Irving Fisher Committee on Central Bank Statistics



IFC Report

Central banks and trade repositories derivatives data

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¹ The views expressed in this document reflect those of the contributors and are not necessarily those of the institutions they represent.

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Central banks and trade repositories derivatives data²

1. Executive summary

This report summarises the results of the IFC survey finalised in 2018 on central banks' access to and use of derivatives transaction data being reported to trade repositories (TRs³). The data cover over-the-counter (OTC) derivatives⁴ and some exchange-traded derivatives. The survey was completed by 50 IFC member central banks (see list in Appendix 2).⁵

One important consequence for financial statistics of the reforms undertaken after the Great Financial Crisis (GFC) of 2007–09 has been the collection of a very large amount of TR data shedding light on the global derivatives market. Yet a key issue for public authorities is to ensure that these data are effectively used, not least to guide policy actions. In this context, the objective of this IFC survey was to take stock of five key aspects of TR data:⁶

- their policy interest;
- their availability and accessibility for central banks;
- remaining information gaps and quality issues;
- their actual use; and
- policy initiatives for improvement.

The results of the survey underscore the strong interest in TR data among the central bank community and the significant progress observed in recent years as

- ² This report benefited from comments by Alejandro Gaytan, Koon Goh, Branimir Gruić, Henry Holden, Robert Kirchner, Előd Takáts, Patrick McGuire, Denis Pêtre, Laurence White and Philip Wooldridge. Assistance from Burcu Erik and Jeff Slee with the preparation of the graphs is gratefully acknowledged. Box 4 benefited from comments from Grzegorz Skrzypczyński and Sébastien Pérez-Duarte.
- ³ Throughout this survey, the term TRs refers collectively to trade repositories and trade repositorylike entities; the latter are other entities (possibly including central banks) conducting activities similar to those of TRs; see Box 1.
- ⁴ A derivative is an instrument whose value depends on some underlying financial asset or instrument. The related contract is referred to as OTC when it is traded directly between parties, ie is not negotiated through a market intermediary (eg organised exchanges). For an overview of the global derivatives market and related BIS regular statistics and analyses, see www.bis.org/statistics/about_derivatives_stats.htm?m=6%7C32%7C639.
- ⁵ Six additional central banks reported that they were not in a position to answer the survey, reflecting the absence of TR data collected in their jurisdictions or the low development of their OTC derivatives markets.
- ⁶ The survey focuses on the statistical aspects of the TR data collected and the implications for central banks' statistical functions. It therefore provides a useful complement to the progress reports of the G20 OTC regulatory reforms which also cover some important data aspects (eg access to TR data, data harmonisation) and various ad hoc initiatives eg authorities' access to trade repositories data (CPMI-IOSCO (2013)); the harmonisation of critical data elements (CPMI-IOSCO (2017a,b, 2018)); and the legal barriers to reporting and accessing TR data (FSB (2017c)).

regards their availability, accessibility and quality. Yet challenges remain, especially for smaller jurisdictions where data are scarcer and access for central banks is more difficult. Looking ahead, the survey emphasised the need for greater coordination at both domestic and international levels, particularly in order to enhance the quality of TR data and foster their use for policymaking.⁷

More specifically, the main lessons of the survey are that:

- Most central banks consider that data held in TRs are particularly useful for macroprudential policy, in particular to support risk assessment exercises – for instance to monitor interconnectedness and assess systemic exposures. To a lower extent, TR data are also considered useful to improve market transparency and support microprudential supervision.
- Data availability differs across jurisdictions and appears higher among the largest ones. Progress has been particularly notable in FSB jurisdictions (as well as in non-FSB countries subject to European regulation) in terms of reporting requirements and richness of the information collected (eg counterparty coverage). Since these jurisdictions host the largest market segments, the coverage of the global derivatives market has significantly improved. But data availability remains an important issue in several other (smaller) jurisdictions.
- Some central banks have been directly tasked with collecting derivatives transaction data. But most of them have to get this information from the TRs set up separately to collect it. In general, central banks have relatively good access to granular information (ie position- or transaction-level data) from the TRs located in their jurisdictions. But access to data held by foreign TRs is more complex, often requiring specific authorisation and being restricted to data with a certain level of aggregation.
- While the coverage of the various OTC derivatives market segments (eg currency and interest rates derivatives) is perceived as good, significant data gaps remain (eg counterparty details, common identifiers). In particular, transactions between unregulated entities appear difficult to track. There is also room for improvement as regards critical derivatives data elements such as notional value, clearing information and termination dates.
- A key issue is the **limited quality of the data collected**, in particular when dealing with transactions that are reported to different TRs and with different attribute values. In contrast, the (very large) size of the data sets and their timeliness do not seem to be a key obstacle.
- As a result, most central banks have to actively conduct quality checks on TR data, in particular to avoid double-reporting and deal with outliers and missing values. The required in-house processing of these data has therefore become particularly resource- and time-consuming.
- To spur policy interest for using very large and complex TR micro data sets, proper aggregation mechanisms have to be developed. A major challenge is

⁷ This survey represents a further step by the IFC in its support for central banks exchanging experience on TR data. Previous steps included the IFC-sponsored session on "Central bank sources and uses of derivative statistics" at the 2015 ISI World Statistics Congress (<u>https://www.bis.org/ifc/events/ifc isi 2015.htm</u>) and specific presentations at the IFC-National Bank of Belgium 2017 Workshop on "Data needs and statistics compilation for macroprudential analysis" (IFC (2017b)).

to reconcile the data collected by different TRs. This also highlights the need for common identifiers and greater harmonisation when collecting the various attributes of the transactions.

- Constructing corporates' position-level data on a consolidated basis is key for supporting meaningful systemic risk assessments. But this requires highquality sources, in particular to properly account for the transactions of foreign affiliates, identify the entire structure of groups, and maintain consistency in critical elements data (eg timing and terms of derivative contracts).
- **Central banks are already actively using TR data for internal purposes**, especially to support their work on financial stability and macroprudential issues. In contrast, the external dissemination of TR data is highly restricted, being limited mainly to indicators with a sufficient degree of aggregation.
- Addressing information gaps, reducing reporting lags, and tackling complexity are needed to increase the interest of policymakers in using TR data. Specific attention should be focused on measuring the activities of central counterparties (CCPs) and developing common identifiers for entities, transactions and products.
- There is an expectation that regulation could help to improve data quality through better reporting requirements and to facilitate central banks' access to (domestic) TRs. Coordination between domestic authorities, including between central banks and TRs, should be enhanced.
- Developing global common identifiers and increasing access to foreign TRs are also key objectives, highlighting the importance of international coordination and in particular of the ongoing initiatives led by international regulatory groups.

2. Introduction

The G20's post-crisis OTC derivatives market reform agenda established a requirement for the centralised reporting of standardised OTC derivatives transactions to TRs (FSB (2010)).⁸ The aims were, in particular, to mitigate systemic risk, increase market transparency, and prevent and detect market abuse. Increasing the availability of statistical information covering the derivatives market was therefore a key element of this strategy.

In the meantime, several jurisdictions have changed their regulatory regimes to ensure that market participants adequately report their derivatives transactions. As a result, the amount of data collected by TRs has significantly increased in recent years,

- ⁸ Following the 2009 Pittsburgh Summit, the G20 agreed that:
 - all OTC derivative contracts should be reported to trade repositories;
 - all standardised contracts should be cleared through central counterparties;
 - all standardised contracts should be traded on exchanges or electronic trading platforms, where appropriate; and
 - non-centrally cleared (bilateral) contracts should be subject to higher capital requirements and minimum margining requirements.
 - For an overview of the actions initiated in this context, see the FSB website section "Making Derivatives Markets Safer" (www.fsb.org/what-we-do/policy-development/otc-derivatives/).

and public authorities are in turn reflecting on whether and how this information could be used. Yet there are substantial challenges in dealing with it, especially as regards timeliness, quality and size.

