



# Luxembourg Derivatives Market 2023

MARKET STRUCTURE, MARKET TRENDS AND DATA QUALITY

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### **Luxembourg Derivatives Market 2023**

### Editorial

Dear Reader –

With this edition, the Commission de Surveillance du Secteur Financier (CSSF) and Commissariat aux Assurances (CAA) present their first joint Report on Luxembourg Derivatives Market.

Increasing transparency on derivatives markets activities, with the collection of data on derivatives transactions, has been one of the pivotal initiatives in response to the Global Financial Crisis. At the G20 meeting held in Pittsburgh in 2008, world leaders identified derivatives markets as a potential source of financial instability risks. Consequently, they endorsed mandatory reporting of derivative contracts. In the European Union, this commitment was translated into a new reporting obligation framed in the European Markets and Infrastructure Regulation (EMIR). Since February 2014 it has been mandatory to report the details of any derivative contract, including its modification and termination to a Trade Repository (TR).

Most notably, the EMIR derivatives data greatly aids national competent authorities (NCAs) in their supervisory duties on entities trading derivatives and on their derivative exposures. Complementing the CSSF and CAA's work on entity-level supervision, this report offers for the first time a comprehensive market-level perspective on derivatives entered into by Luxembourg counterparties, based on complete EMIR data reported by Luxembourg entities or on their behalf to all TRs operating in the EU.

Our report is largely inspired by ESMA Annual Statistical Reports on EU Derivatives Markets and ESMA Report on Quality and Use of Transaction Data and contains two elements. First, in the section on market monitoring, **we provide an analysis of structures and trends** in Luxembourg derivatives market between end of 2021 and end June 2023, building on the indicators developed for risk monitoring purposes. This section also includes details on statistical methods used in exploring derivatives data. Second, in the section on supervision of the quality of EMIR data, **we describe the new approach to monitoring data quality developed by ESMA and NCAs and fully implemented in Luxembourg**. In this section, we provide an analysis of data quality of EMIR reporting submitted by counterparties established in Luxembourg, with detailed description of the evidence for each data quality indicator. This inaugural edition of the report relies on fundamental indicators to represent the Luxembourg derivatives market and related data quality attention points. As EMIR data provides an unprecedented depth and granularity of information, the CSSF and the CAA continuously thrive on exploring opportunities for the creation of new statistics and indicators to improve the insight on the market and the related risk assessment. In order to allow the market and other stakeholders to benefit from this initiative, the CSSF and the CAA welcome any feedback or suggestions by the readers that aim to enhance the information delivered in this report by sending an email to **emir@cssf.lu**.

The practical utilisation of derivative data has been and will continue to be a challenging endeavour for IT experts, data managers, statisticians, and analysts across numerous institutions involved in supervising and overseeing the derivatives markets, in Luxembourg, in Europe and globally.

We at CSSF and CAA are pleased to share this part of our surveillance work with a wider audience, and we hope that our report will contribute to the understanding of the Luxembourg derivatives market and consequently improve the quality of the data reported.

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### **Executive summary**

The Commission de Surveillance du Secteur Financier (CSSF) and the Commissariat aux Assurances (CAA) are publishing the first joint Report on Luxembourg Derivatives Market to highlight the features of the activity in derivative instruments by counterparties established in Luxembourg as well as CSSF and CAA supervisory and supervisory convergence activities regarding the quality of data reported to Trade Repositories (TRs) under the European Market Infrastructure Regulation (EMIR)<sup>1</sup>. **This report aims to provide an overview of the state of play under EMIR, while also providing insights into CSSF and CAA's ongoing efforts to improve the quality of the data**.

Transaction-level data plays a key role in the daily operations of National Competent Authorities (NCAs) and ESMA. More than 50 authorities and institutions at EU level and at national level of each Member State receive EMIR data. Each of these authorities/institutions has its own specific mandate and responsibilities. To fulfil their relevant mandate related to the derivatives market, these authorities/institutions extensively use EMIR data, notably for the purposes related to financial market stability, maintaining orderly markets, and ensuring market integrity. Furthermore, regulatory data can and shall be used by supervised entities for their own internal purposes such as reporting to the executives, risk management activities, or reporting to their clients. Indeed, an extensive use of regulatory data by supervised entities, as mentioned several times by both CSSF and CAA, will improve the quality and the reliability of data, reducing the effort to comply with the regulatory requirements and increasing the level of compliance. CSSF and CAA echo the considerations made by the ESRB in 2022 according to which poor data quality: (i) impedes the adequate monitoring of (financial stability) risks by authorities, which was one of the goals of the post-crisis reforms; (ii) compels policymakers to devote substantial resources and time to follow up on data quality; (iii) creates blind spots due to the exclusion from monitoring of entities reporting implausible values; and (iv) may be symptomatic of a more fundamental problem of poor risk management among certain reporting entities<sup>2</sup>. Section 1 of the report describes the Luxembourg derivatives market structure and its trends, moreover it provides key information on the type of counterparties active in the derivatives market, the asset classes and other relevant high-level information.

According to the data provided by the TRs, at the end of June 2023, the Luxembourg derivatives market was represented by slightly more than **914,000 open transactions** amounting to a gross notional outstanding of around **EUR 6,484bln** including both over the counter (OTC) and exchange traded (ETD) derivatives.

<sup>&</sup>lt;sup>1</sup> Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories.

<sup>&</sup>lt;sup>2</sup> ESRB letter to the Commissioner Mairead McGuinness sent on 12 July 2022 and available on ESRB website.

Section 2 of the report includes a description of the Data Quality Engagement Framework (DQEF)<sup>3</sup>, the related indicators and the work performed by the ESMA and NCAs as well as an overview of the Luxembourg reported data.

The exposition of details and quantitative components in this section underscores the existing scope for enhancing the data quality in EMIR reporting. Therefore, all stakeholders, and in particular counterparties involved in the derivatives trading activity, are encouraged to use and leverage on the regulatory data in their own internal processes, such as – but not limited to - risk and compliance management processes.

<sup>&</sup>lt;sup>3</sup> ESMA DQEF has been established at the European level to monitor data quality on an ongoing basis and to ensure adequate supervisory engagement with the supervised entities, namely TRs and reporting counterparties.

### 1. Derivatives market in Luxembourg

#### 1.1 Market Structure

At the end of June 2023, trade repositories reported a total of slightly more than **914,000 open transactions** amounting to a **gross notional outstanding of around EUR 6,484bln**, including both OTC derivatives and ETD. In notional terms, at the end of June 2023, currency derivatives and interest rate derivatives dominated the market, with 42% and 35% respectively of the total amount outstanding. While looking at the number of outstanding derivative contracts, currency derivatives represent almost 50% followed by equity derivatives (34%) and interest rates derivatives represent only 11% of transactions.

Overall, forwards, swaps and futures are the main contract types used. However, swaps are the most used contract type for credit derivatives (85%) while forwards are the most used derivative contract for currency derivatives. Concerning the remaining maturity of derivatives, short-term maturities prevail in terms of notional with more than 70% of the derivatives having less than one-year remaining maturity. Short term maturities prevail in currency, commodity, and equity derivatives, while for credit derivatives maturities above 1 year represent the largest component.

**Investment funds are the main participants** in derivatives market, accounting for more than **62% of trading activity** in both notional terms and number of outstanding transactions, while credit institutions represent slightly more than 10% in notional but about 17% in number of outstanding transactions. **OTC derivatives significantly prevail with more than 80% of the notional compared to ETD**, with ETD mainly used in interest rate, commodity, and equity derivatives, but below 1% for the remaining asset classes. With regards to cleared rates, interest rate derivatives are by far the most cleared asset class, representing more than 70% of all cleared notional, followed by equity and credit derivatives with less than 20% each. EUR and USD are the most relevant currencies used to report notional values.

The Luxembourg derivatives market is not very concentrated since 905 counterparties represent 80% of the total notional amount. However, observing the concentration per asset class, the level varies considerably. For currency derivatives, a bit more than 1,000 counterparties represent 80% of the market. whilst only 36 counterparties cover 80% of the total notional for commodity derivatives.

