

## **Questionnaire on financial market stakeholders' potential interest in the Eurosystem providing EUR central bank money settlement of wholesale transactions in the payments, securities settlement and collateral management domains using new technologies such as Distributed Ledger Technology (DLT)**

### **1. Introduction and background**

The Eurosystem closely monitors market developments regarding the use of innovative technologies in the field of market infrastructures for wholesale payments and securities settlement. The purpose of this questionnaire is to collect market feedback / views on (a) whether European financial market stakeholders would in general be interested in the Eurosystem providing digital central bank money (EUR central bank money) for the settlement of wholesale transactions in euro (e.g. two-leg wholesale Delivery-versus-Payment transactions and Payment-versus-Payment transactions), based on new technologies such as Distributed Ledger Technologies (DLT), (b) what could be the financial market stakeholders' needs / use cases for using such new technologies, (c) what might be the potential merits for financial market stakeholders and for the economy as a whole, if the Eurosystem were to apply such new technologies in the future, and (d) what would in principle be required for making the identified use cases work in the context of the Eurosystem's TARGET Services.

The questionnaire is sent by the Banque de France to a number of financial market industry associations in France. The Banque de France invites each association to share this questionnaire with its individual member institutions in view of seeking their input.

Feedback is expected to be provided by experts of the industry associations and their individual members with knowledge and experience in both the technology and business aspects of the functions involved in financial transactions and financial infrastructures. The terms used in or related to the questionnaire are explained in the glossary appended in the questionnaire.

Responding financial market industry associations are asked to convey a summary view of their constituency / membership and, in addition, to share with the Banque de France individual feedback by their members on the questions below. Respondents may report diverse views from their members, whereby explanations of the reasons behind the different views will be useful. Respondents are asked to indicate if the response(s) or part of it should be treated confidentially.

The Eurosystem will carefully assess respondents' feedback when analysing further what new technologies, like DLT, might be considered at some stage in the future.

Responses are asked by **17 June at the latest** and should be returned to Banque de France, namely to:

- Pierre-Dominique Renard ([pierre-dominique.renard.external@banque-france.fr](mailto:pierre-dominique.renard.external@banque-france.fr)),
- Victorien Goldscheider ([victorien.goldscheider.external@banque-france.fr](mailto:victorien.goldscheider.external@banque-france.fr)) and
- Matthieu Herbeau ([matthieu.herbeau.external@banque-france.fr](mailto:matthieu.herbeau.external@banque-france.fr))

Please, indicate if the response(s) or part of it should be treated confidentially.

In case of questions, please contact Banque de France's team mentioned above:

Answers from "France Payments Forum" (FPF)

## 2. Questions

### A. Identifying and understanding in general, from your financial market stakeholder's point of view, market / industry uptake for the settlement of wholesale transactions that uses new technologies, such as DLT

1. Do you in general expect a significant financial industry uptake regarding the use of new technologies, in particular distributed ledger technologies (DLT), for the purpose of settling wholesale financial transactions? Y/N?

Yes

**It's not only Yes, but also with the higher priority.** Even several years before the issuing of a DLT-based retail CBDC.

For us, a DLT-based wholesale euro CBDC (or *DLT € wCeBM*) must be quickly developed by the ECB for four main reasons:

- 1) It's a major operational answer to Global StableCoins (GSC), that "*may challenge the comprehensiveness and effectiveness of existing regulatory and supervisory oversight*"<sup>1</sup>.
- 2) It's a priority for giving a financial critical mass to a DLT-based CBDC
- 3) It's necessary for organizing the business of DLT-based CBDC insides central banks, commercial banks, and all the financial and banking industry
- 4) And it's necessary for preparing the market to the issuing of a DLT-based retail CBDC

Let's us explain why.

- 1) It's a major answer to GSC: We think that for the short and medium terms, commercial banks are not able to face the issuing of GSC by issuing their own DLT-base (retail or wholesale) commercial bank DC. Because they have launch major changeover projects for digitalization of scriptural (cashless) banking transactions. Then, the only answer in the short and medium terms must come from the issuing of DLT-based Central Bank Digital Currency.

A non DLT-based CBDC would be in frontal competition with all the banking and financial digital projects and will drive to stop or reduce the speed of all these digital projects... Like we have seen with the EPI project: some banks have considered that a probable upcoming launch of a retail CBDC will be in competition with the EPI project and then, they have decided to not participate to the EPI project.

