included in the Short-term Trade Register. However, in terms of product structure, client use and banks' risk treatment, Performance Guarantees are often being treated similarly to other Short-term Trade Finance products and are thus represented here.

5.4 Exposure at Default (EAD)

5.4.1 Overview

Exposure at Default measures a bank's exposure to a counterparty in the event that the counterparty enters default. It is defined as the gross exposure including an estimate of undrawn/unutilised facilities upon default of the obligor. For Short-term Trade Finance products, the act which they are contingent on has to be performed before an exposure is created; for example for L/Cs, documentation has to be presented and accepted in order to trigger a valid claim at the point of default.

Once the contingent event has occurred, the bank in question will pay the required balance from their customers' account. Where the customer's account has insufficient funds to cover the balance, the bank will pay the remaining balance from their own funds and with that the contingent liability converts into an (on-balance sheet) exposure of the bank.

Depending on the nature of the payment at default, banks decide how they should reflect the exposure through CCFs. For example, if the funds are made available via another revolving credit facility to the client, then the exposure will not be reported through Trade Finance CCFs but rather through the other product.

In addition it is important to note that in many cases the amount requested for payment is lower than the "limit" on a facility over the course of a transaction's lifecycle. This occurs where a reduction in volumes leads to a reduction in the total exposure level such as in the case of a partial utilisation of a product like a partial shipment under an L/C. Often an exposure total is in the form of multiple transactions, for example, an exposure of $500,000 may be due to 5 shipments with a value of $100,000, meaning the exposure at default might be considerably less than the total $500,000 exposure.

There is an ongoing debate on whether potential loss events should be taken into account in LGD or EAD calculations for Trade Finance instruments. Irrespective of this, the Trade Register aims to capture robust information to calculate the different components and a more in-depth discussion of this topic is provided in Appendix D.

Efforts have been made to gather this information on a consistent basis across the sample but this is at an early stage and hence robust results cannot yet be calculated. One key obstacle to this is that many jurisdictions require exposures for defaulted obligors to be consolidated under one account and as such significant granularity, which would be required for the calculations, is lost. For banks to deliver this data, they would have to track transactions through their lifecycle, which for some banks is not possible and for some others would only be possible on a manual basis. Another key challenge is that for most banks the ability to gather information on performing transactions which turn into defaults is severely limited due to data collection occurring in different books and hence the process of reconciling the transaction pre- and post-default is difficult.

5.4.2 EAD for Letters of Credit (L/Cs)

5.4.2.1 Overview

A documentary L/C represents an irrevocable undertaking of the Issuing Bank to honour its obligation under the terms and conditions of the L/C, provided that the stipulated documents are presented and that they constitute a compliant presentation. In their most basic form, L/Cs represent a contingent risk for banks until compliant documents are presented. Once compliant documents are accepted by the Issuing Bank, the L/C converts into an obligation for the bank which terminates upon payment.

When calculating the EAD for L/Cs, the fact that conforming documents may have never been presented should be factored in and hence the total amount should be less than the notional amount of the L/C (i.e. CCF less than 100%). In some cases, documents may never be presented and the L/C would expire unutilised. Furthermore, documents presented might not be compliant with the terms and conditions of the L/C. In this case, banks are not obliged to accept the documents and provide payment.

The following data is requested in order to estimate the EAD for documentary L/Cs:

- Total number of transactions written (L/Cs)

- Number of transactions for which documents were never presented (i.e. L/C is allowed to expire unutilised)

- Number of transactions for which documents were presented, but not accepted (cases where documentation is rejected as non-compliant and the bank has no obligation to make a payment)

- Number of transactions where documents were presented and accepted

- Number of transactions paid from client's accounts

- Number of transactions paid from bank's accounts

This is the second year in which the information has been collected with some notable improvements seen over the two-year period. Despite this, there is still a limited overall number of data points with a significant variation between them. As a result of this, it is considered to be too early to estimate the conversion factor for L/Cs in a somewhat reliable manner based on the Trade Register data. In future years it is intended to continue building out the database in order to enable the calculation of a statistically robust CCF for documentary L/Cs.

5.4.2.2 Results

Given the limitations to data availability outlined above, for the L/C Expected Loss calculation shown in section 5.6, a prudent approach of assuming that the EAD CCF is 100% has been taken. While this will certainly overestimate the Expected Loss this does not call into question the overall validity of those results in showing the low risk nature of these products. To contextualise this assumption, a number of observations from individual participants have been included in the case studies below.

CORPORATE CUSTOMER DEFAULT WITH IMPORT LINE FACILITIES AND OUTSTANDINGS

Background

This case study looks at a corporate customer classified to be in default as per the internal guidelines of a bank with Import line facilities and outstandings at the time of default and tracks systematically the following:

- Whether documents for current Import line exposures are presented or not

- If presented, whether documents are discrepant or not

- If documents are discrepant, whether they are accepted or not

- When accepted, whether liabilities under the import line exposures are paid or if they result in exposures going up and the bank taking a loss

- Whether the customer is allowed to open new L/Cs as part of a work out process

The events and considerations outlined above are illustrated in the flow chart below.

Example of steps between L/C issuance and payment for a customer classified in default
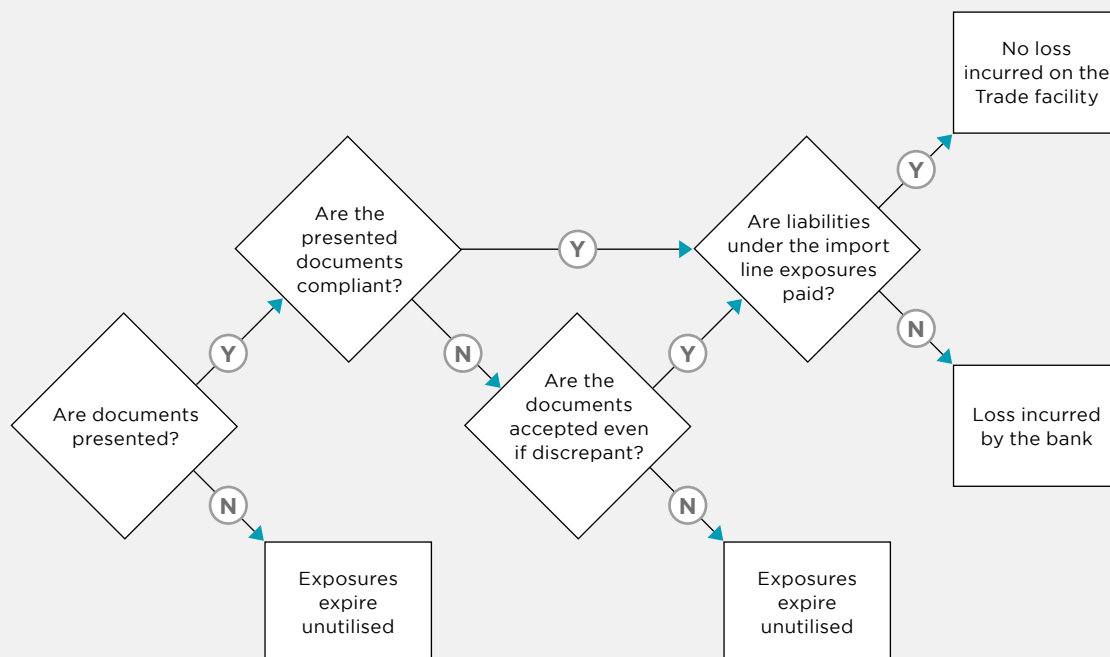
Customer example

If a customer is classified as in default as per internal bank guidelines, firstly it needs to be established whether the customer has trade facilities (i.e. Import/Export lines, Guarantees, Open Account or Receivables Finance). If this is not the case, no further processing is required.

However, as in this case, given the customer default definition, even if the customer has import lines and exposures under this line at time of default, and the import is not overdue and in default at a transaction level, the specific corporate account is classified as in default.

The following steps of the specific customer case are illustrated in the Exhibit below. As can be seen, with permission of the administrator in an attempt to bail out the customer using a structured Trade facility,

on this occasion the customer was allowed to open additional L/Cs after the time of default. 11% of the L/Cs expired unutilised and 78% of the presented set of documents had discrepancies. In this case, all L/Cs with discrepant documents were accepted and paid from customer funds and ultimately no losses were incurred on the Import line. However, this case also illustrates what is known as "product switching" or "product substitution"; whilst there were no direct losses on the Import line, the bank had the administrator's permission to use the customers' overdraft facility to settle the Import exposures, which is ultimately where the loss was incurred as the administration proceedings were completed. This scenario can also arise if a client makes such a substitution decision directly, and without informing their bankers.

Specific steps of a customer with import lines entering default

Situation at the moment of default	**Number of sets of documents presented (under the 72 L/Cs)**	**Discrepancies in documents (of the 64 sets of documents presented)**	
• Import line had 22 sight and usance L/Cs outstanding • Total amount of USD 1.3 million **After default** • As part of an agreed workout process under an administrator, 50 new L/Cs were opened for a total value of USD 1.9 million • This was done over a one-year period **Total outstanding (at default and issued after date of default):** • 72 L/Cs for a total of USD 3.2 million	• 64 sets of documents presented (20 under existing and 44 under new opened L/Cs) • 8 L/Cs opened, but unused and expired unutilised with no documents presented	• 14 sets of documents were not discrepant and the L/Cs were all paid from segregated customer funds • 50 sets of documents were showing discrepancies but were all accepted and paid from segregated customer funds	• All sets of documents were paid from customer funds (using the customer's overdraft) • No loss on the import facility • Losses incurred on the overdraft as the customer was declared bankrupt

EXPOSURE AT DEFAULT FOR DOCUMENTARY L/Cs

In this year's data collection exercise, an attempt was made to capture lifecycle data for L/Cs to estimate exposure at default, recognising the contingent nature of these exposures. However, the collected data has not been considered to be of sufficient quality, quantity or consistency to allow for a robust EAD estimate. To be prudent, an EAD assumption of 100% has been used for L/Cs when estimating Expected Loss. It is recognised that this will clearly overstate Expected Loss.

To contextualise this assumption, we have included a number of specific data points from the data collected in the Trade Register.

One contributor to the Trade Register has indicated that in case of issued Import L/Cs, 70% of document sets presented to the bank contained discrepancies (which can be compared to 78% in the case study above). In these cases, the bank has no obligation to waive the documentary discrepancies (even if the applicant agrees) and make payment, unless the discrepancies are corrected within the L/C validity. This could support an EAD of 30% for the issuing period of the L/C, reflecting the probability that the contingent risk converts into a commitment, but does not factor in L/Cs that remain unpaid due to nonshipment/documents never being presented.

Examining Import L/C data submitted on defaulted transactions across three banks, it was found that out of a total of 165 defaulted transactions, for 13% of the transactions documents were never presented (which can be compared to 11% in the previous case study). For 10% of the transactions documents were presented but not accepted, which means that for 77% of the transactions, documents were presented and accepted. This datapoint does not, however, provide an indication of the number of document sets that contained discrepancies, but illustrate the point that the banks are not required to make payment against discrepant documents. All of these data points clearly illustrate the contingent nature of the L/C product, but are not sufficient to provide a clear indication as to what the "true" EAD is. It should be recognised that the observations are derived from different sample sets, with one notable difference being 'all transactions' for one bank only and a set of 'defaulted transactions' across several banks. Based on the above examples and the limited data available, we do not believe it is possible to generalise these findings further to arrive at a specific estimate of EAD for the purpose of this report.