The statistics presented in this report are based on the reporting requirement specified in EMIR and its related Technical Standards adopted for its implementation. With reference to the statistical standards and methods, all derivative transactions reported by or on behalf of a counterparty established in Luxembourg under the supervision of the CSSF or the CAA have been considered. This includes all derivatives instruments, currencies, maturities, trading venues as reported by entities. Similar, to the equivalent analysis performed by ESMA, all statistics are based on EMIR trade-state data<sup>4</sup> provided by all TRs and are presented as the number of contracts outstanding<sup>5</sup>, or the notional value of contract outstanding expressed in EUR after conversion. The data is that as of 30 June 2023.

Finally, the market structure indicators presented in the following subsection is reflective of the work undertaken by the CSSF in the context of the ESMA CEMA EMIR Task Force<sup>6</sup> and the set of risk indicators on the market structure that have been developed by this Task Force. The indicators illustrated are some of those developed by the Task Force, integrated with others developed autonomously by the CSSF and inspired by the work done by ESMA in 2018 for the *ESMA Annual Statistical Report*<sup>7</sup> – *EU Derivative markets*, and continued afterward with the periodic reports<sup>8</sup>.

<sup>4</sup> Data including all outstanding transaction at the end of the reference day, based on the state of each transaction along the derivative life cycle.

<sup>5</sup> Notional amounts outstanding are defined as the nominal or notional value of all transactions concluded and not yet settled at reporting date.

<sup>6</sup> The ESMA CEMA EMIR Task Force has been created September 2018 as task force within the ESMA Committee of Economic and Market Analysis (ESMA CEMA) with the objective to work on risk monitoring, risk analysis, statistics and to promote supervisory convergence. The Task Force has been a forum of discussion where NCAs have exchanged experience and practices and have developed a set of common EU harmonised EMIR databased risk indicators to be used by ESMA as well as NCAs supervisors. These indicators, including their pseudocode, have been included in a dedicated report made available to all NCAs to allow a data driven supervisory convergence approach on the analysis of EMIR. Among the indicators proposed, some targeted the data driven control of the compliance with other EMIR obligations (e.g. timely confirmation, portfolio reconciliation). This task force has been Chaired by the CSSF between November 2020 and its termination in March 2023.

<sup>7</sup> www.esma.europa.eu/sites/default/files/library/esma50-165-639\_esma-rae\_asr-derivatives\_2018.pdf.

<sup>8</sup> 2019 edition:

www.esma.europa.eu/sites/default/files/library/esma50\_157\_2025\_asr\_derivatives.pdf 2020 edition

www.esma.europa.eu/sites/default/files/library/esma50-165-1362\_asr\_derivatives\_2020.pdf 2021 edition:

 $www.esma.europa.eu/sites/default/files/library/esma50-165-2001\_emir\_asr\_derivatives\_2021.pdf.$ 

#### 1.1.1 Market Structure indicators

The trade state reports record a total of approximately 914,000 open transactions amounting to a gross notional amount outstanding of around EUR 6,484bln, including both OTC derivatives and ETD.

In the context of EMIR reporting, the asset class assumes a pivotal role as a primary element, enabling the systematic segregation of derivative transactions. This categorisation is instrumental in differentiating the reporting details and ensuring a structured analysis. Asset classes serve as key parameters, guiding the delineation of specific reporting requirements, thereby facilitating a nuanced understanding of the diverse risk profiles inherent in each class.



MS 1: Total notional amount by asset class

EMIR allows for a categorisation of 5 asset classes:

- CU for currency derivatives,
- IR for interest rate derivatives,
- EQ for equity derivatives,
- CR for credit derivatives,
- CO for commodity derivatives including emission allowances.

In addition, a sixth category OT for 'other derivatives' allows the reporting of bespoke contracts that do not fall under the classic derivative asset classes<sup>9</sup>.

At the end of June 2023, the total outstanding notional reported by Luxembourg entities amounted to EUR 6,484bln (MS 1). Out of the total notional amount, the largest share is composed of currency derivatives, representing 42% of the total amount, followed by interest rate derivatives (36%) and equity derivatives (14%). Credit derivatives account for slightly more than 5% while commodities for 0,5% and other derivatives for slightly more than 2%.

<sup>&</sup>lt;sup>9</sup> The category OT is for those derivative contracts that did not fit into any of the other 5 classes, but this classification has been removed for any new contracts concluded since 1 November 2017, consequently the reported contracts classified in this category are related to contracts executed before November 2017.

While this report mainly focuses on the notional as a metric, it was considered interesting to also display some figures related to the number of outstanding derivative contracts. EMIR reporting enables the measurement of numerous different metrics such as the exposure, the collateral exchanged under multiple categories as well as any type of statistical indicators thereof. While the basic counting of reports may appear simplistic and potentially unsophisticated, it holds significance, especially given our reliance on data. A substantial volume of reports may indicate strong activity or potentially an instance of excessive reporting. Conversely, a low count of reports could compromise statistical metrics or reveal the erroneous grouping of multiple derivatives within a single report. As supervisors, this metric is crucial for us to discern trends and identify events that may necessitate prompt action.



At the end of June 2023, there were just 914,000 outstanding over open transactions (MS 2). When it comes to the number of trades, currency derivatives represent the biggest asset class with almost 50% of the total number of open trades. Equity derivatives represent 34% and interest rate derivatives, the second largest asset class based on total outstanding notional, are third with 11% of the outstanding open transactions. Credit derivatives 3%, represent while commodity

derivatives only 1,6%. Other types of derivatives are only 0,1% in terms of number of outstanding open transactions.

Similar to asset classes, contract types hold a significant role in the reporting requirements and in the use of the reported data by authorities. There are 8 main types of derivative contracts foreseen in EMIR reporting<sup>10</sup>:

- CD for financial contracts for differences (CFD)
- FR for forward rate agreements
- FU for futures
- FW for forwards
- OP for options
- SB for spreadbet
- ST for swaptions
- SW for swaps

<sup>&</sup>lt;sup>10</sup> There is also a type 'OT' for other derivative contract types. This to include bespoke contracts that do not fall into the classic classification of the 7 main types of derivatives.



MS 3: Total notional amount by contract type

Not surprisingly, the most used contract type (MS 3) are forwards, followed by swaps and futures, they represent respectively 37.2% (or EUR 2,413bln), 28% (or EUR 1,817bln) and 15.5% (or EUR 1,010bln). In terms of notional CFDs are, with forward rate agreements, the least used with respectively 0.46% of the total notional (or EUR 29.9bln). However, looking at the number of contracts, CFDs represent 3.28% of the outstanding contracts as at end of June 2023. Looking at the distribution of the

types of contracts by asset class, swap contracts represent the largest share of contracts for credit derivatives (85%) and interest rate derivatives (45%). Next to swap contracts, future contracts represent the second largest share of contracts for interest rate derivatives (37%). A large share of currency derivatives are forward contracts (88%), the remaining being either swaps (8%) or options (3%). The equity class exhibits the largest share of options (33%) followed by swaps (28%) and other contracts (23%). Commodity derivatives are an asset class for which most contracts are either futures (37%) or swaps (37%).

The maturity date of a derivative contract is an important feature for both the risk profile and valuation of the contract. It provides metrics that are interesting to analyse in order to better understand the behaviour of the market players and the anticipation of market events. At the end of June 2023, a large part of currency and commodity derivatives have a remaining maturity below 1 year (MS 4). Such short-term contracts represent 97% of currency derivatives and 83% of commodity



**derivatives.** Also, for interest rate derivatives, shorter maturities, of a year or less, represent the highest share (52%), while maturities between 1 and 5 years, or above 5 years are equally split. Short term maturities also very much dominate the equity class (70%), followed by maturities between 1 and 5 years. For credit derivatives, 66% of outstanding notional amount has a maturity between 1 and 5 years and 28% has a remaining maturity below one year.

The maturity at execution measures the contractually agreed maturity date when the derivative contract has been concluded. It is therefore slightly different to remaining maturity at a given date due to the lifecycle of contracts or early terminated contracts





which are not necessarily replaced by contracts with similar profiles. However, looking at the maturity at execution (MS 5), the trend is similar to above, commodity and currency derivatives are those with a large share of short-term maturities. For credit and interest rate derivatives. longer term contracts with maturities above 5 years dominate, while for equity derivatives the split into short, medium and longer maturities is rather equal.