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<sup>1</sup> Cf. [Regulation, Supervision and Oversight of "Global Stablecoin" Arrangements - Financial Stability Board \(fsb.org\)](#)

But not only: A non DLT-based CBDC would not be an answer to GSC, and then, let the market free for the expansion of the GSC in Europe.

- 2) But... It's a priority to begin by the issuing a DLT-based wholesale CBDC for giving a financial critical mass to a DLT-based CBDC.

It's the same issue that for the changeover to euro: the Madrid scenario was based on a first step with large interbank and capital markets transactions in euro, for giving a financial critical mass to euro. If we would like to give to a CBDC a chance to succeed, we need to begin by issuing a wholesale CBDC. And an electronic Central Bank money (like used in Target) is not a digital currency... Or, in other words, only a DLT-based currency is a digital one. And only a DLT-based currency could be an answer to GSC.

It is also of utmost importance that the Eurosystem uses this tool for the money market and the conduct of the monetary policy as it was the case for the event of Euro in 1999.

Without an efficient and large interbank market including the money market for the CBDC, it's impossible for banks and other financial institutions to set up a DLT-based CBDC treasury strategy.

- 3) It's necessary for organizing the business of DLT-based CBDC insides central banks, commercial banks, and all the financial and banking industry

Issuing a new central bank money needs a medium term preparation. Not only inside the central banks, but also in the banking and financial institutions. It's the same that for the launching of euro : the Madrid scenario was decided on December, 1995, three years before the first phase of the transitional period.

The banking and financial institutions must understand the main impacts of this new currency, and to define their own treasury management rules.... They must prepare their teams to this major change. They must be organized. They must develop their processing systems...

By issuing a wholesale CBDC, they will have a market between professionals (and not consumer) users and large amount transactions, using DLT solutions offer a very efficient and effective process, with guaranty of finality.

- 4) And it's necessary for preparing the market to the issuing of a DLT-based retail CBDC.

A DLT-based retail CBDC needs to define a marketing strategy, and to develop electronic processing and consumer interfaces...

It could be a second phase of a European scenario.

**Then, a DLT-based wholesale CBDC must be the first phase of the issuing of a DLT-based retail CBDC.**

2. If "Yes", what might be the key drivers for that? Please elaborate.

DLT and blockchain technology seem really promising as they can either address some pain points in the current businesses for buyers, sellers and financial institutions while opening the ecosystem to new non-traditional players, and support the development of new businesses for which legacy tools would be suboptimal.

It corresponds to a strong trend towards digitalisation in various domains and there is no reason to see the financial world as an exception.

The key drivers are :

- Using of cryptography for securizing the transactions, with bilateral proof, tracking any transaction with immutable and irreversible source of information, offering auditable source of information for KYC compliance, recording and notarising any type of data, sharing master data repositories for common industry information...
- With a previous knowledge of the cost of the transaction,
- And, programming contractual terms and obligations for digital services (“smart contracts”) directly into the blockchain,
- DLT allows for near real-time settlement of transactions, transfer payments across currencies, sharing and varificating of information across the network,
- And, particularly, for the purpose of settling wholesale financial transactions, so for professional (and not consumer) users and large amount transactions, offering a very efficient and effective process, with guaranty of finality thru a 24,7,365 open service, worldwide.

So, the usage of DLT could benefit to the whole market by shortening delays, reducing costs and increasing transparency.

3. What stages and time horizon do you generally anticipate for such uptake to happen? Please elaborate.

It is difficult to assess what would be the time horizon for such uptake; it will likely be different from a business area to another. Nevertheless, the pace of new initiatives using blockchains and DLT is impressive and this illustrates the attractiveness of such solutions. Extrapolating this trend, it might take as little time as three to five years for a significant uptake to happen.

4. In your / your members' view, which type of market segments / assets / financial transactions / participants might be most affected by the use of new technologies, such as DLT? Please elaborate on / substantiate your views and expectations.

Payments will for sure be affected. Since France Payments Forum's focus is mostly dedicated to payments only, it would be more difficult for us to assess the impacts on other market segments.

It seems that the wholesale payments market will be the first and mostly affected one, as the main actors are professional ones, and bankers.