% total
transactions
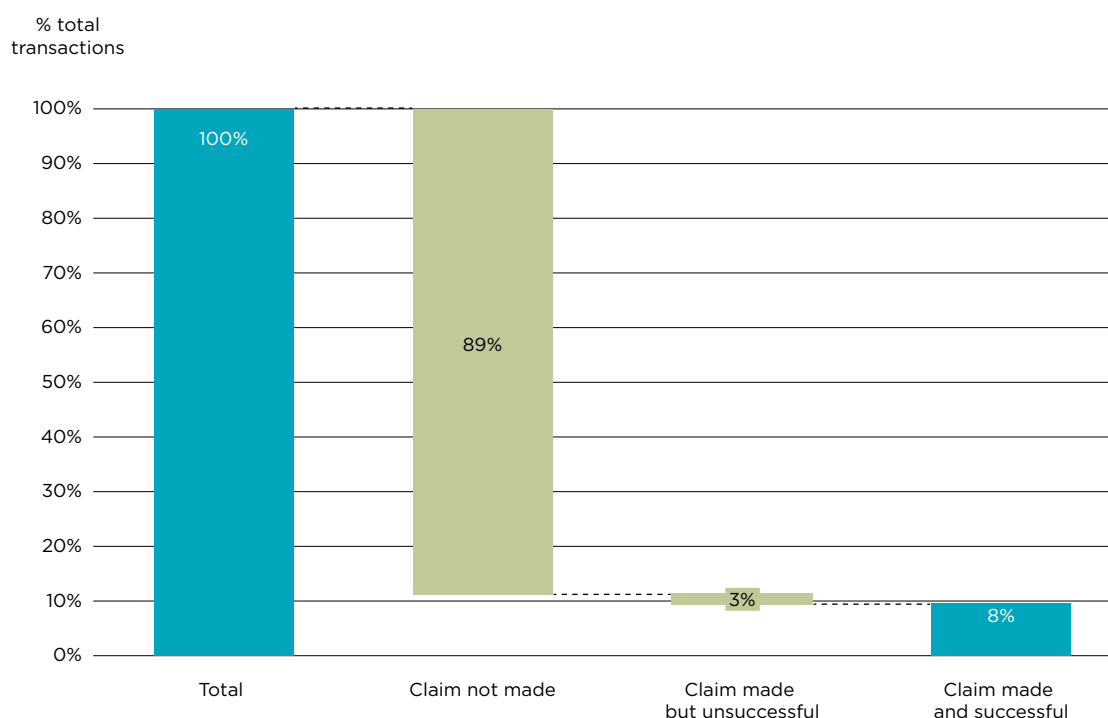
5.4.3 EAD for Performance Guarantees

5.4.3.1 Overview

Performance Guarantees exist primarily to protect against unforeseen outcomes such as non-performance or performance that is below the quality or standards agreed and expected. This is only meant to be used when a counterparty fails to produce or perform as required by the underlying contract and hence only a small percentage of drawings or demands for payment are expected from these instruments. Additionally, it is worth noting that portfolios of Guarantee and Standby Letter of Credit transactions or instruments can include a significant proportion, perhaps even a majority, of domestic transactions, further changing the risk profile and character of these products and transactions.

5.4.3.2 Results

Similar to L/Cs, data to estimate the lifecycle of Guarantees was requested as part of the upgraded data request in 2013. Hence this is the second year which banks have been asked to submit new data (covering data for three years from 2012–2014).

A number of banks were able to provide data that presents a more consistent picture than in the case of L/Cs. In total, 7 banks were able to contribute data covering close to 200,000 Performance Guarantees, allowing for an estimate of the conversion factor for Performance Guarantees.

From the available data the estimated conversion factor is 8%, with observations from individual banks in the range of 0% to 27%. It should be noted that the 8% does not mean that the client defaulted on its obligations to the bank and often in these cases the transaction is settled from the client's account, as illustrated in the case study below. From the data it is not possible to determine how much of this 8% is paid from the client's versus the bank's account. It should be noted that given the low default rate in Performance Guarantees, there is limited data to derive these results and the intention is to be able to report the conversion factor on a more granular level as the size of the Trade Register grows.

THE FULL
REPORT

ANALYSING GUARANTEE CONVERSION OF AN INDIVIDUAL BANK'S PORTFOLIO

Contributed by a Trade Finance bank with global reach

Performance Guarantees are instruments guaranteeing a principal's obligation to deliver and perform according to a given contract. The term Performance Guarantees encompasses a broad range of instruments with different characteristics. The typical lifecycle of a Performance Guarantee could make use of several of these instruments.

It is market convention to issue Guarantees which are subject to the provisions of the "International Chamber of Commerce (ICC) rules Uniform Rules for Demand Guarantees

(URDG) 2010, revision, ICC publication 758". While not legally binding in themselves, the provisions of URDG 758 is contractually binding on all parties if they are expressly incorporated into the Guarantee text.

Guarantees represent a contingent obligation for the bank until the Guarantee is claimed. The process by which a claim could translate into default and a loss for the bank follow several steps. In many instances a claim may be settled by negotiating an extension of the Guarantee. Should an

Process flow for Claims, Defaults & Losses on Guarantees

Product life cycle of project related guarantees
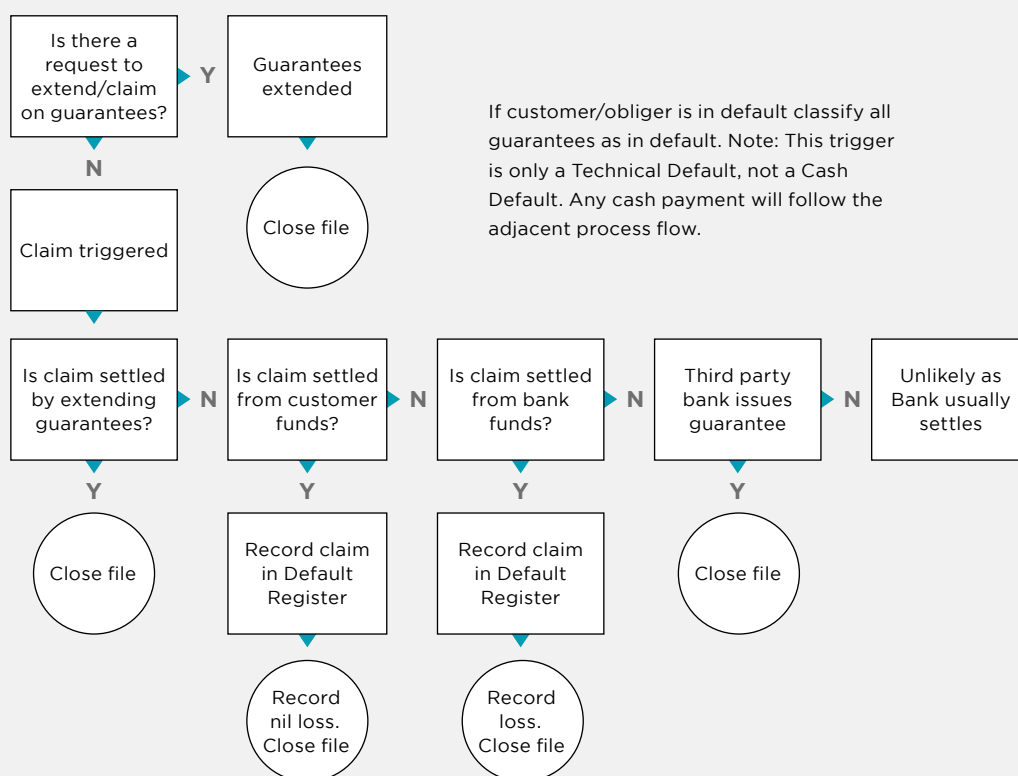
extension not be granted, the bank would seek to settle the claim from the customer's funds in the first instance. It is only in the event there are insufficient customer funds available (and no third party bank issues a Guarantee) that the issuing bank would incur a loss.

The process by which Guarantees can trigger a claim that could translate into a default and a loss is illustrated in the flow chart below.

Analysis of a Guarantee portfolio

The following table quantifies the above process for recording claims, based on data from a regional portfolio. In this case, 10,700 Guarantee transactions were written in 2013,

of which 113 resulted in a cash settlement, indicating a conversion factor of 1.05%. In all of these instances the funds were paid from customer funds or cash margins held by the bank so no losses have been incurred by the bank on the portfolio (although had there been insufficient funds, the bank would have made the payments from its own funds). Due to systems limitations, it has not been possible to capture the exact amount of extend or claim requests in this instance. However, it would be fair to say that the number of such requests is likely to be a multiple of the actual claims paid.

Guarantee conversion for the portfolio

Year	Total Number of Guarantee Transactions	Extend or Claim Requests	Number of claims paid from customer funds/bank funds	Claims paid from customer funds	Claims Paid from Bank funds	Conversion Factor
2012	9,900	n/a	118	118	Nil	1.19%
2013	10,700	n/a	113	113	Nil	1.06%

It should be noted that when claims are paid from customer funds there are two situations:

Situation 1: Claim triggered and paid from customers funds with obligor/customer not in default as per Bank's internal definition of default (which is also consistent with the regulatory definition of default).

Situation 2: Claim triggered and paid from customer funds with obligor/customer in default as per Bank's internal definition of default. As obligor is classified as a

defaulted customer and as a claim has been triggered, the transaction counts as a defaulted transaction. However if the customer has sufficient funds no loss may be triggered. Note there is a strong likelihood that the transaction will incur a loss as the obligor is in default but the loss may be registered under the overdraft account.

It should be noted that the transaction count above also includes transactions for defaulted customers.

5.5 Loss Given Default (LGD)

5.5.1 Overview

Loss Given Default is a measure of the loss incurred by a bank in relation to the overall exposure of the bank at the time (and in the event) a obligor defaults. Under Basel rules, this should be the net present value of recoveries discounted at an appropriate discount rate and should include direct and indirect costs associated with recovering the bank's money.

Basel requires that "The definition of loss used in estimating LGD is economic loss. When measuring economic loss, all relevant factors should be taken into account. This must include material discount effects and material direct and indirect costs associated with collecting on the exposure".[19] Therefore, LGD is made up of three key components:

- Observed recovery rates – the recoveries are compared to the exposure at default

- Discounting – Basel requires that any post-default cash flows should be discounted using an appropriate discount rate

- Direct and indirect costs – Basel requires that any direct or indirect costs incurred in the recovery process should also be deducted from the recoveries

5.5.2 Considerations related to methodology and data for computing LGD

The data collection for the 2012–2014 submissions requested banks to report recovery and write-off information for all transactions which were extant at the point of a customer entering default. Additionally, the time taken to complete the recovery was requested in order to calculate the discounted recoveries. The current estimates should be viewed as indicative due to the fact that:

- The analysis only considers recoveries where the balance at default has been accounted for in full either through write-offs or customer recoveries. In practice, corporate customer workouts can take a number of years to complete and given data is only available for the years currently covered by the data collection, it is possible that the Trade Register only contains data on the time to recovery for those cases which have closed relatively quickly (thus understating the average time to recovery)

- In some cases, the transaction specific recoveries have been estimated based on the average customer recovery (in practice, when a customer defaults banks would often consolidate their exposures)

- There have been relatively few defaults, and even fewer where the information needed to estimate the time to recover is available. Of the total number of defaulted transactions in the Trade Register, recovery information has only been provided in approximately 10% of the cases. Even though the L/C remains unpaid due to no documents being presented it should be factored in as a recovery and taken into the LGD calculations. A similar treatment should be applied to the case of discrepant documents as returning the documents is a conscious decision preventing a loss

	Average time to recovery in days	Average time to recovery in years
Export L/C	178	0.49
Import L/C	71	0.19
Performance Guarantees	212	0.58
Loans for Import/Export	238	0.65

Thus the estimated recovery rates and LGD numbers should be interpreted with due consideration for the foregoing current realities. These results will continue to evolve and be subject to refinement, though the low number of data points may remain a characteristic of this element of the Trade Register, absent any drastic changes to the nature of the trade finance business. Moreover, given that the total number of defaults contributed by some participants is small, the results may be impacted by idiosyncratic defaults within those banks' portfolios. Despite this data-induced variation, recovery rates can be expected to generally differ based on the jurisdiction in which the customer defaults and the effectiveness of the legal system within those jurisdictions. It is worth noting though that this change in recovery rates by jurisdiction adds to the risk profile of some countries and should be considered when understanding the overall risk of a Trade Finance portfolio.

5.5.3 Results

5.5.3.1 Average time to recovery

To estimate the average time to recovery, an average across all transactions was calculated:

$$Average\ time\ to\ recovery = \frac{Average\ time\ to\ recovery\ |\ Number\ of\ transactions}{Number\ of\ transactions\ in\ the\ sample}$$

Figure 17 shows the average time to recovery used to calculate the discounted recoveries. The average time to recovery varies between 2–8 months for all products with the fastest recoveries for Letters of Credit.