The corporate sector of the counterparties is of utmost importance when analysing markets and this strongly influences policy decisions. EMIR reporting differentiates essentially between financial counterparties (FCs) and non-financial counterparties (NFCs). For financial counterparties 8 categories<sup>11</sup> have been defined based on the type of authorisation granted to the counterparty:

- AIFD: alternative investment funds
- ASSU: assurance undertaking
- CDTI: credit institution
- INUN : insurance undertaking
- INVF: investment firm
- ORPI: institution for occupational retirement provision
- REIN: reinsurance undertaking
- UCIT: UCITS

Institution for occupational retirement provision within the meaning of Article 6(a) of Directive 2003/41/EC of the European Parliament and of the Council.

Reinsurance undertaking authorised in accordance with Directive 2009/138/EC.

Undertakings for the Collective Investment in Transferable Securities (UCITS) and its management company authorised in accordance with Directive 2009/65/EC of the European Parliament and of the Council.

<sup>&</sup>lt;sup>11</sup> Alternative investment fund managed by Alternative Investment Fund Managers (AIFMs) authorised or registered in accordance with Directive 2011/61/EU of the European Parliament and of the Council.

Assurance undertaking authorised in accordance with Directive 2009/138/EC of the European Parliament and of the Council.

Credit institution authorised in accordance with Directive 2013/36/EU of the European Parliament and of the Council.

Insurance undertaking authorised in accordance with Directive 2009/138/EC.

Investment firm authorised in accordance with Directive 2004/39/EC of the European Parliament and of the Council.

For non-financial counterparties (NFC), the classification relies on the main sections of Statistical Classification of economic activities in the European Community (NACE). This report groups all NFCs into a single category, but more detailed analyses are carried out by authorities.

MS 6: Total notional amount by sector of counterparty





Nearly half of all contracts, across all asset classes are concluded by UCIs, and for credit derivatives, this share increases to 75% (MS 6). Other important counterparties in derivatives, are AIFs, credit institutions (CDTI), NFCs and investment firms for currency derivatives. NFCs tend to represent larger shares for equity, interest rate and commodity derivatives.

The trading and execution of derivative contracts plays a central role in market integrity, efficiency and transparency. In the aftermath of the global financial crisis, policymakers have expressed a keen interest in channelling standardised contracts to regulated markets to diminish the prevalence of over-the-counter (OTC) contracts. Derivatives executed either on a regulated market or over-the-counter exhibit distinct characteristics, including varying levels of standardisation, liquidity, and divergent post-trading processes such as central clearing (MS

**More than 99% of currency and credit derivatives are concluded OTC.** 26% of interest rate derivatives, 22% of equity derivatives and 36% of commodity derivatives are ETD, while the remaining fractions are OTC.

**EMIR** introduced the obligation to centrally clear certain classes of OTC derivative contracts through central counterparties (CCPs) in order to increase financial stability and enhance resilience in OTC markets. In particular, the clearing obligation applies to EU firms that are counterparties to certain OTC derivative contracts that are specified in ESMA's Public Register for the Clearing Obligation. Those include certain OTC interest rate derivatives (such as the basis swaps, Fixed-to-Float Interest Rate Swaps) and certain OTC credit derivatives (such as European untranched Index CDS Classes). In addition, ETD are in most cases centrally cleared.

7).



A large majority of OTC interest rate derivatives are cleared (69%); the fraction of cleared trades however decreases drastically for other asset classes. It stands at 16% for credit derivatives, 14% for equity derivatives and less that 1% for other asset classes (MS 8).

Amounts in EMIR reporting are reported in a currency that is agreed by both counterparties. To prepare this report, all amounts have been converted to

EUR. Nevertheless, it seems relevant to provide a distribution of the notional per denominated currency. The chart MS 9 only displays the 7 most used currencies, but in total 93 distinct currencies have been used to report notional amounts.

In terms of currency, EUR and USD denominated trades tend to dominate, but there is some heterogeneity across asset classes. The share of EUR denominated trades is highest for currency derivatives (64%), followed by credit (58%) and equity (45%) derivatives. USD is the main currency used for commodity derivatives (89%) and Other (58%). Other important currencies are JPY and AUD (mainly for Other), GBP (mainly for currency and interest rate derivatives) and CHF (mainly for currency derivatives). While SEK represents less than 2% of all derivatives.



The chart MS 10 illustrates the geographical distribution of derivatives exposures, for exposures where the counterparty 1 is based in Luxembourg. Around 1,019bln of the notional amount of derivatives has an unidentified counterparty 2 (no LEI) and has thus not been allocated. **UK**, **France and Germany are the jurisdictions to which Luxembourg based counterparties have the largest exposures**, with more than EUR 1,832bln of notional amount exposure to UK and approximately EUR 1,000bln of notional amount exposure to both France and Germany respectively. The other largest jurisdictions in terms of notional amount exposures, are USA (EUR 369bln), Switzerland (EUR 246bln), Canada (EUR 169bln) Ireland (EUR 159bln), Italy (EUR 65bln) and the Netherlands (EUR 55bln). Finally, EUR 278bln of notional exposure is to Luxembourg as the derivative is between two Luxembourg counterparties.



MS 10: Total notional amount by jurisdiction of other counterparty

Exposures to other remaining EEA countries amount to less than EUR 50bln. Interest rate, equity and currency derivatives mostly stand out as the most prevalent classes in each country's exposure. Exposures to UK entities are quite evenly distributed between currency and interest rate derivatives followed by equity derivatives. Exposures to France are dominated by interest rate derivatives, followed by currency and equity derivatives. Exposures to Germany are dominated by currency derivatives, followed by interest rate and equity derivatives. Exposures between two Luxembourg-based counterparties are essentially composed of currency derivatives, and to a lesser extent equity and interest rate derivatives.

Overall, the concentration of the Luxembourg derivatives market is relatively low. However, this is mainly due to the importance of the currency derivatives on the overall volumes. Observing the concentration, calculated as the aggregated notional amount by number of counterparties, the concentration level varies considerably depending on the asset class (MS 11).



The less concentrated are currency derivatives, where just over 1,000 counterparties represent 80'% of the market<sup>12</sup>. Interest rate, equity and credit derivatives are then more concentrated, with respectively 270, 200 and 150 counterparties covering 80% of the market<sup>13</sup>. The most concentrated derivative asset class are the commodity derivatives, with approximately 40 counterparties to reach 80% of the market<sup>14</sup>, followed by other derivatives where only 2 counterparties cover 80% of the market<sup>15</sup>.

<sup>&</sup>lt;sup>12</sup> 100% is reached with 8059 counterparties.

<sup>&</sup>lt;sup>13</sup> 100% is reached with 3949 counterparties for interest rate, 3518 for equity and 1326 for credit derivatives.

<sup>&</sup>lt;sup>14</sup> 100% is reached with 232 counterparties.

<sup>&</sup>lt;sup>15</sup> 100% is reached with 38 counterparties.

#### 1.2 Market trends

The Luxembourg derivatives market as a whole remained stable in size since the end of 2021, starting with a notional amount of EUR 6,307bln, and reaching EUR 6,484bln at the end of June 2023<sup>16</sup>. OTC derivatives dominated the market overall, however the share of ETD slightly increased from 15% to 17% (notional), although the trend was heterogeneous across asset classes. Concentration is overall quite stable over time, with some relatively observable trends. Finally, the share of short-term maturities (less than one year) decreased while long term maturities (more than 5 years) increased. The concentration in the commodity market has decreased significantly, despite this market having always been by far the most concentrated. A similar, but less evident, trend can be noted regarding the concentration in the currency derivatives market with overall concentration decreasing.

The statistics presented in this section are based on the derivative transactions reported by or on behalf of a counterparty established in Luxembourg under the supervision of the CSSF and/or the CAA<sup>17</sup>. This includes all derivatives instruments, currencies, maturities, trading venues as reported by entities. The reporting period considered in this section goes from 31 December 2021 to 30 June 2023.

The total market size in terms of notional amount (MT1) was around EUR 6,484bln at



the end of June 2023. This amount has remained relatively stable since December 2021, when it stood at EUR 6,307bln. A peak of almost EUR 7,000bln was observed in September 2022 and a drop to EUR 6,108bln at the of December 2022. The end composition of exposures in terms of asset class remains relatively stable with almost half of the notional amount being currency derivatives and the second biggest asset class being interest rate derivatives.

<sup>16</sup> Data is presented as the end of each period analysed, i.e. end of December 2021, end of September and December 2022 and end of March and June 2023. When in the report we refer to e.g. June 2023, this shall be intended as end of June 2023.