These challenges reflect two main issues. One is the high degree of granularity of TR data, with operations being reported on a transaction-level basis, often daily, and with a large number of attributes (counterparty information, contract details etc). A second key issue is the difficulty in accessing and sharing confidential, market-sensitive information – de facto limiting its use for policy purposes.

To monitor progress, the FSB has been conducting regular reviews of the OTC derivatives market reform agenda – see, for instance, the most recent progress reports on the reforms' effects (FSB (2017a)) and their implementation (FSB (2017b)). This has been particularly useful for identifying the challenges faced by FSB members and how the various relevant public authorities – eg market regulators, central banks, prudential supervisors, resolution authorities – have tried to address them.

Box 1

Trade repositories: definitions

A key element of the derivatives market reform agenda was the requirement that derivatives transactions should be reported to TRs, which are legal entities tasked with centrally collecting this information and maintaining the related records. These tasks are sometimes conducted by other entities (so-called TR-like entities), including central banks in a number of jurisdictions. In this survey, the term "jurisdiction" refers to the country or area under whose national law a central bank/monetary authority is established. For instance Hong Kong SAR is considered as a separate jurisdiction; in contrast, EU countries are treated as members of a single jurisdiction.

Regulatory authorities can authorise TRs/TR-like entities that are registered in their own jurisdictions but can also recognise foreign entities as being able to collect data from their domestic market participants. Here *domestic* TRs/TR-like entities refer to entities located in the jurisdiction in which the reporting central bank is established, and *foreign* TRs/TR-like entities refer to TRs located in a different jurisdiction. *Authorised* TRs/TR-like entities thus comprise all the domestic and foreign entities that are either registered or recognised by the authorities of a given jurisdiction. All the TRs/TR-like entities registered in Europe are considered as "domestic" even if they are located outside the borders of the domestic central bank (for instance a German TR will be treated as "a domestic TR" for France).¹

¹ Existing agreement among EU countries may change following Brexit. On the potential implications for EMIR, see eg Lannoo (2017).

This work has highlighted the particular situation of central banks and the specific challenges they face in accessing and using TR data. One reason is that central banks can have a variety of mandates (eg conduct of monetary policy, microprudential supervision of banks and/or other financial institutions, macroprudential supervision and financial stability risk assessments), depending on countries and circumstances. Another reason is that central banks have been asked, to various degrees across jurisdictions, to play a specific role in the related data collection processes. For instance, a number of them collect the data themselves (operating as "TR-like entities") or are the primary authorities in charge of overseeing the activities of TRs (see Box 1 for the definitions of the various entities). In contrast, several other central banks have to go through complex arrangements to access TR data. This is particularly the case for many smaller jurisdictions, especially in non-FSB countries, where there is no local TR and where domestic transactions can only be reported via a foreign TR. Yet a third reason is that central banks often seek to monitor financial markets from a global perspective, not least to capture the impact of common factors and spillover

effects. This puts a premium on accessing and using derivatives data that may be fragmented (or sometimes duplicated) across various TRs and/or countries.

3. Central banks' interest in TR data

The centralised reporting of derivatives transactions to TRs was expected to provide information that can support public authorities in the conduct of their specific policy objectives (FSB (2010)). Indeed, derivatives data can be quite informative, offering various insights for policy at the micro level (eg financial regulation/supervision of individual institutions and their potential restructuring by resolution authorities), market level (eg general market surveillance, monitoring of payments infrastructures) and macro level (eg macroprudential supervision, systemic risk assessment). At least to some extent (and depending on their mandates), all these dimensions are of great interest to central banks, especially for those of their statisticians dealing with the financial stability issues that have emerged since the GFC (Borio (2013)).⁹



Which policy objectives underlie central banks' interest in TR data?¹

¹ Macroprudential includes systemic risk assessment and monitoring of interconnectedness; microprudential refers to micro-level supervision; markets transparency includes surveillance and functioning analysis.

Source: IFC survey on TR data, 2018

The vast majority of the respondents (more than 80%; see Graph 1) consider that TR data can be particularly useful in the area of macroprudential supervision and risk assessment (IFC (2017b)), especially for their financial stability/macroprudential analysis business areas (Graph 2 shows that this is the case for close to 90% of the reporting central banks). This can be explained by the granularity of the information that can usefully complement the macro-financial statistics usually at the disposal of central banks. For instance, the monitoring of transaction-level derivatives data can allow the concentration of exposures on a single counterparty to be assessed, or the

⁹ Including those that have led to a wide range of data requests especially in the context of the Data Gaps Initiative endorsed by the G20. See FSB-IMF (2009) for the first phase of the DGI; and FSB-IMF (2015) for its second phase (2016–20).

interconnections between institutions.¹⁰ Another example is that TR data can help quantify debt currency exposures and related funding mismatches: foreign currency liabilities can appear through the setting of derivative contracts (eg FX swaps), but they are usually treated as on-balance-sheet exposures in existing accounting standards (Borio et al (2017)). Looking at derivative-related information can thus help to close this gap. Conversely, there is a risk of overestimating underlying FX exposures if one does not take into consideration the derivative positions taken to hedge risks.

What are the business areas within your institution that are interested in TR data?¹



¹ Micro-level supervision refers to banks, insurance companies, pension funds surveillance; economic analysis includes monetary policy analysis; macroprudential includes financial stability groups; market surveillance includes enforcement tasks; market operations includes monetary policy implementation.

Source: IFC survey on TR data, 2018.

Graph 1 shows that interest in TR data for market transparency analysis is also strong, although somewhat less than with respect to macroprudential needs (almost 70% of central banks). Interest in TR data is slightly lower as regards the two policy objectives that have traditionally been in the realm of central banks, namely microprudential surveillance (for central banks in charge of financial supervision) and monetary policy - as reported by around 60% of central banks. As regards financial supervisors, this may reflect the fact that they can access a broad range of institutionlevel information directly from supervised entities, and also the difficulties in consistently aggregating transaction-level data from multiple TRs to get the overall balance sheet positions of the supervised institutions (Section 6). As regards monetary policy objectives, reduced interest in TR data could be explained by the fact that central banks focus primarily on macroeconomic indicators such as economic activity and inflation. Yet the information content of derivative positions can be useful, at least for specific market segments. For instance, a number of central banks especially in emerging market economies are actively intervening in FX markets, and data on FX exposures (including through derivatives) can be informative in this

¹⁰ Often requiring the collecting and using of institution-level data for systemic risk analysis; see Bese Goksu and Tissot (2018) for the work currently conducted for global systemically important financial institutions.

context – not least because conducting such operations requires a good knowledge of off-balance sheet foreign currency exposures.¹¹

Looking at specific business areas, the second most interested in TR data after the macroprudential teams are those in charge of market infrastructure analysis (for around 70% of the reporting central banks; see Graph 2). Interest is slightly lower (about 60% of the cases) for the units in charge of statistics and research. In contrast, market surveillance groups display much less appetite (around 40% of the cases), possibly reflecting two factors: first, TR data are fragmented across jurisdictions and/or TRs (Heitfield (2015)) and their aggregation is difficult, so they cannot easily feed into market-level monitoring and surveillance exercises.¹² Second, alternative statistical sources exist that can support the monitoring of global derivatives markets; for instance, the BIS Semiannual and Triennial Surveys of derivatives market participants provide relevant information to monitor global trends in OTC markets, as argued by Wooldridge (2017).¹³

4. Data availability

The actual availability of TR data depends on two related aspects of the OTC derivatives market reform agenda: first, the introduction of regulation requiring the central clearing of (standardised) OTC trades; and second, the obligation of market participants to report their transactions to TRs. The results of this survey indicate that substantial progress has been achieved on both fronts in the largest jurisdictions, where reporting requirements are broadly in place and data are available (at least partially; see Section 6). Yet progress has been much more limited in the vast majority of other jurisdictions (Box 2).