5. In your / your members' view, which part(s) of the financial transaction value chain might be most affected by the use of new technologies, such as DLT? Please distinguish between payments and securities and elaborate on / substantiate your views and expectations.

With respect to payments, domestic payments are rather efficient today and the added value of DLT/blockchains might be not as evident as for wholesale or cross border ones.

For wholesale payments, it will simplify clearing and settlement processes, and offer worldwide (or regional, like for Europe) cross border transactions.

Cash transfers (cross border payments), remittances and PVP (payment versus payment) are the areas where we observe the maximum of inefficiencies. But various private or banking solutions are now developed and implemented like GPI for consumers and B2B payments, and the IXB initiative pilot launched by Swift, EBA-Clearing, and The Clearing House, with contribution of 24 financial institutions, will offer « Immediate Cross Border Payments », and is scheduled to begin soon, may be by the end of this year.

6. If you / your members do not expect a significant financial industry uptake regarding the use of new technologies, in particular distributed ledger technologies (DLT), for the purpose of settling wholesale financial transactions, what could, in your view, be the key challenges and/or impediments and/or barriers for new technologies to take up, and why? Please elaborate on / substantiate your views and expectations.

Up to now, the banking industry is focallized on digitalization payments processes with real time or Instant payments transactions, with a central goal : replacing traditional payment transfers by the new digitalization payments processes, that could become the future “new normal”. And it’s a tremendous challenge.

So it’s difficult in the same time to implement an alternative approach like DLT. The main impediment is economical and industrial.

But, as new challengers would like to enter the market, the banking industry must change its mind, and has to consider DLT solutions. And the best way is to begin by wholesale transactions, as there is only professional actors in this market.

In the same time, there are various obstacles in this way, like the banking regulation, and the need for the final settlement to have a CBDC to finalize transactions.

7. In your / your members´view, would the provision of a dedicated settlement arrangement in EUR central bank money based on new technologies enhance the adoption of new use cases and help expanding implementation efforts by your financial market stakeholder´s?

YES

A wholesale central bank digital money based on DLT technologies will help expanding implementation efforts for wholesale DLT payments by payments stakeholder´s as it offers various advantages, and particularly, a means for the final settlement.

As in the next short term, banks are committed to implement digital and instant payments, a CBDC could be an obvious solution creating expertise teams inside banks, and devlopping the interest for DLT solutions. In the long term, CBDC and commercial bank digital currency could co-exist.

Some new use cases could also be envisaged thanks to smart contracts capabilities and programmability.

- B. Identifying and understanding what is/ might be your / your member’s concrete interest in EUR central bank money settlement of financial transactions that uses new technologies, such as DLT, and what would be your / your members’ concrete and potential new use cases**
8. What are the use cases / transaction types for which you / your members use EUR central bank money for settling the cash leg of financial transactions today? (cash leg of wholesale securities transactions, cash leg of wholesale FX transactions, cash leg of wholesale money market transactions, wholesale

funding transactions / settlement of positions of ancillary large value or retail payment systems, settlement of wholesale clean payments, margin calls, etc.).

NA

9. What are the use cases for which you / your members do not use EUR central bank money for settling the cash leg of financial transactions today? Why is this so? Please elaborate.

NA

10. If you / your members use settlement assets other than EUR central bank money for settling the cash leg of financial transactions today, what is your / your members' concrete level of interest in / need for settling these transactions in EUR central bank money at some point in the future? Please elaborate on / substantiate your interest/need.

We anticipate the rise of several initiatives around stablecoins as a mean for settling operations. Recent turmoils on some stablecoins highlighted the risks attached to such kind of assets and it reinforces the need for market participants to benefit from a wholesale CBDC.

But, as already explained, a CBDC is a short term solution in front of private global stablecoins that will try to capture the wholesale market. And a long term solution, for finalizing the wholesale DLT transactions.

11. What is your / your members' concrete interest in / need for using new technologies for the settlement of your financial transactions in EUR central bank money? Do you distinguish between short-, medium- and long-term interest/need? Please elaborate on / substantiate your interest/needs

There are still difficulties / pain points in cross border payments, especially for currencies not eligible to CLS. Furthermore, forex markets are facing some discrepancies in terms of calendar; operations can remain "frozen" sometimes for a couple of days when some markets are open and others closed. It introduces additional market risks since prices can vary during this period.