<sup>17</sup> As for the previous section, all statistics are based on EMIR trade-state data provided by all TRs and are presented as the number of contract outstanding, or the notional value of contract outstanding expressed in EUR after conversion.



MT 2: No. of derivative contracts by asset class

MT 3: Total notional amount by contract type

●CD ●FR ●FU ●FW ●OP ●OT ◎ST ●SW



MT 4: No. of positions by contract type •CD •FR •FU •FW •OP •OT •ST •SW



The number of trades (MT2) exhibits slightly more variation over time. It evolved from 846,935 trades in December 2021 to 914,610 in June 2023. A peak was reached in September 2022 with almost 1 million trades. As for the total notional amount, **the largest number of trades is for currency derivatives. The second largest number of trades is however for equity derivatives**, indicating that equity derivatives have on average smaller notional amounts.

Looking at notional amounts outstanding for contract types (MT3) some stability can be observed. Forwards represent the largest share of contracts and represent 40% of all contracts in December 2021 and still 37% of all contracts in June 2023. This slightly decreasing share has been compensated by a small increase in the share of swap contracts (from 26% to 28%) and in future contracts (from 14% to 15%). It is interesting to observe that CFDs remained relatively unchanged in terms of notional between end of 2021 and end of June 2023, they have increased in terms of number of contracts, rising progressively but continuously, from 23,929 contracts in December 2021 to 30,020 in June 2023.

The share in the total number of trades by contract types (MT4) also remains relatively stable. The two largest contract types are forwards (around 45% over the period) and swaps (around 25% over the period).



Looking at notional amounts by corporate sector of the reporting counterparty 5), UCITS (MT represent the largest share of counterparties over time (slightly more than 50%). NFCs are the second largest type of counterparty, and their share has been slightly increasing from 15% to 17%. Close behind NFCs are credit institutions, whose share has been slightly decreasing from 13% to 10%. The situation changes significantly when

the asset class is introduced as additional dimension. Indeed, the share of UCITS is larger for credit derivatives (between 70% and 75%) and smaller for commodities (between 28% and 40%) while more stable around 50%-55% for currency, equity, and interest rate derivatives. NFCs are more active in commodity and equity derivatives followed by interest rate, currency and credit derivatives, respectively with an average of 33%, 28%, 19%,11%,7%.

In December 2021 84% of contracts had a remaining maturity below a year and this share constantly decreased to reach 73% in June 2023 (MT 6). This shift has been compensated by an increasing share of contracts with a maturity between 1 and 5 years.

Looking at the notional amount by remaining maturity, a reduction of the derivatives with remaining maturity below 1 year and a parallel increase of those with remaining



maturity between 1 and 5 years can be observed in all asset classes. In particular, **credit derivatives show a clear reduction in short-term maturity from 51% to 28%**, with the medium-term maturity increasing in accordance. A unique exception is commodity derivatives, where the short-term remaining maturity was 88.5% in December 2021, which decreased to 77% in December 2022, only to subsequently rise again in June 2023 to 83.5%.



MT 6: Focus on credit and commodity derivatives

For the maturity at execution (MT 7), a constant dominance of short-term contracts (with maturity below a year) can be observed. The share of contracts with a maturity at execution more than 1 year slightly increases from 39% to 44% between December 2021 and June 2023.

MT 7: Total notional amount by maturity at execution •below 1 year • between 1 and 5 years • more than 5 years



The situation changes heavily when looking at the asset class. Maturity below a year represents 92-94% of currency derivatives, while only 7-9% of credit derivatives, whilst medium and long maturity at execution represent between 35-40% and 50-57% respectively. Short term maturity at execution fell in the period observed more prominently for commodity derivatives, and to a lower magnitude also for equity and interest rate derivatives.

#### The largest share of notional amount (MT 8) is traded OTC (85% of notional



**amount)** and this remains fairly stable over time. The percentages are quite different on the various asset classes, where, with the exception of ETD for commodities rising from 15% in December 2021 to 36% in June 2023, the levels of OTC trading remain stable over time. OTC credit derivatives and OTC currency derivatives represent 99% of the notional amount, while 77% of equity derivatives and 63% of interest rate derivatives are OTC contracts.

The venue of execution of derivative contracts (MT 9) is a key information to monitor. In general, derivative contracts traded OTC are less standardised and less liquid than ETD. OTC derivative contracts, especially if they are not cleared, are subject to more counterparty risk than those traded on exchanges. In Luxembourg, ETD are always higher than OTC derivatives, however the difference between the two is not significant. Overall, the notional for ETD and OTC derivatives is quite stable and remains within a range of EUR 970bln to 1,100bln for ETD, and EUR 900bln and 1,050bln for OTC derivatives. Furthermore, it is interesting to observe the trading venue per asset class, and not surprisingly currency derivatives are those mainly traded OTC, with interest rate derivatives mainly traded on exchanges. Equity derivatives showed a more balanced trading behaviour despite having the majority traded on exchanges.



MT 9: Trading venue notional amount OTC and ETD

The central clearing rate of OTC derivative contracts (MT 10) is very important since the risk mitigation mechanisms of OTC derivatives centrally cleared, notably initial and variation margin, transform their risk similar to that of ETD. While the clearing rate is an important risk indicator, its calculation is not straightforward. ESMA in its Annual Statistical Report on EU Derivative Markets describes extensively the challenges of this calculation<sup>18</sup>. In this report we have followed the same approach



but limited ourselves to the first definition of clearing rate. The share of OTC derivatives centrally cleared is quite stable and comprised between 13% and 15%, with some differences across asset classes. On average 99.8% of OTC currency derivatives and 98% of OTC commodity derivatives are not centrally cleared. Credit derivatives show a slight increase in those centrally cleared, from 29% in December 2021 to more than 36% in June 2023.

Around 14% of OTC equity derivatives are cleared with some minor variation around this value. OTC interest rate derivatives centrally cleared are also quite stable at around 38%

For risk identification, another key indicator to monitor in derivative markets is their level of concentration. As mentioned in the previous section, we measure the concentration as cumulative notional amount by asset class, and the concentration using the number of unique counterparties at each date. The level of concentration is overall quite stable over time, with some relatively observable trends.

<sup>&</sup>lt;sup>18</sup> ESMA Annual Statistical Report EU Derivative Markets 2018 (ESMA 50-165-670)

The concentration in commodity derivatives has decreased significantly, despite the market having always been and remaining by far the most concentrated with only 26 counterparties covering 80% of the market at the end of 2021, rising to 36 at the end of June 2023. Similar, but less pronounced, the concentration in currency derivatives has decreased, with 80% of the market represented by 759 counterparties at the end of 2021 and 890 at the end of June 2023. Interest rate derivatives concentration increased with 270 counterparties in June 2023 representing the 80% of the aggregate notional.

#### Number of counterparties to reach 80% of the aggregate notional by asset class Dec. 2022 Mar. 2023 Jun. 2021 Sept. 2022 June 2023 СО 26 32 34 31 36 CR 156 152 137 139 146 CU 759 849 901 909 890 EQ 207 204 189 214 194 IR 333 274 272 270 273 2 ΟΤ 2 2 2 2

#### **TABLE 1: MARKET CONCENTRATION**

Looking at the number of unique reporting counterparties in Luxembourg over time (MT11), this number stood at 11,078 in December 2021, and increased to 11,383 in June 2023.



The lower concentration for currency derivatives is confirmed also by the number of unique counterparties, where the number of counterparties involved increased to 8,066. Interest rate derivatives are characterised by a high number of counterparties active in the market, around 4,000, and by a concentration that increased in the 18 months analysed in the report. Not surprisingly the commodity derivatives market in Luxembourg is characterised number by а low of unique

counterparties compared to other asset classes, they were 212 at the end of December 2021 increasing to 232 in June 2023.

Finally, for the interconnectedness, we look at the number of counterparties every counterparty has (MT12). Luxembourg counterparties appear to have an average of 4 connections to other counterparties and this number is stable over the period under review. The situation is quite homogenous for credit derivatives, currency derivatives, interest rate derivatives and equity derivatives.

MT 12: Average connection per counterparties



Nevertheless, we observe an increase of the counterparties for commodity derivatives, since the average connection per counterparty increased from 5,5 in December 2021 to 8,5 in June 2023.