As regards the first aspect of the reform agenda, ie the central clearing of OTC transactions, significant global progress has been achieved since the GFC, at least in important segments such as interest rate derivatives (Wooldridge (2016)) and credit default swaps (CDS) (Aldasoro and Ehlers (2018)).¹⁴ This is confirmed by the survey (Graph 3): almost half of the respondents have already a legislative framework in force (ie a statute, regulation or rule) that makes central clearing obligatory for at least certain types of OTC transaction. In addition, almost one tenth have plans to adopt

¹¹ Certainly, one could argue that central bank FX operations are primarily guided by financial stability considerations. But these operations can also be seen as driven by monetary policy purposes, for instance when central banks want to limit the consequences of exchange rates movements for inflation or output growth. Interestingly, central banks have also been increasingly intervening through FX derivatives markets, for instance to hedge FX exposures or to support market liquidity (Domanski et al (2016)).

¹² Although TRs were originally expected to provide a global coverage of derivatives markets in aggregate (FSB (2010)).

¹³ For an overview of the BIS contribution on the monitoring of the derivatives market, see Tissot (2015). The next Triennial Survey will be conducted in 2019; the related reporting guidelines for turnover and amounts outstanding are already available; see BIS (2018a,b).

¹⁴ The status of central clearing requirements are regularly reviewed in progress reports; see FSB (2017a,b). However, the importance of central clearing of OTC derivatives transactions is difficult to measure with accuracy; see Aldasoro and Ehlers (2018, Box A).

such requirements.¹⁵ Moreover, for some of the jurisdictions reporting the absence of regulatory requirements, there are strong incentives for central clearing – such as higher capital requirements for non-centrally cleared contracts – which can be quite powerful (BCBS-CPMI-FSB-IOSCO (2018)).

Does your jurisdiction have a legislative framework in force (ie a statute, regulation or rule) that makes central clearing obligatory for at least certain types of OTC derivatives transaction?



Source: IFC survey on TR data, 2018.

Yet more progress is still needed. Even for jurisdictions with an adequate regulatory framework, in reality the vast majority of the trades are not centrally cleared in a number of them (this situation is reported by 10% of the respondents). Moreover, a quarter of central banks currently report no plans to adopt central clearing requirements. Furthermore, improvement has been mostly concentrated in the major jurisdictions (Box 2). While this has de facto enhanced the coverage of the global derivatives market, it also implies that large number of (smaller) jurisdictions still lack comprehensive information on their domestic OTC trades.

Turning to the second aspect, ie the actual obligation to report transactions to TRs, the picture is also quite mixed. Certainly, most survey participants referred to the existence of some types of requirement to report transactions, although to a varying extent, ie depending on the residency of the counterparties considered. From this perspective, at least some information is available in the vast majority of the jurisdictions surveyed (Graph 4).

¹⁵ Besides, almost one tenth of the respondents mentioned they were subject to the European legislation (EMIR).

Derivatives transactions reporting requirements outside FSB jurisdictions

FSB members are more likely to have requirements for the central clearing of OTC derivatives transactions. This is unsurprising, since the derivatives market reform agenda was driven by the G20 Leaders, whose composition is closely aligned with FSB membership. One exception relates to non-FSB EU members, which are subject to the European Market Infrastructure Regulation (EMIR), a body of EU legislation for the regulation of OTC derivatives adopted in 2012.



¹ Incentives include margins and higher capital requirements on non-centrally cleared derivatives. ² Non-resident foreign-controlled institutions which are, for instance, counterparties of resident institutions involved in the reported trades.

Source: IFC survey on TR data, 2018

The survey shows that about 30% only of the non-FSB reporting jurisdictions have central clearing requirements in place (Graph B2, left-hand panel) – compared with around 70% among FSB jurisdictions. Looking forward, 40% of reporting non-FSB jurisdictions have no plans to enforce clearing requirements, again in strong contrast to FSB jurisdictions.¹

Turning to the actual reporting of derivatives transactions to TRs/TR-like entities, the requirement to do so is also more frequent among FSB jurisdictions than in non-FSB ones (Graph B2, right-hand panel). More than 40% of non-FSB jurisdictions have no reporting requirement at all. In contrast, all FSB jurisdictions have some type of reporting requirements, which in addition are more comprehensive than those of non-FSB jurisdictions. For instance, the vast majority (more than 80%) of FSB jurisdictions require resident institutions to report derivatives transactions, and a significant portion also impose reporting requirements on non-resident affiliates of their domestic entities, as well as on non-resident foreign-controlled counterparties involved in the reported trades (around 40% and 20%, respectively).

Overall the results underline the importance of the G20 initiative as a key driver for a greater central clearing of derivatives and for trade reporting to TRs. This does not necessarily imply that data gaps are serious in non-FSB jurisdictions, as this might mainly reflect the lower importance of their derivatives markets compared with those of more mature financial systems.

¹ The picture is even less favourable if one looks only at non-FSB jurisdictions outside Europe. Indeed, some non-FSB respondents are subject to the European legislation (EMIR), implying that central clearing requirements are in place, or could be implemented looking ahead.

Box 2

Yet one fifth (18%) of respondents report that their jurisdictions have no reporting requirements at all (and hence that data are completely unavailable). Furthermore, even when both central clearing and trade reporting are compulsory, lack of reporting by some types of counterparty can hamper data availability. Indeed, only a few jurisdictions have reporting requirements covering all types of counterparty. In practice, reporting requirements are mostly concentrated on resident institutions (either domestically or foreign-controlled), which have to report their transactions to TRs in around 60% of the jurisdictions (Graph 4). But non-resident reporting, in particular for the transactions made by the foreign affiliates of domestically owned entities or by the non-resident foreign-owned institutions (for instance when they are the trading counterparties of resident institutions) are less frequently compulsory (only in 26% and 12% of the jurisdictions, respectively.

What types of derivatives transaction must be reported to TRs/TR-like entities according to your domestic legislation?



The sum of the responses can exceed 100%, as several answers are possible.

¹ Non-resident foreign-controlled institutions can be required to report if, for instance, they are trading counterparties of resident institutions.

Source: IFC survey on TR data, 2018

5. Central banks' access to TR data

An important element of the OTC reform agenda was to ensure effective and practical access to TR data for public authorities so that they can use this information adequately, especially to monitor risks in the financial system. For their part, and reflecting the wide range of their tasks, central banks are among the most interested authorities in getting access to this information.¹⁶

Obviously, such an access is de facto in place when the central bank acts as a TR and directly collects transactions data, as is the case for 22% of the jurisdictions surveyed (Graph 5). But, in most jurisdictions, central banks are not in charge of this task, which is ensured by separate TRs/TR-like entities that can be located within the central bank's jurisdiction (in almost 40% of the cases) or in another jurisdiction (in

¹⁶ For a review of progress on removing barriers to reporting and improving access to public authorities more generally, see FSB (2017c).

almost half the cases). Being highly granular, TR data are very confidential, de facto limiting access to them for central banks that are not directly tasked with collecting them. Access problems are likely to be even greater when the recognised TRs are located outside a central bank's jurisdiction.

Which entities are authorised by your domestic legislation to collect data on OTC derivatives transactions?



Does your central bank have access to non-public derivatives data reported to TRs/TR-like entities (other than the central bank)?



Central bank access to TR data

In per cent

Trade repositories based in the jurisdiction Α.

Does your central bank have access to non-public derivatives data reported to TRs/TR-like entities (other than the central bank)?1



Β. Trade repositories based outside the jurisdiction

Does your central bank have access to non-public derivatives data (involving a domestic counterparty), when they are reported to TRs/TR-like entities?1



What types of arrangement govern your access to nonpublic derivatives data collected by TRs/TR-like entities?



What types of arrangement govern your access to nonpublic derivatives data (involving a domestic counterparty) collected by TRs/TR-like entities?



¹ The sum of the responses can exceed 100%, as several answers are possible. ² Indirect access via another authority (ie by request of the primary authority with oversight of TRs/TR-like entities). ³ Applies to domestic counterparties that report derivatives transactions to TRs/TRlike entities based outside my jurisdiction.

Source: IFC survey on TR data, 2018.