Besides, the notion of atomic settlement which seems to be one of the "promises" of new technologies would remove counterparty and credit risks aspects. Reconciliations would also be easier.

But the main issue is the challenge in this market by new global actors, and the need for banks to find a solution for offering wholesale DLT transactions, and a wholesale CBDC will be a short term very efficient answer. In the long term, a wholesale CBDC offer a solution for finalizing end-to-end wholesale DLT transactions, and for cross border ones, a solution if it's possible to organize interoperability between various national CBDC.

12. What concrete and potential new use cases do you / your members perceive / expect emerging for EUR central bank money settlement due to market developments, in particular due to the potential uptake of the use of new technologies, such as DLT, in and by the market? Please, list these use cases and elaborate on them

Provided that a proper governance is put in place with respect to the DLT or DLTs used, Forex operations could be performed by exchanging PvP CBDC tokens (euro CBDC vs. foreign currency CBDC). Operations would be available on a 24/7 basis, thus avoiding market slippage impacts.

Some added value mechanisms, derived from the DeFi, could be implemented as well, such as the Automated Market Makers fuelled by Liquidity Pools.

13. Based on the concrete and potential new use cases you / your members expect emerging for EUR central bank money settlement that uses new technologies/ DLT, would you / your members expect such new use cases to emerge independently of each other in different parts of the financial value chain (e.g. different solutions / DLT platforms for trading than for settlement) OR would you expect such use cases to rely on the same integrated infrastructure (e.g. trading, reconciliation / matching, clearing and settlement via a single DLT platform or protocol)?

DLT platforms principal advantages are twofolds: (a) their coverage in terms of functionalities, thanks to programmability of smart contracts which is native, and (b) the possibility given to their participants to easily reconcile trades & positions with their counterparts.

Internal reconciliations imply that such new technology is fully embedded in participants information systems, and then, this second possibility has to prevail, and to be mainly researched.

It is the reason why it could take some time for well established financial market participants but it should be easier for new comers.

14. If you / your member consider using new technologies such as DLT for the settlement of financial transactions at some stage in the future, would you consider using other settlement assets (e.g. stable coins or commercial bank money) for the cash leg in the absence of an appropriate dedicated settlement arrangement in EUR central bank money?

Yes

If there is no alternative to private or Bigt techs solutions, by a CBDC, the banks will have two solutions and they will use them :

- In the short term, trying to use global stablecoins, for offering a banking DLT service,
- And, in the long term, trying to develop their own commercial bank digital money

15. What market developments would make you / your members consider using a dedicated settlement arrangement in EUR central bank money based on new technologies for the settlement of financial transactions at some point in the future that are not settled in EUR central bank money today? Please elaborate.

- C. If there is no alternative to stable coins, the banks couldn't be without any DLT solution for their Companies customers, and then will have no other solution that to adopt existing global stable coins identifying and understanding, from your financial market stakeholder's point of view, the possible merits and potential challenges of using new technologies, such as DLT, for EUR central bank money settlement of existing and potential new use cases (as identified in B.) at some point in the future**

16. In your / your members' view, what might be the potential / possible benefits for (a) financial market stakeholders; and (b) the economy as a whole of using new technologies, such as DLT, for EUR central bank money settlement for existing and potential new use cases? If your / your members' answers differ depending on the use case, please elaborate on / substantiate your answers accordingly.

The main benefits of using DLT solutions are explained above (Cf. §2.) : for the purpose of settling wholesale financial transactions, so for professional (and not consumer) users and large amount transactions, using DLT solutions offer a very efficient and effective process, with guaranty of finality thru a 24,7,365 open service, worldwide.

17. In your / your members' view, what might be the potential / possible challenges resulting from the use of new technologies, such as DLT, for EUR central bank money settlement for existing and potential new use cases? For example, what might be the challenges for the overall functioning of financial markets, liquidity management, financial market integration/harmonisation/standardisation, efficiency, others, if both DLT- and non-DLT based solutions were used at the same time? If your / your members' answers differ depending on the use case, please elaborate on / substantiate your answers accordingly.