#### 1.3 Statistical methods and data preparation

EMIR data is a vast source of detailed information on European derivatives markets. As this data spans the entire European derivatives markets which are composed of a considerable number of market participants trading a wide range of asset classes and products it is very voluminous and complex. This renders the necessary data cleaning and preparation procedures to enable processing and aggregation rather challenging. These procedures, such as outlier detection, are explained below can be applied to other projects using the EMIR data set.

To ensure a high level of data quality CSSF and CAA employed a multi-step data preparation procedure. The CSSF-CAA outlier removal approach relies on 3 steps. The first step applies 2 thresholds to the Luxembourg data: a fixed one and a dynamic. The fixed threshold of notional amount of EUR 10bln results in the exclusion of reports which exceed this threshold, while the dynamic threshold results in the exclusion of reports whose log of notional amount exceeds the median plus four standard deviations of the distribution of the log of the notional amounts. As the market is very heterogenous the dynamic threshold is calculated for each cluster represented by the following fields: asset class, contract type, intragroup, compression and notional currency. The second step is on the application of Union wide thresholds provided by ESMA per asset classes, any notional amount above the median plus 4-times the standard deviation is disregarded from the analysis. The third and final is the use of expert judgment which allows the identification and exclusion of some specific outliers per market segment.

#### 1.4 Conclusions and next steps

According to the data provided by the TRs, some of the key trends from December 2021 to June 2023 are as follows:

- The Luxembourg derivatives market is relatively stable in terms of both structure and size, with a total notional of between EUR 6,000bln and EUR 7,000bln and between 850,000 and 950,000 transactions.
- In terms of notional amounts, currency derivatives and interest rate derivatives dominate the market, with 42% and 36% respectively of the total notional amount outstanding.
- In terms of number of outstanding derivative contracts, currency derivatives represent almost 50% followed by equity derivatives (34%) and interest rate derivatives which represent only 11% of transactions.
- **Short-term maturities prevail in terms of notional** with more than 70% of the derivatives having less than one-year remaining maturity.

- Not surprisingly, **investment funds are the main participants in the derivatives market**, accounting for more than 62% of trading activity in both terms of notional and number of outstanding transactions, while credit institutions represent slightly more than 10% in terms of notional but about 17% in terms of number of outstanding transactions.
- **OTC derivatives significantly prevail** representing more than 80% of trading activity in terms of notional compared to ETD.
- Interest rate derivatives are by far the most cleared asset class, representing nearly 70% of all cleared notional of OTC derivatives.
- **EUR and USD are the most relevant currencies used** to report notional amounts.
- The concentration of the Luxembourg derivatives market is relatively low with 905 counterparties representing 80% of the market in terms of total notional.
- The interconnectedness of the Luxembourg derivatives market is quite stable, with approximately **4 connection per counterparty**.
- The commodity asset class is the one where some deviation from the general trends have been observed. In particular:
  - the remaining maturity below 1 year has only decreased during 2022, and rose again almost to the previous levels in 2023;
  - the interconnectedness level increased, with the average number of connections per counterparties rising from from 5,5 in December 2021 to 8,5 in June 2023, while the trend for the others asset classes remains stable.

The CSSF and the CAA are committed to monitor the Luxembourg derivatives market and will continue to cooperate at both national and international level. The ultimate goal of this collective endeavour is to foster data utilisation within CSSF and CAA but also by the supervised entities. In order to enable the market and other stakeholders to benefit from this initiative, the CSSF and the CAA welcome any feedback or suggestions by the readers that aim to enhance the information delivered in this report by sending an email to emir@cssf.lu

## 2. Supervision of the quality of EMIR data

#### 2.1 Introduction

Much of the core regulatory and supervisory activities of the authorities rely on the data being reported and disclosed by market participants. This reliance, which has only been growing over the last decade with the progression of data-driven regulation and supervision, renders the availability of high-quality data the cornerstone for the efficient and effective fulfilment of the authorities' mandates.

EMIR establishes a supervisory framework where NCAs supervise reporting counterparties while ESMA supervises TRs. The joint efforts by NCAs and ESMA to improve the quality of EMIR data are embedded in various frameworks developed by ESMA, where the CSSF has heavily contributed. Both CSSF and CAA have always participated in ESMA's data quality initiatives.

NCAs and ESMA have been undertaking extensive efforts to monitor and improve the quality of market data ever since the expansion of regulatory reporting requirements following the financial crisis. Over time, data quality action plans and engagement frameworks, in addition to other data quality activities performed at national level, have been agreed and performed on a periodic basis for all relevant supervisory reporting regimes. The experience gathered over the years enabled the identification of best practices, but also the recognition of certain pain points where the substantial efforts made by the supervisors did not consistently translate into an observable improvement in the data quality across all key data quality aspects.

Based on the lessons learnt, ESMA developed, in collaboration with the NCAs, in 2022 a revised strategic approach to supervisory convergence work on data quality, the ESMA DQEF. The goal of the DQEF is to achieve tangible results rather than just focusing on efforts. As clearly stated by ESMA<sup>19</sup>, at the core of this new approach are (i) a data quality dashboard with indicators covering the most fundamental data quality aspects and (ii) a data sharing framework between ESMA and NCAs to follow up with counterparties upon the detection of a significant data quality issue, such as a breach of predefined levels in the agreed set of indicators. The key elements of this approach were designed having in mind the paradigm of further strengthening the outcome-focused, data-driven and risk-based nature of data quality activities. The agreed approach focused on EMIR and SFTR as a starting point, but it is envisaged that this will be extended to other datasets in time.

<sup>&</sup>lt;sup>19</sup> See ESMA 2022 Report on Quality and Use of Transaction Data, available on ESMA's website.

For EMIR, the framework has been triggered by ESMA in October 2022 and in June 2023 for selected data quality indicators. In parallel with the developments done by ESMA to implement the DQEF, the CSSF has also developed the data quality indicators to evaluate the quality of EMIR data reported by entities established in Luxembourg using the same metrics as those defined by NCAs and ESMA. Furthermore, the CSSF has also developed a synthetic dashboard that allows the comparison of the Luxembourg market with the European market and more granular controls per type of entity and well as at entity level. Sections 2.2-2.4 of the report include the description of the ESMA DQEF, the related indicators and the work done by ESMA and NCAs as well as an overview of the Luxembourg reported data.

#### 2.2 Data quality dashboards

The first pillar of the new strategic approach is a comprehensive data quality dashboard to allow for a consistent monitoring of the evolution of the quality of a given dataset over time. The data quality indicators, when applied to a given country or reporting entity, facilitate a comparison of the quality of that reporting against that of the EU market. Furthermore, tracking of the entities' results over time can also be used to measure, in an objective manner, the effectiveness of the undertaken supervisory activities and the improved level of data quality.

The EMIR data quality dashboard was agreed in May 2022 and gradually implemented since then. The dashboard contains 19 Data Quality Indicators (DQIs) used to detect and measure various types of misreporting, including under- and over reporting, inconsistent reporting between the two counterparties to the transaction (where both are required to provide data to TRs), incomplete information in the key fields of the reports, late reporting, abnormal values, and lack of correct identifiers of the counterparties.

The DQIs are computed on a monthly basis based on the EMIR dataset. Significant reporting irregularities are followed up in a systematic manner under the agreed NCAs engagement framework.

#### 2.3 NCAs data sharing frameworks

The second pillar of the approach is a common framework for the provision of data and follow-up on significant data quality issues. The main goal of this framework is to ensure that the resolution of the most critical data quality problems is performed as swiftly as possible and with an efficient use of NCAs' and ESMA's resources. In particular, the framework specifies the criteria which should be used to determine which reporting issues should be considered significant and prioritised as well as which entities should be targeted in the follow-up based on the quality of their reporting. The important feature of the framework is that the follow-up is focused on a limited subset of entities with the highest volume of incorrect reports at EU level, thus ensuring the most efficient use of the NCAs resources. Under certain circumstances individual entities may be approached, e.g. when they report abnormal/incorrect values on such a scale that it may materially impact the analysis of EMIR data, thus the framework follows a risk-based approach.

#### 2.4 Data Quality Indicators

NCAs and ESMA have developed a common set of 19 DQIs enabling the detection and measurement of various types of misreporting. These indicators target different types of misreporting behaviours and are related to different types of misreporting.