5.5.3.2 Recovery rates

The recovery rates show the quantity of principal and accrued interest that can be recovered in the event of a default. It is calculated based on the recovery information provided by the banks.

$$Recovery\ rate = \frac{Recovered\ amount}{Balance\ at\ default}$$

FIGURE 23:
Distribution of Transaction recovery rates

	Number of Transactions	Cases with 0% recovery	Cases with 100% recovery	Average recovery rate	25%	Median	75%
Export L/C	40	10%	73%	84%	66%	100%	100%
Import L/C	1,375	1%	98%	98%	100%	100%	100%
Performance Guarantees	32	34%	38%	62%	0%	93%	100%
Loans for Import/Export	817	8%	50%	64%	33%	90%	100%

FIGURE 24:
Exposure-weighted average recovery rate and range by bank

	Exposure-weighted Recovery Rate		Transaction weighted average Recovery Rate
	Overall	Range across banks	
Export L/C	62%	0–78%	84%
Import L/C	74%	52–100%	98%
Performance Guarantees	51%	0–100%	62%
Loans for Import/Export	70%	0–100%	64%

For all products, the median result is close to 100% recovery, which demonstrates the point that the majority of Short-term Trade Finance products tend to be recovered. Particularly for Import L/Cs, in more than 75% of cases the full amount has been recovered. However, as illustrated in our Import case study in section 5.4.2.2 , it cannot be excluded that some of this recovery may be due to product switching (also referred to as product substitution), with a potential loss occurring for example in the overdraft account instead of the Trade facility. It is also interesting to note that a commonly observed recovery for corporate defaults will either result in the full amount being recovered or very little being recovered. This trait appears to be evident particularly for Performance Guarantees with 0% recoveries at the 25th percentile.

In addition to the average results on a transaction level it is interesting to look at the exposure weighted recovery rates as they can provide an insight into whether larger or smaller transactions are more likely to be recovered. These are calculated as:

$$\text{Exposure weighted Recovery Rate} = \frac{\text{Transaction recovery rate} \times \text{Exposure}}{\text{Total exposure}}$$

Overall the exposure weighted recovery rates are lower than the transaction weighted recovery rates, with the exception of Loans for Import/Export. This implies that some banks recover less on larger exposures. This implies that banks recover less on larger exposures or that larger exposures take longer to restructure or to successfully recover, a dynamic it may not have been possible to capture with the data collected to date. However, this is not the case for all banks within the survey and several of these are for cases where there are relatively few default cases. It will be interesting to see how these results progress with subsequent versions of this report.

FIGURE 25:
Exposure-weighted LGD by product, 2008–2012

Product	1 – recovery rate (exposure weighted)	Time to recovery (t) (years)	Discount on recoveries and costs (2%)			LGD		
		Discount rate (r)	5%	9%	13%	5%	9%	13%
Export L/C	38%	0.49	3%	5%	6%	41%	42%	44%
Import L/C	26%	0.19	3%	3%	4%	29%	29%	30%
Performance Guarantees	49%	0.58	3%	4%	5%	53%	54%	55%
Loans for Import/Export	30%	0.65	5%	7%	9%	35%	38%	40%

Across both results we see higher recovery rates for Import L/Cs and Loans which are driven by the ability to seize collateral associated with the transaction. Fundamentally, Performance Guarantees are a different product and do not have the collateral that the other products have (an overview of the product characteristics can be found in section 2). It is worth noting that the effect that the presence of collateral has on reducing losses may be obscured by the fact that many workout process are managed on an overall basis and therefore, it is not possible to distinguish recoveries which are directly attributable to the collateralised Trade Finance exposures.

5.5.3.3 Loss Given Default

As noted above, for the purpose of estimating LGD, Basel rules require recoveries to be discounted and to reflect associated indirect and direct recovery costs. There is significant debate around what the appropriate discount rate should be and therefore, in Figure 20, a range of possible rates is being shown. The time to recovery estimated above informs the time period used for discounting at the given discount rate.
As there is only limited academic evidence or clear guidance on the levels of recovery costs, an estimate of 2% of the defaulting exposure[20] has been applied, which represents a conservative assumption.

The Loss Given Default is therefore calculated as:

LGD = (1 — *recovery rate*) + *discount on recoveries* (%) + *recovery costs* (%)

Where the discount on recoveries is calculated as:

Discount on recoveries = $1 - 1/(1 + r)^t$

Where *r* is the discount rate and *t* is the time to recovery

The results shown above are based on exposure weighted recoveries and show that the LGD for most products remains low and the discount rate has only a small effect on the overall value given the short time to recovery. In subsequent EL calculations, we will use a middle of the range point at a discount rate of 9%. At this discount rate and including recovery costs at 2%, LGD ranges between 29% for Import L/Cs to 54% for Performance Guarantees. As discussed above, the exposure weighted results are impacted by several large exposures from a relatively small sample set and therefore care should be taken when using them as a representative sample for all Trade Finance products. It is also worth noting that this analysis does not include treatment for products where payments are never made, nor does it adjust for Trade Finance products with zero balance at default.

	Customer default rate	EAD	LGD	Customer EL	Transactional EL	Exposure-weighted EL
Export L/C	0.04%	100%	42%	0.02%	0.00%	0.01%
Import L/C	0.29%	100%	29%	0.09%	0.02%	0.02%
Performance Guarantees	0.43%	8%	54%	0.02%	0.01%	0.01%
Loans for Import/Export	0.72%	100%	38%	0.27%	0.08%	0.06%

Note: LGD at 9% discount rate and 2% costs. Transactional EL and Exposure weighted EL are based on the Transaction and exposure weighted transaction default rates respectively. The exposure weighted LGD is used for all EL metrics

5.6 Expected loss (EL)

5.6.1 Overview

Expected Loss is a measure of the average amount a bank is expected to lose as a proportion of the total exposure. EL is calculated as:

Expected loss = PD � EAD � LGD

Where the PD, EAD and LGD elements are those calculated above.

5.6.2 Methodology and data improvements

Including customer defaults in the data collection has allowed the Expected Loss calculation to align significantly closer to the one used by the Basel Committee. The expected losses shown below are considered to be conservative relative to actual losses due to:

• An assumption of 100% has been used to calculate EAD for Import and Export L/Cs, which is expected to be higher than the true Credit Conversion Factor. As discussed in section 5.4.2 this is due to the lack of sufficient data to accurately estimate this parameter

• The difference between the customer and transaction default rates (which as noted above may be caused by a number of issues such as transaction maturity and banks' ability to reduce exposure to poor credits as default approaches) has not been reflected in either EAD or LGD

This level of prudence, can impact the relative relevance of data, analysis and conclusions for different purposes. A conservative approach can be appropriate and beneficial in determining capitalization objectives, but may be less helpful in comparing economic characteristics across products areas.

5.6.3 Results

Figure 21 combines the PD, EAD and LGD parameters estimated previously to arrive at the Expected Loss. We show EL on a customers, transactions and exposure weighted basis.

The results show that, even with the prudent assumptions, the average EL is lower for all products than typical corporate exposures. When compared to the Moody's investment grade rating universe, the default rate across this period was 0.11% vs. 0.06% for Loans for Import/Export, which is the highest across any of the products. This reiterates the low risk nature of Short-term Trade Finance products.

6. ANALYSIS OF MEDIUM TO LONG-TERM TRADE FINANCE PRODUCTS

6.1 Risk Characteristics of Medium to Long-term Trade Finance products

As stated in the introduction, the Medium and Long Term (MLT) products in-scope of the ICC Trade Register are those with the backing of an OECD member based ECA, representing the full faith and credit of their respective government. Although the in-scope MLT transactions have different product characteristics than the transactions included in the Short-term Trade Register, the risk profile of the MLT products is also considered low. This is primarily due to a low Expected Loss unless the ECA itself defaults, which is typically considered unlikely as the in-scope ECAs are sponsored by high-income OECD governments and have investment grade ratings.

It is important to note that while the default rate for MLT transactions is low, it is the ECA coverage that essentially makes these products low risk. Consequently, we also analyse the level of recoveries and losses, in the event of an insured counterparty's default.

6.2 Default rate analysis

6.2.1 Data availability and definitions

The data underlying the analysis of the MLT Trade Register is collected at the transaction level and banks are requested to provide both unique customer and transaction IDs. As a result, consistent transaction level and customer level default rates can be calculated, which provides for closer alignment to the Basel methodology. All transactions are reported by four major asset categories – Corporate, FI, Sovereign and Specialised as defined in section 2.2 in order to highlight the differences in risk profile across these categories.

Given that MLT transactions typically span 10–15 years, and banks report data to the MLT Trade Register on an annual basis, any individual transaction is likely to appear in multiple years. However, as Basel default-rate measures are based on a 12-month outcome window (as opposed to a transaction or customer lifetime perspective), different methodologies can be applied to arrive at these metrics. In short, the default rates presented here are annual averages over the 2007–2014 period, based on an approach where the sum of the number of defaults across all years is divided by the sum of total transactions in each year. Moreover, defaults are only counted in the year that they occur and are thereafter excluded from the total transaction count in subsequent years. A more detailed elaboration on the impact of different methodologies is included in Appendix D.

In this section we calculate three different default rates, based on the same set of underlying transactions and methodological approach outlined above. For each of these metrics, the sums are calculated across the entire sample over the 2007–2014 period.

Asset category	Total obligors	Total obligors in default	Obligor default rate
Corporate	7,047	63	0.89%
FI	3,460	49	1.42%
Sovereign	1,814	5	0.28%
Specialised	2,490	12	0.48%
Total	**14,705**	**129**	**0.88%**

Note: Total obligors across asset categories does not sum up to the total, as in a small number of cases obligors have transactions across multiple asset categories

1. Customer default rate

$$\text{Customer default rate} = \frac{\text{Total number of customer defaults}}{\text{Total number of customers}}$$

2. Transaction default rate

$$\text{Transaction default rate} = \frac{\text{Total number of defaulted transactions}}{\text{Total number of transactions}}$$

3. Exposure weighted default rate:

$$\text{Exposure weighted default rate} = \frac{\text{Total exposure from defaulted customers}}{\text{Total exposure}}$$

6.2.2 Default rate analysis by asset category

As can be seen in Figure 22, customer default rates across all asset categories are comparably low. As an illustration of this, it should be highlighted that the corporate default rate over the period of 0.88% compared very favourably with the Moody's rated corporate universe of 1.9% despite having significantly less exposure to OECD markets.

The transaction level default rates presented in Figure 23 broadly mirror those of the customer default. The overall transaction default rate is 17 bps lower than the overall customer default rate, which is driven by the Corporate and Sovereign asset categories. This would imply that the defaulting counterparties in these asset categories would have comparably fewer transactions on average that the performing counterparties.

The overall exposure weighted default rate is even lower than the corresponding transaction default rate. This would imply that defaulting counterparties on average would have smaller exposures than performing counterparties. This is in line with expectations that firms with larger exposures are less likely to default as by the nature of the transaction, banks are only willing to lend larger amounts to firms that are considered lower risk.

FIGURE 28:
Transaction[22] default rate by asset category, 2007–2014

Asset category	Total transactions	Transactions for obligors in default	Transaction default rate
Corporate	14,889	101	0.68%
FI	6,833	98	1.43%
Sovereign	5,214	8	0.15%
Specialised	6,874	34	0.49%
Total	**33,810**	**241**	**0.71%**

FIGURE 29:
Exposure weighted default rate by asset category, 2007–2014

Asset category	Total Exposure ($ MM)	Total defaulted exposure ($ MM)	Exposure default rate
Corporate	283,436	1,108	0,39%
FI	43,751	560	1.28%
Sovereign	94,735	76	0.08%
Specialised	122,397	286	0.23%
Total	**544,319**	**2,030**	**0.37%**

The exception is the FI asset category where the relative reduction seen moving from transaction to exposure weighted default rates is lower compared to the other asset categories. In the first instance, this may appear somewhat surprising, given Financial Institutions are typically considered lower risk than corporates. However, this result is driven by a number of FI defaults in Kazakhstan and Ukraine in 2009 as well as the extensive FI exposures to Iran when trade sanctions were introduced in 2011 and 2012. Sanctions prevent counterparties from being able to make payments on their exposures, and similarly to the 2009 events in Kazakhstan and Ukraine, this is a good example of the kind of idiosyncratic events that the ECA cover is designed to protect against.