There will be three main challenges :

- A destabilization of the banking industry resulting from the bank inability to face in the same time the existing non DLT and the new one DLT solution, and to define some decisions rules for each use cases for choosing which solution will be appropriate
- The shutdown of the main banking project about digitalization and use of Instant Payment as a new normal
- The development of alternative solutions, like private global stablecoins, and the banking choice to use primarily these alternative solutions

18. In your / your members' view, would you / your members think that it is possible (might not be possible) to achieve these benefits / overcome potential challenges with the architecture of the existing EUR central bank money ecosystem (TARGET Services and applicable interfaces) in the long term? Please, elaborate on / substantiate your views and expectations.

NO, it seems not be possible to overcome these challenges by the architecture of the existing TARGET Services in the long term...

The only way will be in the nearest contribution of banks for defining how to organize the new DLT solution, and then the confidence they will have in the new DLT ecosystem.

And, it needs enough time for adaptating the banking payments process. It needs a scenrio for this evolution, for organizing the co-existing of the two DLT and non DLT ecosystems.

**D. Identifying and understanding, from your financial market stakeholder's point of view, the potential impact on the existing TARGET Services and other consequences ,if new technologies, such as DLT, were used for the EUR central bank money settlement of existing and potential new use cases (as identified in B.) at some point in the future**

19. In your / your members' view, what might be the potential impact (policy, operational, legal) on the existing ecosystem of EUR central bank money settlement (i.e. the way stakeholders today settle in EUR central bank money) , if new technologies, such as DLT, were used for the EUR central bank money settlement in the concrete existing and potential new use cases at some point in the future? Please, elaborate on / substantiate your views and expectations..

It's difficult to list allthe potential impacts fo the environment change.

20. ECB has to define clearly when or for which uses cases the bankers have to use DLT solutions and non DLT solutions, and that for different steps of the change process. In your / your members' view, which existing and potential new use cases for EUR central bank money settlement of financial transactions might in the short- to medium-term benefit from using new technologies together with the existing TARGET Services, i.e. from using both the existing TARGET Services and a DLT-based mechanism that is connected to TARGET Services ('trigger solution')?



To answer this question, the main way is to define a scenario for the change process, with the new DLT use cases at each step, and it will be possible after to define the means for facing the potential impact (policy, operational, legal) of these new use cases.

The trigger solution will not offer any answer to the main challenges that will occur with DLT based solutions

Last but not least, the trigger solution would be counterproductive for a massive adoption of the reuse of CBDC in all market segments, especially to avoid fragmentation and liquidity pockets not reusable without a “pivot” in Target2 that will bring complexity and viscosity.

21. In your / your members’ view, what interface(s) would be required / warranted to enable a ‘trigger solution’ for the transfer of assets or processing of smart contracts in a DLT system to trigger the corresponding payment transaction in EUR central bank money in TARGET Services? If you / your members think that these interfaces would (need to) be different from the ones used for TARGET Services today, why do you / your members think so? Please, elaborate on / substantiate your views and expectations. If your / your members’ answers differ depending on the use case, please elaborate on / substantiate accordingly.
22. Forget the Trigger solution, as it’s unable to answer the main issues of the change process. In your / your members’ view, for which existing and potential new use cases do you believe EUR central bank money settlement of financial transactions might benefit from a full DLT solution (*DLT € wCeBM, i.e. central bank money* made available as a native digital asset, i.e. in the form of a ‘DLT token’), at some point in the future?

All other major Central Banks (ie Fed, BoE, PBoC, BoJ etc.) have publicly stated their exploration of DLT based solution involving some form of CeBM tokenisation. From a user standpoint and if their exploration confirms an interest, we would be in favor of a form of standard of CeBM token.

In that regard, a DLT-based CBDC would fit in that standard. It could also allow for advanced features such as programmable money and payments through smart contracts.

All the new use cases need to have their own full DLT solution, i.e. a solution that is able to provide what we call a DLT-based wholesale CBDC in this answer.

23. In your / your members’ view, would you think that a ‘trigger solution’ might bring the same benefits as a full DLT solution (*DLT € wCeBM, i.e. central bank money* made available as a native digital asset, i.e. in the form of a ‘DLT token’) in the medium-to-long-run? Please, elaborate on / substantiate your views.

As stated in our previous answer, if major Central Banks (ie Fed, BoE, PBoC, BoJ etc.) are exploring DLT based solution involving some form of CeBM tokenisation, a trigger solution would not fit in the above standard and would lead to technical and operational fragmentation.