Based on the specific indicator the behaviour underpinning the misreporting is categorised as per 3 dimensions:

- **Misreporting by reporting entity**: These indicators allow to identify and measure a clear misreporting by the entity responsible for the report.
- **Misreporting by either one of the entities**: These indicators are related to the double-sided reporting obligation introduced by EMIR where both counterparties to a derivative contract are required to report the contract details and therefore shall agree on the details to be reported in order to ensure a perfect match. As per experience gathered over the last decade, 2 sub-categories of indicators have been created:
  - o Pairing and matching as performed by Trade Repositories;
  - o Comparison of the information reported by both counterparties.
- **Potential misreporting**: These DQIs identify behaviours which are highly probable to be representative of misreporting situations, but it could be possible that the indicator captures wrong positives i.e. where the reported data appears to be misreported but in fact is correctly reported as per the accurate contract details.

### TABLE 2: DATA QUALITY INDICATORS

١d	Description	Behaviour	Type of misreporting
1	Nr of outstanding trades	Misreporting by either one of the entities	Double-sided
2	Nr of outstanding positions	Misreporting by either one of the entities	Double-sided
3	Nr of reports with AT=N	Misreporting by either one of the entities	Double-sided
4	Nr of reports with AT=P	Misreporting by either one of the entities	Double-sided
5	Unpaired reports	Misreporting by either one of the entities	Double-sided
6	Rejections	Misreporting by reporting entity	Underreporting
7	Late reports	Misreporting by reporting entity	Incorrect reporting
8	Outdated valuation	Misreporting by reporting entity	Underreporting
9	Blank / abnormal maturity date	Misreporting by reporting entity	Incorrect reporting
10	Missing valuation	Misreporting by reporting entity	Underreporting
11	Missing collateralisation	Misreporting by reporting entity	Underreporting
12	Missing variation margin	Potential misreporting	Underreporting
13	Matching	Misreporting by either one of the entities	Double-sided
14	Anomalies	Potential misreporting	Incorrect reporting
15	Lack of LEI	Potential misreporting	Incorrect reporting
16	Duplicate reports	Misreporting by reporting entity	Incorrect reporting
17	Counterparty nature	Misreporting by reporting entity	Incorrect reporting
18	Corporate sector	Misreporting by reporting entity	Incorrect reporting
19	Consistent margins	Misreporting by either one of the entities	Double-sided

The type of misreporting characterises the reporting under 3 dimensions:

- Double-sided: These indicators fit to the behaviour of misreporting by either one of the entities and are thus related to the EMIR requirement that both counterparties to a derivative contract report the contract details and therefore shall agree on the details to be reported in order to ensure a perfect match.
- Underreporting: These DQIs capture situations where the entity did not report all the required details.
- Misreporting: These DQIs capture situations where details have been reported but are not aligned with the requirement.

#### 2.4.1 Overview

The DQIs have been implemented both on EU level and at national level. Therefore, it is possible compare the data quality of the Luxemburg market with the European market as a whole.

Figure 1 illustrates the situation calculated on data reported end of June 2023 of each DQI for which the data quality levels are expressed for both Luxembourg and European markets. For example, for DQI 1, the Luxembourg market has an error rate of 17.71%, while the European market is at 15.3%. For each indicator the error rate is calculated as number of data quality issues on the total transactions, this is calculated both on Luxembourg data and also on European data. It is to be noted that the data quality level evolves over time based on the improvements/deteriorations in the data reported by the entities established in these markets. This implies that the error rate of the European market evolves also when there is (big) change in the data quality level of an entity established in another member state. Furthermore, it is important to remember that the objective is to reduce issues and achieve 0% for each DQI, both at a Luxembourg and an EU level.



FIGURE 1: DATA QUALITY COMPARISON BETWEEN LUXEMBOURG AND EUROPEAN MARKETS

Looking more specifically to the composition of the Luxembourg market, the market is mainly represented by supervised entities with a long experience in dealing with regulatory reporting requirements which rely heavily on delegation of reporting duties towards either large institutions (intragroup or external service providers) or to their already existing delegates (mainly to the fund managers). Therefore, a certain level of maturity with regards to regulatory reporting requirements could be anticipated. However, the results in Figure 1 show that it is not necessarily the case for all DQIs. Whilst for some DQIs, the data quality in Luxembourg is significantly better than (e.g. DQI 3, DQI 9) or almost on a par with the European market (e.g. DQI 4, DQI 6), for other DQIs Luxembourg demonstrates significantly worse data quality (e.g. DQI 2, DQI 5, DQI 8) than the European market.

Furthermore, this comparison of the data quality levels for all indicators can also be performed on a more granular level (e.g. type of entities, group of entities or single entity). Figure 2 provides the comparison of the data quality issues in June 2023 for the following sectors of counterparties:

- Credit Institutions.
- Insurance and reinsurance institutions.
- UCIs.
- Other counterparties including amongst others investment firms, non-financial counterparties that are supervised by the CSSF and those that are not supervised by the CSSF for purposes other than EMIR compliance.

Figure 2 shows that when drilling down by type of counterparty, even if there are some differences between sectors, all industry sectors demonstrate an overall insufficient level of data quality.

# Figure 2: Data Quality comparison between Luxembourg sectors and European ${\sf Market}^{20}$

Banking sector



Insurance and reinsurance sector



UCIs



Other counterparties



The following sub-section provides a more detailed review for each DQI further detailing the objective of each specific DQI and providing an overview of the evolution of the indicator during the last months as well as a more specific comparison to the European market.

<sup>&</sup>lt;sup>20</sup> Most of the counterparties captured as 'Other counterparties' are non-financial counterparties that do not exceed the clearing thresholds (NFC-). Therefore, these are not required to exchange collateral, nevertheless collateral data is reported on behalf of a lot of these counterparties for a subset of the reported derivatives. Therefore DQI 19 is biased and shall be considered with a high caution. The CSSF analyses the reports on a case-by-case basis before drawing any conclusion on this indicator.

#### 2.4.2 Detailed view

EMIR **DQI 1** counts the discrepancies in the number of reported outstanding derivatives at trade level between two counterparties trading with each other. Such discrepancies hinder the ability of authorities to obtain an accurate view of the relevant exposures of entities. For the purposes of this indicator, only the reports where both counterparties are established in the European Union (as per the reported LEI) are considered while the reports where the second counterparty is reported with a client code are disregarded. Further it considers only the reports where the field "Level" is reported as a transaction (disregarding positions).





For counterparties established in Luxembourg the discrepancy rate fluctuated between 15% and 19% of the population. This represents between 40 000 and 50 000 discrepancies between counterparties. The number of discrepancies is stable over time, while the rate of discrepancies shows a slight increase, evidencing a deterioration of the situation.

For DQI 1, the Luxembourg market discrepancy rate is consistently slightly above that of the European market.

EMIR DQI 2 counts the discrepancies in the number of reported outstanding derivatives at position level between two counterparties trading with each other. This indicator is very similar to DQI 1, but looks at data from a position level rather than a transaction level. Similar to DQI 1, such discrepancies hinder the ability of authorities to obtain an accurate view of the relevant exposures of entities. For this indicator, only the reports where both counterparties are established in the European Union (as per the reported LEI) are considered while the reports where the other counterparty is reported with a client code are disregarded. Further it considers only the reports where the field "Level" is reported as a position (disregarding transactions).



For counterparties established in Luxembourg the discrepancy rate fluctuated between 20% and 25% of the population. This represents between 12 000 and 15 000 discrepancies between counterparties. Whilst the number of differences remains quite stable, the rate of discrepancies shows an increase since early 2023. For DQI 2, the Luxembourg market discrepancy rate is consistently significantly above the European market discrepancy rate.

EMIR **DQI 3** counts the discrepancies in the number of reports submitted with action type "New" between two counterparties trading with each other during a given month. This indicator is very similar to DQI 1 but looks at the trade activity rather than outstanding trades. Similar to DQI 1, such discrepancies hinder the ability of authorities to obtain an accurate view of the relevant exposures of entities. For this indicator, only the reports where both counterparties are established in the European Union (as per the reported LEI) are considered while the reports where the other counterparty is reported with a client code are disregarded.



counterparties established For in Luxembourg the discrepancy rate fluctuated between 12% and 16% of the population. This represents between 25 000 and 45 000 discrepancies between counterparties each month. The number of discrepancies has seen а slight decrease compared to earlier in the year, but during March 2023 there was a significant spike. The rate of

discrepancies remained relatively stable with a decline in June, however, further testing periods are needed to confirm this downward trend.

For DQI 3, the Luxembourg market discrepancy rate is consistently better than that of the European market.