To illustrate the effect of these events on the overall default rates, we also show a calculation where transactions related to Ukraine, Kazakhstan and Iran are excluded from the sample. In this case, the overall transaction default rate from 2007–2014 is reduced to 0.17% from 1.43% for FI (or to 0.46% from 0.71% for all transactions).
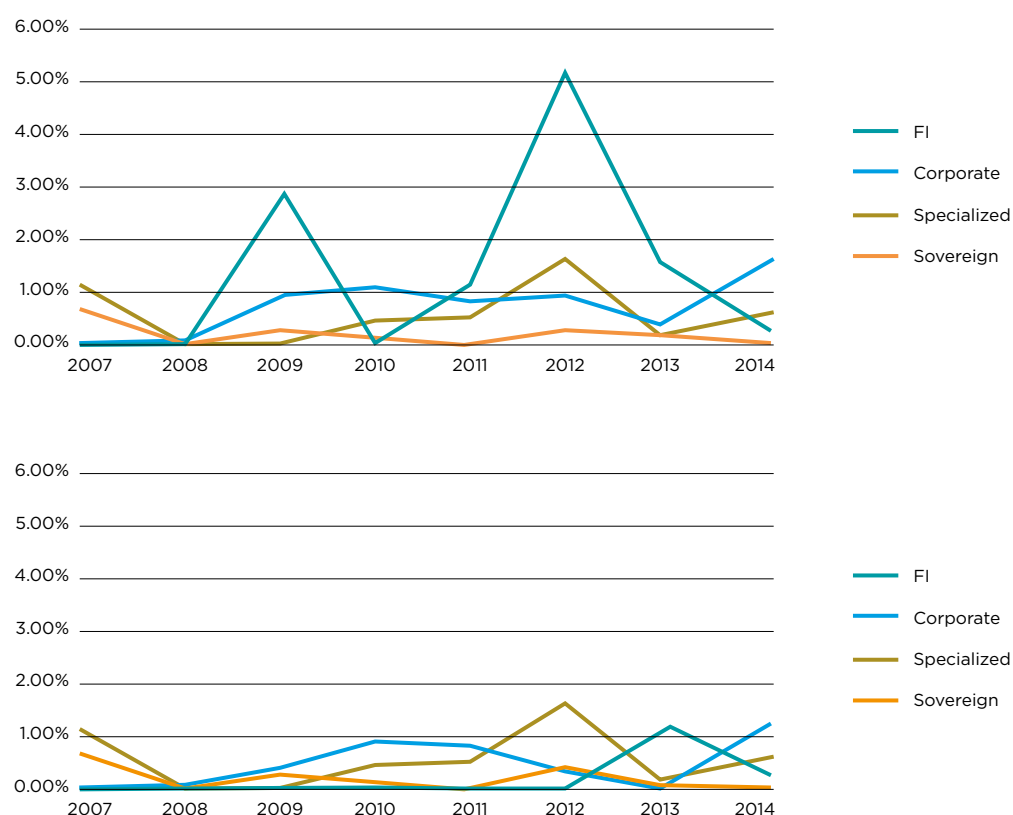
These findings highlight that idiosyncratic shocks can have significant effects on default rates for MLT products. As such, care should be taken to understanding the composition of a given portfolio with regards to underlying asset classes and geographical distribution.

6.2.3 Default rate analysis by region

Similarly to the previous section, in this section we analyse customer, transaction and exposure weighted default rates but with a breakdown by region. A granular breakdown of how specific countries have been classified into regions is provided in Appendix C.

The highest default rates can be observed in the Middle East due to the sanctions introduced in Iran. Additionally there are significantly higher default rates in the ex-CIS region driven by the defaults in Ukraine and Kazakhstan. In this context it is important to note that these significant variations in default rates are largely due to idiosyncratic shocks. However, it is fair to say that idiosyncratic shocks such as sanctions and political conflicts mostly arise in certain regions of the world, hence rendering some regions naturally more risky than others.

FIGURE 31:
Customer default rate by region of risk, 2007–2014

Region	Total obligors	Total obligors in default	Obligor default rate
Africa	1,481	6	0.41%
APAC	2,506	11	0.44%
Central and South America	1,657	14	0.84%
Europe (non-CIS)	2,776	15	0.54%
ex-CIS	3,947	50	1.27%
Middle East	1,161	33	2.84%
North America	1,222	0	0.00%
Total	**14,705**	**129**	**0.88%**

Note: The sum across regions does not add up to the total, due to a small number of obligors with transactions across multiple geographies

FIGURE 32:
Transaction default rates by region of risk, 2007–2014

Region	Total transactions	Transactions for obligor in default	Transaction default rate
Africa	3,831	15	0.39%
APAC	7,482	22	0.29%
Central and South America	4,226	21	0.50%
Europe (non-CIS)	6,041	22	0.36%
ex-CIS	6,159	79	1.28%
Middle East	3,379	82	2.43%
North America	2,692	0	0.00%
Total	**33,810**	**241**	**0.71%**

FIGURE 33:
Exposure weighted default rates by region of risk, 2007–2014

Region	Total Exposure ($MM)	Total defaulted exposure ($MM)	Exposure default rate
Africa	56,491	126	0.22%
APAC	126,333	196	0.15%
Central and South America	75,219	117	0.16%
Europe (non-CIS)	110,319	252	0.23%
ex-CIS	61,198	674	1,10%
Middle East	55,989	666	1,19%
North America	58,770	0	0.00%
Total	**544,319**	**2,030**	**0.37%**

Transaction default rate by region including (top chart) and excluding (bottom chart) transactions in Iran, Ukraine and Kazakhstan, 2007–2014
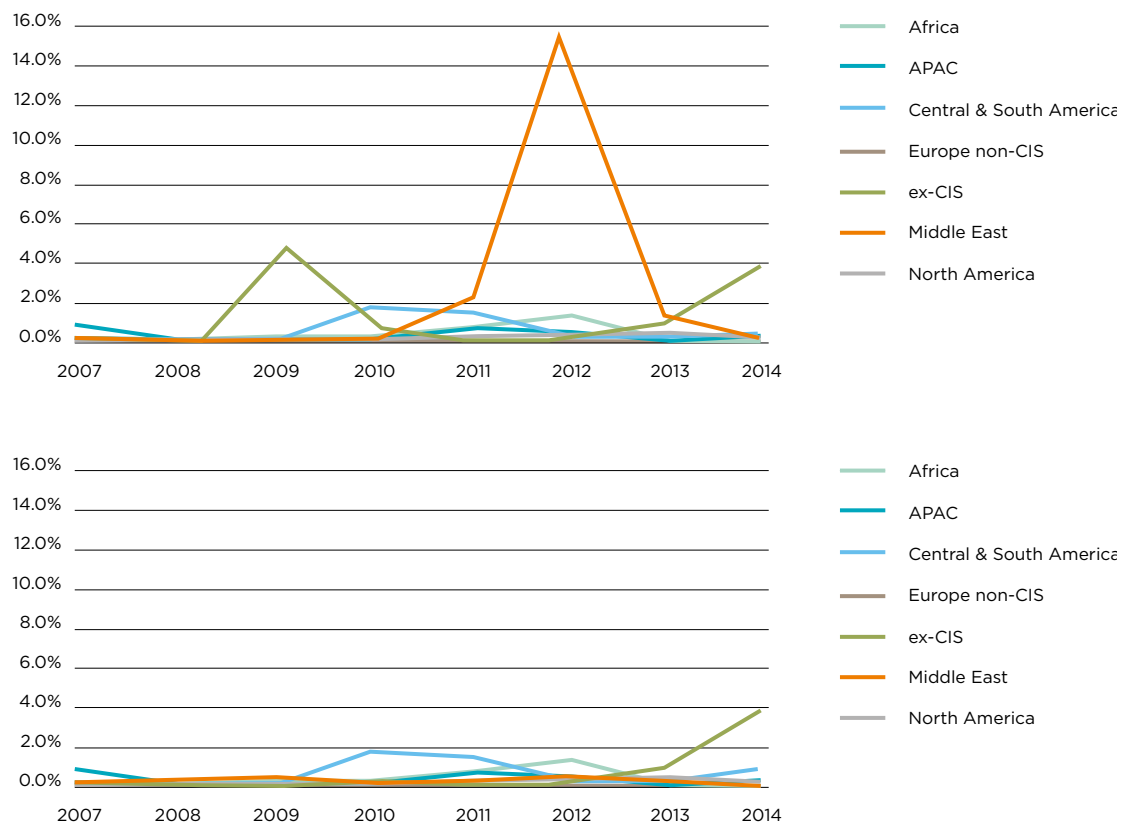
Similar to the customer default rates, the default rate spike in ex-CIS in 2009 and the Middle-East in 2011–2012 due to the Iran sanctions can be observed in the transaction default rate analysis as well. What can also be seen is a more recent increase in 2013 and 2014 default rates in ex-CIS, which is in part driven by an increased number of defaults in Russia. Contrary to the case of Iran, these defaults are predominantly corporate defaults but are likely to be related to the conflict between Russia and Ukraine and the sanctions imposed on certain Russian counterparties by the EU and the USA. It should also be noted that the transaction level default rate is higher than the customer default rate in this region, which illustrates a concentration of transactions to a small number of counterparts.

Asset categories	#5yrs or less	#5–10yrs	#10–15yrs	#15yrs or more	Unweighted average tenor	Exposure weighted average tenor
Corporate	13%	38%	43%	6%	10.0	11.9
FI	23%	36%	23%	17%	10.1	11.7
Sovereign	3%	24%	53%	20%	12.7	13.9
Specialised	2%	21%	69%	8%	12.0	12.6
Total	**12%**	**32%**	**45%**	**11%**	**10.8**	**12.4**

6.3 Maturity

The maturity describes the amount of time remaining before a transaction expires, not the total maturity of the contract upon its initial issuance[23]. Figure 30 looks at the distribution of maturities across the entire sample as well as showing a comparison of the transaction average and the exposure weighted average. These calculations are all done over the entire sample of transactions for which maturity values were submitted.

As would be expected, MLT products have a significantly longer maturity than the Short-term products with 43% of transactions across all asset categories having a maturity of 10–15 years or 56% above 10 years. Comparing across asset categories Corporate and FI have a relatively even distribution of maturities up to 15 years, albeit FI transactions have a larger share in the 15-years-and-above category. The majority of Sovereign and Specialised business occurs in the 10–15 year range.

A trend that can be observed from this analysis is that the exposure weighed average is higher than the average for all products and is approximately 1 year more for the average. This would imply that larger transactions have, on average, longer maturities than smaller transactions.

6.4 Loss given default (LGD)

6.4.1 Overview

As detailed in section 5.5.1 Loss Given Default is a measure of the loss incurred by a bank in relation to the overall exposure of the bank at the time a counterparty defaults. This is calculated as:

LGD = (1 — recovery rate) + discount on recoveries (%) + costs (%)

6.4.2 Observed recovery rates

By definition, a large proportion of the recovery of Medium to Long-term products is insured by an ECA. For example, if a customer defaults on a loan that has a 95% comprehensive coverage from an ECA, then the bank can expect recoveries from the ECA covering up to 95% of:

• The outstanding principal at the point of default

• Interest contractually due but unpaid

• Direct costs associated with recovering from the customer (including for example legal fees)

The bank can also benefit from recoveries from the customer, if the latter finally complies late with its obligations. It should be noted that where recoveries are made from the customer, these recoveries are shared between the bank and the ECAs in proportion of respectively the uncovered portion and the covered portion as the ECA is subrogated in the rights of the bank after indemnification. Thus for example, if a customer defaults owing the bank $1 million and there is cover of 95% from the ECA, the ECA will pay the bank $950,000 – if the customer then makes a payment of $100,000, then $95,000 of the $100,000 recovery from the customer would be given to the ECA and only $5,000 would be retained by the bank. Thus the bank's overall recovery would be $955,000[24].

Typically when a customer defaults the ECA will assume responsibility for the payments due under the terms of the contract and therefore, the ECA makes payments in line with the original contract. This does, however, cause potential challenges when analysing observed recoveries for which the full recovery period is not available. For example, if at the point of default there are 3.5 years remaining contractually, this means that on average in any year 25–30% of the total recoveries would be expected to come from the ECA.

As a result of this, the observed recoveries for the most recent defaults may amount to only the originally agreed instalments due, i.e. not to the full contractual loan lifecycle expected recovery rate based on the level of cover. This means that while the defaulted amount recognised will be the full outstanding amount, the observed recovery will only make up a portion of the defaulted amount because the ECA will pay out based on the agreed payment schedule instead of the full outstanding amount. In other situations the ECA will accelerate its payment, making an upfront lump-sum payment. Where the ECA recovery is not yet complete, it is possible to determine the amount due by comparing the original payment profile with the observed recoveries. Therefore the estimation of the observed recovery rate in this report has been based on:

• Cases where ECA recovery has completed or been accelerated: the amount of recoveries divided by the Exposure at Default

• Cases where ECA recovery is still in progress: the amount of recoveries to date divided by the exposure due to date (based on the expected amortisation profile)[25]

FIGURE 36:
MLT Observed Recovery information, 2007–2014 $ MM,
Pre- and Post-attribution of customer recoveries

	Exposure[26]	ECA Recovery[27]	Customer recovery	Overall recovery as % Exposure
Pre-attribution	1,299	1,062	204	97.5%
Post-attribution	1,299	1,256	11	97.5%

It should be noted that, even in situations where the ECA have accelerated the workout or the workout is complete, additional recoveries from borrowers may occur and hence eventual recoveries may be higher than those indicated in Figure 31. Additionally the results below draw from a relatively small sample set due to the low number of defaults across the sample. As a consequence of this, the results may exhibit significant variance across years and particularly if compared across reports of the Trade Register to come.