We have reasons to believe that the “trigger solution” is eventually fit for the purpose of settling securities transactions but we do not see how it would support high volumes of intraday payments.

And, it will be not effective for developing DLT know-how in the banking industry, and an European cryptopayment industry.

### 3. Glossary of key concepts used in or related to this questionnaire:

**Central bank money:** a liability of a central bank that can be used for settlement purposes as a safe settlement asset that avoids credit and liquidity risks. Central bank money may be made available in a digital form such as account balances held at a central bank or relying on new technologies such as DLT

**Digital central bank money for wholesale settlement relying on new technologies, such as distributed ledger technology (DLT):** digital central bank money made available for wholesale settlement in the form of a native digital asset (*DLT € wCeBM*) or otherwise made available for wholesale settlement relying on new technologies, such as DLT (including via a trigger solution).

**Distributed Ledgers:** Distributed ledgers use independent computers (referred to as nodes) to record, share and synchronize transactions in their respective electronic ledgers (instead of keeping data centralized as in a traditional ledger). Blockchain is one type of a distributed ledger. Blockchain organises data into blocks, which are chained together in an append only mode.<sup>2</sup>

**Distributed Ledger Technology (DLT)<sup>3</sup>:** Technology based on distributed ledgers and used for recording ownership of data (e.g. data regarding payments or securities settlement)

**Native digital asset:** a digital asset that is originally issued, recorded and kept in a DLT-based system

**Programmability:** the ability to automate processes by pre-programming actions to be taken if a specific event occurs<sup>4</sup>

**Smart contract:** an algorithm coded to automatically execute actions in a DLT environment when a set of conditions is met<sup>5</sup>

**Tokenised asset:** a digital representation in a DLT-based system of an asset, that is already available elsewhere<sup>6</sup>

**Trigger solution:** a solution that enables the settlement of the cash leg of DLT-based wholesale financial transactions (e.g. transfer of assets or the processing of smart contracts for financial transactions in a DLT system) by triggering the corresponding payment for settlement in a non-DLT payment system (such as the current TARGET Services).

**Full DLT solution / *DLT € wCeBM*:** DLT-based service that enables the settlement of the cash leg of wholesale transactions via digital central bank money made available as a native digital asset, i.e. in the form of a 'DLT token' (*DLT € wCeBM*).

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<sup>2</sup> <https://www.worldbank.org/en/topic/financialsector/brief/blockchain-dlt>

<sup>3</sup> [https://www.ecb.europa.eu/ecb/educational/explainers/tell-me-more/html/distributed\\_ledger\\_technology.en.html](https://www.ecb.europa.eu/ecb/educational/explainers/tell-me-more/html/distributed_ledger_technology.en.html)

<sup>4</sup> See: CPMI, 'Wholesale digital tokens', December 2019 (<https://www.bis.org/cpmi/publ/d190.pdf>).

<sup>5</sup> See: Advisory Groups on Market Infrastructures for Securities and Collateral and for Payments, 'The use of DLT in post-trade processes', April 2021 ([https://www.ecb.europa.eu/pub/pdf/other/ecb.20210412\\_useofdltposttradeprocesses~958e3af1c8.en.pdf](https://www.ecb.europa.eu/pub/pdf/other/ecb.20210412_useofdltposttradeprocesses~958e3af1c8.en.pdf)); D. Bullmann, J. Klemm and A. Pinna, 'In search for stability in crypto-assets: are stablecoins the solution?', ECB Occasional Paper no. 230, August 2019; M. Bech, J. Hancock, 'On the future of securities settlement', BIS Quarterly Review March 2020 ([https://www.bis.org/publ/qtrpdf/r\\_qt2003i.pdf](https://www.bis.org/publ/qtrpdf/r_qt2003i.pdf))

<sup>6</sup> Reference for the definitions of native digital asset and tokenised asset: Advisory Groups on Market Infrastructures for Securities and Collateral and for Payments, 'The use of DLT in post-trade processes', April 2021 ([https://www.ecb.europa.eu/pub/pdf/other/ecb.20210412\\_useofdltposttradeprocesses~958e3af1c8.en.pdf](https://www.ecb.europa.eu/pub/pdf/other/ecb.20210412_useofdltposttradeprocesses~958e3af1c8.en.pdf))