Against this backdrop, the experiences in accessing data collected by TRs are very diverse.¹⁷ While most central banks have some kind of access to the information collected, almost one fifth have no access at all (Graph 6).¹⁸

In addition, the degree of central banks' access can differ widely, depending on the level of granularity of the data considered (see Box 2 for the different types of data considered). In general, central banks can effectively access granular data, although not always at the highest level of disaggregation. Some 65% of the respondents declare they can receive "pure" micro information – ie position or transaction-level data (Graph 6),¹⁹ and this ratio rises to 77% for disaggregated data,²⁰ which are less informative but can nevertheless provide useful insights for central banks.

Box 3

Granularity of TR data

TRs collect data on a transaction-level basis. This is referred to as "micro data", ie the most granular type of information – see IAG (2017) for a review of the type of data depending on their degree of granularity, namely micro data, disaggregated data and aggregate data. Micro data are very sensitive because they can allow the identification of the counterparties involved in transactions, which may be confidential. For instance, for each trade a large number of attributes can be recorded, often covering counterparty details (identifier, sector) and various attributes related to the transaction itself (eg collateral, notional amount, type of contract, price etc).

Reflecting these issues, there are strong legal restrictions limiting the access to transaction-level data to nonauthorised parties. Still, some degree of access can be assured while preserving confidentiality. One possibility is to provide access to the micro data set itself but mask part of the information, for instance through encryption or the deletion of attributes that could reveal the counterparties involved in the transactions (FSB (2017c)).

Data aggregation provides an alternative way of allowing central banks some kind of access to the information collected. For instance, they can receive aggregated indicators covering the overall transactions recorded for certain categories (eg by type of product, currency, region etc). Such "aggregated data" are less sensitive because they do not allow the unique identification of the transaction or of the counterparties involved. Aggregated data are defined as "aggregates that have a low likelihood of identification of individual reporting units, such as those found in traditional datasets" (IAG (2017)).

A middle way is to permit access to "disaggregated" information: the underlying micro data are not available, but their degree of aggregation is below the one performed for "aggregated" data. As a result, the likelihood that the individual reporting units can be identified remains limited. This risk will in particular depend on the concentration of participants in specific market segments: for instance, it will be higher if only a few counterparties are trading derivatives in a jurisdiction, or if they are particularly large and/or active in the market. In general, the risk of possible identification will be judged depending on the (public) nature of the institution to which access is granted.

²⁰ Disaggregated data can be defined as "data below the level of aggregated data and with a higher likelihood of identifying individual reporting units than in the aggregated data" (IAG (2017)).

¹⁷ This section only covers jurisdictions for which TR data are actually collected.

¹⁸ A situation that is unlikely to change rapidly: two thirds of the central banks without access report that they do not expect to gain it in the near future.

¹⁹ Micro data allow the identification of entities, unless they are anonymised or masked by deleting or encrypting certain elements of the positions and/or transactions. They can be defined as "data on individual reporting units or specific transactions/instruments, which in most cases allow the identification of individual entities and therefore considered confidential. In addition, publicly available data on individual reporting units are considered non-confidential although they can still be subject to data sharing limitations due to commercial property rights" (IAG (2017)).

A TR's location is also an important factor to consider when assessing the arrangements governing central banks' access by data types (Graph 7). In general, this access is higher when the TR is located in the central bank's jurisdiction. As regards disaggregated data, 80% of central banks can access them if the TR is in the same jurisdiction (panel A, left-hand side), compared with 65% if it is located overseas (panel B, left-hand side); the corresponding numbers amount to 75% and 40%, respectively, for micro data.

In addition, when a central bank can access data, the arrangements governing this access are much more complex when the TR is based outside its jurisdiction (compared with when the TR and the central bank are in the same jurisdiction).

When data are collected by a domestic TR/TR-like entity, the central bank has extensive access to it. In 37% of the reporting cases, it is the central bank that directly collects the trades,²¹ acting as a TR-like entity (panel A, right-hand side). In the vast majority of the other cases (41% of the respondents), the central bank is granted direct access through domestic legislation to the data collected by domestic TRs. So, in total, central banks have direct access to the data in almost 80% of cases.

In contrast, only 50% of central banks have direct access to the data when they are collected by foreign TRs (panel B, right-hand side). Certainly, central banks can have access via another authority (13% of the reported cases) or via alternative arrangements (21%), but this is on an indirect basis. Hence, there are significant barriers to effective data access across borders, highlighting the importance of the work undertaken to remove them (FSB (2017c)).

6. Data gaps

Even when TR data are available, this information cannot be effectively used if it is not sufficiently comprehensive. For instance, if there are gaps in the trades being reported, there may be difficulties in aggregating transaction-level data at the firm level. This would prevent any meaningful measuring of actual corporate risk exposures, especially if one cannot include all the transactions made by a group's affiliates, or if there is too little information on important elements of the transactions (eg termination dates).²²

The survey shows that the vast majority (72%) of central banks accessing TR data are facing such difficulties (Graph 8). In theory, the gaps can be grouped into three categories: incomplete coverage in terms of market segments and/or instruments, absence of counterparty information, and missing details on critical elements of the derivatives transactions.

It should be noted that in several EU countries central banks have access to data from TRs based in the European Union (and considered here as "domestic TRs"), either directly or through the transaction reporting exchange mechanism (TREM) operated by the European Securities and Markets Authority (ESMA).

²² Also referred to as the "expiration date" of the contract when it is definitively settled.



Are there any gaps in the TR data accessible by the central bank?

Are there any gaps in the TR data accessible by the central bank?



¹ Information does not allow matching transactions between two reporting entities. ² No information whatsoever on any counterparty of the transaction is available (data only records contract type, amount, notional value etc).

Source: IFC survey on TR data, 2018.

According to the respondents, the first type of problem is relatively limited. Some 60% feel that there no coverage gaps, and only a minority (30% and 10%, respectively) consider that there are coverage gaps in terms of market segments and instruments (Graph 9, left-hand panel). Looking specifically by type of market segment, Graph 10 shows that central banks have access to data on currencies and interest rates derivatives transactions for around 90% of the reporting jurisdictions. The coverage of the other main segments – CDS, commodities, equity/indices – is less complete but still relatively high: they are covered for around 60% of the jurisdictions where central banks can access TR data.

The main data gaps relate to both counterparty information and transactionlevel elements (Graph 9, centre and right-hand panels, respectively). As regards first counterparty coverage, the vast majority of central banks point to significant data gaps (only 20% report that there is no gap). This situation reflects various factors, including the absence of a Legal Entity Identifier (LEI), in 35% of the reported cases, and the fact that transactions are organised between unregulated entities (30%) or cannot be matched (20%).²³ A number of central banks also highlighted the difficulty of identifying the foreign counterparties of their domestic financial institutions, mainly due to legal restrictions on reporting.²⁴

Which segments of derivatives transactions are covered by the TR data accessible by the central bank?



Second, central banks also point to significant information missing on the critical elements of derivatives transactions: only 30% feel that there is no related data gap (Graph 9, right-hand side). Some 35% and 20% report difficulties due to, respectively, limited clearing information and lack of data on notional values. Various "other" limitations are recognised, for instance as regards missing elements on collateral information and the market value of the transactions. Moreover, important difficulties relate to ambiguities in reporting requirements. For instance, 25% of the central banks report issues in identifying key transaction dates, preventing the correct identification

²³ The matching issue can be a serious limitation if the counterparties report the same transaction to different TRs – as is reported to be the case, for instance, in Europe.

²⁴ The FSB is conducting work to address legal barriers to reporting to TRs (FSB (2018)).

of novated and/or compressed trades.²⁵ To deal with these issues, it would be useful to collect information to track (and keep updated) the life-cycle events affecting the derivative contracts, for instance to get information on the prior Unique Transaction Identifier (UTI)²⁶ when assessing the impact of trade compression (CPMI-IOSCO (2012), CPMI (2018)).

7. Processing TR data

The survey results suggest that the processing of TR data raises no major issues for central banks. Yet one challenge is that TR data need to be of sufficient quality if they are to be efficiently exploited. From this perspective, respondents felt that quality can be inadequate, and the overwhelmingly majority do in fact have to conduct comprehensive quality checks to enhance it.