Figure 31 shows the overall level of recoveries from the ECA and the customer before and after attribution of customer recoveries to the ECA. We report this information at this stage to allow the reader to see that there are good recoveries from some defaulted customers. In subsequent tables we use the recoveries post-attribution.

6.4.3 Discounting

As noted in section 5.5, for Basel LGD purposes the following factors need to be accounted for:

• Discount rate on recoveries, with recoveries discounted from the point of recovery to the point of default

• Direct and indirect recovery costs

• In addition to MLT transactions, downturn effects need to be considered (i.e. the potential impact of an economic downturn on recovery cash flows and cure rates)

The discount rate applied to these products differs significantly across banks and is an area of ongoing debate. The task of applying a discount rate to the MLT Trade Register data is further complicated by the fact that the products have state backing from OECD sovereigns. Given this state backing, though, it can be assumed that the stream of payments from these products is similar to those of a government bond and therefore, the discount rate applied to a bond from the government of the ECA with a similar maturity will be used. Thus for example if the recovery from the ECA occurs two years after default, we use a discount rate based on the 2-year sovereign bond rate.

From a practitioner's perspective, given that highly-rated OECD ECAs have never defaulted on a valid claim, some practitioners consider that the discount rate should be based on the 3-month sovereign bond rate as the ECA is committed to indemnify within a few months instalment by instalment (and not at the date of the default) and to cover interest.

MLT Discounted Recovery Rates, 2007–2014, $MM

Exposure	Discounted ECA Recovery	Discounted Customer recovery	Discounted recovery as % Exposure[30]
1,299	1,240	9	96.1%

However, there are two adjustments required to this rate:

- A liquidity premium to reflect the fact that there is not a liquid market for ECA claims – it is not the intention this year to derive this figure in detail, and a liquidity premium of 1% has been used[28].

- An adjustment for the risk of disagreement on the validity of the claim, although anecdotally this is vanishingly rare, and hence no adjustment has been made at this stage. Furthermore, some practitioners would argue that the risk of disagreement on the claim validity is an operational risk and hence should more appropriately be reflected in operational risk capital.

Thus for the covered portion of the repayments, the discount rate has been based on an appropriate point on the government yield curve (based on the maturity of the underlying transaction) with an additional 1% liquidity premium. Based on the last 12 months of data and the average time to recovery, this would suggest an average discount rate of approximately 1.5%[29]. However, in those cases where the MLT Trade Register only reflects principal repayments, no discounting effect has been applied as interest due would be expected to "offset" any discounting effect.

For the uncovered portion of the portfolio, i.e. those recoveries from the customer rather than the ECA post-attribution, a similar discount rate to the one used for Short-term products is being applied, which is similar to a "typical" unsecured recovery. Hence, a discount rate of 9% is being applied to the portion of the exposure which is not covered by the ECA.

The discounted recovery rate is slightly above 95%, in line with what is expected as the average ECA coverage is approximately 95% and we see some level of customer recoveries beyond this.

6.4.4 Costs

The ECA will typically cover a substantial share of the collection/workout costs for the defaulted exposure in line with the level of cover provided. For this year's calculations the assumption has been made that the workout costs are 1% of MLT exposures (this includes banks' internal indirect costs in line with Basel requirements).

FIGURE 38:
Recoveries and estimated LGD

	ECA Recoveries	Customer Recoveries	Total Recoveries	Loss Rate	Discounting[32]	Costs	LGD
Observed	96.7%	0.8%	97.5%	2.5%	1.3%	1%	4.9%
Expected	94.4%	1.4%	95.8%	4.2%	0%	1%	5.2%

6.4.5 MLT LGD

Assuming that the ECA makes payments in line with the contractual terms of the cover (with an average rate of cover of 94,4% on the defaulted portfolio), then the expected recovery rate of 95,8% is the sum of the expected rate of recovery on the ECA covered portion (94,4%) and the expected rate of recovery from customers (estimated at 1,4% in 2014). Combining these expected recoveries with the impact of discounting (set at 0% as they are difficult to estimate ex-ante) and costs of recoveries, we anticipated an LGD of approximately 5,2%.

Comparing the observed and 'expected' recoveries in Figure 33, we can see that the level of observed recoveries is slightly higher than 'expected' when using the ECA cover. This is because in the observed/reported recoveries, missed interest which is indemnified by the ECA is sometimes reported whereas we are unable to include this element in the 'expected' recoveries below as we do not know the interest rate due for all exposures (thus the 'expected' figure is for principal repayments only[31] whereas the observed figure includes both interest and principal where this is available).

In reality, the ECA cover also covers the interest due from the borrower where it has been reported, it varies between 1% and 10% with an average value of 2.8%. Thus the ECA would, in addition to the principal recoveries, on average be expected to make payments in each period of approximately 2.6% which would in most cases more than offset the effect of discounting – therefore in Figure 33 for the 'expected' LGD we have not included discounting effects for the ECA covered portion but only for the customer recoveries.

As noted above, in order to ensure we are using information from as many defaulted transactions as possible we have included cases which are only partially worked out. If we were to restrict to those cases where the ECA workout process is complete, this would reduce the number of transactions which can be included from 198 to 134 and would produce the following results which again demonstrate the low loss nature of the ECA exposures. It should be noted that in these cases whilst the ECA workout process has been completed, additional customer recoveries may subsequently arise which would further reduce the LGD.

FIGURE 39:
Recoveries and estimated LGD for completed cases

	ECA Recoveries	Customer Recoveries	Total Recoveries	Loss Rate	Discounting	Costs	LGD
Observed – completed cases only	95.8%	0.8%	96.6%	3.4%	0.8%	1%	5.3%

FIGURE 40:
Estimated EL for MLT Trade Finance products using exposure weighted (customer) default rate, 2007–2014

	Exposure-weighted (customer) default rate	EAD	LGD	EL
Observed	0.37%	100%	4.9%	0.018%
Observed – completed cases only[34]	0.37%	100%	5.3%	0.020%
Expected	0.37%	100%	5.2%	0.019%

One of the periods of most interest is the impact that the downturn had on LGD. However, due to limited observations this could not be calculated. Despite not being able to calculate this, theoretically the LGD on ECA-backed exposures should be less cyclical than other corporate exposures as it is only the uncovered portion which is subject to local economic circumstances for the counterparty.

6.4.6 Expected Loss (EL)

Using the results generated in the sections above now the overall Expected Loss can be estimated. The formula for calculating EL is a follows:

EL = Default rate X EAD X LGD

As currently there is not sufficient information to appropriately calculate the EAD based on empirical data, EAD for the purposes of this calculation have been assumed to be equal to the current balance.

The observed EL figures appear lower than one would expect for "vanilla" corporate lending, due to the benefits of the ECA guarantee. In fact, due to the low LGD, the annual loss rate from 2007 to 2014 is lower than the loss rate reported by Moody's for the same period for Aa rated bonds (which experienced an average annual loss rate between 2007 and 2014 of approximately 0.06%).

The results above are based on the average coverage ratios from the MLT Trade register. There are, however, instances where this coverage is higher than this, up to 100%, and hence it is expected that the EL in some cases may be even lower. Equally there are some transactions where the coverage is lower and therefore the EL may be higher.

7. CONCLUSIONS

This year's report on global risk in Trade and Export Finance clearly continues the process of demonstrating the low credit-related risk profile of Trade and Export Finance as compared to other asset classes for both Short-term and Medium to Long-term products. As it has been shown, default rates are relatively low (indeed very low on a transaction level and lower than a comparable Moody's corporate portfolio on obligor level); the products are very liquid (Short-term Trade Finance); losses in the case of a default are relatively low. This leads to a low overall Expected Loss as the Basel-compliant measure of risk.

Whilst the analyses presented in this report are based on a much broader data set including the methodological and data quality improvements as discussed earlier in this report, the results are consistent with the findings in previous years' analyses, hence continuously strengthening the common understanding of the business and risk profile of Trade Finance.

The Trade Register is on a journey towards providing fully Basel-compliant risk measures in Trade and Export Finance on a statistically robust and globally representative basis. In this year's report, great progress was made across some key parameters, notably Defaults and Loss Given Default. A transparent and Basel-compliant methodology aligned comparison of customer/obligor level defaults with transaction level defaults has been presented, clearly showing the relatively lower transaction default levels which indicate a relatively low risk of Trade and Export Finance products as compared to customer level counterparty risk.

Moreover, there is a clear understanding and fact base on Loss Given Default in place now for Short-term as well as Medium to Long-term instruments. Further work will be required to accurately capture Exposure at Default. Precisely describing EAD requires very granular data which covers a full transaction lifecycle in detail. It will remain a key focus of the coming reports to provide a detailed "lifecycle" analysis and a granular EAD analysis in order to present the risk measures in accordance with a fully Basel-compliant methodology.

Thus, the future development trajectory of the Trade Register is clearly defined and captured in a three-year strategy which articulates the medium-term objectives, priorities and evolution of the Project. The ICC Trade Register will continue to work towards greater alignment with the Basel Methodology, while concurrently seeking ways to provide greater clarity about trade finance and supply chain finance, and to provide greater value to Member Banks and to our industry at large, by extending scope, enhancing methodology and continuing targeted advocacy activity.
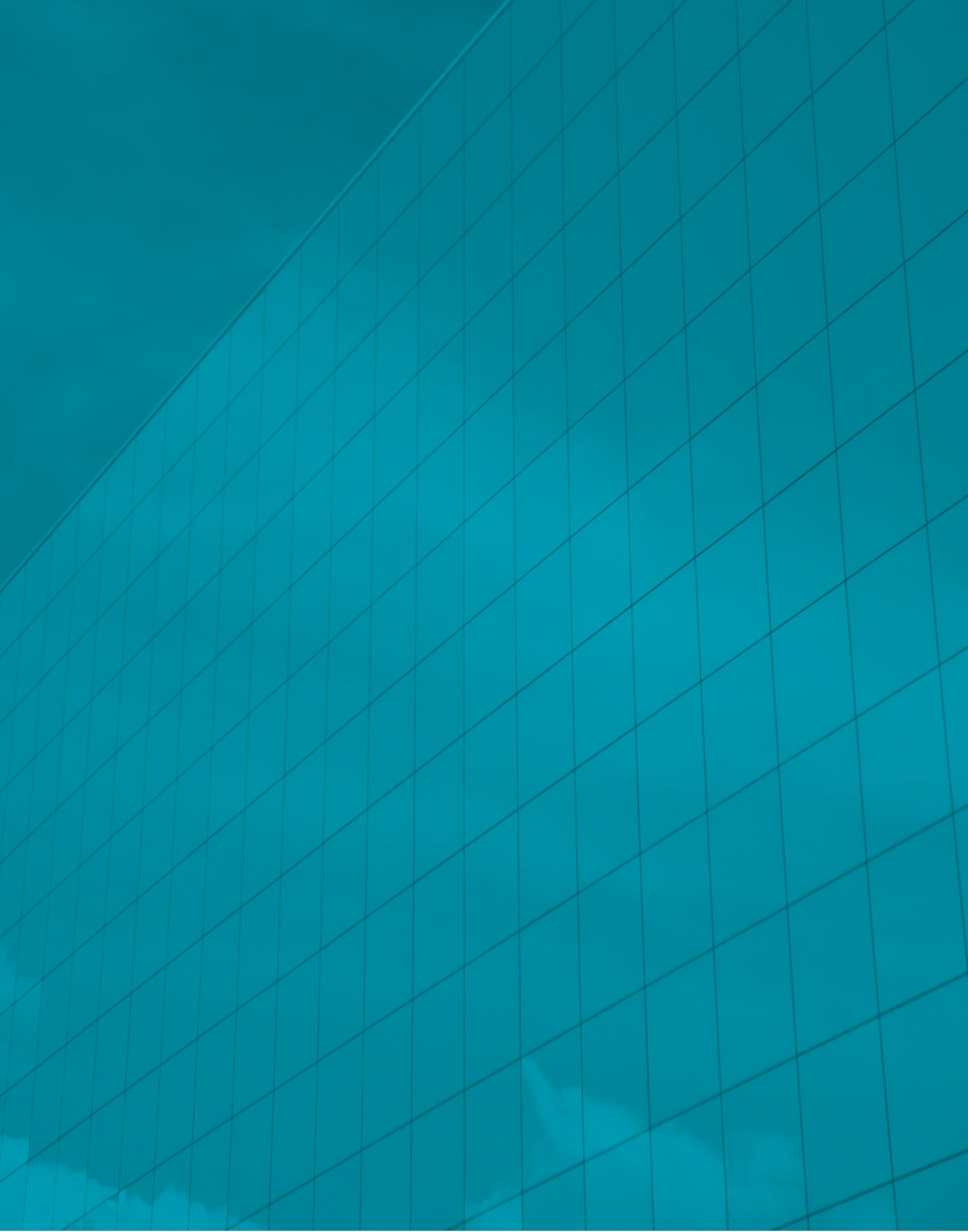
ANNEX