EMIR **DQI 4** counts the discrepancies in the number of reports submitted with action type "position level" between two counterparties trading with each other during a given month. This indicator is very similar to DQI 2 but looks at the trade activity rather than outstanding trades, and DQI 3 but looks at position level reports rather than reports with action type "new". Similar to DQIs 2 and 3, such discrepancies hinder the ability of authorities to obtain an accurate view of the relevant exposures of entities. For this indicator, only the reports where both counterparties are established in the European Union (as per the reported LEI) are considered while the reports where the other counterparty is reported with a client code are disregarded.



For counterparties established in Luxembourg the discrepancy rate fluctuated between 3% and 5% of the population. This represents between 7 000 and 16 000 discrepancies between counterparties each month. Similar to DQI 3, the number of discrepancies has seen a very slight overall decrease over the first 6 months of 2023, but during March 2023 there was a significant

spike. The discrepancy rate followed the same trend and showed a small decrease over the same period.

For this DQI 4, the Luxembourg market's rate is generally aligned with that of the European market, albeit with some months being slightly above and others slightly below the European market rate.

EMIR **DQI 5** counts the number of unpaired reports. Pairing is the first step undertaken by Trade Repositories to reconcile the outstanding derivative contracts based on the details reported by both counterparties in case both counterparties are subject to the reporting obligation. In this step, the Trade Repositories try to find the second leg of the outstanding derivative by using both counterparty IDs and the trade ID. In case the second leg of a reported contract cannot be found, the report is deemed unpaired and is counted towards this DQI for the reporting counterparty.



For counterparties established in Luxembourg the percentage of unpaired outstanding reports fluctuated between 17% and 22% of the overall population. This represents between 58 000 and 80 000 unpaired outstanding reports. Similar to the DQIs above such discrepancies hinder the ability of authorities to obtain an accurate view of the relevant exposures of entities. The

number of unpaired reports and the percentage of unpaired reports are stable over time.

For DQI 5, both the number and percentage of unpaired reports for the Luxembourg market is consistently significantly above those of the European market.

EMIR **DQI 6 counts the number of rejected reports by the Trade Repositories.** High rejection rates are indicators of poor data quality. Market participants are reminded that for a report to be valid, it must be accepted by the Trade Repository and that the simple submission of a report to a Trade Repository without ensuring its acceptation by the latter means that the transaction was never reported. This indicator counts the number of rejections during weeks where Friday falls in the calendar month.



For counterparties established in Luxembourg the percentage of rejected reports fluctuated between 1% and 2% of the population. This represents between 250 000 and 700 000 rejected reports. The number of rejected reports and the rate of rejected reports show a decreasing trend, which still needs to be confirmed in further testing periods.

For DQI 6, the decreasing trend allows the Luxembourg market to be aligned with the European market in the recent months, while the Luxembourg market was significantly worse than the European market in earlier periods.

EMIR DQI 7 counts the number reports of new transactions, including action types "New" and "Position Component" which were reported after the business day following the reported execution date. Late reports are a non-compliance with EMIR requirements and indication of poor processes by market participants. In order to calculate the issue rate for this DQI all reports with Action types "New" and "Position Component" are considered.



For counterparties established in Luxembourg the percentage of late reports fluctuated between 1% and 3% of the population. This represents between 40 000 and 75 000 late reports with a spike at 145 000 late reports in March 2023. The number and percentage of late reports evidence significant fluctuation in certain months.

For DQI 7, the Luxembourg market is

slightly better than the European market, but the latter is showing improving trends thus closing the gap with the Luxembourg market.

# EMIR **DQI 8 shows the number of outstanding derivatives with late valuations** i.e., where the valuation timestamp is more than two business days earlier than the

date of the report submitted by the Trade Repository. Lack of up-to-date information on the valuation of outstanding derivatives limits authorities' capacity to monitor the exposure in a reliable manner. This indicator is only applicable to financial counterparties and those non-financial counterparties that are above the clearing threshold as per the reported details.



For counterparties established in Luxembourg late the valuation percentage fluctuated between 16% and 20% of the population. This represents between 140 000 and 175 000 reports. The number of issues is rather stable, perhaps showing a slight increasing trend, while the percentage of late valuations is showing a clear upward trend which is indicative of a

reduction in quality.

For DQI 8, the Luxembourg market is a lot worse than the European market, both in terms of numbers and percentage, and the gap is increasing as the European market shows clear improving trends.

EMIR DOI 9 counts the number of outstanding derivatives with missing or abnormal maturities (e.g. more than 51 years after the execution). Missing or inaccurate information about the maturity date may lead to inaccurate assessment of exposures by counting expired derivatives as outstanding or vice-versa. It also renders unreliable estimations of the future evolution of the exposures. For the purposes of this indicator, CFD transactions as disregarded as such derivative contracts are often open ended. For all other contracts, the DQI is calculated by summing up the number of reports where the maturity date has not been reported and those contracts where the maturity date reported is considered to be abnormal.





counterparties established For in Luxembourg, the percentage of outstanding derivatives with missing or abnormal maturities has been steadily increasing all the while staying relatively low at around 3% of all non-CFD outstanding derivatives. Nevertheless, the number of reports with missing or anormal maturities represents more than 30 000 of the outstanding reports

and this number is also consistently increasing.

For DQI 9 the Luxembourg market results are a lot more positive than the European market results.

EMIR **DQI 10 shows the number of outstanding derivatives with missing valuations.** Incompleteness of this key data field has a direct impact over authorities' capacity to monitor the exposures. This indicator is only applicable to financial counterparties and those non-financial counterparties that are above the clearing threshold as per the reported details (i.e. fields 1.7 'Nature of the reporting counterparty' and 1.16 'Clearing Threshold').



counterparties established For in Luxembourg the percentage of reports missing valuations fluctuated with between 11% and 14% of the population. This represents between 100 000 and 125 000 reports. The percentage of reports with missing valuations is showing a slight increasing trend.

For DQI 10, the Luxembourg market numbers and percentages are close to those of the European market. However, over the last few months a positive trend has been observed on the European market where numbers and percentages of reports with missing valuations are declining, thus indicating an improvement in the data quality, compared a worsening trend being observed on the Luxembourg market.

EMIR **DQI 11 shows the number of outstanding derivatives where the field collateralisation is not populated.** This indicator is only applicable to financial counterparties and those non-financial counterparties that are above the clearing threshold as per the reported details.



For counterparties established in Luxembourg the percentage of reports with missing collateralisation fluctuated between 4% and 7% of the population. This represents between 40 000 and 60 000 reports. Both the number and percentage of reports with missing collateralisation are showing a clear increasing trend i.e. a worsening of data quality.

For DQI 11, the Luxembourg market numbers and percentages are significantly below the European market, but the gap is closing due to the worsening trend in data quality on the Luxembourg market coupled with an improving trend in data quality on the European market.

EMIR DQI 12 counts the number of outstanding reports where no variation margin has been reported, either as paid or as received. For this DQI only the reports that are collateralised, as per the field collateralisation, are counted. This indicator is only applicable to financial counterparties and those non-financial counterparties that are above the clearing threshold as per the reported details (i.e. fields 1.7 'Nature of the reporting counterparty' and 1.16 'Clearing Threshold').



counterparties established For in Luxembourg the percentage of reports with missing variation margins fluctuated between 21% and 24% of the population. This represents between 180 000 and 220 000 reports. Whilst the number of reports with missing variation margins remains rather stable, the percentage of reports concerned shows a slight increasing trend.

For DQI 12, the percentages and numbers for the Luxembourg market are consistently above those of the European market and the gap is continuing to increase i.e. the data quality of the Luxembourg market is decreasing.

EMIR **DQI 13 counts the number of unmatched reports.** Matching is the second step undertaken by Trade Repositories to reconcile the outstanding derivative contracts based on the reported details by both counterparties in case both counterparties are subject to the reporting obligation. In this step, the Trade Repositories try to match some the details reported between two paired reports. For this report the percentage is calculated based on the population of paired trades.



For counterparties established in Luxembourg the percentage of unmatched reports fluctuated between 21% and 24% of the population. This represents between 50 000 and 68 000 unpaired outstanding reports. The number and percentage of unmatched reports are both showing a decreasing trend, but both remain elevated.

For DQI 13, the numbers and percentages of the Luxembourg market are significantly below those of the European market and recent improvements in Luxembourg market's data quality is serving to widen the gap even further.