Three aspects are important for understanding central banks' challenges in receiving TR data: timeliness, the size of the related data sets, and quality. As regards the timeliness issue, central bank feedback is quite reassuring. The data are said to be reported quickly in general (Graph 11); and, whenever TRs shared them with central banks, this was done in a well structured way (Graph 12). Such timeliness is an important element for central banks, which often need real-time information to adequately monitor the build-up of risks in the financial system.

²⁵ In particular, since central clearing is associated with the novation and the compression of transactions. Novation replaces an inter-dealer trade with two offsetting trades between the dealers and the CCP (Aldasoro and Ehlers (2018)); trade compression is subsequently used to remove economically redundant derivative positions (Schrimpf (2015)).

²⁶ The UTI is a unique code for identifying a transaction. "Prior UTI" can be useful when identifying trades which are associated with an already reported trade where a relevant UTI was provided.

Turning to the second issue, ie the size of the data sets, this was previously considered a major challenge, since the number of derivatives transactions is very large compared with more "traditional" data sets managed by central banks. In Europe, for instance, derivatives data amount to 100 million observations per day, each observation containing hundreds of attributes (Draghi (2018), Mazzaferro (2018); for a discussion on the EU experience in managing such a large data set, see Ascolese et al (2017) and Van Lelyveld (2017)). Central banks have, however, made substantial progress in the recent past and greatly improved their ability to cope with "financial big data" (IFC (2017a), Cœur (2017)). Indeed, only one fourth of the respondents point to significant problems raised by the large data sets. And less than one fifth believe that their IT systems are not well suited to collecting this information.

How would you describe the quality of derivatives data sent to the central bank by TRs/TR-like entities?¹



¹ Question only applies if central banks do not collect data themselves.

Source: IFC survey on TR data, 2018.

Does the central bank conduct quality checks on TR data?¹

Graph 13



The sum of the responses can exceed 100%, as several answers are possible.

¹ Incomplete observations are those with missing fields.

Source: IFC survey on TR data, 2018.

The third issue, ie the actual quality of the data received from TRs, looks the most serious. As shown in Graph 12, only a minority of the respondents strongly agree that TRs preform good quality checks before sharing the data. They have to make substantial efforts to deal with the low quality of the data they receive. As a result, only one fifth say that the in-house processing of this information requires little work, underscoring the substantial amount of time and resources required.

Hence, a main lesson of the survey is that central banks have to conduct extensive quality checks on the TR data they access – this is the case for more then 80% of the respondents (Graph 13). Central banks take various types of action in this regard, such as correcting incomplete observations (or removing them), cross-checking the data sent by different TRs, comparing the granular information received with publicly available aggregates etc.

Box 4 summarises some of the lessons learnt by central banks in conducting these data cleaning exercises.²⁷ Two key issues have emerged in this context, ie the treatment of duplicates and the correction/removal of outliers - about 40% of the central banks report conducting quality checks to address both issues (Graph 13). First, duplicated trades can arise when a given transaction is reported to several TRs simultaneously, as in EU countries (Fache Rousová et al (2015)): the double reporting of derivatives required under the EMIR regulation implies that both counterparties need to report to a TR. The aggregation of all individual trades does not constitute a problem for aggregation if the trades are correctly identified, but it can be misleading in the case of double-counting. As a result, a large fraction of central banks are actively working on identifying and removing duplicated trades. This task can be burdensome, since the identification of similar trades is difficult if the reported attributes are of low quality and vary across different TRs. A second key quality issue relates to outliers, ie data points that look "abnormal". A number of central banks directly remove these outliers from the data sets, while others prefer to correct them, for instance by cross-checking the information received with the counterparties reporting the trades.

The survey shows that artificial intelligence and machine learning (AI-ML) techniques hold promise as a way of addressing these issues, confirming other analysis (FSB (2017d)). A key reason is that the number of trades reported to TRs is steadily increasing over time, and in addition the transactions can be intricate, complicating the design of the data collection templates. As a result, each trade has to be reported with a large number of attributes and missing values can be frequent. Hence, the data sets cannot be easily checked manually. In contrast, AI-ML techniques can be better suited to, for instance, identifying inconsistencies automatically, detecting outliers, identifying patterns in the data and imputing missing values, thus enhancing the quality of the data sets.²⁸ In some jurisdictions, authorities are using such "big data" techniques not just for data quality and data validation purposes, but also for market supervision – see the use of innovative technology by supervisory agencies to support supervision ("suptech"), for instance to identify anomalies in trading behaviour (Broeders and Prenio (2018)).

²⁷ For further lessons learnt cleaning TR data, see also Cielinski et al (2017).

²⁸ See Cagala (2017) for an application of machine learning techniques to the identification and correction of data gaps in large data sets.

Box 4

Cleaning TR data: central banks' practical experiences

Observations dropped at each step of the ECB cleaning procedure

TR data cleaning is of particular interest in the European Union due to the double-sided reporting requirements in the EMIR regulation. Since both counterparties of a trade are obliged to report this transaction to a TR, statisticians can assess data quality by comparing the resulting two reports - see Ascolese et al (2017) and Pérez-Duarte and Skrzypczyński (2018). The related data cleaning exercises conducted by the ECB have identified two key lessons that can help to design mechanisms to improve the quality of TR data more generally.²⁹

First, these exercises have provided evidence of systematic misreporting. This can cause significant quality problems that hamper data aggregation and analysis. In particular, despite the requirement to include a UTI agreed in advance by the two counterparties, for a substantial fraction of the trades the opposite trading position (leg) cannot be found in the reported data. As a result, the two legs of a trade cannot be paired or reconciled. As the analysis suggests, the reasons include counterparties' failure to report or to agree on the common UTI, counterparties' misreporting of their own LEI - or their counterparties' one - and the failure to properly report the closing of transactions. Even if both legs can be identified, counterparties might still disagree on the various objective characteristics of the trade, like notional values and timestamps. When discrepancies are large, statisticians might opt to drop observations or make simplifying assumptions. Alternatively, they can design procedures to identify systematic patterns of problematic trades (eg reporting entities, locations and counterparties that are more affected by the issue of unmatched trades) and correct them.



Second, counterparties might report different values of the contract due to differing valuation techniques, although these may all be compliant with reporting requirements. The EMIR regulation requires entities to mark to market the value of the contract or, if this is not possible, to use a model to estimate the value (which can lead to differing estimates by each of the counterparties involved in the trade). Another reason for discrepancies could be varying valuation times and exchange rate fluctuations. One approach to tackling these problems is to identify differences above a reasonable threshold, and flag them to the competent authority as a data quality problem. In other instances, the value of the contract is missing, which may be indicative of counterparties' failure to report trade cancellation.

²⁹ However, these findings should be viewed with caution, since the EMIR authorises several TRs to collect TR data in the European Union, possibly resulting in specific data quality problems depending on the sources.

The cleaning procedures undertaken by the ECB for EMIR data have led to the deletion of a significant part of the observations collected, representing about 20% of the trades reported depending on the type of derivative contract – ie interest (left-hand panel), credit (centre panel) and currency (right-hand panel) derivatives in Graph B4. In general, the number of observations dropped during the cleaning procedures has declined in the past few years, suggesting that the underlying data quality of the transaction records has greatly improved. These exercises also show that differences in the contract values reported by the counterparties (pink area) are the most common reason for observations to be dropped, as compared with differences in the information provided on notional amounts (blue area), counterparties' identifiers (yellow area) and contract timestamps (purple area).

While double-side reporting allows these problems to be identified, discrepancies could also exist and go unnoticed. Thus the lessons for statisticians dealing with TR data are twofold: identifying patterns of misreporting is a useful approach to improving data quality; and too much flexibility in reporting requirements might result in significant statistical discrepancies.