ANNEX

APPENDIX A: GLOSSARY OF BASEL TERMINOLOGY

PD
Probability of Default is the probability that a counterparty defaults on any exposure to a bank within 12 months (Basel rules require the "long-run average of one-year default rates for borrowers")

EAD
Exposure At Default is the amount the customer will owe the bank on a given transaction at the point of default

LGD
Loss Given Default is the economic loss which a bank is expected to incur on a transaction when a customer defaults, reflecting any credit risk mitigation

EM
Effective Maturity is remaining maturity in years of an exposure. In this report, effective maturity is called "Maturity" to allow for consistency with previous years' reports

EL
Expected Loss, or the level of loss expected on a given loan portfolio, can be calculated using the formula
$EL = PD \{ EAD \{ LGD$

APPENDIX B:
IN SCOPE SHORT-TERM
TRADE FINANCE PRODUCTS

FIGURE 41:
Deep dive: Characteristics of in scope Short-term products

In scope products	Characteristics
Documentary Letters of Credit (L/C)	• Commercial instrument issued by a bank on behalf of an importer/buyer in favour of an exporter/seller. Represents an irrevocable undertaking to make payment upon presentation of an agreed set of documents.
	• Reduces the risk to the exporter/seller of non-payment as banks are typically lower risk than the importing counterparty.
	• The payment undertaking could be either at "sight" of documents or after a deferred period (also known as usance L/Cs)
	• Typically involves a process of verification of documents against the terms and conditions of the L/C. The payment obligation is contingent on determining that the documents are compliant or through a process of negotiation between buyer and seller in the event of non-compliance
	• Represents a contingent obligation for the issuing bank until compliant documents are presented. The issuing bank extends payment upon presentation of compliant documents (unless otherwise specified), typically withdrawing the funds directly from the importer's other accounts with the bank or by providing specific short-term financing to the importer. Only in the event compliant documentation is presented and there are insufficient funds in the importers accounts, the bank itself has to pay the exporter and subsequently reclaim its money from the importer
	• In the event the exporter is not fully confident of the standing of the Issuing Bank, or has concerns about the stability of the importing market, the exporter may request that a confirmation be added to the Letter of Credit, creating a separate, legally-binding payment undertaking from the Confirming Bank in favour of the exporter
	• Under a Confirmed L/C a bank typically (but not necessarily) in the same country as the beneficiary (acting as Confirming Bank) adds its additional commitment/confirmation to that of the Issuing Bank to honour a compliant document presentation in accordance with the terms and conditions of the L/C. Hence, the Confirming Bank assumes the credit and country risk associated with the Issuing Bank. As such, a Confirmed L/C offers the highest degree of protection to the exporter/seller as the Confirming Bank generally has more favourable risk characteristics to the exporter than the Issuing Bank

In scope products	Characteristics
Loans for Import/ Export	• Collective term for a range of financing instruments used to facilitate trade • In the case of loans for export purposes, these may be collateralised by underlying L/Cs (or other documentation). Allows the bank to disburse payment to the exporter in the form of a bank loan, which increases liquidity to the exporter and facilitates trade. Include financing solutions for both pre-export and post-import purposes • In the case of Import Loans, a range of techniques or structures exist by which a bank advances a loan to an importer. Allow the importer to cover the period between receiving goods and selling them on to its customers. One frequently used structure is Clean Import Loans, in which the bank advances cash to the importer, for example upon presentation of supplier invoices and evidence of shipment • The bank extending the loan can be subject to either corporate or bank credit risk depending upon the instrument or mechanism used to enable the loan
Performance Guarantees and performance standby letters of credit	• Performance Guarantees or Performance Standby L/Cs are instruments guaranteeing the applicant's/principal's obligation to deliver and perform according to a given contract • Written by a bank on behalf of a client and used as a "payment of last resort" should the client fail to fulfil a contractual obligation to a third party • Typically used where commercial relationships extend into the medium or long term, such as arrangements including services beyond delivery • Standby L/Cs and Guarantees are used for similar purposes. Other legal forms of Guarantees issued by banks include Bonds and (letters of) Guarantee • These instruments mitigate any distrust between transacting parties and may reduce cash outlay in situations where cash deposits are required (though typically, the applicant requesting the Standby or Guarantee must have a line of credit or funds on deposit to cover the value of the credit or Guarantee) • Typically remain undrawn unless an exporter fails to deliver (in the event the applicant is an exporter) or the importer defaults (in the event the applicant is an importer) • Similar to commercial L/Cs, represents a contingent obligation for the bank until the Guarantee is drawn. In this case the bank would seek to withdraw funds from the client's accounts in the first instance

APPENDIX C: DATA QUALITY CHECKS AND FILTERING PROCESS

This section includes an overview of the data quality filters applied to the Trade Register data used for the purpose of this report. The first part of this section discusses the Short-term Trade Register followed by the Medium and Long-term Trade Register.

In the Short-term Trade Register, the filtering criteria that lead to most exclusions are linked to the requirement for each bank to be able to submit obligor, transaction and exposure level information on a consistent basis. This is reflected in the "customer" and "transaction" filters (for example, if a bank cannot provide customer information this would be reflected in the customer filter). The transaction filter also includes any transactions that have been excluded due to other data quality issues that could not be resolved over the course of the data collection process.

It can be argued that the customer filter and transactional filter can be applied independently to derive the customer level default rate and the transaction level default rate, respectively. On the one hand this would create a larger sample set, but on the other hand, this approach would lead to two different subsamples on which to derive analytics. When compared, these would always have inherent differences as a result of the sample, and might lead to incorrect conclusions being drawn. As a result of this, a smaller, more comparable dataset for the purposes of the overall default rate analysis has been produced, using only data where both customer and transaction information was available. However, where possible for other analyses such as maturity and loss given default, this filter has been relaxed.

FIGURE 42:
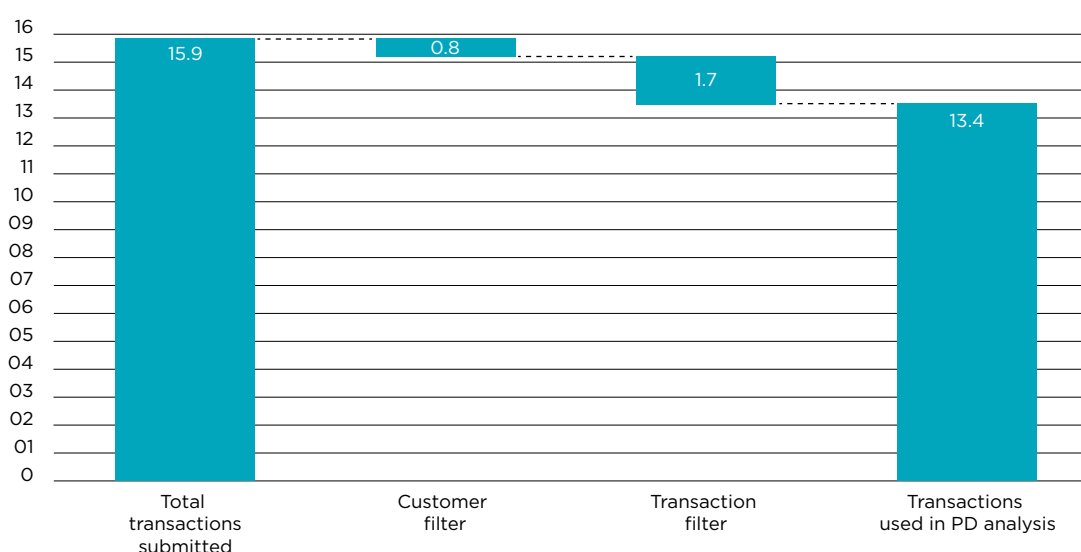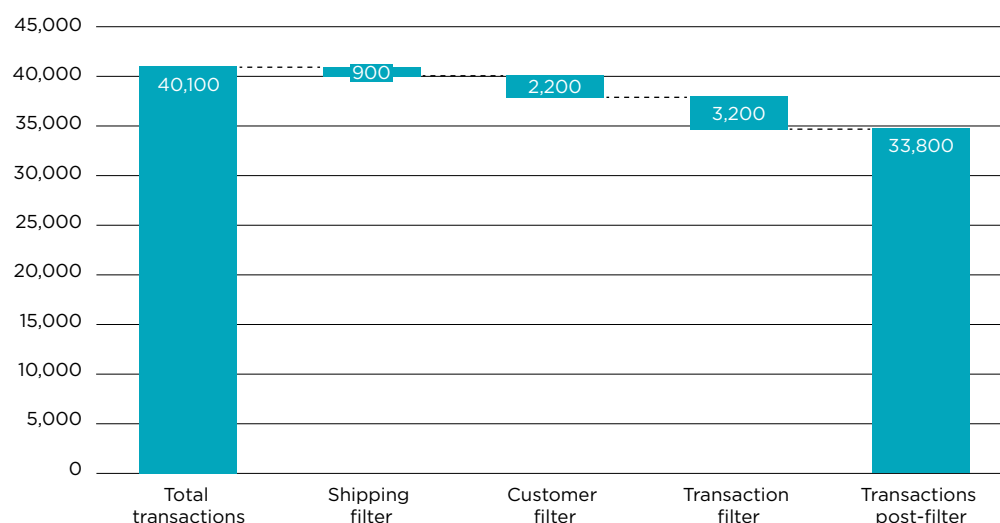**Number of transactions (MM) in the Short-term Trade Register 2014**

Figure 43:
Number of transactions in the MLT Trade Register 2014

It should be noted that more than 80% of the excluded transactions pertain to the years of 2007–2012. This is reflective of the improvements in data quality and completeness in recent years of the Trade Register, and the challenges associated with the introduction of new data collection templates in 2012.

In the Medium and Long-term Trade Register, the following filters are applied for the purpose of the default rate analysis:

- ECA filter – given only transactions where an OECD ECA has provided a guarantee or insurance are in scope of the MLT Trade Register, this filter excludes transactions where information about the ECA or the level of political or commercial coverage could not be provided

- Year and default filter – in order to establish analytical integrity, each default should only be considered once in the database (in the year that default occurs); this filter excludes defaulted transactions reported in multiple years and any transactions with misaligned dates (e.g. a default date prior to the trade date)

- Customer and transaction data quality filter – In order to ensure customer and transaction default rates are measured accurately, any transactions without unique customer or transaction ID's have been excluded. This filter also includes transactions that have been excluded for other data quality reasons such as zero exposure values or missing country or asset category information

Given the long-term character of MLT transactions, data submissions always cover multiple years on a transaction-by-transaction basis. This was the third year in which participants submitted data to the MLT Trade Register with initial submissions in 2012 asking participants to submit data back to 2007. Significant effort was put into comparisons of different years' submissions and appropriate cleansing in order to arrive at a consistent year-after-year data set for individual transactions. Ultimately a high quality data set covering MLT data across a period of 2007–2014 could be derived. Over the last three years a healthy increase in both the number of transactions in the register and the number of banks participating in the exercise has been recognised and this trend is expected to continue.