EMIR DQI 14 shows the number of outstanding derivatives where one of the quantitative data shows an anomaly based on statistics established at the European level. These statistics have only been made available very recently and therefore this indicator is still being finetuned. By design the rate of anomalies is low as it only captures outliers. Nevertheless, each of these outliers has an impact on the use of the data by authorities and the related findings. In practice, this indicator identifies outlier threshold for 12 reportable details: Notional, Value of the contract, Initial margin posted, Initial margin collected, Variation margin posted, Variation margin collected, Excess collateral posted, Excess collateral collected, Price/rate, Fixed rate 1, Fixed rate 2, Quantity.



For counterparties established in Luxembourg the percentage of reports demonstrating an anomaly is about 0.06% of the outstanding reports which equates to about 600 reports containing at least one value that is considered as an outlier.

For DQI 14, the Luxembourg market result is significantly below that of the European market.

EMIR DQI 15 counts the number of outstanding reports with private individuals and high notional or valuation. This DQI relies on the field "type of ID of the other counterparty", which shall be populated with client code only for private individuals. A threshold of 5mln EUR as notional or 1mln EUR as valuation has been set. While nothing prevents private individuals from being counterparty to large derivative contracts, this indicator considers that there is a significant probability that contract might be incorrectly reported i.e. either the notional / valuation are incorrectly reported or the other counterparty is a legal entity identified with client code rather than with the LEI as required.



For counterparties established in Luxembourg the percentage of reports demonstrating a potential anomaly fluctuated between 0.03% and 0.06% of the population. This represents between 270 and 600 issues. The number of issues and the rate show a downward trend.



EMIR **DQI 16 counts the number of outstanding reports that are duplicate reports** i.e. where the details relating to both counterparties and Trade ID are outstanding more than once in the overall reports.



For counterparties established in Luxembourg the percentage of duplicate reports fluctuated between 0.3% and 0.7% of the population. This represents between 3 000 and 7 000 duplicated reports. Given the month-on-month fluctuations in these figures, it is not possible to deduce a particular trend.

For DQI 16, the Luxembourg market is consistently worse than the European market.

EMIR DQI 17 counts the number of reports where the counterparty nature (i.e. whether the reporting counterparty is a financial counterparty, a nonfinancial counterparty, a CCP or another type of counterparty) is inconsistently populated. This DQI assumes that the counterparty nature reported in most cases is correct and accounts only for those reports having a different nature than the one mostly reported. The counterparty nature does not change overtime except in very exceptional cases, therefore, it should be static and perfectly consistent across all reports for a given reporting counterparty. This information is massively used by authorities for supervisory (e.g. in several of the DQIs) as well as for analytical and policy related purposes.



For counterparties established in Luxembourg the percentage of reports with inconsistent counterparty nature fluctuated between 0.25% and 0.30% of the population. This represents about 2 500 reports. The number and percentage of impacted reports is relatively stable and if anything shows a slight trend to decrease in terms of numbers of reports.

For DQI 17, the number and percentage of reports with inconsistent counterparty nature for the Luxembourg market is slightly worse than those of the European market.

**EMIR DQI 18 counts the number of reports where the corporate sector of the reporting counterparty is inconsistently populated.** Similar to DQI 17, this DQI assumes that the corporate sector reported in most cases is correct and accounts only for those reports having a different corporate sector than the one mostly reported. The corporate sector does not change overtime except in very exceptional cases, therefore, it should be static and perfectly consistent across all reports for a given reporting counterparty. This information is massively used by authorities for supervisory (e.g. in several of the DQIs) as well as for analytical and policy related purposes.



For counterparties established in Luxembourg the percentage of reports with a corporate sector issue slightly above 3% of the population. This represents about 30 000 reports. The number and percentage of impacted reports has remained stable over the first 6 months of 2023.

For DQI 18, the Luxembourg market is in a better position than the European market.

**EMIR DQI 19 quantifies discrepancies in the margin amounts reported between two counterparties trading with each other.** This DQI calculates the reported collateral values received (variation margin received plus initial margin received) and deducts the amounts reported by the other counterparty as collateral paid (variation margin paid plus initial margin paid), which should sum up to zero for each counterparty pair. In such cases where the collateral is reported at portfolio level, this value is used only once. In instances where the collateral reported for a single portfolio is not consistent across all impacted reports, the maximum value is used for this indicator. The level of issues for this indicator is based on the EUR value of the difference between the margin amounts reported by the two counterparties trading with each other. A rate is calculated by dividing the EUR value of the differences described here above by the EUR value of the collateral received as reported by the reporting counterparty.



counterparties established For in Luxembourg the calculated rate ranges between 29% and 66%. This represents a difference of 6bln EUR between the amounts reported as collateral received and the amounts the other counterparties reported as collateral paid. The value of the difference remains stable.

For DQI 19, the inconsistency of collateral reported by counterparty pairs, where the reporting counterparty is established in Luxembourg is in line with the inconsistency observed on the European market. As this indicator is highly volatile it is treated cautiously in any analysis but nevertheless represents a misreporting behaviour.

#### 2.5 Conclusions and next steps

In a landscape where data drives critical decisions, the inadequacy of **data quality stands as a significant hurdle for the extensive use of data reported by entities to extract meaningful information on derivatives markets**. Although sophisticated data cleaning procedures aim to rectify these failings in the reported data, it's essential to acknowledge their potential pitfalls. These procedures, while intended to enhance accuracy, also carry the risk of unintentionally overlooking genuine anomalies. Therefore, elevating data quality to the forefront of entities' priorities is paramount. This endeavour demands efforts by all stakeholders, for in the realm of data utilisation, success hinges upon the reliability and accuracy of information. By dedicating resources to refining data quality, opportunities to address fundamental market challenges are unlocked, propelling towards a more informed and effective decision-making paradigm.

The exposition of details and quantitative components in this section underscores the existing scope for enhancing the data quality in EMIR reporting. Therefore, **all stakeholders, in particular counterparties involved in the derivatives trading activity are encouraged to use and leverage on the regulatory data in their own internal processes**, such as – but not limited to - risk and compliance management processes. By adopting this approach, counterparties are not only prompted to utilise accurate data but also to align their incentives towards the meticulous reporting of information. This symbiotic relationship between improved data quality and aligned incentives holds the potential to cultivate a more robust and trustworthy trading environment.

With regards to the entry into force of the new EMIR reporting technical standards under EMIR Refit, which is scheduled on 29 April 2024, it becomes even more crucial to (1) review current outstanding data with the TRs to ensure the upgrade of all outstanding trades to the new formats and (2) ensure internal databases at counterparties and stakeholders are fully reliable with the correct data.

Henceforth, the CSSF and the CAA are committed to an ongoing scrutiny of the quality of reported data. This commitment extends to a comprehensive collaboration with ESMA and all pertinent data users. The joint effort is aimed at recognising areas of improvement and ensuring that reporting entities diligently enhance data quality. The ultimate goal of this collective endeavour is to bolster data utilisation across the board, empowering all data users to effectively execute their respective responsibilities. Through this cooperative approach, a robust foundation for informed decision-making and successful role fulfilment is laid out.

# List of abbreviations

AT	Action Type	
CAA	Commissariat aux Assurances	
CD	Financial Contracts for Differences or CFD (Contract Type)	
CO	Commodity derivatives including emission allowances (Asset Class)	
CR	Credit Derivatives (Asset Class)	
CSSF	Commission de Surveillance du Secteur Financier	
CU	Currency Derivatives (Asset Class)	
EEA	European Economic Area	
EMIR	European Markets and Infrastructure Regulation	
EQ	Equity Derivatives (Asset Class)	
ESMA	European Securities and Markets Association	
ETD	Exchange Traded Derivatives	
EU	European Union	
FR	Forward Rate Agreements (Contract Type)	
FU	Futures (Contract Type)	
FW	Forwards (Contract Type)	
G20	Group of 20	
IR / IRD	Interest Rate Derivatives (Asset Class)	
IT	Information Technology	
LU	Luxembourg	
NCA	National Competent Authority	
OP	Options (Contract Type)	
ОТ	Other (Asset Class or Contract Type)	
OTC	Over the Counter	
SB	Spreadbet (Contract Type)	
ST	Swaptions (Contract Type)	
SW	Swaps (Contract Type)	
TR	Trade Repository	
UK	United Kingdom	



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