Better data quality is a necessary but not sufficient condition for supporting the use of data by policymakers. Authorities need to be able to make sense of the vast amount of the micro-level information collected, in particular by compiling summary indicators. Data aggregation has thus become a particularly important issue when processing TR data, not least because these data are not harmonised among TRs (as mentioned predominantly by central banks; see Graph 14). However, harmonisation is difficult due to many challenges. In particular, the lack of adequate identifiers as well as legal constrains are significant obstacles to deal with, especially when the data are reported by different TRs located in various jurisdictions (Wooldridge (2016)). This underscores the importance of harmonising critical derivatives transaction elements (CPMI-IOSCO (2018)).³⁰

Graph 14 Data sent by different TRs/TR-like entities are not harmonised Complexity of transactions makes it difficult to design templates Problems in cross-checking reporting Double reporting of derivatives **Missing fields** IT constraints 20 40 80 100 0 60 Mild agreement Weak agreement Strong agreement Source: IFC survey on TR data, 2018.

Does your central bank face problems in the aggregation process of data collected by TRs/TR-like entities?

³⁰ For instance, eight TRs are currently authorised to collect derivatives transactions data under EMIR in Europe. For an analysis of the problems faced, see Osiewicz et al (2015).

Constructing position-level indicators is a specific type of data aggregation that is key for the systemic risk assessments conducted by central banks.³¹ But compiling such indicators requires the collection of detailed derivatives transactions for all the entities of a group and on a consolidated basis. Many central banks accessing TR data lack comprehensive sources covering the transactions by the non-resident affiliates of domestic groups (Graph 4). In addition, the absence of some critical elements of derivative contracts can hinder data aggregation: for instance, if no adequate information is available on termination dates or on the important events affecting the terms of the contract after its inception (Section 4). Finally, positions calculated at the level of a group can be sensitive to the specific techniques/methodologies used in various jurisdictions, and a number of central banks are therefore actively supporting harmonisation work in this area (IAG (2015)).³²

8. Use of TR data

The survey shows that TR data are widely used by central banks, especially for macroprudential purposes. Yet one difficulty is to communicate the results of these analyses, reflecting the strong restrictions on sharing TR data with external users.



The sum of the responses can exceed 100%, as several answers are possible.

¹ Economic analysis includes monetary analysis; macroprudential analysis includes financial stability analysis.

Source: IFC survey on TR data, 2018.

TR data are quite frequently used within central banks, but to a varying extent across business units, reflecting the diversity of policy interest in this information (as discussed in Section 3). Macroprudential units, which are often at the centre of central banks' work on financial stability issues, have the greatest access to TR data (over 70% of the reported cases; see Graph 15). Yet both statistical and banking supervisory units are also relatively well placed to make use of them (for 60% and 50% of the cases,

³¹ Especially for assessing risk exposures at the level of individuals groups. See eg EBA (2018).

³² See ESMA (2018) for a discussion in the EU context.



respectively). In contrast, only in 30% of the central banks do economic analysis and market operations units have access to TR data.

Central banks' internal use of TR data is facilitated by the ability to access granular (ie transaction- or position-level) records. The survey results indicate that a relatively large number of internal users in central banks indeed have this option. Although totally unrestricted access to granular data is limited to only about 10% of the cases (Graph 16), internal users of almost 60% of the central banks can reportedly access granular data with specific authorisation. Access is even greater if one considers anonymised or masked granular data. And, obviously, restrictions on accessing aggregated data are much less rigorous.

In contrast, the sharing of TR data with external users is quite restricted. Almost half of the respondents reported that this is not possible at all (Graph 17, left-hand panel), and the fraction of central banks that can share data with other domestic and foreign authorities is limited to 35% and 18%, respectively. Besides, central banks rarely share granular data with external users. Data-sharing is restricted mainly to aggregated data, and often requires specific authorisation (Graph 16).

What access to and type of non-public derivatives data are shared with external users and how are these data disseminated to the general public?

Can non-public derivatives data accessed by your central How does the central bank disseminate TR data to the bank be shared with external users?1 general public?² 45 45 30 30 15 15 ٥ Research Other No dissemination Interconnectedness measures Ŷ Other Disseminating aggregated statistics Yes, with domestic

In per cent

The sum of the responses can exceed 100%, as several answers are possible.

¹ Authorities include supervisory and regulatory authorities. ² Aggregated statistics include notional amounts, number of transactions etc (Box 3); research refers to analyses/research conducted using derivatives data.

Source: IFC survey on TR data, 2018.

External dissemination of (aggregated) TR data to the general public is also rare (Graph 17, right-hand panel). Almost half of the central banks do not disseminate data at all. When they do so, they tend to publish aggregated statistics, research analyses and interconnectedness measures. Even in such limited cases, there can be important restrictions: some central banks conduct careful checks to prevent the identification of individual counterparty data, for instance.

9. A way forward

The survey clearly suggests that central banks can play a leading role in promoting the use of TR data for policy purposes. Many have developed active strategies to improve the quality of the information collected and address its limitations. They also generally consider that there is scope for developing coordinated initiatives in this area. That said, several aspects of TR data reduce their potential usefulness to policymakers. Graph 18 groups these limitations into three headings: the existence of data gaps, the characteristics of the data sets, and the lack of common identifiers.

First, as regards data gaps, a key focus should be to better measure the involvement of CCPs in derivatives markets (Graph 18, left-hand panel). Their importance appears to have steadily expanded at the global level, in parallel with the decline in inter-dealer positions measured for CDS markets (Aldasoro and Ehlers (2018)). Other reported data gaps relate to the lack of information on liquidity and

Graph 17

0

prices, as well as on the geographical repartition of trades: no single jurisdiction can obtain a global overview of derivatives transactions, and there is little information for assessing group-level positions on a consolidated basis (Section 7).



To what extent do the following aspects limit your institution's interest in existing TR data?

Turning to the characteristics of the data collected, it is felt that reducing reporting lags could boost policy interest (Graph 18, centre panel), and greater timeliness is important for the development of more timely systemic risk assessments. Nevertheless, most central banks consider that TR data are already reported in a timely way (as noted in Section 7). The other reported limitations are the complexity of TR data, aggregation problems, confidentiality issues and the associated restrictions on dissemination.

The third type of limitation in using TR data relates to the absence of critical elements needed to uniquely identify counterparties through the use of a common identifier for entities (eg the LEI), an issue raised by the vast majority of the respondents (Graph 18, right-hand panel). Although to a lesser extent, many central banks report important limitations due to the absence of identifiers for transactions (UTI) and products (UPI).

How do statisticians interact with policy users of TR data?



Graph 19 Awareness of ongoing policy work Awareness of potential uses Informed about policy work Conduct analyses with the data Joing work with other economists Suggest potential uses Other No interaction with policy users 0 10 20 30 40 The sum of the responses can exceed 100%, as several answers are possible. Source: IFC survey on TR data, 2018.

Does the central bank have a strategy for enhancing the guality/coverage of the TR data that it can access?¹



The sum of the responses can exceed 100%, as several answers are possible.

¹ Regulatory changes refer to measures to broaden the reporting market segments/institutions/instruments; domestic/foreign TRs refer to TRs/TR-like entities based in/outside the corresponding jurisdiction (Box 1); electronic platform trading refers to the introduction of mandatory electronic platform; common identifiers refer to initiatives to foster the use of common identifiers (eg LEIs).

Source: IFC survey on TR data, 2018.

Looking forward, what are the main initiatives under consideration by central banks to address these challenges? First, the survey underscored the need for strong coordination between producers of derivatives statistics and policymakers, not least to improve the quality of TR data and promote their use. Indeed, according to most respondents, there is already a strong interaction between these two groups, and the number of central banks where statisticians do not interact with policy users is reported to be small (below 15%; see Graph 19). However, the way this interaction is organised varies significantly across jurisdictions. Information is exchanged in different ways, for instance, to ensure that statisticians are aware of ongoing policy

needs. The number of central banks where statisticians actually analyse TR data together with economic policy and research units still remains quite limited (although a number of successful cases were reported). This finding also calls for better data-sharing, both at the domestic and the international level, underlining the importance of previous IFC work in this area (IFC (2016)).

Could coordinated initiatives between the central bank and other institutions/entities improve TR data quality/coverage in your jurisdiction?



Source: IFC survey on TR data, 2018.