APPENDIX D:
TREATMENT OF THE CREDIT CONVERSION FACTORS

Credit Conversion Factor (CCF) is defined as a factor which estimates the likelihood of an undrawn trade facility being drawn down. This would be applicable to both funded and unfunded trade products. However, CCF is also used as a proxy to estimate the exposure or on balance sheet exposure of L/Cs and performance guarantees. For example[35]:

• For an Import L/C, the CCF could potentially reflect the proportion of L/Cs which will still be unexpired at default and which will have compliant documents submitted to the bank prior to expiry

• For a Performance Guarantee, the CCF could potentially reflect the likelihood of claim being made against the Performance Guarantee

As noted in the response on the new Standardised approach proposals, the definition of CCF in the Basel framework is open to interpretation and as such has led to different interpretations across regulators and institutions. This presents a key challenge as a) the CCF is a critical factor in calculating risk capital and leverage exposure for a bank, b) in the case of a default the CCF is a key driver in the loss calculation through EAD.

The following areas of ambiguity render a statistically sound analysis of the CCF, which is one of the aims of the Trade Register, challenging for now:

• As EAD is recorded on facility level, aggregating across, e.g. (undrawn proportions of) overdraft lines, guarantees, documentary credit, the isolation of the EAD data of a specific Trade Finance product is difficult for most banks

• The lifecycle of a documentary trade transaction and the document processing and checking steps and their results have a significant impact on whether a claim does exist on the level of the Trade product when the obligor defaults or not. For example if documents were rejected as not compliant prior to a default, a claim on the Trade product could not be constituted

• There are different interpretations of the nature of defaults in (documentary) Trade Finance:

  – One view is that if a successful claim is never made against a product, and hence no money is ever paid by the bank, then this should be reflected in a lower outstanding exposure, hence lower EAD

  – The other perspective is that if a customer defaults, there is outstanding exposure for the bank and therefore, at the point of default the exposure should equal the notional value of the Trade Finance product, hence EAD should equal 100% for transactions which are unexpired at default. All other factors, such as that compliant documents may not have been presented, should be reflected in a lower Loss Given Default (LGD)

ANNEX

- Finally, the low number of defaults in Trade Finance poses a challenge for statistically representative analyses. For most banks the sample of total defaulted transactions would be too small to derive robust conclusions, hence data across multiple banks is required, which obviously needs to be provided in a consistent format, which is complicated by the differing interpretations outlined above

For a precise CCF calculation based on historical data it is critical to receive transaction/product level data which allows reconciliation of the transaction lifecycle of a documentary credit product. The ICC Trade Register project is working towards this end. Given the practical challenges in reporting data consistently on a) a product level, b) across the full lifecycle including pre-default and post-default period, so far only very few banks have been able to provide data in the required format.

As a result the report does include case studies showing illustrative results, however, more work will be required to reach a representative, statistically sound data base for empirical CCF calculation.

APPENDIX E:
MLT CALCULATIONS

This appendix provides a brief description of the calculation of key risk metrics for the MLT Trade Register data as the approach is somewhat more complex than for the Short-term exposures:

- Default rate
- LGD
  - Treatment of incomplete workouts
  - Transaction recovery rate
  - Discount rates
  - LGD

E.1 Default rate

Given that MLT transactions typically span 10–15 years, and banks report data to the MLT Trade Register by year, any individual transaction is likely to appear in multiple years. However, as Basel default-rate and PD measures are based on a 12-month outcome window (as opposed to a transaction or customer lifetime perspective), there is a question as to how an individual customer with a transaction with contractual tenor of 10 years which starts in e.g. 2007 should be treated when estimating default rates.

When calculating 12-month customer default rates for Basel II purposes, two key pieces of information are required:

- The number of customers in the year
- The number of defaults in the year

The default rate for the year is then calculated as the ratio of the number of defaults to the number of customers. One key question which then arises is how the observations should be treated across years – the approach adopted by most banks is that the customer is included in all years up to and including the year of default when calculating the number of customers, but it is not included after the point of default (unless it becomes performing again). This approach has also been adopted in the MLT Trade Register.

The following simple example demonstrates this treatment for 5 customers who have MLT transactions which should be in force between 2007 and 2012 but one of which defaults in 2010 and does not subsequently return to the performing portfolio.

In this case the default rate calculation would be as follows:

FIGURE 44:
Simple example of customer counting

	# Customers	# Defaults	Default Rate
2007	5	0	0%
2008	5	0	0%
2009	5	0	0%
2010	5	1	20%
2011	4	0	0%
2012	4	0	0%

FIGURE 45:
MLT Customers, Defaults and Default rates by year

	# Customers	# Defaults	Default Rate
2007	796	2	0.25%
2008	1,049	1	0.10%
2009	1,189	24	2.02%
2010	1,537	15	0.98%
2011	1,747	19	1.09%
2012	1,736	23	1.32%
2007–2012	**8,054**	**84**	**1.04%**

As an example, we could consider a scenario with the following data set.

Given the above information, the natural subsequent question is "what is the average default rate over the period 2007–2012?" There are two potential ways to determine this:

- Sum the number of defaults across the years and divide by the sum of the number of customers in each year (84/8054 = 1.04%)

- Average the default rate in each year (= (0.25% + 0.10% + 2.02% + 0.98% + 1.09% + 1.32%)/6 = 0.96%)

The difference between these two approaches is effectively how much "weight" is given to each year – the former approach weights each year by the number of customers in the year (so the final two years have less weight as they have fewer observations), whilst the latter approach gives each year equal weight. If the number of customers each year is relatively stable then the two approaches will produce broadly similar results, and hence for most portfolios banks would often adopt the second approach.

In estimating the default rates for the MLT Trade Register, the former approach has been adopted as the amount of data from banks has increased over time with the initial years having less data. Thus it is being assumed that the former approach provides a more robust estimate as it reflects the better data availability in later years. The one potential downside with this approach is that the crisis year of 2009 has lower weight

MLT transactions, transaction defaults and transaction default rates by year

	# Transactions	# Transaction Defaults	Transaction Default rate
2007	2,333	9	0.39%
2008	2,991	1	0.03%
2009	3,085	27	0.88%
2010	4,259	21	0.49%
2011	4,397	28	0.64%
2012	4,326	76	1.76%
2007–2012	**21,391**	**162**	**0.76%**

than 2010–2012 – as a result one might expect the adopted approach to have led to a lower overall default rate estimate. However, had the default rate been calculated as the average of the default rates in each of 2007 to 2012, then the 12-month customer default rate would have been 0.96% (as opposed to 1.04% as reported in the main document above).

The transaction default rate is calculated using the same approach and the numbers in each year are shown in Figure 41. Had we averaged the annual transaction default rates, then the transaction default rate would have been 0.70%.

E.2 LGD

In estimating the LGD, there are typically a number of key issues which need to be addressed:

- How to deal with cases where the workout is not yet complete – corporate workouts often taken several years to be finalised, and for MLT this is a particular issue because following a default, the ECA will typically assume responsibility for the payments due under the terms of the contract, making payments in line with the original contract. When combined with "short" data histories this can mean that in many cases the final outcome is unknown when determining the recovery rate and LGD.

- Discount rate – as noted in last year's report and above, there is some debate with regards to the appropriate discount rate to apply when determining the LGD

E.2.1 Treatment of incomplete workouts

Corporate workouts often take several years to be finalised, and for MLT this is a particular issue because following a default, the ECA will typically assume responsibility for the payments due under the terms of the contract, making payments in line with the original contract. When combined with 'short' data histories this can mean that in many cases the final outcome is unknown when determining the recovery rate and LGD. Taking a real example below:

- A Ukrainian FI defaulted on its payments to a bank on an ECA-backed loan in February 2009

FIGURE 47:
Example of reported recoveries and write-offs

	Balance at start of year	ECA Principal repaid	ECA Interest paid	Customer Principal repaid	Customer interest repaid	Write-offs during the year	Balance at end of year	Recovery rate to end of year (principal only)
2009	3,870	613	102	0	0	32	3,225	16%
2010	3,225	613	87	0	0	32	2,580	32%
2011	2,580	613	63	0	0	32	1,935	48%
2012	1,935	613	31	0	0	32	1,290	63%
Total		**2,452**	**283**	**0**	**0**	**128**		

- The original maturity date of the loan was 30th September 2014

- At the point of default, the Ukrainian FI owed the bank 3.87 million

- The ECA agreed to pay the bank in line with its cover of 95% according to the original payment schedule, which was semi-annual payment every year until the point of maturity (or 12 payments, each equal to ~306 K[36])

In this example, there are 4 years of recovery, and a total amount of 2.45 million of principal on an Exposure At Default of 3.87 million has been recovered. Thus the recovery rate would be 63%. However, had this case been looked at in 2011, only 3 years of recoveries would have been available and the recovery rate would have been 48%. Thus it can be seen that the reported recovery rate would be very sensitive to how many years of observed data are available, and if this effect is not accounted for then the recovery rate may systematically underestimate the real recovery rate. It is important to note that whilst the above example only shows the recovery rate based on the principal amount, the ECA would also guarantee the interest payments. For a 95% covered ECA MLT loan, we would de facto expect to recover 95% of principal due and 95% of the interest payment due in each period.

Banks often face the issue of incomplete workouts when determining internal estimates of LGD and a variety of approaches have been adopted including:

- Excluding all incomplete cases – this was considered in the case of the MLT Trade Register, however given the timing of many of the defaults (relatively recent) and the low number of cases this was felt to exclude more cases than was desirable

- Excluding incomplete cases with less than a certain number of years of recovery – this would have had similar effects to that seen above and would be more problematic for MLT exposures than "vanilla" corporate loans as the expected repayment profile from the ECA is in line with the original repayment schedule which could be 5–10 years after default[37]

FIGURE 48:
Example of balance and repayments after default

	Expected Balance at start of year	Expected Cumulative Principal Payments Due by end of year
2009	3,870	645
2010	3,225	1,290
2011	2,580	1,935
2012	1,935	2,580
2013	1,290	3,225
2014	645	3,870
2015	0	

- Assuming that beyond a certain point all recoveries have been made – whilst this may be reasonable, if prudent, for other corporate portfolios on the basis that after a certain number of years expecting further recoveries appears unrealistic (and in some jurisdictions for some asset classes this is explicitly limited by law), given the ECA repays according to original schedule, this is considered inappropriate for the ECA-backed portion

- Tracking the recoveries as percentage of Exposure at Default and then extrapolating for those cases where insufficient time is available – this is sometimes used in portfolios where there are sufficient numbers of defaults/default history to allow robust fitting to be applied. One challenge with this approach is that it does *de facto* embed assumed future recoveries which have not yet been observed, and hence in some circumstances may not be considered prudent – in particular, in most cases assuming that future recoveries will appear is particularly problematic considering these future recoveries are predicated on workout on a defaulted customer

Given the very clear rules governing the expected repayment on ECA-backed MLT transactions, and in order to include as many cases as possible, the recovery rate on partially worked out cases has been determined using a variant of the fourth approach. Given that when the original obligor defaults to the bank, the expected ECA repayment profile is known, and that the amounts due from the ECA are only due at the point in time when the original principal and interest were due, it is known how much of the original principal or EAD should have been recovered from the ECA between the point of default and the end of the period available. Using the example above, the amount expected to be repaid each year per the original repayment schedule is 645 K (=3,870/12 (2). Thus the amount expected to have been repaid by the end of each year is shown above.

Thus, rather than extrapolating the expected recoveries, in determining the recovery rate for partially completed ECA recoveries, the exposure to which the reported recoveries is compared has been modified to reflect the cumulative principal payments due by the end of the observation period. In the long-run, this would equal the EAD, as once the original maturity date has been reached, all payments should have been made by the ECA (although there may be further subsequent recoveries from the obligor). It also reflects the principal payments which are contractually due from the ECA at a given point in time. As noted above, this adjustment might

FIGURE 49:
Example of Recovery Rate for Partially complete workout cases

	Expected Cumulative Principal Payments due by end of year	ECA Principal repaid	ECA Interest paid	Customer Principal repaid	Customer interest repaid	Total recoveries to end of year
2009	645	613	102	0	0	715
2010	1,290	613	87	0	0	1,415
2011	1,935	613	63	0	0	2,091
2012	2,580	613	31	0	0	2,735
2013	3,225					
2014	3,870					

be considered imprudent in those cases where future recoveries are highly uncertain – however given the ECA exposures in the MLT Trade Register are backed by OECD governments, this is considered to be less of a concern.

In the example above, this would give the following recovery rates over time.

For cases where workouts are completed, or where the workout process has been accelerated i.e. the ECA has chosen to make its payments in a lump sum more rapidly than per the original schedule, we have used the EAD as the basis for calculating default rates.