A second area for action is to enhance TR data quality, which is rated "good enough" by less than 15% of the respondents (Graph 20). Accordingly, most central banks report having a strategy to address such quality issues. These strategies can cover multiple aspects, but a key focus appears to be on modifying regulation to increase reporting requirements and on improving access to domestic TRs (as reported by around 30% and 25% of the central banks, respectively. Other initiatives to enhance data quality include encouraging the use of common identifiers and greater automation (eg electronic trading platforms, use of automated techniques to identify misreporting).

Lastly, there is a general recognition that good coordination between central banks and other stakeholders is the key to enhancing data quality (Graph 21). This particularly refers to the initiatives led by international regulatory bodies (eg the FSB, CPMI and IOSCO) to harmonise standards,³³ but also to coordination with other domestic regulatory and supervisory authorities. In particular, joint work involving central banks and TRs is seen as a promising approach to harmonising and cleaning the data collected.

³³ Recent and ongoing initiatives include the harmonisation work on the UTI (CPMI-IOSCO (2017a)), the UPI (CPMI-IOSCO (2017b)) and the critical OTC derivatives data elements (CPMI-IOSCO (2018)).

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Appendix 1: IFC survey questionnaire on central banks' access to and use of TR data

1. Does your jurisdiction have a legislative framework in force (ie a statute, regulation, or rule) that makes central clearing obligatory for at least certain types of OTC derivatives transaction?

O Yes

- O Yes, but the majority of derivatives transactions (ie number of contracts) are not centrally cleared
- O No, but there are plans to require it
- O No, but there are strong incentives for it (eg margins, capital requirements)
- O No, but there are plans to create strong incentives for it (eg margins, capital requirements)
- O No, there are no plans to require it
- O Other (please specify below)

2. What types of derivative transaction must be reported to TRs/TR-like entities according to your domestic legislation?

Please mark all that apply

- None
- Derivates transactions by institutions resident in the jurisdiction, and domestically controlled
- Derivates transactions by institutions resident in the jurisdiction, and foreign-controlled
- Derivates transactions by foreign (ie non-resident) affiliates of domestically controlled institutions
- (Some) derivative transactions by non-resident foreign-controlled institutions (for instance, counterparties of resident institutions)
- Other (please specify below)

Other comments / observations

3. Which entities are authorised by your domestic legislation to collect data on OTC derivatives transactions?

Note for EU countries: a EU TR located outside your country is considered as outside the domestic jurisdiction. Please mark all that apply

- None
- TRs based in my jurisdiction
- The central bank, acting as a TR-like entity
- □ TR-like entities (other than the central bank) based in my jurisdiction
- TRs/TR-like entities based outside my jurisdiction

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Access to non-public derivatives data collected by TRs/TR-like entities based in your jurisdiction

Since in question 3 you answered that TRs-TR-like entities based in your jurisdiction collect data on OTC derivative transactions, please answer questions 4.A. and 4.B.

4. A. What type of data are accessible by your central bank?

Please mark all that apply

- Micro data
- Disaggregated data
- Non-public aggregated data
- No data are accessible, but there are plans to gain access
- No data are accessible, and there are no plans to gain access

4. B. What types of arrangement govern your access?

- O Direct collection by the central bank
- Direct access through domestic legislation
- O Indirect access via another authority (ie by request of the primary authority with oversight of TRs/TR-like entities)
- O Access through another arrangement (please specify below)
- O No access whatsoever to these data

Access to non-public derivatives data collected by TRs/TR-like entities based outside your jurisdiction

Since in question 3 you answered that TRs-TR-like entities based outside your jurisdiction collect data on OTC derivative transactions, please answer questions A, B and C

5. A. What type of data are accessible by your central bank?

- Micro data
- Disaggregated data
- Non-public aggregated data
- No data are accessible, but there are plans to gain access
- No data are accessible, and there are no plans to gain access

5. B. What are the locations of the TRs/TR-like entities accessible by your central bank?

Please mark all that apply

		Country/ies
	Yes No	
United States	0 0	
European Union (please state which country/ies)	00	
Elsewhere (please state which country/ies)	00	

5. C. What types of arrangement govern your access?

Please mark all that apply

- Direct access through domestic legislation (since domestic counterparties can report derivative transactions to TRs/TR-like entities based outside my jurisdiction)
- Direct access through an agreement with a foreign authority
- □ Indirect access via another authority (ie by request of the primary authority with oversight of the TRs/TR-like entities)
- Access through another arrangement (please specify below)
- No access whatsoever to these data

II. Data-sharing and dissemination

Since in questions 4A and/or 5A you answered that your central bank has access to some type of non-public derivatives data collected by TRs/TR-like entities [ie options 1, 2 and/or 3], please answer Sections II (questions 6-10) and III (questions 11-18)

6. Who has access to non-public derivatives data inside your central bank?

- Statistics department
- Banking supervision department
- Economic and monetary analysis department
- Financial stability/macroprudential analysis department
- Market operations department
- Research department
- Other department (please specify below)
- Named individuals

7. What type of non-public derivatives data can the statistical department of your central bank (or the owner of the data, if other) share with internal users?

Please mark all that apply

- None
- Aggregated data
- Aggregated data, under specific authorisation
- Granular (ie micro or disaggregated) data
- Granular (ie micro or disaggregated) data, under specific authorisation
- Granular (ie micro or disaggregated) data, if some information is anonymised
- Granular (ie micro or disaggregated) data, if some information is anonymised and under specific authorisation
- Other (please specify below)

8. Can non-public derivatives data accessed by your central bank be shared with external users?

- No
- Yes, with domestic supervisory/regulatory authorities
- Yes, with foreign supervisory/regulatory authorities
- Other (please specify below)

9. What type of non-public derivatives data can your central bank share with external users?

Please mark all that apply

- □ None
- Aggregated data
- Aggregated data, under specific authorisation
- Granular (ie micro or disaggregated) data
- Granular (ie micro or disaggregated) data, under specific authorisation
- Granular (ie micro or disaggregated) data, if some information is anonymised
- Granular (ie micro or disaggregated) data, if some information is anonymised and under specific authorisation
- Other (please specify below)

10. How does your central bank disseminate TR data to the general public?

Please mark all that apply

- No information is disseminated to the general public
- Disseminating aggregated statistics (notional amounts, number of transactions etc)
- Publishing information on interconnectedness (network charts)
- Publishing analyses/research conducted using derivatives data
- Other (please specify below)

III. Data quality

11. Data gaps

11. A. Are there any data gaps in the TR data accessible by your central bank?

- O No
- O Yes

11. B. Are there data gaps in the coverage of OTC derivative transactions?

No

- Yes, some important OTC market segments (eg interest rates, equity, credit, currencies, commodities, other) are not covered, or the coverage is partial
- Yes, some important instruments (eg swaps, forwards, futures, other) are not covered, or coverage is partial

11. C. Are there data gaps in counterparty details?

No

Yes: no information whatsoever on any counterparty of the transaction (data only records contract type, amount, notional value etc) is available Yes: there is information on reporting entities, but not on their counterparties

- Yes: there is some information on non-reporting counterparties, but they are not identified by the Legal Entity Identifier
- Yes: no information on foreign transactions by domestic counterparties is available
- Yes: no information on transactions between unregulated entities (eg non-financial companies) is available
- Yes: not enough information to match a transaction between two reporting entities is available
- Yes, other (please specify below)

11. D. Are there data gaps in transaction details?

- No
- Yes, in the notional value
- Yes, in the clearing information
- Yes, in key dates
- Yes, other (please specify below)

Other comments/observations:

12. Which segments of derivatives transactions are covered by the TR data accessible by your central bank?

Please mark all that apply

- OTC derivatives: Interest rates
- OTC derivatives: Equity or indices
- OTC derivatives: Credit (CDS)
- OTC derivatives: Currencies
- OTC derivatives: Commodities
- OTC derivatives: Other (please specify below)
- Some exchange-traded derivatives

13. How would you describe the processing of TR data?

Please indicate your agreement with the following statements on a scale of 1 (disagree) to 5 (agree)

	Disagree			Agree		
	1	2	3	4	5	n/a
Large size of data reports is not a problem	0	0	0	0	0	0
Data reporting is timely	0	0	0	0	0	0
IT systems are well suited to collecting the data	0	0	0	0	0	0
Data quality is good	0	0	0	0	0	0

14. How would you describe the quality of the derivatives data shared by TRs/TR-like entities with the central bank (when the central bank does not collect the data itself)?

Please indicate your agreement with the following statements on a scale of 1 (disagree) to 5 (agree).

If the TRs/TR-like entities do not share data with the central bank, please mark the appropriate box ("n/a").

	Disagree				Agree			
	1	2	3	4	5	n/a		
TRs/TR-like entities perform good quality checks before sharing the data	0	0	0	0	0	0		
TRs/TR-like entities share the data in a well structured way	0	0	0	0	0	0		
TRs/TR-like entities take little time to share data with the central bank	0	0	0	0	0	0		
In-house processing of data requires little work by the central bank	0	0	0	0	0	0		

15. Does the central bank conduct quality checks on TR data?

- No, we do not conduct any quality checks
- Yes, we avoid double-counting (eg remove transactions reported twice).
- Yes, we remove outliers
- Yes, we remove observations with missing fields
- Yes, we try to correct outliers
- Yes, we try to correct observations with missing fields
- Yes, we compare data from different TRs/TR-like entities, when available
- □ Yes, we conduct other quality checks (please specify below):

Ľ)

16. Does your central bank face problems in the aggregation process of data collected by TRs/TR-like entities?

Please indicate your agreement with the following statements on a scale of 1 (less severe) to 5 (severe). If the central bank **does not** aggregate data collected by TRs/TR-like entities please mark the appropriate box ("n/a").

	Less							
	severe	severe			Severe			
	1	2	3	4	5	n/a		
Missing fields	0	0	0	0	0	0		
Double reporting of derivatives	0	0	0	0	0	0		
Problems in cross-checking reporting	0	0	0	0	0	0		
IT constraints	0	0	0	0	0	0		
Data sent by different TRs/TR-like entities are not harmonised	0	0	0	0	0	0		
Complexity of transactions makes it difficult to design templates	0	0	0	0	0	0		

Other comments / observations

17. Does your central bank have a strategy for enhancing the quality/coverage of the TR data that it can access?

- No, since the quality/coverage is overall good
- No, although the quality/coverage can be improved
- Yes: improving the regulatory framework to broaden the reporting market segments/institutions/instruments
- Yes: accessing data held in TRs/TR-like entities based in my jurisdiction
- Yes: accessing data held in TRs/TR-like entities based outside my jurisdiction
- □ Yes: introducing mandatory electronic platform trading
- □ Yes: fostering use of common identifiers
- Yes: Other (please specify below)

Other comments / observations

18. Could coordinated initiatives between your central bank and other institutions/entities improve TR data quality/coverage in your jurisdiction?

Please indicate your agreement with the following statements on a scale of 1 (not useful) to 5 (useful).

If the central bank cannot take part in these initiatives, please mark the appropriate box ("n/a").

	Disagree					Agree
	1	2	3	4	5	n/a
International initiatives (FSB, CPMI, IOSCO) to harmonise standards	0	0	0	0	0	0
Harmonisation of definitions with TRs/TR-like entities	0	0	0	0	0	0
Joint work with TRs/TR-like entities to clean data sets	0	0	0	0	0	0
Coordination with other domestic regulatory/supervisory authorities	0	0	0	0	0	0
Coordination with other foreign regulatory/supervisory authorities	0	0	0	0	0	0

Other comments / observations

IV. Policy interest

This section aims to assess the policy interest within central banks in TR data in general (ie data collected by TRs/TR-like entities), and especially non-public data.

19. Which policy objectives underlie central bank interest in TR data?

Please mark all that apply

- Macroprudential risk assessment (systemic risk and interconnectedness)
- Microprudential (firm-level) surveillance
- Markets transparency/functioning
- Monetary policy
- Other (please specify below)

20. What are the business areas within your institution that are interested in TR data?

Please mark all that apply

- Statistics
- □ Micro-level supervision groups (banks, insurance companies, pension funds)
- Economic and monetary analysis
- Financial stability/macroprudential analysis
- Research group
- Market surveillance and enforcement
- Market infrastructure analysis
- Monetary policy implementation and market operations

21. To what extent do the following aspects limit your institution's interest in existing TR data?

Please indicate your agreement with the following statements on a scale of 1 (strong limitation) to 5 (low limitation).

	Strong limitation				Low limitation	
	1	2	3	4	5	n/a
Micro data are confidential	0	0	0	0	0	0
Legal issues limit dissemination of results	0	0	0	0	0	0
Aggregation is meaningless/too difficult	0	0	0	0	0	0
Data are reported with significant lags	0	0	0	0	0	0
Data are too complex to understand	0	0	0	0	0	0
Data quality is poor	0	0	0	0	0	0
Lack of information on liquidity	0	0	0	0	0	0
Lack of information on prices	0	0	0	0	0	0
Standardised OTC derivatives account for a small fraction of total transactions	0	0	0	0	0	0
Geographical fragmentation of transactions limits the interest of the data	0	0	0	0	0	0
Data do not provide a good measure of the importance of CCPs	0	0	0	0	0	0
Transactions, products and counterparties are not well identified	0	0	0	0	0	0
Counterparties cannot be identified with the Legal Entity Identifier	0	0	0	0	0	0
Derivative products cannot be identified with a unique product identifier	0	0	0	0	0	0
Transactions cannot be identified with a unique transaction identifier	0	0	0	0	0	0
Other limitation/s (please describe below)	0	0	0	0	0	0

22. How do statisticians interact with policy users of TR data?

- Statisticians are aware of the existence of policy work
- Statisticians are informed about progresses of policy work
- Statisticians are aware of potential policy uses
- Statisticians suggest potential uses
- Statisticians conduct analyses with the data
- Statisticians work jointly with other economists on policy issues
- Statisticians have no interaction whatsoever with policy users
- Other (please specify below)

23. Please indicate the relevant policy workstreams for the areas of policy work that the statisticians are aware of/informed about.

Please indicate all that apply.

- International workstreams (eg FSB)
- European workstreams (eg ESRB)
- Domestic workstreams
- Other (please specify below)

Permission to share your answers

IFC members will be informed at the annual IFC meeting which central banks requested and received access to individual answers.

The central bank using other central banks' individual information commits to deleting all individual data after completing its analysis, at the latest 12 months after receiving the data.

- My answers to this part of the questionnaire shall be treated confidentially and results shall be made available only in an aggregated form.
- O My individual answers may be analysed by other IFC central banks upon their request, explaining their particular interest, and after approval by the IFC Executive.

Appendix 2: List of countries that responded to the survey³⁴

1.	Australia	26.	Malaysia
2.	Belarus	27.	Malta
3.	Belgium	28.	Mauritius
4.	Brazil	29.	Mexico
5.	Canada	30.	Netherlands
6.	Chile	31.	New Zealand
7.	Croatia	32.	Nigeria
8.	Cyprus	33.	Norway
9.	Czech Republic	34.	Peru
10.	Euro area (ECB)	35.	Philippines
11.	Finland	36.	Poland
12.	France	37.	Portugal
13.	Germany	38.	Romania
14.	Hong Kong SAR	39.	Russia
15.	Hungary	40.	Serbia
16.	Iceland	41.	Singapore
17.	India	42.	Slovakia
18.	Indonesia	43.	Slovenia
19.	Ireland	44.	Korea
20.	Israel	45.	Spain
21.	Italy	46.	Switzerland
22.	Japan	47.	Thailand
23.	Latvia	48.	Ukraine
24.	Luxembourg	49.	United Kingdom
25.	Macedonia	50.	United States

³⁴ Six additional central banks reported that they were not in a position to answer the survey, reflecting the absence of TR data collected in their jurisdictions or the low development of their OTC derivatives markets.