E.2.2 Discount rates

As noted above, Basel requires recoveries to reflect material discount effects and hence an appropriate discount rate needs to be used. Basel *per se* does not provide a definition of the discount rate to be used. However some regulators have provided further guidance e.g. the UK PRA had previously indicated that "The methods that a firm uses for discounting cash flows for the purposes of estimating LGDs must take account of the uncertainties associated with the receipt of recoveries with respect to a defaulted exposure"[38].

Given that when the customer defaults, the ECA-covered portion of the outstanding balance is *de facto* backed by the government of the issuing ECA, there is considered to be relatively little uncertainty around the recoveries – in fact it could be argued that the uncertainty is akin to that associated with the cash-flows of a bond with similar repayment schedule. Thus the discount rate used to discount the ECA recoveries is based on the discount rate which the market would apply to the same cash-flow from the government which has backed the export guarantee or insurance product. Thus for example, the starting point in determining the discount rate for recoveries 3 years after default for an exposure in Ukraine backed by the German government would be the yield on a German government bond which pays out in 3 years. It is worth noting that this is based on the government bond yields for the government backing the product rather than the country in which the obligor resides as the payments come from the ECA which provided the guarantee/insurance product.

FIGURE 50:
Example of discounting on ECA recoveries

	ECA recoveries	Discount rate	Discounted recoveries
2009	715	1.15%	708
2010	700	1.15%	685
2011	676	1.22%	653
2012	644	1.39%	610
Total	**2,735**		**2,656**

However, it is recognised that the payments are not identical to those on a 3-year bond as there isn't a liquid market for ECA claims and hence it is considered appropriate to include a liquidity premium. At this stage a 1% liquidity premium has been added. For example, assuming that the German sovereign bond yield at the one-year tenor point is 0.15%, years 0 and 1 is 0.15% + 1% = 1.15%. For recoveries in 2011, which is 2 years after default, the 1% liquidity premium is added to the German sovereign bond yield for 2-year debt, hence why the discount rate used for recoveries in 2011 is higher than that used for recoveries in 2009 and 2010.

For the customer recoveries, the uncertainty of recovery is considerably higher and we have therefore used a 9% discount rate at this stage.

E.2.3 LGD

As noted above the ECA products in the MLT Trade Register cover a proportion of direct costs associated with recoveries in line with the level of cover. Therefore, an overall cost estimate of 1% of EAD has been used.

Taking all of the effects together, the LGD for each transaction is calculated as:

$$LGD = \frac{EAD - \text{Discounted ECA Recoveries} - \text{Discounted customer recoveries}}{EAD} + Costs$$

$$LGD = \frac{\left(EAD - \sum_i \frac{ECAPrinc_i + ECAInt_i}{(1 + e_i)^i} - \sum_i \frac{CustPrinc_i + CustInt_i}{(1 + 9\%)^i} \right)}{EAD} + 1\%$$

Where $ECAPrinc_i$ is the ECA Principal recoveries in period i,

$ECAInt_i$ is the ECA interest recoveries in period i,

e_i is the discount rate for ECA recoveries in period i as described above,

$CustPrinc_i$ is the customer Principal recoveries in period i,

$CustInt_i$ is the customer interest recoveries in period i,

9% is the discount rate used for customer recoveries

APPENDIX F: REGIONAL MAPPING

Africa	APAC	Central and South America	Europe	Ex-CIS	Middle East	North America
Algeria	Australia	Argentina	Albania	Armenia	Bahrain	Aruba
Angola	Bangladesh	Belize	Austria	Azerbaijan	Islamic republic of Iran	Bahamas
Botswana	Bhutan	Bolivia	Belgium	Belarus	Iraq	Barbados
Burkina Faso	China	Brazil	Bosnia and Herzegovina	Kazakhstan	Israel	Bermuda
Cameroon	Hong Kong	Chile	Bulgaria	Kyrgyzstan	Jordan	Canada
Cape Verde	India	Colombia	Croatia	Moldova	Kuwait	Cayman Islands
Chad	Indonesia	Costa Rica	Cyprus	Russian Federation	Lebanon	Cuba
Democratic Republic of Congo	Japan	Ecuador	Czech Republic	Turkmenistan	Oman	Dominican Republic
Republic of Congo	North Korea	El Salvador	Denmark	Ukraine	Qatar	Grenada
Côte D'ivoire	Malaysia	Guatemala	Estonia	Uzbekistan	Saudi Arabia	Jamaica
Djibouti	Maldives	Honduras	Finland		United Arab Emirates	Trinidad and Tobago
Egypt	Mongolia	Mexico	France		Yemen	United States
Ethiopia	Myanmar	Panama	Georgia			United States minor outlying islands
Gabon	New Zealand	Peru	Germany			British Virgin Islands
Gambia	Pakistan	Suriname	Greece			
Ghana	Papua New Guinea	Uruguay	Hungary			
Guinea	Philippines	Venezuela	Ireland			
Kenya	Samoa		Isle of man			
Lesotho	Singapore		Italy			
Liberia	Sri Lanka		Jersey			
Madagascar	Taiwan		Latvia			
Mauritania	Thailand		Lithuania			
Mauritius	Vanuatu		Luxembourg			
Morocco	Vietnam		Macedonia			
Mozambique			Malta			
Nigeria			Montenegro			
Senegal			Netherlands			
Somalia			Norway			
South Africa			Poland			
Sudan			Portugal			
Swaziland			Romania			
Tanzania			Serbia			
Tunisia			Slovakia			
Uganda			Slovenia			
Zimbabwe			Spain			
			Sweden			
			Switzerland			
			Turkey			
			United Kingdom			

APPENDIX G: ENDNOTES

1   Data has also been collected for Shipping guarantees but due to the low number of observations, this product category has been excluded from all analysis contained in this report.

2   In some cases a deviation from the amortisation schedule is being agreed, with the ECA offering a lump sum payment.

3   For a detailed discussion of the Basel regulation and the methodology for Short-term products please refer to previous years' reports.

4   Previous published versions of the Trade Register report are available through the ICC website http://www.iccwbo.org/products-and-services/trade-facilitation/icc-trade-register/

5   For banks using their own estimates of Probability of Default (known as Internal Ratings Based or IRB approaches) the following assets classes are mentioned in the Basel Accords – " (a) corporate, (b) sovereign, (c) bank, (d) retail, and (e) equity" with the corporate asset class including five sub-classes for specialised lending "project finance, object finance, commodities finance, income-producing real estate, and high-volatility commercial real estate" For precise definitions the reader is referred to the Basel Accords paragraphs 215 to 243.

6   Typically refers to commercial letters of credit used to finance the movement of goods with maturities under one year

7   https://www.fitchratings.com/web/en/dynamic/articles/Basel-Changes-to-Make-Trade-Finance-Less-Costly-for-Banks.jsp.

8   The waiving of the sovereign floor is only relevant banks under the Basel II Standardised regime, not for institutions using an Internal Ratings Based approach.

9   A full version of the proposed revisions can be found on the Bank For International Settlements' website; http://www.bis.org/bcbs/publ/d307.html.

10 A full version of the proposed revisions can be found on the Bank For International Settlements' website; http://www.bis.org/bcbs/publ/d306.html.

11 A full version of the ICC response to the proposed approach can be found on the ICC website; http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2015/ICC-Banking-Commission-Submission-on-BCBS-Revisions-to-The-Standardised-Approach-to-Credit-Risk-Proposal.

12 Basel II definition of default is either:

   • The banks considers the counterparty unlikely to repay in full

   • Counterparties are more than 90 days past due.

13 Given that the data spans multiple years, it is possible that the same customer appears in the count of the number of customers more than once. However, this is commonly the case when estimating default rates across an extended period.

14 Please note that for this calculation transactions where customer default data was complete but transaction default information was not, the data for customer default has also been excluded.

15 Source: Moody's Annual Default Study: Corporate Defaults and Recovery Rates, 1920–2014, March 2015.

16 Moody's Annual Defaults, for all rated universe; averaged over 2008–2014, not volume weighted.

17 This is the letter rating class with a similar observed default rate between 2008 and 2012 as reported in Moody's "Annual Default Study: Corporate Default and Recovery Rates, 1920–2014" as "Annual Issuer Weighted Corporate Default Rates by Letter Rating.

18 Contractual maturity = duration of the contract in number of days as recorded by the banks. For L/Cs this includes both the period in which documents can be presented and any payment period thereafter (for Usance L/Cs). The average is based upon the transaction "weighted" average (i.e. not exposure-weighted).

19 Source: §406 "International Convergence of Capital Measurement and Capital Standards, June 2006" Basel committee on Banking Supervision.

20 This is higher than 1% figure reported by Araten et al. (2004). From practical work with banks Oliver Wyman has experienced a range of assumptions used. However they rarely are higher than approximately 2% per year of the exposure amount for corporate exposures. Likewise, discussions with some of the banks contributing to the Trade Register indicated that figures used varied from under 30bp for the largest exposures to up to 2% of the exposure. Thus a 2% of EAD has been used as a prudent figure for costs.

21 It should be noted that the number of customers here is the total number of "customer years" as it was sought to determine a 12-month default rate in line with Basel definitions, i.e. if a single obligor has one MLT transaction which starts in 2007 and ends in 2012 then this would count as 6 observations. This is described in further detail in Appendix E. Likewise, if a customer appears in the data supplied by multiple banks, as currently customers cannot be matched across banks, it will also appear multiple times.

22 It should be noted that the number of transactions here is the total number of "transaction years" as it is sought to determine a 12-month default rate in line with Basel definitions, i.e. if a single transaction starts in 2007 and ends in 2012 then this would count as 6 observations. This is described in further detail in Appendix E.

23 It should be noted that the original tenor is the initial term length of the loans, which is different from the Effective Maturity used in the Basel formula (paragraph 320 of the Basel text). The latter is defined as:

$$Effective\ Maturity\ (M) = \sum_t \frac{t \times CF_t}{\sum_t CF_t}$$

where CF_t denotes the cash flows (principal, interest payments and fees) contractually payable by the borrower in period t. For amortising exposures like MLT term loans, the Effective Maturity is smaller than original contractual term (and in fact with equal payments in each period is approximately half the original term).

24 In some cases, full recoveries were made from the customer – in these cases the reported recovery was fully shown against the customer even though the bank would actually have received 95% from the ECA and then shared the customer recoveries pro-rata with the ECA. Where this occurred we have subsequently re-attributed the reported recoveries accordingly.

25 In some instances the ECA may require some time to establish the validity of the claim and hence the start of the indemnification period may initially be delayed, although in subsequent periods this amount due would be repaid.

26 This is the maximum exposure after the point of default as in some cases there are additional drawdowns post-default where the ECA recovery has been completed or the proportion of the exposure which is expected to have

been repaid in where the ECA recovery has not been completed. This overall figure is lower than the total reported when examining defaults above as recovery information is not available for all defaulted cases.

27 This includes both recovery of principal and recovery of missed interests, although where banks have broken this out in their reporting to the Trade Register, the latter is typically a small proportion of the total recovery amount.

28 NB – the application of a liquidity premium does not imply that these claims are generally traded, but merely the fact that if you were to trade the claim, the market would look for a premium above that demanded on the equivalent direct claim on the sovereign.

29 For individual recovery cash-flows the discount rate has been based on the specific country of the guarantor and the time between default and recovery.

30 Had a 9% discount rate been used for all recoveries, the discounted recovery rate would be approximately 86%, reflecting the fact that the average time to recover is ~1.5 years and uses a 9% discount rate – as this been calculated based on individual cash-flows, the impact is not directly equal to 1.5 x 9%.

31 To be clear, interest payments are expected from the ECA as ECA cover includes these. They are not included in the 'expected' figure below as information on the level of interest payments due is not known in all cases.

32 It should be noted that this is not the discount rate, but rather the impact on overall recovery rate from discounting across the workout period for defaulted loans (so may reflect multiple years of discounting).

33 This is the impact of discounting the customer recoveries only.

34 Although one might expect LGD to be lower on completed cases as possible recoveries are made, this is in fact somewhat higher than the corresponding number also including incomplete cases. This is likely to be driven by the fact that for a number of cases which are incomplete, we are seeing interest recoveries as well, whereas for the completed cases this is often not the case. As a result, whilst completed cases have less impact from discounting, they also have less benefit from interest recoveries.

35 The issue of CCFs and their meaning for Trade Finance products is discussed in greater length in the ICC's response to the standardised proposal referenced above.

36 This is equal to 3870 x 95% / 12.

37 In other "vanilla" corporate portfolio recoveries would be targeted much more quickly than 5–10 years.

38 BIPRU 4.3.113.

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